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National Science Foundation
Policy Office
Division of Institution and Award Support
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**RE: Comment on National Science Foundation Responsible Conduct of Research
Federal Register Notice Vol 74, Num 37 (Feb 26, 2009; FR Doc E9-4100)**

To Whom It May Concern:

The National Postdoctoral Association (NPA) appreciates the opportunity to comment on NSF's
implementation of the new America COMPETES responsible conduct of research (RCR)
training requirement. Requiring that all institutions with NSF-supported students and
postdoctoral researchers (postdocs) provide for training in the responsible conduct of research
ensures that the next generation of STEM researchers is prepared for the ethical challenges of the
future. Furthermore, it provides an opportunity to broaden understanding of RCR as a tool for
navigating everyday research situations and not just for extreme cases of deliberate misconduct.

Encourage RCR training tailored to the audience.

Many institutions that are just establishing formal RCR training are likely to provide training
programs directed at all trainees or focused only on graduate students and may open attendance
to undergraduates and postdocs as well. The NPA encourages institutions to offer training
tailored to the audience, and, in particular, to offer postdocs training that takes into account their
unique concerns. While many RCR topics are universally applicable to all researchers, some
have specific implications for postdocs and their stage of research career. These implications
need not require completely separate programs and could be accomplished by having
supplemental sessions that focus upon postdocs' issues and needs. **Among these issues are:**

- The implications of postdocs' temporary appointments on data and project ownership.
  When can a postdoc take their data with them upon leaving a position? Can a postdoc
  continue to work on the project?

- A majority of postdocs are visa holders and come from a diversity of research cultures. Therefore, postdocs may approach RCR topics from a range of cultural norms and assumptions. RCR training should take this background into account, such as allowing postdocs to discuss and learn about U.S. research practices in the context of their own experience.

- Postdocs have a unique reliance upon the goodwill of their supervisors and often have little official standing at the institution. This reliance can feel particularly acute for visa holders. Thus, RCR issues can put postdocs in a vulnerable position. In particular, this situation can make the role of whistleblower a difficult one for postdocs.

- Training should be mindful of the multiple roles postdocs simultaneously can fill. For example, a postdoc can be both a mentor and a mentee just as he or she can function as a colleague and collaborator at the same time as being an apprentice.

- Training in effective communication can be an important part of mastering RCR topics, particularly for postdocs who may speak English as a second language. Discussion of ethical situations in research, whether with colleagues, collaborators or supervisors, can lead to uncomfortable or difficult conversations, especially for postdocs who may feel that their job security or visa status depends upon the good opinion of these individuals.

What challenges do institutions face in meeting the new RCR requirement?

- Institutions may have **difficulty in tracking their postdocs' completion of RCR training**, since many do not have a reliable way of accounting for all their postdocs. This common situation is due to several facts: institutions often have no central appointment process with standardized position titles; postdoc appointments frequently turn over; and postdocs may switch between funding sources during their tenure at a single institution. The NPA provides guidance to institutions in developing a comprehensive list of their postdocs in the NPA Postdoc Office Toolkit (http://www.nationalpostdoc.org/pdo_toolkit).

- **Some students and postdocs may have already had RCR training**, for example as an NIH trainee; however, in many cases, there is no easy way to verify this. **In which situations should institutions require that they repeat this training under the new program?** An emphasis on RCR as part of life-long learning, where RCR training is on-going instead of a one-time requirement, can help institutionalize these topics and embed them into the fabric of research practice. For example, RCR can be encouraged to become part of regular lab meetings or non-required training programs like grant writing.

- **Institutions will likely seek guidance on the breadth of RCR content areas that will satisfy the training requirement.** For example, will students and postdocs need to participate in training in all nine of the core RCR topics recommended by NIH and the Department of Health and Human Services' Office of Research Integrity? Or, will a course on misconduct and Fabrication, Falsification and Plagiarism (FFP) be sufficient? The RCR education community has begun to recommend modifications to these topics

that include universally applicable core topics along with discipline-specific topics (c.f., Bulger and Heitman 2007, *Academic Medicine* (September 2007), 82:9, 876). The NPA has also developed a list of core competencies for postdoctoral scholars that includes a list of RCR topics. These competencies will be made available at the NPA Web site: http://www.nationalpostdoc.org.

- **Programs should emphasize knowledge application in lieu of knowledge acquisition.** Postdocs may forget some of the facts learned during a program; however, if the program focuses on impacting behavior they are more likely to be able to make ethically sound judgments. This can be reinforced by providing **"just in time" resources** that ensure postdocs know where to go to acquire information and guidance when ethical challenges arise.

What role should Principal Investigators (PIs) play in meeting NSF's RCR requirement?

- The most effective approach for instilling RCR principles is through mentoring (c.f., Anderson et al. 2007, *Academic Medicine*, (September 2007), 82:9, 853). Therefore, institutions should encourage their advisors/PIs to incorporate RCR into their mentoring activities. RCR could, for example, be included in the mentoring plans for supported postdocs as required by the America COMPETES Act.

There are likely to be differences in the RCR plans that institutions develop to respond to this new requirement. What are the pros and cons of exploring a diversity of approaches?

- The advantage of allowing a diversity of approaches is that there is currently no consensus on the best way to provide RCR training; and so institutions will need to explore the best way to serve their students and postdocs, given their own demographics, existing infrastructure, and institutional character. The disadvantage is that without a common baseline of practice, for example a core curriculum of RCR content, the rigor and breadth of institutional training programs may also vary. Another disadvantage is that institutions may also "reinvent the wheel;" therefore, the NSF's proposed digital library will be an important clearinghouse of promising practices and materials.

How might online resources be most effective in assisting with training students and postdocs in the responsible and ethical conduct of research?

- Online resources have been found to be effective for teaching rules, policies, and guidelines but should complement more interactive, discussion-based programming that utilizes adult learning principles and adapts to a diversity of experiences and learning styles. That said, online clearinghouses are very useful in providing a database for sharing of materials.

Discuss possible approaches to verifying that the requisite RCR training has been provided.

- The NSF should encourage PIs to include RCR training in annual and final reports.

- The NSF could require or strongly recommend that institutions upload their RCR training plans to a special section of the online digital library. This step could provide a means of verification as well as a venue for sharing ideas.

- Institutions might offer completion certificates to trainees who have satisfied the RCR requirement. This recognition could provide a mechanism for institutions to track completion centrally as well as give trainees a tangible outcome from their training to include on their curricula vitae (CVs).

The NPA has been helping postdoctoral offices (PDOs) and postdoctoral associations (PDAs) at institutions across the country to develop RCR training. We would be pleased to offer any assistance in further refining this implementation plan to best serve the institutions, the PIs, the students, and the postdocs. In particular, the NPA's RCR Toolkit for developing RCR programs for postdocs is available to NSF PIs at http://www.nationalpostdoc.org/rcr_toolkit and would be a useful addition to NSF's proposed digital RCR library.

Respectfully submitted,

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