

HEALTH SERVICES RESEARCH CENTRE



VICTORIA UNIVERSITY OF
WELLINGTON
TE HERENGA WAKA

Te Hikuwai Rangahau Hauora

Trends in Household Expenditure on Health in Aotearoa New Zealand: Findings from the Household Economic Survey (2007-2019)

Tessa Senior, Dr Maite Irurzun Lopez, Associate Professor Mona Jeffreys, Abdul Azeez Abdul Wahab, Dr Jacqueline Cumming

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Contact for further details:

Mona Jeffreys

Associate Professor (Research)

mona.jeffreys@vuw.ac.nz

Table of Contents

List of figures and tables.....	4
Executive summary	5
Key findings:	5
Background.....	6
Methods	8
Results	11
Discussion	15
References.....	18

List of figures and tables

Table 1. Average weekly household expenditure on health, 2007 to 2019, (adjusted to 2019 \$NZ)	12
Table 2. Average weekly household expenditure on health, median weekly disposable income and percentage of weekly income spent on health, by ethnicity, in 2019	13
Table 3. Average weekly household expenditure on health, by regions, 2007 to 2019, (adjusted to 2019 \$NZ)	14

Executive summary

Aotearoa New Zealand (Aotearoa) has executed various policies to prevent high out-of-pocket health spending for patients, particularly for primary care which is the gateway to further health resources. Despite these efforts, some amount of out-of-pocket health spending still exists and cost remains a barrier for some population groups. Māori and Pacific people have the highest rates of cost barriers to primary care and experience greater levels of unfilled prescription due to cost when compared with New Zealand Europeans. Addressing barriers to care will help assist with Aotearoa's long-standing goal of equity for Māori and Pacific populations. Tracking household health spending, both overall and by ethnicity can help us to understand where people are experiencing financial burden and for whom it effects the most.

Key findings:

- Household spending on health is increasing each year and the areas of financial burden remain the same as in the 1990s. Households in Aotearoa spend the most on dentistry and medical consultations when compared to other categories of health spending.
- Out-of-pocket spending on dentistry has increased the most when compared with any other category of health spending. There has been a \$6 increase in weekly spending on Dental services.
- In 2019, Pacific populations experienced low rates of household spending on health and had the lowest percentage of weekly income spent on health despite having the highest levels of multimorbidity when compared to other ethnic groups in Aotearoa.

Background

Funding of health services

In Aotearoa New Zealand (Aotearoa), hospital level care and many emergency services are free at the point of service. In contrast, patients are often required to pay contributions to access primary health care (PHC), known as out-of-pocket (OOP) contributions, which supplement government funding [1].

In 2018, OOP spending by patients contributed 12.9% of total health spending, while government funding contributed 79.2% and private health insurance, 7.9% [2]. The contribution of OOP to total health spending varies across sectors; the largest contributions are in oral health care (75%), aged care (46%), pharmaceutical spending (37%), and radiology payments (57%) [2]; general practice and Primary Health Organisation (PHO) [3] services payments made up 11% of OOP spending.

Little is known, however, about recent trends in OOP spending, including the relationship between OOP and equity. The aim of this paper is to report on trends in household expenditure on health by people living in Aotearoa, from 2007 to 2019, overall and for specific health expenditure categories, by ethnicity and across regions.

This report will first outline the strategies currently used to reduce Aotearoa's OOP spending. We will then outline the extent to which high OOP spending can lead to greater levels of household poverty. Household Economic survey data will then be used to examine the trends in health spending by households, before discussing the implications of our findings and what they mean, specifically for the indigenous Māori population of Aotearoa.

Strategies to reduce OOP in NZ.

Guided by the New Zealand PHC Strategy (2001), efforts have been made in the past 20 years to reduce the population's OOP payments for PHC [4]. This reduction was expected to contribute to reducing health inequities, one of the six key directions of the Strategy. Policies that have been implemented since then to reduce the burden of co-payments for general practitioner (GP) services include higher levels of government capitation funding to support PHC between 2002 and 2007 [5,6]; the Very-Low-Cost-Access scheme (VLCA), introduced in 2006 to keep fees low for specific high needs populations where the general practice agrees to keep fees low in return for higher capitation payments; and access to lower cost GP visits for people with a Community Services Card (CSC) (i.e., those on lower incomes), introduced in 2018 [7,8]. Subsidies also apply to other health services beyond GP consultations; for example, people under 18 years old can receive free dental care; the government covers most of the cost of prescribed medicines (which are free for those aged

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under 14 and the user charge is limited to \$5 per item, with a cap of 20 items per family per annum); while adult CSC holders may be eligible for discounted emergency dental care, although these are not mandatory for providers to deliver [9].

In the international literature on household health expenditure, significant attention has been paid to observing OOP health spending. One systemic review focused on 'catastrophic spending' in 20 low- and high-income countries [10]. Catastrophic spending refers to levels of health expenditure so high in relation to a household's income that it threatens a household's financial capacity to maintain its subsistence needs (such as accommodation). The authors concluded that people on the lowest incomes end up incurring the largest share of catastrophic health expenses. In Australia, which has a universal national health insurance scheme, it has been reported that the impact of OOP health care spending on household living standards, was such that it sent an extra 200,000 additional people into income poverty in 2014 [11]. Baird found that in five out of nine developed countries (United States, Switzerland, Russia, Israel and Poland), over 10% of individuals lived in households with high OOP health expenditure [12]. International literature also shows that OOP health spending is associated with lower access to health care [13].

In Aotearoa, indigenous Māori are more likely to live in areas of deprivation [14], have higher health needs [15], and higher levels of ambulatory sensitive hospitalisations, which are acute hospital admissions that are considered potentially preventable through PHC intervention [16]. Māori also more frequently report higher unmet need due to cost for accessing PHC, although they typically pay less on average per visit than others [15]. However, little is known about how household expenditure on health has been changing in recent years and the implications for equity, particularly for Māori. This report aims to fill these gaps in knowledge.

Methods

The New Zealand Household Economic Survey (HES)

The HES has been conducted since 1973 and gathers data on family earnings, investments, and spending to assess the economic wellbeing of people in Aotearoa [17]. It is conducted by, and data are publicly available through, Statistics New Zealand (StatsNZ). The HES is divided into three components: income (main component, run annually), expenditure (every three years), and net-worth (on assets and liabilities, every three years). Each survey covers one year from 1st July to 30th June of the subsequent year. In this paper, we only examine the expenditure data, reporting household average weekly expenditures. Data was extracted on 11 November 2019 for 2007-2017 data and on 1 December 2019 for 2019 data.

Sample and data collection

HES Expenditure surveys include around 3,932 households: 78% New Zealand European, 18% Māori, 8% Pacific, 14% Asian, and 5% Middle Eastern, Latin American and African (MELAA)/Other (2019 survey figures). Households were selected through stratified random sampling [18] among eligible residents 15 years old and above. Participants fill out their own form and one household member is required to include spending for any household members under 15 years old. Households take part in a face-to-face interview which covers a three month recall for larger or irregular purchases such as health or travel, and a 12 month recall for housing-related costs and recreational expenditure which includes holidays, sports equipment and other non-essential spending. Participants are then left a one-week expenditure diary which is for smaller, more regular expenditures. The expenditure reported for the last week is assumed to be representative and projected for the full year. A two-week reporting time frame was used until 2019 year when it was reduced to one week. Participants are advised to keep receipts, but this is not compulsory. Median weekly household income measures were taken from StatsNZ.

Categories

Regarding health expenditure, HES data comprise of three groups:

1. Consultations (called outpatient services in the HES), including
 - a. Medical services – e.g., fees for GP, specialist physician, surgeon, anaesthetist, optician, optometrist, physiotherapist, chiropractor, osteopath, alternative health practitioner, family planning, home-nursing services, etc. This includes private hospital consultation fees.
 - b. Dental services – fees for dentist, dental surgeon, oral hygienist, orthodontists, and other specialist services.
 - c. Paramedical services – fees for medical laboratories and tests, radiology services, scanning charges, radiography charges, other non-hospital services, etc.
2. Medical products, appliances and equipment (henceforth Medical products) including:
 - a. Pharmaceuticals – e.g., prescription charges and payments for ‘over the counter’ products.
 - b. Other medical products – e.g., payments for bandages, medical measuring equipment, contraceptives supplies and devices, etc.
 - c. Therapeutic appliances and equipment (henceforth therapeutic equipment) – e.g., payments for corrective glasses, contact lenses, hearing aids, prostheses, wheelchairs, crutches, etc.
3. Hospital services, including hospital services and fees, rest-home fees, convalescent home fees, and hospital outpatient visit charges. This category includes fees paid for food, accommodation etc, to the hospital and not medical or consultation charges for services conducted at the hospital.

Premium payments for private health insurance are not included, as they are covered by a separate category of expenditure. We were not able to obtain this data.

Years

We included HES data from 2007, 2010, 2013, 2016, and 2019. Data collected in 2003 could not be used as it used a different method of collection, with classifications modified from 2006 onwards. Data from the 2022 survey are not publicly available yet due to the impacts of COVID-19. Spending was adjusted for inflation using the Reserve Bank of New Zealand CPI inflation calculator [20] to the 2019 New Zealand dollar (NZ\$) value. All expenditure is therefore reported in real 2019 NZ\$.

Analysis

We analysed data using Microsoft Excel. We report the average weekly household expenditure on health overall and on each of the three components of health expenditure, across the five data collection years available. Health expenditure was calculated as a proportion of total household expenditure.

Ethnicity

We examined average weekly health expenditures by ethnicity. Ethnicity is measured by individual and by household. Each participant fills out an expenditure diary along with a demographic questionnaire. Ethnicity is self-reported and both people and households can identify with more than one ethnicity, but ethnicity is not prioritised and a 'total response' approach is used [19], meaning that individual households can appear in ethnicity data more than once. For example, if one household member identified as both Pacific and New Zealand European and the other household member identified as Māori, that household will appear three times in the data set. Categories included: NZ European, Māori, Pacific, Asian and Middle Eastern, Latin American and African (MELAA).

Median weekly equivalised disposable household income data was source from StatNZ [20], weekly income was calculated from annual figures provided. 'Disposable' income is defined as the income received by a household once tax has been deducted. Figures for MELAA/Other appear in equivalised income data as separate categories of "MELAA" and "Other", an average for these two groups where calculated, in order to combine the categories, to be conducive with HES category which combines MELAA/Other into one category.

Regional

We also analysed data by region using the categories reported in the HES survey. These are the regions with the three main cities, Auckland, Wellington, Canterbury (including Christchurch), then the 'Rest of the North Island' (excluding Auckland and Wellington) and the 'Rest of South Island' (excluding Canterbury).

Results

Overall health spending (See Table 1, page 12)

In 2019, households in Aotearoa spent \$41.90 on health per week on average, increasing by \$12.25 from \$29.65 per week in 2007. From 2007 to 2019, the increase in household expenditure on health was significantly larger than the increase on household expenditure in general.

Between 2013 and 2016, there was a large increase in overall household spending and health spending, disproportionate to the average increase between previous and subsequent study periods.

Consultations were the largest category of health spending throughout the study period, accounting for around two-thirds of household health expenditure. After adjustment for inflation, weekly expenditure on Consultations increased by \$7.77 between 2007 and 2019. Expenditure in the subcategory of Medical Services increased by \$2.18 per week and is the subcategory with the highest dollar value on spending for each week (\$15.20 in 2019).

The category of Medical Products increased its relative contribution to total health expenditure by \$4.72. Driving these changes is the subcategory of Therapeutic appliances and equipment expenditure, which has increased by \$2.41. Hospital Services expenditure reduced over the study period by \$0.24.

Table 1. Average weekly household expenditure on health, 2007 to 2019, (adjusted to 2019 \$NZ)

	2007	2010	2013	2016	2019	Dollar value and proportion percentage point change 2007-2019	Percentage change 2007 - 2019	Health spending as a percentage of median weekly household income (2019)
Weekly household expenditure (\$)	\$1,203	\$1,171	\$1,189	\$1,322	\$1,349	\$145.80	12%	
Average household health weekly expenditure	\$29.65	\$28.09	\$29.26	\$39.69	\$41.90	\$12.25	41%	2.4%
Percentage of total expenditure on health	2.5%	2.4%	2.5%	3.0%	3.1%	0.6%		
(1) Consultations	\$19.23	\$18.07	\$19.15	\$24.99	\$27.00	\$7.77	40%	1.6%
	64.9%	64.4%	65.5%	62.7%	64.4%	-0.4%		
Medical services	\$13.02	\$11.97	\$13.13	\$16.60	\$15.20	\$2.18	17%	0.9%
	67.7%	66.2%	68.6%	66.4%	56.3%	-11.4%		
Dental services	\$5.58	\$5.41	\$5.49	\$8.40	\$11.60	\$6.02	108%	0.7%
	29.0%	29.9%	28.7%	33.6%	43.0%	13.9%		
Paramedical services	\$0.62	\$0.69	\$0.54	\$0.52	\$0.20	-\$0.42	-68%	0.0%
	3.2%	3.8%	2.8%	2.1%	0.7%	-2.5%		
(2) Medical products, appliances and equipment	\$9.18	\$8.86	\$9.68	\$14.17	\$13.90	\$4.72	51%	0.8%
	31.0%	31.7%	33.1%	37.3%	33.2%	2.2%		
Pharmaceutical products	\$7.32	\$7.02	\$7.42	\$9.24	\$9.00	\$1.68	23%	0.5%
	79.7%	79.2%	76.7%	65.2%	64.7%	-15.0%		
Other medical products	\$0.25	\$0.35	\$0.43	\$0.42	\$1.00	\$0.75	300%	0.1%
	2.7%	4.0%	4.4%	3.0%	7.2%	4.5%		
Therapeutic appliances and equipment	\$1.49	\$1.61	\$1.94	\$4.51	\$3.90	\$2.41	162%	0.2%
	16.2%	18.2%	20.0%	31.8%	28.1%	11.8%		
(3) Hospital services	\$1.24	\$1.15	\$0.43	\$0.52	\$1.00	-\$0.24	-19%	0.1%
	4.2%	4.3%	1.4%	1.3%	2.4%	-1.8%		
Hospital Services	\$1.24	\$1.15	\$0.43	\$0.52	\$1.00	-\$0.24	-19%	0.1%
	100%	100%	100%	100%	100%	0.0%		

Ethnicity (See Table 2, below)

In 2019, MELAA/Other households spent the most money on health when compared to all other ethnicities, spending \$61.30 per week, followed by New Zealand European households, then Māori. Pacific households spent the least overall and the least percentage of their weekly income on health (3%).

Table 2. Average weekly household expenditure on health, median weekly disposable income and percentage of weekly income spent on health, by ethnicity, in 2019

	2019	Median weekly equivilised disposable household income	Percentage of median weekly income spent on health
Overall household average weekly expenditure health	\$41.90	956	4%
NZ European	\$46.80	907	5%
Māori	\$33.20	738	4%
Pacific	\$21.00	738	3%
Asian	\$33.10	850	4%
MELAA/Other	\$61.30	790	8%

Regional (See Table 314)

When overall weekly household expenditure was considered, the amount spent on health was similar in all regions in 2007, but in 2019 there were wider variations; slightly higher spending was seen in the 'Rest of South Island' when compared with the major regions Auckland, Wellington, and Canterbury. Moreover, Table 3 indicates that the proportion and amount of weekly household spending on health in the 'Rest of South Island' in 2019 was higher than any of the other four areas that we reported. The 'Rest of South' Island saw the highest increase over the study period \$24.41 (83%) and Wellington showed the lowest increase at \$4.24 (13%).

Table 3. Average weekly household expenditure on health, by regions, 2007 to 2019, (adjusted to 2019 \$NZ)

	2007	2010	2013	2016	2019	Change 2007-2019	Percentage change 2007 - 2019
Overall household average weekly expenditure health	\$29.65	\$28.09	\$29.26	\$39.69	\$41.90	\$12.25	41%
Auckland	\$31.51	\$30.04	\$31.07	\$34.59	\$42.50	\$10.99	35%
Wellington	\$32.26	\$29.47	\$31.61	\$46.33	\$36.50	\$4.24	13%
Rest of North Island	\$29.02	\$26.26	\$26.68	\$43.08	\$39.90	\$10.88	37%
Canterbury	\$25.66	\$26.95	\$30.64	\$38.26	\$39.40	\$13.74	54%
Rest of South Island	\$29.39	\$27.06	\$27.11	\$37.84	\$53.80	\$24.41	83%

Discussion

Not only are families in Aotearoa paying more on health than ever before, but the share of health spending out of total household expenditure has increased. After adjustment for inflation, health spending increased by \$12.25 (41%) per week between 2007 and 2019. Within the three categories reported, the largest increase in expenditure was for Consultations, followed by Medical Products, spending on Hospital Services decreased, albeit by a very small amount.

Dental Services is the subcategory of expenditure which increased the most throughout the study period. Public funding for dentistry in Aotearoa is generally only available for children and young people until the age of 18, although as of December 2022 people on a low income can apply for up to \$1000 for necessary dental care [21]. Dental services for adults are administered on a fee-for-service basis and most adults are responsible for the full cost of dentistry. The prevalence of people in Aotearoa over the age of 15 who did not seek dental care in the previous 12 months due to concerns over cost, was 39.8% of the population in 2020 [22]. Over the years, there has been repeated calls from doctors and dentists to extend free dental care to adults [23,24]. Although politicians have recognised the benefit of policies which offer free dental coverage to adults [25], it has never been implemented due to budget concerns. A 2018 Ministry of Health report estimated the predicted cost of implementing free dental care for adults and concluded that it would require a \$148 million annual budget [24]. Research from the New Zealand dental association in 2019 then did a cost benefit analysis and showed that for every dollar spent on free dental care, the government would see a \$1.60 return. Cost savings would be derived from other health service costs, reduced benefit and increased employment [25]. Despite this, there has been no movement to publicly fund dental services in Aotearoa.

Between 2013 and 2016, all categories of health spending experienced a large increase. Spending trends for other essential service subcategories such as 'food' and 'clothing and footwear' within the Household Economic Survey show similar disproportionate increases. The rise was largely driven by 'housing and household utilities' category. Spending for less essential services such as 'household contents', 'communication' or 'recreation and culture' show minimal change. This may be explained by changes made to the HES survey. Instead of being asked to recall the last 12 months of spending, from 2016 onwards respondents were asked to recall the last three months of spending. Reported expenditure was then multiplied by four to gain an estimate of annual spending. The shorter recall period may have led to increased ability to remember spending, thus an increase in response from participants [26].

When we compare Aotearoa's OOP spending with other OECD countries, Aotearoa has one of the lowest rates at 12.9% out of total health expenditure. The United Kingdom sits at 15.3%, Australia 16.2%; and Germany 13.1% [27]. Comparing our results with a 2001 analysis of changes in private health expenditure in

Aotearoa from 1984-1998 [28], we see that overall expenditure on health has continued to increase and has also increased more rapidly in our reporting. Cumming et al observed that the percentage of household income devoted to OOP health expenditure in Aotearoa was highest in the lowest income group and declined steadily towards the higher income groups; however, prior to 1991, when user co-payments increased, these disparities were more modest [29]. Both our data and the 1998 data show Medical Services (e.g. GP fees) cause the greatest cost to households. The categories of burden remain the same: people in Aotearoa are still spending the most on dentistry and consultations.

Ethnicity

The finding that MELAA/Other had higher-than-expected health expenditure may be for several reasons. Firstly, this group had a small sample size of 195 households compared to other ethnicity sample sizes which range from 560 – 3,078 households, therefore the MELAA/Other results may be due to chance. Secondly, the MELAA population may have high health spending due to their residency status, as this group may include some people who have not been visa holders for longer than two years and therefore are not entitled to subsidised health care.

The finding that Pacific people have low levels of health spending is likely to reflect their lower access to health care due to cost. A 2019 review of health equity for Pacific people found that Pacific people are most affected by the inequitable distribution of the social determinants of health [30]. They also found that unhealthy lifestyle choices are not due to a lack of knowledge but to a lack of economic resources and that Pacific people report the highest levels of multimorbidity when compared to other ethnic groups in Aotearoa [31]. Despite the fact that enrolment rates in primary care are similar for Pacific people when compared with non-Pacific and non-Māori people, in 2016 rates of ambulatory sensitive hospitalisations for Pacific people were double that of the general population [28]. This indicates that despite Pacific people's higher needs status (due to high rates of multimorbidity and chronic conditions), and their active enrolment in primary care, Pacific people may not be utilising primary care when needed. Evidence from the New Zealand health survey support the fact that cost is a barrier to health for this population [22]. Among Pacific people, 33% report not seeing their primary care practitioner when needed, most of this unmet need being related to cost (20% of all Pacific people).

It is known that Māori and Pacific people are more likely to live on an income that sits below the poverty line than non-Māori, non-Pacific people [32]. The current study adds to the body of knowledge showing that low-income families are at risk of incurring health costs that could potentially send them into poverty. Callandar et al found that in Australia, the people in the lowest income group had 15 times the odds of having a

catastrophic health expenditure when compared to those in the highest income group [11] and a multicounty analysis on the extent of catastrophic health expenditure concluded that ‘low capacity to pay’ is a predictor of catastrophic health expenditure [33].

Data were presented using a “total response ethnicity per household”. Thus, households were able to choose more than one ethnicity and could appear more than once in each reporting category, which means that statistical comparisons between groups need to be interpreted with caution. We therefore commented on trends within ethnic groups, rather than comparing between groups. One option that has been used in Aotearoa, although not ideal, is that of prioritised ethnicity, where each person/ household is assigned to one ethnicity, in the order Māori, Pacific, Asian and Other [19]. Had the data been available using prioritised ethnicity, we could have compared trends in spending across ethnic groups, i.e., an equity-focused analysis.

The data used were gathered through sample surveys which are likely to contain some degree of random error, but are unlikely to be biased (i.e., display differential inaccuracy over time, between region, or between ethnic groups). However, it is possible that a difference in interpretation of questions between households may affect the way responses are recorded, potentially leading to measurement bias.

Another limitation includes the inability of the HES data to quantify household health expenditure from transport to appointment or transport to seek medication, or costly dietary requirements that revolve around health. Future studies could cover these categories and seek to quantify or create methods to quantify individuals’ spending due to these factors.

Conclusion

Despite considerable government health spending, year-on-year people in Aotearoa continue to spend more on OOP health expenses. This increased spending indicates that the cost of health care might be rising and that the same categories of financial burden have remained high over many years. We have identified the need for a review of policy on publicly funded dentistry to ensure low-income households are able to access preventative treatment, to avoid incurring expensive treatment costs. Future research should focus on comparing household health expenditure to household income, to better understand issues relating to affordability of health care over time, for different population groups. This will help to achieve Aotearoa’s long-standing goals of reducing health inequities for Māori, and for Pacific peoples and contribute information for Aotearoa’s new goals established by the current health system reforms; to create equity of access to health care for people living in all regions of Aotearoa.

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