

Protecting Research Subjects

Research involving human or non-human vertebrate animal subjects

- *The use of human or non-human vertebrate animal subjects in research is not a right of scientists and scholars; it is a privilege and carries obligations.*

Use of Living, Non-human, Vertebrate Animals

What is regulated?

- Any use of living, non-human, vertebrate animals in research, teaching and testing.

Sources of regulations?

- **Animal Welfare Act (AWA, 1966, as amended)**
 - Regulates facilities that breed animals for commercial sale, use animals for research, transport animals commercially, or publicly exhibit animals.
- **Health Research Extension Act (1985)**
 - All living, non-human, vertebrate animals used in PHS-funded research.

Implementation

- Purdue policy: Executive Memorandum B-1
 - All living, non-human, vertebrate animals used in research, teaching and testing

Why only vertebrate animals?

- Special moral status as “sentient animals”
 - Sentient animals are capable of experiencing pain and pleasure.

Ethical Principles on Use of Vertebrate Animals in Research

- 3Rs (Russell and Burch, 1959)
- Guide for the Care and Use of Laboratory Animals (NIH, 1963; NRC/NAS, 1996)
- Sundowner Report (NASA Principles)
- US Government Principles for the Utilization and Care of Vertebrate Animals used in Testing, Research, and Training

Three Principles for Animal Research

- 3 Rs
 - **Replacement:** substitute insentient materials, or if not possible, a lower species that might be less susceptible to pain and distress than a higher species
 - **Reduction:** use minimum number of animals necessary to answer question; but not so few that can not obtain statistical significance
 - **Refinement:** reduce the incidence or severity of pain and distress experienced by animals (anesthetics/analgesics; trained personnel; effective post-operative procedures)

Sundowner Report (1996)

- NASA Principles for the Ethical Care and Use of Animals
 - **Respect for life:** living creatures deserve respect
 - **Societal benefit:** assess full range of potential societal goods, populations affected, burdens expected to be borne by the subjects of research
 - **Non-maleficence:** minimization of distress, pain, and suffering is a moral imperative

Who oversees use of vertebrate animals at Purdue?

- Individual researchers
- Principal Investigator/Project Director
- Purdue Animal Care and Use Committee (PACUC) and Laboratory Animal Program (LAP) under authority of Purdue Executive Memorandum B-1
- USDA/APHIS/Animal Care under authority of the Animal Welfare Act (inspections at least annually)
- NIH/Office of Lab Animal Welfare (OLAW) under authority of NIH policy and Guide for the Care and Use of Laboratory Animals (assurance)
- American Association for Accreditation of Laboratory Animal Care (AAALAC, voluntary accreditation)

Elements of Oversight

- Training
- Prior review and approval of protocols and amendments by Institutional Animal Care and Use Committee (IACUC)
 - Approval based on analysis of Pain-Stress-Distress/benefit
 - Options based on assessment of pain and stress
 - Designated review/full committee
- Continuing review
- Semi-annual inspection of facilities
- Semi-annual review of program
- Annual inspection by USDA/Animal Care

Use of Human Subjects

What is regulated?

- Use of human subjects in research

Source of regulation

- Protection of human research subjects is a *condition of receiving grant or contract support* from agencies of the U.S. federal government, state governments, and most foundations and private sector sponsors.
- Entities receiving federal support for research involving human subjects must file assurance of ethical conduct of research with human subjects.

Why the Difference?

- Non-human vertebrate animals used in research protected by federal law.
- Human subjects used in research protected by grant terms and conditions.
- Human subjects are autonomous beings capable of acting on their own decisions.
- Non-human vertebrate animal subjects are not autonomous ... human researchers make decisions for them!

Implementation

- Purdue policy: Executive Memorandum B-45

What is “Research involving human subjects” ?

- ***“Research”***
 - “a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge”

What is “Research involving human subjects” ?

- “*Human subject*”
 - “a living individual about whom an investigator (whether professional or student) conducting research obtains (i) *data* through *intervention* or *interaction* with the individual, or (ii) *identifiable private information*”
 - *interventions* may be physical procedures by which data are gathered or manipulations of the subject or the subject’s environment that are performed for research purposes

A rule of thumb ...

- If you are gathering identifiable data about living human individuals to answer a research question and planning to present the results at a meeting, or publish the results in an abstract, thesis, book or journal, or otherwise share the results and your conclusions with other scientists/scholars ... regardless of whether you actually interact with the human subjects ***then you are probably conducting human subjects' research!***

Is gathering data from humans “human subjects’ research” ?

- Not always
- The data must be “about a living person” and must be collected for a research purpose.
- Example: course assessments conducted for pedagogical purposes (to improve the specific course) and not to be published or otherwise shared with the broader instructional community.

Ethical Principles on the Use of Human Subjects in Research

- Nuremberg Code (1947)
- Declaration of Helsinki (1964, latest revision 2002)
- National Research Act (1974) created National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research
 - Belmont report (1976)

Belmont Report

- Three sections
 - Boundaries between practice and research
 - Basic ethical principles
 - Translation of principles to actions

Respect for Persons

- Two ethical convictions
 - Individuals should be treated as autonomous agents
 - Persons with diminished autonomy are entitled to protection
- Autonomous person
 - Individual capable of deliberation about personal goals and of acting under the direction of such deliberation.
 - To respect autonomy is to give weight to autonomous persons' considered opinions and choices
- Application = informed consent

Beneficence

- Persons are treated in an ethical manner not only by respecting their decisions and protecting them from harm, but also by making efforts to secure their well-being
- Two general rules
 - Do not harm
 - Maximize possible benefits and minimize possible harms
- Application = systematic assessment of risks and benefits

Justice

- An injustice occurs when some benefit to which a person is entitled is denied without good reason or when some burden is imposed unduly
- Burden of risks of research should not be unduly borne by subset of population based on availability or vulnerability
- Benefits of research should not be withheld based on economic or social status
- Application = principles for selection of subjects

Regulations

- Codified at: 45 CFR Part 46
 - Subpart A: Common Rule
 - Subparts B, C, D: special protections for certain vulnerable populations

Vulnerable Populations

- Pregnant women, human fetuses, neonates
- Children
- Prisoners
- Decisionally impaired
- Others?

Who oversees?

- Individual researchers
- Principal Investigators/Project Directors
- Human Research Protection Program
 - Institutional Review Board (IRB)
 - Purdue Policy: Executive Memorandum B-45
- DHHS Office of Human Research Protections (OHRP)
 - Assurance

Elements of Oversight

- Training
- Prior review and approval of protocols and amendments by IRB
 - Approval based on: Risk/benefit analysis
 - Options based on assessment of risk
 - Exempt/expedited/full committee
- Continuing review
 - No less frequently than annually

Know Your Protocol!

- When involved with research involving human or vertebrate animal participants
 - Obtain copy of current protocol and amendments
 - If planning project, develop and submit protocol as early as possible
 - Submit amendments for all significant changes and gain approval before implementing
 - If you need training, obtain it before starting project
 - If you have questions, ask them before starting