CAPITAL & COAST DISTRICT HEALTH BOARD

Health System Plan 2030

MA TINI, MA MANO, KA RAPA TE WHAI
BY JOINING TOGETHER WE WILL SUCCEED

Capital & Coast
District Health Board
ŪPOKO KI TE URU HAUORA

Contents

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Introduction

The *Health System Plan 2030* (the plan) outlines Capital & Coast District Health Board's (CCDHB's) strategy to improve the performance of our health care system and encourage better health and wellbeing and more equitable health outcomes for all our communities.

At the heart of the plan's approach is the goal of enabling people and their whānau to take the lead in their own health and wellbeing.

The plan supports a health system that delivers care where and when people need it. This includes intervening as early as possible and making better use of available resources.

The plan encourages CCDHB to work with a range of partners including partnering with people in their homes and in their communities and building community health networks (CHNs) to help improve health and wellbeing.

Such partnerships are better not only for our communities but also for our health workforce. CHNs can better support our hospitals to move away from a 'safety net' approach - covering the entire health care system - to become more proactive specialist centres.

Mental health and addiction service delivery is important in raising health outcomes and supporting wellbeing. The Mental Health, Addictions and Intellectual Disability Service (MHAIDS) is publishing its own strategy in early 2019.

Our vision

CCDHB is responsible for improving, promoting and protecting the health of the people, whānau and the communities of its region.

These expectations are reflected in our vision:

Keeping our community healthy and well

Now is the time to act. The Government's focus on social investment creates an environment that supports up-front investment to generate future returns. Digital technology is also at a point where they are more affordable and proven service delivery models can be adopted..

Structure of the plan

This plan is presented in four parts:

1. Health and the health system: Our wider context
2. The CCDHB Health System Plan 2030
3. Improving our health care system – How much change is needed?
4. How to implement this plan.

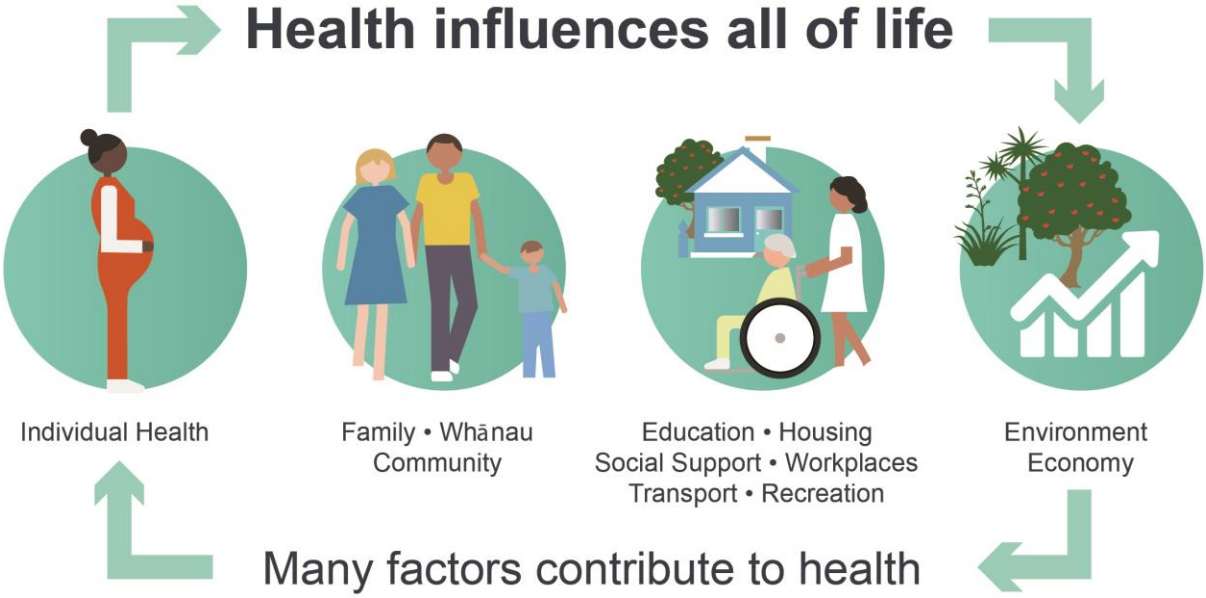
1: Health and the health system: Our wider context

This section outlines CCDHB's strategic focus, the reasons for developing this plan and the opportunities available to us.

Good health is not simply the outcome of a good health system. The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".[1] As such, health and wellbeing reflect not only access to affordable, effective health care but also the results of a complex web of social, economic, and structural factors, including educational attainment, income, and housing. It is estimated that only 20 percent of an individual's health outcomes result from clinical treatment. The remaining 80 percent reflects socio-economic factors and health behaviours.[2]

Health and social outcomes can be improved by building partnerships with community groups, providers, and agencies. These partnerships can increase the support available to vulnerable communities and address the social determinants of health (the conditions in which people are born, grow, live, work, and age).[3]

Health links with the wider environment[4]



[1] Webpage: World Health Organization, About WHO, Constitution of WHO: principles. URL: www.who.int/about/mission/en/ (accessed 12 December 2018).
[2] The Place-Based Health Commission Report. 2016. *Get Well Soon: Reimagining place-based health*. London: New Local Government Network. URL: www.nlgn.org.uk/public/2016/get-well-soon-reimagining-place-based-health/ (accessed 12 December 2018).
[3] Webpage: World Health Organization, Social determinants of health: About social determinants of health. URL: www.who.int/social_determinants/sdh_definition/en (accessed 14 December 2018).
[4] Based on webpage: Ministry of Health, Health in the wider context of people's lives, Health links with the wider environment. URL: www.health.govt.nz/new-zealand-health-system/new-zealand-health-strategy-future-direction/health-wider-context-peoples-lives (accessed 13 December 2018).

The core of our nation's health care service delivery system is built around DHBs, primary health organisations (PHOs), the Accident Compensation Corporation (ACC), and non-governmental organisations (NGOs), including charitable organisations.

CCDHB has a significant role as the commissioner of health services for our area's population. This gives us a unique role in developing and implementing the preferred health system for our communities.

1.1 Designing our health system: What do we want?

Good health and wellbeing are central to every person's ability to live a satisfying life and contribute both socially and economically to the community they live in.

Our health system will keep our community healthy by:

- Promoting health and wellbeing
- Preventing the onset and development of avoidable illness
- Improving health outcomes
- Supporting people to live better lives
- Supporting end of life with dignity.

We know that, by developing these areas of service, we can:

- strengthen our communities and families and whānau so they can be well
- make it easier for people to manage their own health needs
- support equal health outcomes for all communities
- delay the onset, and reduce the duration and complexity, of long-term health conditions
- ensure expert specialist services are available to help improve people's health.

Why these areas of focus?

By focusing on these areas over the next 15 years, we can improve health outcomes for the people of the CCDHB region, particularly those who currently experience significantly worse health outcomes than the general population.[5] Investing in and implementing these changes will also help make our health system more sustainable.

Promoting health and wellbeing

Investment in health promotion can be instrumental in securing longer life expectancy and, crucially, longer lives in good health by preventing and/or treating premature or avoidable morbidity, especially if we start that health promotion pre-conception. This idea has been termed 'compression of morbidity' and has already been observed in well-developed health systems where some people are healthier, use fewer services, retire later, and contribute to the economy for longer.[6]

[5] OECD. 2015. OECD Economic Surveys: New Zealand

[6] European Observatory on Health Systems and Policies, WHO. 2012. *Health Systems, Health, Wealth and Societal Well-being: Assessing the case for investing in health systems*. Edited by Josep Figueras and Martin McKee. Maidenhead: Open University Press.

Preventing the onset and development of avoidable illness

Not all health loss is avoidable, but preventing the onset of avoidable illness by acting to ensure needs are addressed early will incur lower costs to the health system overall, often within short time frames. In New Zealand, 88 percent of health loss is now caused by long-term physical and mental conditions (non-communicable diseases). While it is impossible to avoid illness within a population altogether, focusing on prevention will bring significant benefits.

Analysis from the New Zealand Burden of Diseases, Injuries and Risk Factors Study suggests that over one-third of all health loss is potentially preventable. Beyond the direct benefits to the health of individuals, a strengthened focus on prevention is central to the health system becoming "more clinically, fiscally and economically sustainable".[7]

Improving health outcomes

A core function of our health system is to provide health care that responds to acute and planned clinical need, including the delivering of babies. We need to be able to respond promptly and effectively using service delivery models and that help improve clinical and health outcomes.

Supporting people to live better lives

Health and wellbeing are essential to people's ability to achieve their potential. Sometimes this requires service responses that enable a person to participate in their community and engage with education and employment, all of which boost their health and wellbeing – and ultimately contributes to a more productive economy. This focus is especially important for those with disability, long-term conditions, and enduring mental illness and addiction to be able to participate in these ways.

Supporting end of life with dignity

As a person approaches their end of life, the health system's aim is to support them to die with dignity. This can include having early conversations with people about what matters to them and helping them develop suitable care plans in advance. Effective end-of-life care planning not only improves the experience for the individual but also for their family and whānau. It has also been shown that it enables people to remain in their homes longer.

1.2 The relevance of this plan

Trends in demand for health care services

Our health system is generally performing well: New Zealanders are living longer and experiencing better health. From 2000 to 2012, New Zealand's amenable mortality rate[8] decreased across all age groups, though ethnic and gender disparities persist.[9]

[7] Ministry of Health. 2016. *Health Loss in New Zealand 1990–2013: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study*. Wellington: Ministry of Health.

[8] Amendable mortality means premature death (under the age of 75 years) that could have been avoided since there are effective, relevant health care interventions available and accessible.

[9] Ministry of Health. 2016. *Health Loss in New Zealand 1990–2013: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study*. Wellington: Ministry of Health.

Demand for health services continues to increase, driven not only by the growing and ageing population but also by inequity and the growing numbers of people experiencing long-term and increasingly complex health conditions.

The inequity present in some communities is also fuelling health needs. This inequity is particularly relevant to Māori, Pacific, those with socio-economic deprivation (as in most countries), and those enduring mental illness and disabilities. As in most other countries, there are poorer health outcomes across the socioeconomic hierarchy[10, 11]

Inequities in health appear very early in life, accumulate over the life course, and are reflected in most common causes of death, injury, or hospitalisation. For example, diabetes rates are higher among the socio-economically deprived people and they are notably higher among Māori, Pacific and South Asian people, many of whom are also over-represented in high deprivation groups.[12]

The impact of long-term conditions is also growing. Although we are living longer, and living longer in good health, some people are living longer in poor health. The New Zealand Burden of Diseases, Injuries and Risk Factors Study found that 88 percent of health loss in this country is caused by long-term mental and physical conditions. Alongside this, disability now accounts for over half of the total health loss experienced by the population as a whole.[13]

We also see growing complexity in the people we do care for. We see this in the growing rate of obesity, which has significant health and social impacts. Ten percent of New Zealand children are now obese, and this climbs to 30 percent for Pacific children.[14] We also see this in the almost 70,000 people in New Zealand living with dementia. This number is projected to more than double by 2050.

These New Zealand trends mirror the major trends that are facing public health systems internationally.

The pressures presented by these demands on health care are coupled with evidence that we don't use our health systems as effectively as we could. Research from the United Kingdom suggests that when services do not respond appropriately, needs remain unmet or increase, creating artificial demand and spiralling cost.[15]

This is exacerbated by hospitals being the default setting for much of the available health care. Not only is this expensive, it creates unnecessary stress and can lead to less than optimal health outcomes.

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[10] Blakely T, Tobias M, Atkinson J. Inequities in mortality during and after restructuring of the New Zealand economy: repeated cohort studies. *BMJ* 2008; 336: 371–75.

[11] Blakely T, Kawachi I, Atkinson J, et al. Income and mortality: the shape of the association and confounding New Zealand Census-Mortality Study, 1981–1999. *Int. J. Epidemiol*. 2004; 33: 874–83.

[12] Blakely T, Simmers D. 2011. *Fact and Action Sheets on Health Inequities.* Wellington: University of Otago. URL: www.otago.ac.nz/wellington/otago023745.pdf (accessed 13 December 2018).

[13] Ministry of Health. 2016. *Health Loss in New Zealand 1990–2013: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study*. Wellington: Ministry of Health.

[14] Ministry of Health. 2016. *New Zealand Health Strategy: Future direction*. Wellington. Ministry of Health.

[15] Locality, Prof. Seddon J. 2014. *Saving Money by Doing the Right Thing: Why 'local by default' must replace 'diseconomies of scale'*. London: Locality. URL: http://locality.org.uk/wp-content/uploads/Locality-Report-Diseconomies-web-version.pdf (accessed 13 December 2018).

In the United Kingdom, it has been estimated that millions, if not billions, of pounds could be saved in health and social care if services sought to address the needs of the person in front of them.[16]

New Zealand already spends slightly over the average for OECD countries on health services, with government expenditure on health making up about 22 percent of government spending. The New Zealand Treasury estimates that if nothing else changes, government spending on health would need to rise from the current 7 percent of GDP to around 11 percent by 2060.[17] The demand trends for health services, together with projected expenditure trends, mean that the cost of the current model of health care is unaffordable and unsustainable.

Improvements in health will not necessarily reduce spending on health care,[18] but we can ensure the investments contribute to the overall performance of the health system, have the greatest benefit, and support equity.

1.3 We are at a tipping point

To date, ensuring people are at the centre of planning has been challenging as technology, funding, government accountability, and business systems have been the focus rather than what works for people. The growing government focus on social investment and significant changes in medical and information technologies is opening up new opportunities, with the potential to change health care investment decisions and the way care is organised and delivered. There are four important political and technological shifts that make transformation more feasible.

- A fundamental shift in the government's approach to social investment that places people at the centre and uses data to better identify and understand populations
- The availability of technology that enables information to be shared easily across organisations
- The development of portable health technology that places affordable and reliable diagnostics and health monitoring equipment in homes and communities
- The reduction in the cost of technology, which makes it an increasingly affordable investment choice.

Social investment and acting early

The government's shift towards a social investment approach focuses on early interventions to achieve better long-term outcomes for people and to reduce "the number of New Zealanders relying on social services and the overall costs for taxpayers".[19]

Children are an important area of focus in this approach. By identifying those children who are facing multiple adversities at, or even before, birth and supporting them and their families and whānau through a coordinated service response across health, housing, and social care, we can positively

[16] Locality, Seddon J. 2014. *Saving Money by Doing the Right Thing: Why 'local by default' must replace 'diseconomies of scale'*. London: Locality. URL: http://locality.org.uk/wp-content/uploads/Locality-Report-Diseconomies-web-version.pdf (accessed 13 December 2018).
[17] Ministry of Health. 2016. *New Zealand Health Strategy: Future direction*. Wellington. Ministry of Health.
[18] Ministry of Health. 2016. *Health Loss in New Zealand 1990–2013: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study*. Wellington: Ministry of Health.
[19] Webpage: The Treasury, Social investment. URL: www.treasury.govt.nz/statesector/socialinvestment (accessed 13 December 2018).

influence their life outcomes and future health needs. The range of factors such children are likely to face requires the health system to work with other partners in the community in order to succeed.

Similarly, the health system can support older people to maintain their independence. This can be done through prevention and early intervention activities using a range of community-based supports, including home-based technologies and working with volunteer groups and other social services to minimise social isolation. Such investment has been shown to improve individuals' quality of life and reduce demand on costly health services that have limited capacity. The approach is consistent with the government's focus on investing in segments of the population that have been identified as being 'at risk'.

This plan makes people the central focus of health system decisions on planning and investment in programmes and resourcing. It has a particular focus on vulnerable and high-risk groups and seeks to invest up front to support people most at risk of poor health outcomes later in life and to create equity.[20]

Technology offers new and affordable options

A review of investments in health information technology by researchers from the Nuffield Trust[21] found that technology was a critical factor in contributing to more systematic, high-quality care. Technology facilitated greater patient engagement; more proactive, targeted and better coordinated care; and improved access to specialist care. The effective use of technology was also shown to improve resource management and system learning opportunities.

Advances in digital technology and portal health technology are revolutionising how care can be delivered, placing people and their families and whānau at the centre of care. People can manage more of their care at home through electronic access to professional advice, greater self-monitoring using remote diagnostics, and an easily accessed electronic health care record.

The growing sophistication of technologies means users can control who is authorised to access their information and information sharing can be secure, mobile, and affordable. This underpins the way health care is coordinated across care settings and facilitates information sharing between health professionals, supporting more coordinated care. There are examples of simple diagnostics that are enabled through smartphones and other electronic devices, including retinal screening and pulse and temperature recordings. The reliability and range of these diagnostics will continue to expand. This plan anticipates that digital technologies will be used increasingly to manage a broader range of activities in a broader range of settings – including in homes and local communities.

Technology also plays an important role in improving the quality of care as automated systems reduce the likelihood of human error, for example, clinical decision support tools and computerised provider ordering. With the support of affordable diagnostics such as teleradiology, timely and accurate decision making will reduce the need for recall and queue management systems.

[20] Webpage: The Treasury, Social investment. URL: www.treasury.govt.nz/statesector/socialinvestment (accessed 13 December 2018).
[21] Imison C, Castle-Clarke S, Watson R, et al. 2016. *Delivering the Benefits of Digital Health Care, Research report.* London: Nuffield Trust. URL: www.nuffieldtrust.org.uk/research/delivering-the-benefits-of-digital-health-care#partners (accessed 13 December 2018).

1.4 Planning for 2030: Timing is everything

The service delivery models we are building for 2030 are aimed at improving people's health outcomes across the whole of the population, as well as targeting specific interventions to the people with the most need.

We are aware that many of the changes outlined in this plan have been considered in the past. What makes this plan more likely to succeed now compared with any time before is the tipping point in the growing capability and reducing cost of technologies, together with a move toward a longer-term, social investment approach. This is backed up by research and by the conversations we have had with a range of clinical practitioners, managers, and community representatives in the CCDHB region.

The year 2030 was chosen as the horizon for the plan because it is sufficiently distant to allow us to put into action significant changes but close enough to allow us to inform the service investment choices we make. In this way, the plan can act as a roadmap for responding to new knowledge and technologies, while focusing on positive outcomes for the people and communities in the CCDHB region.

1.5 We are not alone: Other countries' responses to similar challenges

The uncertain world economy, unemployment, and growing levels of inequity are challenging health care and social systems throughout the world. Advances in information technologies are allowing us to understand population characteristics and create innovative responses to the growing challenges. Many developed countries are rethinking the way they provide health and social care, turning to people- and place-based systems to integrate care and improve outcomes. They are looking at ways to meet the needs of their ageing populations and help address the areas of significant inequity that still exist within their populations.

1.6 A focus on improving outcomes for people

Health and wellbeing are fundamentally important to individuals and to the wider community to ensure a cohesive, productive society. The social determinants of health are shaped by a person's level of education, where they live, what kind of job they have (including income), and a range of other environmental factors.[22]

Addressing the social factors that improve health outcomes requires new service delivery models and moving to a health system that is located in communities, treats people as the experts in their own health and supports those people to stay well. As elsewhere, these shifts are already taking place in New Zealand, for example, through the development of Māori and Pacific health plans that recognise the need to adopt a more holistic and collaborative model to address the health inequities that exist for these populations.

The New Zealand Productivity Commission's 2015 report *More Effective Social Services* emphasised the important role DHBs play.[23] The report encourages DHBs to leverage an increased contribution

[22] Marmot M, Goldbatt P, Allen J, et al. 2010. *Fair Society, Healthy Lives: The Marmot review: Strategic review of health inequalities in England post-2010.* London: The Marmot Review. URL: www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review (accessed 13 December 2018).

[23] New Zealand Productivity Commission. 2015. *More Effective Social Services*. Wellington: New Zealand Productivity Commission.

to people's health and wellbeing across the continuum of social needs. Improvements in data use make it easier to identify and target communities with the most need.

1.7 Moving towards place-based systems

Evidence from the United Kingdom,[24] Denmark, Sweden, and Norway shows that integrating services across a geographic area results in better-coordinated services, leading to not only higher-quality care but also reduced demand for acute care. How those services are brought together and where they are located will vary from region to region.

Using 'place' as the basis for health and social supports creates immediate links to a community's strengths; it makes it easier to recognise and value community diversity, while organising a consistent system across many groups. Better information about the characteristics of the people being served, shared among those delivering services, is central to succeeding with this approach. It has the potential to reduce health care costs over time as communities increasingly support their own health and wellbeing.

The United Kingdom's Commission on Place Based Health suggests that three shifts are required to move the health system towards place-based care that is more sustainable, effective, and affordable.

1. Shifting from institutions to people and places – leveraging people's capacity and local resources more effectively
2. Shifting from service silos to system outcomes – moving away from vertical silos of 'health' and 'care' to horizontal place-based systems
3. Enabling change from national to local – through policy frameworks that create a long-term environment for place-based prevention approaches and remove blockages for practitioners.

As the New Zealand Productivity Commission has identified, New Zealand's DHB model is already well positioned to support place-based approaches to integrating health and social responses in a systematic way.

1.8 Developing the plan

Developing this plan has involved reviewing a wide range of published research evidence, strategies from other similar countries, and local and international experiences of new approaches.

The King's Fund tells us past trends are only patterns to date and give no certainty for the future.[25] For this reason, we have not analysed historical trends and patterns in health care service provision to inform this plan. Instead, the plan is underpinned by the premise that a more affordable health care system requires us to reduce avoidable demand, waste, and duplication and treat patients who need care more effectively in the safest and lowest-cost setting.
We held workshops on the proposed strategic shift with a wide range of stakeholders– including academics, clinicians, communities, and researchers – to incorporate their expert knowledge of service use and delivery. We found considerable support for moving in this direction and to providing health care that is more community based, sees people as partners in their own care, and

[24] The Place-Based Health Commission Report. 2016. *Get Well Soon: Reimagining place-based health*. London: New Local Government Network. URL: www.nlgn.org.uk/public/2016/get-well-soon-reimagining-place-based-health/ (accessed 12 December 2018).
[25] Imison, Candace. Kings Fund – Ideas that Change Healthcare. *Overview - Future Trends*. 2012. Pp 8.

recognises the need to partner with other organisations outside the health system to improve health outcomes for socio-economically disadvantaged people.

The methodology used to develop this plan had five key elements.

1. Defining the purpose and desired outcomes of the health system
2. Identifying future trends in health system design
3. Researching to identify technological, scientific, clinical, and organisational solutions
4. Defining the system enablers for change
5. Describing the health system by:
    - locality-based approaches
    - major service user groups
    - the service delivery models for those service user groups.

This approach recognises that the health care system is a complex adaptive system, where relatively small changes can result in significant impacts, and that any future system should not be defined by planning detailed organisation and service responses based on existing models.

2: The plan's health system design

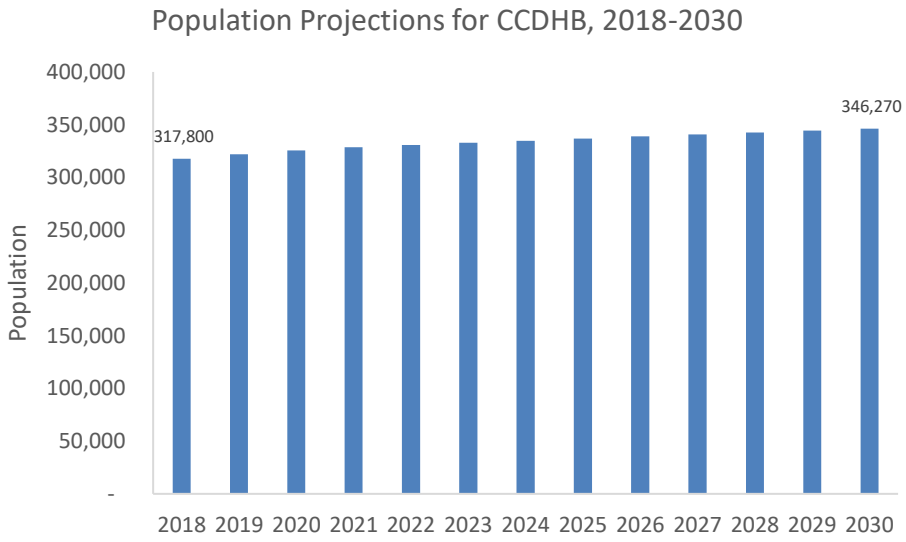
The goal of the Health System Plan 2030 is to create a health system where:

- communities are engaged in their own wellbeing
- people are active partners in their own care
- health care in the home and community meets most people's needs
- people attend the Kenepuru Community and Wellington hospitals with ease when they need specialised or complex care

The plan presents the design for a health system that consistently holds people and communities at its centre. By following this plan, we will create a health system that changes the way we deliver our services; partnering with people in their homes and in communities and building community health networks (CHNs) to improve their population's health and wellbeing. These will reduce avoidable health demands, particularly around higher-cost hospital and specialist services. This will enable our hospitals to shift away from being the safety net for the whole health care system of the region, focusing instead on becoming proactive specialist centres, working alongside the different communities and their different needs.

2.1 Who are the people of the Capital & Coast DHB region?

The CCDHB region is a diverse community that incorporates Kāpiti Coast, Porirua, and Wellington City. In 2018, an estimated 317,800 people called the region home[26]. This is projected to grow by 28,470 people by 2030, a 9 percent increase[1].



Understanding population demographics is important. Age, ethnicity, and deprivation are strong indicators of health needs and therefore the demand for health services. The population projections used in this section are calculated by Statistics New Zealand. Statistics New Zealand is the official producer of population statistics for New Zealand, including population estimated and population

[26] Statistics New Zealand. (2018). District Health Board Ethnic Group Population Projections 2014–43 (2013-Base) - 2018 Update.

projections[27]. As such, these figures provide a best estimate of the CCDHB region's future population demographics. The population projections account for the impacts of natural increase (birth rate and death rate) and net migration and the numbers of young people are the least certain.[28]

In 2018, people under 25 years of age made up 33 percent of the CCDHB region's population, while middle-aged people (25- to 69-year-olds) represented 58 percent and therefore the bulk of the population[1]. The remaining 9 percent of the population were people over 70 years[1].

The number of people aged over 70 years is expected to increase significantly. Forecasts suggest that, by 2030, at least one in eight people will be aged 70 years or over, and the population aged over 80 years will increase by over 72 percent over the same period[1]. In 2018, Wellington had a large proportion of people in the younger working age group (20–44 years), while nearly one-quarter (23%) of the Porirua population were aged under 15 years and just over one-quarter (26%) of the Kāpiti Coast population were aged over 65 years[29].

The CCDHB region is ethnically diverse. In 2018, just over 11 percent of the population identified as Māori, 7 percent identified as Pacific peoples and 15 percent identified as Asian; 67 percent of the population identified in the 'Other' ethnic category[1]. Porirua had a larger proportion of Māori (16 percent) and Pacific peoples (21 percent), while 89 percent of the Kāpiti Coast population identified in the 'Other' ethnic category[2]. Māori and Pacific populations also tended to be younger, with 29 percent of the region's Māori and 27 percent of the region's Pacific people aged under 15 years in 2018[1].

Ethnic diversity in the CCDHB region is expected to continue to increase over time. The Asian population is the fastest growing population in the sub-region[30] and by 2030 is expected to grow by at least 41 percent to 94,640 people from 67,190 in 2018[1]. Pacific peoples and 'Other' populations are expected to grow much more slowly and even decline in some younger age groups. The Pacific people's population is projected to grow by 3% in 2023 and 7% in 2030 from 2018[1]. 'Other' populations are expected to experience no net growth between 2018 and 2030; growing by 1 percent by 2023 and then decreasing by 1% by 2030[1].

CCDHB is the complex care provider for the Central Region. This region includes Hawkes Bay, MidCentral, Whanganui, Wairarapa, Hutt Valley and Capital & Coast DHBs.

[27] Statistics New Zealand. (2018). Legislation, policies and guidelines; https://www.stats.govt.nz/about-us/legislation-policies-and-guidelines/

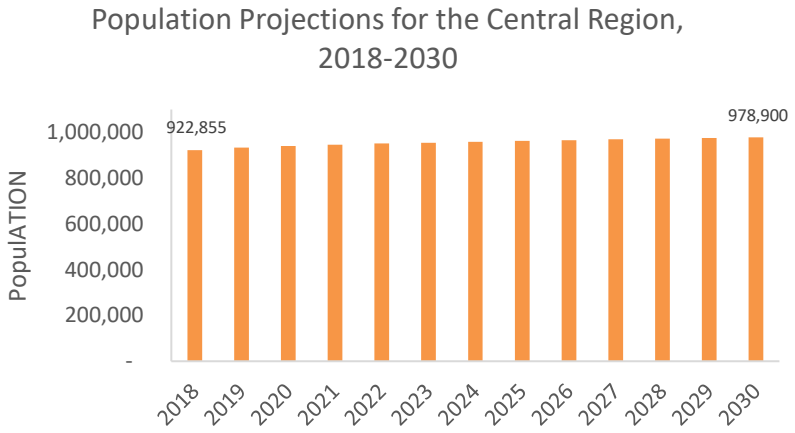
[28] Stats NZ. (2008). How Accurate are Population Projections? An evaluation of Statistics New Zealand population projections, 1991–2006. Wellington: Statistics New Zealand.

[29] Statistics New Zealand. (2013). Population projections, by age and sex, 2013 (base) – 2043 update.

[30] The sub-region comprises Wairarapa, Hutt Valley and Capital & Coast DHBs.

Map of Central Region DHBs

In 2018, the Central Region population was 922,855 people [1]. This represents 19 percent of the total New Zealand population and is projected to grow by 6 percent by 2030 to just under one million people (978,900)[1].



The Central Region has a high proportion of people identifying as Māori; almost one in five people identified as Māori in 2018 (18%)[1]. In 2018, 27 percent of people in Whanganui identified as Māori; 26 percent in Hawkes Bay; 20 percent in MidCentral; 17 percent in the Wairarapa; and 17 percent in Hutt Valley[1]. The largest Māori populations in the Central Region are in Hawkes Bay (42,740 people), Capital & Coast (32,980 people), and MidCentral (35,680 people) DHBs. Hutt Valley and Whanganui DHBs also have significant Māori populations of 25,800 and 17,170 respectively. Only 7,820 people identified as Māori in Wairarapa DHB. By 2030, the Māori population for the Central Region is expected to grow by 20 percent or 32,820 people.

The Central Region includes three of the eight DHBs where 90 percent of Pacific peoples reside (the 'Pacific priority DHBs')[31] Those DHBs are Capital & Coast, Hutt Valley and Hawkes Bay. In 2018, 5% of the Central Region population identified as Pacific; 83% resided in Capital & Coast, Hutt Valley and Hawkes Bay DHBs.

In 2018, 10% of the Central Region population identified as Asian. CCDHB had the largest Asian population in the Central Region; 15 percent of the population identified as Asian.

2.2 Plan overview

The plan is designed to support people and whānau-led wellbeing, with the health system organised around people and place: people – providing services for everyone in the community and recognising those who need more help; place – providing care in the most appropriate environment and working with communities to create the structure around which existing and future health services can be organised.

Ultimately, the plan will clarify where services should be provided, who they are for, and the results they are expected to achieve. This clarity will help people, communities, social services, and other health care providers to engage appropriately and successfully with each other to deliver improved health outcomes. It also provides the framework for service delivery, planning, and investment decisions.

Figure 1: A health system focused on people and places

There are four key strategies for developing our approach to place as an organising system for health care.

1 Working with and in communities to develop 'locality' approaches

2 Developing interdisciplinary health teams who work together to support safe and effective care

[31] Ministry of Health. (2018). *'Ala Mo'ui Progress Report: Pacific Health Care Utilisation;* https://www.health.govt.nz/system/files/documents/publications/ala-moui-health-care-utilisation-dec18.pdf

3 Strengthen innovation, using technologies to improve knowledge, choice, and access to health care

4 Making effective use of health resources by organising health services around settings of care.

The health system approach includes:

- working with communities
- optimising care settings
- developing people-focused service delivery models.

2.3 Working with communities

Working with communities means we need to plan and deliver services locally that reflect their needs, and make sense to the people who live there. Capital and Coast DHB recognising appropriate locations for health care. Improving health and wellbeing requires effort across communities and is not concentrated in single organisations or within the boundaries of traditional health and social services.[32] There is growing evidence that by using localities,[33] we can engage communities in their own care, organise local responses more effectively, and improve results.

The plan promotes partnering with the Porirua City, Kāpiti Coast District and Wellington City councils, Māori, NGOs, and community leadership. The localities should align with council boundaries, hapū and marae. They will also consider the distribution of inequities.

The function of these localities will be to work with local partners to improve health behaviours and literacy, address the social determinants of health, and support local networks working with people to meet their health and wellbeing needs. There are already a range of local and regional philanthropic, charitable, and community organisations working to support people.

This plan proposes that CCDHB actively fosters these local networks and helps them connect with the people who need a wider range of support. This is particularly important for our target populations.

There are many examples of the CCDHB health system working collaboratively with other community organisations to improve health and wellbeing, including Māori providers, who are centered on marae and work with housing and early childhood education centres (ECE) to improve health for families and whānau with young children.

The Well Homes (Wellington Housing Coordination Services) programme, coordinated through Regional Public Health (RPH), is an example of a collaborative community project aimed at reducing housing-related hospital admissions, particularly for young children. This programme works with partners who work to improve housing for at-risk families and whānau (for example, the Sustainability Trust, which installs insulation and can provide tips for keeping homes warm and dry; landlords who can improve the quality of their housing stock; and Work and Income, who can ensure beneficiary families and whānau are getting their correct entitlements).

[32] Alderwick H, Ham C, Buck D. 2015. *Population Health Systems: Going beyond integrated care*. London: The King's Fund.

[33] Geographically defined communities.

2.4 Optimising care settings

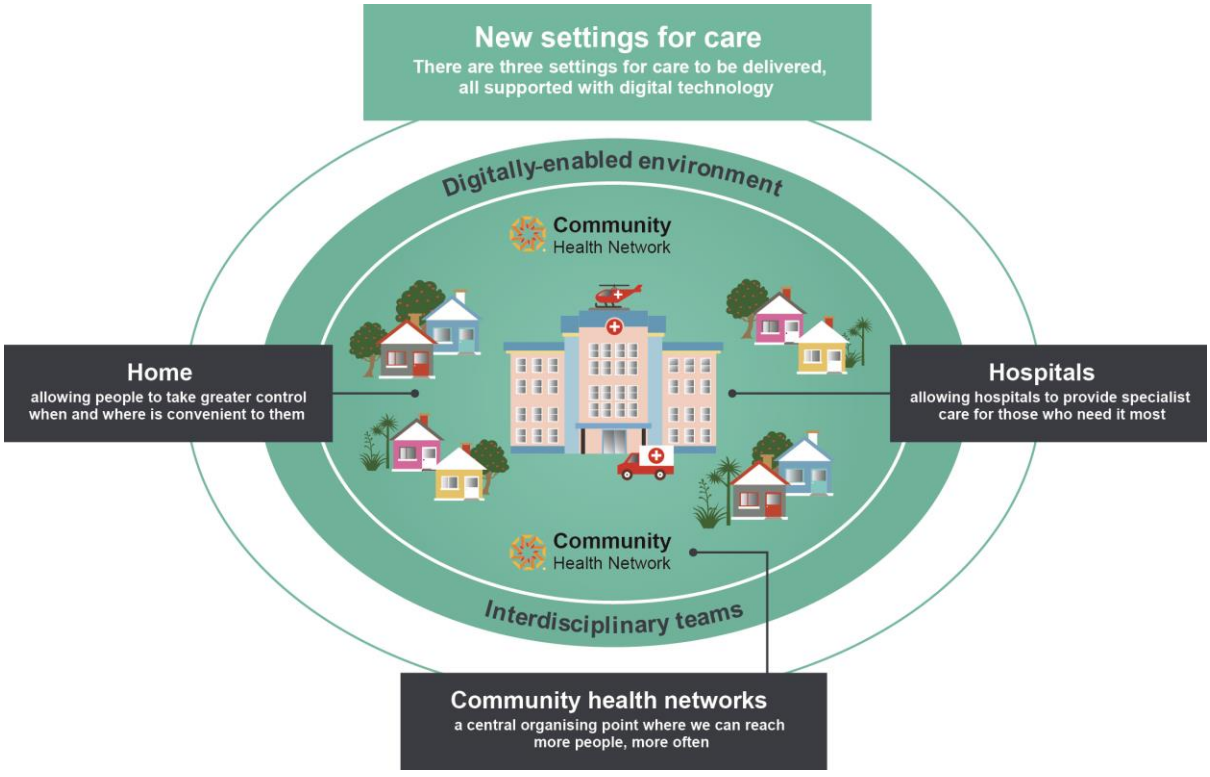
Settings of care is the second element of the plan. Health care has always been delivered in a variety of settings. The places where care is organised and delivered, together with increased access to better and cheaper technologies, provide the platform for a comprehensive system of care.

The plan centres on the following three core care settings.

- People's homes and residential care facilities
- CHNs, including the Health Care Home (and the Kāpiti Health Centre)
- Wellington and Kenepuru Community hospitals providing specialist care for the CCDHB region (as well as some specialist services for some neighbouring areas as part of clinical care arrangements).

Using the opportunities offered by increasingly cost-effective and sophisticated technologies, these settings of care become the structure of the CCDHB's health system. This represents more than simply shifting more care to community settings; rather it focuses on using technologies along with interdisciplinary teams to underpin the development of more comprehensive care responses that support people to manage more of their own health at home.

Figure 2: Settings of care for Capital & Coast DHB



Hospitals have traditionally been the default place of care. In this plan, we are explicitly moving the default setting of care to CHNs that support people in their homes and access hospitals.

In order for each care setting to function effectively and CHNs to successfully support more health care to be managed in community settings, there must be:

- greater use of **interdisciplinary health teams** to support a broader range of care skills and provide cost-effective services

- access to **digital technology** to:
    - expand capability in community settings
    - effectively create an information sharing network across health care settings.

Interdisciplinary teams

Interdisciplinary care, and interdisciplinary teams, reflect a response to the wider system shifts identified in this plan. This includes a recognition of the needs of an ageing population, a shift toward more community-based health care, and greater access to modern technologies.

There is good evidence that, when health care professionals from different fields work together, it benefits both the patient and the medical professionals themselves – and it reduces the overall cost of care.

Interdisciplinary teams are known to improve user satisfaction, reduce mortality, and improve continuity of care and quality of life. In addition, clinical decisions made by teams are more likely to reflect evidence-based guidelines than those made by individual health care professionals. Those working in interdisciplinary teams have increased job satisfaction – an individual's skills can be used to their maximum effect, particularly when there are scarce skill sets. Interdisciplinary care approaches are shown to improve financial performance, reduce the mean length of time a patient spends in hospital, and significantly reduce the number of unplanned hospital readmissions.[34]

Innovation using technologies

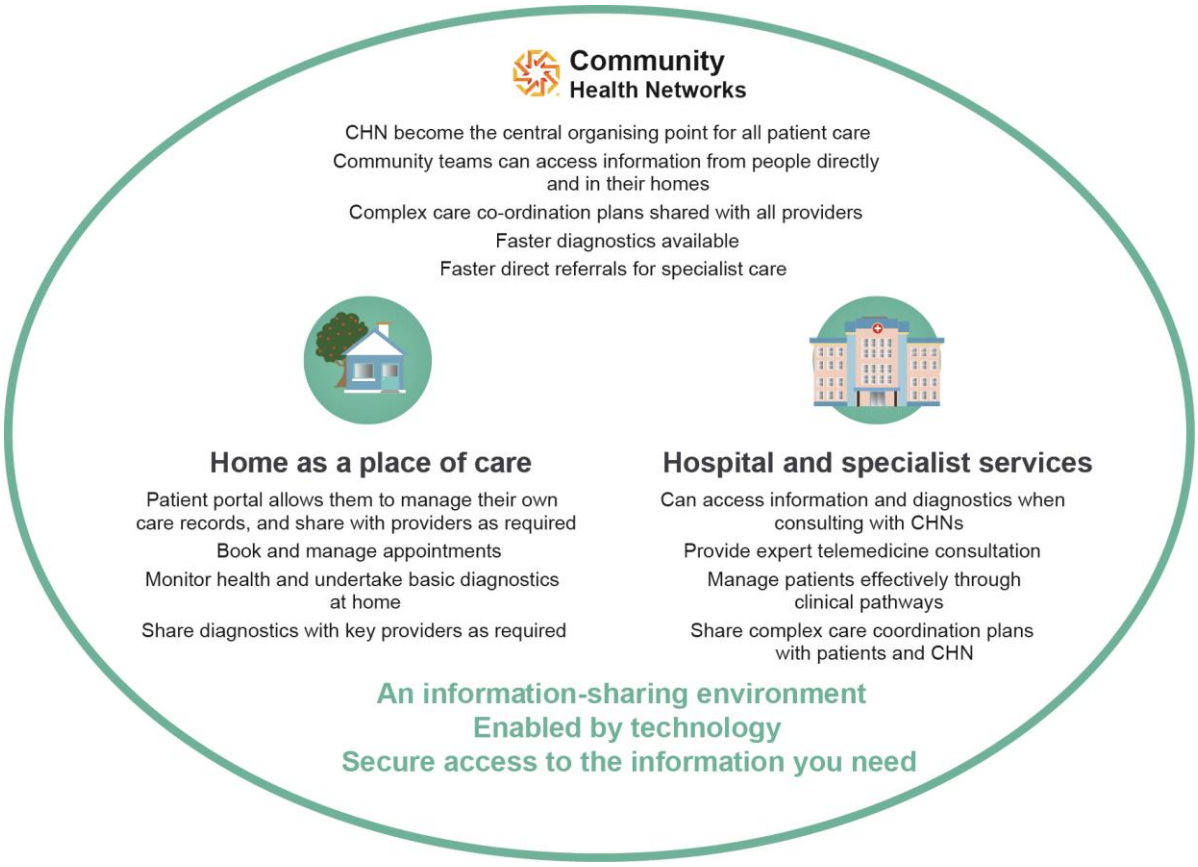
While other industries have completely changed their business models, the health and social sectors have been much slower to capitalise on similar opportunities. Within the health system, we have talked about population-based health approaches and people-centred care for many years. Digital technologies have created the platform to support these changes, and the growing affordability of such technologies makes it much more feasible to make the change.

Technologies has the ability to place people and their families and whānau at the centre of care by:

- providing fast and easy access to information and resources to allow people to make informed health care choices
- supporting people to manage more of their health needs at home through access to professional advice and self-monitoring, using remote diagnostics
- providing an electronic health record that is secure and supports health care professionals and social service providers to share accurate and reliable information while retaining appropriate confidentiality
- delivering specialist health care that will be more responsive and enabling CHNs to coordinate complex care simply and safely – resulting in improved health outcomes.

[34] IHE. 2006. Multidisciplinary healthcare. *Care Issues.* International Hospital Equipment, April. URL: www.ihe-online.com/fileadmin/artimg/multidisciplinary-healthcare.pdf (accessed 13 December 2018).

Figure 3: The digitally-enabled care network



2.5 Homes as a place of care

There are 106,000 households in the CCDHB region. Twenty-three percent of these are home to people living alone. Most people manage their everyday health needs independently at home, seeking support and developing solutions to challenges with families and whānau and through our personal and local support networks. Home as a place of care does not mean supporting people at all costs, or replicating hospital-level care in people's homes. We want to support a simpler services delivery option and a level of health literacy that enables people to make the choices necessary to manage their own care, closer to home.

There are already first-line responses available for people to use at home, notably Healthline, which provides telephone-based health care information and advice. Ambulance services are trialling home-based assessments of frail elderly people who make phone calls to emergency services. This has resulted in fewer people being transferred to hospital. Community pharmacy services are another existing source of access to health advice and information. There are opportunities for these types of activities to be extended, particularly with greater access to the internet, mobile phones and other mobile and handheld devices. People can already book their GP appointments or access their health care record through a patient portal linked to their phone or computer. We can also assume that in the near future some specialist consultations could take place remotely, with people connecting from home.

While home as a place of care represents a real possibility for a significant proportion of the population who live in stable housing and have reasonable access to resources, this is a more limited

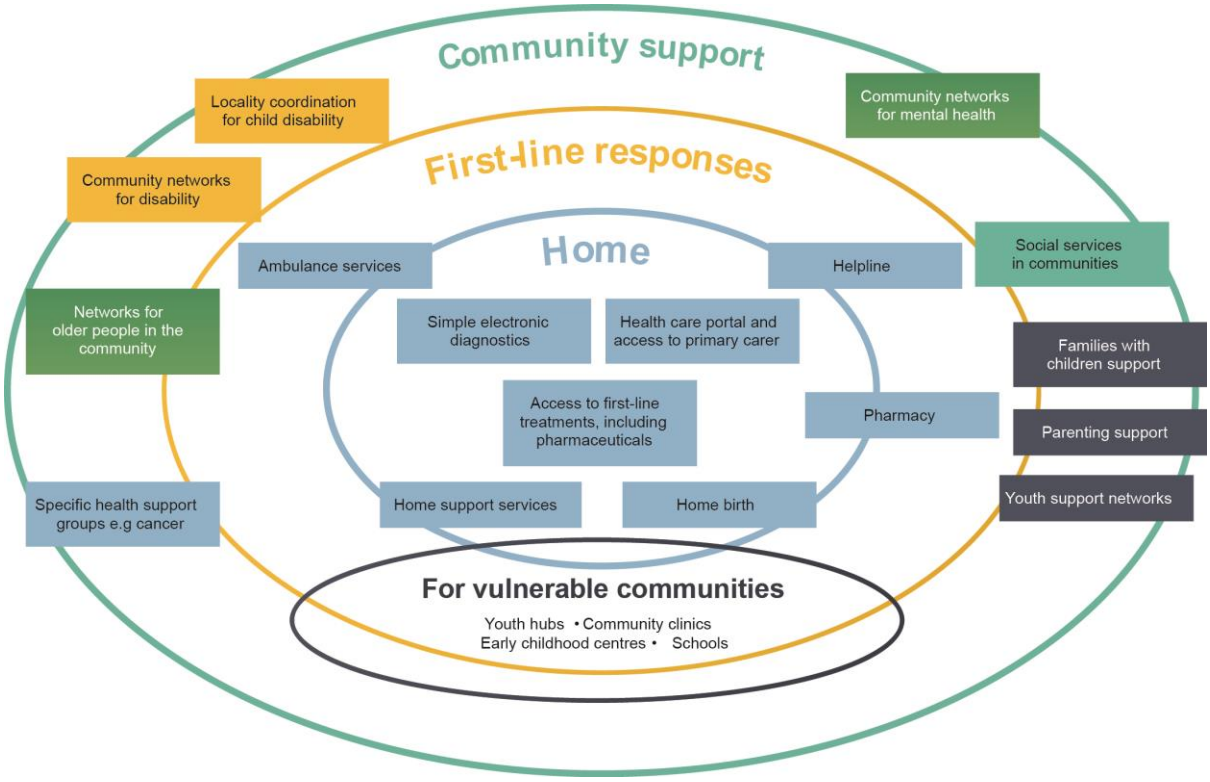
option for people who do not have internet access, are socio-economically deprived, or experience literacy or language issues. Currently, 21,000 (20 percent) of households in the CCDHB region do not have access to the internet. For those who are socio-economically deprived, the lack of stable housing and access to other resources mean the increasing use of technology could further increase inequities.

Accessing technologies such as the internet through local libraries and community centres can be one way of overcoming this barrier. For those who are socio-economically deprived, there is also good evidence that first-line responses in community clinics, including those on marae and at early childhood education (ECE) centres and schools can support access to health services and engage people in managing their own health and wellbeing.

Communities offer an important source of support and care for older people, those experiencing a disability or with mental health needs, families and whānau with young children, youth, and those with significant long-term conditions. The plan encourages fostering activities in specific communities and including CHN as a key contributing partner in services for these target populations and major service user groups.

Figure 4 illustrates the health care resources that already or could feasibly be made available to people in their homes to support them to manage their own and their family's health care needs. These tools and services are supported by first-line response services such as Healthline and expanded ambulance services that provide the next level of care. For those who are socio-economically deprived, access to health care services is made available through community clinics, schools, and youth hubs.

Figure 4: Home as the place of care – providing convenient and flexible options



2.6 Community health networks

Community health networks (CHNs) are the central organising point for delivering effective and efficient health care.

While people can manage much of their health and wellbeing at home, CHNs support people to utilise their home-based health services and technologies, treat and support people in the community, and connect people to specialist services when required.

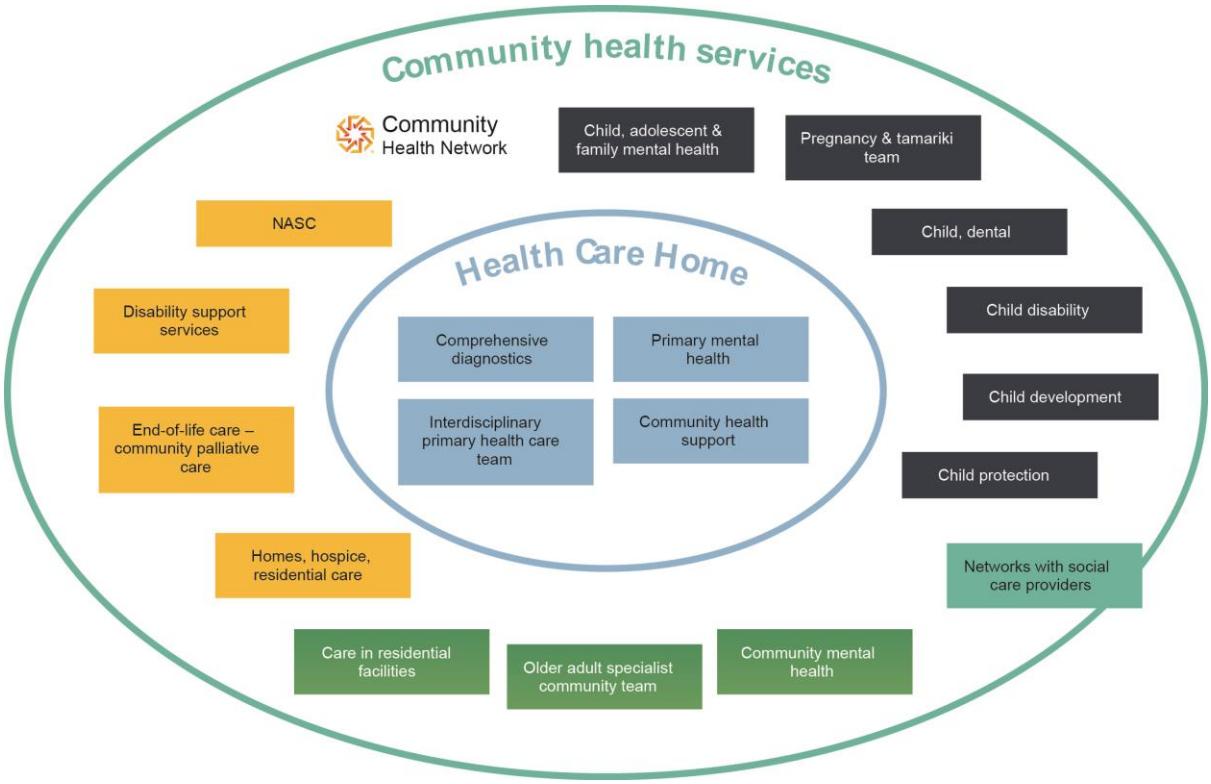
The CHNs have primary health care at their core, managing the health care needs of their populations. They play an important role in reducing inequities and improving health outcomes in communities.

The plan recommends three key shifts in the role and capability of CHNs. CHNs will:

- make greater use of digital technologies to enable them to better manage the needs of their populations. CHN will communicate within their own interdisciplinary teams and across their locality network with people at home, other health and social service providers, and specialist services in hospitals. This capability is underpinned by an enhanced ability to collect and share health and social information
- expand their access to diagnostic capabilities to enable more timely diagnosis and care responses. CHNs will engage more efficiently with specialists on diagnostic results to make shared clinical decisions that result in better outcomes. This is essential if we are to shift care into community settings to reduce the growing level of demand for hospital diagnostics and clinical assessments. Currently significant amounts of hospital resources and specialist time are spent on activities that could easily be managed within CHNs
- become the organising point for a wide range of community-based health services, making interdisciplinary teams responsible for integrating community service delivery around major service user groups and target populations. Teams of health professionals will be networked to Health Care Homes (general practice) and work with major service user groups and target populations. Services will be made available dependent on the needs of their local populations.

Marae and community-based health facilities are crucial in achieving equity. We must recognise the potential for iwi and Pacific providers to become organising hubs for connecting with Māori and Pacific families and whānau who have been identified as socio-economically deprived or with complex health needs. Whānau Ora commissioning agencies are likely to be a key partner in developing effective relationships with these stakeholders.

Figure 5: The community health network – reaching more people, more often



Population size and location suggest that at least four CHN would be required within the CCDHB region. CHN will need to build relationships with social service providers, since changing the social determinants of health requires integrating and co-ordinating health and social care services according to the needs of the individual or family and whānau.

2.7 Specialist care in hospitals

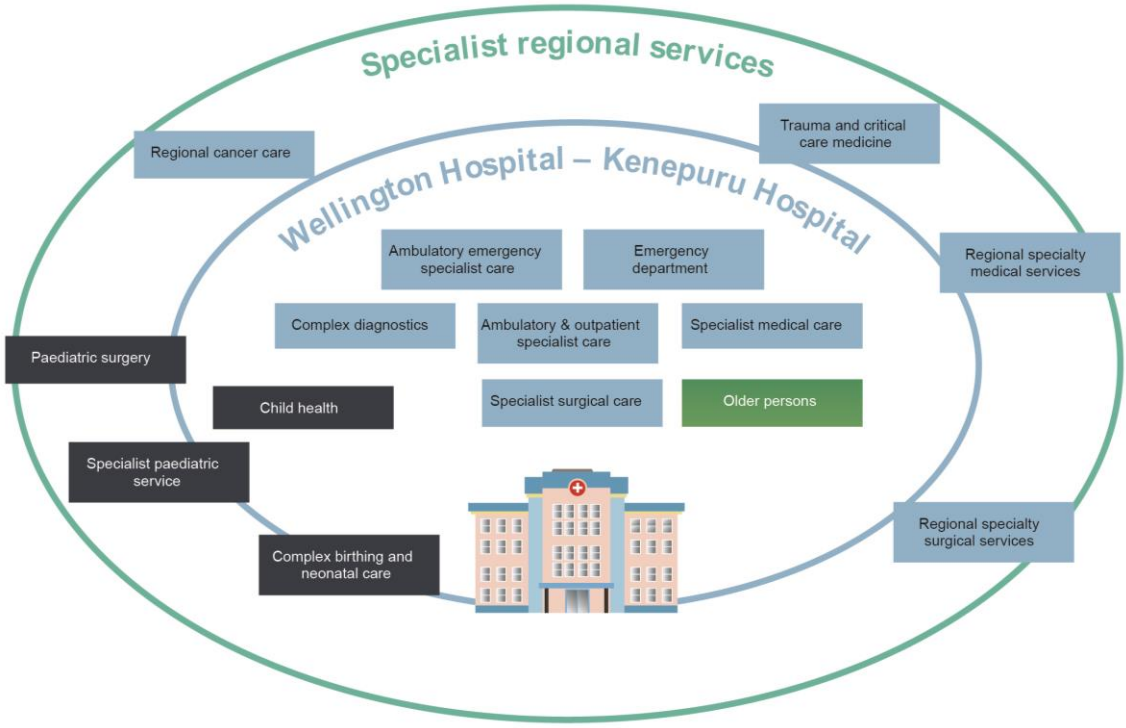
The purpose of Wellington and Kenepuru Community hospitals is to provide acute care and to ensure access to planned (non-acute) services, birthing services, and a comprehensive range of subspecialties. The range of services is comprehensive because Wellington Hospital is both a regional and local provider of complex care and Kenepuru Community Hospital provides subacute care, including rehabilitation. Like other public hospitals, Wellington and Kenepuru Community hospitals provide inpatient, day-case, and outpatient services, depending on a person's care needs.[35]

Under the plan, CCDHB hospitals will become centres of expert specialist care. Their emphasis will move away from being the safety net for the whole health care system to being a proactive manager of health care alongside community health care networks.

To do this effectively, Wellington and Kenepuru Community hospitals will need to manage internal patient flows in this complex care environment using digital technologies alongside clinical care systems, collecting patient information and using relevant processes to ensure the most efficient use of resources.

[35] See webpage: Ministry of Health, Public hospitals. URL: www.health.govt.nz/our-work/hospitals-and-specialist-care/public-hospitals

Figure 6: Specialist hospital-level services – focusing on those with greater needs



2.8 Tertiary services and regional clinical care arrangements

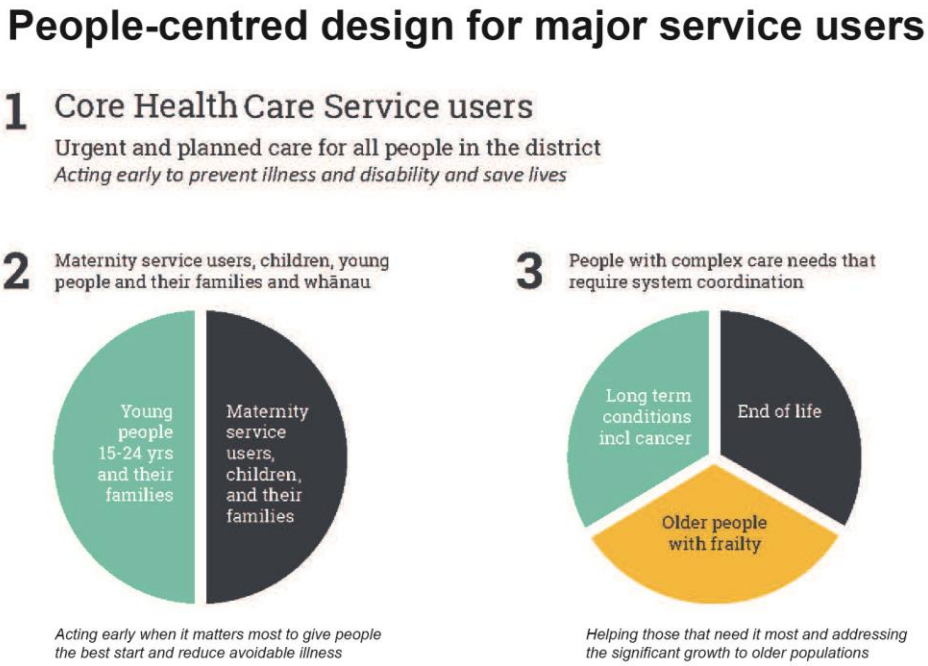
Wellington Hospital is a tertiary service centre that serves the people of the central region, with the greatest level of support being provided to Hutt Valley DHB. The central region includes MidCentral, Wairarapa, Whanganui, Hawke's Bay and Hutt Valley DHBs.

Delivering quality and clinically sustainable specialised care at Wellington Hospital requires building on existing clinical care arrangements. A separate tertiary service plan will be developed in 2019.

2.9 Developing people-focused service delivery models

The final element of this plan involves developing people-focused service delivery models. The plan has three macro service delivery models for major health service user groups. These groups are:

- **core health care service users** (those who require any form of urgent and planned care –the health system will be acting early to prevent illness and disability and save lives)
- **maternity services users and children, young people, and their families and whānau** (the health system will be providing support in these key life transitions, with a strong focus on children and young people where early action has benefits across the life course)
- **people with complex care needs who require system coordination** (including those who have long-term conditions, are becoming frail or are at the end of their life. These are people who have multiple needs from the health system and require the system to be easily and effectively navigated to enable them to lead their own health care).



There are three key strategies for developing our approach to people's health care.

- Simplify care for those who have good health literacy and resources.
- Intensify care for those who have less resources and experience the greatest levels of avoidable poor health.
- Invest in processes that encourage early action to prevent avoidable costs from longer-term health care.

2.10 Those who need more

Health outcomes can be improved by support people and their families and whānau to have greater control of their own health care. Yet, inequities in health persist in New Zealand. They are greatest for Māori, Pacific peoples, refugees, those who are socio-economically deprived, those who have enduring mental illness and addictions, and those with disability. Social determinants, stigmatisation, and poorer access to health and social services can increase a community's vulnerability. Gender and geographical inequities are other important areas for action.

The focus on people and whānau leading their own wellbeing is designed to support people to have greater control of their own healthcare and health outcomes, thereby improving health outcomes.

Critically important to the achievement of equity is the intensification of services, and new service model for those who have greater needs and less resources.

The people we must be focused upon are:

Māori and Pacific people

In New Zealand, ethnic identity is an important dimension of health inequities. Māori health status is demonstrably poorer than other New Zealanders. Pacific peoples also have poorer health than

Pakeha. These communities are also more likely to experience intersectionality; the interconnected nature of discrimination, racism and colonisation which may be regarded as creating overlapping and interdependent systems of discrimination or disadvantage. Our responses for these communities need to be more successful, reducing inequities and improving outcomes. Re-designing services within these communities will be essential. The impacts of Maori and Pacific leadership and reflecting cultural and social values will be part of these solutions.

People who are socio-economically deprived

It is estimated there are currently around 69,000 people experiencing some level of socio-economic deprivation in the CCDHB region.

Communities that are socio-economically deprived require broad service responses that strengthen their resources, support them to achieve equitable health outcome and help address the impact of social determinants.

People with enduring mental illness and addiction

There are about 40,000 people with mental health needs currently living in the CCDHB region. This figure is expected to rise to 44,000 people by 2030[36]. Not all these people will require the support of mental health services, but some people, particularly those with moderate or severe mental health needs, are likely to require additional support to manage and maintain their health and wellbeing.

People with disabilities

According to the New Zealand Disability Survey 2013 there are currently 72,200 people with a disability living in the CCDHB region.[37] This is expected to increase to 84,500 by 2030[38]. The growing rates of disability partially reflects our ageing population. Not all these people will require support, but they are more likely than the general population to require additional help at some point in their lives.

[36] CCDHB 2017. SIDU Analytics Team.

[37] Stats NZ. 2013. New Zealand Disability Survey. Wellington: Statistics New Zealand. URL: https://catalogue.data.govt.nz/dataset/disability-survey (accessed 14 December 2018).

[38] CCDHB 2017. SIDU Analytics Team.

Urgent and planned macro models of care

Urgent and planned health care is the core function of our health system. It saves lives, prevents illness and disability, and is fundamentally important to the health of all people in New Zealand. This model of care focuses on using the capability in homes and CHN to meet health care needs earlier, reducing the impact of avoidable demand on hospitals. Instead, hospitals will be able to focus on providing care directly to people who have the most complex needs.

Who will we be serving in 2030?

In 2030, the total population of the CCDHB region will have risen by 10 percent. However, demand for acute and planned care services are expected to increase at a much greater rate than population growth as the population ages.

The impact of the growth in demand can be seen in emergency department attendances, which are forecast to increase 60 percent between 2016 and 2030, or more than 36,000 additional visits. This sits alongside an increased demand for an additional 137 inpatient beds.

The solution is to prevent avoidable demand and meet health needs much earlier, before hospital care is required.

The model of care for urgent services

Urgent (or acute) care is defined by the WHO as including "the health system components, or care delivery platforms, used to treat sudden, often unexpected, urgent or emergent episodes of injury and illness that can lead to death or disability without rapid intervention".[39]

Urgent care can start in the home, when people are making decisions around how ill a child might be or when a significant event happens in the workplace or in public. In this model of care, initial urgent care needs are met by the Health Care Home in the CHN, which have the relationships and the capability to respond and can support people to make informed decisions in their own home. Genuine emergency care is supported by the hospital, including trauma care and specialised services.

Under an urgent model of care:

...acute assessment is accessible for everyone, and more complex care is available for those who need it.

There are three key elements in the urgent services model of care.

- People have good health literacy and make decisions to access care in the best setting for their needs, whether this be the home, CHN, or hospital.
- Better diagnostic capability in people's homes and CHNs, combined with sharing health information, improves the ability to make safe decisions to refer or not refer to hospital.

[39] Hirshon JM, Risko N, Calvello EJB, et al. 2013. Health systems and services: the role of acute care. *Bulletin of the World Health Organization.* Vol 91, 5: 386–88. DOI: http://dx.doi.org/10.2471/BLT.12.112664 (accessed 14 December 2018).

- The availability of an ambulatory specialist medical and surgical assessment unit, alongside the emergency department, to provide access to specialist assessment either electronically or by referrals from the CHNs, will reduce the need for emergency department assessment, preventing unnecessary admissions and increasing the likelihood of discharge.

The model of care for planned specialist care service users

Elective services are the public face of our health system. But they are a small portion of health care delivery and of the planned services provided by specialist and diagnostic services. Access to timely planned care is important to support people to live independent lives and maintain their wellbeing.

We currently invest considerable resources in managing access to planned care, including scheduling appointments, managing waiting lists, and referring people between health care professionals. However, digital technologies to manage these processes and ensure people are in the right place at the right time are significantly underutilised.

Under a planned model of care:

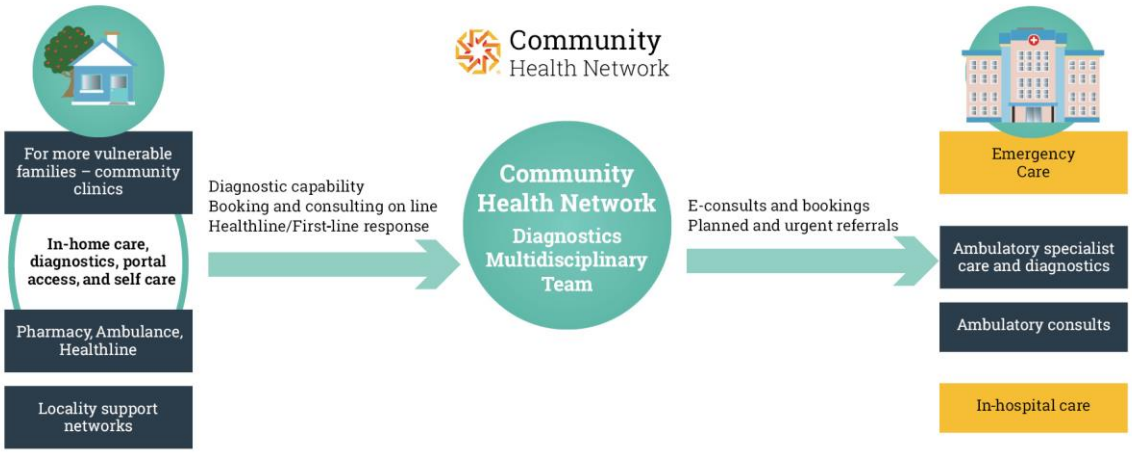
…people are supported to live their lives and maintain their wellbeing.

CHNs will play a role in managing clinical pathways and providing access to the necessary diagnostics. They will be supported by clinical decision support tools, electronic patient portals, electronic booking tools, access to diagnostics, telehealth including teleradiology, and telemetry (remote monitoring of a patient's vital sign).

There are three key elements in the planned model of care.

- Electronic tools will be used to support clinical pathways and manage scheduling and queues.
- Health Care Home general practitioners can complete more diagnostics in the community and consult easily with specialists before referring patients for a specialist assessment.
- Ambulatory specialist medical and surgical assessment units will improve access to specialist assessments within hospitals, preventing unnecessary first specialist assessments.

Figure 7: Overview of the urgent and planned care system



What will be different for me?

Going to my community health network is more useful to me than going to a hospital.

At home

In my home, when my family or I are unwell or have an accident, I will be able to:

- ring a Healthline and talk to them about what I should do
- consult an electronic portal and website to ask health professionals about my options (this could be in my home or in a community setting such as a library)
- have basic health tools, such as a thermometer or camera on my phone or electronic device to allow me to give the doctor, ambulance or Healthline additional information
- use basic first aid tools, including pharmaceuticals in my cupboard that I know how to use
- phone the ambulance service, and they will access my clinical record and help me make decisions or attend my emergency when needed.

CHNs will:

- respond to telephone and electronic enquiries from their own registered patients, supporting appropriate and timely decisions
- support the home-based basic diagnostics of registered patients, enabling information to be transferred to appropriate health professionals as needed
- provide care to unregistered patients and then refer those patients back to their own health professional or hub or register them as a new patient.

Ambulances, pharmacies, and community clinics will be able to access the shared health care records of people who request their support, which will help them determine the right place to treat or transfer the patient.

- Healthline, community workers and nurses, ambulances, and pharmacies will be able to use low-cost diagnostic and screening tools to assess people in their own homes.
- Vulnerable people and their families and whānau will have access to local support in their communities to improve care.
- Pharmacies will be able to support people with immediate health care needs and provide advice.
- Ambulances, as a first-line response service, will use risk assessment tools and/or transfer people to emergency care or specialist assessment.

In the community health network

In my community, I will be able to:

- contact or go to my CHN between 7am and 10pm
- call the Healthline or ambulance service after hours if I need to access health care services urgently.

My CHN will:

- have a primary health care team that is comprehensive and can see me the same day
- provide diagnostics, if needed, and they will work with me to make a decision about my health care needs
- track my appointment times, know when I will be seen, and change my appointment should I need to – including consultations, diagnostics, and procedures
- coordinate the electronic record of my health care
- reduce the need for me to be transferred for specialist assessment
- manage access to a specialist doctor if I am very unwell, either electronically or by telephone, to make the next set of decisions about my care
- refer me to a support network, if I have complex social needs, which will help me access the support I need.

In the hospital

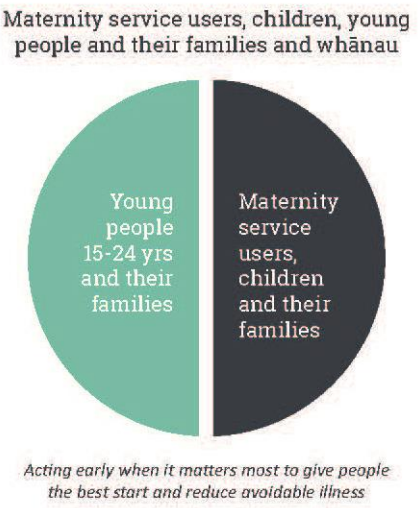
If I am seriously unwell:

- the CHN can refer me to the specialist assessment centre. Here, a specialist doctor who has been discussing my care with my community health care team will undertake further tests and assess me. I may be admitted to hospital, or I may be discharged back to the care of my general practitioner (GP)
- and have had a serious accident or medical condition, an ambulance may take me directly to the emergency department, where they will stabilise, assess, and treat me. I may be admitted to hospital. If I have experienced a significant trauma injury, the ambulance will take me directly to Wellington Hospital for very specialised care. A recovery pathway will be managed in liaison with my community health hub
- and have a complex clinical condition, my CHN may refer me to a specialist assessment service at the hospital.

Maternity and children, young people, and their families and whānau – macro models of care

Pregnancy marks the beginning of life; it is vital to a baby's future health that all pregnant women get the help and care they need, even before they are pregnant.

Giving every child the best start in life is also crucial to reducing health inequities across the life course.[40] The Children's Commissioner identified that children who experience poverty will have both a forward liability for the health sector and a cross-sector liability, representing a productivity cost to individuals, businesses, and the nation.[41]



Poor health is not limited to the duration children are in poverty, with several New Zealand and international studies finding that childhood poverty results in 40 to 80 percent higher likelihood of poor health in adulthood and about twice the risk of work-limiting chronic illness.[42]

Who will we be serving in 2030?

In 2030, almost 4,000 babies will be born per annum in the CCDHB region. Projections show that there will be 55,000 children (0–14 years old) and 47,000 young people (15–24 years old) in the CCDHB region by 2030.

The maternity and children, young people, and their families and whānau model of care:

…supports our mothers, families and whānau, and their children to bear healthy babies and provide the best start to life.

The model of care for our mothers, families and whānau, and their children

This model focuses on integrating the services that are available for children in communities, including Well Child and child development and disability services. Shared information and developing technologies will enable services to work collaboratively in communities and with CHNs.

At the heart of this model is the provision of coordinated care for pregnancy and the early years, with the development of a pregnancy and early years team (PEYT). Community resources that exist already to support pregnancy and early years of life will be brought into the PEYT. The PEYT will form the core of a child health network and will include the lead maternity carer (LMC), Well Child nurses,

[40] Marmot M, Goldbatt P, Allen J, et al. 2010. *Fair Society, Healthy Lives: The Marmot review: Strategic review of health inequalities in England post-2010.* London: The Marmot Review. URL: www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review (accessed 13 December 2018).

[41] Office of the Children's Commissioner. 2014. *Choose Kids: Why investing in children benefits all New Zealanders*. Wellington: Office of the Children's Commissioner.

[42] Pearce J. 2011. An estimate of the national costs of child poverty in New Zealand. *Analytica*. URL: http://analytica.org.nz/Publications/ (accessed 14 December 2018).

child development teams, child dental services, child mental health services, and parenting support programmes.

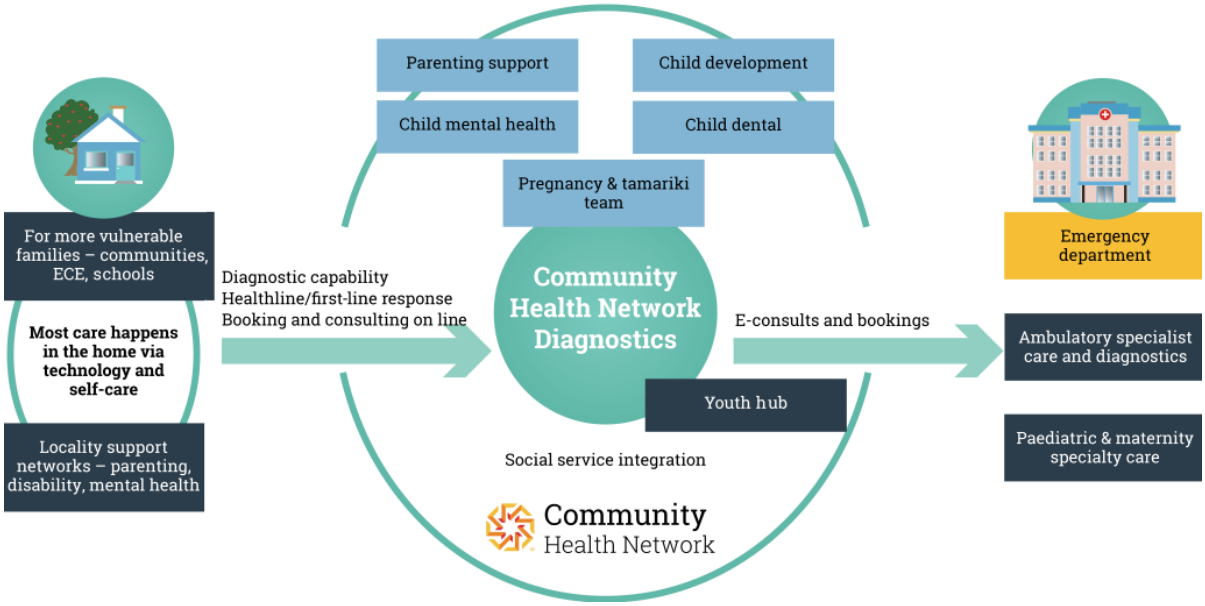
What parents know about child development is positively correlated with them being able to provide the environment and opportunities conducive to stimulating their own children's development.[43] The PEYT and child health networks in the community will link with social services to:

- focus on parenting skills and resources to strengthen families and whānau
- work with at-risk families and whānau, linking them to social services to address and prevent family violence
- support networks in ECE centres, schools, marae, churches and community groups
- foster community support networks for families and whānau, including families and whānau coping with mental health and disability needs.

This model of care is already happening in pockets. The Whānau Ora model of commissioning services for at-risk whānau is based on a model that seeks to wrap a range of health and social services around whānau. Marae-based services in the CCDHB region are already working collaboratively with a range of health and social care agencies. These services could be further strengthened by connecting them to a CHN and supporting Māori families and whānau to access the services they need.

The key difference in the model of care described here is that all services that support women and children to live well would be connected within a defined geographical area, and information about the needs of each family and whānau would be shared between health providers on the PEYT. Social support networks within communities that support women and children would be connected to pregnancy and child health teams along with other health and social services.

Figure 8: The mothers, families and whānau, and their children. The maternity and child care network



[43] Stevens JH Jr. 1984. Child development knowledge and parenting skills. *Family Relations*, 33, 237–44.

What will be different for me?

I will know what to do when I am planning my pregnancy, having a child and/or caring for small children. I will have support to keep me and my family healthy.

At home

In my home, if I am pregnant or have young children, I will be able to:

- consult an electronic portal to my CHN that tells me everything I need to know about my pregnancy and my family's health
- be booked with a midwife who will support me until my baby is six weeks old
- once my baby is six weeks old, be connected to a nurse who will work with me to ensure I have the knowledge and skills I need to care for my baby
- book myself into the PEYT at my community health hub
- ask my community nurse or pharmacy for help during the day
- feel confident that I know the specialist team at Wellington and Kenepuru Community hospitals and my community health hub know what is happening around the care my child requires if my child has a very complex health care need.

Birthing options

- If I am able and want to, I can have my baby at home, in a community birthing facility, or in a hospital with the support of my midwife or LMC and family and whānau.

First-line responses

- I can access quality resources online if I am planning to become pregnant and have questions, or my CHN will provide me with advice.
- Pharmacies will be able to provide quality advice on supporting children when they are unwell.

In the community health network

My CHN will:

- network with services that can assist with parenting and provide social support
- network with child development and community child and adolescent mental health teams to build community-based capability and support my children, me and my family and whānau.

In the hospital

If I want to have my baby at the hospital:

- I will go to the hospital delivery unit, where I am registered with my LMC
- after the birth, I will go home with the support of my PEYT.

If I need additional or specialist support, my PEYT and LMC will be there to support me and help me access care for myself and my child.

If my child is very unwell:

- my CHN will schedule specialist appointments at Wellington Hospital
- and needs specialist support from Wellington Hospital, my CHN will be fully informed of the specialist care and will liaise with my specialist.

If my child has a long-term condition that requires ongoing complex management, their care will be transferred to Wellington Hospital, which will liaise directly with my CHN.

Young people (15 to 24 years) – Getting it right

Getting it right for young people presents different challenges for the health sector. Young people are not high users of the health system, but the choices they make now will impact on their future health demands. The evidence shows that as children transition into adolescence, they are more likely to engage in risky behaviour (for example, drinking, substance abuse, unprotected sexual activity, and criminal activity) than in other periods of their lives.

Suicide was the most common cause of death among the CCDHB population aged between 15 and 24 years[44].

The Dunedin Multidisciplinary Health and Development Study (the Dunedin Study) is a longitudinal study that has been ongoing since 1972/72. The Dunedin Study that investigates the nature and prevalence of child health and development problems, including some causal factors, implications, and longer-term consequences. The Dunedin Study showed that of those adults now receiving intensive mental health services, around 78 percent had received a diagnosis before they were 18 years old.[45] Worldwide studies suggest that somewhere between 14 and 25 percent of the child and youth population worldwide suffers significant mental health disorders.[46] [47]

Māori and Pacific peoples, those with disability and mental illness, and the socio-economically deprived are disproportionately impacted in the youth age group.

The youth services model of care will:

…support our youth to build healthy and safe lives.

Who will we be serving in 2030?

In 2030, it is estimated that there will be about 16,000 young people in the CCDHB region, 2,200 less than now. As with other young populations, more will be Māori and Pacific peoples, and more will come from low socio-economic groups.

[44] Service Integration Development Unit. Health Needs Assessment. Capital & Coast, Hutt Valley and Wairarapa DHB. 2015

[45] See website: The Dunedin Study: Dunedin Multidisciplinary Health and Development Unit. URL: https://dunedinstudy.otago.ac.nz/

[46] Australian Government. The Mental Health of Children and Adolescents. Report on the second Australian Child and Adolescent Survey of Mental Health and Wellbeing. 2015.

[47] Mental Health Commission. Child and Youth Mental Health and Addiction. August 2011

The model of care and service delivery for youth in 2030

The proposed model of care for youth focuses on those who are vulnerable and should be targeted in higher need areas. The proposed model focuses on an integrated service delivery that provides services alongside CHNs for vulnerable youth.

There are two parts to the model: school health teams and youth one-stop shops.

School health teams would be closely linked to schools and could be based in schools, especially in vulnerable communities. Youth would have access to health services, including contraceptive advice, on campus and would be made aware of the dangers of unprotected sex and have access to psychosocial support.

The Porirua Social Sector Trial focused on improving outcomes for young people aged 10–24 years in that area and recommended building on existing services and access points to engage with youth. This included using schools as hubs for integrating education with social and health so areas of concern could be identified and addressed early. For those young people with significant issues, the trial recommended developing a 'single school plan' that would be coordinated throughout the students' time at school.

Some one-stop shops are already operating effectively in the youth space. This approach builds on the Kāpiti Youth Support (KYS) model, which has been successfully operating in CCDHB for some time and has been shown to be effective in meeting the needs of at-risk youth. KYS already works within schools to provide accessible services for young people. The youth hub will be closely linked to community health and social hubs and adolescent mental health teams in each area where these services are not directly provided by the hub.

What will be different for me?

I know that, as a young person, I can get help for my health care from my school and community health hub and there are people who can help me.

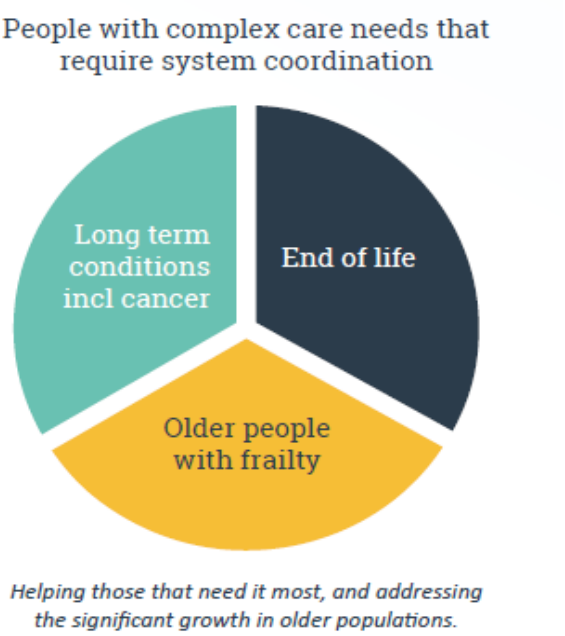
At home

In my home, or on my device, I will:

- know how to access youth-orientated services that can give me advice and support on how to keep myself well and/or understand my needs.

In my community:

- I can access the local youth service or CHN to help me get support for my health and social needs
- I understand what free services are available to me and where I should go or who I should contact to access those services
- I can choose to go to Family Planning or my school nurse and access confidential help and support if that works best for me
- if I have a mental health need or addiction, I will be supported by a network that knows how to help people my age
- if I want support with sexuality or gender, I will be supported by a network that knows how to help people my age
- if I have a disability, I will be supported by a network that knows how to help people my age
- if I am at school, I can access the school health team who knows what services are available to help me in my community and how I can access them.



Helping those that need it most, and addressing the significant growth in older populations.

In the community health network / youth community service

My CHN / youth community service will:

- actively encourage me to visit my school health centre or CHN when I have a health issue or concern
- liaise with my school to ensure resources are adequate and available and any issues are highlighted and discussed
- where required, develop a health care pathway for me that makes it clear what I can expect and what is expected of me in managing my health
- support me if I have a mental illness, addiction, or disability or am pregnant or have children to build local networks
- assist and support me to navigate the health care system
- assist and supports me if I have complex social needs and find it difficult to access health care services.

Models of care for complex needs

Some health care needs are more complex than others and require sustained relationships between the health care system and the people living with the complex diagnoses. They require a sophisticated level of care coordination, sharing of information across health professionals, and a greater focus on life outcomes. The intensity of the response is significantly influenced by the socioeconomic status of the people and their families. Those who experience the negative impacts of social determinants

Long-term conditions

The WHO defines long-term conditions as "health problems that require ongoing management over a period of years or decades".[48] Long-term conditions are generally not curable and last longer than 12 months. Some are characterised by acute episodes of ill health, resulting in repeated admissions to hospital. Long-term conditions can be physical, mental, behavioural, or emotional. In the United Kingdom, it has been estimated that people with long-term conditions use 50 percent of all GP appointments, take up 70 percent of hospital beds, and use around 70 percent of the total health budget.[49] Better management of these conditions has the potential to not only result in better outcomes for those living with such conditions but can also improve the sustainability of the health system.

Our proposed model of care for people with long-term conditions in the CCDHB region seeks to integrate options for improving lifestyles and the incidence and experience of long-term conditions with coordinated care services for those who are experiencing long-term conditions.

The long-term conditions model of care will:

…help people to live good lives by preventing and supporting long-term conditions.

Who will we be serving in 2030?

The incidence of long-term conditions is expected to continue to increase in the CCDHB region as our population ages and the prevalence of obesity continues to increase. The impact of social determinants influences a person's chance of developing a long-term condition as well as the intensity of that condition and the risk of it occurring earlier in life.

If not addressed, people with long-term conditions will put pressures on the CCDHB's health system. It is important to set up a more comprehensive approach to managing long-term conditions that considers the impacts of social determinants. We also need to be mindful that people are more likely to develop chronic conditions as they age, and this presents a significant increase in the costs associated with health care for the aged. In 2016 long-term physical and mental health conditions caused 87.3 percent of health loss in New Zealand[50].

The model of care for people with long-term conditions

The model of care for people with long-term conditions is based on providing individuals and their families and whānau with the tools they need in order to become informed health services users and to manage their health conditions in their own home, with the support of their local CHN.

There are four components to the model of care for people with long-term conditions.

[48] WHO. 2002. *Innovative Care for Chronic Conditions. Building Blocks for Action, Global report*, Chapter 1, p. 11. Geneva: World Health Organization. URL: www.who.int/chp/knowledge/publications/icccreport/en/ (accessed 12 December 2018).

[49] Webpage: NHS England. Living well, ageing well and tackling premature mortality. URL: www.england.nhs.uk/resources/resources-for-ccgs/out-frwrk/dom-2/

[50] Ministry of Health. 2018. Health and Independence Report 2017: The Director-General of Health's Annual Report on the State of Public Health. Wellington: Ministry of Health.

- Community support for healthy lifestyles
- Self-care in the home supported by the CHN
- Care for non-complex conditions coordinated by the CHN
- Complex conditions care coordinated by specialist teams.

Community support for healthy lifestyles

This proposed model of care supports population health interventions that help prevent the onset of long-term conditions and create healthier communities and lifestyles. These could include access to sports grounds and healthy nutritious food and recipes. The model proposes partnering with local councils, businesses, and public health experts as a matter of course to build on existing community-based population health approaches, for example, stop smoking, healthy eating, and diabetes awareness programmes.

Elements of this approach are already being trialled in parts of the country with the Healthy Communities contracts managed by the Ministry of Health.

Self-care in the home supported by the community health network

Individuals and their families and whānau will be supported to get the tools they need to become informed health services users and manage their health conditions as far as possible in their own home and with the support of their local CHN.

Advances in technologies will enable more people to self-manage their conditions and avoid repeat hospitalisation. Care in the home will be supported by self-monitoring phone apps, personal monitoring devices, and other equipment that makes it possible for people to understand their risk factors and monitor them accordingly at home. This, in turn, will be supported by an electronic shared-care plan attached to a person's electronic health record, coordinated by their CHN and owned by the individual (and their family and whānau if desired) that is accessible through a secured internet portal.

Care for non-complex conditions coordinated by the community health network

CHNs will employ health navigators, care coordinators, and system translators to manage the specialist and other services that may be required to manage people's conditions, for example, physiotherapy, podiatry, and optometry. This is already happening in a number of primary health care practices in New Zealand[51] and has been successful in keeping people out of hospital.

Complex conditions care coordinated by specialist teams

People with complex conditions, such as the acute stages of cancer, or with rare or very complex conditions require care that is coordinated by a specialist multidisciplinary hospital team. The CHN will know the care plan and support the person's general health care while they are in the community.

[51] For example, Midland Health Network, Pegasus Health, Counties Manukau

The frail and pre-frail elderly

The most significant pressure on CCDHB's health system over the next 15 years is its aging population. The population aged over 70 years is expected to grow by 60 percent or 5,300 people by 2030, while the number of people aged over 80 years will grow by 73 percent or 3,600 people. This will have an impact on all types of health care, including age-related frailty.

The concept of frailty as a medically distinct syndrome has evolved based on the clinical experience of geriatricians and is clinically well recognised. Frailty is a non-specific state of vulnerability that reflects multisystem physiological changes. The changes underlying frailty do not always achieve disease status, so some people, usually very elderly, are frail without a specific life-threatening illness. Current thinking is that not only physical but also psychological, cognitive, and social factors contribute to age-related frailty and need to be considered in its definition and treatment. The overall consequence is that a frail elderly person has a higher chance of accelerated physical and cognitive decline, disability, and death than older people who are not frail.

Who will we be serving in 2030?

Frailty is a medical condition like any other, and ranging from mild to severe and requiring varying degrees of care in response to severity.

Studies have demonstrated that 50 percent of the population over the age of 70 years are pre-frail and 20 percent frail – so approximately 70 percent of people in this older age group could be described as frail elderly.

The Integrated Care Collaborative in CCDHB has recently developed a frail elderly tool for GPs assessing Māori, Pacific and Indian people aged 70 years or over and other ethnicities aged 80 years and over. The tool indicates that of the target population of 12,218 elderly people in the CCDHB region, 9,591 or 78 percent were identified as frail elderly. Of these, around 80 percent are pre-frail and can be managed proactively through multidisciplinary approaches, which include regular exercise, good nutrition, and regular medication review.

The model of care for age-related frailty

The latest research suggests that the greatest gains for health care of the elderly can be made by identifying those who are pre-frail so they can be proactively managed to reduce the onset of severe frailty. Once an elderly person is diagnosed as frail, the focus of health care management will be on supporting that person's quality of life, connected to their community, rather than their length of life as, generally, a frail elderly person will have less than a year to live.[52]

The CHNs will assess their older populations to identify those who are pre-frail and frail. They can then refer people diagnosed with pre-frailty or as having age-related needs to the community-based specialist older person's team. This team, which comprises geriatricians and rehabilitation and mental health specialists, can support the person to access services aimed at preventing the onset of frailty. The team also works closely with residential care facilities to prevent regular admissions to hospital wherever possible, as well as unnecessary interventions when end of life is imminent.

[52] Greer K. 2016. *Identifying the Frail Elderly in a Primary Care Setting* (Unpublished discussion paper).

Specialist older person's teams already operating in some parts of the community have been effective in reducing the number of falls and associated hospital admissions.

This plan will build on existing teams and networks working with older people in the CCDHB region and connect them more effectively so resources are not duplicated and people can live independently for as long as possible.

End of life

End of life services enable people to die with dignity and support families and whānau and health care support workers to provide the compassionate care required. With the projected increase in morbidity, access to community palliative care is expected to become increasingly important. Currently, around 34 percent of deaths in New Zealand occur in hospitals, compared with 20 percent in the Netherlands. The highest costs of care are incurred in the last year of life, particularly when people are younger, although often such care does not help extend the person's life.

Who will we be serving in 2030?

As our population ages, the number of people who die at an older age will also increase. Many of these people will require support during the end-of-life stages.

The model of care for end of life

This plan envisages end-of-life care being coordinated by community health teams and older person teams, working with community palliative care teams.

The service design for people at their end of life will:

- enable a person to access advance care plans (ACPs) more easily, with the person's ACP attached to their electronic health record
- provide access to the community palliative health care team when the person's end of life is diagnosed
- support better end-of-life planning in our specialty services, with systematic support for families and whānau and caregivers.

Advance care plans are part of the conversation

Advance care plans (ACP) gives the patient the chance to say what is important to them. It allows them to think about what treatment they may or may not want when the time comes. It also makes it easier for families and whānau and health professionals to know what a person wants or doesn't want, particularly if they can no longer speak for themselves.[53]

ACP are completed by the person, and their family or whānau where this is requested or the person is unable to complete their plan for themselves. ACPs should be available to every health professional engaged in a person's end-of-life care. They will be part of the person's health record and, along with other stated preferences around treatment or otherwise, record the person's preferred place of death. ACPs also ensure medical treatment is not continued for older people who

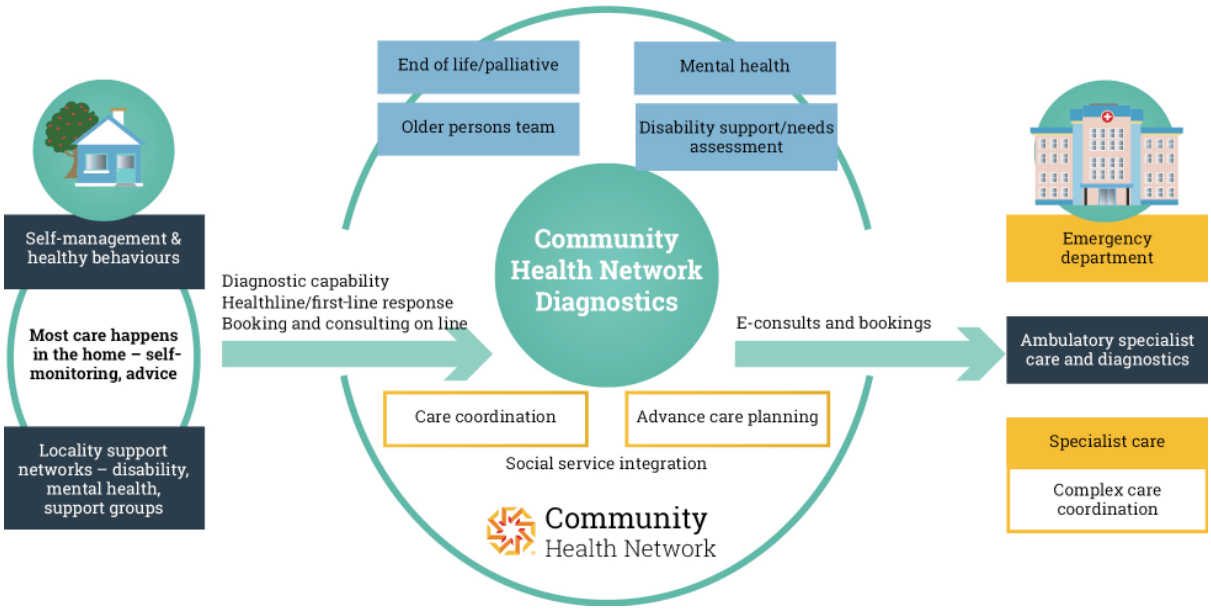
[53] See also: www.advancecareplanning.org.nz

have expressed a preference in being allowed to die when they are no longer able to live the quality of life that matters to them.

Palliative care teams

While palliative care has been focused on hospitals and hospices, it is now being extended into the community, including residential care, and GPs are being encouraged to have ACP conversations with their older populations as a first step. Actively supporting end-of-life care will result in fewer older people requiring hospital admission and will make death a more talked about and recognised part of life. Resources can be redirected away from hospital care in the last days of life to support people to be cared for in their own homes, ideally surrounded by their loved ones.

Figure 9: The care network for people with complex care needs



What will be different for me?

I will know what to do when I have a complex health care need or long-term condition or need support for my age-related frailty or to die well.

At home

In my home, when I have a complex health care need, I will:

- understand that I have a complex health care need and feel informed about my condition
- have basic first aid tools, including pharmaceuticals, in my cupboard that I know how to use
- be able to use basic diagnostic tools, for example on my phone, to provide the CHN with additional information to support my care
- keep my health care plan (my CHN will help me to follow this plan – focusing on my self-management wherever possible)

- understand that the specialist team at Wellington Hospital and my CHN know what is happening with my care and can support me.

In the community health network

When I have complex care needs, my CHN will:

- hold my care plan and provide health care and support that is consistent with that plan
- help me view my care plan online and provide regular scheduled opportunities for me to review my health care
- maintain my electronic medical record (including details from any privately-provided health care that I access, with my consent)
- coordinate with community support networks to assess my needs and support me and my family and whānau, including: aged-care, community long-term condition, and palliative care teams.

In the hospital

If I am seriously unwell:

- the specialist doctor who was talking to my CHN will assess me and either:
    - assist my CHN to adjust my care plan or
    - if my care is more complex or specialised, manage my care plan directly until my complex care need can be returned to my CHN
- I may be transferred to Wellington Hospital, which will become my care coordinator and will coordinate with the CHN on my current and future care plan.

3: Improving our health care system – how much change is needed?

3.1 We can't afford not to change

"The cost of providing health service through the current model is unsustainable in the long term."[54]

The New Zealand Treasury predicts that government spending on health will rise from the current 7 percent of gross domestic product (GDP) to 11 percent by 2060. If nothing changes in our health service systems, the cost of health care in the CCDHB area in 2030 will exceed the available government funds.

Hospital services remain the default setting of care for our communities. Care they provide could be provided in other settings or avoided all together. If we continue to meet demand using existing service models our health system will be less affordable.

Calculations based on growth rates to date suggest that, by 2030, demand for emergency department care at Wellington Hospital will have increased from its current level by 35,000 patients, an increase of almost 57 percent. This demand exceeds the demand arising from population growth alone. Simultaneously, inpatient bed requirements could increase by 30 percent (137 beds) (this increase is driven entirely by the aging population). Increasing demand will include demand for specialist services, pharmaceuticals, diagnostics, and community and primary health care services.

Our ageing population is a significant driver of future demand for health care. There is, however, capacity to mitigate some of the effects of this as people who are generally healthy through their life course will usually continue to be well as they age, delaying the onset of morbidity and compressing health care needs into a shorter period at the end of life. Demand growth will come disproportionately from those who experience socio-economic disadvantage across all ages, with adversity accumulating across the life course and thus significantly increasing the morbidity and complexity of health care need as people age. This not only signals the value in investing in effective primary health care but also the importance of comprehensive responses that recognise the impacts of social determinants.

There is no doubt that the way we deliver health care must change to respond to both the opportunities arising from technological advances and the challenges of growing demand for health care. The ability of Wellington and Kenepuru Community hospitals to provide complex care services that are both clinically and financially sustainable is challenged by the distribution of the population across the region (beyond the CCDHB region into the central region) and will require support from the whole regional.

3.2 An optimised health system

A key tenet of this plan is that shifting the focus to a community-based care system can turn the curve of demand for hospital care and improve the sustainability of the health system.

[54] Ministry of Health. 2016. *New Zealand Health Strategy: Future direction*. Wellington. Ministry of Health, pp. 11.

Internationally, and within New Zealand, there is evidence supporting the development of locality approaches and demonstrating the benefits of delivering care in lower-costs settings.

The service delivery models described in the plan cover a 5 to 15 year period. Shifting the default place of care away from the hospital to CHNs is a significant change that will take time, planning, and collaboration to achieve. Seemingly small changes, such as a 15 percent decrease in hospital admissions, sustained over several years, can mitigate the pressures of the aging population.

3.3 The impact of the changes promoted by this plan

This plan is underpinned by knowing the major drivers of demand for health care, and the potential opportunities offered by increasingly affordable, reliable, and sophisticated technologies.

The key changes proposed in this plan are:

- a change in how people access and manage their health care
- system changes, re-directing the flow of people across the settings of care, with more people having their health needs met in community settings
- improvements in system performance, which reduces duplication and waste
- achieving equity across our diverse populations
- proactive rather than reactive health care to help improve health outcomes
- making CHNs the central organising point responsible for meeting and coordinating health care
- having Wellington Hospital retain and refine its focus on hospital-level resources and those who require specialist care.

3.4 Strategies for change

There are four key strategies for developing our approach to 'place' as an organising system for health care.

- **Working with and in communities** to develop location-specific approaches to health care for local populations
- Using health resources effectively by **organising their use around settings of care**
- Developing **interdisciplinary health teams** who work together to support safe and effective health care
- Strengthening **innovation, using technologies** to improve knowledge, choice, and access to health care.

There are three key strategies for developing our approach to 'people' as an organising system for health care.

- **Simplifying care** for those who have good health literacy and resources
- **Intensifying care** for those who have less resources and experience the greatest levels of avoidable poor health
- Strengthening investment in **acting early to prevent avoidable costs** around health care over a lifetime.

Working with communities

Working with, and in communities to develop location-specific approaches to health care for local populations

- Implement locality-based planning that links community leadership, health services, and other social and community services.
- Engage communities in their own care, organise local responses more effectively, and improve results.
- Partner with the Porirua City, Kāpiti Coast District and Wellington City councils, Māori, NGOs and community leadership to mitigate the significant impacts of social determinants.
- Foster locality networks and help them connect with those people who require a wider range of supports.

Organising services around settings of care

Using health resources effectively by organising their use around settings of care

- Plan the placement and integration of services to maximise their effectiveness in three settings: people's homes and residential care facilities, CHNs (including the Health Care Home and the Kāpiti Health Centre), and Wellington and Kenepuru Community hospitals.
- Increase CHNs' access to diagnostics to reduce the demand for unnecessary hospital-based care and improve the speed of clinical decision-making.
- Streamline delivery of high-cost secondary and complex care services.
- Maximise the use of digital technologies to improve productivity, reducing the system costs incurred in managing access, waiting lists, and failure demand[55].

Interdisciplinary health teams

Developing interdisciplinary health teams who work together to support safe and effective health care

- Establish interdisciplinary health care teams across CHNs to ensure care in communities is comprehensive and coherent.
- Implement interdisciplinary health teams in all service delivery models to:
    - improve user satisfaction
    - reduce mortality
    - improve continuity of care and quality of life
    - increase job satisfaction.[56]

[55] Failure demand – demand caused by failure to offer the service required, so offering the service that is available.
[56] IHE. 2006. Multidisciplinary healthcare. *Care Issues.* International Hospital Equipment, April. URL: www.ihe-online.com/fileadmin/artimg/multidisciplinary-healthcare.pdf (accessed 13 December 2018).

Innovate using technologies

Strengthening innovation, using technologies to improve knowledge, choice, and access to health care

- Provide fast and easy access to information and resources to allow people to make informed health care choices.
- Support people to manage more of their health needs at home by accessing professional advice and self-monitoring using remote diagnostics.
- Develop capacity and capability for health care professionals and social service providers to sharing accurate and reliable information securely.

Simplifying care

Simplifying care for those who have good health literacy and resources

- Those who have good health literacy and resources will access more care in the community and use digital and health technologies from CHN and hospitals, reducing face-to-face contact with specialist staff.
- Being part of an enrolled population in a Health Care Home will provide consistent and sustained access to screening services and universal health services, such as Well Child Tamariki Ora.
- Engagement in these services will provide opportunities to identify people or families and whānau who experience previously unknown health or social risks. By intervening early, we can improve outcomes and reduce morbidity and mortality in the population.

Intensifying care

Intensifying care for those who have less resources and experience the greatest levels of avoidable poor health

- Focus on those who experience the greatest inequities, including those who are socio-economically deprived (more likely to be Māori and Pacific peoples), those with a disability, and those with mental illness and addictions.
- Focus on early years and families and whānau, identifying those at risk, to improve health and wellbeing and to reduce the accumulation of disadvantage that will create future demand for physical and mental health services.
- Target services to those who are at risk of, or who already have, existing complex care needs amenable to early intervention and with more effective care coordination, to reduce the need for current and future health care services.

Acting early to prevent avoidable costs

Strengthening investment in acting early to prevent avoidable costs around health care over a lifetime

- Use assessments in Health Care Homes and CHNs to identify people who will benefit from early intervention to prevent the onset of long-term conditions, frailty, or mental health and addictions.

- Focus on children, supporting them and their families and whānau through a coordinated service response across health and social care services.
- Support older people to maintain their independence through prevention and early intervention activities using a range of community-based supports.
- Use home-based technologies and work with volunteer groups and other social services to minimise social isolation and strengthen local networks of support.

3.5 The impact on flows across the health care system

The proposals in this plan are designed to change the flows of people across the health system to prevent avoidable health care demand, shift more care into homes and communities, and focus hospitals on providing complex specialty care for those who need it. The aims are to have:

- people remaining healthy and having a greater role in managing their own care, supported by access to quality online resources that enable them to make better decisions
- more people knowing where to find help and access local community-based support to assist them to maintain their health
- more people accessing community health care earlier either through electronic portals or in person to receive health advice
- fewer people using the emergency department as a first-line response option to their care as CHNs become more responsive
- more people accessing diagnostic tools through their CHN
- more people connected to social supports through the health care system
- fewer people with complex needs duplicating health care efforts as care planning is shared and well coordination
- fewer people requiring urgent or planned specialist assessment at hospital as the information is available to their CHN
- CHNs referring patients for urgent assessment at the ambulatory specialist assessment unit, and the specialist team deciding whether to admit patients for short-term or longer-term care, ensuring they enter the right care pathway at the right time
- specialists who receive patients for planned assessment making greater use of telemedicine and electronic tools to make treatment decisions and liaise with other health care professionals
- specialists doing fewer follow-up appointments, instead using electronic assessment tools, and confidently transferring care back to the patients' CHN and into the home
- specialists providing increased electronic and verbal consultations with GPs
- people returning to their CHN or home from hospital at the earliest opportunity with necessary supports in place
- those who are socio-economically deprived or who have a disability or a mental illness receiving support in their communities and homes from locality networks that recognise their needs and facilitate equity of outcomes.

System performance improvements

The system will see a fundamental change in the frequency of some health interventions, reducing duplication, waste, and delays in care, in particular:

- fewer appointments at CHNs:
    - as people with good health literacy use phone advice and electronic tools and portals to access the care they need
    - for avoidable health care demand as a result of complex care not being well organised
    - for maintenance care whilst waiting for a specialist consultation or diagnostics
- reduced ambulatory sensitive hospital attendances and admissions
- reduced attendance at emergency departments for low-risk care as CHN provide simpler access to care for most people
- reduced duplication of diagnostics across primary and secondary health care services as information is shared easily
- reduced duplication of community-level care as networks share care plans and information easily
- fewer first specialist assessments for non-complex care as CHNs have access to diagnostics and electronic or verbal consults
- fewer follow-up appointments as people use electronic tools and portals more to complete episodes of care
- fewer hospital inpatient bed days by patients admitted acutely under specialist care and waiting for access to diagnostics
- fewer hospital inpatient bed days for frail elderly and end-of-life patients as more care options are offered in the community and at home
- fewer patients transferred between hospitals as diagnostics and clinical records can be shared.

People's health outcomes

Ultimately, we expect these changes will result in people and communities that are more actively engaged in their health and wellbeing.

- People will have improved health literacy as access to advice and information is simple and targeted to specific needs.
- Health equity will improve amongst populations, including Māori, Pacific peoples, those on low incomes, those experiencing a disability, or those with a mental illness or addiction.
- Health conditions and complexities will occur later in life and for shorter duration.
- The prevalence of long-term conditions and age-related frailty will be reduced due to earlier intervention and a greater focus on wellbeing.

3.6 How much change?

To understand the level of change required to impact on demand, we modelled change in the prevalence of avoidable health care needs due to long-term conditions and the predicted ambulatory sensitive hospitalisation rates. We then looked at frailty in the population over 70 years old, and considered the potential reduction of frailty through implementing the proposed macro model of care. Finally, we modelled the possible whole-of-plan impacts on emergency department attendances and demand for inpatient beds at Wellington Hospital.

Changes in prevalence of need in populations

Number of people experiencing long-term conditions

Determining the prevalence of long-term conditions is complex as people with long term conditions are more likely to have more than one condition. This means that disease based analysis has limitations in determining the size of this population. The Virtual Diabetes Register (VDR) is considered the most accurate, available, source of long-term conditions in the population.[57] By the year 2030, the number of people with diabetes in the Wellington area could have increased by 10,500, an increase of 70 percent since 2016.

Numbers of people over 70 years old with frailty

Though the population is ageing, most of the older population will live in good health. For those who do not, in 2030, the number of elderly people in the CCDHB area who are pre-frail is expected to have increased by 4,100, an increase of 75 percent. The number of elderly people who are frail is also expected to have increased by 73 percent (or 1,620 people), between 2016 and 2030.

The proposed model of care is designed to reduce the number of people who could become pre-frail and frail for this major service group.

Modelling the turn of the curve

To understand the change in the demand curve, we have modelled demand for inpatient beds at Wellington Hospital and future attendances at the emergency department.

Inpatient bed demand

By 2030, with no change to service delivery, Wellington Hospital could require an additional 137 beds (the hospital currently uses the equivalent of 474 beds). One-third of this is demand from those aged between 70 and 79 years, with the remaining two-thirds for people aged over 80 years.

We have modelled the potential impact of the changes proposed in this plan on three factors – the timing of the impact; the impact across the young, adult, and older populations; and the sustainability of the change year on year, scaling up the impact.

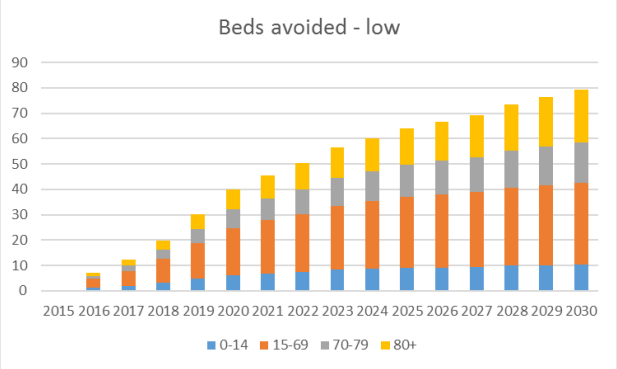
[57] Webpage: Ministry of Health, Virtual Diabetes Register (VDR). URL: www.health.govt.nz/our-work/diseases-and-conditions/diabetes/about-diabetes/virtual-diabetes-register-vdr (accessed 14 December 2018).

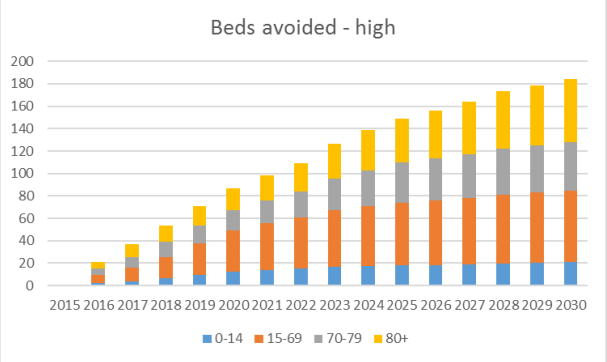
Table 1: Estimated impact changes on bed demand against three scenarios

	Low impact	Medium impact	High impact
Annual impact of change	1.5–3% per annum	3–4% per annum	3–5% per annum
Maximum scale of change	13% for all	26% for all	26% for adults 35% for older people
Reaching maximum impact	2030	2030	2030
Total inpatient beds required in 2030	531	452	426

The graphs below illustrate the annual change in inpatient beds required as the scale of change is increased over a 15-year timeframe. The low impact scenario still results in an increase in beds at Wellington Hospital. The medium and high impact options reduce the total demand for inpatient beds even against an aging population.

Scenarios for annual change in inpatient bed requirements, 2016–2030





The three scenarios show a sustained pattern of change that touches less than 30 percent of inpatient admissions, primarily for the older population and those with complex care needs.

Emergency department attendances

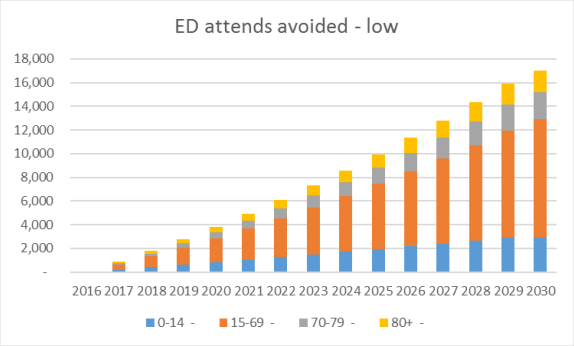
Between 2016 and 2030, emergency department attendances at Wellington Hospital could increase by 35,000 people, or 57 percent. Modelling the rate of the turn of the cost curve considers three scenarios – low, moderate, and high levels of investment.

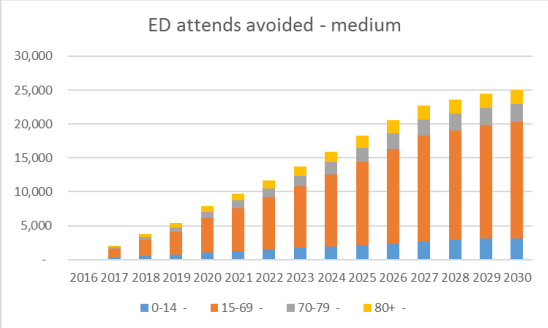
The three scenarios reflect the assumption that the plan will create a health system that manages access to specialist assessment more effectively and creates diagnostic capability in CHNs.

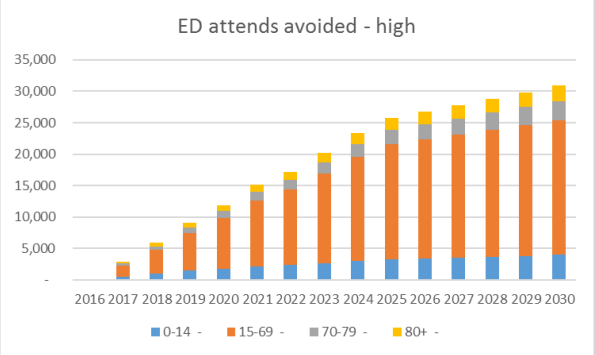
Table 2: Forecasted emergency attendances against three scenarios

	Low impact	Med impact	High impact
Annual impact of change	2–3% per annum	2–4% per annum	3–5% per annum
Maximum scale of change	26% for all	30% for all	35% for all
Reaching maximum impact	2026	2026	2026
Emergency department attendances avoided	17,045	25,000	30,000

Scenarios for emergency department attendance avoided, 2016–2030







Avoiding emergency department attendances scaled up over the 15-year period is feasible considering the implementation of the plan. The impact of these changes will be scaled against the degree of change in flow across the health care system and a reduction of avoidable health care needs.

3.7 Investment and disinvestment choices

The New Zealand Health Strategy recognises that evaluating the financial and economic impact of change in the health care system is complex. We must seek to understand not only the impact on the operating environment but also the benefit of health spending on long-term health and social outcomes. Given this complexity, meaningful whole-of-system modelling can only practically occur at a relatively high level.

This plan provides an organising framework for investment choices. It prioritises investment in improving the health care capability of homes and CHNs, cross-sector coordination, and digital and health technologies. Disinvestment occurs when programmes and services are not linked to the delivery of health services for priority populations. A more detailed investment plan will be required for each part of this plan as part of the business planning process and will need to include analysis of current investment across the system and choices about priority projects.

Assuming the plan is progressed, the choices available to the Executive and the Board reflect decisions about the scale of change that is implemented to develop localities and CHNs and the level of investment in technology to support new ways of working.

4: How to implement this plan

This plan provides a framework for reorganising health care in the CCDHB region. Implementing the plan requires a sustained strategy, using data and access to good analytical capacity, leadership, commissioning, and investment strategies.

The structural implications of the change in the CCDHB health system reflect the need for different types of accountabilities: partnering with communities, integrating service delivery within communities, leading integrated health and social service responses, and leading our hospitals whilst maintaining a clear understanding of the impact of the system on our major service users. This requires a sophisticated, information-rich management system.

There are five major levers that will enable us to implement the Health System Plan 2030.

1. Leading in partnership
2. Using metadata and population analytics
3. Investing in smart technologies
4. Organising the health workforce
5. Funding and business modelling.

4.1 Leading in partnership

The CCDHB has strong links with its community. As one of the largest employers in its region, it can lead the way, embracing more collective ways of working and investing in the people and tools necessary to achieve change. This plan requires input at all levels of the DHB to manage the performance of the system, support the development of interdisciplinary teams, build partnerships with communities and other organisations, and manage change.

Leadership will focus on:

- building trust and confidence in a new health system plan located in the community
- developing and supporting leadership of localities in Wellington city, Porirua and the Kāpiti Coast, including fostering relationships with city councils and community and social leaders to articulate the new direction
- leading the development of the CHNs to extend their role of health care in their communities
- leading the development of the macro service delivery models for maternity service users, children and youth, families and whānau, complex care, and urgent and planned care
- strengthening our specialty services as expert services for CCDHB and the central region.

4.2 Using metadata and population analytics

The health system collects large volumes of data about both primary and secondary health care services that need to be connected and explored. This includes transaction data, health activity and diagnosis, predictive risk modelling tools, ‘at risk’ assessment tools such as GPFEIT (general practice frail elderly identification tool), and vulnerable people assessment tools, like interRAI (comprehensive assessment system for older people). This is creating a large, rich data source to understand need, and potentially the impact of services on outcomes. The movement to sharing data across primary and secondary health care and between health service providers to inform

decisions will be essential in the social investment environment. The use of this metadata to understand population health and service activity will be critical to learning more about the impact of services on outcomes for individuals and populations, as well as understanding the implications of not making an investment. This metadata could be sourced using the technologies that enables health and social information to be shared across settings.

This environment of data sharing is not yet in place within the health system. Building an environment in which the information can be shared for managing the system requires trust among stakeholders. There are many privacy impact assessments that show that patients expect their information to be shared and used to improve their outcomes more than it actually is.

This plan requires a very strong focus on the use of metadata and population analytics, using the resulting information to manage and measure the flows of people across the health system, their use of resources, and the outcomes they experience. This plan has used data and research evidence to identify target populations.

Having identified the target population, the data can be used to monitor system performance to identify whether the system is improving. To inform prioritisation and service decisions, the monitoring need to map the flows of major service user groups and be able to support stratification of patients at population and patient-user levels.

4.3 Investing in smart technologies

The development of technologies, including shared information, patient and clinical portals, and health technologies that communicate wirelessly with information sharing systems, will transform the way we manage health care in complex care environments, communities, and people's homes. This will require considered investment across the health care system to ensure the system shifts to home and community are achieved.

Technology is also required within CHNs and Wellington and Kenepuru Community hospitals to manage patient flows, queues, clinical pathways, and communications within and between hospitals. Simplifying patient management processes and improving the ability to stream patients and manage clinical care must be developed alongside the capability to share clinical information.

The Capital & Coast, Hutt Valley and Wairarapa '3-DHB' vision for information communication technology (ICT) places ICT at the heart of shorter, safer patient journeys, new service delivery models and sustainable health services for our population. This envisages that:

- **patients and their families and whānau** have access to information and tools to maintain their health and this information will be shared across their health team when appropriate
- **health care professionals** will have anywhere, anytime access to information and tools to give them more time and allow them to provide the best care possible for their patients
- **managers and administrators** have the tools and information they need to effectively allocate resources, efficiently manage operations, and plan for the future.

CCDHB will work with primary health organisations and other providers to implement this ICT plan. The changes in ICT use will need to occur in conjunction with changes to funding mechanisms to support service delivery model designs that focus responses around people and places rather than services and organisations.

4.4 Organising the health workforce

The health system's workforce is critical to its ability to implement change. The service delivery models we are recommending will require changes to the way we use our workforce. These changes will be enabled by technology and by developing staff capability in the new models. CCDHB could use its workforce to:

- invest in the technologies required to work more productively and engage more proactively with service users – making the right thing to do the easiest thing to do. Technologies can rapidly change workforce behaviour when well supported, including helping interdisciplinary teams to share and use information easily
- build interdisciplinary team models that foster new ways of working and enable the workforce to adapt and innovate services within communities. The opportunity to embed new teams in communities and hospitals, along with accountabilities and leadership will ensure the system continues to evolve and adapt
- collaborate on workforce development across the wider central region and invest in the changes required to build workforce capability
- support its health workforce to achieve a work-life balance that enables that workforce to stay healthy, for example, through flexible working hours, providing healthy food and investing in the education and training that will be required to work differently (including building a local workforce)
- ensure the workforce reflects the population it is serving. Increase the focus on the strategies already in place to attract more Māori and Pacific people to health roles in the CCDHB region.

4.5 Funding and business modelling

Changes to funding and business models are required if we are to move to a health system that is more deeply embedded in the community and engages with people who use health and other social services as partners in their care. Current planning and funding levers are predisposed to the existing organisational arrangements of the health care system. There is no doubt that funding levers are powerful in moving systems of care, but they are also deeply protected by existing organisations and accountability mechanisms.

As explained in the New Zealand Health Strategy:

"An independent review of New Zealand's health funding system noted three ways in which funding arrangements sometimes prevent resources from being used to achieve the best possible outcomes.

- Present arrangements may not clearly show the results that we get from health spending, making it hard to prioritise funding or take into account long-term, cross-sectoral benefits from investment.
- When demand changes, service mix and design may not change quickly enough to deal with it. Often our funding and contracting arrangements encourage health services to keep doing things as they have always done them, instead of allowing them to work differently.

- Some funding arrangements contribute to disparities between groups in their access to services, and sometimes they widen the gap in unmet need." [58]

Analysis of funding will identify opportunities to move more quickly. We acknowledge there will be gaps in knowledge, services that do not align to people and places, and services that are directly funded by the Ministry of Health or other government agencies that have been included in this system design. This analysis will be the first stage in creating a view on how to enact the plan.

This plan also presents an opportunity, using metadata and population analytics for target communities or localities, for CCDHB to lead and support social investment options. The first stage of analysis will be to study how existing investment is configured against communities, settings of care, and major service user groups. From there, we can consider commissioning health care services to help implement the plan.

4.6 Making it happen

This plan outlines a future health system that recognises the important contribution local health services make to the health and wellbeing of the people of the CCDHB region, but the health system cannot deliver this alone. The plan supports a shift from a treatment-based system to a population- and place-based approach to health and social care. It recognises and seeks to address the significant differences in health outcomes that occur for different groups within the CCDHB community and segments the population according to need, enabling those with the greatest needs to receive the most support.

The plan recognises the role that each person plays in their own care and supports a future health system where people, with the right technologies, are treated as partners in their care. It sees local communities as the place where most health services will be provided and supports an integrated system between home, the community, and hospital (for more complex care needs).

By making these shifts over the next 15 years, this plan can help to create a more sustainable CCDHB health system that puts people at the centre of their care. Change is already happening within our communities, and stakeholders have indicated a willingness to embark on the changes outlined in this plan. Building on the changes that are already taking place, realigning existing service investment, investing in smart technologies, and fostering multidisciplinary teams in communities and hospitals, will achieve this plan's vision.

In addition, taking the time to develop reporting capability will enable us to analyse how well this new system is responding to the growing health and social needs of people in our region. This information will create a structure that enables the system, and those working within it, to be more responsive to the changing demographic of the region and focus limited health resources on activities and areas that measurably improve outcomes and reduce inequities by 2030.

[58] Ministry of Health. 2016. *New Zealand Health Strategy: Future direction.* Wellington: Ministry of Health. p. 11. URL: www.health.govt.nz/system/files/documents/publications/new-zealand-health-strategy-futuredirection-2016-apr16.pdf (accessed 14 December 2018).