

## President's Page

# Ethics in Biomedical Research

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**P**rogress in medicine is directly related to biomedical research and today's research will become tomorrow's clinical practice. Thus, the role of biomedical research, even as it affects the lay person, is obvious. Since biomedical research is important and the clinical applications of such research often have to do with the well-being of humans, it should be conducted seriously, without any deviations from the established rules and with high ethical standards. In this brief article, some aspects related to the investigators' academic standards, authorship and academic misconduct are presented.<sup>1</sup>

The investigator has the privilege of advancing the sciences and the satisfaction of discovery. In addition, successful research will establish the researcher locally, nationally, internationally, and will qualify him for promotion, leadership positions, and so on. Thus, the investigator must conduct research in a scientifically appropriate way. Biomedical research, like any other human activity, is built on a foundation of trust. Researchers trust that the results reported by others are valid, and society trusts that the results of research reflect an honest attempt by the investigator to describe his findings accurately and without bias. For these reasons, experimental procedures should be performed with great care. The reproducibility of the methods used for the research should be well established, the analysis of the data should be performed blindly, and the report should be accurate to the best of the investigator's ability. It is the researchers' responsibility to keep all documents, including signed consent forms, for a long time after the completion and publication of the research.<sup>2</sup>

Over the last several decades, international rules have been established and the criteria of authorship have been defined.<sup>3</sup> Each author must have contributed significantly to the submitted work in one or more of the following areas: conception and design of the study; analysis and interpretation of the data; drafting the manuscript or revising it critically for important intellectual content. All authors responsible for the

reports should be in a position to defend the published data publicly, and thus the final format of the manuscript should be approved by all authors prior to the submission for publication. Participation solely on the collection of data, simple supervision in the laboratory, or statistical analysis do not justify authorship.<sup>1,3</sup>

Any deviation from the internationally established rules related to biomedical research should be considered as misconduct. Research misconduct is a serious problem and investigators involved in such activities do not belong in the academic community. Falsification and/or fabrication of data and plagiarism are some examples of research misconduct. In addition, cover-ups and interference with the process of handling complaints about research misconduct are themselves considered misconduct. Diagnosis and patient management are based on research; thus, research misconduct may have serious consequences. Biomedical researchers are responsible for the well-being of many individuals/patients whom they have never seen. Furthermore, future research may be based on false data and, even more important, bad practice will set a bad example, especially to junior faculty. Finally trust in scientific knowledge may be in jeopardy.<sup>1,2</sup>

In the past, young investigators learned the ethics of research mostly informally, from working with senior scientists. That tradition is still very important today. Senior investigators have a special responsibility to keep the highest ethical standards, serving as role models for students and young researchers. They should keep in mind that research ethics must be above any other conflict of interest.

## References

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2. On Being a Scientist: Responsible conduct in research. Committee on Science, Engineering and Public Policy. National Academy Press. Washington DC, 1995, second Edition.
3. *J Am Coll Cardiol*. Instructions for authors.