Salami Science: Are We Still Allowing It?

Chair:
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Salami science is reporting the results of a single study in 2 or more manuscripts. Although the practice is not necessarily bad science (a point on which not all the panelists agreed), it is a problem because it wastes valuable and limited resources. For journals, it wastes paper; for reviewers, it takes up time that could be used to evaluate studies that present new data; and for readers, it wastes time that could be spent in reading about new research.

What motivates authors to slice their studies so thinly that they can create several manuscripts from a single study? The panelists offered 3 possible reasons. First, many authors, especially in the academic world, face the pressure to publish or perish. If researchers supported by colleges and universities do not publish, they can lose their standing, their potential tenure, and possibly even their jobs. In response to the pressure, some researchers publish more than one paper per study.

Second, researchers need to fund their projects by applying for grants. All too often grant reviewers judge the potential success of applicants by the numbers of their publications, not necessarily by the merits of the publications or the grant proposals. To increase their appeal to grant reviewers, authors might inflate the numbers of publications they have to their credit.

Third, to obtain a patent or to protect the financial interests of an existing drug company, pharmaceutical companies might have a financial incentive to show that a drug has more support in the literature than it actually has. Publishing papers, each citing different parts of the same study, can inflate the amount of data from that study, making it seem as though there is more support than there really is.

Occasionally splitting a study into several papers might be justified. The panelists suggested that salami science be studied by editors and reviewers case by case, and they offered 2 possible scenarios. One commonly cited justification of salami science is the needs of different audiences. For example, part of a study might be valuable to one audience—say, experimenters—and another part might appeal more to a different audience—say, clinicians. If the paper were not sliced up and published twice, one or the other group of readers might miss valuable data. Another possible justification is that a manuscript is too large to publish as a single paper. For example, a journal has limited resources and cannot publish the paper in its entirety, or the study would be more digestible if reported in 2 or more papers.

Panelists agreed that although sometimes justified, salami science more often than not wastes valuable resources and distorts the truth, is never acceptable in the pharmaceutical industry, and should be discouraged.

Will the Web Change How Science Is Done and Reported?

Chair:
Peter S Greene
Society of Thoracic Surgeons,
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Panelists:
Peter B Boyce
American Astronomical Society Inc
Washington, DC

Dan Jacobson
Community of Science
Baltimore, Maryland

Reporter:
Ann Morcos
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New Orleans, Louisiana

The answer to the question “Will the Web change how science is done and reported?” is a resounding “Yes, and it already has.” Peter S Greene, Peter B Boyce, and Dan Jacobson demonstrated exactly how in this session.

With a computer, Greene demonstrated how The Annals of Thoracic Surgery is using “RealPlayer” video (a video streaming technology pioneered by RealNetworks, Inc) accompanied by audio to demonstrate new techniques in heart surgery in the online version of the journal. Readers can learn much more by watching a procedure on video and
haring the surgeon explain it than by just reading about it in a print journal. Such techniques are more effective means of communication than print.

Greene made several predictions about the increasing use of the Web:
• Video clips will become popular add-ons to journal articles.
• Readers will demand online software and data sets.
• Everyone will tire of Web self-publishing.
• Scholarly societies will organize into virtual communities that share common interests and URLs.
• Scholarly-meeting presentations will be widely attended on line.

The critical decision for journals, said Greene, is whether to remain print only, electronic only, or a hybrid with interrelated print and electronic features.

The means for making journal production easier and cheaper are already in place on the Web, said Jacobson. He demonstrated his journal’s online abstract-submission procedure. Abstract forms are on the Web site and developed in a way that takes the author step by step through the writing and submission process.

Peer review, said Jacobson, is slow and uses a lot of paper. It could be performed entirely electronically. An article could be submitted and sent out for review electronically. Tracking reviewers and sending automatic reminders to late reviewers could also be done on line.

Some journals are already receiving submissions on line and converting them to HTML, for publication. The American Astronomical Society, said Boyce, has been successfully publishing journals on line for 3 years and abstracts for 6 years.

But, Boyce said, we are just starting. It is too early to measure the effects. We have no way today of knowing exactly where we will end up. He equated this period in Web development with the beginning of the film industry. Movies began by capturing live theater on film with the camera directly in front of the stage. In time, someone saw that the camera could be moved to capture the action from a different angle.

Because a journal goes on line does not necessarily mean that it is an electronic journal, said Boyce. An electronic journal is not
• electronic delivery of images of the same old paper pages
• a collection of separate articles
• pages in a specific format fixed for all time

An electronic journal is a linked, permanent information resource for transferring reliable and accurate information from producer to user.

Electronic publishing is still in its infancy. It already has increased the speed and effectiveness of scientific journals. It will continue to grow because readers will demand to do more than just read. Rapid development on the Web is important for the accurate sharing of scientific information, but it is important to preserve peer review to maintain the trust of scientists themselves.

Third International Congress on Peer Review in Biomedical Publication: Highlights of the Prague Conference

Chair:
Annette Flanagin
Journal of the American Medical Association
Chicago, Illinois

Panelists:
Roy Pitkin
Obstetrics & Gynecology
Los Angeles, California

John Overbeke
Dutch Journal of Medicine
Amsterdam, the Netherlands

Fiona Godlee
British Medical Journal
London, England

Drummond Rennie
Journal of the American Medical Association
San Francisco, California

Reporter:
E Ann Donaldson
American Journal of Sports Medicine
Barboursville, Virginia

The Peer Review Congress has stimulated research into peer review and scientific publication, said Annette Flanagin in opening remarks. The first congress, which received 50 abstracts, formally launched the science of peer review. The third congress received 160 abstracts, many of which demonstrated improved research quality, including several randomized controlled trials. Three studies from the third congress (18-20 September 1997) were presented during this session.

Can the Accuracy of Abstracts Be Improved by Specific Instructions?

Design: Roy Pitkin wanted to verify whether information in abstracts and research articles matched. Two inconsistencies regularly occur in manuscripts submitted to his journal: inaccurate data and data in abstracts but not in text. Pitkin’s group hypothesized that fewer errors will occur if authors receive specific instructions for preparing abstracts. A form delineating the most common errors accompanied some of the manuscripts returned to authors for revision.