

COLLOQUIUM

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The Analysis of Data Involving Assays Subject to Measurement Error

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Abstract

Many epidemiologic and other studies involve data with analytes that are subject to measurement error, where the measures are based on known and measured values of the analyte from a calibration sample. Two aspects of the analysis of these data are discussed: the treatment of values below the limit of quantification, which are often discarded because the measurement error is considered unacceptably large; and the analysis of data where the measurement error is heteroskedastic. Bayesian approaches based on multiple imputation are compared with alternatives based on regression and calibration, and shown to have attractive properties.

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