Risks and Benefits in Human Subjects' Research

This guidance is intended to aid researchers in identifying risks and benefits associated with an IRB protocol's research design. This document describes risks and benefits; discusses the nature of risks, and the probability and magnitude of harm that could occur from risks in research; and how to design research to mitigate possible risks introduced by the research.

Important Reminder: It is okay if a research protocol introduces risk in the lives of the participants. It is not only required by the federal regulations governing research with human subjects, but it is also the researcher's ethical obligation and due diligence to design research where all risks to humans are minimized and subsequently communicated to the participant. This allows for the participant to choose to assume or not assume the risks of the research.

Definitions
Although these terms may appear straightforward, evaluations of risks and benefits are made more complex both by the subtle distinctions between therapeutic, programmatic, and research activities. Additionally, the evaluation of risks and benefits from the research activities is made in context of the international, national, local, average participant context, and the contextual vulnerability of the target participants.

Minimal Risk
A risk is minimal when the probability and magnitude of harm or discomfort anticipated in the proposed research are not greater, in and of themselves, than those ordinarily encountered in daily life or during the performance of routine physical or psychological examination or tests.

Probability of Harm
Pertains to the extent of how likely it is for the risk to occur and how the study is designed to address that probability.

Magnitude of harm
Refers to the severity of harm to the participant from their involvement in the study.

Direct Benefit
A benefit arising from receiving or participating in an intervention, interaction, manipulation of environment, or allowing identifiable data to be used for research. A benefit is a helpful or good effect, something intended to help, promote or enhance well-being, an advantage. The IRB does not consider compensation a direct benefit.

Indirect Benefit

Collateral/Incidental Benefit
A benefit arising from being a participant in research, even if one does not receive the experimental intervention (for example, a free physical exam, tutoring, professional development).

Aspirational Benefit
Benefits to science or society include the knowledge researchers expect to gain from conducting the study. Scientific/societal benefits may include improved safety; technological advances; or enhanced understanding of a behavior, disorder, or condition.

Privacy
Freedom from intrusion into the private experiences, affairs, or live of an individual. Privacy is about the person, their body, their experience in a situation.

Confidentiality
Preserving authorized restrictions on access and disclosure of information. Confidentiality is about the data and how the data is protected, accessed, used, shared, and managed.

Identifying Risks
When considering risks, the IRB considers only those risks associated with the research activities themselves and the data generated or accessed for research purposes. This includes risks to primary participants and third-party participants. Researchers should be aware that risks could include immediate risks of study participation, risks related to being associated with the research at all, risks of randomization, risks of breach of confidentiality, and risks of long-term effects of the intervention, interaction, manipulation of environment, or use of data.

Physical
Some research presents risk of physical injury to subjects. Although most of these risks are transient, some adverse effects of study participation (especially those which result from medical procedures, drug research, device research, exercise research, and nutrition research) may result in permanent injury to subjects.

- Example, a research study involves average novice people who go to the gym and career weightlifters as participants completing the “snatch” movement with a bar bell (pulling a barbell from the floor to overhead). The magnitude of harm from completing the snatch movement is severe injury such as broken back. If novices are included, the probability of this risk occurring is way more likely than if only if career weightlifters participated.
- Example, a research study involves asking participants to reach their max heart rate through running on a treadmill (uphill) in a hot room. The magnitude of harm from this activity ranges from pulled muscles, to heat stroke, to heart attack. The probability of this risk occur can be minimized through exclusion criteria such as only targeting people who exercise regularly or exercise in the heat (like firefighters) and by having constant monitoring activities, cut off criteria, and a medical professional on site.

Psychological
Some research has the potential to cause undesired changes in thought processes and emotion including episodes of depression, confusion, and hallucination resulting from drugs, feelings of stress, guilt, or loss of self-esteem. As is the case with physical risks, these effects are usually transient.

- Example, participants are told they are going to watch some brief videos, but they are not told the content of the videos. The videos include watching workplace accidents that are incredibly graphic. The risks here are that these videos trigger shock, horror, disgust, fear, and frustration. This may be fleeting or if very specific to the person’s workplace, may last longer. The probability of these risks occurring is made more likely when

the participants are not told about the content (at the very least it's rating) or screened out for sensitivity to content in this manner.

Legal

Some research involves generating or accessing data that may reveal unlawful behavior and because of the research or access of data, the unlawful behaviors are more exposed, identified at all, or accessible to others through breach. In these cases, the risks to participants include possibilities of arrest, audit, deportation, incarceration, removal from home, taxation, or assessed fees, etc.

- Example, a study is looking at sleep patterns of minors and part of the study procedures include audio recording in the minor's bedroom overnight. The legal risks associated with this are that the recordings could pick up domestic violence issues or other unlawful behavior involving minors. The magnitude of harm is that the primary or third parties may have to be reported and experience legal ramifications that may be sever. To decrease the probability of this risk occurring, the audio does not record any identifying information and cannot record audio where words can be captured, it instead records things like "decibels" only.
- Example, a researcher is targeted people who are undocumented to be in longitudinal research about their experiences in the education system. The magnitude of harm from being in this research are that the participants, if associated with the research are "outing" their documentation status which could lead to arrest, detainment, or deportation. The probability of this harm occurring could be minimized by not recording names, having a one-time screening activity where participants are either included or excluded and data about documentation status is not written down or discussed status again in study records, waiving "signed" informed consent so their names are not on documentation, or only targeting participants who are beneficiaries of DACA and TPS.

Academic

Some research involves generating or accessing data that may affect a participants academic standing, ability to get into a program, grades in a class, favor with teachers/principals, or reveal issues of academic misconduct.

- Example, the department head of a small program (15 graduate students admitted each year) is implementing a research study to see if their students experience a culture of acceptance, encouragement, and research innovation. Doctoral students are being asked very specific questions about their experiences, including to give feedback on how each faculty member and admin assistant performs in all areas, and if the student has any negative experiences that need to be addressed. Though the study does not ask for names or email address, it does ask for demographic information. The magnitude of harm to students are that they could reveal experiences about a faculty member or admin who may be able to retaliate and affect the classes they could get into, the assistantships they have access to, or their grades/performance in a class.

This probability of these risks occurring could be mitigated by not asking demographics questions, someone other than the department head having access to the initial raw data – where that person "cleans" the data and then gives it to the department head, participants are told in each question "not to be specific enough" to lead to re-identification in their open-ended responses.

Medical and Insurability

Research may pose direct medical or insurability risk to study participants. Procedures billed to insurance companies may require a significant copayment on behalf of subjects, insurance companies may refuse to pay for "investigational" therapies, Insurance companies may refuse to provide insurance to a participant because of the data from a research project, and medical decisions could be altered or changed because of the research.

- Example, because of the research activities, participants need to have their insurance cover additional doctor visits, treatments, and medicines because the participant experienced injury during a research study. The magnitude of harm is that the participant now does not get the coverage or treatments needed. The probability of this occurring can be influenced by having participants check with their insurance companies before participation, that the inclusion/exclusion criteria address this so that people most likely to experience these issues are screened out of the study, or the study has financial support in place to address this issue should it occur.

Social, Reputational, Relationships, Private Behavior

This risk is about how being associated with the study or how the data generated or accessed could cause harm among the participants' relationship, social network, or their reputation. The data could reveal something embarrassing, something betraying, or something inappropriate which could result in loss of relationship or loss of credibility.

- Example, a researcher is completing research with participants who identify as religious and LGBITQ+ but who are not yet "out" to their family or some of their friends from childhood who are very religious. The magnitude of harm to participants should they "be outed" because of this research may have severe consequences for their familial and communal relationships such as alienation or "disowning." The probability of this risk occurring can be mitigated appropriate data access and security for managing the data, but it can be mitigated through recruitment strategies, altering written consent information such as the study title, eligibility criteria, or signed consent (where this information is instead communicated verbally). Additionally, selected the proper mode of data collection matters here. There is far less risk if participants complete an anonymous survey or a private interview via zoom with no video, then say – an in person focus group with other people.

Economic, Financial, Employability

This risk is about how being associated with the study or how data generated or accessed could cause financial, economic, or employability related harm. A participant could be fired, demoted, or not promoted. Participants could be audited or lose out on wages.

- Example, a researcher is looking into why employees engage in counter-productive work behaviors and what organizations can do to discourage the counter-productive work behaviors. Counter productive work behaviors can include tardiness, theft, risk-taking, fraud, harassment, bullying, absenteeism, workplace aggression, using social media when inappropriate, playing games on work time, or sabotage. The magnitude of harm to participants from being a part of this study could be anything from employment action such as a reprimand to employment termination which negatively affects their financial life, employment status, and economic status. To mitigate the probability of this risk occurring, researchers can select an appropriate mode of data collection such as anonymous surveys not completed at work or using work devices, observations where no identifying information is written down, or private interviews outside of the workplace. They can also decrease the likelihood of this occurring by addressing their own reporting obligations and the target population (people with power in the workplace or people without power in the workplace).

Confidentiality Breaches

Some research proposals involve the handling of sensitive information which may result in harm to subjects through a breach of confidentiality. These breaches may result in harm such as embarrassment within a subject's business or social group, loss of employment, criminal prosecution, removal from academic program, irreparable harm to relationships. etc.

- Examples, a researcher compiles a large dataset from multiple sources of FERPA information at a university. The data incudes personal information such as name, email, birthdate, student ID, SSN, test scores, current GPA, grades in specific classes, health information from the student health center and counseling center, and their financial aid information. These varying datasets are accessed by the researcher with appropriate permission (because of their role) and compiled into one data set. All data are directly identifiable when compiled, and the researcher will code the data and keep a master list that links to direct IDs (for long-term following). The magnitude of harm to a participant from their data being accessed this way is identify theft or other nefarious uses of the information. To mitigate the probability of this harm occurring, the researcher should work with OIT to ensure that they have a proper data access and security plan developed and work with their local IT to ensure that that plan is implemented. The plan should address how, when, where, who, and for what purposes the data are accessed, and appropriate limits are implemented. Additionally, the master list should be kept in a completely

different location on a different drive (or hard copy) and all software must remain up to date.

In Data Access
Data are vulnerable to breach when the data is accessed for any reason. IRBs must determine the adequacy of provisions designed to protect the confidentiality of participants' data when that data is being accessed or processed.

In Data Transmission
Data are vulnerable to breach when the process of transmitting data is not considered. Data transmission (sharing, transfer, upload, download, etc.) is often overlooked as a research procedure where participants may be vulnerable.

In Data Storage
Data are vulnerable to breach when data is at rest or stored. There are many different security levels for differing data storage opportunities and special attention must be paid to potential security risks, export control restrictions, and data ownership issues.

In the Use of Software and Mobile Applications
Data are vulnerable to undisclosed use, misuse, or breach when researchers use software or mobile applications throughout the research process. Whether the software or mobile application is commercially available or "homegrown" risks to participants data such as unauthorized capture of other data stored or linked to the device on which the software or app is installed. The researcher has the responsibility to understand "terms of service," known or potential risks and convey them to the study participant.

Researcher Positionality that May Increase Risk to Participants
In many cases, the researcher's education and training, dual roles, access, reporting obligations, real or perceived conflicts of interest, real or perceived power dynamics, plan for data management, and their plan for reporting data publicly, all directly influence the probability of risks occurring and magnitude of harm from risks should they occur. It is expected that researchers take this into consideration when designing a study.

Identifying Benefits
When considering benefits, the IRB considers only those benefits associated with the research activities themselves and the data generated or accessed for research purposes. This includes benefits to primary participants and third-party participants. Researchers should be aware that benefits could include immediate benefits of study participation and long-term benefits.

Direct Benefit
A benefit arising from receiving or participating in an intervention, interaction, manipulation of environment, or allowing identifiable data to be used for research.

- Example, a participant may directly benefit from an intervention that includes access to information, teaching, and skill development that they would not otherwise have access to such as professional development, personal training, nutrition classes, targeted math, science, English, or writing curriculum.
- Example, a participant may directly benefit from an intervention that includes the development of a prosthetic that is specific to their needs, the access to a mobile device or software that is not yet publicly available or it's very expensive.
- Compensation for participation in research activities is not a benefit.

Indirect Benefit
A benefit arising from being a participant in research, even if one does not receive the intervention or benefits to science or society include the knowledge researchers expect to gain from conducting the study.

- Example, scientific/societal benefits may include improved safety practices; technological advances; or enhanced understanding of a behavior, disorder, or condition that may influence future treatment.

Risks-Benefits Assessments
A risks-benefits assessment completed by the researcher ensures that they have considered risks and benefits associated with the research design including the magnitude of harm to participants, probability of that harm occurring, and any direct or indirect benefit. It affords the researcher time and information to redesign the study as necessary to maximize benefits and mitigate any risks. Additionally, it will better prepare the researcher for proposing their research to the IRB and communicating their research to participants more effectively.

Risks-Benefits Assessment Overview and Questions
Process adapted from: https://ohrpp.research.ucla.edu/assessing-risks/

Step 1: Identify and distinguish risks and benefits.

- Identify the risks and benefits from the procedures performed solely for research purposes that would not occur if the research question was not posed.
- Identify the risks and benefits from the procedures, therapies, or programs the participant would receive even if not in the research, and make sure those are not articulated as research benefits. Make sure to parse out nuances.

Step 2: Identify the context in which the research procedures are performed and identify the subsequent risks and benefits of that context.

- Identify if research procedures are added to conventional standard of care, normal programmatic activities or normal curriculum.
- Articulate where the research activities take place and if the setting can be considered a physical, emotional, intellectual, social "safe" place.

- Does the research take place in public, private, semi-public, semi-private setting?
- Who are the other participants in the study, and do they interact with one another? Will that increase or decrease risk?
- Are the procedures online or in person?
- Example, blood drawn for normal medical practice that will also be used for research or blood drawn for normal medical practice, but ADDITIONAL blood must be drawn for research purposes.
- Example, questionnaires implemented as a normal part of the curriculum and used as assessment information and later used as research or questionnaires added to the curriculum because the research question is being asked.

Step 3: Consider the Target Population

- Consider participant demographics such as age, health, gender, sex, religion, race, ability, language, employment or student status, etc. and how those demographics may impact the risks/benefits assessment of the study procedures.
- How, where, when, and by whom are participants being recruited and are there real or perceived conflicts of interest or power dynamics associated with the participants and those who recruit them.
- What participant centered procedures should be implemented throughout the research design to mitigate risks to coercion, undue influence, or from the study procedures themselves.
    - *o* Example, should certain personnel be selected for interaction instead of others? Should carved out spaces for privacy be provided, does the participant need a blanket or water and snacks?
- Are the consent forms and processes and all research materials written in culturally appropriate, age appropriate, properly sized font, to meet the needs of the participants? Are professional interpreters or professional translators required?

Step 4: Nature of the Associated Risks: Minimal Risk or More than Minimal Risk

- Identify the risks of each research procedure from recruitment and consent to implementation of intervention, interaction, or manipulation of environment, to how the data are handled throughout its lifecycle including reporting out.
- Do the risks related to being associated with the research or the research procedures themselves, meet the federal definition for "minimal risk"? Why or why not?
- What procedures can be put into place to decrease the probability of the risks associated with the research occurring? These may include participant inclusion/exclusion, context wherein the research takes place, appropriate selection of devices and tools used, and data management.

Step 5: What is the Likely IRB Review Level Based on the Risk Assessment

- Studies eligible for exemption that fit into one of the 8 exemption categories detailed in 45 CFR 46. These are always considered minimal risk.

- Studies that required "Expedited" review that fit into one or more of the 9 categories detailed by the federal regulations. These are always considered minimal risk.
- Studies that require convened full board review are studies that are more than minimal risk or those that do not fit into an expedited or exempt category.

IRB Review Considerations and Criteria for Approval
To make the decisions noted in the bullet points below, the IRB examines the research design, methodology, and supplemental documents that researchers have submitted. In doing so, the IRB determines what the risks associated with the research are, the subsequent probability of the risks occurring, and the magnitude of harm should those risks occur.

The IRB looks for the ways in which the researcher's study design maximizes benefits and minimizes risks that participants would be exposed to (from either being associated with the study or the study procedures themselves). The IRB determines that the researchers have fully minimized the associated risks from participating in the research through effective study design. Effective study design includes appropriate eligibility criteria, measures to make study procedures as comfortable as possible, study-wide monitoring of safety and data integrity, use of best practices in study design, plans to handle adverse effects, using research personnel who are qualified to perform their duties, and having adequate levels of supervision. Below are the criteria for approval as detailed in 45 CFR 46.111 (opens in a new window) and operational suggestions.

Criterion 1a and Risk Mitigation
The IRB determines that the research design is sound and in line with current scientific best practices, including not exposing participants to unnecessary risks.

- All procedures selected for use in the study are necessary and no procedure is implemented without a direct connection to the hypothesis or research question.
- The study design is sound and in line with current best practices for research and practice.
- The study design will generate the necessary data needed to answer the research question.
- Participants are not unnecessarily exposed to risks.
- The statistical power needed to answer the research question is accounted for and will lead to meaningful results.
- The research team has the professional qualifications and resources (including time, equipment, support services) to protect participants and minimize potential harm from the research.
- The research personnel are appropriately trained to work with human subjects and are they trained on the research protocol.
- There is an appropriate number of qualified staff on the research protocol.
- In the case of student research, the level of supervision is appropriate to ensure the research is implemented in accordance with the IRB approved protocol.
- The facilities used in the research are appropriate, and time is available for the researchers to conduct and complete the research activities thoroughly.

Criterion 1b and Risk Mitigation
The IRB corroborates or identifies risks to participants are minimized by using procedures already being performed on the participants for diagnostic or treatment purposes.

- Researchers do not implement new procedures but instead, select to use information from procedures that participants are already completing as a normal part of medical treatment, therapy, curriculum, program assessment, or their general activities.
- Researchers may add on new minor procedures to experiences that participants are already completing as a normal part of medical treatment, therapy, curriculum, program assessment, or their general activities.
- Researchers provide a scientific justification as to why they cannot use procedures already occurring to achieve the aims of the research, but instead must implement a new interaction, intervention, or manipulation of environment.

Criterion 2 and Risk Mitigation
Risks to subjects are reasonable in relation to anticipated benefits, if any, to subjects, and the importance of the knowledge that may reasonably be expected to result.

- The IRB corroborates or identifies any risks to both primary participants and secondary/third party participants from the research procedures.
- The IRB corroborates or identifies any direct or indirect benefits to both primary participants and secondary/third party participants from the research procedures.
- Medical or psychosocial resources are available to participants should they be needed because of their participation in research.

Criterion 3 and Risk Mitigation
Selection of subjects is equitable.

- The plan for recruitment and selection will be able to reach the necessary number of participants while not over sampling from one group.
- The inclusion and exclusion criteria are sufficient to reinforce sound research design while ensuring participant protections.
- The inclusion and exclusion criteria are sufficient to ensure that people have access to be in the research.
- The participant inclusion/exclusion criteria are articulated in the IRB application with a scientific justification as to why those participants are included/excluded.
    - Note, convenience sampling is rarely an IRB approved mode of participant recruitment and selection unless those in the convenience sample directly reflect the target population, there are no COIs or real or perceived power dynamics among the researchers and the participants, and the study is minimal risk.
- Where appropriate there are “cut offs” in place regarding demographics of people who sign up to be in the study. This ensures that groups are not over targeted or over sampled and that the participation is equitable.

- Research design addresses issues of equity for participants who may have a more difficult time participating in the research due to other life obligations such as work or family.

Criteria 4 & 5 and Risk Mitigation
Informed consent will be sought from each prospective subject or the subject's legally authorized representative, or Informed consent will be appropriately documented or appropriately waived

- The researchers have designed the study in a way that Informed Consent is a continual agreement, and participants are aware of what happens in the study at each step of the study, with an opportunity to ask questions or stop.
- The Informed Consent process or form is culturally appropriate, written in a culturally appropriate and age-appropriate manner. The Informed Consent information is presented to the population in a way that they can easily understand the information presented to them.
- The Informed consent form meets all regulatory requirements set forth in the IRB regulations.
- Waiving signed consent or altering aspects of the consent form serves as a participant protection, in that it removes the risk of being associated with the research or having someone know about a participants involvement when that would increase risk to that participant.

Criterion 6 and Risk Mitigation
When appropriate, the research plan makes adequate provision for monitoring the data collected to ensure the safety of subjects.

- The IRB determines that adequate provisions are in place for monitoring the data collected for participant safety throughout the life of the study.
- The IRB may determine intervals for periodic review of the study.

Criterion 7 and Risk Mitigation
There are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of data

- The IRB determines that adequate provisions for appropriate data management including data access, generation, transfer, storage, processing, sharing, and destruction is compliant with NC State University's data sensitivity framework.
    - The researcher has a data access and security plan that that addresses data protection and security throughout the lifecycle of the data. This plan is in compliance with NC State University's data sensitivity framework.
    - The researcher using NC State licensed software.
- The researcher is only collecting the information needed to answer the research question, including only seeking needed identifying information.
- Data about participants will be reported in accordance with the IRB application and what participants are told in the Informed Consent. Refer to the IRB's guidance for Collection and Reporting of Demographics (Word document).

- The researcher's reporting obligations (Word document) are accounted for in the research design and communicated to participants in the Informed Consent process or form.

Criterion 8b, Risk Mitigation, and Vulnerable Populations
When some or all of the subjects are likely to be vulnerable to coercion or undue influence, additional safeguards have been included in the study to protect the rights and welfare of these subjects.

- The IRB determines that if the participants are likely to be members of vulnerable populations, that appropriate safeguards are in place to protect the rights and welfare of the participants throughout the life of the study. These may include:
    - Safeguards that address vulnerability due to group characteristics, such as economic, social, physical, and environmental conditions.
    - Safeguards related to participant selection. This helps to prevent over-selection of, or exclusion of participants based on perceived limitations or complexities associated with those participants identities.
        - Review the IRB guidance for targeting NC State University students (Word document)
        - Review the IRB guidance for researchers enrolling in their own research (Word document)
        - There is a scientific justification for targeting people who are vulnerable.
        - There is a participant protection practice that justifies targeting people who are vulnerable.
    - The recruitment plan reaches the target population and necessary number of participants needed to answer the research questions.
    - All real and perceived conflicts of interest and power dynamics have been accounted for though disclosure or other measures to remove issues around power.
    - The person recruiting, consenting, and screening possible participants does not have any real or perceived power over the possible participants.
    - The screening activities accurately reflect the inclusion/exclusion criteria.
    - The informed consent form and recruitment materials reflect the inclusion/exclusion criteria.
    - Application of federal, state, or local laws and regulations that bear on the decision-making abilities of potentially vulnerable participants.
    - The modes of data collection, questions asked, language used, phrasing selected, and interventions appropriate to the target population.
    - When compensation (PDF file) is provided, the amount is appropriate for the target participants and the time spent, physical effort, and intellectual or emotional labor, addressing issues of undue influence and coercion.
- State statutes often address issues related to competency to consent for research, emancipated minors, legally authorized representatives, the age of majority for research consent, and the waiver of parental permission for research.

- Procedures for assessing and ensuring participants' capacity, understanding, and informed consent or assent. When weighing the decision whether to approve or disapprove research involving vulnerable participants, the IRB verifies that such procedures are a part of the research plan.
- In certain instances, it may be possible for investigators to enhance understanding for potentially vulnerable participants. Examples include requiring someone who is not involved in the research to obtain the consent, the inclusion of a consent monitor, a participant advocate, interpreter for hearing-impaired participants, translation of informed consent forms into languages the participants understand and reading the consent form to participants slowly and ensuring their understanding paragraph by paragraph.

Additional IRB Review Considerations for Vulnerable Populations
The IRB is cognizant of the vulnerable nature of many participants. Some people are vulnerable because of their status such as a person who is also incarcerated, a minor, or a student/employee. Some people are vulnerable because of their visible or invisible identity such as people who are economically or educationally disadvantaged, people who have been historically minoritized due to their race, gender, sex, religion, ability, etc. A participant's contextual vulnerability directly influences the regulatory requirements, study design, and risks/benefits assessment.

Additional Regulatory Requirements for Vulnerable Populations
The Food and Drug Administration (FDA) regulations, the IRB regulations at 45 CFR 46, and the DoD regulations for human subjects research require IRBs to protect the welfare of participants who may be vulnerable with additional regulatory requirements.

To approve research involving vulnerable populations, the IRB must determine that additional safeguards have been included in the study design. These safeguards should protect the rights and welfare of participants who are likely to be vulnerable to coercion or undue influence or who may experience harms from being associated with the research or the research procedures themselves. Some of these protections are assessed via IRB expertise in context of the international, national, state, and local political, social, economic, legal, and other societal contexts.

Some of these protections are detailed in the regulations and NC State University IRB unit standards such as:

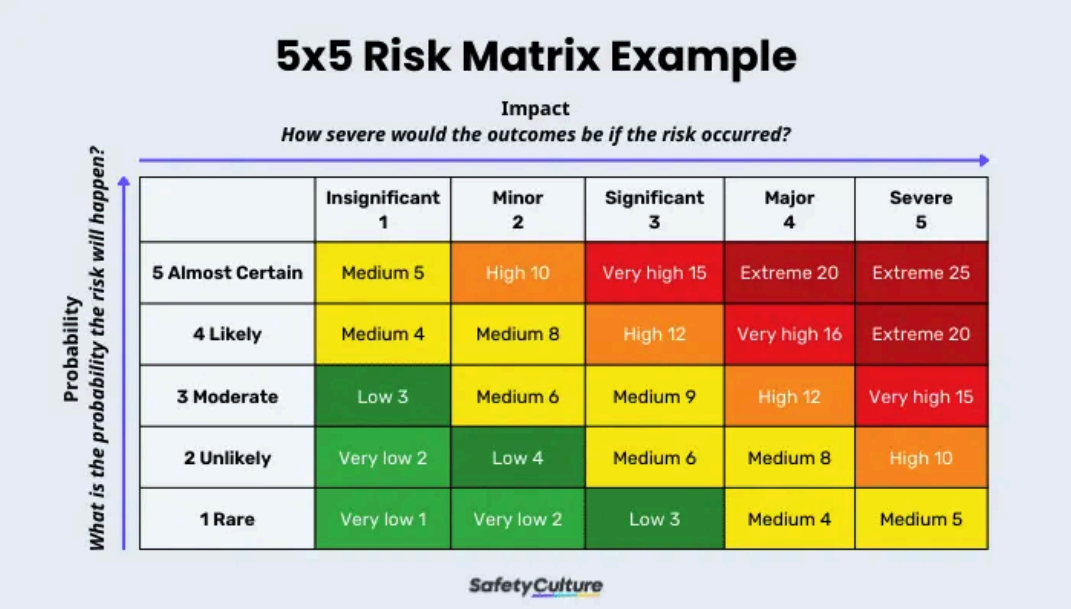
- Federal regulations protecting children in research
  - 45 CFR 46 Subpart D (opens in a new window)
  - 21 CFR 50 Subpart D (opens in a new window)
- Federal regulations protecting people who are incarcerated in research
  - 45 CFR 46 Subpart C (opens in a new window)
- Federal regulations protecting pregnant people, fetuses, or neonates
  - 45 CFR 46 Subpart B (opens in a new window)

- Federal regulations protecting active military in research
    - DoD Instruction 3216.2 (PDF file)
- IRB unit standard on research involving minors (Word document)
- IRB unit standard on research involving people who are pregnant (Word document)
- IRB unit standard on research involving people who are incarcerated (Word document)

The context of the research is an important consideration for the IRB when reviewing research that involves other potentially vulnerable participants such as research involving people who are without houses or homes, members of historically minoritized groups, or the economically or educationally disadvantaged. Research involving significant follow-up procedures or offering significant monetary compensation may unduly influence or coerce participants and the IRB takes such considerations into account.

Researcher Responsibilities in Making Risk Assessments

When the study is designed, all risks are accounted for, and mitigation strategies are put in place, the IRB suggests that the researcher complete their own risks assessment before submitting the IRB application for review and approval. This will allow the researcher to discuss the risks and accurately communicate the probability of the risk occurring and the magnitude of harm should the risk occur.



5×5 Risk Matrix Example

https://safetyculture.com/topics/risk-assessment/5x5-risk-matrix/

Risk Assessment Case Study

A researcher at ABCD University created software to detect plagiarism and they want to complete a research study in real life situations with students to see if the software works.

- The teacher (who is also the researcher) will use the software in one class where they will not tell students about the use of the software. The teacher (who is also the same researcher) will use the software in another class where they will seek prospective consent from students to allow their work to be scanned by the software.
- All coursework and assignments are the same, the only difference is the instructor (who is also the researcher) will use the plagiarism software they developed to scan submitted papers before they are graded.
- The harm to students is that “it’s more likely students will be caught cheating due to the research intervention, than if the research intervention did not occur.” Risks include:
    - academic risks (they could get an F on the paper, an F in the class, suspended, or expelled).
    - Reputational risk (they could lose out on opportunities for academic excellence or assistantship opportunities.
    - Possible employment or financial risk (if their enrollment or GPA is connected to their housing situation, assistantship, etc.).
- Since the participants did not know of the use of the software as a check point because they did not consent and it is very likely the intervention will work, the likelihood of the risk occurring is “Almost Certain.”
- Since the probability is high and the essays are directly identifiable to the researcher (who is also the teacher with reporting obligations), the magnitude of harm to the participant is “severe”
- Study design can dramatically influence the probability of the risks to participants occurring. Though the risks and their magnitude of harm will stay the same, the probability of the risks occurring can be mitigated to “rare” via intentional study design as follows:
    - There is no scientific justification for the researcher targeting their own students, in fact, doing so increases risks to participants. To solve this issue, the researcher can exclude their own students, advisees, and supervisees. They can instead target students in another class (ideally another school entirely). This can change the researcher’s reporting obligations.
    - There is no scientific justification for the researcher to be using identifiable FERPA records, when this software can be tested in many other ways. By removing the identifiability of the essays, the probability of the need to report is negligible as the researcher will not know who to report.
    - With these two study design changes, the risks to participants went from “almost certain with severe consequences” to though the consequences are “severe” the probability of those consequence occurring is “rare.”