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Estimating the economic costs of Indigenous health inequities in New Zealand: a retrospective cohort analysis

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ABSTRACT

Objectives Despite significant international interest in the economic impacts of health inequities, few studies have quantified the costs associated with unfair and preventable ethnic/racial health inequities. This Indigenous-led study is the first to investigate health inequities between Māori and non-Māori adults in New Zealand (NZ) and estimate the economic costs associated with these differences.

Design Retrospective cohort analysis. Quantitative epidemiological methods and 'cost-of-illness' (COI) methodology were employed, within a Kaupapa Māori theoretical framework.

Setting Data for 2003–2014 were obtained from national data collections held by NZ government agencies, including hospitalisations, mortality, outpatient and primary care consultations, laboratory and pharmaceutical usage and accident claims.

Participants All adults in NZ aged 15 years and above who had engagement with the health system between 2003 and 2014 (deidentified).

Primary and secondary outcome measures Rates of 'potentially avoidable' hospitalisations and mortality as well as 'excess or underutilisation' of healthcare were calculated, as the difference between actual rates for Māori and the rate expected if Māori had the same rates as non-Māori. These differences were then quantified using COI methodology to estimate the financial cost of ethnic inequities.

Results In this conservative estimate, health inequities between Māori and non-Māori adults cost NZ$863.3 million per year. Direct costs of NZ$39.9 million per year included costs from ambulatory sensitive hospitalisations and outpatient care, with cost savings from underutilisation of primary care. Indirect costs of NZ$823.4 million per year came from years of life lost and lost wages.

Conclusions Indigenous adult health inequities in NZ create significant direct and indirect costs. The 'cost of doing nothing' is predominantly borne by Indigenous communities and society. The net cost of adult health inequities to the government conceals substantial savings to the government from underutilisation of primary care and accident/injury care.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This study is based on comprehensive national datasets, in a country which has national ethnicity data collection policies and standards.
⇒ The methodology is noteworthy in adapting standard cost-of-illness (COI) methodologies through a critical Indigenous scientific lens.
⇒ COI methodologies such as this have limitations in being able to capture the full costs of illness and premature death, so are likely to underestimate costs.

BACKGROUND

Health inequities within and between countries by race/ethnicity are unjust, preventable and amenable to intervention.[1] Despite this, racial/ethnic inequities in health status, access and quality of care are well known, and Indigenous people, where measured, are often the most marginalised. As for many Indigenous and minority ethnic groups around the world, in Aotearoa/New Zealand (NZ), the Indigenous Māori (representing 17% of the total population of 5.1 million)[2] experience significant inequities in health compared with the non-Indigenous population. In 2017–2019, Māori life expectancy at birth was 7.5 years shorter for males and 7.3 years for females, compared with non-Māori[3] and Māori have on average the poorest health status of any ethnic group in NZ.[4–6] Although Māori experience a high level of health challenges, Māori receive less access to, and poorer care throughout, the full spectrum of healthcare services from preventative to tertiary care.[7 8] Māori experience a higher burden of socioeconomic deprivation,[5] yet health inequities remain for Māori even after adjusting for socioeconomic deprivation or position.[9] There are multiple and complex factors that drive Indigenous and ethnic health inequities including colonisation, historical and contemporary power imbalances, differential exposure to the social determinants of health[10 11] and inequities in access to and quality of healthcare. Eliminating Indigenous and ethnic health inequities requires an

understanding of the complex pathways through which colonisation, racism and socioeconomic factors interact with the more downstream causes, including health behaviours and health services.[12]

There are strong social justice and human rights arguments for intervening to eliminate racial/ethnic health inequities, and governments have committed to act on growing evidence of how to achieve change.[13 14] However, ethical and moral arguments have been insufficient to realise the fundamental shift from rhetoric to real political and social change.

Acknowledging the importance of economic arguments in political decision-making, attempts have been made to estimate the economic costs of health inequities,[15–17] including racial/ethnic inequities. Eliminating health inequities is often perceived to be costly, but growing evidence indicates that the cost of 'doing nothing' is significant. In the USA,[18] health inequities between African-American, Asian, Hispanic and white adults cost the health system US$229.4 billion in direct medial expenditure for the period 2003–2007, with almost two-thirds of this attributable to health inequities experienced by African-Americans. Further, more than US$1 trillion were spent on indirect costs associated with health inequities, with 95% of these costs due to premature mortality. Cost-of-illness (COI) methodology demonstrated that racial discrimination, a fundamental driver of ethnic health inequities, costs the Australian economy $A44.9 billion per annum between 2001 and 2011.[19]

An Indigenous-led COI study[20] found that inequities in illness, injury and avoidable deaths between Māori and non-Māori children aged 0–14 years cost NZ$62–200 million/year in healthcare costs, years of life lost and lost caregiver wages. Ethnic inequities saved the health sector NZ$24.7 million/annum, while costing Māori families NZ$827 175/annum in lost caregiver wages alone. Contrary to expectations, it actually costs less for the government to admit Māori children to hospital for ambulatory-sensitive conditions than it would have spent to equitably deliver primary care to Māori children. These findings suggest that underserving Māori children is cost-saving to the health system, with the additional costs associated with inequities being met by families, highlighting a lack of financial incentive for the health sector to redress inequitable care if left to make decisions on cost reasons alone. The authors concluded that despite the limitations of COI methodology, it can have a role in drawing attention to health inequity.

Health equity, particularly for Māori, is a stated objective within key health policy documents in NZ.[21 22] This focus is driven by the Treaty of Waitangi, NZ's foundational document, which provides constitutional and legal obligations for the government to ensure equity for Māori. However, very little is known about the costs associated with the disproportionate burden of illness and premature death experienced by Māori. This study builds on the work of Mills *et al*,[20] and provides the first estimate of the cost of health inequities for Māori adults. This study aimed to: (1) investigate inequities in potentially avoidable illness, injury and deaths between Māori and non-Māori adults in NZ; (2) estimate 'excess' or 'under-utilisation' of healthcare associated with inequities in potentially avoidable illness, injury and deaths; and (3) quantify the costs associated with any 'inequity excess' observed.

METHODS

Kaupapa Māori methodology

This study is positioned within a Kaupapa Māori methodology, an approach to research driven by a Māori worldview, recognising the complexity of historical and contemporary realities.[23] This approach purposely acknowledges and challenges the power dynamics that have created and maintain the unequal position of Māori within society and rejects deficit framing. Here, epidemiological and health economic methods are used as 'tools' for investigating questions and interpreting findings from this Indigenous research position,[20 24] while simultaneously critiquing how these methods may reinforce ethnically biased power dynamics and scientific understandings.

Study design

The study protocol was published previously.[25] We analysed deidentified administrative datasets for the period 2003–2014 (table 1), which was the most recent time period available at the time of the analysis. In NZ, ethnicity is self-defined rather than based on 'race', ancestry or citizenship, and people are able to identify with multiple ethnicities. In this study, anyone who identified as Māori, either alone or as one of multiple ethnicities, was considered Māori, with everyone else non-Māori, which is consistent with a treaty-based analysis.

Epidemiological methods

We present findings for three different age groups (15–44 years; 45–64 years; ≥65 years). We obtained the number and rate (crude and age standardised to the 2001 Māori standard[5]) of events by ethnicity and age group. We estimated the number of events that would have occurred if Māori had the same rate as non-Māori in each age group. The difference between actual and estimated rates in each age group was summed to provide the total 'excess' for Māori.

These methods were applied to estimate the total excess number of events including amenable deaths, ambulatory sensitive hospitalisations (ASH), accidents/injuries, pharmaceutical and laboratory claims, general and mental health outpatient consultations and general practitioner (GP) and nursing visits. Amenable deaths are those that could potentially be avoided, given effective and timely healthcare. That is, deaths from causes (diseases or injuries) for which effective healthcare interventions exist and are accessible to New Zealanders in need.[26] ASH are mostly acute admissions that are considered potentially

Table 1 Databases and time periods analysed

Database name	Details	Source	Time period analysed
National Minimum Dataset	Public and (some) private hospital discharge information for inpatient and day stays	New Zealand Health Information Service (NZHIS), Ministry of Health	2003–2014
Mortality Collection	Mortality and underlying causes of death	NZHIS, Ministry of Health	2003–2014
National Non-Admitted Patients Collection	Non-admitted (hospital outpatient and emergency department) activity	NZHIS, Ministry of Health	2006–2014
Accidents and injury claims	Injury claims for medical treatment, vocational rehabilitation and support for independence	Accident Compensation Corporation	2003–2014
Laboratory Claims	Claims and payment information for laboratory testing	NZHIS, Ministry of Health	2006–2014
Pharmaceutical Collections	Claims and payment information for subsidised dispensing	NZHIS, Ministry of Health	2006–2014
Programme for the Integration of Mental Health Data database	Secondary mental health service use	NZHIS, Ministry of Health	2009–2014
Primary Care Enrolments	Enrolments with Primary Health Organisations (PHOs)	NZHIS, Ministry of Health	2006–2014
Primary Care Utilisation	Primary care utilisation	Primary care team at Ministry of Health, via customised request	2008–2014

reducible through prophylactic or therapeutic interventions deliverable in a primary care setting.[27]

Costing methods

A societal perspective[28–30] was used to estimate a range of publicly funded health sector costs, the cost of amenable mortality, 'out of pocket' expenditure on primary care and loss of wages due to excess ASH. Costs of the inequity excess are reported in 2017 New Zealand dollars (NZ$).

NZ has a national health service with government hospital care available free of charge. The cost of hospital care is assessed from hospital reimbursements from the Ministry of Health (MOH). Hospitalisation costs were determined using weighted discharge value (ie, weighted inlier equivalent separations (WIES) for all events by the MOH). Hospitalisation costs for total excess ASH were computed using the weighted average WIES (1.13) multiplied by the national price for financial year 2016/2017 per WIES (NZ$4824.67). Because hospital services are provided by publicly owned district health boards (not patient charges), the costs are internal weighted estimates (based on disease-related groups and length of stay) of the cost of each type of care.

We used O'Dea and Tucker's [31] methodology to estimate the costs of inequities in amenable mortality. First, we used the non-Māori life expectancy from Statistics New Zealand life tables 2012-2014 of 82 years as the 'benchmark life expectancy' which we argue is available to Māori if inequities are addressed. Any excess amenable life years lost is in comparison to this benchmark. To convert these lost years of life to dollar values, we first took the value of a statistical life (VoSL) calculated for NZ in 1991 by O'Dea and inflated it by wages inflation to NZ 2017 equivalent dollars (NZ$4 142 964). This figure was then used to derive a value of a single life years lost at different discount rates. We used a discount rate ranging from 0% to 8%. For example, when the discount rate is 0%, the implied value of a year is simply NZ$4 142 964 divided by the benchmark life expectancy of 82 years, yielding an annual year of life lost of NZ$50 523.95. When the discount rate is 8.0%, the implied annual value of life is NZ$332 040.29 per annum (We used the formula annual value=d x NZ$4 142 964/(1−(1+d))−82 where d is the discount rate). We apply this annual value of lost life to the estimated amendable years of life lost. For example, a Māori man who dies at age 55–64 years, would have been expected to live to age 78–87 years (if he was a non-Māori male). Given a VoSL of NZ$4 142 964, the value of this loss of 23.5 years (at the point of death) is worth NZ$1 185 583–3 468 500, depending on the discount rate. In this manner, we calculated the average VoSL for each of the age ranges of interest.

Community and home support services costs were estimated using a resource-based costing approach. The Accident Compensation Corporation (ACC) is a government insurance scheme, which covers loss of income and costs of any medical and rehabilitation expenses following an accident or injury. It also provides lump-sum compensation for permanent disabilities and support for family members after an accident-related fatality.[32] The cost of ACC claims was estimated by multiplying the number of

Table 2 Amenable mortality for Māori and non-Māori adults, by age group, 2003–2014

	Māori		Non-Māori			Māori/non-Māori	
Age group	Amenable deaths (n)	Age-standardised rate (per 100 000)	Amenable deaths (n)	Age-standardised rate (per 100 000)	Rate ratio (95% CI)	Expected number of deaths if Māori rate equalled non-Māori rate (n)	Excess amenable mortality for Māori (n), 2003–2014
15–44 years	2803	59.75	6838	27.49	2.17 (2.08 to 2.27)	1297	1506
45–64 years	4723	75.59	15 955	28.11	2.69 (2.60 to 2.78)	1754	2969
65+ years	7684	113.4	112 926	70.51	1.61 (1.57 to 1.65)	4913	2771
All adults	15 210	248.75	135 719	125.44	1.97 (1.94 to 2.01)	7965	7245

Rates are age standardised to the 2001 Māori Standard Population. Excess mortality is the difference between the number of amenable deaths and those expected if Māori had the same rate as non-Māori. Data are for all years 2003–2014.

claims by the weighted mean cost of non-Māori claims in each age group. Similarly, the frequencies of pharmaceutical and laboratory claims were multiplied by the weighted mean cost of non-Māori claims to estimate costs of pharmaceutical and laboratory claims. The number of outpatient visits was multiplied by the outpatient day hospital cost available from a collective of district health boards (NZ$192.42). Community mental health visit costs were estimated from the population-based funding formula for community mental healthcare (NZ$168.43).

We calculated primary care costs, assuming no subsidy for consultations, at NZ$80/GP and NZ$23.77/nurse consultation. Indirect costs included loss of earnings for excess ASH and 'out of pocket' costs for primary care. For primary care, we assumed 'out of pocket' expenditure was NZ$25 for 43% of excess GP visits and NZ$15 for 45% of nursing visits. A conservative estimate of loss of wages was based on loss of 2 days' work for each 'excess' ASH for the patient and one adult caregiver at the 2017 gross median wage.

Patient and public involvement

There was no patient or public involvement in this study.

RESULTS

Inequities in potentially amenable deaths and hospitalisations

Table 2 shows that Māori adults experienced two times the age-standardised amenable mortality rate of non-Māori. The rate difference was greatest for adults 45–64 years, where Māori were 2.69 times (95% CI: 2.60 to 2.78) more likely to die from an amenable cause. This equates to an extra 7245 Māori adults who died between 2003 and 2014; deaths which would not have occurred if Māori experienced the same amenable mortality rate as non-Māori. The cost to society of these excess years of Māori life lost was NZ$828.8 million per year.

The pattern was similar for ASH (table 3), with Māori adults 1.57 times more likely to be admitted to hospital for a reason potentially preventable through primary care interventions. Again, inequities were highest for those 45–64 years, with Māori 1.81 times (95% CI: 1.80 to 1.82) more likely to have an ASH. This equates to an excess 124 214 ASH admissions that would not have occurred if Māori experienced the same ASH rate as non-Māori. Direct cost of ASH inequity was NZ$66.5 million per year (table 4).

Table 3 Ambulatory sensitive hospitalisations (ASH) for Māori and non-Māori adults, by age group, 2003–2014

	Māori		Non-Māori			Māori/non-Māori	
Age group	ASH (n)	Age-standardised rate (per 100 000)	ASH (n)	Age-standardised rate (per 100 000)	Rate ratio (95% CI)	Expected number of ASH if Māori rate equalled non-Māori rate (n)	Excess ASH for Māori, 2003–2014 (n)
15–44 years	178 995	3801.72	596 288	2487.75	1.53 (1.52 to 1.54)	118 229	60 766
45–64 years	105 623	1703.49	512 932	942.15	1.81 (1.80 to 1.82)	58 393	47 230
65+ years	58 402	883.42	846 571	627.04	1.41 (1.40 to 1.42)	42 184	16 218
All adults	343 020	6388.63	1 955 791	4056.94	1.57 (1.57 to 1.58)	218 806	124 214

Rates are age-standardised to the 2001 Māori Standard Population. Excess ASH is the difference between the number of ASH and that expected if Maori had the same ASH rate as non-Maori. Data are for all years 2003–2014.

Table 4 Māori:non-Māori rate ratios (RR) for selected healthcare utilisation indices and indirect costs, 2003–2014 annualised, by age group

	15–44 years per annum		45–64 years, per annum		65+ years, per annum		Total all adults 15+ years	
	RR (95% CI)	Cost/year of inequity (NZ$)	RR (95% CI)	Cost/year of inequity (NZ$)	RR (95% CI)	Cost/year of inequity (NZ$)	RR (95% CI)	If Māori rates equalled non-Māori rates:	Cost/year of inequity (NZ$)
Health sector costs									
Avoidable hospital admissions (2003–2014)	1.54 (1.54 to 1.55)	32 520 210	1.77 (1.76 to 1.78)	25 276 445	1.21 (1.20 to 1.22)	8 679 420	1.57 (1.57 to 1.58)	10 351 fewer Māori admissions/year	66 476 075
Outpatient consultations (2006–2014)	1.07 (1.07 to 1.07)	2 110 718	1.59 (1.58 to 1.59)	9 335 763	1.26 (1.26 to 1.26)	3 042 637	1.30 (1.30 to 1.30)	75 299 fewer consults/year	14 489 118
Mental health consultations (outpatient/community)	1.31 (1.31 to 1.31)	23 206 040	1.22 (1.22 to 1.23)	4 993 133	0.70 (0.67 to 0.70)	−1 072 071	1.31 (1.31 to 1.31)	161 059 fewer consults/year	27 127 102
Pharmaceutical claims (2006–2014)	1.12 (1.12 to 1.12)	1 804 871	1.44 (1.44 to 1.44)	4 375 013	1.09 (1.09 to 1.09)	1 749 295	1.30 (1.30 to 1.30)	373 665 fewer claims/year	7 929 178
Laboratory claims (2006–2013)	0.82 (0.82 to 0.82)	−1 771 525	1.09 (1.09 to 1.09)	1 041 955	1.03 (1.03 to 1.03)	310 168	0.96 (0.96 to 0.96)	42 927 more claims/year	−419 402
Primary care (2008–2014)—general practitioner consults	0.82 (0.82 to −0.83)	−7 536 260	0.36 (0.36 to 0.36)	−53 229 937	4.08 (4.07 to 4.08)	11 022 952	0.66 (0.66 to 0.66)	621 791 more GP consults/year	−49 743 245
Primary care (2008–2014)—nurse consults	1.35 (1.35 to 1.35)	888 642	0.61 (0.60 to 0.61)	−1 773 442	6.92 (6.90 to 6.94)	1 222 236	1.08 (1.08 to 1.08)	14 196 fewer nursing consults/year	337 436
Accident Compensation Corporation claims (2003–2014)	0.93 (0.93 to 0.93)	−13 329 922	0.81 (0.81 to 0.81)	−8 892 537	0.64 (0.63 to 0.64)	−4 068 416	0.88 (0.88 to 0.88)	23 085 more claims/year	−26 290 875
Subtotal: health sector costs		37 892 774		−18 873 608		20 886 221			39 905 387
Indirect costs									
Amenable mortality (2003–2014)	2.11 (2.02 to 2.20)	336 537 101	2.54 (2.46 to 2.63)	366 778 844	1.19 (1.16 to 1.22)	125 518 987	1.97 (1.94 to 2.01)	843 fewer Māori deaths/year	828 834 932
Loss of wages		2 774 524		2 156 380		740 896			5 671 800
'Out of pocket' primary care costs		−760 355		−12 156 385		1 828 285			−11 088 455
Total indirect costs		338 551 270		356 778 839		128 088 168			823 418 277
Total costs		376 444 044		337 905 231		48 974 389			863 323 665

Inequities in outpatient care and mental healthcare

Hospital outpatient consultation rates (table 4) were consistently higher for Māori than for non-Māori across all age groups. Overall, this resulted in 75 299 more outpatient consultations per year than if Māori utilisation rates were the same as non-Māori, at a cost of NZ$14.5 million per year. The difference in utilisation was greatest in the 45–64 years, where Māori were 1.59 (95% CI 1.58 to 1.59) times more likely to have outpatient consultations.

For outpatient mental health consultations, if Māori had the same utilisation rate as non-Māori, there would have been 161 059 fewer outpatient visits per year. Māori aged 15–44 years (RR 1.31, 95% CI: 1.31 to 1.31) and 45–64 years (RR 1.22, 95% CI 1.22 to 1.23) were more likely to have mental health consultations where Māori≥65 years were less likely (RR 0.70, 95% CI 0.67 to 0.7) to receive mental healthcare. The direct cost of inequities in mental health consultations was NZ$27.1 million per year.

Inequities in pharmaceuticals and laboratory investigations

Inequities in pharmaceutical claims existed across all ages, with the greatest rate difference in those aged 45–64 years (RR 1.44, 95% CI 1.44 to 1.44). This equated to an additional 373 665 pharmaceutical claims/year than would have occurred if Māori had the same utilisation as non-Māori, at an annual cost to the health system of NZ$7.9 million.

The results for laboratory claims varied by age group. Māori 15–44 years were less likely to receive laboratory investigations (RR 0.82), but Māori 45–64 years (RR 1.09) and ≥65 years (RR1.03) were more likely than non-Māori to have laboratory claims, with a net underinvestigation of Māori. This resulted in 42 927 fewer laboratory claims/year than would have occurred if Māori had the same investigation rate as non-Māori, creating an annual saving to the health system of NZ$419 412.

Inequities in primary care

Overall, there was significant under-utilisation of primary care for Māori (RR=0.66 for GP visits), with some variation between the age groups. This resulted in 607 595 fewer primary care visits each year than would have occurred if Māori had the same utilisation rate as non-Māori, creating an annual saving to the health system of NZ$49.4 million. In contrast, Māori adults aged≥65 years were more likely than non-Māori to visit a GP (RR 4.08) or a nurse (RR 6.92).

Inequities in claims for accidents and injuries

Māori adults of all age groups were less likely to access claims for injuries and accidents (RR 0.63–0.91), resulting in 23 085 fewer claims per year than would have occurred if Māori had the same claim rate as non-Māori. This evidence of lower receipt of injury/accident care is despite evidence that Māori have higher rates of injury and accidents than non-Māori.[5] This resulted in a net saving to the health system per year of NZ$26.3 million.

Cost of inequities

Overall (table 4), Māori adult inequities in health utilisation directly cost the health system NZ$39.9 million per year, with large additional costs from ASH and outpatient care, but with substantial cost savings from underutilisation of primary care. The net indirect costs of Māori adult inequities were NZ$823.4 million per year, from years of life lost and lost wages and cost savings through reduced utilisation of primary care. The net cost of Indigenous adult health inequities is NZ$863.3 million per year.

DISCUSSION

Our analysis is the first attempt at estimating the economic costs of adult ethnic health inequities, but must be considered a highly conservative underestimate of the true cost. Our methodology only included direct costs associated with (predominantly public) healthcare utilisation, and indirect costs associated with premature death and lost wages when receiving healthcare. We did not consider costs to non-health sectors, some private health sector utilisation, or less tangible societal costs such as the impact of lost wealth and educational opportunities, productivity and unpaid household and social contributions. The choice of non-Māori as the comparison group underestimates the true inequity. The non-Māori population is a heterogeneous grouping of advantaged and disadvantaged ethnicities, including 78.1% European, 13.3% Asian, 7.2% Pacific and 1.3% other ethnicities.[33]

Even with an incomplete assessment of costs, we show that inequities in health for Māori adults are extremely costly, at over NZ$863 million per year. It is important to note that <5% of this cost is borne by the health system. The vast majority of this cost relates to years of life lost through premature death, a cost borne by society and with the greatest impact on Indigenous people. The overall estimate of the cost of health inequities for Māori adults conceals the injustice that it is predominantly the government who benefits from cost 'savings' through expenditure avoided, while Indigenous communities are left bearing the bulk of the costs. Our findings are consistent with other COI studies in that health inequities impose a large economic cost on society,[15–19 34 35] which reinforces the 'business case' that society as a whole sets to benefit from reducing ethnic inequities. Future research on gender differences is also possible using the same methodology, and would be interesting to understand the intersectionality of ethnicity and sex.

Using 'equal' levels of healthcare utilisation as a proxy for 'equity' also underestimates true need. Due to inequitable exposure to the protective and harmful determinants of health, Māori adults suffer a higher burden of illness, and therefore have a higher healthcare need, particularly for primary care and accident/injury care.[5] However, we show that Māori utilisation is lower than non-Māori in primary care and accident/injury claims. Previous research has demonstrated Māori experience higher levels of unmet healthcare need than non-Māori[5]

as well as underservicing and poorer quality care when care is received.[36 37] So, our finding that Māori have higher utilisation rates for hospital outpatient visits and pharmaceuticals is still likely to be an underestimate of the amount of care required for equitable outcomes. While Māori≥65 years, used primary care 4.02–6.92 times more than non-Māori, they still experienced higher rates of ASH (RR 1.21) and amenable mortality (RR 1.19) than non-Māori, suggesting that the level or quality of primary care provision was still not adequate to meet higher Māori need. The degree of 'overutilisation' cannot be assessed from this analysis, and is not routinely measured in NZ. If overutilisation is a greater issue in non-Māori groups, the true ethnic disparity in appropriate care is likely to be wider than this analysis reveals.

The lower rates of utilisation of primary care and the excess ASH and amenable mortality for Māori, show clear barriers for access to appropriate primary care and mirrors findings from the COI analysis for inequities in NZ children.[20] Māori aged 45–64 years experience the most significant inequity. Accumulation of inequities throughout the life-course means an earlier onset of chronic disease, and premature mortality.[10] Thus, we would expect Māori in this age group to be using primary care more, yet their actual usage was only 0.3–0.61 that of non-Māori. Higher primary care use for Māori aged≥65 years is associated with a narrower though persisting equity gap for ASH and amenable mortality. The reasons for this are not clear, although NZ has a universal basic income for people≥65 years so reduced cost barriers to care for older Māori may be one factor.

In terms of data quality, in these national datasets, we are confident that virtually all deaths and public healthcare utilisation in NZ is recorded. Two issues relate to the quality of ethnicity data and incomplete capture of private healthcare utilisation. Undercounting of Māori has previously been reported in national health datasets.[10 38] Between 2000 and 2005, while no Māori undercounting was found in the mortality database, the national hospitalisation database undercounted Māori by 5%–15%, varying by age group, and in 2009, 28% of Māori who identified as Māori in the NZ Health Survey were not recorded as Māori in primary care enrolment data.[38] Ethnicity data for pharmaceutical and laboratory claims and mental health consultations comes from the National Health Index (NHI) number, and while efforts have been made to improve the accuracy of NHI ethnicity data, Māori undercounting remains. This could partially contribute to some of the lower utilisation we found in primary care, and could mean our results under-represent the true Māori utilisation for hospitalisations. Some private hospitalisations are included in the national hospitalisation database, but the completeness of this is not clear. Private specialist outpatient appointments are not captured in the National Non-Admitted Patient Collection database, and privately funded pharmaceuticals are not captured in the pharmaceuticals claims data. While a third of adults in NZ have private health insurance, Māori are half as likely to hold private health insurance, so are less likely to receive care in the private system.[39] This incomplete assessment of private healthcare utilisation is likely to mean a net undercounting of non-Māori outpatient consultations and ASH, with a small impact on overestimating the cost of inequity in these areas. Māori are more likely than the total population to live rurally (18% compared with 16.3%)[40] and some ASH in rural/remote hospitals may reflect an appropriate degree of conservative care, given distance-related difficulties returning for review. We consider the impact of this on results to be very small, as the remote/rural admissions make up contribution to overall hospital admissions and the difference we found in relative risk for ASH for Māori is greater than could be explained by the increased proportion of Māori living rurally.

Despite these limitations of COI methodology, our findings should add further impetus for government commitment to eliminating inequity. It is too simplistic to say that equalising spending would fix inequitable outcomes. Indigenous health inequities stem from past and ongoing colonisation, including racist policies which unequally distribute the socioeconomic determinants of health,[41 42] and racially biased health and social systems. Since 2000, the NZ government has invested NZ$220 billion into the health system, with little measurable improvement to Māori health outcomes.[6] There are serious questions as to whether the existing health system is capable of providing equitable outcomes for Māori. A recent government inquiry[6] found underfunding for Māori health, and that the primary care legislative and policy framework, governance, delivery and monitoring of care was not fit to provide equity for Māori. The government has since announced major health sector reforms commencing in mid-2022, including the establishment of a Māori Health Authority. COVID-19 has exposed and amplified pre-existing social inequities which contribute to Māori health inequities. The government will need to take a more active role in economic policies that promote flourishing for Māori.

CONCLUSION

The 'cost of doing nothing' to address ethnic inequities in healthcare is disproportionately borne by Indigenous people and society. The net cost of adult health inequities to the government conceals substantial savings to the government from underutilisation of primary care and accident/injury care.

In the context of COVID-19, governments have an opportunity to 'build back fairer', by consciously incorporating changes that will address the fundamental drivers of racially biased health systems. This study adds a COI economic analysis as further impetus for governments to intervene meaningfully, intentionally and boldly, and honour the commitments previously made to health equity and Indigenous rights.

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