Inequalities in asthma mortality: a specific case of a general issue of health inequalities

Michael Marmot

Respiratory disease was always the 'British' disease. Not the most common cause of death in Britain, but the cause that most marked Britain as being different from other countries. In the same way, liver disease was the French disease. In both cases, it is not difficult to think of reasons why. The French preoccupation with le foie had much to do with alcohol. French farmers were, in part, paid in wine: 1.5 L a day and for grape pickers 5 L a day, and for a time, France topped the league tables of per person annual alcohol consumption.

As for the British disease, it can be linked to foul air, polluted factories, crowded living conditions that promoted infection and exposure to moulds and other allergens, being early adopters of smoking. Dickens, in *Hard Times*, gave an account of Victorian living conditions:

> 'In the hardest working part of Coketown,…where Nature was as strongly bricked out as killing airs and gases were bricked in… where the chimneys, for want of air to make a draft, were built in an immense variety of stunted and crooked shapes'.[1]

Not that 'Nature', bricked out, was salubrious. The foul air of Britain's industrial cities was justly infamous. Think of Monet's—he of the luminous Water Lilies—1903 painting of 'Waterloo Bridge in Fog'. It was hard to see, let alone breathe. Fog was the backdrop and sometimes the centre of Sherlock Holmes's career. Here he is, for example, gazing out from his Baker Street window in 1895 as a dense yellow fog descends on London:

> 'we saw the greasy, heavy brown swirl still drifting past us and condensing in oily drops on the window panes' (quoted, p 229).[2]

Victorians and Edwardians in London were in little doubt about the fog, it tasted vile and made them cough.

Long after the Victorian period, the great smog in London in 1952 was responsible probably for 4000 deaths in a week—although subsequent estimates put the figure much higher.[3]

Then, of course, there was smoking, initially highly prevalent and classless. But as the smoking epidemic subsided, increasingly it became associated with class—the lower the socioeconomic position, the higher the prevalence of smoking.

Improvements in air quality, relief of crowded living conditions with ample promotion of infection and declines in smoking could all have contributed to the marked decline in mortality from respiratory conditions noted by Gupta and colleagues in this issue of *Thorax*.[4] What we are left with, though, are clear social inequalities in mortality; those lower down the social hierarchy are more likely to experience and die from respiratory disease.

I have not, as yet, separated asthma from its cousin, chronic obstructive pulmonary disease. Clinically and pathologically distinct, they nevertheless show similar epidemiological patterns and relate to a similar set of exposures: air quality, smoking, infection. The Lancet Commission on Asthma further blurs the sharp distinction in three ways: definitions of asthma vary widely among studies, asthma in childhood may lead on to chronic obstructive pulmonary disease in later life and there is more than one type of asthma.[5]

On the last, more than one type of asthma, the present study is revealing. At ages 45 and above, the association with deprivation is clear—more deprivation higher asthma mortality. But at younger ages, the gradient goes the other way—more deprivation lower asthma mortality. This finding, as the authors speculate, is consistent with the notion that atopy and allergic disease may be a factor in asthma at younger ages, and these are more common in young people of higher socioeconomic position. There is, though, a challenge to understanding: why should mortality at younger ages be higher among people from more affluent backgrounds, when asthma symptoms, diagnosis and hospital admissions are more common among the more deprived? There has been speculation, more than evidence, about lack of access to healthcare being responsible for higher death rates among more deprived people. It is unlikely to go the other way. All of which leads Gupta and colleagues to speculate about a more brittle type of asthma at younger ages.

The more general import of this latest report on asthma mortality is that although mortality has declined in Britain—the British disease is losing its British character—socioeconomic differences remain. It is consistent with a more general finding. Life expectancy has improved in Britain, but inequalities remain, and may even be growing. In *Fair Society Healthy Lives*, the Marmot Review of health inequalities in England,[6] we plotted life expectancy for neighbourhoods in England, classified by an index of multiple deprivation similar to the one used by Gupta and colleagues. Between the fifth centile of deprivation and the 95th there was a 7 year gap in life expectancy. But within smaller areas the differences were even greater. After the Grenfell fire in London, I looked up life expectancy differences in the Royal Borough of Kensington and Chelsea. In the deprived area around Grenfell tower, men had 14 years shorter life expectancy than in the plush, 'ambassadorial' part of the borough.[7]

How are we to think about these gradients in mortality and life expectancy, and, more importantly, what are we to do about them? The phenomenon that we have to explain is not just a social gradient in asthma, but social gradients, sometimes steeper sometimes shallower, in chronic obstructive pulmonary disease, most cardiovascular diseases, many but not all cancers, violent deaths, mental illness, renal disease, gastrointestinal disease and others. Faced with the general nature of health inequalities, my reaction for years had been to look for ideas of general susceptibility, as laid out in my book, *Status Syndrome*.[8] A key part of such general susceptibility is psychosocial. Indeed, Gupta *et al* quote evidence that psychosocial processes contribute to a quarter of asthma deaths in the UK.

A different approach to the finding of social inequalities in many, if not most, major causes of death is to say that the general susceptibility lies not at the level of the individual but in the nature of inequalities in society. This is closer to the line I took in my later book, *The Health Gap*.[9] There is accumulation of advantage and disadvantage through the life course. The general phenomenon is that position on the social hierarchy predicts morbidity and mortality from a wide variety of specific conditions. Social position translates into risk of ill health through many specific pathways, psychosocial, environmental, behavioural.

In case it should seem that *The Health Gap* contradicted *Status Syndrome*, I would plead otherwise. One question is why the

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lower the position in the social hierarchy, the greater the exposure to specific causes of illness; in the context of asthma: smoking, poor quality air, crowded conditions and risk of infection, moulds and other allergens. A different kind of question is why, given exposure, people of lower social position are more likely to suffer morbidity and mortality.

Putting these two perspectives together, *Fair Society Healthy Lives* made recommendations in six domains:

- Give every child the best start in life.
- Education and life-long learning.
- Employment and working conditions.
- Having at least the minimum income necessary to lead a healthy life.
- Healthy and sustainable environments in which to live and work.
- A social determinants approach to prevention.

All six of these domains demonstrate stark inequalities: a social gradient in the social determinants of health. As above, the Grenfell fire stimulated me to look at the life expectancy gaps in the Royal Borough of Kensington and Chelsea. This borough is also the most unequal in England. The mean salary in Kensington and Chelsea is £123 000, the highest in the UK. By contrast, the median is £38 700, that is, 50% of the population have less than this. No borough in the UK reports a bigger gap between the mean and the median. The area around Grenfell Tower is among the poorest 10% of local areas in the country. It means that people growing up in that area would fare worse with respect to all six of my domains, compared with people in the middle of the income and wealth range, who would fare worse than people at the top.

The welcome contribution of this paper by Gupta and colleagues reminds us of the need for continued focus on health inequalities and its causes.

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