

Professional response to scientific betrayal

By David L. Turpin, Editor

Just as standards of ethical behavior are being scrutinized in Congress, ethics and professionalism is becoming the focus of attention within the dental community. And just as the press serves as a watchdog for behavior in the political community, dental journalism must bear its share of the burden for maintaining high ethical standards in dentistry. What procedure should be followed if an author is discovered to have a vested interest in the success of a product being reported in a study? How should an editor handle a manuscript submitted to several journals at one time? What should be done if statistics are presented in a way that distorts the conclusions of a study?

Although these practices may not be viewed by the general public as serious misconduct, they are distasteful to most researchers and indicative of a much larger problem in the scientific community. If we wish to maintain freedom from the governmental control that has traditionally characterized American research institutions, the burden of responsibility falls upon our professional associations, our universities and our scientific publications.

Last September, more than 100 clinical and basic research scientists, government and university officials, professional society officers, journal editors and members of the press attended a workshop in Washington, D.C. to discuss "The responsible conduct of research in the health sciences." The primary goal of the participants was the development of principles and proposals to guide both national and local insti-

tutions in strengthening the professional standards of academic research. Their concern was the moral and professional climate of the research environment which influences everyday practice and sets the tone for the future generations of researchers.

Findings

In meetings before and after the workshop, participants arrived at assumptions and findings that formed the basis for their final recommendations, which were published as the "Report of a Study by a Committee on the Responsible Conduct of Research" by the National Academy Press. These findings deserve some explanation and clarification as they relate to the specialty of orthodontics.

- Scientists presently develop and maintain quality and accuracy in research practice by self-regulation, extensive reliance on each investigator's professional standards, and the traditions and collegiality that characterize research institutions. A variety of informal and formal practices and procedures exist in the academic research environment to assure and maintain the high level of integrity in research conduct.

- Few academic institutions have established explicit standards for responsible research practices, such as guidelines for the recording and retention of research data or for inclusion as an author. The absence of explicit institutional standards allows the research system to tolerate substandard activities by a small number of individual investigators who fail to observe gen-

erally accepted practices. Furthermore, the absence of a mechanism to enforce standards leads to a perception that the institution or the profession is unwilling or unable to correct abusive practices.

- Substandard practices may actually be encouraged by funding pressures and an overemphasis on publication as the primary means of achieving status and recognition for scientific advancement and research support. Increasing budgetary and competitive pressures in science demand that local research institutions and government research funders develop standards to ensure the integrity of the academic research enterprise.
- Few courses of instruction at the university level are dedicated to communicating professional standards and the ethics of research practice to young scientists.
- Effective institutional reforms to improve integrity and responsible research practices require better understanding of the key factors that influence professional development and performance in science.

Recommendations

In developing recommendations, the group sought to define appropriate roles for government, universities, professional organizations and scientific journals that would stimulate professional efforts without creating an unjustifiable regulatory burden on the research community.

At the governmental level, recommendations call for the National Institute of Health to establish an office to foster and monitor the development of high professional standards of research practice by all grantee and applicant institutions. NIH should require all institutions to provide assurances that policies and procedures to encourage responsible research practices have been adopted. NIH could even limit the number of publications that can be considered as a part of any grant application, in order to emphasize quality over quantity.

At the university level, curricula for science students should include formal instruction in good research practices. Universities could further strengthen the integrity and quality of research by modifying incentives and academic

guidelines in order to reduce the pressure for extensive publication. Academic departments and research units should monitor the training practices of their faculty and research staff to ensure adequate oversight for young scientists. Finally, academic departments and research units should adopt authorship policies to improve the publication practices of their faculty, staff and students.

Professional associations and journals could assist universities in identifying substandard research and training practices that compromise the quality of research. Scientific journals should develop policies to promote responsible authorship practices, including procedures for responding to allegations or indications of misconduct in reports submitted for publication. An interdisciplinary team could study the rights and responsibilities of relevant parties and prepare model guidelines. Among the other issues scientific journals need to address are: repetitive publication; supernumerary authorship; the use and misuse of peer review; and the appropriate response to suspicions or confirmations of misconduct in published work. One proposal in the report calls for authors to define their individual contribution to a manuscript, and co-authors to explicitly assume responsibility for the integrity of the data.

While it seems unwise to require institutional review and approval of manuscripts before submission, scientific journals are in a position to assure authorship criteria are taken seriously. In developing policies, journals must work closely with research institutions to encourage good publication practices that will protect the variation that is important for discipline-specific journals.

Journals also have an obligation to publish retractions of published reports that have been found erroneous by the original authors or that have been declared fraudulent by appropriate authorities at the research institution. Journal editors could join together to develop a uniform system for reporting serious violations of professional standards so that institutional officers can be informed in a timely manner of the nature of these complaints.