

Research Ethics:

The Protection of Human Subjects

*The Regulations and  
the Roles of  
the Investigator and the IRB*

Presented by

Pellissippi State Technical Community College

Institutional Review Board

# Research Ethics: The Protection of Human Subjects



## A Historical Perspective

# Nuremberg Code

- **Basic principles of voluntary consent**
  - Capacity of subjects to consent
  - Freedom of subjects from coercion
  - Comprehensive analysis of risks and benefits
  - Minimization of risk and harm to subjects
  - Favorable risk/benefit ratio
  - Qualified investigators
  - Appropriate research design
  - Freedom of subjects to withdraw at any time

## 1940s: Tuskegee Studies

- Study of natural history of untreated syphilis in Tuskegee, Alabama
- Poor, black males uninformed about presence of disease and denied a treatment discovered in 1947
- Abuses revealed in 1972

## 1974: National Commission Established and Act Passed

- National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research established
- National Research Act passed by Congress
  - Established IRBs and required review of federally funded research involving human subjects

# 1979: The Belmont Report

- Issued by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research as a guide for U.S. research with human subjects
- Principles for Human Subject Research
  - Autonomy
  - Beneficence
  - Justice

# Autonomy

- Give respect, time, and opportunity to subjects to make own decisions
- No pressure to participate
- Protection for potentially vulnerable populations such as
  - Children
  - Elderly
  - Cognitive or emotionally impaired
  - Prisoners

# Beneficence

- Obligation to secure well-being of research participants
- Protection of subjects from harm
- Maximization of benefits
- Careful balancing of risks and benefits

# Justice

- Distribute benefits and burdens of research fairly and without bias
- Selection of subjects not based on
  - convenience
  - subject availability
  - compromised position of subjects
  - subject manipulability
  - language barrier

# Subject Selection Considerations

- Do not base on gender, class, race, or socioeconomic status  
(unless justified by study objectives)
- Be aware of perception of inequality of roles and/or potential for coercion
  - Counselor-client relationship
  - Teacher-student relationship
  - Employer-employee relationship

# 1990s: Federal Regulations

- “Common Rule” adopted in 1991
  - Based on 45 CFR 46, Subpart A
  - Adopted by 16 Federal Agencies including:

DOE	NASA	USAID	HUD
DOJ	DOD	DOEd	EPA
NSF	DOT	DHHS	
  - Various revisions over the years
  - Most recent revision (of expedited review criteria) on November 9, 1998

# Federal Regulations

- Code of Federal Regulations Title 45
  - Part 46 - Protection of Human Subjects
    - Subpart A - Basic DHHS Policy (“The Common Law”)
    - Subpart B - Pregnant Women, Newborns, and Fetuses
    - Subpart C - Prisoners as Subjects
    - Subpart D - Children as Subjects

# Research Ethics: The Protection of Human Subjects



## The Institutional Review Board

# Federally Mandated IRB Responsibilities

- To safeguard the rights and welfare of human subjects
  - Review research protocols
  - Require protocol modifications
  - Approve or disapprove protocols
  - Ensure or waive informed consent
  - Conduct continuing review of research

## Additional Responsibilities of the IRB

- To safeguard the rights and welfare of students and staff being recruited on-campus by researchers not affiliated with Pellissippi College
  - Review research protocol applications and approvals from other IRBs
  - Require protocol modifications
  - Grant or deny permission to recruit on campus

## The Authority of the IRB

The Pellissippi State IRB's decision to deny approval of a protocol (or to deny permission to recruit subjects on-campus) *cannot* be overridden.

The Pellissippi State IRB's decision is *FINAL*.

# IRB Membership

- At least five members
- Members with varying backgrounds
- Diverse membership (gender, race, cultural background)
- Sensitivity to issues such as community attitudes

# IRB Membership

- Knowledgeable in standards of professional conduct and practice
- Not all members of one profession
- At least one scientist
- At least one non-scientist
- At least one member not affiliated with Pellissippi State

# IRB Meeting Issues

- Member with conflicting interest may not participate in initial or continuing review
- Outside consultants may be used
- IRB must review certain protocols at convened meetings
  - Majority of members must be present
    - At least one must be non-scientist
  - Majority of those present must approve

# IRB Review Criteria

- Risks to subjects are minimized
- Risks to subjects are reasonable in relation to anticipated benefits
- Selection of subjects is equitable
- Informed consent
  - is sought from each prospective participant or legally authorized representative
  - is documented
- Adequate preparation is taken to protect privacy and confidentiality of subjects
- Adequate provisions are made for ongoing monitoring of subjects' welfare

# Research Ethics: The Protection of Human Subjects



## Definitions

# What Must be Reviewed?

## **Any research that falls in one or more of these categories:**

- Is conducted by a Pellissippi State
  - faculty member
  - staff member **or**
  - student
- Uses Pellissippi State employees or students as subjects
- Takes place on Pellissippi State property

# Who is a “human subject?”

- A *living* individual about whom the investigator obtains
  - Data through *intervention* or *interaction* with the individual *and/or*
  - *Identifiable* private information

# What is “research?”

- A *systematic investigation*
  - Research development
  - Testing
  - Evaluation

which is intended to develop or contribute to *generalizable knowledge*

# What is “intervention?”

- Physical procedures
  - Specimen collection
  - Physical measurements
- Manipulation of the subject
- Manipulation of the subject’s environment

# What is “interaction?”

- **Communication**
  - Interviewing
- **Interpersonal contact**
  - Surveying

## What is “private information?”

- Information about behavior that the subject can reasonably expect is not being observed or recorded
- Information provided by the subject that he/she reasonably expects will not be made public

# What is “private information?”

- Must be readily identifiable
  - Subject’s identity can be readily ascertained by investigator **or**
  - Subject’s identity can be associated with the information

## What is “minimal risk?”

...when the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during performance of routine physical or psychological examinations or tests

# Research Ethics: The Protection of Human Subjects



**Informed Consent**

# Informed Consent

- Required Elements
  - Identification and affiliation of researcher
  - Statement that study involves research
  - Explanation of purpose of research
  - Expected duration of subject's participation
  - Description of procedures
  - Identification of experimental procedures

# Informed Consent

- Required Elements
  - Description of reasonably foreseeable risks or discomforts to subject
    - minimal
    - more than minimal
  - Description of any benefits which may reasonably be expected
    - for subject
    - for society

# Informed Consent

- Required Elements
  - Disclosure of appropriate alternative procedures or courses of treatment, if any, that might be advantageous to the subject
  - Statement describing the extent, if any, to which confidentiality of records identifying the subject will be maintained

# Informed Consent

- **Required Elements**
  - An explanation of any costs associated with participation
  - An explanation of any compensation for participation
  - For research involving more than minimal risk...
    - An explanation of any medical treatments available if injury occurs
      - What treatments consist of
      - Where to obtain further information

# Informed Consent

- Required Elements
  - Statement that...
    - Participation is voluntary
    - Refusal to participate will involve no penalty or loss of benefits to which subject is otherwise entitled
    - Subject may discontinue participation at any time without penalty or loss of benefits to which he/she is otherwise entitled

# Informed Consent

- Required Elements
  - Name of contact person to...
    - Provide answers to questions about the research
    - Provide information about research subjects' rights
    - Inform about research-related injuries

# Informed Consent

- Is an educational process
- Is about people's understanding and willingness to participate in the research study
- Is more than a signed form
- Is ongoing
- Is respectful

# Informed Consent

- Begins with non-coercive subject identification and recruitment
- Involves a proxy for subjects who are not of legal age or who are deemed incompetent
- Involves full disclosure about the study

# Informed Consent

- Involves disclosure of researcher conflict of interest
- Gives subject adequate time to consider participation
- Uses understandable language
- Gives the participant the opportunity to ask questions and reflect
- **Important:** Investigators must use Pellissippi State IRB templates to prepare their informed consent document.

# Informed Consent Process

- Obtain IRB approval of the consent form before any participants are contacted
- Present prospective participant with the consent document
- Read document together
  - explain significant or difficult points
  - answer questions
  - address all elements of consent

# Informed Consent Process

- Give prospective participant a copy of the consent document
- Allow him/her to take the document home for review with family and friends
- Meet him/her again

# Suggested Consent Process

- Ask open-ended questions about nature of study and participation to ensure understanding
  - “Describe in your own words the purpose of this study.”
  - “What more would you like to know?”
  - “Please explain to me what you think I’m going to ask you to do.”
  - “What are your concerns?”

# Informed Consent Process

- If participant is willing, have him/her sign consent document
- Remind participant to continue to ask questions as they occur during his/her participation in the project

# Documentation of Informed Consent

- Must be written
- Must be signed by subject or his/her legally authorized representative
- Subject must receive a copy
- Must contain all elements **or**
- Must indicate all elements given orally with witness present

# Documentation of Consent

- If subject is a minor and...
  - Is too young to agree or refuse to participate in the research
    - Get parent/guardian consent
  - Is old enough to agree or refuse to participate in the research
    - Get parent/guardian permission **and**
    - Get child's assent (written or verbal)

# Documentation of Consent

- Procedures to follow:
  - Investigators must use Pellissippi State IRB templates to draft the informed consent document.
  - Before contacting potential research participants, investigators must submit their informed consent document to the IRB for approval.
  - All consent forms given to subjects must include a statement that the form has been approved by the Pellissippi State IRB and the date of the approval.

# IRB Waiver of Written Consent

- Note: For these cases, the IRB does not waive the requirement to obtain informed consent—just the requirement for *written* consent.
- When the consent form is the only record linking the subject to the research and potential harm could result from breach of confidentiality **or**
- When the research presents no more than minimal risk and involves no procedures for which written consent is normally required outside the research context
  - (The IRB may require that subjects be given a written statement regarding the research)

# IRB Consent Options

- May approve consent procedure which alters some or all of the required and additional elements

or

- May waive requirement for informed consent

if...

# IRB Consent Options

- The study is conducted or approved by the government and examines a public service/benefit program
- The research could not practicably be carried out without waiver or alteration of informed consent
- The research involves no more than minimal risk

# IRB Consent Options

- The waiver or alteration will not adversely affect rights and welfare of subjects
- The subjects will be provided with additional pertinent information after participation, as appropriate
- The waiver does not conflict with other federal, state, or local laws

# Comparison: APA Ethical Principles for Dispensing with Informed Consent

- Informed consent is **not** required for
  - Anonymous questionnaires
  - Naturalistic observations
  - Some kinds of archival research
- **unless** required by
  - Governmental regulations
  - IRB requirements

# Research Ethics: The Protection of Human Subjects

All research conducted at Pellissippi State must receive

1. Authorization from IERP to conduct research and
2. Approval from the Pellissippi State IRB.

# Three Categories of Review for Research

- Exempt from IRB Review
- Expedited IRB Review Process
- Review by the Convened IRB (“Full-Board Review”)

In addition, the IRB must conduct a continuing review at least once a year for non-exempt projects

# Exempt Research

## Exempt Research

- Only the IRB chair can certify projects as “Exempt” from IRB review (the investigator cannot)
- The research must fall in one of 6 categories and must not have more than minimal risk

# Federal Exemption Category 1

- Research conducted in established or commonly accepted educational settings, involving educational practices

# Federal Exemption Category 2

- Research involving

- educational tests (cognitive, diagnostic, aptitude, achievement)
- survey procedures
- interview procedures **or**
- observation of public behavior

**unless**

- information is recorded in such a way that subjects can be identified directly or through identifiers **and**
- disclosure could reasonably
  - place subject at risk of criminal or civil liability **or**
  - be damaging to financial standing, employability, or reputation

# Federal Exemption Category 2

## Note:

- Exemption for survey and interview procedures does *not* apply to research involving children.
- Exemption for observation of public behavior does not apply to research involving children except when the investigator does *not* participate in the activities being observed.

# Federal Exemption Category 3

- Research involving
    - educational tests (cognitive, diagnostic, aptitude, achievement)
    - survey procedures
    - interview procedures **or**
    - observation of public behavior
- that is not exempt under Category 2 **if**
- subjects are elected or appointed public officials or candidates for public office **or**
  - federal statute requires without exception that confidentiality of the personally identifiable information be maintained throughout the research and thereafter

# Federal Exemption Category 4

- Research involving collection or study of existing
  - data
  - documents
  - records
  - pathological or diagnostic specimens

if

  - sources are publicly available **or**
  - information is recorded by the investigator in such a manner that subjects cannot be identified
    - directly **or**
    - through identifiers linked to the subjects

# Federal Exemption Category 5

- Research and demonstration projects
  - conducted by, or subject to, approval of a federal department or agency
  - that are designed to study, evaluate, or examine
    - public benefit or service programs
    - procedures for obtaining benefits or services under those programs
    - possible changes in, or alternatives to, benefit or service programs or procedures **or**
    - possible changes in methods or levels of payment for benefits or services under these programs

# Federal Exemption Category 6

- Taste and food quality evaluation and consumer acceptance studies **if**
  - wholesome, additive-free foods are consumed **or**
  - if a food is consumed that
    - contains an ingredient at or below the level, and for a use, found to be safe **or**
    - contains an agricultural chemical or environmental contaminant at or below the level found to safeby the FDA or approved by the EPA or the USDA

# Other Exempt Research

- Student Research

- A normal part of student's coursework
- Supervised by a faculty member
- Primary purpose is to develop student's research skills
- Presents no more than minimal risk to subjects or the student investigator
- Does not deal with issues of a sensitive nature **and**
- Is not genuine research expected to result in **publication or dissemination** (by student **or faculty**)

# Expedited Review

## Projects Eligible for Expedited Review

- The research must fall in one of 9 categories
- Must not have more than minimal risk
- Cannot include request for waiver of written informed consent
- Under the expedited review process, the IRB chair reviews the application (Form B) and can approve the research on behalf of the full IRB. The IRB is not convened but is notified of the approval.
- The IRB chair does not have authority to disapprove the application, but can refer it to the IRB for full-board review.

# Expedited Review Category 1

- Clinical studies of drugs and medical devices only when
  - the investigational device exemption application is not required **or**
  - the medical device is cleared/approved for marketing and is being used in accordance with its cleared/approved labeling

## Expedited Review Category 2

- Collection of blood samples by finger stick, heel stick, or venipuncture from
  - healthy, non-pregnant adults
  - weighing at least 110 poundsfor whom
  - amounts drawn do not exceed 550 ml in an eight-week period **and**
  - collection is not more frequent than two times per week

## Expedited Review Category 2 (Cont'd.)

or

- other adults and children for whom, considering age, weight, health, and collection procedures,
  - the amount to be collected does not exceed the lesser of 50 ml or 3 ml per kg in an eight-week period **and**
  - collection does not occur more frequently than twice per week

# Expedited Review Category 3

- Prospective collection of biological specimens by non-invasive means, including, but not limited to,
  - hair and nail clippings (in a non-disfiguring manner)
  - deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction
  - permanent teeth if routine patient care indicates need for extraction
  - collection of excreta and external secretions
  - sweat
  - uncannulated saliva
  - placenta removed at delivery
  - amniotic fluid at time of rupture

## Expedited Review Category 3 (Cont'd.)

- excreta and external secretions (including sweat)
- uncannulated saliva collected in an unstimulated fashion or stimulated by chewing gumbase or wax or by applying dilute citric solution to the tongue
- placenta removed at time of delivery
- amniotic fluid at time of rupture prior to or during labor

## Expedited Review Category 3 (Cont'd.)

- supra- and subgingival dental plaque and calculus, provided
  - collection procedure is not more invasive than routine prophylactic scaling of teeth **and**
  - process is in accordance with accepted prophylactic techniques
- mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings
- sputum collected after saline mist nebulization

# Expedited Review Category 4

- Collection of data through non-invasive procedures
  - not involving general anesthesia or sedation
  - routinely employed in clinical practice
  - excluding procedures involving x-rays or microwaves
  - including, but not limited to...
    - physical sensors applied to the body surface or at a distance that do not involve
      - input of significant amounts of energy into the subject **or**
      - invasion of the subject's privacy

# Expedited Review Category 4 (Cont'd.)

- weighing or testing sensory acuity
- magnetic resonance imaging
- electrocardiography, electroencephalography, thermography, detection of naturally occurring radioactivity, electroretinography, ultrasound, diagnostic infrared imaging, doppler blood flow, and echocardiography
- moderate exercise, muscular strength testing, body composition assessment, and flexibility testing where appropriate, given the age, weight, and health of the subject

(Note: Where medical devices are employed, they must be cleared/approved for marketing.)

# Expedited Review Category 5

- Research involving materials such as
  - data
  - documents
  - records
  - specimens

that have been collected--or will be collected--solely for non-research purposes, such as

- medical treatment
- diagnosis

# Expedited Review Category 6

- Collection of data from
  - voice recordings
  - video recordings
  - digital recordings
  - image recordingsmade for research purposes

# Expedited Review Category 7

- Research on individual or group characteristics or behavior, including, but not limited to, research on
  - perception
  - cognition
  - motivation
  - identity
  - language
  - communication
  - cultural beliefs or practices
  - social behavior

# Expedited Review Category 7 (Cont'd.)

or

- Research employing the following methodologies:
  - survey
  - interview
  - oral history
  - focus group
  - program evaluation
  - human factors evaluation
  - quality assurance

## Expedited Review Category 8

- Continuing review of research previously approved by the convened IRB where
  - the research is permanently closed to enrollment of new subjects,
  - all subjects have completed all research-related interventions, **and**
  - the research remains active only for long-term follow-up of subjects

## Expedited Review Category 8 (Cont'd.)

or

- where no subjects have been enrolled and no additional risks have been identified

or

- where the remaining research activities are limited to data analysis

# Expedited Review Category 9

- Continuing review of research
  - not conducted under an investigational new drug application or an investigational device exemption
  - where Categories 2 through 8 do not apply
  - but the IRB has determined and documented at a convened meeting that
    - the research involves no greater than minimal risk and
    - no additional risks have been identified

# Completed IRB applications

## – Exemptions

- After review of Form A, the IRB Chair may certify research as exempt from IRB review.

## – Expedited Review Procedure

- The IRB Chair, acting on behalf of the IRB, has authority to review and approve research eligible for expedited review.

# Full-Board Review

## Full-Board Review

- For research that is not eligible for exempt status or for the expedited review process
  - Projects don't fall in federal categories for exempt or expedited research and/or
  - More than minimal risk is involved
- Investigator may process an application to request a Full-Board Review (Form B, option B-2)
- The IRB chair can refer research submitted on an expedited application (Form B, option B-1) to full-board review.

# Protection of Research Human Subjects

The Pellissippi State IRB has the authority to suspend or terminate approval of research that is not being conducted in accordance with Pellissippi State IRB requirements or that has been associated with unexpected serious harm to subjects.

Continuing non-compliance must be reported by the IRB to the Office for Human Research Protections and the project's funding authority.

# IRB Information...

See Pellissippi State IRB policies, procedures, forms, and templates are available from the Office of Institutional Effectiveness, Research and Planning [http://www.pstcc.edu/departments/institutional\\_research/index.htm](http://www.pstcc.edu/departments/institutional_research/index.htm)

Contact Dr. Sharon Yarbrough, director of IERP and chair of the IRB, for further information (865-694-6526).

***Pellissippi State is committed to research ethics that protect human subjects.***

# Acknowledgement

**The material in this presentation was used with permission from  
Sinclair Community College  
(Consultant: Frances Jeffries, Ph.D., Bridgewater, MA)**

A faded, light blue-tinted background image showing a person in a lab coat and gloves working with a microscope. The person is focused on their work, and the image is semi-transparent, allowing the text to be clearly visible over it.