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Integrity Issues in Dual Use Research
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Research with Dual Use Potential in RCR Education: Is There a Role for Codes ?

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Is there a role for codes?

Some preliminary questions:

- Is RCR education the proper context for teaching about dual-use issues?
 - If so, with what goals, to what audience, and in what settings?
 - How are codes used in RCR education generally?
 - What appropriate codes exist?
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Is RCR education a proper context for teaching about dual-use issues ?

- Lab safety /biosafety and social role of science are now explicit in NIH core areas
 - InterAcademy Panel (IAP) on International Issues (100+ academies of science) considering resources and possible educational requirements
 - Dual use issues illustrate:
 - how new technologies and social forces create new problems
 - how ethical and practical issues in science are integrated
 - uncertain impact of all scientific research
 - efforts at professional self-governance
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With what goals, to what audience, and in what settings should we teach about dual use issues?

- Goals not fully articulated; driven by biosecurity concerns to prevent malevolent / nefarious use, especially terrorism
- Typical focus for discussion is “life sciences” students, but all science has the potential for harmful application of research
- Some dual use issues may be best considered in the lab (biosafety skills; data management); others in discussion and the classroom.

How are codes used in RCR education ?

Many possible roles, actual practice unknown:

Introduction to professional self-definition, ethical standards, and self-regulation

- Hippocratic Oath
- American Statistical Association
- American Society of Microbiology

Articulating values, their history, and social change

- Analyzing multiple editions of codes
- Comparing codes across disciplines
- Drafting a student code

“Practical” application in case studies

- Meet professional challenges, practice decision making
- Recognize gray areas, need for judgment and moral imagination

Codes and calls for codes:

American Society for Microbiology Code of Ethics – 2005

MA Sommerville , RM Atlas “Code of Ethics for the Life Sciences” *Science* 2005; 307:1881-1882

IAP Biosecurity Working Group guidance on codes - 2005

Biological Weapons Convention conferences

2005 - Content, promulgation, and adoption of codes

2008 - Education and development of codes

US National Science Advisory Board for Biodefense

2005 - Panel on Codes of Conduct; expert advisors, focus groups

2006 - Guidelines for Codes of Conduct

2010 - Renewed interest in a code of conduct for US research



How should codes be taught? They are typically NOT enforceable standards.

Data on academic honor codes and computer-use codes suggest limited effect on student behavior if used alone.

After studying codes, trainees may be quicker to note inconsistent practices in the lab. Ideally, the PI encourages questions and discussion about standards. Less optimally, trainees become cynical about codes and professional standards in “real life”.

The Policy, Ethics and Law Core of the NIH-funded Southeast Regional Center of Excellence for Emerging Infections and Biodefense has developed an online module to assist those involved with the biological sciences in better understanding the “dual use” dilemma inherent in such research.

The Dual Use Dilemma in Biological Research
www.serceb.org/dualuse.htm

The module consists of a ~30 minute online presentation with links to US and international policy, law, and codes, followed by a brief assessment.



