History lessons for tackling inequalities in health

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The article by Kendall and colleagues investigating the existence of health inequalities in Britain before 1750 shows that the aristocratic elite (the top 1% of the population) had a mortality advantage when compared with the mass of the rest of the population long before the era of effective preventive and medical interventions. The authors point to the survival advantage of ducal families in mid-childhood and early adolescence which was obscured in previous studies that did not differentiate by age of child (Kendall et al., 2021). The fact that the study was able to detect a survival advantage pre-1750 for the ducal families over the general population is remarkable in itself, given that this extreme group faced unique risks of their own (such as high rates of violent deaths due to power struggles) and was being compared with the mortality risks of one amorphous group containing the remaining 99% of the population. Had the study been able to make comparisons between, say, the richest tenth and the poorest tenth of the population, then, based on the current findings, the mortality gap would potentially have been huge.

Because of lack of disaggregated data by socioeconomic status for these earlier periods, however, the authors could not go further and separate out what was happening to mortality in the various strata of the general population, to reveal how different socioeconomic classes fared in terms of life and death. When such data did become available, and certainly from 1830s onwards, historical records have shown not only how wide inequalities in health were, but also how these data could be used to assess interventions to improve health and reduce inequalities.

Seminal studies from Sweden illustrate the value of analysing historical trends in health inequalities for the assessment of structural public health interventions (Burström & Bernhardt, 2001; Burström et al., 2005; Macassa et al., 2006; Nelson & Rogers, 1994), in this case the introduction of safe water, improved sanitation and other sanitary measures. These studies took full advantage of newly computerised records originally collected for civil registration in Stockholm from 1878 to 1925 – the Roteman Archives - containing information on all children 0–9 years who resided for some period of time in particular parishes between those years. Information collected included date of birth, date of moving into or out of the locality, occupational title of head of household and date of death. These data were linked to computerized death certificates to provide information on the cause of death and analysed in relation to the provision of various safe water and other sanitary improvements in the localities, hypothesised to have a differential impact on diarrhoea mortality in children.

The studies showed a remarkable decline in diarrhoea mortality in young children in Stockholm from 1878 to 1925, corresponding closely to the cumulative provision of piped water and other sanitary improvements (Burström et al., 2005; Macassa et al., 2006). The decline in diarrhoea mortality was initially more rapid in the more affluent socioeconomic groups, but, as the sanitary interventions were gradually implemented universally, less privileged socioeconomic groups benefitted more and by 1909–1917 there was no significant difference by socioeconomic group in risk of young children dying from diarrhoea. This sharp reduction in inequalities in diarrheal mortality was in stark contrast to the trends in mortality from other causes observed for young children.
children in Stockholm, for which a stepwise socio-economic gradient persisted throughout the study period (Burström et al., 2005). This last result strengthens the inference that the sanitary improvements were having a specific causal effect on diarrhoea mortality for which there was a plausible causal pathway.

Such historical inequalities studies still hold lessons for improving population health today. The profile of childhood mortality from diarrhoeal diseases in Stockholm in the early 20th century, for example, has similarities to the current situation in some low and middle-income countries today, as does the low level of access to safe water. The Swedish historical analyses provide evidence of: effectiveness of the provision of safe water and sanitary improvements in reducing diarrhoea mortality; that such infrastructure interventions delivered universally, rather than targeted, can produce a more equitable and sustainable reduction in mortality; and that specific public health interventions have an important role to play, even in the absence of economic improvement. The findings also support the conclusions of Simon Szreter in his critique of Thomas McKeown’s interpretation of the historical decline of mortality as being mainly caused by economic growth and improved nutrition. Szreter maintained that McKeown failed to recognise the simultaneous historical importance of the accompanying redistribution of wealth and of organised public health interventions, such as safe water and sanitary reforms (Szreter, 2002).

Historical studies also provide important methodological insights for future research, not least in how to exploit natural experiments and the need for patience when evaluating large-scale infrastructure interventions in low-income countries today. It takes time for interventions to be implemented completely and hence for the mortality impact to fully develop.

**Ethics statement**

The authors declare that there are no financial or personal relationships with other people or organizations that could have inappropriately influenced or biased their work.

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