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AN ETHICAL FRAMEWORK FOR BIOLOGICAL SAMPLES POLICY

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I. Introduction

The scale of the practice. Upwards of 290 million human biological samples are currently stored in the United States. They are chiefly in pathology archives, blood banks, researchers' collections, and state public health department newborn screening facilities.[1] Some have been stored for decades, millions more will be gathered and stored in the next year, tens of millions more in the next decade.[2] Samples include blood, bloodspots on laboratory paper, saliva, and tissue from virtually every part of the body. The individuals who are the sources of the samples are identifiable in some cases, not in others. Some samples were gathered during procedures (such as surgery) in which some form of informed consent was attained, some were not. Even where there was informed consent for the procedure that produced the sample, often there was no informed consent to the storage of the sample, nor to some or any possible future uses of it after storage. In many, perhaps most cases, individuals had no idea that their sample was being stored, nor any inkling that it might be used for a variety of research purposes, by a variety of individuals.

For example, blood was taken almost all persons born in hospitals in the United States since 1970 to prepare bloodspots for

purposes of screening for genetic disorders. In some states public health departments keep these bloodspots indefinitely, in others they are discarded after five years; there is no uniform policy covering all states. Most individuals do not know that these samples were taken or that they are kept after screening is done or that they could be used for an indefinite number of purposes in the future, including a complete characterization of the individual's genome.

Special concerns about genetic analysis. Not just bloodspots, but any sample containing cells from any part of the body can be subjected to genetic analysis because every nucleus of every cell of the body contains the complete genetic code of the person from whom the sample was taken. It is in part because of the seemingly limitless uses of genetic analysis--and the concerns that some possible uses evoke--that there is currently much interest in the ethical aspects of the practice of gathering and storing human biological samples that may be used for research.

The most obvious and tangible risk is the risk of insurance or employment discrimination on genetic grounds. There is also the risk of stigma or of adverse psychological reactions to information which the sample contains, given the special significance which genetic disorders has for some people. Nevertheless, as we shall see, the ethical issues raised by the practice of collecting biological samples do not depend, for the most part, on the

possibility of genetic analysis, even if concern about "genetic privacy" may have fueled much of the current interest in the subject.

Framing the ethical issues. It is tempting to frame the complex set of issues involving biological samples as a simple conflict between the value of scientific research, on the one hand, and the rights to privacy and confidentiality, on the other. This way of formulating the issues is, however, quite unilluminating. The problem with this formulation is not simply that virtually all parties to the discussion acknowledge both the value of scientific research **and** the importance of privacy and confidentiality. More importantly, this simple formulation starts where ethical analysis should end, with the invocation of rights to privacy and confidentiality.

Formulating the issues **initially** in terms of rights is unfortunate in two respects. First, rights-language has a rather unyielding quality. There is a tendency to assume that if someone has a right to something, then that is the end of the matter. More specifically, there is a tendency to regard a clash between a mere value (such as scientific progress) and a right as an unequal one, whose resolution in favor of the right is clear and uncontroversial. Second, from the standpoint of ethical analysis, statements about what rights people have are better regarded as conclusions of complex strands of moral argument, rather than as

starting points. What is needed is to dig beneath slogans about rights to confidentiality and privacy (or rights of individual autonomy) to unearth the **morally legitimate interests** that rights serve to protect.

Privacy and confidentiality are sometimes characterized as follows: privacy consists of appropriate limitations on access to the person as a physical being, especially to exposures of the body that are considered to be embarrassing or demeaning; confidentiality consists of appropriate limitations on access to information about a person. In order to ascertain what the **appropriate** limits are in both cases, and hence what the contours of the rights to privacy and confidentiality are, it is necessary to articulate the various legitimate interests that are threatened by exposures of the body and by the dissemination of information about persons.

Rights as protectors of morally important interests. Even a sketch of a full-blown theory of moral rights is beyond the scope of the paper. Nevertheless, it is necessary to say something to elaborate the suggestion that we think of rights as protectors of morally legitimate interests. More specifically, rights-statements are assertions that certain interests are of such importance from a moral point of view that they deserve especially strong protections. The implication is that the interests in question are of such moral weight that they ought to be protected even if this

means overriding what are otherwise typically taken to be powerful reasons for action.

Thus even if the fact that doing something would maximize social utility is generally a very good reason for doing it, some interests are so important that they should be treated as being immune from calculations of utility. For example, when we say that there is a right to free speech, part of what we mean is that people should be allowed to express their views even if repressing them could be shown to produce more utility overall.

Notice that a rights-statement as it stands makes an assertion of what the moral priorities are, but does not itself back up that assertion. Rights-statements by themselves, being conclusions of moral arguments rather than arguments, at best only indicate, in a rough way, what the interests are that deserve special protections. Thus a statement that there is a right to free speech implies that by protecting speech certain morally important interests will be protected, but much more will need to be said both to make the import of the rights-statement clear (to show when speech should be protected and when it should not) and to give us some reason to accept the assertion it makes.

To clarify and justify a rights-statement two things are needed: first, to identify the relevant interests; second, to show why they are of such moral importance as to deserve the especially strong protections rights provide. In simplest terms, doing the latter means demonstrating that the interests in question play an

significant role in determining whether individuals are able to flourish--to live the sort of lives that are appropriate for persons.

Once we dig beneath rights-talk to the morally important interests that rights protect, we are in a better position to appreciate that the ethical issues concerning biological samples are a matter of balancing interests. This crucial fact is obscured if we begin with talk about rights to privacy and confidentiality (or rights to freedom of scientific inquiry, for that matter), because assertions about rights presuppose that the proper balancing of interests has already been achieved.

Once it is understood that rights serve to protect interests, rights-talk becomes less mystifying: rights no longer seem to be ghostly, abstract entities (things that go "ought" in the night). Instead, rights-talks is seen to be shorthand for assertions about what the moral priorities are, assertions grounded ultimately in the conditions of human flourishing.

This is not to say that there is no such thing as a right to privacy or to confidentiality. There are legal rights that go by these names. And we may even say that there are moral rights to privacy and confidentiality at the outset of the analysis, so long as we admit that this tells us very little, except that there is a presumption that certain interests ought to receive special protections through safeguarding privacy and confidentiality and that whatever the proper balance of conflicting interests turns out

to be it must reflect this pre sumption. Invoking rights to privacy and confidentiality tells us nothing about the proper scope and limits of those protections, just as talk of a right to freedom of expression itself tells us nothing about the scope and limits of that right.

In order to determine the proper scope and limits of the right to freedom of expression, we must dig beneath the concept of freedom of expression to articulate those interests that are at stake when expression is limited. These include, preeminently, the interest in being able to criticize government and thus hold it accountable, and the interest in moving closer to the truth through the free exchange of ideas. Similarly, we must determine what interests are served by the preservation of privacy and confidentiality.

For these reasons, the strategy of this paper will be to begin the analysis by cataloguing the members of two sets of interests that can come into conflict: those that weigh in favor of restricting access to biological samples (and hence to the information they contain) and in favor of giving the source of the sample more control over what is done with the sample, on the one hand, and those that weigh in favor of wider access to the sample, even though this means less control over its uses by the source. At the end of the analysis we may conclude that individuals from whom samples are taken have a **moral** right to privacy and confidentiality

concerning those samples, but this will only be shorthand for a much more complicated ethical conclusion about how these two sets of interests ought to be balanced. If the analysis is successful, we will be in a better position, however, to engage in a reasoned debate to determine what the contours of the **legal** rights to confidentiality and privacy ought to be in this area.

After cataloguing the various interests on both sides of the ledger, we can then try to ascertain the adequacy of the requirement of **informed consent** as a means of achieving an appropriate balance of these interests. One conclusion that will emerge is that it is a profound mistake to proceed as if some version of an informed consent requirement by itself can provide protection for all the legitimate interests at stake in the practice of gathering and using biological samples. Instead, what is needed is an institutional division of labor in which informed consent plays an important but limited role. Furthermore, I will argue that attempting to safeguard against all **possible** harms to those who provide samples by an elaborate informed consent requirement is not only doomed to failure but would also be unconscionably costly and an excessive constraint on scientific research.

Interests, well-being, and harms. Before cataloguing the conflicting interests, we must be clear about what we mean by an interest. Put most simply, an interest is an ingredient in

someone's well-being. If your interest is advanced, then, other things being equal, your are better off; if your interest suffers a setback, then, to that extent your are worse off. [3] Peoples' interests vary widely, but there are some interests that are basic to us all as persons. The doctrine of human rights can best be understood as an attempt to identify these fundamental universal interests and to proclaim that they deserve the most stringent protections.

We can also distinguish between **welfare interests** and **ulterior interests**.[4] Welfare interests include access to food and shelter, as well as physical security, liberty of action, and access to information. Ulterior interests include the various ends that individuals give high priority to as they arrange their lives, choose an occupation, and plan for the future. Welfare interests are a very important ingredient in a person's flourishing because if they are not secured he will not be able to pursue his ulterior ends. Nevertheless, once a person's welfare interests are secured, the pursuit of his ulterior ends becomes not only possible, but extremely important to him. Later we will see that the distinction between welfare interests and ulterior interests helps illuminate the full range of interests at stake in choosing a policy for regulating the gathering and uses of biological samples.

Given this understanding of what an interest is, a **harm** can be defined as a setback to an interest. [5] Typically, when rights-

statements are made, what those who make them are most keenly conscious of is the potential for harm if the right in question is not acknowledged and respected. Hence we will focus chiefly on the possible harms that persons can suffer if others gain information from their biological samples or use those samples in various ways. In doing so, we will bring to the fore the important moral concerns that lie behind the notions of privacy and confidentiality.

Biological sample information. Gathering information about an individual through the taking of a medical history or by interpreting the inscriptions on an electro-cardiogram may have a different significance for the individual or others than biopsying a piece of tissue or drawing blood. But from the standpoint of many of the interests at stake in the way biological samples are used, what is most import is the information the sample can yield, not the physical embodiment of the information.

As technology advances, automated analysis of samples (for genetic and other information) may reduce significantly the need to store samples. Nevertheless, as we shall see, most of the ethical issues would remain, because they have to do with the uses of the information derived from the samples, not the sample itself. For this reason, I will use the term 'biological sample information' to cover both the sample itself and the information that can be extracted from it, noting that in most cases it is the information that matters, once the sample has been taken.

II. Interests that weigh in favor of restricted access and substantial control by the source of the sample

Avoiding insurance and employment discrimination.[6] The potential harm of insurance and employment discrimination was already been mentioned above. It is worth noting that there is an unfortunate tendency in the media, and even sometimes in the bioethical literature, to suggest that it is only genetic information that carries the risk of discrimination. This is not the case. Persons known to have health problems are vulnerable to discrimination, regardless of whether they have genetic disorders or genetic susceptibilities to disease. Being listed in a tumor registry or replying truthfully to questions about one's family medical history may be just as risky as having a positive test for a genetic disorder in one's medical records.

The actual extent of insurance and employment discrimination on genetic grounds is a matter of speculation, because most of the evidence comes from surveys in which individuals say whether they believe they have suffered discrimination, with little or no independent check on the accuracy of their perceptions.[7] Moreover, the risk exists only for insurance policies whose issuance is conditional on medical underwriting, and most Americans who have private health insurance get it through large group policies in which there is no medical underwriting. Nevertheless, it is clear that insurance and employment discrimination doe occur and that

when they occur the results can be devastating for the individual.

It is also important to emphasize that the risk of discrimination is not an inevitable effect of the existence of information about illness or susceptibility: it is an artifact of a particular institution, namely, a private insurance market in which most medical insurance is employment-based and in which private insurers compete in part by attempting to insuring costly (and therefore sick) individuals. If this institution were abolished or modified in certain ways so as to reduce the risk of discrimination, then to that extent the weight of the interest in avoiding discrimination would diminish, and with it the case for restricting access to biological sample information in order to protect the interest in avoiding discrimination. (It is also important to emphasize, however, that discrimination in life insurance and disability insurance occurs in other countries who do not rely on private insurance for health care as heavily as the U.S. does).

From this it follows that the specific contours of the rights to privacy and confidentiality or of other safeguards against insurance and employment discrimination cannot be ascertained once and for all, independently of institutional context. In a society, like ours, in which there is a powerful institution that poses a significant threat of discrimination, greater restrictions on access to biological sample information will be needed, other things being equal, than in a society with different institutions

for financing health care eliminate the possibility of discrimination. If Federal and state laws prohibiting insurance and employment discrimination are passed and effectively implemented, the balance between interests that weigh in favor of more restricted access and greater source control and those they weigh in favor of freer access and more permissive uses of biological samples will shift accordingly. [8] Whatever policy is now developed must be subject to revision in the future.

Avoiding stigmatization. Even if an individual is not denied insurance or employment, she may suffer the harm of stigmatization. Although there is an unfortunate tendency to focus only on the stigmatization that results from being identified as having a genetic disorder, other types of illness can be equally or even more stigmatizing (e.g., sexually transmitted diseases, disfiguring diseases, and cancer, at least until very recently).

Stigmatization is closely related to discrimination; indeed it can be argued that it is a species of discrimination. Like stigmatization, it is a form of **exclusion** by labeling. In the case of stigmatization, however, there is usually at least an intimation of unwholesomeness, blame, or taint (as in the archetypal stigmatum, the Biblical "mark of Cain"). Some, but not all forms of discrimination include this feature.

Perhaps the most familiar type of stigmatization is that which is imposed upon an individual from without, by the judgments and

perceptions of other individuals. However, we may also speak of self-stigmatization. In part because individuals are so often deeply influenced by the attitudes of their fellows, they may internalize stigmatization.

We have already seen that the weight that should be accorded to the interest in avoiding insurance or employment discrimination varies with the magnitude of the risk, and hence with the institutional arrangements that either magnify or diminish that risk. Similarly, the weight that should be accorded to the interest in avoiding stigmatization varies with cultural attitudes toward disease. For instance, to the extent that the public becomes better educated about the nature (and universal prevalence) of genetic susceptibility to disease, the risk of stigmatization on genetic grounds may diminish. And as with insurance and employment discrimination, the actual risk of stigmatization associated with various types of information contained in tissue samples, as opposed to the mere possibility that stigmatization, is unknown.

Avoiding ascriptive (group identity-based) harms. Closely related to discrimination and stigmatization is another potential harm that individuals may suffer because of perceived links between medical information about them contained in a biological sample and what may be called their ascriptive (or group-based) identity. A concrete example will make this concept clearer.

African Americans typically suffer certain harms because they

are identified as African Amer icans: others often perceive African American individuals through t he distorted lens of negative racial stereotypes. The harm of negat ive racial stereotyping is a harm to individuals, but it befalls individuals because of their asc riptive group identity. The term 'ascriptive' here indicates that th e identity in question is assigned by others, independently of th e choice of the individual thus identified.

Individuals who are vulnerable to ascriptive-identity harm s have a special interest in avoiding situations in which info rmation obtainable from their biological samples may contribute to th e reinforcement of harmful group stereotypes, not only because they themselv es may be harmed but also because they may wish to avoi d harm to other members of their ascriptive group. For instance , genetic information gleaned from biological samples might be used in research on the role of genotype in criminal behavior or i n intelligence. In the past such research has sometimes both e mbodied and been taken to validate negative racial stereotypes.

Avoiding familial conflict. In some instances, biologica l sample information, like other medical information, may be a source of intra-familial conflict. For example, genetic analysis of a blood sample may reveal that the husband is not the father of the child. Or, in some cultures, if a family finds out that th e prospective spouse of one of t heir members has a genetic disorder, they may attempt to prevent the marriage from taking place .

Regardless of whether the beliefs on which they are based are rooted in mistaken views about genetics or indefensible assumptions about responsibility for disease, the conflicts they can generate and the resulting harms are quite real.

Avoiding uses of biological samples that the source regards as impermissible per se. So far we have concentrated on the harms that certain uses of the information extractable biological samples can produce or contribute to. Individuals can also have an interest in the uses to which the sample itself is put. For example, for religious or other reasons, some people may believe that DNA from samples should not be used for producing human beings by cloning because they believe that human cloning is wrong per se; or they may simply not want **their** DNA to be used for this purpose.

There are three factors that make it difficult to know how much weight this interest ought to be given in designing an ethically sound and feasible system for regulating practices concerning the uses of biological samples. First, no one knows at present the full range of possible uses for biological samples in the future; all we know is that the science of molecular biology and genetic technology are evolving very rapidly, and that there will be an expanding range of possibilities, including opportunities for manipulating genes. Consequently, we cannot now ascertain how likely it is that at some point in the future someone's biological sample might be used in ways that he or she

found inherently wrong. Moreover, our uncertainty here is not just a function of our ignorance of the technical possibilities; we also do not know how effectively or in what ways future cultural attitudes and regulations (e.g., concerning experiments on human subjects) will constrain possible uses of biological samples, independently of any control that might be exercised by the individual who is the source of the sample.

Second, in some cases, individuals' fears about how their tissue might be used in the future may be based on grossly mistaken assumptions. For example, at least part of the negative response to the possibilities of producing humans by cloning seems to be based on the fallacy of genetic reductionism (the false assumption that a genetic identity is personal identity). Of course, respect for autonomy may argue for giving some weight to an individual's preferences even when they are based on patently false beliefs; but nonetheless, the fact that a preference is based on patently false beliefs should surely reduce its moral weight, other things being equal. To put the same point differently: people can be mistaken about what their interests are, and the strongest ground for devising constraints on the use of stored tissue is that doing so is needed to protect important interests, not to indulge individual's clearly mistaken perceptions of what their interests are.

In some cases an individual's preference that his biological sample not be used for certain purposes may not be based on false

factual assumptions and may reflect his stable values and commitments. Here the individual does have an interest in avoiding such uses of his biological sample.

This brings us to the third obstacle to ascertaining the weight of the interest in avoiding certain uses of one's stored tissue: the fact that many of people are at present uncertain not only about what uses will become possible in the future, but also about what their own **evaluations** of those uses will turn out to be. These future evaluations cannot now be predicted with any reliability for two reasons. First, they will be "path-dependent"--shaped by our evolving reactions to a particular series of technological innovations developing over time--and we cannot predict the series of technological developments. Second, our evaluations of technological options in the future will depend in part upon the social context in which the technology would be deployed, but we cannot now know what that social context will be.

What does seem likely is that in some cases what we would now regard as wrong or at least problematic we may regard as acceptable in the future, when society has changed and we have changed with it. Thus 20 years ago many people had negative or ambivalent attitudes toward the first "test-tube baby," but now <u>in vitro</u> fertilization and a number of other subsequent reproductive technologies are regarded as ethically unproblematic by many people.

Concerns about profits, distributive justice, and "commercialization". We come now to a cluster of interests, some of which weigh in favor of restricting access to or uses of biological sample information, others of which concern the distribution of the financial gains that may be produced through the uses of samples.

Some individuals and groups have sought to share in the profits that are generated by patentable biologic inventions in whose development the use of their biological samples played a role. Perhaps the most famous case is that of Mr. John Moore, who claimed ownership of a cell-line that was developed from tissue from his spleen. [9] The California Supreme Court rejected Mr. Moore's claim of ownership, and hence any claim to a portion of the profits derived from uses of the cell-line, but it did affirm that the physicians who used his spleen tissue to the develop the cell-line had a duty to disclose to him that they were going to do so.

The two parts of the ruling mark an important distinction between two questions: (1) is the individual entitled to some or all of the profits gained from a product in whose development his biological sample played a role? (2) is the individual entitled to disclosure of the fact that his biological sample may be used to develop a profitable item and perhaps to refuse to allow such uses? These questions implicate two distinct interests: the financial interest in profiting from the use of one's sample, and the interest in determining whether one's tissue is used in a profit-

generating endeavor. Though less tangible than the financial interest, the second interest may be extremely important for some individuals, for it may be rooted in their most fundamental values about distributive justice.

Strictly on economic grounds, there is a case for not having a property rights system that gives individuals like Mr. Moore a legal right to a share of the profits of whatever products are developed from processes in which his sample played some role. For one thing, most of the products developed from tissue specimens are not uniquely dependent upon the particular sample from which they are developed. (What was needed were human spleen cells from a person with a certain type of cancer, not necessarily Mr. Moore's spleen cells). And given the well-known relationship between supply and demand, this means that no particular individual's biological material will usually be valuable enough to generate a claim to a significant share of the profits and to justify the special property laws that would be needed to secure that claim.

However, there may be some cases where something profitable can be developed only through the use of a rather rare genetic mutation. (For example, it has been reported that there is a family in Northern Italy that has a mutation that protects against atherosclerosis, an "anti-chloresterol gene". Or, if it turns out that a small minority of the population has a natural immunity to HIV infection, this characteristic might be extremely valuable for

the development of an HIV vaccine).

At this point it might be objected that it is misleading to talk only of the interest that individuals have in a share of the profits derived from uses of their biological samples: individuals have not only an interest, but a property **right**, because their tissues, blood, and DNA are their property if anything is. And indeed some moral philosophers have assumed or argued that a person's body is her property, in the sense of a moral property right.[10]

This objection is mistaken for reasons noted at the outset of this analysis: statements about what moral rights people have, including moral property rights, must be understood as conclusory. Hence the statement that an individual has a moral property right to her biological material is to be understood as shorthand for the assertion that there are morally legitimate interests that require special protections and that these protections can best be achieved by allowing the individual control over the uses to which the sample is put. But of course there are many possible modes and degrees of control. Only by weighing the legitimate interests that speak in favor of various forms of sample source control against the morally legitimate interests that speak in favor of allowing others freer access and a wider range of possible uses of the item in question, can we decide which bundle of forms of control among the indefinite range of possibilities is morally preferable. At

this stage of the analysis the most we can say that is that a person may have a legitimate property interest in the distributive effects of the uses of her biological sample.

Avoiding dignatory harms. Each person has an interest in being treated as a person--as a moral agent with her own values, preferences, commitments, and conception of the good. In Kant's terminology, each of us has an interest in not being treated as mere means, or, more positively, in being treated with the dignity and respect befitting persons. Part of the moral justification for the requirement of informed consent is to ensure that patients and research subjects are treated respectfully as agents, not as passive objects to be used for the ends of others.

First and foremost the requirement of informed consent protects individuals from nonconsensual invasions of their bodies. Because the right of informed consent, which includes the right to refuse treatment, allows the individual to decide whether the risk of these harms is worth taking, it can also protect individuals from other tangible harms that may result from the bodily invasion, if the individual refuses to give consent.

It is important to notice that these harms are not restricted to the potential but usually highly unlikely harms that might occur from techniques such as venapuncture or swabbing cells from the inside of the cheek. The point, rather is that if one allows others access to one's body for these purposes one is thereby in a

position of vulnerability to other unwanted and more dangerous intrusions. For this reason it is somewhat misleading to say that the only physical harm from which one is protected by informed consent for a simple procedure such as venapuncture is the extremely remote possibility of harm from the needle stick.

Even if informed consent was originally primarily a protection against physical harm, it has come to be used as protection against a broad range of nonphysical harms lumped under the heading "psychosocial." Thus, for example, Institutional Review Boards strive to ensure that informed consent procedures for psychological or other social science research protect individuals from being deceived and manipulated in ways that are demeaning or threatening to a person's sense of self-worth or that in some other way treat her as a mere means.

A strong case can be made that current practices concerning biological samples often fail to treat persons with due respect because they systematically mislead as to why samples are being taken and what uses they will be put to. It is true that the phlebotomist who draws the blood sample may not know that the sample will be stored indefinitely and may be used in any number of ways in the future and hence may have no intention to mislead the sample source. Nevertheless, the institutionalized practice of storing biological samples for future uses is one for which those who control the practice are responsible, and this practice, as we have seen, often keeps sample sources in the dark as to what may

happen to the sample. Given the various interests already listed above, a practice that is misleading in this way fails to show proper respect to sample sources.

The most obvious way to correct this defect is to modify the practice by informing individuals that their biological samples will or may be used for a wide range of purposes where this is not already done. Whether or not in addition to such disclosure, specific or blanket **consent** is required in order to show proper respect for sample sources is a question taken up in section **IV.** below. The chief point to be appreciated at this point, however, is that we should not simply assume that informed consent, as opposed to disclosure, is the only means for protecting individuals against the dignatory harm of being deceived or misled.

Avoiding invasions of privacy and confidentiality <u>per se</u>. Persons have an interest in not being subjected to unnecessary exposure of the body to the view of others and in not having embarrassing or intimate facts about themselves disclosed, independently of whether such exposure or disclosure threatens **other** interests they may have or produces **other** harms. For example, one has an interest in others not knowing certain intimate information about one's reproductive history and in not having one's body unnecessarily exposed to view, even if these breaches of privacy and confidentiality cause no tangible harm, for example, by making one the subject of disparaging gossip.

This interest, which might be called the interest in privacy and confidentiality **per se**, is distinguishable from the various other interests catalogued above which serve to ground a right to privacy. It is closely related to the interest in avoiding dignatory harms, since in most if not all cultures, some modes of exposing the body, in some contexts, are thought to be undignified and demeaning and some intimate information is thought to be embarrassing.

It is this interest in privacy and confidentiality per se that is invoked when a patient or subject complains that the setting in which she is examined or in which she answers questions about her personal medical history is "too public" or "lacks privacy." Unlike some of the interests already noted, the interest in privacy and confidentiality **per se,** is at stake as much in the process by which the sample is collected as in what happens to the sample after collection.

Confidentiality. For the most part, once the biological sample is removed from the body, it is the interest in confidentiality, rather than the interest in privacy, that is at issue. Etymologically the term 'confidentiality' means 'with trust'. Thus we speak of preserving the confidentiality of certain information, or of keeping confidences, of confiding in those we trust. With some risk of over-simplifying, we can think of confidentiality as a kind of second-best to privacy. In some contexts, medical and

otherwise, we must expose ourselves to the gaze of others or divulge sensitive information to them in order to gain certain benefits, and the best we can hope for is that there will be no unnecessary or otherwise inappropriate viewing or disclosure to others, and that those who gain this intimate knowledge of ourselves will not use it to our detriment.

Sources of biological samples have an interest in confidentiality--in being able to trust that access to their samples and to the information they contains will be appropriately limited. But what counts as an appropriate limitation will depend upon a complex weighing of conflicting legitimate interests. Once again, we see that beginning with slogans about the right to confidentiality does not carry us far. To say that there is such a right is simply to assert that the interest in limiting intimate exposures is a high moral priority, and as such warrants special protections; it does not tell us what the contours of the right are.

Surviving interests. Many existing biological samples were taken from individuals who are long dead, and if any sample is stored long enough it will outlast its source. It might be thought that once the source is dead, there are no interests to protect; but this is not so, for two reasons. First, the deceased source's family or other loved ones may have an interest in what is done with the sample, or members of the source's ascriptive group may

have an interest in what happens to it (if, for example, research were done on the sample that contributed to racial stereotyping).

Second, persons can have interests that survive their own deaths. For example, persons ordinarily have an interest in what happens to their children and grandchildren after they themselves die and for this reason plan for the disposition of their estates. Similarly, one can have an interest in the uses to which one's biological sample are put, whether these uses occur before or after one's death. This is especially true if certain uses would be considered impermissible <u>per se</u>, from the perspective of one's deepest, life-long religious or ethical values. From this it follows that if a policy of unrestricted access to samples of deceased persons is to be justified it cannot be justified on the grounds that no interests are at stake.

III. Interests that Weigh in Favor of Fewer Restrictions on Access and Less Sample Source Control

The societal interest in the growth of scientific knowledge. Not everyone in our society values the growth of scientific knowledge, but most do, and more important, most if not all will benefit from it in some way or other. To that extent we can speak of a societal interest in the growth of scientific knowledge.

Whether or not the advance of scientific knowledge **per se** is valuable, independently of the benefits which the application of

this knowledge brings, depends upon the resolution of deep and controversial issues in the theory of value that lie well beyond the scope of this paper. According to some views, the quest for knowledge is good in itself, and is an important ingredient in human good independently of its beneficial effects. According to other views, some individuals (especially scientists) may value scientific knowledge for its own sake, but there is no societal interest in scientific knowledge **per se**, independently of the goods is application brings.

The instrumental benefits of the growth of scientific knowledge are obvious and manifold. Before proceeding to some concrete illustrations of benefits gained from the use of stored biological samples, it may prove useful to sketch a more general characterization of the value of progress in biomedicine.

Scientific knowledge makes possible scientific health care, and scientific health care serves several basic human interests: the interest in avoiding pain and suffering, in restoring or preventing the loss of opportunities that depend upon normal functioning, in the avoidance of unwanted death, and in access to information about one's condition that can enable one to plan one's life more effectively or which may simply allay worries about one's condition. [11]

The weight that should be accorded to the societal interest in benefits of applied biomedical science will depend in part upon how

widely these benefits are distributed. If there are gross inequalities in the distribution of benefits, it is misleading to speak of the common interest in medical progress. Consequently, the case for tolerating greater risks to the interests of sample sources for the sake of the societal interest in medical progress is weakened if some people, including some who provide samples, lack access to important health care benefits because they cannot afford them. Nevertheless, if the benefits of medical progress accrue to large number of people, we may still speak of a societal interest even if not all benefit or benefit equally.

The full range of medical benefits already obtained through the use of stored biological samples is extremely impressive. Here only a few instances will be mentioned to convey their importance and diversity.[12] (1) In the late 1960s the study of samples of tissue from an unusual tumor of the vagina led to the discovery that a non-steroidal estrogen hormone diethylstilbestrol (DES), then commonly given to women during pregnancy, is carcinogenic. (2) During the same decade a series of studies on tissue samples of precancerous lesions of the uterine cervix led to the routine use of Pap smears, which have played an important role in the early diagnosis and more successful treatment of this type of cancer. (3) Analysis of tissue from autopsies of persons in certain occupations, such as chemical manufacturing and uranium mining, have established causal links between exposure to environmental substances and certain diseases, including a cancer of the liver

known as hepatic angiosarcoma and cancer of the bronchial epitheleum. (4) The analysis of autopsied lung tissue from smokers played a major role in establishing that smoking causes lung cancer, that the risk of cancer increases with the duration of exposure to the chemicals contained in cigarette smoke, and that precancerous changes in the bronchial epithelium can be reversed by cessation of smoking. (5) In 1953 autopsies of young American soldiers killed in the Korean conflict revealed that atherosclerosis begins at a much earlier age than was previously thought and that blockage of arteries can be far advanced in the absence of symptoms; this research contributed to findings concerning diet and exercise which have had a major public health impact in this country, evidenced by a significant reduction in coronary artery disease.

In many instances, access to stored biological samples collected over a long period of time has significant advantages over the exclusive use of new research protocols. Especially when the disease process under study takes place over years or even decades, studies that rely only on newly collected tissue may be very costly and produce results much less quickly than studies of stored samples.

The interest in enhancement through biotechnology. Until recently, with a few exceptions such as cosmetic surgery, health care has been concerned primarily with preventing or ameliorating

harms caused by disease and disability. In the future, however, genetic interventions as well as developments in psychopharmacology may make possible **enhancements** of normal human functioning. For example, it may eventually become possible to manipulate genetic material so as to raise the upper bound of some aspects of cognitive functioning, by enhancing memory or the speed with which information can be processed by the human brain; or augmentation of the normal human immune system may become possible. [13] Whether or to what extent we can speak of a substantial societal interest in enhancements made possible by the growth of scientific knowledge will depend not only upon whether these enhancements are really beneficial, all things considered, but also upon whether they will be widely available, or available only to the rich.

Preventing disease and disability for identifiable individuals, present and future. In addition to contributing to the prevention of harms to large numbers of people through advances in the prevention and treatment of disease and disability, free access to biological sample information can make it possible to intervene directly to prevent harm to identifiable individuals in some instances. For example, if the source of a sample can be identified, then he or she can benefit from successful treatment breakthroughs. Or, if research shows that persons with a particular genotype have a high susceptibility to some serious disease, then it may be possible to intervene earlier with better results, if

those individuals can be identified from stored samples. In some cases the individual who benefits may be the offspring of the sample source as, for example, when a genetic disorder that can be successfully treated can be predicted on the basis of information contained in the sample.

Interests in reproductive freedoms. Individuals have several important reproductive interests: in being able to have children if they wish, and in having control over when they have children and how many children they have. They also have an interest in exercising some control over the characteristics of the child they have, for the sake of the child himself or herself, but also in part because these characteristics may affect their own well-being and that of their other children.

Few would question that prospective parents have a legitimate interest in whether the child they bring into being is spared avoidable diseases or disabilities. Whether, or to what extent they also have a legitimate interest in determining other characteristics, such as height, eye-color, or cognitive abilities, is more controversial. But in general, the more that their control over the characteristics of the child can be justified by appeal to the interests of the child herself, rather than simply to the interests or preferences of the parents, the stronger the case is for protecting the parents' interest in exercising this control. [14]

In coming years, research on biological samples will most

likely increase dramatically the range of reproductive alternatives available to people, thereby furthering in significant ways their interests in various reproductive freedoms. Not all of the interests served will be "medical" interests, in the sense of interests in the prevention or cure of diseases, but in many cases they will be important interests nonetheless. To invoke a distinction noted earlier: research on biological samples not only serves peoples' welfare interests by preventing disease and disability, it may also serve their ulterior interests, so far as these include a conception of whether to have children, when to have them, how many to have, and even perhaps what sorts of characteristics their children will have.

Interests of researchers and clinicians. For many researchers and clinicians the ability to do their work effectively is of central importance to their well-being and their very identity. Practicing the most scientifically informed medicine or engaging in cutting edge research is much more for such individuals than a means of satisfying their welfare interests: it is an ulterior interest that plays a dominant role in how they live their lives. While these interests of researchers and clinicians in having access to biological samples may not be as morally weighty as the societal interests in medical progress, they are nonetheless significant. The pursuit of these interests is not only permissible (in the sense of not being wrong), but indeed laudable, especially

when compared to some goals th at our society allows individuals to freely to pursue. Consequently, any policy regarding the uses o f biolog ical samples that impedes the pursuit of the interests o f researchers and clinicians owes **them** a plausible explanation of why the restrictions it imposes are needed.

Commercial interests. It is common, and to some exten t understandable, to divorce something so lofty as the interest i n medical and scientific progress from economic interests, at least in political rhetoric concerning health policy. However, it is a fact, and an important fact about all societies in whic h biotec hnology is flourishing, that economic incentives play a n important role. Biotechnology not only produces great medica l benefits for individuals and for society as a whole; it als o creates wealth and provides pr oductive careers for many people who are not clinicians or researchers. These economic interests also must be weighed in the balance, and for the most part they w eigh in favor of less restrictive acce ss to biological sample information.

The moral obligation to preven t harm. The analysis so far has focused on interests in an eff ort to determine which interests are releva nt to the justification of moral claims concerning ho w practices regarding the collec tion, storage, and use of biological samples should be structured and regulated. The strategy has been to dig beneath familiar statements about rights and the obli gations that are their correlatives to identify the important interest s

they serve to protect. However, it is important to note that there is not only a societal **interest** in preventing harm to persons, but a **moral obligation** to prevent harm as well--and to determine the relevance of this moral obligation to the ethics of biological samples.

According to some ethical theories, the obligation to prevent harm is not as fundamental or as demanding as the obligation not to cause harm. Such theories maintain that one is not required to bear as high a cost to prevent a harm that one does not cause as to avoid causing a harm. (For example, one might be required to risk one's own life to rescue a stranger one has caused to be in peril, but not required to risk one's life to save a stranger whose imperilment one did not cause). And there are a number of intuitively plausible reasons to distinguish in this way between the obligation to prevent harm and the obligation not to cause harm.[15] Nevertheless, it would be extremely difficult to defend an ethical view that recognized a fundamental obligation not to cause harm, but failed to acknowledge even a limited obligation to prevent harm.

Moreover, many of the reasons for holding that the obligation to prevent harm is weaker than the obligation not to cause harm disappear or at least become less weighty when we move from the case of the individual to that of society. Clearly an individual cannot be required to prevent all harms to anyone who may be

harmed, if only because he lacks the resources to do so. When it comes to the design of institutional schemes, however, it is possible not only to marshall greater resources for preventing harm, but also to target which harms are most important to prevent, to provide more efficient yet still affordable harm prevention through a coordinated division of labor, and to distribute fairly the costs of preventing them. Given that this is so, whatever structures and regulations are developed for biological sample practices should take seriously the obligation to prevent harm, understood as a societal or collective obligation. [16]

Two obvious ways to honor the societal obligation to prevent harm have already been discussed: As a society we can attempt to develop protections for the various legitimate individual interests catalogued above, and we can facilitate the prevention of harm through the application of scientific knowledge in health care. The difficulty, of course, is that in some cases we can reduce the risk of harm to the individual who provides the sample only through safeguards that will impede scientific progress, and to that extent interfere with the use of scientific knowledge to prevent harms, especially those that result from disease.

However, as we have also seen, there is a third way in which how we structure and regulate biological sample practices will affect the prevention of harm: restrictions on access to stored sample information may make it impossible to prevent harm to particular identifiable individuals, including the sample source.

For example, suppose that in order to protect the sample source from possible insurance or employment discrimination we render the sample nonidentifiable. (By 'nonidentifiable' here I mean not simply that the source's name is not attached to the sample, but that it is also not possible for anyone to identify the source as an individual by any combination of other characterizations of the sample or the medical record that is linked to the sample [17]). Later it may turn out that the individual has a particular genetic mutation which makes him highly susceptible to a potentially lethal cancer, but one which can be successfully treated if detected early. If the sample source cannot be identified, then those who have access to the sample will know that there is someone whose life might be saved if he could be identified. An opportunity to prevent a very serious harm will have been lost, and perhaps lost in order to reduce what may be an already relatively low risk of insurance or employment discrimination. Furthermore, the opportunity to contact relatives of the sample source who are at risk for the same genetically-based disease will also be lost.

IV. The Limitations of Informed Consent

A common assumption among many participants in the debate about biological samples is that some version of an informed consent requirement--perhaps a very detailed and complex one--is the appropriate instrument for protecting the various interests

that could be adversely affected by the practice of collecting and storing biological samples, without excessively constraining scientific research or making it too costly to pursue.[18]

To evaluate this assumption we must clarify the resources and limitations of the idea of informed consent for balancing the conflicting interests involved. And to do this we must expand upon our earlier discussion of what informed consent is and what the main purposes of obtaining informed consent are.

Elements of informed consent. Informed consent is now generally recognized to be both a legal and moral requirement for medical interventions generally and for all experiments on human subjects that involve more than minimal risks. We saw earlier that "risks" here are taken to include not only potential physical harms from bodily invasions, but also "psycho-social harms," especially stigmatization, dignatory harms, and other assaults on the individual's sense of self-worth.

Five elements of informed consent can be distinguished: (1) disclosure (or relevant risks and benefits of the procedure), (2) competence (on the part of the patient or subject) to make a decision whether to accept the treatment or participate in the research), (3) comprehension (of the relevant risks and benefits), (4) choice (an expressed decision to accept the treatment or participate in the experimentation), and (5) voluntariness (of the choice to accept or to participate).

Clearly, informed consent will play a role in any ethically sound system for collecting and using biological samples at least to the extent that the requirement of informed consent must be met for medical treatments generally and for research (involving more than minimal risk). The question is whether an ethically sound system for collecting, storing, and using biological samples will require **additional** or **amplified** applications of the requirement of informed consent in order to reduce the risks of the various harms catalogued above in section **II**. To answer this question, we must first clarify the rationale for the informed consent requirement in its paradigm applications.

As already noted, the requirement of informed consent developed as a safeguard against very tangible harms--the sorts of physical harms that the law generally regards as batteries.[19] In other words, informed consent first and foremost protects individuals from nonconsensual invasions of their bodies. Informed consent was not originally invoked as a general protection against all the various harms that can result, whether directly or indirectly, from medical interventions or from research. Even when understood as also providing protection against "psycho-social harms," informed consent cannot reasonably be viewed as protecting the whole range of heterogeneous interests that may be affected by the uses of biological samples. Moreover, as we also saw above, even if informed consent can serve to protect the interest in

avoiding the dignatory harms of deception and manipulation, that interest might be protected instead by disclosure of the fact that the sample will be stored and later may be used for a wide range of purposes, without requiring either blanket or specific informed consent. Hence it is one thing to agree that freedom from nonconsensual bodily invasions and from "psycho-social harms" is so important that informed consent is a necessary condition for the participation of human subjects in research, quite another to say that an adequate informed consent document for biological sample practices must ensure the sample source full control over every choice that may be made in the future concerning the uses of the sample.

Two distinct but equally important points must be emphasized at this juncture. First, as just noted, the justification for informed consent focuses on some, not on all possible harms. Informed consent is primarily a protect against nonconsensual bodily invasions and against dignatory harms that can generally be ranked under the category of treating persons disrespectfully, as if they were mere means for the pursuit of others' ends. Second, these two types of harms against which informed consent is designed to protect are **certain** to occur if informed consent is not secured, because nonconsensual bodily invasions and disrespectful treatment are **themselves** harms, quite apart from any further harms that may occur. Yet most of the harms catalogued above in section **II.** are

not certain and in many cases are in fact extremely unlikely to occur. It is one thing to argue that the prevention of the certain and uncontroversially serious harms of nonconsensual bodily invasion and disrespectful treatment justifies a serious restriction on research, quite another to argue that the mere possibility of various harms, some of which are not so serious and which are very unlikely to occur, provides an equally compelling reason to restrict research.

Furthermore, it is important to emphasize that the primary harm against which the requirement of informed consent is supposed to protect is a serious one for this reason: if a person is not free from unwanted invasions of this body--if his body is treated as a mere object to be dealt with as others choose--neither his life nor his liberty are secure. As reasons for restrictions on scientific research, the need to prevent nonconsensual bodily invasions and the treatment of persons as mere means, on the one hand, and the "need" to protect against a range of possible but in some cases highly improbable harms of varying degrees of seriousness are simply not on a par. This is especially true if we are talking about possible harms that might occur **after** the sample has already been taken and hence after no risk of unwanted bodily invasion is at issue.

Once this fundamental point is appreciated, it becomes clear that there is a large gap between identifying various potential

harms that might result from a system in which sample sources lose control over what is done with their samples and making a plausible case for introducing an elaborate system designed to extend their control, whether through some system of specific consent requirements or in some other way.

Most importantly, an appropriate threshold of risk, a level of probability of harm high enough to warrant protective measures, would have to be identified and defended, and the question of whether we are likely to be able to determine reliably when that threshold has been met would have to be addressed. Yet without exception, current proposals for specific consent requirement for various uses of stored samples proceed as we know what that threshold is and that it would be exceeded without the protective measures they advocate. Or, even worse, they simply assume, quite erroneously, that the goal is to eliminate the risks entirely. Such approaches simply fail to address the problem of bridging the gap between the identification of potential harms and the conclusion that special arrangements are needed to safeguard against those harms.

Reduction of risks, not elimination of risks. It is worth dwelling for a moment on why any approach to structuring and regulating biological sample practices that assumes that the various risks identified above are to be reduced to zero is radically misguided. This assumption would only make sense if risk-

reduction measures were costless. But of course they are not ; efforts to reduce risk are costly not only in terms of th e resources needed to devise them and to apply them and monito r their application; they also are detrimental to the various interest s that are furthered by freer access to samples (listed in sectio n III. above).

Blanket consent. One measure that has been proposed to prote ct against the various risks that can arise from the uses of store d tissue information is blanket or open-ended consent, either alone or with a requirement of speci fic consent for some particular uses of the sample or for those types of research that might be r egarded as especially problematic. Thus, for example, it has been su ggested that at the time a biological sample is to be taken the potential source must be told that at th at time she may consent to or object to any future research uses that may be made of the sample, so long as the sample is rendered nonidentifiable with the source, w ith the additional requirement that specific permission is to be obtained from the source for any use of the sample in which the source' s identity could be ascertained. The chief attraction of the blanket consent component of such an a rrangement is that it requires lower administrative costs than specific consent for each future use , since one informed consent process will authorize an indefinit e number of future uses.

Howeve r, the difference between blanket consent and what i s

ordinarily understood by informed consent is so great that it is problematic even to use the same term, 'consent', to refer to both. As noted earlier, a key element of informed consent is disclosure of the relevant risks and benefits of the procedure that is to be accepted or refused. "Relevant risks" here does not mean all possible risks. In general, what counts as a relevant risk is the risk that a reasonable person would want to be apprized of, though for some types of decisions a case can be made for a more "subjective" standard, a requirement that the individual must be informed of those risks that **she** would need to know to make a reasonable decision, given **her** particular values. But regardless of whether an "objective" or a "subjective" standard of relevance is employed, the rationale for informed consent presupposes the ability to identify a much more determinate and limited set of relevant risks than is generally available in the stored biological sample setting, if we include all of the various possible and often highly improbably risks listed in section **II.** as reasons for restrictions on uses of stored samples.

Just as significant, the less determinate the set of potential harms is and the more uncertain their probabilities, the less likely it is that a second essential element of informed consent will be present, namely, comprehension. Moreover, as we also saw earlier, once the sample has already been taken, the primary harm against which informed consent provides protection, namely,

nonconsensual bodily invasion, is no longer at issue.

For these reasons, it must acknowledged that blanket consent requirements are only distantly related to informed consent and do not perform the functions of informed consent. The question, then, is whether, despite this difference, blanket consent requirements serve any useful purpose effectively enough to warrant changing current practices to incorporate them.

It seems clear that blanket consent requirements will not provide protection against most of the more tangible and serious harms that might occur from the uses of stored biological samples--unless it should turn out that most potential sources refuse to give blanket consent. In that case, the blanket consent requirement would serve a protective function, but only at the cost of thwarting the various important interests that are served by scientific research which we listed in section **III**.

Recall that when a person gives ordinary informed consent she **thereby** avoids a definite harm--the harm of nonconsensual bodily invasion--and in addition, because the relevant risks and benefits of treatment or participation have been disclosed for her consideration, she is in a better position to avoid a choice that is likely to produce other harms to her on balance. But when an individual gives a blanket consent to future uses of her tissue, she does **not thereby** avoid a harm and her choice is not likely to reflect a reasonable estimate of what is good for her on balance,

simply because the information she has about possible future risks is too indeterminate. Furthermore, as we saw in section **II.**, there is another source of indeterminacy that can undermine the requirement of comprehension: the individual may be uncertain about his own evaluation of the events that might occur in the future.

Now it may be true that a system that includes a requirement of blanket consent for future uses of nonidentifiable biological samples in some sense shows more respect for individuals than one that merely requires disclosure of the fact that the sample may be used for various purposes in the future. But it would be hyperbole to say that a system that does not include the requirement of blanket consent violates anyone's "right to autonomy". For one thing, not all choices warrant the stringent protections that talk about a right to autonomy implies; some choices are relatively insignificant because they are largely irrelevant to a person's well-being and values. Furthermore, as we have already seen, blanket consent may not be the only way to protect the interest in not being treated disrespectfully: simply disclosing that the sample will be stored and may be used for an indefinite number of uses in the future would go a great distance toward protecting this interest.

Finally, given the fact that blanket consent is only a pale shadow of informed consent and given that it does not provide significant protections from the various harms it is supposed to

avert, it is far from clear that the deference to individual choice it expresses is worth the costs. Among those costs is the risk that the genuine informed consent will be devalued through confusing it with blanket consent.

None of this is to say that it would be impermissible to institute a requirement of blanket consent for future uses of samples. Rather, the point is that if such a requirement is instituted we should recognize it for what it is: a largely symbolic expression of respect for individual choice and one way of protecting against the disrespect that would be shown by a practice that keeps sources in the dark, not a case of genuine informed consent, not a vindication of the right to individual autonomy, and almost certainly not an effective protection against the various other possible harms that might result from uses of biological samples.

V. Policy Implications

The use of existing, nonidentifiable samples. Most current proposals for biological sample policy draw a fundamental distinction between what should be done regarding informed consent and other protections **from now on**, that is, with future cases of the collection, storage, and uses of biological samples, and what should be done regarding existing stored samples. More specifically, it has been proposed that for existing samples for

which no identification of the source is possible, no special conditions or restrictions should apply, beyond those already involved in requirements for review of research involving human subjects. The intuitive idea is that since it is not possible to contact the sources to ask their permission for any specific uses or to gain blanket consent, no special restrictions should apply.

This proposal seems quite reasonable at first blush, but it is not as uncontroversial as it might at first appear. It will not do to say that no special restrictions are required simply because "ought" implies "can"--that is, to cite the fact that it is impossible to contact the sources because they cannot be identified. For there are, after all, two feasible alternatives: proceed with whatever uses of the samples are otherwise allowed under existing regulations for the protection of human subjects, **or do not use these samples at all**. What is needed is a reason for choosing the former alternative.

Nor is it correct to assume that because the sources cannot be identified they cannot be harmed. For as we shall see shortly, there are some interests of the sample sources that may be harmed even if the sources are not identifiable, and there may be some interests of others at risk as well.

The best case that can be made for allowing use of existing, nonidentifiable samples is that the balance of interests weighs in favor of this policy. We have already seen what these conflicting

interests are, but it will be useful to emphasize those that are especially significant in this context.

Because we are assuming that the samples are not linkable to individuals, some of the most important interests that speak in favor of restricted access do not apply: if the individual cannot be identified, then there is no risk of insurance or employment discrimination, nor of stigma, nor of adverse psychological reactions or familial conflict. So to that extent, the case for not allowing use of nonidentifiable stored samples is significantly weakened.

There are at least three interests, however, that are relevant, and each adds some weight to opting for the alternative of not allowing use of nonidentifiable samples. The first is the interest that some individuals may have in avoiding uses of their tissue that they regard as impermissible **per se** (recall the example cited earlier: the use of cells for producing a human being through cloning). Simply not allowing any uses for existing nonidentifiable tissue would protect this interest. However, given the factors cited earlier (in section **II.**) that reduce the weight of this interest, and given the importance of the conflicting interest in medical progress and other legitimate interests, it is doubtful that anything so drastic as a prohibition on all uses is required. This conclusion will be strengthened in proportion to how well existing regulations for the protection of human research subjects,

combined with the force of public opinion and scientific professional ethics, rule out at least some of the uses which individuals might find most objectionable **per se**.

Here we come to a clear illustration of a point made at the outset of this investigation: it is a mistake to assume that protection for the sample source's interests must be achieved exclusively through protections tied specifically to the practice of collecting samples, as if there were no other factors that serve to protect these interests (such as regulations for the protection of human subjects, the force of public opinion, and the constraints of professional ethics). Approaches to policy that envision elaborate and costly consent requirements at the point of sample collection look much less plausible once this point is appreciated.

The second interest whose weight is not diminished by the fact that the samples are not identifiable is the interest in either benefiting from the profits generated from the sample or in expressing a preference about who if anyone ought to profit--what was referred to above as the interest in distributive justice and in commercialization issues. There are two reasons for concluding that this interest does not weigh significantly in favor of prohibiting the use of existing nonidentifiable stored samples. First, it is far from clear how many people actually have a preference, much less a strong preference, about the distribution of profits from products involving the use of biological samples;

and given that the samples are not identifiable we cannot ask the sample sources what their preferences are. But second, and more important, if all that exists in this regard is a preference and not a property right or legitimate expectation that the source will share in the profits, then the interest in determining how profits are distributed should be given very little weight.

An analogous case will make this point clearer. I may prefer that the next winner of the New York State lottery divide the money equally with me, and I may be said to have an interest in her doing so to the extent that her doing so enhance my well-being, but unless I have a property right in a share (as I might if we had split the cost of the ticket) or have on some other grounds a legitimate expectation that she will share it (for example, if she promised to do so), my interest does not count for much in the moral scheme of things.

Similarly, it would not be plausible to maintain that individuals presently have a **legal** property right in their stored biological samples and to argue from this right to the conclusion that they have a right to profits generated by the use of their samples. Nor is it plausible to say that they have a **moral** property right that **ought** to be recognized by the law. It is true that individuals have a moral right to control over their bodies (whether it is misleading to call this a property right or not is a matter of dispute). However, in the present context that the

proper acknowledgement of that moral right was either adequately acknowledged or not, depending upon whether the ordinary requirement of informed consent was observed for whatever procedure was used to collect the tissue in the first place. (Below I consider two quite different types of circumstances in which their was a failure of informed consent, and distinguish their moral implications).

There is a third interest that is **not** rendered irrelevant by nonidentifiability and which raises a troubling question for what should be done with existing nonidentifiable samples, however. This is the interest in avoiding group-based or ascriptive-identity-based harms. The problem arises because the ascriptive identity of a sample may be ascertainable even if the identify of the individual is not.

For example, biopsied tissue might be identified as having come from a member of the Ashkenazi Jewish group or from a person of African descent. Some existing members of the group may be concerned that certain uses of such tissue may contribute, if only indirectly, to the reinforcement of negative stereotypes concerning their group. (To reiterate one of the examples noted earlier, some African Americans are understandably concerned about the misuses of data concerning members of their group by racist researchers or the misinterpretation of scientific studies based on such data to bolster racist views).

Although such concerns are legitimate, it is important to remember that there are other ways of addressing them than by prohibiting the use of existing samples that can be identified according to ascriptive groups (or ascriptive groups that historically have been special targets of discrimination and negative perceptions). Informed public opinion, the professional ethics of researchers, and criteria for sound scientific research applied by institutional review boards, can all play a significant role in reducing the risk that uses of biological samples that will contribute to racist or ethnic stereotypes. The stronger these other safeguards are in a particular society, the less compelling is the case for avoiding the risk of group-based harms by the drastic step of prohibiting research on existing samples that can be identified by ascriptive group.

Samples tainted by violations of human rights. It was noted earlier that the chief harms that informed consent serves to prevent--unwanted bodily invasions and disrespectful treatment--will already have either been averted or not, depending upon whether informed consent was obtained for the collection of the sample. If there is no reason to believe that the requirement of informed consent was **not** met for the procedure by which the existing nonidentifiable sample was collected, the best course of action on balance is to allow access to the sample. If there is reason to believe that informed consent was lacking, the matter is

less clear. For in such a case one might argue that it would be wrong to use a sample that was improperly obtained. And there can be little doubt that at least some of the older stored samples in various tissue archives meet this description.

Here it is important to distinguish between two different types of cases in which the informed consent requirement was not met for the procedure that produced the sample. In the first, there was no informed consent, but there was no further wrong to the source. In the second, not only was informed consent lacking, but also the individual was seriously wronged in some other way. (To take an extreme example for purposes of clarity, suppose the source was an unwilling human subject in cruel experiments conducted by Japanese or German doctors during World War II). The argument for not using the sample is much stronger in the latter case than in the former.

Fortunately, most of the stored samples that currently exist in this country do not fall into the second category. However, if there is reason to believe that some particular stored samples were collected as a result of serious violations of persons' rights beyond the possible absence of informed consent, a case might be made for not allowing access to these for any purpose. (One might argue, for example, that tissue from the victims of the Tuskeegee Syphilis Experiment ought not be used, even for the most benign purposes). Apart from such special cases, however, we may conclude that respect for the individual's right to control over his body

does not require a prohibition on the use of nonidentifiable existing tissue samples, even though many of those uses could not have been anticipated at the time of collection.

To summarize: a strong case can be made for the proposal that in general existing samples that are not linkable to individual sources may be used for various research purposes, subject to the usual restrictions on research with human subjects. None of the interests that might be adversely affected by such uses, either individually or cumulatively, seems to weigh heavily enough to warrant the loss of so much potentially valuable information, except, perhaps, when the circumstances in which the samples were taken involved violations of basic human rights other than the right to informed consent. There are only two exceptions to this generalization: the first is where ascriptive-group harms are a serious possibility because the source's ethnic or racial identity can be determined despite individual nonidentifiability; the second is where the process that generated the sample involved a clear violation of basic human rights. Changes in existing regulations governing institutional review board scrutiny of protocols to require special scrutiny for these types of cases may be called for.

Future samples. Current opinion is divided concerning safeguards and restrictions that ought to be instituted concerning biological samples gathered in the future. Our analysis has already

cast some doubt on efficacy of the proposal for blanket consent for future uses. For as we saw, blanket consent, like disclosure, may protect against the dignatory harm of being treated in a deceptive manner or otherwise treated disrespectfully, but it is not clear that it provides significant protection against many of the various other harms that might result from future uses.

The question remains, however, as to whether, instead of blanket consent, quite specific consent for each use or type of use of the sample should be required, at least for samples that are linkable to the individual source.

I have already argued that it is simplistic and misleading to assume that the justification for informed consent for the procedures by which samples are taken from persons' bodies applies with anything like equal force to a requirement of informed consent for the various uses to which the sample can be put. The requirement of informed consent for medical treatment or research protects a person against two types of certain and significant harms, the harm of bodily invasion and the dignatory harm of being treated as a mere means. The need to avoid these harms and the certainty that they can be prevented if the informed consent requirement is met justify the quite considerable constraint on treatment and research which the informed consent requirement poses. But it does not follow that informed consent is needed for every use of a person's stored biological sample in the future. Such an "informed consent" requirement, if one can call it that

without being seriously misleading, is much more problematic than the term suggests, given the costs that implementing it would inflict on the pursuit of scientific progress and other legitimate interests.

There is a policy alternative that steers a middle course between requiring consent for each research use of stored sample indefinitely into the future, on the one hand, and a system which gives the source no control whatsoever over future uses of her sample, on the other. Institutional review boards could be required by new Federal regulations to develop screening criteria, based on a consideration of the taxonomy of interests developed above, to identify research protocols that bear significantly on important interests that sources may have beyond the interests in avoiding nonconsensual bodily invasions and in not being treated as a means that the informed consent requirement is designed to protect. This approach would allow for **selective "reconsenting"** by sources, assuming that it could be combined with a secure system which allowed for authorized, confidential de-coding of encryptions designed to remove individual identity.

For example, given the history of racism in this country and the special vulnerability of African Americans as revealed by the Tuskegee Syphilis Experiment and other instances of unethical behavior by researchers and doctors toward this group, there is a special concern about group-based harms. Consequently, the

selective reconsenting guidelines for institutional review boards might well require special arrangements for research protocols that raise questions about negative stereotyping, such as studies that test hypotheses about links between genotype and intelligence or genotype and criminal behavior. The attraction of the selective reconsenting approach is not simply that it is less costly and cumbersome, and thereby better serves the interest in scientific progress, but that it does so in a principled way, by rejecting the assumption that every interest that might be adversely affected by a particular use of the sample is as weighty as the interest in preventing nonconsensual bodily invasion and in not being treated as a mere means that the requirement of informed consent was designed to protect.

Such a selective reconsent requirement might be combined with a blanket consent requirement. A person would first be offered the option of consenting to all future possible uses of the sample, but then the institutional review board would scrutinize each future use to see whether it fell into the "special sensitivity" category. If it did, then specific consent would be required at that point.

Given the remote resemblance that blanket consent bears to informed consent and given that disclosure that the sample may be used for a variety of purposes in the future provides protection against the dignatory harms of deception and manipulation, it is not obvious that the selective reconsenting approach would need to be supplemented with a blanket consent requirement or whether

adding a disclosure requirement to it would suffice.

Proposals for "community consent" or "community consultation." By a community here is meant roughly a group that is more than a "mere association"--one which figures in an individual's conception of who she is, what she values, and what is valuable about her. Thus an individual may at the same time belong to a religious community, an ethnic community, a national community, and a community based on the type of career she pursues, etc.).[20]

Some parties to the debate over the uses of biological samples have suggested that in some cases community consent or at least community consultation, in addition to or instead of individual consent, may be appropriate for some or all research uses of biological samples. Three quite different rationales for this proposal must be distinguished.

The first, and more radical of the three is that at least for certain types of communities, the assumption of individual agency upon which the doctrine of informed consent is erected is inapplicable or profoundly misleading. According to this view, in some communities (in particular some indigenous peoples) individuals are so deeply embedded in the collective that to rely exclusively on individual informed consent or perhaps to require it at all is to impose an alien value scheme that assaults the very identity of the group. In its most extreme form, this first rationale amounts to the claim that the group has a right to

control what happens to the bodies of its members and that individual members are not competent to decide for themselves whether to allow the collection of biological samples from their own persons.

The second, less radical rationale is that some individuals, especially those in "traditional" societies, customarily rely upon collective decisionmaking practices or at least upon consultation with those who occupy certain important roles in the community or who are recognized representatives of the community's values. According to the second rationale, the group does not have a right to control what is done to the individual's body, but it may be important nonetheless to enable the individual to rely upon the community, or certain representatives of the community, in making his or her decision. [21]

A third rationale for community consultation is based on the interest in avoiding group-based harms. Like the second rationale, and unlike the extreme version of the first, the third rationale does not assert that the group has a right to control the individual member's body. Instead, the idea is that where there is a significant risk of group-based harms, the other members of the group have a legitimate interest in avoiding such harms since they will suffer them.

The first rationale ought to be rejected. Showing proper respect for the value that community plays in the lives of many people, indigenous and otherwise, does not require denying that

individuals are moral agents or that they have the right to control what is done to their bodies. If individuals of certain groups wish to allow others to decide for them, they can do so within the framework of law and ethics that the ordinary model of informed consent provides: they can simply follow the guidance of the elders or the council, etc., or they can even in some circumstances formally delegate decision making authority to them. [22]

The second rationale can provide a plausible justification for facilitating the individual's consultation with the group (or certain members of it). And this may require modifying the customary ways in which researchers enlist subjects and secure informed consent. However, the second rationale does not provide a justification for requiring consent by the community or its putative representatives.

Where the risk of group-based harm is substantial, the third rationale can justify community consultation and perhaps community participation in the design and implementation of a research protocol. Like the second rationale, it does not justify a community veto on individual participation.

Although the second and third rationale have their attractions, it is important to note that the idea of community consultation has several inherent drawbacks. First of all, there is the problem of determining what the relevant "community" is. In the modern world, most individuals are members of a number of different, sometimes overlapping communities. Even if consulting

with all the communities which contribute to the individual's identity were feasible, it cannot be assumed that the distinctive values of the various communities to which the same individual belongs would yield the same conclusion when applied to the question of whether a sample may be taken, how it may be used, or who should decide about whether or how it is to be used. Persons' various communitarian identities are not always harmonious.

Second, there is the problem that consultation may become coercion--that once a community (or the self-styled leader of the community) is mobilized it may exert undue pressure on the individual to conform. Given that individuals in almost all cases belong to more than one community, there seems to be only one morally defensible way of determining which community, if any, ought to be consulted: by letting the individual herself decide. No other approach is compatible with respect for the basic rights to freedom of association and religion that are essential to a liberal democratic political order. But if this is the case, then a proper consideration for "community consultation" ought to be regarded as one possible form the process of individual informed consent may take, not as an alternative to it.

Third, it is a profound mistake to think that either a community's values or who speaks for those values can be readily and uncontroversially identified. Especially in our multicultural world where virtually no community is impervious to a multitude of influences from without, there is no such thing as unanimity of

values within a community.

Furthermore, there are ongoing and sometimes quite subtle contests among members of the community to determine what the communities "authentic" values are and who is to be regarded as voicing them. Because until recently outsiders have wrongly assumed that "primitive" or indigenous societies are not only homogeneous in values but **unchanging,** contests over what the group's values are have gone largely unnoticed.

Just as important, it is almost never the case that what are blithely called community decisions are in fact collective decisions of all members. Instead, they are the decisions of political elites whose interests may diverge significantly from those whom they claim to represent. To put the point most bluntly: indigenous or "non-Western" societies are frequently not only much less homogeneous but also much-less egalitarian in their decision-making than what has been called "the myth of primitive harmony" suggests.[23]

Once these facts are appreciated, it becomes clear that the enterprise of "community consultation" is a very complicated matter, and not without risks. Whether these risks are worth taking will depend largely on three factors: (1) whether there is a significant risk of group-based harms (rather than a mere possibility of them); (2) whether other protections against the group-based harms in question are likely to be adequate, and (3)

whether a process of consultation can be devised that is not likely to reinforce oppressive inequa lities within the group or to become an arena for political entrepr eneurship by would-be leaders of the group.[24]

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1. (data)

2. data

3. Joel Feinberg, Harm to Others

4. Feinberg, Ibid., p.

5. Ibid., p.

6. note prejudicial character of term 'discrimination' in thi s context...

7. See, for example, Paul R. Billings **et al**, "Discrimination as a Consequence of Genetic Testing," Am. J. Hum. Gen , 50: 476-482 ,

1992.

8. cite literature on state and federal (Kennedy-Kassebaum a nd ADA) legislation on discrimination.

9. Moore vs. The Regents of the University of California et al, 793 P.2d 479 (Cal. 1990).

10. cites on the body as property

11. cite President's Commission Report, Securing Access to Health Care, Volume One

12. For an excellent survey of such benefits, see David Korn , "Contr ibution of the Human Tissue Archive to the Advancement o f Medical Knowledge and the Publ ic Health" (A report to the National Bioethics Advisory Commission), January 1, 1998.

13. For an in-depth examination of the ethical issues concernin g genetic enhancement, see Allen Buchanan, Dan W. Brock, Norma n Daniels, and Daniel I. Wikler, Genes and the Just Society: Genetic Intervention in the Shadow of Eugenics , especially Chapter Four.

14. See Genes and the Just Society , especially Chapter Five.

15. Perhaps most importantly, a robust obligation to prevent harm, unlike a robust obligation not to cause harm, would be excessively dema nding--a conscientious effort to fulfill it would in effec t make one a slave to the well-being of others, including thos e others who irresponsibly and repeatedly endanger themselves b y their imprudent or self-destructive behavior.

16. Allen Buchanan, "Justice and Charity," Ethics, vol. , no. , 1987, pp.

17. It is important to note th at the lack of a name on a sample or on the record noting the existence of the sample does not gu arantee nonide ntifiability of the source. A combination of demographi c char acteristics, plus seemingly trivial information such as th e date and time at which the sample was collected may make i t possible to identify the individual.

18. See, for example, Ellen Wright Clayton et al, "Consensu s Statement: Informed Consent for Genetic Research on Stored Tissue Samples," JAMA, Vol. 274, No. 22, pp. 1786-92.

19. Ruth Faden and Tom L. Beauchamp, A History and Theory o f Informed Consent . Oxford: Oxford University Press, 19__, pp. _____.

20. For an analysis of the notion of community, see Allen Buchanan, "Assessing the Communitarian Critique of Liberalism," Ethics, 1989...

21. Although there is some ambiguity in the article on this point, this seems to be the position of Morris W. Foster, Ann J. Eisenbraun, and Thomas H. Carter, in "Communal Discourse as a Supplement for Informed Consent for Genetic Research." While these authors do not explicitly attribute a group right to control individual members' tissues, they do talk in very misleading ways that suggest unwarranted assumptions about the cohesion or indeed the unanimity of group members as to values. Consider, for example, the following passage. "Two native American Communities we studied treated individual health care decisions a occasions for consultation within extended families. Both asserted that individual illnesses (and actions taken to care for them) can have consequences for other members of the family and community." Notice that the phrase "Both [communities] asserted" is a reifying description that conveys the almost certainly false impression that there is unanimity and complete homogeneity of values within the group. In the past decade anthropologists have given up the myth that "primitive" communities are lacking in dissent and disagreement and that the values of such groups are fixed and not contested. Foster, Eisenbraun, and Carter show no awareness of this important insight.

22. For a critical evaluation of various conceptions of group rights, see Allen Buchanan, "Liberalism and Group Rights," in In Harm's Way, Jules L. Coleman and Allen Buchanan, eds. Cambridge: Cambridge University Press, 1993.

23. See, for example, Robert G. Edgerton, Sick Societies: Challenging the Myth of Primitive Harmony. Toronto: The Free Press, 1992. See also Stephanie Lawson, "The Tyranny of Tradition: Critical Reflections on Nationalist Narratives in the South Pacific," in Narrating the Nation in the Pacific, Nicholas Thomas and Ton Otto, eds., _____

24. I am deeply indebted to Norman Fost, Adele Franks, Eric Meslin, and Thomas Murray for their comments on an earlier draft of this paper.