

## **Does mortality selection undermine itself?**

Seemingly-counterintuitive patterns in aggregate mortality are often explained by mortality selection. A common heuristic is that mortality deceleration, for example, occurs when mortality has made a cohort homogeneously robust (Lynch et al 2003). This poster reconsiders whether this heuristic accurately captures the dynamic of mortality heterogeneity over age. I show analytically that aggregate mortality's derivatives involve a trade-off. On one hand, as mortality increases with age, the mortality difference between subpopulations (assuming proportional hazards) increases absolutely, increasing selection for robustness. On the other hand -- this poster's key result -- all else equal, selection occurs most sharply when the frail comprise 50% of the total population, slowing down as frailty composition declines. Thus, the common heuristic may be misleading, since deceleration can occur when a substantial proportion of frail remain. Several implications for demographic applications are discussed. The poster will include simulations with parameters from the Human Mortality Database.