

February 2, 2018

Stephen Leeder
Editor-in-Chief
International Journal of Epidemiology

Dear Editor,

We are pleased to submit our paper entitled **“Potential gains in life expectancy by reducing inequality of lifespans in Denmark: An international comparison and cause of death analysis”** for consideration as original article in *IJE*.

Lifespan inequality is an important metric of population health that reflects heterogeneity in ages at death at the population level and uncertainty in the timing of death at the individual level. In this manuscript, we address the increasingly importance of lifespan inequality, alongside longevity, as health policy objectives in developed countries.

We present an analytical strategy, applied to the case of Denmark, to analyze and explain the evolution of life expectancy and lifespan inequality over time (1960 to present) to identify causes of death and age-groups that contribute the most to changes over time, and to contemporary differences with Sweden. The proposed framework allows us to translate decreases in lifespan inequality into potential gains in life expectancy.

Our analyses reveal three important findings: (1) The 1975-1995 stagnation in Danish female life expectancy was accompanied by stagnation in lifespan inequality. Both were consistent with high smoking-related mortality in those born in the interwar period, (2) Cancer mortality is the biggest contributor to the contemporary Danish-Swedish life expectancy difference, while infant mortality is the biggest contributor to the Danish-Swedish lifespan inequality difference, and (3) Denmark can reduce inequality in lifespan and increase life expectancy through a consistent policy target: reducing cancer and infant mortality. This finding vindicates our approach.

Our manuscript highlights the impact of major epidemiological trends, like the smoking epidemic and the cardiovascular revolution, on both life expectancy and lifespan inequality, and presents a strategy which can be broadly applied to other countries. Therefore, we hope you see our paper as fitting in *IJE*'s rich history of publishing serious explorations of causes of death, epidemiological advances and international health. We look forward to your response.

Sincerely,

José Manuel Aburto
Maarten Wensink
Alyson van Raalte
Rune Lindahl-Jacobsen