

From Black to Acheson: two decades of concern with inequalities in health. A celebration of the 90th birthday of Professor Jerry Morris

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Jerry Morris's Medical Research Council unit was known as the Social Medicine Unit. A central area of his concern was inequalities in health. His interest, involvement, knowledge, experience, and social commitment made him a key member of the Black Committee. It is on this aspect of Jerry's work that I wish to focus.

Social inequalities in health have been recognized for centuries. Jerry Morris used the term 'Victorian thunder' to describe the concern of the social reformers of the 19th century in Britain with the social conditions responsible for the link between deprivation and health.^{1,p.142} He suggests that Chadwick's epidemiological researches on the *Sanitary Condition of the Labouring Population* 'were a landmark in social history'.²

I would suggest that the Black Report was a similar landmark. The background to it is well known, and is set out in the 1992 edition.³ The Secretary of State for Health in Britain was concerned that, 30 years after the establishment of the National Health Service, differences in mortality between social classes persisted. He referred to the fact that in 1971 the death rate for adult men in social class V (unskilled workers) was nearly twice that of adult men in social class I (professionals). Accordingly, he set up a working group in Inequalities in Health under the chairmanship of Sir Douglas Black, formerly Chief Scientist at the Department of Health. In addition to Black, the group consisted of Jerry Morris, Peter Townsend, Professor of Social Policy at Bristol and Cyril Smith then Secretary of the Social Science Research Council.

Three things about the Black Report are worthy of comment here. The first two are well known and widely appreciated; the third perhaps less so. First, the Black Working Group reported that the persisting problem in inequalities in health was despite, not because of the National Health Service. They opted for a materialistic explanation of inequalities which sees 'class differences in health as the result of structurally determined differences in the way the members of social classes lead their lives'.⁴ The Black committee made 37 recommendations as to how the problem should be addressed.

The second notable feature is that the Government of the day (the Working Group was set up by a Labour government but reported to a Conservative government) dismissed the Report by saying that it was quite unreasonable to expect expenditure on the scale which could result from the Report's recommendations 'quite apart from any judgement that may be formed of the effectiveness of such expenditure in dealing with the problems identified'.^{3,p.31}

The third point, and this is really the subject of this paper, is that despite the Government's refusal to take seriously Black's recommendations or even properly to publish the Report, it had enormous influence. The Black Report did two important things. Although the problems of inequalities in health were well known to researchers, the Black Report summarized the evidence, gave it focus, reached conclusions and hence brought it to public attention. Its second important contribution was to set the agenda both for research and policy discussions over the next two decades. It will be for the historian to ascertain how much of the widespread international interest in inequalities in health^{5,6} can be directly attributed to the Black Report. Whatever the historian's conclusion, my own view is that it played a pivotal role.

My own research in this area has taken place over the same time: from Black to Acheson. When I started work on the Whitehall study in 1976, there were two separate studies of British civil servants at the London School of Hygiene and Tropical Medicine: the Whitehall study started by Donald Reid and Geoffrey Rose and Jerry Morris's study of leisure time physical activity. Neither had been set up with the purpose of examining the social gradient in health. The initial focus of Whitehall was of the power of risk factors and indicators of coronary heart disease (CHD) to predict mortality.

Although I published my first papers on social inequalities in health a couple of years before Black reported,^{7,8} I had extensive discussions with Jerry Morris which influenced me greatly. Morris was impressed, as I was, by the social gradient in mortality revealed in the first Whitehall study.⁸ Len Syme in Berkeley also drew attention to the fact that men near the top of the civil service hierarchy had worse health than those at the top. Over the next two decades, the major focus of our research was on reasons for inequalities in health. A number of other groups,

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Table 1 European standardized mortality rates for all causes and coronary heart disease by social class, men aged 20–64 years, England and Wales, selected years¹¹

Social class	All causes (rates per 100 000)			Coronary heart disease (rates per 100 000)		
	1970–1972	1979–1983	1991–1993	1970–1972	1979–1983	1991–1993
I Professional	500	373	280	195	144	81
II Managerial and technical	526	425	300	197	168	92
III(N) Skilled (non-manual)	637	522	426	245	208	136
III(M) Skilled (manual)	683	580	493	232	218	159
IV Partly skilled	721	639	492	232	227	156
V Unskilled	897	910	806	243	287	235
England and Wales	624	549	419	209	201	127

similarly, pursued this area. Particularly, in the 1990s research output on inequalities in health, worldwide, grew exponentially.⁶

In addition to research, in Britain, a number of reports were issued on how to deal with the problem. Most notable of these were the Health Divide commissioned by the Health Education Council,³ the Kings Fund Report, Tackling Inequalities,⁹ the Department of Health Variations in Health Report,¹⁰ and the Acheson Report of the Independent Inquiry into Inequalities in Health.¹¹ Each of these reports took a broad view of the wider determinants of health and hence of social inequalities in health. In contrast to the others, the Variations in Health Report was constrained by the government of the day to confine its recommendations to what the Department of Health and the NHS could do. That made life a little difficult for many of us on that committee as it concluded, in line with Black, that variations in health services were not the prime causes of variations in health.

The Independent Inquiry into Inequalities in Health that reported in 1998 was set up by the New Labour Government in 1997 and was chaired by Sir Donald Acheson. I was a member of the Scientific Advisory Group. We, like Black, worked from a socioeconomic model of health. There is thus a direct line from Black to Acheson.

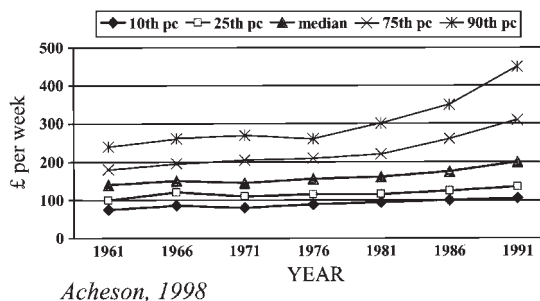
In this paper, I wish to touch on six issues raised by Black, discussed by the research and policy community and dealt with, to a greater or lesser extent, by Acheson. These are:

- Social inequalities or individual differences
- Inequality and poverty
- Material and psychosocial explanations of inequalities in health
- Behavioural explanations
- Relative or absolute differences
- Policy response.

To begin, however, a brief description of what has happened to inequalities since Black.

Trends in inequalities and health inequalities

These were summarized in the Acheson Inquiry. Table 1 shows the welcome decline in mortality from all causes and from CHD in England and Wales. This improvement is, however, unevenly distributed socially. For all causes, the decline in social class I

**Figure 1** Change in UK household disposable income by percentile, 1961–1994¹¹

was 44%, the decline in social class V was 10%. Because social class V has been a small and declining portion of the population, there is a case to combine IV and V. Comparing all-cause mortality for IV and V combined with that of I and II, the ratio was 1.53 for the period 1976–1981. Ten years later it was 1.68.¹¹

At the time we started to examine the social gradient in the Whitehall study,⁸ we noted that the gradient in the national figures was in the same direction as in Whitehall but of lesser magnitude. In retrospect, the social gradient in CHD mortality looks relatively shallow in 1970–1972 compared with 20 years later. For example, men in skilled non-manual occupations had 26% higher CHD mortality in 1970–1972 and 68% higher mortality in 1991–1993. For a range of other causes of death, the social gradient in mortality has increased.

There are not only widening gaps in mortality and morbidity but higher dispersions of living standards. Figure 1 shows a steep rise in real incomes of those above the median between 1981 and 1991 in contrast to fairly flat changes to those on lower incomes. The proportion of people below half-average income (European Union definition of poverty) grew from 10% in 1961 to 20% in 1991. It decreased to 17% in 1995.¹¹

The reports that followed Black, therefore, had a continuing problem of inequalities in health with which to deal.

Social inequalities not individual differences

In the 1980s, Raymond Illsley and Julian Le Grand analysed differences in mortality between individuals rather than between social groups and showed a reduction in dispersion

Table 2 Twenty-five-year mortality for coronary heart disease and lung cancer, per cent deviance explained by age, smoking and grade, Whitehall I Study

	Coronary heart disease	Lung cancer
No. of deaths	2480	638
% Deviance explained		
Age and grade	2.2	3.7
Age, smoking+	3.9	7.4
Rate ratio low grade:high	1.7	4.1

in age of death.¹² In this view, inequality had decreased not increased. This line of analysis is familiar to economists. They analyse income inequalities as the dispersion among individuals, using a measure such as the Gini coefficient. It would seem logical to them to analyse mortality differentials the same way.

This argument has resurfaced recently with a suggestion by a section of the World Health Organization that inequality should be measured as the differences among individuals, rather than differences between social groups.^{13,14} Most of the rest of us have followed Black by using the term inequality to apply to health differences between social groups. To quote Black:^{3,p.39} 'these ideas are not just "differences". There may be differences between species, races, the sexes and people of different age, but the focus of interest is not so much natural physical constitution or process as outcomes which have been socially or economically determined'.

Whitehead took the approach that inequalities that are unfair or unacceptable should be termed 'inequities'.^{3,p.222}

There are not only issues of ethics and social concern that suggest that the determinants of inequalities between social groups is a different question from the determinants of individual differences, but the research strategy may be different.¹⁵ A suspected causal factor may account for very little of the individual differences in health outcomes but may, nevertheless, be vitally important for improving health. This is illustrated in Table 2 with data from the first Whitehall study. It uses smoking to illustrate the point as it is less socially and politically charged than social class. It shows that for lung cancer, age, smoking and grade of employment account for only 7.4% of the individual variation in deaths from lung cancer. How can this be? The answer is most smokers do not die of lung cancer even after 25 years of follow-up. Perhaps a more important statistic is that 95% of the lung cancer deaths in this population occurred in smokers. Something other than smoking accounts for why one smoker gets lung cancer and another does not. Perhaps the human genome project may shed light on that question. The way to eliminate 95% of lung cancer cases however, is to eliminate smoking.

Grade of employment was associated with mortality from CHD and lung cancer: rate ratios for low versus high grade being 1.7 and 4.1, respectively. Yet, grade and age account for only 2.2% of the individual variation in CHD mortality. Perhaps individual variation in outcome is not the most appropriate measure. Differences between social groups are, potentially, of great importance. Table 3 uses the four grades in the original Whitehall study and shows that improving the mortality of the bottom two grades up to the level of the top two would add

Table 3 Life expectancy at age 45, by improving the mortality of the bottom two grades up to the level of the top two grades, Whitehall I Study

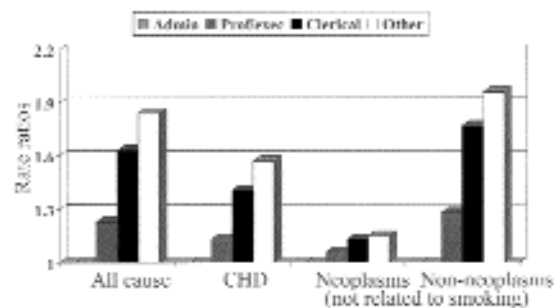
Expectation of life at age 45	
Employment grade	
Higher two	34.7
Lower two	30.32
Difference	4.38
Impact of coronary heart disease	
Deaths from non-CHD ^a causes	37.38
Deaths from all causes	33.38
Difference	4.00

^a Coronary heart disease.

4.4 years to their life expectancy at age 45. Is this worth having? The bottom part of the Table shows that removing CHD completely from the population would add 4 years of life expectancy. Differences in mortality between social groups are therefore of a magnitude that requires attention if the judgement is made that they are avoidable and undesirable.

Inequality and poverty

There are two questions. My own view has been very much influenced by the two Whitehall studies. Figure 2 shows mortality after 25 years of follow-up in the first Whitehall study.¹⁶ Here, the reference group is the top grade, administrators. There are differences in mortality that follow the employment grade hierarchy. Clerical officers in Whitehall are not wealthy, but neither do they suffer from absolute deprivation, yet their mortality rate is 60% higher than that of the top grade. The group above them in the hierarchy (professionals and executives) have 25% higher mortality. Looking at this social gradient in mortality led us to the view that we were dealing with inequality not only poverty. There are similar social gradients in morbidity.^{17,18} Characteristically, Jerry Morris had written about this. There are, he said, 'two issues we have to confront, those of *poverty* and *inequality*: they overlap but are not the same ... skilled workers are less healthy but it is meaningless to think of them as poor except relatively'.¹⁹ Relative poverty suggests to me psychosocial factors rather than material conditions (see next section).

**Figure 2** Twenty-five-year age-adjusted mortality rate ratios by employment grade, Whitehall I study¹⁶

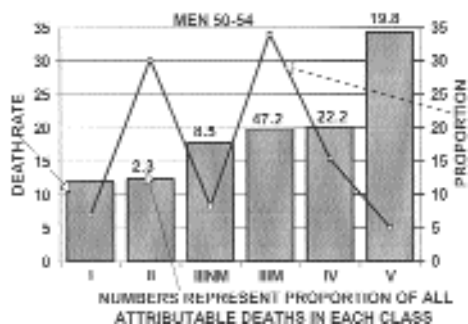


Figure 3 Deaths in middle-aged men attributable to having a rate higher than men in social class I

The problem with conflating these two issues of inequality and poverty is that it might lead to a focus only on those most deprived. Deprivation and health is an important social health issue. It does not necessarily deal, however, with the major part of the inequality and health problem. This is illustrated in Figure 3 for middle-aged men in England and Wales 1991–1993.²⁰ It shows that those in social class V have three times the death rate of social class I. The figure also shows the proportion of men in each social class. This high mortality group, social class V, represents about 5% of the population. Social class III manual and IV have mortality rates one-third lower than social class V, but they are more numerous in the population. If we take the concept of attributable deaths to mean deaths attributable to being lower than social class I then, as the Figure shows, 47% of the attributable deaths come from the one-third of the population in social class III manual. A further 22% come from the 15% of the population in social class IV.

It is important to deal with the poverty and health problem, but it is also vital to deal with inequalities as reflected in the social gradient in health. As Table 1 shows the slope of this gradient in health can change over a decade or two.

Material and psychosocial explanations

Sally Macintyre, in an excellent survey of the Black Report and its aftermath, pointed out that there had been vigorous discussions of inequalities and health in the early 20th century in Britain. At that time, there were three competing explanations for worse health in poorer groups: environmental, behavioural, hereditarian.²¹ Black suggested four possible explanations: artefact, health or social selection, materialist/structuralist and cultural/behavioural. Black and his colleagues favoured the materialist/structuralist explanation, described earlier in David Blane's words: 'structurally determined differences in the way the members of social classes lead their lives'.⁴

Macintyre gives insight into the debates on Black's explanations. She says that much of the debate can be understood as people taking 'hard' or 'soft' versions of Black. The hard version of the materialistic/structuralist explanation suggests that the material, physical conditions of life associated with the class structure are the complete explanation for class gradients in health. The soft version is that physical and psychosocial features associated with the class structure influence health and contribute to observed gradients.

Some authors have tended towards the hard version as they see a focus on psychosocial factors as leading to a focus on individuals away from the structural causes of illness.²² This was not the view taken by the Acheson Inquiry nor, indeed, was it Black's view. Black said that occupational class is multifaceted and apart from income, savings, property and housing there are many other dimensions. In addition to material conditions at work, they drew attention to 'degree of security and stability, association with other workers, levels of self-fulfilment and job satisfaction and physical or mental strain'.^{3,p.109} Morris also called for more work on psychosocial factors which he linked with the issue of the social gradient.²³

Writing more than 200 years ago, Adam Smith understood that the necessities of life have a psychosocial as well as a material dimension, 'by necessities I understand not only the commodities which are indispensably necessary for the support of life, but what ever the customs of the country renders it indecent for creditable people even the lowest order to be without ... The poorest person would be ashamed to appear in public without them'.²⁴

My own view is well expressed by Macintyre's 'soft' description.²⁵ There are structurally determined differences in the way members of different social classes lead their lives. The social structure affects psychosocial processes as it does access to material resources. Material resources and psychosocial factors are, of course, related. One obvious measure of social position is access to material resources. It is, nevertheless, worth distinguishing the effect of material conditions related to inadequate shelter, malnutrition, infectious diseases, and pollution of air and water from psychosocial factors that are shaped by where people are in the social hierarchy. University educated civil servants, in stable jobs with reasonable incomes have worse health than those above them in the hierarchy. One knows there are psychosocial differences between the grades, it is less easy to demonstrate differences in material conditions that could plausibly relate to differences in health.

The evidence that psychosocial factors may be important in linking social position to health is not simply argument by exclusion. There is abundant direct evidence for the importance of psychosocial factors, many of which are socially patterned (see for example chapters in Berkman and Kawachi and Marmot and Wilkinson).^{26,27}

Behaviour

Sally Macintyre's distinction between 'hard' and 'soft' positions is again helpful here. The Black Report was widely seen as rejecting behavioural and cultural explanations for inequalities in health. In fact, Black rejected a 'hard' version of this, that is they rejected the notion that inequalities in health could be explained away as the result of health damaging behaviours freely chosen by individuals. Rather, they pointed to the importance of smoking, and exercise and diet and called for education to reduce the social gradient in these health-damaging behaviours.

My own experience of this debate was consequent upon our publishing the 10-year mortality follow-up from the first Whitehall study.²⁸ We reported a social gradient in smoking, and blood pressure, in obesity, in lack of physical activity and impaired glucose tolerance. Notably, the gradient went 'the wrong way' for plasma cholesterol: higher levels in higher

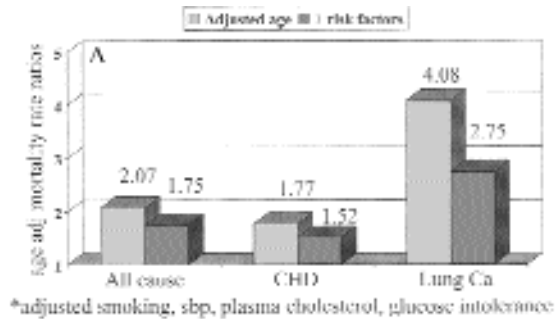


Figure 4a Twenty-five-year age-adjusted mortality rate ratios for the bottom versus the top employment grade, before and after adjustment for risk factors, Whitehall I study¹⁶

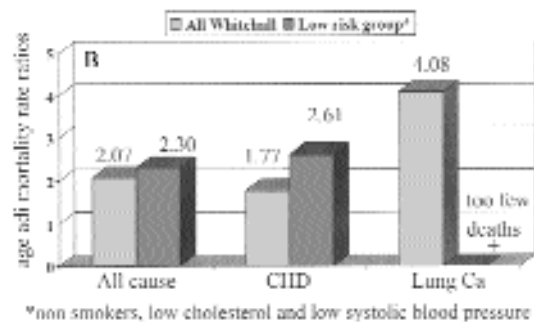


Figure 4b Twenty-five-year age-adjusted mortality rate ratios for the bottom versus the top employment grade for non-smokers with a low cholesterol and low systolic blood pressure (low risk group), and adjusted for age and risk factors for the whole population, Whitehall I study¹⁶

grades. We reported that these standard coronary risk factors accounted for about a quarter of the social gradient in mortality. Over the years, this continues to attract criticism. It is suggested that if we properly took into account these risk factors, the proportion of the gradient explained would be greater. We had, for example, measured smoking only at baseline and we should of course take into account pack-years of smoking, tar content and so on. In our earliest analyses we did this and it made little difference.

My response to this critique is threefold. First, in Figure 2 we showed a social gradient in diseases not related to smoking. The mortality gradient was steeper for cancers related to smoking than those unrelated, because smoking does play an important part in the social gradient, more so in the case of lung cancer and chronic bronchitis than for CHD and very little for accidental and violent deaths.

The other two approaches are shown in Figure 4 from the 25-year follow-up of Whitehall I.¹⁶ Figure 4a shows rate ratios for the bottom versus top grade before and after adjustment for the effects of smoking, systolic blood pressure, plasma cholesterol and glucose intolerance. The bottom grade has about 1.8 times the mortality from CHD of the top grade, this was reduced to 1.5 after adjustment for these risk factors. For lung cancer the grade gradient was steeper and smoking made a larger impact.

Whether the excess in lung cancer after adjusting for smoking was due to incomplete control for smoking or because other factors contribute to the social gradient in lung cancer is interesting. From the point of view of public health, it is not the main question. Figure 4b looks at the social gradient in mortality in a low risk group defined as non-smokers with low cholesterol and low systolic blood pressure below the median. There were simply too few deaths from lung cancer in non-smokers to estimate reliably the social gradient. Whatever other factors might contribute to the social gradient in lung cancer, elimination of smoking would essentially do away with the social gradient in lung cancer, because it would do away with 95% of the lung cancer deaths.

Figure 4b shows that for CHD the social gradient in the low risk group may even be greater than the average for the whole population. This suggests, following Black and Acheson, that there are two types of question that require answers: the reasons for the social gradient in smoking and other unhealthy behaviours;²⁹ and what apart from these health behaviours may provide the link between lower social position and worse health. As I have argued above, at the bottom end of the scale material factors are likely to be important; higher in the social scale psychosocial factors are likely to assume greater importance.

Relative and absolute differences

Both Black and Acheson present absolute and relative differences in death rates and morbidity between classes. We did not say a great deal about this on the Acheson group. We did offer the suggestion that absolute differences were more important for public health. It may be that the magnitude of the social gradient in health in Britain is a cause of our rather low life expectancy among OECD (i.e. rich) countries. If the absolute differences in life expectancy between social classes in Britain could be reduced by improving it for classes lower than the top class (remember the implication of Figure 3), then overall life expectancy would improve. Hence the importance of absolute differences.

The Acheson group also pointed to the importance of relative differences. If the steepness of the social gradient increases, this surely has aetiological significance. A widening relative difference in the face of a declining absolute difference would still indicate a mortality gap that may be avoidable and unfair. In fact, as Table 1 shows, the gap between bottom and top social classes increased in both relative and absolute terms.

It is sometimes thought that interventions to reduce inequalities in health should be targeted at those worst off. An appreciation of the importance of absolute differences shows that this is not necessarily the case. An exposure reduced across the board could have a bigger absolute impact on mortality in lower than higher social classes, even if that factor were not more frequent in those of lower social class. If dietary salt consumption were reduced by the same absolute amount in all social classes, and resulted in the same drop in blood pressure, and the relative risk of cardiovascular mortality for high versus low blood pressure were the same across classes, reduction in salt intake could still reduce the absolute difference in mortality. A 10% reduction in cardiovascular mortality in social classes IV and V would lead to a greater absolute drop in death rate than

a 10% reduction in classes I and II because the death rates are higher for other reasons in classes IV and V. Hence, Acheson endorsed the COMA recommendation for reduction in the salt content of the British diet.³⁰

Policy implications

This requires proper study. As I have already indicated the short-term policy implications of Black were negligible because of its dismissal by Government. The long-term policy implications of Black were substantial. It led to a whole body of research, debate, and pent up demand for policies to deal with the problem of inequalities in health. It could be argued therefore that in a sense the Black Report led to the setting up of the Acheson Inquiry two decades later. Both the Black Report and the research that followed it made the task of the Acheson group a good deal easier than would otherwise have been the case.

It is too early to tell what impact the Acheson Inquiry and its recommendations have had. In contrast to the Black Report, it was welcomed by the Government which stated: 'we are committed to tackling the underlying problems, such as poverty, neighbourhood deprivation, and lack of education and employment opportunity'.³¹

Much of the current Government's concern appears to be with poverty and social exclusion. Such concern is welcome and it is important to evaluate the policies that are put in place to deal with the problem. A concern with poverty and social exclusion, will not necessarily address the inequality problem. As illustrated in Figure 3 the bulk of the excess mortality due to inequality does not occur among the 5% or so at the very bottom. Figure 5 suggests that fiscal policy may be

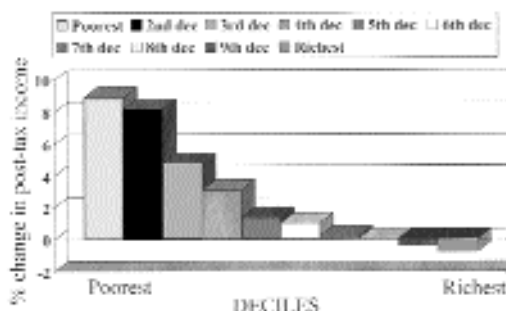


Figure 5 Distributional impact of major fiscal reforms since 1997 by deciles of household income³²

addressing this problem. It shows the effect of the first four budgets of the Labour government on take-home pay. It shows clear redistribution. The lower the starting level the greater the benefit to household income from fiscal reforms since 1997.³²

As successive reports from Black to Acheson have shown there is much still to be done to understand the causes of inequalities in health, but understanding has clearly increased. There should now, in addition, be a new research agenda: to evaluate the effect of policies put in place to address the problem. For about 60 years Jerry Morris has been leading the way.

Acknowledgements

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KEY MESSAGES

- Social inequalities and individual differences in health require a different research focus.
- Inequality and poverty are each related to health, but in different ways.
- An explanation for health inequalities that emphasizes only material factors fails to acknowledge the importance of the lives people lead.
- Evidence suggests that psychosocial factors are importantly related to health inequalities.

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