COMMON STATISTICAL PROBLEMS IN LABORATORY MEDICINE

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In medical practice physicians make clinical decisions primarily in accordance with laboratory test results. In this context, accurate test results are crucial for physicians and their patients, mandating that clinical laboratories be able to produce completely accurate results. Evaluation of laboratory performance is critical to maintaining accurate laboratory results. In laboratory medicine we use statistical quality control to ensure that the reported test results are correct. However when we examine the statistical analysis used in laboratory medicine in detail, we find that they often do not follow scientific protocols. This may cause incorrect reporting of results which would not be detected by laboratory staff, physicians or patients. Some problems with different types of statistical analysis methods in laboratory medicine can be listed as follows:

- Obtain the total variance and/or coefficient of variation. Variances and/or coefficient of variations are combined linearly without and prerequisites.
- Various multiple results are often combined within a single graph and used as calibration graph.
- The graph of normal distribution is used linearly to calculate the sigma metric (an indicator of test or laboratory performance) which can also misrepresent data.

To overcome these problems we need the cooperation of laboratory specialists and mathematical statisticians.