

EDITORIAL

Reporting Statistics in Medicine

The need for quantitative evidence in medical judgments was recently formalized as “evidence –based medicine”.^{1,2} This concept was recognized a long time ago when, in the second century AD, Galen noted that

A thing seen but once cannot be accepted nor regarded as true... Something can only be accepted and considered true, if it has been seen very many times, and in the same manner every time.

Galen’s words were almost entirely ignored until modern biological and medical statistics emerged. Thanks to an English statistician, Ronald Fisher (1890-1962), the advent of powerful statistical methods made a great impact on studies related to health. Statistical methods continued to develop, and today we can improve study design, estimate adequate sample size and provide reliable analysis of the results.

This issue of the journal presents an abbreviated paper from the *J BUON* (Journal of Balkan Union of Oncology) devoted to descriptive statistics.³ The authors indicate frequent errors in various publications, including use of the mean and standard error of the mean (SEM) instead of the mean and standard deviation (SD) to report variations of sample data. Unfortunately, some editors and peer reviewers frequently fail to indicate such shortcomings. Nagele⁴ noted mistakes in several papers published in anesthesia journals (Table 1), but similar mistakes likely occur in many other journals as well.

Table 1. Standard error of the mean (SEM) instead of standard deviation (SD) used to indicate data variation.*

Journal	Number of articles using SEM instead of SD/total
Anesthesia and Analgesia	112/405 (27.7%)
Brit Journal of Anesthesia	31/137 (22.6%)
Anesthesiology	48/257 (18.7%)
European Journal of Anesthesiology	7/61 (11.5%)

*This table is an abbreviation of the original [3].

** Percent of total indicated in parentheses)

Researchers and clinicians depend upon accurate and descriptive statistics along with the correct use of inferential statistics to adequately summarize collected sample data. They apply these tools to characterize features of data distributions and estimate population characteristics. As clinicians, we can gain information from carefully executed studies that provide convincing evidence. We need to know how such conclusions can influence our practice of medicine. For example, when it is shown that a certain drug or technique is better than another, we may use that information to the advantage of the patient.

In the former Yugoslavia, medical researchers have long lacked published guidance about methods for effectively collecting and reporting their statistical data. The paper from the *J BUON*³ now brings some specific and detailed help, but researchers would be well advised to consult several recent publications on medical statistics.⁵⁻⁹

Darko Golić, MD, PhD
Head, Department of Anesthesiology and Intensive Care
Clinical Center Banja Luka
78000 Banja Luka, Republic of Srpska,
Bosnia & Herzegovina

Ranko Škrbić, MD, PhD.
Head, Department of Clinical Pharmacology
Faculty of Medicine,
University of Banja Luka
78000 Banja Luka, Republic of Srpska,
Bosnia & Herzegovina

Gennadiy Voronov, MD
Chairman, Department of Anesthesiology and Pain
Management
J. H. Stroger Hospital of Cook County
Chicago, IL 60612, USA

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