

Conflicts of Interest and Scientific Integrity

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The encroachment of conflicts of interest on the peer-review process of scientific journals is discussed, with particular reference to a current example. The authors stress the need for transparency of the connections among authors, reviewers, publishers, editors, and sources of funding to prevent erosion of trust in the scientific integrity of such publications. *Key words:* scientific integrity; corporate influence; publication bias; peer review.

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In 2003, Dr. Egilman submitted to the *Journal of Occupational and Environmental Medicine (JOEM)* an article that was later rejected without peer review on the grounds that its subject was not a matter of high priority for readers of *JOEM*. The article was a critique of research conducted by Dow Chemical that failed to recognize the potential excess of mesothelioma among a group of workers in Dow factories. The Dow researchers stated that the evidence "did not suggest an occupational etiology" despite the following facts: 1) there were 11 individuals with mesothelioma in the worker group as compared with a "background" rate in the general population of approximately 1 per 100,000; 2) Dow Texas operations used asbestos in the industrial process and had asbestos insulation throughout some of the facilities; in addition, 3) the authors failed to stratify the analysis by occupational title, process, or plant, thus increasing the risk for exposure misclassi-

fication, and 4) the authors reassigned the mesothelioma cases to three different causes of death.²

Because Dr. Egilman's article was denied peer review, he purchased advertising space in *JOEM* to get his message to readers. Dr. Egilman's ad contained the critique that he had initially submitted to *JOEM*. Dr. Egilman states that paid speech that is not commercial (i.e., not advertising) represents the "last bastion of the distribution of ideas."

Although publishing one's articles through purchased space may contribute to discourse, it is external to the peer-review process. In a worst-case scenario, all researchers and private organizations, including Dow Chemical, could turn to buying space while foregoing peer review. The problem arises when the advertisements do not accurately and objectively describe empirical data.³ In contrast to the criteria for screening advertisements, the peer review process, from the start, is supposed to ensure equal entry to a level playing field—free of suppression bias—and is supposed to provide an intermediary that objectively critiques and screens research articles.⁴ This process also assumes that reviewers are competent as well as free from bias, which research has shown to not necessarily be true.^{5,6}

But the foregoing does not detract from the fundamental issue here: that Dr. Egilman was never provided the opportunity to have

his critique peer reviewed. The editor-in-chief also regrets that he did not review the advertisement prior to publication because of an "inadvertent oversight"—a statement that itself seems to indicate flagrant conflict of interest. Furthermore, the editor-in-chief allowed the Dow researchers to rebut Dr. Egilman's advertisement without providing Dr. Egilman the proper forum to do the same, thereby compounding the original ethical impropriety. In the rebuttal, the Dow authors state that they made no such claim that the findings do not suggest an occupational etiology, when in fact they use those exact words in the abstract of the article in question.^{2,7} This is an apparent second "oversight" by the editor-in-chief.

It is nothing less than shocking that *JOEM* obviously has no strict separation between the roles of the editor and the advertising/marketing division. This state of affairs was shown in the comment that the editor-in-chief could screen advertisements that he personally felt inappropriate. In the major biomedical journals, e.g., *JAMA* and *NEJM*, editors are "blinded" to the activities of the marketing and advertising departments.⁸

Dr. Egilman's experiences and commentary highlight an issue that needs to be addressed more in the scientific forum, particularly in the field of occupational and environmental health. Are publishers and editors susceptible to the same financial interests as researchers? If yes, what are the institutional and ethical safeguards necessary to protect the integrity of peer-reviewed research?

Researchers have previously reported a strong association

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between studies whose authors had reported conflicts of interest and a greater likelihood to report positive findings.⁹ These potential financial conflicts of interest are not restricted to direct funding, but include other types of personal financial associations and interests such as consultancy, employment, stock ownership, patent licensing and honoraria. Do similar relationships obtain between editors/publishers and private corporations?

Brandt-Rauf is the editor-in-chief of *JOEM*, which is the official journal of the American College of Occupational and Environmental Medicine (ACOEM). ACOEM awarded Dow Chemical the "Corporate Health Achievement Award (CHAA)" in 2000. In the past, Brandt-Rauf has been a reviewer for the award. The award is co-sponsored (i.e., financed) by GlaxoSmithKline, which has a strategic partnership with Dow Chemical. Furthermore, Columbia University, at which Brandt-Rauf is a professor, receives significant funds from GlaxoSmithKline. This is also not the first time an article or editorial published in *JOEM* relating to the occupational risks of Dow workers has been controversial. Research regarding a relationship between solvents and encephalopathy authored by Dr. Albers, who received \$30,000 from Dow Chemical, led to a federal investigation of the University of Michigan's internal review board and the investigators.¹⁰

What does all this prove? Nothing. Nor is it fair to conclude that these interrelationships add up to a conspiracy. But these interrelationships do raise the issue of conflicts of interest, and the question of the "independence" of the editors, the journal, and the parent organization.

Thomson¹¹ defines a financial conflict of interest as a *condition*, not a behavior, in which the circumstances and not the outcome determine the presence of the conflict. Clinicians, researchers, editors, and

publishers who might benefit financially from their work have conflicts of interest irrespective of whether this status actually biases the direction, content, and findings of their research or decision making.

In theory these biases can be either beneficial or detrimental. For example, if a grant from a company that has developed a new low-cost screening test for a toxic exposure leads to more epidemiologic investigations and discoveries of populations at risk for these exposures, such a relationship can be beneficial to public health. Even so, it is fair to ask, and only right for *JOEM* to disclose, how much advertising revenue *JOEM* receives from Dow and other companies? How much does Dow donate annually to ACOEM directly or via funded intermediate conduits? Does the editor of *JOEM* or do others in key decision-making roles have any personal conflicts of interest in terms of honoraria, stocks, research grants, consulting, or free products for their research through Dow, GlaxoSmithKline, or other related corporations? What are the influences of such interrelationships on an editor-in-chief?

In a recent study, Davis and Mullner¹² reported that 42% of the editors of ten medical journals with membership on the International Committee of Medical Journal Editors (ICMJE) had been pressured over content by senior management from their organizations. They also noted that 60% of the editors of medical journals they surveyed reported having little control over the disposition of the journals' profits such as might have the potential to increase their susceptibility to external influence. In addition, corporations have the potential to exert influence on the editorial staff, either directly or indirectly, by withdrawing advertisements or increasing ad buys. The ICMJE itself states that readers "may perceive that the editor has been influenced by these advertisers,"¹³ and that the intrusion of

such influence may impair the trust of both readers and authors.

The peer-review system is built on a culture of scientific integrity and a system of trust. Egilman's experiences indicate that the peer-review system in this case at the very minimum failed to provide a level playing field, and possibly worse. These experiences state the case for transparency of the connections among all parties involved in the peer-review process: authors, reviewers, publishers, editors, and most of all sources of funding.

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