

# **The cost and value of employment in the health and disability sector**

Report prepared for the Health  
Workforce Advisory Board by the  
Health Workforce Directorate

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# Summary

'Health investment is the smartest investment – it pays off.'

Dr Zsuzsanna Jakab, WHO Regional Director for Europe

The Health Workforce Advisory Board commissioned a report on the costs of the New Zealand health and disability workforce and the value of employment in the health sector to the economy and society.

This paper provides evidence on the economic and social returns of investing in the health and disability workforce to provide a basis for health and financial decision makers to work together around shared goals and public finance objectives. The intent is to enable a stronger dialogue with the Minister of Finance and Treasury about the contribution made by health systems to reducing social and economic exclusion and to growing the economy.

This section summarises the key findings of the report.

## New Zealand health and disability workforce

- In December 2019 there were 246,500 people employed in the health care and social assistance sector. This included 213,100 people employed in hospitals, medical and other health care services, and residential care services. Another 33,400 were employed in social assistance services. The health care and social assistance sector is the largest industry employer in the country and represents 11% of all those employed in industries across New Zealand
- When assessed as a proportion of the total New Zealand population, the health care and social assistance workforce has increased from 4,035 per 100,000 in 2000 to 6,371 per 100,000 in 2019. The biggest increase has been in the medical and other health services category, with an increase of 73% over the period 2000 to 2019
- The health care and social assistance sector has a predominately female workforce (83% in 2019). This compares to 48% of the workforce being female across all industries. The majority of those in health care and social assistance are aged 40 years or older, with 10% aged 60 to 64 years
- As at 31 December 2019, there were a total of 76,213 full-time equivalents (FTEs) employed by the 20 district health boards (DHBs) across New Zealand. Estimates suggest that 136,887 people in the sector are not directly employed by DHBs. These may be DHB-funded workers or other non-DHB health care workers
- Nurses account for the largest pool of health and disability workers employed by DHBs (39% of all DHB employed personnel). Corporate and other personnel account for 19% of all DHB employees, followed by allied health professionals (16%), care and support (11%) and senior medical officers (7%)

- The health care and social assistance industries represented 5.79% of gross domestic product (GDP) for the year ended December 2019. This compares with education and training, and public administration and safety, which both make up 4% of GDP
- For the year ending 31 December 2019, \$6.2 billion was spent by DHBs on health and care workers employed directly by DHBs. This represents 31% of the total Vote Health budget of \$19,871 million for the 2019/20 year and 45% of the \$13,980 million provided to the 20 DHBs for services to meet the needs of each district's population
- Consistent with DHB FTE numbers, the largest proportion of salary cost is spent on nurses (\$2.2 billion or 36% of total DHB salary costs), followed by senior medical officers (\$1.1 billion, 18%), corporate and other services (\$932 million, 15%) and allied health and scientific health workers (\$884 million, 14%). The smallest component is spent on midwifery (\$120 million, 2%)
- It is estimated that \$7 billion is spent annually on the non-DHB employed workforce; however, this is an estimate based on a range of assumptions and averages and should not be relied upon
- Based on estimates of salary expenditure, the total cost of the health and disability sector workforce is estimated to be around \$13.2 billion per annum (adding the \$6.2 billion DHB employee salary cost and \$7 billion non-DHB employee cost). This is 66% of total Vote Health and 15% of core Crown expenses.

## Health employment, economic growth and wellbeing

- In recent years there has been a shift in thinking and an understanding that the health sector has an economy, it makes an economic footprint and it has a labour market dynamic of its own. Evidence suggests that investments in the health workforce and broader health sector can promote inclusive economic growth, and that health and inclusive economic growth are complementary and not necessarily opposing goals (Horton et al 2016)
- In March 2016, the High-Level Commission on Health Employment and Economic Growth (the Commission) sought to draw the attention of the international community to the social and economic benefits of investing in the health workforce, locally and globally
- The Commission hoped to change the mindset of political leaders, policy makers and economists who view health employment as a burden on the economy (as it is considered to be inefficient, resistant to gains in productivity and an expense to be stringently controlled). The Commission wanted to shift the focus of health employment as 'consumption' to health employment as an 'investment'
- Health institutions are often viewed as 'anchor institutions', a term used to describe the fact that in tough economic times they are economically and socially connected to the communities in which they are based, and so act as economic stabilisers. Employment in the health and disability sector tends to be less sensitive to cyclical fluctuations (such as economic recessions) than other sectors of the economy. The health sector can create jobs in deprived areas and regions and keep the productive

sector from going through an economic downturn (Boyce and Brown 2019; Maignan 2012)

- Based on an extensive review of the available evidence, the Commission concluded that, to the extent that resources are wisely spent, and the right policies and enablers are put in place, investment in education and job creation in the health and social sectors will make a positive contribution to inclusive economic growth (HLC 2016).

## Pathways to economic growth and wellbeing

- The World Health Organization (Boyce and Brown 2019) notes that purchasing is often seen as separate from regional economic plans and political decisions, and it is often regarded as a cost rather than an opportunity for economic growth and community development. However, purchasing and procurement by the health and disability sector has the potential to achieve social, economic and environmental benefits
- The health and disability system, including employment in the health sector, can have a positive impact on several wellbeing domains. This in turn affects five key pathways to economic growth and wellbeing: life expectancy and quality of life, labour supply and productivity, economic output, inequality, and social cohesion.
- The Lancet Commission on Investing in Health reported that around one-quarter of economic growth between 2000 and 2011 in low- and middle-income countries was the result of improvements to health
- Healthier workers are more productive, resulting in supply-side benefits to the economy. Adults who experience poor health are more likely to be absent from work (absenteeism) or more likely to be unproductive at work (presenteeism)
- Horton (2016) notes that weak health systems, with inadequate numbers of health workers, perform poorly in the surveillance, prevention and control of pandemics and infectious disease outbreaks. Strong and responsive health systems strengthen the ability of a country to respond to health pandemics and help to minimise the impact on the economy
- Investments in the health workforce, including epidemic surveillance and response and training, help to strengthen a country's response to infectious diseases, protecting both people and the economy
- Women drive wealth creation through their employment in the health economy. The health and disability sector also plays an important role in reducing geographical inequities. It does this through the education and training it provides, the geographical spread of jobs, and promoting jobs for young people
- Māori and Pacific peoples remain under-represented in clinical roles within the health and disability workforce
- Employment in the health and disability system creates multiple economic and social benefits that help to build social cohesion, particularly if the sector is employing people who live locally

- Employment in the health and disability sector can also reduce social exclusion at an individual and community level, particularly for people who may face discrimination. This is particularly so in the health sector, where there is a lot of diversity in the workforce
- There is very little literature on the impact that working in the health sector has on employees' children and families, while there is some literature on the general influence that parents' employment has on children in a family.



# Introduction

Achieving improved outcomes for the economy and society, such as improvements in wellbeing and standards of living, must be balanced with the need for policy makers to contain public expenditure and manage budgets. District health board (DHB) expenditure is a significant component of the Crown's balance sheet and operating budget, so the Ministers of Health and Finance have an interest in managing risks and cost pressures.

Often the health sector is seen as a drain on the economy rather than being essential to a stable, functioning economy. One of the goals of the World Health Organization (WHO) has been to shift the discourse towards health as an investment sector that is essential to social and economic wellbeing (Boyce and Brown 2019).

In July 2018, the Tallinn Charter: Health Systems for Health and Wealth was revised and it was concluded that there is a need to 'intensify efforts to bring health and finance decision-makers together around shared goals by taking note of public finance objectives and correspondingly demonstrating the economic and social returns of investing in health systems' (Boyce and Brown 2019).

The COVID-19 crisis has put New Zealand's health and disability system, and the workforce within it, under the spotlight. The New Zealand Prime Minister noted at a press conference on 12 May 2020:

The lesson from COVID-19 is that we need to be prepared and that a strong health response is the best way to protect jobs and, of course, ultimately, be in a position to get our economy moving again ... it pays to have a world class health system in place to deal with [a pandemic]. In fact, that is a commitment we should be making all the time to New Zealanders.

## Purpose of this report

The Health Workforce Advisory Board commissioned this report to better understand the costs of employing a health workforce in New Zealand and the value of employment in the health sector.

The principal benefits of the health system flow from improved population health and broader wellbeing (and these benefits are widely accepted and expected to be substantial). This paper expands on these benefits by also considering the following effects of health sector employment, where possible, from the literature available:

- broader economic benefits flowing from the health workforce and the health system more generally
- the personal psychological and social benefits of employment in the health sector
- benefits to family and whānau of having a family member employed in the health sector.

This paper provides evidence on the economic and social returns of investing in the health and disability workforce to provide a basis for health and financial decision makers to work together around shared goals and public finance objectives. The intent is to enable a stronger dialogue with the Minister of Finance and Treasury about the contribution made by the health system and its workforce to reducing social and economic exclusion and to growing the economy.

The first section of the paper provides an overview of the health workforce in terms of the number of full-time equivalent workers, the age and ethnic composition of the workforce, and the numbers working in different occupations. The paper then looks at the cost of the health and disability workforce, including an analysis of salary cost by occupation for those employed by the 20 DHBs and an estimate of the salary cost of non-DHB employed health care workers.

The second section of the paper provides a summary of the literature and recent discussions on the impacts of health employment on the economy and society. Several pathways are explored through which employment in the health sector contributes to economic growth and social cohesion.

The literature is very limited on the impacts of employment in the health sector on families and whānau, but a few studies are discussed. This is an area where further research is needed.

# New Zealand health and disability workforce

## The health care and social assistance sector is the largest industry employer in New Zealand

In December 2019, 246,500 people were employed in the health care and social assistance sector.<sup>1</sup> This included 213,100 people employed in hospitals, medical and other health care services, and residential care services. The remaining 33,400 were employed in social assistance services. The health care and social assistance sector is the largest employer in the country by industry sector and represents 11% of all those employed in industries across New Zealand.

Table 1 provides a regional perspective of the number employed in the health care and social assistance sector. It also shows how the health care and social assistance sector ranks in terms of employee numbers compared with other industries. In five regions, (Northland, Bay of Plenty, Gisborne, Manawatu-Wanganui and Nelson), the health care and social assistance sector is the largest employer.

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<sup>1</sup> Note that Statistics New Zealand uses the Australian and New Zealand Standard Classification system for industries and occupations. Health occupations sit within the Health Care and Social Assistance industry division. The Social Assistance grouping includes occupations that do not sit within health and disability services, for example, child care.

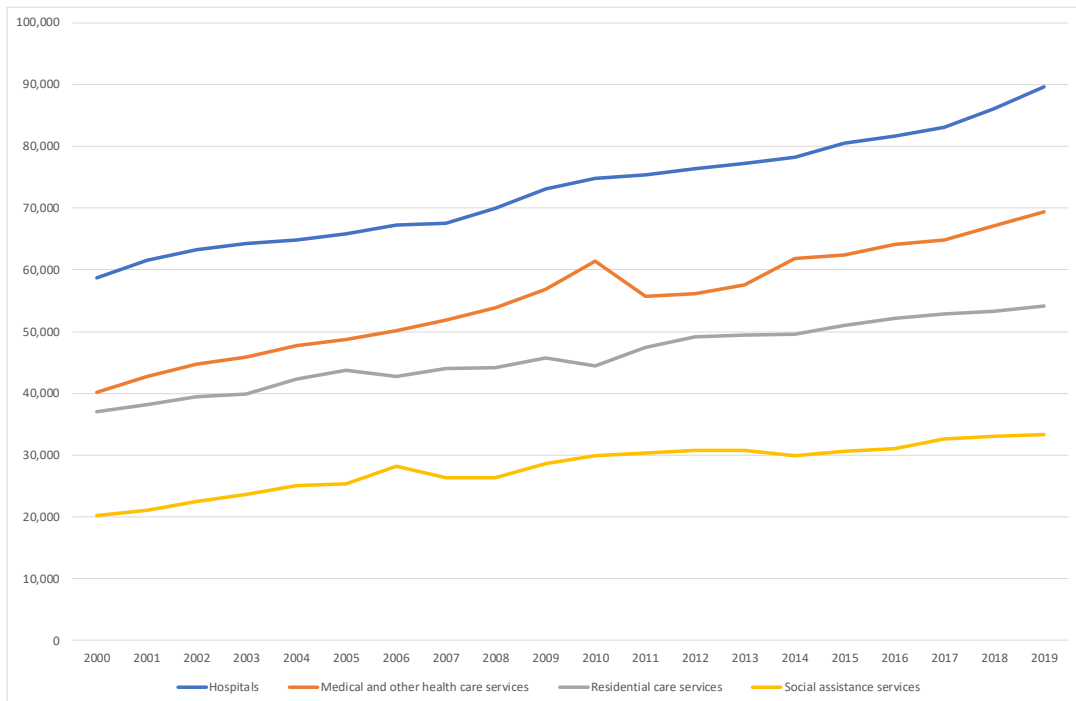
**Table 1: Number employed in the health care and social assistance sector by region**

Region	Health care and social assistance sector employee count	Total industry employee count	Percentage of region employed by health care and social assistance sector	Industry rank by number of employees in the region
Northland	9,700	62,700	15%	1st
Auckland	75,300	799,100	9%	3rd
Waikato	23,200	199,800	12%	2nd
Bay of Plenty	15,700	135,900	12%	1st
Gisborne	2,700	21,900	12%	1st
Hawke's Bay	8,800	82,000	11%	3rd
Taranaki	5,500	51,900	11%	2nd
Manawatu-Wanganui	13,300	105,200	13%	1st
Wellington	28,600	262,900	11%	3rd
Tasman	1,400	23,400	6%	7th
Nelson	3,850	26,900	14%	1st
Marlborough	2,050	24,300	8%	5th
West Coast	1,450	14,600	10%	4th
Canterbury	34,400	305,300	11%	2nd
Otago	12,400	118,000	11%	3rd
Southland	4,850	50,000	10%	4th

Source: Statistics New Zealand

Over the period 2000 to 2019, the number employed in the health care and social assistance sector increased by 58%. When assessed as a proportion of the total New Zealand population, the health care and social assistance workforce has increased from 4,035 per 100,000 to 6,371 per 100,000 over this period. The biggest increase has been in medical and other health services, with an increase of 73% over the period 2000 to 2019.

**Figure 1: The number of people employed in the health care and social assistance sector, 2000 to 2019**



Source: Statistics New Zealand

Table 2 shows a detailed breakdown of employee numbers within each of the main health care areas. Most of the health workforce is employed in hospitals (89,600 in 2019), followed by medical and other health services (69,400) and residential care services (54,100).

**Table 2: Number of people employed in the health care and social assistance sector**

Health service		Number employed
Hospitals	Hospitals	89,500
	Psychiatric hospitals	120
Medical and other health care services	Medical services	16,900
	General practice	13,100
	Specialist medical services	3,800
	Pathology and diagnostic imaging services	4,400
Allied health services	Dental services	5,700
	Optometry and optical dispensing	2,600
	Physiotherapy services	3,050
	Chiropractic and osteopathic services	760
	Other allied health services	25,300
Other health care services	Ambulance services	3,550
	Other health care services	7,100
Residential care services	Aged care residential services	37,800
	Other residential care services	16,300
Social assistance services	Social assistance services	33,400

Source: Statistics New Zealand

The Māori and Pacific populations are not well represented in the health and disability workforce or within DHBs. Māori are about 15% of our population but only 8% of the DHB workforce. Pacific peoples are about 8% of our population and just 4% of the DHB workforce. Table 3 shows that this under-representation is apparent across most of the health and disability professional groups (Health & Disability System Review, Interim Report p229).

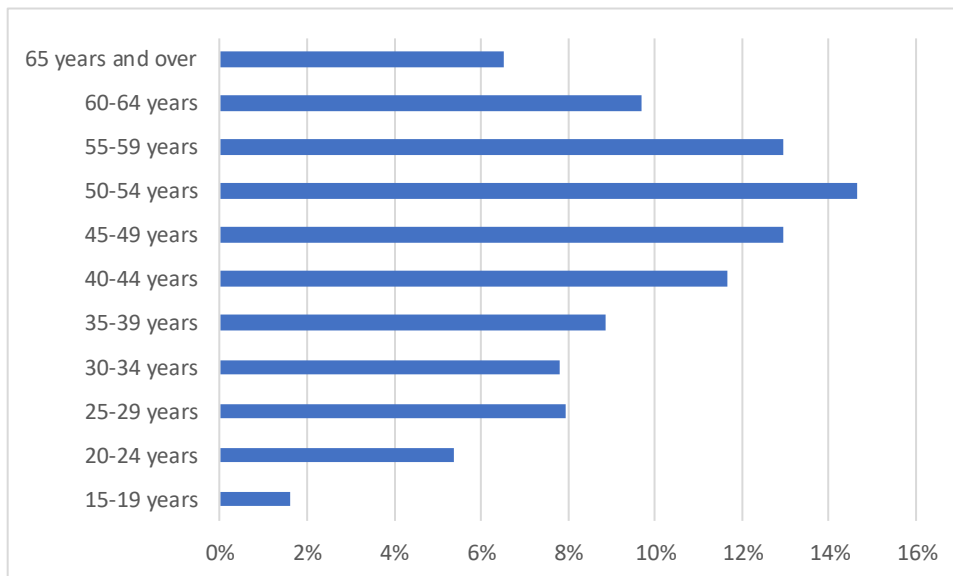
**Table 3: Māori and Pacific people across the health and disability professional groups**

	Māori	Pacific people
Medical	3%	1.8%
Nursing & midwifery	7%	3%
Allied and scientific	9%	3%
Personal care & assistants	16.6%	9%

The health care and social assistance sector has a predominately female workforce – 83% in 2019. This compares to 48% of the workforce being female across all industries. The majority of those in health care and social assistance are aged 40 years or older, and 10% are aged 60 to 64 years.

Figure 2 shows the age ranges based on 2013 census data. More recent data was not available at the time of writing this report, but we can anticipate a similar picture. Note that it is also not possible to distinguish between the health care and social assistance workforces.

**Figure 2: Age profile of the health care and social assistance workforce, 2013 census**



Source: Statistics New Zealand

## Number of health and disability workers employed by DHBs

Information was received from Technical Advisory Services (TAS) on the total full-time equivalent (FTE) numbers and salary costs of people employed by the 20 DHBs across New Zealand. The information TAS provided is from the Health Workforce Information Programme. This is a programme within TAS and is sponsored by the 20 DHB National General Managers of Human Resources. The programme holds data on the DHB-employed workforce, providing a national, regional and local picture of the health and disability sector workforce in terms of its 'stocks and flows'.<sup>2</sup>

Information provided by TAS indicates that at 31 December 2019, a total of 76,213 FTEs were employed by the 20 DHBs across New Zealand. Table 4 provides a total FTE count by DHB and a count per 100,000 population. It also shows the percentage of health and disability workers employed by different DHBs. Note that the total number

<sup>2</sup> More information on this can be found at <https://tas.health.nz/employment-and-capability-building/workforce-information-and-projects/health-workforce-information-programme-hwip>

of workers in this table adds up to 74,106 – slightly less than the total reported by TAS.<sup>3</sup>

Auckland DHB has the largest number of FTEs overall, followed by Canterbury, Waitemata and Counties Manukau. West Coast has the highest proportion of FTEs per population, followed by Auckland and Waikato. Waitemata has the lowest number of FTEs per 100,000 population, followed by Lakes and Wairarapa.

More detailed information on the number of people working in different occupations can be found in Appendix A. Figure 3 shows the total FTE count by occupation for the 20 DHBs.

**Table 4: Total FTE count by DHB as at 31 December 2019**

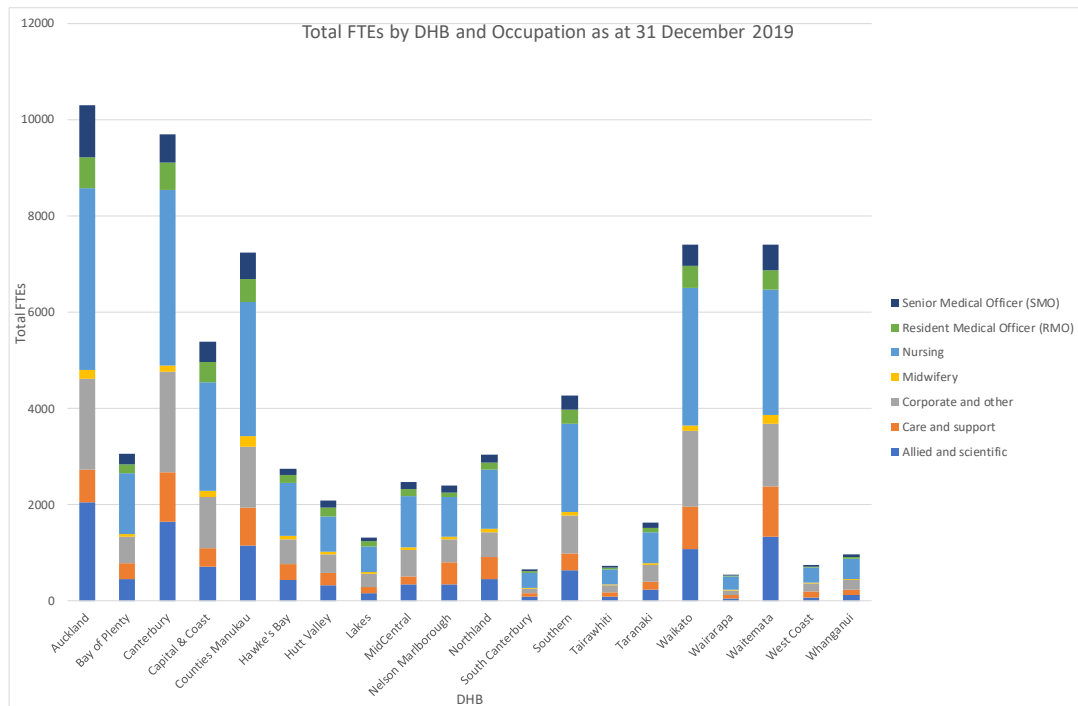
DHB	Total FTE count	Total FTE/100,000 population	Percentage of total DHB FTE count
Auckland	10,307	1,889	14%
Bay of Plenty	3,068	1,287	4%
Canterbury	9,693	1,707	13%
Capital and Coast	5,382	1,692	7%
Counties Manukau	7,242	1,286	10%
Hawke's Bay	2,742	1,656	4%
Hutt Valley	2,083	1,392	3%
Lakes	1,328	1,203	2%
MidCentral	2,474	1,384	3%
Nelson Marlborough	2,392	1,587	3%
Northland	3,049	1,700	4%
South Canterbury	655	1,088	1%
Southern	4,263	1,292	6%
Tairāwhiti	730	1,488	1%
Taranaki	1,638	1,364	2%
Waikato	7,407	1,764	10%
Wairarapa	546	1,216	1%
Waitemata	7,396	1,176	10%
West Coast	744	2,296	1%
Whanganui	967	1,498	1%
<b>Total</b>	<b>74,106</b>	<b>1,499</b>	

Source: Technical Advisory Services Health Workforce Information Programme

<sup>3</sup> The reason for the difference is that the TAS data did not specify the exact number for positions where the total number in the role was four or fewer for reasons of confidentiality. If it is assumed that only one person works in each of those positions, then there is a total of 74,106 FTEs employed by DHBs. If we assume there are four workers for each anonymised entry the total is 78,607. The actual number employed by DHBs is 76,213.



**Figure 3: Total FTEs by DHB and occupation as at 31 December 2019**



Source: Technical Advisory Services Health Workforce Information Programme

Nurses account for the largest pool of health and disability workers employed by DHBs (39%). Corporate and other personnel account for 19% of all DHB employees, followed by allied health professionals (16%), care and support (11%) and senior medical officers (7%).

## Changes in district health board FTE numbers over time

FTE data was analysed from 31 December 2014 to 31 December 2019. Table 5 and Figure 4 and Figure 5 show the change in total DHB FTEs over this period, along with changes per 100,000 population.

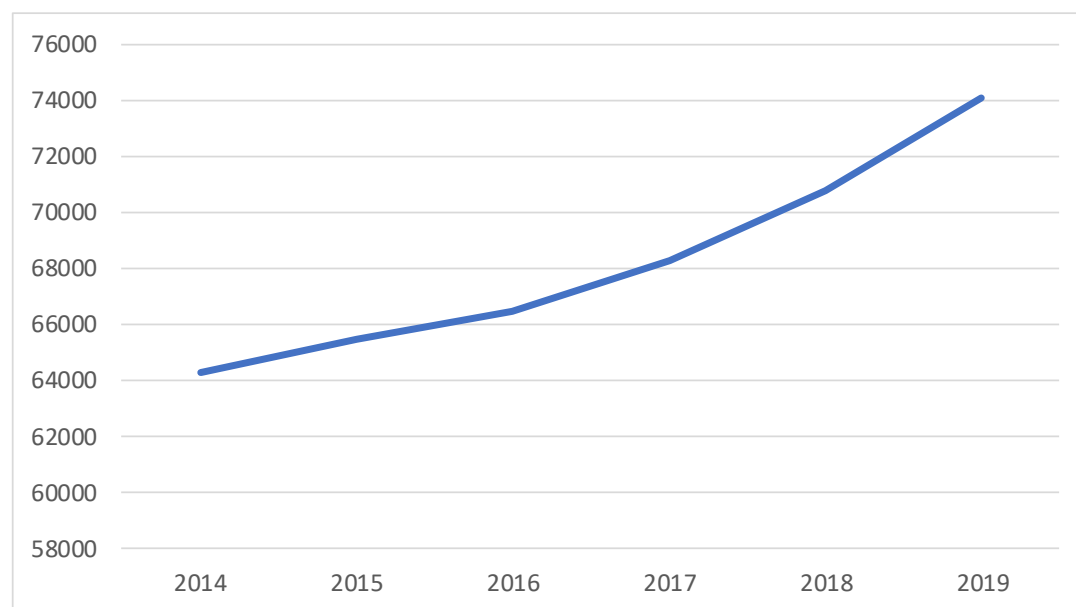
The total DHB health and disability workforce has increased by 15% from 64,276 in December 2014 to 74,106 in December 2019. On a per population basis, after an initial decline from 2014 to 2016, the DHB workforce has increased from 1,417 FTEs per 100,000 population to 1,499 FTEs per 100,000. This is an increase of 6% over the period, compared with an increase in overall population growth of 9%.

**Table 5: Changes in FTEs employed by DHBs from 31 December 2014 to 31 December 2019**

Year	DHB FTE count	DHB FTEs/100,000 NZ population
2014	64,276	1,417.0
2015	65,454	1,416.3
2016	66,488	1,410.5
2017	68,308	1,424.5
2018	70,785	1,453.1
2019	74,106	1,499.2

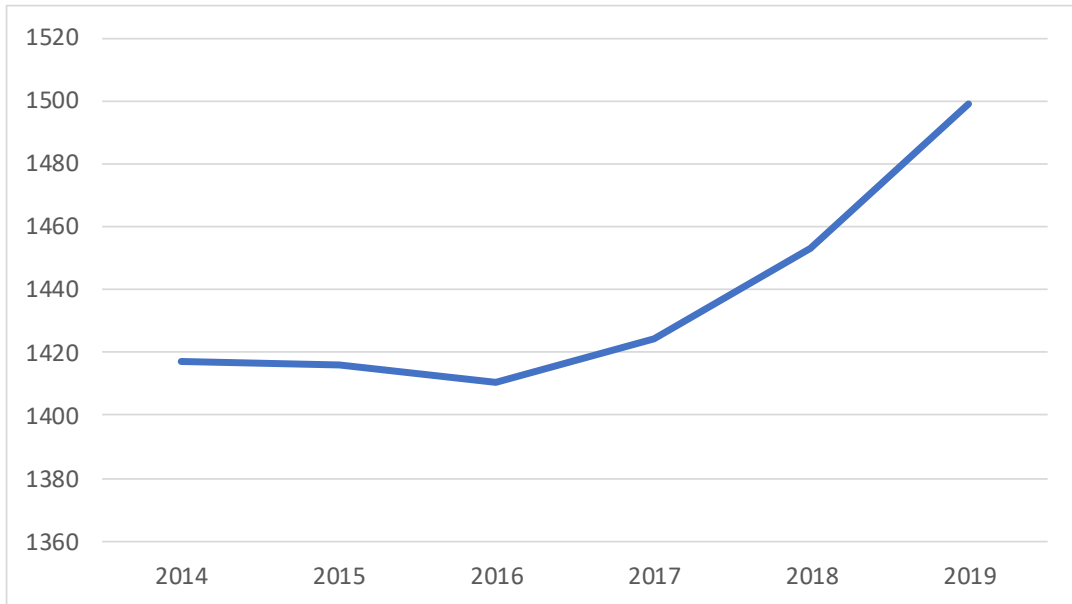
Source: Technical Advisory Services Health Workforce Information Programme

**Figure 4: Total FTEs employed in DHBs from 31 December 2014 to 31 December 2019**



Source: Technical Advisory Services Health Workforce Information Programme

**Figure 5: Total FTEs employed in DHBs from 31 December 2014 to 31 December 2019 per 100,000 population**



Source: Technical Advisory Services Health Workforce Information Programme

## Non-DHB employed health and disability support workforce

It is very difficult to get accurate information on the non-DHB employed health workforce, particularly the primary care and kaiāwhina (unregulated) workforce.

As noted above, in December 2019 213,100 people were employed in hospitals, medical and other health care services, and residential care services. Of this we know that 76,213 are employed directly by DHBs. We can therefore estimate that 136,887 people are not directly employed by DHBs. These may be DHB-funded workers or other non-DHB health care workers.

The Ministry is in the process of compiling more accurate information on the primary and community care workforce. To estimate non-DHB employed numbers by occupation, data has been gathered on those in regulated professions by using the number with annual practising certificates, and then subtracting the number of DHB-employed in each occupation.

The non-regulated (kaiāwhina) workforce is much harder to estimate as very limited information is available. Pay equity data is currently the main source and estimates of the kaiāwhina workforce using this data range from 49,000 to 110,000 depending on the source used.

Table 6 provides an indication of the number of non-DHB employed health and disability workers by occupation. Note that this does not include non-clinical managers, or administrative and clerical workers and therefore adds up to less than the estimated total non-DHB employed workforce of 136,887.

**Table 6: Headcount of the non-DHB employed workforce as at June 2020**

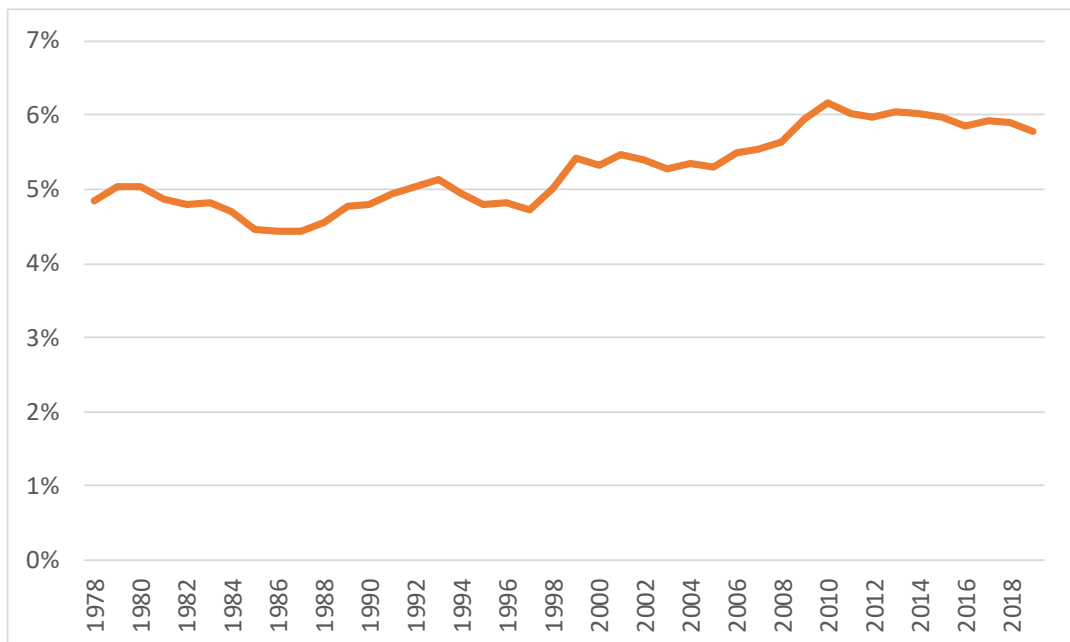
<b>Occupation</b>	<b>Headcount of non-DHB-employed and/or casual DHB-employed</b>
Addiction practitioner	1,288
Care and support worker/kaiāwhina	48,947
Chiropractor	652
Counsellor	2,885
Dietitian	393
Doctor	7,406
Enrolled nurse	1,574
Medical radiation technologists	1,795
Medical scientist/technician	2,182
Midwife	1,770
Nurse practitioner	246
Occupational therapist	1,559
Optometrist/dispensing optician	916
Oral health practitioner	4,402
Osteopath	550
Paramedics/ambulance officers/ emergency medical technicians	5,765
Pharmacist	3,268
Physiotherapist	4,352
Podiatrist	417
Psychologist	2158
Psychotherapist (all scopes)	513
Registered nurse	29,524
Social worker	6,455
Speech language therapist	554
<b>TOTAL (approximate estimate)</b>	<b>129,571</b>

# Expenditure on the health and disability system

Vote Health was \$19.87 billion in 2019/20 and will increase to \$20.27 billion in 2020/21 as a result of a significant injection of funding through Budget 2020. This is the primary source of funding for New Zealand's health and disability system and makes up about a fifth of government spending (the second largest component of Crown spending after social security and welfare). The substantial size of this expenditure provides a significant opportunity to influence the nation's economy.

The health care and social assistance industries represented 5.79% of gross domestic product (GDP) for the year ended December 2019. This compares with education and training, and public administration and safety, which both make up 4% of GDP.<sup>4</sup> Over the last 40 years, expenditure on health care and social assistance has remained relatively static at around 5% or 6% of GDP, as shown in Figure 6.

**Figure 6: Health care and social assistance sector as a proportion of total GDP (2009/10 prices)**



Source: Statistics New Zealand Gross Domestic Product by industry – annual values December 2019 quarter

<sup>4</sup> Source: Statistics New Zealand Gross Domestic Product by Industry

# Salary expenditure on health and disability workers

About three-quarters of Vote Health funding goes to the country's 20 DHBs and nearly half of this allocation is spent on workers' salaries. It is difficult to obtain information on the total salary cost of the entire health and disability workforce, particularly health and care workers employed privately by primary health organisations, and health and care workers employed in the not-for-profit sector.

## Salary costs for each district health board

For the year ending 31 December 2019, \$6.2 billion was spent by DHBs on health and care workers.<sup>5</sup> This represents 31% of total Vote Health budget of \$19,871 million for the 2019/20 year and 45% of the \$13,980 million provided to the 20 DHBs for services to meet the needs of each district's population.

Core Crown expenses as at June 2019 were \$87.02 billion.<sup>6</sup> Expenditure on DHB employee salaries therefore makes up 7.2% of core Crown expenses. Expenditure on health and disability DHB employee salaries represents 45% of health and social assistance GDP and 2% of total GDP.

Consistent with DHB FTE numbers, the largest proportion of salary cost is spent on nurses (\$2.2 billion or 36% of total DHB salary costs), followed by senior medical officers (\$1.1 billion, 18%), corporate and other services (\$932 million, 15%) and allied health and scientific health workers (\$884 million, 14%). The smallest component is spent on midwifery (\$120 million, 2%).

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<sup>5</sup> Note that this is potentially an underestimate as the data received from TAS did not include FTE numbers if there are four or fewer people in a role. The analysis presented in this report assumes there is only one worker in each of those roles. To compensate for this underestimate, salary costs were also estimated assuming a total of four workers for those anonymised occupations. The results of this analysis are shown in Table 12 in Appendix A. Total salary costs under this assumption are \$6.56 billion, or an increase of \$335 million compared to assuming there is only one health worker for each anonymised entry.

<sup>6</sup> The Treasury (2019). *Financial Statements of the Government of New Zealand for the year ended 30 June 2019*. The Treasury, Wellington. Accessed on 23 April 2020 at <https://treasury.govt.nz/sites/default/files/2019-10/fsgnz-2019.pdf>

**Table 7: Total DHB salary expenditure by occupation for the year ending 31 December 2019**

Occupation	Salary cost (\$ millions)	Percentage of total DHB salary cost
Allied and scientific	883.65	14%
Care and support	417.51	7%
Corporate and other	932.45	15%
Midwifery	119.74	2%
Nursing	2,238.62	36%
Resident medical officer	500.07	8%
Senior medical officer	1,136.05	18%
<b>TOTAL</b>	<b>6,228.10</b>	

Source: Technical Advisory Services Health Workforce Information Programme

Table 8 shows the total salary cost by DHB and as a proportion of total FTEs and total DHB population. The largest salary cost is borne by Auckland (\$911 million), followed by Canterbury (\$781 million), Counties Manukau (\$646 million) and Waitemata (\$608 million). Wairarapa has the smallest salary cost (\$42 million), followed by West Coast (\$54 million).

Salary costs as a proportion of FTE count are highest for Counties Manukau (\$89,207 per FTE), followed by South Canterbury (\$88,559) and Auckland (\$88,390). Costs are the lowest at West Coast (\$73,419) and Wairarapa (\$77,716).

Salary costs as a proportion of the DHB population are highest for West Coast (\$1,685 per DHB population), followed by Auckland (\$1,669) and Capital and Coast (\$1,485). Salary costs per proportion of the DHB population are lowest for Wairarapa (\$995) and South Canterbury (\$963).

**Table 8: Salary costs by DHBs as at 31 December 2019**

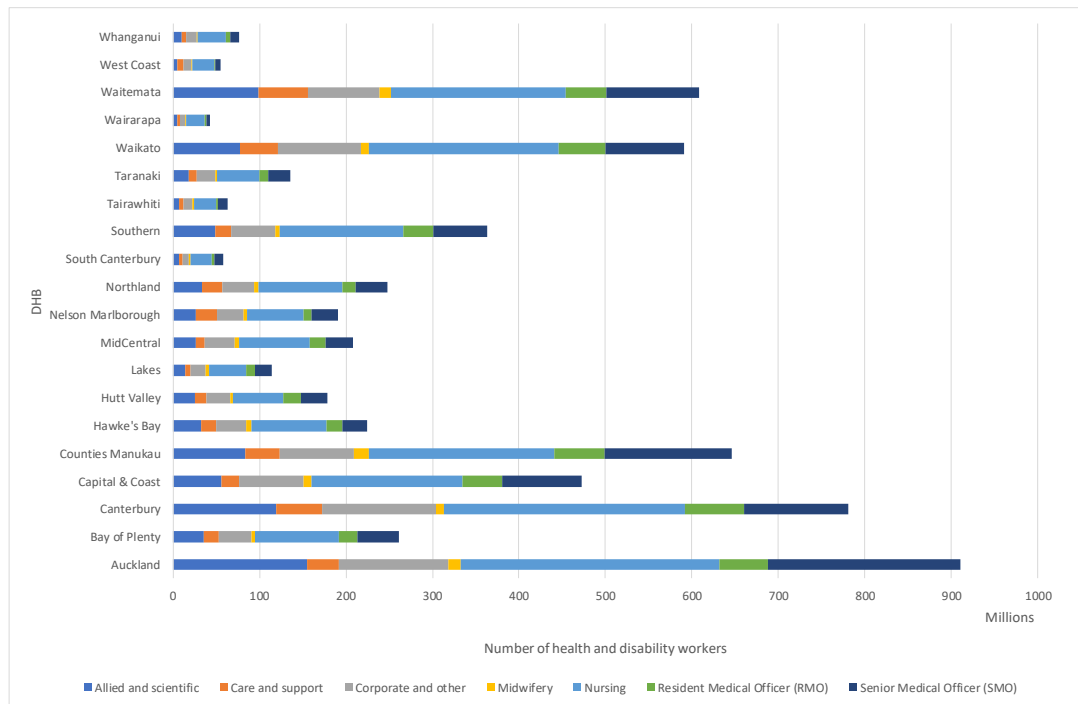
<b>DHBs</b>	<b>DHB salary cost (\$ millions)</b>	<b>DHB salary cost per FTE count (\$)</b>	<b>DHB salary cost per DHB population (\$)</b>
Auckland	911.0	88,390	1,670
Bay of Plenty	261.6	85,252	1,097
Canterbury	780.5	80,524	1,374
Capital and Coast	472.4	87,767	1,485
Counties Manukau	646.0	89,207	1,147
Hawke's Bay	224.1	81,715	1,353
Hutt Valley	178.6	85,722	1,193
Lakes	114.0	85,880	1,033
MidCentral	208.0	84,084	1,163
Nelson Marlborough	190.5	79,646	1,264
Northland	248.3	81,451	1,385
South Canterbury	58.0	88,559	963
Southern	363.7	85,320	1,103
Tairāwhiti	63.4	86,866	1,293
Taranaki	135.2	82,550	1,126
Waikato	590.9	79,774	1,407
Wairarapa	42.4	77,716	945
Waitemata	608.8	82,312	968
West Coast	54.6	73,420	1,685
Whanganui	76.0	78,561	1,177
<b>TOTAL</b>	<b>6,228.1</b>	<b>84,043</b>	<b>1,266</b>

Source: Technical Advisory Services Health Workforce Information Programme

Figure 7 shows the total salary costs by occupation for each of the DHBs. (More detailed information is in Appendix A.) The general proportionate mix of salaries across DHBs is very similar.



**Figure 7: DHB salary costs by occupation as at 31 December 2019**



Source: Technical Advisory Services Health Workforce Information Programme

## Salary costs for non-DHB employed workforce

The Ministry is looking at options for progressing the development of an information database on the non-regulated health and disability workforce. The aim of this work is to provide a pathway for building an information database that will be useful to the Ministry, DHBs and other stakeholders involved in developing and maintaining the capacity and capability of the non-regulated workforce, both nationally and locally.

It is possible to derive an estimate of the salary cost of the non-DHB employed workforce by looking at average salary rates. If we assume that one headcount equals 0.8 FTE and multiply the FTE number by the average salary, we derive a total cost per occupation for the non-DHB employed workforce of \$7 billion (see Table 9).

This would mean that the total cost of the health and disability sector workforce is around \$13.2 billion per annum (adding the \$6.2 billion DHB employee salary cost to the \$7 billion non-DHB employee cost). This comprises 66% of total Vote Health and 15% of core Crown expenses. Given the uncertainty around these numbers, this only provides an indication and should not be relied upon.

**Table 9: Non-DHB employed salary costs by occupation**

<b>Occupation</b>	<b>Headcount of non-DHB employed</b>	<b>Total FTEs (0.8 of one headcount)</b>	<b>Average salary (\$) <sup>7</sup></b>	<b>Total salary (\$ millions)</b>
Addiction practitioner	1,288	1,030.4	57,016	58.7
Care and support worker/kaiāwhina	48,947	39,157.6	41,396	1,621.0
Chiropractor	652	521.6	75,792	39.5
Counsellor	2,885	2,308.0	56,000	129.2
Dietitian	393	314.4	56,989	17.9
Doctor	7,406	5,924.8	160,000	948.0
Enrolled nurse	1,574	1,259.2	40,700	51.2
Medical radiation technologists	1,795	1,436.0	70,000	100.5
Medical scientist/technician	2,182	1,745.6	59,226	103.4
Midwife	1,770	1,416.0	61,323	86.8
Nurse practitioner	246	196.8	122,707	24.1
Occupational therapist	1,559	1,247.2	83,000	103.5
Optometrist/dispensing optician	916	732.8	81,785	59.9
Oral health practitioner	4,402	3,521.6	93,600	329.6
Osteopath	550	440.0	54,047	23.8
Paramedics/ambulance officers/ emergency medical technicians	5,765	4,612.0	67,666	312.1
Pharmacist	3,268	2,614.4	145,075	379.3
Physiotherapist	4,352	3,481.6	95,153	331.3
Podiatrist	417	333.6	55,691	18.6
Psychologist	2,158	1,726.4	85,268	147.2
Psychotherapist (all scopes)	513	410.4	61,737	25.3
Registered nurse	29,524	23,619.2	76,800	1,814.0
Social worker	6,455	5,164.0	50,000	258.2
Speech language therapist	554	443.2	58,684	26.0
<b>TOTAL (approximate estimate)</b>	<b>129,571</b>	<b>103,656.8</b>		<b>7,009.3</b>

<sup>7</sup> The average salaries were sourced from various websites including [www.payscale.com](http://www.payscale.com), [www.careers.govt.nz](http://www.careers.govt.nz) and [www.salaryexpert.com](http://www.salaryexpert.com).

# Health employment and economic growth

'The size and nature of the health system ... are likely to have profound direct implications for the performance of the economy as a whole ...' (Cylus et al 2018).

Given the significant proportion of government funding spent on health and disability workers' salaries, it is important to understand the broader contribution that these workers make to the economy. Although the benefits to individuals and society of improved health status and quality of life are acknowledged and considered to be substantial, the health sector and the health workforce have not been viewed as important sources of inclusive economic growth. The health sector is often seen as a cost to the economy and an expense to be controlled.

In recent years there has been a shift in thinking and an understanding that the health sector has an economy, it makes an economic footprint and it has a labour market dynamic of its own. Evidence suggests that investments in the health workforce and broader health sector can promote inclusive economic growth and that health and inclusive economic growth are complementary, not necessarily opposing goals (Horton et al 2016).

## High-Level Commission on Employment and Economic Growth

In March 2016, a High-Level Commission on Health Employment and Economic Growth (the Commission) was established by United Nations Secretary-General Ban Ki-moon to make recommendations to stimulate and guide the creation of at least 40 million new jobs in the health and social sectors. As part of this work, the Commission sought to draw the attention of the international community to the social and economic benefits of investing in the health workforce, locally and globally.

The Commission's vision is for an 'expanded, transformed and sustainable health workforce to improve health outcomes, wellbeing, equity and social cohesion and foster inclusive economic growth' (HLC 2016 p28).

The Commission noted that 'health workers are the backbone of strong, resilient health systems' (HLC 2016 p15). The Commission hoped to change the mindset of political leaders, policy makers and economists who view health employment as a burden on the economy (as it is considered to be inefficient, resistant to gains in productivity, and an expense to be stringently controlled). The Commission wanted to shift the focus of health employment as 'consumption' to health employment as an 'investment'.

The Commission noted a number of pathways through which health systems, including the health workforce, can promote economic growth. Based on an extensive review of the available evidence, the Commission concluded that, to the extent that resources are wisely spent, and the right policies and enablers are put in place, investment in education and job creation in the health and social sectors will make a positive contribution to inclusive economic growth (HLC 2016).

## The health sector, economic growth and social cohesion

The WHO *Global Strategy on Human Resources for Health: Workforce 2030*, adopted at the World Health Assembly in May 2016, notes one of its objectives as creating linkages between investments in the health workforce and 'improvements in health outcomes, social welfare, employment creation and economic growth' (WHO 2016).

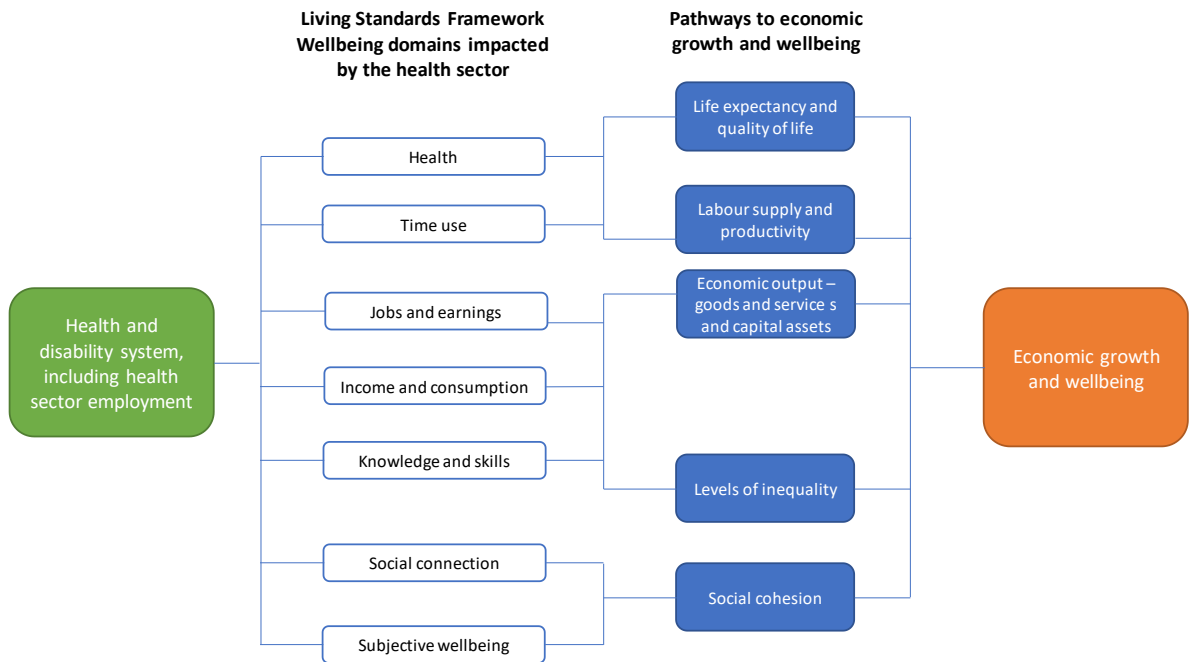
At the Fourth Global Forum on Human Resources for Health, held in Ireland in November 2017, the Dublin declaration was created. This built on the report of the Commission and mentions that strategic investments in the health workforce could contribute to sustainable and inclusive growth and are imperative for shared prosperity (WHO 2017).

In September 2019, the New Zealand Government released its *Economic Plan for a Productive, Sustainable and Inclusive Economy*. The Economic Plan aligns with a broader view of economic growth and wellbeing, which is not limited by a singular focus on GDP. This Plan has a vision of 'wellbeing for all New Zealanders now and in the future'. Priorities include growing and sharing New Zealand's prosperity more fairly, and achieving thriving and sustainable regions.

This broader focus on economic growth and wellbeing has been reinforced by the development of the Treasury's Living Standards Framework and its four capitals – financial/physical, human, natural and social. The Framework is flexible and designed to prompt thinking about policy impacts across the different dimensions of wellbeing.

Health is one of the 12 wellbeing domains set out in the Framework. The health and disability system, including employment in the health sector, cuts across several of the wellbeing domains and these affect five key pathways to economic growth and wellbeing: life expectancy and quality of life, labour supply and productivity, economic output, inequality, and social cohesion. These links are shown in Figure 8 and the pathways are discussed in more detail in the next sections.

**Figure 8: Pathways linking health sector employment to economic growth and wellbeing**



## Life expectancy and quality of life

In its broadest sense, the health and disability system, through its health workforce, contributes to the improved health and wellbeing of the New Zealand population. Economic growth depends on a healthy population.

Health has intrinsic value and economic benefits are released through increased life expectancy and improved quality of life. There are also advantages for families and broader participation in society through optimal levels of health.

Health wellbeing and overall wellbeing are interconnected. The Living Standards Framework Dashboard’s heatmap shows that people with low wellbeing for health are 17 percentage points more likely to have low income and consumption and 12 percentage points more likely to have low knowledge and skills, compared with people who have medium or high health wellbeing (The Treasury 2019).

Poor health early in life can lead to poor educational outcomes and reduce the prospects of securing a well-paying job. Poor health can affect education through lower attendance rates, inability to concentrate and learning disabilities.

Good health also has benefits at a population and economy-wide level. Better population health can encourage greater domestic savings and foreign investment, and improved social stability.

## Labour supply and productivity

Improved health leads to enhanced activity in the labour market, thereby increasing economic activity. Healthier workers are more productive, resulting in supply-side

benefits to the economy. Adults who experience poor health are more likely to be absent from work (absenteeism) or more likely to be unproductive at work (presenteeism).

A New Zealand Treasury working paper looked at the cost of ill-health by estimating the cost of absenteeism, presenteeism, working less and not working owing to ill-health. Evaluated at the average full-time pay rate, the estimated cost of hours lost ranges from \$4.127 billion to \$11.563 billion in 2004/05. This is 2.7% to 7.6% of GDP, with the large range due to the different methods and assumptions used to estimate presenteeism. Taking the estimate at the midpoint range, indirect costs are estimated to be \$7,483 billion or 4.9% of GDP. Presenteeism accounts for 55% of this cost, not working 23%, working less 19% and absenteeism only 3% (Holt 2010a).

The New Zealand Treasury also examined the relationship between health and labour force participation using data from the first three waves of the Survey of Family, Income and Employment (2002 to 2005). The results of standard regression models indicated that five out of nine chronic diseases considered have a significant negative relationship with labour force participation once other factors are controlled for. They estimated that, if there was an improvement in health, the additional number of people who could participate in the labour force is likely to be between 5,300 and 38,700, or a 0.3% or 2.1% increase in the total number of people participating (Holt 2010b).

Just as improved health can lead to more productive employment, employment also has health benefits. Literature on the benefits of employment in the health sector is scarce, so for this paper we have drawn on studies that discuss the general benefits of employment compared to unemployment.

The literature shows that a favourable work environment and high job security lead to better health outcomes. Being employed with good working conditions plays a protective role on physical and mental health (Barnay 2016). For example, a study in the Netherlands, which compared the self-rated health and quality of life of people before and after employment, found that paid employment improved quality of life and self-rated health, and that labour force participation should be considered as an important measure to improve the health of unemployed people (Carlier et al 2013).

There is evidence that employment can have a protective effect on depression and general mental health (van der Noordt et al 2014), and research by psychologists and others has consistently found that employees experience better psychological wellbeing than those who are unemployed (Wood and Burchell 2018). Globally, depression and anxiety have led to 15 billion lost days of work every year at an estimated annual cost of US\$1.5 trillion (Chisholm 2016).

## A strong health workforce can reduce impacts on the economy

As recent events have shown, a widespread pandemic can bring a country's labour supply and economy to a halt. Horton (2016) notes that weak health systems, with inadequate numbers of health workers, perform poorly in the surveillance, prevention and control of pandemics and infectious disease outbreaks. Recent experience shows the significant damage pandemics can do to the economy because of the effects on trade, travel, tourism and investment. Strong and responsive health systems strengthen

the ability of a country to respond to health pandemics and help to minimise the impact on the economy.

The health and disability sector also improves labour productivity and equity by providing progression and training. The sector offers a range of education and training opportunities, and people are required to maintain and improve their skills. For example, in 2018/19, around \$185 million was allocated to training and development of the health and disability workforce, including supporting medical vocational training, Nurse Entry to Practice, Midwifery First Year of Practice Programme, postgraduate nurse education and the Voluntary Bonding Scheme. In 2019/20 total funding for training increased to \$211 million, plus an additional \$5 million for leadership training.

Pálsdóttir et al (2016) found that strategies such as training health workers within communities, better aligning skills and competencies with population and system health needs, ensuring a gender-balanced workforce, and enhancing inter-professional learning can maximise the social and economic return on investment.

Having an appropriately trained health workforce is vital to efficiently and effectively responding to health emergencies, promoting and managing public health, and enabling economic production to continue. Investments in the health workforce, including epidemic surveillance and response, help to strengthen a country's response to infectious diseases, protecting both people and the economy.

## Economic output

The health and disability system delivers direct economic value through its effects on the wider economy. It employs people, builds skills through education and training, creates infrastructure and facilities, purchases supplies, and delivers communications and logistics (Horton et al 2016). Health systems need a range of services and products, creating business for local companies. As the health sector expands, so does its impact on the economy.

## Health institutions as anchor institutions

Health institutions are often viewed as 'anchor institutions', a term used to describe that fact that in tough economic times they are economically and socially connected to the communities in which they are based, and so act as economic stabilisers.

Employment in the health and disability sector tends to be less sensitive to cyclical fluctuations (such as economic recessions) than employment in other sectors of the economy. The health sector can create jobs in deprived areas and regions and keep the productive sector going through an economic downturn (Boyce and Brown 2019; Maignan 2012).

A study by Dall et al (2009) sought to quantify the economic value of professional nursing. Using hospital discharge data to estimate the incidence and cost of different patient outcomes along with productivity measures, they estimated the economic implications of changing nurse staffing levels. They found that as nurse staffing levels increase, patient risk of contracting a hospital-related disease (nosocomial complications) and hospital length of stay decrease, resulting in medical cost savings, improved national productivity, and lives saved. The authors note that:

Only a portion of the services that professional nurses provide can be quantified in pecuniary terms, but the partial estimates of economic value presented illustrate the economic value to society of improved quality of care achieved through higher staffing levels (p97).

## Strategic purchasing

The WHO (Boyce and Brown 2019) notes that purchasing is often seen as separate from regional economic plans and political decisions, and it is often regarded as a cost rather than an opportunity for economic growth and community development. However, purchasing and procurement by the health and disability sector has the potential to achieve social, economic and environmental benefits.

The WHO, the World Bank and the European Union all advocate that strategic purchasing has a significant role in creating sustainable economies and communities (WHO 2018; Preker et al 2007). They advocate for 'strategic social purchasing' to support local and regional economies, with local businesses employing local people so that wealth circulates in the area. The WHO notes that:

Health systems have a powerful economic and social role to play in national and local communities. By demonstrating their value in positively influencing local economies, through their employment and procurement practices, health systems can be leading contributors to local and national economic development (Boyce and Brown 2019 p32).

## Levels of inequality

Highly unequal societies tend to be less economically productive (Stiglitz 2012). Political stability that results from more equal societies along with greater equality of opportunities are important foundations for economic growth and overall wellbeing.

Women drive wealth creation through their employment in the health economy. In a sample of 123 countries, women made up 67% of employment in the health and social sectors compared with 41% of total employment (Magar et al 2016). In New Zealand, the health care and social assistance sector has a predominately female workforce – in 2019 83% of the workforce was female.

The gender gap in New Zealand's medical workforce is closing. In 2013 women made up 41.7% of the workforce and outnumbered men among new doctors. Further:

- 45% of female doctors were under 40 years of age
- 28% of male doctors were under 40 years of age
- 57% of house officers and 50% of registrars were women (Ministry of Health 2016).

The UN's High-Level Commission on Health Employment and Economic Growth noted that women in the health sector are under-represented in positions of leadership relative to their share of employment in the sector. They may also be subject to physical and sexual violence or other targeted attacks. The Commission pointed to the need to address gender biases, ensure equal pay for work of equal value, recognise and value women's unpaid work and provide for leadership roles for women (HLC 2016). Targeted investment in this labour group will help to address gender inequality



in the workplace and have a positive impact on households and society in general (van de Pas et al 2018).

The health and disability sector also plays an important role in reducing geographical inequities. It does this through the education and training it provides, the geographical spread of jobs and promoting jobs for young people. The health sector can use targeted strategies to attract young people from rural and other communities and ethnicities underrepresented in the workforce to a career in the health and disability sector.

Limited information is available on the number of health and disability workers in rural areas, but an extract of NES data on 17 March 2020 shows that out of 4,343 GPs, 702 are in practices belonging to the Rural General Practice Network (16% of all GPs).

Equity can also be improved in other areas of employment, such as increasing opportunities for groups who may have more challenges in obtaining full-time employment (for example, people with disabilities or minority groups). The health and disability sector has some of the highest proportions of older workers. For example, a little over 40.1% of doctors were aged 50 or over in 2015, up from 35.3% on 2009. The average age of nurses is 46.3 years (the average is lower in main centres and higher in rural areas) (Ministry of Health 2016).

Māori and Pacific peoples remain under-represented in the medical workforce. Overall, 11% of those working in the health care and social assistance sector are Māori (compared with 16.5% of the population), 11.9% are Asian (compared with 15.1% of the population) and 4.8% are Pacific peoples (compared with 8.1% of the population).

The percentage of Māori nurses within the nursing workforce is slowly rising – increasing from 3.6% in 2009 to 6.5% in 2015, but the percentage of Pacific nurses has remained static at 2.6% since 2009. The number of Pacific nurses is rising, but so is the size of the overall nursing workforce (Ministry of Health 2016).

## Social cohesion

A job provides social contact and contributes to social cohesion. Jobs connect people to others, can help people to expand their networks, and can encourage people from different walks of life to interact. This expansion of networks is important to engender trust and understanding between different groups of people (World Bank 2013).

Employment in the health and disability system creates multiple economic and social benefits that help to build social cohesion, particularly if the sector is employing people who live locally. This includes:

- increasing local wealth as employees who live locally often spend locally, which helps to build the social and economic resilience of the community
- reducing carbon emissions and improving environmental quality because people travel shorter distances to work
- housing and nutrition benefits from health employees having a decent wage and working conditions.

Generally, the social effects of having a job are experienced at two levels – by an individual and their household, and by the community in which they live. Having a job is critical to individual wellbeing and to sustaining communities. A World Bank Development Report (2013 p8) says:

Jobs are transformational. They are more than just the earnings and benefits they provide. They are also the output they generate, and part of who we are and how we interact with others in society. Jobs boost living standards, raise productivity and foster social cohesion.

However, it is not only the existence of a job that is important but the adequacy of its remuneration. Rates of pay vary greatly in the health sector depending on the nature of the work. A 2018 report by MBIE found that the health care and social services industry is one of the main low-pay industries, with 12.7 percent of its workers regarded as receiving low pay using the OECD low-pay definition<sup>8</sup> (Cochrane et al 2018).

Having a job does not necessarily improve life satisfaction. This can depend on security of work, earnings variability, or health and safety concerns. A World Bank Development Report notes that workers often care more about job security than about income (World Bank 2013).

The same report also shows that people feel strongly that their job should be meaningful and contribute to society. For example, results from a survey of 29 high-income countries showed that three-quarters of participants said it was important to have a job that was useful to society, and a similar share agreed it was important that their jobs help other people (World Bank 2013). As most health and disability workers interact with people every day, it can be expected that this would provide a high level of personal satisfaction and motivation in knowing they are helping others.

A study in the USA looked at the quality of health care jobs in terms of the extrinsic benefits (eg, wages and other benefits) versus the intrinsic characteristics (eg, doing meaningful tasks and helping others). The considered the impacts of these characteristics on job satisfaction and willingness to stay with an employer. They used survey data, interviews and focus groups. The results of this study indicated that both extrinsic and intrinsic characteristics are significant predictors of job satisfaction, but it is only the extrinsic characteristics that help to explain why people will stay with an employer (Morgan et al 2013).

Bhatnagar and Srivastava (2012) looked at job satisfaction in health care organisations. They noted that, according to the literature, job satisfaction in health care organisations is related to many factors, including optimal work arrangements, the ability to participate actively in decision-making processes, effective communication among staff and supervisors, and the ability to freely express an opinion. Collective problem solving and the attitude of management were also found to affect the satisfaction of employees.

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<sup>8</sup> OECD low pay is defined as two-thirds of the median wage (based on all employees). While there is no agreed definition across the literature, this measure appears to be most widely used.

Employment in the health and disability sector can also reduce social exclusion at an individual and community level, particularly for people who may face discrimination. This is particularly so in the health sector where there is a lot of diversity in the workforce. Through initiatives such as the Voluntary Bonding Scheme, there is a greater uptake of registrations by Māori and Pacific people. For example, the distribution of the 2020 Scheme registrations show that 19.1% are Māori and 10.5% are Pacific people.

## Impact of employment in the health sector on families

There is very little literature on the impact that working in the health sector has on employees' children and families, while there is some literature on the general influence that parents' employment has on children in a family. A 2011 report by the Royal Australasian College of Physicians found three key impacts on children from a parent having a job that contributes a living wage.

- Children in the families where one or both parents had worked in the previous six months had a lower likelihood of chronic illnesses, psychosomatic symptoms and an enhanced sense of wellbeing.
- Children living in households where one or both parents have jobs are less likely to be unemployed in the future.
- Psychological distress is less likely in children whose parents face reduced economic pressure. This reduces anxiety and depression in children, and reduces the likelihood of aggressive, delinquent behaviour and substance abuse.

A position paper from the USA also found a similar impact on families and children from having one or more parents in work, including an enhanced sense of individual and family wellbeing, and lower rates of distress and depressive symptoms (American Psychological Association 2014).

There may also be some risks to families of employment. For example, an article by Heinrich (2014) notes that parents' work is not universally beneficial for children. Although working parents can be positive role models, working long hours, particularly evenings and shift work, could impair the developing bond between parents and young children. Parents may also bring home stress that detracts from their parenting skills or causes their children to feel stressed. The paper notes the need to provide sufficient time off to allow parents to bond with a new baby, and high-quality childcare. Flexible working arrangements are also important.

# Discussion

This paper has examined the size and cost of the health and disability sector in terms of its workforce, with a particular focus on the DHB workforce. Given the significant government expenditure on the health and disability workforce, the paper has also considered whether this expenditure should be seen as an important investment, rather than a cost to be managed.

The WHO and other international bodies have been building an evidence base to demonstrate that targeted investment in health systems, including the health workforce, can promote economic growth and social cohesion along several pathways.

This is a developing area and this paper has been limited by the evidence available. There is a lack of evidence on the overall health benefits to society of having a health workforce (due to the difficulties in quantifying a vast array of health conditions and possible outcomes). Literature is also scarce on the impact of health sector employment on individual and family wellbeing.

More research and evidence is needed on how to best enhance the productivity of the health and disability workforce to improve social outcomes. The UN's High-Level Commission on Health Employment and Economic Growth (2016) notes that there is a deficit of studies on the relationship between skill mix, scopes of practice and the resulting economic outcomes.

Recent studies show that the health and disability system, particularly through its employment of health and care workers, has an important impact on economic, social and human outcomes. By effectively using its assets and resources within communities, and by taking a strategic approach to employment, training, and the production and purchase of goods and services, the health and disability sector can 'transform local economies so that they work for everyone' (Boyce and Brown 2019 p6).

The evidence suggests that investing in the health and disability workforce will increase employment of women and youth, reduce social inequalities and drive inclusive economic growth. As the WHO (Boyce and Brown 2019) noted, the health and disability sector:

- plays an important role in determining the economic performance and stability of a country
- has a positive impact on the economic performance of other sectors in the national economy, through the jobs it generates and from the purchase of goods and services
- helps to reduce social exclusion at a local level, due to its impact on employment, training, working conditions and household income.

A key message that emerged from the consultation undertaken by the Commission was that workforce and health service reforms and policy making should be much more closely coordinated and integrated. Investments in the health workforce can achieve efficiency gains and be beneficial for economic growth if focused on community-based intervention and primary prevention, and self-care for chronic conditions (Horton et al 2016).

As the Commission (2016 p16) noted:

There is now an urgent need to move away from the notion of health and health workers as purely an expenditure to be contained. To the extent that resources are wisely spent, investing in health is a productive investment. In addition to rights-based arguments for health and health equity, we should also view the health workforce as an opportunity to create decent jobs and accelerate sustainable social and economic development – critically important returns to society.

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