

When subjects may be vulnerable to coercion or undue influence, additional safeguards must be included to protect their rights and welfare. In addition to children and prisoners, other vulnerable populations may include: pregnant women, fetuses and neonates, cognitively impaired individuals, educationally or economically disadvantaged individuals, students and employees.

1.0 Cognitively impaired persons.

Cognitively impaired persons are considered vulnerable because they may have insufficient decision-making capacity to provide their own consent for participation in research. The impairment may be due to a psychiatric disorder, physical disease or condition, substance abuse or extreme stress, and may be permanent, temporary or transitory.

1.1 Justification for use of vulnerable population.

Investigators must provide sufficient justification for selectively targeting cognitively impaired persons for research participation. Research that relates directly to their condition or circumstances would be considered an adequate justification for use of this vulnerable group.

1.2 Assessment of competency to consent to research participation.

When some or all prospective participants are likely to include persons with some level of cognitive impairment, an assessment of their competency to consent may be necessary. A potential participant may be considered competent if able to understand information presented on the research project, make their own decision, and appreciate the consequences of that decision. When a participant's cognitive capacity is diminishing or fluctuating, periodic assessments may be needed to maintain legally effective consent for ongoing research participation. Investigators should describe in the protocol use of any assessments that will be performed. The IRB may require assessments for all or some participants where necessary to protect their rights and welfare.

1.3 Informed consent.

Participants determined competent may provide their own legally effective informed consent. It may be necessary to include additional educational measures to enhance understanding for this population.

Those determined not competent will require consent from either a legally authorized representative, or if none is available, a next-of-kin, to participate in research. However, a participant's obvious objections to research participation should always be respected. Some participants with only limited impairment may also be asked to provide their assent for research, similar to the child assent process. Refer to *9.4 Children as Research Participants* for a description of the assent process that could be adapted for adults with impaired cognitive capacity.

Investigators should describe in the protocol any process for locating and obtaining consent from legally authorized representatives, as well as the process for obtaining participants' assent, if applicable. The IRB may require an assent process for some or all participants where beneficial for protecting their rights and welfare.

1.4 IRB review.

When reviewing research that will involve cognitively impaired individuals, the IRB must include a member or consultant familiar with the concerns of the population being studied.

2.0 Pregnant women, human fetuses and neonates.

Pregnant women, human fetuses or neonates are considered a vulnerable population, and require additional safeguards to protect their rights, safety and welfare.

2.1 Justification for use of vulnerable population.

Investigators must provide adequate justification for selectively recruiting pregnant women, human fetuses or neonates for research. Research that relates directly to their condition or circumstances would be considered an adequate justification for use of this vulnerable group.

2.2 Pregnant women or fetuses.

Pregnant women or fetuses may be involved in research if all the following conditions are met:

- Where appropriate, preclinical studies, including studies on pregnant animals, and clinical studies, including studies on nonpregnant women, have been conducted and provide data for assessing potential risks to pregnant women and fetuses;
- The risk to the fetus is caused solely by interventions or procedures that hold out the prospect of direct benefit for the woman or the fetus; or, if there is no such prospect of benefit, the risk to the fetus is not greater than minimal and the purpose of the research is the development of important biomedical knowledge that cannot be obtained by other means;
- Any risk is the least possible for achieving the objectives of the research;
- If the research holds out the prospect of direct benefit to the pregnant woman, the prospect of a direct benefit both to the pregnant woman and the fetus, or no prospect of benefit for the woman nor the fetus when risk to the fetus is not greater than minimal and the purpose of the research is the development of important biomedical knowledge that cannot be obtained by any other means, her consent is obtained;
- If the research holds out the prospect of direct benefit solely to the fetus then the consent of the pregnant woman and the father is obtained, except that the father's consent need not be obtained if he is unable to consent because of unavailability, incompetence, or temporary incapacity or the pregnancy resulted from rape or incest.
- Each individual providing consent is fully informed regarding the reasonably foreseeable impact of the research on the fetus or neonate;
- For children who are pregnant, assent and parent or guardian permission are obtained;
- No inducements, monetary or otherwise, will be offered to terminate a pregnancy;
- Individuals engaged in the research will have no part in any decisions as to the timing, method, or procedures used to terminate a pregnancy; and
- Individuals engaged in the research will have no part in determining the viability of a neonate.

2.3 Neonates.

2.3.1 Neonates of uncertain viability.

Until it has been ascertained whether or not a neonate is viable, a neonate may not be involved in research covered by this subpart unless the following additional conditions have been met:

- The IRB determines that:
 - The research holds out the prospect of enhancing the probability of survival of the neonate to the point of viability, and any risk is the least possible for achieving that objective, or
 - (ii) The purpose of the research is the development of important biomedical knowledge which cannot be obtained by other means and there will be no added risk to the neonate resulting from the research; and
- The legally effective informed consent of either parent of the neonate or, if neither parent is able to consent because of unavailability, incompetence, or temporary incapacity, the legally effective informed consent of either parent's legally authorized representative is obtained. The consent of the father or his legally authorized representative need not be obtained if the pregnancy resulted from rape or incest.

2.3.2 Nonviable neonates.

After delivery nonviable neonates may not be involved in research covered by this subpart unless all of the following additional conditions are met:

- Vital functions of the neonate will not be artificially maintained;
- The research will not terminate the heartbeat or respiration of the neonate;
- There will be no added risk to the neonate resulting from the research;
- The purpose of the research is the development of important biomedical knowledge that cannot be obtained by other means; and
- The legally effective informed consent of both parents of the neonate is obtained, except that consent cannot be waived or altered (Refer to 1.2 in SOP 9.3 *Waiver or Alteration of Informed Consent Requirements*). If either parent is unable to consent because of unavailability, incompetence, or temporary incapacity, the informed consent of one parent of a nonviable neonate will suffice, except that the consent of the father need not be obtained if the pregnancy resulted from rape or incest. The consent of a legally authorized representative of either or both of the parents of a nonviable neonate will not suffice to meet the requirements.

2.3.3 Viable neonates.

A neonate, after delivery, that has been determined to be viable is considered a child. They may be included in research under the requirements described in *10.1 Vulnerable Groups: Children*.

2.4 Research not otherwise approvable.

Research involving pregnant women, fetuses or neonates that does not meet the requirements under 2.2 or 2.3 above, may only be approved if:

- The IRB finds that the research presents a reasonable opportunity to further the understanding, prevention, or alleviation of a serious problem affecting the health or welfare of pregnant women, fetuses, or neonates; and
- The Secretary of DHHS, after consultation with a panel of experts in pertinent disciplines (i.e., science, medicine, ethics, law) and following opportunity for public review and comment, including a public meeting announced in the Federal Register, has determined either:
 - That the research satisfies the conditions under 2.2 or 2.3 above, or all of the following:
 - The research presents a reasonable opportunity to further the understanding, prevention, or alleviation of a serious problem affecting the health or welfare of pregnant women, fetuses, or neonates;
 - The research will be conducted in accord with sound ethical principles; and
 - Informed consent will be obtained in accordance with other requirements

2.4 IRB review.

The IRB reviews research involving pregnant women, fetuses or neonates at a convened meeting, and must ensure that all applicable conditions above are satisfied to safeguards their rights, safety and welfare.

3.0 Economically or educationally disadvantaged persons.

Economically or educationally disadvantaged individuals are considered vulnerable to coercion and undue influence, and require additional safeguards to protect their rights, safety and welfare.

3.1 Justification for use of vulnerable group.

Investigators must provide adequate justification for selectively recruiting economically or educationally disadvantaged persons for research. Research that relates directly to their condition or circumstances would be considered an adequate justification for use of these vulnerable groups.

3.2 Compensation.

Economically disadvantaged individuals may be more influenced than the general population by the level of compensation offered for research participation. The level of compensation offered should not be such that it would cause participants to overlook risks, or accept risks they would not normally accept without compensation.

3.3 Informed Consent.

Educationally disadvantaged individuals may have difficulty comprehending information. Consent documents should contain simplistic language and terms and additional explanations. Extra time may be needed to answer questions and ensure their understanding prior to agreeing to participate in research.

3.4 IRB review.

When reviewing research involving economically or educationally disadvantaged individuals, the IRB should include a member or consultant familiar with the concerns of the population being studied.

4.0 Students and employees.

Participants who are students or employees of the investigator or research team members may be vulnerable due to the power differential inherent in these dual relationships. Selective recruitment of an investigator's own students or employees has the potential for coercion or undue influence to participate. Students and workers may have the belief or perception of receiving favorable treatment for agreeing to participate, or conversely, unfavorable impact on the relationship with the investigator or loss of benefits. Both the investigator and IRB must ensure that adequate safeguards are in place to ensure voluntariness and exercise of a free choice for these individuals.

4.1 Students as research participants.

Students may be recruited for research participation; however a student may not be required to participate in research as a course requirement nor offered extra credit for participation without a comparable non-research alternative offered. One's own students should not be selected as participants for the sole reason of convenience.

4.1.1 Recruitment: In general, potential participants should be solicited from a "broad base" of individuals that meet inclusion criteria for a study, rather than by personal solicitation of specific students. Some strategies which may minimize the potential influence of an investigator recruiting his/her own students may include: recruitment by general announcements, posting to a bulletin board, use of a departmental system for recruitment, email to a general student listserv, or other methods which require a student to demonstrate their interest in the study and/or initiate contact with the investigator(s).

4.1.2 Voluntary participation: Strategies must be implemented to ensure voluntary participation when the subjects of research include students who are instructed or advised by the investigator(s). Students may feel pressure to participate in research in an effort to please their instructor/advisor, earn course or extra credit, or because they feel that refusing to do so will negatively impact the students' relationship with their instructor/advisor. Students must be assured that their choice regarding participation in research will not affect (favorably or unfavorably) grades, potential letters of recommendation, or other opportunities or decisions made by the investigator. When recruiting one's own students, strategies for ensuring voluntariness may include use of a third party to solicit consent, soliciting consent outside of class time, or via electronic means.

4.1.3 Use of class time for research: In general, use of class time for research should be avoided. Exceptions include 1) research on regular and special educational instructional strategies, 2) evaluation of the effectiveness of instructional techniques, curricula, or classroom management techniques, 3) research designed to study an issue specific to the population of students.

4.1.4 Privacy and Confidentiality: Use of class time for research may require additional safeguards in order to ensure that participants' privacy is protected. Classroom conditions may make it difficult for researchers to ensure confidentiality of participant data, which may pose risks to participants (e.g. when stigma is associated with the

condition or question under study, or when peer pressure may be a component of the research). In such situations, the IRB may require research to be conducted outside of the classroom, or outside of regular class hours to minimize these potential risks.

4.2 Student Research 'Pools'

4.2.1 NDSU students are offered the opportunity to participate in research (as subjects) in various ways. Examples include participation for course or extra credit, or in exchange for payment. Students may not be required to participate in research or offered extra credit for participation without an approved alternative which is equal in time, effort, and desirability.

4.2.2 All research participants, including students, must be free to withdraw from participation at any point in a study without penalty. Course/extra credit must be pro-rated based on the amount of time a student participated in the study, or the student may receive full credit (e.g. in instances where a participant completes a portion of a research survey).

4.3 Employees as research participants.

When an investigator or a member of the research team proposes to recruit their own employees, strategies to minimize coercion and undue influence and to protect against risk to employment must be implemented. Some examples may include

- the consent process is conducted by a neutral third party, and investigators are blinded to the identity of participants
- recruitment is conducted indirectly, via general postings or announcements, rather than selecting specific employees, and requires participants to initiate contact with the study team
- the consent document clarifies that participants' decision on participation will not affect their performance evaluation, career advancement, or other job-related decisions.

Note that research conducted in the workplace may also present unique confidentiality risks for participants, depending on the nature of the interaction, information obtained, and the possibility of disclosure to those in a management or supervisory role. Refer to SOP 8.2 *Privacy and Confidentiality* for strategies to minimize these risks.

4.4 IRB review.

The circumstances of each project are unique, and alternate or additional strategies may be necessary to ensure voluntariness. In order to approve a protocol, the IRB must determine all criteria for approval are met, including that the potential for coercion and undue influence has been sufficiently minimized; refer to SOP 7.2 *Criteria for IRB Approval* for more information. The IRB may specify changes to the protocol's subject population and/or recruitment process that would fulfill requirements for approval.

DEFINITIONS:

Competence: capacity to act on one's own behalf; the ability to understand information presented, appreciate the consequences of acting on the information, and to make a choice.

Directory information (FERPA): information contained in an education record of a student that would not generally be considered harmful or an invasion of privacy if disclosed. Directory information includes, but is not limited to: the student's name, address; telephone listing; electronic mail address, photograph, date and place of birth, major field of study, grade level, enrollment status, dates of attendance, participation in officially recognized activities and sports, weight and height of members of athletic teams, degrees, honors and awards received, and the most recent educational agency or institution attended.

Education record: means those records that are directly related to a student; and maintained by an educational agency or institution, or by a party acting for the agency or institution.

Fetus: the product of conception from implantation until delivery.

Legally authorized representative: an individual authorized by a judicial body or other appropriate body to give consent on behalf of a prospective subject to the subject's participation in research. This may include a health care agent (named as a durable power for health care decision maker while the subject had competency), or a court-appointed guardian.

Neonate: a newborn.

Pregnancy: encompasses the period of time from implantation until delivery. A woman shall be assumed pregnant if she exhibits any of the pertinent presumptive signs of pregnancy, such as missed menses, until the results of a pregnancy test are negative or until delivery.

Viable: as it pertains to the neonate, means being able, after delivery, to survive (given the benefit of medical therapy) to the point of independently maintaining heartbeat and respiration.

Minimal risk: 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 the performance of routine physical or psychological examinations or tests.

Next-of-kin: in the following order: spouse, adult child (18 yrs of age or older), parent, adult sibling, grandparent, or adult grandchild.

REFERENCES:

IRB Guidebook [Chapter 6, Special Classes of Subjects](#); Office of Human Research Protections NIH, [Research Involving Individuals with Questionable Capacity to Consent: Points to Consider 45 CFR 46 Subpart B](#) Additional Protections for Pregnant Women, Human Fetuses and Neonates Involved in Research
ND Century Code Chapter 14-02.2 [Fetal Experimentation](#)
[45 CFR 46.111](#) and [21 CFR 56.111](#) Criteria for IRB approval of Research
[45 CFR 46.116](#) and [21 CFR 50.20](#) General requirements for informed consent
[FAQs Related to Informed Consent](#); Office of Human Research Protections

RELATED FORMS:

IRB Protocol Form
Informed Consent Waiver Request Attachment form

RELATED HRPP SECTIONS:

- 8.2 Privacy and Confidentiality
- 9.1 Consent Process
- 9.3 Waiver or Alteration of Informed Consent Requirements
- 9.4 Children as Research Participants
- 10.1 Vulnerable Groups: Children
- 11.1 Use of Confidential Records