# Consent to Biobank Research: One Size Fits All?

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**Abstract** Express informed consent has become a standard requirement in research related to human beings, so also in biobank research. However, it has been argued extensively that this approach is inappropriate for biobank research and that it seriously hampers beneficial research. This chapter analyses biobank research to see whether it has particular features that require exceptional regulation. The conclusion drawn is that biobank exceptionalism is not defensible. Nevertheless, it is acknowledged that certain types of biobank research challenge so many of the traditional approaches in research ethics that alternative approaches need to be pursued. Four alternatives to informed consent are explored: broad consent, the confidentiality/privacy approach, submission to the researcher, and conditioned authorization. Pros and cons related to all of them indicate that a contextual approach has to be taken; one size does not fit all. The question in biobank research is not "to consent or not to consent", but how to protect and promote the interests of individuals contributing to research at the same time as benefiting society and future patients.

## Informed Consent, the Ideal Solution to Biobank Research?

Express informed consent has become the standard procedure for including subjects in health-care research. The reasons for this are manifold: to protect research persons[1] from abuse (curb on research risk), to assure that the person is in control

[1] In this chapter we use the term "research person" instead of "research participant" or "research subject" because, in our opinion, it is more neutral. It has no connotations of active participation or passive submission.

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of issues concerning his or her health (autonomy), because making one's own decisions promotes one's well-being (beneficence), to promote rational decisions, and to maintain the public's trust in research.[2]

Consent to research on biological material appears to have a long tradition (Rosoff 1981: 254). Although the laws vary considerably from country to country, informed consent is used extensively in biobank research (Maschke 2005). One of the reasons for this is that many of the obstacles to informed consent in clinical research do not present themselves in biobank research. In clinical medicine, it can be argued, patients are suffering, are in pain and despair, and thus are not able to make autonomous decisions (Friedson 1970). In biobank research such impediments to informed consent are absent, and research persons are better able to understand the scope and consequences of participating, and they normally are free from undue influence from family members in shock or grief. In other words, informed consent appears to be particularly, not to say exemplarily, suitable in biobank research.

On the other hand, because the ordinary research person in biobank research is a healthy person in command of herself/himself, he or she is less vulnerable and needs less protection. Express informed consent would thus appear unnecessary (Helgeson et al. 2007). Moreover, empirical studies show that research persons do often not need or want to make decisions themselves (Schneider 1998; Ring and Kettis-Lindblad 2003: 204; Kettis-Lindblad et al., 2006, 2007). Hence, biobank research seems not to need informed consent, at least not in the same degree or manner as is the case with clinical research.

This leads to a paradox: in biobank research the preconditions for the protective and affirmative function of informed consent are fully met, but they are less in demand than in clinical research, where these functions are required because of the research person's vulnerability, but where the preconditions are not met. Thus, the key question becomes whether informed consent is as relevant for biobank research as it seems, or if other measures should be applied in order to fulfill the aims of science and as well as obtain appropriate moral and legal regulation. To address this question, we will investigate whether it is so that one size fits all, or whether the nature of the subject matter makes a different approach necessary.

## *Special Research: Special Requirements*

It has been argued that biobank research raises special issues which informed consent is not equipped to deal with (Chadwick and Berg 2001: 318). For example, the risk for the research person is so low and that the potential of a valuable outcome (to others than the research persons) is so high that it is legitimate to lower

[2] In the same way as the imperative "administer no poison" in the Hippocratic Oath was not only a matter of ethical concern, but even more so a matter of gaining reputation and trust (Faden and Beauchamp 1986: 62), the institution of informed consent can alleviate social mistrust and instill confidence and trust in researchers and research organizations. In a clinical setting, where consent was first an issue, the consent had another important function, that was, to protect against malpractice lawsuits (Faden and Beauchamp 1986: 81–2).

the requirements for participation in research (Hansson et al. 2006; Helgesson et al. 2007). A routine, nonsensitive use of (excised) biological material should not require a separate consent or renewed consent. The character of this research legitimates looser regulations, e.g., in terms of waivers, broad consent, or blanket consent.

Accordingly, it has been argued that informed consent implies overprotection of human subjects, hampers research, and jeopardizes the quality of research (Wilcox et al. 1999; Greely 1999), and thus the ultimate public benefit of this endeavor (Wadman 2000).[3] Is biobank research so special that it requires special moral and legal standards? If so, what are the special characteristics of biobank research that render alternative moral and legal approaches justifiable?

## *Moot Material*

Biobanks have an unsettled institutional status which raises ontological, moral, and legal challenges. There appears to be many reasons for this. First, the ontological, moral, and legal status of biological material remain unsettled (Rothstein 2005). Correspondingly, there are disagreements about what counts as biological material: sputum, urine, hair, skin cells, and dandruff. Although debates on the scope of research and its limits take place in many kinds of medical research, this sort of profound disputes on the very status of the subject matter of research is not very common.

Second, biological material can enter a biobank from many sources where it has different moral and legal status, such as from diagnostic biobanks, from biopsies, autopsies and from collections of historical material (skeletons, archeological material etc) (Blatt 2000). This process of transposition and conversion of the subject matter in question appears to be peculiar to biobank research.

Third, the status of the *results* of research on biological material is not clear. For example it is not clear what is the status of the information retrieved from analysis of biological material, whether it should be conceived of as a part of the biological material (as is the case in the Norwegian Biobank act) or what its relation to the biological material is when it is separate from the biological material as such. Correspondingly, the status of products or refinement of biological material remains unsettled as well (Rynning 2003).

## *Exceptional Information*

Additionally, it has been argued that genetic information is quite distinct from other kinds of health information, in terms of predictable and discriminative power,

[3] It has been argued that biobank research is of a so special character that asking for renewed consent would be intrusive and an invasion on privacy (Eriksson 2003: 183). Correspondingly, it has been argued that specific consent restricts a person's autonomy, while broad (or even blanket consent) enhances autonomy (Hansson et al. 2006).

as well as in scope: the information gained from analysis of biological material is relevant for family members or population groups as much as for individuals (Mitchell and Happe 2001; Greely 2001; Clayton 2005)

Furthermore, it may be argued that relevant information in biobank research is so uncommon to most people, that to inform them properly will scare them off. For example, research on genes that entail high risk for rare diseases will distract participants from important information and unnecessarily discourage participation, although the chance of them having the gene is extremely low (Ring and Kettis-Lindblad 2003: 197–8).

Hence, biobank research may have unknown consequences, both in terms of risk for the research person involved and with respect to its epistemic outcome. Another feature of biobank research is the coupling between information from analysis of biobank material and other kinds of information, such as health information and genealogical information. This is necessary in order to gain clinically applicable knowledge (Lindberg 2003). This coupling of knowledge may also lead to challenges with regard to confidentiality and privacy. First there are practical challenges: how to handle the information so that a research person is not compromised. Second, there are procedural challenges: the combination of biological material (and some clinical information) makes it possible to trace the research person, even though the sample has been anonymized (Rynning 2003; McGuire and Gibbs 2006).

## *Special Risk*

Contrary to clinical research, the risk for the research person in biobank research is considered to be low (Hansson and Levin 2003: 17) The reason is that the acquisition of the biological material does not in itself involve substantial risk; nor does it result in substantial additional risk with regard to procedures performed anyway. Furthermore, it has been argued that the only risk in biobank research is violating personal integrity and privacy, and this can happen only if the research also entails processing of personal data (Essen 2003: 143, 146). On the other hand, taking into account the health information that can be gained from analysis of the biological material combined with other health information, biobank research is normally considered to represent a non-negligible risk to the research person (Roche and Annas 2001). More specifically it has been argued that there is a risk of informational harm (Reilly 1998; Fuller 1999).

## *Special Outcome*

It has also been argued that the outcome or benefit from biobank research is unknown. Furthermore, this research is nontherapeutic in the sense that its primary objective is increased knowledge. And only through further research can this

knowledge be turned into therapeutic means. Hence the results are most likely beneficial to others than the research persons themselves. Consequently, it can also be argued that the benefits for the individual research persons are low (Faden and Beauchamp 1986: 12), even though the combined, overall research outcome may be considerable.

## *Practical Considerations: Kind of Research*

It has been argued vigorously that biobank research is conceptually different from other kinds of research involving research persons, and that different principles apply in its research ethics (Eriksson 2003: 183). Epidemiological and register research are distinct from clinical research with experimental subjects, in that the interest is not the individual person, but the population as such. Hence, the individual person does not need the kind of control and protection provided for by informed consent. Epidemiological and register research have a collective goal, and should be regulated by collective means for common ends.

Moreover, different research groups may have access to the biological material in the future. Research is ever more an international affair, where collaboration, exchange of tests and test results, as well as exchange of biological material is an important premise. This extensive (internationally) collaborative aspect of biobank research makes it difficult to withdraw from research. Because material, analyzed data, and information may be stored in many different places, the deletion and/or destruction of it becomes practically challenging.

To sum up so far: biobank research is characterized by the following features:

- Unsettled definitions and status of biological material and its research products (information and products)
- Unsettled relationship to other sources of information
- Unknown consequences with respect to risks and benefits entailed, including the fact that the biological material is a source of unforeseen information about the research person

One could argue, therefore, that biobank research is so special, that it needs to be governed accordingly. Consequently, some sort of "biobank exceptionalism" seems to be warranted. It is important to notice, however, that the exceptionalist argument in principle works bidirectionally: one can argue that biobank research is so special that either exceptionally strict or especially lenient measures have to be applied in order to regulate it. Within genetic exceptionalim it is mainly argued that genetic information is so special that special measures must be taken in order to protect individuals. However, within biobank exceptionalism the major argument is that the risk in biobank research is so exceptionally low that the strict measures entailed in the informed consent doctrine cannot be justified.

## New Names: Same Problems

Nevertheless, one could argue that the issues discussed above are not special to biobank research, or that they are not relevant with respect to bypassing requirements of informed consent. This urges us to investigate (a) how special these characteristics actually are for biobank research, (b) whether they reduce the relevance of informed consent, and (c) what kind of consent that is appropriate in biobank research (if at all).

### *Biological Material*

Moral challenges due to the unknown or unsettled moral status of biological material have been extensively discussed in the literature in relation to one particular category of such material, i.e. fertilized eggs, embryonic stem cells, and fetuses on demand for abortion. With respect to abortion (on demand), informed consent is at the core of the action: the abortion is legitimized by the woman being informed and declaring that she understands the consequences of the act, that she is capable of weighing them against other concerns, that she is free from undue influence or coercion, and that she has given her consent.

The same applies to donors of fertilized eggs and embryos for stem cell research. In jurisdictions where embryonic stem cell research is allowed, informed consent is the moral precondition for allowing the egg/embryo transfer. The unknown or unsettled moral status of the subject matter in question is not necessarily a hindrance for applying the principle of informed consent to morally justify the act. So it can be argued that if informed consent can be applied in the case of abortion and embryo donation, then it is also suitable for regulating the donation, manipulation and eventual destruction of other kinds of biological material in the same way. In both cases the consent is given by the person in question (woman or donor), and the status of the biological material is unknown, that is, we know neither what an embryo is nor what a sample of cells is in terms of ownership, etc. Furthermore, issues of personal identity are at stake in both cases. In the first case the personal identity of the embryo is at stake and in the latter information about a person's ancestry and prospective life can be drawn from the sample. However, this also points to important differences in the two cases. In the case of abortion and embryo donation the moral issue is whether the biological material itself is a (potential future) person with certain rights to life and protection, whereas the moral issue in the case of biobank material is the moral (and legal) rights we have over the biological material. Hence, in the first case the moral challenges are related to issues of personhood and moral agency, whereas they are related to ontological and social issues in the latter. This could be taken to support the quest for different regulations. The moral issues related to biobank material are less challenging, and hence require less strict regulation.

Like a double-edged sword, the argument could also be used for defending having the same regulation for both fields. If informed consent can be accepted in the

case of abortion and embryo donation, where the moral (and legal status) of the material is unsettled, and where the issue is much more pressing than the moral issues related to biobank samples, then informed consent could be suitable in the latter field as well.

Moreover, it can be argued that the case of biobank material is similar to cases of organ donation. Consequently, this kind of research should be governed by other research ethics principles (Eriksson 2003: 185). When you donate bone marrow or a kidney, you have restricted rights with respect to this material. The same should apply to biological material given to a research biobank. One of the reasons why this argument is not convincing is that epidemiological and register research is normally subject to informed consent, as is certainly also organ donation. Another reason is that whereas donated tissues for transplantation will be incorporated into another person's body, and cannot be removed without considerable harm to that person, biobank material is simply stored and can either be removed or removed from use without any major harmful effects.[4]

## *Unknown Consequences*

Although it can be argued that the outcome from biobank research is of a general kind, and not likely to be relevant for the research person herself, the knowledge gained from the research may in the long run become of vital importance to the research person and/or his or her family, e.g., better therapy (pharmacogenetics), more convenient classification of diseases, and new explanations such as behavioral disorders explained by biological affinities rather than by moral defectiveness (e.g. alcoholism). However, results may also be knowledge of asymptomatic disease or predictive information, which advances dilemmas of whether the research person or her family should be informed or not, and what to do if the research person refuses to reveal knowledge of vital importance to family members. This means that knowledge resulting from biobank research may have a liberating as well as a challenging or even a suppressive potential. Improved classification of dementia can be of vital importance if it leads to more adequate treatment, but it can also be detrimental if it results in social stigmatization and discrimination due to improved predictability (Murray 1997).

What about the relevance of the principle of informed consent when the unknown consequences of biobank research are taken into account (with respect to both general knowledge and knowledge of particular importance to the research person and his or her family)? The unknown consequences represent a real challenge, as informed consent presupposes that the research person has understanding of the scope and the consequences of the research to be undertaken. One could argue that as long as the risk is low, we could accept that the benefits are unknown. Unknown

[4] It is true that cumulative removal of many samples may eventually create problems for the use of the biobank but this is a different kind and order of "harm" than the one in the organ donation case.

benefits are common in research. That is why we perform research in the first place. As informed consent is applied in other forms of health-care research involving research persons, one could argue that it is applicable to biobank research as well.

The major challenge here is of course that, although we can live with the unknown benefit, it is much harder to accept unknown risks (Article 7, §§ 17 and 22 of the Declaration of Helsinki). Hence, although the unknown consequences in terms of benefits do not hamper the use of informed consent with respect to biobank research, the unknown risks involved seem to jeopardize the possibility of there being an *informed* consent at all.

## *Information and Risk*

It could be argued that the informational harm potential in biobank research is of a special kind, as the information is about identity, as well as hidden and future diseases. Furthermore, the analysis of biobank material may reveal information about the research person or the research person's family that we were not looking for, and which are rare in other kinds of clinical research. But this is not unique to biobank research; other forms of health activity also give rise to incidental findings. For example, investigation of the abdomen in relation to participating in clinical research on *Helicobacter pylori* may reveal in a research person cancer with metastases, and newborn screening may reveal additional information about diseases without proper treatment options. Therefore, medical information of many kinds discovered during research may represent a substantial risk of harm to a person, and whether it stems from a biobank does not seem to make the difference. Consequently, there seems to be little ground for granting genetic information with a status of exception (Murray 1997; Suter 2001; Green and Botkin 2003; Gostin and Hodge 1999; Juengst 1998, 2000).

Even the coupling of biological material (and its research results) to health information may not be that special. In clinical studies data from ECG, EEG, CT, or MRI are coupled to clinical information to address a specific clinical research question. The same data may be used to address new and quite different research questions by analyzing them in a different way (and/or couple the results with other forms of health information). Such coupling is therefore not in itself special for biobank research.

What may appear as a stronger argument in favor of a status of exception with regard to information stored in a biobank is that biological material is traceable to the originator even without coupling of other health information, as is the case in forensic medicine. Hence, biological material could be used to trace a person's identity and to connect related health information to this person. Thus, it may be that this traceability of biological material is one of the few aspects which morally speaking distinguishes biobank research from other kinds of medical research with respect to its coupling with other forms of health information. This assumption, however, does not lead us to any clearer conclusion with regard to the role and

relevance of informed consent in this context, because if one knows that biological material can be used for tracing, one could argue that one could give consent to this.

## *Unexpected Consequences*

Biological material may be used for analysis fundamentally different from what was described in the original research protocol. This appears to be of utmost importance to the research person, his or her family, or patients in general, because it may generate both benefits and risks that were not originally envisaged. Furthermore, the possibility of assessing the consequences (beneficence and risk) of biobank research may thus be significantly reduced compared to the situation in other kinds of clinical research. This, one could argue, has implications for the extent to which requirements of informed consent can be fulfilled in biobank research.

On the other hand it is argued that the requirement of informed consent should be reduced. A key characteristic of biobank research is that its unexpected results can trigger new research questions that can turn out to be very important and fruitful in terms of initiating new research. This leads to the practical problem of renewing informed consent for every new study one wants to initiate. However, this is not special for biobank research. If data from a clinical research project is used in another research project that is an offspring of the former but has a new scope, there is a long tradition in clinical research for obtaining renewed consent from the research persons. One could still argue that the practical problems with respect to this in biobank research are significantly larger compared to clinical research. The question then is whether these practical difficulties are of a kind and magnitude to legitimate principal renouncements of informed consent. What makes a difference, it appears, is the assessment of risk. If there is no risk, one could well argue that informed consent is overkill as there is nothing to protect the research person from, and that requiring informed consent in such cases is hampering research and beneficial outcomes to people (Chadwick and Berg 2001; Wilcox et al. 1999; Greely 1999; Hansson et al. 2003).

## *Different Kind of Research*

It may be argued that biobank research is dominated by a different kind of researchers without experience of research involving human subjects. Consequently, they are not as familiar with and used to standard requirements in research ethics. Although this may be a valid argument for a practical differentiation between biobank research and other forms of health research, it would hardly be an argument that could invalidate the principle of informed consent in biobank research. Another argument that could possibly be used to question the validity of informed consent in this context is that consent forms have been used to protect commercial interests more

than research persons (Andrews 2005). This is, however, hardly unique for biobank research; also in other forms of health research with strong commercial interests informed consent forms may be abused in the same way. What then about the argument that the biobank field is special because not only have patient groups organized themselves but they also have moved into the biobanking enterprise themselves by initiating biobanks involved in research on the kind of diseases they are themselves afflicted by? (e.g. the CFC Biobank, http://www.cfcsyndrome.org/biobank.shtml). It is difficult to see how these aspects in themselves could be used to question the validity of informed consent in biobank research.

Hence, there appears to be no valid argument in favor of biobank exceptionalism. However, although there are no aspects of biobank research that are substantially different from other forms of medical and health-related research, one could still argue that in sum biobank research is quite different, because it features so many special challenges that, although they exist in other kinds of research as well, they either are not that visible or do not present themselves in that combination or magnitude. Were this the case, one would still have to indicate what makes these combinations of features and their related magnitudes so special, that it would bring into question the relevance and validity of the principle of informed consent in biobank research.

## *Alternatives to Informed Consent in Biobank Research*

Where does this leave us with respect to regulating biobank research? If there is little or no principal difference between biobank research and other forms of research, one could argue that informed consent could be used in biobank research in the same way as in for example clinical research. The practical and theoretical challenges will not be worse with respect to biobank research than in other forms of (complex) health-care research. Hence, if informed consent can be applied in other complex forms of health-care research, it could and should be applied in biobank research as well.

However, demanding express informed consent does not address the practical challenges of acquiring consent in the biobank context, e.g., in acquiring renewed consent: dead donors, large drop-out rates, expenses, and the potential of upsetting the research persons by recontacting them (Hansson and Levin 2003: 13; Helgesson 2003: 162–3; Eriksson 2003: 180; Greely 1999: 740; Hansson et al. 2006). Moreover, several empirical studies indicate that research persons do not think informed consent is necessary for genetic research (Wendler and Emanuel 2002) and that those who have given their informed consent, do not appear to remember crucial information about the study nor the fact that they had consented (Moutel et al. 2001; Wendler et al. 2002). Finally, people appear generally to be prone to delegate decisions about the use of their samples to the research ethics committees (Ring and Kettis-Lindblad 2003: 204; Kettis-Lindblad et al. 2006, 2007).

## *Undetermined Consent*

Many of the fundamental and practical challenges raised by express consent have been sought resolved by developing a whole range of different conceptions of undetermined consent, such as implied (or implicit) consent, presumed consent, and hypothetical consent, or "broad consent", "future consent" or "blanket consent" (open or open-ended consent) (Hansson et al. 2006), or letting people waive consent. The prevailing premises have been that the risks are small, the potential benefits large, the research results will benefit the patient group (or people with the same genetic makeup) in general, and coupling of research results and particular research persons is not necessary.

All these conceptions of undetermined consent generate some theoretical challenges, e.g., whether one can be autonomous not knowing facts that are prerequisite to making autonomous decisions.[5] Against this one could argue that detailed knowledge about the type of research in question is not morally relevant for giving consent to research. What is morally relevant is to know that the storage and use of biological material involves a certain risk of harm and that it may violate the research person's integrity (Helgesson 2003: 161; Wendler 2002: 49–50). To be able to assess this potential harm and violation of integrity, specific knowledge about the research project seems, however, necessary.[6] Besides, using the term *consent* in situations that do not comply with the standard requirements for consent, such as understanding the scope and consequences of research, does undermine the concept of consent.[7] It could therefore be argued that the eagerness to stick to the term "consent" even though the premises for consent are not met, is much less because of the interest of protecting research persons, than covering moral challenges by means of a device.[8] This changes the objective of the protective aspirations of consent from the research person to the researcher.

Finally, neither informed consent nor "broad consent" or "waived consent" addresses the challenges discussed above, in particular not the challenge of risk assessment (Maschke 2006). If understanding the scope and consequences of research is a sine qua non for consent, then consent to biobank research of a general and unspecified kind cannot be obtained, neither of a narrow brand nor of a broad one. But if there can be no informed consent because the research person cannot

[5] It is argued that to abstain from autonomy is an acceptable option to the autonomous agent (Dworkin 1988: 118). This would make biobank research acceptable within the framework of waived consent. However, this is controversial (Harris and Keywood 2001).

[6] Furthermore, it breaches with a long tradition of research ethics that a person involved in medical research should be informed about the aims and methods of the research (Declaration of Helsinki, article 22).

[7] It is interesting to note that even those who argue that biobank research is not research on human beings, and thus do not fall under the Declaration of Helsinki, recommend the use of consent in biobank research (Helgesson 2003: 160).

[8] See also chapter "Users and uses of the biopolitics of consent: a study of DNA banks", and chapter "Trust, Distrust and Co-Production: The Relationship between Research Biobanks and Donors" or a moral spell ("consent").

know important aspects of future research with respect to the biological material, what alternatives are we then left with?[9]

As the challenges with suboptimal criteria for informed consent have become clear, several alternatives have evolved. Many of them relate to various theories of autonomy, especially theories based on alternatives to individual autonomy: they appeal to evaluative agency (Jaworska 1999), semantic agency (Jennings 2001), or relational agency (Tauber 1999). However, these alternative approaches have evolved from challenges in therapy and not in research. Furthermore, they address reduced competence to consent or strong (social) influence, which are not core challenges in biobank research. In biobank research the key challenge appears to be reduced understanding, and not lack of intentionality or voluntariness. Another alternative would be to argue that biobank research should be based on trust rather than individual self-determination (Williams and Schroeder 2004). However, consent is a crucial prerequisite for trust-based approaches as well (O'Neill 2002; Stirrat and Gill 2005).

Yet another alternative is group consent (Juengst 1998, 2000). As many of the risks and benefits of biobank research concern groups more than individuals, one could argue that group consent is required. However, it is not clear what group consent is, and its moral status with respect to individuals' rights to opt-out or withdraw is unclear (Juengst 2000). Group consent violating individuals' interests in the name of group majority can be conceived of as hard paternalism. Hence, it seems we have to look elsewhere for viable solutions.

## *Not Autonomy, but Privacy and Confidentiality*

One alternative is to acknowledge the reduced autonomy that participation in nonspecific biobank research necessarily will imply, and instead of trying to circumvent this fact, address other normative issues that actually are more pressing, and which contribute to the reduction of autonomy in the first place, such as issues of privacy and of confidentiality (Murray 1997; Greely 2001; Rynning 2003; Gostin and Hodge 1999; Roche and Annas 2001).

The problem for a research person may not be that she or he does not know what biological material will be used for in the future, but that it could violate his or her confidentiality and privacy. We should therefore put our effort in securing these aspects of biobank research, rather than tampering with autonomy and informed consent issues. The point is that we can accept not being able to make an autonomous decision with respect to contributing to biobank research as long as we know that measures with respect to privacy and confidentiality will be taken.

One problem with this approach is to legitimize people's entrance to biobank research in the first place. If we are nonautonomous with respect to unspecific

[9] If an unknown or uncontrolled risk makes informed consent inapplicable in a research project, then one could argue that informed consent is never applicable to clinical research, as there will always be (unknown) risks and benefits involved.

biobank research, we could only enter such research by way of paternalism. There are defendable versions of paternalism, but most of them are based on the principle of beneficence: an intervention in a person's life can be justified (without consent) because its benefits outweigh its burdens for this person. The problem with paternalistic enrolment is that we do know neither the risks nor the potential benefits, so a paternalism based on a trade off between benefits and burdens seems not to be justifiable. Furthermore, this alternative approach is challenged by the potential of traceability of biological material (McGuire and Gibbs 2006). If the material itself is in principle a source of identity, then measures to secure privacy and confidentiality appear to be a remaining challenge.

## *Consent to Submit to the Researcher*

As other parts of this book show, people enter biobank research even if they are skeptical or negative, something which illustrates substantial elements of the power of *virtual trust*.[10] A radical alternative to address such issues would be to apply a Hobbesian perspective to consent in a health research setting. To escape constant attacks of diseases and struggles with illness (in the state of nature), man will develop more in accordance to his higher reason by the way of science, i.e., by contributing to biobank research. In order to do so, he has to submit to the sovereign researcher through a social contract. By freely submitting oneself to the researcher who acted as an agent of the Hobbesian sovereign, a person would preserve a flourishing life in peace. Accordingly, the research person would not only contribute to the general benefit of efficient research, but would become part of a more basic unity of men.[11]

Research ethics committees would then be like "the assembly of men,"[12] and each individual would thus have the right to opt out (to a condition of war and ultimate freedom). The researcher like the sovereign for whom he or she acts would

[10] For this, see chapters "Users and Uses of the Biopolitics of Consent: A Study of DNA Banks" and "Trust, Distrust and Co-production: The Relationship Between Research Biobanks and Donors".

[11] "... and therein to submit their wills every one to his will, and their judgments to his judgment. This is more than consent or concord; it is a real unity of them all in one and the same person, made by covenant of every man with every man, in such manner as if every man should say to every man, I authorize and give up my right of governing myself to this man, or to this assembly of men, on this condition, that you give up your right to him and authorize all his actions in like manner" (Hobbes 1651/1958: 142).

[12] "A commonwealth is said to be instituted, when a multitude of men do agree, and covenant, every one, with everyone, that to whatsoever man, or assembly of men, shall be given the major part, the right to present the person of them all, (that is to say, to be their representative) every one, as well as he that voted against it, shall authorize all the actions and judgments, of that man, or assembly of men, in the same manner, as if they were his own, to the end, to live peaceably amongst themselves, and be protected against other men" (Hobbes 1651/1958: 234).

be obliged to pursue the interest of the people under the external threat of disease.[13] Every individual is autonomous in conferring power to the sovereign by consent (Hobbes 1651/1958: 267). Correspondingly, there is no reduction in autonomy, as the interests of the individual are taken care of by the sovereign, as by the researcher or the research ethics committee.

Since the researchers are selected by the sovereign, and research persons transfer the right to act for them to the researcher, the researcher cannot possibly breach the covenant. "Every [research] subject is author of the acts of the sovereign: hence the [researcher] cannot injure any of his subjects, and cannot be accused of injustice" (Hobbes 1651/1958: 146). Because the purpose of research is health, and the researcher has the right to do whatever he thinks necessary for the preservation of health and security and prevention of disease. Hence, by autonomously committing oneself to research one's good life will be preserved. One consents to the researcher, and not to particular research.

This approach represents a controversial interpretation of informed consent. Nevertheless, political scientists and philosophers trace basic ideas on trust back to Hobbes, Locke, and Hume (Dunn 1988; Hollis 1998; Möllering et al. 2004). This also goes for informed consent. "Nothing done to a man by his own consent can be injury: Whatsoever is done to a man, conformable to his own will signified to the doer, is no injury to him." (Hobbes 1651/1958: 124).[14]

According to Hobbes, consent is seen as a way to transfer power (Hobbes 1651/-1958: 163). In fact consent in one person is the greatest power (Hobbes 1651/1958: 78). Consent transfers power to the sovereign as consent in biobank research transfers power to the researcher and the research ethics committee. Moreover, consent requires knowledge (Hobbes 1651/1958: 214) and voluntariness (Hobbes 1651/-1958: 163). Dominion over others can be obtained by consent or by argument (Hobbes 1651/1958: 163–4).

Improper as it may seem, the Hobbesean perspective on consent addresses some of the important power issues, it displays the development of the concept of consent, and it illustrates that consent is not an absolute static formula that can solve all challenges in research ethics.[15]

[13] We acknowledge that the Hobbesian sovereign is only obliged to pursue the interests of the people in relation to their protection from internal and external violence. Otherwise he is sovereign and can do whatever he likes for whatever reasons, while the sovereign's duty and corresponding rights in this context is limited to the external threat of disease.

[14] This is simply a restatement of the Common Law maxim "Volenti non fit injuria" ("no injury is done to a willing person") which has roots in Roman Law.

[15] Other obligation-based approaches to informed consent have recently been promoted (Rhodes 2005), and trust-based (or duty based) approaches, such as Onora O'Neill (2002), could be conceived of as submissive to moral sovereignty (e.g. universal principles and moral law). Hence, a depersonalized version of a Hobbsian concept of autonomy and informed consent may be of relevance.

## *Conditional Authorization*

Another alternative would be to take into account the challenges both to autonomy, privacy, and confidentiality, and argue that we live in a complex world where we have to make decisions that can threaten or reduce our autonomy, privacy, and confidentiality. Signing contracts, purchasing insurance, marrying, and having children are complex issues of this kind. In practical life we trust people and hope for the best. Although we cannot regulate research in accordance with trust, hope, and love, we can do what we do when we have to formalize such matters, that is, in contracts. Hence one way of putting this into work would be by giving a permission or authorization to biobank research. Acknowledging the challenges with informed consent, Greely suggested the use of permissions to regulate biobank research (Greely 1999).[16] Corresponding to Greely's permission, Árnason proposes an explicit written authorization for entering data from health databases into genetic research (Árnason et al. 2004; 2007).[17] According to Árnason, the written informed authorization implies that the individual has to be informed about, that he or she has understood which information will be stored, how privacy will be secured, how the data will be connected to other information, the manner in which the information will be used, how research on the data will be regulated, and that the individual has a right to withdraw.

Although Árnason's (and Greely's) approach is context-specific (Health Services Databases), the conception of authorization could freely be applied in a broader context, such as including biological material in biobank research. This would be more in line with The Council of Europe's draft of "Recommendation on Research on biological Materials of Human Origin" suggesting that consent *or* authorization have to be given before biological material enter biobanks for research (Council of Europe 2005). An authorization regulating the entrance of biological material into biobank research has to be specified with respect to the conditions of entrance and research, and we therefore suggest the term "conditional authorization." Although a conditional authorization involves many of the same requirements as informed consent, such as understanding, competence, and voluntariness, the requirements for a conditional authorization are less strict than for informed consent, in particular with respect to what the research person has to understand in order to participate in research. As Árnason points out, the "authorization is in the spirit of informed consent, but it is far more general and open and should, therefore, not be confused with it." (Árnason 2004: 45).[18]

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[16] It is also worth noting that Tristam Engelhardt discusses the "principle of permission" in his work (Engelhardt 1996). His principle of permission appears to be closer to the principle of autonomy, than the contractual authorization discussed here.

[17] It is worth noting that Greely, who suggests the use of permissions, analogous to Árnason's authorization, suggests using individual affirmative informed consent for entering health data into databases for genetic research such as in the Icelandic health services database (Greely 2001). See also Árnason 2004: 44).

[18] For this argument, see also chapter "Scientific Citizenship, Benefit, and Protection in Population-Based Research".

However, due to general and open approach, one could argue that permissions and authorizations are as unspecific and unsuitable to protect individuals and groups and to protect their interests, as is waived consent or uninformed blanket consent. However, in conditional authorization specification requirements are increasing with the generalness and openness of its content. The reason for this is that the extent and limits of authorization have to be specified. This task becomes more challenging as its extension increases. What has not to be included in an authorization (its limitation, and one could say, what differs from an informed consent) has to be specified.

In addition to ordinary requirements with respect to research involving human subjects, conditional authorization should include explicit clauses on the following:

1. Moral and legal status of biological material
   - Who has property rights of the material in the biobank?
   - Who has intellectual rights stemming from work with the biological material?
   - Who has access to the biological material, and under what conditions, including external analysis and export?
   - Remuneration in case of commercial potential
2. Consequences with respect to risks and benefits
   - Measures to secure confidentiality with respect to the biological material and information that stems from it
   - Specific procedures if the research results are of vital importance for the person or his/her relatives
3. Unsettled relationship to other sources of information
   - What other health information is allowed to apply, under what conditions
   - Who is responsible for handling data, and possible breaches of confidentiality?
   - How privacy will be secured
4. Conditions for initiating further research on basis of existing biobank material
   - IRB/REC assessment of further research
   - Approval of patient organization/patient representatives
5. What happens if any of the parts breach the conditions?

Conditional authorization can be based on various contract theories. As in all contractual situations one can trust or distrust, read all of the text of a contract or only read part of it, depending on the situation, e.g., how confident you are with the situation and how much you trust the persons involved. The point is that the situation where one gives a conditional authorization does not give the impression of being consent with an ethical status beyond its actual content.

Moreover, conditional authorization is much more open, e.g., to remuneration and royalties in the case of substantial economic income resulting from research

on the biological material, than varieties of consent.[19] It is not obvious that persons contributing to biobank research resulting in substantial incomes for private investors should be without reward, and conditional authorization is one manner of taking this into account.

## *Conditional Consent?*

As conditional authorization is a new alternative to informed consent, it becomes necessary to explain some of the differences to informed consent. In particular as conditional authorization can be a highly detailed contract requiring substantial amount of information, are the requirements regarding understanding by the research person/biobank donor, their voluntariness, and competence the same as with informed consent?

Conditional authorization is specific with respect to spelling out known risks and uncertainties, as well as stating strategies to handle the unknown; e.g., how persons will be contacted in case of information about their health. It is important to note that the problem is not uncertainty as such, because all research involves elements of uncertainty, but how uncertainty is communicated; i.e., we appear to live with well-informed uncertainty every day in all other aspects of life.

The conditions of authorization have to be explicitly assessed by the IRB/REC. Furthermore, conditional authorization would be less dependent on a theoretical framework, such as a theory of autonomy, and can address challenges with autonomy, privacy, and confidentiality in a practical manner. As such, it is a pragmatic approach to attain self-control, security, and protection, and to increase trust.

In this manner conditional authorization avoids hiding behind a general concept of "consent," (Hofmann 2008) but addresses normative challenges explicitly. Hence, conditional authorization can hinder a superficial use of consent, and preserves the content of the concept of consent from erosion. It is not the fact that one has gained consent that makes research acceptable, but the content of such consent. The term *consent* can be applied to cover up important moral challenges, and as long as there is a consent, research is acceptable. In this manner consent becomes a piece of moral technology used in order to promote biobank research and avoid interference and claims from research persons. Hence, instead of protecting the research persons, consent ends up becoming a technical device to protect researchers' interests. The point is not to promote a naïve conservation of an ideal static concept of consent, but rather to avoid that the concept of consent becomes so broad and vague that it looses all applicability.

Specifying what is meant by consent therefore is important and, if it turns out from the specification that it does not qualify as consent, we have to call it something else. However, not obtaining consent does not mean that research is not acceptable. Informed consent is neither a necessary nor a sufficient condition for research on humans, and should not become a "buzzword" covering important moral issues or

[19] However, if the individual consumer-model of autonomy is applied, then one could also argue that biological material could be sold to research.

be used as a spell to make them vanish. Instead we should look for other conceptions better suited to regulate biobank research, and leave the moral concept of consent with some content. Conditional authorization may represent one way of achieving this.

## Conclusions

Easy solutions to complex questions are seldom good. Specific solutions to specific contexts are more likely to prove successful. Depending on the specific kind of biobank research, the arguments and approaches discussed above will bear different weight, and should be applied accordingly. One size does not fit all. Biobank material has a variety of bodily sources and statuses (urine vs. heart and brain),[20] stems from persons in a variety of situations (patients, healthy persons; collected by their family doctor, in hospitals, by special institutions, such as blood banks, or by researchers in specific research organizations or enterprises), with a broad variety of moral statuses (fetuses, minors, noncompetent persons, deceased), and are used for different purposes (gaining new general knowledge, obtaining information relevant for the research subject, quality assurance and improvement). Finding one moral formula that addresses all these aspects may be overly optimistic, and even morally dangerous.

Hence, it appears to be difficult to find a general approach to respect for a person's autonomy, which complies with all challenges in biobank research. The point is that none of the alternatives discussed above is flawless. Their suitability varies with context: we have to find an approach depending on the kind of biobank in question, the related risk, and the possible outcome.

Although there are many special challenges in biobank research, none of them appear to justify moral or legal exceptionalism – neither in terms of more stringent nor laxer regulation than with respect to other kinds of medical research involving human subjects.[21] The combination of features and challenges may urge special solutions in practice, although not in principle. The four (traditional) alternatives discussed above appear to be approaches that try to cope with basic and common challenges for certain types of biobank research (including informed consent), and may provide guidance in struggling with the question of whether to consent or not to consent to biobank research.

To consent or not to consent is not the key moral question in biobank research. Other issues such as promoting beneficial research, respecting confidentiality and privacy, protecting against harm, and promoting the interest of the research person are equally important. The crucial challenge is therefore not to settle the issue of ownership of biological material (in general), but to protect the individual providing

[20] It is interesting to note that the moral challenge with respect to the status of the biological material appears to be independent of the source (blood, tissue, autopsies, historical collections), and thus appears to be more than a superficial challenge.

[21] The revealed challenges make it abundantly clear that a wholesale transfer of a set of ethical rules designed for other kinds of biomedical research is also hugely problematic.

the material and secure that his or her interests are taken care of (including the interest of contributing to research). Informed consent is only one way of doing this.

Altogether, it is difficult to justify biobank exceptionalism in the sense that biobank research is so special that lower moral standards could be applied. Rather biobank research highlights some general moral challenges in research, and urges us to find solutions more suitable than those provided by the informed consent doctrine. Hence, to the extent that biobank research can point to alternatives where informed consent stops being a moral guide, it can contribute to refining research ethics in general, by pointing to general weaknesses of applying informed consent formula in areas where there cannot be any consent unless the concept of consent is stripped of any relevant content. If everything becomes consent, nothing is, and then it may well be that we have to turn to other conceptions, such as for example conditional authorization.

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## References

Andrews LB (2005) Harnessing the benefits of biobanks. Journal of Law, Medicine, and Ethics 33:22–30

Árnason G et al. (Eds.) (2004) Blood and Data: Ethical, Legal and Social Aspects of Human Genetic Databases. University of Iceland Press, Reykjavík Árnason V (2004) Coding and Consent. Bioethics 18:39–61

Blatt JRB (2000) Banking biological collections: Data warehousing, data mining, and data dilemmas in genomics and global health policy. Community Genetics 3:204–211

Chadwick R, Berg K (2001) Solidarity and equity: New ethical frameworks for genetic database. Nature Review Genetics 2:318–321

Clayton EW (2005) Informed consent and biobanks. Journal of Law, Medicine, and Ethics 33: 15–21

Council of Europe (2005) Draft recommendation on research on biological materials of human origin. Steering Committee on Bioethics. Council of Europe, Strasbourg

Dunn J (1988) Trust and agency. In: Gambetta D (Ed.). Trust: Making and Breaking Co-Operative Relations. Basil Blackwell, Oxford, pp 73–93

Dworkin G (1988) The theory and practice of autonomy. New York: Cambridge University Press

Engelhardt HT Jr (1996) The Foundations of Bioethics. Oxford University Press, New York

Eriksson S (2003) Mapping the debate on informed consent. In: Hansson MG and Levin M (Eds.). Biobanks as Resources for Health. Research Program Ethics in Biomedicine, Uppsala, pp 165–190

Essen U (2003) Focusing on personal integrity violation – legal guidelines for ethical practice. Biobanks as Resources for Health. Research Program Ethics in Biomedicine, Uppsala: 129–148

Faden RR, Beauchamp TL (1986) A History and Theory of Informed Consent. Oxford University Press, New York

Friedson E (1970) The Profession of Medicine. Dodd Mead, New York, pp 368–372

Fuller BP et al. (1999) Privacy in genetics research. Science 258(5432):1359–1361

Gostin LO, Hodge JG (1999) Genetic privacy and the law: An end to genetics exceptionalism. Jurimetrics 40:21–58

Green M, Botkin J (2003) Genetic exceptionalism' in medicine: Clarifying the differences between genetic and nongenetic tests. Annals of Internal Medicine 138:571–575
Greely HT (1999) Breaking the stalemate: A prospective regulatory framework for unforeseen research uses of human tissue samples and health information. Wake Forest Law Review 34:737–766
Greely HT (2001) Informed consent and other ethical issues in human population genetics. Annual Review of Genetics 35:785–800
Hansson MG et al. (2006) Should donors be allowed to give broad consent to future biobank research? The Lancet Oncology 7:266–269
Hansson MG, Levin M (Eds.) (2003) Biobanks as Resources for Health. Research Program Ethics in Biomedicine, Uppsala
Harris J, Keywood K (2001) Ignorance, information and autonomy. Theoretical Medicine 22:415–436
Helgesson G et al. (2007) Ethical framework for previously collected biobank samples. Nature Biotechnology 25: 973–976
Hobbes T. (1651/1958) Leviathan. The Liberal Arts Press, New York
Hollis M (1998) Trust within reason. Cambridge University Press, Cambridge
Hofmann B (2008) Broadening consent and diluting ethics. Journal of Medical Ethics 35:125–129
Jaworska A (1999) Respecting the margins of agency: Alzheimer's patients and the capacity to value. Philosophy and Public Affairs 28(2):105–138
Jennings B (2001) Freedom fading: On dementia, best interests, and public safety. Georgia Law Review 35:593–619
Juengst ET (1998) Groups as gatekeepers to genomic research: Conceptually confusing morally hazardous and practically useless. Kennedy Institute of Ethics Journal 8:183–200
Juengst ET (2000) What 'community review' can and cannot do. Journal of Law, Medicine and Ethics 28:52–54
Kettis-Lindblad A et al. (2006) Genetic research and donation of tissue samples to biobanks. What do potential sample donors in the Swedish general public think? European Journal of Public Health 16:433–440
Kettis-Lindblad A et al. (2007) Perceptions of potential donors in the Swedish public towards information and consent procedures in relation to use of human tissue samples in biobanks: A population-based study. Scandinavian Journal of Public Health 35:148–156
Lindberg BS (2003) Clinical data – a necessary requirement for realising the potential of biobanks. In: Hansson MG and Levin M (Eds.). Biobanks as Resources for Health. Research Program Ethics in Biomedicine, Uppsala, pp 21–31
Maschke KJ (2005) Navigating an ethical patchwork – human gene banks. Nature Biotechnology 23:539–545
Maschke KJ (2006) Alternative consent approaches for biobank research. The Lancet Oncology 7:193–194
McGuire AL, Gibbs RA (2006) Genetics. No longer de-identified. Science 21(312):370–371
Mitchell GR, Happe K (2001) Defining the subject of consent in DNA research. Journal of Medical Humanities 22:41–53
Moutel G et al. (2001) Bio-libraries and DNA storage: assessment of patients' perception of information. Medical Law 20:193–204
Möllering G et al. (2004) Introduction: Understanding organizational trust? – Foundations, constellations, and issues of operationalisation. Journal of Managerial Psychology 19(6):556–570
Murray T (1997) Genetic secrets and future diaries: Is genetic information different from other medical information? In: Rothstein (Ed.). Genetic Secrets: Protecting Privacy and Confidentiality in the Genetic Era. Yale University Press, New Haven, pp 60–73
O'Neill O (2002) Autonomy and trust in bioethics. Cambridge University Press, Cambridge
Reilly PR (1998) Rethinking risks to human subjects in genetics research. American Journal of Human Genetics 63:682–685
Rhodes R (2005) Rethinking research ethics. American Journal of Bioethics 5:7–28

Ring L, Kettis-Lindblad Å (2003) Public and patient perception of biobanks and informed consent. In: Hansson MG and Levin M (Eds.). Biobanks as Resources for Health. Research Program Ethics in Biomedicine, Uppsala, pp 197–206

Roche PA, Annas GJ (2001) Protecting genetic privacy. Nature Review Genetics 2:392–396

Rosoff AJ (1981) Informed Consent: A Guide for Health Providers. Aspen Systems Corp., Rockville

Rothstein MA (2005) Expanding the ethical analysis of biobanks. Journal of Law, Medicine and Ethics 33:89–99

Rynning E (2003) Public law aspects on the use of biobank samples – privacy versus the interests of research. In: Hansson MG and Levin M (Eds.). Biobanks as Resources for Health. Research Program Ethics in Biomedicine, Uppsala, pp 91–128

Schneider CE (1998) The practice of autonomy. New York: Oxford University Press

Stirrat GM, Gill R (2005) Autonomy in medical ethics after O'Neill. Journal of Medical Ethics 31:127–130

Suter SM (2001) The allure and peril of genetics exceptionalism: Do we need special genetics legislation? Washington University Law Quarterly 79:669–748

Tauber AI (1999) The breakdown of autonomy. In: Tauber AI (Ed.). The Confessions of a Medical Man. MIT Press, Cambridge MA, pp 49–70

Wadman M (2000) Geneticists oppose consent ruling. Nature 404(6774):114–115

Wendler D et al. (2002) Does the current consent process minimize the risk of genetic research? American Journal of Medical Genetics 113:258–262

Wendler D, Emanuel E (2002) The debate over research on stored biological samples: What do sources think? Archives of Internal Medicine 162:1457–1462

Wilcox AJ et al. (1999) Genetic determinism and the overprotection of human subjects. Nature Genetics 21:362

Williams G, Schroeder D (2004) Human genetic banking: Altruism, benefit, and consent. New Genetics and Society 23:89–100