

Preface

This book describes the methodology for the analysis of competing risks from the applied perspective. Although most of the examples are drawn from medical research, situations involving competing risks occur in many other areas, such as sociology, economics and engineering. Chapter 1 is a non-mathematical introduction to the topic of competing risks. The problems involved in the analysis of competing risks need to be understood by both the statistician and the scientist. Thus, this chapter gives enough detail to enable a meaningful discussion to take place between the scientist and the applied statistician. Some general techniques for survival analysis are included to facilitate the understanding of the theory of competing risks (Chapter 2). Chapters 3–6 cover the analysis of competing risks using nonparametric or semiparametric techniques. The sample size calculations under different scenarios are presented in Chapter 7. A brief overview of other aspects of the analysis of competing risks is included in Chapter 8, and examples are provided in Chapter 9 to complement the material in Chapter 1. Although Chapters 2–8 contain a certain amount of mathematical detail, an understanding of the concepts can be achieved through studying the examples given. For ease of exposition, subscripts are omitted whenever possible. Appendix A contains the mathematical proofs which were considered too elaborate to be included in the respective chapters. Details on how to perform the analyses are included in each chapter and are supplemented with R functions and SAS macros incorporated in Appendix B. For those readers who wish to extend their knowledge of the topic of competing risks, references to current theoretical developments are provided at the end of each chapter.

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The datasets, the supplementary R functions and the SAS macros used in this book can be downloaded from

www.uhnresearch.ca/hypoxia/People_Pintilie.htm

I would be grateful to be informed of any errors, ambiguities or oversights found in this book.

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