



## Best Practices in Responsible Conduct of Research (RCR)

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## Learning Objectives

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- Understand background and history for current regulations and practices in responsible conduct of research
- Review required components of RCR
- Identify low-cost, existing opportunities
- Explore available external training options
- Determine pros and cons of developing own training programs
- Take home relevant resources for implementing RCR



## Basic Sources of RCR

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- Professional codes of behavior and ethics in academic fields
- Journal publication policies
- Agency review policies and practices
- Government regulations
- Institutional policies
- Personal convictions and values

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## Starting point: RCR Components

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- Human subjects
- Animal subjects
- Research misconduct
- Conflict of interest
- Training/mentoring of graduate students and other new scientists
- Data sources, recording, protection, management, storage, sharing
- Research collaboration: internal, external, international
- Reporting and reviewing of research

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## RCR: Brief History

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- 1966 Animal Welfare Act
- 1974 National Research Act created National Commission for Protection of Human Subjects
- 1979 Belmont Report
- 1985 Health Research Extension Act
- 1989 NIH Training Grant Requirement in RCR
- 1989 Office of Scientific Integrity and Office of Scientific Integrity Review—which led to
- 1992 Office of Research Integrity
- 1991 Common Rule for Protection of Human Subjects in Research
- 1995 NSF and NIH guidelines for conflict of interest
- 1996 Guide for Care and Use of Laboratory Animals
- 2000 Federal Policy on Research Misconduct
- 2002 PHS Policy on Humane Care and Use of Laboratory Animals

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## Institutional Best Practices: NIGMS

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- Topics of instruction:
  - Conflict of interest
  - Data sharing
  - Responsible authorship and publication
  - Policies for handling misconduct
  - Policies regarding the use of human and animal subjects
  - Data management

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## Institutional Best Practices: NIGMS

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- Peer review
  - Practices and responsibilities
- Mentor/trainee responsibilities
  - Mutual responsibility between both sides
  - Difference between mentoring, training and advising
    - Post-docs
    - Graduate students
    - Undergraduate students
- Collaborative science
  - Internal and external
  - Issues and problems

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## Institutional Best Practices: NIGMS

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- Format of instruction
  - Combination of didactic (lecture) and small group discussion (i.e., case studies)
  - Faculty participation in research training
  - On-line courses as adjuncts to supplement in-person RCR instruction
  - On-line not adequate as only source

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## Institutional Best Practices: NIGMS

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- Compliance

- Trainee attendance
  - Required
  - Monitored
- Certification or documentation upon completion
- Opportunity for refresher training

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## Institutional Best Practices: NIGMS

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- Opportunities for continuing instruction

- Predoctoral training (usually offered early in program)
- Additional RCR instruction offered later in training or throughout
- Postdoctoral training may build on earlier predoctoral RCR experiences

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## Institutional Best Practices: NIGMS

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- Individual mentoring
  - One on one contact with mentors and advisors throughout training
  - Individual study assignments on RCR
  - As research involvement changes, opportunities to repeat or revisit RCR training, especially for postdocs

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## Institutional Best Practices: NIGMS

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- Duration of instruction
  - Substantive contact hours
  - One-time exposure inadequate and lacking sufficient depth
  - Series of programs or seminars
    - Learning over longer periods
    - Linking individual programs to broader picture
    - Allowing time to apply classroom learning

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## Low-Cost Best Practices for RCR

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- Research methods courses
- Department faculty meeting
- IRB, IACUC, Institutional Biosafety Committee training sessions
- Experiential/hands-on research programs for undergrad and grad students
- Orientation sessions for new faculty, postdocs, graduate students and graduate assistants

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## Low-Cost Best Practices for RCR

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- Training sessions for new department chairs
- Meetings or luncheons for new faculty hosted by university officials
- Departmental activities such as seminar series, dissertation groups
- Institution-wide lecture or discussion series
- Professional development programming offered by graduate school

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## Low-Cost Best Practices for RCR

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- Activities sponsored by graduate student or postdoc groups
- Feature articles on RCR in campus newspapers and web sites
- Collaboration with graduate program coordinators across campus to promote RCR training
- Regular RCR communication from chief research officer to campus community

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## Sharing of Best Practices

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- What is your institution doing?
- What successes have you had?
- What great materials have you developed or found?
- Who's in charge?
- How extensive/intensive is your program?
- What feedback have you received?

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## Useful Resources

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- On Being a Scientist: A Guide to the Responsible Conduct of Research, 3<sup>rd</sup> edition, National Academies Press, 2009
- Introduction to the Responsible Conduct of Research, ORI, 2007
- Office of Research Integrity
  - <http://ori.dhhs.gov>

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## Parting Thoughts

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- RCR sets minimal standards, not best practices.
- Your own institution and culture should influence your approach to RCR.
- Consider annual review and upgrades of your RCR materials and practices.
- Reflect on our discussion, examples and ideas.
- Decide what your own best practices can and should be.
- Keep in mind your worst-case scenario.

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*Thanks*

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For Questions and Follow-up

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