Session	Data and Methods: Øystein Kravdal (Norway)
Title	Mortality change roils period rates
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Research issue to be addressed

When a life is saved under a more favourable mortality regime, how long is death averted? How do the number of lives saved and the lifespan increments affect period lifetables? It turns out that a change in mortality regime produces a wake of turbulence that disturbs period rates like life expectancy. The conventional life table approach supposes that when a life is saved under new mortality conditions that the individual gains, on average, the remaining life expectancy at that age. This classical approach assumes that each beneficiary will face the same age-specific hazard of death for the remainder of his or her life as individuals who survived anyhow. It is however much more likely that individuals that were saved, will die sooner. This means that period mortality rates and life expectancy are actual overestimating the actual mortality conditions directly after a change to a healthier regime. Until the last person dies who was born under the old regime but whose life is saved under the new, life expectancy as conventionally calculated does not equal the life expectancy of a cohort living under the new regime.

The key idea is that annual health progress lets many people gain short additional span of life, whereas conventional lifetable calculations are consistent with the notion that lifesaving helps a few people for a long increment of life. How large the distortion of the conventional life expectancy calculation is when death rates are declining, depends on how long death is postponed.

Methodology and data to be used

The Max Planck Institute for Demographic Research houses a lightbulb laboratory in which large numbers of small bulbs can be lit at either 5 or 6 volts. A population of lightbulbs can be kept under harsh 6 volt conditions some moment and then a more healthy 5 volts thereafter. Data from lightbulb experiments can provide empirical

evidence on the nature of mortality turbulence after a regime change and how much it differs from the classical calculations.

Results

Preliminary results of the first lightbulb experiments show that mortality rates do indeed suffer from historical conditions and the ‘accelerating hazard model’ seems to be the accurate model describing the history dependency. Current and upcoming experiments will give more insight in how many ‘lives’ are saved and for how long.