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(continued after index)

David S. Salsburg

The Use of Restricted Significance Tests in Clinical Trials

With 24 Figures



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Preface

The reader will soon find that this is more than a “how-to-do-it” book. It describes a philosophical approach to the use of statistics in the analysis of clinical trials. I have come gradually to the position described here, but I have not come that way alone. This approach is heavily influenced by my reading the papers of R.A. Fisher, F.S. Anscombe, F. Mosteller, and J. Neyman. But the most important influences have been those of my medical colleagues, who had important real-life medical questions that needed to be answered. Statistical methods depend on abstract mathematical theorems and often complicated algorithms on the computer. But these are only a means to an end, because in the end the statistical techniques we apply to clinical studies have to provide useful answers.

When I was studying martingales and symbolic logic in graduate school, my wife, Fran, had to be left out of the intellectual excitement. But, as she looked on, she kept asking me how is this knowledge useful. That question, what can you do with this? haunted my studies. When I began working in biostatistics, she continued asking me where it was all going, and I had to explain what I was doing in terms of the practical problems that were being addressed.

Throughout human history, there has been a clash between the view that knowledge is a superior good by itself and the view that knowledge should be used to make life better for mankind. The first view was held by the anonymous Talmudic rabbi who denounced those who would learn in order to “have a spade to dig with” and the haughty Plato who compared what little we know to shadows cast on the wall of a cave, while real Truth was too dazzling for ordinary mortals to see. It was Fran who taught me the value of the second view and made me appreciate the efforts of Paul Ehrlich, who wanted to take the abstract knowledge of selective dyes and create “magic

bullets” that would cure diseases, or of Benjamin Franklin, whose scientific investigations led to efficient stoves and protection against lightning.

So I dedicate this book to my wife, Francine Thall Salsburg, who made it necessary for me to face the practical consequences that result when we apply abstract mathematical ideas to the problems of human suffering.

Groton, Connecticut

David S. Salsburg

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