*(****Editor’s note****: This is the first in a series of articles exploring the ethics of research by Michael Kalichman, adjunct professor of pathology, Founding Director of UC San Diego’s Research Ethics Program, and Director of Ethics for the Clinical and Translational Research Institute.)*

**Why Ethics?**

By Michael Kalichman

Do researchers need to think about ethics? The answer depends on what you mean by ethics. Three examples illustrate the scope of the topic: reproducibility of research, research misconduct, and societal responsibilities.

***Reproducibility of Research***

In recent years, it has become abundantly clear that much research is not reproducible. For example, a recent publication from the company Amgen describes their attempts to reproduce work published in 53 landmark studies. Scientific findings could only be confirmed in 6 (11 percent) of those publications. The reasons for an over 80-percent failure rate are likely diverse, including but not limited to statistical issues, unidentified factors important for success, and failure to keep sufficiently good records. In all cases, choices made by scientists have had profound repercussions for the integrity of science, and can therefore certainly be characterized as ethical choices. It can also not be ignored that some work is not reproducible because findings may have been intentionally falsified.

***Research Misconduct***

Some of the most egregious misconduct in science occurs when researchers intentionally misrepresent what they have done. This can include fabrication (making up the results of the research without having actually conducted the research); falsification (conducting the research as intended, but changing some of the results to suggest findings different than those that were actually found); and plagiarism (taking credit for the words, writings, or research of others, without giving them credit). Although there are other kinds of misconduct that can be at least as serious, these three elements have been specifically called out in a government-wide definition of research misconduct as implemented by virtually all relevant federal agencies. Also see UC San Diego’s Integrity of Research Policy and Procedures, which can be found [here](http://adminrecords.ucsd.edu/ppm/docs/100-4.html).

***Societal Responsibilities***

 While intently working on very difficult and often esoteric questions in science, or in the development of new technologies, it is easy to forget about our relationship to the public outside of academia. What is the potential impact on society? What will be the perceptions of the general public? Should scientists have a role in addressing these issues? Few would argue that scientists should have sole responsibility for communicating with the public about science, or making decisions about how new technologies should be applied. However, precisely because the science can be complex, it seems that there is an important role for scientists to play. A failure to do so could mean that benefits of new developments would be impeded, or that important risks would be overlooked.

***Summary***

As suggested by the examples above, “ethics” in research might be seen as the many decisions researchers make about how to act. Interestingly, decisions that might be considered as having an ethical dimension are perhaps even better characterized simply as “good scientific practice.” When researchers plan their experiments well, keep good records, accurately and completely share what they have learned, etc., then not only is the quality of science improved, but the risks of misbehaviors are decreased.

This framing informs the Research Ethics Program at UC San Diego and San Diego’s Center for Ethics in Science and Technology, both described below.

*The* [*Research Ethics Program*](http://ethics.ucsd.edu)*:* Founded in 1997 to provide instruction in responsible conduct of research, this program is now internationally recognized not only for teaching about responsibilities of researchers, but also for developing and applying best practices in research-ethics education.

*The* [*Center for Ethics in Science and Technology*](http://ethicscenter.net)*:* Founded in 2004-2005, this program represents a UC San Diego collaboration with diverse partners in the San Diego region. The purpose of the Center is to facilitate the addressing of ethical questions raised by the conduct of science and applications of new technologies.

More about the Research Ethics Program, the Center for Ethics in Science and Technology will be discussed in features to follow.

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