Editors' Note

Recent rapid progress in cardiovascular research has been characterized by increasingly complex study designs and data acquisition techniques. Recognizing the importance of statistics in obtaining valid inferences from these data, especially the need for fundamentally sound, context-appropriate statistical analyses, the Editors of *Circulation* commissioned a series of review articles on statistical topics of interest to its readers. The present issue introduces that series, called the "Statistical Primer for Cardiovascular Research."

Articles in the series—written by statisticians actively engaged in cardiovascular research, including recognized experts in statistical specialties—will be published monthly over the next 2 years. These articles will be at an introductory or intermediate statistical level for a target readership comprising physicians and biologists. They will explain and illustrate principles of statistical estimation and inference; they will enumerate assumptions inherent in each statistical model; they will identify methods to check validity of key assumptions; they will discuss consequences of departure from those assumptions; and they will provide guidelines for selecting among alternative procedures to analyze and display the data.

In the first year, introductory topics will include descriptive statistics and graphics and estimation and hypothesis testing for continuous and discrete variables (1- and 2-sample settings, including independent and paired samples). These will be followed by correlation and regression, nonparametric hypothesis tests, survival analysis techniques, receiver-operating characteristic curves in the context of diagnostic tests, design and evaluation of randomized controlled clinical trials, propensity score methods for nonrandomized studies, and meta-analysis to aggregate results from multiple studies.

In the second year, the focus will be intermediate-level statistics. Topics will include analysis of variance and covariance (including repeated-measures designs and multiple-comparisons procedures), multivariable regression modeling (linear and logistic models, further topics in hazards modeling). Additional papers will cover methods for genetics and genomics data (association studies, family-based studies, microarray data), longitudinal-data analysis, multivariate analysis, and sequential data analysis.

The goal of the series is to provide a broad collection of reference articles that, taken individually and collectively, will assist investigators in formulating and answering the following 4 questions. What is the study hypothesis? What types of data should be (were) measured? What statistical methods are appropriate to analyze those data? What valid inferences can one draw from the data analysis? We hope that our readership incorporates techniques from these articles into a statistical toolkit that contributes toward ensuring highest-quality cardiovascular research.

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