

Dissecting the life expectancy gap in England provides clues on how to reduce it



Major health inequalities in countries such as England have been well documented for decades.¹ Arguably, the problem has been sufficiently described for action to be taken. However, James Bennett and colleagues' study of the life expectancy gap between socioeconomic groups in England,² published in *The Lancet Public Health*, shows that, on the contrary, there is still much to learn about health inequalities from descriptive analysis of routine mortality data.

Bennett and colleagues' study of vital registration data from the Office of National Statistics provides a detailed understanding of the contribution of different causes of death to the inequality gap and a dynamic view of the gap and its components over a 15-year period. Can it really be that no one has published a study quite like this before? Surprisingly, yes.

One reason for this gap in the literature is that the objective of the study is methodologically demanding. There are more than half a million deaths per year in England, but when broken down into the various subcategories—not just by sex and 5-year age groups, but also by deprivation decile, multiple individual causes, and single calendar years—the number of events in the many cells quickly becomes very small. To overcome this problem, the authors used a Bayesian hierarchical model to produce stable estimates for the multitude of individual results generated. This is such a powerful technique in their hands that it seems obvious that it should be used more routinely in this type of analysis.

The other reason must be that, rather like her uniforms, the descriptive statistical approaches that Florence Nightingale pioneered in the 19th century³ have fallen out of fashion. With the outstanding exception of the Global Burden of Disease study,⁴ it is relatively rare these days to find descriptive studies published in high-impact-factor journals. The rise of so-called precision public health might change that because funders such as the Bill & Melinda Gates Foundation recognise the value of surveillance and sophisticated analysis of large datasets to inform interventions for population benefit.⁵

England has excellent vital registration data. We know, therefore, that there are big differences in life

expectancy according to where people live—or, more correctly, where they die. It is still a shock to read that in 2016, life expectancy in England varied from 78.8 years (95% credible interval 78.7–78.9) in the most deprived areas to 86.7 years (86.6–86.8) in the most affluent areas for females and from 74.0 years (73.9–74.1) to 83.8 years (83.6–83.9) for males. The differences of 7.9 years (7.7–8.1) for females and 9.7 years (9.6–9.9) for males are roughly equivalent to the differences between life expectancy in the UK and that in Libya or Azerbaijan.

Although life expectancy at birth improved in all deprivation deciles from 2001 to 2016, the gap between the top and bottom increased by 1.8 years for women and 0.7 years for men over that period. Since 2011, life expectancy has declined in the poorest parts of the country and stagnated in others. The most deprived group seems to be doing especially badly. The gap between the most deprived decile and its nearest neighbour is 1.5 years (1.4–1.7) for females and 2.2 years (2.0–2.3) for males, whereas the difference between the other ordered deciles is often just 0.5 years, particularly between the most affluent deciles.

The analysis by cause of death showed that nearly all causes were more common in more deprived populations (haematological, breast, and prostate cancers being the exceptions). Major contributors to the gap in 2016 were deaths in children younger than 5 years (contribution of 0.3 years for females and 0.4 years for males), lung and digestive cancers (together contributing 1.2 years for females and 1.4 years for males), respiratory diseases (1.6 years and 1.5 years), ischaemic heart disease (0.8 years and 1.5 years), and dementias (0.5 years and 0.3 years). Causes whose contribution to the gap have declined since 2001 included under-5 mortality, ischaemic heart disease, and stroke, for both sexes, and intentional injuries in males. Causes whose contribution increased included respiratory diseases, cancers (particularly lung and breast cancer in females and liver and other digestive cancers in both sexes), and dementias.

As a society, we need to register an appropriate level of shame about these results and adopt a corresponding level of urgency and diligence in seeking to address them.

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It seems clear that a substantial portion of the population is being left behind in terms of their health outcomes. The authors provide a thoughtful analysis of why this might be despite a relatively well performing economy and low levels of unemployment. Comparisons with the USA are painful but cannot be avoided.⁶ England does not have anything like the same scale of opioid deaths as the USA⁷ and has near universal health-care provision—we should be doing better than this.

There is some good news. The relative decline in the contribution due to ischaemic heart disease might partly reflect the success of clinical management of risk and systematic prevention programmes. One of the components of a strategy to address the health inequalities described in this new study must be the provision of good quality and, above all, equitable treatment and care services. Large-scale preventive services such as cancer screening and antenatal care are also important. Good quality care for all is something that needs to be considered seriously in the new long-term plan for the National Health Service due to be announced shortly.

Another component must be a set of fiscal and regulatory interventions that alter the social and economic environment for the better and address the affordability of unhealthy products. Programmes that directly address unhealthy behaviours such as smoking, alcohol and drug use, and poor diet are also necessary. Unfortunately, it is all too easy for these interventions

to inadvertently make inequalities worse, by being more accessible to the more affluent members of society than those worse off.

There is a lot to do if we are to see these numbers improve. Evidence already exists to support many of the population-wide interventions needed. New technologies offer new opportunities to engage the public in improving their health but we must make sure that future efficiency in health improvement is not achieved at the cost of equity.

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I declare no competing interests.

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