

MAX-PLANCK-INSTITUT
FÜR DEMOGRAFISCHE
FORSCHUNG

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RESEARCH





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Morbidity compression

Tim Riffe



Shout-outs

This work is a spin-off from papers with:

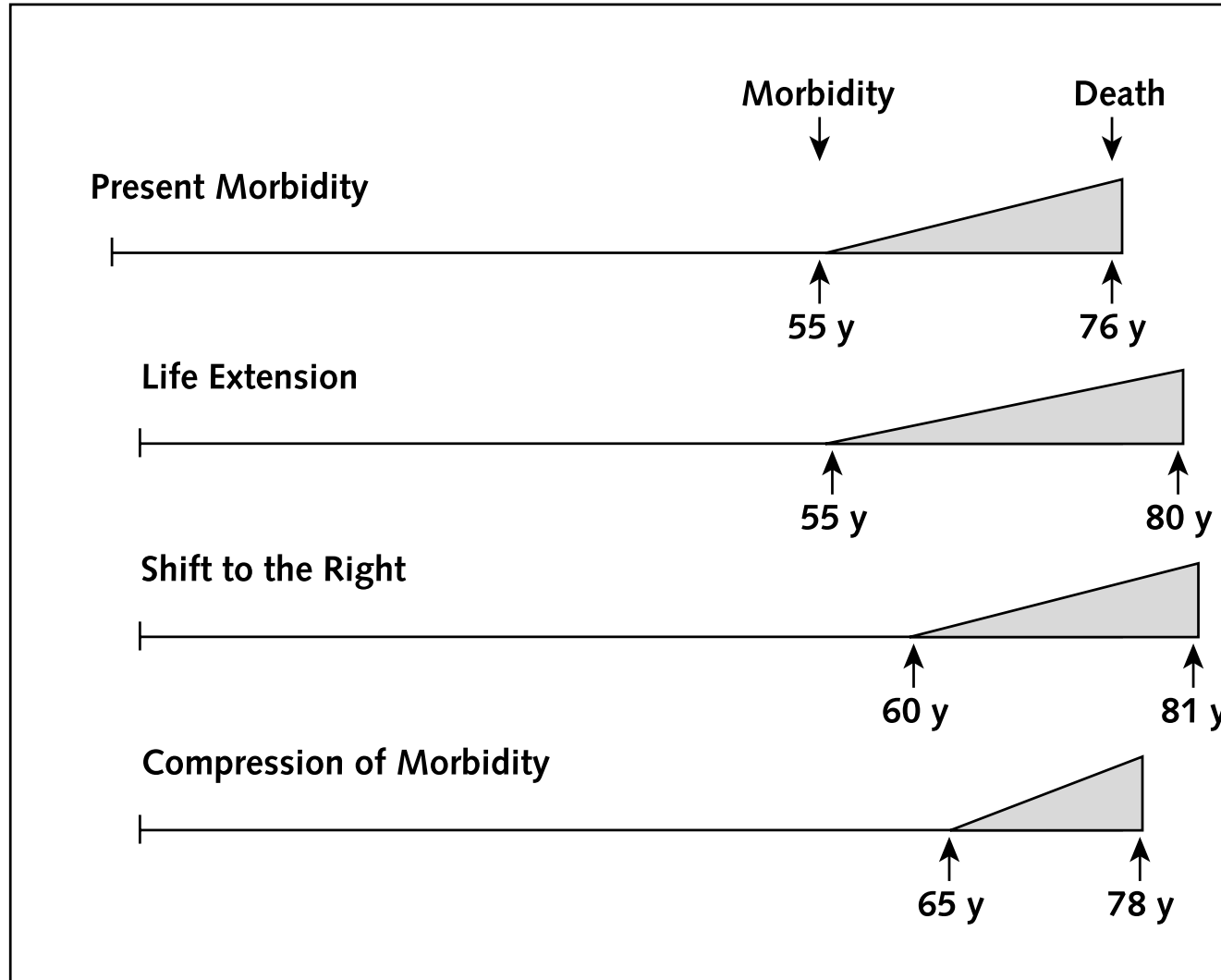
Paul Chung, John MacInnes, Jeroen Spijker, Alyson van Raalte,
Maarten Bijlsma

One or more of them may also join in the present work, but blame me for today's ideas.



Fries' diagrams are a nice prop

Figure 1. Possible scenarios for future morbidity and longevity.





Pattern indifference within lifespan



(if we all died at the same age then this stuff would be easy)



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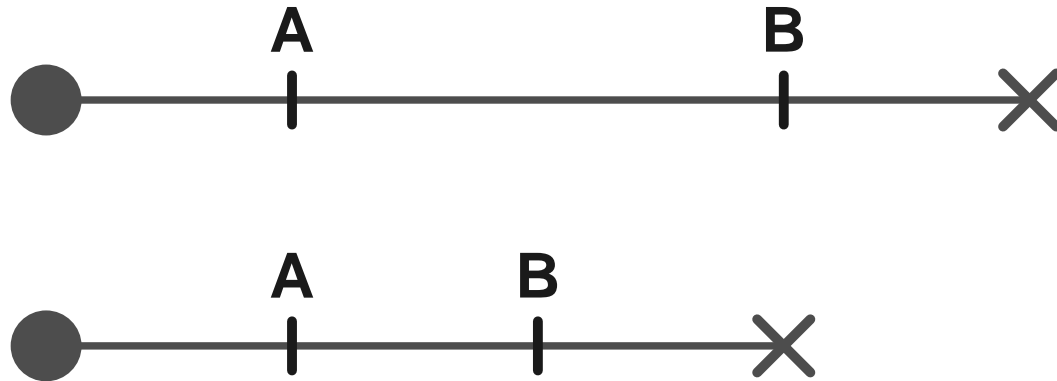


Patterns matter if lifespans are mixed



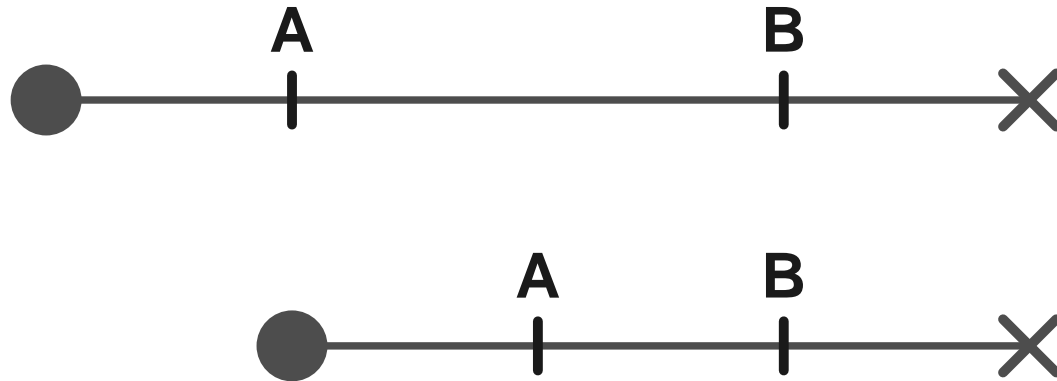


Patterns matter if lifespans are mixed



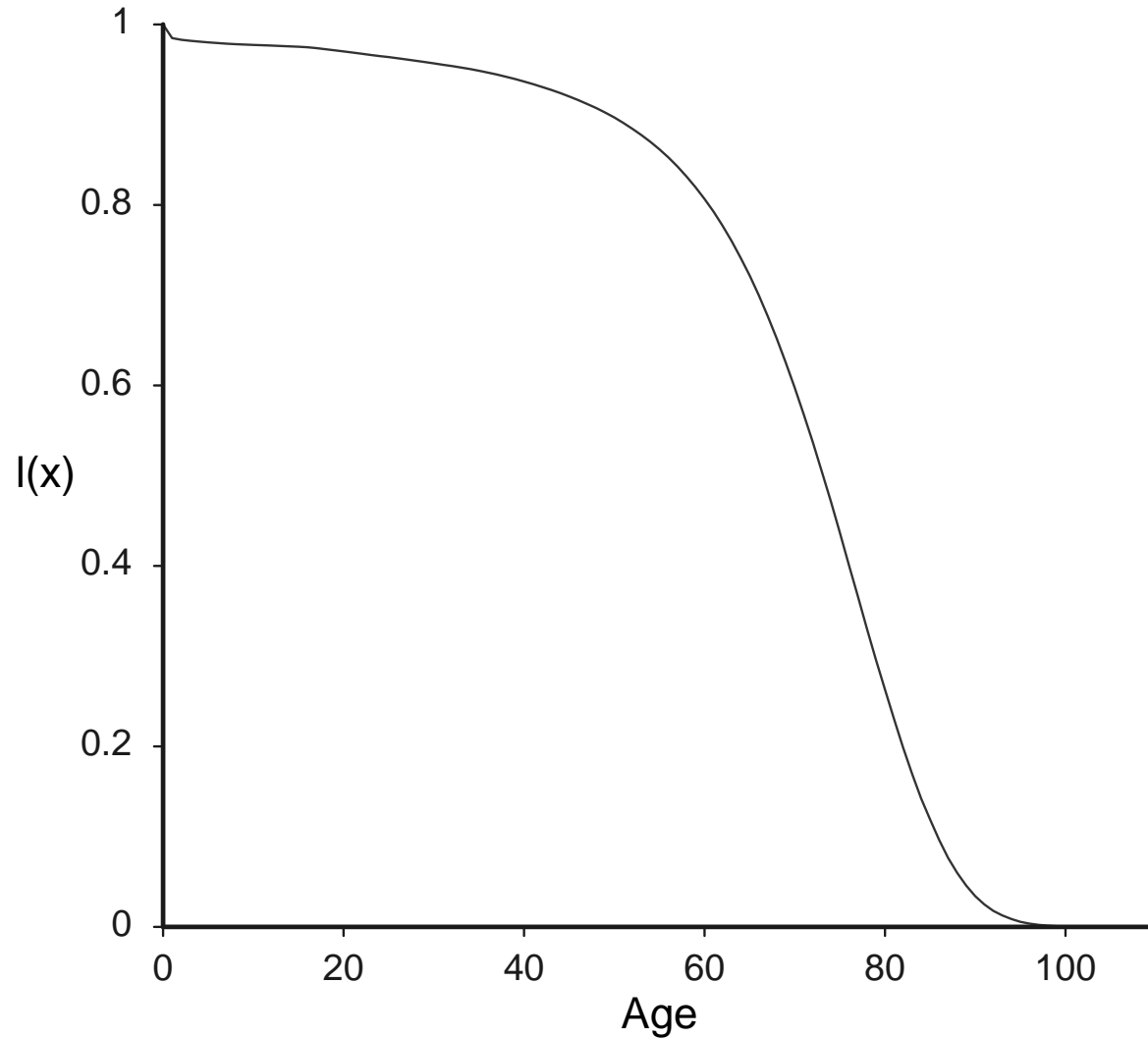


Patterns matter if lifespans are mixed



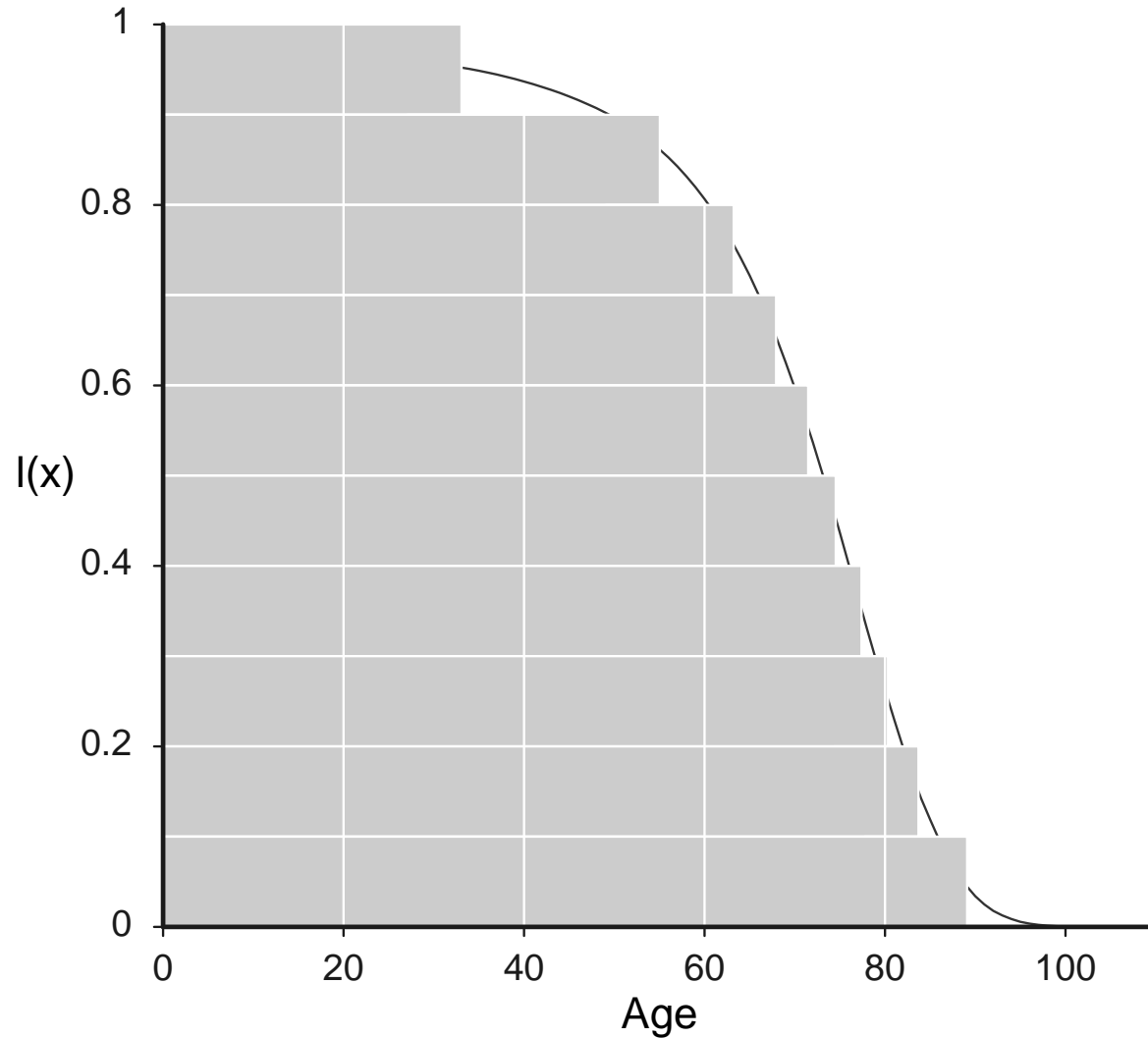


Patterns matter if lifespans are mixed



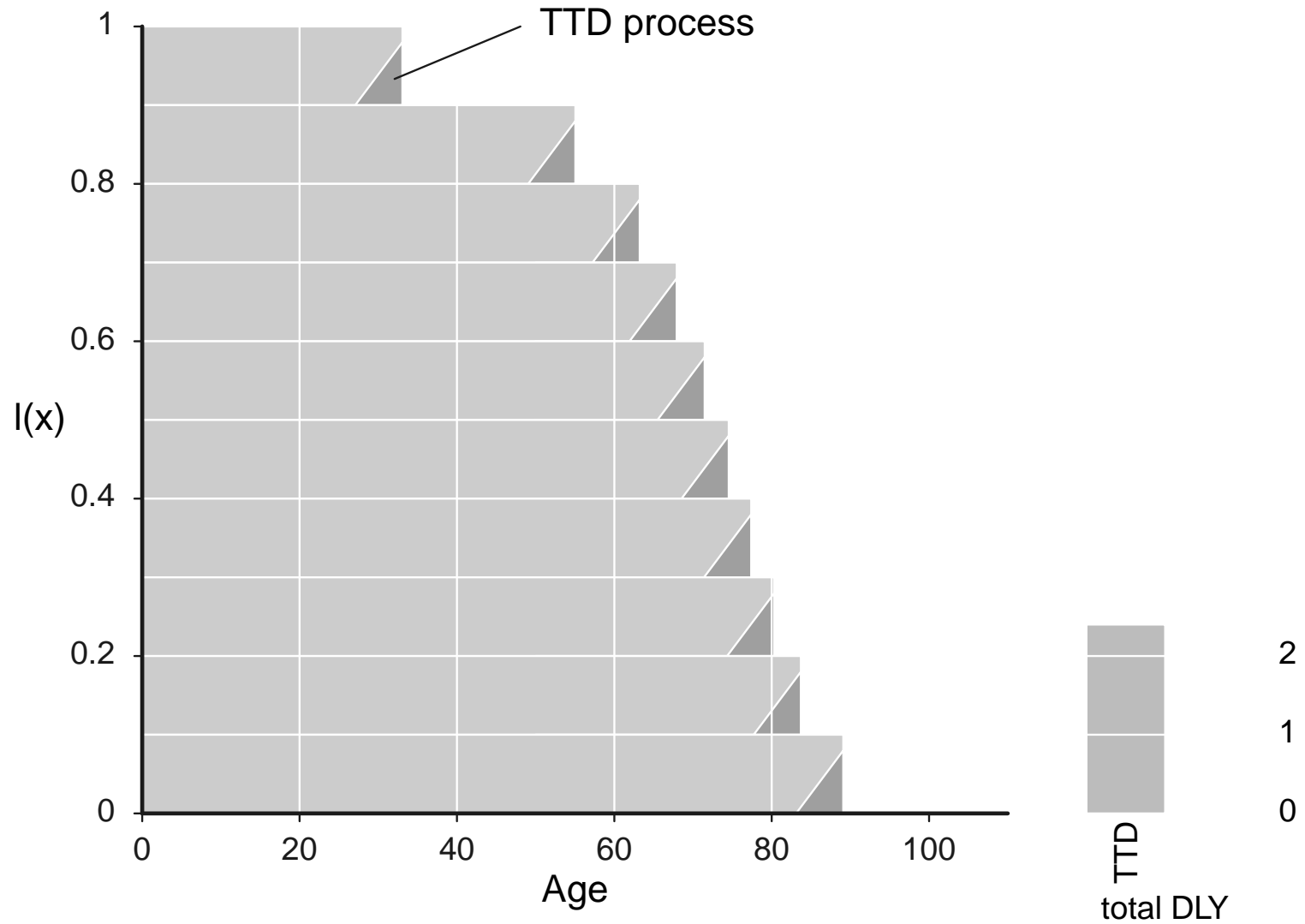


Patterns matter if lifespans are mixed



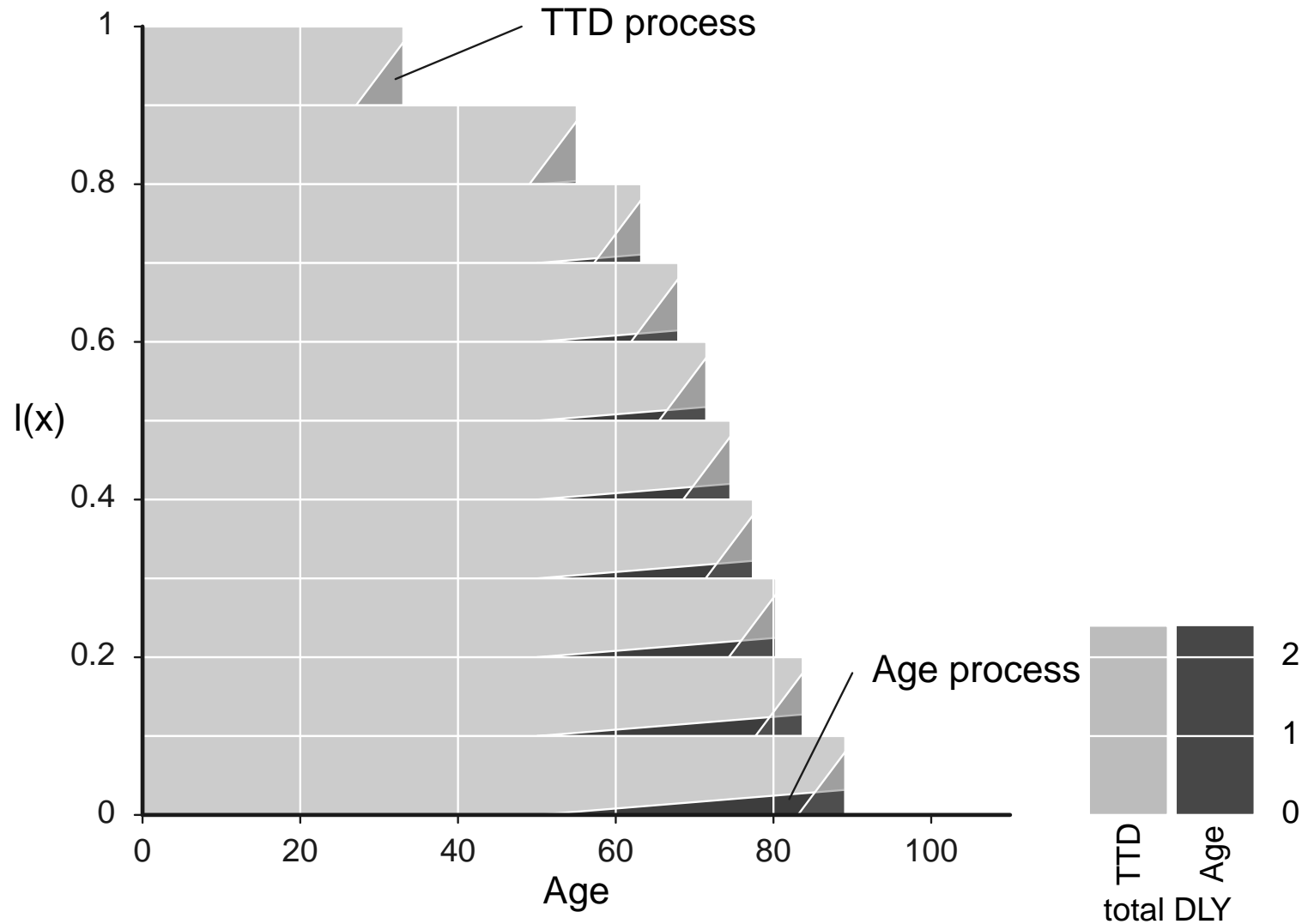


Patterns matter if lifespans are mixed



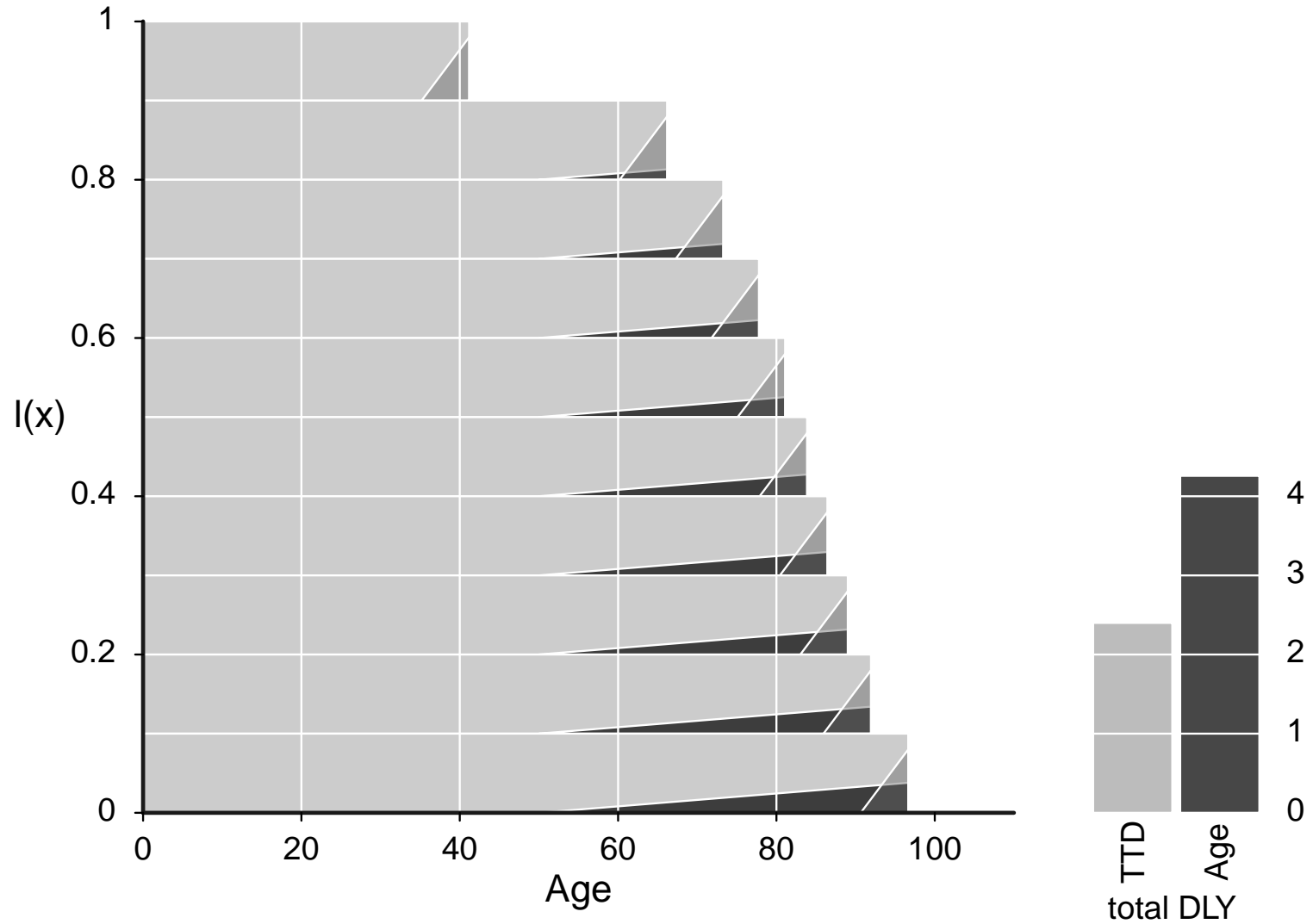


Patterns matter if lifespans are mixed





Patterns matter if lifespans are mixed





Compression

Complaint:

Although neither morbidity pattern changed, standard measures would conclude that the TTD morbidity compressed, and the age-pattern did not. DLY says nothing of concentration in the morbidity pattern.

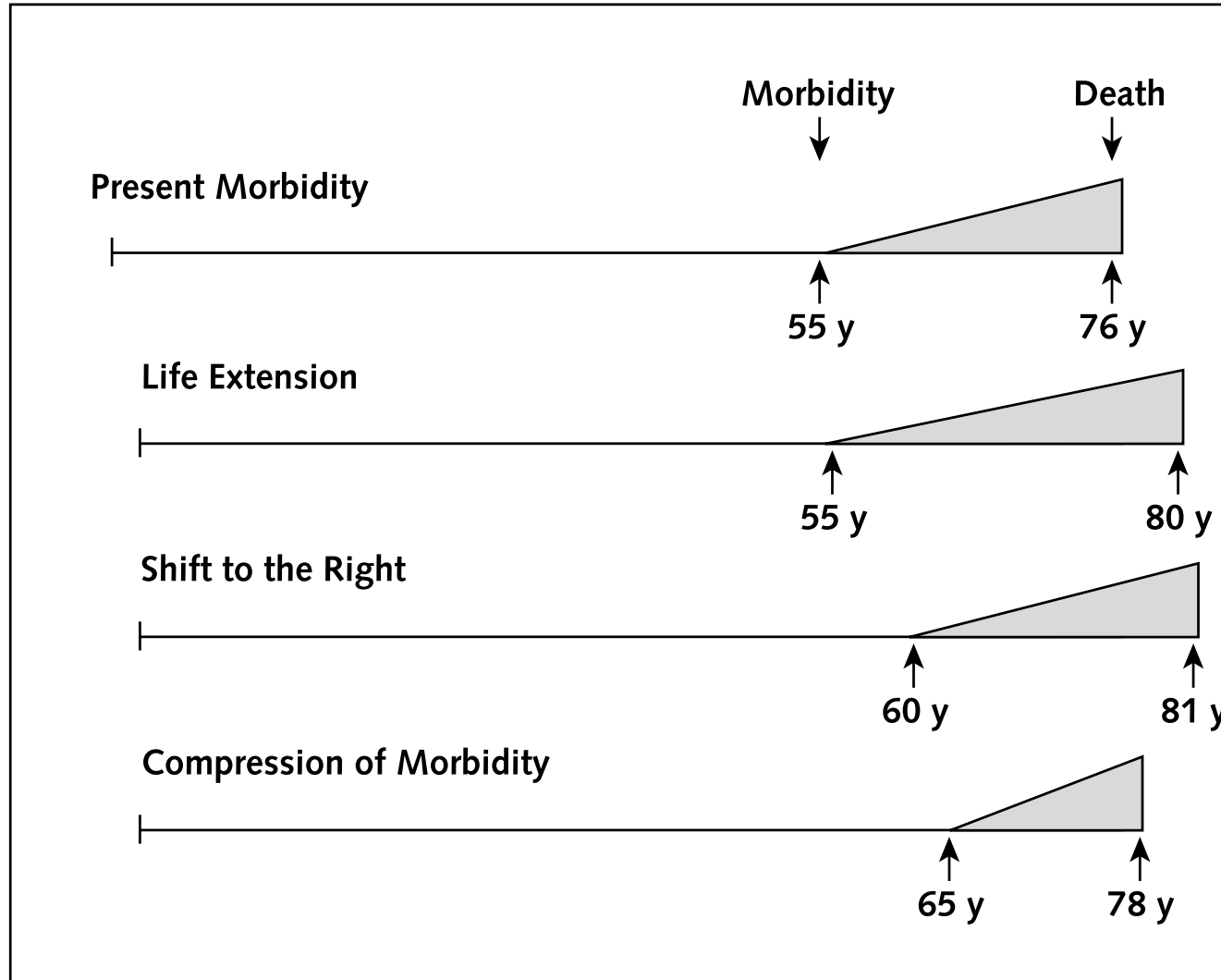
Objective:

Separate morbidity levels and morbidity concentration.



Fries' diagrams are ignored in practice

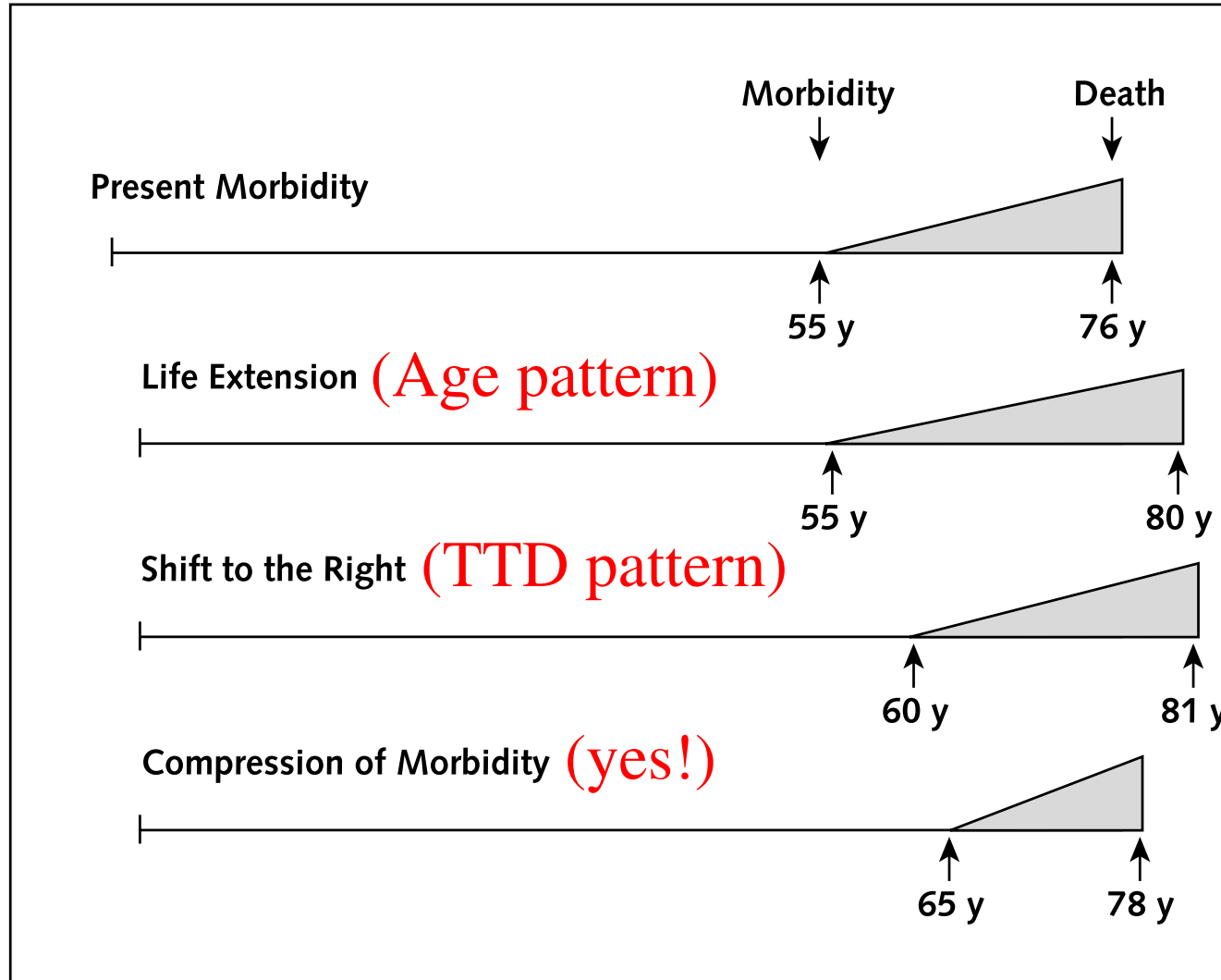
Figure 1. Possible scenarios for future morbidity and longevity.





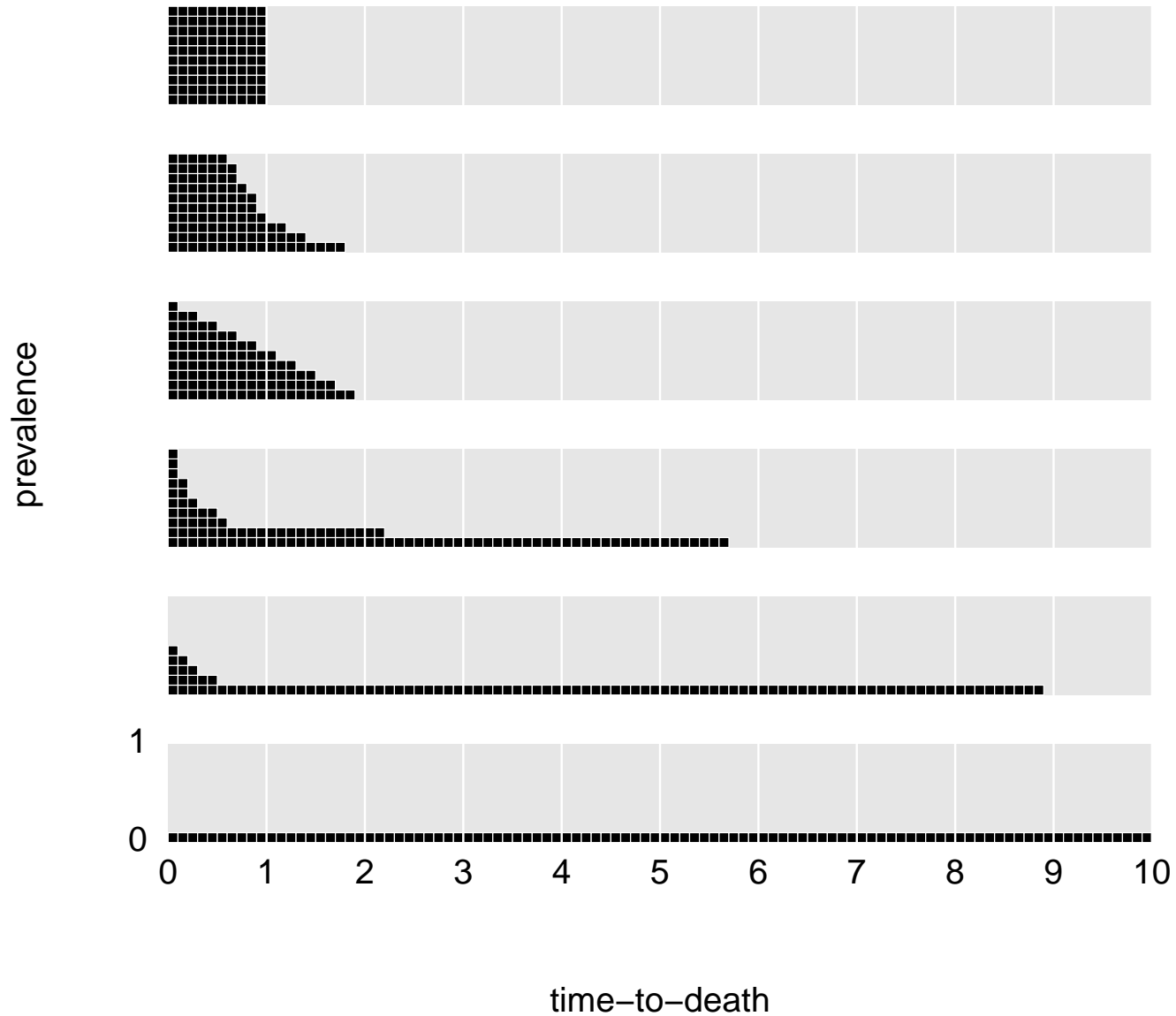
Fries' diagrams are ignored in practice

Figure 1. Possible scenarios for future morbidity and longevity.





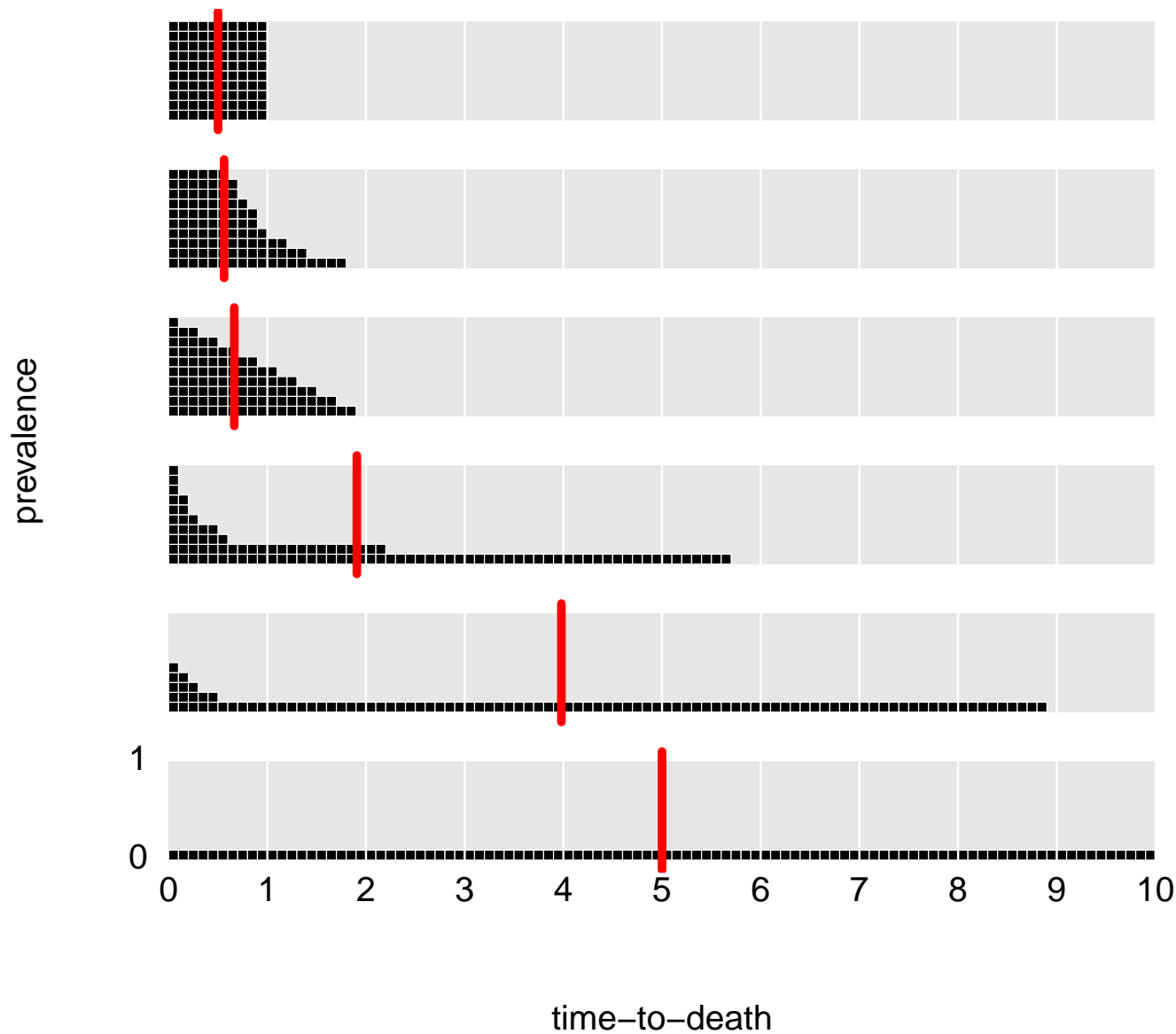
Schematic time-to-death patterns





Schematic time-to-death patterns

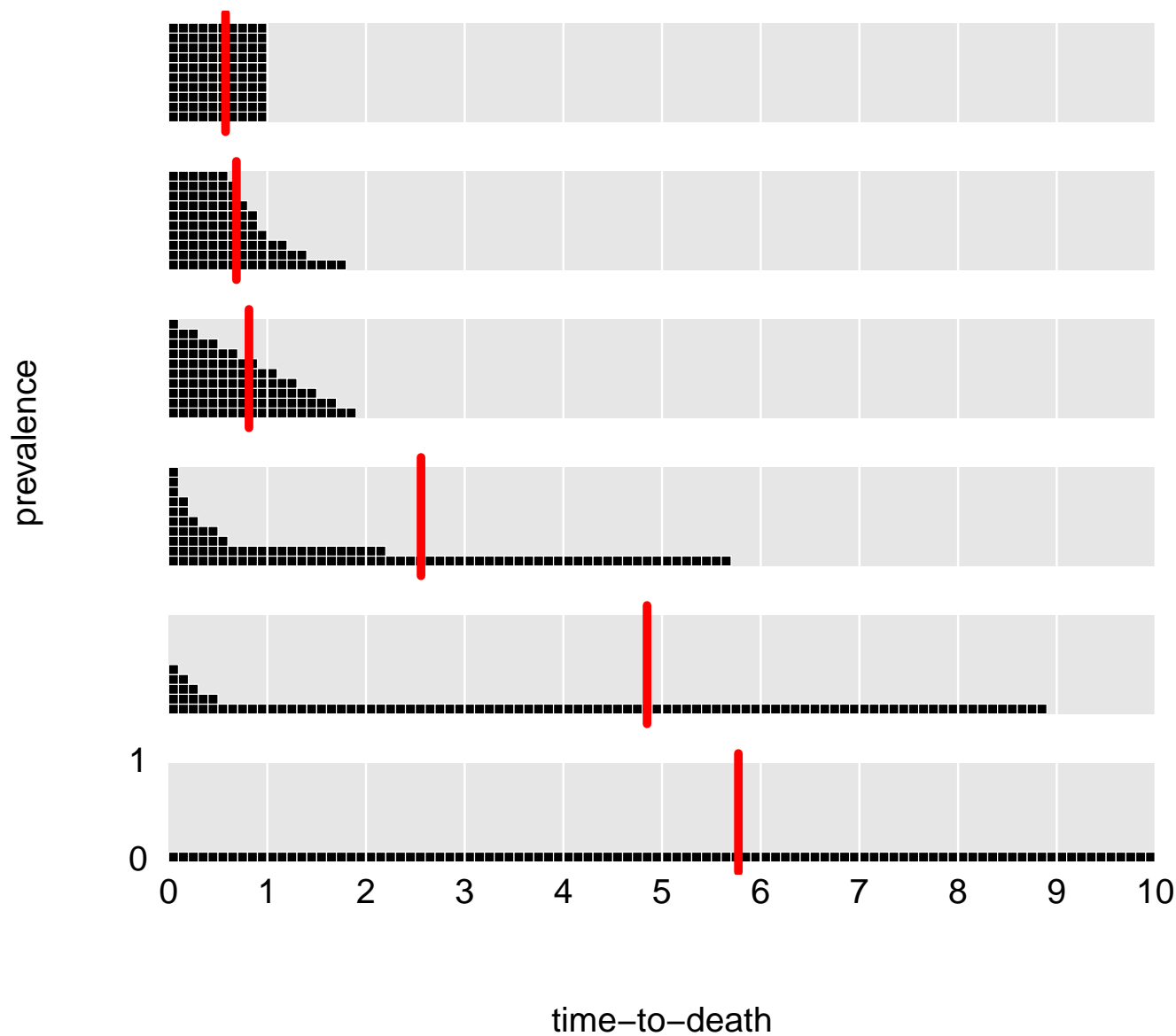
$\overline{\text{TTD}}$





Schematic time-to-death patterns

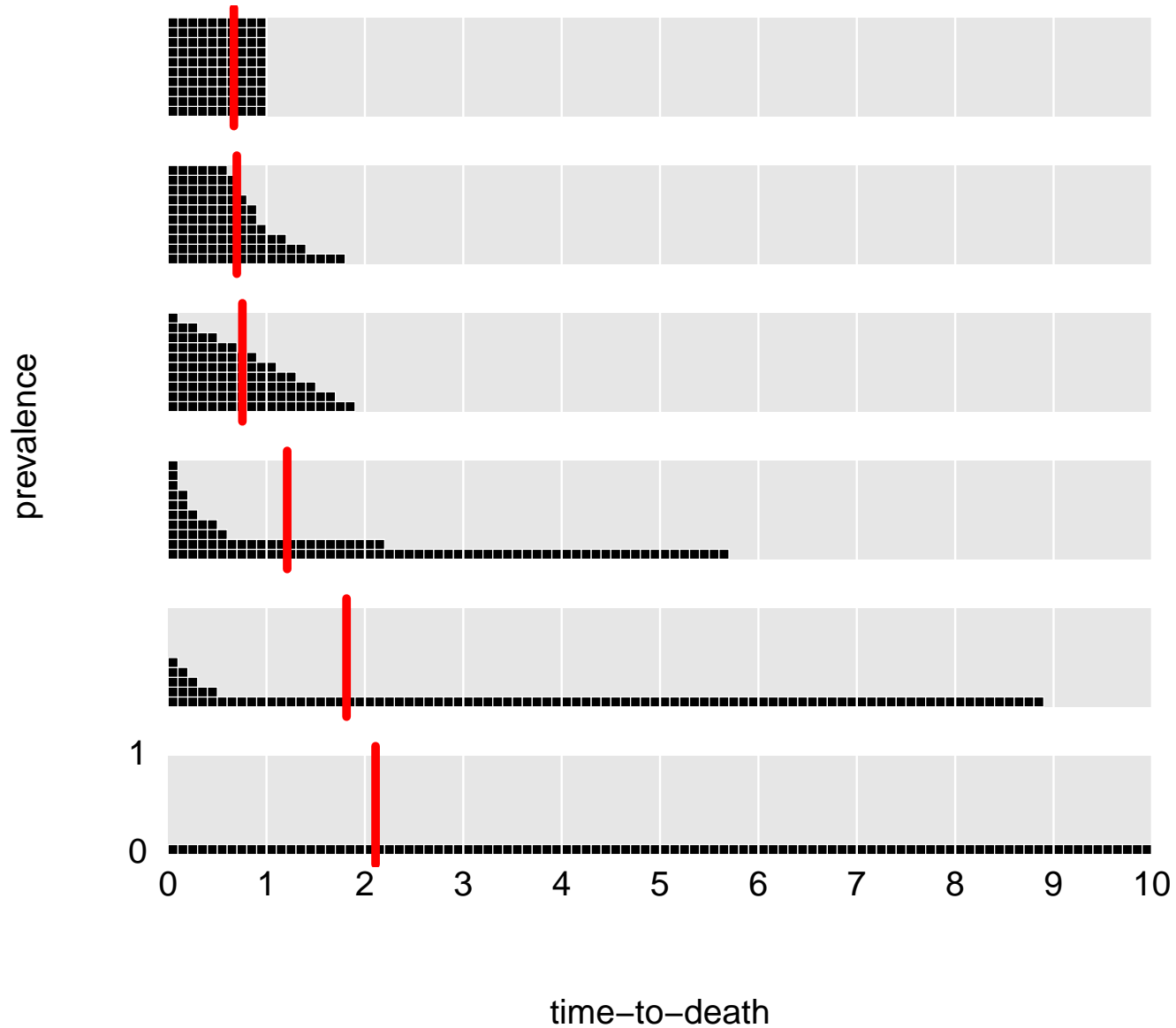
$$\overline{\text{TTD}^2}$$





Schematic time-to-death patterns

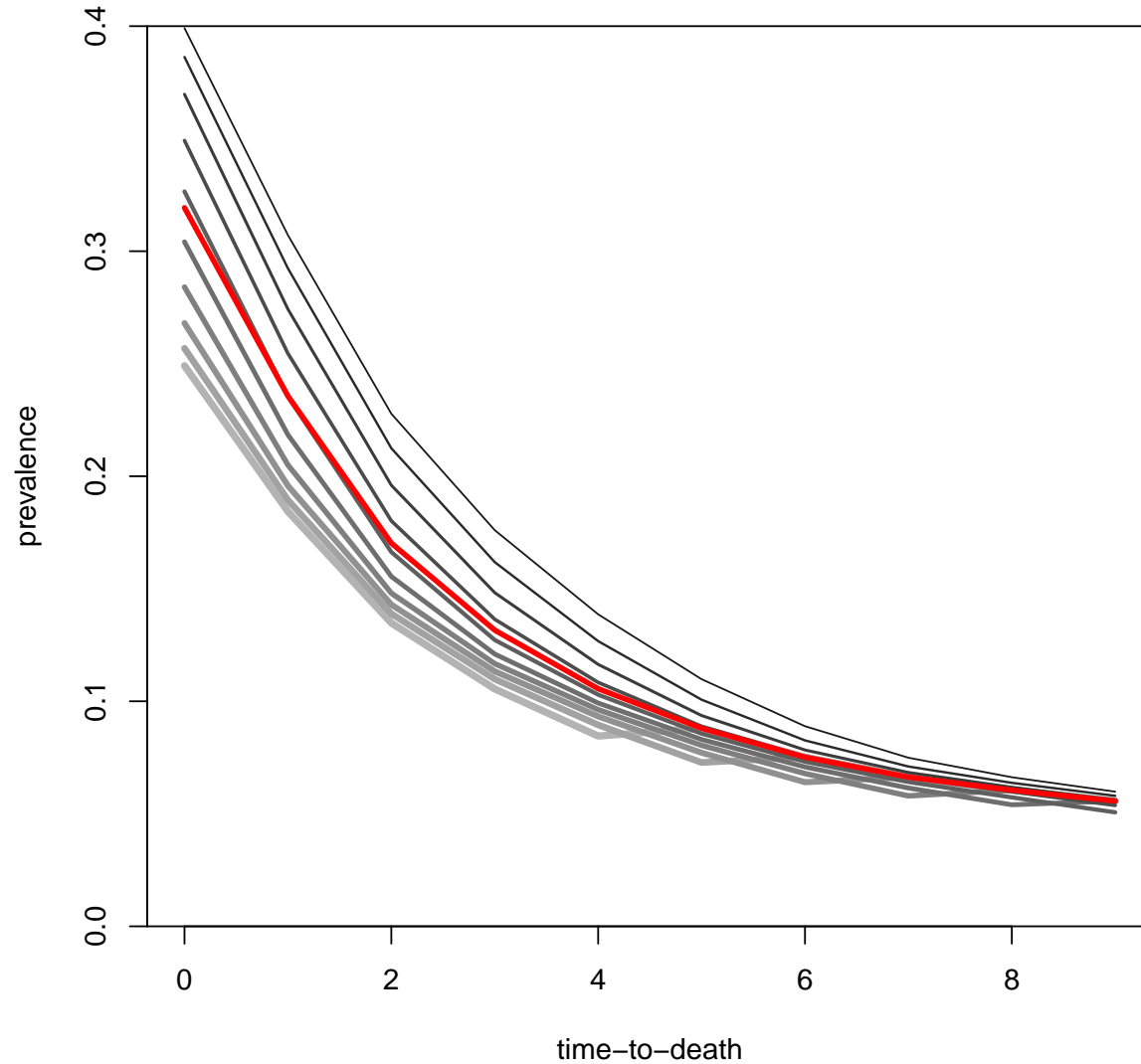
$$\sqrt{\text{TTD}}$$





Real time-to-death patterns (HRS, ADL3)

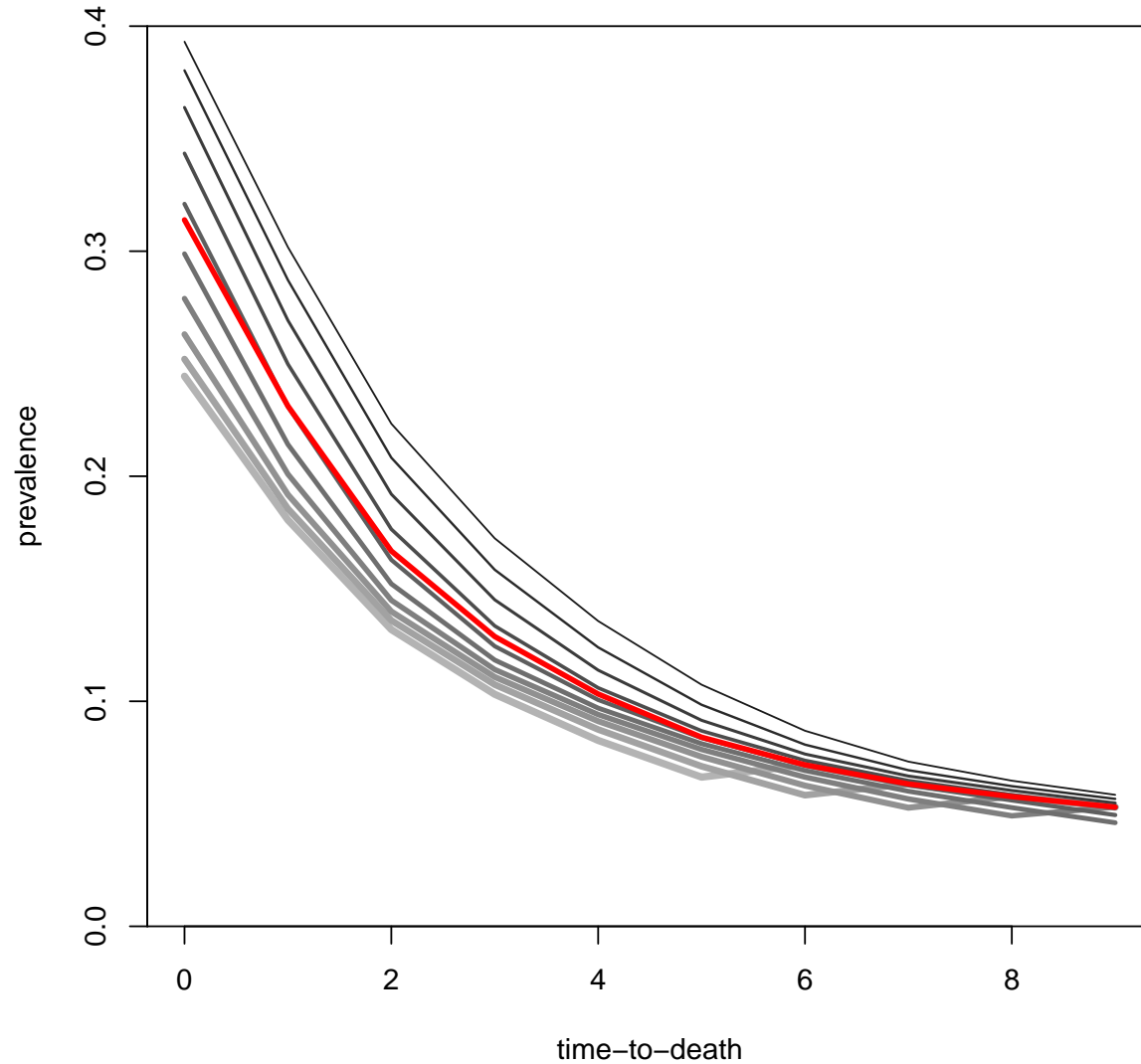
1915





Real time-to-death patterns (HRS, ADL3)

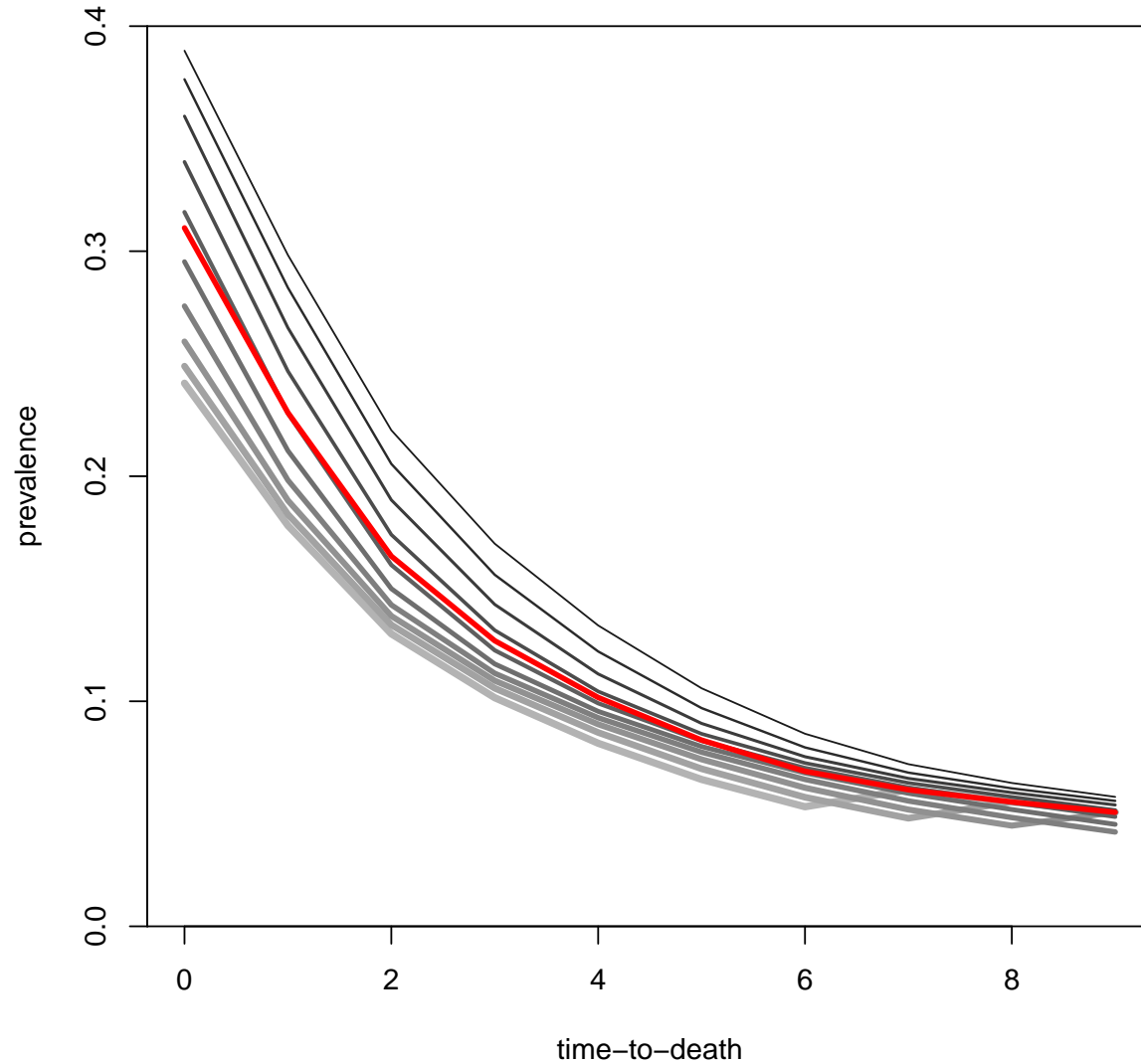
1916





Real time-to-death patterns (HRS, ADL3)

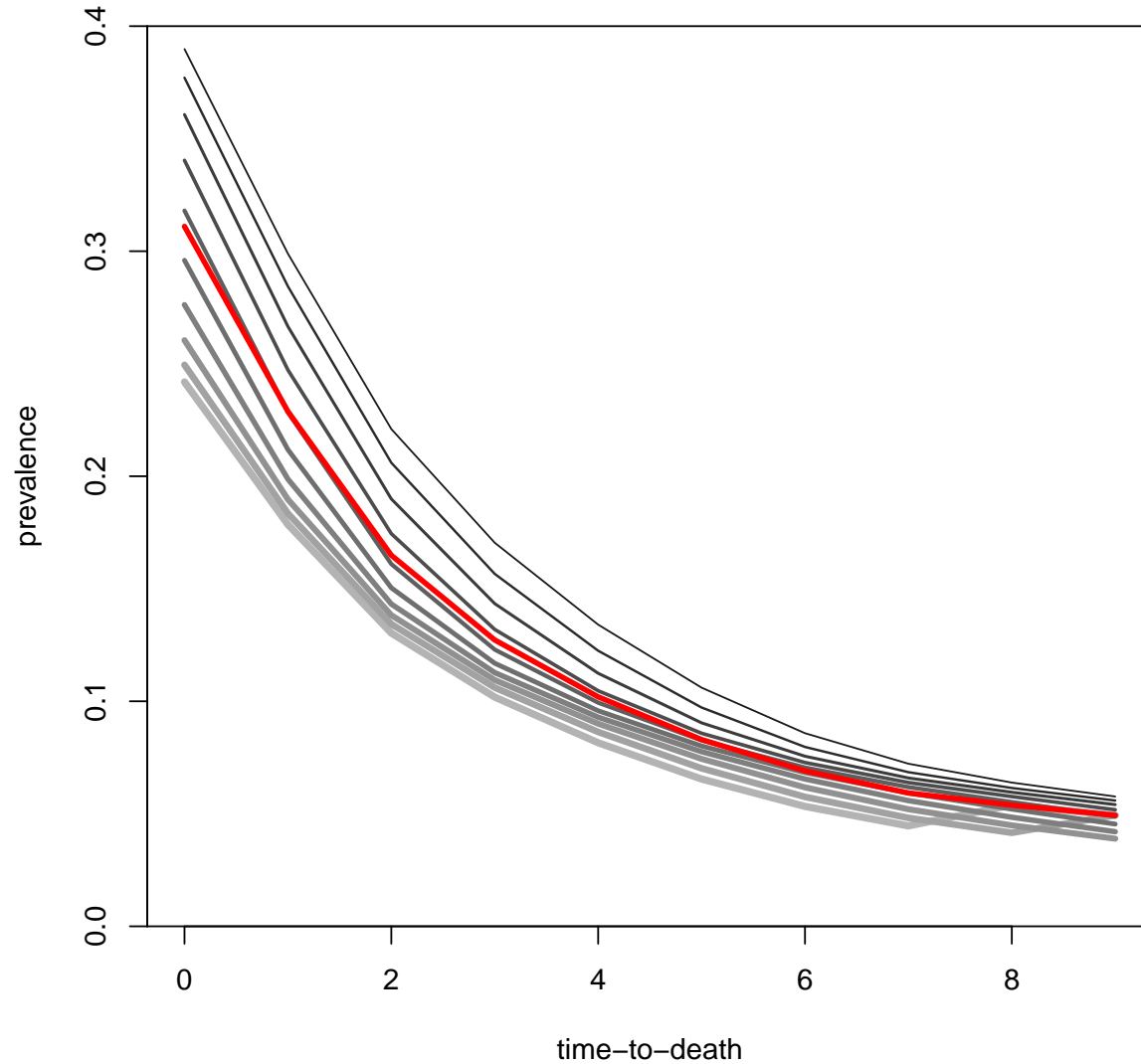
1917





Real time-to-death patterns (HRS, ADL3)

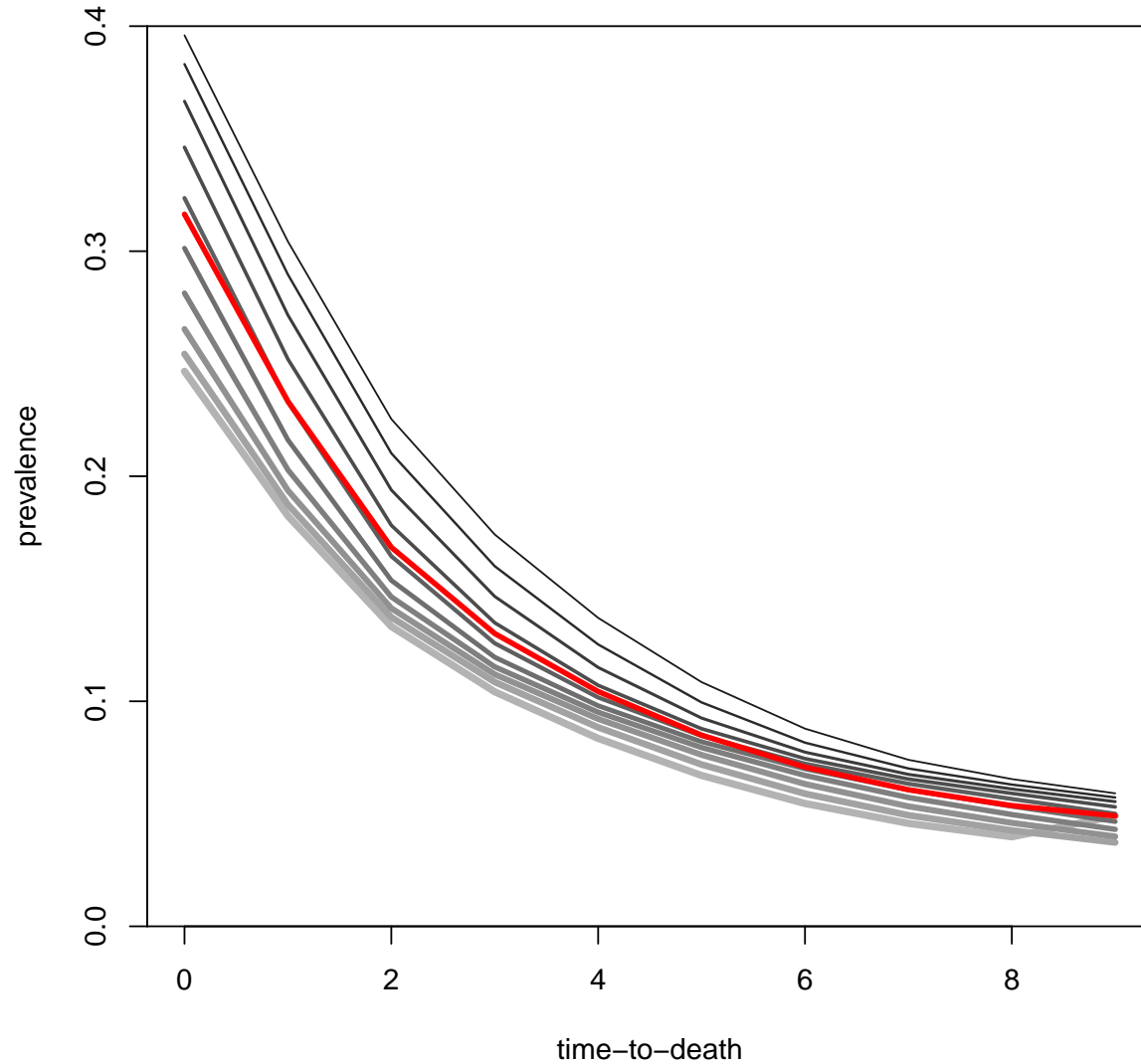
1918





Real time-to-death patterns (HRS, ADL3)

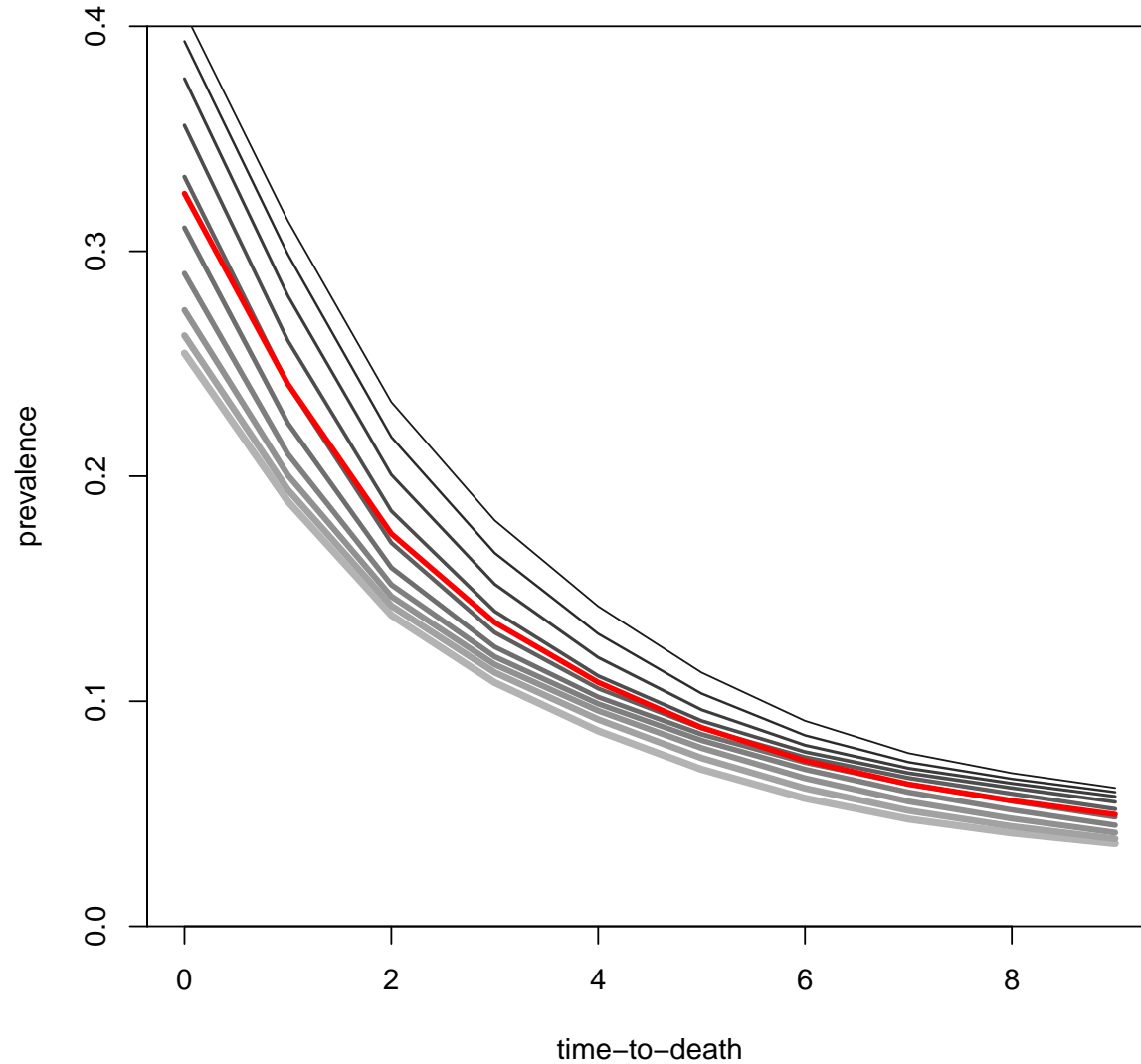
1919





Real time-to-death patterns (HRS, ADL3)

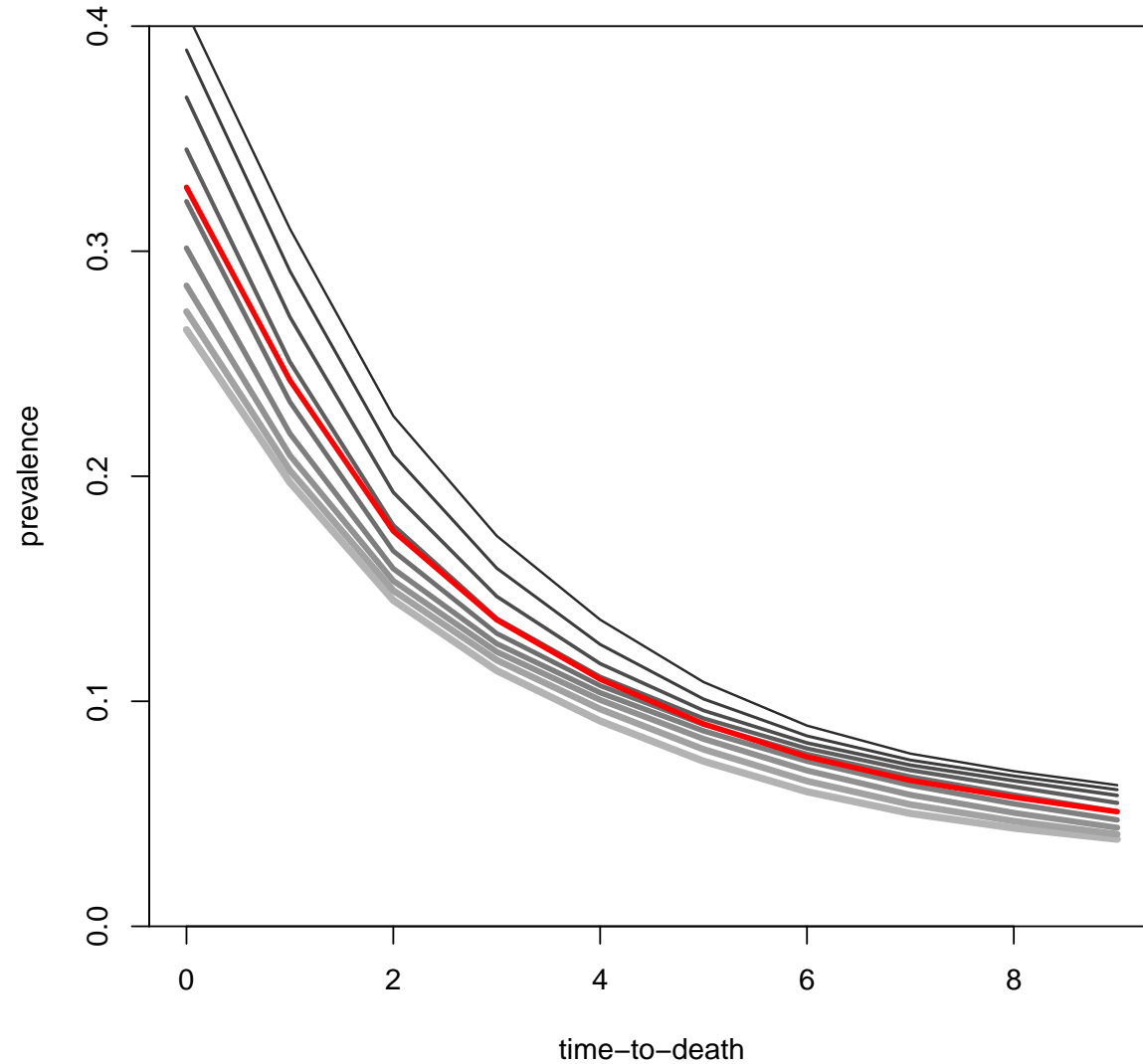
1920





Real time-to-death patterns (HRS, ADL3)

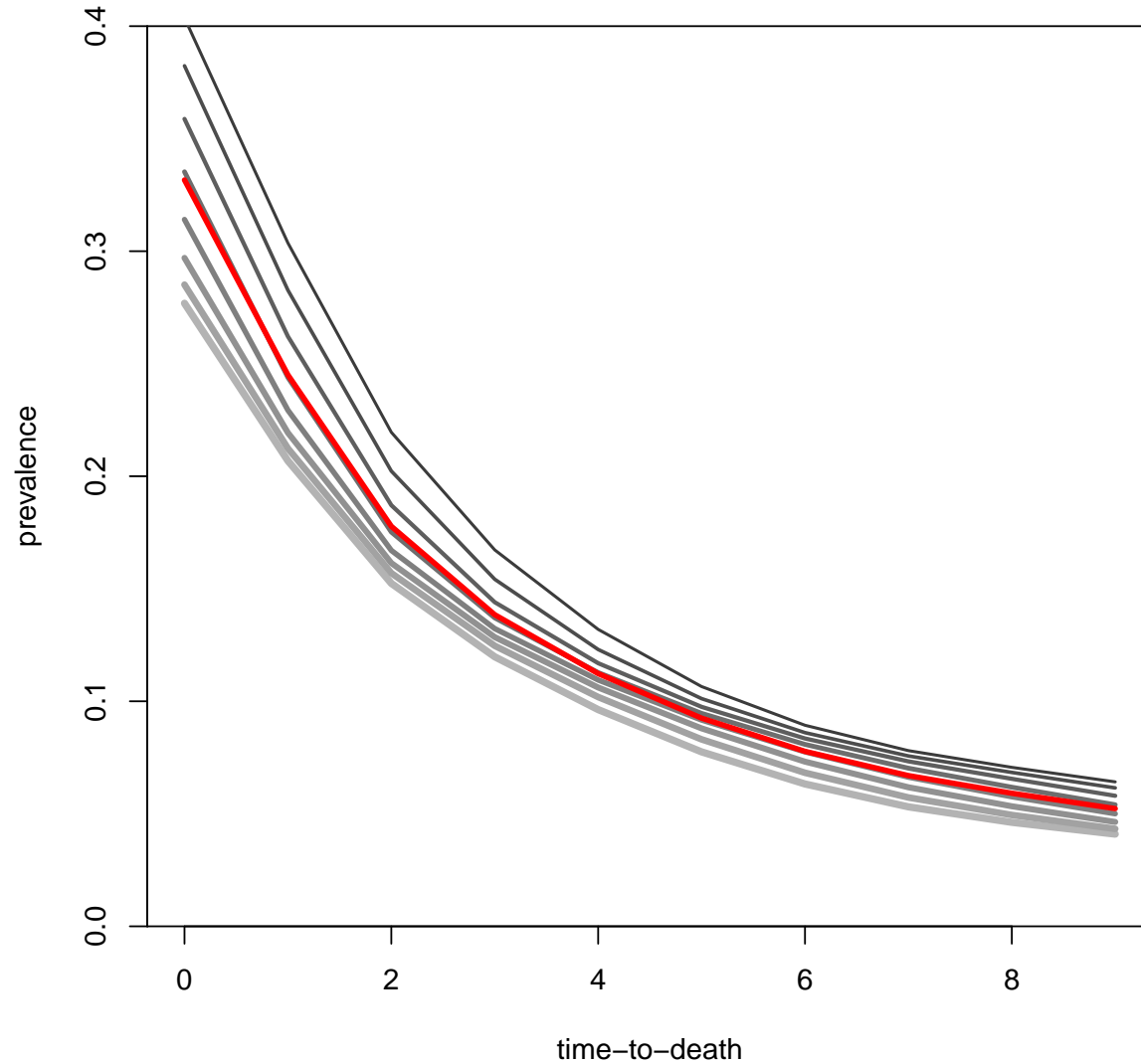
1921





Real time-to-death patterns (HRS, ADL3)

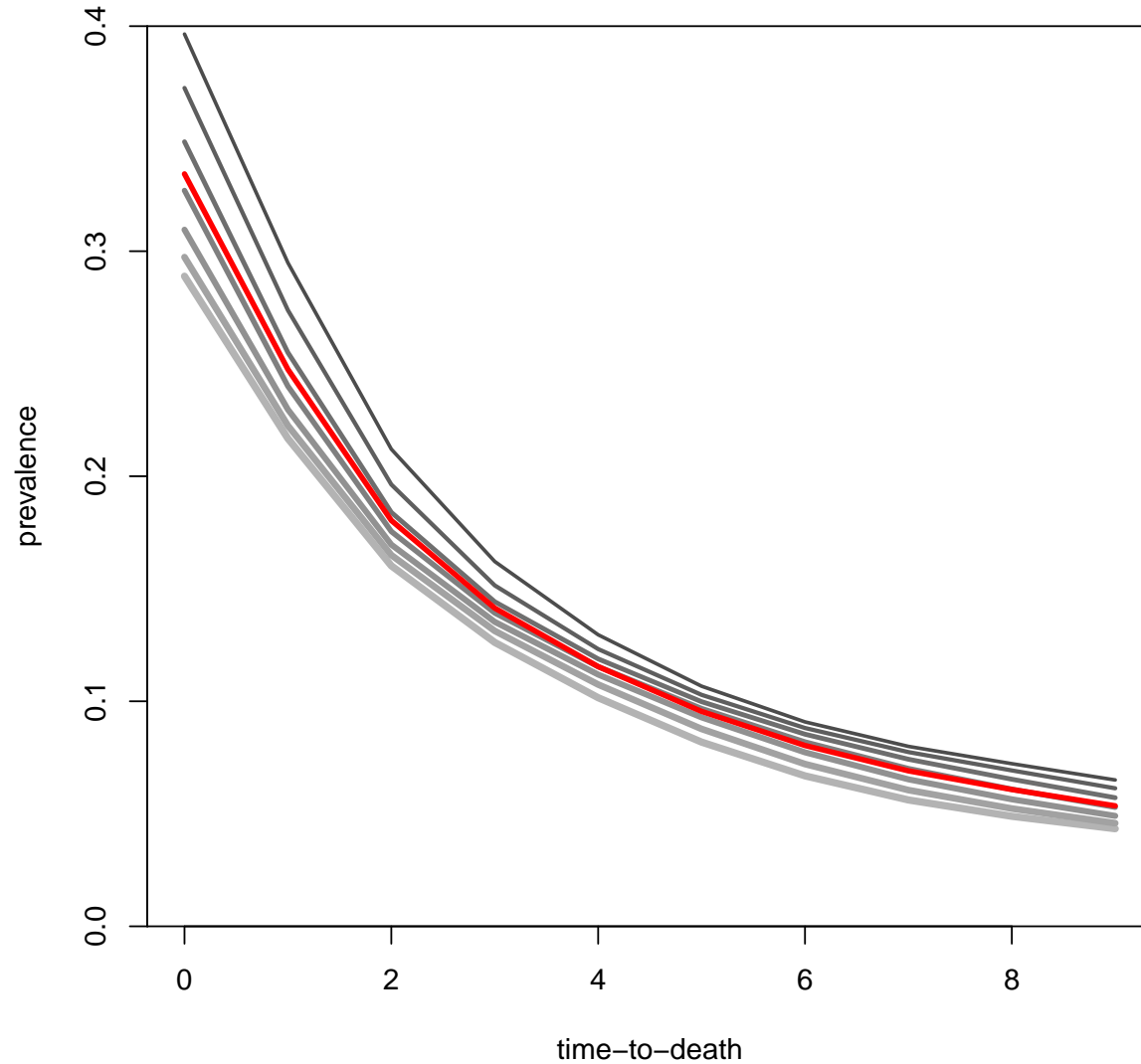
1922





Real time-to-death patterns (HRS, ADL3)

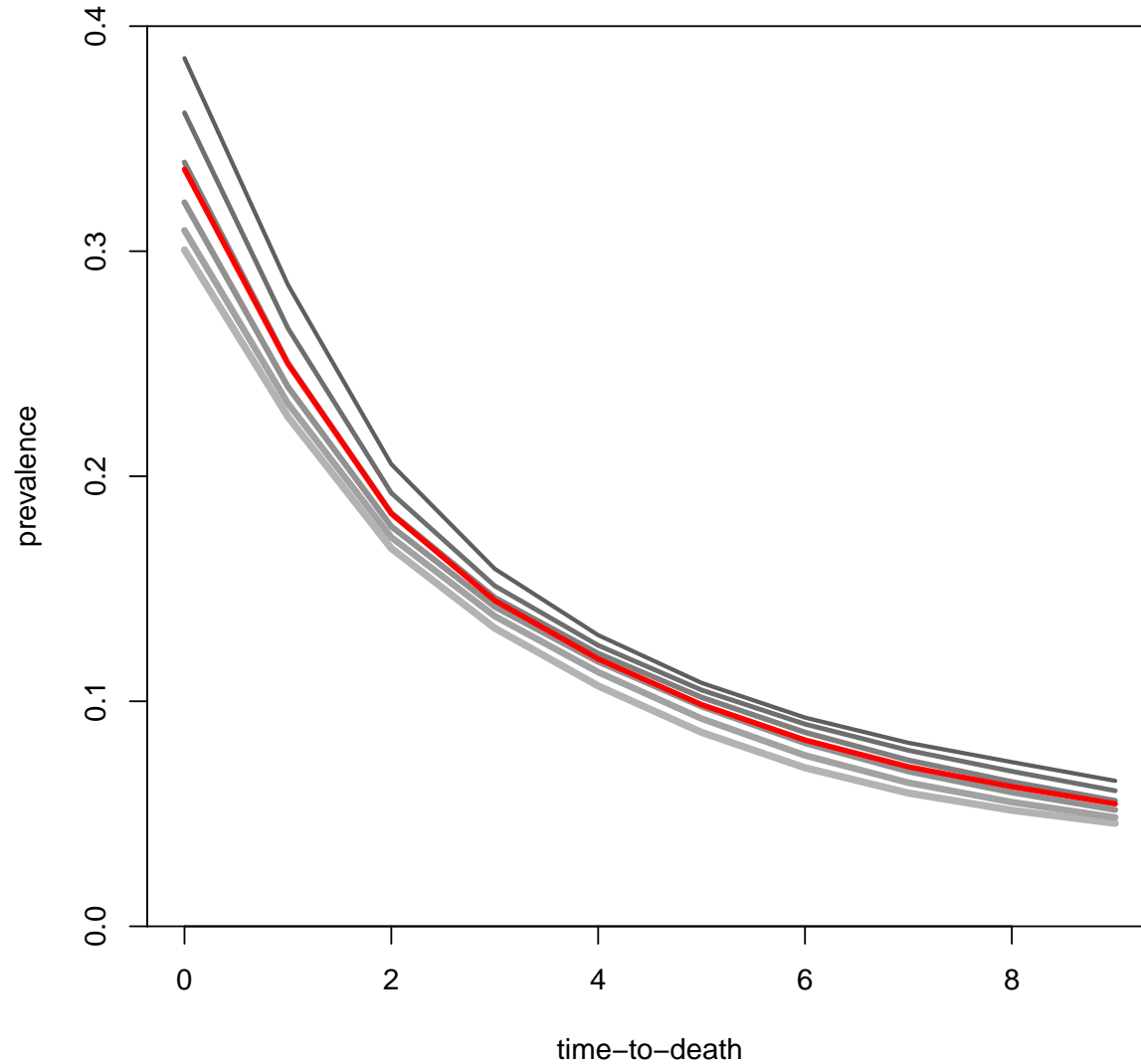
1923





Real time-to-death patterns (HRS, ADL3)

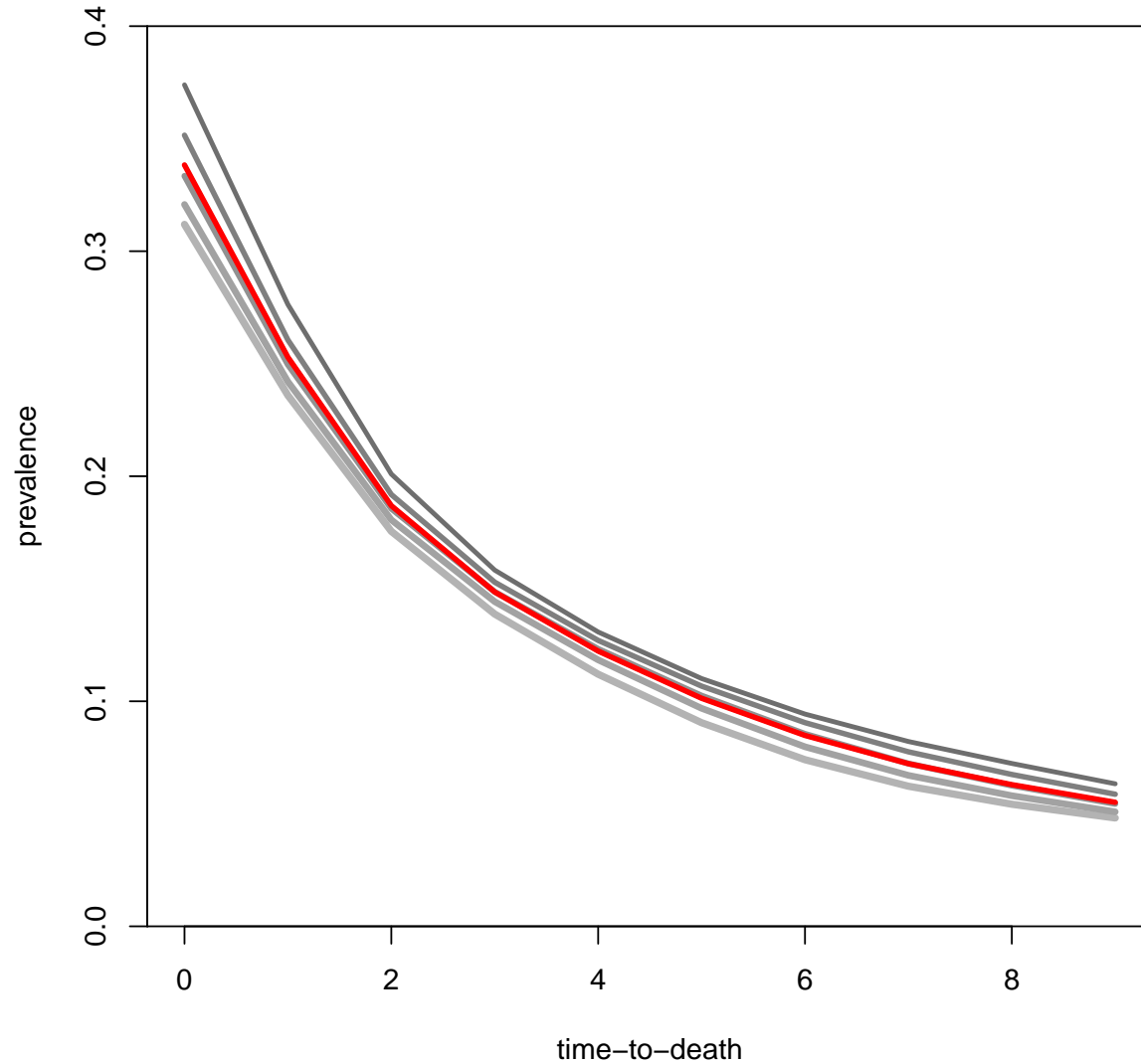
1924





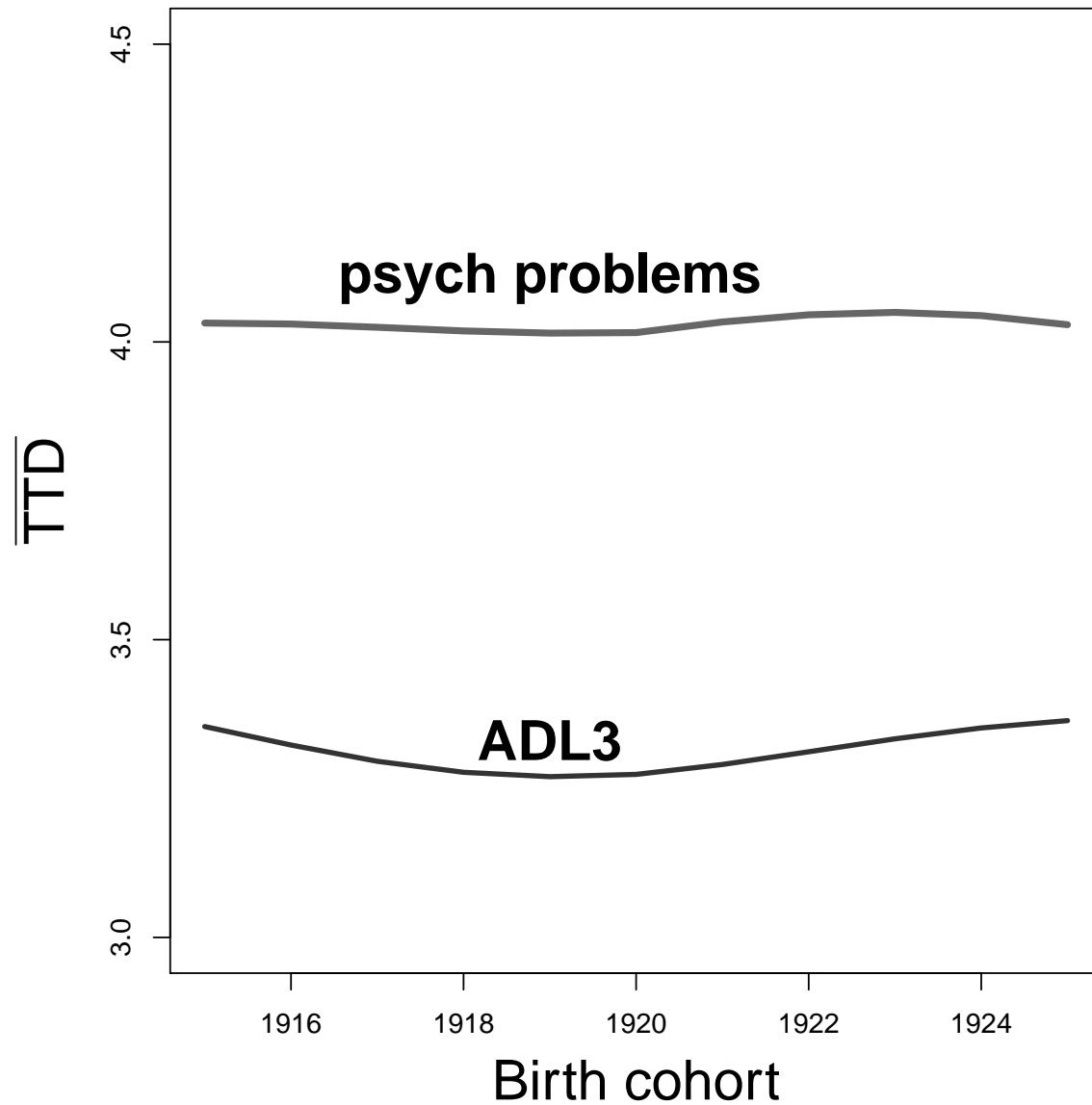
Real time-to-death patterns (HRS, ADL3)

1925





TTD patterns, psych problems and ADL3





Future steps

- Improve smoothing/fitting (thx Maarten)
- Add cohorts
- Decide on a measure
- Write a paper
- *then* think about incidence/recovery dynamics (decomposition?)



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