Ethical Ambiguities

For this year's research ethics case discussions, the NIH Committee on Scientific Conduct and Ethics has chosen a Commentary that appeared in Nature, *Scientists Behaving Badly*, along with letters written to Nature in response to the Commentary. In addition, we have developed five cases that illustrate some of the ethical ambiguities that underlie everyday science. An analysis of the Commentary's findings follows, for your use as a facilitator or participant. We suggest that at the end of the discussion, the group decide whether the authors were justified in concluding that "US scientists engage in a range of behaviors extending far beyond falsification, fabrication and plagiarism". We also provide a set of Bottom Lines to take home from the case discussions.

In a Commentary in Nature (1), Martinson et al. report on the results of a survey they carried out asking scientists to report on whether they had engaged in a series of behaviors. Their conclusion? - "Our findings suggest that US scientists engage in a range of behaviors extending far beyond falsification, fabrication, and plagiarism".

How bad are the sixteen "bad behaviors" identified by Martinson et al.? Members of the NIH Scientific Conduct and Ethics Committee debated the issue hotly and concluded that many of the behaviors fell into a gray zone and would be well worth discussion in the Intramural Research Program this year. Two behaviors belong to the fabrication, falsification or plagiarism definition of scientific misconduct, #1 falsifying or 'cooking' research data and #5 using another's ideas without obtaining permission or giving due credit. A third, #6 unauthorized use of confidential information in connection with one's own research, might or might not be plagiarism, depending on the situation. Two behaviors fall within the purview of IRBs because they impact clinical research, #2 ignoring major aspects of human-subject requirements and #8 circumventing certain minor aspects of human-subject requirements. The remaining eleven include five 'top behaviors' plus six other behaviors of concern. How should we think about these behaviors?

Seven of them are relevant to data management, the topic of last year's (2005) research ethics case discussions. How does one handle contradictory data from one's own research (#7 failing to present data that contradict one's own previous research)? Hopefully you are all in agreement that you rely on a critical scientific judgement based on long experience in research, since it is not uncommon for contradictory data to be obtained, either because experiments have been poorly designed or executed, or because new information changes the approach to, or interpretation of, an experiment. A similar answer applies to #15 dropping observations or data points from analyses based on a gut feeling that they were inaccurate - one can use statistical tests to determine when a result is truly an outlier, or repeat the experiment. It is difficult to know how to interpret #9 overlooking others' use of flawed data or questionable interpretation of data, since no context is provided. If the "others" are in one's own lab, the supervisor should be checking data and experiments on a regular basis and be prepared to prevent these types of 'bad behavior'. Similarly, it is the supervisor's responsibility to ensure that everyone in the lab maintains adequate experimental records, and regular review will ensure that this is happening (#16 inadequate record keeping related to research projects).

Two behaviors, #10 changing the design, methodology or results of a study in response to a funding source and #14 using inadequate or inappropriate research designs, raise issues that we frequently deal with as scientists. They are actually a normal part of scientific critique - both journal and grant reviewers constantly recommend changes in design of experiments or methodology, and a lack of response is certain to ensure rejection unless strongly justified. It is difficult to imagine anyone changing the results of their study in response to a scientific review - another 'bad behavior' that is impossible to interpret without more context. However, changing the interpretation of results based on reviewer input might be considered "wise behavior" if the reviewer has raised points you had not considered. A more serious issue is #13 withholding details of methodology or results in papers or proposals - this behavior is not acceptable and has been addressed in the online Research Ethics course http://researchethics.od.nih.gov/ and is not acceptable behavior.

Two of the bad behaviors relate to authorship issues, #11 publishing the same data or results in two or more publications and #12 inappropriately assigning authorship credit. These topics were covered in the 2002 cases on Authorship and the NIH does not consider these to be acceptable behaviors. The last two behaviors, #3 not properly disclosing involvement in firms whose products are based on one's own research and #4 relationships with students, research subjects or clients that may be interpreted as questionable, are conflict of interest issues. They are covered in the Research Ethics online course and acknowledged as inappropriate, although again the context for # 4 is not clear which may make interpretation difficult.

To facilitate discussion of these 'bad behaviors', the Committee has developed cases that deal with behaviors it considers to fall into the gray area and expect that discussion of these cases with your colleagues will enable an understanding of how to approach these kinds of behaviors. You may also find it interesting to discuss the Nature Commentary in terms of the research methods the authors employed, the amount of detail provided on their methods, and the fact that neither the questions themselves nor the introduction/instructions for the survey were published. Equally interesting are letters written in response to the Commentary (2-5).

1. Martinson, B.C., Anderson, M.S. and de Vries, R., Nature 435:737, 2005.

2. Grinnell, F., Nature 436:776, 2005.

3. Taylor, I., Nature 436:626, 2005.

4. Tait, S., Nature 437:26, 2005.

5. Bradley, S.G., ASM Newsletter 71:347, 2005.