Increasing challenges for an effective peer-review process

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The origin of the peer-review process dates back to the eighteenth century when medical societies in Great Britain created committees to review articles submitted to their specialty journals [1]. By the latter half of the twentieth century the peer-review process became an institutionalized component of the scholarly process. Since that time new medical knowledge has increased exponentially, and there has been an ever-increasing volume of both traditional print and on-line journals. The peer-review process is critical to the validity of scientific publishing as evidenced by the explosion of various predatory publishers of on-line journals with limited and questionable peer review [2].

Several factors have combined to create increasing challenges for the peer-review process. The pool of qualified reviewers, frequently individuals who are academically based, face an increasing number of peer-review requests due to the increasing number of both journals and submissions in their area(s) of expertise. Meanwhile, these same individuals facing increasing demands of their primary job, be it clinical demands and financial constraints, or their basic science research program. Some experts point out that if they were to accept all peer-review requests, they would be able to do nothing else but peer-review manuscripts, leaving no time to complete their own research and manuscripts. The peer-review process is a volunteer activity, and while it is considered in the academic promotion process, it lacks significant academic credit in relation to the time commitment required. Some journals have begun offering continuing

medical education credit as a reward to their reviewers. Another innovative proposal is to create an R-index as a simple way to quantify scientists' contributions as reviewers [3]. Proposers of the R-index, which would provide a citeable academic recognition for reviewing, believe that such a system would encourage more participation with better reviews, regardless of an individuals career stage.

Journal editors face a significant variation in the quality of reviews provided by reviewers. Even among a known reviewer there may be wide variation based on the reviewer's time constraints or even on their mood at the time they complete their review. Another significant challenge is the common occurrence of diametrically opposed reviews in which one set of reviewers are in favor of publication, while another group of reviewers are strongly opposed to publication. Moreover, the report prepared by the reviewer may not include the expected standard of describing the strengths and limitations (weaknesses) of the manuscript. It can be superficial with no real substance, not really backing the decision suggested for the manuscript. This situation makes the task of the editor difficult as he/she will either have to invite additional reviewers or act as a reviewer him/herself in order to be able to make a verdict within the anticipated time scale expected by the author for a decision. Noteworthy, a poor review not only influences the work of the editor but would generate unhappiness and unrest to the authors. The authors may decide to challenge a "poor review" and a decision which is unsupported based on the comments forwarded to them. Then a cycle of communication may be initiated between the editor and the authors requesting re-review of their manuscript or the authors may decide not to submit again to the index journal.

From a lean process perspective, the current peer-review process would be categorized as a push system, in which editors send out review requests with no knowledge of the

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reviewer's current time constraints for completion of a quality review. In contrast, one could envision a pull process whereby a reviewer whose schedule and commitments are less would be able to indicate this would be a good time to receive such a review. Admittedly, few of us find ourselves with spare time on our hands so unless a specific number of reviews are required it is unlikely that reviewers would be overwhelming editors with requests to review an article in their area of expertise.

All practicing researchers have a duty to contribute to the peer-review process. Kubke [4] has proposed that an individual should review as many manuscripts over a certain period of time as the number of reviewers that were required for one's publications. Derraik [5] included this recommendation in his outline of principles of fair allocation of peer review. His second principle of fair allocation centers around the desirability to review only for "high-impact" publications and suggests that the perceived status of the journal requesting input into the peer-review process must not be the primary factor affecting the decision to accept or decline a peer-review invitation. Another potential proposal is to require a certain number of completed peer reviews over some time period in order to be eligible for submission of a manuscript to that journal.

The willingness of experienced researchers and academicians to participate in the peer-review process is

essential for the future of scientific research and the published literature. With a new direction of our EJOST journal [6], please remember the value and importance of this the next time you receive yet another peer-review request in your email in-box. Just consider, "what about if this manuscript was your own submission?" Only then you would really appreciate the value of your contribution to the process.

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