

Closing the gap in a generation: what more research do we need?

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The association between socioeconomic conditions and health is well known. Time and again, research studies and reports show socioeconomic inequalities in a variety of health outcomes across most populations. Variation in the availability of high quality and comparable data in different geographical locations have been previously highlighted as a limitation, particularly for comparisons of inequalities across populations (Kunst 2009; Marmot 2009). In this context, the Commission on Social Determinants of Health was a considerable effort to “marshal the evidence of what can be done to promote health equity” (WHO 2008). While the report acknowledged that “there is enough evidence on the social determinants to act now” one of its main recommendations was that “the evidence base on health inequity, the social determinants of health, and what works to improve them needs further strengthening” (WHO 2008). In other words, more research is needed. Given the extensive literature on socioeconomic inequalities in health, what type of research can help us strengthen the currently available evidence? I will argue that this varies for different health outcomes and will illustrate this with examples.

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The pattern of inequalities in cardiovascular disease (CVD) is well-known and new reports merely describing this are unlikely to further our understanding. Nevertheless, it is surprising that it was only recently established that targeting traditional CVD risk factors (vs., for example, psychosocial factors) makes the greatest contribution to reducing these inequalities (Lynch et al. 2006; Kivimaki et al. 2008). Eliminating four traditional risk factors (smoking, high cholesterol, hypertension and diabetes) from the population will make the greatest contribution to eliminate the inequalities in CVD (Kivimaki et al. 2008). Interestingly, this work highlighted how high cholesterol, in itself not markedly socially patterned, makes a significant contribution to the reduction of CVD inequalities in absolute terms. The point of returning to absolute risks is not new, but it is important. The key point of one of these studies, clearly acknowledged by its authors, is that it relies on an equal uptake and effectiveness of interventions across socioeconomic groups (Kivimaki et al. 2008). The general consensus is that this is unlikely to happen. Thus, although we know which factors we need to intervene on to decrease the inequalities in CVD, how to and importantly, how to do this without increasing the gap between socioeconomic groups, is much less clear (Potvis 2009). Thus, for CVD the next phase of research includes identifying, through systematic reviews and new research, the characteristics of the interventions and contexts that will eliminate absolute inequalities for the long-term, whilst at the same time decreasing overall CVD. We need studies that identify barriers to prescribing and effectively using interventions (lifestyle and pharmacological) among individuals from lower socioeconomic groups. Once these are better understood we need randomized controlled trials on how to deliver established effective interventions in these groups and particularly, how to deliver complex

interventions that target simultaneously several risk factors because these cluster among lower socioeconomic groups. Crucially, we also need to identify and target the distal factors that determine the inequalities in proximal behaviours (Potvis 2009).

Adiposity brings a different example. It is a well-known risk factor for CVD, with well characterized pattern in high income countries, of greater adult adiposity in those from low socioeconomic groups (McLaren 2007). However, rapid increasing trends in adiposity means that the effects of the inequalities observed in previous cohorts are unlikely to explain the magnitude of future inequalities in younger cohorts (Howe et al. 2010b). Although we are not surprised to find adiposity in these countries is nowadays more prevalent in children with parents of lower socioeconomic position (McLaren 2007), this has not always been the case. In fact, today's adults lived through a childhood where overweight and obesity were not necessarily differentially distributed across socioeconomic groups (Okasha et al. 2003; Batty and Leon 2002). The future inequalities in CVD in contemporary children will not be fully explained by what we have learnt from contemporary cohorts of adults. For example, in children born in the 1990s, inequalities in CVD risk factors such as C-reactive protein and leptin were completely mediated by adiposity whereas other factors, including systolic and diastolic blood pressure, were partially mediated by adiposity (Howe et al. 2010a, b). This research suggests that future adults are likely to have greater inequalities in diabetes and CHD than current adults. And so for research into socioeconomic differentials and how to reduce these with respect to obesity, replicating descriptive studies in young birth cohorts is still important and relevant. However, the best way forward for these studies will be incorporating new methods that can account for the complexity of these changing life course exposures. A systems approach might provide better methods to incorporate complex biological and social life course processes to allow evaluating and predicting these changes across different generations (Auchincloss and Diez Roux 2008).

Finally, asthma provides an example of a health outcome best characterized by its variability (Asher et al. 2006). Asthma prevalence and its inequalities have changed over time, geographical region and across generations but the underlying factors driving these variations are not well understood and no major preventable risk factors that would reduce inequalities have been identified. In this scenario, future research describing the direction and magnitude of socioeconomic inequalities is important not only to quantify the changing inequitable burden of this condition in subgroups of the population, but also because this can help in understanding the mechanisms that originate this disease and contribute to its socioeconomic

patterns. In CVD research, we first established its main risk factors and only later recognized that these are also the main factors generating the inequalities. In asthma, I am proposing that by identifying the proximal risk factors responsible of its inequalities we are more likely to find causal risk factors underlying this condition. For example, understanding how much of the inequalities and its changes across populations, time and generations are mirrored by changes in inequalities of established or putative asthma risk factors, such as smoking, maternal diet, pregnancy-related factors, growth, breastfeeding, respiratory infections, pet exposure, obesity, or occupational exposures to name a few, will inform of the potential causal role of these risk factors.

In summary, yes, more research is needed. To avoid repeating ourselves, the new research needs to account for the varying levels of knowledge we have for different health outcomes and their changing trends; needs to incorporate new methodological developments that further our understanding of the life course mechanisms originating the social determinants of health; and where there is sound knowledge of the proximal risk factors that generate the inequalities, we need to identify and characterize the interventions that can successfully eliminate them.

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