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ABSTRACT

The purpose of this study was to discover whether differences exist among institutional review boards (IRBs) in categorizing and reporting problems in social science research to the Office for Human Research Protections (OHRP). IRBs were grouped by institutional size and type. The study also employed an experimental design to look for differences among those who reviewed a decision chart from OHRP (experimental group) and those who did not review the decision chart (control group). From a population of 474 IRB contacts at public, four-year institutions of higher education, 187 survey responses were received. Factorial ANOVA and independent measures *t*-tests were conducted to look for differences in responses among groups of IRBs. Statistically significant differences were found in how IRBs of different types categorized the incident presented in the survey. IRBs that review more biomedical protocols were less likely than social/behavioral IRBs to categorize an incident as an adverse event but more likely to categorize the incident as an unanticipated problem. Analysis revealed no significant differences among groups in the decision to report the incident to OHRP. The differences between IRB types suggest that IRB experience and institutional context affect IRB decisions. Recommendations are made for revising OHRP reporting guidance, IRB training, and board management.

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CHAPTER 1

Introduction

Dissatisfaction with the U.S. human subjects protections system is at an all-time high. Regulations designed to protect research participants from harm are simultaneously confusing, contradictory, over-broad, and narrowly scoped. Title 45 of the Federal Code of Regulations, Part 46 (Protection of Human Subjects, 2009), referred to as 45 CFR 46, mandates that Institutional Review Boards (IRBs) review, edit, and approve research proposals to reduce the risk of harm to participants. As written, 45 CFR 46 (also known as the Common Rule) covers only federally funded studies and research on new drugs and medical devices. However, at the encouragement of the federal Office for Human Research Protections (OHRP), most universities and research organizations have agreed to apply the regulations to *all* research conducted on human subjects. Thus, depending upon where the research takes place, low-risk, social science research may require stringent review while privately funded, high-risk medical research is allowed to proceed without oversight.

Frustrations over misguided, ineffective IRB review have been expressed by researchers and institutions alike. Emanuel et al. (2004) identified 15 different problems within the human subjects system, classifying them as structural, procedural, or assessment in nature. Social science researchers assert that committee review unnecessarily delays and impedes low-risk research (Ceci & Bruck, 2009; Fiske, 2009) and costs the institution greatly in terms of faculty, staff, and student time (Byrne, Speckman, Getz, & Sugarman, 2006; Dickler, Korn, Bhat, &

Hegde, 2005; Speckman et al., 2007). Furthermore, the inability to determine, through empirical research, the effectiveness of IRBs in preventing participant harm has been noted by scholars (Bledsoe et al., 2007; Hyman, 2007). Given these challenges, it is not surprising that the U.S. research protections program has been labeled a menace to society, "cumbersome" (Straight, 2009, p. 376), and "the bane of our research" (Fiske, 2009, p. 30).

Pleas for relief from excessive regulation and cumbersome IRB review have come from multiple sources. The Infectious Diseases Society of America (2009) issued a position statement expressing frustration with excessive regulatory oversight that "is seriously affecting translational research and quality improvement efforts" (p. 328). Similarly, the Federation of American Societies of Experimental Biology (2009) sent a letter to the White House Office of Management and Budget decrying the "deleterious effect" (p. 1) of excessive regulation on scientific productivity and imploring the agency to minimize the regulatory burden placed on the biomedical research community. Arguments for deregulating low-risk research studies have been published in a wide array of outlets, from law journals (Hyman, 2007) to the *Chronicle of Higher Education* (Shamoo, 2007).

The burden of IRB oversight is perhaps most pronounced in U.S. public colleges and universities. Since many public institutions apply federal protections to all research, rather than only federally-funded research, university IRBs spend much of their time reviewing low and medium-risk studies. IRBs at public institutions may also have fewer resources for IRB training and administrative support than for-profit hospitals and research centers because they do a great amount of internally-funded research. Addressing the problem of lengthy IRB reviews, the American Association of University Professors (AAUP, 2006) proposed that studies involving only surveys, interviews, and observation of behavior in public be exempt from all IRB review

requirements. AAUP further recommended that academic departments be allowed to develop creative ways to oversee such low-risk research studies.

Despite widespread agreement on the inadequacy of the current human subjects protections system, solutions addressing the needs of the wide range of stakeholders have remained elusive. While the medical community is calling for expansion of federal regulation to cover non-federally funded research ("Committee on Assessing," 2002) the social science research community is calling for deregulation of non-medical research (AAUP, 2006). While IRBs focus solely on eliminating risks to human subjects, scientists point out the risks of delaying or preventing life-saving research. The need expressed by IRBs for clarification in interpreting regulations contrasts with the need for flexibility in decision-making at the local level. *In such a complex system, empirical research to guide incremental change that will both relieve unnecessary burdens on scientists and strengthen protections for research subjects is crucial.*

Current IRB Review System

To understand the challenges within the current human subjects protection system, one must first understand the way the system works. The structure for IRB review of research protocols is outlined in federal regulation and described in the section that follows.

Federally prescribed review procedures. IRBs review research proposals within a three-tiered system. Certain forms of minimal-risk research, in which subject identifiers are not collected, may be classified as exempt from federal regulation (Protection of Human Subjects, 2009). For example, a study using aggregate standardized testing scores to assess the effectiveness of a teaching technique would fall within the exempt category. Exempt studies do

not require further IRB review unless protocol changes are made that increase the level of risk to the participants.

Minimal risk research protocols utilizing certain routine medical tests or the collection of identifying information are reviewed at the second level, the expedited level. According to federal rules (Protection of Human Subjects, 2009), expedited IRB review may be completed by one or more members of the IRB. Low-risk research including focus groups, video or audio taping, or the collection of names or social security numbers, often falls within the expedited category.

Research protocols qualifying for neither the exempt nor the expedited review categories must be reviewed by the entire IRB committee (Protection of Human Subjects, 2009). Full-board review (also called convened review) is required for studies involving greater than minimal risk or studies conducted with protected populations: prisoners, pregnant women, fetuses, children, or decisionally impaired individuals. IRB approvals for research at the expedited and full-board levels can be granted for a period of up to one year from the date of submission to the IRB. Research extending beyond 12 months must be reviewed for continuation, either through an expedited continuation review or a convened review.

In addition to reviewing and approving research protocols, the IRB is responsible for investigating non-compliance and adverse events that may arise from research. Non-compliance occurs when an investigator fails to follow federal human subjects regulations, local IRB policies, or the research protocol approved by the IRB. For example, a researcher who begins conducting research with human subjects prior to obtaining either exemption status or IRB approval is non-compliant. If an institution's policies require that specialized training is required of researchers using human subjects, a faculty member is non-compliant if he or she fails to

complete training before the research begins. Reports of non-compliance are investigated by a subgroup of the IRB. Institutions make the decision of whether reporting to OHRP is necessary or not based upon the outcome of the IRB investigation. Non-compliance that is considered serious or continuing must be reported to OHRP.

Adverse events and unanticipated problems arising in research with human subjects must also be investigated by the IRB. Although 45 CFR 46 does not define the term, guidance documents posted on the OHRP website state that an adverse event is:

> any untoward or unfavorable medical occurrence in a human subject including abnormal sign (for example, abnormal physical exam or laboratory finding), symptom, or disease, temporally associated with the subject's participation in the research, whether or not considered related to the subject's participation in the research. (Department of Health and Human Services [DHHS], 2007, Guidance II section, ¶ 2)

The guidance goes further to say, "Adverse events encompass both physical and psychological harms. They occur most commonly in the context of biomedical research, although on occasion, they can occur in the context of social and behavioral research" (DHHS, 2007, Guidance II section, ¶ 2). Although neither the federal regulations nor OHRP guidance defines the term "unanticipated problem," this term is used for a broad array of problems arising in the context of a research study but not meeting the definition of adverse event. Per 45 CFR 46, institutions must report unanticipated or serious adverse events and problems to OHRP.

The consequences of disregarding federal regulations governing human subjects in research can be devastating to researchers and the institutions in which they work. Individual researchers can be debarred or suspended from receiving federal research funds for serious or continuing non-compliance. Institutions can have their federally-funded research programs shut

down for a period of time, thereby delaying scholarly research and publications and preventing graduate students from completing thesis research.

Regulatory confusion. As previously discussed, the federally mandated system for the protection of human subjects is outlined in 45 CFR 46. Additionally, OHRP has published guidance documents in print and via the Internet in an attempt to clarify how the regulations are to be applied. However, federal regulation governing research with human participants remains confusing to IRBs and institutions alike.

The confusion begins in defining which activities qualify as research. The Common Rule defines research as "a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge" (Protection of Human Subjects, 2009, § 102(d)). What should be a simple task, like determining whether a particular activity meets the federal definition of research, becomes complicated when applied to the wide range of disciplines found within university systems. Whether or not interviews conducted by historians, political scientists, and ethnographers meet this definition has been a topic of heated debate for a number of years (Church, 2002; Hemmings, 2006). Student-initiated surveys and interviews may not meet this definition of research, depending on whether the activity is conducted for training purposes or for publication ("IRBs often have questions," 2001).

> Defining what it means to conduct "research" is a formidable task, one that philosophers of science and epistemologists have grappled with for centuries. There is no reason to believe that the drafters of the regulations such as the Common Rule have achieved any more success than have Bacon or Popper. (Charrow, 2007, p. 719)

When an activity meets the definition of research, the next step is to determine if the research is exempt from coverage under 45 CFR 46. There are four categories under which a

protocol can be deemed exempt. However, understanding these exemption categories is challenging due to unclear regulatory language. Pritchard (2001) pointed out that subpart D of 45 CFR 46 exemption 101(b)(2) is an example of the confusing use of negative qualifiers:

> The *exemption* in .101 (b)(2) for research involving survey or interview procedures or observations of public behavior does *not* apply to research covered by this subpart, *except* for research involving observation of public behavior when the investigator or investigators do *not* participate in the activities being observed. (p. 7)

Another exemption category states that routine academic testing within a typical educational setting is exempt. The reviewer must decide which tests are routine and what constitutes a "typical" educational setting. Unclear regulatory language and concern about inappropriate exemptions has led some institutions to review all research at the expedited or full board review level, thereby increasing the workload of the IRB and creating additional paperwork for researchers.

Minimal risk research that does not qualify for exemption from federal oversight may qualify for expedited review by one or more experienced members of the IRB committee. However, determining which protocols qualify for review at the expedited level has not always been easy. To assist with this determination, the Secretary of Health and Human Services published a list of nine categories in which review can be expedited (DHHS, 1998). Categories one through five describe situations in which medical research can be expedited. Category six specifies that minimal risk research involving audio, video, or other recordings qualify as expedited. Categories seven and eight allow for minimal-risk social research and continuing review of previously approved protocols to be reviewed in this manner. Category nine allows the IRB to use expedited review processes for continuation review of any protocol that is

documented to be of minimal risk. Research qualifying for neither exemption from the Common Rule nor expedited review must be reviewed at a convened meeting of the IRB.

Need for Research on IRBs

Improvement of IRB oversight depends upon understanding the strengths and weaknesses of the system. To this end, a number of authors have called for research on various aspects of IRB function.

> Research is needed to determine whether over-burdened IRBs focus too heavily on informed consent documents and institutional agreements, whether education and documentation requirements actually influence discussions, how much attention is actually given to adverse events, and why there are variations in assessment of research risks. (Candilis, Lidz, & Arnold, 2006, p. 2)

Dougherty and Kramer (2005) advocated research on IRBs to determine whether the review boards function to protect human participants or to protect the institutions they serve. Ceci, Peters, and Plotkin (1985) suggested research is needed because IRBs inappropriately serve as gatekeepers that regulate research by filtering acceptable from unacceptable ideas. They asserted that "far more is known about far less important matters than about the functioning of IRBs" (Ceci et al., 1985, p. 994). In 2003, a group of social scientists met at the University of Illinois to discuss challenges of IRB review. They concluded:

> Examination reveals that virtually no scientific evidence is brought to bear on any aspect of the debate about how IRBs function. Unrealistic and untested assertions abound. At the micro level, this includes, for example, how IRBs decide what is adequate and respectful informed consent, what subjects perceive as risk, and what kinds of benefits to subjects and their communities make the relationship fair. At the macro level, there is

> virtually no research on the functioning of IRBs (numbers of protocols reviewed, numbers of serious abuses by discipline, common turnaround time, etc.) or of the effectiveness of the IRB system in protecting human subjects. (Gunsalas et al., 2007, p. 18)

Broad scale assessment research to determine how effective the IRB system is at protecting research subjects is crucial. Such research would require "the creation of systemic performance standards and a data collection mechanism to evaluate the overall performance of the system" (Emanuel et al., 2004, p. 289). To date, the sought-after, widely accepted performance standards on which to judge IRB performance are non-existent.

Statement of Problem

The federal regulations outline two functions required of all IRBs: (a) reviewing research and (b) dealing with reports of non-compliance, adverse events, and problems encountered during research (Protection of Human Subjects, 2009). IRBs work both to prevent harm to subjects and to make corrective action when harm occurs. Since IRB responsibilities lay in both research review and handling problems as they arise, research should be conducted on both functions. However, an extensive review of IRB literature revealed that although several studies have been conducted on the IRB review of proposed research, research about IRBs' handling of reported harms is scarce, especially in the area of social science research. This study addresses this gap in the literature by examining how IRBs handle problems arising in IRB-approved, social science research.

Federal reporting regulations require that institutions have written procedures to ensure that the following incidents are promptly reported to OHRP: (a) any unanticipated problems involving risks to subjects or others; (b) any serious or continuing noncompliance with federal

policy or the requirements or determinations of the IRB; and (c) any suspension or termination of IRB approval (Protection of Human Subjects, 2009, §103(a), (b)(5)). However, federal guidance does not define or explain the words "unanticipated," "serious," or "continuing." Within the context of social science research, IRB members may have difficulty in determining what qualifies as unanticipated or serious. IRBs often struggle with how problems arising within social science research are to be handled.

Research on IRBs is crucial to guide reform of the human protections system and to improve processes and protections for participants in research. However, most studies on IRB function have focused on either initial review of proposed research or handling of problems within medical research. Despite an exhaustive search of the literature, little research has been found on how IRBs interpret federal guidance in handling problems that arise in the context of IRB-approved, social science studies.

Purpose of Study

This study adds to the IRB body of literature by examining how review boards classify problems arising in social science research. In accordance with 45 CFR 46, IRBs classify incidents into three categories: adverse event, anticipated problem, or unanticipated problem. Identifying differences among groups of IRBs in the categorization of problems may indicate varying levels of IRB experience or training. IRBs were grouped according to the *size* of the institution with which they are affiliated. For this study, IRBs at institutions with fewer than 10,000 students are considered small. IRBs at institutions with student enrollment exceeding 10,000 are considered large. IRBs were further categorized by the *type* of research they review: primarily social/behavioral studies, primarily biomedical studies, or similar amounts of each.

This study adds to the existing literature by examining looking for differences among groups of IRBs in the decision to report incidents to OHRP. The study sought to determine if reviewing guidance from OHRP's website resulted in different reporting decisions among IRBs. Respondents assigned to an experimental group were shown guidance materials from the OHRP website and asked questions about their decision to report the incident to the government. Respondents in the control group did not see the guidance material, but were asked the same questions. Difference among the experimental and control groups would indicate value in the OHRP guidance and may indicate a need for further IRB training.

It was hypothesized that there would be no difference in how IRBs grouped by size or those grouped by type categorize incidents arising in research, but that difference would be found between those grouped by type in the decision to report incidents to OHRP. IRBs within institutions with medical schools may interpret social science incidents as presenting less risk to human subjects and thus make the decision not to report occurrences to OHRP. It was further believed that reviewing federal reporting guidelines would affect IRB decision-making. The results of this study provide new insights into the consistency among IRBs in categorizing and reporting incidents encountered within social science research settings.

Research Questions

The following research questions guided this study:

1. Is there a significant difference among IRB groups classified by institution size or IRB type in the way social science research problems are categorized?
2. Is there a significant difference among IRB groups in determining whether to report incidents to OHRP?

a. Is there a significant difference in the reporting decision between the control group and experimental group?
b. Is there a significant difference in the reporting decision among IRB groups classified by institution size?
c. Is there a significant difference in the reporting decision among IRB groups classified by IRB type?
d. Is there a significant interaction between control and experimental groups, IRBs grouped by institution size, and IRBs grouped by type?

Role of the Researcher

I have served as the IRB administrator at a medium-sized university in the Midwest for seven years. As IRB administrator, I have worked closely with various IRB leaders in developing institutional policy, providing training to IRB members and researchers, and interpreting federal regulations relevant to research with human subjects. The idea for this study was developed through conversations with several IRB members about the challenges of interpreting and applying federal reporting guidance.

Definitions

45 CFR 46. The federal regulations governing the use of human subjects in research in the United States, also referred to as the Common Rule.

Adverse event. "Any untoward or unfavorable medical occurrence in a human subject including abnormal sign (for example, abnormal physical exam or laboratory finding), symptom, or disease, temporally associated with the subject's participation in the research, whether or not considered related to the subject's participation in the research" (DHHS, 2007, p. 5).

Exempt protocol. Certain very low-risk projects that are deemed exempt from 45 CFR 46 regulations. A protocol that is determined to be exempt requires no further IRB review. Exempt categories of research include: (a) research conducted in established educational settings and involving normal educational practices; (b) research involving the use of certain low-risk educational tests, surveys, interviews or observation of public behavior; (c) certain surveys, interviews, or observation of public behavior of elected officials; (d) research involving the study of publicly available existing data, documents, records, specimens that do not include identifying information; (e) projects which are conducted by agency heads which are designed to examine the services and possible changes to public service programs; and (f) taste and food quality studies ("Protection of Human Subjects," 2009, section 101, b).

Expedited protocol. Slightly higher risk project, requiring review by at least two members of the IRB. Research activities may qualify for expedited review if they involve only minimal risk and fit into one of nine categories: (a) clinical studies of drugs and medical devices when used as federally approved; (b) collections of blood samples by finger stick or venipuncture; (c) noninvasive collection of biological specimens for research purposes; (d) noninvasive collection of data through procedures routinely employed in clinical practice; (e) research involving materials collected for nonresearch purposes; (f) collection of data from recordings made for research purposes; (g) research on characteristics or behavior (ie: research on perception, cognition, motivation, identity, communication, and social behavior) or research employing survey, interview, oral history, focus group, or evaluation methodologies; (h) continuing review of research previously approved by the convened IRB when the remaining research activities are limited to data analysis; and (i) continuing review of research where the

IRB has determined and documented at a convened meeting that the research involves no greater than minimal risk (DHHS, 1998, para. 7-16).

Full review protocols. Research of more than minimal risk, or with special populations such as children, decisionally impaired individuals, prisoners, pregnant woman, and fetuses. Full review protocols require that the research be reviewed by at least a quorum of IRB members.

Informed consent. A process or document for disclosing to potential subjects information that allows for an informed decision to participate (or not participate) in the research (DHHS, 2008b).

Institutional Review Board (IRB). An independent, university-affiliated group of scientists, non-scientists, and community members charged with reviewing and approving research with human subjects.

Protocol. A written description of proposed research with human subjects, including a description of the associated risks and benefits, that is submitted to an IRB for approval.

Unanticipated problem. Any incident, experience, or outcome that is unexpected, related or possibly related to participation in the research, and places subjects or others at greater risk of harm (DHHS, 2007, p. 4).

Glossary of Acronyms

AAHRPP. The Association for the Accreditation of Human Research Protection Programs.

CFR. Code of Federal Regulations.

CIRB. The National Cancer Institute's Centralized IRB Initiative

DHHS. Department of Health and Human Services

DSMB. Data safety monitoring board.

FDA. Food and Drug Administration.

FWA. Federalwide Assurance.

HPA. Human Protections Administrator

IPEDS. Integrated Postsecondary Education Data System

IRB. Institutional Review Board.

NIH. National Institutes of Health

OHRP. Office for Human Research Protections.

PRIM&R. Public Responsibility in Medicine and Research.

CHAPTER 2

Literature Review

According to the OHRP, there are currently over 6000 registered IRBs charged with the protection of human research subjects (K. L. Nellis, personal communication, October 22, 2009). Across the country, IRBs review, require edits to, approve, and disapprove research proposals involving human participants. Review boards seek to minimize harm to participants while balancing risks and benefits of research. Although most would agree that protecting human subjects is a noble goal, IRB review is not without controversy. Given recent widespread interest in improving the human subjects protection system, research that examines IRB function and proposes solutions to address current challenges is crucial.

The purpose of this study was first to examine variability among university IRBs in categorizing and reporting incidents occurring in social science research. Secondly, an experimental procedure determined if reviewing federal guidelines affects the IRB decision to report problems to OHRP. This literature review establishes the uniqueness of the study by (a) describing the history and context of human subjects protections in the U.S., (b) describing theories and perceptions of IRBs, (c) examining the relevant literature of research conducted on IRBs, and (d) describing IRB educational opportunities and best practices.

The OHRP website served as the starting place for basic information relating to human subjects protection and IRBs. I read IRB-related books, newsletters, and educational materials housed in the Cunningham Memorial Library and in the university's Office of Sponsored

Programs. Various IRB related keywords were used in *Academic Search Premier*, *CINAHL*, *ERIC*, *Health Business Full Text*, *Health Source: Nursing/Academic Edition*, *MasterFILE Premier*, *Medline*, *PsychARTICLES*, and *PsychINFO* to locate studies about IRBs published between 1990 and May 2010. References cited in relevant articles were explored to find additional materials for inclusion. Materials that were not immediately available electronically or hard copy were acquired through the interlibrary loan system. Studies that surveyed, examined, or described IRBs were chosen for inclusion. Historical materials, theoretical models of IRBs, empirical research on perceptions held about IRBs, and studies on IRB reporting of incidents are also included in this review.

Global History of Human Subjects Protections

In the years leading up to World War II, Nazi Germany perpetrated horrific crimes against Jews, Poles, disabled persons, homosexuals, and others. The long list of crimes against humanity includes medical experiments in which subjects were tortured, maimed, and killed to gain medical knowledge. According to court records, the Nazis damaged their victims' reproductive organs by X-ray and toxic substances in an effort to determine the most effective means of mass sterilization (President and Fellows of Harvard College, 2003). Medically trained members of the German Third Reich also performed painful and often fatal medical testing on people using mustard gas, malaria, sea water, freezing temperatures, poison, and flammable liquids (President and Fellows of Harvard College, 2003). The experiments were designed to gain knowledge to improve survival rates of German soldiers and to eradicate what the Nazis considered inferior people.

A number of the perpetrators of these crimes were brought to justice. The 1945 Trial of the Major War Criminals tried 22 of the highest ranking Nazi leaders, of whom 10 were hanged

(President and Fellows of Harvard College, 2003). The subsequent Nuremberg Military Tribunals took place from 1946 to 1949, including the Doctor's Trials for 23 individuals accused of cruelty in medical research. Drs. Viktor Brack, Rudolf Brandt, and Karl Gebhardt were executed for their roles in the Nazi sterilization experiments at Auschwitz and Ravensbrück. Four additional physicians were also condemned to death for conducting cruel and unnecessary medical tests on Jewish, Polish, Russian, and Roma victims (President and Fellows of Harvard College, 2003).

The medical experiments conducted by the German doctors reveal how medicine went horribly wrong. In this sad period of history, the political and personal interests of scientists superseded the individual's basic right to life. Many people question how the Nazis could have exterminated millions of human beings and conducted cruel medical testing on thousands. Others wonder, "Could the Holocaust happen again?" Fortunately, the world learned from the events that took place in the concentration camps and medical facilities of the Third Reich. Following the Doctor's Trials in 1947, a set of ethical principles was written to guide medical research with human subjects. These principles, called the Nuremberg Code, formally established the concepts of informed consent and minimizing harm to subjects (International Military Tribunal, 1949). The Nuremberg Code also stated that animal testing should always be performed to identify risks prior to testing with humans.

Protections in the U.S.

As federal funding for research grew following World War II, so did protections for human participants in research. Although never formally adopted as federal law, the Nuremberg Code served as a basis on which current U.S. regulation governing research with human participants was developed. When the National Institutes of Health opened its Clinical Center in

1953, it required committee review of studies with human subjects. The 1964 Declaration of Helsinki further clarified the responsibilities of physicians engaging in medical research with human subjects. This document stated that a "protocol should be submitted for consideration, comment, guidance, and where appropriate, approval to a specially appointed ethical review committee" before the study begins (World Medical Association, 1964, §B, 4). Through this declaration, the international medical research community recognized independent review boards as a means of minimizing risks to human subjects.

A series of high-profile cases of human subjects abuse that came to light in the 1960s and early 70s led to further development of federal regulation. In 1972, news broke of the infamous *Tuskegee Syphilis Study* (1928-1972) in which 399 diseased African-American men were denied life-saving penicillin treatment in order to study the effects of untreated syphilis (DHHS, Centers for Disease Control, 2009). The study, funded and conducted by the U.S. Public Health Service, had by 1969 caused the death of as many as 100 men (Jones, 1993). Another controversial study, published by Milgram (1974), revealed the risk of psychological harm to subjects. In Milgram's "Obedience to Authority" study, participants were instructed to administer increasingly dangerous electric shocks to others. Although most subjects obeyed the request, a number of participants showed signs of severe stress. No real electrical shocks were administered, and although less than 2% of participants reported regret in participating in the study, critics of the study questioned the right of researchers to inflict such psychological pain (Miller, 1986).

The passing of the National Research Act in 1974 created the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979). The work of this group led to the issuance of The Belmont Report of 1979, a set of basic ethical principles and applied guidelines for research involving human subjects. The Belmont Report introduced

the principles of respect for persons, beneficence, and justice. This document also defined the term “research" by stating, “Research is usually described in a formal protocol that sets forth an objective and a set of procedures designed to reach that objective” (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979, Part A, ¶2).

In 1981, Title 45 of the Code of Federal Regulations, Part 46 (45 CFR 46) was passed, marking a new era in human research protections (Bell, Whiton, & Connelly, 1998). The new regulation required that universities, hospitals, and research organizations that conduct federally sponsored research with human subjects file a Federalwide Assurance (FWA) with OHRP. The FWA is a written commitment to the protection of subjects in research. As part of an FWA filing, institutions designate an IRB to review and approve research protocols in accordance with the regulation. The law requiring IRB review of research with humans became known as the Common Rule.

Within a decade, 16 federal agencies had adopted the IRB processes outlined in the Common Rule (Bell et al., 1998). Today, 17 agencies and departments are listed by OHRP as operating under the Common Rule (DHHS, 2009b). Later changes to 45 CFR 46 increased protections for vulnerable groups such as pregnant women, decisionally impaired individuals, children, and prisoners. Although the Common Rule requires only that IRBs review and monitor federally funded research, at the encouragement of OHRP, most universities have certified within the FWA to broaden the application of the Common Rule to all research, regardless of funding source. The stakes of compliance are high for universities. Failure to comply with the regulation can result in the loss of federal funding for research, criminal prosecution, and fines.

Theories about IRBs

In the 28 years since the Common Rule was first enacted, institutional review boards have become an important feature of the American research enterprise. However, few theories exist about IRB function and decision-making. Guillemin and Gillam (2004) proposed that IRBs work within both a macroethical and microethical framework. Macroethics involves adhering to procedure and professional codes of conduct, while microethics examines the context of each situation (Guillemin & Gillam, 2004). Kubanyiova (2008) stated that microethics and macroethics are often in conflict, since what is good society may not be good for the individual. Kubanyiova proposed that IRBs integrate these frameworks by striving to follow standard review practices while considering the specifics of each research proposal.

Some scholars view IRBs through the lens of sociology. Jacques and Wright (2010) and Jaeger (2006) asserted that review boards serve as a social control mechanism, controlling the manner in which research is conducted. IRBs exert more control when they disapprove or require major changes to research, and they exert less control when they approve research with little or no change (Jacques & Wright, 2010). Jacques and Wright also described two models of IRB review: (a) the ethical model and (b) the sociological model. The ethical model is concerned with what is right and what is wrong. The sociological model takes a broader view of the situation. These models are similar to Guillemin and Gillam's (2008) macroethical and microethical theory.

Perceptions about IRBs

As illustrated in Chapter One, the human subjects protection system is not without controversy. Review processes can be frustrating and time-consuming for researchers. Although IRB members may intend to work collaboratively with investigators to protect subjects and

encourage research, protocol changes may be viewed as intrusive and unwarranted. Understanding researcher perceptions is an important step to healing the divide between review boards and scientists. The next two sections of this review describe research conducted on investigator and non-investigator perceptions and experiences with IRBs.

Investigator experiences. Attributable to the fact that they have different goals, the relationship between IRBs and researchers is often contentious. IRBs review research by focusing on protecting the interest of the subjects. On the other hand, researchers want board approval so they can implement the research and disseminate results. Early research suggests that active IRBs are judged more harshly by investigators than IRBs that ask few questions (Gray, Cooke, & Tannenbaum, 1978). Similarly, Koerner (2005) found in his qualitative study of 57 communications faculty that researchers who received board approval with few inconveniences were more likely to make positive statements about the IRB than faculty who were required to make substantial revisions.

Liddle and Brazelton (1996) asked psychology faculty at 10 U.S. research institutions to report on their own compliance and to rate their satisfaction with the IRB process. While 57% of respondents reported full compliance, the remaining 43% reported not following all IRB rules. Also, faculty who reported dissatisfaction with the IRB process were more likely to report not complying (Liddle & Brazelton, 1996). In a similar study, Ashcraft and Krause (2007) surveyed almost 400 faculty researchers across the country about their experiences with IRBs. Remarkably, 20% of respondents reported having conducted research without the required IRB approvals in place, many citing a lack of time for review. However, 44% of respondents reported never having experienced excessive delays in review (Ashcraft & Krause, 2007).

Keith-Speigel, Koocher, and Tabachnick (2006) developed a questionnaire called the Institutional Review Board-Researcher Assessment Tool (IRB-RAT) to assess what researchers expect from an ideal IRB. In a study of 886 scientists using the IRB-RAT, Keith-Speigel et al. reported that faculty researchers rank procedural and interactional justice as very important in IRB review. This study indicated that researchers' desires to be treated fairly may be at odds with the IRB focus of protecting research subjects. An earlier examination by Keith-Speigel and Koocher (2005) suggested that researchers avoid IRB oversight "in response to perceived biases and unjust IRB actions" (p. 339). Additionally, researchers who depend on research for promotion or those who define their careers around research may be less accepting of IRB review and critique than others (Keith-Spiegel & Koocher, 2005).

Non-investigator experiences. Reeser, Austin, Jaros, Mukesh, and McCarty (2008) used the IRB-RAT to rank both an ideal IRB and their own IRB on various factors. Reeser et al. surveyed not only researchers, but also research coordinators and IRB members. They found that "an individual's role in the research enterprise significantly influences his or her perception of the quality of our IRB" (Reeser et al., 2008, p. 30). Understanding and appreciating various perspectives on IRB function is useful in developing strategies for improving IRB processes.

Each review board is required by federal regulation to have at least five members. Of these, regulations require a least one member who is a scientist, one member who is a non-scientist, and one member who is unaffiliated with the institution. Unaffiliated persons on the IRB are often referred to as community or lay members. A small body of literature focuses on the role of community members on review boards. Porter (1985) interviewed lay members about their experiences serving on an IRB. Porter's research suggested that lay members see themselves as advocates for subjects. Similarly, Sengupta and Lo (2003) reported that 53% of lay

and non-scientist members identified themselves as "giving a voice to human subjects" (p. 215). Because lay members are often not trained in the scientific disciplines represented by other board members, they may be less likely to participate in discussions (Sackoff-Lampert, 1984). However, research indicates that lay and unaffiliated members often contribute to group efforts by clarifying and simplifying the language on consent forms (Sengupta & Lo, 2003). Ideally, lay members should exhibit self-confidence and assertiveness (Porter, 1986).

Research on IRBs

The most recent comprehensive study of all active IRBs in the U.S. estimated that in a record year, IRBs reviewed approximately 284,000 research protocols (Bell et al., 1998). OHRP is busy too, monitoring IRBs and issuing letters to IRBs to correct problems as they arise. Over the period from December 2008 to November 2009, OHRP issued an average of three determination letters per month to institutions and their IRBs (DHHS, 2009a). Although common sense suggests that the efforts put into board review produce some benefits for research subjects, some authors (Bledsoe et al., 2007; Hyman, 2007) question whether IRB review produces any benefit at all.

Proving the benefits of IRB review is a difficult task. Perhaps the best way to assess board performance is to design a scientific experiment to determine whether IRBs, in fact, protect subjects from harm. Such an experiment would require two groups: a control group conducting research with no oversight and an experimental group conducting research approved by an IRB. Research participants (or family members, in the worst case scenario) from both groups would be surveyed about harms resulting from the research. A simple comparison of the differences in the number and severity of harms between the control group and the experimental group would yield the answer to the question: Do IRBs really protect research subjects?

However, such a study would be both unethical and illegal. Faced with the inability to directly, scientifically measure IRB effectiveness at protecting subjects, scholars have instead sought to understand IRBs by examining board characteristics and processes.

Board characteristics. Research on board characteristics is crucial to understanding how review boards function and how they change over time. Studies examining the composition of IRBs tell a story about the people who review, edit, and approve research. Studies focusing on the cost of IRB review have the potential to inform policymakers of the financial limitations of the IRB system. Investigations of IRB workload are important for understanding and preventing research delays and IRB member burnout.

Composition of IRBs. Although the federal regulations require diversity in IRB membership, research indicates that IRBs are to a large extent homogeneous. The regulations state:

> The IRB shall be sufficiently qualified through the experience and expertise of its members, and the diversity of the members, including consideration of race, gender, and cultural backgrounds and sensitivity to such issues as community attitudes, to promote respect for its advice and counsel in safeguarding the rights and welfare of human subjects. (Protection of Human Subjects, 2009, §107(a))

However, evidence from several studies overwhelmingly suggests that review boards are run by White men.

A study of 172 research institutions, conducted by Hayes, Hayes, and Dykstra (1995) revealed that the average IRB is composed primarily of White men with little specialized IRB training. Bell et al. (1998) reported that within the 491 boards surveyed, 92% of board members and 95% of IRB chairs were White. They also found that 77% of the IRB chairs were men. A

smaller study of 89 IRBs found that 28% of boards were entirely White, 70% of boards had a majority of men, and 79% of chairs were men (de Vries & Forsberg, 2002; Forsberg, 2001). Campbell et al. (2003) surveyed over 4,000 medical school faculty across the U.S. and reported that, of those who had served on an IRB, 81% were White (non-Hispanic) and 73% were male.

Research also suggests that large proportions of IRB members are doctorally prepared, biomedical scientists, who are employed by the affiliated institution. Bell et al. (1998) reported that 61% of surveyed IRB members were educated in clinical or biomedical science. In addition, 72% possessed a doctoral degree and 70% of members reported that they were affiliated with or otherwise employed by the institution. Similarly, de Vries and Forsberg (2002) found that 46% of IRB members had medical backgrounds. Eighty-five percent of the boards they examined had a majority of affiliated members.

A lack of diversity on review boards may pose a challenge to addressing the needs of diverse subject populations. Review boards composed primarily of White, professional men may be incapable of understanding and adequately representing the interests of minority, female, or blue-collar research subjects. Indeed, the over-representation of White male faculty members may cause the interests and perspectives of researchers and institutions to supersede the interests of research subjects (de Vries & Forsberg, 2002). However, the extent of the problem is unclear. Scholars have pointed out that "if an all-white IRB is concerned most exclusively with white researchers and white research subjects, the lack of racial and ethnic diversity may have little impact" (Hayes et al., 1995, p. 4). Nevertheless, research suggests that institutions should consider local subject populations when contemplating the addition of new IRB members.

Costs. Evidence from several studies indicates that maintaining an IRB is expensive, especially for institutions with lower research productivity. An early inspection of the cost of

IRB review at the University of Texas Health Science Center at San Antonio estimated costs at $100 per research application (Brown, Schoenfeld, & Allan, 1979). A few years later, the average cost of IRB review at the State University of New York at Albany was determined to be $130 per research protocol (Cohen, 1982). A more recent study estimated the cost per action at $277 for high-volume biomedical IRBs, a cost that is similar to the 1979 study when adjusted for inflation (Wagner, Bhandari, Chadwick, & Nelson, 2003). However, this study also revealed that high-volume IRBs enjoy some benefits of economies of scale, as indicated by the comparatively high cost of $799 per action for low-volume biomedical IRBs (Wagner et al., 2003). The observed economy of scale effect for high-volume boards may be attributed to a more efficient use of staff time, which was found to be highly associated with costs per protocol (Byrne et al., 2006; Wagner, 2004).

The most recent study of IRB costs estimated the median annual cost of operating a medical IRB in the U.S. at $781,224 (Speckman et al., 2007). To arrive at this estimate, the researchers developed a survey instrument to collect data from 69 medical schools about the number of protocols reviewed, the board personnel and their educational backgrounds, the number of hours spent on board tasks, and the equipment, travel, supplies, and outside services used by the board. Each data item collected was then assigned a monetary value using salary reports, national averages, and other cost estimation techniques. To test the validity of the cost estimates derived from the survey, the researchers conducted on-site visits at 10 of the participating 69 medical schools. Analysis of the data showed that the IRB costs found using the survey did not significantly differ from cost estimates developed from the site visits. Although validity testing was limited to 10 sites, this survey instrument appears to be a useful tool for researchers wishing to estimate board costs.

Workloads. Research has shown that IRB workloads have steadily increased at universities, hospitals, and research centers across the country. Before enactment of the Common Rule, it was estimated that each IRB reviewed an average of 43 proposals per year (Gray et al., 1978). Not surprisingly, the number of reviews increased with the federal mandate for board review. By 1993, the average number of protocols reviewed by IRBs at research I universities had risen to 297, with some boards reporting review of up to 2,500 protocols per year (Hayes et al., 1995). More recent evidence has shown that the average active IRB reviews nearly 600 protocols per year, in addition to conducting educational seminars, investigating reports of noncompliance, recruiting IRB members, and formulating policies (Bell et al., 1998). In its 1998 report, the Office of Inspector General acknowledged that IRBs "review too much, too quickly, with too little expertise" (DHHS, Office of Inspector General, 1998, p. ii). A follow-up report suggested that little progress has been made in mitigating IRB overload (DHHS, 2000).

A study by Catania et al. (2008) of 274 institutions, representing 400 IRBs, estimated that IRBs review an average of 674 research applications per year. This study also found that IRBs reviewed approximately the same total number of research applications, regardless of whether they were high-volume (tier one) or low-volume (tier two) organizations. However, tier one institutions reviewed a larger number of new applications than tier two institutions. Using the estimate of hours spent by IRB members reviewing full board applications outside of IRB meetings derived by Bell et al. (1998), Catania's research team found substantially heavier workloads at tier one institutions. This research suggests that IRB workload is not simply a function of the number of applications processed, but a function of the complexity of the applications reviewed.

Variability in IRB review. Almost without exception, research suggests that IRBs are inconsistent in their review of research, causing long delays and protocol variation for researchers conducting research at multiple sites (e.g., Burman et al., 2003; Goldman & Katz, 1982; Green, Lowery, Kowalski, & Wyszewianski, 2006). Consistency among IRBs suggests that IRBs understand the risks of the proposed research (Dyrbye et al., 2007). Consistency of action also implies a common understanding of federal regulations (Silverman, Hull, & Sugarman, 2001) and validity in the IRB process (Hirshon et al., 2002). While some scholars (Levine, 1984; Silverman et al., 2001; Stair, Reed, Radeos, Koski, & Camargo, 2001) acknowledge that some variation in IRB review may be appropriate given the need to consider the local research context, too much variability may lead to uneven protections for research subjects (McWilliams et al., 2003) and "decreased research productivity due to the increased barriers and expense of inconsistent review" (Hirshon et al., 2002, p. 1420).

Time to approval. Over the past decade, a number of studies have reported variation in the amount of time to approval when multiple IRBs review identical research protocols (see Table 1). For example, a research proposal submitted to IRBs at 15 primary healthcare sites required only five days to approval at one site, but required 172 days at another (Graham et al., 2005). One IRB, which required more than four months to approve the research, reported long delays due to proposal backlogs (Dziak et al., 2005).

A study of 43 Department of Veterans Affairs (VA) medical centers reported a median time to approval of 286 days, with a range of 52 days to 798 days (Green et al., 2006). This range included the time to identify a local investigator and complete IRB forms at each VA site. However, including only the time from application to approval affected the range only slightly, from 31 to 770 days.

Table 1

Research Examining Length of Time to IRB Approval for Multisite Studies

Study	*n*	Type of IRB studied	Common review level	Days to approval
Burman, Breese, Weis, Bock, Bernardo, & Vernon (2003)	25	Tuberculosis treatment sites within the U.S. and Canada	Full	31-346
Dyrbye, Thomas, Mechaber, Eacker, Harper, Massie, Power, & Shanafelt (2007)	6	Medical schools	Expedited	6-115
Dziak, Anderson, Sevick, Weisman, Levine, & Scholle (2005)	15	Primary care sites	Expedited	5-172
Graham, Pace, Kappus, Holcomb, Galliher, Duclos, & Bonham (2005)	15	Hospitals	Expedited	1-48
Green, Lowery, Kowalski & Wyszewianski (2006)	43	Veterans Affairs primary care clinics	Full	52-798
Hirshon, Krugman, Witting, Furuno, Limcangco, Perisse, & Rasch (2002)	3	Medical institutions within single U.S. city	Expedited	12-77
Larson, Bratts, Zwanziger, & Stone (2004)	68	Hospitals	Expedited	1-303

(Table 1 continues)

Table 1 continued

Study	*n*	Type of IRB studied	Common review level	Days to approval
Mansbach, Acholonu, Clark, & Camargo (2007)	37	Hospital emergency departments	Full	IQR 27-61
McWilliams, Fong, Hamosh, Beck, Beaty, & Cutting (2003)	31	Cystic fibrosis care centers	Full	9-252
Stair, Reid, Radeos, Koski, & Carmargo (2001)	44	Medical centers	Full	IQR 26-62
Vick, Finan, Kiefe, Neumayer, & Hawn (2005)	19	Veterans Affairs sites	Full	Median 60 days

Note. IQR = Inter-quartile range.

Potential causes for time variation. Evidence from primarily descriptive studies overwhelmingly supports the assertion that IRB review times vary when a single protocol is reviewed at multiple research sites. The inability of some IRBs to approve research in a timely way results in the exclusion of slower sites (Dyrbye et al., 2007), excessive research delays (Gunsalas et al., 2007), and potentially, a bias in the composition of study participants (Bennett, Sipler, Parada, Goetz, DeHovitz and Weinstein, 2001). The question then arises: What causes IRB review times to vary?

As mentioned above, some scholars (Levine, 1984; Silverman et al., 2001; Stair et al., 2001) attribute variation in approval times to the need for each IRB to consider the needs of the

local subject population. Although not specifically mentioned in current federal guidance, archived materials on the OHRP website discuss the need for IRBs to address local concerns:

> Only the local IRB is familiar with the particular circumstances of its research setting and is in a position to weigh critical considerations like state and local laws, professional and community standards, institutional policies, and the needs of differing patient or subject populations. (Hin & Miller, 1992, ¶6)

Given this focus on local context, one would expect to see increased variation in review times between IRBs that serve increasingly different geographic regions or that serve different populations.

Surprisingly, empirical evidence suggests that differences in population demographics are not associated with length of review time. Hirshon (2002) noted variation among three IRBs within the same metropolitan area—IRBs that served the same population. While two IRBs took between 10 and 20 days to approve a low-risk research protocol as written, the third IRB took 77 days and requested multiple changes. Studies examining larger numbers of IRBs found no statistically significant difference in review times for groups of IRBs categorized according geographic region (Larson et al., 2004) or according to demographics of the local population (Stair et al., 2001).

Some scholars suggest that communication challenges between the researcher and the board cause unnecessary delays in review (Green et al., 2006; Hirshon et al., 2002). Although some IRBs invite researchers to participate in board discussions of the proposed research, other IRBs rely solely upon written protocol applications during convened review. Taylor, Currie, and Kass (2008) examined reviews at four IRBs of the Johns Hopkins Medical Institutions to determine whether investigator attendance at convened meetings shortened review times. While

one of the IRBs reported increased efficiency in reviews when researchers attended meetings, investigator attendance was found not to be statistically correlated with time to approval.

It seems logical that protocols classified as expedited (minimal risk) would be approved faster than protocols requiring full review. Expedited reviews require only one experienced member of the IRB to approve the work rather than a quorum of board members. However, research indicates that review level is not a good predictor of length of time to approval. In their study of 31 cystic fibrosis care centers, McWilliams et al. (2003) found that while expedited review took an average of 32.3 days, IRBs requiring full board review of the protocol took an average of 81.9 days. However, *t*-tests performed on the expedited and full review groups found no statistically significant differences in review times, except for preparation hours (McWilliams et al., 2003). The only variable in the study that correlated to review time was the number of protocol changes requested.

Full board reviews are not consistently more difficult or time consuming than expedited reviews (Graham et al., 2005). In fact, a study of 68 hospital IRBs noted that the average time to approval for expedited review (M = 54.8 days) was surprisingly longer than full review of the same protocol (M = 47.1 days) (Larson et al., 2004). Other researchers (Green et al., 2006) also found no statistically significant difference in length of review time for protocols reviewed at the expedited and full levels.

Research on potential causes of review time variation is largely inconclusive. Although one study (McWilliams et al., 2003) found that the number of revisions requested was significantly positively correlated with review time, attempts to correlate other variables to review time have yielded contradictory or inconclusive results. Additional studies are needed to understand the variables affecting IRB review time.

Variability in level of review. In the section above, review level was one of several variables tested for correlation to approval time. This section will discuss other ways that researchers have examined variability in the assignment of review level. A research protocol should be assigned to either the exempt, expedited, or full board review level based upon the requirements of the Common Rule and identified risks in the study. To simplify review processes, some IRBs have opted to review all non-exempt research at the full board level (Dyrbye et al., 2007; Dziak et al., 2005; Hirshon et al., 2002). Although the assignment of a protocol to a review level may seem straightforward, investigators and IRB members are often uncertain about which research activities qualify as exempt (Pritchard, 2001) and which qualify as expedited (Wicher & Michalek, 2008).

Several researchers have noted inconsistencies in review level among IRBs in multisite studies (Dziak et al., 2005; Green et al., 2006; McWilliams et al., 2003; Rogers, Schwartz, Weissman, & English, 1999). However, only one study reported a significant difference in how IRBs assign review levels. Larson et al. (2004) found larger institutions more likely to give expedited review than exempt status or full review. This study was limited to hospital IRBs in their review of a protocol that involved secondary analysis of study data. Additional studies including a broader group of IRBs and involving diverse protocols are needed before conclusions can be reached.

Review procedures and outcomes. Major research endeavors, especially clinical trials, rely on the ability to collect data on subjects in multiple locations and in various settings. Although federal regulation allows for centralized review for multisite studies, local IRBs may be hesitant to cede oversight to another board. IRB preference for local review presents logistical

challenges for investigators and often results in inconsistent and sometimes conflicting review results.

Logistical challenges. Investigators applying for IRB review at multiple sites face a number of logistical challenges. For example, Graham et al. (2005) found that 18 of the 23 IRBs in their study required use of a local application form. One IRB required the submission of a 12-page form, a protocol synopsis, a copy of the IRB application as submitted to the primary IRB, and the approval letter from the primary IRB. Similarly, a moderately sized study of 144 boards reported that 32% required investigators to submit standardized local forms (Stair et al., 2001). Undoubtedly, the requirement for local application forms increases investigator time spent on administrative tasks. It is unclear from the literature whether the use of standardized forms improves or expedites IRB review.

Green et al. (2006) identified another logistical problem. In this ad hoc, descriptive study, the researchers qualitatively reviewed and reported on their experiences in submitting a protocol to 43 VA medical centers. Although the proposed research was an observational study that required no medical intervention or treatment, many boards required that a local investigator be listed as the lead researcher for the application. Further, a number of boards refused to communicate with anyone other than the local investigator. The researchers reported that board refusal to allow collaborating researchers from the primary site to respond to questions about the research caused unnecessary errors and delays (Green et al., 2006).

Greene and Geiger (2006) conducted a meta-analysis of 40 peer-reviewed articles and six reports from commissions to identify strategies for overcoming process and structural challenges of multisite review. Three focus areas emerged from the analysis of the literature: (a) training of board members and standardization of forms, (b) models of centralized review, and (c)

comprehensive reform of IRB regulation (Greene & Geiger, 2006). This study indicates that IRBs engaging in multisite studies should anticipate logistical challenges and seek creative ways to streamline review processes while maintaining subject protections.

Evidence on review outcomes. In an early study of medical IRBs, Goldman and Katz (1982) submitted three oncology and anesthesiology protocols to 32 boards for review. The researchers intentionally included ethical issues, design flaws, and an incomplete consent form within the protocols. Of the 22 IRBs that reviewed the protocols, only one of the protocols was approved by one board without changes. Approximately half of the IRBs required significant changes to or disapproved the first and second protocols. Nineteen of the 22 boards required major revisions to or disapproved the third protocol. Although the decisions made by the boards seem somewhat consistent, the study revealed wide variation in the reasons that IRBs gave for changes or disapproval. While 12 of the 22 boards raised ethical objections to one protocol, 10 boards raised no ethical objections. Additionally, Goldman and Katz noted that although all of the boards required changes to the informed consent forms, there was little consistency in the type of changes requested among boards or even within individual boards for the three consent forms. This inconsistency led the authors to conclude that "IRBs approve inappropriate investigations and inhibit appropriate investigations" (Goldman & Katz, 1982, p. 202).

At least one IRB chairperson participating in the Goldman and Katz study (1982) felt that the study had serious design flaws. Levine (1984) wrote that the study required review of the three protocols without the standard primary review. The primary reviewer is responsible for checking each protocol for the basic elements of informed consent and informational gaps. Although the Yale IRB attempted to use the primary review system to improve the protocols before consideration by the convened board, communication with the investigator, who was 1000

miles away, was inadequate. Levine wrote that the inability of the committee to obtain additional information, combined with the board knowledge that these protocols were hypothetical and did not pose risk to real subjects, resulted in board members becoming impatient and taking the studies less seriously than they would real investigations.

Wagener et al. (2004) surveyed 183 IRB administrators to determine whether IRBs differed in requiring parental permission for health care research with adolescents. This research indicated that boards are inconsistent in their views of parental consent. Approximately half of the boards reported that signed parental permission is required for all youth studies, while one third indicated that they might allow passive parental consent methods.

Review boards often require changes to informed consent documents. For example, Stair et al. (2001) reported that 91% of the 144 boards reviewing their asthma treatment study required changes to the informed consent text. The researchers categorized 68% of these changes as changes of word choice, grammar, or readability. Other required changes included providing additional risk information and adding study-specific details to the informed consent document.

Evidence suggests that some changes to informed consent forms are unnecessary and may have undesired effects on readability. Two studies (Green et al., 2006; McWilliams et al., 2003) reported consent changes not applicable to the studies under review—changes that were required solely to meet local consent language requirements. Such changes add length and complexity to the informed consent process.

A study of 25 medical IRBs found a strong linear, positive relationship between informed consent changes and reading grade level, when including only changes involving one or more contiguous sentences (Burman et al., 2003). In this study, IRB consent changes resulted in increased reading level and complexity. Another study, an examination of the reviews of 16

IRBs, revealed that the mean reading level of approved consent forms for a pulmonary study exceeded the general population's reading level by three years (Silverman et al., 2001). Additionally, Silverman et al. (2001) reported that although the forms may be difficult for subjects to understand, only 19% of the approved consent forms included all of the federally-required elements of informed consent. Thus, review boards should exercise caution in making changes to informed consent forms. Changes should inform subjects and meet federal standards by the use of audience-appropriate language.

Centralized review. The problems of variability and inconsistency in multisite IRB review have been well documented. To address these issues, many scholars (Green et al., 2006; Greene & Geiger, 2006; Larson et al., 2004; Mansbach et al., 2007; McWilliams et al., 2003; Silverman et al., 2001; Stair et al., 2001) advocate a central or regional IRB review system. In such systems, the research protocol is reviewed by one central IRB. Then, each local IRB decides whether to accept the centralized IRB review or to conduct a local review of the research. The National Cancer Institute's Centralized IRB Initiative (CIRB) is an example of a centralized IRB. The CIRB has been in operation since 2001, meeting twice monthly to review clinical trials (National Cancer Institute, 2010a). In its first year, the CIRB reviewed 20 protocols (Christian et al., 2002). Currently, over 300 institutions utilize the CIRB's services for research oversight (National Cancer Institute, 2010b).

Centralized board review is the topic of a small number of empirical studies. Fitzgerald and Phillips (2006) observed 29 ethics review meetings to evaluate the benefits and challenges of centralized review. The meetings were held in five countries: Australia, Canada, New Zealand, the U.S., and the U.K. Each country had its own regulatory framework and method of IRB review. From these observations, Fitzgerald and Phillips discerned two separate components

affecting the decision to centralize review: (a) administration and (b) ethics review. “For us, what was important about this new conceptualization was that it highlights that many of the issues presented to argue for a centralized system are really arguments for centralized administration” (Fitzgerald & Phillips, 2006, p. 66).

Loh and Meyer (2004) surveyed 125 medical schools about their attitudes toward centralized IRB review. They found that 76% of the institutions had never used a central IRB. Common reasons cited for not using a centralized review system include potential costs, liability, the need for local representation, and uncertain quality of review (Loh & Meyer, 2004). Institutional reluctance to use central IRBs has also been attributed to the local institutional responsibilities outlined in the FWA document (Clark, 2001). However, there is some evidence that IRBs are beginning to cooperate to facilitate research. In a more recent study, Ervin (2007) reported that 52% of medical schools’ IRBs had relied upon another IRB’s review.

Research on unanticipated problems/adverse events. Federal regulations require reporting of all unanticipated problems, whether or not they meet the definition of a medical adverse event. Unanticipated problems are defined as (a) unexpected, (b) related or possibly related to participation in the research, and (c) causing subjects or others to have a greater risk of harm (DHHS, 2007). Based on this definition, IRBs are required to report problems arising in both social and medical research, although the potential harms are very different. A review of the literature on problems arising in research reveals disagreement about which problems must be reported and ambiguity in defining the terms “adverse event” and “unanticipated problem.”

Reports to IRBs. Investigating problems and non-compliance issues is part of the workload of the IRB. In a comprehensive study of the U.S. human protections system, Bell et al. (1998) found that 23% of chairs investigated at least one incidence of failure to obtain IRB

approval prior to study initiation. Almost a quarter (24%) found a failure of researchers to follow the approved protocol. Twenty percent reported the failure to obtain approval to continue the study beyond one year. Eight percent received reports of failure to report serious harm to subjects, and 5% of chairs reported other forms of non-compliance (Bell et al., 1998). This research indicates that it is not uncommon for problems and non-compliance to be reported to an IRB.

Review boards primarily depend upon researchers to report problems and adverse events. Raisch, Troutman, Sather, and Fudala (2001) analyzed how investigators within a large clinical trial categorized adverse events following a training session on how to report and assess adverse events. Although the purpose of the study was to assess categorizing and reporting incidents to the FDA, similar processes are used for categorizing and reporting incidents to IRBs. This study revealed variability in how investigators reported the event, whether they considered the event to be related to the intervention, and the severity of the event (Raisch et al., 2001). Such differences may have a profound effect on the consistency and quality of incident reports. However, results indicated less variability in treatment outcomes than in categorizing the events.

IRBs rely upon adverse event reports to contain enough information to improve protections for subjects and to determine whether reporting to OHRP is necessary. Dorr et al. (2009) sought to assess the quality of adverse event reports from clinical trials submitted to an IRB. In this investigation, adverse event reports submitted to an IRB were compared to the clinical records for the patients in the studies. Only 19% of 58 IRB reports examined were determined to be concordant with the medical record. “Without additional chart review, the ability of the IRB to accurately assess the magnitude of the risk in these patients was limited, largely due to the lack of structured reporting information available on the IRB forms” (Dorr et

al., 2009, p. 3854). This study indicated that IRBs often make decisions about adverse event and problem reporting without adequate information about the incident.

Fedor, Cola, and Polites (2007) examined the effects of institutional policy changes on the number of adverse event reports presented to the IRB. The institution established an adverse event reporting subcommittee to review federal policies, guidance, and recommendations of professional associations in order to develop a revised IRB policy for adverse event reporting. Once policy changes were agreed to, focus groups and informational sessions were conducted with departmental research staff and faculty to develop tools to promote compliance. The study revealed a decrease in the number of all adverse event reports, but especially in adverse event reports from remote study sites submitted to the IRB after implementation of the new policy (Fedor et al., 2007). This study indicates that it may be useful for institutions to review policies that encourage unnecessary reporting. However, Fedor et al. did not describe the effective policy changes in detail. Institutions should take care to ensure that reporting of adverse events is in accordance with OHRP (and if relevant, FDA) reporting requirements.

Reports to OHRP. Determining what problems require reporting to OHRP is a challenge. Although a number of authors (Gambrill, 2008; Gordon & Prentice, 1999; Koziatek & Young, 2009) anecdotally report that IRBs overseeing multisite medical studies are inundated with tremendous volumes of adverse event reports, others (Shamoo, 2001; Shamoo & Katzel, 2008) suggest that IRBs are not reporting enough to OHRP. So, why are most problems reported to IRBs never reported to OHRP? Gambrill (2008) suggested that in clinical trials most problems have been anticipated and addressed in either the informed consent forms or the research brochure. Such anticipated problems would not require reporting under current regulation.

Shamoo (2001) took a different view, suggesting that IRBs are remiss in failing to report to OHRP the majority of adverse events that occur in research. Shamoo used a three-step approach to estimate the actual number of adverse events occurring in the U.S.: (a) collecting event report data from OHRP, (b) estimating the number of subjects in research, and (c) comparing data (e.g., the suicide, attempted suicide, and death rates) of the general population to those reported in research. This study found that between 10 and 19 million people are enrolled in research each year. Assuming that people enrolled in research have the same suicide and attempted suicide rates as the general population, Shamoo estimated that 1,300 deaths or attempted suicides should be reported to OHRP per year. In contrast, only eight research-related deaths were reported to OHRP for the entire 10 years considered in the study.

Shamoo's (2001) contention that adverse events are under-reported may be valid. However, comparing research subjects to the general population is problematic. Minority groups often exhibit higher rates of cancer and diabetes (Paskett et al., 2008), but are underrepresented in research studies (Horowitz, Brenner, Lachapelle, Amara, & Arniella, 2009). Janson, Alioto and Boushey (2001) found that women and minorities were more likely to withdraw from research due to conflicts with work, difficulty with record-keeping, and scheduling. Thus, subjects of research may differ from the general population. Also, the death of a research subject is reportable only if it was unanticipated (Shamoo & Katzel, 2008). With seriously ill subjects, death is often expected and causation is difficult to determine.

Reports in social science research. Only one study was found that addressed the challenges of dealing with adverse event reports in social and behavioral studies. Czaja et al. (2006) presented a model for reporting problems within the Resources for Enhancing Alzheimer's Caregiver Health (REACH II) program, a behavioral study of caregivers and

dementia patients. The intervention of the REACH II program involved in-home visits, telephone calls, and support group activities for caregivers. As a federally funded, multisite, clinical trial, a Data Safety Monitoring Board (DSMB) was required to assist local IRBs to monitor safety issues. A unique feature of the REACH II model was the development of a taskforce from each study site to define and outline potential adverse events that might arise in the study. The resulting list of potential adverse events and resolution measures was approved by the DSMB and used by clinicians to report issues as they arose.

During the REACH II study (Czaja et al., 2006), a number of the Alzheimer's patients were hospitalized. Although hospitalization of the elderly dementia patients was unlikely to be caused by the interventions in the study, the DSMB became concerned about the number of hospitalizations reported. The experiences within the REACH II program "highlight the difficulties of applying existing definitions of AEs [adverse events], developed for medical intervention to social behavioral intervention trials" (Czaja et al., 2006, p. 115).

Czaja et al. (2006) also sent a survey to 84 investigators with similar clinical trials to determine if the challenges identified in the REACH II program were common to other psychosocial studies. In this survey, investigators were asked to describe challenges that arose related to the reporting of adverse events. The results indicated that defining an adverse event, determining whether the intervention caused the adverse event, and a lack of consistency in reporting were common to many of the studies. Furthermore, ambiguity exists in the interpretation of the terms "serious," "unexpected," and "unanticipated" (Czaja et al., 2006, p. 108).

IRBs are required to report unanticipated problems involving risk to subjects. However, research suggests that ambiguities and inconsistencies plague the reporting process. First,

investigators differ in how they report incidents to IRBs (Raisch et al., 2001). Second, investigator reports vary in terms of the quality and quantity of information provided to the IRB (Dorr et al., 2009). Third, determining what events require reporting to OHRP is difficult, especially in the context of social and behavioral studies (Czaja et al., 2006). The current study expands on the existing literature by examining IRB reporting decisions in a non-clinical, social/behavioral setting.

Best Practices

According to OHRP, "over the past several years, institutions and IRBs have faced increasing scrutiny and/or criticism from the public, media, and the federal government's Office of the Inspector General (OIG) and the General Accounting Office (GAO)" (DHHS, 2002, p. 1). Various groups have criticized researchers and review boards for failing to: (a) obtain IRB approval, (b) minimize risks for subjects, (c) obtain informed consent, (d) provide adequate continuing review of research, and (e) manage conflicts of interest (DHHS, 2002). Although there is no systematic way to assess the performance of the national human protections system (Emanuel et al., 2004), organizations have responded to these criticisms by seeking to improve IRB knowledge, resources, and review processes through accreditation, self-assessment, and training.

Accreditation. There is currently only one accreditation system available to IRBs in the U.S. The Association for the Accreditation of Human Research Protection Programs (AAHRPP, 2010e) was founded by seven different organizations, such as the Association of American Universities and the Consortium of Social Science Associations, representing researchers and research institutions. The program has enjoyed broad-based support from these founding organizations as well as a number of other entities such as the American Heart Association and

the Allergy and Asthma Foundation of America. AAHRPP's relative success is in contrast to the Partnership for Human Research Protections (PHRP), which dissolved after only three years in operation, due to lack of interest in IRB accreditation (Baumann, 2005).

AAHRPP began accrediting IRBs in 2001 and currently lists approximately 200 accredited organizations on its website (AAHRPP, 2010c). Accreditation is renewed within three years of initial approval and every five years thereafter (AAHRPP, 2010a). Basic application fees range from $6,600 to $82,600 plus an annual fee of $2,900 to $27,000 depending upon the number of active protocols reviewed by the organization (AAHRPP, 2010d).

Recent streamlining of AAHRPP standards has structured the accreditation process into three domains: organization, institutional review board or ethics committee, and researcher and research staff (AAHRPP, 2010b). The organization domain focuses on the activities of the executive administrative arm of the entity. For example, accreditation standards require that the entity apply research protections to all research with human subjects, regardless of funding source. The IRB domain examines the independence of the review board in its decision-making authority. The third domain focuses on the competence and further training of researchers and the research staff (AAHRPP, 2010b). The standards of AAHRPP accreditation exceed federal mandates for research protections by requiring board review of non-federally funded research and requiring procedures for managing institutional, investigator, and staff conflicts of interests (Association of Clinical Research Professionals, 2009).

Self-assessment. For those institutions that cannot afford the time-consuming and expensive accreditation process, both the FDA and OHRP have developed self-assessment tools. The FDA provides a simple self-assessment checklist for boards that review food, drugs, and medical devices (FDA, 2009). The list is composed of 13 topical areas. For each area, the

respondent is to mark “yes” for those items with a policy/procedure in place, “no” for those areas that lack adequate policy, or “N/A” for areas that do not apply to the IRB (FDA, 2009). This checklist provides an organized and complete way to determine which policies and procedures need attention.

The OHRP self-assessment tool is part of a larger OHRP Quality Improvement Program (DHHS, 2010b). This plan consists of three stages: (a) quality assurance, (b) quality improvement, and (c) continuous quality improvement. In the quality assurance phase, institutions complete the in-depth, 19-page, self-assessment questionnaire. The OHRP Division of Assurances and Quality Improvement (DAQI) reviews the questionnaire and provides feedback aimed at improving IRB function. In the quality improvement stage, OHRP develops new tools and guidance based upon lessons learned through interactions with research organizations. In the continuous quality improvement stage, DAQI provides information to institutions about how to continue to improve IRB processes in the long term. If, during review, noncompliance is discovered during the improvement process, DAQI reports the finding to institutional officials rather than to the federal compliance oversight office (DHHS, 2002). Thus, the Quality Improvement Program offers a unique opportunity for institutions to receive customized feedback from federal compliance officers, without directly exposing IRB weaknesses to scrutiny by the Division of Compliance Oversight.

Self-assessment of review boards is not limited to the tools published by the FDA and OHRP. Feldman and Rebholz (2009) conducted a pilot study of three IRBs to examine board member attitudes about board function. Thirty-eight IRB members responded to the survey, revealing generally positive attitudes toward the boards on which they served. More importantly, Feldman and Rebholz found that implementing the survey facilitated helpful discussion among

IRB members about review processes. This pilot study was limited to board members of three IRBs within a single institution. Further research, including surveying non-IRB members, is needed to determine if such a survey is useful in assessing IRB performance. IRB self-assessment should encompass the viewpoints of various stakeholders: investigators, IRB members, administrators, and community members.

IRB training. The education of IRB members and investigators is a cornerstone of the IRB system. The federal rules at 45 CFR 46 state: "The IRB shall be sufficiently qualified through the experience and expertise of its members . . . to promote respect for its advice and counsel in safeguarding the rights and welfare of human subjects" (Protection of Human Subjects, 2009, §107(a)). Additionally, institutions must certify in their FWA document that researchers are competent in the use of human subjects, and thus usually require investigators to complete training before conducting research with human participants.

The OHRP website (http://www.hhs.gov/ohrp/) is the starting point for institutions wishing to develop a human subjects protection program. This site contains instructions and forms for registering an IRB and filing an FWA, text of the federal regulations, and historical documents relating to human subjects. The site also provides a wealth of educational materials and resources such as online guidebooks, decision charts, electronic training modules, and links to information about conferences and community forums. OHRP partners with host institutions to sponsor several two-day national conferences each year. OHRP also provides free, one-day research community forums across the U.S. each year for research institutions.

Print materials for those wishing to learn about human subject protections are plentiful. Bankert and Amdur's (2006) *Institutional Review Board: Management and Function* is a comprehensive reference volume describing IRB administrative functions, review functions, and

ethics. Smaller, handbook-sized versions of this book are available for distribution to IRB members and researchers. The Hastings Center publishes a peer-reviewed, bimonthly journal entitled *IRB: Ethics and Human Research*, a compendium of studies related to biomedical research with human subjects. AHC Media, LLC publishes a monthly newsletter entitled "IRB Advisor." This newsletter includes discussion of compliance regulation, ethics, and case studies relating to human subjects.

Public Responsibility in Medicine and Research (PRIM&R, 2009) is a professional organization created to promote research ethics, particularly research with human or animal subjects. PRIM&R "advances the highest ethical standards in the conduct of biomedical, social science, behavioral, and educational research. [PRIM&R] accomplish[es] this mission through education, membership services, professional certification, and public policy initiatives" (PRIM&R, 2009, Mission section, ¶1). PRIM&R offers conferences and webinars on various IRB topics. The organization recently announced the development of a four-hour, online training program for IRB members ("PRIM&R to launch online IRB course," 2010).

Investigator training is often required before an IRB will issue approval of a research study. The Collaborative Institutional Training Initiative (CITI, 2009) is a subscription service developed by the University of Miami to provide training modules in several topics, including human subjects research. CITI reports that approximately 830 institutions use their service, with over 20,000 individuals completing training modules each month. Institutions not able or willing to pay the annual CITI subscription fee may opt to use the free, online training module provided by the National Institutes of Health (NIH) (DHHS, 2008c). However, unlike the training provided by NIH, CITI provides training in social/behavioral research and contains optional modules for research with protected groups of persons.

Despite the availability of training programs and materials, IRBs are often criticized for lacking the expertise to review proposals appropriately (Emanuel et al., 2004; Hayes et al., 1995). A number of warning letters have been issued to institutions by the government citing the problem of inadequate training of researchers and board members (Burman, Reves, Cohn, & Schooley, 2001). Thus, in addition to requiring basic training modules, institutions should look for new and creative ways to engage board members and researchers in discussions about human subjects issues.

Conclusion

An exhaustive review of the literature reveals that most of the research on IRBs examines board characteristics or challenges arising in the review of research within multisite clinical studies. However, a small body of literature is useful in understanding the challenges of categorizing and reporting problems arising in research. Raisch et al. (2001) found that even after training, researchers differ in how they assess and report incidents to their IRBs. Similarly, Dorr et al. (2009) found that incident reports seldom contain the same detailed information as the medical record, making assessment of risks to subjects difficult to determine. To date, very little research has examined incident reporting in social science research. Czaja et al. (2006) revealed challenges in social science research: defining incidents, determining causation, and reporting consistency. The current study addresses two of the challenges identified by Czaja et al.: defining incidents and reporting consistency. It expands the body of literature about problem reporting in social science research beyond the context of clinical trials.

CHAPTER 3

Methodology

The purpose of this study was first to discover whether differences exist among various groups in their decisions to categorize and report (or not report) problems or "incidents" in social science research to OHRP. Secondly, the study employed an experimental design to look for differences among those who reviewed a decision chart from OHRP (experimental group) and those who did not review the decision chart (control group). Answers to the research questions posed in this study were sought through statistical analysis of the responses to an online survey by IRB contacts at four-year public higher education institutions in the U.S.

The results of this study provide new insights into the consistency among IRBs in categorizing and reporting incidents to the federal government. Although an extensive literature review was conducted, only one study was found (Czaja et al., 2006) that examined the challenges of dealing with adverse events in social and behavioral studies. Since the federal regulations are written in the context of medical research, IRBs may have difficulty applying guidance to incidents in social science research. The current study adds to the body of literature about IRB problems in social science research settings by investigating problems arising in a non-clinical setting and by looking for differences among groups of IRBs in handling problems.

IRBs were grouped by institutional size (large and small) and type. Institutions were grouped to look for differences among those who reviewed a decision chart from OHRP (experimental) and those who did not review the decision chart (control). It was hypothesized that there would be no significant difference in how large and small institutions respond to

questions about categorizing or reporting incidents. Similarly, no difference was anticipated among primarily biomedical and primarily social/behavioral IRBs or among roles in categorizing incidents arising in research. However, it was believed that biomedical IRBs would assess the level of risk for social/behavioral research differently than social/behavioral IRBs and that this difference would be reflected in the decision to report or not to report the incident. Thus, difference was anticipated between biomedical IRBs and social/behavioral IRBs in the decision to report incidents to OHRP. It was further believed that reviewing the OHRP decision chart would affect IRB decision-making and that significant difference would be detected between the control and experimental groups.

Research Questions

The following research questions were investigated for this study:

1. Is there a significant difference among IRB groups classified by institution size or IRB type in the way social science research problems are categorized?
2. Is there a significant difference among IRB groups in determining whether to report incidents to OHRP?
    a. Is there a significant difference in the reporting decision between the control group and experimental group?
    b. Is there a significant difference in the reporting decision among IRB groups classified by institution size?
    c. Is there a significant difference in the reporting decision among IRB groups classified by IRB type?
    d. Is there a significant interaction between control and experimental groups, IRBs grouped by institution size, and IRBs grouped by type?

Identification of Variables

The independent variables of interest in question one are the size of the institution and the type of IRB. Total institutional enrollment figures for 2007 listed in the Integrated Postsecondary Education Data System (IPEDS) were used to categorize institutions by size (IPEDS, 2010). Institutions were classified as either small (headcounts of less than 10,000 students) or large (equal to or greater than 10,000 students). Differences among IRBs at small and large institutions might indicate varying levels of training in categorizing and reporting incidents. Since they have fewer faculty and students, IRBs at small institutions are likely to review fewer and less diverse research proposals than IRBs at large institutions. Institutions were also grouped by type based upon whether they report that the IRB reviews primarily biomedical protocols, primarily social/behavioral protocols, or similar amounts of each. For research question one, the dependent variable is the set of scores for classifying the incident into three categories: anticipated problem, unanticipated problem, and adverse event.

Two of the independent variables of interest in question two are the same as those in question one: size of the institution and type of IRB. However, research question two also utilizes control and experimental groups as independent variables. The dependent variable in question two is the score for the decision to report the incident to OHRP. As appropriate, independent *t*-tests or factorial ANOVAs were conducted to look for differences in the decision to report to OHRP among groups of institutions or among the control and experimental groups and to look for interactions of these sets of variables.

Survey Design

The design of the survey instrument (see Appendix A) for this study was guided by prior research. Many of the studies discussed in Chapter Two (e.g., Burman et al., 2003; Goldman & Katz, 1982; Green et al., 2006) examined differences in review when multiple IRBs evaluated the same protocol. Similarly, the survey instrument for this study was designed to present the same scenario to each IRB and to ask questions that would reveal differences among IRBs in categorizing and reporting problems in social science research. Dillman (2000) stated that "the more topics that are covered in a survey . . . the more difficult it is likely to be to get a response" (pp. 326-327). Therefore, the survey was designed to be limited in scope to cover only categorizing and reporting of incidents, two interrelated tasks.

The survey begins with two simple demographic questions: a) respondent role and b) whether the IRB reviews primarily social behavioral studies, primarily biomedical studies, or similar amounts of each. Responses from these two questions, along with institutional enrollment data, were used to categorize respondents into groups for analysis. It was anticipated that IRB contacts were unlikely to work directly with student enrollment data in the course of a normal work day. Rather than ask respondents a question that they may not know, IPEDS institutional enrollment figures for 2007 were used to categorize institutions by size (IPEDS, 2010).

Through consultation with three members of the local review board, an IRB scenario was developed that presented a potential breach of confidentiality in a low-risk study of college student lifestyles. The scenario was similar to an example of an unanticipated problem that requires reporting to OHRP found in OHRP guidance materials (DHHS, 2007, Appendix B, section 1). The scenario used in this study read as follows:

A graduate assistant was responsible for data entry for a research study with local college students. The study was approved by the IRB at the expedited level. After entering survey response data into a secure computer, the assistant accidentally left the stack of completed surveys in the department's student lounge. When the student returned the next day, the forms were gone, and have not been located. They survey included student class schedules, information about alcohol and drug use, and sexual histories. No names were on the forms. Through data on the forms, it is possible that individuals may be identifiable. Your institution applies the same protections to all human subjects, regardless of source of research funding.

Raisch et al. (2001) found that investigators vary in how they report problems and incidents to IRBs. Dorr et al. (2009) found that IRBs often make reporting decisions based upon incomplete information. Therefore, the scenario presented in this study provided limited information about an incident in which completed surveys were left unattended. Although the scenario stated that surveys were lost after being left in an unsecured location, there was no indication whether an actual breach of confidentiality had occurred and whether subjects had been personally identified. Respondents were asked to make decisions about categorizing and reporting the incident based upon the limited information presented in the scenario.

Four questions were developed related to the IRB scenario aimed at identifying differences in categorizing and reporting the incident. OHRP identifies three categories into which incidents can be categorized: a) anticipated problems, b) unanticipated problems, and c) adverse events. For each category, a question was written to measure respondent attitudes toward statements like "I would categorize this incident as an anticipated problem involving risks to subjects."

The final question of the survey asks respondents to rate their response to the statement "This incident requires reporting to the Office of Human Research Protections." For this question, respondents were randomly assigned to control and experimental groups to look for differences in responses based upon review of a decision chart from OHRP guidance materials. The control group did not see the decision chart; the experimental group reviewed the chart before answering. Differences between the control and experimental groups would indicate that OHRP guidance materials are useful to IRBs in deciding to report incidents.

In an effort to improve the questions, clarity, and format of the instrument, a pilot survey was sent to 16 IRB contacts. Private institutions and hospitals were utilized for the pilot so that the research sample of public institutions would be unaffected. The pilot survey asked respondents to answer the questions on the survey and comment on the readability, format, and clarity of the instrument. Eight individuals responded to the pilot survey, each indicating that the questions were clear and understandable. Based upon these responses, no changes were made to the original survey.

Participants

Survey participants were recruited through an email to the primary IRB contact at each institution. To answer the research questions posed in this study, it was crucial that survey respondents had some role in categorizing and reporting incidents to OHRP. Therefore, the message to IRB contacts requested that the email containing the link to the survey be forwarded to someone responsible for categorizing incidents and reporting to OHRP. Through the FWA filing and IRB registration processes, four roles are identified for the protection of human subjects: the human protections administrator (HPA), the IRB chairperson, other voting members

of the IRB, and the signatory official. Depending on local institutional policies and structure, survey respondents may represent any of these four roles.

The HPA, often locally referred to as the IRB administrator or IRB manager, is listed on the FWA documents as the primary IRB contact. Common tasks assigned to the HPA include paperwork processing of IRB materials, researcher training, and processing reports of investigations of incidents or non-compliance. According to OHRP,

> The HPA should have comprehensive knowledge of all aspects of your institution's system of protections for human subjects, as well as be familiar with the institution's commitments under the FWA, and play a key role in ensuring that the institution fulfills its responsibilities under the FWA. (DHHS, 2010c, Item #6, para. 1)

Thus, it is reasonable to assume that HPAs could potentially assess incident reports and make recommendations to institutional officials about reporting problems to OHRP. It was expected that many of the IRB contact names located on institutional websites are HPAs and that they are the appropriate individuals to respond to questions on categorizing and reporting incidents in research.

In searching the websites of public institutions, it became apparent that the IRB chairperson was often listed as the primary IRB contact. At some institutions the IRB chairperson and the HPA roles were held by the same individual. Chairpersons and vice-chairpersons may lead in the investigation of research incidents in addition to their duties of presiding over board meetings and issuing decision letters. As knowledgeable and trained professionals in human subjects protections, they are likely to either participate directly in the categorization and reporting of problems or participate indirectly by providing incident reports to

other individuals charged with these duties. Similarly, other voting members of the IRB may participate directly or indirectly in determining whether to report an incident to OHRP.

In the FWA application, each organization lists the name of the signatory official for the protection of human subjects. The signatory official has authority over the entire human subjects protection program and is ultimately responsible for the review and conduct of human subjects research at the institution (DHHS, 2010c). The actual title of the signatory official differs among public colleges and universities. For example, the signatory official may serve as the vice-president for research, the chief research officer, or the provost. The signatory official develops IRB policy and endorses official correspondence with OHRP. Often, the signatory official is not involved in the daily operation of the IRB but delegates this task to the HPA, chairperson, or other IRB staff. Due to their limited involvement with routine IRB activities, it was anticipated that few signatory officials would respond to the survey.

Sample Size

This study examined the population of IRBs at four-year public institutions in the U.S. The Integrated Postsecondary Education Data System (IPEDS, 2010) system reported 659 public, four-year institutions in the U.S. for the most recent data year of 2007. Because some institutions have no review board, it was anticipated that the population size would be smaller than 659 IRBs. In determining an appropriate sample size for this study, a standard sample size estimator formula was used. This formula is expressed as:

$$SS = [z^2 p(1 - p)]/c^2$$

Where SS = sample size, z = the z-score of the desired confidence level, p = the probability of a random answer, and c = the desired confidence interval. Using a standard confidence level of 95% yields a z score of 1.96. Most of the survey questions have five possible answers. Thus, the

probably of a random answer is 20%, or one in five. The desired confidence interval for this study is set at a standard 5%. Thus, the formula produces the following result:

$$SS = [1.96^2 * .20(1 - .20)]/.05^2$$

$$SS = 246$$

Therefore, a sample size larger than 246 IRBs was sought for this study. For comparison among groups, at least fifteen subjects should be in each group (McMillan & Schumacher, 2001). Thus, it was my intent to analyze groups which contained at least fifteen subjects. For groups of less than fifteen subjects, responses were examined to determine whether combining groups for analysis would be appropriate.

To try to achieve a sample size of at least 246, I searched the websites of all of the public institutions identified by IPEDS for a primary IRB contact name and email address. Indiana State University's IRB was excluded from the study to avoid the potential conflict of interest of surveying individuals at my own institution. Excluding Indiana State from the list of institutions, the email addresses of 474 primary IRB contacts were identified. The population was therefore composed of 474 IRBs at public four-year institutions. A large sample of at least 246 IRBs from this population would add "power" to the statistical analysis. "A large sample size is the best method of enhancing power in a study" (McMillan & Schumacher, 2001, p. 180).

Respondents were randomly assigned to control and experimental groups to look for differences in responses based upon review of a decision chart from OHRP guidance materials. The IRB contacts were randomly assigned to the control or experimental group using GraphPad Software's online calculator for scientists (GraphPad Software, 2005). Using this calculator, each contact was assigned to either group A (experimental) or B (control). The control group did not

see the OHRP decision chart; the experimental group reviewed the chart before answering the final survey question.

Survey Procedures

The survey procedures for this study were developed in accordance with Dillman's (2000) recommendations for internet surveys. Dillman suggested that multiple contacts be made with potential survey respondents in order to maximize response rates. For this study, IRB representatives were contacted a total of three times within a two-week period of time. Dillman also recommended that email contacts be personalized. An introductory email (see Appendix B) was sent from my personal email account to the primary IRB contact at the 474 public institutions identified through IPEDS. This message, indicating that a survey link would be coming soon, introduced me as a student researcher and IRB administrator. Following Dillman's recommendation to send the questionnaire within three days of the introductory message, the recruitment message (see Appendix C), containing a link to a survey instrument was sent two business days later. In the recruitment message, the primary IRB contact was instructed to forward the survey link to the person at the institution who makes decisions about categorizing and reporting incidents to OHRP. The third contact was in the form of a reminder message (see Appendix D), sent eight days after the recruitment message.

As described in the section above, the survey instrument consisted of six simple questions, aimed at categorizing and reporting incidents to OHRP. Two demographic questions were asked: the role of the respondent and the type of research reviewed by the IRB. Institution name and enrollment data were collected from IPEDS. Then a brief scenario was presented in which an incident occurs within the context of a social science study. Respondents were asked to indicate their agreement level to statements such as, "I would classify the incident in the above

scenario as an anticipated event." Responses ranged from "Strongly Disagree" to "Strongly Agree." A total of four questions were asked in this manner to determine respondent agreement with categorizing and reporting the incident. The final question of the survey differed slightly for the experimental group and the control group. The experimental group reviewed a decision chart from the OHRP website before answering the final survey question. The control group did not see the decision chart. The variables collected through the survey are represented in Table 2.

Table 2

Data Collected

Respondent	Institutional characteristics				Responses				Group
Institution	Name	Size	Role	IRB Type	Q 1	Q 2	Q 3	Q 4	Control or experimental

Scoring for each response was based upon a scale of how the respondent interprets federal regulations. This scale can be stated as conservative to liberal. For example, for the survey question in the paragraph above, a response of "Strongly Disagree" is considered conservative and is assigned a point value of 5. Conservative responses are those most likely to lead to reporting of the incident to OHRP. Scoring values for the last three questions of the survey have been reversed, since "Strongly Disagree" would not be conservative response to these questions. Thus, for the final three questions the response "Strongly Disagree" is assigned a point value of 1. Mean scores for each question were calculated, with higher scores reflecting a conservative interpretation of federal rules. Independent *t*-tests and factorial ANOVAs were used to look for differences among groups of institutions and differences in the control and experimental groups.

The survey and the analysis were designed in consultation with Evangelos Kontaxakis, statistician in the Center for Instruction, Research, and Technology at Indiana State University, and Taiwo Ande, statistician and Assistant Provost for Institutional Analysis and Effectiveness at the University of Mary Washington. Dr. Eric Hampton, Associate Professor of Education and School Psychology at Indiana State University, provided feedback of analysis results.

Qualtrics survey software was utilized to contact IRBs and to collect survey responses. A Microsoft Excel spreadsheet containing contact email address, institution name, enrollment data, and group indicator was prepared and loaded into Qualtrics as a panel. Establishing a panel identified each respondent's institution, eliminating the need to ask respondents to choose their institutions from a list.

Informed Consent and Risks

When a participant clicked on the link to complete the survey, an introduction and informed consent document appeared on the screen (see Appendix E). Respondents had the option to participate by indicating their understanding and agreement to the informed consent, or they could choose to exit the survey. The data collected in this survey presented only minimal risk to the participants. No names were requested of participants, but survey responses were tracked by institution name. Individuals serving in a particular role could be easily identified by the researcher. To protect the identity of survey respondents, study results are presented only in the aggregate. The study was submitted to the Indiana State University IRB and deemed to be exempt from IRB review.

Challenges Obtaining IRB Approval and Data Collection

This study of IRBs presented a number of logistical challenges. Because I work closely with our local IRB in my role as IRB administrator, I had the opportunity to discuss my survey

with several members of our local IRB before submitting my research plan for approval. When I stated my intention to send the survey to IRB contacts at all public, four-year institutions of education in the U.S., I was initially told by an IRB member that it would be difficult to get board approval at each institution. If I had not been familiar with federal regulations, this comment could have derailed the research, since obtaining IRB approval at almost 500 institutions would be impossible. Faced with the difficulty of proving that IRB review at each institution was not necessary, I began searching the OHRP website and the federal regulations. In the end, there were two reasons why IRB approval at each institution was not needed for this study. First, respondents at surveyed institutions were not "engaged" in the study as researchers. Second, the study was deemed exempt from federal oversight.

OHRP defines the phrase "engagement in research" using terms to describe activities that only a researcher would perform. Guidance on OHRP's website states that institutions are engaged in research when its employees participate in activities such as: receiving grant funds to implement a study, intervening with human subjects, manipulating the environment, collecting data, and collecting informed consent from subjects (DHHS, 2008a, IIIa). OHRP guidance goes on to state that informing others of the availability of the research or allowing other institutions to distribute surveys does not constitute engagement in research (DHHS, 2008a, IIIb, section 4). Because it was important for my local IRB to understand that board approval was not needed from each institution, I referenced the OHRP guidance document and explained the definition of "engagement in research" within the research protocol submitted for review. Similarly, the email message sent to IRBs containing the link to the survey also explained why local IRB review was unnecessary.

Given the initial comments of local IRB members, I was not surprised when three survey recipients contacted me to indicate that local IRB approval was required. I responded with an explanation of why local IRB review was not needed. Although there was no mention of concern about the risks of the study, one respondent insisted that I fill out their forms and submit the research for review. In the end, at least one respondent decided not to participate in the study without local board review. It is not known how many survey recipients did not contact me, but simply declined to participate over concerns of local IRB review. Requests for local review could be the result of (a) misinterpretation of OHRP guidance or (b) institutional policy that is more restrictive than federal guidance suggests. In either case, important research may be discouraged and research effectiveness diminished by such unnecessary IRB demands. Researchers less familiar with OHRP guidance or less confident in their interpretations of federal requirements may encounter serious difficulty investigating IRB function at multiple sites.

CHAPTER 4

Results and Findings

The purpose of this study was first to discover whether differences exist among various groups of IRBs in their decisions to categorize and report (or not report) problems or "incidents" in social science research to OHRP. Answers to the research questions posed in this study were sought through statistical analysis of the responses to an online survey of IRB contacts at four-year public higher education institutions in the U.S. Although this study was designed as a quantitative examination, some qualitative feedback was received from the IRB contacts.

In response to the introductory email announcing the forthcoming survey, 12 people indicated that they would be happy or were looking forward to taking the survey. One person called on the telephone to express interest in the research topic. Although federal regulations do not require local review, three respondents indicated that local IRB review of the survey was required. A copy of the exemption letter issued by the ISU IRB was sent to those who expressed concern about board review. In response to the survey instrument, one respondent stated in an email that the scenario did not provide enough information to answer the questions posed. Another respondent, who was assigned to the control group, felt uncertain in his/her responses since the questions were to be answered without referencing outside materials. This respondent indicated that adverse events are rare and that problems are addressed by reference to federal guidelines and discussion among several individuals. Overall, the response to the survey was positive and 187 valid responses were received from 183 different institutions.

In the survey, respondents were asked to identify their role with the IRB. Although no research questions were posed examining differences in response by the respondent's role, understanding the roles that participate in categorizing and reporting incidents is useful for interpreting survey results and planning future research (Table 3). The high percentage of HPAs responding to the survey (56%) suggests that this group plays an active part in categorizing incidents and reporting to OHRP.

Table 3

Respondents by Role

Respondent Role	*n*	%
Chairperson or Vice-chairperson	44	23.52
Other voting member of IRB	7	3.74
IRB Administrator (voting or non-voting)	105	56.15
Other	26	13.90
Do not wish to provide	5	2.67
Total	187	100.00

Descriptive Statistics

The quantitative results presented in this chapter are both descriptive and inferential in nature. Descriptive statistics are presented followed by the results of analyses for each research question in this study.

The survey was emailed to 474 IRB contacts at four-year, public institutions of higher education in the U.S. Completed surveys were received from 183 different institutions, with four of the institutions providing multiple responses. Table 4 presents descriptive information about survey respondents. A total of 187 valid responses were received, representing an overall

response rate of 39.5% of the estimated population. Responses were received from IRBs at 84 small institutions and 103 large institutions. By IRB type, 80.7% of respondents indicated that their IRB reviews primarily social/behavioral studies, 5.8% reported primarily biomedical studies, 11.8% reported similar amounts of social/behavioral and biomedical studies, and 1.6% responded that they did not know or did not wish to provide this information. For comparison among groups, at least 15 subjects should be in each group (McMillan & Schumacher, 2001); however, only 11 IRBs reported that they review primarily biomedical protocols. Thus, before analysis was conducted, the responses from IRBs reporting primarily biomedical studies were grouped with responses of IRBs reporting similar amounts of social/behavioral and biomedical studies. Combining these two groups increased the biomedical/similar amounts group to more than 15 so that analysis could be conducted and brought the *n* size of the two remaining groups closer, making the ANOVA test more robust. Responses of "Do not wish to provide" and "Don't know" were treated as missing data for the variable IRB type.

Table 4

Returned Surveys by Group

	Small Institutions		Large Institutions		Total	
IRB Type	*n*	%	*n*	%	*n*	%
Primarily social/behavioral	69	82.14	82	79.60	151	80.75
Primarily biomedical	5	5.95	6	5.83	11	5.88
Similar amounts	9	10.71	13	12.62	22	11.76
Do not wish to provide	0	0.00	2	1.94	2	1.07
Don't know	1	1.19	0	.00	1	.53
Total	84	100.00	103	100.00	187	100.00

The survey questions asked survey respondents to rate their responses to the following questions:

1. I would categorize the incident as an *anticipated* problem involving risks to subjects,

2. I would categorize the incident as an *unanticipated* problem involving risks to subjects,

3. I would categorize this incident as an *adverse event* involving risks to subjects, and

4. This incident *requires reporting* to the Office for Human Subjects Research.

In Tables 5 through 8, each question on the survey is represented in the first column by a number and a brief descriptor. The second column indicates the number of responses received for each survey question.

Table 5 provides descriptive statistics for each survey question from all respondent groups. The higher standard deviations for questions 1 and 3 indicate more variability in responses for those questions than for questions 2 and 4. For Tables 5 and 6, *n* represents the total number of responses received for each question. Table 6 summarizes the response frequencies to each survey question from all respondents. Of those who responded to question 2, 69% either strongly agreed or agreed that the incident was unanticipated. Most (68%) of the respondents who answered question 4 strongly agreed or agreed that the incident required reporting to OHRP.

Table 5

Means, Standard Deviations, and Standard Error for all Groups

Question	*n*	*M*	*SD*	*SE*
1. Anticipated	184	3.46	1.43	.11
2. Unanticipated	185	3.74	1.27	.09
3. Adverse event	183	3.46	1.32	.10
4. Requires reporting	176	3.77	1.17	.09

Table 6

Response Frequencies

Question	*n*	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
1. Anticipated	184	26	32	12	60	54
2. Unanticipated	185	64	64	13	33	11
3. Adverse event	183	51	51	30	34	17
4. Requires reporting	176	56	64	22	27	7

Table 7 represents the means, standard deviations, and standard error of the response scores by institution size for each question on the survey. Because each response was scored on a conservative to liberal scale (with a score of 5 being conservative and more likely to lead to reporting the incident to OHRP), an average score was computed for all questions.

Table 7

Means, Standard Deviations, and Standard Error by Institution Size

	Small Institutions				Large Institutions			
Question	n_s	*M*	*SD*	*SE*	n_l	*M*	*SD*	*SE*
1. Anticipated	83	3.31	1.46	0.16	101	3.57	1.40	0.14
2. Unanticipated	83	3.65	1.31	0.14	102	3.81	1.23	0.12
3. Adverse event	84	3.54	1.26	0.14	99	3.40	1.38	0.14
4. Requires reporting	80	3.93	1.09	0.12	96	3.64	1.22	0.13
Average score		3.59	0.68	0.08		3.61	0.71	0.07

n_s = the number of responses to each question from small institutions
n_l = the number of responses from large institutions

Table 8 represents the means, standard deviations, and standard error of response scores grouped by IRB type. Three respondents did not provide information about IRB type. Therefore, the number of responses reported in Table 8 is three fewer than shown in Table 7.

Table 8

Means, Standard Deviations, and Standard Error by IRB Type

	Social/behavioral				Biomedical/similar amounts			
Question	n_{sb}	*M*	*SD*	*SE*	n_b	*M*	*SD*	*SE*
1. Anticipated	149	3.48	1.38	0.11	32	3.41	1.60	0.28
2. Unanticipated	150	3.66	1.29	0.11	32	4.16	1.08	0.19
3. Adverse event	148	3.61	1.25	0.10	32	2.72	1.44	0.26
4. Requires reporting	142	3.72	1.15	0.10	31	3.94	1.29	0.23
Average score		3.61	0.70	0.06		3.56	0.67	0.12

n_{sb} = the number of responses to each question from social/behavioral IRBs
n_b = the number of responses from IRBs that review primarily biomedical studies or similar amounts of each

Analysis by Research Question

Research question one. Is there a significant difference among IRB groups classified by institution size or IRB type in the way social science research problems are categorized? To determine the answer to this research question, statistical analysis was conducted to look for differences in the way respondents categorized the incident presented in the scenario. Three questions on the survey were aimed at categorizing the incident: "I would categorize the incident as an anticipated problem involving risks to subjects," " I would categorized the incident as an unanticipated problem involving risks to subjects," and "I would categorize the incident as an adverse event involving risks to subjects." Therefore, factorial ANOVA was conducted with responses to each of these three questions using the independent variables of IRB type and institution size and the dependent variable of response score.

A factorial ANOVA was conducted for the question "I would categorize the incident as an anticipated problem involving risks to subjects." While 184 respondents answered this question, three IRBs did not provide information about the type of protocols they review. As a result, 181 responses to this question were included in the analysis. The ANOVA test assumes that population variances among groups are equal. However, Levene's test indicated that the equal variances assumption was violated for this question. A violation of Levene's test indicates that the results of the ANOVA test may be inaccurate. Although IRBs at large institutions (M = 3.59, SD = 1.38) responded slightly more conservatively than IRBs at small institutions (M = 3.33, SD = 1.47), the difference in responses between large and small institutions was not statistically significant. There was also no significant difference found in the interaction of size and type, or among IRB types.

The finding that Levene's test for equal variances was violated means that the results of the factorial ANOVA should not be trusted. The observed power statistic, represented by the notation $1 - \beta$, indicates the probability of the ANOVA finding the correct result. For this question, the observed power measures for the independent variables were low (size $1 - \beta = .10$, type $1 - \beta = .06$, interaction of size and type $1 - \beta = .07$). Such low power measures also indicate that the sample did not have sufficient power to determine whether differences exist among groups for this question using factorial ANOVA. Subsequently, two independent samples *t*-tests were conducted using the variables institution size and IRB type. The Levene's test of equal variances was not violated for these tests (size $p = .13$, type $p = .09$). Again, there was no significant difference found among groups of IRBs for the question "I would categorize the incident as an anticipated problem involving risks to subjects." This subsequent analysis supports the initial finding of insignificant results.

A factorial ANOVA was conducted for the question "I would categorize the incident as an unanticipated problem involving risks to subjects." A total of 182 responses to this question were analyzed. Levene's test of equal variances was not violated for this question (p = .10). IRBs that reviewed primarily social/behavioral protocols (M = 3.66, SD = 1.29) had scores that were significantly lower (more liberal) than IRBs that review primarily biomedical protocols or similar amounts of each (M = 4.16, SD = 1.08) (Table 9). Stated in the reverse, those institutions that reviewed more biomedical protocols were more likely than social/behavioral IRBs to categorize the incident as unanticipated. However, a small effect size (η_p^2 = .02) indicates that only 2% of the variation for this question among IRB groups can be attributed to IRB type. Analysis of the scores by size of the institution and the interaction of institution size and IRB type revealed no significant results.

Table 9

Unanticipated Problem ANOVA Summary Table

Source	SS	df	MS	F	η_p^2
Size	.22	1	.22	.14	
IRB type	6.55	1	6.55	4.12*	.02
Size X IRB type	.12	1	.12	.07	
Error (Within)	282.94	178	1.59		
Total	289.83	181			

*p<.05

Finally, a factorial ANOVA was conducted for the question "I would categorize the incident as an adverse event involving risks to subjects." A total of 180 responses were analyzed. Levene's test of equal variances was not violated for this question (p = .11). IRBs that reviewed

primarily social/behavioral protocols (M = 3.61, SD = 1.25) had scores that were significantly higher (more conservative) than IRBs that review primarily biomedical protocols or similar amounts of each (M = 2.72, SD = 1.44) (Table 10). Stated differently, those institutions that review more biomedical protocols were less likely than social/behavioral IRBs to categorize the incident as an adverse event. The effect size ($\eta_p^2 = .07$) indicates that 7% of the variation in the responses to this question can be attributed to IRB type. Analysis of the scores by size of the institution and the interaction of institution size and IRB type revealed no significant results.

Table 10

Adverse Event ANOVA Summary Table

Source	SS	df	MS	*F*	η_p^2
Size	.13	1	.13	.08	
IRB type	21.10	1	21.10	12.69*	.07
Size X IRB type	.17	1	.17	.10	
Error (Within)	292.67	176	1.66		
Total	314.07	179			

*$p<.05$

Research question two. Is there a significant difference among IRB groups in determining whether to report incidents to OHRP? For the item "This incident requires reporting to the Office of Human Research Protections," respondents were randomly assigned to either the experimental group or the control group. The experimental group was able to see a flowchart from the OHRP website that was designed to aid in the decision of whether to report an incident to OHRP. The control group did not see the flowchart. An independent-measures *t*-test was conducted to look for differences between the control and experimental groups. This analysis

was appropriate because the independent variable had two levels—experimental and control—and the dependent variable (score) was on an interval scale. There was no statistically significant difference in the reporting decision between the experimental group (M = 3.82, SD = 1.20) and the control group (M = 3.71, SD = 1.15), $t(174) = -.571$, $p = .569$.

A factorial ANOVA was conducted to look for differences in the decision to report to OHRP among groups of institutions grouped by institution size, IRB type, and group assignment. However, splitting the data by these three variables yielded clusters that were too small to analyze. Therefore, a factorial ANOVA was conducted to search for differences in reporting decisions among groups of institutions grouped only by institution size and type. Although there were only 14 small institution IRBs that reviewed primarily biomedical or similar amounts of each protocol, the decision was made to complete the test to look for differences.

A total of 173 responses were analyzed. Levene's test of equal variances was not violated for this question ($p = .50$). Analysis of the scores by size of the institution, the type of institution, and the interaction of institution size and IRB type revealed no significant results. No further analysis of this question was warranted.

CHAPTER 5

Discussion and Recommendations

Understanding how IRBs function is critical to improving the human subjects protection system in the U.S. Prior to this study, empirical research about IRBs focused primarily on describing costs and variability in review processes and review outcomes. These studies offered little explanation or evidence suggesting the underlying causes of IRB variation. The current study is important for two reasons. First, by comparing survey responses to answers found in OHRP guidance, this study provides measures of IRB accuracy and variability. Secondly, the statistically significant differences between IRB types in categorizing problems hold implications for OHPR guidance, IRB training, and board management. This chapter presents a discussion of the findings and conclusions drawn from the study results, this study in relation to prior research on IRBs, recommendations for further research, and a discussion of the limitations of the study.

Findings and Conclusions

Variability in responses. Variability in IRB function permeates the system, including categorizing and reporting problems to OHRP. Although the current study focused on identifying differences among groups of IRBs, response frequencies suggest that IRBs vary substantially in how they categorize and report problems. The scenario presented in this study was similar to an example found in OHRP guidance materials (DHHS, 2007, Appendix B, section 1). OHRP categorized a similar incident as an unanticipated problem that requires reporting. Assuming that OHRP's categorization is correct, the IRBs in this study correctly assessed the incident only 55%

of the time. Responses from IRBs that review more biomedical studies aligned closely with OHRP guidance, yet these IRBs responded incorrectly 24% of the time. Although 28% of respondents were correct in disagreeing or strongly disagreeing with categorizing the incident as an adverse event, more than half (55%) of responses fell on the agree side of the Likert scale. Similarly, although most (64%) of respondents agreed or strongly agreed that reporting to OHRP was required, 19% disagreed or strongly disagreed with the same statement. On average, 33% of the survey responses did not align with OHRP's assessment of the incident.

A large body of research on IRB function focuses on variability in review times (e.g., Graham et al., 2006; Green et al., 2006; Larson et al., 2004) and variability in review (e.g., Dziak et al., 2005; McWilliams et al., 2003). Consistency of action implies a common understanding of federal regulations (Silverman et al., 2001) and validity in the IRB process (Hirshon et al., 2002). Response frequencies in this study indicate substantial variability in how IRBs view problems arising in research. Although the majority of IRBs may reach correct conclusions in handling problems arising in research, this study reveals that consistency in categorizing and reporting incidents continues to be problematic.

Differences among groups. The purpose of this study was to discover whether differences exist among various groups of IRBs in their decisions to categorize and report problems in social science research to OHRP. The scenario presented in the survey did not meet the definition of adverse event because it did not involve a medical occurrence involving physical or psychological harm. OHRP makes this distinction by stating, "For example, some unanticipated problems involve social or economic harm instead of the physical or psychological harm associated with adverse events" (DHHS, 2007, section I, para. 3). Further, although the loss of survey forms described in the scenario would have put subjects at increased risk of harm,

there was no indication that actual harm (breach of confidentiality) occurred. Factorial ANOVA and independent t-tests conducted on the data revealed differences among IRB types in categorizing problems, but found no significant differences among IRBs in the decision to report problems to OHRP.

It is important to understand that the analyses conducted in this study tested for *consistent* differences among groups. The results suggest that IRBs that review more biomedical studies are *consistently* more likely to rate such incidents as unanticipated. The responses from biomedical IRBs aligned more closely with OHRP guidance. On the other hand, the data suggest that IRBs that review primarily social/behavioral research are *consistently* more likely to rate such incidents as adverse events. This finding indicates that IRBs that review more biomedical research have a clearer understanding of the terms "unanticipated" and "adverse event".

Reasons for differences. IRBs that review more biomedical studies may categorize incidents more accurately because their experiences encompass both medical and non-medical studies. The risks encountered in biomedical research include social, economic, psychological, and physical harm. The more diverse set of procotols that these boards encounter may lead them to review the federal guidance more often and more carefully, leading to greater clarity of distinction among terms. Guidance states that "[adverse events] occur most commonly in the context of biomedical research, although on occasion, they can occur in the context of social and behavioral research" (DHHS, 2007, section II, para. 1). It appears that distinguishing which incidents in social/behavioral research meet the definition of adverse event takes practice. The ability of IRBs to categorize unanticipated problems and adverse events may depend upon the number of adverse events reported to them.

For a number of reasons, human subjects protections training is likely to be more robust at institutions conducting biomedical research than at institutions engaged primarily in social/behavioral studies. Drug trials and medical treatment research have the potential to affect patients both physically and emotionally. Pressure from the public for safe research practices increases with each high-profile biomedical incident in which a seemingly healthy patient dies. Since biomedical research is generally more risky to conduct than social/behavioral research, extensive training for IRB members and staff is crucial.

The stakes of non-compliance with federal regulation are particularly high for institutions conducting biomedical research. Federal funding for health-related research and development topped $39 billion in 2009, second only to national defense spending (National Science Foundation, 2010). Institutions found to be out of compliance risk losing federal research dollars and having their research programs suspended. Institutions engaging in biomedical research have more to lose, since they likely receive more research funding than institutions not engaging in biomedical research. Evidence of the emphasis placed on human subjects protections within medical organizations can be found by browsing the AAHRPP website. Sixty-five percent of the AAHRPP accredited organizations have words like “healthcare,” “biomedical,” or “medical” in the organization’s title (AAHRPP, 2010c).

Although social/behavioral IRBs categorized the incident differently than both biomedical IRBs and OHRP, the argument could be made that their assessment was the correct one. IRBs that review primarily social/behavioral studies are likely to have board members with social science backgrounds. As social scientists, these IRB members may be acutely aware of the hidden psychological risks in social/behavioral research. Social/behavioral IRBs may take these risks more seriously than boards whose membership includes medical personnel. If

social/behavioral IRBs assess risks differently than IRBs that review biomedical research, this difference may lead them to categorize incidents as adverse events more often than their biomedical counterparts.

In practice, the differences found between IRB types in the interpretation of the terms "adverse event" and "unanticipated" may not matter very much. After all, there was no significant difference among groups in the decision to report the incident. In a theoretical sense, the differences among IRB types suggest that IRB context and experience affect decision-making. Differences among groups of IRBs in the categorization of problems may indicate varying levels of experience and training. If IRBs that review primarily social/behavioral studies categorize problems differently than IRBs that review more biomedical studies, do they also review protocols differently? Do they handle issues of investigator noncompliance differently? The difference among types of IRBs in categorizing problems suggests that institutional context and IRB experiences play a role in IRB decision-making.

Recommended changes to OHRP guidance. Study results suggest that social/behavioral IRBs have more difficulty than biomedical IRBs in interpreting and applying federal regulation. As described in Chapter one, federal regulation governing research with human subjects is confusing. To make matters worse, OHRP guidance for social science research is often buried among a myriad of biomedical case studies. For example, the lengthy OHRP guidance on reviewing and reporting problems includes 13 case studies of problems arising in biomedical research but only 2 cases of problems arising in social/behavioral research (DHHS, 2007, Appendices B-D). New guidance documents, written in the context of social science research and indexed separately on the OHRP website, would make decision-making easier for social/behavioral IRBs.

Having served for the past seven years as the IRB administrator for an IRB that reviews social science research, I can attest to the difficulty of categorizing incidents in social science research. Although medical protocols include extensive and detailed information about the anticipated effects of a particular drug or treatment, anticipation of risks in social science research is more nebulous. For example, if an IRB anticipated and addressed the potential for a breach of confidentiality in a study, but did not anticipate that the researcher's filing cabinet would be broken into, is such an event anticipated or unanticipated? Depending on the situation, an argument could be made for both categories. The ability to argue both categories is the source of the wide variability found in IRB categorization decisions.

OHRP should simplify reporting guidelines for social science research to require reporting only if further IRB action is needed to protect research subjects. Social/behavioral IRBs clearly understand their charge to protect research subjects from harm, but may have difficulty defining the terms "anticipated" and "unanticipated." Rather than focusing on the categorization of incidents, OHRP should require reporting only if changes to the research protocol or procedures are warranted to provide additional protections for research participants. In this way, OHRP reporting would directly address the future risks to subjects, and IRBs would waste less time figuring out how to categorize problems. Variation among IRBs in handling problems arising in research would likely be reduced if problem reporting was based upon the need for further IRB action.

Implications for training. In addition to providing new guidance materials targeted at social science researchers, OHRP should increase the number of conferences and research forum meetings aimed at non-biomedical institutions. The OHRP website provides a list all of the conferences and meetings they have conducted since 2001 (DHHS, 2010a). According to this

list, only 4 of the 54 training events during the period of 2001 through 2010 focused on issues in social/behavioral research. The most recent conference or community forum that focused exclusively on social science research was held in 2005. While many of the remaining 50 events focused on both biomedical and social/behavioral research, addressing both perspectives simultaneously is difficult. The nuances of assessing risks in social science research are often overshadowed by the greater physical and psychological risks of medical research.

Eighty-one percent of the IRBs at public higher education institutions reported that their IRB reviewed primarily social/behavioral studies. New OHRP conferences should address the difficulty of applying the federal regulations to social science research. In 2004, I attended the conference entitled "Exploring Risks and Rights in Non-biomedical Research." Much of the one-day session was dominated by frustrated ethnographers and oral historians seeking clarification from OHRP about their research. Oral histories were a hot topic at the time, and subsequently OHRP published guidance describing IRB requirements for oral histories. However, due to the concerns of individual researchers, the training session fell short of addressing the broader issues of interpreting federal guidance in the context of social science research.

The large number of HPAs and IRB leaders responding to the survey suggests that these groups take an active role in categorizing incidents and reporting to OHRP. More than half (56%) of the respondents to the online survey were HPAs (IRB administrators). IRB chairpersons and vice chairpersons comprised another 24% of the respondents. To be most effective, conference invitations should be targeted toward IRB leaders and administrators at public universities.

Implications for IRB management. The results of this study hold implications for how IRBs at public institutions are managed. Although IRBs are independent decision-making

bodies, institutional officials often decide who sits on the review board. Bankert and Amdur (2006) state that "the optimal model is to structure all IRBs so that they have the expertise to review both social science and biomedical research" (p. 89). However, institutions lacking a medical school may find it difficult to find medically trained individuals willing to sit on a board that reviews mostly social/behavioral work. Without substantial research funding, these IRBs may not have sufficient resources to compensate physicians and nurses for board service. When medically trained personnel are available, their perspective on risks may differ from other members, creating tension within the board. For these reasons, expecting all IRBs to hold medical and social/behavioral expertise may be unrealistic. However, institutional officials should attempt to diversify board membership to include representatives from the social science and medical fields.

Results in Relation to Prior Research

The federal regulations outline two functions required of all IRBs: (a) reviewing research and (b) dealing with reports of non-compliance, adverse events, and problems encountered during research (Protection of Human Subjects, 2009). Although IRBs are responsible for both reviewing proposed research and handling problems, most of the research conducted on IRBs has focused on the process of review. An extensive review of IRB literature revealed that research about IRBs' handling of reported harms is scarce, especially in the area of social science research. This study adds to the body of literature on IRBs by examining how boards classify and report problems in social science research and by identifying differences among groups of IRBs.

At the outset of this study, it was anticipated that there would be no difference among groups of IRBs in categorizing incidents in research. However, analysis revealed that social/behavioral IRBs were more likely than other IRB types to categorize the incident as an

adverse event, and less likely than other IRB types to categorize an incident as unanticipated. Based on examples found online in OHRP guidance (DHHS, 2007, Appendix B, section 1), the scenario presented in this study should be classified as an unanticipated problem that requires reporting to OHRP. The results of the current study suggest that, in particular, social/behavioral IRBs have difficulty applying the federal regulations to the studies they oversee. These findings are consistent with prior studies indicating inconsistency in assessing events (Raisch et al., 2001) and ambiguity in interpretation of terms (Czaja et al., 2006).

Research on problems. Although Raisch et al. (2001) examined adverse events in relation to FDA reporting rather than IRB reporting, the structure and findings of their study were similar to the current study. In their study, 25 researchers were trained on methods to assess and categorize adverse events. Following training, the researchers were presented with three cases in which problems occurred and asked to categorize the problems by type of report, relatedness to treatment, and severity. The researchers also chose the action they thought appropriate to the situation and indicated whether the issue was resolved or not. Although Raisch et al. did not examine differences among groups of investigators, comparisons can be made to the current study.

In the current study, IRB contacts were presented with a case study scenario and asked questions about categorizing the incident as anticipated, unanticipated, and adverse event. The IRB contacts were also asked about the action to be taken, i.e., whether the incident should be reported to OHRP. Raisch et al. found more variability in how the researchers categorized the event than in the treatment actions taken or in the resolution. Similarly, results of the current study indicate more variability in categorizing the incident as anticipated, unanticipated, and as an adverse event than in the decision to report the incident.

An extensive literature review revealed only one study addressing the challenges of dealing with adverse events in social and behavioral studies. Czaja et al. (2006) surveyed 84 investigators in social/behavioral clinical trials to identify challenges to handling adverse events. The results indicated that defining an adverse event, determining whether the intervention caused the adverse event, and a lack of consistency in reporting were challenges common to many of the studies. The current study complements this research by suggesting that defining adverse events is not only challenging, but also dependent upon local context and experience. IRBs that review primarily social/behavioral studies consistently categorize problems differently than IRBs that review more biomedical studies. Differences found among IRB types in categorizing incidents support the assertion made by Czaja et al. that ambiguity exists in the interpretation of terms.

Examining functional differences among IRBs is important to understanding the factors that contribute to IRB decision-making. Prior to this study, few researchers had conducted research to identify relationships or differences by IRB group. Sieber and Baluyot (1992) surveyed 78 IRBs in an effort to identify topics for IRB training programs. Results of this early study indicated that social/behavioral and biomedical IRBs face similar challenges of inadequate informed consent documents and investigator resistance to IRB review. However, social/behavioral IRBs reported wanting more information about deception in research.

Larson et al. (2004) examined hospital IRBs by geographic region and institution size. Their study found that geographic region did not affect the time it took for IRB review. However, Larson et al. found that expedited review took significantly more time than either exempt or full board reviews and larger institutions were significantly more likely to review research at the expedited level. In contrast, the present study found no differences by institution size among IRBs at four-year public institutions of higher education.

Shamoo (2001) suggested that IRBs fail to report to OHRP the majority of adverse events that occur in research. In the current study, 68% of respondents strongly agreed or agreed with the assertion that reporting to OHRP was required. However, nearly one in five (19%) of respondents disagreed or strongly disagreed with reporting the incident. The findings of inconsistency among IRBs in categorizing and reporting problems in this study lend some support to Shamoo's contention that research-related incidents are underreported.

Recommendations for Future Research

The results of this study raise several questions about differences among groups of IRBs and potential causes for variation of IRB decisions. The results suggest that institutional context, training, and experience affect board decision-making. Differences among IRBs grouped by type were found in categorizing the incident as unanticipated and as an adverse event. However, the effect sizes of the differences were small, indicating that IRB type accounts for only a small portion of variation in response. Future research should look for patterns of consistent differences among groups of IRBs and examine other potential causes for variation in IRB function. Expanding the current study to include for-profit IRBs, hospital IRBs, and colleges and universities may reveal more significant differences among groups.

Prior research has been largely unsuccessful in explaining IRB variation in terms of local subject populations (Hirshon, 2002; Levine, 1984; Silverman et al., 2001; Stair et al., 2001), geographic region (Larson et al., 2004), and communication challenges (Green et al., 2006; Taylor et al., 2008). Future research should build upon the significant differences found in this study among IRB groups, expanding to include other IRB functions. Quantitative and qualitative research should be conducted to compare review times, review levels, and review outcomes among IRBs grouped by type. Such research could provide useful information to those

responsible for IRB training programs and improve our understanding of the challenges encountered by social/behavioral IRBs in applying regulation that is written in the context of medical research.

Limitations of Study

The current study had a number of limitations. The first limitation was the size of the sample obtained. It is possible that the sample size was adversely affected by the potential lack of anonymity in the survey process. As indicated in the informed consent document, responses were tracked by institution. Additionally, respondents were asked to provide their role in relation to the IRB. Coupling the institution name with individual role meant that in some cases, individuals could be identified. Further, the informed consent document explained that anonymity cannot be guaranteed via an internet-based survey. The inability to guarantee anonymity may have caused some individuals to decline participation in the study.

Sample size adversely affected the observed power statistics in this study, particularly for the question, "I would classify the incident in the above scenario as an anticipated event." As discussed in Chapter Three, the sample size estimator formula indicated that a sample size of 246 observations or larger would have been optimal. However, only 187 valid responses were received. Analysis of this question revealed an observed power statistic of .10 for size and .06 for type. The observed power statistic measures the probability of the analysis finding no significant difference when, in fact, a difference exists, a type 2 error. For this question, there was a 90% chance of a significant difference among IRBs grouped by size that went undetected. Similarly, there was a 94% chance of undetected difference among IRBs grouped by type. Due to the low observed power results on this particular question, the results of the factorial ANOVA could not

be trusted. Independent samples *t*-tests were conducted which revealed no significant differences.

For analysis of the last survey question, IRBs were grouped by size, type, and group. Factorial ANOVA could not be conducted because of the small number of IRBs in each subgroup. Instead, independent samples *t*-tests were conducted to look for differences. A larger sample size may have alleviated this problem and allowed for richer analysis. Despite the small sample size, significant differences were found among IRBs grouped by type for two of the questions. So, although the small sample size did negatively affect the analyses, the significant findings in the study are reliable.

The second limitation deals with the tendency for IRBs to respond conservatively. Although it is difficult to detect underlying reasons that a respondent chose a particular answer, the goal of protecting research subjects may have lead respondents to answer survey questions conservatively. Whether motivated by humanistic ideals or a desire to maintain compliance to federal law, IRB members and HPAs share the common goal of protecting research subjects. The tendency to choose answers based upon what respondents believe the researcher wants to see is called social desirability bias (Dillman, 2000). To control for social desirability bias, future studies on categorizing and reporting incidents should employ new methods to look for differences among groups of IRBs. For example, follow-up research might examine an actual problem arising in a multisite research study and look retrospectively for differences in how IRBs categorized and reported the incident.

The experimental design of the final question, "This incident requires reporting to the Office of Human Research Protections," presented challenges. The term "internal validity" refers to the "extent to which extraneous variables have been controlled or accounted for" (McMillan &

Schumacher, 2001. p. 167). The internal validity of this question depended upon respondents' willingness to follow the instructions presented in the survey. Respondents were instructed to answer survey questions without using outside training or reference materials. However, if respondents in the control group utilized outside materials in answering the final survey question, then discerning differences between the control and experimental groups would have been impossible.

Although instructing participants to respond to survey questions without the use of outside materials provided a controlled environment to look for differences among the control and experimental groups, it also may have created an unrealistic situation. One respondent suggested that research problems are discussed among several individuals and decisions are made only after a review of federal guidance materials. Although it was believed that viewing the OHRP flowchart about reporting incidents would affect the decision to report, the flowchart alone may not have been sufficient to cause a detectable difference in responses between the control and experimental groups.

The last limitation deals with external validity. IRBs at private institutions, research centers, and hospitals were not included in the sample. Therefore, the results of this study are only generalizable to IRBs at public, four-year institutions. Additional studies, using broader samples, would be needed to expand generalizability to include other IRBs.

Conclusion

The challenges of IRB oversight are perhaps most pronounced in U.S. public colleges and universities. University IRBs spend much of their time reviewing and monitoring low and medium-risk social/behavioral studies. However, limited research has been conducted on how social/behavioral IRBs function, especially in the context of handling problems arising in

research. This examination of IRBs at public, four-year institutions sought to identify differences among various groups of IRBs in their decisions to categorize and report (or not report) problems in social science research.

The results of factorial ANOVA and independent *t*-tests on survey data indicate that there is a statistically significant difference in how IRBs of different types categorize the incident presented in the survey. Differences by IRB type were found for the questions "I would categorize the incident as an unanticipated problem involving risks to subjects" and "I would categorize the incident as an adverse event involving risks to subjects." IRBs that review more biomedical studies were more likely than social/behavioral IRBs to correctly categorize the incident as unanticipated.

Differences among types of IRBs in categorizing problems suggest that institutional context, training, and experience play a role in IRB decision-making. New guidance documents, written in the context of social science research and indexed separately on the OHRP website, would make decision-making easier for social/behavioral IRBs. More importantly, OHRP should simplify reporting guidelines for social science research to require reporting only if further IRB action is needed to protect research subjects. Although the terms "anticipated" and "unanticipated" make sense in the context of clinical medical practice, the current study suggests that social/behavioral IRBs have difficulty applying these terms to problems in social science research. Eliminating these categories by requiring reporting only when substantive changes to the protocol or procedures are required would save valuable board time and reduce confusion.

The findings here also suggests that new training programs should be developed that address the broad issues of interpreting federal guidance in the context of social science research. Institutional officials should attempt to diversify board membership to include representatives

from the social science and medical fields. Additional studies are needed to determine whether IRBs that review primarily social/behavioral studies review protocols and handle issues of investigator noncompliance differently than biomedical IRBs.

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Appendix A: Survey Instrument

Choose one answer that best describes your role in the protection of human subjects.

- IRB Chairperson or Vice-Chairperson
- Other Voting Member of the IRB
- IRB Administrator or Manager (not a voting member)
- Other (please specify)
- Do not wish to provide

Does the IRB or IRBs that you work with review primarily social-behavioral protocols, primarily biomedical protocols, or similar amounts of each?

- Primarily social-behavioral studies
- Primarily biomedical studies
- Similar amounts of social-behavioral and biomedical studies
- Do not wish to provide
- Don't Know

IRB Scenario: A graduate assistant was responsible for data entry for a research study on college student lifestyles conducted with local college students. The study was approved by the IRB at the expedited level. After entering survey response data into a secure computer, the assistant accidentally left the stack of completed surveys in the department's student lounge. When the student returned the next day, the forms were gone, and have not been located. The survey included student class schedules, information about alcohol and drug use, and sexual histories. No names were on the forms. Through data on the forms, it is possible that individuals may be identifiable. Your institution applies the same protections to all human subjects, regardless of source of research funding.

Please rate your response to the following statement about the IRB scenario above.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I would categorize the incident as an anticipated problem involving risks to subjects.					

Please rate your response to the following statement about the IRB scenario above.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I would categorize the incident as an unanticipated problem involving risks to subjects.					

Please rate your response to the following statement about the IRB scenario above.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I would categorize the incident as an adverse event involving risks to subjects.					

Control Block

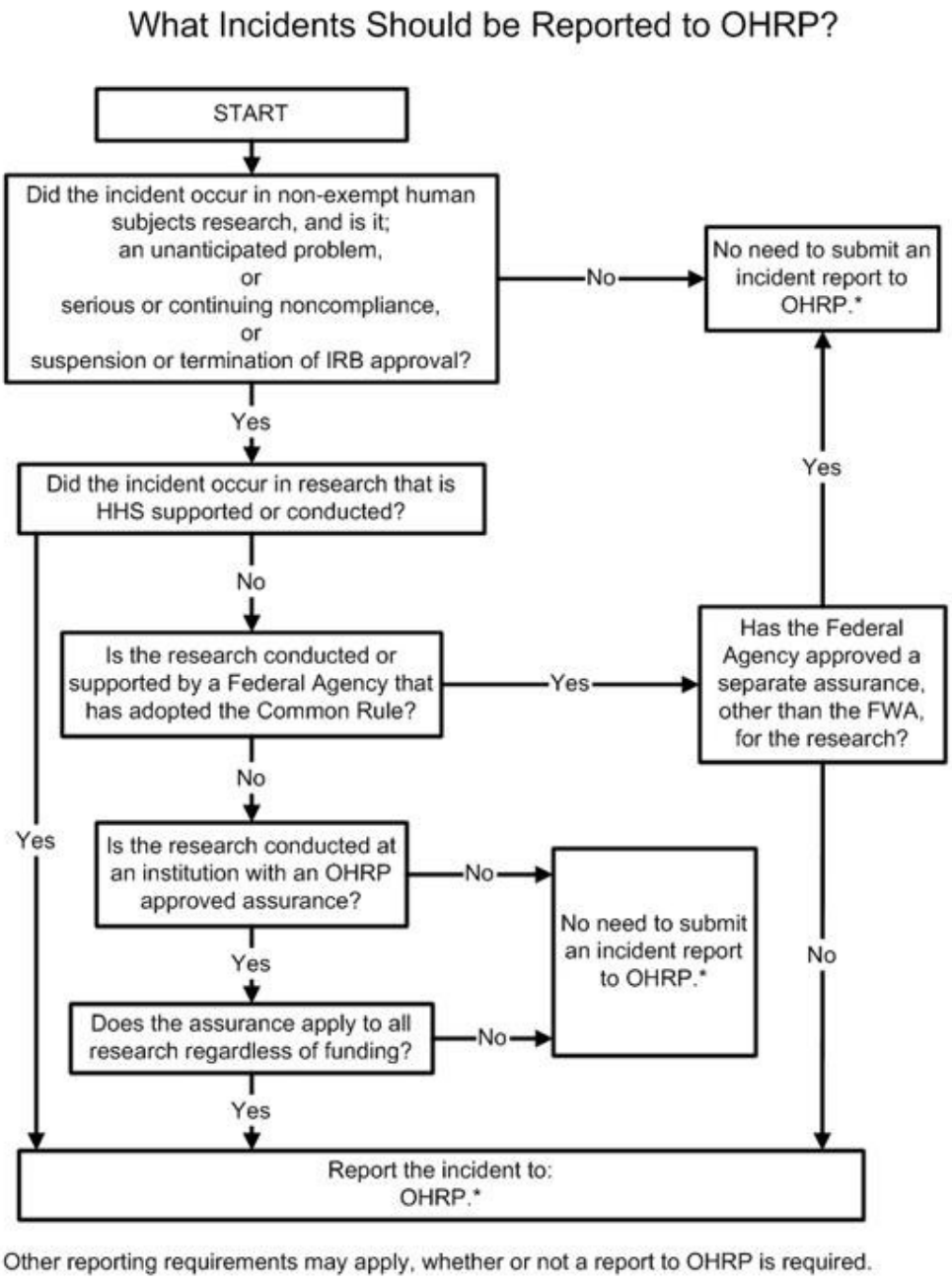
IRB Scenario: A graduate assistant was responsible for data entry for a research study on college student lifestyles conducted with local college students. The study was approved by the IRB at the expedited level. After entering survey response data into a secure computer, the assistant accidentally left the stack of completed surveys in the department's student lounge. When the student returned the next day, the forms were gone, and have not been located. The survey included student class schedules, information about alcohol and drug use, and sexual histories. No names were on the forms. Through data on the forms, it is possible that individuals may be identifiable. Your institution applies the same protections to all human subjects, regardless of source of research funding.

Please rate your response to the following statement about the IRB scenario above.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
This incident requires reporting to the Office of Human Research Protections.					

Experimental Block

IRB Scenario: A graduate assistant was responsible for data entry for a research study on college student lifestyles conducted with local college students. The study was approved by the IRB at the expedited level. After entering survey response data into a secure computer, the assistant accidentally left the stack of completed surveys in the department's student lounge. When the student returned the next day, the forms were gone, and have not been located. The survey included student class schedules, information about alcohol and drug use, and sexual histories. No names were on the forms. Through data on the forms, it is possible that individuals may be identifiable. Your institution applies the same protections to all human subjects, regardless of source of research funding.



Please rate your response to the following statement about the IRB scenario, using the flowchart above from the website of the Office of Human Research Protections.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
This incident requires reporting to the Office of Human Research Protections.	○	○	○	○	○

Appendix B: Introductory Email

Hello,

My name is Dawn Underwood, and I am the Director of Sponsored Programs and IRB Administrator at Indiana State University in Terre Haute, Indiana. I am also a student working toward a PhD in the Department of Educational Leadership, Administration, and Foundations here at ISU.

Within the next few days, you will receive an email containing a link to a brief survey related to categorizing and reporting problems arising in IRB reviewed research. The survey is only 6 questions long, and should take less than 10 minutes of your time. I would greatly appreciate it if you could take the time to complete this survey.

Thank you in advance for your response.

Sincerely,

Dawn

Dawn Underwood, Director
Office of Sponsored Programs
IRB Administrator
Erickson Hall 511
Indiana State University
Terre Haute, IN 47809
ph: 812.237.3088
fax: 812.237.3092

Appendix C: Recruitment Email Message

Reporting problems in human subjects research: A comparative study

Link to Survey: http://indstate.qualtrics.com/SE?SID=SV_02Oc6aFdH7mFBDS&SVID=

My name is Dawn Underwood, and I am a student in the Educational Leadership and Foundations Departmental at Indiana State University. I also serve as the Director of Sponsored Programs and IRB Administrator at ISU. I invite you to participate in a study being conducted for my doctoral dissertation. Your participation in this study is entirely voluntary. The purpose of this study is to gain information about how institutions of higher education and Institutional Review Boards (IRBs) make decisions about categorizing and reporting incidents in research.

I have contacted you to participate in this survey because you were identified as serving as an IRB Administrator, IRB Chairperson, or other IRB related role within a public institution of higher education. The questions in this study relate to categorizing and reporting of problems arising in research. If you feel that you are not qualified to answer questions about these topics, please forward this email to the appropriate individual within your institution.*

If you choose to participate, you will be asked to respond to a short series of questions. The entire survey will require less than 10 minutes of your time.

This study has been determined to be exempt from IRB review. Questions about this study should be directed to Dawn Underwood, doctoral student at Indiana State University at (812) 230-8306 or via email at Dawn.Underwood@indstate.edu . Questions may also be directed to the faculty advisor, Denise Collins at Denise.Collins@indstate.edu. Questions about your rights as a subject of research should be directed to the IRB at Mark.Green@indstate.edu.

Please follow this link to the survey:
http://indstate.qualtrics.com/SE?SID=SV_02Oc6aFdH7mFBDS&SVID=

*Please note that according to guidance on the Office of Humans Research Protections website, forwarding this message to another individual does not qualify as “engagement in research” and should not trigger the need for IRB review at your institution. The OHRP guidance document on engagement in research can be found at:
http://www.hhs.gov/ohrp/humansubjects/guidance/engage08.html (see Section B: Institutions Not Engaged in Human Subjects Research, number 4).

Thank you for taking part in this important study.
Dawn

Appendix D: Reminder Email

Good morning,

About 10 days ago, I emailed you to request your response to a survey about IRBs and categorizing and reporting problems. If you have not yet completed the survey, I hope that you will click on the link below to complete it. The survey is about 6 questions long and should take less than 10 minutes of your time. Your response is very important in order to have sufficient numbers to compare responses by grouping levels (I need at least 15 responses per group to do certain analyses).

This will be the only reminder message that I send to you. After the analysis is completed, I will email you one last time to make available the research results for those who are interested. I appreciate everyone's time and interest. So far, this research experience has been amazing. And for those who have already completed the survey, thank you so much!

Dawn

Appendix E: Informed Consent

CONSENT TO PARTICIPATE IN RESEARCH

Reporting problems in human subjects research: A comparative study

My name is Dawn Underwood, and I am a student in the Educational Leadership and Foundations Departmental at Indiana State University. I invite you to participate in a study being conducted for my doctoral dissertation under the direction of Dr. Denise Collins, faculty sponsor. Your participation in this study is entirely voluntary. The purpose of this study is to gain information about how institutions of higher education and Institutional Review Boards (IRBs) make decisions about categorizing and reporting incidents in research. I have contacted you to participate in this survey because you were identified as serving as an IRB Administrator, IRB Chairperson, or other IRB related role within a public institution of higher education. If you choose to participate, you will be asked to respond to a short series of questions.

RISKS

The primary foreseeable risk to participating in this study is loss of anonymity. Although names will not be requested in the survey, responses will be tracked electronically by institution to allow grouping of IRBs by the size of student enrollment. You will also be asked to indicate your role in relation to the IRB, which could potentially make individual identification possible.

Anonymity cannot be guaranteed via an internet-based survey. I will take every precaution to protect the identity of the participating institutions and the individual respondents. Your survey responses will be tracked using a password-protected computer. Should the data be published, no individually identifiable information will be disclosed.

Incomplete data sets may be of limited use or may be excluded from the sample.

BENEFITS

Individual participants will not benefit directly from this study. However, this study will add to the base of knowledge about how institutions and IRBs make decisions. Understanding IRB decision-making may help to improve federal regulations and enhance training for IRBs and researchers.

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by password protection.

You are free to decline to answer any particular question you do not wish to answer for any reason.

IDENTIFICATION OF INVESTIGATORS

If you have any questions about the study, please contact me, the researcher: Dawn Underwood, 2403 N 1875th Street, Paris, Il 61944, 812-230-8306, dawn.underwood@indstate.edu or contact the faculty sponsor: Dr. Denise Collins in the Department of Educational Leadership and Foundations, Bayh College of Education, Indiana State University, 200 N 7th Street, Terre Haute, IN 47809 or at denise.collins@indstate.edu or by phone at 812-237-2868.

This research survey was submitted to the IRB at Indiana State University and determined to be exempt. If you have any questions about your rights as a research subject or if you feel you have been placed at risk, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, 200 N. 7th Street, Office of Sponsored Programs, Attn: Mark Green, Terre Haute, IN, 47809, by phone at (812) 237-8217, or by e-mail at Mark.Green@indstate.edu.