Survival Analysis / Follow-up Studies

"Survival" or "Time-to-event" data

- Examples (events not necessarily 'bad')
- Play down '***time-to***'; emphasize its reciprocal ***(event rates, hazard function) &*** cumulative incidence
- Why such data need special techniques
- Types of censored data
- Distinction between censoring and truncation
- [equivalent] Functions: S[t] , hazard h[t] , pdf[t]
- Links: e.g. $S[t] = \exp[-\int h[u]\, du]$, integral from u=0 to u=t
- Summaries of these functions
- "Cause-specific" Survival; Competing Risks

(Non-Parametric / Semi-Parametric)

Estimation (point&interval) of S[t] , h[t] and pdf[t]

- Lifetable [fixed interval] - Kaplan-Meier [data-determined]

Comparison of Survival Data/Curves

Risk Sets

Adjusted comparisons (non-regression methods)

Software / Graphical Displays

Applications

- How long does it take to get a PhD?

Readings (* = most relevant)

[http://www.epi.mcgill.ca/hanley/c681/survival_analysis *]

- * *Survival Analysis / Follow-up Studies .. details*
  Notes by JH [under resources i.e. at URL above *]
- * Survival Analysis
  Sections 1 and 2 [Intro and Lifetables]
  Ch 17 of Armitage et al 4th ed.
- * Lifetables [and Survival after Treatment..]
  pp 199-205 of Ch 18 of Bradford Hill
- Survival Analysis
  Chapter 12 from Statistics at Square One [bmj online]
- Survival Analysis
  Chapter 11 from Statistical Methods for Comparative Studies by Anderson et 5 al.

Other Resources

- [http://www.epi.mcgill.ca/hanley/c681/survival_analysis]
- Texts by
  Hosmer & Lemeshow
  Collett
  Kleinbaum