

Commentary on Peer Review and Case Studies

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Sir – I agree that Nature's experiment with an online community-based review system is worthwhile. By augmenting traditional peer review, a system like this may improve scientific publishing. Other efforts to utilize community-based review, such as indefinitely soliciting community comments on papers published online (as planned for the forthcoming journal, *PLoS ONE*), may also increase the value of published articles. In both of these examples, community comments and insights are used concurrently or after the traditional systems of peer review and publishing. In medical publishing, however, there may be important grounds to use a system of community-based review *before* traditional peer review and publishing. Such a system would be similar to that discussed by Sandewall and Koop & Pöschl in Nature's online debate on peer review (www.nature.com/nature/peerreview/debate/index.html).

Over the last several years, numerous medical specialty journals have stopped accepting case reports. Case reports typically communicate the experience of a physician-researcher with a single patient, and as anecdotal information, stand at the bottom of the system of evidence-based medicine that is topped by meta-analysis of randomized double-blind, placebo-controlled trials. In an ongoing debate (e.g., *BMJ* **332**, 488; 2006), the many virtues and values of publishing case reports are being argued. However, beyond this debate, journals themselves are confronted with the fact that publishing typical case reports, which are rarely cited, is a quick and certain path to lowering their ISI journal Impact Factor.

If we only consider the utility of case reports as an early signal to guide further research, than the

value of case reports is properly framed as an issue of signal-to-noise and the significance of using community-based review as a first step in publishing becomes apparent. No journal, editor, or reviewer would ever want to prevent the publication of a case report such as the initial report of a rare cancer in homosexual men that led to the later discovery of HIV/AIDS (*Lancet* **2**, 598-600; 1981). However, we cannot expect editors and assigned reviewers to be able to consistently identify the few important case reports (the signal) buried among the many reports that lead nowhere (the noise). Among the majority of journals that continue to publish case reports, the problems are two-fold: (1) they face a backlog of numerous submissions with limited means to review and publish them, and (2) their editorial guidelines emphasize uniqueness as a criterion for publication, thus inhibiting the submission of corroborating reports that would further divine signal from noise.

As presented by Anderson (*Nature* **441**, xi-xi; 2006), the problem of filtering signal from noise may be most successfully addressed using a system of community-based review as in *Digg* and *Slashdot*. Such a review system could distribute the burden of determining what is important across a large community of researchers, and coupled with low-expense online publication, could actively encourage the publication of corroborating (or refuting) reports. Journals adopting aspects of this approach such as *Atmospheric Chemistry and Physics* and *Electronic Transactions in Artificial Intelligence* seem successful thus far. Given the precarious status of clinical case reports, I hope that medical publishers continue to look for new ways to improve their editorial and review systems rather than abandon case reports altogether. Approaches

using online community-based review before traditional peer review may provide the means for publishers to continue to promote the early

insights that form the base of evidence-based medicine.