Responsible Conduct of Research

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(w/ edits by Wendy Robinson, FoM Asst Dean Graduate & Postdoctoral Education)
The classic scientific paradigm

Generate hypothesis

Every stage subject to threats/biases:
- Bias
- Low power
- Poor Quality
- P-hacking
- Lack of knowledge
- Conflicting interests
- HARKing

Design study

Collect data

Analyze data/test hypothesis

Peer review / Publication

Interpret data
“Everything that a scientist does is a function of what others have done before him; the past is embodied in every new conception and even in the possibility of its being conceived at all.”

Peter Medawar

"father of transplantation"
<table>
<thead>
<tr>
<th>Policies Regulations</th>
<th>Discipline Norms Judgment</th>
<th>Societal norms Shared values</th>
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<td>Fabrication</td>
<td>Sharing of data</td>
<td>Honesty</td>
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<td>Falsification</td>
<td>Data interpretation</td>
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<td>Plagiarism</td>
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<td>Misuse of funds</td>
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- Scholarly integrity (85)
- Research (87)
- Conflicts of interest (97)

- e.g.
Objectives

Students will have

• a better understanding of norms and rules for responsible research conduct

• ability to know where and how to ascertain these

• improved ability to make judgments on the ethics of the types of actions and decisions inherent in research

conduct research responsibly!
• Intro to the Responsible Conduct of Research
• Ethics and the Responsible Researcher
• Research Misconduct
• Data Acquisition and Management
• Publication Practices and Responsible Authorship
• Peer Review: Role and Process in Life Sciences Research
• Writing with Integrity
• Responsible Mentoring
• Collaborative Research
• Conflicts of Interest in Research
• Human Participants Research and Ethics
• Animal Care and Use
Role Play!
Third time “lucky”...

• What are the conflicting interests here?
• How does one differentiate between experiments that “don’t work” vs. those that have negative or unanticipated results?
• Who are the stakeholders?
• What human factors or supervision practices might improve scientific rigour in this lab
Who are we responsible to?

- society
- government
- institution
- supervisor
- student
- granting agency
- investors
- industry
- research subjects
- collaborators
- other researchers
What are we responsible for?

Creation of new knowledge that is:
• true (accurate, conclusions are well-justified)
• accessible to other researchers
• able to be independently verified by other researchers
• of benefit to society

Carried out in a manner that:
• makes efficient use of resources
• minimizes impact on people, animals, and the environment
• involves honest, caring, and fair relationships with peers and mentees
**Ethical Dilemma:** Conflict between competing moral imperatives or values

- Need and duty to publish ↔ Duty to facilitate research of others
- Need to publish in a timely fashion ↔ Need to be thorough and careful
- Financial gain ↔ Objectivity, honesty
- Recognition, tenure, etc. ↔ Careful/courageous? research

*Decisions can be difficult, and may be related to individual context*
A Framework for Ethical Decision-Making

• Identify the problem(s), determine whether it’s an ethical issue.
• Identify the individuals/groups with a stake in the outcome
  • What are their legitimate rights, responsibilities and expectations?
• Get the facts and assess the situation
• Identify options for acting and evaluate them
  • What are the consequences for all affected parties?
  • What if everyone in these circumstances did this?
  • What will do the most good with the least harm?
• Make a decision and test it
• Act and reflect on the outcome

(End Part 1)