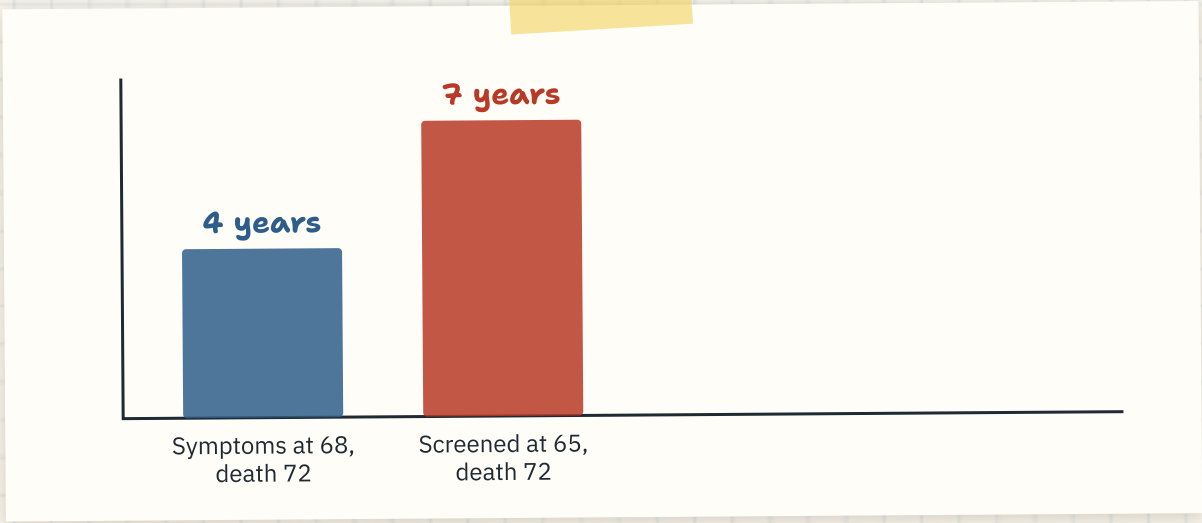
Types of bias

Name the bias and the step that reduces it



LEAD-TIME ARITHMETIC

survival = age at death − age at diagnosis

earlier diagnosis lengthens survival even when the age at death is unchanged

Bias	Fix
Selection	Same source population, complete follow-up, allocation concealment
Recall	Objective records instead of memory
Observer	Blinding, standardised measures
Lead-time, length-time	Compare mortality, ideally randomised
Confounding	Randomise, restrict, match; stratify, adjust

Bias and fix

Rule of thumb

Selection = who is analysed

Information = how it is measured

Screening biases inflate survival, not mortality

Exam traps

- Survival after diagnosis can rise while deaths stay the same.
- A confounder is not on the causal pathway.
- Only randomisation also handles unknown confounders.
- Books file lead-time and length-time bias under selection or measurement (information) bias.

Types of bias: selection, recall, lead-time and confounding

Video, written lesson, practice question and sources: medservatory.com/usmle-step-1/biostats-ethics/types-of-bias-selection-recall-lead-time-confounding

For exam study only, not medical advice. Follow local guidelines and your lab's ranges.
© 2026 Medservatory, a project of ADMR Solutions Ltd.
Free to print and share for personal study.