

The *Open Medicine* student peer review program

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Peer review of manuscripts is an important means of ensuring the scientific rigour of published research. Across the spectrum of biomedical journals, the sheer number of articles reviewed, together with the volume of donated time required for review, is monumental. Most submissions are peer reviewed by at least two experts, although many journals eventually accept fewer than 25% of the papers they receive. Despite the extent of this effort, the elements that constitute a good peer review are not always well understood. Given the highly variable quality and thoroughness of peer reviews—which can range from a cursory paragraph to a ten-page exegesis—we believe that the skills needed to conduct a meaningful peer review should be among the competencies taught as part of graduate research-training programs.

Open Medicine has provided an opportunity to acquire experience in peer review for a group of graduate students in the Department of Community Health Sciences at the University of Calgary. This particular department within the Faculty of Medicine cuts across the Canadian Institutes of Health Research (CIHR) research categories of Pillar 3 (health services) and Pillar 4 (population health) and involves students with undergraduate science degrees (researchers in training) and medical school graduates in residency programs (clinician-scientists in training). Research expertise in Community

Health Sciences covers subject areas as diverse as childhood obesity, patient safety indicators and administrative health data coding.

Under the guidance of faculty advisor and *Open Medicine* associate editor Dr. William Ghali, the students regularly participate in the peer review of manuscripts for *Open Medicine*. To date, approximately 40 students have been involved in the program. Building on course and thesis work within the Department of Community Health Sciences, participating students attend group sessions on the practicalities of reviewing papers, the revision and resubmission process, and specific topic areas that arise from particular papers. Generally, two student leaders guide the discussion of the paper, and the group decides on one person to complete the write-up of the review. The interdisciplinary nature of the student group, along with recent course work in research methods (including research design, biostatistics and epidemiology), has allowed the students to exchange a wide range of insights and to learn from their peers as well as from the *Open Medicine* editorial group; this group process has made for a more enriching experience for participants than simply reading the papers on their own. The group has also had the opportunity to participate in *Open Medicine*'s editorial teleconferences to actively discuss the papers reviewed. Indeed, the students' graduate training in research methodology and their knowledge of particular content areas has enabled them to make a valuable contribution to the *Open Medicine* editorial team.

Of some challenge to the endeavour is the “how-to” of writing a good review, as this is not yet well defined. Most journals provide some instruction to reviewers on what questions to address or issues to consider, but give little guidance with regard to the less tangible attributes of writing a review. Instructions for reviewing typically include specific things to look for in a manuscript, such as appropriateness of study design and method, validity of the fit between results and conclusions drawn, and the strengths and limitations of the study.^{1,2} However, it is the experience of the Student Peer Review group that questions often arise in the course of a manuscript review that are beyond the scope of these basic instructions. Other considerations, such as the various approaches to the peer review process, how comments to the editors and authors should be handled, the appropriate length of a review, and the general tone of a review need to be taken into account in order to deliver an effective and appropriate peer review. The goal of the *Open Medicine* Student Peer Review Group thus far has been to guide trainees through the finer (i.e., non-content-related) points of peer review.

In addition, *Open Medicine* subscribes to the EQUATOR Network (www.equator-network.org) guidelines for research reporting. The EQUATOR Network promotes the clear, reproducible reporting of medical and health research, and *Open Medicine* is an active supporter of adherence to guidelines such as CONSORT, PRISMA, MOOSE and STROBE. Students involved in the Peer Review Group learn about these guidelines and their role in the transparent reporting of research results and will be better able to adopt these guidelines in the future as they develop their own research questions and write reports for publication.

Open Medicine is an Open Access publication in which authors maintain copyright of their published work while making it accessible to everyone, not just those with access to a medical library or an affiliation with an institution that provides them with access to closed medical literature. It is the intention of *Open Medicine* to help research trainees understand the practical, financial and even legal barriers to the dissemination of scientific knowledge created by closed-access publication and the importance of promoting the concept of Open Access publishing in the health sciences.

The leaders of the Student Peer Review Group have also had the opportunity to participate in *Open Medicine*'s annual Editorial Board meetings, where they learn about the journal's strategic planning and goal-setting as well as the management and administrative aspects of scientific peer review and medical publishing.

Through these experiences, graduate students at the University of Calgary have gained valuable insight into the importance of quality peer review, Open Access publication and research reporting guidelines. Overall,

the Student Peer Review Group has been a successful endeavour, helping students to critically read scientific work, to apply their methodological skills, and to refine their own scientific writing. *Open Medicine* would like to encourage the proliferation of such programs at other universities, as this valuable part of medical research is not formally taught in most graduate health research programs. *Open Medicine* continues to support the University of Calgary Student Peer Review Group and welcomes expressions of interest from other universities and student groups in setting up similar peer review programs.

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