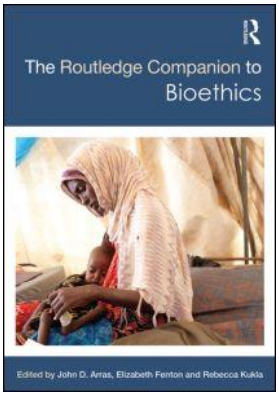


# The Routledge Companion to Bioethics

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## The Future Of Informed Consent To Research

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# THE FUTURE OF INFORMED CONSENT TO RESEARCH

## Reconceptualizing the Process

*Paul S. Appelbaum*

Informed consent has become a *sine qua non* for the ethical conduct of human subjects research, with few exceptions. Indeed, so taken for granted is the notion that investigators must obtain subjects' consent before proceeding with research that it is difficult for most investigators and research staff to imagine that human subjects research was ever conducted in any other way. An examination of the history of informed consent to research, however, reveals that it is largely a creation of the second half of the twentieth century and has never been without controversy. Moreover, a careful examination of informed consent as actually applied in research settings reveals a highly imperfect process, much in need of adjustment. Thus, the future of informed consent to research is by no means clear.

In this chapter, I present a brief history of informed consent to research, distinguishing it from the very different evolution of consent in the treatment setting, consider the lessons of research that has been conducted on the consent process itself, and suggest a conceptual reorientation of consent to participate in research that holds the promise of more meaningfully engaging participants in the decisional process.

### The History and Current Status of Consent to Research

Medical research—at least in the modern sense of a systematic investigation—is a relatively recent innovation in the long history of medicine. Lind's controlled trial of treatments for scurvy in the British navy in 1747 may well have been the first clinical trial ever performed, followed late in the century by additional studies of scurvy in sailors (Lind 1753). Despite the practical impact of the scurvy studies, which led to plummeting death rates among British sailors, and of Pierre-Charles-Alexandre Louis' publication in France of his conclusions regarding the inefficacy of bloodletting as a therapy for fevers (Louis 1836), systematic clinical investigation remained the rare exception in medicine. Most new treatments continued to be introduced and promoted on the basis of hypothesis and anecdote rather than firm supportive data. However, in the late nineteenth century the pace of experimentation accelerated, with the nutritional origins of beriberi (Hawk 2006) and pellagra (National Institutes of Health no

date) discovered in studies with human subjects, and the origins of and treatments for a variety of infectious diseases pursued (Lederer 1995).

During these early years of systematic medical investigation, attention to consent-related issues appears to have been sporadic. Statements can be found from some leading physicians endorsing disclosure of information about the risks and benefits of experimental treatment (though not necessarily in the context of systematic research) (Lederer 1995: 1–2). Information as to whether subjects were even informed that they were part of a research study does not appear in most reports of the era, and the strong inference from the circumstances presented suggests that they were not (e.g., the Japanese beriberi studies, undertaken by feeding distinct diets to the crews of two battleships). A scandal in Prussia in the 1890s over experimental inoculation of unknowing patients with the syphilis spirochete led the Prussian government to establish the first governmental requirement for consent of human subjects prior to the conduct of research (Moreno 2000: 20). The earliest extant consent form derives from the studies of yellow fever, conducted with American soldiers in Cuba by Col. Walter Reed. Its resemblance to contemporary consent forms is striking, although its length—a single page—sets it clearly apart (Lederer 1995: 21). Pre-Nazi Germany, in 1931, adopted regulations requiring clear explanations of the experimental or innovative nature of proffered treatments (Howard-Jones 1982). However, accounts of the years before the Second World War make clear that obtaining consent was not routine in research settings in any part of the world (Lederer 1995; Parson 1984).

The turning point came with the revelations of the horrors committed by Nazi doctors in the concentration camps and death camps of the Third Reich. Among the experiments they conducted were exposure of prisoners to frigid seawater and low oxygen pressure to the point of death; mass sterilization by means of gonadal irradiation; and deliberate induction of gangrene in artificially created wounds (Proctor 1992). The Doctors' Trial in Nuremberg culminated in 1947 with the promulgation of what came to be called the Nuremberg Code, encompassing 10 principles of the conduct of research rooted in the notion that "[t]he voluntary consent of the human subject is absolutely essential," and requiring that:

> before the acceptance of an affirmative decision by the experimental subject there should be made known to him the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted; all inconveniences and hazards reasonably to be expected; and the effects upon his health or person which may possibly come from his participation in the experiment.
>
> (*Trials of War Criminals* 1949)

The controversies regarding the derivation of the Nuremberg principles—i.e., whether they represented actual practice at the time or were constructed on an *ad hoc* basis to justify punishment for the horrific behaviors of the Nazi doctors—have been discussed extensively (Schmidt 2004). Suffice it to say that it is likely that little medical research in Allied countries was being carried out in conformance with the dictates of the Code, although it is also true that Allied researchers were generally not engaged in the deliberate infliction of suffering and death that characterized much of the Nazi work.

Perhaps because the circumstances in the concentration camps seemed so alien to medical researchers in other countries, it was easy for them to conclude that the Nuremberg principles—including the requirement for consent—were not meant to

apply to them. They were not, after all, coercing prisoners into participating in research certain to induce harm. Most, though certainly not all, medical research was performed to test new treatment approaches that presented some prospect of benefit. The seeming inapplicability of Nuremberg to civil settings around the world was one of the motivators for the development of the Declaration of Helsinki by the World Medical Association in 1964, a much-revised version of which continues in effect today (World Medical Association 2008). Unlike the Nuremberg Code, the original Declaration held that "clinical research combined with patient care"—unlike "non-therapeutic clinical research"—could proceed without consent, if physicians concluded that obtaining consent would not be in the best interests of patients. As late as 1964, therefore, world medicine had still not accepted the idea that consent played a critical role in legitimizing experimental interventions and the deviations entailed from the usual approach to treatment.

Two forces converged in the 1970s to change that stance, exemplified by developments in the United States. A decade of scandals revealed that experiments had been conducted without subjects' consent, and sometimes with considerable risk of harm. This culminated in the expose of the Tuskegee syphilis study in 1971. Approximately 400 African-American men in Alabama who had contracted syphilis were followed for 40 years by the U.S. Public Health Service to observe the natural history of syphilis in blacks (Jones 1981). Their diagnosis was not revealed to them—indeed extraordinary efforts were taken to prevent discovery—and even after effective treatment for the disease became available, therapy was not provided. In response, the *National Research Act* of 1974 was passed, establishing a commission to make recommendations for preventing such abuses in the future. Although some federal subject protections existed as early as 1966 (Stewart 1972), the first comprehensive set of regulations was adopted by the Department of Health and Human Services in 1981. Current regulations, often referred to as the "Common Rule," were promulgated in 1991 and have been modified in only minor ways since (Department of Health and Human Services 2009).

The shape of those regulations, at least with regard to the requirements for consent, was influenced as well by developments in American courts beginning in the 1950s. Although it long had been a common law expectation that physicians would obtain patients' consent prior to intrusive (especially surgical) interventions, this "simple consent" required little in the way of disclosure to patients beyond the nature of the intervention proposed (Berg et al. 2001: 41–4). But U.S. courts in the mid and late 1950s began to formulate a more expansive doctrine of "informed consent" (the term first being used in this context in a 1957 decision (*Salgo v. Stanford* 1957)), which was widely accepted by the courts in the early 1970s (*Canterbury v. Spence* 1972; *Cobbs v. Grant* 1972). Physicians were now obligated to reveal information regarding the risks and benefits of the proposed treatment, along with alternative treatments—including the option of no treatment—and their risks and benefits. Many jurisdictions declared the standard of disclosure to be the amount of information on these topics that a reasonable patient would want to know before making a treatment decision. It was clear that patients were expected to play a major role in selecting their preferred treatments, and were to be given sufficient information to make meaningful choices (Berg et al. 2001: 46–65).

Combining the imperative to protect research subjects from abuse with the developments in informed consent law in the clinical setting, the drafters of the federal regulations elaborated a complex set of procedures and substantive requirements for

investigators, which if anything have only become more intricate over time. Informed consent of subjects is required except when an Institutional Review Board (IRB) waives consent or when subjects are incompetent, in which case the consent of a legally authorized representative might be acceptable. In general, consent is to be obtained on a printed consent form, containing the relevant information and the subject's signature. Eight essential elements of information have to be disclosed to all subjects, along with six optional elements (Department of Health and Human Services 2009: 46.116b), and some studies require additional disclosures. Although these rules are specific to the U.S., the regulatory regime is roughly similar in most other developed areas of the world.

## Informed Consent to Research: How Well Does It Work?

Almost from the inception of consent to research as a systematic policy, there have been studies of how well the process functions. The body of literature that has accumulated cannot be reviewed comprehensively here, but it is possible to summarize the findings and to provide illustrative examples.

The initial focus must be on written consent forms, given their salience to investigators and IRBs. In the years since the adoption of the federal regulations, consent forms have become more comprehensive in their coverage and grown steadily in length (Albala et al. 2010). A 2004 study of 107 consent forms for oncology clinical trials found an average length of eleven pages and 2700 words (Sharp 2004). Today, single-spaced forms exceeding twenty or even thirty pages in length are not uncommon. Among the drivers of increased content has been the tendency for regulatory agencies to add required boilerplate (e.g., most recently that U.S. clinical trials will be registered with a government agency (Department of Health and Human Services, Food and Drug Administration 2009)). Sponsors and investigators also have begun to include information about what will happen at each visit in longitudinal studies. Medical procedures and tests are described in increasing detail, among them procedures of negligible risk such as neuropsychological test batteries. It is often said that the impetus for ever-more-inclusive forms derives from concern about lawsuits alleging lack of informed consent if relevant information is missing, but it seems clear that by now investigators and IRBs have internalized the notion that more detail is better, quite apart from any realistic legal threats.

Remarkably, this stunning growth in the length of consent forms has come in the face of data indicating an inverse relationship between length and comprehension of the information provided (i.e., the longer the form, the less information subjects take from the process) (Mann 1994). Sharp has pointed to data suggesting that consent forms longer than 1,000 words (four double-spaced pages) are unlikely to be read, perhaps in part because of the time involved. He recommends that length be limited to no more than 1,250 words, which would take an average high-school graduate five to seven minutes to read (Sharp 2004). In addition, forms typically are written at a level of complexity that makes it unlikely that most research subjects will comprehend their contents (Paasche-Orlow et al. 2003; Williams et al. 2003). For example, a study of consent forms intended for use with patients with chronic mental illnesses showed that they had overall mean readability scores well above the educational level of most potential participants; the forms were even more complex in higher-risk studies (Christopher et al. 2007). Readability levels, moreover, may not tell the whole story about the challenges facing potential subjects in interpreting consent forms. Hochhauser noted a consent form reviewed by his IRB that was twenty-three single-spaced pages, contained 10,100 words, and "was so

complicated that the risk section for the three drugs [being studied] included 160 possible side effects . . .” He asks, quite reasonably, “Is it possible for prospective subjects to remember and make informed decisions based on so many risks?” (Hochhauser 2008).

The length and complexity of consent forms might be of less concern if they did not play such a key role in informing potential research subjects. Few observational studies exist of how consent is routinely obtained, but there seems to be general agreement that primary reliance on the forms is widespread, especially when the disclosure process is delegated to research staff other than the investigator (Appelbaum and Roth 1983). Thus, the information in the form becomes the prime, and in some cases the only, disclosure that subjects receive about the study. Although it is routine for subjects to be asked whether they have any questions about the study, their limited comprehension often means that little additional information is requested or conveyed.

The answer to the question posed by Hochhauser—whether subjects are likely to grasp the extensive, complicated information with which they are presented—is evident from the large number of studies examining subjects’ comprehension and appreciation of informed consent disclosures. Although there is some diversity in the literature, in general the studies suggest that research subjects are unable to recall much—in many cases most—of the information that has been conveyed to them (Verheggen and van Wijmen 1996). Subjects typically fail to grasp the purpose of research studies, the likelihood of benefit, and the range of risks (e.g., Daugherty et al. 2000). This has been found to be true for a broad array of research subjects with a wide range of disorders.

In addition to purely factual information about the study, which presents challenges of its own, subjects seem to have a particularly difficult time grasping some of the ways in which participation in a clinical trial differs from engaging in ordinary treatment. Joffe and colleagues’ interviews of 207 oncology subjects, for example, revealed that 48 percent of subjects were willing to endorse the statement that “All the treatments and procedures in my clinical trial are standard for my type of cancer,” when the purpose of the studies was precisely to test non-standard treatments (Joffe et al. 2001). Similarly, 29 percent agreed that “The treatment being researched in my clinical trial has been proven to be the best treatment for my type of cancer”; had that been correct, of course, the studies would not have been conducted. My colleagues and I have characterized this failure to appreciate the nature of a clinical trial as a “therapeutic misconception” (Appelbaum et al. 1987). The problem seems to manifest itself along two dimensions: Failure to understand the absence of individualization of treatment in clinical trials, and mistaken beliefs about the likely benefits of participation based on a misunderstanding of the study’s methods. When so defined, we found that 61% of research subjects from a diverse array of studies at two academic medical centers manifested some degree of therapeutic misconception (Appelbaum et al. 2004).

To be sure, studies of subjects’ comprehension of consent disclosures can be subject to a variety of methodologic criticisms (Hochhauser 2008; Verheggen and van Wijmen 1996). Definitions of comprehension are often vague and inconsistent, and the instruments used in many studies are unvalidated. Moreover, demonstrating a lack of understanding about one or more aspects of a study is different than showing a causal link between defective understanding or appreciation and potential subjects’ decisions to enter (or to avoid) clinical trials. Acknowledging the limitations in the current data, there are strong reasons to accept the validity of the conclusion that subjects are frequently clueless about important aspects of clinical studies. The reasons to credit these findings include their consistency, the degree to which they comport with the

impressions of clinical investigators and researchers studying informed consent, and the confirmation provided by more methodologically precise efforts. Indeed, the field as a whole has embraced the idea that our current approaches to informed consent often—perhaps usually—do not result in subjects having a sufficient grasp of the study to make meaningfully informed decisions.

As a consequence, a growing literature documents the attempts of researchers to do a better job of conveying information to their subjects. Flory and Emanuel published a review of this work in 2004, the findings of which have largely been confirmed by subsequent analyses (Cohn and Larson 2007). Among the efforts they catalogued to improve the consent process were videotaped disclosures and computer-based multimedia interventions; more user-friendly consent forms, with simplified language and streamlined content; extended or repetitive informational sessions with subjects; post-disclosure testing with feedback and correction; and some combinations of these various approaches. Their analysis suggested a lack of consistent improvement with video and computer technology (confirmed by a later Cochrane review (Ryan et al. 2008))—although some recent studies have been more promising (Jeste et al. 2009)—or with improved or simplified consent forms, although there was some evidence that simplifying forms might be helpful. However, extended discussions with potential subjects and testing with feedback both seemed more promising, perhaps because of the human interaction involved. An interactive process, Flory and Emanuel noted, encourages responsiveness of the information provider to the individual needs of each participant, in contrast to the fixed content of even the best consent forms or multimedia presentations. (It is of interest that consent to treatment appears to be more amenable to improvement with a wide variety of interventions (Schenker et al. 2011), perhaps because information concerning research is more difficult to comprehend or because information is so much more poorly presented in treatment settings.)

Two examples of a more interactive approach exemplify the rather small literature on this means of improving subjects' understanding. The earliest such study detailed the use of a "neutral educator"—a person unaffiliated with the team conducting the primary study but knowledgeable about the research—to instruct subjects on the elements of the research project (Benson et al. 1988). Although the study was underpowered to demonstrate statistically significant effects, the results showed a clear trend in the direction of improved understanding compared with standard procedures, even when the latter were augmented by the use of videotape. Given the time-intensive nature of individual sessions with subjects, the results of a subsequent study that used a group approach are of particular interest. Working with subjects with schizophrenia who had poorly understood the original disclosure, Carpenter and colleagues (2000) provided two thirty-minute group teaching sessions, along with the opportunity to review a computerized program about research in general and a flip-chart on the details of the study in question. Of the twenty subjects who went through this procedure, eleven subsequently scored above the *a priori* cut-off for adequate understanding and the group's mean understanding scores did not differ from that of a normal control group exposed to the usual consent process.

To sum up what is known about the quality of informed consent in the research setting, it seems fair to conclude that: (1) The process is conducted in a less-than-optimal fashion, with heavy reliance on written consent forms that subjects are unlikely to comprehend; and (2) the result is that research subjects display significant impairments in their understanding of the factual elements of their studies and of the ways in which they differ from ordinary treatment. Although a variety of interventions have been

attempted to improve this situation, their use still appears to be the exception rather than the rule, and the most effective intervention—direct human interaction with potential subjects—is the most expensive to implement and thus may be least likely to be adopted.

## Rethinking the Future of Informed Consent to Research

The promise of informed consent was that prospective research subjects would be sufficiently knowledgeable that they would make meaningful choices regarding their participation. Although by no means a complete remedy for the abuses in human subjects research, informed consent has been seen as a crucial component of that effort. The data reviewed above, however, suggest that the hopes for informed consent have not been realized: Many potential subjects still make relatively uninformed decisions. Efforts to improve the situation, although commendable, have generally tinkered at the edges of the consent process without getting to the heart of the problem. A more radical fix would appear to be in order if we are serious about actualizing the potential of informed consent.

Part of the problem lies in the conceptualization of the informed consent process itself, as evidenced by the language used to describe it. Borrowing from judicial decisions establishing a requirement for treating physicians to obtain patients' informed consent, the researcher's obligation is often described as a duty to *disclose* specific types of information (Berg et al. 2001: 46–65). The federal regulations on protection of human subjects specify "in seeking informed consent the following information shall be *provided* to each subject . . ." (Department of Health and Human Services 2009: 46.116, emphasis added). In the Nuremberg Code, researchers are told that part of their obligation to potential subjects can be discharged when certain information is "*made known* to . . ." them (*Trials of War Criminals* 1949, emphasis added). These terms have in common the notion that mere exposure of subjects to the relevant information will be sufficient to permit an informed decision. This model implicitly envisions subjects who knowingly receive information, grasp its meaning and implications, and use it in an informed way to make a decision whether to enter a research study.

As we have seen, however, this model does not reflect the reality of most human subjects research today. The information that is *disclosed*, *provided* or *made known* to potential subjects is often poorly understood and appreciated. This situation is due in varying parts to the inherent complexity of the information revealed, the difficulty that investigators have in presenting it clearly (notwithstanding the statement in the federal rules that the information provided "shall be in language understandable to the subject," Department of Health and Human Services 2009: 46.116), the educational, literacy, and numeracy limitations of subjects themselves, and the unfamiliar and counterintuitive aspects of the research setting (e.g., the fact that the physician supervising a subject's care will not be selecting a treatment based on that person's individualized needs). Simple revelation of information turns out to be inadequate to insure that prospective research subjects can make meaningful decisions.

What more might we ask of investigators? One aspect of the Nuremberg Code's formulation is helpful here. A research subject, the Code indicates, "should have sufficient knowledge and comprehension of the elements of the subject matter involved as to enable him to make an understanding and enlightened decision." Moreover, "[t]he duty and responsibility for ascertaining the quality of the consent rests upon each individual

who initiates, directs or engages in the experiment." The term "quality of consent" is ambiguous, to be sure, but combined with the suggestion that subjects should comprehend the information made known to them, it could be taken to indicate the investigator's responsibility to determine that disclosure has actually resulted in a knowledgeable subject, able to make a meaningful choice. The Declaration of Helsinki, though also problematic in some ways, is more direct, indicating that researchers should "ensur[e] that the potential subject has understood the information" about which they have been informed. Taken seriously, these formulations would suggest that mere disclosure is inadequate unless the effectiveness of the informational process is ascertained.

Why, then, are these exhortations to assess subjects' comprehension so often honored only in the breach? The answer is undoubtedly multidimensional and includes the absence of clear language to this effect in many of the regulatory codes, such as the one in the U.S. But the influence of the doctrine of informed consent as it has developed in the clinical realm may be relevant here, too. Many of the foundational court decisions elaborating the doctrine deliberately adopted the language of "disclosure" and were decidedly ambiguous as to whether physicians must insure that patients in fact comprehended the information (Berg et al. 2001: 65–7). Judicial aversion to a more rigorous requirement of patient understanding may have derived from concern that some patients would be deprived of highly beneficial medical treatment because of their inabilities to grasp sufficient information. Although this may be sensible policy in a clinical context, where it can usually be assumed that physicians are recommending treatment believed to be in a patient's best interests, it makes less sense in the research environment in which other ends—namely the advancement of knowledge—often take precedence (Miller and Brody 2003). However, in the minds of clinical researchers, who often alternate between treatment and research duties, the idea may be firmly embedded that disclosure *to* the person rather than comprehension *by* the person is the goal of the consent process.

In addition, many researchers (and others, including some bioethicists) continue to doubt whether subjects can comprehend the information necessary for genuinely informed consent (Glannon 2006; Sreenivasan 2003). These doubts relate to the volume of information associated with modern clinical studies, the difficult methodologic concepts that may be involved, and the differences—which many people find counterintuitive—between research procedures and the ordinary provision of treatment. As a result, commentators have proposed reconceptualizing the goals of informed consent in a variety of ways. For example, Manson and O'Neill (2007) suggested that the informed consent process should be understood as a mechanism for waiving rights to which subjects would otherwise be entitled (e.g., privacy of medical information). A practical consequence of this conceptual difference, they argue, is that it would lead to a more manageable consent process, one focused on effective communication of a limited range of critical information, as opposed to the current tendency toward massive—and often incomprehensible—disclosure. Similarly disturbed by the failures of many research subjects to absorb consent disclosures, Miller and Wertheimer (2011) argue for a "fair transaction model" of informed consent, whereby investigators would disclose the information necessary for fair consideration of participation in a study, but without an expectation that subjects would necessary grasp the disclosure in its entirety. They, too, believe that it is unrealistic to expect informed consent to result in fully autonomous decision-making, but more explicitly rely on the vetting of research studies by research ethics committees to ensure that potential subjects are not being asked to participate

unreasonably. Sreenivasan (2003) urges us not to mistake the "aspirational" goal of subject comprehension of the standard disclosure for a "minimum ethical standard," and argues that consent is the core ethical requirement, whether or not the subjects who offer their consent do so knowledgeably.

Although it is not possible here to do full justice to the arguments urged in favor of altering current notions of the purpose of informed consent, and the differences among them, two responses can be offered. From a normative perspective, substantial dilution of the informed consent requirement—whether by limiting disclosure to some subset of concerns or by discounting subjects' failures to grasp the information disclosed—diminishes subjects' abilities to make meaningful (i.e., informed) choices about participation. Whether viewed as limiting subjects' autonomous choice or failing to respect them as persons, this constricted view of the consent process is particularly problematic in research, as opposed to clinical care, since subjects cannot assume that offers of participation in research studies are intended to advance their interests. Defending those interests requires something more—at a minimum some clear notion of what would be involved in research participation and how it differs from ordinary clinical care.

Insofar as many of the leading critiques of informed consent have at their core certain empirical presumptions, their validity is worth considering. Data showing that many research subjects have a poor grasp of the nature of the research process and the specifics of their own studies are sometimes recruited to support the conclusion that striving for genuine comprehension would be futile. Of course, these arguments are circular. Given that information today is provided poorly, often with reliance on consent forms that are well beyond most people's capacity to understand, researchers are correct in their judgment that subjects' decisions are less than fully informed. However, as suggested by some of the studies reviewed above, when consent processes are better designed, subjects generally prove capable of grasping essential information about the studies and of making more meaningful decisions.

Overcoming nihilism regarding the possibility of an effective consent process will require nothing less than reconceptualizing what we are asking researchers to do. The model of mere disclosure is clearly inadequate. Whether conducted verbally or in writing, simply laying out information—in ever-increasing aliquots—guarantees only more of the situation we have today. Researchers will continue to view informed consent as a charade, and subjects will be inclined to see it as something researchers are doing to protect themselves from administrative sanctions or liability. Instead, I would suggest, we should view the consent process as one centered on the *education* of the subject. Mathematics teachers in our secondary schools, after all, are not expected merely to *disclose* algebraic equations to their students, accepting that most will be mystified but some small number may know intuitively what they mean. We ask teachers to educate their students about the nature and use of those equations, including their practical implications. This is precisely what we should be demanding of those people (more about their identity later) who obtain consent from research subjects: To teach, to instruct, to educate. Their success should not be judged by the number of subjects who consent to participate in their studies, as it often is today, but by the degree of comprehension manifested by potential subjects regardless of the decisions they reach.

A reorientation of the consent process from disclosure to education would have implications for who should be interacting with prospective subjects, how that exchange takes place, and what information should be taught. With regard to the identity of the subject educator—precisely the role envisioned under this approach—we may need to

rethink who should carry out this task. Admittedly, there are advantages to having investigators themselves conduct the informational process. They know their studies best, and will usually be optimally situated to answer subjects' questions. But there are disadvantages as well. The time of senior personnel is expensive and often limited. They frequently have strong vested interests in maximizing enrollment—indeed their careers may depend on it—and thus they may be less than forthcoming about negative aspects of participation. And, though they may be wonderful researchers, they may lack the "people skills" of the best educators.

Thus, we might consider turning this instructional endeavor over to a group of people trained specifically for the purpose. Candidates for this role might have research backgrounds, perhaps having served as research coordinators or nurses. Large research groups might develop cadres of their own subject educators, whereas other studies could draw from a central pool of educators maintained by large research organizations. By way of qualifying for this job, subject educators would be trained and certified in effective instructional techniques, along with the nuances of research methods and the particular concerns of research subjects. For settings in which it would be impractical to maintain staff members dedicated to this role, certified members of the research team—in some cases investigators themselves—could serve instead. Requirements for training in the ethics of human subjects research are becoming routine in the U.S.; it would not be unimaginable to add a component to the training regarding effective communication with subjects. Whatever the details of implementation, it will be critical to set aside sufficient time for an effective teaching interaction with subjects. May and colleagues (2007) suggested a model of "translational informed consent" that shares some of these characteristics, and at least one institution has begun to implement a program involving trained personnel whose role is to educate potential subjects (Foglia et al. 2009).

The methods used for teaching, of necessity, will differ from those typical of the current disclosure process. Central to the education of prospective subjects will be interactions with the subject educator. However, for studies with a sufficient flow of referrals, these sessions need not be carried out one-on-one, but could be conducted in groups. Most schooling, after all, occurs in classes rather than individual tutorials. Group presentations not only maximize efficiency, an obvious advantage, but also permit subjects to discuss issues with each other and to pose relevant questions that some participants might not have considered. In contrast to the hospital and clinic, the classroom will be a familiar setting for most potential subjects, perhaps making it easier for them to absorb information and ask questions.

Although existing studies suggest that direct human interaction is crucial for subject comprehension—it is unlikely that any preprogrammed teaching device, for example, could answer the full range of queries subjects may have about their own medical and personal situations—innovative educational technologies can supplement person-to-person interactions. Data on computer-aided approaches have been variable, but some efforts have shown success. Moreover, advantage can be taken of newer technologies that would allow instruction to be individualized. Interactive DVDs or hyperlinked webpages, for example, would permit viewers to select particular components that might be important to some potential subjects (e.g., an explanation of randomization) but might be well known to others. Subjects could review matters that they found confusing. Video images of research procedures would give prospective participants a better feel for what would be involved if they enroll in the study. Periodic quizzes might be embedded

in the DVD or webpage, with subjects required to attain a passing score before proceeding to the next module, a common procedure in online learning today. Technological approaches such as these might supplement, but would not supplant, direct interaction with a subject educator.

A reoriented process of subject education would require changes in the kind of information that is provided to would-be subjects as well. The welter of detail included in the current disclosure-oriented process overwhelms subjects and distracts them from the very information that is likely to be material to their decisions. When the risks of the study are buried on page 11 of a 21-page consent form, or when minor risks (like the ubiquitously disclosed "risk" of bruising from a blood draw) proliferate, providing perhaps inadvertent camouflage for the substantial adverse effects on which subjects should be focused, it is no wonder that consent forms provide relatively little usable information. As noted above, it has been known for decades that when it comes to informed consent less is more, i.e., patients and subjects take more information away from briefer presentations (Epstein and Lasagna 1969). Thus, the new subject educators would be encouraged to prune the content of their disclosures to potential subjects. Every subject could get a booklet with extensive information that they could consult if they so choose. I would guess most will not, but for those in the minority that values comprehensive information, they would have it in hand. Teaching sessions, however, would focus on major procedures in the study, the key benefits, the most salient risks, and a small number of other items.

Along with this slimming of the information taught to subjects, some additional refocusing is needed. Multiple studies have demonstrated the prevalence of therapeutic misconception among research subjects, manifested by the difficulty that they have distinguishing between the nature and procedures of research and the ordinary treatment setting. Some commentators have despaired of ever breaking through this misconception, but their anguish is premature. Almost no systematic efforts have been made to diminish therapeutic misconception, yet a new educationally focused informed consent process would seem ideal for the task. Subject educators could provide background information on how the purposes of research differ from the goals of treatment, the unique methods of research (e.g., double blinds), why they are used, and how they are likely to affect subjects in this particular study. We may finally have an opportunity to assess the extent to which therapeutic misconception is remediable, and to identify successful techniques for addressing the problem.

Needless to say, it would be a mistake to rush into a full-scale reorientation of consent to research participation without testing these approaches to ensure that they are practical and effective. However appealing this model might be, unless it yields significantly better-educated research subjects who can make more meaningful choices about participation, there is little reason to adopt it. We do not need additional studies of how poorly informed subjects currently are; the point has been made. It is to the testing of educational approaches such as those suggested here that our efforts should be directed. We need to acknowledge as well that it will not always be possible to engage in an idealized consent process. Some studies, such as those carried out in emergency settings, will not offer an opportunity for extended interactions with potential subjects. In other cases, only the investigator, rather than a trained educator, will be in a position to provide instruction about the study. However, recognition that this approach may not always be feasible does not detract from it as an ideal towards which we can aspire.

## Conclusion

Informed consent to participate in research evolved from two sources: Basic notions of fairness towards people whose participation in research was sought, and a strong desire to avoid the abuses of the past, in which unknowing and unwilling participants found themselves placed at risk for the supposed advancement of medical science. The peculiarities of the development and application of informed consent to research, however, have resulted in a process that meets none of its original goals and that imposes substantial costs. Investigators find it time-consuming and irrelevant to subjects' decision-making; potential subjects—though they often report themselves satisfied with the information they have received—frequently lack basic knowledge about the studies they have entered; and regulators ostensibly charged with protecting human subjects and facilitating their choices find themselves caught up instead in the minutia of an ever-growing body of rules and procedures. To extricate all of us from this situation, we need to reconceptualize the aims of the consent process: It should be targeted at yielding an educated, not merely an informed, subject. If that is not the future of informed consent to research participation, the unappetizing alternative is simply more of the same.

## Related Topics

Chapter 19, "The Ethics of Incentives for Participation in Research: What's the Problem?" Alan Wertheimer
Chapter 22, "Capacity and Competence," Jessica Berg and Katherine Shaw Makielski

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