

## Preface

"You've got a 20 percent chance of having another infarction this year," says the doctor, and you live an uneventful 12 months. Was the doctor right? You have an infarction. Was he wrong?

A statement of risk for an individual assumes that the individual belongs to a class and that a known fraction of the class's members possess a feature (such as "infarction within a year"). Obese, non-diabetic, white, 50 year old men experiencing an uncomplicated second myocardial infarction have a 20 percent chance of another infarction within 12 months. Advice to a patient about his risk is a double statement of class membership and of a characteristic of the class. If the class membership is wrong (do you *know* that he's not diabetic?), the problem is one of misclassification. If the fraction is wrong, then the problem concerns measurements that are the core of epidemiology.

The embodiment of a class is a population. Epidemiologists study the occurrence of disease in human populations.

Like bench scientists, epidemiologists have their share of false starts, wrong premises, and tentative approximations to a truth. Unlike their laboratory colleagues, epidemiologists operate under public scrutiny. Physicians, regulators, manufacturers and the judiciary are confronted daily with epidemiologic observations that may constitute the only relevant data on questions of health. The purpose of this text is to serve both the scrutinizers and the practicing epidemiologist as a guide.

There are several kinds of reading that I had in mind in preparing the manuscript. On the briefest level, it is possible to scan the definitions alone; these are marked by a bold faced lead term followed by italic descriptive text. A second level would comprise all the text apart from the statistical development of Chapters 6, 7, and 8. I hope that most readers will take on the more mathematical material as well. Epidemiology is comprehensible without algebra, but those who are not "numerate" need to keep in mind that there is a large and enjoyable area of epidemiologic science that they are unready to explore.