Review of NSF’s Requirement for the RCR policy and review of institution responses

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(Kroll—Director; Allbritten; Davis; Hillgren; Layne, Moore; Runko; Sacknovitz)
Funds for basic research in science, engineering, and education, primarily through grants (not contracts)

~ 20% of basic research in U.S. universities and colleges

No labs or research facilities

• An **OIG** is an independent oversight office that
  – Promotes economy, efficiency, and effectiveness
  – Prevents and detects fraud, waste, and abuse in agency programs and operations
  – Has full access to records
RESPONSIBLE CONDUCT OF RESEARCH

• NSF’s Director shall require each institution to provide appropriate training in RCR to UGP researchers participating in the proposed research project.

House Report 110-289

• The conferees recognize that what constitutes appropriate training may not be the same for U as for G or P.

• “The conferees do expect NSF to promptly develop and provide written guidelines and/or templates for universities to follow so that compliance can be verified by all parties.”
Institutional Responsibilities (as of 4 Jan 2010)

An institution must:

1. Have a plan to provide **appropriate** RCR training to UGP researchers who will be **supported** by NSF to conduct **research**.
   - In lieu of **guidance/templates**, NSF recommends **risk assessment**
   - Institutional certification is required for each proposal

2. Designate someone to oversee compliance

3. Verify that UGP researchers supported by NSF to conduct research have received RCR training — tracking
Issues/Methodology

- NSF did not define “appropriate training”—how is that interpreted?
- NSF vs. NIH approach to guidance about course structure and content—do universities want guidance from NSF about structure and content?

Asked 50+ institutions for RCR plan and to interview Sr. Administrator, RCR Coordinator, and UGP Trainees

Assess responses
53 initial institutions; ultimately 48 institutions, 11 w/o plans
Who complied?

• Our initial sample included 5 Community Colleges (no RCR plans). However, CCs received only “educational” grants, so we did not include them: 53 – 5 = 48.

• Thus, 37 out of 48 ≈ 77% compliance.

• Most (8 out of 11) NC institutions eventually developed plans; ultimately, 45 institutions had ‘formal’ RCR plans.

• 45/48 ≈ 94% ‘second-chance’ compliance

• Appointed someone to oversee RCR compliance — all but 1 (44/45 or 98% compliance)

• Tracking — ultimately 37/45 or 82%
### Characterization of RCR Training

<table>
<thead>
<tr>
<th>Required training population is limited to NSF-supported participants</th>
<th>Required trainee population is not limited to NSF-supported participants</th>
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<tbody>
<tr>
<td><strong>Trainee population is able to fulfill the RCR requirement by only taking online training or through document review</strong></td>
<td>64% – Compliance</td>
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<tr>
<td><strong>Trainee population receives RCR content through required interactive training (i.e., a course, workshop, or seminar)</strong></td>
<td>9% – Hybrid Educational</td>
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- 73% required only those supported by NSF grant to be trained
- 73% allow online-only training to constitute appropriate training.

- Fun expt: from trainee response, 65% prefer interactive training—5% choose that
• Using Philips, *et al.* idea on differentiated training:
  • 52% differentiate based on educational level (typically more online modules for GP)
  • 72% differentiate based on discipline (typically different online modules; RCR element in curriculum)

• NSF has not defined what “appropriate training” is, so we had no basis for determining whether the training provided was sufficient to meet the RCR training requirement. **No risk analysis.**

• Generic standard lab safety, or animal/human subjects, or data/IT security training
• RCR training incorporated into curriculum, but can’t identify specific RCR topics
• PI determines RCR training w/o guidance from institution
• Read NIH/ORI handout
Best practices

• Adding stress management to RCR training

• Requiring RCR training for all graduate students

• Involving faculty in RCR training (only 15% currently do; 95% of our plagiarism findings are against faculty/PIs, not UGP)

• Periodic RCR training—3+ years

• Telling trainees why RCR is important

• Participants take training before beginning NSF research
Conclusions

• Most institutions have RCR plan, designated person, and tracking

• Without definitions or guidance, no standards, so compliance with adequate training can’t be verified

• Institutions want guidance, not regulations

• More ‘compliance’ than ‘education’ focused

• Prevalence of online training

• PIs rarely involved
Questions?

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