



Explanations For Socio-Economic Differences In Health

Proceedings of the first Annual CPHR Symposium in Health Research and Policy

Wellington, 8th August 2001

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Occasional Report Series, No 1

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July 2002



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Acknowledgements

The Centre for Public Health Research receives funding support from the Health Research Council of New Zealand. The symposium on Explanations for Socio-economic Differences in Health was organised by the Centre for Public Health Research (Massey University), the Ministry of

Health, and the Social Inequalities and Health Network (Christchurch School of Medicine) with funding support from the Ministry of Health, the National Health Committee and Massey University. Professor George Davey Smith's visit to New Zealand was funded by the National

Heart Foundation. We also wish to thank Naomi Young, Anne Austin, Audrey Hayman, Lois Grant-Hroch, and Allison Clark for technical, editorial and secretarial assistance. Finally we wish to thank the Minister of Health, the Hon. Annette King, for opening the symposium.



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Introduction

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This publication is an edited version of the proceedings of a Symposium on Explanations for Socio-Economic Differences in Health which was held at the Illott Theatre, Wellington Town Hall, 8th August 2001. The Symposium was organised to coincide with the visit of George Davey Smith, who had been brought to New Zealand by the National Heart Foundation. The Symposium itself was also supported by funding from the Ministry of Health, the National Health Committee and Massey University.

The Symposium was initially planned to be held on the Massey University Wellington Campus, but the large number of registrations forced us to

move the venue, and about 300 people attended some or all of the day's proceedings.

When I started working in this field, in the early 1980s, the number researchers and public health workers who were interested in the area was very small. Furthermore, there was some opposition to the whole area of research, because it was felt that social class differences in health did not occur in New Zealand, or at least were not important. It is therefore heartening to see such a massive increase in interest in this area. Of course, an increase in interest does not necessarily translate into an increase in action, nor guarantee that the most appropriate policies will be followed. There is a danger that the inequalities in health "research industry" may benefit the researchers involved, and may empower public health workers, while doing little to empower the general public or to improve its

health. Nevertheless, a thriving research industry is certainly necessary, although not sufficient, to ensure that progress is made in "closing the gaps" and reducing health inequalities.

In addition to George Davey Smith's keynote address, the Symposium included presentations from some of the leading New Zealand researchers in the field. This included presentations from Peter Davis, Tony Blakely and Andrew Sporle, which reviewed issues of measuring socio-economic status in New Zealand, and the current evidence of socio-economic differences in health in the general population and specifically in Māori. These were followed by presentations from Cindy Kiro and Phillippa Howden-Chapman which discussed possible implications for policy, and Ruth Richards and Teresa Wall then presented the Ministry of Health's draft policy framework for reducing

health inequalities. Finally, I discussed the implications for future research and policy.

The success of the Symposium has led us to make it the first of a series of Annual Symposia in Health Research and Policy. Each symposium will involve a review of current knowledge, both internationally and in New Zealand, followed by a discussion of the implications for policy in New Zealand. Wherever possible, each symposium will be organised jointly with a specific Ministry or Government Department which will be encouraged to present its policy framework for comment and discussion. The 2002 Symposium will be on occupational health and will be organised jointly with Occupational Safety and Health (OSH).

However, it should be stressed that the ultimate success of these Symposia will be measured not by the number of people who attend, but by whether they influence subsequent policy, whether in the short-term or in the longer term. It is therefore important that the Symposium presentations

are made widely available, and we have therefore published them in edited form in the current publication. This is also available in (free) downloadable colour format on our website <http://www.publichealth.ac.nz>, along with the corresponding powerpoint files for each presentation.



Explanations For Socio-Economic Differences In Health

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Introduction

It is now firmly established that there are social and spatial inequalities in health in Britain, and that these have been widening since the late 1970s/early 1980s. Since the publication of the hugely influential Black Report (DHSS, 1980) a growing body of research has documented the growth of health inequalities in Britain and many researchers have debated their cause.

In the first section of this paper we give a brief historical overview of inequalities in health in Britain. In the second section we present evidence of the widening health gap over time in two ways. First of all we look at

how the geography of health inequalities has changed from the early 1950s to the late 1990s. We then look at inequalities in health at different points across the lifecourse, from the cradle to the grave. In the third section of the paper we turn our attention to the processes which have contributed to the social and spatial accumulation of health inequalities and how these interact with the clustering of socio-economic advantages which accumulate over the lifecourse. We show the role of migration in producing and exacerbating geographical inequalities in health, and how migration itself can be seen as a response to socio-economic conditions and circumstances.

Finally, we discuss general explanations for socio-economic differences in health, and end by considering the implications of our findings for policies that aim to redress health inequalities.



Inequalities In Health In Britain Since The 19th Century

In Britain the story really starts with Fredrick Engels. In 1845, in his amazing work in social epidemiology on conditions in the working class in England, he reproduced data demonstrating the difference in mortality according to the houses in which people lived (Engels, 1845). The people were categorised by the class of their individual house, from the best to the worst, and by

the class of street in which they lived, from the best to the worst (Table 1).

The ratio was calculated of the number of people who died in the previous year to the number of people living; the ratio of the living to the dead was highest, as may be expected, in the best off houses, in the best off streets, and lowest in the worst off

houses in the worst off streets. These data were 150 years before it became fashionable to demonstrate both an individual influence on health and also an area based influence. The street where you lived influenced your mortality, in the same way as the actual individual house in which you lived.

Table 1: Mortality ratios (number of living people for each death) in Chorton-on-Medlock, Manchester, 1840

Class of street	Class of house		
	1 st (Best)	2 nd	3 rd (Worst)
1 st (Best)	51	45	36
2 nd	55	38	35
3 rd (Worst)	*No data	35	25

Source: Engels (1845)

Figure 1 shows Glasgow in about 1855 or 1860. In those conditions it is not surprising that life was short. What is more interesting is the persistence of health inequalities, particularly in a country like Britain which has a National Health Service. However, while health inequalities, and social inequalities in general, have always existed, they have always been about to go away, at least in the minds of some commentators.

Carr-Saunders and Caradog Jones (1937), who were probably the two leading sociologists in Britain at the time, argued that:

Is it not a misreading of the social structure of this country to dwell on class divisions, when in respect to dress, speech, and pursuit of leisure, all members of the community are obviously coming to resemble one another.

This is not much different from post-modernist writing on these issues today about the removal of class distinctions. In fact at the time that this quote was written, health inequalities were growing dramatically. For example, for men aged 55-64 men, in England and Wales, from 1921 to 1991, there was little decline in the absolute mortality rate for unskilled manual workers, whereas for professional and managerial occupations, and intermediate and non-manual occupations, such as nursing and teaching, there has been a dramatic decline in all cause mortality such that the differences now both in absolute and in relative terms are considerably greater than during the depression of the 1930s.



Figure 1: Glasgow tenement, 19th century



The Geography Of Health In Britain From The 1950s To The Late 1990s

Administrative boundaries in Britain have been amended a number of times. Thus, in order to examine the geographical health gap over time we employ data that use ‘frozen’ boundaries from the 1950s (see Dorling (1997) for more details). This allows the same set of areas to be followed over time. The geographical units that we use are ‘old County Boroughs’. There were 292 of these areas in

Britain and they consisted largely of London Boroughs, Metropolitan Boroughs, the urban districts of Counties, the rural remainders of Counties, Scottish Burghs, Islands and Scottish Counties. For each time period for which data are available Britain is divided into ten equal-sized groups of areas in terms of population (referred to as deciles). The age-sex standardised mortality ratio

(SMR) for deaths under 65 is then calculated for each decile. SMRs that are greater than 100 indicate higher chances of mortality, and those less than 100 indicate lower chances of mortality, all relative to the national average, which is set at 100. Table 2 presents these SMRs for the 1950s through to the late 1990s.

Table 2: Standardised mortality ratios for deaths under 65 in Britain by deciles of population (grouped by old County Borough and ordered by SMR), Britain 1950-1998

Decile	1950-53	1959-63	1969-73	1981-85	1986-89	1990-92	1993-95	1996-98
1	131	136	131	135	139	142	147	150
2	118	123	116	119	121	121	121	122
3	112	117	112	114	114	111	113	114
4	107	111	108	110	107	105	107	108
5	103	105	103	102	102	99	99	99
6	99	97	97	96	96	94	95	96
7	93	91	92	92	92	91	92	93
8	89	88	89	89	89	87	87	88
9	86	83	87	84	83	80	80	80
10	82	77	83	79	78	76	75	75
Ratio 10:1	1.60	1.75	1.58	1.70	1.78	1.87	1.98	2.01

Source: Mitchell et al (2000)

Table 2 shows that inequalities in health narrowed between the late 1950s/early 1960s and the early 1970s, but that since the early 1980s they have been steadily widening. Before the early 1980s, the highest ratio recorded was around the 1961 Census – towards the end of 13 years of Conservative rule (1951-1964). The ratio of inequality fell most rapidly during the latter half of the 1960s, when Wilson’s Labour government – who stood explicitly for wealth redistribution – were in power (1964-1970). Inequalities did not rise back to their 1961 levels under the Heath (Conservative) or Callaghan (Labour) administrations (1970-1976 and 1976-1979 respectively). It was only under the leadership of Thatcher (1979-1990) that the ratio rose again, this time to over 1.8. By the end of the 1990s, under John Major (Conservative 1990-

1997), this ratio stood at almost 2.0. Thus Tony Blair came to power at a time when the gap between the highest and lowest mortality deciles was such that those living in the highest mortality areas were over two times as likely to die before the age of 65 than those living in the lowest mortality areas. These relative mortality ratios have also risen for the second, third and fourth deciles, which illustrates that the polarisation of life chances seen in Britain since the early 1980s has not only affected the most extreme group. This is clear evidence of increasing health inequalities in Britain in geographical terms, and also indicates the connection of the polarisation of life chances with broader socio-economic circumstances and policies. In the period 1969-1973 the proportion of households with incomes below half the national average

was less than 10%; by the 1990s this figure had risen to include a quarter of all households (Shaw et al, 1999).



Inequalities In Health Across The Lifecourse

In order to examine more closely how these geographical differences in premature mortality relate to other factors we have chosen to use an alternative geographical unit to that used in Table 2 – that of parliamentary constituencies. These allow us to consider particular areas in a more meaningful way than we can with the old County Boroughs, as constituencies tend to be of similar population size, with an average of 75,000 people under the age of 65. As electoral units they are also areas with which people can identify, and which an individual Member of Parliament represents in Westminster. We use the boundaries for the 1997 parliamentary constituencies, of which there were 641.

Infant and child mortality

We start our journey through the lifecourse by considering infant mortality in the ‘best’ and ‘worst health’ areas. For infant mortality – deaths under 1 year of age – there are clear differences in life chances. Comparing the extreme areas, in

For the period 1991-95 we compare the constituencies containing one million people with the ‘best’ and ‘worst’ health using SMRs under 65 as an indicator of population health. These data were first presented in Shaw et al. (1999). More recent data show that spatial inequalities in premature mortality continued to widen in Britain in the late 1990s (Mitchell et al, 2000; Davey Smith et al, 2000; Dorling et al, 2001). However, due to issues of compatibility with other sources of data, much of which relies on the 1991 Census, we refer here to the 1991-95 time period.

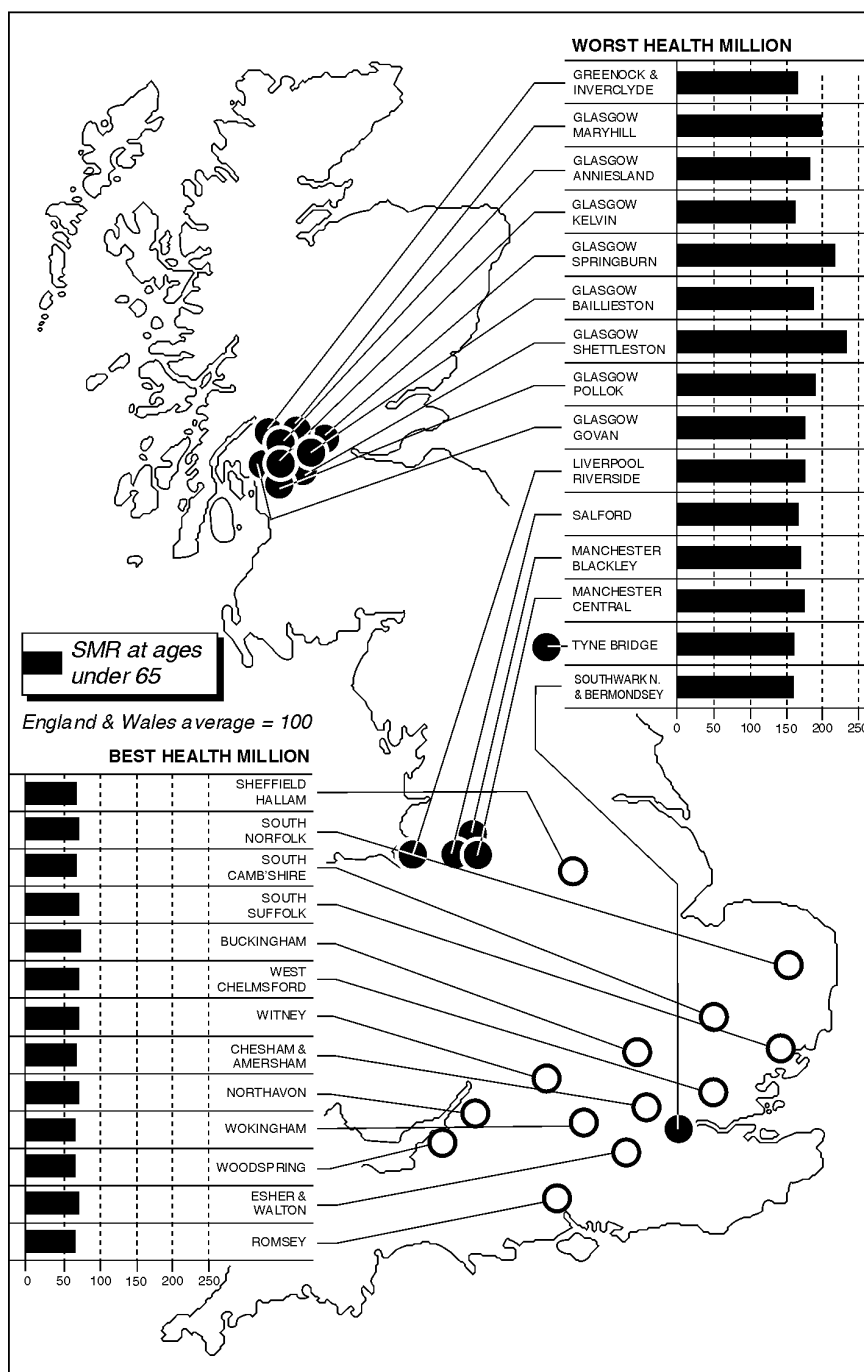
Figure 2 maps the constituencies that constitute the ‘best’ and ‘worst health’ areas of Britain. The clustering of the ‘worst

the ‘worst health’ areas infant mortality rates are 2.0 times higher than in the ‘best health’ areas. Comparing individual constituencies, this ratio is as high as four. We can also see this pattern for mortality later in childhood. For children aged between 5 and 14, death rates are 1.8 times higher in the ‘worst

health’ areas of Britain in Glasgow, the northern conurbations and in the centre of London is made starkly clear. In these areas mortality ratios are very high, ranging from 2.3 times the average at their worst in Glasgow to 1.6 times the average in Southwark and Bermondsey. The fact that Sheffield Hallam constituency has low mortality and Southwark and Bermondsey high mortality illustrates that this is not simply a North/South divide but rather a rich/poor divide. Having considered premature mortality, we will examine in more detail these ‘best’ and ‘worst health’ places in terms of a number of health and socio-economic indicators at different stages of the life-course.

health’ compared with the ‘best health’ areas. Even in the very early years of life, health inequalities are clearly apparent. If we examine these areas in terms of a range of socio-economic indicators the reasons for these health differences begin to emerge.

Figure 2: Premature deaths in the extreme areas of Britain, 1991-1995
 Source: Shaw et al (2001)



Households with children living in poverty

Using the Breadline Britain indicator of poverty we can consider these ‘best’ and ‘worst health’ areas in terms of this key socio-economic measure. The Breadline Britain surveys include nationally representative samples and provide a measure of ‘consensual’ or ‘perceived’ poverty – what people themselves understand and experience as the minimum acceptable standard of living in contemporary Britain (see Gordon and Loughran, 1997; Gordon et al, 2000). This minimum covers not only the basic essentials for survival, such as food and shelter, but also factors which enable people to participate in their social roles in society. The survey thus measures what possessions and activities the public perceives as necessities of life.

Education and qualifications

A crucial stage in the lifecourse, not least because of the opportunities it affords in later life, is educational achievement. We considered the ‘best’ and ‘worst health’ areas in terms of their rates of ‘under achievement’ in educational outcomes at the age of 16. In this last year of compulsory education, students take exams in a range of subjects in order to qualify for General Certificates in Secondary Education (GCSEs). Five GCSEs at grades A–C are considered the basic requirement for entering many jobs, and so not achieving this is

The 1990 Breadline Britain survey found that there were approximately 2.5 million children who were forced to go without at least one of the things they need (such as three meals a day, toys, or out-of-school activities), because their parents could not afford these things. The Breadline Britain measure is a validated indicator of deprivation (Gordon, 1995). Here we use a modified version of the index, based on lack of basic amenities and car access, unskilled and semi-skilled manual occupations, unemployment, non-owner-occupier households and lone parent households.

Using this measure, in 1991, 27% of households with children were living in poverty in Britain as a whole. If we examine the ‘best health’ areas the rate is 13%, whereas for the ‘worst health’ areas it is 53% – a difference of over 4 times. There

are far more children growing up in poverty in the areas where infant and child mortality are also relatively high. The connection between poverty and health observed by the likes of Farr, Chadwick and Engels in the 19th century is still apparent at the end of the twentieth century (see Davey Smith et al, 2001).

While there is a clear geographical concentration of households with children living in poverty in certain areas, we should also note that even in the healthiest and most affluent areas of Britain there are still more than one in ten children living in households in poverty. These children – poor children living in areas that are classified as wealthy – will not benefit from area-based policies which seek only to assist those living in the most deprived areas. Only universal policies, such as the Child Benefit, will reach children wherever they live in Britain.

termed here as ‘under-achievement’. In the ‘best health’ areas, GCSE under achievement rates are 44%, compared with 66% in the ‘worst health’ areas (they are 57% nationally). This gap in educational achievement is not as stark as the health or poverty gaps. This is partly because not all children are included in these statistics – we are not able to analyse the exam results of private fee-paying schools and more children from the ‘best health’ areas will be attending such schools. But the fact that this gap is less extreme than the health gap can perhaps be interpreted as evidence of the

(albeit limited) levelling effect of the provision of universal services. If we consider post-school qualifications we again see differences between the ‘best’ and ‘worst health’ areas; 101 per thousand have degrees in the ‘best health’ areas compared with 49 people per thousand in the ‘worst health’ areas. This is partially a reflection of the differential achievements at secondary level, but is also related to the ability of individuals and families to pay for higher education.

Work and unemployment

Moving to later in the lifecourse, the next step from education for many is into the world of work. The ‘best’ and ‘worst health’ areas can be compared using the traditional socio-economic indicator based on occupational class – the Registrar General’s classification scheme. We use this to compare the occupational composition of areas. In this comparison we see some clear differences between the ‘best’ and ‘worst health’ areas, such that in the ‘best health’ areas 43% of people in employment over the age of 16 are in social classes I and II, whereas in the ‘worst health’ areas only 27% of working people are employed in such occupations. The figure for Britain overall is 33%. For social classes IV and V, 26% of people in employment are in this category in the ‘worst health’ areas compared to 15% in the ‘best health’ areas and 21% nationally.

This analysis, however, is based on occupational data collected in the Census, and in this data set the majority of people do not have a social class assigned to them. If we consider the social class structure of British society more completely – in reality nobody lives outside the class system – then we see even more marked differences between these high and low mortality areas. People not in work are crucial to shaping the socio-economic map of Britain. For example, if we consider the number of people not working, which includes those who have not worked in the past 10 years, other unemployed people, students and the permanently sick, then a clear difference between the comparison areas is visible. In the ‘worst health’ areas this group amounts to a total of over 220,000 people or 61% of all people working, whereas in the ‘best health’ areas this figure is less than 93,000 or

17% of all people working (it is 27% for Britain overall). When there are less people working, or able to work, either because of illness or because of the lack of availability of work, this will have an effect on the living standards of families, and this in turn will have a knock-on effect on the living standards and life chances of children. Between 1981 and 1996 the number of jobs in Britain increased by over one million, yet despite this overall growth in employment, the large cities of Britain lost over half a million jobs. The jobs gap between the large cities and towns and rural areas is continuing to grow (Turok, 1999). Over this time period households also became increasingly ‘work rich’, where more than one person is in paid employment, or ‘work poor’, where there is no household member in paid employment (Shaw et al, 1999).

Inequalities in wealth – houses and cars

Much attention in social science is paid to considering poverty and deprivation – how to define and measure these phenomena and the tracing their consequences. We pay less attention, perhaps due to the difficulties related to reliable data collection, to looking at the other end of the socio-economic spectrum – wealth. There has been much less effort made by both government and academics in measuring wealth in Britain compared to measuring poverty (Gordon, 2000). The current official wealth statistics are based on a methodology that is essentially unchanged since the

Edwardian era (Chiozza-Money, 1905; Wedgwood, 1929; Good, 1990). In taking a lifecourse perspective it is important to consider wealth as it is something that is accumulated over time, and indeed, over generations. In the Census there are two indicators that can be taken as indicators of wealth (in the absence of more direct measures) and these relate to housing and cars. The number of cars per household indicates the differences in material resources of these areas. In the ‘best health’ areas the total number of cars is almost 3 times higher than in the ‘worst health’ areas, and there are 9.1 times as many households with 3 or more cars. These statistics refer to the number of cars, not to

their age or value and it is likely that the cars in the ‘best health’ areas are newer and more expensive. Thus the true extent of the difference between the areas is almost certainly understated.

The situation is similar for housing – the Census tells us about the number of rooms, but not their value or size, nor whether they are damp or adequately heated. Nevertheless, from these limited data, stark differences between areas are apparent. In the ‘best health’ areas there are 6.5 times as many households with 7 or more rooms, and 1.3 times as many rooms in total as in the ‘worst health’ areas.

Later life – limiting long-term illness

As people get older it is more likely that they will suffer from wear and tear, and that illness will play an increasingly prominent part in their lives. The most direct precursor to premature mortality is illness – and mapping the standardised rates of limiting long-term illness (LLTI) from the 1991 Census allows us to see that these two measures have a very similar

geography. For Britain as a whole, the rate of LLTI for the under-65s is 7.4%, but in our ‘worst health’ areas it is 12.3%, whereas in the ‘best health’ areas it is only 4.5%.

Illness is also important as it is not only an indicator of what life has thrown at someone, but can also be a factor in determining where people are located socially and spatially. People who are ill will have more problems gaining work, and therefore they will find

it more difficult to obtain mortgages. This means in turn that it will be more difficult to acquire a home in a desirable area near good schools. Conversely, people with long-term health problems are more likely to qualify for social housing. The spatial process of migration acts as a filter by which healthier people come to be living in the most affluent areas, and less healthy people are more likely to be living in the worst-off areas.

Widows in retirement

Lastly, we consider a form of inequality for those aged over 65 and in their retirement years, as the health gap for those dying before the age of 65 also affects people above that age. In the ‘worst health’ areas women aged 75-84 are 60% less likely to be married, simply because there will be more widows, as the men in those areas die earlier.

Table 3 indicates the sex ratios for older age-groups for the ‘best’ and ‘worst’ health areas in the period 1991-95. In the ‘best health’ areas there were 84 men for every 100 women in the 65-74 age-group and 62 men for every 100 women in the 75-84 age-group. This compares with ratios of 77 men and 50 men per 100 women for the same respective age-groups in the ‘worst health’ areas. Another way to look at this is to consider that only half of those in the ‘worst health’ areas will live long enough to qualify for their free television licenses (which are given to those aged over 75 years), compared with over two thirds of those in the ‘best health’ areas.

Table 3: Sex ratios: the number of men for every 100 women in the ‘best’ and ‘worst health’ areas of Britain

Name	Aged 65-74	Aged 75-84
Glasgow Shettleston	75	49
Glasgow Springburn	76	49
Glasgow Maryhill	73	49
Glasgow Pollock	69	47
Glasgow Anniesland	71	51
Glasgow Baillieston	82	58
Manchester Central	88	54
Glasgow Govan	71	41
Liverpool Riverside	81	50
Manchester Blackley	82	53
Greenock and Inverclyde	77	51
Salford	80	49
Tyne Bridge	82	49
Glasgow Kelvin	69	47
Southwark North and Bermondsey	83	57
‘Worse health’ million	77	50
Buckingham	84	65
Northavon	86	65
Esher and Walton	81	59
Witney	83	63
South Suffolk	84	66
West Chelmsford	83	57
South Norfolk	90	71
Chesham and Amersham	87	57
South Cambridgeshire	83	63
Sheffield Hallam	83	55
Romsey	83	63
Woodspring	83	60
Wokingham	84	57
‘Best health’ million	84	62
Britain	82	58

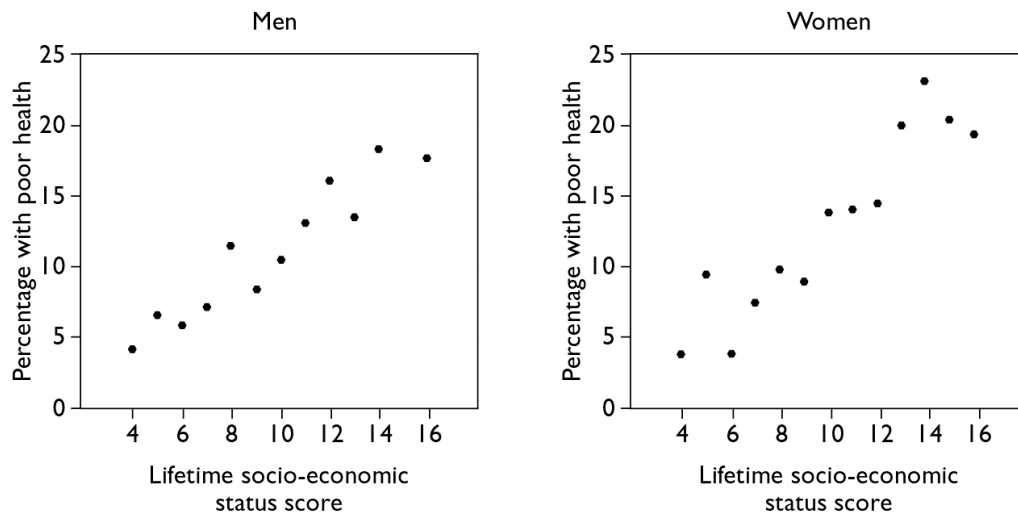


Health And The Lifecourse

We have taken a lifecourse approach to the presentation of our data – considering health inequalities from the cradle to the grave – in order to emphasise that the accumulation of advantage or disadvantage is crucial to our

chances in life and our chances of death. Other recent research that has taken a lifecourse perspective shows that the social and biological beginnings of life are important for a child's potential for adult health, and that health

outcomes in later life are the product of the accumulation of advantage or disadvantage (see, for example, Kuh and Ben-Shlomo, 1997; Holland et al, 2000).



Note: 'Poor health' includes subjects who rated their health as 'fair'

Source: Power et al (1999), Shaw et al (2001)

Figure 3: Poor health at age 33 and cumulative socio-economic circumstances (birth to age 33), Britain (1958-91)

Data from the 1958 British birth cohort, which allow researchers to assess the impact of socio-economic circumstances through early life (at birth and ages 16, 23 and 33), show how they affect self-rated health outcomes at age 33 (see Figure 3). In that research, a lifetime socio-economic position score was derived from the social

class of the respondent's father at birth and at age 16 and from their own social class at ages 23 and 33. For both men and women, there is a very strong relationship between cumulative socio-economic position and poor health at age 33 (Power et al, 1999). Analyses of these data show that social class in early life and in adulthood both

make independent contributions to inequalities in poor health in later life. Similar findings with respect to risk of dying have also been reported (Davey Smith et al, 1997), as have results showing that housing deprivation during childhood can have long term health consequences in adult life (Marsh et al, 2000).

As well as health outcomes in later life being the result of processes that occur and accumulate throughout the lifecourse, life chances in a broader sense are also amassed over time. The area where the parents (or parent) of a new baby live will depend on family and work ties, but also on the type of housing they are able to afford – social housing in a tower block, an inner city terrace or a detached house with a garden in a leafy suburb. That in turn will affect their immediate living environment and social networks. These things will in turn affect the educational opportunities available to the child, and

educational outcomes and area of residence both strongly affect job opportunities. While individuals make choices, of course, such as which house to buy, which subjects to study and which jobs to apply for, those choices are constrained by a number of factors, and – crucially – some people's choices are constrained far more than others. Those facing the broadest range of choices (the more money you have or are able to borrow the greater your choice in the housing market) tend to be those who have already enjoyed choices and opportunities earlier in life (which University to attend, which career to follow).

Advantages also accumulate inter-generationally. Those who inherit money from parents or grandparents are more likely to be able to use that to pay for housing or perhaps to improve the condition of their home. All of these processes take place within the broader socio-economic environment, affected by prevailing factors such as house prices (and their relation to wages), unemployment rates (affecting job opportunities), educational policies (for example, relating to grants, loans and fees) and taxation policies (regarding income, wealth and inheritance).

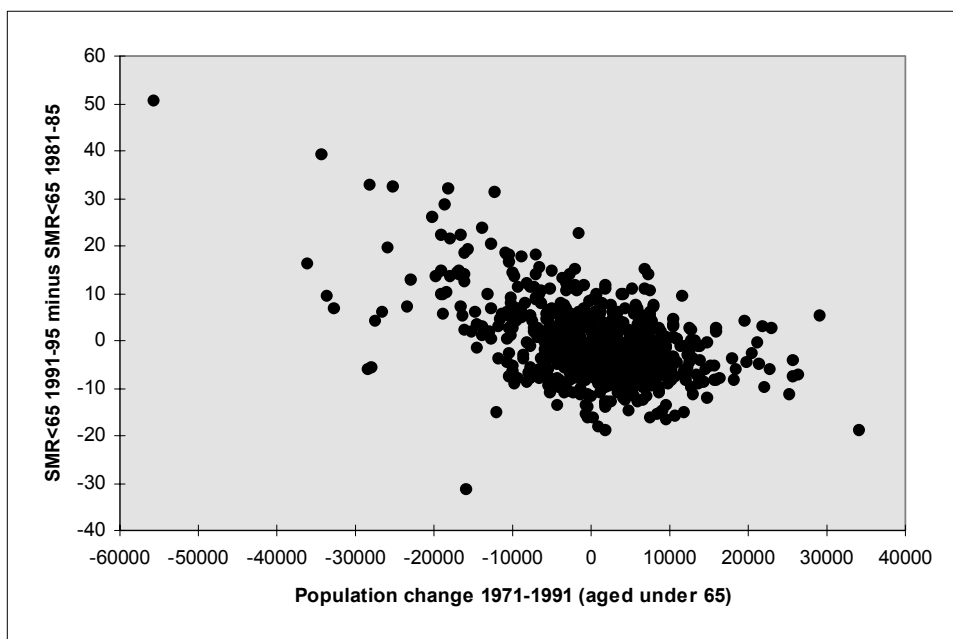


Processes Of Social And Spatial Accumulation

Having considered how socio-economic factors accumulate through life, and how the advantages or disadvantages these bring are in turn fundamental to health chances, we now direct our attention to the spatial aspects of these patterns and processes. Life is marked by inequalities but people do not simply passively accept these. When faced with a situation that they would like to change or improve, people often do what they can to act. People often attempt to change the world in which they live, either in terms of their own immediate living

environment or in a broader political sense. Occasionally people rebel – they may vote for a radical government or even force a revolution. More often, however, the aggregate actions of individuals and families serve to reinforce the *status quo*. People make individual decisions about their own lives, and act to change their living environment, but on aggregate these actions form a social and spatial pattern. This can be demonstrated geographically by looking at how the population who have the opportunity to move around the

country has actually chosen to move around, in relation to the consequences of living in unfavourable areas.



Source: Shaw et al (2001), Davey Smith et al (1998)

Figure 4: Population change (aged under 65) between 1971 and 1991 and absolute change in SMR for deaths under 65 (1991-1995 minus 1981-1985) for British constituencies.

Figure 4 shows the relationship between population change in Britain over the period 1971-1991 and premature mortality (before the age of 65) following this period. The geographical units used here are parliamentary constituencies, and the figure indicates for each constituency the change in its size of population between 1971 and 1991, and the difference between the SMR under 65 for men and women between 1981-85 and 1991-95. This allows us to examine the association between changing relative life chances and changing population size. Population change at that time in

Britain between the parliamentary constituencies used here was mostly caused by migration (rather than by an excess of births or deaths). When more people leave an area than enter then the total population falls. When people have the chance, they choose to leave areas that are poorer and where mortality is relatively high to begin with (Davey Smith et al, 1998). Similarly, people choose to move into areas that are more affluent and where mortality is low. These processes sustain the classic slow but relentless north to south shift in the population seen in Britain. Those who are able to will move

out of a very poor area to a less poor area; wealthy people who have accumulated more wealth or increased their incomes will very likely move to a more expensive home in a more affluent area. These movements reflect the aggregate life choices of millions of people. The result is that the worse off areas, which also have the highest premature mortality rates, lose a greater proportion of their population. Conversely, affluent areas with low mortality grow in size.

Recent research into lifetime migration and mortality using the British Household Panel Study

(BHPS) (Brimblecombe et al, 1999; Brimblecombe et al, 2000) has found that not only do people choose to move in these directions, but that the people who have moved tended to exacerbate the inequalities in health found between areas through their migration. People moving to better-off areas tended

to be better off themselves, compared with those they left behind, in terms of health, wealth and other life outcomes. Thus those people who move out of poorer areas are not only better off financially, they are also likely to be those with better health. This contributes both to the higher mortality rates seen in

shrinking areas and the lower mortality rates seen in expanding areas. On the other hand, the BHPS analysis indicated that those people moving from better-off areas to worse-off areas tended to be those who fared very badly in life, to the detriment of the overall measure of health of the areas into which they moved.

It is perhaps easier to understand how this process operates if an even longer historical perspective is taken than the lifetime migration patterns referred to above. Figure 5 shows three maps of the centre of London, using electoral wards as the geographical unit. The first (i) maps how rich or poor areas were around 1896 when Charles Booth surveyed the capital in detail – the darker areas are those with the higher rates of poverty. The second (ii) map uses the same socio-economic indicator and shows its distribution in 1991 (see Dorling et al (2000) for more details). Note how similar these two distributions of poverty are, with the east and south doing badly at both times, even though the measures were made a century apart. The third map (iii) in the series gives standardised mortality ratios (for all causes of death, all ages, men and women) for these areas in the 1991-1995 period. Remarkably, the mortality ratios in the 1990s are equally correlated with the 1896 survey data as they are with the 1991 Census data. This is partly because the two maps of socio-economic indicators are so similar, but also because of where they are different – knowing that an area used to be poor is very valuable when trying to predict its current mortality rates.

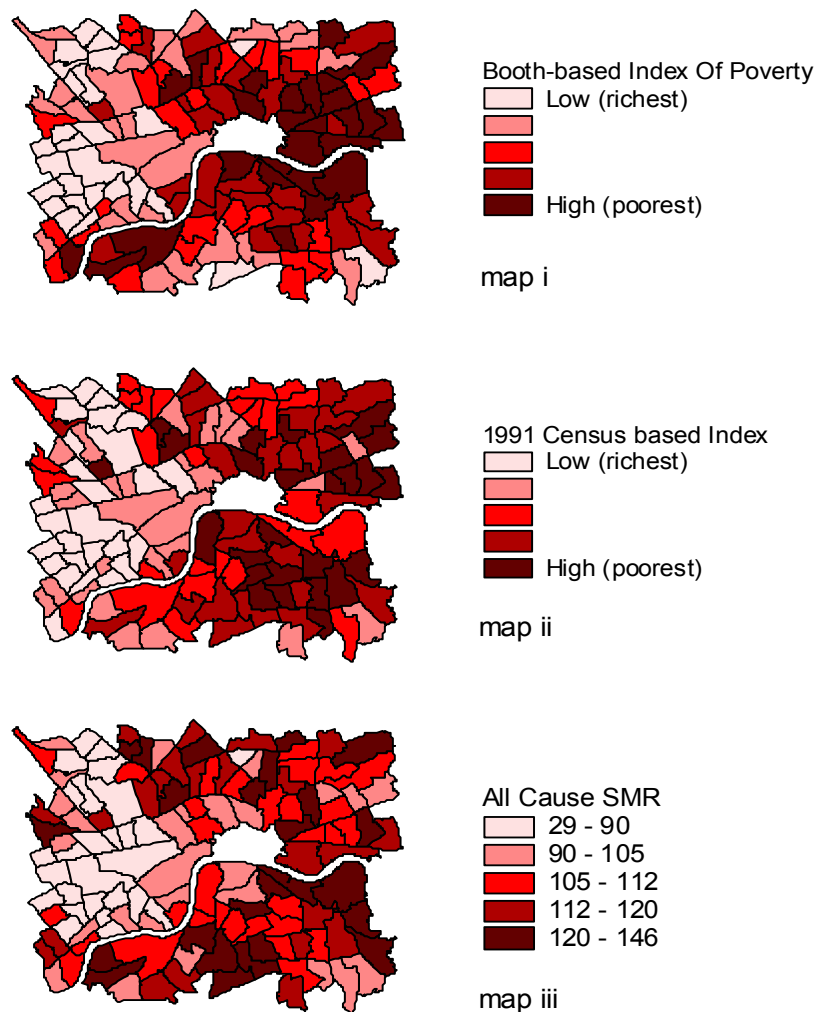


Figure 5: London poverty (1896 and 1991) and mortality (1990s)

For our argument here the most important point is that the first two maps of London can only be this similar as a result of millions of migratory moves occurring in aggregate terms. Poorer people who lived in poorer housing in poorer areas had to be replaced by people like them when they moved or died, and likewise with more affluent people – only affluent people can buy expensive houses, which tend to be sold by other affluent people. Furthermore, poor housing had to be replaced with relatively poor housing for areas to keep their ranking in the social

structure. Obviously this did not happen everywhere at all times. Examples of gentrification and residualisation can be found. But these were not the norm. The norm is for people's migratory moves and the replacement of housing to help reinforce, and often strengthen, inequalities in poverty in Britain, and these in turn reproduce inequalities in health.

From time to time, attempts are made to change the social geography of Britain. One recent and certainly notorious example is the 'Millennium Dome', which

has been built at Greenwich. Often these attempts don't work as they swim against the tide that helps to maintain the social system in which we live. Projects that tend to replicate what has gone before are often far more 'successful', although (and perhaps because) they change little. At a far lower cost than the Dome, and to much critical acclaim, a Millennium Wheel was built on the south bank of the Thames at the same time as the Dome. It was, however, only 100 feet higher than its predecessor built at Earl's Court just over a century before.



Explanations For Socio-Economic Differences In Health

So what explains these persisting socio-economic differences in health? The Black Report was published in 1980 (DHSS, 1980), and this was very influential in thinking about explanations for

health inequalities. It produced a very well-known typology of explanations which have been developed and expanded upon since then, but it is still reasonably useful as a starting

point. This typology gave four basic categories of explanation: artefact; social selection; behaviour and lifestyle; and social causation.

The artefact explanation

The artefact explanation suggests that the inequalities in health which we appear to observe are not actually existing in the way we observe them in the underlying population, i.e. the way that data are constructed and analysed somehow generates these inequalities. There is now a

large set of possible artefact explanations. The simplest one, discussed by the Black Report, was simple numerator-denominator bias. It suggested that people's social position may be categorised differently on the census and on death certificates, and that this would therefore produce a bias in official mortality rates. This was

actually one reason why a longitudinal study linking one percent of the census was set up in England and Wales which demonstrated that mortality inequalities were not in any way influenced or importantly influenced by such bias.

Recently a New Zealand study has demonstrated the same thing (Blakely et al, 2002).

The other forms of artefact explanation were more aimed at discussing whether health inequalities were increasing. One suggestion is that the social class groups have changed in size dramatically. Social class 5 has got much smaller so that it is becoming a more and more marginal group and higher mortality in that group could therefore go together with overall reductions in inequality. Methods have been developed, such as the relative index of inequality (Mackenbach et al, 1997), to estimate the magnitude of inequalities in ways which are not dependent upon group size, and they show that the inequalities are increasing independent of group size.

It has also been suggested that social class categorisation itself

Social selection

The simplest health-related selection argument is the notion that when you get sick your social position changes. One way of examining that in the Whitehall study was to exclude all the civil servants who had any evidence of disease at entry. When you do this, the mortality rates are all quite a lot lower, because you have excluded the sick, but the social class differences are unchanged.

The other form of social selection argument could be called intra-generational social selection, e.g. if when you are 25 you get sick your income ends up going down. There is also the

was related to health outcomes. There is some evidence, for example, that as social class is re-categorised at each different census, the health status of the occupational group may influence whether the occupation is upwardly mobile or downwardly mobile. This is again an issue that can be examined in longitudinal studies which link across many censuses, and again this is something that is not an important contributor to the differences.

More interesting, and potentially of much greater importance, there are a whole range of artefacts which actually reduce rather than exaggerate inequalities in health. One is the issue of who gets measured. For example, the homeless in Britain have life expectancies of 49, as opposed to the mid-70s for people with homes, but they don't get into the census, or into the longitudinal study. Illegal migrant workers similarly have

possibility of selection from your parental social circumstances to your own social circumstances. This is of considerably more interest, and probably of considerably more importance. It could be that if you are sick in childhood then you are less likely to obtain good educational qualifications, and then you are going to enter a worse job, or you are going to live in worse areas. That is called direct inter-generational selection. A second form of inter-generational social selection involves factors which aren't themselves measures of health, but, which have an influence both on later health and/or social mobility. These are factors such as birth weight, height, and education. If those

very poor health outcomes, but do not get into the official statistics. So the excluded actually have the worst social circumstances and the worst health, and the exclusion of consideration of these groups leads to under-estimation of the magnitude of health inequalities. Furthermore, many of our measures of socio-economic position are very poor measures, e.g. when using single measures such as occupation. If you categorise socio-economic position in a better way, just as when categorising any indicator such as blood pressure in a better way, you get larger differences. So often the use of very simple and readily available socio-economic measures leads to underestimation of the health differences. Thus, artefacts probably lead to underestimation rather than overestimation of the magnitude of health inequalities.

factors influence both social trajectory and health then they could generate the association between later social circumstances and health. These two issues are important, but they are not social selection issues in the same way as would be intra-generational social selection. Rather, they are part of life course causation, i.e. they are actually parts of the life course mechanisms that generate inequalities in health. If a society, for example, discriminates against the sick in terms of educational policy and occupation, then that is clearly something that is a real cause of health inequalities, not an artefact.

Behaviour and lifestyle and social causation

Lifestyle factors are perhaps still the most discussed explanations for socio-economic differences in health. However, studies such as the Whitehall study have shown that the social class gradients in mortality are as strong in non-smokers as in smokers (though of course the baseline rate is lower). Smoking is very bad for you and it is socially patterned, but even amongst never-smokers, the social class mortality gradient still exists. Furthermore, adjusting for known risk factors such as smoking does little to diminish social class mortality gradients.

Perhaps a more important issue is why lifestyle factors such as smoking and nutrition are socially patterned. This issue was addressed by Engels (1845) back in 1845. He said "Of course nutrition is key, it is very important in the poor health of the working class", and he quoted commentators saying that if only the working class ate better food and shopped better, they would be fine. However, Engels saw underlying factors as producing the worst nutrition in the poor. He said the payment of wages on Saturday evening, meant that the workers could only buy their food after the middle class had had their first choice, during Saturday morning. When the workers reached the market the best had vanished, and if it were still there they would probably not be able to buy it. "The potatoes that the workers buy are usually poor, the vegetables wilted, the cheese old and of poor quality, the bacon rancid, the meat lean, tough, taken from old, often

diseased cattle, or such that had died a natural death and not fresh even then, often half decayed." The working classes were more likely to be sold adulterated food, because while the rich developed sensitive palates to habitual good eating, and could detect adulteration, the poor had little opportunity to cultivate their taste. The poor also had to deal with small retailers who could not sell even the same quality of goods so cheaply as the largest retailers because of their small capital and large proportion of expenses of their businesses. They therefore must knowingly or unknowingly buy adulterated goods at the lower prices required to meet the competition of the others.

For the country that brought you BSE, mad cow disease, and foot and mouth, this is very contemporary. It is also contemporary in that studies have shown how availability of fresh fruits and vegetables is much worse even today in poorer areas than in middle class areas in Britain. Considerable research has shown how the sorts of shops that exist in poorer areas have lower profit margins and they sell food at higher prices. The poor are there doubly burdened with paying extra for worse food. Similarly, the Black report (DHSS, 1980) argued that smoking behaviour cannot be taken as a fundamental cause, as it is a secondary symptom of deeper underlying features of economic society. This is obviously clear in terms of the way that marketing is targeted to particular groups, and also in terms of the opportunities people have for alternative leisure activities at the same cost.

Thus we need to see the structural reasons why lifestyle factors pattern in the way that they do. Health requires opportunity, knowledge, and resources that the better off social groups have. When those opportunities, resources and knowledge did not exist we did not have inequalities in mortality in Britain. The British aristocracy until 1750 died at the same rate as the poorest peasants. They perceived themselves as the god-designated top of an incredible hierarchy, but their health was the same as the poorest peasants. So health inequalities emerge when wealth can be converted into health through knowledge, opportunity, resources, much of which would be directed at making life simply more salubrious, but with the side effect of producing social inequalities in health.

Social capital

Perhaps the most well-known general explanation of inequalities in health currently is the income inequality/social capital theory. This theory has in part arisen from the lack of strong association between GDP per head and life expectancy in relatively wealthy countries. There is some association, but it is much weaker than in poor countries. The paradox is that we know that individual level income level is strongly associated with health within these rich countries, so why is average GDP income per head only weakly associated with life expectancy? What explains the health differences between the rich countries? One suggestion has been that average income is not particularly important, and that how income is spread is much more important. These increases in inequality have been multi-faceted, but there has been particular emphasis on evidence that income inequality is positively associated with national mortality rates (Wilkinson, 1992), as well as with state mortality rates within the USA (Kennedy et al, 1996; Kaplan et al, 1996). If this evidence is correct, this is clearly of crucial importance since it implies that 'development' in itself may not automatically be good for health, and that the way in which the Gross National Product (GNP) is 'shared' may be as important as its absolute level. However, a recent comprehensive analysis of the cross-national associations between income inequality and health (Lynch et al, 2001) produced quite different findings from those of Wilkinson. The associations that did exist between income inequality and

health were largely limited to child health outcomes, whereas a positive association between income inequality and national mortality rates was seen for those aged 65 and older. The authors commented that higher income inequality within the US, and within the selected countries included in Wilkinson's original analysis, was probably associated with the unequal distribution of many powerful determinants of health, whereas this may not be the case for the larger group of countries included in the more recent analyses. A striking feature of the updated examination of the association of income inequality and health is that, even with more recent data, the associations are seen for the selected group of countries included by Wilkinson, but not in the larger group of countries (Lynch et al, 2001).

Across the US states, the degree of income inequality is associated with a wide range of factors which may influence health, with greater income inequality being associated with higher unemployment, higher proportions of people without health insurance, lower per capita medical spending and lower rates of high school graduation. Indeed statistical adjustment for an index of education statistically accounts for all of the association between income inequality and health within the US (Muller, 2002), a particularly interesting finding given that education serves as a marker of early life social circumstances as well as later life socioeconomic position. Thus income inequality and health outcomes may be related across the US because in this context income inequality reflects many current and past social and

environmental factors that have important health outcomes. Across countries the association between current income inequality and these social and environmental factors may or may not exist depending upon the choice of countries and their historical, cultural, political and economic contexts. Jurisdictions that allow income inequality to increase may often be those that also systematically under-invest in education, welfare, health care, and a range of social institutions that serve as safety nets for people in unfavourable circumstances, and in these circumstances income inequality, both currently and in the past, will be related to health outcomes. When this dependence no longer holds – for example when a rapid increase in income inequality has occurred but bodies such as trade unions have been able to resist the dismantling of hard-won rights such as health care and welfare – the association with health outcomes will not be seen. Thus, when examining health differences between countries, there are historical factors that generate the distribution of socio-economic factors within the countries, and also political institutions that are related to investment in education, in welfare, in health services, etc. In some groups of countries income inequality is related to those forms of social investment, but there is no absolutely necessary association between social investment and income inequality. Thus, income distribution is the outcome of these historical social political factors, as is a diverse infrastructure of investment in neo-material living conditions.



Conclusion – What Goes Around Comes Around

In summary, socio-economic polarisation in Britain over the past two decades has led to growing inequalities in health in social terms, interconnected with a spatial polarisation whereby poor people, and poor areas, become poorer, while those with more advantages are able to accumulate even greater advantages. In this way socio-economic inequalities have reproduced themselves, and reinforced inequalities in health. But does this continuity of inequality over the last century mean that we cannot change things? As Table 2 shows, the extent of the gap *can* be altered – widening inequalities in health are not inevitable and the gap can be narrowed, as was the case between the early 1960s and early 1970s.

The use of geographical policies to tackle inequalities in health should be treated with caution. Area-based policies will serve to change the relative ranking of only a handful of places.

Universal policies, on the other hand, have the potential to reach the disadvantaged wherever they are located. However, given the way in which current inequalities are entrenched in social trends and processes, it is likely that the scope and magnitude of policies

aimed at producing changes in these patterns will have to be far greater than is currently the case.

Note: This is an extensively modified version of the paper that was presented at the Symposium on Explanations for Socio-economic differences in Health. It includes some material previously published in Shaw et al (2001).



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Measuring Socio-Economic Status In New Zealand

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Introduction

In this paper I will discuss the issues involved in measuring socio-economic status in New Zealand. Part of my brief, as I have interpreted it, involves issues of meaning as well as measurement. I have approached this as a social scientist who is a public health specialist. Despite my preamble, from my point of view this is an exercise in applied social science. Social scientists who talk in general terms about class and socio-economic status are now tempted, encouraged, or forced to consider how to apply that knowledge. What one finds in this area, by my observation over nearly 30 years, is that it is a technically highly sophisticated, but conceptually very pragmatic, field. People in this field,

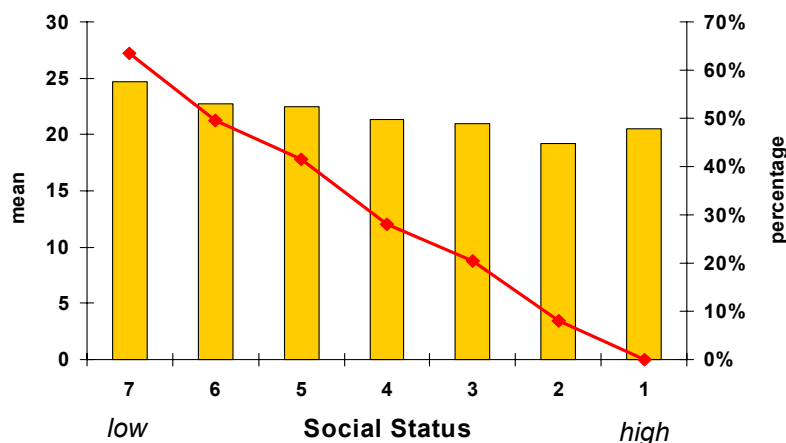
particularly in the public health community, draw in a catholic way from a broad range of disciplines. For somebody born and bred a sociologist, I find this a little bit alarming. However, the coherence that emerges, which is a very useful one, is a problem-centred one rather than necessarily a theoretically centred one. What we are looking at here is an interface with policy and practice, and that is what makes it so exciting and challenging for people like me who are essentially academic social scientists. We are working with other disciplines, we have an interplay with stakeholders, many of whom are here at this Symposium, and there are clearly implications of policy and

practice rather than just theory and concepts. I am going to start by discussing the current trend for “catching the inequalities wave”. I am delighted to see the turnout at this Symposium – I think it is fantastic – but at one time it was a pretty lonely business. Then I am going to discuss some measurement issues: what are the underlying concepts, what are the available measures, and what explanations can we sustain? Then I am going to consider issues of explanation: explanations that take social structure seriously, identifying pathways, and, finally, social simulation – to try and explain and understand in a more dynamic fashion some of these intriguing intellectual puzzles.



Catching The Inequalities Wave

My first introduction to the identification of social inequalities in New Zealand is shown in Figure 1.



Source: Davis (1981)

Figure 1: Mean number of decayed, missing & filled teeth and percentage edentulous by social status: Canterbury New Zealand, adults 35-44 years, 1973-74.

I was studying the distribution of edentulism – complete tooth loss – in the Canterbury adult population, 35 to 44 years (Davis, 1981). Considering first the mean number of ‘decayed’, ‘missing’ or ‘filled’ teeth, it can be seen that there is really not a big difference across the socio-economic strata. It is about 20 to 25 teeth per person across the social status groups. This suggests that dental health problems were about the same across these social status groups. However, when you look at the

percentage that had lost all their teeth, it was over 60% in the lowest group and 0% in the highest group. This generated a lot of debate at the time, in the mid-1970s. This was a matter of a young sociologist working from the first principles of his discipline, and generating findings that sparked a policy debate.

It was also an introduction to the pragmatism of the area. A visiting academic said ‘Well look, if you want to measure social status why

do you bother asking the occupation? Why don’t you ask them how many teeth they have got?’ In other words, if the measure works – i.e. effectively discriminates between groups – then why not use it, regardless of the underlying theoretical philosophy or rationale. As a social scientist you find such an approach a bit of an affront to the discipline, but the pragmatism of health policy applications can encourage this perspective.



Measurement Issues

This brings me on to measurement issues – in the first instance, underlying terms and concepts (see Table 1).

Table 1: Underlying terms and concepts

Discrete categorical

- Class
- Social class
- Occupational class
- Socio-economic stratum

Ordered, graduated, continuous

- Socio-economic score
- Income
- Education

Deprivation

Types of measures

Firstly, there is a whole set of discrete and categorical measures that go right back to Engel's time. This started by being essentially an analysis of class – which was the working class and the owning class. Since that time it has become attenuated to more

of a social class concept, where the understanding is that you are talking about distinct social groups with different life styles as well as economic position. Occupational class is really using occupation as a stronger dimension to measuring social position. Socio economic strata are a mélange of economic and

income measures. So those are the discrete categorisations.

If we now consider more ordered and graduated concepts, you have socio-economic scores, income, education, and even deprivation.

Structural versus individual measures

These measures may well all mean more or less the same thing, and they may be getting at an underlying dimension of inequality, but at another level they may be tapping different things. It may be that the first groups, particularly social class,

are based on a more structural concept of socio-economic difference, while the second categorisation is tapping an individual resource interpretation of socio-economic difference. These have rather different policy implications, and in some respects they represent an entire world view, in that some people take a more structural approach,

and others take a more individual resource approach. You will find these different approaches in the literature; none of them are right or wrong. It depends on why you are using a particular approach, and the key issue is what meanings you attribute to it, and what implications you can draw from it.

For example, we developed the New Zealand Socio-Economic Index (Davis et al, 1999) based on occupation. At one level we were trying to identify a structural location, the same as a social structure of inequality, and occupation is one of the nicest and cleanest ways of identifying a person's location in that social structure. However, income and education are also frequently used, and they really get much more toward the fundamental resource inequalities – whether you regard those as individual, cultural capacities, or whether you regard them as a fundamental egalitarian statement about income – whether it should or should not

be evenly distributed in society. Another approach is to use house or car ownership. In themselves, I believe these are epiphenomena; i.e. they reflect more fundamental underlying differences, and are useful in that regard. However, there is also the question of what implications you draw when you say that a tenant or a person with only one car is disadvantaged, compared with a house owner or a person with two cars. Does that mean that you give the disadvantaged person another car or upgrade their housing status? In a way those are just markers of underlying differences, and I think it is important to recognise this. Sometimes they are the only measure available, and there may

be good positive reasons for using these measures. Thus area deprivation, as George Davey Smith discussed in his presentation, taps into contextual issues, and is also a more fundamental descriptor of social and economic advantage. NZDep (Salmond et al, 1998) has been a superb tool, which is being used very widely to inform planning decisions about resource allocations. However, it doesn't necessarily have a lot of theoretical weight within it.

None of these measures are fundamentally right or wrong, and they are all useful, but you have to be clear about how you are using them.



Explanation Issues

Now I will consider issues of explanation. For example, in what sense does low income cause, or is associated with, smoking? In a sense, the more income you have, the more cigarettes you can afford. So it is obviously not an affordability question. It is problematic what interpretation you are able to lay upon income as a measure of some underlying dimension that you are linking to a practice that is health harming. It is obviously a marker – to a degree – of underlying group membership – that is, people on low incomes are in other ways also

disadvantaged – and that explains why they smoke more, even though they cannot "afford to". A third aspect of income as an explanation is that it is also potentially a precipitant; that is, income inequalities can engender a "culture of poverty", which in turn makes smoking an acceptable and normal practice. So, in that sense income (or material difference) can be seen as a precipitant (rather than a causal factor in a direct manner).

Similarly, what about car ownership and mortality? If you have found that households with

no cars are disadvantaged in health terms compared with households with one or two, in what sense is this causal? It is not – unless mobility is involved (without a car, you are less mobile, and thus have poorer access to health care, say). It is I think probably a marker, and possibly precipitant as well – that is, people who are isolated do not have a car, and are more likely to be susceptible to other kinds of conditions associated with social isolation.

These are two examples of the quite pragmatic use of existing measures. There is nothing wrong with them intrinsically,

but as a social scientist I would caution the need to examine these measures closely, to be clear about what interpretation

you are laying on them, and what conclusions you wish to draw from them.

Taking structure seriously

Now I want to consider explanatory questions in more depth. Firstly, I want to emphasize the importance of taking social structure seriously. What we are considering here is essentially the

enduring structure of inequality. If you consider income and education, they put the emphasis much more on individual resources, and you have to remind yourself that they in turn reflect underlying structural differences. In order that this option remains on

the policy table, you have to remind yourself that, as well as tackling individual differences, you also need to look at the underlying structure of social inequality.

Identifying pathways

The next important issue is that of identifying pathways. I am just going to give you a short example. A student of mine is analysing data from the Christchurch Longitudinal study, trying to link parental SES (socio-economic

position) to adoption of smoking among young teenagers (Jenkins, 2002). The gradient for smoking by socio-economic status is very strong. It would be very interesting to be able to see if you could actually break that by identifying a key pathway where you could intervene. Not only would you

wish to reduce smoking overall, but you would want to tackle the social gradient if you could. There are various possible pathways. Is it the parents, the peers, the move from school to growing up, or what?

Table 2: Parental socio-economic status (SES) and cigarette smoking at age 21

Elley-Irving Group	N =	SES group	% Daily Smoking (odds ratio †)
I (high)	115		26.09 (1.00)
II	96		32.29 (1.19)
III	265		32.45 (1.42)
IV	288		37.85 (1.70)
V	139		47.48 (2.03)
VI (low)	108		42.59 (2.42)
Total	1011		36.40

† Odds ratio using the highest Elley-Irving SES group I as the reference group).

Table 2 shows ‘parental SES’ (1-6) tabulated against ‘smoking’. You can see that the overall level is actually surprisingly high, and that there is a gradient already at

that level – for ‘daily smoking’: a quarter in socio-economic group one, and nearly half in socio-economic group six. So there is already a gradient at that level in

experimentation and adoption of smoking. This is reflected in the odds ratios – unity at the top and more than doubled for the lowest social class.

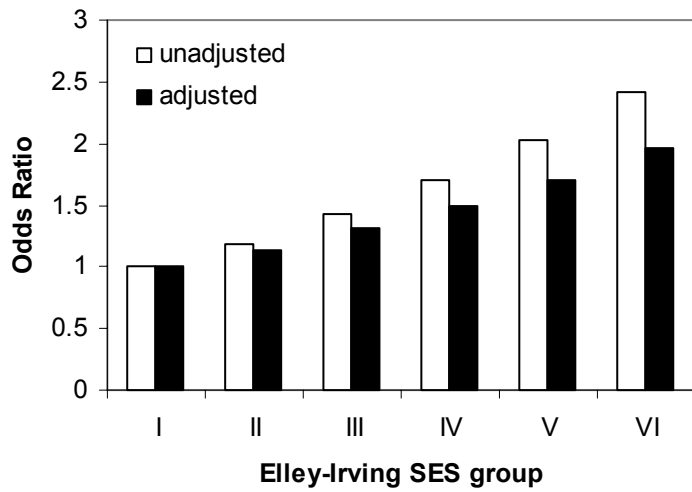


Figure 2: Unadjusted and adjusted (for parental smoking) odds ratios for parental socio-economic status (SES) and smoking at age 21

So, already by the age of 21 there is a socio-economic gradient (these people are not even in the workforce yet, and so we are using parental SES to locate them). Thus, you could argue that really it is a modelling effect

– that the environment at home, particularly parental SES and smoking, is the key. However, although adjusting the findings for parental smoking does reduce the odds ratios to a degree (see Figure 2) most of the association

with parental socio-economic status still remains. In other words, there is a lot more to this link between parental SES and youth smoking than parental smoking itself.

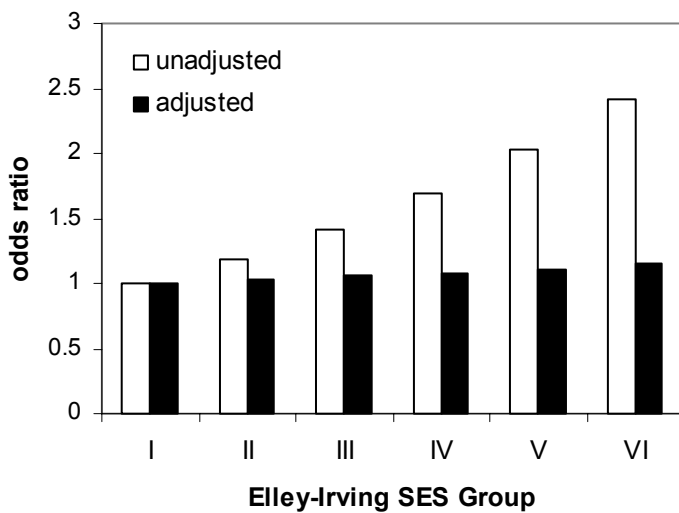


Figure 3: Unadjusted and adjusted (for 4 intervening variables) odds ratios for parental socio-economic status (SES) and smoking at age 21

However, when we have adjusted for four intervening variables (parental smoking, deviant behaviour, affiliations with smoking peers, and educational achievement), we have completely eliminated the parental SES gradient (see Figure 3). So we have found that various factors seem to transmit social class differences in

background to social class differences in smoking behaviour (as reflected in the diminished socio-economic gradient).

From the point of view of health promotion, if one could identify the various factors that might be important here, this would be a useful thing to develop for policy. Thus, while we need to

take structure seriously, we also need to take pathways seriously. In particular, in addition to studies that examine structural issues, we need also to be doing more targeted studies using longitudinal data of this kind, adopting a lifecourse approach, since these tendencies start at a very early stage.



Conclusions

In conclusion, although I have been using epidemiological and survey data to address these issues over the last 30 years, I feel that the field is relatively static, and that we are reliant on the data that have been collected. Thus we are working with relatively static, non-experimental data analytic opportunities. Particularly, I feel a little uncomfortable about some of the aggregate analyses, such as the Wilkinson (1992) work, because with just some key data points omitted or added a very different interpretive slant emerges (Lynch et al, 2001). There is then a considerable controversy about whether these between-country differences mean anything. Thus, even though as a sociologist ecological measures should make considerable sense – measuring collectivities – there are times

when I feel a little uncomfortable about how far you can make these data sets work.

This is an area that is replete with alternative scientific explanations – structural, biological, social, psychological – but we seem to have a shortage of data and resources. What I am suggesting is that you could actually use techniques to try to simulate inequality processes. You could test your predictions – see whether you could actually intervene with simulated programmes and assess whether they "made a difference".

Finally, and in conclusion, I would say that there is a range of measures available. These measures of social inequality usually give more or less the same results: you get a social

gradient almost regardless of measures used. However, in a way, the commonality of such results is a bit of a trap. You need also to ask yourself, in circumstances like this, what conclusions – of a theoretical or a practical kind – you think you can draw when considering the application of any given measure. I also urge you to take structure seriously, as well as pathways. And I think in future we may well be trying more simulation techniques to make up for the limited opportunities we have to explore these intriguing issues with current data sets.



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Evidence For Socio-Economic Differences In Health In New Zealand

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Introduction

Socio-economic gradients in health, and more specifically mortality, are pervasive. Poor people die at a greater rate than rich people (Blakely, 2001; Blakely et al, 2002a; Sorlie et al, 1995; Backlund et al, 1996; Davey Smith et al, 1998; Kaufman et al, 1998), poorly educated people die at a higher rate than highly educated people (Feldman et al, 1989; Kunst and Mackenbach, 1994a; Shkolnikov et al, 1998; Fox and Goldblatt, 1982), people from lower social classes die at a higher rate than those from high social classes (Pearce et al, 1991; Marmot et al, 1984) and so on. Furthermore, there is no apparent threshold. As a rule, each incremental

improvement in socio-economic position is associated with an incremental decrease in mortality risk. Thus, we are required to consider and research socio-economic mortality *gradients* that span right across society's socio-economic hierarchy, not just the health inequalities between those in poverty and those not in poverty (or some other threshold) (Howden-Chapman et al, 2000).

Whilst socio-economic inequalities in health are common to all populations that have been investigated, they are not unchangeable. The steepness of the gradient (in relative terms) has tended to increase in the

recent decades (Feldman et al, 1989, Goldblatt, 1989; Valkonen, 1993; Marmot and McDowall, 1986; Marang-van de Mheen et al, 1998; Pappas et al, 1993; Diderichsen and Hallqvist, 1997; Drever and Whitehead, 1997), and there is some (although perhaps less than previously thought) variation between countries in the size of the mortality gradient (Kunst and Mackenbach, 1994a; Kunst et al, 1999; Kunst et al, 1998; Kunst and Mackenbach, 1994b; Mackenbach et al, 1997). Behind all-cause mortality, the incidence of cardiovascular disease (and tobacco smoking) has shown large changes in its association with socio-economic position,

being initially a disease (lifestyle behaviour) of higher socio-economic groups before concentrating among lower socio-economic groups as the epidemic progresses. Thus, socio-economic mortality gradients are an appropriate area of focus in public health as the mortality differences are large, everyone in society is included on the socio-economic ranking, and the gradient appears (in part

at least) to be variable over time and between countries. What causes the socio-economic mortality gradient, and the mutability of the gradient, is the subject of a rapidly expanding international research effort.

The first objective of this paper is to provide a brief summary of the New Zealand evidence for socio-economic differences in health. I then present some

specific findings from the New Zealand Census-Mortality Study (NZCMS) on socio-economic position and mortality, unemployment and suicide, and income inequality and mortality. Finally, I conclude with some warnings about the potential misuse of NZDep – a small area measure of socio-economic deprivation that has rapidly gained widespread use.

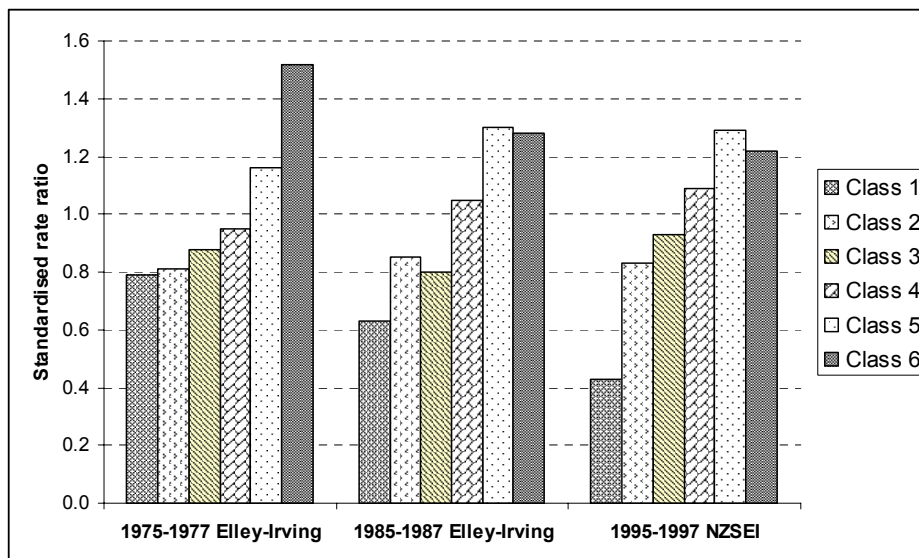


Summary Of New Zealand Evidence For Socio-Economic Differences In Health

The first major body of work documenting socio-economic mortality gradients in New Zealand was that by Pearce and colleagues. They have extensively analysed the association of occupational class with mortality among 15-64 year old males, for the three time periods 1974-78, 1985-87, and 1995-97. They used occupational data from the death registration forms for the numerator, and census occupational data for the denominator – an unlinked census-mortality study design. Analyses for females were not possible due to inadequate occupational data, and were also not possible for the retired as the New Zealand census elicits only current occupation.

Figure 1 shows the all-cause mortality standardised rate ratios for the three time periods 1975-77, 1985-87 and 1995-97. (The standardised rate ratio is a form of relative risk.) As in other countries, there is a strong and (mostly) monotonic mortality gradient by occupational class. The mortality among the lowest occupational class is approximately twice that in the highest occupational class in the first two time periods – more precisely 1.9 times in 1975-77 and 2.0 times in 1985-87. In the most recent time-period this ratio was much increased at 2.8. However, Blakely (2001, pp 247-52) has shown that during the 1990s there was a substantial numerator-denominator bias

between mortality and census data such that the analyses by Pearce and colleagues substantially underestimated mortality rates in class 1. Additionally, occupation was available for fewer deaths (and census respondents) in the more recent analyses. Thus, whilst there is a suggestion of increasing *relative* socio-economic differences in mortality in New Zealand over the last three decades, this suggestion must be treated cautiously. That said, similar overseas research has shown increasing *relative* inequalities in recent decades (see over page).



Source: Pearce et al (1991, 2002)

Figure 1: Age-standardised mortality ratios by Elley Irving occupational class, among 15-64 year old New Zealand males during 1975-77, 1985-87 and by NZSEI occupational class during 1995-97

In addition to the broad picture of all-cause mortality, the work of Pearce and colleagues has provided much further specific information, including:

- The occupational class gradient was greater for diseases amenable to medical intervention than those non-amenable, with the ratio between occupational class 6 and 1 being about 3.5 for amenable deaths in both time periods (Marshall et al, 1993).
- By cause of death, the strongest gradients in 1975-77 were for deaths from accidents, poisonings and violence, diseases of the respiratory system, endocrine, nutritional and metabolic diseases, diseases of the genitourinary system,

and diseases of the digestive system (Pearce et al, 1983). Gradients were also present, but weaker, for cancers and coronary heart diseases.

- Occupational class mortality gradients existed for a range of cancers in 1984-87, particularly larynx, liver, buccal cavity/pharynx, oesophagus, lung and soft tissue sarcoma (Pearce and Bethwaite, 1997). Inverse occupational gradients existed for rectal and colon cancers, malignant melanoma, and brain/nervous system cancers. Lung cancer accounted for 54.1% of the overall cancer gradient, and much of the overall cancer gradient was probably attributable to the differential distribution of smoking by occupational class. These

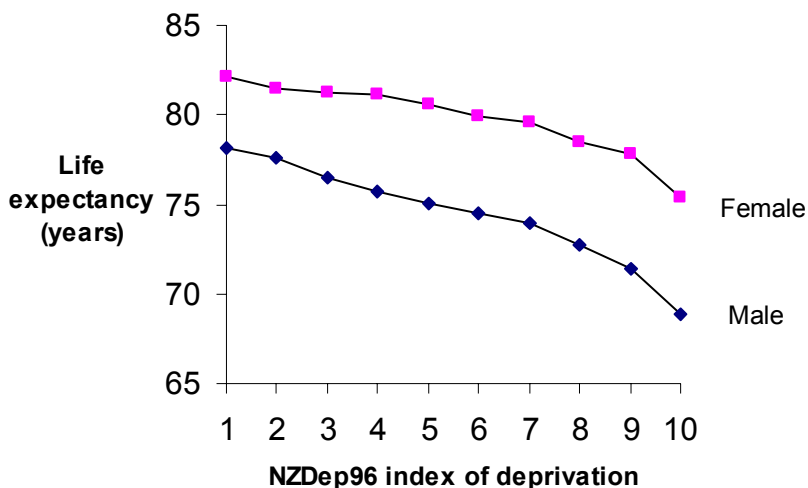
patterns were consistent with previous analyses for 1974-78 cancer mortality (Pearce and Howard, 1986), and results from other countries (Kogevinas et al, 1997).

- The relative excess of mortality for Māori compared with non-Māori decreased between 1975-77 and 1985-87, particularly for diseases amenable to medical treatment (Pearce et al, 1993). In both time periods there were strong occupational class gradients among Māori and non-Māori. Updated analyses of occupational class by ethnicity are presented elsewhere in these proceedings by Sporle (see also Sporle et al (2002)).

Following the work of Pearce and colleagues, the development of a small area measure of socio-economic deprivation – NZDep91 (Salmond et al, 1998; Crampton et al, 1997) and NZDep96 – has facilitated

numerous analyses of socio-economic differences in morbidity and mortality (Tobias and Jackson, 2001; Jackson and Tobias, 2001; Barnett, 2000; Crampton et al, 2000; Salmond et al, 1999; Blakely et al, 2002a).

Salmond and Crampton (2000) have found strong and consistent gradients of increasing mortality and increasing hospitalisations with increasing small area deprivation.



Source: Salmond and Crampton (2000)

Figure 2: Life expectancy by small area socio-economic deprivation (NZDep96), 1996-97

For example Figure 2 shows the decreasing life expectancy with increasing levels (deciles) of socio-economic deprivation of the small area according to the address on the death registration form. Of note, these same gradients exist for both Māori and non-Māori, but the whole curve for Māori (males or females) is well below that for non-Māori. That is, there are substantial ethnic differences in mortality even within levels of deprivation. (I will return to the interpretation of these overlapping ethnic and socio-economic differences in health later.)

There are two important reports on socio-economic differences in health recently published in New Zealand: *The social, cultural and economic determinants of health in New Zealand: Action to improve health* by the National Health Committee (1998), and *Social Inequalities in Health: New Zealand 1999* edited by Howden-Chapman and Tobias (2000) and published jointly by the Ministry of Health and the Department of Public Health at the Wellington School of Medicine. The former report focuses more on policy options, and the latter report (SIH report) focuses more on a

comprehensive review of the evidence for socio-economic inequalities in health and new analyses. Each report is a rich and useful source of information. In addition to the analyses of mortality and hospitalisation data by NZDep96 mentioned above, the SIH report also includes updated analyses using (among other sources) Health Survey data. For example, health inequalities are described by income and income inequality, education, occupational class, labour force status, and housing. The majority of analyses demonstrate an association of poorer health status with lower socio-economic position.



The New Zealand Census-Mortality Study (NZCMS)

The New Zealand Census Mortality Study (NZCMS) is a new initiative. The study involves anonymously linking census and mortality records, thereby creating cohort studies of the entire New Zealand population (1981, 1986, 1991, and 1996 censuses) followed-up for mortality for 3 years (Blakely, 2001; Blakely et al, 1999, 2000). The New Zealand Census-Mortality Study (NZCMS) is the first time that the NZ census has been linked to an administrative data set for purposes apart from improving the quality of SNZ surveys. The linkage therefore requires the close collaboration of Statistics New Zealand. As the New Zealand census contains many socio-economic factors (e.g. income, education, occupational class, housing tenure, car access), the NZCMS allows powerful analyses of socio-economic mortality gradients by a range of socio-economic factors, separately and together. Another particularly important aspect of the NZCMS is that numerator-denominator biases that plague routine analyses of ethnic-specific mortality differences are overcome – by linking census and mortality records the census self-identified ethnicity is available for both the numerator and denominator when calculating mortality rates (Blakely et al, 2002b, 2002c).

In this paper, I will use some early findings from the 1991 census-mortality cohort of the NZCMS that demonstrate:

- socio-economic mortality gradients among 25-64 year olds for all-cause and cause-specific mortality by education, income and small area socio-economic deprivation
- a strong association of unemployment with suicide
- no association of income inequality with mortality *within* New Zealand.

More detailed methods, results and discussion of these results are presented elsewhere (Blakely, 2001; Blakely et al, 2002a).

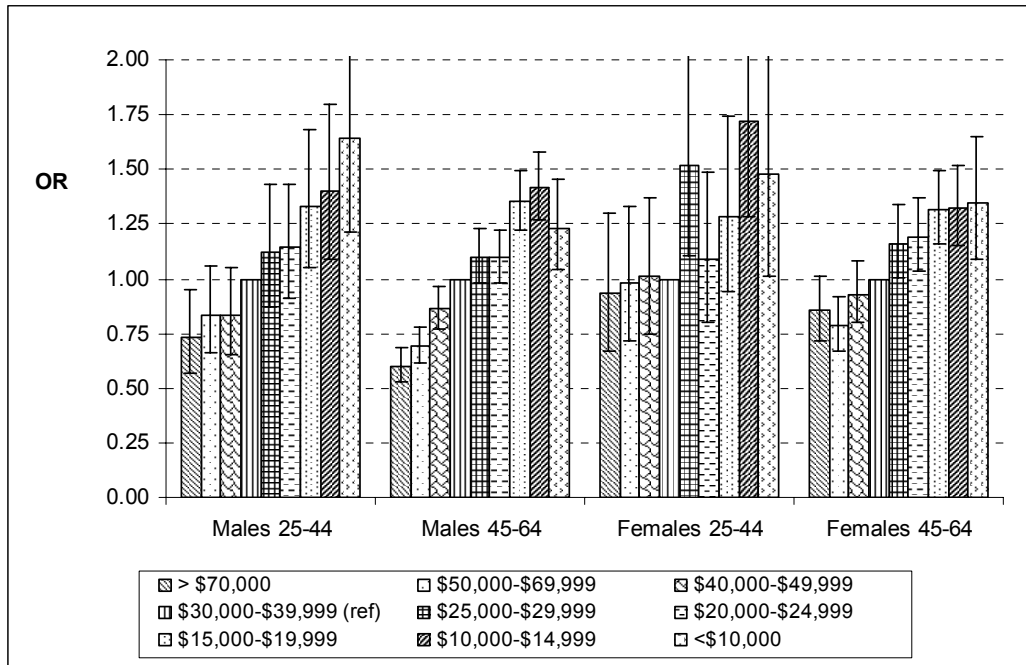
All-cause and cause-specific mortality gradients by education, income and small area socio-economic deprivation

Income has been described by the National Health Committee (1998, p23) as “the single most important determinant of health”, and was strongly associated with mortality in the US National Longitudinal Mortality Study (Backlund et al, 1996). Unlike most countries, the New Zealand census includes income data. Therefore, the NZCMS offers a rare opportunity to measure the

association of income with mortality in a complete population study.

Figure 3 shows the odds ratios of all-cause mortality by equivalised household income. For each of the four sex-by-age groups, the reference category is \$30,000 to \$39,999, as this group comprised the largest number of observations. Other than for 25-44 year olds females for which there were relatively few deaths (and hence the wide confidence intervals in Source: Blakely (2001)

Figure 3), each of the sub-graphs demonstrate a strong monotonic gradient – nearly all incremental reductions in household income are associated with an incremental increase in the mortality. Comparing the lowest (<\$10,000) and highest (>\$70,000) household income categories, the relative risks were 2.25 and 2.05 for 25-44 and 45-64 year old males, respectively, and 1.59 and 1.58 for 25-44 and 45-64 year old females, respectively.



Bars are 95% confidence intervals

Source: Blakely (2001)

Figure 3: Age and ethnicity adjusted odds ratios of all-cause mortality by equivalised household income for 25-44 and 45-64 year olds, males and females

Figure 4 summarises the association of household income, education (highest qualification) and small area socio-economic deprivation (NZDep91) with all-cause and cause specific mortality, for 25-64 year olds combined. The summary measure used is the $RII_{10:90}$ (Blakely et al, 2002a), a modification of the more commonly known relative index of inequality (RII) (Mackenbach and Kunst, 1997). Essentially, the $RII_{10:90}$ gives the relative risk of mortality for people at the 10th percentile rank of a given socio-economic factor (e.g. low income) compared to the 90th percentile rank (e.g. high

income). The log of the $RII_{10:90}$ is plotted on the x-axis in Figure 4a and b. On the y-axis is each cause of death, at two levels (e.g. cancer, and some of the major types of cancer). For each cause of death, the $RII_{10:90}$ for each of income, education, and NZDep96 are plotted as a cross, circle, and triangle, respectively. The lines connecting these symbols back to the cause of death are merely to aid visual interpretation. For all-cause mortality by income, the $RII_{10:90}$ were 2.22 and 1.77 for males and females, respectively, i.e. we estimated that a woman with a low household income (10th percentile rank) had 1.77 times

the mortality risk of a woman with a high income (90th percentile rank). For both males and females, the $RII_{10:90}$ estimates of the all-cause mortality gradients were strongest for income, intermediary for NZDep91 (1.94 and 1.67 for males and females, respectively), and weakest for education (1.58 and 1.57 respectively).

Figure 4: Cause-specific relative indices of inequality (10:90) by income, education and small area socio-economic deprivation in the 1991 NZCMS cohort among 25-64 year olds

Figure 4a: Males

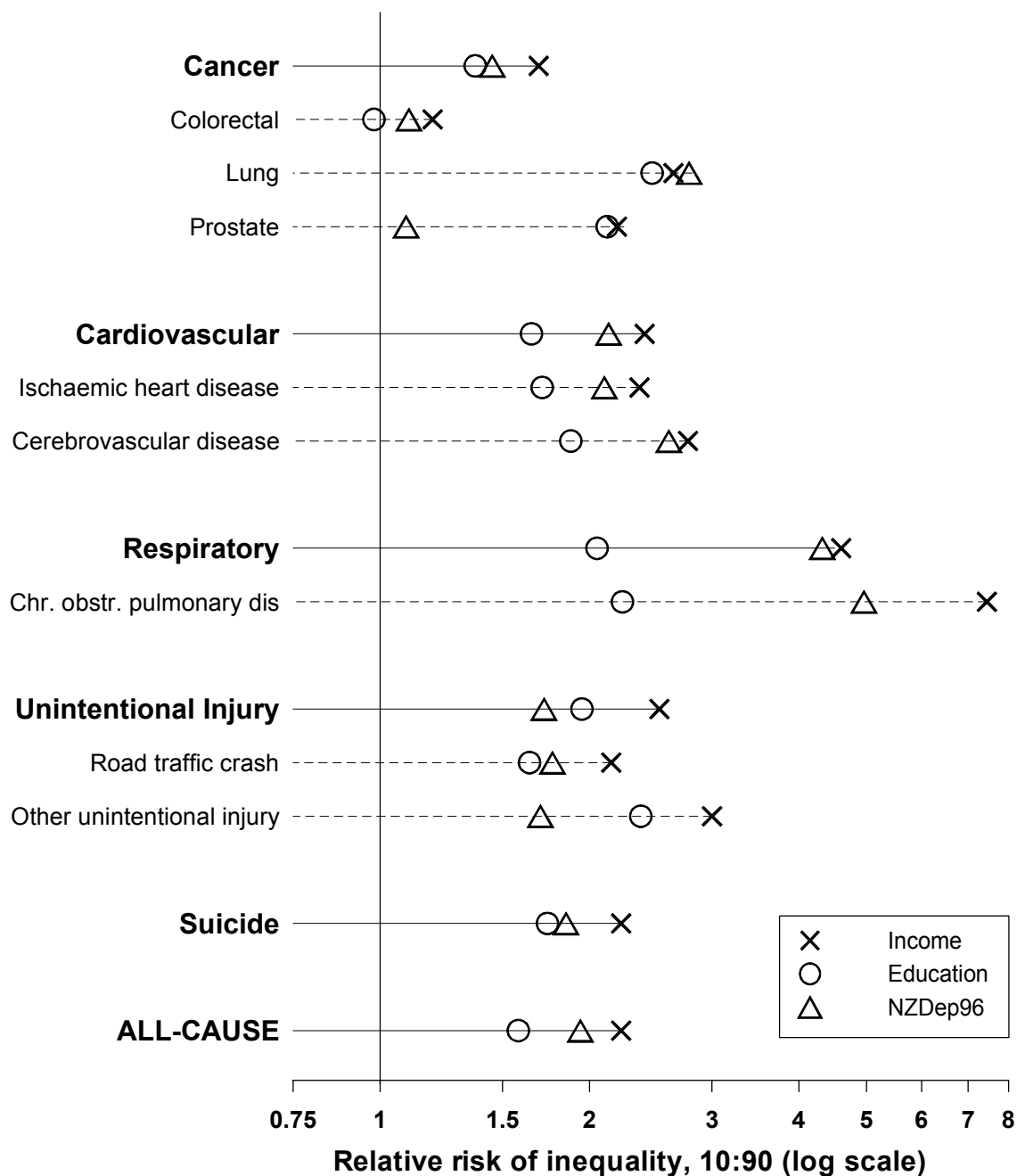
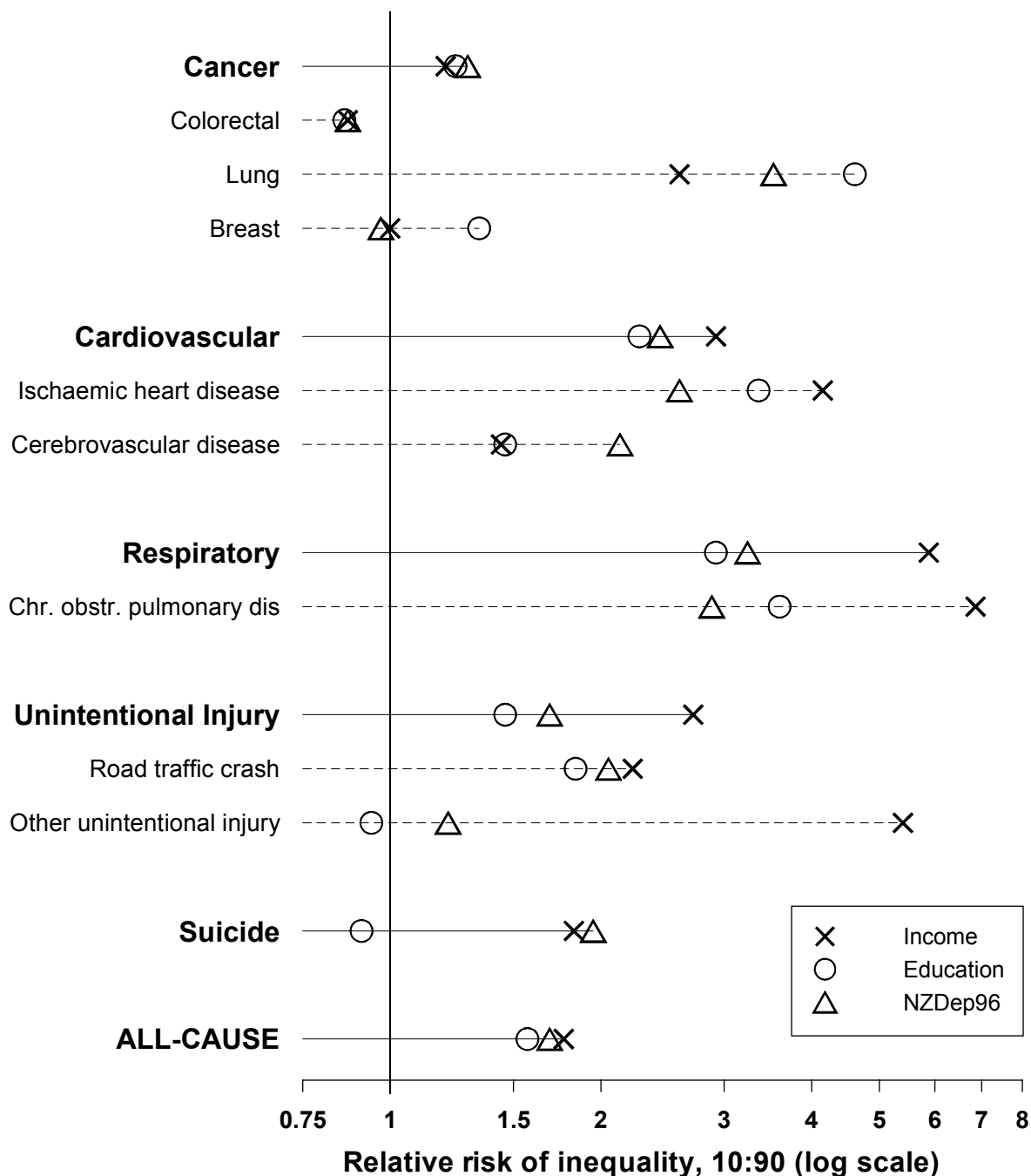


Figure 4b: Females



Lines are not error bars.

Source: Blakely et al (2002)

For cause-specific mortality, several patterns are evident from Figure 4. First, as with all-cause mortality, there was a tendency for income gradients to be strongest, followed by NZDep91, then education. Second, the gradients (regardless of socio-economic factor) were strongest for respiratory diseases, followed by lung cancer, cardiovascular diseases, and unintentional injury. Third, the patterns were similar between males and females. For example, amongst both sexes all three socio-economic factors were strongly associated with respiratory

mortality but not colorectal cancer mortality. (Note that for more uncommon causes of death among 25-64 year olds (e.g. prostate cancer) and those with large socio-economic mortality gradients (e.g. chronic obstructive pulmonary disease), the RII_{10:90} may be unstable as represented by the scatter in Figure 4.)

Unemployment and suicide: evidence for a causal association

Labour force status may be considered as a three-level

variable: employed, unemployed, and non-active. Note that the unemployed on the New Zealand census include only those people both actively looking for work and available for work. The non-active labour force includes students, the retired, people with chronic sickness, and so on. Unemployment in New Zealand peaked at 10.7% in 1991 (the commencement date of the 1991 census-cohort in the NZCMS), having risen steeply from 4.0% in 1987 (Ministry of Social Policy, 2001).

	Age and ethnicity adjusted only	Plus adjustment for income, education, car access
Males		
Suicide	2.70 (1.84-3.95)	2.35 (1.57-3.53)
Cancer	1.24 (0.99-1.56)	1.20 (0.95-1.51)
CVD	1.42 (1.15-1.74)	1.19 (0.97-1.48)
Injury	1.25 (0.84-1.85)	1.01 (0.67-1.52)
Females		
Suicide	2.86 (1.19-6.85)	2.58 (1.04-6.38)
Cancer	0.88 (0.63-1.22)	0.88 (0.63-1.22)
CVD	1.16 (0.70-1.93)	0.94 (0.56-1.57)
Injury	0.62 (0.19-2.00)	0.48 (0.15-1.56)

All odds ratios are adjusted for ethnicity and t10-year age-group

Source: Blakely (2001)

Table 1: Odds ratios (95% confidence intervals) of death for unemployed people compared with employed people for suicide, cancer, cardiovascular disease and injury among 25-64 year olds during 1991-94

Source: Blakely (2001)

Table 1 shows the odds ratios of suicide death for the unemployed compared to the employed, among 25-64 year olds.

Adjusting for age and ethnicity only, these odds ratios were 2.70 and 2.86 for males and females, respectively. Further adjustment for the potential confounding

socio-economic factors income, education and car access (a measure of asset wealth and access to community resources (Macintyre et al, 1998)) only modestly reduced these odds ratios to 2.35 and 2.58, respectively. Further adjustment for small area deprivation made

little difference. In contrast, the age and ethnicity adjusted odds ratios in Source: Blakely (2001) Table 1 for cancer, cardiovascular disease and unintentional injury were all little different from 1.0, and all reduced further following the multivariate control.

Given this pattern of results shown in Source: Blakely (2001) *Table 1*, and negative results presented elsewhere for sensitivity analyses of possible biases affecting the results, our results are consistent with a causal association of unemployment with suicide death. Similar elevated risks of suicide among the unemployed have been shown internationally (Martikainen, 1990; Bartley, 1994; Moser et al, 1986) and in New Zealand for self-inflicted harm (Ngati Kahungunu Iwi Incorporated and Te Ropu Rangahau Hauora a Eru Pomare, 2001). However, Beautrais et al (1998) found that after controlling for childhood, family and educational factors there was no statistically significant association of unemployment with suicide *attempt* in the Canterbury Suicide Project, a case-control study of 302 individuals who made a serious suicide attempt and 1028 randomly selected controls. It is possible that the association of unemployment with suicide attempt is different from that with suicide death or that the Canterbury Suicide Project was insufficiently powerful to detect a statistically significant association.

No association of income inequality with adult mortality within New Zealand

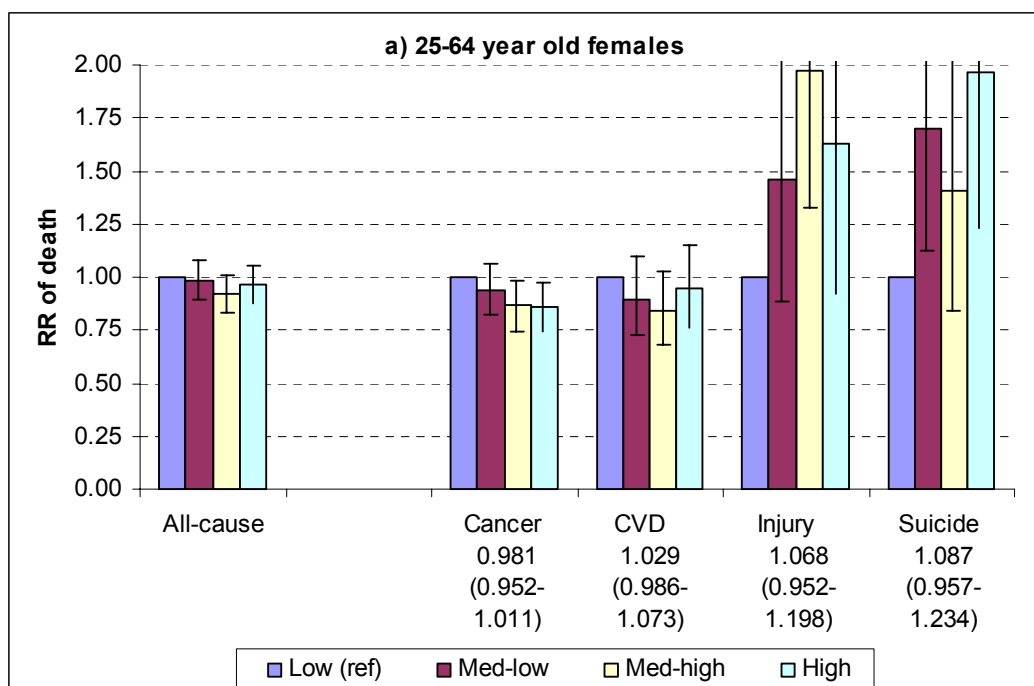
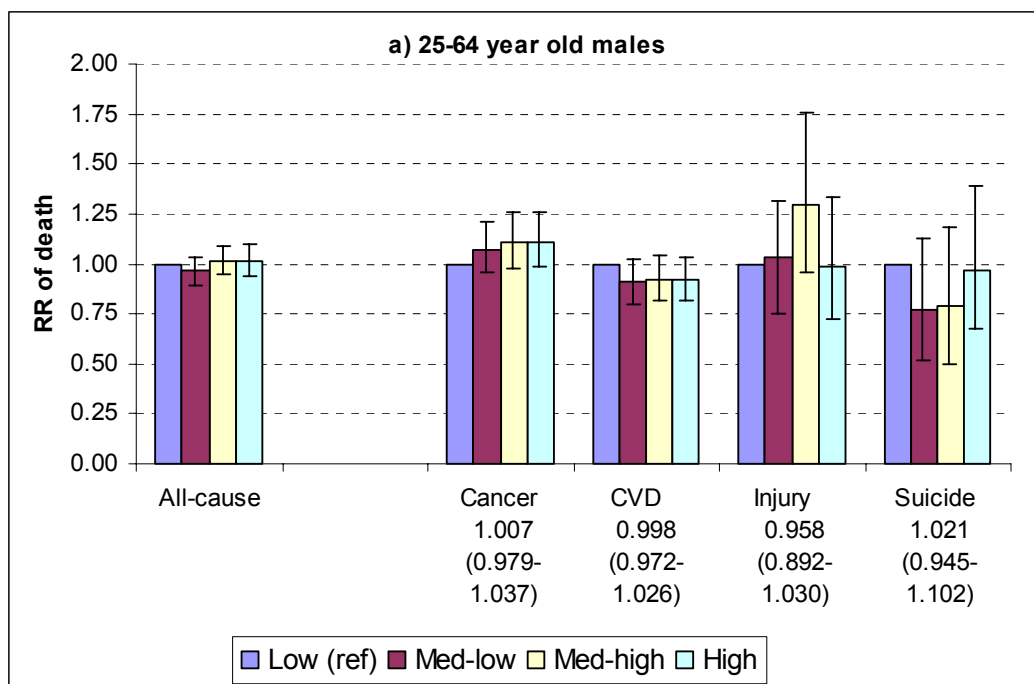
It has been hypothesised that the same person living in a more egalitarian society will, on average, have better health than someone living in a more unequal society (Wilkinson, 1992; Wilkinson, 1996; Kawachi et al, 1999). Put another way, if

we take an individual with a certain income, education, wealth and so on, and magically put them in another society that is more unequal (but their personal socio-economic position remains unchanged), then it is hypothesised that their health (on average) is worse off. One mechanism by which this might occur is psychosocial comparison whereby people in a more unequal society are more affected by relative comparisons up and down the socio-economic ladder, and these comparisons 'get under the skin' by affecting stress hormones and other pathophysiological processes (Wilkinson, 1996; Kawachi and Kennedy, 1999; Brunner and Marmot, 1999; McEwen, 1998). Another mechanism is whereby unequal societies tend to under-invest in public goods such as education and public health systems that affect the health of everyone (Lynch, 2000; Lynch et al, 2001).

The empirical evidence for the association of income inequality (the usual proxy for egalitarianism) with health is contentious. Between countries, increasing infant mortality has been consistently associated with increasing income inequality (Lynch et al, 2001; Rodgers, 1979; Hales et al, 1999).

However, the landmark paper by Wilkinson (1992) that reported an association of income inequality with life expectancy among OECD countries has been strongly contested (Lynch et al, 2001). Within the United States the association has been demonstrated with mortality in ecological studies at the state

(Kennedy et al, 1996, Kaplan et al, 1996), metropolitan area (Lynch et al, 1998), and county (Brodish et al, 2000) levels. Multi-level studies that control for individual-level demographic factors and income find an association of state-level income inequality with self-rated health (Kennedy et al, 1998; Blakely et al, 2001), but only a modest or equivocal association with mortality (Lochner et al, 2001; Daly et al, 1998). At lower levels of geographic aggregation in the US, multi-level studies have produced both positive (Soobader and LeClere, 1999) and (essentially) null findings (Blakely et al, 2002d) for self-rated health, and null findings for mortality (Fiscella and Franks, 1997). Within other countries the evidence is similarly mixed: ecological studies in England (Stanistreet et al, 1999), and New Zealand (O'Dea and Howden-Chapman, 2000) have found positive associations, but not in Canada (Ross et al, 2000). The NZCMS provides a powerful study to test the income inequality hypothesis at various levels of geographic aggregation in New Zealand using a multi-level study design (i.e. a study design that allows control for personal characteristics).



Error bars are 95% confidence intervals.

Figure 5: Relative risk of mortality by quintile of regional income inequality, 25-64 year olds during 1991-94

Figure 5 shows a null association of income inequality (measured at the 1991 census) with mortality within New Zealand for 25-64 year olds – there is essentially no difference in all-cause mortality by quintile of income inequality. The regions used to measure income inequality were 35 Health Funding Authority Sub-Regions. These regions have been used previously (with slight modification) in a New Zealand ecological study of the association of income inequality with mortality (O’Dea and Howden-Chapman, 2000). The regression models used in the analyses presented in Figure 5 controlled for the average regional income, and at the individual-level controlled for age, ethnic group, rurality and household income. By cause of death, there was some suggestion of a positive association for female suicide and injury deaths – however these two sub-analyses were based on few deaths and were not statistically significant. Alternative analyses

were conducted at the Regional Council and Territorial Authority levels – they, too, produced null findings.

A priori there are good reasons why we might not expect an association of income inequality with adult mortality *within* New Zealand. First, New Zealand has little regional variation in education, health, welfare and other systems that might plausibly explain any neo-material basis to the association of income inequality with health (Kawachi and Kennedy, 1999; Lynch, 2000). Second, and related to the first reason, there is probably less variation in income inequality by region than in other countries due to the same taxation and government systems applying throughout in New Zealand. Whilst difficult to make comparisons of income inequality between countries it seems likely that both the range of income inequality (the exposure) within New Zealand is narrower than for US counties and metropolitan areas and the

level of regional income inequality is less (Blakely et al, 2001). These two reasons may also be possible explanations for the lack of association of regional income inequality with mortality in Canada (Ross et al, 2000).

This analysis of income inequality *within* New Zealand does not, however, provide evidence against the possible importance of income inequality, and more generally egalitarianism, at the country-level. For example, New Zealand has experienced a rapid increase in income and other inequalities in the last 20 years. Simultaneously, there has been a retreat in the public provision of public services that may have been detrimental to the overall health status of New Zealanders. It is, however, a moot point whether income inequality is a driver of these macro influences on health, or rather just another symptom of the causally relevant and deeper structural change (Lynch, 2000).



Socio-Economic Position Is More Than Just NZDEP

The development of small area measures of socio-economic deprivation using 1991 (NZDep91) and 1996 (NZDep96) census data has been a huge advance for policy and

research in New Zealand. The components of the NZDep index include the proportions at a small area-level (n approximately 100 individuals) of census variables such as: households with no

telephone access; household car access; receipt of means-tested benefit; unemployment; low-income; single-parent families; nil qualifications; household tenure; and household crowding

(Salmond et al, 1998; Salmond and Crampton, 2001).

NZDep has several advantages. First, being assigned on the basis of addresses it can be assigned retrospectively and inexpensively to many data-sets. Second, the vast majority of people can be assigned an NZDep score, unlike variables such as occupational class for which many people have missing data. Third, the variable is a robust measure of socio-economic position being based on the average values of

census variables. Consequently, the ranking of individuals by the NZDep score/decile assigned to their neighbourhood is, on average, strongly and linearly related to health and other social outcomes.

As with any good tool, the widespread use of NZDep also makes it prone to misuse (Blakely and Pearce, 2002). A fundamental misuse of NZDep in research and analysis is an implicit assumption that small area deprivation and socio-

economic position are synonymous. For example, many analyses of 'health inequalities by deprivation' conceptualised as being 'health inequalities by socio-economic position'. This implicit assumption is incorrect. Small area deprivation is only one component measure of the broader construct of socio-economic position. For example, not all 'deprived people' live in deprived small areas (Lynch and Kaplan, 2000; Krieger, 2001).

Table 2: Percentage distribution of 1991 census respondents age 25-64 years by demographic or socio-economic factors by NZDep91 quintiles (1 = least deprived; 5 = most deprived)

Variable	Census count	Percentage distribution by NZDep91 quintile				
		1	2	3	4	5
<i>Ethnicity</i>						
Māori	165,300	6%	10%	15%	24%	45%
Pacific	62,589	4%	7%	12%	23%	54%
Non-Māori non-Pacific	1,411,941	25%	23%	21%	18%	13%
<i>Socio-economic factors</i>						
Unemployed	89,823	11%	15%	18%	24%	33%
Income < \$20,000	326,523	11%	16%	20%	23%	30%
Nil Education	557,028	14%	18%	20%	22%	26%
NZSEI Occupational class 6	110,643	13%	18%	20%	24%	25%
Nil car access	96,375	5%	9%	14%	24%	48%

Source: Blakely and Pearce (2002)

Shown in Table 2 are the number of 25-64 year olds in the 1991 census (n= 1.65 million) who were Māori, Pacific, unemployed, living in a household with an equivalised household income less than \$20,000, nil educational qualifications, belonging to occupational class 6 (i.e. lowest

class) and living in a household with no car access. In addition, Table 2 shows the percentage of these people living in each quintile of small areas by NZDep91, where quintile 1 are the least deprived areas and quintile 5 are the most deprived areas. Of note, only 25% to 30% of the poor, those with no formal

educational qualifications and belonging to occupational class 6 also live in the most deprived quintiles of small areas. Salmond and Crampton (2001) have also reported only a weak correlation between the individual-level measure of deprivation and NZDep.

The implicit and incorrect assumption that deprivation and socio-economic position are synonymous has serious problems when extended to analyses that attempt to answer the question “How much of the association of X with health status is ‘due’ to socio-economic position?” For example, consider the issue of how much of the association of ethnicity with mortality is attributable to socio-economic position (Fox and Goldblatt, 1982; Papper et al, 1993; Diderichsen and Hallqvist, 1997). Previous research in New Zealand demonstrating that *only* up to a third of the gap between

Māori and non-Māori mortality rates is due to NZDep (Blakely et al, 2002a) or occupational class (Pearce et al, 1993) *does not mean* that only a third of the gap is due to socio-economic position. Without doubt, controlling for a range of socio-economic factors *and* at a number of times during the life-course would see much more of the Māori non-Māori gap ‘explained’. (What it actually means to control for socio-economic position when considering ethnic differences in health is a complex issue beyond the scope of this paper (Davey Smith, 2000; Kaufman et al,

1997; Reid et al, 2000)). Both Kiro and Sporle further address the overlap of ethnicity and socio-economic status in their papers in these proceedings. This problem also applies to other research questions. For example, finding a statistically significant association of (lack of) fruit and vegetable consumption with ischaemic health disease having controlled for small area deprivation at the time of diagnosis does not mean that there is still not further residual confounding by socio-economic position (Davey Smith and Phillips, 1992; Rothman and Greenland, 1998).



Conclusion

New Zealand findings on socio-economic difference in health are broadly consistent with international research. There is much potential for New Zealand-based research on socio-economic differences in health to contribute to the rapidly growing international effort. For example, the intersection of ethnicity, racism and socio-economic position as determinants of health should be actively pursued. Important research deficits in New Zealand include

a lack of research on socio-economic position over the life-course, and research that explores the pathways between socio-economic position and health (e.g. behaviours and psychosocial factors). As the amount of information of socio-economic difference in health in New Zealand grows, thought should be given to building models that allow Health Impact Assessments of policy interventions aimed at reducing health inequalities.



Acknowledgements

Tony Blakely is funded by the Health Research Council of New Zealand. The New

Zealand Census Mortality Study (NZCMS) is funded by the Health Research Council of

New Zealand and the Ministry of Health.



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Socio-Economic Differences In Health In Maori

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Kia ora huihui mai tatou. Ko Andrew Sporle taku ingoa, no Ngati Apa, Rangitane, Te Rarawa ahau.

It is amazing how little progress we can make in our careers. Some 17 years ago I was lured

away from a possible mundane career in medicine into a taking the vow of poverty that is social science research in New Zealand. One of the two things that led to this decision was the then recently published paper by Smith and Pearce looking at

social and ethnic inequalities in male mortality. That was way back in 1984 and here I find myself talking about the same material - and very little has changed.



Background Issues

Examining the possible links between Māori socio-economic position and our health status requires a brief overview of our history and of the key tools used to explore those links.

It should be no secret to any of the health workers and researchers in the audience that there remain huge disparities in the health status between Māori and non-Māori. The official documentation of health status disparities between Māori and non-Māori has a long pedigree in New Zealand. In 1837, the

British Resident, James Busby, described in his official Dispatch the damaging impact of European settlement in terms of the increased mortality rate amongst Māori (Orange, 1987). This report was a critical factor in the Colonial Office recommending active British intervention in New Zealand (Durie, 1998). More recently, detailed examination of the health status of the Māori population dates back to the first special report of the Department of Health (Rose, 1960). This report was

followed by the three publications in the Hauora series by Eru Pomare et al (Pomare 1980; Pomare and De Boer, 1988; Pomare et al, 1995).

Socio-economic status and ethnicity

The persistence of the health inequalities between Māori and non-Māori have been highlighted by the two recent publications: *Progress Towards Closing the Social and Economic Gaps* (Te Puni Kokiri, 2000) and *Social Inequalities in Health* (Ministry of Health, 2000). Despite this evidence, there have been some dissenting voices as to the nature of such gaps. Work done by a former analyst from the Department of Labour (Chapple, 2000) argued that the 'gaps' in outcomes for Māori were primarily due to the relative socio-economic position and that this difference was decreasing. This work has been strongly criticised by Tim Rochford of the Eru Pomare Māori Health Research Unit for its non-standard use of ethnic specific data, as well as by economists at the University of Otago for its serious methodological flaws (Alexander and Williams, 2001). Unfortunately, the original paper was well publicised by that well-known champion of social equity, the Honourable Richard Prebble. Even more unfortunately, he has been less than vocal in publicising the fatal flaws in the study.

The argument that the health of the Māori population is just a result of relative socio-economic position isn't new in New Zealand, even though there has been little evidence to support it, and quite a lot of evidence against it.

So to what extent is the difference in health status between the Māori and non-Māori populations associated with the socio-economic disparity between the

populations? The first piece of work I could find on this topic examined the health status of Māori and 'Caucasian' children from perceived elite backgrounds in Auckland (Hood and Elliot, 1975). This study found just three significant differences between the groups. European children had higher incidence of sore throat and sore ears and a lower incidence of diarrhoea than Māori children did. This was novel research for its time but the relatively small sample size and duration of the study limit the generalisability of the results.

This small regional study was insightful, but in order to explore systematically the link between relative socio-economic position and Māori health status at a national level we need national studies. In New Zealand such studies have usually involved the analysis of the contribution of relative socio-economic position to the differences in Māori and non-Māori mortality.

This type of study was first undertaken for the period 1975-77 (Pearce et al, 1984; Smith and Pearce, 1984). Using a combination of census and death certificate data the researchers investigated the specific mortality rates in each social class for Māori and non-Māori men of working age (15-65). Almost 10 years later Neil Pearce, together with Eru Pomare, Barry Borman and Steve Marshall updated this work for the period 1985-87 (Pearce et al, 1993). These studies found that socio-economic status only explained about 20% of the Māori/non-Māori differences in death rates. Thus, the high Māori mortality rate reflected a serious

failing of the health system, in addition to socio-economic differences.

Much has changed since this last paper was published in 1993. There have been major macroeconomic reform, health sector restructuring, Māori health and social service development, as well as an increased recognition of the need of mainstream health providers to be responsive to Māori health needs. Any of these may have had an impact upon Māori health status. In addition, the means of classifying ethnicity, occupations and socio-economic status have also changed over this period.

These changes necessitated an updated study for the period 1995-97, and Neil Pearce, Peter Davis and I were fortunate enough to get an HRC grant to undertake this work. The results of this work are due to be published early next year (Sporle, Pearce and Davis 2002).

Unfortunately the changes in the classification of ethnicity, occupations and socio-economic status also made some serious methodological problems for our research team.

Table 1: Definitions of ethnicity

Census data	Mortality data
1981: 'biological', multiple groups allowed	
1986: self-identified ethnic origin	Prior to September 1995:
1991: self-identified ethnicity	<ul style="list-style-type: none"> • biological race • only 3 categories: Māori, Pacific, Other • sole categories only permitted
1996: self-identified ethnicity, more encouragement of multiple self-identity	After September 1995, identical questions to 1996 census (? implementation)
2001: revert back to 1991 question	

Source: Ministry of Health (2000)

Definitions of ethnicity

The first difficulty to address was the changing ethnicity questions in the Census and death registration process. This particular problem has been very well articulated by Dr Papaarangi Reid and her fellow researchers at the Eru Pomare Māori Health Research Centre (Te Roopu Rangahau Hauora a Eru Pomare, 2000). Without wanting to get into too much detail the problems are these. Firstly, there have been five different ethnicity questions in the last five censuses (See Table 1). In the period covered by the intended

update (1985-1997) the definition of Māori has changed from one based upon 'extent of Māori blood' to one based upon self-identification. Secondly, this change occurred at different times for the Census and the death registration process. This meant that it was not possible to compare the results from the 1985-87 study with the results from the intended study for the period 1995-1997. Thirdly, the change of ethnicity definitions for the death certificates in September, rather than at the end of the year, made it

impossible to include 1995 information in our study (Sporle and Pearce, 1999).

The effect of these changes is that we can't actually get a decent picture of what's happening to Māori health in this country, because they keep changing the definition of Māori used in official statistics. Thus, it's very difficult to examine time trends.

Table 2: Definitions of social class

- **Elley-Irving (1970s)**
 - 6 groupings of occupations
 - Based upon education and income
- **NZSEI (1990s)**
 - Linear scale of ranked occupation
 - Based upon algorithm involving age, income and education
 - Aggregated to 6 discreet groupings to enable comparison with E-I
- **NZDep (1990s)**
 - Index of geographic deprivation
 - Based upon 9 variables (telephone, benefit, unemployment, household income, car access, single parent family, no qualifications, home ownership, overcrowding)

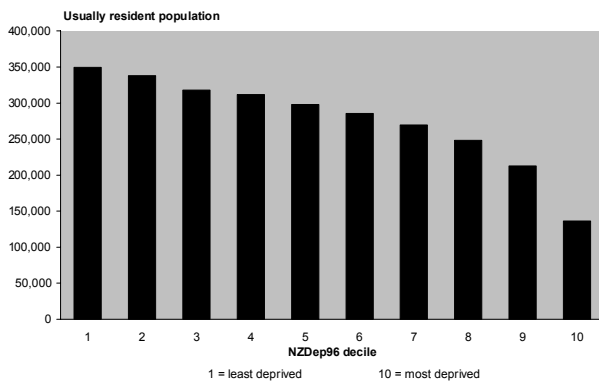
Definitions of social class

The second major difficulty was that the way of classifying socio-economic status had also changed. There are three basic definitions of social class that have been used for looking at differences between Māori and non-Māori well-being (Table 2). The first two studies by Pearce et al used the Elley-Irving index (Elley and Irving, 1972, 1976; Irving and Elley, 1977), produced by some education researchers. It groups occupations into social classes on the basis of 1966 census information on average income and educational level. This index was replaced in 1997 by the New Zealand Socio-

Economic Index (NZSEI) (Davis et al, 1999) and we're currently working at updating that. The NZSEI is a linear scale of ranked occupations based upon age, income and education using information from the 1991 Census. This scale was grouped into six clusters to enable some comparability with the Elley-Irving index. And then, of course, there is the geographically based NZDep index (Salmond et al, 1998). There is a fourth index that I was recently investigating using. It's the school decile rating, which could be extremely useful for looking at Māori/non-Māori differences in health status within school aged children. However, the Education

Department has put ethnicity as one of the variables included in the school decile score so we can't use it for comparing the educational performance or health outcomes between Māori and Non-Māori.

For the updated study of mortality the research team chose to use the NZSEI as previous studies had used an occupational based index and this was the most up-to-date occupational index available. Unfortunately, the reduction of detail in the more recent occupational codes is likely to increase the misclassification of occupation and has resulted in the exclusion of farmers from the current study.



Non-Maori/non-Pacific

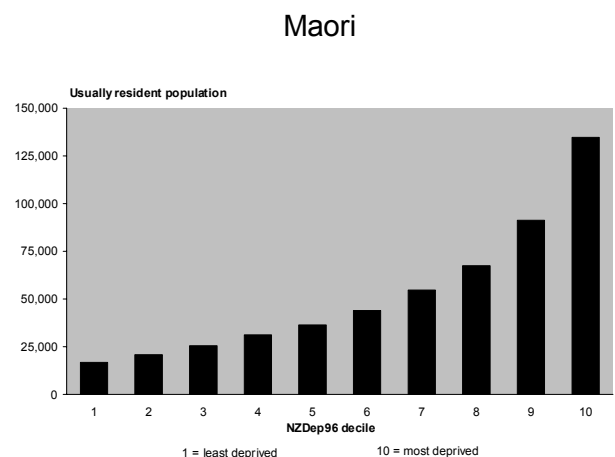


Figure 1: Socioeconomic status is unequally distributed by ethnicity



Socio-Economic Status, Ethnicity And Health Differences

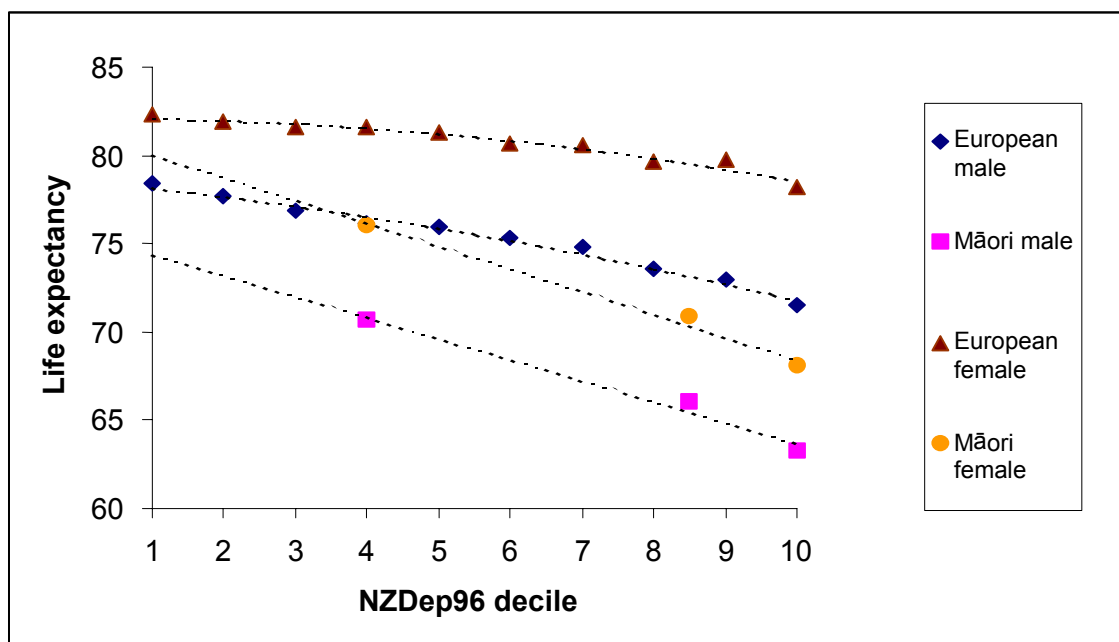
Now I will move on to considering the relationships between socio-economic status, ethnicity, and health status.

Figure 1 is based on our work with the NZSEI index, and it shows that socio-economic status is unequally distributed by ethnicity. We all know that this is the case, but it's still striking how markedly different the social class distribution is between Māori and non-Māori/non-Pacific. Not only

do Māori have a different pattern, but over 50 % of the Māori population are in the bottom three decile groupings. Thus, if we are studying differences in health status between Māori and Non-Māori, it could make sense that socio-economic deprivation could be a major contributor.

Next, if we consider life expectancy, we can see that life expectancy is lower for Māori than it is for non-Māori and that

the difference is quite marked (Figure 2). Not only is Māori life expectancy lower than that of non-Māori for both genders, but the social class gradient (as measured by the NZDep) is actually much steeper for Māori. There's a much greater Māori/non-Māori difference in life expectancy between those at the bottom than there is between those at the top.



Source: Salmond and Crampton (2000)

Figure 2: Life expectancy by NZDep96 by ethnic group

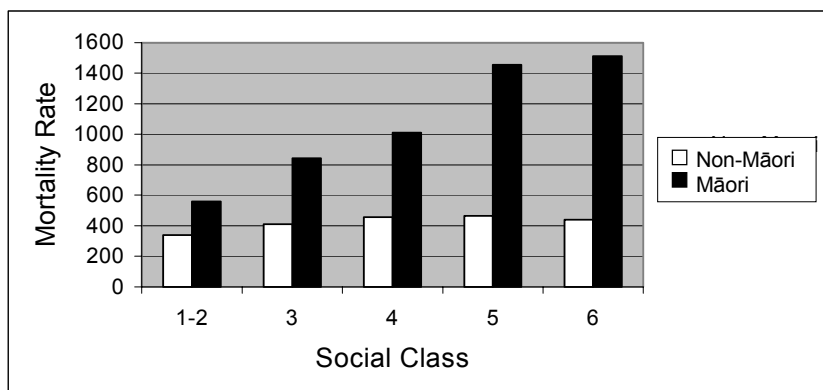
Historically, much of the work in this area has been done using the Elley-Irving scales, particularly the studies of ethnic and socio-economic differences in male mortality during 1975-1977 (Pearce et al, 1984; Smith and Pearce, 1984) and 1985-1987 (Pearce et al, 1993). In addition to “all cause mortality”, these studies also specifically considered “amenable mortality” and “non-amenable mortality”. By “amenable” we don’t mean “preventable”, what we mean is mortality from conditions that are amenable to routine medical intervention. This work was done for males because the studies were based on occupations listed on death certificate, and the data

quality on occupation on death certificates for females is not good. The studies were done for the age group between 15 and 64, so by default we’re considering differences in premature mortality between Māori and non-Māori.

Now, these two pieces of work, which covered the periods 1975-1977 and 1985-1987, showed some quite interesting trends. Mortality was decreasing both for Māori and for non-Māori; Māori mortality was higher, but was decreasing faster than non-Māori. There was a strong social class gradient within each ethnic group, and Māori had particularly high mortality rates from diseases amenable to

intervention. So although the situation was reasonably grim, it gave the rather comforting picture that at least things were improving.

We have now repeated these analyses for the period 1996-1997 (figure 3) (Sporle et al, 2002). We only had 2 years of usable data available, because the ethnicity code or definition that was used on the death certificate changed in September of 1995. As we’re dealing with annual figures, that meant that we had two definitions in use in the 1995 and the data for that year were unusable.



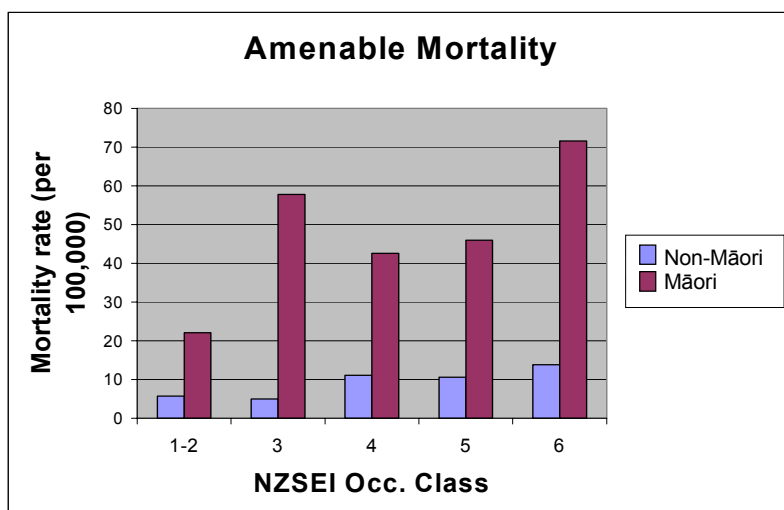
Source: Sporle et al (2002)

Figure 3: Male mortality aged 15-64 years during 1996-1997 by ethnicity and NZSEI category.

Figure 3 shows the findings for total mortality. It shows that the social class mortality gradient for Māori is now much, much stronger than it is for Non-Māori. Within each social class grouping, age standardized male

mortality is markedly higher for Māori than it is for non-Māori. If there is any sign of hope it is that the Māori/non-Māori differences are much smaller in the more advantaged social classes although they still exist.

What this shows to me is that high Māori rates of male mortality aren’t inevitable, we can actually do something about them.



Source: Sporle et al (2002)

Figure 4: Amenable male mortality aged 15-64 years during 1996-1997 by ethnicity and NZSEI category.

If we now consider amenable mortality (Figure 4), the picture gets even more depressing. Remember that when we're talking about amenable mortality, we are by definition talking about readily preventable premature mortality, because of the age group we are studying. These results are much more striking than those for total mortality. Overall Māori are 5.3 times more likely to die of a cause that is amenable to readily available medical intervention than non-Māori are. If we control this for occupational class distribution down here, the ratio diminishes only to 4.8.

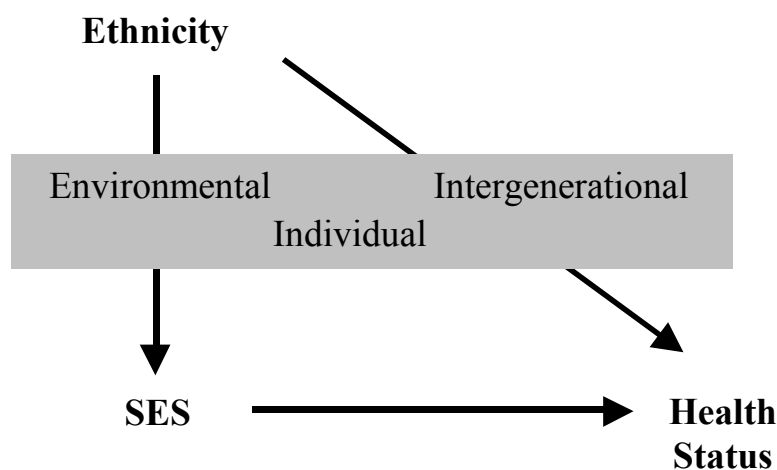


Figure 5: Socio-economic status: pathway variable (not confounder) that explains ethnic inequalities

So what is going on? Figure 5 shows a slide produced by Tony Blakely that I have borrowed and edited. It hypothesizes that socio-economic status is a pathway variable between ethnicity and health status, so it's only just one of the factors that explains ethnic differences in health. Other factors include environmental factors (in terms of our social and cultural and physical environment), intergenerational factors (including the intergenerational effect of colonisation and the effect of four, five or six cycles of intergenerational poverty), and then there are the factors impacting upon the individual. These sets of factors affect both socio-economic status and health status. So unbundling this is quite difficult, and trying to find out where to intervene is extremely difficult,

especially as in New Zealand we've got very poor quality data with regards to Māori. In fact, most of our data with regards to this kind of information are only from a single study (Blakely et al, 2002).

So what proportion of Māori and non-Māori differences in mortality are attributed to SES? The previous work for the mid-

seventies (Pearce et al, 1984) and mid-eighties (Pearce et al, 1993) showed that it's about 20% (or at most about one third) for men aged 15-64. If we consider Tony Blakely's work with regards to the census mortality study (Blakely et al, 2002), it confirms that about a third of the ethnic differences in mortality (for both males and females) is attributable to socio-economic status. The

more recent work that we've done (Sporle et al, 2002) shows that the degree of impact that differences in socio-economic status may have on differences in Māori and non-Māori male mortality may be less than 10%. However, that may be artificially low because of the poor quality of the occupational death certificate data in New Zealand.



Discussion

What are the implications of these analyses?

Firstly, the poor state of Māori health cannot be explained solely by relative socio-economic advantage. That's obvious, and we should dispel that myth straight away!

Secondly, the relative risk of 4.8 for amenable mortality tells us that, despite all the developments and changes in the health sector with regards to Māori responsiveness, still we have a health sector that is not meeting the health needs of many Māori.

Thirdly, these disparities are not going away. We've been busy quantifying them for 40 years since Rose's report and they're still with us. If we're actually

going to do anything about it, we need better information, both in terms of monitoring our progress (let's hope there is some progress), and also in terms of informing interventions.

Collecting ethnicity data on death certificates is now mandatory, but it's not for the other areas of the health sector.

Consequently, we know very little about access by Māori to hospital services and GP services in particular.

Fourthly, we need to broaden our indicators of well being used in such studies. It is a bit grim having to focus on mortality as a health indicator all of the time! Mortality is used only because it is convenient to do so – the data is routinely collected and the quality is high. What we need to

do is to broaden our health indicators in such a way that we can actually start to incorporate a wider sense of well-being in our routinely collected health data. That way we could use official statistics to monitor wellbeing (rather than death), including Māori-specific contributors to a sense of Māori well-being.

Finally, there is an urgent need for intervention programs and studies at both the individual and the environmental levels. One thing has disturbed me in being involved in evaluating, or trying to design evaluations for, the social programs intended to overcome the impact of socio-economic disadvantage. It is that programs are often developed in complete ignorance or avoidance of ensuring the information is

available by which to monitor or evaluate the program's successfulness. There is huge potential in New Zealand to routinely collect data in a consistent manner across various Crown agencies that can monitor the well-being of Maori in comparison with non-Māori, or just the well-being of Māori by themselves. However, the data either isn't being collected, or aren't being collated, or it's not available in a way that can be used to monitor Māori well being.

Now none of this is actually news to any of you, especially the Māori researchers in the audience. All I've done is update the old information with new information saying the same thing. There's a saying that "epidemiology is the art and science of converting death rates into air points" that describes very well our efforts to date in

researching Māori health status. I'm here repeating figures that were first stated nearly 20 years ago. This indicates to me that there's been a major abrogation of responsibility of good government under article 1 of the Treaty of Waitangi. Twenty years on and the Crown agencies in the health sector haven't even been able to ensure that routinely collected information on Māori is collected in a consistent way. Furthermore, we appear to be a long way off getting consistent information on Māori wellbeing from the various agencies across the health, education and welfare sectors.

So we've been publishing official reports quantifying poor status of Māori health for 40 years and investigating the contribution of socio-economic status for 20 years, and very little has changed! In fact, in relative terms, things may actually have

been getting worse, but we don't know for sure because still we haven't even got adequate means to measure our progress! That is how far we've come in 20 years! I would hate to see us standing here being in the next 20 years, still saying that we haven't got around to developing adequate tools to monitor Māori population health. We need more research into strategies to address Māori health inequality. We need to be monitoring the interventions that are put in place, and also fine tune those interventions to particular issues or populations where we know that we're going to make a difference. But first we need to ensure we have the routinely collected high quality information to enable us to monitor and investigate Māori wellbeing (rather than just health) over time. Until we can do that, I think we're just being epidemiological vultures.



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The Dual Bind – Ethnicity And Socio-Economic Status And Health: Implications For Policy

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There may be differences between species, races, the sexes and people of different age, but the

focus of interest is not so much natural physiological constitution or process as outcomes which have

been socially or economically determined.
(DSS, The Black Report, 1980)



Introduction

Public health is concerned with the experience of health at the population level and is further concerned with disease prevention, rather than disease cure. Such an orientation is more aligned with Māori concepts of hauora with its more collectivist orientation and concern with wellbeing across a number of dimensions including spiritual (wairua), mental (hinengaro) and physical (tinana).

This presentation is concerned with explaining some of the policy implications of the dual bind of ethnicity and socio-economic status on health outcomes within New Zealand. My focus is Māori health because of the disproportionate burden of premature death and illness, but also because there are possibilities of conceptualising health anew within a more public health framework.

I will then discuss the link between public policy and public health outcomes, with a particular interest in inequalities. My colleagues have already presented evidence about the impact of inequalities on health, and our job now is to suggest how public policy and this evidence are linked and, furthermore, what can be done to address these health inequalities in the future. In doing so, I am

aware of the work of the Inequalities in Health Working Group at the Ministry of Health, which is being reported at this Symposium, and the work done some 2 years ago now by the National Health Committee on the Social, Cultural and Economic Determinants of Health in New Zealand (1998). Earlier in this Symposium, Andrew Sporle identified intra-

ethnic disparity within Māori society as important for addressing health inequalities as well as disparities between Māori and non-Māori. This intra-ethnic inequality has increased significantly over the period of neo-liberal reforms because of the ethos of winners and losers reinforced by public policies and market behaviour arising from neo-liberal values. The policy

implications for this kind of inequality are as profound, as are those for all health inequalities. Certainly, more work is needed in this area to understand the imperative, from a health perspective, for ensuring that we do not perpetuate historical inequalities within Māori society, while valuing our unique history and culture as Māori in New Zealand.



Understanding Inequalities In Health

Arguably the most comprehensive report on health inequalities ever produced was the Black Report first published in 1980 in the UK (DHSS, 1980). Despite the significance of many of its findings, its trajectory was interrupted by the election of the Conservative Government. It is now time to revisit many of the findings of the Black Report and to update it and contextualise it for New Zealand.

The Black Report did not address the relationship between ethnicity and socio-economic status and health except tangentially through a consideration of culture. It understandably did not foreshadow the debates about indigenous health that interests Māori health researchers so much. There is a significant and

qualitative difference between the experiences of indigenous peoples and those who are immigrant populations but also experience racism and poverty. Most noticeably it is true that most indigenous peoples share a common social position at the bottom of the social hierarchy within their societies. Sometimes marginalized into invisibility, they also grapple with the same issues of daily survival facing other citizens.

The findings are even more profoundly relevant for us today than they were in the early 1980s. The reason for this is the undeniable evidence of increased and significant increases in inequality in New Zealand (Statistics New Zealand, 1999). The behaviours of low-income populations are also replicated in

the evidence, although it is not uniformly supportive of the behaviour described in the Black Report:

Inequalities appear to be greatest (and most worrying) in the case of the preventive Services. Severe under-utilization by the working classes is a complex result of under-provision, of costs (financial, psychological) of attendance, and perhaps of a life-style which profoundly inhibits any attempt at rational action in the interests of future well-being (DHSS, 1980, p 80).

Inequalities in the distribution of material resources, income, education, employment and housing, generate health inequalities. All sectors of society are affected; there

are no neat ‘cut-off’ points. As a result, health status is distributed as a gradient up the social hierarchy and applies to almost all causes of death – from cancer, cardiovascular disease and Alzheimer’s dementia to injuries. Individual health-related behaviours such as smoking only partially explain this strong graduated relationship, and such behaviours are themselves socio-economically patterned (Howden-Chapman et al, 2000).

The National Health Committee Report on the Social, Cultural and Economic Determinants of Health (1998) highlighted the need for New Zealand to address socio-economic factors, but also the importance of ethnicity and culture as determinants of health

outcomes such as mortality. Ethnicity has an independent effect compared with economic determinants such as social class, on health outcomes (work underway with Blakely et al, NZCMS study, Wellington School of Medicine). To be honest, we are less able to explain how culture impacts on health. A combination of more materially deprived circumstances for certain groups in society such as marginalized ethnic groups, physiological responses to particular stressful social situations and lifestyle behaviours patterned by our culture, largely explain these outcomes.

Part of the reason for this lack of explanation in the National

Health Committee report may be due to the wooliness often associated with defining culture. For my purposes, I define culture as the ‘symbolic systems of a people’, which are then reflected in people’s social and cognitive behaviour, and therefore shape a distinctive mode of life for a particular group (Fabrega, 1979, p 29).

Our interest here is to understand more clearly how the various levels impacting on health inequality operate and how they can be influenced for positive change. We recognize that individual behaviours, community and neighbourhood features and societal features, all play a part in shaping health outcomes.



Ethnicity And Health

Previous speakers have identified the inequality between Māori and non-Māori. Ethnicity is a social and cultural phenomenon rather than a biological one, yet we continue to act as if the outcomes are biologically pre-determined. Either that, or we believe that the solution lies in the simple adaptation of ethnic minorities to lifestyle changes such as more exercise and less fat and refined sugar consumption.

These will help, and messages are beginning to get through. For example, the nutrition and healthy eating messages through community health workers and marae have led to a remarkable change in the diet provided by most marae. It used to be common fare to have a hearty meat stew with plenty of thickening following by a steamed pudding. A decade later, you are more likely to get lean meats, salads and vegetable

soup with fruit salad. All of this change occurred within a short period of time. However, these will not change the health outcomes for many Māori and Pacific peoples. Changes for them are more likely linked to the macro-economic and social policies promoted by governments, than by the diet on their table.

A myriad of factors shape our health experiences that are the

result of combinations of physiological, social, and environmental influences.

Māori should embrace Māori public health approaches, including those oriented towards lifestyle and behavioural changes, because they offer the greatest hope of medium to long term health gains for our population. Such population-based efforts, however, require an acknowledgement that structural features are significant shapers of Māori health outcomes and that these must be addressed at their roots. Unfortunately, this occurs in a largely hostile public environment, and public health advocates must be at the forefront of moving public opinion to address underlying causes of disparity between Māori and others, and also between Māori themselves (Kiro, 2001).

Māori public health must acknowledge that there is increasing intra-ethnic disparity within Māori society (Cunningham, personal communication) which will mean that certain tiers of strategies are not directed at those who are already advantaged. There is overwhelming evidence of the link between socio-economic determinants and health outcomes for disadvantaged populations, and also considerable social science literature on the way that minority ethnicity and poverty reinforce a social exclusion that impacts negatively on social outcomes such as health.

Addressing these underlying causes is the job of society, but public health advocates have a valuable contribution to make in pointing out the links between social phenomenon such as overcrowding and disease spread, between social exclusion and health outcomes. The challenge now is to do this in an increasingly hostile climate that views every intervention targeting Māori as evidence of special treatment and therefore advantage for Māori. Such an environment means public health advocates must rely on increasingly sophisticated and clear messages that have broad public appeal while targeting those areas that provide the greatest net benefit to disadvantaged Māori populations (Kiro, 2001).

Socio-economic and cultural determinants literature and research provide a grounding for understanding what these contextual features are. They are consistent with certain Māori values of whenua that acknowledge aspects of turangawaewae (a place to stand in the world that is your own), to wao nui o nga atua (a link to the natural world), tikanga (correct procedures for the preservation of this natural world, relations within the social group and between groups), and reciprocity and collective good.

Māori are likely to be net beneficiaries of effective public health strategies, and this makes it very important in our health arsenal for achieving improved Māori health outcomes. However, Māori require a sound,

well-informed analysis, political will for improvements and collaborative, community-oriented efforts with Māori and other public health professionals.

Māori and Pacific peoples at all educational, occupational and income levels, have poorer health than non-Māori. For example, about half of the Māori population in the 25 to 64 age group live in the three most deprived deciles. For Māori, life expectancy at birth is consistently less than European life expectancy at birth, regardless of the level of deprivation. Māori and Pacific peoples, in particular children, are over-represented in the lower income quintiles and under-represented in the top quintiles. Less than five percent of Māori children are growing up in the highest income quintile.

As Howden-Chapman et al (2000) explain:

Socio-economic factors probably do not explain all the health disparity for Māori and Pacific peoples. Part of the explanation is likely to relate to the way in which societal arrangements tend to favour the majority European population, thus perpetuating inequalities between ethnic groups. For example, institutional rules may result in differential access to the goods, services and opportunities in education, health care, the rental housing market, employment and access to workplace compensation for different ethnic groups. Such institutional arrangements tend to reflect disrespectful attitudes

held by majority ethnic group individuals, often based on stereotypical assumptions as to the capabilities, motives and

values of 'others'. These attitudes may contribute to illness and premature death in Māori and Pacific peoples in a number of

ways, through direct material disadvantage as well as indirect psychosocial and social cohesion pathways.



Further Policy Implications

The most pronounced indicator of social inequality in New Zealand over the last 2 decades is the growth in income inequality. Nonetheless, governments have the power to redistribute resources through taxes. This is not their only influence on income inequality. In commenting on this, Sir Tony Atkinson (1999) highlighted the important role governments have in reducing inequalities through their budgets and their influence on social judgements that affect the labour market.

In New Zealand, where total tax revenues as a percentage of GDP are below average for OECD countries, there is general support for income redistribution as a key role of central government.

Redistribution of wealth probably has an overall positive effect on health, benefiting even those on the highest incomes. However, income redistribution is unlikely to be sufficient to eliminate population health

differences when the primary source of inequality lies in the distribution of social and institutional opportunities that affect health. For example, educational and housing investments are critical, as is improving work-place safety (Howden-Chapman et al, 2000). Such redistribution and our continued commitment to a progressive tax system has come under intense pressure during the period of neo-liberal policies. It was interesting to note that the recent Knowledge Wave Conference in Auckland reinforced many of the same aversions to a progressive taxation system, and that Treasury has not yet given up on a flat tax rate in their latest report. Public health advocates are again in the difficult situation of arguing for something that is likely to improve health, while having only weak institutional supporters, with the possible exception of government.

The economic incentives inherent in different institutional

arrangements may still perpetuate inequalities even as income or occupational gaps close. For example, Māori professionals with tertiary education, in common with other minority groups, still earn significantly less than non-Māori professionals (Howden-Chapman et al, 2000).



Specific Policy Initiatives

Other specific policy initiatives that should directly improve the health of the whole population, but particularly those who experience the dual bind of ethnic and socio-economic disadvantage, include the repeal of market housing rentals. Something this Government has already moved on thankfully. These market rentals during the 1990s, despite their espoused intention of reducing inequality between those low income New Zealanders in state-provided housing and those in private housing, increased the poverty of those low-income families who lived in state housing. This was further compounded by the successive benefit cuts of 1991 and 1998.

The second specific programme should be around child poverty. It is interesting to note that the Black Report also prioritized an anti-poverty strategy, a policy for families and children comprising a

child benefit, infant care allowance, pre-school education and day care, guaranteed nutrition with school milk and meals, minimizing accidents to children, a series of strategies to address disability, improved working conditions and housing (DHSS, 1980).

This Government has begun work on addressing child poverty and indeed, the child and family initiatives within a broad framework called the Agenda for Children (Ministry of Social Policy). However, the broad framework is just the beginning, and pressure must remain to implement specific initiatives along the lines of those identified by the Black Report to address the needs of children and young people.

Lastly, I suggest that a specific youth strategy to address the transition of our young people into

the labour market is required. Too much talent is being wasted and lost in this transition with the loss of many apprenticeships. The transition period into adulthood is a crucial opportunity for engaging young people, especially Māori and Pacifican children into the workforce. The need to improve educational outcomes must remain a priority but, more importantly, the kind of options available for entry into trade training and other industries is crucial to turn around the negative statistics confronting Māori, Pacific and new migrant families. Education and subsequent employment are key to health improvements for low socio-economic and Māori and Pacific populations in New Zealand. Again, I'm pleased to note that the current Government has acknowledged the need to do something about apprenticeships, but I'm not clear about the exact nature of these initiatives.



Explaining The Effects Of Socio-Economic Situations On Health

Berkman and Kawachi (2000) argue that we need to better understand the contribution that can be made to improving the

health of those affected by inequality. They propose four concepts to assist with this.

Firstly, they identify that individuals are embedded in societies and populations, and therefore an individual's risk of

illness cannot be considered in isolation from the disease risk of the population to which they belong (Rose, 1992).

Secondly, there is a social context to the behaviour of particular groups, as behaviour is not randomly distributed throughout the population, but is socially clustered. For example, those people who smoke are also more likely to drink and those who are diet conscious are also more physically active. Also, people who are poor have low levels of education and are more socially isolated (Berkman and Kawachi, 2000, p7). Therefore these behaviours occur within a social context and are not just an expression of individual choice.

The third concept is multilevel analysis (Pearce, 2001). Conceptions of how culture, policy or the environment influence health remain somewhat unclear. However, it has become increasingly clear that there are 'ecologic-level exposures related to the social environment that are not adequately captured by an investigation at the individual level (Berkman and Kawachi, 2000, p8).

The fourth, and final concept for discussion here, is a developmental and life-course perspective associated with cumulative risk. Berkman and Kawachi (2000, p9) explain that early disadvantage sets in motion a series of subsequent

experiences that accumulate over time to produce disease after 20, 40, 50 or 60 years of disadvantage. Another explanation is that while early experiences may set the scene for later life, it is only the adult experiences that are directly related to later health outcomes. For example, a low educational achievement may constrain the range of job opportunities and experiences until that can be overcome. What these various explanations allow us to understand is something identified in both the Black Report and the National Health Committee determinants report, namely that the patterning and accumulation of social experience is significant in shaping health outcomes.



Conclusions

In a recent article, Howden-Chapman et al (2000) concluded that:

Social inequalities are pervasive in New Zealand. The differences between social, occupational and ethnic groups are the most pressing health problem facing New Zealand. Inequality is unfair and makes us all worse off. But in policy terms, addressing the gaps by targeting

'the poor' will not minimise the overall social variations in health, may stigmatise poor people and even accentuate health inequalities. Available evidence suggests that a range of mutually reinforcing redistributive policies are needed – affecting income, education, employment, housing and health services across the population. This is likely to have a major impact both to improve New

Zealand's health and well-being and over time, increase the country's prosperity.

Any Māori public health strategy, *Waiora tangata Māori*, requires addressing health and wellbeing on multiple levels, acknowledging that there are causal structural features such as institutional racism, ethnic bias, embedded poverty and social dislocation that affect Māori

populations by patterning not only their behaviours but also other peoples behaviours towards them. There are also more immediate proximal factors such as parenting styles, whanau, hapu and iwi participation and cultural knowledge such as whakapapa that shape how any particular Māori individual may identify themselves. This also may shape the activities they participate in, extent of their social networks and regular social contacts, and individual lifestyle factors such as diet, exercise and social activities. These latter features show an overlap of cultural and socio-economic determinant factors – but they add up to the same thing, namely, the life experiences of Māori at individual and group levels (as communities, or as members of whanau, hapu and iwi) (Kiro, 2001).

Public health practitioners must be careful to avoid single explanations in promoting health, as there is unlikely ever to be a single answer to the complex needs arising from this myriad of influencing factors on Māori health. Rather, a more sophisticated analysis of the structural, biological, familial and environmental analysis, is required. This does not undermine the need for any particular approach, but it must be within the context of the whole. That is that while advocating for healthy diets and exercise, it is done with a knowledge that such strategies work better when Māori are involved in group rather than individual activities, where there is peer group support, located near homes, within their

communities and with a large number of people like them.

While evidence continues to emerge from studies about the effects of inequality on health, there is a need for New Zealand to take comprehensive stock of our health and where we are heading. This has begun with the considerable energy invested in the New Zealand Health Strategy and National Health Committee's (1998) Social, Cultural and Economic Determinants report. New Zealand's particular dynamics need to be understood and located within its specific social and historical context, while also building on the universal relationships identified through international research (Pearce, 2001).

The Black Report points us in the right policy direction and the present direction is to be commended for getting some of the policy mix in housing, welfare and training on a more even keel than in the past 16 years. However, more specific initiatives are now required to shape up this agenda. Most importantly, the opportunities are greatest among children and young people for whom the benefits can be lifelong. If we fail them, then we can expect future inequalities to increase and consequent health problems to occur.

While there is much work to do to address inequality between Māori and Pacific peoples and other peoples in New Zealand, the opportunities for massive improvements from even small gains are huge. Again, failure to

address these will 'cost' the country immeasurably in the years ahead, and not just in lost opportunity. The major causes of Māori mortality are largely amenable to intervention. Such interventions are largely well-known and understood. Having the stamina to reorient the health services to achieve these will require sustained political pressure. There are fundamental human rights being expressed here. The right to be treated equally, and the right to be healthy. The future of our society depends on these rights being protected.



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Occasional Participation: Social Capital, Income And Health

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Introduction

Social capital resides in the community organisations that individuals make deliberate decisions to join in order to facilitate collective action for mutual benefit. These meetings and activities usually occur outside the confines of the family, though clearly family structures and government actions can influence their development and maintenance (Cox, 1995). The social capital in organisations such as sports clubs, unions, choirs, land-care groups and parent-teacher associations is specific to communities and can change over time (Popay, 2000) This paper looks at the factors that support the development of social capital and the impact of

social capital on regional mortality in New Zealand during the last decade of the twentieth century.

While there is an on-going debate in the literature about definition (Lynch et al, 2000; Baum, 2000; Wilkinson, 2000), we see capital as a store, or reserve, that can be drawn on repeatedly to provide a continuing stream of benefits; for example, financial, physical, cultural or social assets. While all forms of capital are essential for development, none of them is sufficient in and of itself (Ostrom, 1990). Social capital is “created when the relations among persons change in ways that facilitate action” (Coleman,

1990). Social capital produces a synergy as a result of individual co-operative actions that are more than the aggregate of individual acts and can be used to effect change without depleting the source.

Like other forms of capital, social capital is productive, making possible the achievement of certain ends not attainable in its absence...Unlike other forms of capital, social capital inheres in the structure of relations between persons and other persons. It is lodged neither in individuals (like human capital) nor in physical implements of production (Coleman, 1990, p302).

Social capital is generated by involvement in organisations that entail “face-to-face relations of relative equality associated with participation in common endeavour, whether recreational, social, service-oriented or political” (Hall, 1999, p418). The relative equality is an important aspect of social capital, in that ‘voice’, rather than ‘exit’ is more likely to be used if the social exchange takes place between equals (Hirschman, 1970). This is an important aspect of social

capital, which relates to issues of social justice that determine the nature of society and thus health. As John Rawls (1971, p6) has pointed out:

Distrust and resentment corrode the ties of civility, and suspicion and hostility tempt men to act in ways they would otherwise avoid.

Clearly communities exist not only in specific space and time, but in the context of particular social, economic and ecological

structures. Issues of scale and context need to be explicitly analysed and operationalised in social capital research for the concept to be usefully empirical (Cattell, 2001). There are few such studies (Baum et al, 2000). This presentation reports on a measure of social capital in regions of New Zealand and explores the relationship between community-level average household income and regional income inequality in the development of social capital.



Linking Income Inequality And Social Capital

Any useful social science theory must link social action to individual behaviour if it is to have any predictive ability (Coleman, 1990). The recent major challenge to public health has come from the rediscovery of the social and economic determinants of health inequalities (Graham, 2001). Our Health Research Council (HRC) funded project was driven by the desire to identify one of the pathways linking economic and social factors and health at a community level.

There is considerable historical evidence to show that the relative power of political and social institutions, such as trade unions and employer federations,

influences the acceptability of income levels and income inequality. Perceived acceptability works alongside material factors, such as available housing and employment, to affect individual perceptions, health and well-being. In other words, economic and social conditions create the incentives for individuals to develop social organisations, which exist at a community level as social capital. The existence of social capital generates a pool of trust that in turn helps to strengthen society, including the social organisations that help to generate it, and generate better health outcomes.

There is a lively debate in the literature about whether these pathways are material or psychosocial (Muntaner et al, 1999). A body of research, based mainly on cross-sectional household inequality was strongly inversely related with both per capita group membership ($r = -0.46$) and level of social trust ($r = 0.76$). In turn, both social trust and group membership were negatively associated with total mortality as well as rates of death from coronary heart disease, malignant neoplasms and infant mortality. A 10% increment in the level of social trust was associated with about an 8% lower level of mortality.

However, recent evidence from Japan and Denmark suggest that the relationship between income inequality and population health

is not robust cross-nationally. In a thoughtful review, Mackenbach (2002) highlights that the evidence for a direct correlation

between income inequality and the health of the population is not robust, and that better conceptual frameworks are urgently needed.



A Model Of Income Inequality, Social Capital And Health

Our model is premised on the hypothesis that marked differences in income, both average household income and income inequality at a community level, do increase the differences in living standards between population group (see Figure 1). Such structural inequalities lead to social distance, reflected in power differentials, which suppresses the formation of participation and thus social capital, as people view 'others' with greater suspicion.

In this model, individuals living in economically divided communities are less likely to vote for public good resources or

to join voluntary groups with people they do not know personally and see as different from them. This decreases the amount of social capital available to everybody in the community and has the deleterious effect of increasing the steepness of the social gradient in health and mortality.

In communities which are less economically divided, community groups which bridge different populations can lead to more shared resources and cooperative norms. These norms are more likely to enhance the maintenance of public goods such as parks, community and school halls and street lighting.

At an individual level this increases trust between individuals and at a societal level leads to the improved health of the population, through, for example, having convenient, pleasant, affordable places to go to exercise.

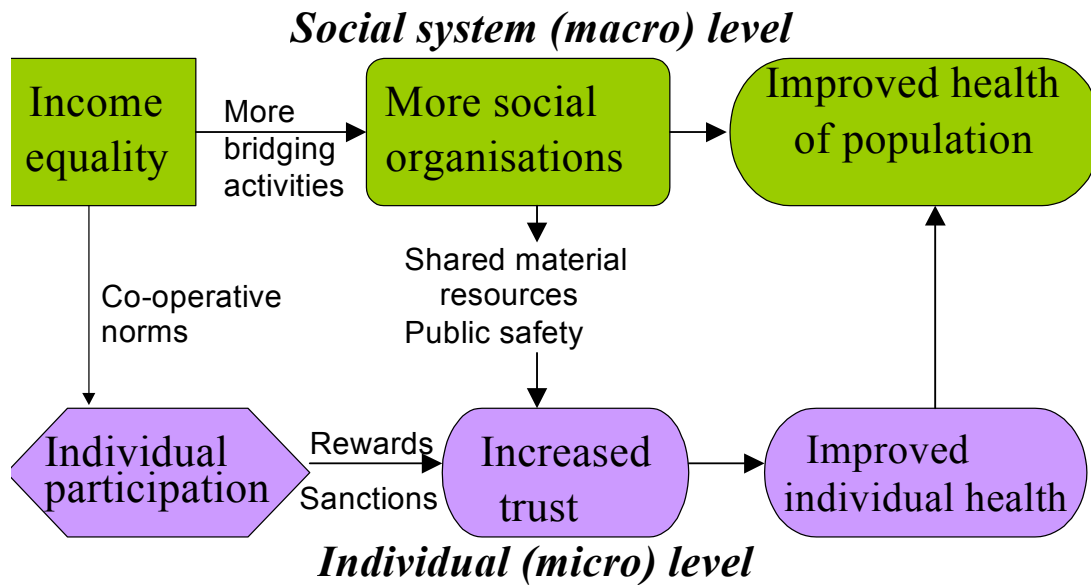


Figure 1: A model of income equality, social capital and health

The two hypotheses in our study are:

- that communities with more equal incomes will develop more social capital;
- that communities with more social capital will have better health status.

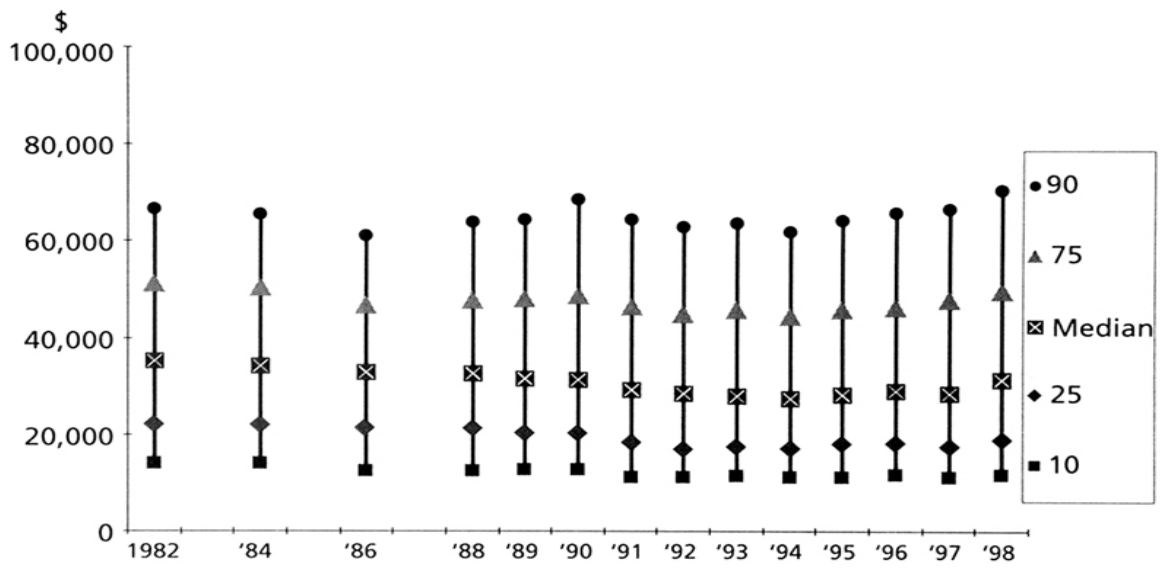


New Zealand Evidence On Income And Health

These are important issues for New Zealand because real household income for the bottom quintile has declined 4 percent in New Zealand between 1981 and 1996 (Statistics New Zealand,

1998). This decline in real income had a disproportionate effect on Māori women and children who are disproportionately clustered in this bottom quintile. Having low income tends to reduce people's

choices to afford healthy housing and an adequate diet, increases their mobility and reduces the ability, identified as significant long ago by Adam Smith, to participate in social life.



Source: Statistics New Zealand (1998)

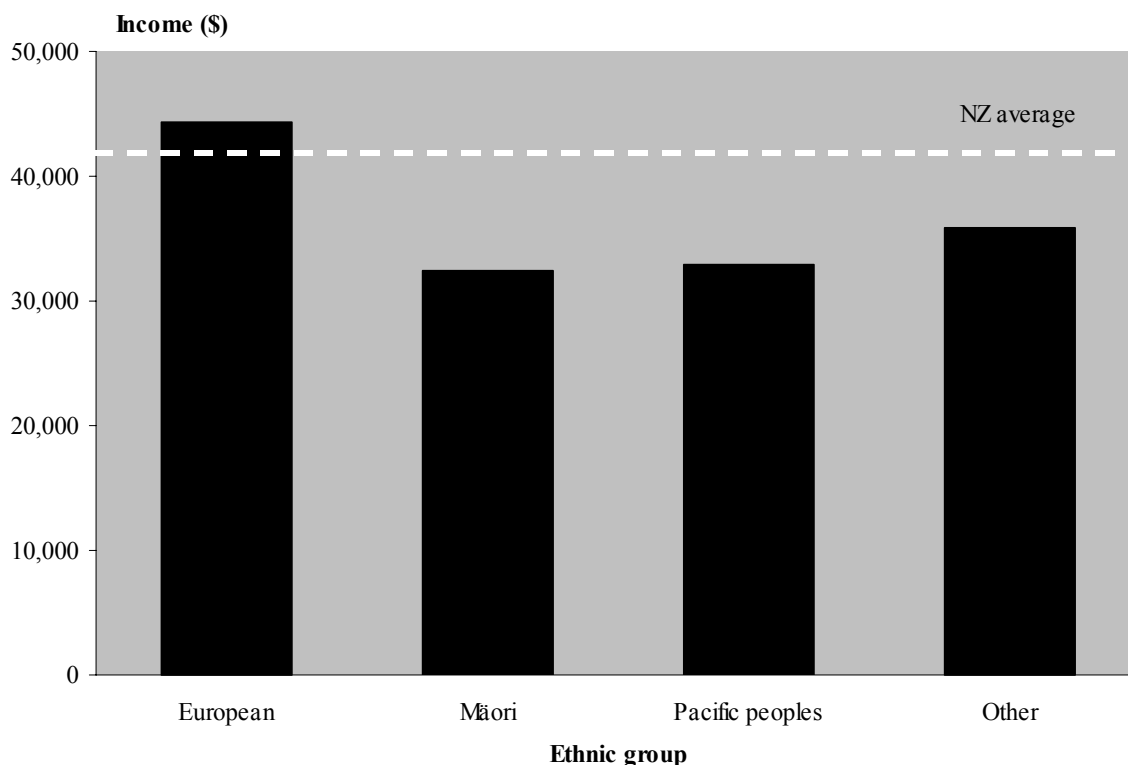
Figure 2: disposable income percentiles 1982-1998

Figure 2 shows this decline in (real) disposable income by percentiles between 1982 and 1998.

The average household income (equivalised per person) is also very unequally distributed by

ethnic group as Figure 3 demonstrates. In 1996, the European population in 1996

was privileged to receive a disproportionately large share of income.



Source: Statistics New Zealand (1998)

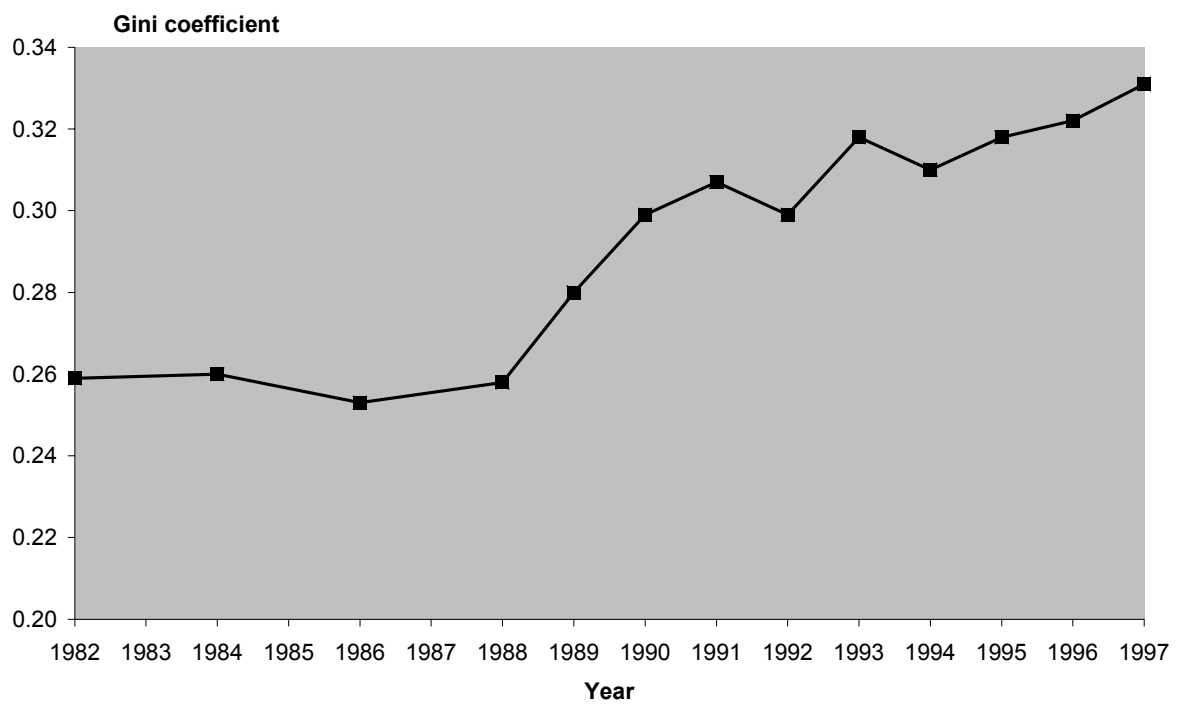
Figure 3: Average equivalent household income per person, by ethnic group, age adjusted, 1996 census.

Income inequality between households in New Zealand has risen markedly since the mid-1980s, as the increase in the Gini coefficient in Figure 4 below shows. The regional gap in incomes between Auckland and Wellington on the one hand and the rest of the country on the other has also grown in

recent years, while the relative position of some regions, such as Northland, has slipped (Martin, 1999).

Income inequality between households in New Zealand has risen markedly since the mid-1980s, as Figure 4 shows. The regional gap in incomes between

Auckland and Wellington and the rest of the country has also grown in recent years, while the relative position of some regions such as Northland, has slipped.

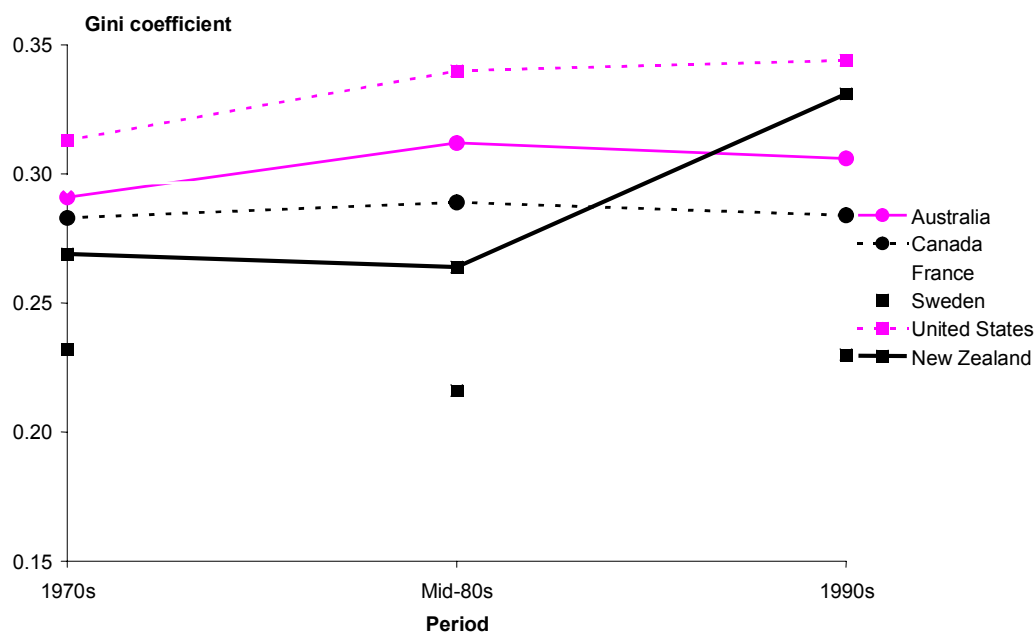


Source: Statistics New Zealand (1998)

Figure 4. Growth in New Zealand's income inequality, 1982-97 equivalent disposable household income.

The increase appears to have been more rapid than in any of the other developed countries that we

like to compare ourselves to, as Figure 5 shows.



Source: Statistics New Zealand (1998)

Figure 5: growth in new zealand's income inequality, relative to other countries, 1970s-1990s, equivalent disposable household income.



A Measure Of Social Capital In New Zealand

In order to look at the association between income, income inequality and health we developed a census-based measure of social capital. We measure social capital as the amount of participation in

organisations outside the home. Almost half of adult New Zealanders took part in voluntary activities outside the home in 1996. The rates were higher for women (49.2%) than for men (42%). They were highest in the

middle years and lowest in those over 60 years. The rates in New Zealand were similar to the USA's (47%) but higher than in many EU countries (Hall, 1999) and Australia (Baum et al, 2000).

The NZ Social Capital Index (SoCIND) was developed at the Census area unit level, as this unit most closely corresponds to the area of a natural community. The SoCIND was developed using a principal component analysis of responses to Question 38 in the 1996 Census which begins, *In the last 4 weeks, which of the following have you done, without pay, for people who do NOT live in the same household*

as you? e.g. unpaid training, coaching, attending committee meeting, unpaid fundraising work for church or marae. The six items were weighted and then combined into one Index. The SoCIND was scaled from -2 (a deficit of social capital) to +2 (a surfeit of social capital) with 0 the mean. The SoCIND accounted for 71% of the total variance of participation.

Figure 6 shows the distribution of social capital in New Zealand, as measured by the SoCIND. There are evidently clusters of communities which are high in social capital, such as Southland, Kaikoura, East Coast and Northland, and areas which are low in social capital such as the West Coast and Auckland.

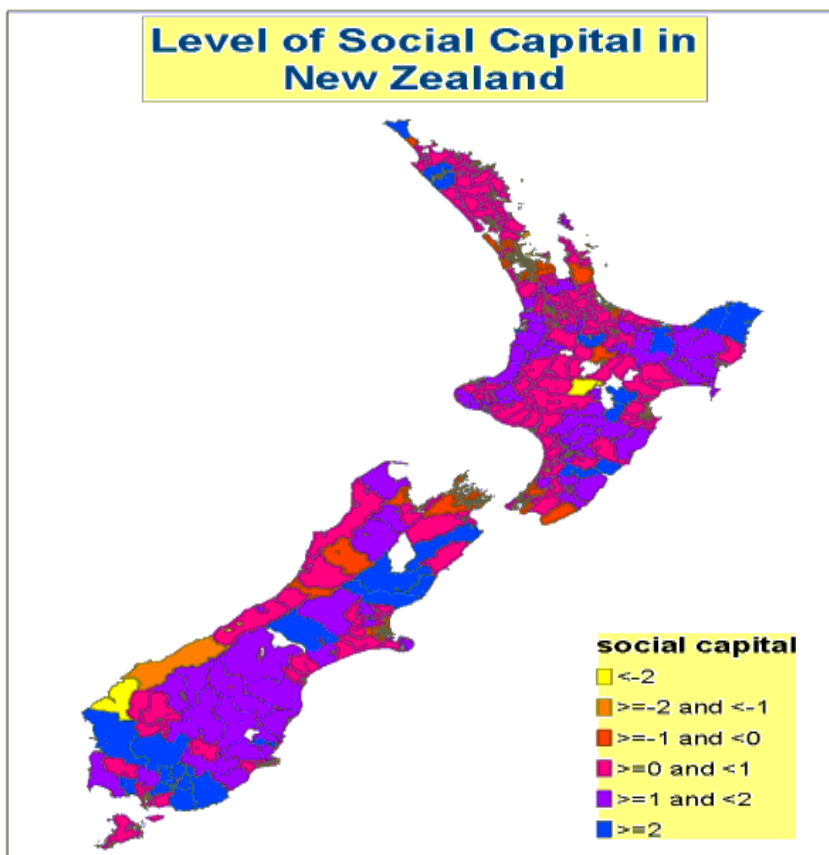


Figure 6: level of social capital in New Zealand

The level of social capital is particularly low in the Auckland

region (Figure 7) by contrast with a regional city Nelson/Marlborough

(Figure 8) and Wellington, the capital (Figure 9).

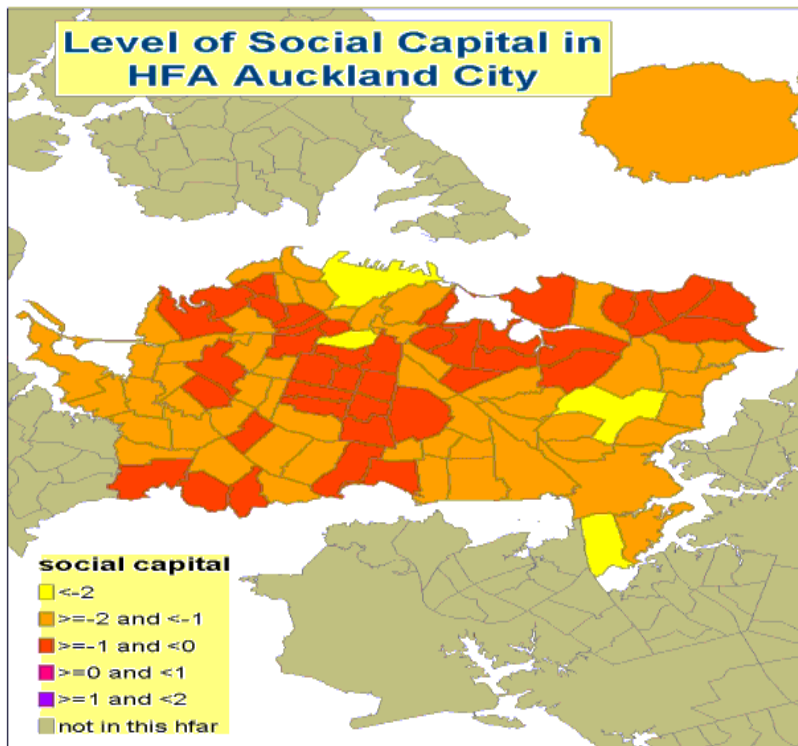


Figure 7: Level of social capital in HFA Auckland City

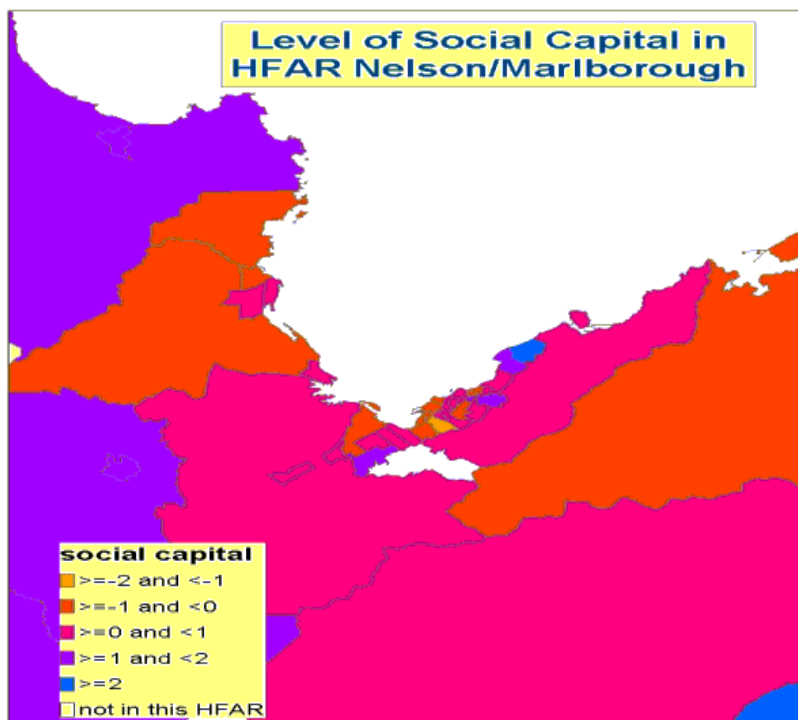


Figure 8: Level of social capital in HFAR Nelson/Marlborough

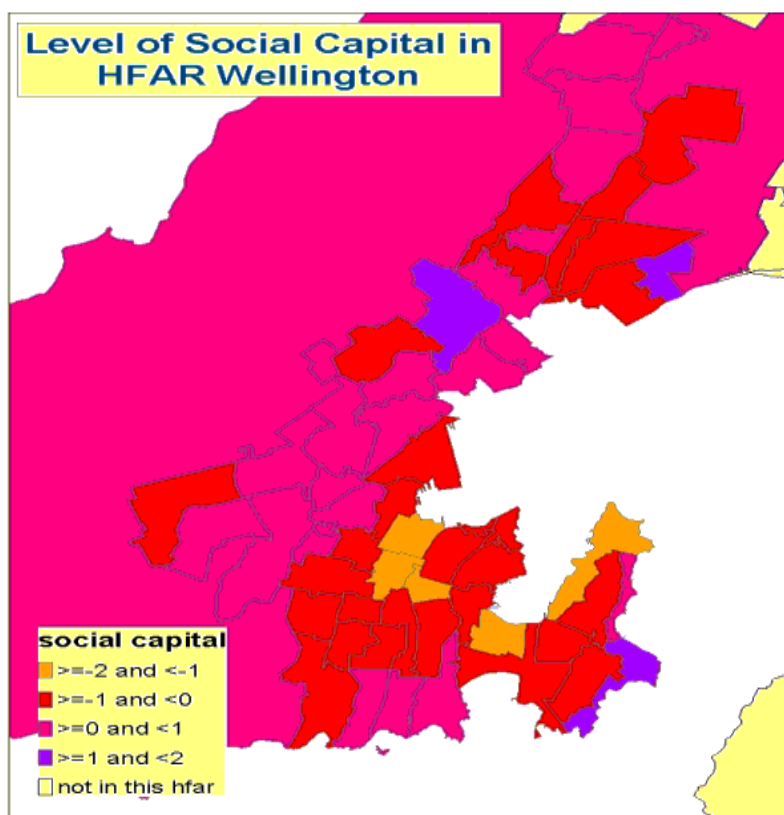


Figure 9: Level of social capital in HFAR Wellington



Mortality Rates In New Zealand

Mortality rates also vary considerably by region (see Figure 10). Again the clustering of areas of high and low mortality suggests that there are

regional contextual effects, which are associated with higher than average mortality rates. For example, areas such as Buller and the East Coast, which have

higher than average mortality rates, have had declining economic bases.

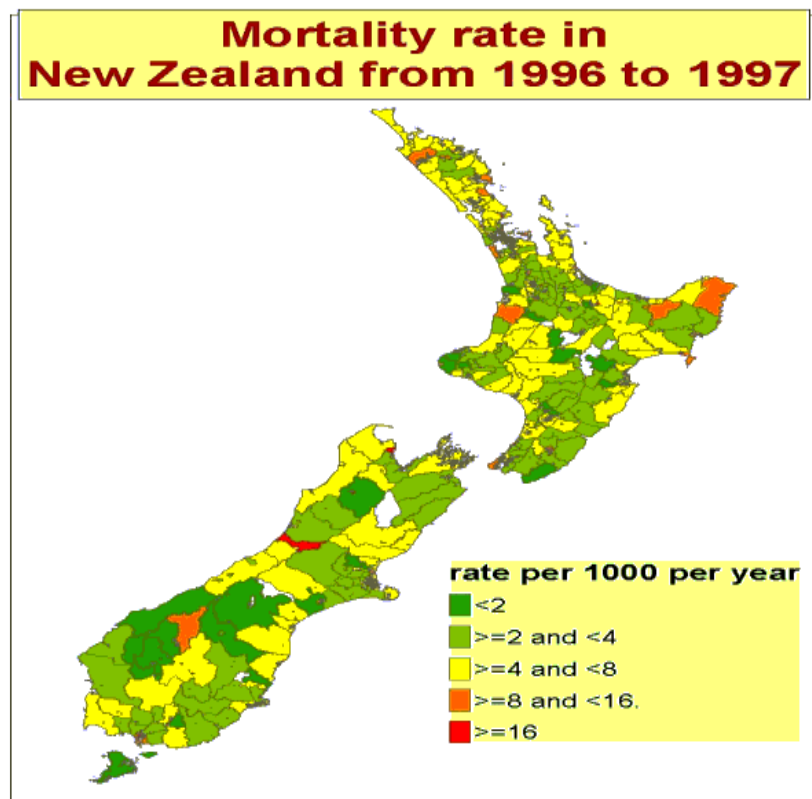


Figure 10: Mortality rate in New Zealand from 1996 to 1997

Multiple regression

In our multiple regression model, the mortality rate was our outcome measure (dependent variable). The model included the SoCIND and other independent variables standardised for age (average

household income, proportion of Māori, proportion of older people) and income inequality (at the health funding authority regional level and the census area unit level).

We know that both ethnicity and the age structure of the

population have an independent impact on mortality; therefore we modelled the impact on communities of having higher and lower percentages of older people and Māori, and high, medium and low social capital (Howden-Chapman and Tobias, 2000).

The level of social capital in the community has a small but negative relationship to mortality, even controlling for the average household income.

In other words, the level of social capital in the community provides some health protection. This protective effect is even more marked in communities

with higher numbers of older people and Māori (see Figure 11).

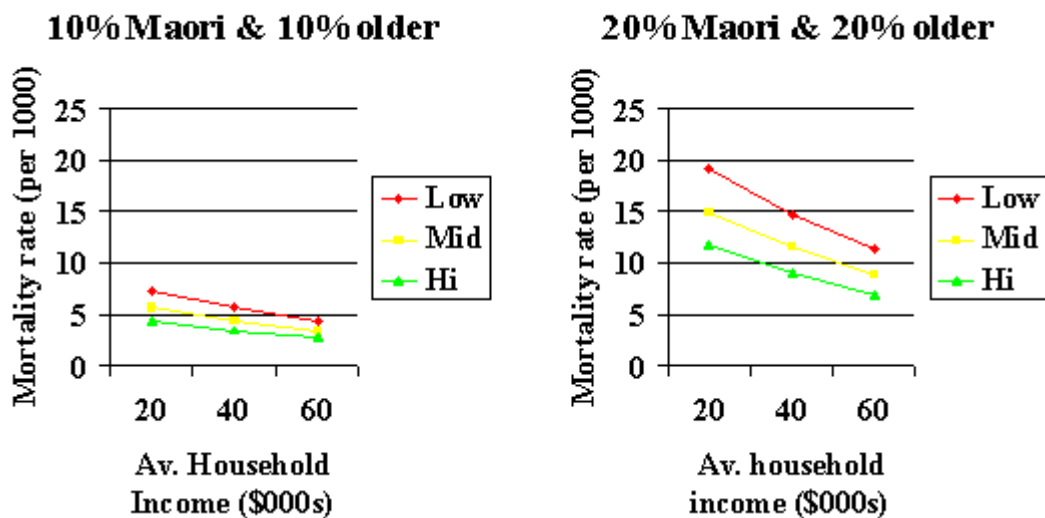


Figure 11: Model of the effect of social capital (low/medium/high) on mortality in the older age group, 60 + years, comparing communities with high and low Māori populations and high and low numbers of older people, controlling for average household income

From the univariate analyses (not discussed here) it is apparent that the SoCIND is picking up the strong communal nature of traditional Māori society, which, like social capital is protective of health. Likewise, while having a relatively older population in a community would normally increase the mortality rate, as people come to the end of their

natural lives, the multivariate analyses indicates that communities with more older people appear to benefit just as much as or more than younger communities from social capital.

When social capital increases by 1 unit, the mortality rate decreases by 0.121 units. After adjusting for age, the remaining

unexplained variation in mortality reduces from 2.7 to 1.4. Almost half the variation in mortality (46%) is explained by social capital, income, age and ethnicity. Regional income inequality is not statistically significant in explaining any further variance in mortality.



Conclusion

In comparison with other countries, New Zealand has relatively high rates of social capital, but there are significant regional variations. Like other environmental determinants of population health, social capital is not distributed equally. Communities have different amounts of social capital they can draw on and their health seems to be enhanced or decreased accordingly.

Social capital has a small, but robust and statistically significant impact on variations in regional mortality, even after controlling for age and income. There seems to be a synergy between the private good – financial capital in the form of household income – and the public good – social capital – as both reduce the mortality rate. Middle-aged people seem to generate the highest level of social capital, but older people are disproportionately the beneficiaries.

Some policy implications of these research results are that both national and regional governments have an important role if they wish to adopt it, in providing the supporting infrastructure for voluntary meetings and societies, which by enriching civil society seem to

have an overall beneficial impact on the health of the population. Although the Census question on which we based our SoCIND was reasonably culturally inclusive, our quantitative work did not enable us to explore different cultural perspectives on voluntary activities, which could have important policy implications. For example, some religious people may not have responded on the Census forms that they consider church activities as “voluntary”, and for traditional Māori, iwi activities are in the nature of duties rather than choices. Thus the SoCIND may have underestimated social capital in the case of higher church-going Pacific people and Māori.

More broadly, the SoCIND results highlight the importance of thinking about health and social policy in broad terms of inter-generational support. Middle-aged people generate most of the social capital, but the main beneficiaries are older people in communities with higher social capital. This is an important consideration when thinking about the impact of working conditions on social participation and health, for example the irregular hours of work which have followed the de-regulation of work hours in

New Zealand. Similarly, assuming full-time work is more productive to the economy than part-time work, or that late retirement is preferable to early retirement overlooks the importance of investment in social capital.

Note: This paper includes a number of maps which are printed in black and white but which are available in the downloadable version available from the website.



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Draft Ministry Of Health Overview And Intervention Framework To Improve Health And Reduce Inequalities

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Executive Summary

We all have a role to play in reducing inequalities in health in New Zealand. Regardless of how we measure health – by risk factors, use of services or outcomes – we find that particular groups are consistently disadvantaged in regard to health. And these inequalities affect us all.

Poverty is associated with health. And more than this, whatever our socio-economic position, we are likely to be experiencing worse health than the group who is a little better off than us – in terms of

education, occupation, income or deprivation. Action to reduce inequalities in health, therefore, has the potential to improve the health of all New Zealanders.

In New Zealand, ethnic identity is an important dimension of health inequalities. Māori health status is demonstrably poorer than other New Zealanders; actions to improve Māori health also recognise Treaty of Waitangi obligations of the Crown. Pacific peoples also have poorer health than pākehā. In addition, gender and

geographical inequalities are important areas for action.

Addressing these socio-economic, ethnic, gender and geographic inequalities requires a population health approach which takes account of all the influences on health and how they can be tackled to improve health. This approach requires both intersectoral action that addresses the social and economic determinants of health and action within health and disability services themselves.

Reducing Inequalities in Health proposes principles that should be applied to whatever activities we undertake in the health sector to ensure that those activities help to overcome health inequalities. The proposed framework for intervention entails developing programmes at four levels:

1. *structural* – tackling the root causes of health inequalities, that is, the social, economic, cultural and historical factors that fundamentally determine health
2. *intermediary pathways* – targeting material, psychosocial and behavioural factors that mediate the impact of structural factors on health
3. *health and disability services* – undertaking specific actions

within health and disability services

4. *impact* – minimising the impact of disability and illness on socio-economic position.

Intervention at these four levels should be undertaken nationally, regionally and locally, by policy-makers, funders and providers.

The framework can be used to review current practice and ensure that actions contribute to improving the health of individuals and populations and to reducing inequalities in health. It also highlights the importance of factors outside the direct control of the health sector in shaping the health of our population. Those outside the health sector – particularly The Treasury, the social welfare,

education, housing and labour market sectors, and local government – can contribute significantly to the task of reducing inequalities in health.

Success in reducing inequalities in health brings positive results for the individual, economy and society. It enables New Zealanders to live healthier, longer lives. In turn, a healthier population will increase the country's prosperity.

There will be opportunities to discuss this document, and to apply the principles and framework to specific health issues and service areas, as the Ministry of Health holds sector workshops over the coming months.



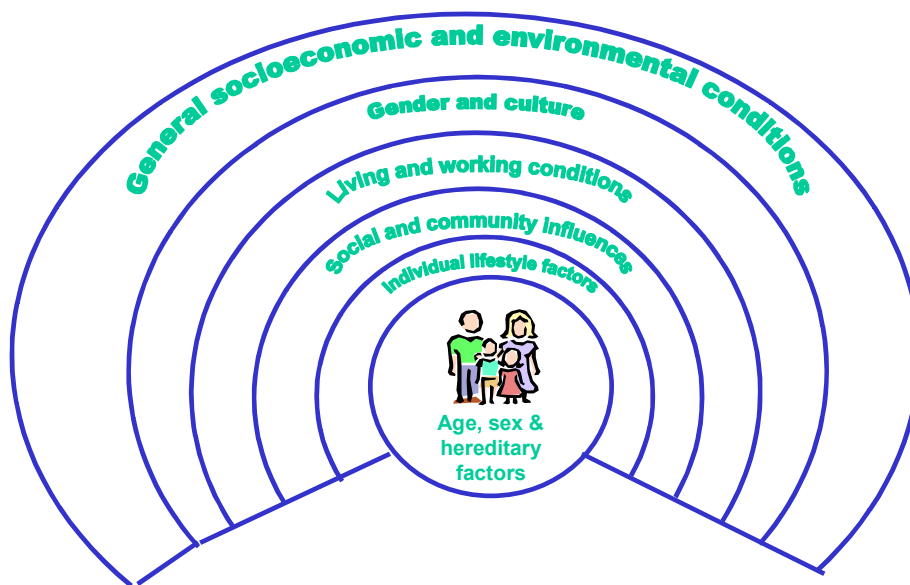
Introduction

The New Zealand Health Strategy provides a framework for the health sector to improve the overall health of New Zealanders and to reduce inequalities amongst New Zealanders, with a focus on

Māori, Pacific peoples and low-income New Zealanders.

Successful implementation of the New Zealand Health Strategy requires a population health approach. This approach takes

into account all the factors that influence health and how they can be tackled to improve health. Figure 1 shows a model of the determinants of health, which are a complex and varied combination of factors.



Source: Dahlgren and Whitehead (1991)

Figure 1: Determinants of health

Age, sex and hereditary factors are key contributors to our health. They are relatively unchangeable. Recent advances in medical technology may make some genetic changes possible, but such developments will only affect a very small section of the population.

There are, however, other factors affecting our health and independence over which we potentially have more control. Their impact on our health can be affected by changing individual and/or societal behaviour. As illustrated in Figure 1, these factors include:

- individual lifestyle factors – for example, whether we smoke, exercise, how much alcohol we drink
- social and community influences – for example, whether we belong to strong social networks, feel valued and empowered to participate in decisions that affect our health and wellbeing
- living and working conditions – for example, whether we live in safe housing and have decent working conditions
- culture, ethnicity and gender – for example, women, Māori and Pacific peoples are over-

represented in lower paid jobs

- general socio-economic and environmental conditions – for example, our position in society, including income, education and employment, which affects our ability to participate (HFA, 2000).

Reducing Inequalities in Health aims to assist the health sector to implement a population health approach that will improve the overall health of the population and reduce health inequalities.

This paper does not identify specific interventions or prioritise action, nor should it. Priority health issues and effective interventions will differ at national, regional and local levels. Priority issues for the Ministry of Health are set out in

the New Zealand Health Strategy. District health boards – using a combination of the national priorities set out in the New Zealand Health Strategy, the New Zealand Disability Strategy, associated national population and service strategies

and their own needs assessments – are in the best position to determine the priorities for their districts and subdistricts. This paper provides a conceptual basis for considering how best to address these priorities.



What Is The Challenge?

In New Zealand, as elsewhere, inequalities in health exist among socio-economic groups, ethnic groups, people living in different geographic areas, and males and females. These inequalities are not random: in all countries more socially disadvantaged groups have poorer health, greater exposure to health risks and poorer access to health services. In countries with a colonial past, such as New Zealand, indigenous peoples have poorer health, even when socio-economic position is taken into account (Howden-Chapman and Tobias, 2000).

Inequalities in the distribution of and access to material resources – income, education, employment and housing – are the primary cause of health inequalities. Differential access to health care services and differences in care for

those receiving services also have a considerable impact on health status and mortality. Everyone is affected; there are no neat cut-off points. Each socio-economic group experiences worse health than the group that is a little better off. This gradient applies to most causes of death – from cancer, cardiovascular disease and Alzheimer’s dementia, to injuries. Individual behaviours, such as smoking, only partly explain this relationship, and such behaviours themselves are strongly related to social and economic factors (Howden-Chapman et al, 2000).

Woven in with social and economic determinants of health is the impact of ethnic identity. Māori at all educational, occupational and

income levels have poorer health status than non-Māori. The same is true for Pacific peoples, whose health status is generally intermediate between Māori and Pākeha (Howden-Chapman and Tobias, 2000).

These ethnic disparities suggest that there are other, pervasive characteristics of New Zealand society that cause poor health in Māori and Pacific peoples (Howden-Chapman et al, 2000). These characteristics are thought to include institutional racism (Jones, 2000) and, for Māori, the ongoing effects of our history of colonisation and land confiscations (for example, through narrowing the Māori economic base and reducing Māori political influence) (Howden-Chapman

and Tobias, 2000). Racism affects health partly because indigenous and minority populations tend to experience less favourable social and economic circumstances and access to health care (Westbrooke et al, 2001) and partly because of the more direct psychosocial stress that racism engenders (Davey-Smith, 2000; Jones, 2000).

The impact of socio-economic position on health tends to be underestimated. For example, existing measures may not fully capture socio-economic position, and studies tend not to capture the cumulative impact that socio-economic position in earlier life has on adult health status (Davey-Smith, 2000). It is unlikely, however, that the differences among ethnic groups can be completely explained by unmeasured socio-economic position; there is an independent effect of ethnicity.

There are also significant geographical differences in health in New Zealand. Districts with lower than average income have higher rates of premature mortality and hospitalisations. International evidence on the role of income inequality is mixed and the issue is contentious (Judge and Paterson, 2001). In New Zealand an ecological study of income inequality and all-

cause mortality found a weak association (O’Dea and Howden-Chapman, 2000), while a later study found no association once ethnicity was taken into account (Blakely, personal communication). At the small-area level,¹ there is a steep gradient in life expectancy at birth across small areas classified according to degree of deprivation; on average, the most deprived tenth of the population is likely to live approximately 7.5 years less than the least deprived tenth of the population.

There are also gender inequalities in health (see Ministry of Women’s Affairs, 2001). For example, higher mortality rates are observed in men and, generally, women self-report poorer mental health (Ministry of Health, 1999c). Biological factors provide part of the explanation for this difference. However, much of it relates to the gender roles that define women and men according to the positions they occupy in society, the different roles they perform and the variety of social and cultural expectations and constraints placed upon them (Ostlin, 2002). Effective action to address inequalities in health must take a

balanced approach. It must both tackle the social and economic inequalities that are the root causes of health inequality, and improve access to and effectiveness of health and disability services for all.

¹ NZDep96 small area levels are based on standard Statistics New Zealand meshblocks, the smallest geographic unit used by Statistics New Zealand, and containing a median of 90 people.



Treaty of Waitangi

New Zealand is culturally and ethnically diverse, broadly comprising Māori and non-Māori as Treaty partners.

The Treaty of Waitangi is the founding document of New Zealand. Its signing in 1840 provided for the settlement of New Zealand by non-Māori, and promised to Māori the continued enjoyment of their cultural, social and political autonomy. It also articulated a relationship between Māori and the Crown.

The existence of inequalities in health between Māori and non-Māori is regarded by many Māori as evidence of the Crown's failure to protect Māori from marginalisation as a result of colonisation. Te Puni Kōkiri (2000) noted:

The Treaty of Waitangi was signed to protect the interests of Māori and it is certainly not in the interests of Māori to be disadvantaged in any measure of social or economic wellbeing.

It is, therefore, appropriate that action to reduce inequalities in health in New Zealand is taken within a Treaty of Waitangi framework.

What does the Treaty framework mean for non-Māori?

In addition to its relevance in describing the relationship between the Crown and Māori, the Treaty of Waitangi has a role in articulating the Crown's broader responsibilities to all New Zealanders (Durie, 1998). The Treaty of Waitangi speaks about citizenship for non-Māori and Māori, as well as guaranteeing Māori continued enjoyment of their rights as Māori.

Non-Māori New Zealanders comprise a number of different ethnic groups. The main non-Māori ethnic groups in New Zealand are:

- Pākehā
- Pacific peoples
- Asian peoples.

Each of these ethnic groups is diverse, comprising people from different cultures, with specific customs, beliefs and traditions.

Our diversity extends beyond ethnicity to include gender, sexual orientation, age and the

various religious and other groups with which we affiliate.

These differences give us a variety of world views, with different values and priorities. The various groups may view health differently, each influenced by their collective experience, their customs and beliefs and their place in society. To improve health and reduce health inequalities, we must appreciate and value these differences and work with people to address their health priorities as they define them, in ways that will work for them.

Underlying this diversity, however, is stability in the socio-economic position of particular population groups relative to other groups. For example, single mothers have for centuries been over-represented amongst the poorest in society. Such consistent, long-term disparities have a profound impact on health inequalities as they shape exposure to health risks, access to health care services and health outcomes of different population groups in markedly different ways.



What Do We Have To Gain?

The challenge is to reduce inequalities and, therefore, to create opportunities for all New Zealanders to enjoy good health. Successfully meeting this challenge will lead to, among other outcomes:

- a fairer society where everyone has the opportunity for good health
- an inclusive society, where everyone has a sense of belonging and feels that their contribution is valued
- improved health and well-being for the population as a whole, not just for those groups who are currently experiencing relatively poor health
- a stronger economy because a healthier population can contribute to a richer social and economic life (Treasury, 2001a; Woodward and Kawachi, 1998).

The unequal distribution of material resources – income, education, employment and housing – creates health inequalities (Howden-Chapman et al, 2000). This distribution is inherently unjust when it perpetuates the cycle of creating wealth and good health for many but poverty and ill health for some (Swedish Ministry of Health and Social Affairs, 2000). Significant numbers of New Zealanders also favour a more just distribution of society's resources; 60 percent agree that they would be prepared to pay higher taxes, provided these were progressive, in order to reduce social inequality (Perry and Webster, 1999).

Positive economic features result from policies that facilitate a high rate of employment, safe working conditions and investment in social and human

capital, and that encourage low disparities in income and wealth. Positive social outcomes result from policies that ensure all social groups are encouraged and able to participate fully in society (Howden-Chapman and Tobias, 2000).

Poor health, like poor education, holds back many people. Moreover, the cycle of poor health, unemployment and poverty compounds over a person's life. If we can work towards creating a society that incorporates the positive features outlined above, we will be able to harness the skills and potential of the whole population, rather than of only some individuals within it. More importantly, people will be able to live healthier and longer lives and, in turn, a healthier population will increase the country's prosperity.



Health Inequalities in New Zealand

Inequalities are documented in many aspects of New Zealand society. The 5-yearly Census of Population and Dwellings

collects information on New Zealanders and gives comparative data across social groupings and over time. Its

findings are used as the basis for information on the socio-economic inequalities that impact on health.

The Ministry of Health collects and reports health information in three ways:

- health outcomes – morbidity (quality of life) and (premature) mortality (quantity of life)
- health risks – biological, behavioural and environmental
- health services utilisation – prevention, treatment and support/rehabilitation.

Health information is collected by health and other agencies, and published in a variety of source documents; for example *Our Health Our Future* (Ministry of Health, 1999a), *Progress on Health Outcome Targets 1999* (Ministry of Health, 1999b), and *Social Inequalities in Health* (Howden-Chapman and Tobias, 2000). The Director-General of Health reports annually to

Parliament on the state of the nation's health (Ministry of Health, 2001a). The Minister of Health reports annually to Parliament on progress towards implementing the New Zealand Health Strategy (Minister of Health, 2001). These documents use existing information to monitor trends.

There are some limitations in current data collection methods and the quality of the available data. For example, although sex is usually accurately recorded, ethnicity is generally not. For some ethnicity data, the problem of small numbers may make accurate interpretation difficult. Interpretation also has to take into consideration the accuracy of the base data. Information about use of health services shows what services are being used, but not whether the people using the services are those most

in need. It is, therefore, a poor measure of health outcome, but it is often the only indicator of morbidity available; thus it has to be interpreted with care.

Despite these limitations, the data clearly demonstrate health inequalities across the following dimensions:

- socio-economic position
- ethnic identity
- geographic place of residence
- gender.

Each of these is discussed below and illustrated using life expectancy as the measure of health. See Howden-Chapman and Tobias (2000) for information using other measures of health: morbidity, mortality, health risks and health services utilisation.



Socio-Economic Inequalities In Health

Lifecourse perspective

Health and the risk of premature death are influenced by socio-economic factors acting throughout life (Davey-Smith et al, 1997) and across generations. Thus health in middle and old

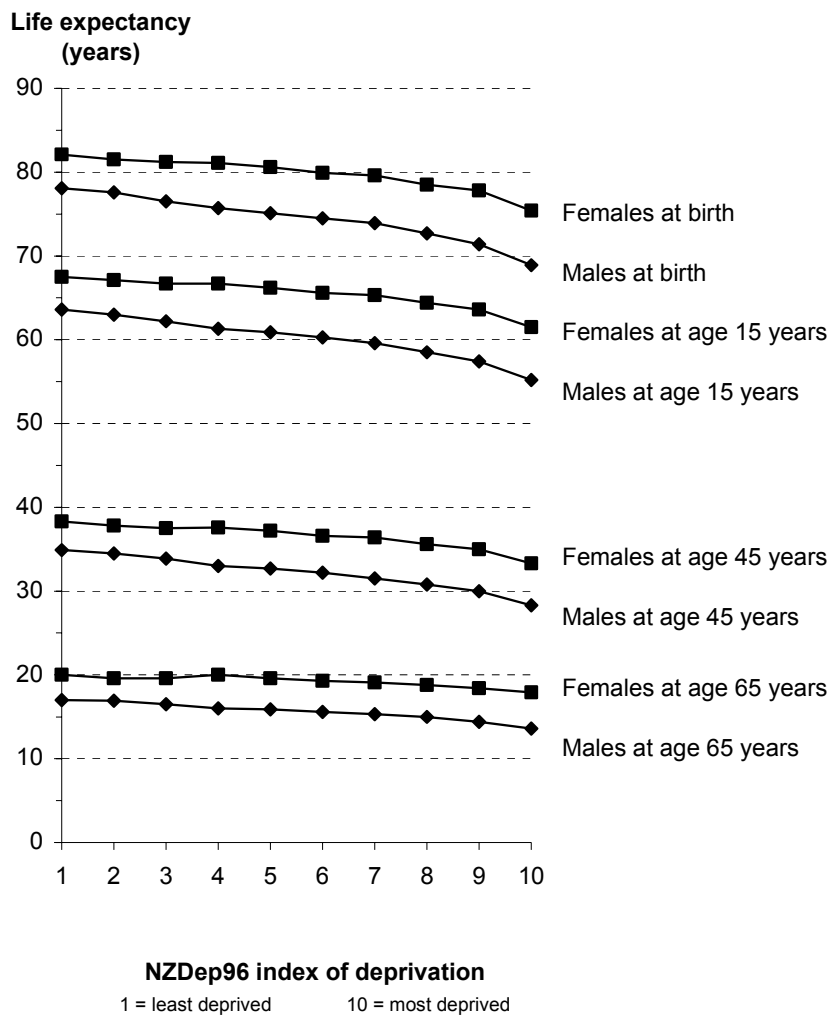
age depends on past circumstances as well as present ones. The effects of disadvantage also accumulate over time. For example, school failure is more often experienced in low socio-economic groups, which in turn can lead to relatively poorly paid work that is less secure

and exposes people to physical and chemical hazards, as well as to poorer housing in relatively disadvantaged neighbourhoods and to retirement on the basic level of superannuation.

Few studies, however, capture the cumulative impact of socio-economic position on health. Most studies measure socio-economic position at one point in time, by one or more measures of socio-economic position.

Life expectancy at birth – and at ages 15, 45 and 65 years – declines markedly as the deprivation of the area of residence increases. For males, there is a 9-year difference in life expectancy at birth between the least deprived and the most

deprived tenth of the population in small areas. Although smaller for women, this difference is still over 6 years. A similar gradient is evident with other measures of socio-economic position, such as education, employment and income.



Source: Ministry of Health

Figure 2: Life expectancy at four ages, by deprivation decile, for the total New Zealand population, 1995-97

Ethnic inequalities in health

An analysis of socio-economic position/health status data identifies three distinct types of

ethnic inequalities in health in New Zealand. These have been described as the distribution gap, the outcome gap and the gradient gap (Reid et al, 2000). This

section uses examples from an analysis of NZDep data, but the effect is also found using other measures of socio-economic position.

The distribution gap

First, if socio-economic deprivation were independent of ethnicity, Māori and non-Māori would be equally distributed through the deprivation deciles.

However, distribution is highly unequal: more than half the Māori population lives in very deprived neighbourhoods (deciles 8-10). The Pacific population is even more skewed

towards the most deprived deciles (Salmond and Crampton, 2000). Such findings demonstrate the distribution gap (see Figures 3A-3C).

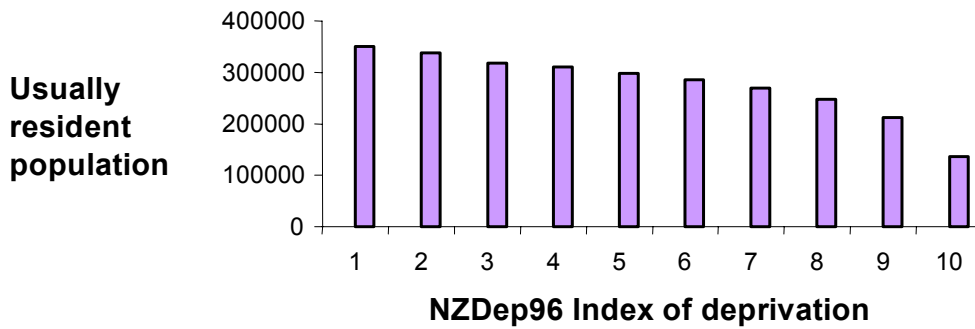


Figure 3A: Deprivation profile of the European and Other ethnic groups

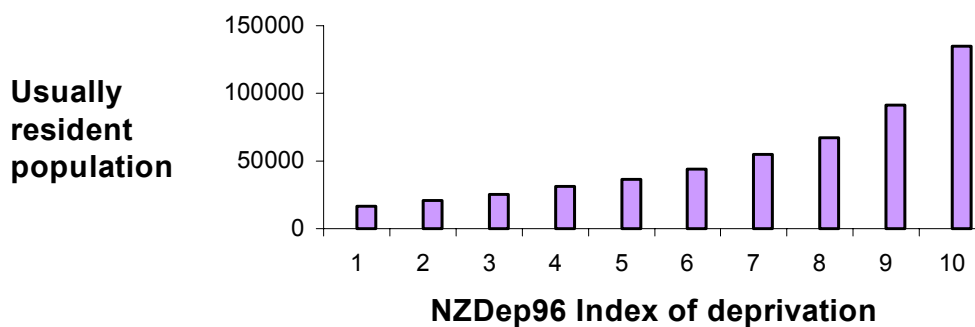


Figure 3B: Deprivation profile of the Māori ethnic group

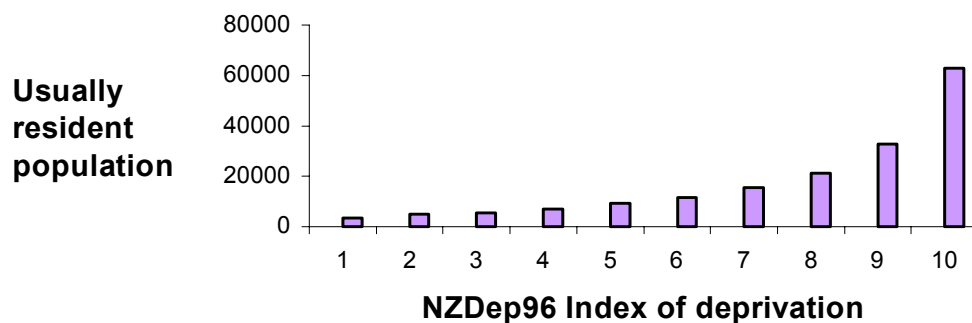


Figure 3C: Deprivation profile of the Pacific ethnic group

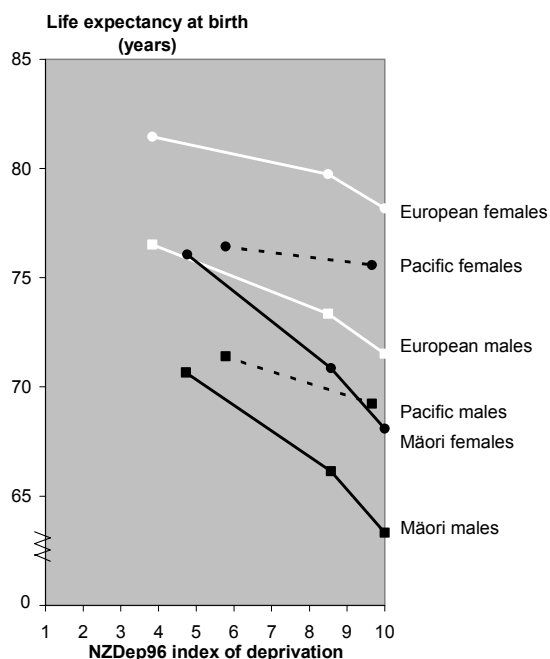
Some of the deprivation gap will result from the younger age structure of Māori and Pacific populations.

The outcome gap

Second, health outcomes for Māori and Pacific peoples are

in most instances worse than those for non-Māori and non-Pacific peoples, even after controlling for deprivation. This disparity is referred to as the outcome gap. Figure 4 shows that average life expectancy at birth for Māori

is consistently less than that of non-Māori in each of these deprivation strata. The effect is present in both men and women (Reid et al, 2000).



* Population-weighted midpoints of aggregated NZDep96 deciles differ for each ethnic group

Source: Ministry of Health

Figure 4: Life expectancy at birth, by aggregated deprivation decile, for Māori, Pacific and European ethnic groups*

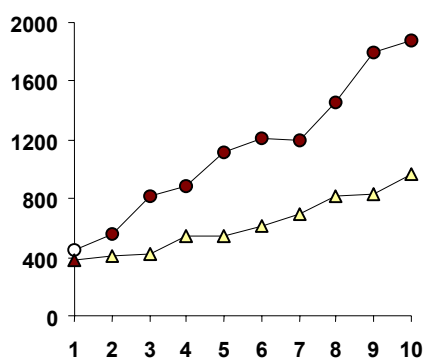
The gradient gap

Finally, the gradient gap describes the relationship between health outcomes and increasing deprivation by ethnic group. In some cases, the impact of increasing deprivation is

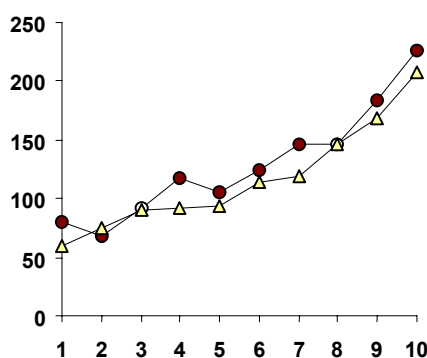
greater for Māori, so that the resultant Māori gradient is steeper than that of non-Māori. It is as if the effect of increasing deprivation compounds risk for Māori when compared with non-Māori. As reflected in figure 5,

the gradient gap is demonstrated in mortality data, but is generally not evident in hospitalisation data (Reid et al, 2000). With respect to mortality, the size of the gradient gap varies with age group and cause of death.²

Mortality (rate per 100,000)



Hospitalisations (rate per 1000)



NZDep96 index of deprivation
1=least deprived 10=most deprived

● Maori ethnic group ▲ European & Other ethnic groups

Source: Eru Pomare Māori Health Research Centre

Figure 5: Mortality and public hospitalisations, Māori and non-Māori males aged 45-64 years, 1996-97

Place

Place of residence – that is, people’s local physical and social environments – plays a role in generating inequalities in health.

Features of a person’s place of residence that affect health include:

- the access it provides to health services
- the access it provides to employment and educational opportunities, and to social services
- the availability of affordable, healthy food options
- factors such as the safety of the roads, recreational opportunities and public transport networks
- people’s perceptions of their neighbourhoods and the degree of community cohesiveness
- the quality and appropriateness of the housing stock.

² It is possible that at least some of the gradient gap is due to bias in the source data (Blakely et al, 2002a, 2002b).

There is some evidence internationally to suggest that poorer areas and areas with indigenous or minority populations have features that make them unhealthy, while

wealthier areas have features that promote people's health. Figure 6 shows variations in life expectancy by region. Much of this variation will be due to compositional effects (ie,

differing socio-economic and ethnic profiles and associated health risks among regions),;however, the impact of place may be responsible for some of the variation.

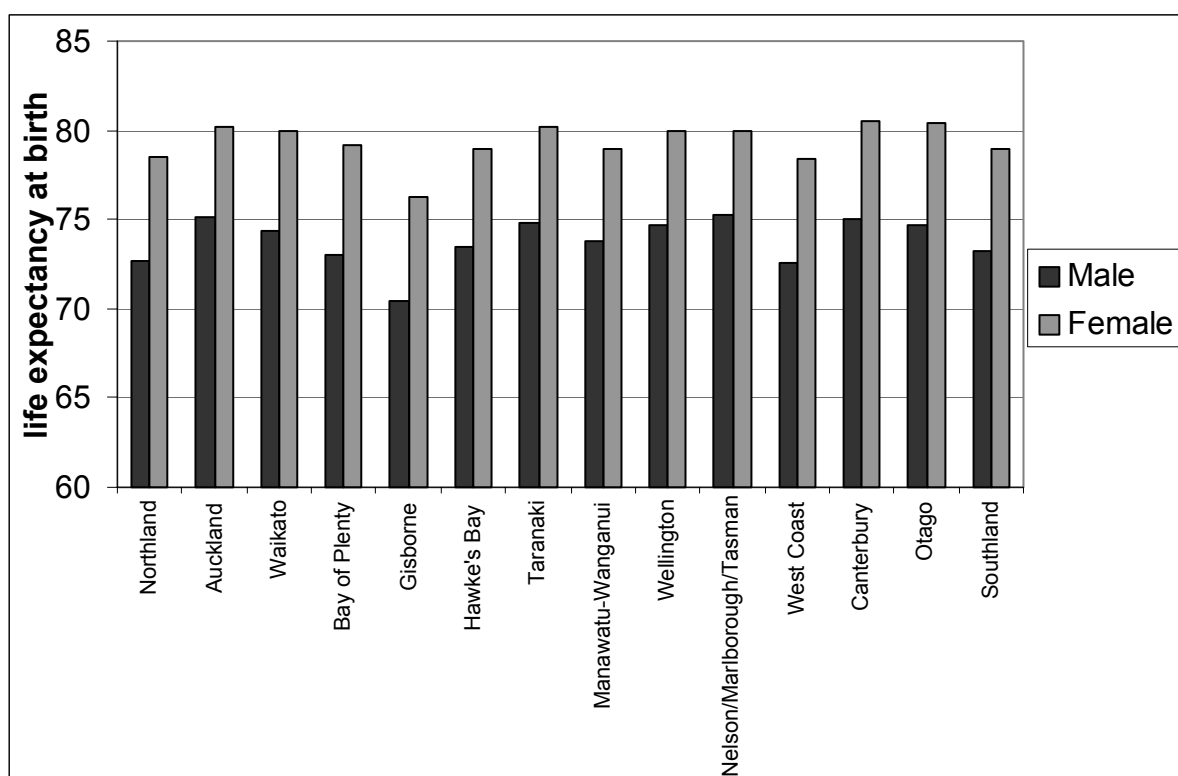


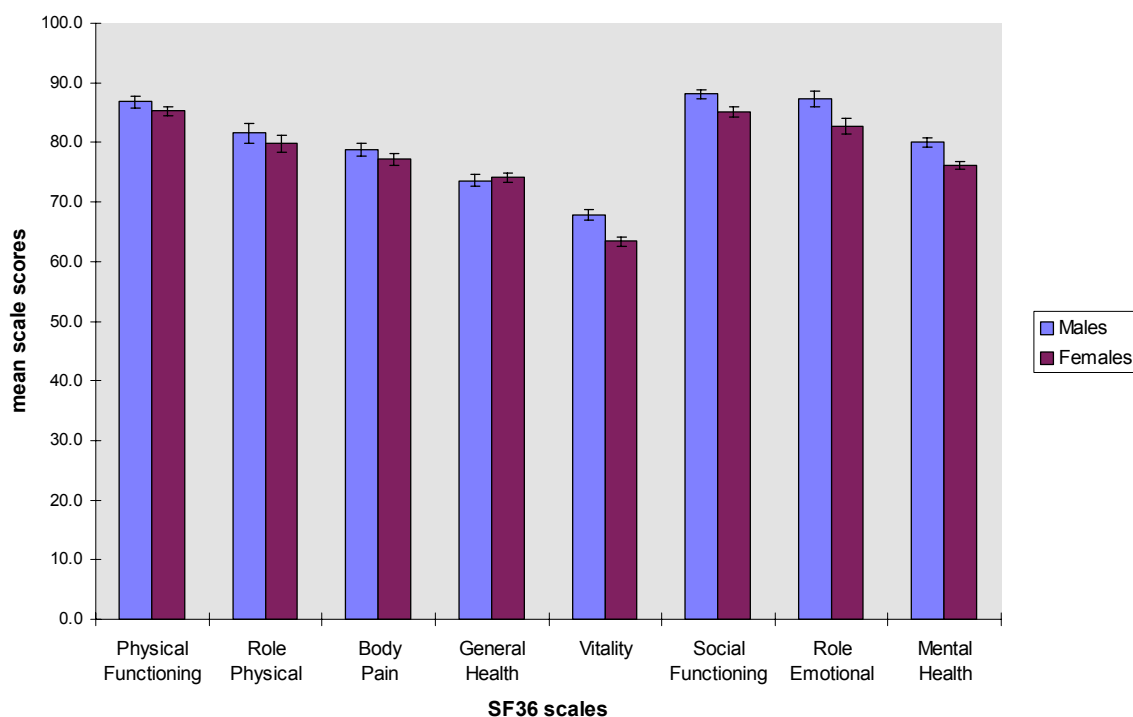
Figure 6: Regional life expectancy at birth, 1995-97

Gender

Women have longer life expectancy than men, but have poorer self-reported mental

health. Gender differences in health can be seen in the SF36 self-reported health scale (Figure 7). The three scales at the furthest right of the graph (all of

which relate to dimensions of mental health) show statistically significant gender differences.



Source: Ministry of Health

Figure 7: SF36 profiles by gender 1996/97

Both sex and gender influence the differences in men's and women's health outcomes. Sex refers to the biologically recognised differences between men and women, related to reproduction. Gender is a social category that defines the social and cultural construction of femininity and masculinity in society, justifying the differential allocation of resources and power (Ostlin, 2002).

Gender differences in cause-specific mortality and morbidity suggest that interventions to

reduce health inequalities among women should have a different focus than those to reduce inequalities among men. These gender differences in outcomes are caused by gender differences in risk factors related, for example, to different exposures arising from labour segregation (both in the workplace and the home) and differential access to social and economic resources. Both men's and women's health is affected by gender roles, and policies and programmes need to be sensitive to the impact of gender on exposure to health

risks, health services utilisation and health outcomes. Our knowledge in this area is relatively underdeveloped in New Zealand compared with that for socio-economic and ethnic inequalities in health. However, it is clear that we need to understand better how gender influences health inequalities in order to develop gender-sensitive policies and programmes that are more effective at reducing socio-economic and ethnic inequalities in health between men and women, as well as among men and among women.

What do all these findings on health inequalities mean?

Socio-economic position, ethnic identity and gender are all related to significant health inequalities among New Zealanders. Over and above these variables, place of residence may also exert a small independent influence on health status. These four dimensions appear to interact in complex ways to affect health. These inequalities exist throughout life – from birth,

through childhood, adolescence and adulthood, and into old age. Disadvantage early in life also influences disadvantage and health in later life. Disadvantage therefore takes a cumulative toll on an individual's health over his or her lifetime, as well as across generations.

Although we have a reasonable understanding of how socio-economic position and ethnic identity influence health outcomes and inequalities in

health, there are still differences in opinion as to the best ways forward. Many providers around the country are using innovative methods to reduce inequalities and are achieving success (for example, see Ministry of Health, 2001b). As we move forward, it is critical that we take care to monitor and evaluate outcomes, and to disseminate the resulting information, in order to learn from our experience.

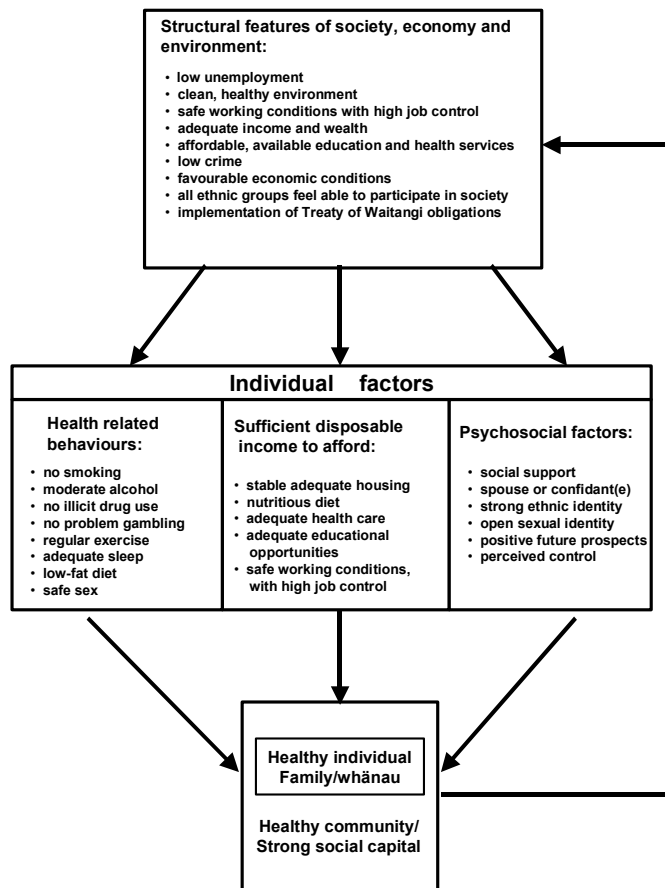


Fitting All This Information Together – A Model Of Health Determinants

The model of health set out in Figure 8 is modified from that used in *Social Inequalities in Health* (Howden-Chapman and Tobias, 2000). It recognises that it is the structure of society that predominantly determines individual behaviour. However, individual behaviour and experience are also clearly affected by factors such as age, gender and genetic make-up. In turn, individual behaviour and experience influence the health of the community and the structure of society.

The model shows how structural conditions may get 'under the skin' to ultimately affect health. Structural factors may encourage or inhibit particular lifestyles. For example, in high-income households, high disposable income allows expenditure on physically active leisure, which reduces the incidence of ischaemic heart disease. In turn, cultural rules may feed back to structural factors (feedback is indicated by the upward arrow in figure 8). For example, Pacific cultures incorporate strong social

obligations to accommodate one's relatives, even if one's household is already overcrowded physically and overstretched financially (Laing and Mitaera, 1994); a high occupancy exposes everyone in the household to a greater risk of airborne infections, such as tuberculosis and meningitis.



Note: Arrows indicate probable causality.

Figure 8: Model of the social and economic determinants of health

Although individuals make choices about how they act, those choices are conditioned cumulatively over a lifetime and are partially determined within economic, historical, family, sociocultural and political contexts. Gender, ethnic and socio-economic (dis)advantage interact and accumulate across the lifespan. For Māori, historical decisions such as the signing

of the Treaty of Waitangi and the subsequent land confiscations have had a significant impact on present health patterns. Such effects arise directly through factors such as narrowing the Māori economic base, as well as reducing Māori political influence (Durie, 1998).

These structural factors have important flow-on effects.

Sufficient purchasing power to feel secure and included in society is central to the health of individuals in any community. Individuals and households need sufficient disposable income to afford stable, adequate housing, educational opportunities and effective, available and acceptable health care.

Having financial security is one of the factors that makes it easier to feel secure psychologically. Adults with marital partners or confidant(e)s tend to be buffered from outside socio-economic pressures, but most people still need wider social support to prosper. Affirmation of identity – whether it be ethnic identity or

sexual orientation – is also closely related to health. Those who are financially secure, psychologically confident and socially supported are also more likely to look forward to the future and to want to adopt and maintain health-related behaviours that yield long-term health benefits. Those who are

not financially or psychologically secure, or live in deprived neighbourhoods, are more likely to undertake self-destructive behaviours that threaten their health, such as smoking, eating high-fat diets and being less physically active.



What We Can Do – An Intervention Framework

Mackenbach (cited in National Advisory Committee on Health and Disability, 1998) identifies

four possible points at which to intervene to reduce socio-

economic inequalities in health (as shown in Figure 9):

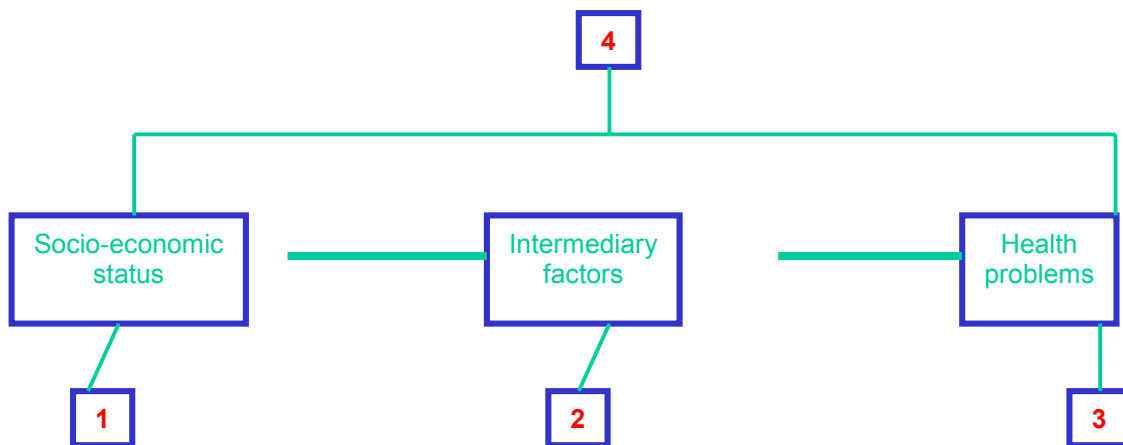


Figure 9: Four possible targets for interventions to reduce socio-economic inequalities in health

In this framework, health inequalities may be reduced by targeting:

1. underlying social and economic determinants of health
2. factors that are intermediate between socio-economic determinants and health, such as behaviour, environment and material resources
3. health and disability support services
4. the feedback effect of ill health on socio-economic position.

Figure 10 below combines the model of social and economic determinants of health (Figure 8) and Mackenbach's intervention framework (Figure 9) to propose an intervention framework to improve health and reduce inequalities in New Zealand.

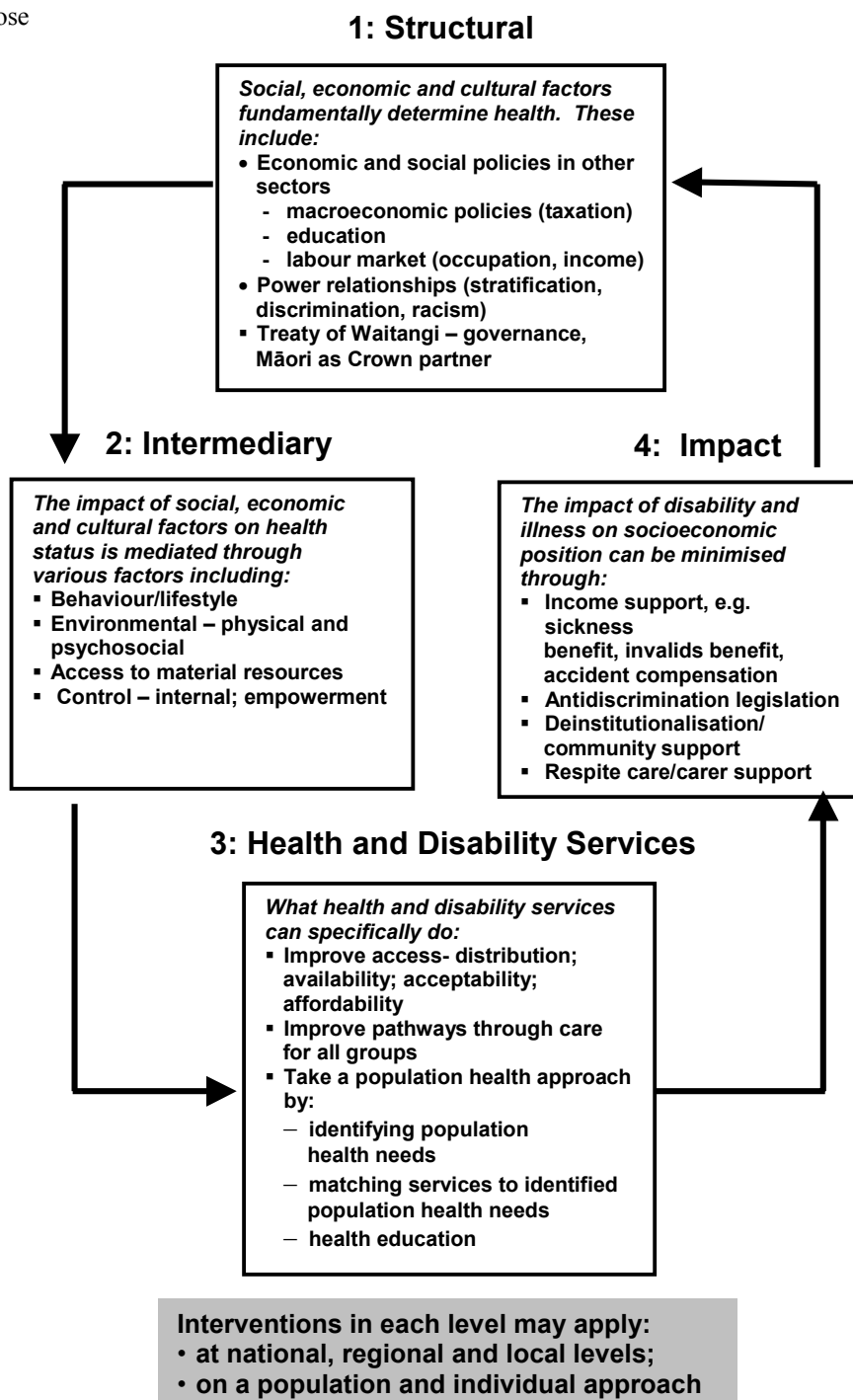


Figure 10: Intervention framework to improve health and reduce inequalities

A comprehensive approach to reducing inequalities in health

To make a significant difference to the health of populations, we must develop and implement comprehensive strategies that target all four levels in Figure 10. This intervention framework provides a guide for the development and implementation of comprehensive strategies to improve health and reduce health inequalities. It can be used in clinical, planning and policy areas, locally, regionally or nationally, and on a population or individual basis. Programmes should be developed using interventions from a variety of levels.

Level 1: Structural - social, economic, cultural and historical factors fundamentally determine health

The most fundamental approach to reducing inequalities in health is to tackle their root cause; that is, address the social, cultural, economic and historical inequalities themselves. This requires policies directly concerned with education, occupation and income, and the economy. For example, it involves investment in education and the social security system, and the development of labour market policies that strengthen the position of those most at risk of unemployment (Mackenbach and Bakker, 2002).

The Treasury has recently taken up this structural perspective in three forward-thinking reports *Towards an Inclusive Economy* (The Treasury, 2001a), *Human Capital and the Inclusive Economy* (The Treasury, 2001b), and *Geography and the Inclusive Economy: a Regional Perspective* (The Treasury, 2001c). The Ministry of Social Development has also articulated a social development approach, which includes an overall approach and a social exclusion strategy (Ministry of Social Development, 2001).

From the perspective of the health sector, the disadvantage of a structural approach is that it is not directly within our control. It is, however, within our influence and can make a sustained reduction in health inequalities. The health sector can and should take the lead in encouraging a wider and more strategic approach to developing healthy public policies (Benzeval et al, 1995).

Health sector workers can contribute by drawing attention to the social and economic determinants of health and advocating for policies in other sectors that will improve health and reduce health inequalities. We should also work collaboratively with other sectors to develop and implement a more comprehensive range of strategies to tackle specific health problems than we could apply relying on health services alone. The first objective of the New Zealand Health Strategy – health

impact assessment – may provide an effective means of formally assessing the likely impact of social and economic policy options on health. The National Health Committee and the Ministry of Health are currently exploring the application of health impact assessment in New Zealand.

The health sector also has a direct role at the strategic level. Namely, it should ensure that its own policies are directed towards a more equitable distribution of health resources in relation to inequalities in health status.

Specific examples of the types of action that may be taken at this level include:

1. systematic implementation of the provisions of the Treaty of Waitangi in policy, planning and service delivery
2. health funding arrangements that distribute resources according to need
3. exploration of health impact assessment tools
4. monitoring of health inequalities, social determinants and the relationship between the two
5. development of Māori and Pacific providers and workforce
6. policies that ensure equitable education, labour market, housing and other social outcomes.

The Treasury, Ministry of Social Policy, Ministry of Health and other government departments can all work collaboratively at this structural level to make a significant impact on inequalities in health.

Level 2: Intermediary pathways – the impact of social, economic, cultural and historical factors on health status is mediated by various factors

The effect of socio-economic position on health is mediated by a number of material, psychosocial and behavioural factors, which may provide effective intervention points. Housing policies and community development programmes may help reduce the exposure of low socio-economic groups to unfavourable living conditions. In addition, workplace interventions and health and safety regulations may help to reduce exposure to unfavourable physical and psychosocial working conditions. Community development programmes that empower people and increase feelings of control, as well as school-based services to help children from disadvantaged groups to develop adequate coping skills, may also help.

Examples of actions at this level include:

1. housing initiatives
2. community development programmes
3. settings-based programmes, such as healthy cities and health-promoting schools
4. workplace interventions (for example, Occupational Safety and Health)
5. local authority policies (for example, in relation to

- cycleways, lighting, playgrounds and transport)
6. health education and the development of personal skills
 7. health protection.

Level 3: Health and disability services – what services can specifically do

Although reducing social and economic inequalities is likely to have the greatest sustained impact on population health, health care services do have a significant part to play.

Health and disability services can contribute to reducing inequalities if they:

- ensure equity of access to care by distributing resources in relation to need, as defined in collaboration with local communities
- remove barriers, however defined, that inhibit the effective use of services for all ethnic and social groups (Benzeval et al, 1995).

Examples of actions at this level include:

1. improved access to appropriate, high-quality health care and disability services
2. collection of accurate ethnicity data
3. implementation of the elective services booking system based on need
4. monitoring of service delivery to ensure equitable

- intervention rates according to ethnicity, gender, socio-economic status and region
5. primary care initiatives that reduce access barriers for Māori, Pacific peoples and other disadvantaged groups
 6. ethnic-specific service delivery
 7. community participation in the health sector at a governance level and in resource allocation decision-making
 8. equitable resource allocation by district health boards as funders and by providers, including hospitals
 9. collaborative partnerships within the health sector and intersectorally.

Level 4: Impact – minimising the impact of disability and illness on socio-economic position

Poor health status can result in downward social mobility at the individual level. Healthy individuals tend to be promoted, whereas those in poor health find it difficult to obtain employment or have to take less demanding jobs. In this way our health status can determine our social and economic position rather than the other way around (Benzeval et al, 1995).

In other words, those who are chronically ill, or have a disability or mental illness, face higher risks of downward mobility through lower educational achievement, greater problems in finding and keeping a job, and fewer opportunities for upward mobility within a job.

Examples of actions at this level include:

1. income support (for example, sickness benefits)
2. disability allowance
3. accident compensation
4. antidiscrimination legislation and education
5. support services for people with disabilities, chronic illness and mental health illness living in the community and their carers (for example, respite care).

Health services, acting in levels 2 and 3, also have an important role to play in minimising the likelihood that poor health will adversely

affect people's education and employment opportunities. An example of this is hearing and vision screening to ensure that young children are able to learn.

Best practice principles

Policies and interventions are likely to be more appropriate to the task of reducing inequalities in health if they are underpinned by the following principles:

- an explicit commitment to implementing Treaty of Waitangi principles – participation, partnership and active protection
- a recognition that all New Zealanders have the right to good health
- a recognition that all New Zealanders should have timely and equitable access to an affordable range of health and disability services

- a focus on early intervention and ensuring that all groups have access to effective treatment services.

Any intervention should:

1. not make inequalities worse
2. increase people's control over their own lives
3. actively involve users of health services and communities
4. favour the least advantaged
5. take a comprehensive approach, targeting individuals, whānau, population groups and the environment
6. foster social inclusion and minimise stigmatisation
7. be effective both in the short- and long-term
8. adapt to changing circumstances
9. work with and build the capacity of local organisations and community networks.



Who Is Responsible For Reducing Health Inequalities?

Action must be taken at all levels of the framework, by all parts of the sector, nationally, regionally and locally. There is a role for all of us to play in reducing health inequalities. The wider social sector also has a significant role, but here we have focused on what the health and disability sector is responsible for, and how it can work with other sectors to effect results. Key players in our sector are:

- policy advisors and decision-makers, especially the Ministry of Health, the Minister of Health and Cabinet colleagues
- funders and providers of health services, including district health boards, hospitals, non-government organisations and primary health organisations
- local government
- communities, through generating community action.

One of the Government's key goals, which guides public sector policy and performance, is to reduce inequalities in education, employment, housing and health for all disadvantaged groups, and

particularly for Māori and Pacific peoples and between men and women. The Ministry of Health's formal requirements to contribute to the achievement of this goal will be set out in its Statement of Intent (SOI), which will be tabled in Parliament with the Budget. The Ministry reports its performance against its SOI in its Annual Report, which is also tabled in Parliament. There is a Cabinet requirement to include a specific section within the Annual Report which details the Ministry's progress in reducing inequalities over the previous year. The Treasury, Te Puni Kōkiri, the Ministry of Pacific Island Affairs and the Audit Office audit this performance.

District health boards have a statutory responsibility for reducing health inequalities (New Zealand Public Health and Disability Act 2000), which is reinforced through their main accountability documents – the Crown Funding Agreements. These key health sector organisations have a powerful mandate to direct health resources as needed at the local level.

District health boards and the Ministry of Health should negotiate and monitor service agreements with providers in such a way as to ensure service provision reduces inequalities in health.



Where To From Here?

This paper aims to stimulate discussion within the health sector and more broadly. There will be formal opportunities to discuss the framework as the Ministry of Health organises sector workshops. Workshops will be held within the Ministry and with District Health Boards in the first instance.

The workshops will expand on the intervention framework presented here, and work through

some practical examples of what can be done to reduce inequalities in health:

- at the four intervention points
- nationally, regionally and locally
- by policy-makers, funders and providers.

Worked examples using diabetes (Ministry of Health 2002a) and oral health (Ministry of Health

2002b) are available from the Ministry of Health.

The Ministry of Health would like feedback on this paper. Comments should be sent to:

Public Health Policy Group
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Wellington



Glossary

Deprivation scale	A ten category ordinal scale from 1 (assigned to the least deprived 10 percent of NZDep96 small areas) to 10 (assigned to the most deprived 10 percent of NZDep96 small areas)
Determinants of health	The range of personal, social, economic and environmental factors that determine the health status of individuals and populations.
Ethnic identity	The current official (Statistics New Zealand) definition of an ethnic group is a social group whose members: <ul style="list-style-type: none"> • share a sense of common origin • claim a common and distinctive history and destiny • possess one or more dimensions of collective and cultural individuality such as unique language, religion, customs, mythology or folklore • feel a sense of unique collective solidarity.

Health inequality	Differences in health that are unnecessary, avoidable and unjust.
Health status	A description and/or measurement of the health of an individual or population.
Income inequality	A measure of the extent of differences in income received by individuals in the population, from the lowest to the highest.
Māori	The indigenous people of New Zealand.
Morbidity	Any departure (subjective or objective) from a state of physiological or psychological wellbeing.
Mortality	Death.
New Zealand Health Strategy	The New Zealand Government's statement of strategic direction for the health sector, incorporating goals and objectives, and stating priorities, published in December 2000.
NZDep96	A Census-based small area index of deprivation, derived by principal component analysis of nine socio-economic variables from the 1996 New Zealand Census, using meshblocks (small areas with a median of 90 people).
Pacific peoples	The population of Pacific Islands ethnic origins (for example, Tongan, Niuean, Fijian, Samoan, Cook Islands Māori, and Tokelauan). Includes people of Pacific Islands ethnic origin born in New Zealand as well as those born overseas.
Pākeha	Descendants from early European settlers in New Zealand.
SF36	A health-related quality of life instrument comprising 36 items (questions) that provide an eight-dimensional description of health status, including scales relating to physical, mental and social functioning. Each scale is psychometrically scored, generating a profile of eight scores to describe the health of an individual or group.
Whānau	Relationships that have blood links to a common ancestor.



Acknowledgements

This project is led jointly by the Māori Health and Public Health Policy Groups of the Ministry of Health.

We are grateful to members of the Ministry's Health Inequalities Expert Advisory Group who have given their time

and expertise to assist with this work programme: John Broughton, Fiona Cram, Peter Crampton, Jackie Cumming, Chris Cunningham, Sitaleki Finau, Cheryl Hamilton, Philippa Howden-Chapman, Cindy Kiro, Papaarangi Reid, Margaret Southwick and Chris Webber.

We would also like to thank our colleagues in other Ministry of Health directorates, the public health sector and other government departments for their support and comments on earlier versions of this paper.



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Implications for Future Research and Policy

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Introduction

My aim is not to summarize or comment specifically on the material presented by the previous speakers, but rather to put this material into context, and

discuss some options for future research and policy. I am going to briefly discuss some New Zealand history, then the history of this particular area of research

over the last 20 years, and finally I will discuss what we can do now about socio-economic differences in health in New Zealand.



Some History

In his keynote address, George Davey Smith started by discussing conditions in England

in the 1840s, and the health effects that have lasted down the generations to this day. For

example, Engels (1845) noted that in Manchester in the 1840s:

Most travellers are struck by the lowness of stature, the leanness and the paleness which present themselves so commonly ... among the factory classes... They wear out very early in consequence of the conditions under which they live and work. Most of them are unfit for work at forty years, a few hold out to forty-five, almost none to fifty.

Our story has the same starting point as George's, but has a different path. It is about those who left these appalling social conditions behind, rather than those who stayed in England. My ancestors arrived in Kawhia in 1840, and they came out of that part of England that Engels was writing about. They left because the place was collapsing. It was at the height of the industrial revolution with the highland clearances, and with the huge flood of people being driven into the cities and then often not finding work, or having to work in very unhealthy conditions. Life expectancy actually fell in England in the first half of the 19th century. It only started to rise again with the generation born after 1850, but then it took some time for that to show up in the older age groups. In fact, Buckingham Palace noticed in the 1950s that they were having to send out an increased number of 100th birthday telegrams, because the longer lived generation that was born after 1850 was now reaching 100 years of age.

So in the first half of the 19th century, things were very difficult in the United Kingdom, at least for the working classes, and many people wanted to get out. There

were many parts of the world that Britain colonised, but there were only a few places where people settled in large numbers. These tended to be the areas where the British could carry on the same sort of life that they did in Britain. They were temperate with not too many extremes of heat or cold, places where you could grow the same crops, have the same sort of farms, and the same sort of animals as in Britain (Crosby, 1986). People wanted to get out of England, but they wanted to carry on the same way of life as before, but without all the problems that there were back home.

What was distinctive about the British colonies of settlement was the attempt to create 'little Englands' in new lands... by physically transplanting a vertical slice of British society. (Bedgood, 1980)

Of course, it wasn't as easy as that. Marx's Capital has a chapter on Australia and New Zealand, and the role of Edward Gibbon Wakefield, who we all learnt about at school as the father figure of European New Zealand. As usual, the real story is more interesting than the myth. Wakefield spent a couple of years in jail in London in the 1930s. He went to jail because he abducted a teenage woman who he wanted to marry who was from a wealthy family. During his time in jail he read and thought about the problems they were having in immigration to Australia. For example some quite wealthy families had moved there with all their servants, and when they arrived the servants just vanished

into the bush and farmed for themselves, rather than working for their masters. Of course there were indigenous people already living there, but they could still find land to farm on, one way or another, and they did not need to work for the rich families.

It is the great merit of E.G. Wakefield to have discovered... in the colonies, the truth about capitalist relations in the mother country... Wakefield's theory of colonisation... aims at manufacturing wage-labourers in the colonies (Marx, 1976)

Thus, Wakefield thought about how to reproduce the English class system here, and he came up with the idea of "Wakefield colonies". The idea was that his New Zealand Company would have a monopoly on land, and therefore that when they brought out labourers they would have to work on the land for a certain period of time before they could afford to buy land and to go and farm for themselves. It was a deliberate attempt to reproduce, not only the way of life from Britain, but the whole British class system.

How can the anti-capitalist cancer of the colonies be healed? ... Let the government set an artificial price [for land which] compels the immigrant to work a long time for wages before he can earn enough money to buy land and turn himself into an independent farmer. The fund resulting... is to be applied to the importation of paupers from Europe... so as to keep the wage-labour market full for the colonists. (Marx, 1976)

It is often said that Wakefield had the intention of avoiding the two extremes of the class system – the very rich and the very poor. He didn't actually do that, for reasons I will go into in a moment, but the myth has endured and has shaped the way we think about class relations in New Zealand.

The theory not only didn't work very well, but in attempting to reproduce the British social and economic systems, it ignored the socio-economic impact on the indigenous people living here already. Following the British

colonisation of New Zealand and other countries in the Pacific, many indigenous people died in warfare, but most of them died from imported infectious diseases that were unknown here (Diamond, 1998). The importation of the economic system from Britain had immediate health effects for Māori here, not only because their land was taken, but also socio-economic factors were very relevant to the response. Throughout the Pacific there were many countries that were colonised, but the responses to imported infectious diseases like

cholera and typhoid differed from place to place. In some countries many people died, whereas in other countries very few people died, and it appears that the main determinant of whether that happened was whether land was taken (Kunitz, 1994). When you take people's land you not only take away their means of production, you also destroy their social system and all the resources and networks that keep people healthy. So there were immediate health effects on Māori, and they were largely due to socio-economic factors.



Historical Myths and Legacies

This relatively unusual history produced popular beliefs about the “uniqueness” of New Zealand, that were very widespread when I started working in this area 20 years ago. In particular, there was a widespread belief that New Zealand was a classless society, and that it did not have the same extremes of rich and poor as Britain, even though it was an integral part of the British economy:

New Zealand's fortune was Britain's fortune. Refrigeration, climate, and Britain's place in

the world...made New Zealand a specialised colony, profitable to Britain...it dominated New Zealand through its control of shipping, finance, insurance, handling and selling of products. (Sutch, 1969)

On the surface, this was true and many visitors to New Zealand, pre-1984, would comment on New Zealand's “middle class society”. However, to a certain extent the extremes of wealth and poverty existed, but they were invisible. The extremes of poverty existed mainly amongst Māori who were “invisible” to

most Pākeha New Zealanders, and the extremes of wealth were also invisible, because the very rich were back in Britain which was the source and the location for the finance capital which owned most of New Zealand.

Despite this, there was plenty of evidence of inequality if you looked for it. In fact if you took any measure of inequality, such as the ratio of the amount owned by the ninetieth percentile to that owned by tenth percentile of the population, there was more inequality in New Zealand

than in Britain. Many people would have said that inequality existed, but we didn't really have a class system in New Zealand, because class was not "inherited" like in Britain. However, once again if you looked at the available evidence this wasn't true. Even back in the 70s and 80s, the chance of a child of a labourer going to University in New Zealand was lower than in Britain. So we not only had larger socio-economic differences here, but they were actually perpetuated through the generations at least as much, if not more, than in Britain. However, because of our particular views of New Zealand history, we tended to ignore those socio-economic differences, particularly when we discussed New Zealand history as if it was the history of European New Zealanders alone. Thus, European New Zealand was relatively unusual in its ignorance about itself and its lack of any sense of history. This attitude to history is quite different than you would get in a European country with 2000 or 3000 years of history, where you have gone through a number of different economic systems, and beheaded the King a couple of times, and so on.

Our attitude to history is typical of "pioneer societies" where there is a great deal of emphasis on practical matters and a distaste for theory. When I lived in France in 1993, I would discuss some of the things that happened here in the 1980s, and

people would say "we tried that in the 19th century and it did not work". In fact, we also tried Rogernomics in the 19th century – and we experienced the depression of the 1880s. The difference is that the French learned from their history (and it's a lot longer) whereas we didn't. Of course they did make a lot of the same economic changes in the 1980s that we had here, but they would never have "bought" the idea that the only alternatives were Muldoon or Douglas. There were a number of competing approaches in the different European countries and there was a willingness to debate the issues in depth, rather than just to take sides and believe one dogma or the other.

In contrast, New Zealand has a very anti-intellectual tradition, and intellectuals are not valued. Probably our definition of an intellectual would be someone who played first five-eighth. Even there, you shouldn't take it too far – Andrew Mehrtens and Tony Brown are intellectuals, but Carlos Spencer is too clever for his own good.

A further glaring omission is that when Pākeha discuss New Zealand social and economic history, they usually just mean European New Zealand history. In fact, the Māori economic system did very well in the 1850s. Māori owned saw mills and shipping lines, and ships totally crewed by and owned by Māori were trading with Australia. They were beating the

imported European economic system at its own game, until this Māori enterprise all got destroyed by the land wars (Bedgood, 1980).

These historical omissions still affect the research we do today. I studied trends in asthma deaths in the 20th century recently and found that there are good data for non-Māori from the 1900s, but Māori deaths are only really accurate from the 1950s (Beasley et al, 1990). Many of them did not get counted before then. Now we count them, but we often classify them wrongly, but back then they were not even counted. Not only have Māori been invisible, but some of the subsequent migrants have been invisible too, including Chinese and Pacific people. For example, Chinese weren't allowed to become citizens until 1952.

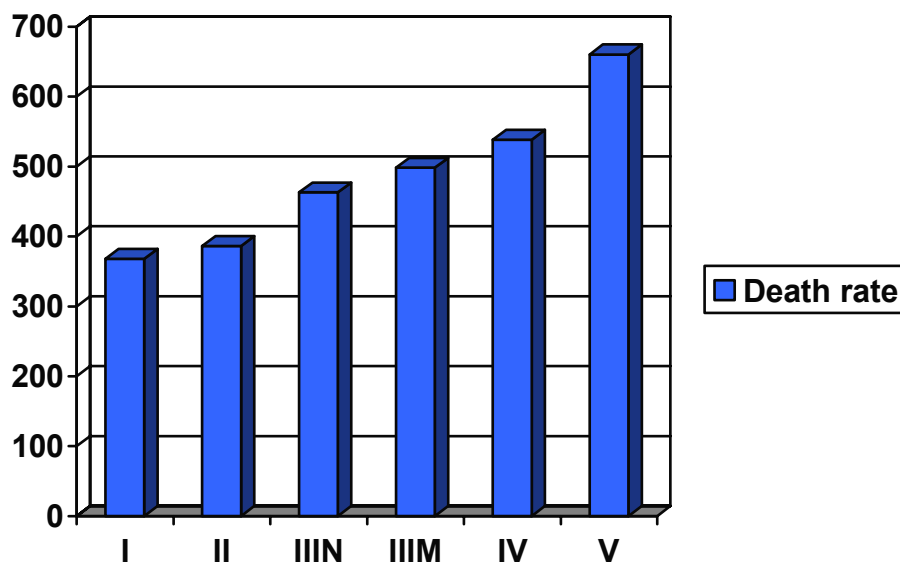


Early New Zealand Research

That was the situation we were faced with when we started studying socio-economic differences in mortality in New

Zealand in the early 1980s. They had done such research in Britain for over 100 years, but here many people really didn't see

why we would, because everyone "knew" that we had a middle class society with few social class differences.



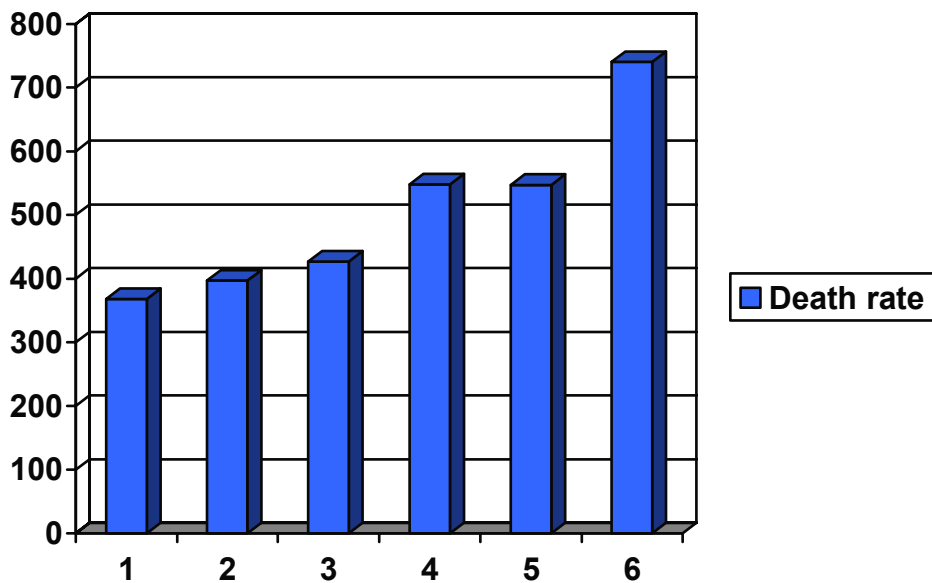
Source: Pearce et al (1983)

Figure 1: Social class differences in mortality in men aged 15-64 in the UK 1970-1972

I would show a graph (Figure 1) from Britain to various audiences, such as nurses and medical students, and I would ask "if this is what they found in

Britain, what would you expect to find here?" About one half would say that we had no social class difference in health in New Zealand, about one half would

say that we had some but not as strong as Britain, and there would only be one or two people who would expect it to be as strong as it was in Britain.



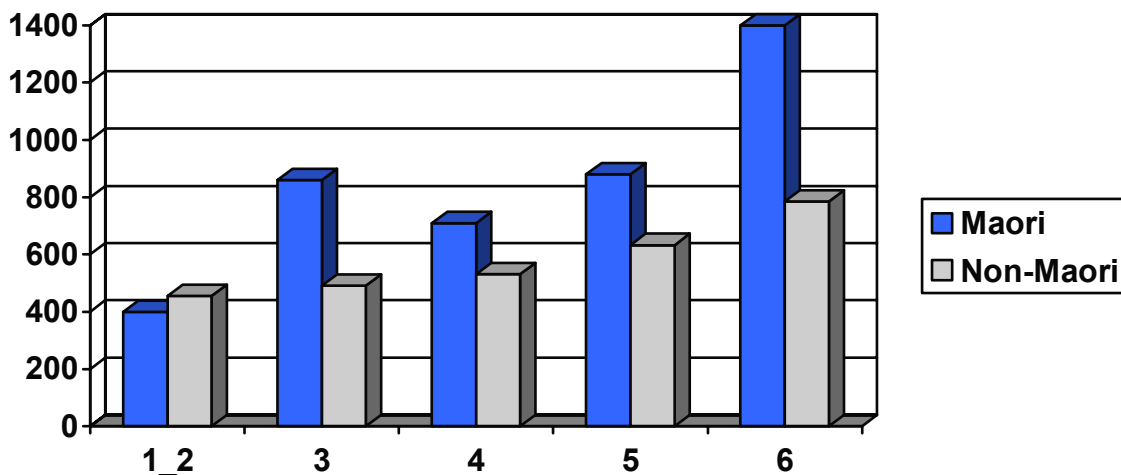
Source: Pearce et al (1983)

Figure 2: Social class differences in mortality in men aged 15-64 in NZ 1974-1978

Thus, people were quite surprised when we found that the evidence for inequality in death rates is just as great as in Britain,

if not greater (see Figure 2). The attitude of the health services back then was that socio-economic differences in health

didn't exist, and if they did then they were someone else's problem.



Source: Pearce et al (1984)

Figure 3: Social class differences in mortality in Māori and non-Māori men aged 15-64 in New Zealand 1974-1978



Maori Health

At that time, and it seems a long time ago, there was also very little acceptance that Māori health should be a priority. In fact I often heard the argument that Māori health problems were purely socio-economic, and that therefore they were not the responsibility of the health services. Thus, I was quite surprised, as were many other people, that when you used the same occupational class classification in Māori and non-Māori, and compared Māori and non-Māori within the same social classes, then the Māori excess deaths only reduced by about 20%. So about 20% of the excess in Māori was “explained” by the fact that Māori tended to be poorer and to be in more working class jobs (Figure 3). Of course it is not as simple as that, and Māori and non-Māori may have different socio-economic situations (in terms of inherited wealth, access to resources, family needs and demands, etc) even when they are working in the same job and earning the same income. Furthermore, “status” has different meanings and definitions in the Māori and Pākeha worlds. Nevertheless, our data indicated that socio-economic factors alone were unlikely to fully explain the high Māori death rates.

This finding is often quoted, but very few people quote the next thing that we found, which was actually a lot more interesting. If you just consider total mortality

then it appears that poor people and Māori are both disadvantaged in the same way: more poor people (than wealthy people) die at a young age (or a higher percentage of them die each year, which is a different way of saying the same thing), and more Māori (than non-Māori) die at a young age. However, they don’t always die of the same things. The socio-economic excess in mortality is mainly due to health problems that the health services cannot do much about. In fact, one third of the social class excess in mortality is due to smoking, and one third of it is due to car accidents. Now when we consider Māori excess mortality, much of it is from non-amenable causes of death (such as lung cancer and car accidents), but almost half of it is from diseases that Pākeha hardly ever die from, such as rheumatic heart disease, nephritis, bronchiectasis, diabetes, asthma, gout and tuberculosis. These are all amenable causes of death that have very low risks in Pākeha and astronomical risks in Māori. They are things that you should not die from if you have access to good health care. So the socio-economic differences in mortality in general are largely due to (social and physical) environmental factors, but while the Māori excess is partly due to environmental factors, it is also partly due to lack of access to culturally safe health care.

When I worked on the Māori Asthma Review with Eru Pomare and Hohua Tutengaehe, we not

only reviewed the available evidence, but the whole Māori Asthma Review Team travelled the country and received submissions at hui (Pomare et al, 1992). The prevalence of asthma in children is the same in Māori and Pākeha. However, in adults it is much higher in Māori, it is more severe and there are more hospital admissions. In the submissions we received, there were very obvious stories about Māori going to their general practitioner, and not getting the help they needed. There was a clear problem of “non-compliance” on the part of the doctors, rather than the patients. For example, if you consider Māori and non-Māori children coming into hospital for their first ever hospital admission for asthma, most of the Pākeha children get prescribed inhaled steroids and most of the Māori children don’t. This is for the first hospital admission, so these different prescribing patterns are not based on previous experience with the same patients; they are based on assumptions about whether the patients will take the medication, and about whether it is worth the time and effort to explain everything to them. So for Māori (and of course other ethnic groups including Pacific people), there are problems about access to culturally safe health care in addition to the socio-economic problems that we are considering here.

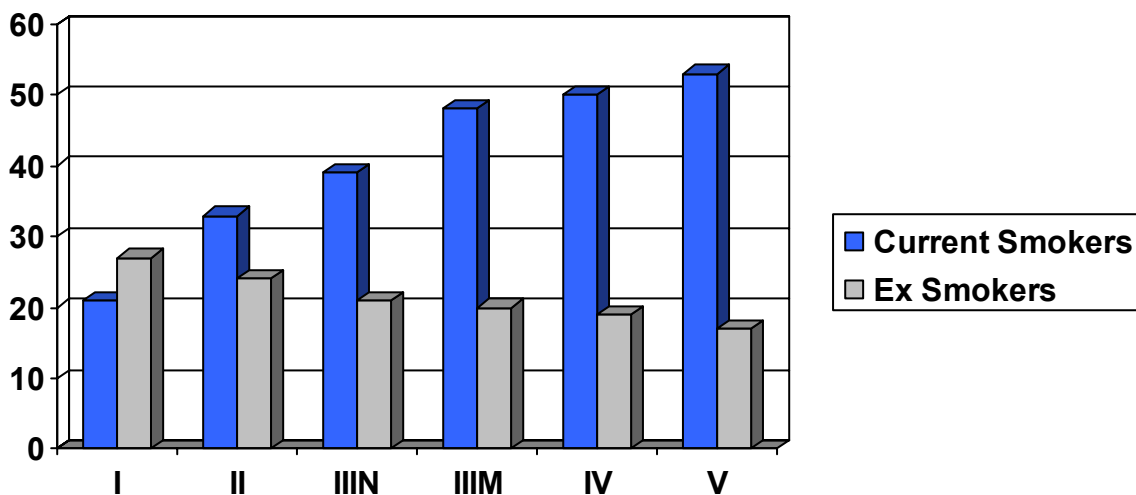


The “Lifestyle Approach”

When we first started conducting research into socio-economic differences in health in New Zealand, of course many people weren't particularly interested, because we already “knew” what we needed to do. We needed to focus on individuals and get them to change their lifestyle. I am not condemning all that we

did in the 80s and 90s, because we achieved a lot in terms of getting people to stop smoking and eat better and exercise more and so on, but on the whole it was not terribly successful. There is an excellent recent paper (Ebrahim and Davey Smith, 2001) that reviews lifestyle approaches to health promotion

in the West and concludes that most of these interventions were generally unsuccessful. People's lifestyles have changed, but they have changed in general, not just in the places we have intervened, and where we have intervened it has worked for some people but not for others.



Source: Pearce et al (1985)

Figure 4: Adult smoking, by social class, in the 1976 New Zealand census

For example, figure 4 shows data from the 1976 New Zealand census. It indicates that of the manual workers who have ever smoked, about one-quarter of them have given up; of the upper class and professional people (people like us) who have ever smoked, about one-half of them

have given up. This is not surprising – if you are struggling to survive from week to week, and you have a lot of problems to deal with, and you rely on your friends and your family to get you through the week, and they all smoke, then it is very hard to give up. In this situation, if a

public health person comes along and says “you shouldn't smoke because you have a 10% change of getting lung cancer in 40 years time”, it is quite rational to ignore them, or tell them to go away.

Most people behave rationally most of the time. However, we haven't understood this, and with the best of intentions we have tended to adopt interventions with individuals which don't work very well and end up "blaming the victim", because we are focussing on individuals and not taking the wider context into account. Of course, it is useful to do these individual-level interventions when they are

part of a wider population strategy, such as Māori development or anti-smoking legislation. However, when you do them in isolation and do not take the population context into account, then it doesn't work very well and you often end up doing more harm than good.

Incidentally, probably the best public health intervention that was ever carried out

(unintentionally) in New Zealand, was in 1972 when margarine was made available over the counter. Before then it was only available on prescription. In theory, the restriction of margarine was for health reasons, but basically it was to protect the dairy industry. So we need those sort of macro-level changes as well as changes in individual lifestyle.



The "Community" Approach

In the last 20 years we have learnt that trying to get individuals to change their behaviour doesn't work very well. However, now we "know" that health promotion is not about individuals, it is about "communities", and we need to get communities to change their lifestyles. Once again, this approach is very well intentioned, and it is potentially very useful, provided it is done in the right context. However, tackling structural inequalities is hard. It is hard to change what the other government departments can do, and most of you are working in a particular geographical area and you have the responsibility for health services in that area.

Furthermore, it is difficult to measure socio-economic status anyway, and the only method that is widely available is the geographically-based NZDep scale (Salmond et al, 1998). Thus, we are in danger, not by design but by default, of assuming that the best thing is to identify the most deprived areas and to start by doing something about the problems there. In particular, maybe we cannot do much about general socio-economic conditions, but we can intervene and try and increase the levels of social capital in deprived areas.

This approach is potentially very dangerous. Firstly, changing social capital is not like stopping

smoking. There is very little evidence that changes in social capital in a community will lead to significant improvements in health. Secondly, just as with individual problems like smoking, if we intervene just at the community level we tend to move the problem between communities rather than actually solve it. But most importantly, most deprived people do not live in deprived communities. This was well illustrated by Tony Blakely in his contribution to this symposium. Any intervention that focuses on deprived areas will only reach a minority of deprived people, no matter what other measure of deprivation you use (Blakely and Pearce, 2002).

Deprived people do not live in nice geographic units the way we would like them to do. People do live in communities, but in most instances they are not geographically defined communities. They are Tongan communities, Chinese

communities, Gay communities, communities of workers in particular jobs (perhaps linked through their union), and so on. When we focus on geographical communities we tend to ignore all of the other communities in which people live. Intervening

solely at the community level can be quite harmful, particularly if the communities are defined geographically. However, once again, if it is done as part of a wider strategy then it can be more useful.



The Way Forward

So how do we get a wider strategy that doesn't lose sight of the population context and the population influences on the health of communities and individuals? Here are a couple of ideas to start the discussion.

Do we need a New Zealand Black Report?

Firstly, several speakers today have mentioned the Black Report (DHSS, 1980). This not only reviewed the evidence about socio-economic differences in health, which we have also done in New Zealand, it went on to make very concrete policy

recommendations that were costed. It is very easy for us all to agree we should do something about poverty and health, and that we should keep these problems in mind, but it really lays it on the line if you say "this is what we should do and this is what it is going to cost", and you ask "are we prepared to pay that?" I am not saying that is the only thing we should do, but it is an important part of the process of changing the whole way of thinking about these issues.

We have tried to confine ourselves to matters which are practicable now, in political,

*economic and administrative terms, and which will...exert a long-term structural effect...
Above all the abolition of child poverty should be adopted as a national goal. (DHSS, 1980)*

Table 1: Key recommendations of the Black Report

Recommendation	1996 prices (m)
•Free milk for under 5s	700
•Expansion of day care for under 5s	1,250
•Special programmes in 10 areas	50
•Child benefit increased	2,200
•Age-related child benefit	2,900
•Maternity grant increased	140
•Infant care allowance	1,000
•Free school meals	1,460
•Comprehensive disablement allowance	2,700
Total annual cost	12,500
(as % GDP)	(1.7)
(as % social security)	(11.7)

The Black report recommended, above all, that the abolition of child poverty should be adopted as a national goal. Table 1 shows its main specific recommendations regarding poverty and health. Of course these recommendations do not directly translate from 1980 in Britain to 2001 in New Zealand; it was a very different era and a very different country. However, there are three key features of the approach adopted by the Black Report that are still relevant in New Zealand today. Firstly, they produced very specific recommendations and costed them. Secondly, none of these key recommendations involved the health services. Thirdly, they did have some recommendations for specific interventions in deprived areas, but these involved less than one per cent of the total funding. So they took the attitude that targeting does

not work, and that geographical targeting in particular doesn't work.

So do we need a New Zealand version of the Black report? We have had a lot of reports already, and undoubtedly we will have more, and there is a danger of just delaying things by having more reports. However, I think that there would be two advantages of producing a New Zealand version of the Black Report. One is that we need a report with very clear recommendations that are costed, so that the Government then has to say whether or not they will adopt them. Even if they don't implement the recommendations immediately, they will still be on the record, and eventually something will get done. Secondly, I think the advantage of doing a version of the Black Report in New Zealand is that it

gives people a chance to speak and to make submissions. I found it fascinating going round with the Māori Asthma Review with Eru Pomare receiving submissions at hui. It really brought home to me that if people like us get together and do research, it has some impact, but it is easy for the authorities to say that we are just academics, and that we are out of touch with reality. If ordinary people get a chance to speak, it is really easy for the authorities to say that the public do not know what they are talking about. However, if you put the two together it is quite powerful. Thus, we need a report which not only reviews all the evidence, but which takes public submissions and gives people the chance to speak and then comes out with very clear recommendations about what should be done about socio-economic differences in health.

Health Impact Assessment

The second issue is what we can do in terms of ongoing influence on the policies of other government departments.

Intersectoral collaboration is great when it works, and when the Ministry of Health really can influence the decisions of other government departments.

However, it is often frustrating, difficult, and ultimately unproductive. I will mention one other idea which is starting to be tried overseas, i.e. the idea of Health Impact Assessments.

There is a good website devoted to this approach at

<http://www.liv.ac.uk/lstm/ihia.htm>

The basic idea is that there is an authority that monitors the policies of the various government departments, and assesses their likely effects on health. Thus, just as we currently have to do an environmental impact report on government policies that may affect the environment, we should do a health impact assessment of those policies that may affect health. These assessments should not be done by the Ministry of Health, because this is just another government department alongside the others. It is best done by an independent body (e.g. the National Health Committee, a Public Health Commission, a Ministry of Public Health) that monitors the work of all the government departments, including the Ministry of Health. These assessments are very difficult to do, and there is always tremendous argument about the

estimates, but on the other hand, they do help to focus attention on the key health issues and the effects of government and industry policies on health. This is not really a new approach. For example, in the 1980s Kawachi et al (1989), estimated the number of deaths from passive smoking in New Zealand. That number was debated a great deal, and it was only approximate. Nevertheless, producing the estimate and showing that the number of deaths from passive smoking was similar to the numbers killed on the roads each year really focussed people's attention on the importance and magnitude of the problem. We need to be able to talk to Government Departments and say "if you institute these benefit cuts or if you change housing policy, this is our estimate of the number of extra cases of meningitis, the number of extra hospital admissions and so on that will occur". You can argue about the estimates, but you still influence the debate by producing them.

So what is the way forward? We need to keep doing research in this area and to keep bringing these issues to public attention. However, we also need to avoid creating a "poverty and health" research industry. We already know enough to be doing something about these problems now, both by producing an overall strategy with a New Zealand version of the Black Report, and through monitoring and influencing the work of government departments through Health Impact Assessments.



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