1

Introduction to Survival Analysis
Introduction

This introduction to survival analysis gives a descriptive overview of the data analytic approach called survival analysis. This approach includes the type of problem addressed by survival analysis, the outcome variable considered, the need to take into account “censored data,” what a survival function and a hazard function represent, basic data layouts for a survival analysis, the goals of survival analysis, and some examples of survival analysis.

Because this chapter is primarily descriptive in content, no prerequisite mathematical, statistical, or epidemiologic concepts are absolutely necessary. A first course on the principles of epidemiologic research would be helpful. It would also be helpful if the reader has had some experience reading mathematical notation and formulae.

Abbreviated Outline

The outline below gives the user a preview of the material to be covered by the presentation. A detailed outline for review purposes follows the presentation.

I. What is survival analysis? (pages 4–5)
II. Censored data (pages 5–8)
III. Terminology and notation (pages 9–15)
IV. Goals of survival analysis (page 16)
V. Basic data layout for computer (pages 16–23)
VI. Basic data layout for understanding analysis (pages 23–28)
VII. Descriptive measures of survival experience (pages 28–30)
VIII. Example: Extended remission data (pages 30–33)
IX. Multivariable example (pages 33–35)
X. Math models in survival analysis (pages 35–37)
XI. Censoring assumptions (pages 37–43)