

Trends in Service Design and New Models of Care

A Review

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Foreword: Minister of Health

The Government wants our public health service to deliver better, sooner, more convenient care for all New Zealanders. We want reduced waiting times, better individual experiences for patients and their families, improved quality and performance, and a more trusted and motivated health workforce.

We are working to achieve these goals in the context of a number of pressures on the health system that are predicted to intensify in the future. The impact of these pressures and the emergence of innovative health system responses are already evident in New Zealand. There is however more that we need to do in order to ensure that we can continue to deliver efficient, high-quality care now and in the future.

This report *Trends in Service Design and New Models of Care* prepared by the National Health Board provides a high-level overview of how pressures on health systems worldwide are influencing the current and future configuration of health services. The report does not represent Government policy, but instead outlines the ways in which health systems internationally are considering their responses to the challenges they face.

The report emphasises the shifts within health systems as a whole, rather than its constituent parts. It does not cover detailed issues relating to particular service areas, but instead provides a high-level analysis of emerging trends across health systems.

There is already significant preparation for this challenging future underway across New Zealand's public health service at district, regional and national levels in the context of:

- long term service planning;
- redistribution of decision-making across national, regional and district levels;
- the development of clinical networks, and strengthening of clinical leadership;
- Better, Sooner, More Convenient primary health care;
- workforce planning and development;
- information systems planning and development; and
- asset management planning and capital business case development.

This report provides a topical and useful resource to inform discussion amongst all people with an interest in the future direction of our health and disability service.

The Government is committed to working with the sector to address the challenges that we face. We recognise that this is a time of major change, but it is also a time of opportunity and innovation.

Hon Tony Ryall
Minister of Health

Executive Summary

Health systems worldwide, including New Zealand, currently face a number of pressures that are predicted to intensify in the future. Issues in New Zealand include:

- a growing and ageing population, increasing ethnic diversity, and population redistribution across districts
- growth in the incidence and impact of chronic conditions, and consequent greater demand for health services
- the persistence of health inequalities
- worsening workforce shortages
- inconsistencies across District Health Boards (DHBs) in terms of performance, patient access, planning, and the existence of a long-term, system-wide view
- opportunities and challenges arising from the development of new diagnostic and treatment technologies
- unaffordable, exponential increase in health care expenditure
- funding constraints, exacerbated by the current global fiscal crisis.

This report describes the way in which health systems in New Zealand and internationally are responding to these pressures through the redesign of service delivery. It provides a resource to assist planners of health services to identify and replicate successful models in order to meet New Zealand's future health needs.

The New Zealand health and disability system has already begun making some use of new models of care and implementing service configuration changes. Further consideration will be required of how new models of care, service configuration changes and new health interventions can be successfully implemented, with specific reference to local and regional circumstances (such as disease prevalence, demographic profile, and workforce availability). Clinical effectiveness and cost-benefit analysis will be essential parts of the evaluation.

Current trends worldwide include:

- emphasis on home-based delivery of services as an effective way to address workforce constraints and health inequalities, with the assumption that this emphasis will also help address cost pressures;
- better integrated community-based services and the development of integrated family health centres are being progressed to strengthen the primary health care sector to improve patient access, support improved health outcomes, make the best use of the available workforce, make use of multidisciplinary teamwork to co-ordinate care delivery, improve access to specialist diagnostic testing, and to deliver some traditionally based secondary services;
- secondary hospitals are focusing on enhancing core clinically viable services and increasing their reliance on broader partnerships with larger neighbouring hospitals in metropolitan areas, to address workforce and quality pressures.

Overview

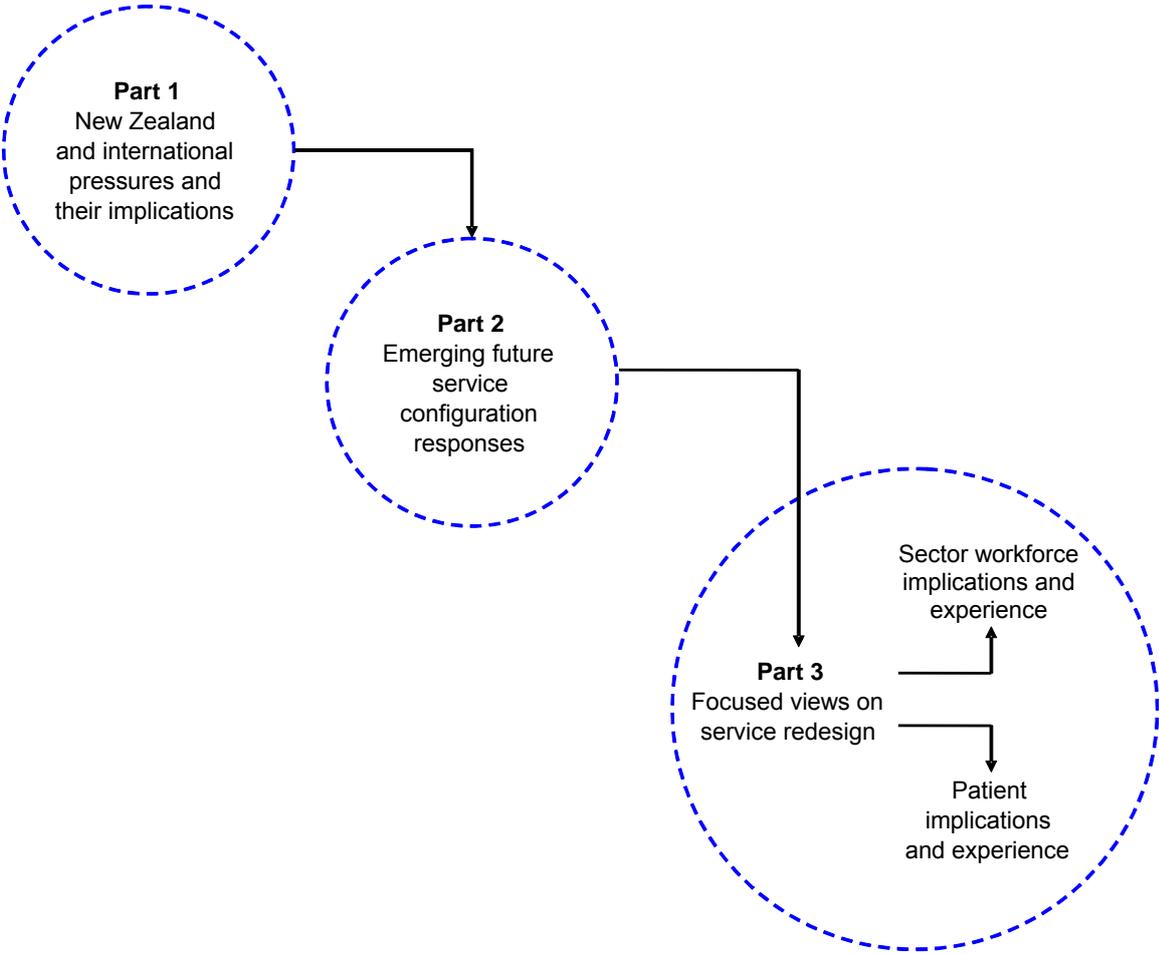
Scope: From pressures to service configuration trends

This report provides a high-level overview of how pressures on health systems worldwide are influencing current and future design and configuration of health services.

The report identifies and summarises key trends in order to inform discussion and planning. It emphasises the shifts within the health system as a whole, rather than its constituent parts. This analysis does not cover detailed issues relating to particular service areas.

This report is based on a meta-summary of local and international trends drawn from the literature and from international observations (see bibliography & references on pages 28-29). It focuses particularly on the varying perspectives and needs of patients, the health sector workforce and the public in general.

Figure 1: Document overview



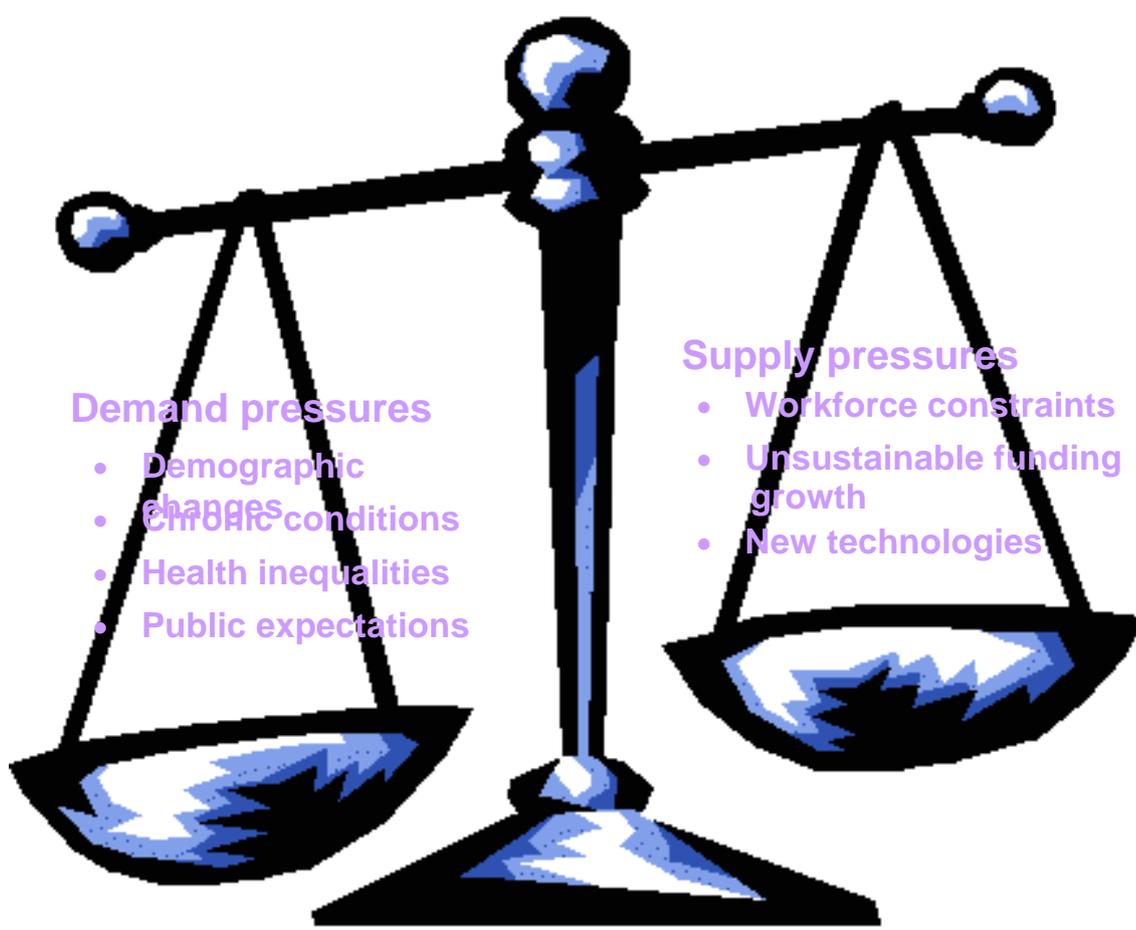
Part 1 – Health Sector Pressures, Challenges and Implications

Major long-term systemic pressures are shaping the way health services will be delivered in the future. The impact of these pressures and the emergence of innovative health system responses are already evident worldwide.

The New Zealand health system's continuing efficiency and sustainability will depend on how well it anticipates and responds to these pressures; that is, how effectively it redesigns its services and structures in order to continue to deliver efficient, high-quality care.

Figure 2 summarises the key demand and supply pressures that are facing the health system in New Zealand and internationally.

Figure 2: Summary of health system demand and supply pressures

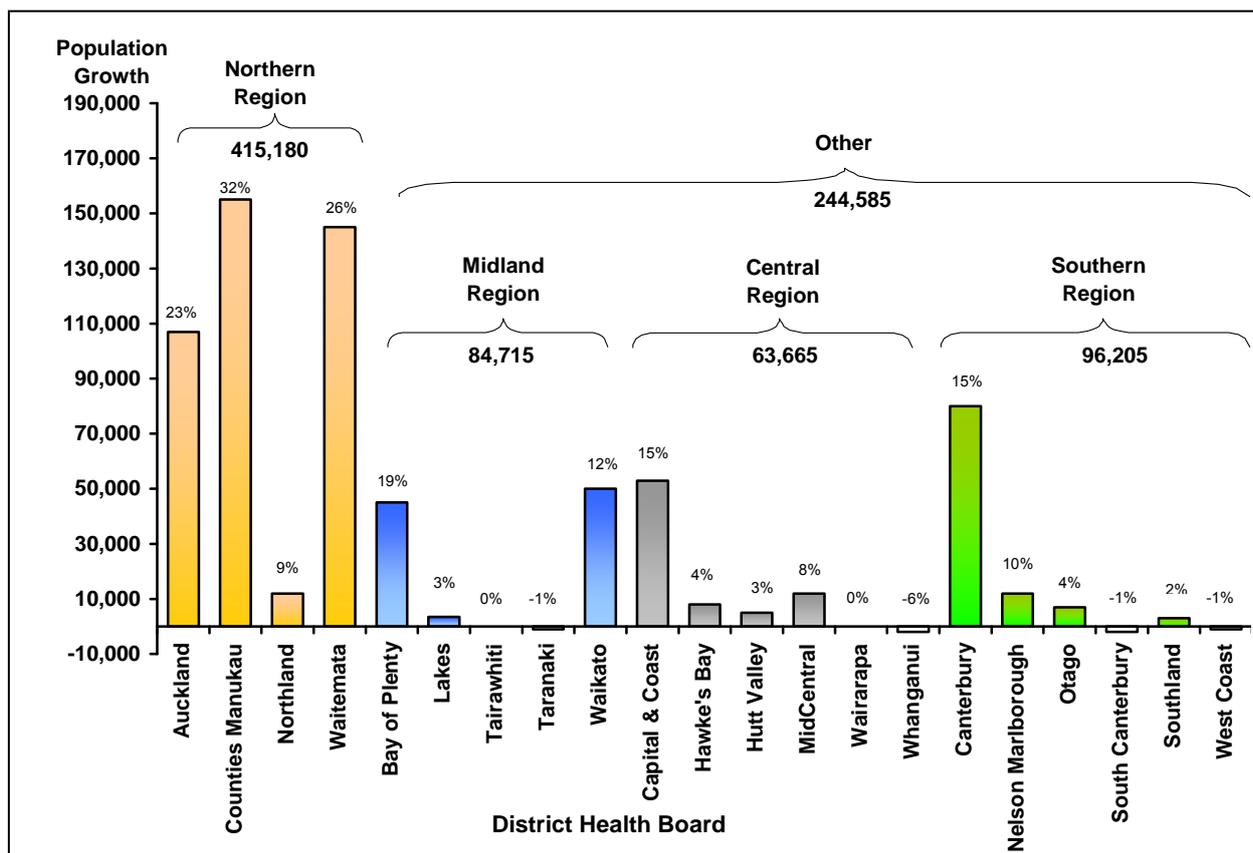


Pressure 1: New Zealand's population is changing

Population growth, diversity and redistribution are creating a variety of pressures across New Zealand.

Figure 3 shows that New Zealand's population growth to 2026 will be concentrated in urban centres, particularly metropolitan Auckland. There will be much less growth in smaller centres and rural areas, and in some of these populations will decline. The implications of population growth and redistribution are summarised in Table 1.

Figure 3: Projected changes in New Zealand's population 2009–2026 by DHB/Region



Ethnic diversity will increase in the future, particularly in urban areas. Non-Europeans¹, who made up 23 percent of New Zealand's population in 2006, will comprise 31 percent of the total NZ population by 2026.

The Māori, Asian and Pacific populations will all increase their share of the New Zealand population over this period because of their higher growth rates². The Māori population will make up 16.6 percent of the New Zealand population by 2026 compared with 14.9 percent in 2006. The Asian population will make up 16 percent of the New Zealand population by 2026 compared with 9.7 percent in 2006. The Pacific population will make up 9.8 percent of the New Zealand population by 2026 compared with 7.2 percent in 2006.

¹ Non-Europeans here are defined as those identifying as being of Māori, Asian, or Pacific ethnicities with or without other ethnic affiliations.

² The population shares described are all based on series 6 of the national ethnic population projections (medium assumptions) compared with series 5 (medium assumptions) of the national population projections.

The increase in the Māori and Pacific population shares is mainly driven by higher birth rates and natural increase. The increase in the Asian population share is largely driven by the assumed levels of net migration, with a net inflow of about 240,000 migrants assumed over the 20-year period.

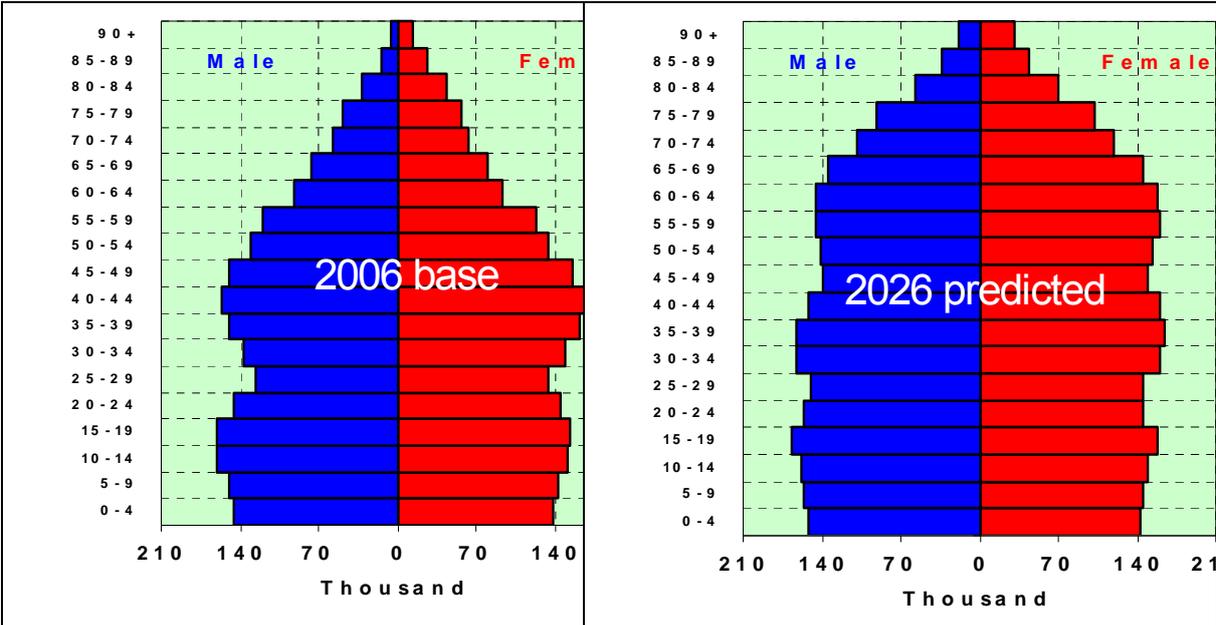
Table 1: Implications of population growth and redistribution

Change pressures	Implications
Urban growth	Requirement for ongoing investment in services, workforce and facility development in urban areas, particularly metropolitan Auckland.
Provincial and rural decline	Increasing pressures on service viability and quality in these areas due to declining patient volumes and workforce supply.
Increasing ethnic diversity	Demand for greater flexibility and a range of culturally responsive services, and for workforce recruitment strategies with a particular focus on Māori and Pacific peoples (whose growing populations are relatively younger).
Evolving family/home structure	Decreased access to informal care and increased demand for support services (largely community-based).

New Zealand’s family/home structure is also changing, with a greater proportion of solo parents and of elderly people living alone. New Zealand’s population is ageing, as the result of a combination of rising life expectancy and lower birth rates. Between 2006 and 2026, New Zealand’s population is forecast to grow by 0.8 percent a year, from 4.2 million to 4.9 million. The over-65 age group will grow from 13 percent to 19 percent of the population.

Figure 4 shows the predicted shift in the population age structure between 2006 and 2026 in the form of population age pyramids. In 2006 those aged under 65 outnumber those over 65 by about 7:1, with this moving to a predicted ratio of 4:1 in 2026.

Figure 4: New Zealand population projection by age band, 2006–2026



Source: Statistics New Zealand projections, 2008 based on 2006 census figures.

The number of people aged over 85 will increase from 58,000 in 2006 to 127,000 in 2026. Many areas, particularly smaller towns and rural localities, will see a faster shift in their age composition, including a decrease in the number of young people. The implications of population ageing are summarised in Table 2.

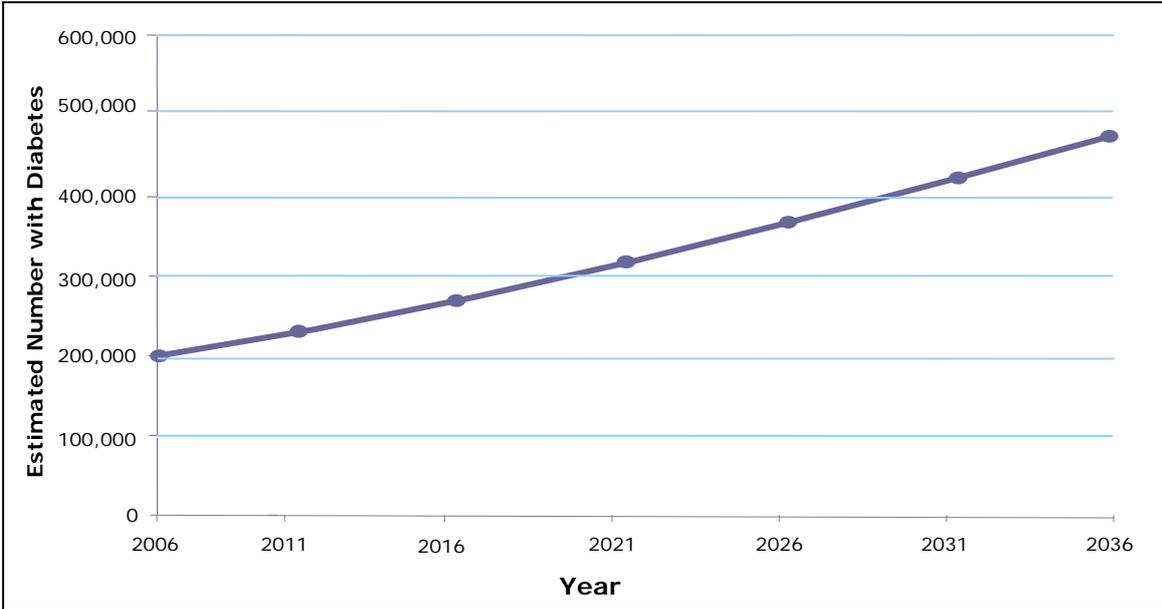
Table 2: Implications of an ageing population

Change pressures	Implications
An ageing population	The likely impact on overall demand is unclear (as people will be healthier at older ages), but the nature of required services is likely to shift toward an emphasis on long-term conditions and associated support services, and toward increased complexity (for example, patients will tend to have more co-morbidities, requiring longer lengths of stay in hospital and more complex procedures).
An ageing population amongst Māori, Pacific and other non-Europeans	Increased demand for more culturally responsive support services.
Large variances in the distribution of ageing	Workforce shortages and pressures to shift the local focus of health and support services from young to old.
Labour shortages as the workforce ages, especially in rural areas	Requirement for new models of care, new roles for health professionals, more effective use of available health professionals' capacity, and promotion of health careers to the next generation.

Pressure 2: The number of people with chronic conditions is increasing

A growing proportion of the population, particularly amongst adults, is living with chronic conditions (for example, diabetes, heart disease or chronic respiratory disease). Figure 5 shows that the number of New Zealanders with type 2 diabetes is predicted to double by 2028 to almost 10 percent of the adult population. The rise of diseases of long duration and slow progression is largely attributable to changes in people’s lifestyles and behaviours within society in general.

Figure 5: Projected increases in type 2 diabetes, 2006–2036



Source: Tobias M. 2008. *Diabetes Policy Model*. Presentation to Ministry of Health.

The implications of the rising burden of chronic conditions on the health system are outlined in Table 3.

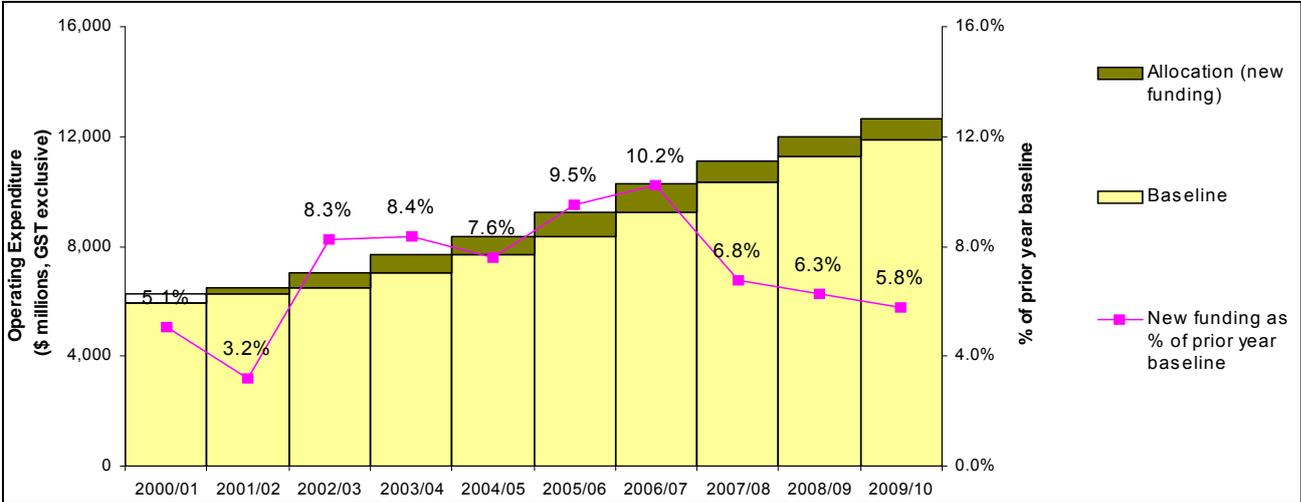
Table 3: Implications of the increasing burden of chronic conditions

Change pressures	Implications
Significant growth in the number of patients living with chronic conditions	Acute services will increasingly accommodate patients whose needs are more 'complicated' (for example, diabetic mothers). New care models focus on managing conditions and preventing acute exacerbations through the use of more proactively planned care in a primary/community-based setting and the promotion of patient or whānau-led care. Increased demand and the implementation of new care models will impact workforce availability, the effective use of health practitioner skill sets, and investment in information technology and primary/community-based infrastructures.
Increased incidence of multiple complex symptoms and co-morbidities	Care is likely to require greater use of interconnected multi-disciplinary teams. Providers will need to co-ordinate services and communicate with each other more efficiently.
Greater prevalence of chronic conditions linked to lifestyle choices such as smoking, unhealthy nutritional habits and lack of physical activity	Governments will need to decide on the appropriate level of investment to make in terms of interventions to help prevent the onset and progression of these conditions and in the promotion of healthier lifestyles.
Proliferation of consumer information	Patients and consumers will have greater opportunities to develop a better understanding of their chronic conditions and to take a more active role in managing their own care.

Pressure 3: The rate of funding growth is becoming unsustainable

Vote Health expenditure has almost doubled since 2000, and cost growth has consistently tracked higher than inflation. Given likely rates of nominal Gross Domestic Product (GDP) growth, maintaining this rate of growth in annual health spending would require the Government to devote an ever larger proportion of national income to health and an ever smaller amount to other expenditure areas. This is unlikely.

Figure 6: Vote Health: New funding as a percentage of total operating expenditure



The implications for health and disability service expenditure resulting from an ageing population, rising costs to due increased demand for services, advances in new technologies and health workforce globalisation are outlined in Table 4.

Table 4: Implications of health system pressures for health expenditure

Change pressures	Implications
Ageing population	Current funding will need to increase, or to be redistributed between appropriate service areas. Nearly 50 percent of health care expenditure is forecast to be required for the care of those aged 65 and over by 2028, compared with 37 percent in 2006.
New technologies and models of care	Clinicians and the public will expect access to new technologies. This will require new funding or robust prioritisation processes (including disinvestment decisions), or current services may need to be reconfigured. Members of the public may increasingly look to the private sector to provide new services if they are not widely available publicly. Although new services and models of care may be more efficient, their introduction usually requires upfront investment in infrastructure and development.
Global 'commoditisation' of health workers	Health systems internationally compete for health workers, placing increased pressure on individual organisations to offer competitive wages and driving management bodies to consider alternative approaches in their use of technology and the make-up of their workforce, to make the most efficient use of their resources.
After a recent period of increased funding, a decrease in rate of growth	The health system will increasingly need to: <ul style="list-style-type: none"> • find better ways of prioritising resources and providing care to those who need it most • increase efficiencies within existing services (rather than developing new services via new investment) • redistribute existing funding • find ways to leverage resources and staff with other sectors (potentially including the private sector).

Pressure 4: Substantial inequalities in health status persist

The benefits of improved health are not shared equitably across population groups. Good health relies on socio-economic factors as well as targeted health services. Commentators observing the current distribution pattern of unhealthy lifestyles causing health problems (particularly obesity), and broader socio-economic changes affecting health (such as the recessionary impacts on employment), suggest that a 'second wave' of inequalities (widening disparities between particular sections of the population in terms of their health) may develop.

Currently the most obvious sign of health inequality is difference in life expectancy. A Māori person can expect to live 7½ years less than a non-Māori person, while a Pacific Islander can expect to live 5 years less. A woman living in the most deprived fifth of New Zealand's socio-economic areas (New Zealand Index of Social Deprivation)³ will

³ The New Zealand Index of Social Deprivation provides a graduated scale of deprivation based on a number of variables, using statistics provided by Statistics New Zealand. 1 represents the areas with the lowest socioeconomic deprivation scores and 10 those with the highest. Variables include

live 4½ years less than a woman in the least deprived fifth, and the difference between the same two sectors among men is 6½ years.

Behaviours that increase the risk of poor health are also factors in inequality, as Table 5 shows.

Table 5: Adult health behaviours/disease prevalence by deprivation group

Indicator	1 (least deprived)	2	3	4	5 (most deprived)
Poor nutrition (lack of three or more servings of vegetables per day)	*				**
Hazardous drinking					**
Smoking	*	*		**	**
Obesity (all classes)	*	*	*		**
Ischaemic heart disease (adults)	*				**
Diabetes	*				**

Source: Ministry of Health. 2008. A Portrait of Health. Key results of the 2006/07 New Zealand Health Survey.

Note: The cells marked with '*' indicate population groups that have better health indicators than the national average, while the cells marked with '**' indicate those groups with worse health indicators.

The implications of health inequalities are outlined in Table 6.

Table 6: Implications of health inequalities

Change pressures	Implications
Continuing inequities in health status, with the potential for disparities to worsen	<p>The health system will require processes to:</p> <ul style="list-style-type: none"> • identify the most appropriate resource distribution both within the health sector and across government • effectively and appropriately design services • maintain an appropriate skill set within its workforce, and ensure a focus on cultural responsiveness.
Long-term and inter-generational inequalities	<p>Long-term planning and commitment will be required, reflecting the current international emphasis on 'joined-up' government approaches across sectors (for example, housing, education, social services and urban design). Improved access to all levels of health services from prevention to cure should be a priority.</p>

income, home ownership, family support, employment, qualifications, living space, communication and transport.

Pressure 5: Health system workforce shortages are worsening

Workforce shortages, particularly in rural and provincial areas, are a key threat to the health system's ability to provide a full range of accessible, high-quality health services.

Table 7 below outlines projected supply and demand for health professionals. The data indicates that by 2021 there will be a 24 percent shortfall in the health workforce required to meet demand. While increasing the size of the workforce is necessary, it will not be possible to produce enough health practitioners fast enough to meet demand. Providers will need to implement new ways of delivering their services that will reduce the burden on health workers.

Table 7: Projected demand for registered health professionals in New Zealand versus supply*

	Numbers of workers			% changes		
	2001	2011	2021	2001–2011	2011–2021	2001–2021
Projected demand	66,989	80,432	98,519	20	22	47
Projected supply*	66,989	72,244	75,052	8	4	12
Possible shortfall	0	8,188	23,467	–	–	–

Note: These projections are for the regulated workforce only.

*: Projected supply if the health and disability sector maintains its 2001 share of the working age population.

Source: New Zealand Institute of Economic Research. 2004.

The implications of workforce pressures and issues are outlined in Table 8.

Table 8: Implications of workforce pressures

Change pressures	Implications
<p>Scarcity of registered health professionals as a result of:</p> <ul style="list-style-type: none"> international demand an ageing workforce <p>Decreased hours/availability as a result of:</p> <ul style="list-style-type: none"> regulated maximum working hours changing lifestyle preferences favouring reduced working hours 	<p>The health system will need to make better use of resources available and look for alternatives such as:</p> <ul style="list-style-type: none"> an investment in technology to support new ways of working, such as telemedicine regional and national collaboration to support and mentor less skilled staff employment of supervised but unregulated staff making greater use of patients' own personal resources; for example, self-management, expert/lay support and whānau/family care.
Scarcity of support from informal carers for increasing proportions of solo parents and elderly living alone	Alternative support networks [for example, with the assistance of non-governmental organisations (NGOs) or making use of new technologies] need to be created or developed.
Super-specialisation of some medical professionals	The pool of generalist professionals in primary and secondary care will become even smaller, at a time when demand for general skills are increasing, given the higher rates of people with multiple conditions and the need to maintain 24-hour services in provincial areas. Training, professional programmes and staff development will be affected.
Rural workforce shortages and an uneven distribution of certain professions (for example, general practitioners)	Providers will need to consider a reconfiguration or clustering of services to provide ongoing access to scarce skill sets. Investment in telemedicine, information technology and cross-organisational arrangements will be required.

Pressure 6: Multiple new technologies are being developed

Accelerating change across multiple technologies is driving positive change in health system capability, cost increases and efficiencies. In the last 60 years, medical technology has advanced in ways unimaginable to previous generations. Technological advances have expanded the capabilities of medical care, but they have also been a key cause of rising health system costs.

The implications of advances in technology for the health system are outlined in Table 9.

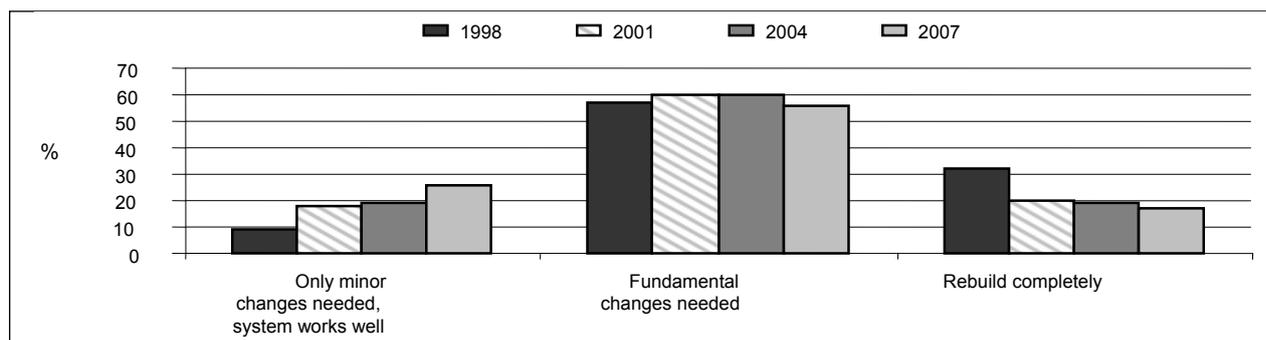
Table 9: Implications of advances in technology

Change pressures	Implications
Ongoing introduction of new diagnostic tools/tests and new therapeutics	Initial and ongoing costs are often high. Some of these new initiatives are necessary to support strategic policies; for example, assistive technologies to help older people remain in their own homes longer. Improved process for evaluation of new technologies for safety and cost/benefit will be required.
More accessible information for patients and clinicians	The way patients access information and advice will change (for example, electronic communications and the Internet will become more common), as will the way health workers access information on their patients across multiple care settings (for example, information access will become more mobile).
Increased communication options and speed for patients and clinicians	The ways health workers and patients communicate with each other within and across organisations are likely to change, particularly with the increasing use of secure electronic interactions (voice, video or email).
Continued exponential growth in research and knowledge	There will be an ongoing need for guidelines and decision support for clinicians to assist the assimilation of research into practice.
Increased understanding of need and service impacts	Analysis of statistics and other health information will be necessary in order to identify those people most at need and to support quality improvement and research.

Pressure 7: Public expectations are increasing

Statistics show that New Zealanders are seeking increasingly personalised health care services and increased access to health care services. Between 1998 and 2007, over 50 percent of all New Zealanders consistently considered fundamental changes were needed to improve the New Zealand health system, as Figure 7 shows.

Figure 7: New Zealanders' views of the health care system 1998–2007



Source: Commonwealth Fund International Health Policy Surveys 1998, 2001, 2004, 2007.

People are taking a more active interest in their health, are better informed about their own conditions and are more aware of the options for treatment than in the past. The implications of rising public expectations are outlined in Table 10.

Table 10: Implications of rising public expectations

Change pressures	Implications
Patients will be better informed through better education and information (for example, through the Internet)	Patients will have higher expectations of health professionals and may be less deferential to them. They will be better placed to take more of a lead in their own care. Growth in complementary and alternative medicines may increase as people are exposed to multiple perspectives on health.
Ongoing expectations of highly personalised care services and extensive choices	The health system must be able to strike a balance between the needs of the individual and the needs of the broader population, and be equipped to provide more culturally responsive interactions and interventions.
Availability of new technologies	There are likely to be increasing disparities between publicly funded services and those funded by private insurance or directly by patients, in which expensive new technologies are more likely to be available. This will especially apply as people become more affluent (generally, health care expenditure growth correlates with increases in gross domestic product – as New Zealand gets richer it will demand more health services).
Ongoing expectations of 'health' as a civil right	Health is likely to remain high on any political agenda, especially as people's expectations grow in correlation with their increased wealth. Civil rights and the distribution of health in particular are a perennial issue for Māori, Pacific peoples and other less advantaged populations. There will be implications for the health workforce, which is likely to require greater regulation to ensure safe services (for example, through the Health Practitioners Competence Assurance Act and the office of the Health and Disability Commissioner).
Increased diversity in service expectations as the population becomes more multicultural	There will be an increasing need for more culturally responsive and diverse services that can work with individuals, whānau and communities depending on cultural preferences.

Part 2 – Health Service Responses

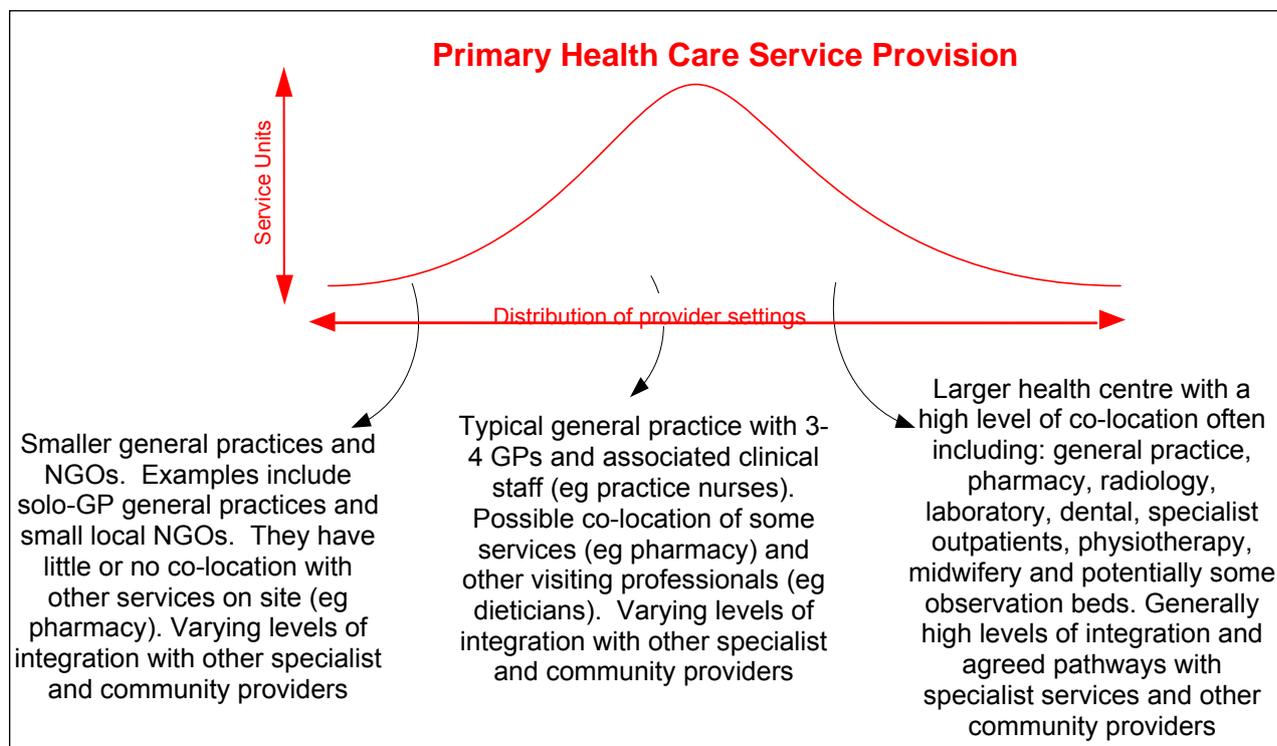
Describing health service changes

One of the ways health systems in New Zealand and overseas are adapting to the pressures described in Part 1 is by changing the way they deliver care.

This section introduces a high-level summary of current health service configuration and the ‘macro’ trends in service changes. It provides a simplified representation of a complex health system. It does not cover detailed issues relating to particular service areas or population groups, but presents in graphical form large-scale emerging trends in health system design that respond to the pressures identified in Part 1 of this document.

The summary looks at the health system from the perspective of a member of the public. The public experience particular ‘settings’ where they access services (for example, general practice, hospitals and so on), which vary in terms of their scope, scale and composition. Some service models are more prevalent than others. Taking primary care as an example, patients across New Zealand are exposed to a broad range of service models, from a solo-GP general practice through to a 10-partner practice in a multi-service purpose-built facility. Figure 8 shows the range of volumes/services (‘service units’) being delivered across various primary health care service models.

Figure 8: Primary care service provision as a service model example

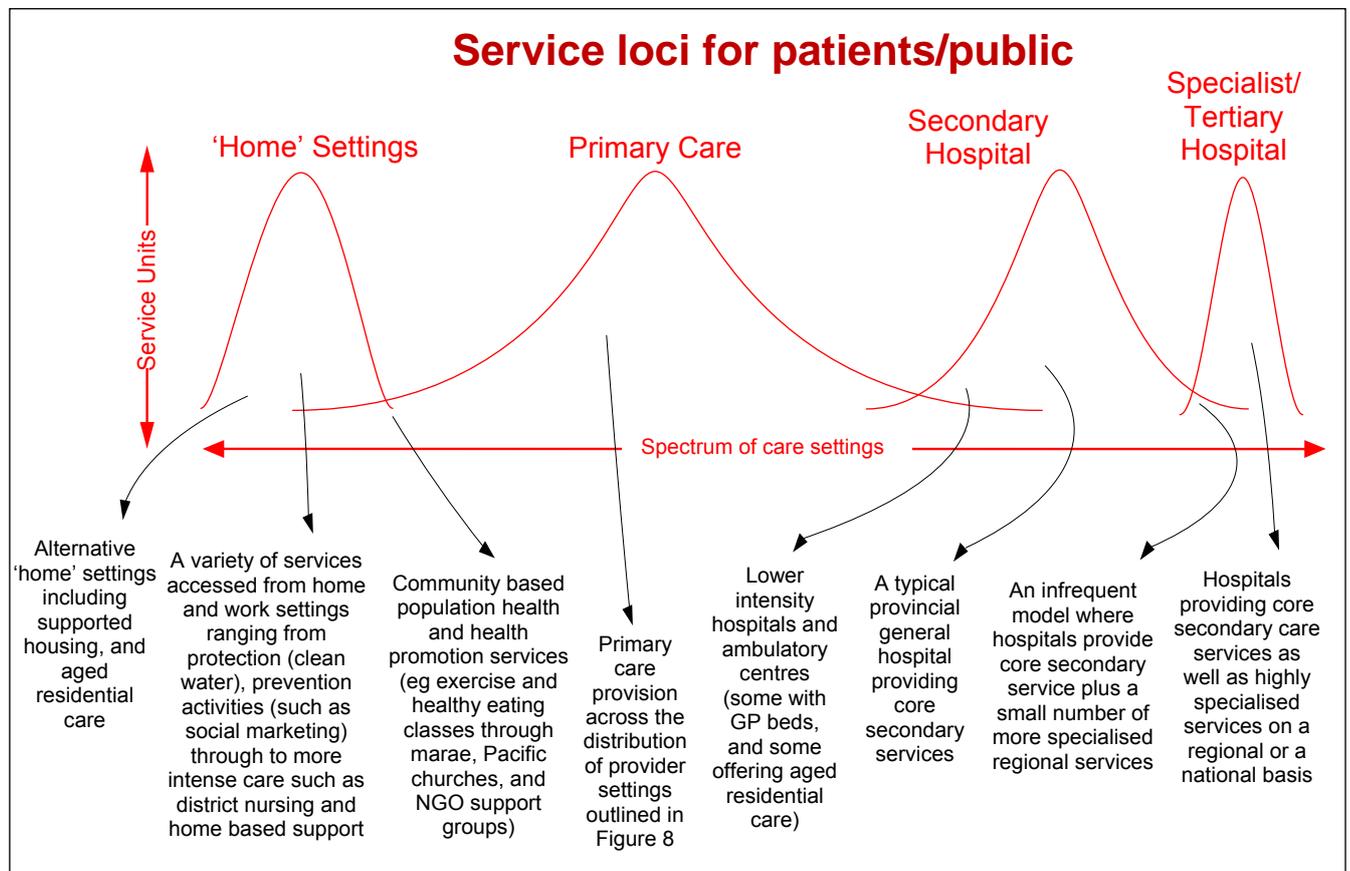


Across the health sector, patients tend to access services via clusters of service settings. These clusters generally entail primary services in or nearby a person’s home or community, or in secondary hospitals and specialist/tertiary hospitals.

Figure 9 shows the public’s perspective of the health system – a series of clusters across a spectrum of care settings, with considerable service variations within each

cluster, including a variable range of activities/services ('service units') being delivered within and across each cluster. The clusters overlap where there is a blurring between the various models.

Figure 9: Current service loci for patients/public



The following sections of the document explore the ways in which the pressures identified in Part 1 are impacting on the overall shape of the health sector as depicted in the high-level summary of health service configuration described above. The general descriptions used for service types and settings have been based on the New Zealand Role Delineation Model (RDM) (refer to Appendix 1).

The RDM has been developed to differentiate between services based on the complexity of patient need they can manage, within and across provider organisations. The RDM differentiates between individual services based on their complexity, rather than describing a hospital as a whole. This is intentional as the services offered by an individual hospital can vary in their complexity.

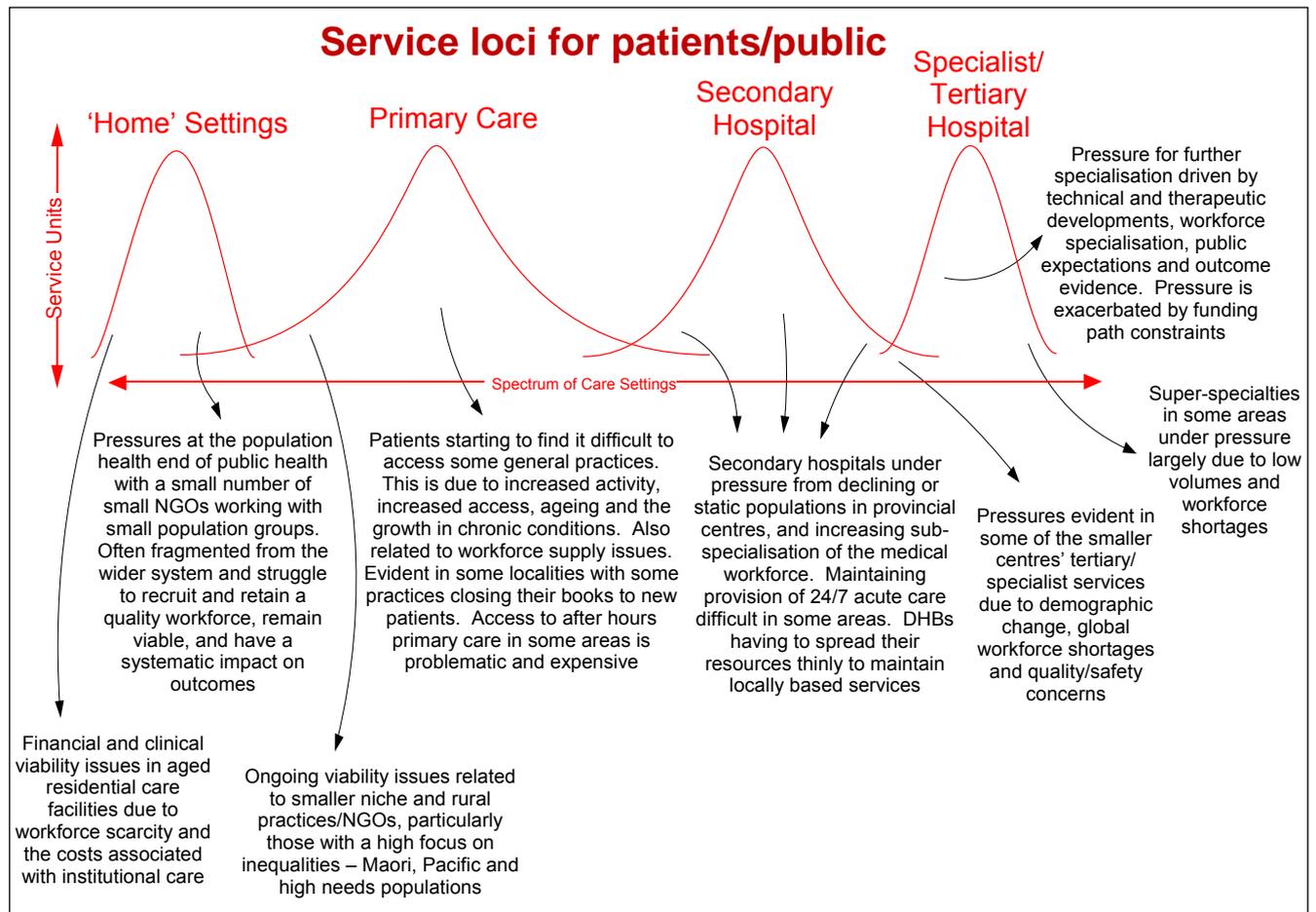
The general descriptions used in this report for hospital services (ie secondary hospital and specialist/tertiary hospital) can be described using the RDM, as follows:

- **Secondary hospitals** (equates to role delineation level descriptors 3 and 4) provide acute and elective care in provincial and metropolitan centres
- **Specialist/tertiary hospitals** (equates to role delineation level descriptors 5 and 6) in addition to providing secondary hospital services, offer specialised services for complex conditions on an acute or elective basis and are located in the large metropolitan centres.

Points of pressure on today's health service design

Population changes, health inequalities, public expectations, workforce shortages, and new technologies are placing pressure on different parts of the system. These pressures often compound at the margins or interfaces between different service settings, providing strong impetus for change. Figure 10 outlines some particular pressures and their impacts on the range of service loci.

Figure 10: Points of pressure on service loci for patients/public



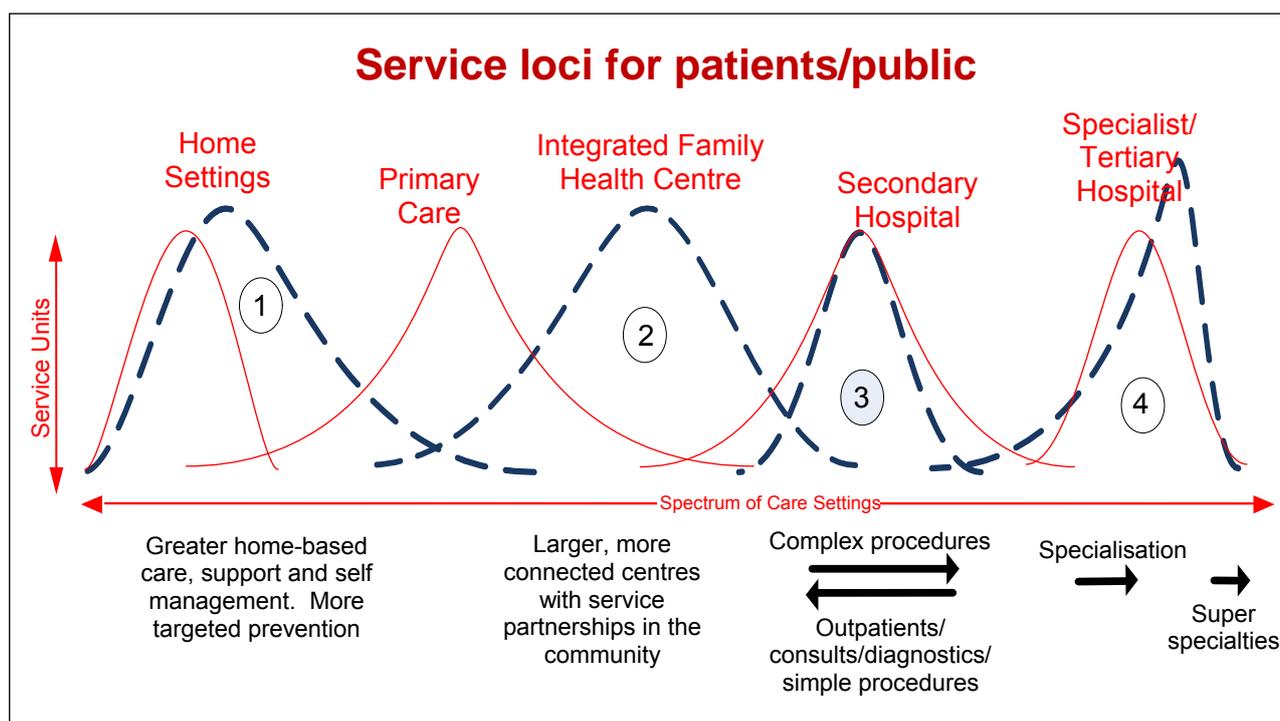
Four major trends in health service design are emerging

Internationally and in New Zealand, health service redesign and new models of care are emerging within a deliberate policy framework in response to underlying pressures and with the help of certain enablers (for example, technological advances). Two overarching contrasting trends are discernable: care is moving closer to home, but also becoming more specialised and concentrated. These trends in health service redesign and new models of care follow a general theme of *'localise where possible, centralise where necessary'*.

Figure 11 describes the shift in service delivery observable in many health systems. Note that the solid line represents current service configuration, and the dotted line represents future service configuration.

What is emerging across health systems is the **increased integration of services**, where traditional community, primary, secondary and specialist/tertiary services are becoming better linked. This will enable patients and their families to experience health care as a single system rather than a series of poorly co-ordinated 'settings'.

Figure 11: Shifts in service loci for patients/public



The four trends in health service redesign and new models of care are:

- 1. Prevention, self-management and home-based services:** advances in information technology, more efficient communication and greater staff mobility are enabling more services to be delivered in the home setting. Such services are more convenient for patients, place a beneficial focus on prevention, effectively reduce the need for hospital admission, and improve overall patient and population health outcomes.

2. **Integrated family health centres, partnerships and teams:** in seeking to make the best use of the available workforce, improve service integration and increase access to specialist, allied and community services, a number of health systems are implementing large community-based health centres, partnerships across organisational boundaries, and multidisciplinary teams (for example, the 'medical home' concept in the United States, 'polyclinics' in the United Kingdom, GP 'super clinics' in Australia, 'family medical clinics' in Canada, and 'integrated family health centres' in New Zealand).
3. **Hospital clusters and regional services:** smaller secondary hospitals are responding by forming partnerships with neighbours to establish services that are consolidated and delivered across DHB boundaries to effectively expand their population base in order to improve clinical and financial viability, and to share workforce expertise and resources. They are also tending to shift outpatient consultations, diagnostics and simple procedures into community-based facilities.
4. **Managed specialisation and consolidation into a smaller number of centres/hubs:** highly specialised diagnostics, care and interventions are increasingly delivered as regional and national services. In the future, provision of some specialty services may need to be consolidated into a smaller number of centres/hubs to maintain the critical mass of patient numbers needed for quality care, and ensure effective use of small numbers of highly specialised staff.

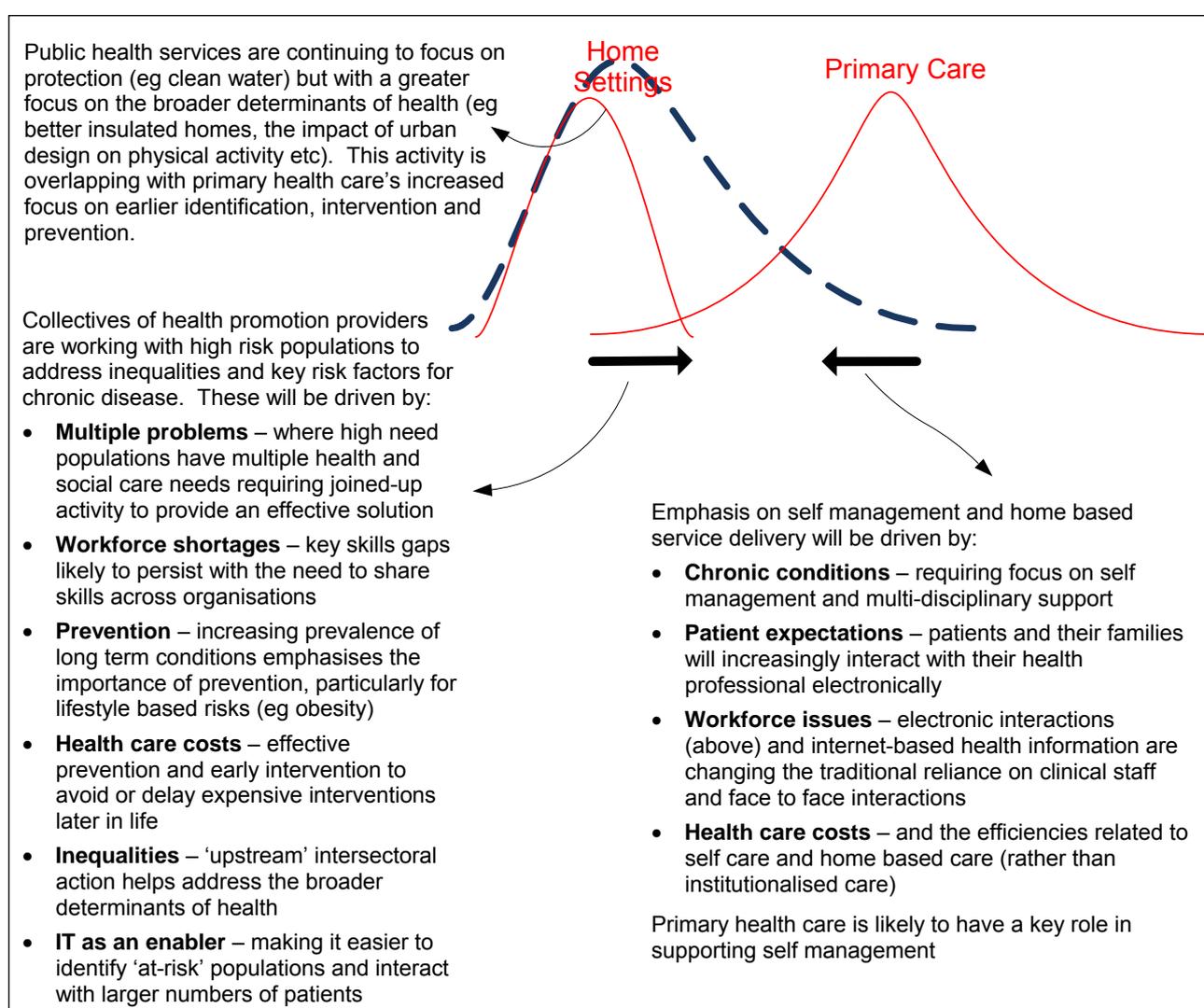
Part 3 – Focused Views of Service Redesign

This section provides more focused discussion of the emerging four models of care outlined in Part 2. Note that throughout this section the solid line represents current service configuration and the dotted line represents future service configuration.

1 Prevention, self-management and home-based services

Increasingly, the health system is placing emphasis on home-based delivery of services as an effective way to address workforce constraints and health inequalities, with the assumption that this emphasis will also help address cost pressures.

Figure 12: Trends in service design and models of care for prevention, self-management and home-based services



Patient experience

- Patients will be encouraged and supported to understand their own condition, set goals, self-monitor progress, and take responsibility for their own health.
- Patients may receive more care in their own home.
- Patients may participate in group education and support groups.

- Lay 'expert patients' and 'buddies' may form part of a support network for patients with chronic conditions.
- Health workers at community centres and through targeted communications will give patients advice on broader lifestyle risk factors, as well as on their presenting complaint.
- Electronic and telephone communication between providers and patients will increase, the spectrum of dissemination ranging from personal electronic reminders from a patient's 'health care home' through to education campaigns aimed at the general public.
- Patients may receive a greater range of services closer to their home.

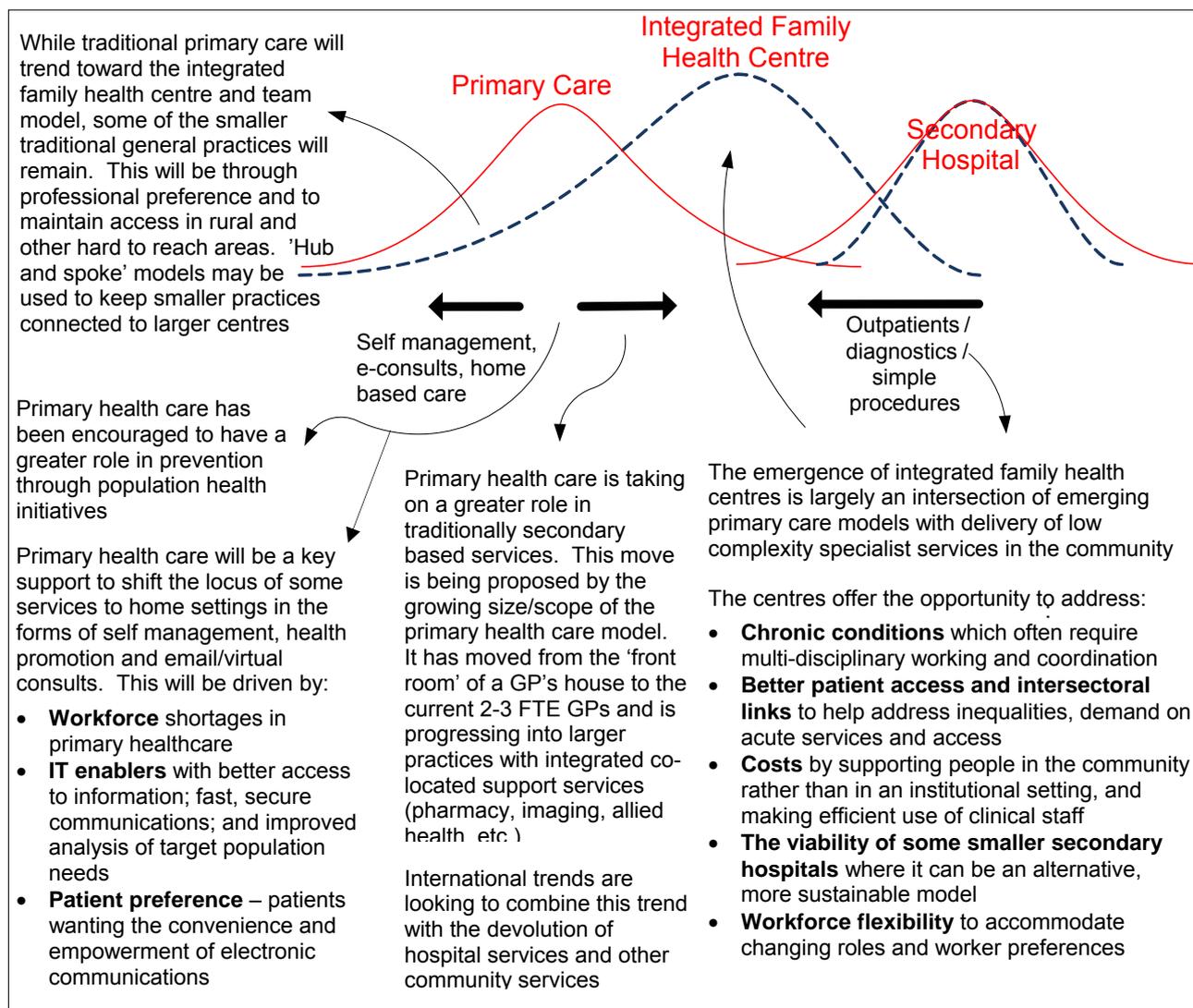
Sector experience

- GPs, nurses and other community-based staff will teach and encourage patient self-management.
- Primary health care and community-based providers will deliver support in the home, rather than in institutional settings.
- Through upskilling and training, primary health care providers will become more proficient in supporting self-management.
- Health promotion working with communities and whānau will be integrated into primary care models.
- Electronic communication with patients in various forms will increase.
- Doctors, nurses and allied health professionals will place a greater focus on prevention activities.
- Health professionals will work in stronger multi-disciplinary teams.
- Agencies will collaborate across sectors to maximise the effect of health-promoting messages.

2 Integrated family health centres and teams

Primary health care can deliver services faster and closer to a patient's home. Community-based integrated family health centres and better integrated community services are being developed to strengthen the primary health care sector to improve patient access, support improved health outcomes, make the best use of the available workforce, make use of multidisciplinary teamwork to co-ordinate care delivery, improve access to specialist diagnostic testing, and to deliver some traditionally based secondary services.

Figure 13: Trends in service design and models of care for integrated family health centres and teams



Patient experience

- Patients will receive better support in their own homes or work places, over the telephone or electronically.
- Patients will be able to access more specialist, NGO and multidisciplinary services in their integrated family health centre or through its partners.
- Patients will be able to see a broad range of health staff in the integrated family health centre, including their GP, practice nurses, hospital specialists, clinical assistants, nurse practitioners, and other allied health professionals.

- Patients will have a broader choice over their 'health care home' – whether that is a small local general practice, or a larger multidisciplinary 'one-stop' integrated family health centre.
- Integrated family health centres and targeted communications will be able to give patients advice on lifestyle risk factors, as well as their presenting complaint.
- Patients will increasingly communicate electronically with their 'health care home' and its partners.

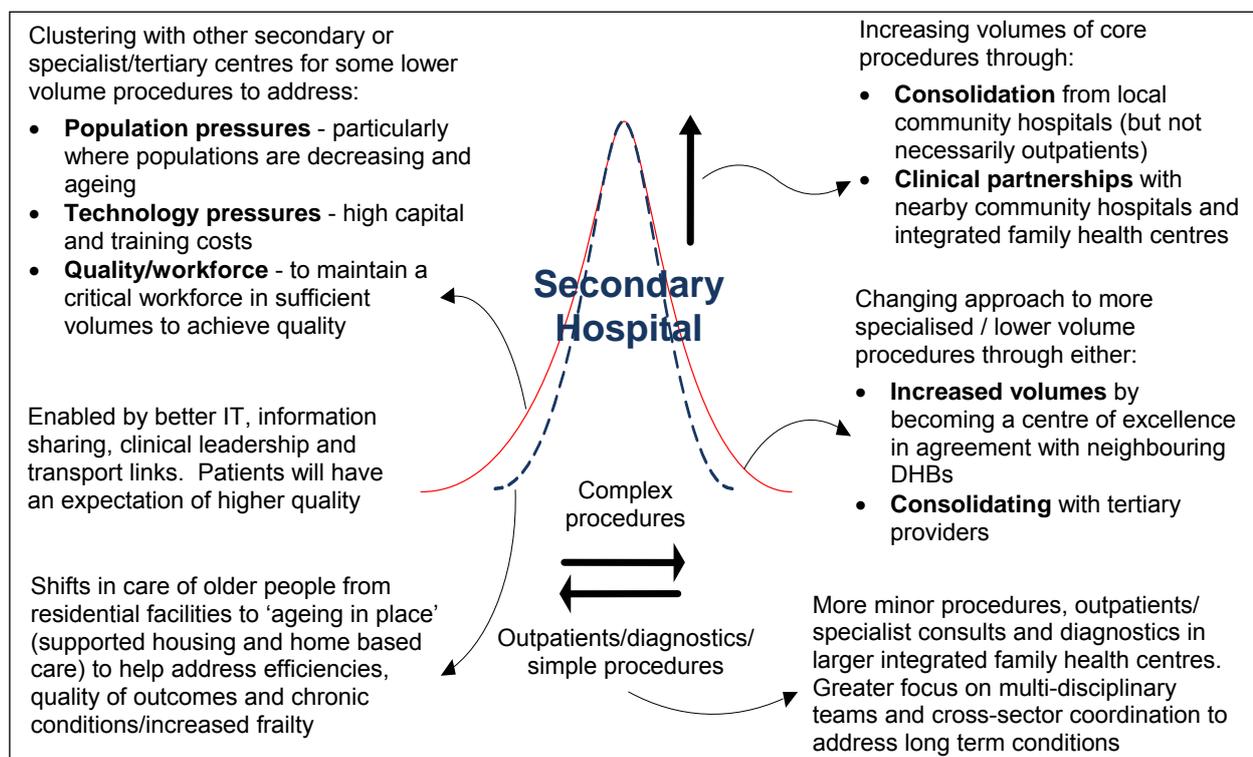
Sector experience

- E-health solutions will link small general practice teams with larger integrated family health centres, creating an even wider 'virtual' integrated family health team.
- Clinicians will communicate electronically with patients.
- Clinicians will make greater use of integrated electronic health records – particularly for people with multiple complex conditions.
- New entrants to the health workforce will be trained to work in new ways, and the existing workforce will need to be retrained.
- There will be more community-based training opportunities.
- Health and social services will increasingly collaborate or operate out of the same location.
- Specialists may be based in several centres during the course of a typical working month or week.
- Primary and secondary clinicians will interact more with community-based workers.
- Clinicians will make greater use of evidence-based patient pathways and guidelines.
- A greater variety of corporate and cooperative business models will be used in primary health care to accommodate diverse clinical models.

3 Secondary hospitals

Secondary hospitals will focus on enhancing core clinically viable services and increasing their reliance on broader partnerships with larger neighbouring hospitals in metropolitan areas, to address workforce and quality pressures. Services will be delivered in community settings where hospital or institutional facilities are not necessary.

Figure 14: Trends in service design and models of care for secondary hospitals



Patient experience

- People living in smaller communities requiring acute care, a more complex secondary hospital procedure or specialist consultation may have to travel to a centre outside their own DHB.
- Patients will regard their local integrated family health centre as their 'health care home' and base provider of health care, as opposed to their local hospital.
- Patients will have access to better information about care pathways and, as a consequence of more efficient information-sharing, will not have to undergo the same questions/tests in multiple places.
- A patient may see clinical staff from their own hospital or staff from other hospitals at their integrated family health centre, depending on their condition.
- Services will be organised along regional lines, rather than within individual local organisations or DHBs.
- Some smaller hospitals will operate more like large integrated family health centres, with visiting clinical teams providing more community diagnostics and self-management support and advice, and fewer complex procedures.
- Travel and electronic interactions may become a common aspect of hospital-based services.

- Older people will receive more care and support in their own homes or supported housing, rather than in aged residential care facilities.

Sector experience

- An increased range and number of services will be organised on a sub-regional or regional basis and delivered through clinical networks.
- Quality standards will be maintained through shared evidence-based guidelines and patient pathways, and support through clinical networks.
- Specialists from larger DHBs and their support staff may travel more within their regional service.
- More specialists' time will be spent on electronic interactions with patients (for example, through secure email or using telemedicine to enable virtual consultations rather than face-to-face) and with primary care practitioners.
- An increased proportion of clinicians' time will be spent supporting staff within smaller DHBs, integrated family health centres and other regional services.
- New entrants to the health workforce will be trained to work in new ways, and the existing workforce will need to be retrained.
- Referrals, clinical pathways, policies and procedures previously based in local DHBs will be managed regionally.
- Growth of specialist services will generally be confined to larger provincial centres.
- The workforce will become increasingly diverse; for example, there is likely to be an increase in the number of clinical assistants and nurse practitioners.
- Providers will have better access to patient information and protocols across the regional service.

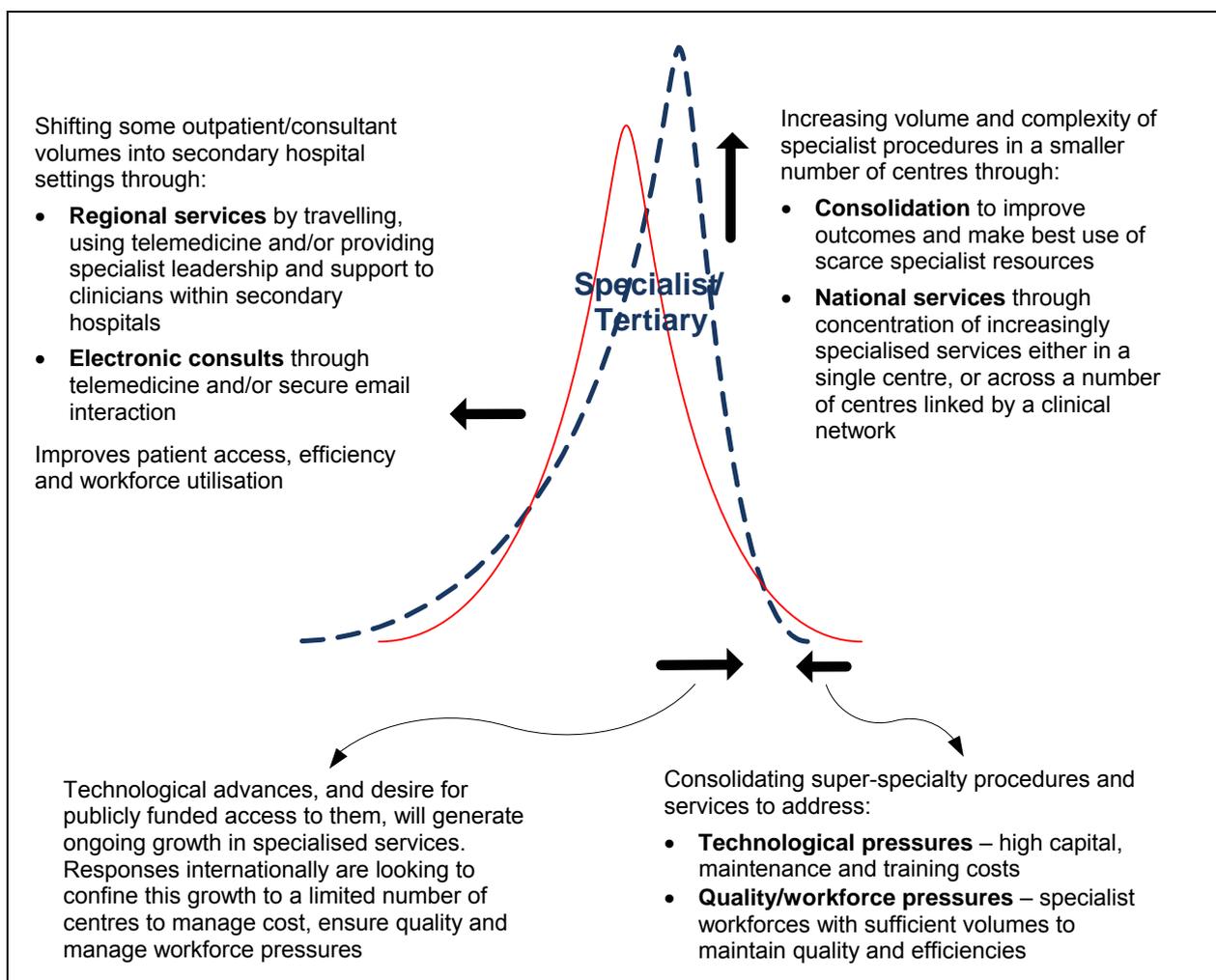
4 Specialist/tertiary services

Services will tend toward consolidation into a smaller number of centres/hubs that offer greater specialisation. There will be an increased focus on:

1. delivering specialised care for a defined population base (regional or national) in collaboration with local referring clinicians
2. interacting electronically, on a national scale.

Hospitals providing highly specialised/tertiary services will continue to also provide secondary services for their local populations.

Figure 15: Trends in service design and models of care for specialist/tertiary services



Patient experience

- People will be more likely to travel to access highly specialist procedures, or interventions involving more highly specialised equipment and teams.
- Referrals to larger hospitals outside a patient's own DHB and potentially region will increase for some highly specialised services (although patients may see a specialist in their own DHB hospital before and after such a referral).
- Patients may receive certain highly specialised interventions in Australia as part of the New Zealand health system.

- Travel, telemedicine and electronic interactions will become a more common aspect of specialist service provision.

Sector experience

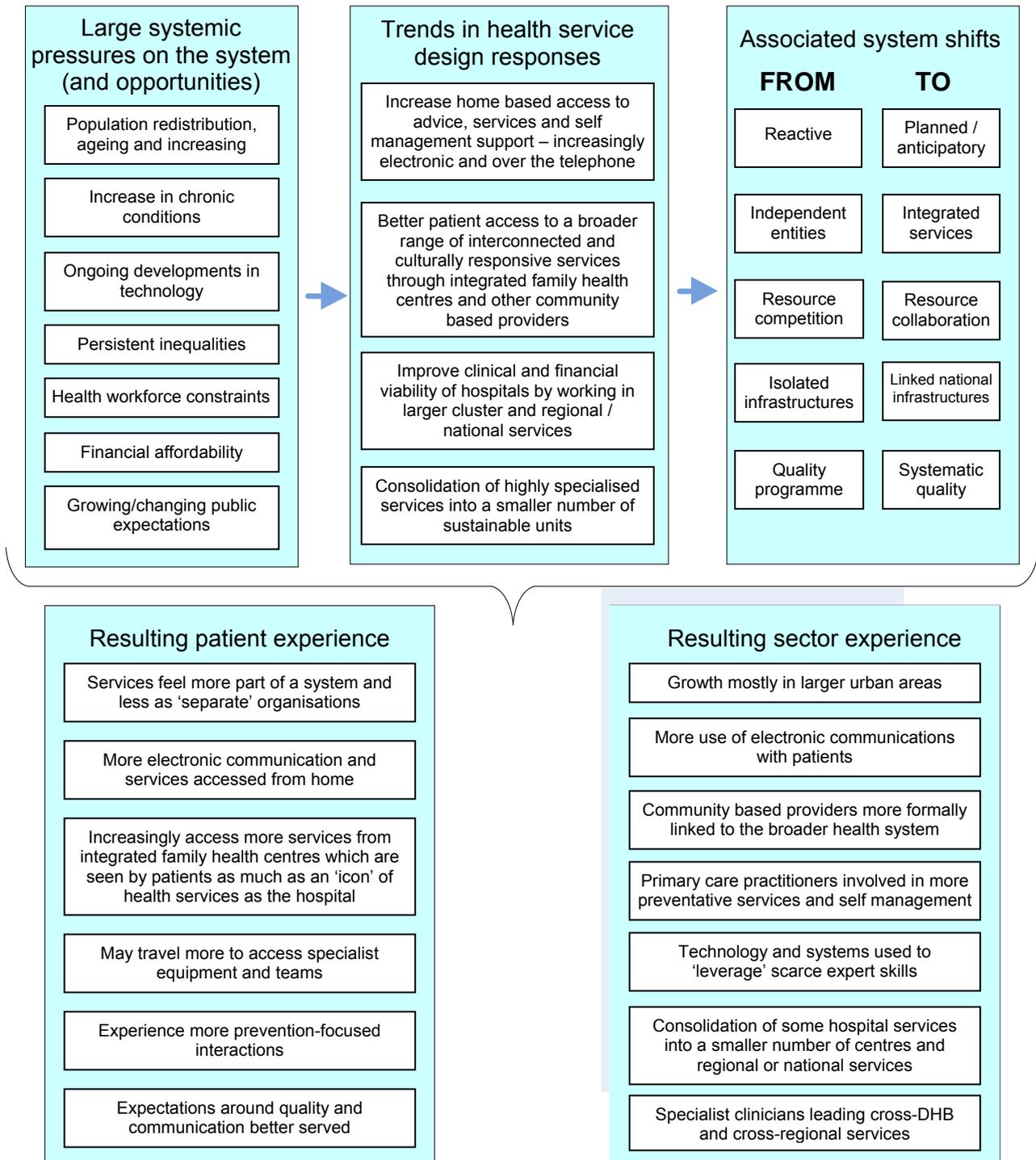
- More services will be organised on a national basis, supported through national clinical networks.
- Specialists and support staff may travel more within regional or national based services and networks to deliver services to local populations.
- More specialists' time will be spent on electronic interactions with patients (for example, through secure email or telemedicine).
- More specialists' time will be spent supporting clinicians in other DHBs or in other parts of the specialists' regionally or nationally based services or networks.
- Referrals, clinical pathways, policies and procedures will be organised across DHB and organisational boundaries.
- Growth will be generally be confined to larger urban areas.
- Highly specialised services will look to Australia for peer support, review and quality improvement, and in some cases service delivery.
- Highly specialised services may be nationally based, to support clinical and financial viability and maximise workforce efficiency.

Part 4 – Summary

There is currently considerable planning underway throughout the health system aimed at addressing known future concerns. It is clear that the system must move in a more sustainable direction now, before pressures become irresistible and changes to services must be made in a crisis situation.

Figure 16 summarises known pressures and trends, along with likely consequences for patients and the health system.

Figure 16: Summary of pressures to services and system shifts



Appendix 1 – The New Zealand Role Delineation Model

The New Zealand Role Delineation Model has been developed for the Ministry of Health and District Health Boards (DHBs) to differentiate complexity between services within, and across DHB providers. It has been developed after a review of a number of models including the New South Wales Role Delineation Model (2002) and the Queensland Clinical Services Capability Model.

The New Zealand Role Delineation Model differentiates complexity within seven categories of service, and assesses a level of complexity for each service using a set of key determinants. The seven categories of service that are assessed by the New Zealand Role Delineation Model are:

- Emergency Medicine Services
- Medical Services
- Oncology & Haematology Services
- Surgical Services
- Maternity & Neonatal Services
- Paediatric Specialty Services
- Older Adults & Specialist Rehabilitation.

The Model, like all role delineation models, demarcates services, not hospitals.

Complexity levels

The Model employs six levels of complexity, from primary and community-based services through to the most complex hospital setting. Table 11 below outlines the various levels.

In essence, the most complex services are ranked Level 6. These services usually have the capability to provide the most complex care for patients with the most complex needs and tend to experience the greatest infrastructure demands. Risks of under-capacity are significant.

Services providing complex elective procedures are ranked Level 5. For these services, risk management can be planned to fit with daytime resources.

The least complex services comprise general acute or planned services close to the communities that need them.

To assist with interpretation of the Model a set of general descriptions of the levels of complexity are outlined in the table below.

Table 11: Service levels in the New Zealand Role Delineation Model

Role Delineation Level	Level Descriptor	Description
1		Community based services provided by primary practitioners. May be in a rural, provincial or urban setting
2	Community (general and convalescent) services	General and convalescent services, sometimes in rural communities, providing sub-acute care and access to acute services
3	Acute & elective specialist services	Specialist services providing acute and elective care to communities
4	More specialised services	Large services with some sub-specialisation
5	Major specialist services	Large services with multiple sub-specialties and subspecialty support
6	Supra specialist & definitive care services	Most complex service of any sub-specialty. Will be a provider of definitive care (ie does not transfer to another centre)

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