

How Much Should Editors Know About Statistics?

Moderator and Speaker:

Ana Marusic

Croatian Journal of Medicine
Zagreb, Croatia

Panelists:

Jessica Ancker

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Columbia University
New York, New York

Stephen Choi

Canadian Medical Association Journal
Ottawa, Ontario

Reporter:

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According to Jessica Ancker, editors are consumers of statistics rather than producers of them, and different kinds of editors have different statistical needs.

The manuscript editor works with authors' descriptions to ensure complete and accurate communication of methods and results.

A journal's scientific editor engages in broad critical appraisal without actually performing any statistical analysis. For the scientific editor, interpreting statistics requires an understanding of, for example, the difference between clinical significance and statistical significance and whether a study's sample size has adequate statistical power. Recognizing when the

statistical analysis in an article is incorrect, however, often requires advanced statistical training.

The statistical editor is a specialist who participates in the peer-review process, considers appropriateness of methods and synthesis of results, and advises the journal editor. A journal's statistical editor may have a background and training in epidemiology or public health and a view of statistics that extends beyond recognizing that data may "look funny".

The manuscript editor's role is to improve the communication of the statistics, keeping in mind the publication's intended audience. That requires familiarity and comfort with quantitative information and facility with the language of statistics to describe the methods and results accurately, completely, and without bias.

Stephen Choi discussed the approach taken by the statistical editor at the *Canadian Medical Association Journal* (CMAJ). An author's presentation loses credibility if the statistical analysis is not done properly. Scientific editors understand commonly used statistical tests, but they are not usually statisticians. And, he warned, presumption of a knowledge of statistics can be dangerous!

The statistical editor at CMAJ provides the statistical direction of the journal. The statistical editor ensures that the statistical tests used were appropriate to the study and that the results are properly interpreted and reported. Plain language in the statistical analysis can strengthen

the cogency of the author's argument. The statistical editor's input can be educational for the scientific editors as well. Moreover, Choi believes that authors value that contribution to improving their article. By extension, manuscript editors and ultimately readers benefit.

Ana Marusic offered the advice that a journal with a small staff can build a relationship with the statistical unit of the institution in which the journal is based. "Colleagues who like numbers" can greatly help journal editors. She posed the question of the importance of statistics in clinical medicine. A good statistical editor can tell authors whether they have used the appropriate test for the question asked.

According to Marusic, a recent discussion on the World Association of Medical Editors' e-mail list focused on the very question of how much statistics an editor should know. The theme of the responses was that journal editors need broad enough knowledge of biostatistics to understand the comments of the journal's statistical editor. One respondent suggested that an author's editor should develop a nose for statistical "fudging" or bias.

Although the session wasn't a didactic one, it gave those attending a good idea of what they need to know and how to use what they know. Ancker informally surveyed the group to determine interest in the possibility of a future CSE short course on statistics, and the response was favorable. 🙌