OPEN CONSENT –
A NEW FORM OF INFORMED CONSENT
FOR POPULATION GENETIC DATABASES

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INTRODUCTION

This dissertation is about consent and population genetic databases. Genetic databases are collections of biological samples and personal data that are intended to serve as a source for researchers conducting biomedical research. As such, genetic databases are not a new feature. Indeed, collections with a similar purpose exist in almost every hospital engaged in research. The feature that distinguishes population genetic databases is that they aim to cover more or less the whole population of a region or at least a representative part of it. This means that people who are not suffering from a disease and are not hospitalised can also take part in such a database project, which allows comparisons of the tissue and data of diseased persons with those of healthy ones. Given that virtually anyone could provide a biological sample to a population genetic database, the problems surrounding these databases are of interest for not only researchers, hospitals, and particular disease groups, but for the whole community, for every one of us.

Since the Nuremberg trial, consent has been one of the central issues in bioethics, and has had a remarkable "career". The consent concept, which was introduced about 60 years ago, has now achieved such prominence that, except in some special situations, it is considered absolutely essential both for treatment and research. This prominence is confirmed by voluminous writings on bioethics and health law, ethical guidelines, and national and international legal instruments. The requirement of consent and the concept of informed consent achieved their maturity before population genetic databases entered the scene. It is not a surprise, therefore, that population genetic databases clash with the traditional concept of informed consent.

The traditional concept of informed consent was developed to protect the bodily integrity of research participants in a setting where a researcher has direct contact with research subjects. Given that life and health – which underpin the need for protection of research participants' bodily integrity – are the supreme values in our society, very strict and paternalistic rules concerning informed consent are justifiable. One of these rules requires that the consenting person has enough information about proposed research for making an informed decision about the project. For this reason, a research project is required to be drafted and approved by an ethics committee, and a person can consent only to an approved research project. This is to say that informed consent has to be specific -- that is, research-project specific.[1] No approved research project, no consent.

[1] This dissertation sometimes refers to the traditional concept of informed consent as "specific consent".

For reasons to be explained, the latter requirement cannot or can only partly be met by population genetic databases. Population genetic databases will be set up long before a researcher even gets to the idea of conducting one particular type of research, not to mention drafting and approval of a research project. Population genetic databases themselves are not research projects, but rather only a novel tool that assists in carrying out research projects. Therefore, according to the traditional concept of informed consent, people may consent only to being included in a database, not to research subsequently conducted on the data and biological materials from the database. For the latter purpose, a new informed consent must be obtained once each and every research protocol is drafted and approved. Should the concept of population genetic databases appear to be useful, there could be hundreds if not thousands of research projects utilizing a population genetic database every year.

Another novelty of population genetic databases is the lack of direct contact between research participants and researchers. Some may consider this fact to be troubling or to undermine the trustworthiness of population genetic databases. The alternative argument is that population genetic databases can successfully act as trustworthy institutions between research participants and researchers and thereby lessen the influence that a researcher may have over his research participants. In addition, bodily integrity is not at stake in population genetic databases. It is the research subjects' privacy that these databases threaten most. Without lessening the importance that privacy has in our contemporary society, it still seems that protection of privacy does not necessarily have to follow the same strict rules as protection of bodily integrity.

Thus, population genetic databases need, since they do not comport with the existing understanding "of consent concepts", and deserve, since they are different, a new form of consent. Informed consent as a human right cannot be static, but must be subjected to progressive interpretation simultaneously with new developments that bring both novelties in the form of research (*i.e.*, a lack of direct contact between the researcher and research subject), and principal risks (*i.e.*, risks that are informational in nature rather than pertaining to life and health, as in previous times). "Old rules often cannot fit new situations, and the changing needs, knowledge and globalization in biomedical and genetic research may demand a new ethical and legal framework for consent."[2] Therefore, it is almost universally accepted that informed consent requirements need to be modified for population genetic databases.

[2] Jacquelyn Ann K. Kegley. Challenges to Informed Consent. EMBO Reports, Vol 5 (2004), No 9. P 833-836. For a dissenting opinion, see: Tuija Takala. Why We Should not Relax Ethical Rules in the Age of Genetics. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). University of Iceland Press: Reykjavik, 2004. P 135-140.

Nevertheless, opinions differ on the exact content of modification and whether the result of modification can be considered to be informed consent. Different opinions make up a very diversified picture of consent in population genetic databases, and there is hardly room for one additional concept. However, one new concept, the concept that this dissertation has labelled "open consent", has actually already been incorporated into law. The Estonian Human Gene Research Act that sets out the legal framework for the Estonian population genetic database *Geenivaramu* was drafted with this concept of consent in mind.

What is open consent? Open consent is a research subject's affirmative agreement to participate in a population genetic database. By giving his consent, a research subject agrees to give a biological sample, allows the collection of personal data, the storage of the biological sample and data in a database, and the subsequent use of these for research purposes set forth in the documents related to the database. This latter aspect refers to the set of safeguards (conditions of open consent) that must be in place before and cannot be materially altered after open consent is obtained.

Open consent is not one research project-specific but rather is "conditions of open consent"- specific. Nevertheless, it can be argued and will be argued in this dissertation that there is nothing that prevents open consent from qualifying as informed consent. Of course, the differences between the traditional concept of informed consent and open consent are so substantial that they cannot be just "argued away". For this reason, this dissertation has chosen to analyse whether specific consent is the only form of informed consent that is recognised in moral theory, various international ethical guidelines, and legal concepts. It appears that informed consent can be and is understood in different ways and informed consent does not necessarily have to be research project-specific.

Hence, this dissertation makes a case for "open consent" and argues that open consent is one form of informed consent. To convince readers that open consent is an ethical and practical solution for population genetic databases, the dissertation uses the following path, which consists of eight chapters including this introduction and the summary. Although some issues are dealt with throughout several chapters, not to say in every chapter, the dissertation has attempted to follow a logical and structured path for suggesting that the open consent concept has all the necessary qualities to make it useful for solving some ethical and legal issues surrounding population genetic databases.

Following this short introduction, some information is provided that is essential to understanding the nature of population genetic databases as well as the risks and promises related to them. Since genetics does not belong to an area with which we are all familiar -- a fact that often leads us to mystify genetic information -- some basic information about modern

human genetics is provided in the first section of Chapter I. The next section addresses the leading population genetic database projects in Europe in order to help the reader understand the central object of this dissertation. Another aim of presenting these different projects is to exemplify the way in which these projects depart from hitherto established medical databases and tissue collections. This leads us to the question of what interests different stakeholders might have with respect to these databases and whether the specific consent approach is the only one that could deliver a balanced outcome. Chapter II ends with the conclusion that specific consent is not a panacea and definitely not the only concept that is able to balance competing interests.

Chapter II conducts a critical analysis of the specific informed consent requirement and alternative proposals. It starts with a short overview of the history of consent to explain the roots of the consent requirement and the reasons why bioethics adopted the specific informed consent concept. This concept, which occupies the centrepiece of medical ethics and law today, was unknown to Hippocrates and Percival and emerged only after the Nazi concentration camps and the Nuremberg trial in 1948. The informed consent requirement was first recognised as a means for protecting the life and health of research participants in response to grave abuse. However, modern genetic research does not pose a risk to research subjects' life and physical health in the same way. This research is not even remotely similar to human experimentation during the Second World War. By modifying the concept of informed consent, we are not discarding past experience but instead recognising that this is a different situation.

The second part of Chapter II explores the traditional concept of informed consent in greater detail and, using a case study, illustrates the shortcomings of this approach in the context of population genetic databases. The inflexibility of the traditional concept has been eased by acceptance of the fact that, in some exceptional cases, research can be carried out without specific consent and, in fact, without informed consent at all. An analysis of these informed consent alternatives, especially the minimal risk exemption, leads to the conclusion that, even if these alternatives can be used in population genetic database projects, one should not employ them for the sake of respecting research participants as research subjects instead of objects.

Given that neither the traditional concept of informed consent nor its alternatives deliver ethically as well as practically sound solutions, Chapter II continues to explore new consent concepts that are specially designed to tackle the concerns of population genetic databases. Although all concepts proposed so far could be employed by a population genetic

database, all still differ in one way or another from the concept of open consent which, it appears, has emerged as the standard form of consent used in population genetic databases.

Chapter III is dedicated to the concept of open consent. Open consent, referred to also as "broad consent", "general consent", "generic consent", etc., is the research subject's affirmative agreement to take part in a population genetic database project. This chapter argues that open consent is a form of informed consent that is tailored to the challenges surrounding population genetic databases. It will be argued that central to informed consent in population genetic databases is the recognition of the fact that consent cannot adequately address all issues surrounding these complex institutions. Thus, instead of ensuring control by continuously requesting specific consents from research participants, detailed "conditions of open consent" should be set forth upfront in order to allow individuals to decide whether or not to engage in the project. These rules are briefly outlined in this Chapter as well.

One way to assess the vitality of a new concept is to test it against the principles of bioethics. This exercise comprises the second part of Chapter III. It will be suggested that the way we understand some of the central principles of bioethics also determines our concept of informed consent. Since there is no right or wrong approach, bioethics can provide arguments for both sides of the debate -- those who adhere to the old concept of informed consent as well as those who argue in favour of the open consent concept. But underlying ideas of open consent and concepts comparable to open consent have already been criticised on various other accounts. The third section of Chapter III attempts to respond to the critics and demonstrate where they fail in attacking the open consent concept.

After having introduced, justified and defended the concept of open consent on ethical and practical levels, the question of whether there are any legal obstacles on an international level that would prevent a population genetic database from being built upon the open consent concept needs to be addressed. In doing so, this dissertation distinguishes between the legal concepts of principal concern with regard to population genetic databases, *viz.* bodily integrity and informational autonomy, on the one hand, and quasi-legal documents of international relevance on the other.

As will be outlined in Chapter IV, legal rules developed for the protection of bodily integrity do not in any way contradict the open consent approach. This conclusion will be reached after analysing the Council of Europe's relevant documents and the laws of three different countries. The conclusion can be explained by the fact that the interference with bodily integrity is only a slight one and the risks accompanying the interference can be easily explained to the participants. Indeed, it is not bodily integrity but rather the protection of informational autonomy that is the main battlefield between different approaches.

The aforementioned principal dispute is the subject of the fifth Chapter. The notion of informational autonomy, as with most legal terms, is difficult to precisely define, and its scope encompasses far too many phenomena to permit exploring them all. Nonetheless, at least in the context of population genetic databases in Europe, two legal concepts have achieved priority over others –- protection of data privacy under the ECHR and protection of personal data. Neither the text of the ECHR nor the interpretation given to it by the ECtHR consider specific informed consent to be the only form of consent that legitimises interference with a person's private life. Quite the contrary, there is some evidence that the standard of consent is broad rather than specific and that open consent is definitely not the lowest standard of consent that has been accepted so far by the ECtHR.

The third section of Chapter V moves on to the question of what is the standard of consent under the European data protection law that justifies processing sensitive medical and genetic data. If consent is needed, such consent can be given so as to legitimise all processing activities the purpose of which remains within one specific area of our society, such as research, marketing, protection of health, etc. Thus, under the data protection regulation as well, valid informed consent is not necessarily related to a specific research project, and data protection norms do not conflict with the open consent concept.

Biomedical research is an area that is governed by an extensive and constantly growing number of international instruments, as evidenced in Chapter VI. Common to all of these documents is the fact that they are more or less non-binding, given that a research participant has no effective legal means of protecting his rights solely by relying upon these documents. However, this does not mean that these documents have less influence on researchers on a moral basis. Indeed, the Declaration of Helsinki is by far the most cited and authoritative document in medical research. Interestingly, the Declaration of Helsinki is also the only instrument among the international instruments discussed in Chapter VI that expressly rejects all other concepts of informed consent except the very specific one. However, the author will show that the Declaration of Helsinki cannot be and is not followed by researchers around the world. This demonstrates that the Declaration of Helsinki, because of its unnecessarily strict approach, has become a "paper-tiger" and is not taken seriously.

The closing chapter of the dissertation highlights the author's most relevant findings and proposals. The author's aim is not to deliver a groundbreaking and bullet-proof new concept of open consent that should be used without exception in every population genetic database, but rather to clarify some of the mystification surrounding informed consent and to demonstrate a way of basing population genetic database projects on informed consent rather than abandoning the concept.

The author endeavoured to take into account main contributions concerning the central issue of this dissertation that were published before 1 May 2005. Internet links provided in the dissertation were also active on 1 May 2005 unless otherwise indicated in the text.

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1 BACKGROUND INFORMATION

1.1 BASICS OF GENETICS AND GENETIC DATA

1.1.1 ABC of genetics

Every human cell (except for red blood cells) has a nucleus that contains hereditary material, a chemical called deoxyribonucleic acid (DNA). DNA consists of four types (adenine=A, cytosine=C, guanine=G and thymine=T) of nucleotides (base units) which are in pairs (A+C and G+T) across the whole DNA and are therefore called a "base pair". There are 3,000,000,000 (three billion) base pairs in total and they are distributed across 46 strands of DNA in the nucleus of our cells (except sex cells, which contain 23 strands). These strands are called chromosomes. The structure of a chromosome, the double helix, was discovered in 1953 by Francis Crick and James Watson and is considered one of the most important discoveries of the last century.

Upon fertilisation, 23 chromosomes of an egg cell are associated with 23 chromosomes of a sperm cell to create a new human genome of 23 chromosome pairs. Each human being has a unique genome, except for monozygotic twins. However, this uniqueness is relative since 99.9 % of the genome of one person matches that of any other person. This shared part of our genome is called the human genome and was recently mapped by the Human Genome Project.[3] Thus, among 3 billion base pairs approximately every thousandth pair contains a mutated nucleotide, a so-called "single nucleotide polymorphism" (SNP). For mapping these mutations, another project, the SNP consortium, was launched in 1999.[4]

Despite the small amount of diversity in our genome, this diversity has a significant impact on how we look and what diseases we might have. Although the vast majority of these SNPs are harmless in terms of not causing health problems, some of them are responsible for devastating diseases such as, for instance, cystic fibrosis. There are several reasons why only a relatively small portion of SNPs has an influence on our health.

First of all, according to current knowledge, only approximately 5 % of base pairs steer some processes in our bodies. These steering regions of the genome are called the genes. There are in total 30.000 – 35.000 genes distributed across the chromosomes. The rest of the genome, approximately 95 %, is non-steering and sometimes referred to as "junk", although it is likely that the function of this part of the genome will be discovered some day. If mutation

[3] The map was published in: Science, Vol 261, 16.02.2001; Nature, Vol 409, 15.02.2001. For more information about the Human Genome Project visit its webpage at http://www.gdb.org/hugo.
[4] For more information about the SNP Consortium visit its webpage at http://snp.cshl.org/.

occurs in a gene, it will most likely have some impact on our health, whereas mutations outside genes do not have a negative impact and are usually used only to identify persons.

Another important factor is the penetration ratio of the mutation, which may vary from 0 % to 100 %. As mentioned above, in each of our chromosome pairs one chromosome is inherited from the mother and the other from the father. In some cases, when a mutation occurs only in one chromosome, the other chromosome in the pair is able to suppress the effects of the mutation; hence, the penetration ratio is zero. The most widely known disorder of this type is the haemophilia that ran in European royal families. This disorder affected only royal males, as the last pair of male chromosomes, in which the mutation occurred, contains one X and one Y chromosome instead of two X chromosomes. The Y chromosome is not able to correct a mutation in an X chromosome. Similar diseases are called sex-linked diseases, for they affect only one sex while the other sex is only a carrier of the mutation without any medical symptoms. On the other hand, some mutations inevitably penetrate (the penetration ratio is 100) and cause medical symptoms at some point. Huntington's chorea is an example of this form of disease, known as a single gene disorder.

In the vast majority of cases, the penetration ratio of a mutation lays somewhere between zero and one hundred percent and is determined not merely by one gene but by a complex interplay of different genes, our lifestyle, and our living environment. In such cases an individual is deemed to have a predisposed genetic condition – *i.e.*, the individual is not sick but has a higher (such as if the person is a carrier of a breast cancer mutation called BRCA1) or sometimes lower (for example, some mutations prevent people from contracting HIV) than average risk of contracting a disease. To make it still more complicated, in some cases researchers do not know what disease will develop, as one SNP can be responsible for a higher risk of contracting several different diseases.[5]

Having said all this, one question remains to be answered: How important are genes in the context of public health? Genetics began with Mendelian laws and discoveries of several monogenetic diseases, which indeed are highly causative and cultivated the myth that everything genetic is automatically causative. Although there are more than 4000 single gene disorders known to this day, these diseases do not influence public health considerably and only up to 2 % of newborns suffer from perceptible genetic disorders, mostly of a very mild nature.[6] Diseases of relevance to public health (so-called "common complex diseases such as cardio-vascular diseases or cancer) are a product of genes combined with different

[5] For instance mutation of certain CFTR gene may result in infertility, pancreatitis, bronchitis or classical cystic fibrosis. For details, see: Roche Genetics Education Program. CD Version 4.0.0.
[6] Julian Kinderlerer, Diane Longley. Human Genetics: The New Panacea. - The Modern Law Review, Vol 61 (1998), No 5. P 609.

environmental factors; genes have only a contributory rather than causative role. Nevertheless, humankind in its search for perfection strives to combat even these minor types of diseases that are more or less caused by a person's genetic makeup.

1.1.2 Genetic data as one type of medical information

One approach takes for granted that there is something special about genetic data compared to "ordinary" medical data and therefore more stringent legal protection for the former is required. Well-crafted phrases like "We used to think that our fate was in our stars. Now we know that, in large measure, our fate is in our genes"[7] and "future diary"[8] have been expressed and even special laws such as the Genetic Privacy Act[9] have been drafted based on the assumption that "/…/ genetic information is uniquely powerful and uniquely personal, and thus merits unique privacy protection."[10] But is this really so?[11]

Those who view genetic information as something special usually draw from the following arguments: (i) predictability, (ii) inheritability, and (iii) sensitivity of genetic information, the fact that (iv) we share genetic information with other family members, (v) we cannot amend or cure it, (vi) it identifies us and (vii) it has been misused for discrimination not to say for eugenic purposes. However, the same features are also present in ordinary medical data.[12] Having a certain type of cancer can be very predictive of death within the near future, a high level of cholesterol is predictive in the long run and some genetic information like eye colour is not predictive at all. Babies inherit not only genes but may also "inherit" diseases from their mothers, for example congenital syphilis. It is probable that only a very small amount of genetic information is truly sensitive in nature and that medical data concerning, for example, sexually transmitted diseases or abortions is at least as sensitive as the most sensitive genetic data. The fact that spouses may have the same sexually transmitted diseases and contagious diseases and are capable of infecting their whole family shows that the family-specific argument also falls short. Fifthly, there are numerous diseases for which no cure or even effective relief has been discovered thus far (for instance AIDS), but

[7] Quotation of James Watson by Leon Jaroff. The Gene Hunt. Time Magazine, 20.03.1989.
[8] George J. Annas, Sherman Elias. The Major Social Policy Issues Raised by the Human Genome Project. - Gene Mapping: Using Law and Ethics As Guides. George J. Annas, Sherman Elias (ed). Oxford University Press, 1992. P 9. Also: George J. Annas. Privacy Rules for DNA Databanks. Protecting Coded 'Future Diaries'. - Journal of American Medical Association, Vol 270 (1993), No 19. P 2346-2350.
[9] Discussed below in Chapter 2.2.2.1.
[10] George J. Annas, Leonard H. Glanz, Patricia A. Roche. Drafting the Genetic Privacy Act: Science, Policy, and Practical Considerations. – Journal of Law, Medicine & Ethics, Vol 23 (1995), No 4. P 365.
[11] For pros and cons, see also: Australian Law Reform Commission. The Protection of Human Genetic Information in Australia, 2003. Available: http://www.austlii.edu.au/au/other/alrc/publications/reports/96/3_Coming_to_Terms_with_Genetic_Information.doc.html#heading1.
[12] The following samples are largely borrowed from: Soren Holm. There Is Nothing Special about Genetic Information. - Genetic Information. Acquisition, Access, and Control. Alison K. Thompson, Ruth F. Chadwick (ed). Kluwer Academic/Plenum Publishers, 1999. P 99-100.

improvements in gene therapy may provide a way to effectively combat genetic diseases in the more distant future. In addition, the identifiability argument is not decisive, as other medical data such as teeth-cards or the characteristics of irises has been used for decades for identification purposes. Moreover, there is nothing new in the identification method either: in all cases, a comparison is made between existing data and data collected from an individual.[13] Finally, the Nazis did not kill only people belonging to a "bad genetic pool" but also people with certain medical conditions like schizophrenia. Indeed, medical data and not genetic data (the double helix was not even discovered yet) were used to determine the fate of thousands before and during the Second World War.

If we cannot derive a basis for affording extra protection to genetic data from the nature of such data, then why are claims for giving special protection to genetic data (genetic exceptionalism) so widely spread? This is probably the result of the historical development of genetics and has no rational basis in the modern world.[14] As mentioned above, diseases with a significant impact on public health are not caused by our genetic makeup, and it is these diseases rather than rare monogenetic diseases that should have decisive influence upon the question of whether genetic information requires additional protection. Granting genetic data a special status means that we discriminate against all other medical data: Does it really make a difference to a woman whether her breast cancer is of genetic origin (positive BRCA1 gene) or whether it is not related to her genes?[15]

This uncertainty about the "specialness" of genetic data is reflected by opaque regulation of the subject in international instruments. For the most part, these documents label genetic data a special category but hesitate to offer this data additional protection compared to medical data.[16] One thing is certain, however: Genetic data deserve protection as other medical data and, at least with regard to population genetic databases, the distinction between

[13] For minimising this risk, strict rules for access to parallel databases such as forensic DNA databases and hospital databases should be put in place rather than limiting the establishment of population genetic databases. See: Ted T. Ashburn, Sharon K. Wilson, Barry I. Eisenstein. – Human Tissue Research in the Genomic Era of Medicine. Archives of Internal Medicine, Vol 160 (2000), No 22. P 3379.

[14] Thomas H. Murray. Genetic Exceptionalism and "Future Diaries": Is Genetic Information Different from Other Medical Information? - Genetic Secrets: Protecting Privacy and Confidentiality in the Genetic Era. Mark A. Rothstein (ed). Yale University Press, 1997. P 71.

[15] Lawrence O. Gostin, James G. Hodge, Jr. Genetic Privacy and the Law: An End to Genetics Exceptionalism. - Jurimetrics Journal, Vol 40 (1999). P 33.

[16] UNESCO International Declaration on Human Genetic Data. Available: http://unesdoc.unesco.org/images/0013/001331/133171e.pdf#page=45. The EU Data Protection Working Party also does not suggest qualitatively different protection of genetic data. See: Working Document on Genetic Data. Version 17.03.2004. P 4-5. Available: http://europa.eu.int/comm/internal_market/privacy/docs/wpdocs/2004/wp91_en.pdf. With regard to the CoE, it renounced the idea of two parallel recommendations, for medical data and for genetic data, adopting the Recommendation No R (97) 5 of the Committee of Ministers to Member States on the Protection of Medical Data. Available: http://cm.coe.int/ta/rec/1997/ExpRec(97)5.htm. See: Frits W. Hondius. Protecting Medical Data and Genetic Data. European Journal of Health Law, Vol 4 (1997), No 4. P 381.

medical data and genetic data as a justification for imposing less stringent standards of protection on the former is not warranted. Hence, population genetic databases should adopt uniform procedures to protect all data that have been collected, and these procedures should be required to meet the highest standards that have been set for medical data. The same conclusion is merited with regard to the consent issue: consent for obtaining genetic material, extracting genetic information from this material and genetic information itself should be subject to the same rules as is the processing of medical data.

1.2 OVERVIEW OF POPULATION GENETIC DATABASES

1.2.1 Population genetic databases in theory

1.2.1.1 Justification of the notion of a "population genetic database"

Contemporary debate on ethical, social and legal issues surrounding tissue, genes and data is hard to follow due to a lack of commonly accepted terms[17] and, what is more curious, differences in the content that can be imputed to a term. The UK Biobank, for instance, is to be comprised of biological samples and data that relate to participants' genetic makeup, health, living environment and family, whereas in Scandinavia, a biobank is understood as containing only tissue and not data.[18] Another example is the UK House of Lords report that defines a genetic database as "collections of genetic sequence information, or of human tissue from which such information might be derived" and adds that human tissue but not medical information is included under this definition.[19] The Estonian Parliament, in contrast, has decided that the Estonian national genetic database *Geenivaramu* will include not only tissue, extracted DNA and genetic data, but medical data and genealogies as well.

Of course, the list of alternative terms does not end with the above mentioned notions; the following terms have been used to describe a biobank, whatever the term might mean: "biomedical database"[20], "DNA database"[21], "DNA data bank"[22], "DNA databank"[23],

[17] For more information, see: Jane Kaye. Regulating Human Genetic Databases in Europe. – Your Genes in a National Bank? Ethical, Legal and Social Concerns. Vilhjalmur Árnason *et al* (ed). (forthcoming).
[18] Regarding the UK Biobank and the Icelandic Biogenetic Project as another type of biobank, see Chapter 1.2.2.
[19] House of Lords, Select Committee on Science and Technology. Fourth Report. Human Genetic Databases: Challenges and Opportunities. Section 3. Available: http://www.parliament.the-stationery-office.co.uk/pa/ld200001/ldselect/ldsctech/57/5701.htm.
[20] Jean E. Wylie, Geraldine P. Mineau. Biomedical Databases: Protecting Privacy and Promoting Research. - Trends in Biotechnology, Vol 21 (2003), No 3. P 113.
[21] Timothy Caulfield, Ross EG Upshur, Abdallah Daar. DNA Databanks and Consent: A Suggested Policy Option Involving an Authorization Model.- BMC Medical Ethics, Vol 4 (2003). P 4.
[22] Michael J. Markett. Genetic Diaries: An Analysis of Privacy Protection in DNA Data Banks. - Suffolk University Law Review, Vol 30 (1996). P 189.
[23] Timothy Caulfield. Perceptions of Risk and Human Genetic Databases: Consent and Confidentiality Policies. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 283-289.

"population collection"[24], "population biobank"[25], "human genetic database"[26], "human genomic database",[27] "population-based DNA collection",[28] "large scale DNA collection",[29] and "genebank"[30]. This Babel and the ever-growing contributions to it, underscore the need for a universal language.[31] Although this dissertation does not aim to take on this challenge, some words justifying the use of the term "population genetic database" throughout this dissertation are necessary.[32]

In this dissertation, the notion of a population genetic database refers to a collection comprised of biological material (*i.e.*, biological samples and the DNA extracted from them) and data (*i.e.*, data related to genetic makeup, health and the living environment, as well as to family history, *viz.*, genotype, phenotype and genealogical data). First, the umbrella term for a collection of biological materials and data should refer to a database rather than to a biobank, as biological materials are included in the database only as a carrier of data and not as something that will be explored in their own right. For instance, in cancer biobanks, the appearance of a tissue sample and its physical characteristics are of primary importance. In fact, the distinction between data and tissue is somewhat superfluous since equal protection must be afforded to both elements. Secondly, the umbrella term should contain a reference to the purpose of establishing such a collection, *viz.* enhancing genetic research. And finally, this dissertation does not concern itself with existing genetic databases that have generally recruited only a few thousand participants, but rather with large-scale databases that target

[24] Jane Kaye. Abandoning Informed Consent: the Case of Genetic Research in Population Collections. - Genetic Databases: Socio-ethical Issues in the Collection and Use of DNA. Richard Tutton, Oonagh Corrigan (ed). London, New York: Routledge, 2004.
[25] Sarah Wilson. Population Biobanks and Social Justice: Commercial or Communitarian Models? A Comparative Analysis of Benefit Sharing, Ownership and Access Arrangements. - Trames, Vol 8 (2004), No 1/2.
[26] Margit Sutrop. Human Genetic Databases: Ethical, Legal and Social issues. - Trames, Vol 8 (2004), No 1/2.
[27] Human Genome Ethics Committee. Statement on Human Genomic Databases, 2002. Available: http://www.hugo-international.org/Statement_on_Human_Genomic_Databases.htm. According to this document, a human genomic database is a collection of genomic data arranged in a systematic way so as to be searchable. Genomic data can include, *inter alia*, nucleic acid and protein sequence variants (including neutral polymorphisms, susceptibility alleles to various phenotypes, pathogenic mutations), and polymorphic haplotypes. The notion is used also in the following article: Bartha Maria Knoppers, Claudine Fecteau. Human Genomic Databases: A Global Public Good? – European Journal of Health Law, Vol 10 (2003), No 1. P 27-41.
[28] Sue Weldon. "Public Consent" or "Scientific Citizenship"? What counts as public participation in population-based DNA collections? - Genetic Databases: Socio-ethical Issues in the Collection and Use of DNA. Richard Tutton, Oonagh Corrigan (ed). London, New York: Routledge, 2004.
[29] Jane Kaye, Paul Martin. Safeguards for Research Using Large Scale DNA Collections. - British Medical Journal, Vol 321 (2000). P 1146.
[30] Melissa A. Austin, Sarah E. Harding, Courtney E. McElroy. Monitoring Ethical, Legal, and Social Issues in Developing Population Genetic Databases. – Genetics in Medicine, Vol 5 (2003), No 6. P 451. Similarly: Melissa A. Austin, Sarah Harding, Courtney McElroy. Genebanks: A Comparison of Eight Proposed International Genetic Databases. - Community Genetics, Vol 6 (2003). P 37-38.
[31] Ruth Chadwick, Kare Berg. Solidarity and Equity: New Ethical Frameworks for Genetic Databases. - Nature Reviews: Genetics, Vol 2 (2001), No 4. P 318.
[32] The term is used also in a recent publication comparing legal aspects of different European projects. See: Jane Kaye *et al*. Population Genetic Databases: A Comparative Analysis of the Law in Iceland, Sweden, Estonia and the UK. - Trames, Vol 8 (2004), No 1/2.

more or less the whole population of a country or region, or at least a representative part of it. For these reasons, this dissertation opts for the notion "population genetic databases" to refer to collections established as a result of the UK Biobank project, the Icelandic Biogenetic Project and the Estonian *Geenivaramu* project.

1.2.1.2 Reasons for creating population genetic databases

Modern medicine is shifting away from a symptomatic diagnostic form of medicine and towards an asymptomatic predictive one. Instead of curing the results of a disease, it is more costeffective to combat the cause of a disease. In most cases, the cause of a disease can be attributed at least partly to genes. Genetic research has attained a level at which it is able to move from identification of monogenetic diseases to analysis of polygenetic disorders. Given the lower penetration of the genetic component in these latter diseases and the complexity of factors contributing to the cause and development of such diseases, large-scale databases containing genotype, phenotype and genealogical data are absolutely essential. Thus far, similar such databases have been helpful in, for instance, discovering the "breast cancer gene" BRCA1 and confirming genetic factors of rheumatoid arthritis.[33] deCODE, the company behind the Icelandic Health Sector Database, claims that it has achieved several breakthroughs in discovering genes responsible for asthma, stroke, hypertension, myocardial infarction, prostate cancer, schizophrenia, obesity, osteoporosis, and other such diseases thanks to its population genetic database.[34]

Possession of a population genetic database is not an asset on its own. A database is simply a tool for improving our knowledge of the interplay of phenotype, genotype and environment. Hence, the range of applications that a database makes possible determines the real value of a database. It has been envisaged that population databases, but also far smaller similar databases or tissue collections, can be beneficial for:[35]

a) new knowledge of disease aetiology and natural history, genomic contributors to health, pathogenic and environmental contributors to disease and the genomic-organism-environment interaction;
b) new treatments in the areas of pharmacology and genetic therapies;
c) new tests to reduce harm from pharmacological treatments with genetic risks (pharmacogenetics), detect pathologies earlier, personalise risk assessment and

[33] Jean E. Wylie, Geraldine P. Mineau (note 20), p 113.
[34] For more information visit deCODE's webpage at http://www.decode.com.
[35] James Tansey, Michael M. Burgess. The Foundations, Applications and Ethical Dimensions of Biobanks. - Electronic Working Papers Series. W. Maurice Young Centre for Applied Ethics, University of British Columbia. Available: http://www.ethics.ubc.ca.

preventive strategies and support population-based risk assessment and preventive strategies; and

d) new preventive strategies to personalise risk assessments and dietary/environmental advice, identify high risk populations most likely to benefit from closer follow-up, develop medications or other treatments to supplement missing genetic functions associated with increased risk, and develop stronger arguments for environmental policies.

Having listed all these potential benefits of population genetic databases, the question of why these databases entered the scene only recently begs to be answered. In fact, proposals for creating such databases are approximately 30 years old. As early as 1975, proposals for creating a population genetic database were put forward in Iceland but were rejected as impracticable due to a lack of financial resources and computing capacity.[36] By the end of the 20th century these constraints had vanished. Furthermore, in February 2001 the first draft of the human genome was published[37] -- a breakthrough that not only boosted genetic research and introduced new cutting edge technological solutions, but also symbolically marked the start of second stage genomics. Instead of simply describing the genome, second stage genomics aims to understand the way in which the genome works.[38] Hence, the time for introducing population genetic databases was more than appropriate, and they were considered inevitable by the end of the 20th century.

1.2.1.3 Distinguishing aspects of population genetic databases

Human tissue has been collected and stored probably at least from the time it was discovered to be a useful tool for educating future doctors. Hence, collections of human tissue are by far not a modern feature. In fact, there are currently collections of human tissue at almost every medical institution and research site. The total number of biological samples around the world may easily exceed 1 billion,[39] and is growing every minute.[40] Collections of

[36] Bill on a Health Sector Database. Available: http://brunnur.stjr.is/interpro/htr/htr.nsf/pages/gagnagr-ensk#1, 4.05.2004.
[37] Science, Vol 261, 16.02.2001; Nature, Vol 409, 15.02.2001.
[38] Francis S. Collins, who lead the Human Genome Project, and his colleagues have argued in their visionary article after the completion of the Human Genome Project that we are only at the beginning of a long road to implementing genetic knowledge for the benefit of society, and that there are several bottlenecks along the way; one of these is the lack of large scale genetic databases that enable follow up studies. See: Francis S. Collins *et al*. A Vision for the Future of Human Genomics Research. Nature, Vol 422 (2003). P 835-847.
[39] In 1998, the United States accounted for at least 282 million samples, which are growing at a rate of more than 20 million samples per year. See: National Bioethics Advisory Commission, the United States. Research Involving Human Biological Materials: Ethical Issues and Policy Guidance, 1999. P 13. Available: http://www.georgetown.edu/research/nrcbl/nbac/hbm.pdf.
[40] For instance, by the 1960s, every newborn in Western countries was screened for some metabolism errors in. See: Loretta M. Kopelman. Informed Consent and Anonymous Tissue Samples: the Case of HIV Seroprevalence Studies. - Journal of Medicine and Philosophy, Vol 19 (1994). P 525. In the UK some three million solid

health data and medical databases that aim to be as comprehensive as possible are also not a very recent phenomenon. Databases covering the whole population already exist in some countries,[41] and ideas for creating population medical record systems are currently being discussed across Europe.[42] Hence, why are population genetic databases so heavily debated? What makes them different? The following paragraphs point out some of the main novelties of population genetic databases to advance the understanding that these are not traditional collections and cannot be regulated by applying traditional concepts. Indeed, as we will see, population genetic databases are in the "super league"[43] of genetic databases and deserve special regulation.

Conventionally, collections were set up either as biobanks, in the sense that they contained only biological samples, or alternatively as databases, *i.e.*, they were comprised of various data in electronic or paper form. Such a distinction is still recognizable in Nordic countries that have separate laws for biobanks and for databases, which of course do not exclude the possibility of cross linkage of data with tissue.[44] This clear-cut approach does not apply in the case of genetic databases, since they contain tissue and DNA as physical substances as well as in the form of genotype and phenotype information. The first novel aspect of genetic databases is the inclusion of both data and tissue. Irrespective of whether we consider tissue to be data, data protection requirements apply with regard to genetic databases.

Another novelty of population genetic databases might relate to the notion of "population". In order to be a population-based database and not merely a study of one cohort, a database must contain information about a representative part of the population. Hence, cancer registries do not count as population databases since not every one of us suffers from cancer. The UK Biobank, which will contain biological materials and data only from one cohort (see more in Chapter 1.2.2.3), and other large-scale cohort studies can therefore be considered to be population genetic database projects only with some reservations, as they exclude other major population cohorts. A true population genetic database is usually several

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biological samples and over 100 million blood samples are taken every year. See: Clare Dyer. Human Tissue Bill is Modified Because of Research Needs. - British Medical Journal, Vol 328 (2004). P 1518.

[41] For instance New Zealand and Denmark. See: Jane Kaye. Protecting Privacy in Population Collections. Is the Icelandic Health Sector Database an appropriate model for the European Union? Thesis submitted for the degree of Doctor of Philosophy, University of Oxford, 2004. P 33 (unpublished, the author has a copy).

[42] The example of Iceland is provided below. Debates are currently underway in at least the United Kingdom and Estonia. For the UK, see: House of Lords, Select Committee on Science and Technology. Fourth Report (note 19); for Estonia, see webpage of Ministry of Social Affairs at http://www.sm.ee/est/pages/index.html.

[43] Jane Kaye. Genetic Research on the U.K. Population - Do New Principles Need to be Developed? - Trends in Molecular Medicine, Vol 7 (2001), No 11. P 528.

[44] See footnote 53.

times bigger than a mid-sized biobank or database. However, databases of comparable size are already operating.[45]

Thirdly, population genetic databases may differ in their objective from other collections of data and tissue. In general, modern tissue collections can be categorised according to whether their primary aim is diagnostic (*cf.* pathology specimens), therapeutical (*cf.* blood and organ repositories) or research-oriented (*cf.* cancer or population collections).[46] Population genetic databases are established for the purpose of conducting not just one particular type of research or research on one particular condition, but rather to serve as a data mine for different biomedical research projects simultaneously. Thus far, the design of a research project has usually preceded the establishment of a biobank or database. In the case of population genetic databases, however, their creation precedes the launch of particular research projects. Yet it would be wrong to attach too much importance to this feature, since the very reason why physicians and researchers ceased disposing of all left-over materials has to do with the fact that such materials were considered valuable for research, the nature of which was as yet unknown at the collection stage.

For purposes of data mining, population genetic databases have to be as comprehensive, accurate and up-to-date as possible. To achieve this, population genetic databases envisage the collection of medical data, genotype data, genealogical data and information about the living environments of participants. The existing databases are focused mainly on one type of data (*i.e.*, genetic data, genealogies or medical data). Information in a population genetic database will be updated with a frequency that is determined by research needs, and will be achieved by collecting additional information from medical records or recontacting participants and sequencing more markers of participants' DNA. To ensure the accuracy of the data, monitoring and verification procedures are introduced. Should population genetic databases succeed in being as comprehensive, accurate and up-to-date as possible, they will bring both data quality and data quantity to a new level.

[45] The size of population genetic databases can be compared to some databases used for forensic purposes. For example the United States Armed Forces Institute of Pathology possesses more than 94 million biological samples. See: Graham Lewis. Tissue Collection and the Pharmaceutical Industry. Investigating Corporate Biobanks. - Genetic Databases: Socio-ethical Issues in the Collection and Use of DNA. Richard Tutton, Oonagh Corrigan (ed). London, New York: Routledge, 2004. P 183. Their size is also comparable with the above-mentioned databases containing medical records of the whole population.

[46] Biobanks for Health. Optimising the Use of European Biobanks and Health Registries for Research Relevant to Public Health and Combating Disease. Report and Recommendations. P 10. Available: http://www.fhi.no/dav/87D4A120459E4FB8827DD7E98DFEBB1C.doc.

The fifth innovation that population genetic databases have introduced is the public-private-partnership aspect of setting up and sharing financial risks.[47] Of course, public-private collaborations as such are not new in the field of biomedicine;[48] what is new is their scale: estimated costs of establishing a population genetic database may well exceed 100 million euros.[49] Population genetic databases, as valuable and promising as they may be, are a very risky investment without any guarantee that the money poured into these projects will increase public health or the private wealth of investors. This fact seriously challenges every financial contribution from the public sector, especially where such an investment is made at the expense of other research or public health projects. The private sector, too, is aware of the risks related to population genetic databases and therefore requires exclusive commercial rights over a population genetic database. For several authors on bioethics, the fact that the private sector is involved equates to higher risk,[50] although there is no proof that the private sector is less capable of ensuring research participants' privacy. In fact, recent scandals related to the misuse of biobanks have involved publicly funded and operated biobanks.[51] Indeed, "the means [public or private] by which funding for research is provided should be less of a concern than ensuring that adequate safeguards are instituted to ensure that the public benefit of the research is realised, and that the research is carried out in a manner that is ethically justifiable."[52]

And finally, the research to be carried out using the data and biological samples from population genetic databases involves the latest methods of medical research. With some degree of generalisation, one can say that medical research started with trials on human beings and self-experimentation, followed by observational research requiring an intervention (for instance taking a blood sample) only with regard to the participant, and then moved on to

[47] To a smaller or greater extent all population genetic databases envisage the use of private capital at some stage. Mary R. Anderlik, Mark A. Rothstein. Privacy and Confidentiality of Genetic Information: What Rules for the New Science? - Annual Review of Genomics and Human Genetics, Vol 2 (2001). P 412-413.

[48] Probably the best examples are stage III and IV clinical trials where private companies use the facilities and services of public hospitals to develop new drugs.

[49] Ants Nõmper. Transforming Principles of Biolaw into National Legislation: Comparison of Four National Laws in Three Aspects. – Your Genes in a National Bank? Ethical, Legal and Social Concerns. Vilhjalmur Árnason *et al* (ed). (forthcoming).

[50] See, for instance: Melvin G. McInnis. The Assent of a Nation: Genethics and Iceland. - Clinical Genetics, Vol 55 (1999). P 234-239. Also: George Annas. Rules for Research on Human Genetic Variation - Lessons from Iceland. - New England Journal of Medicine, Vol 342 (2000), No 24. P 1830.

[51] Most notorious among these scandals are the Alder Hey case (a case where doctors used the organs of deceased children for research purposes without the knowledge of their parents. See official report at: http://www.rlcinquiry.org.uk/) and the Bristol Royal Infirmary case (see official report at: http://www.bristol-inquiry.org.uk/final_report/) which ultimately led to proposal of a new law in the United Kingdom called the Human Tissue Bill in December 2003 (available: http://www.parliament.the-stationery-office.co.uk/pa/cm200304/cmbills/009/2004009.pdf).

[52] World Health Organization. European Partnership on Patients' Rights and Citizens' Empowerment, 2003. Genetic Databases: Assessing the Benefits and the Impact on Human & Patient Rights. Available: http://www.law.ed.ac.uk/ahrb/publications/online/whofinalreport.pdf.

research with existing data and biological samples. The risks to participants, especially with regard to their life and health, have been constantly decreasing. Population genetic databases are just one step going down this aisle.

1.2.2 Population genetic databases in practice

The following part of this dissertation presents background information on three different population genetic database projects. Although around the world dozens of similar projects have been proposed, most recently even in the United States,[53] there are good reasons to limit the scope of this chapter to three projects.[54] Given that a large part of this dissertation concentrates on the legal issues rooted in the documents of the European Union and the Council of Europe, genetic databases outside Europe do not necessarily face the same legal problems, and their features cannot be used for illustrating European legal issues. Another reason for limiting the scope of analysis is that an empirical survey has proven that only a few scientific articles contain reliable information about projects other than those explored below.[55] And finally, these three projects are the ones with which the author became most familiar during his work in Estonia, his studies in the United Kingdom, and his participation in research programs led by the University of Iceland.[56]

1.2.2.1 The Icelandic Biogenetic Project

Iceland shoulders the beauty and pain of being the first country to propose a viable idea for a population-based project that allows the study of genotype and phenotype data together with genealogies. Although recent developments show that the Icelandic project is unlikely ever to be carried out as proposed,[57] it is nonetheless worth outlining the essential ideas of the project. It must be emphasised from the beginning that Iceland never intended to create a "super-database" like those proposed in the UK or Estonia which would have included biological samples, data and genealogies. Rather, Iceland intended to achieve the same end by linking three different sources: the Health Sector Database (HSD), a biobank and

[53] Francis S. Collins. The Case for a US Prospective Cohort Study of Genes and Environment. Nature, Vol 429 (2004). P 475-477.
[54] Information about other projects can be found in: Melissa A. Austin, Sarah Harding, Courtney McElroy, (note 30), p 40-42; Jean E. Wylie, Geraldine P. Mineau (note 20), p 113-115; Genevieve Cardinal, Mylene Deschenes. Surveying the Population Biobankers. - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003. P 37 - 94.
[55] Melissa A. Austin, Sarah Harding, Courtney McElroy.(note 30), p 39.
[56] For comparison of the aspects of the Icelandic, Estonian and the UK project that remain outside the realm of this dissertation, see: Alice Hsieh. A Nation's Genes For a Cure To Cancer: Evolving Ethical, Social and Legal Issues Regarding Population Genetic Databases. - Columbia Journal of Law and Social Problems, Vol 37 (2004). P 359-411. This article contains some fallacies, however, and needs to be read critically. For instance on p 389 Hsieh holds that only the Icelandic project has issued exclusive rights to a company and does not mention the fact that the same system is used in Estonia (see more below).
[57] Allison Abbott. Icelandic Database Shelved as Court Judges Privacy in Peril. - Nature, Vol 429 (2004). P 118.

public genealogical sources. Although this set of databases does not have an official name, we may refer to it as the Icelandic Biogenetic Project.[58] Each of these three sets of data is subject to different legislative requirements, unlike in the UK where no special laws were adopted, and unlike in Estonia, where a single law regulates the whole project.

As with the Estonian project, the target group in the Icelandic project is the whole population and, as in Estonia, the project was intended to be carried out using mainly money from the private sector. This, in turn, creates the need to enter into exclusive agreements with private companies. For instance, deCODE Genetics (deCODE), the company that has gained an exclusive licence to operate the HSD -- the most controversial part of the Icelandic Biogenetic Project -- has, partly thanks to this licence, received 152,111 million USD in revenues between 1999 and 2003.[59] At the same time, the Icelandic project differs from the Estonian project and resembles the UK Biobank in that a company, rather than a foundation, will operate the database.

The earliest Icelandic act of relevance in the field of genetics research is the Act on the Rights of Patients, No 74/1997 (the Patient's Act).[60] Article 15 of the Patient's Act authorises the Data Protection Commission to allow access to information contained in clinical records and biological samples for the purposes of scientific research. Thus, patients' records and samples in identifiable form were already available for scientific research in Iceland without patients' consent before the adoption of laws regulating the HSD. The Patient's Act thus merely reflects the roots of the Icelandic approach to scientific research. However, the Patient's Act was never intended to authorise the use of virtually all patient records for research in general and therefore a special law was considered to be necessary for the HSD.[61]

This special law is the Act on a Health Sector Database, no 139/1998 (hereinafter the HSD Act), that authorises the establishment of the HSD.[62] Although the aim of the HSD is to store data from as many persons as possible, the HSD is not intended to contain all available

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[58] Gisli Palsson, Kristin E. Hardardottir. For Whom the Cell Tolls. Debates about Biomedicine. - Current Anthropology, Vol 43 (2002), No 2. P 272.

[59] deCODE has also secured revenues for the next three years at a comparable level. See: annual report of the year 2003 of deCODE Genetics, Inc. P 41-42. Available: http://www.shareholder.com/common/edgar/1022974/1047469-04-8049/04-00.pdf. In July 2004, the company claimed that it had more than 225 million ˇUSD on hand to develop its activities. See press release at: http://www.decode.com/main/view.jsp?branch=167011&e342RecordID=2221&e342DataStoreID=3917.

[60] Icelandic title: *Lög um réttindi sjúklinga*. English translation available: http://heilbrigdisraduneyti.is/interpro/htr/htr.nsf/pages/act-rightspatients 15.11.2003.

[61] Hrobjartur Jonatansson. Iceland's Health Sector Database: A Significant Head Start in the Search for the Biological Grail or an Irreversible Error? – American Journal of Law & Medicine, Vol 26 (2000). P 46.

[62] Icelandic title: *Lög um gagnagrunn á heilbrigðissviði*. English translation available: http://brunnur.stjr.is/interpro/htr/htr.nsf/pages/gagngr-log-ensk 15.11.2003. Prior to the adoption of the HSD Act, at least four versions were drafted that are of great value to assessing the norms of the Act. See a comparison of these Bills: Einar Árnason. Personal Identifiability in the Icelandic Health Sector Database. - The Journal of Information, Law and Technology, No 2, 2002. Available: http://elj.warwick.ac.uk/jilt/02-2/arnason.html.

health information: the HSD will not contain biological samples (data carriers)[63] and will contain only a limited amount of genetic data. Even though health data as defined by Article 3 (6) of the HSD Act encompasses genetic data, one should not forget that the primary source of health data is patient records, which traditionally contain very little data about genotype.[64]

One of the main HSD controversies pertains to the consent issue. Article 8 of the HSD Act establishes an opt-out mechanism by stating the following: "A patient may request at any time that information on him/her not be entered onto the health-sector database." At the time the Act was introduced, this was certainly one of the greatest innovations in the consent field, the influence of which can be compared to the innovations contained in the Declaration of Helsinki. The shift from a traditional specific consent arrangement to an opt-out system was largely backed by data security arguments.

Indeed, much effort has gone into convincing people that the information in the HSD is personally non-identifiable data. The main safeguard contained in the HSD Act seems to be the multiple one-way coding requirement (Articles 3 and 7), which prevents the existence of a direct decoding key. However, the Act does not prohibit the use of sophisticated methods to track individuals.[65] Moreover, the set of data protection safeguards contained in the Act suffered a serious setback once the Icelandic Supreme Court ruled that merely introducing the requirement that information must be non-identifiable and setting up oversight bodies does not ensure the protection of privacy at the level required by the Icelandic constitution.[66]

The third law, the Biobanks Act 110/2000[67] regulates issues involving bodily materials that may be linked with the HSD. Unlike the data in the HSD, tissue in a biobank is

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[63] Pursuant to the definition of the HSD as set forth in Article 3 (1) of the HSD Act, the HSD contains only information recorded in a database. Language in the First Bill which allowed material to be included into the HSD was omitted. This reflects the Scandinavian tradition of regulating human research, which expressly distinguishes between biobanks and databanks. Related questions are thus addressed in separate legal documents, as is evidenced by the Icelandic Act on Biobanks (13 May 2000, English translation available: http://heilbrigdisraduneyti.is/interpro/htr/htr.nsf/pages/act-rightspatients), the Swedish Biobanks [Health Care] Act (23 May 2002, English translation available: http://www.codex.uu.se/texts/Swedish%20Act%20on%20Biobanks%20in%20Health%20Care.doc) and the Norwegian Act on Biobanks, no 2003/12 (21 February 2003, available: http://www.lovdata.no/all/nl-20030221-012.html).

[64] These records mainly contain data about diagnoses obtained using chromosomal studies or genetic testing.

[65] Einar Árnason (note 62), p 9-14. Also: Oddny Mjöll Arnardottir, David Thor Björgvinsson, Vidar Mar Matthiasson. The Icelandic Health Sector Database. - European Journal of Health Law, Vol 6 (1999). P 332.

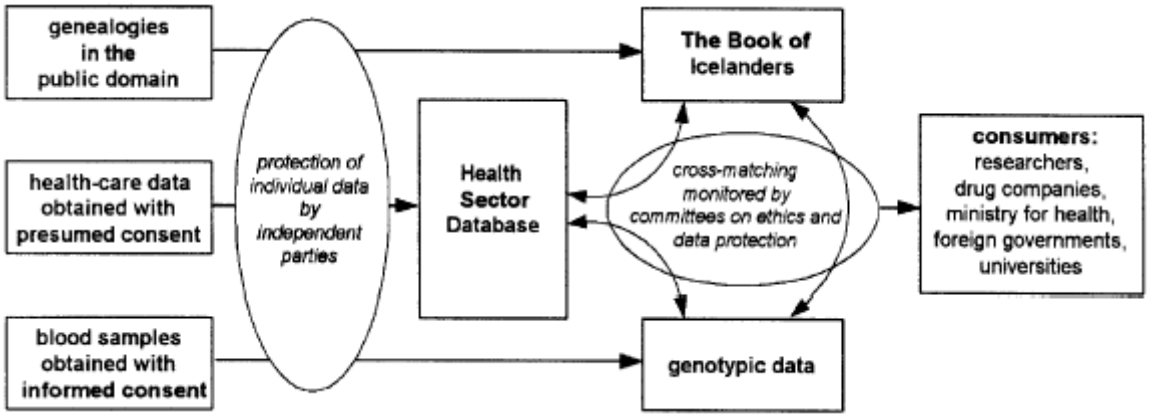
[66] *Ragnhildur Guðmundsdóttir v. The State of Iceland*. Verdict of the Icelandic Supreme Court of 27.11.2003. Available: http://www.mannvernd.is/english/lawsuits/Icelandic_Supreme_Court_Verdict_151_2003.pdf. See also: Renate Gertz. An Analysis of the Icelandic Supreme Court Judgement on the Health Sector Database Act. *SCRIPT-ed*, Vol 1 (2004), No 2. Available: http://www.law.ed.ac.uk/ahrb/script-ed/issue2/iceland.asp. Interestingly, the annual report submitted to the United States Securities and Exchange Commission does not mention this fact that has potentially deleterious effect on the activities of the deCODE as the licensee of the HSD, though strictly speaking deCODE is not a party to this lawsuit. This lack of a reference in the annual report implies that deCODE no longer considers the HSD to be part of its business activities. See: http://www.shareholder.com/common/edgar/1022974/1047469-04-8049/04-00.pdf.

[67] Icelandic title: *Lög um lífsýnasöfn*. English translation available: http://brunnur.stjr.is/interpro/htr/htr.nsf/pages/Act-biobanks 15.11.2003.

personally identifiable, although it is stored in coded form without personal identifiers. In some other respects, for instance with regard to the consent issue, the Biobanks Act follows the pattern of the HSD Act. According to provisional clauses, all already existing biological samples can be entered into a biobank unless the person concerned opts out. Consent to the transfer of tissue to a biobank is also presumed if the tissue is removed within the context of providing health care services. If the person decides to opt out after his tissue is entered into a biobank, the tissue will not be destroyed but access to it will be terminated.[68]

Should new biological samples be taken solely for biobanking purposes, a person must give his informed consent. A person is able to provide informed consent after having received information regarding the purpose for taking the biological sample, its usefulness, the risks attendant upon the process of taking the sample, and after being informed that the biological sample will be permanently preserved in a biobank for research use (Art 3 5)). No additional consent need be sought in order to perform studies on the biological samples stored in the biobank. The regulation of this issue illustrates the abandonment of the traditional concept of informed consent for, as explained below, the latter can only be obtained after a research project has been designed and not in advance for several unspecified research projects.

Finally, a few words about genealogies. Genealogies in Iceland are accessible free of charge for everybody using the "Book of Icelanders" database. This database contains the data of half the individuals ever born in Iceland, *i.e.*, 600,000 people.[69] Using the Book of Icelanders, a special genealogical database will be created that can be linked with the HSD and a biobank. No consent will be sought or presumed for setting up this additional database, nor does there exist an opt-out mechanism from this database.[70]



[68] Regulations on the keeping and utilisation of biological samples in biobanks, No 134/2001. Article 9. Icelandic title *Reglugerd um vörslu og nýtingu lífsýna í lífsýnasöfnum*. 6.02.2001. English translation available: http://brunnur.stjr.is/interpro/htr/htr.nsf/pages/lawsandregs0001.

[69] Gisli Palsson, Kristin E. Hardardottir (note 58), p 277.

[70] Vilhjalmur Árnason. Coding and Consent: Moral Challenges of the Database Project in Iceland. - Bioethics, Vol 18 (2004). P 33.

deCODE's activities in Iceland have from time to time been used to illustrate modern biopiracy. According to some authors, the direct contribution[71] of deCODE amounts to less than 0.5% of Iceland's public expenditure on health and therefore serves more commercial interests than public ones.[72] Greely maintains that since Iceland has neither negotiated for a substantial initial payment nor for a continuing interest, it "has gotten a bad deal"[73] and now, when deCODE has proven profitable, Iceland should renegotiate profit sharing arrangements.[74] However, renegotiations of profit sharing arrangements are unlikely to take place given that the HSD will probably not be established at all in light of international criticism, the above-mentioned court ruling, and deCODE's lack of interest in the project.

1.2.2.2 The Estonian Gene Bank Project

Although the Icelandic project was discussed in Estonia during the period of preparation for the Estonian gene Bank Project, the Estonian project copies neither the Icelandic concept nor its legal framework. Estonia has decided to create a single database (*Geenivaramu*) and regulate it by a single Act (the Human Gene Research Act).[75]

The goal of the Estonian Gene Bank Project is to create a database consisting of the phenotype, genotype and genealogical data of approximately 1,000,000 Estonian inhabitants. For this purpose, every participant is asked to complete a questionnaire, to undergo certain health checks and to provide a blood sample for genotyping purposes. The database will be used both for research and clinical purposes. Research will be carried out on information rendered anonymous vis-à-vis the researchers, with the exception of the chief processor of the database. For clinical purposes, the person himself and his physician will have access to identified data in the database.[76]

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[71] This direct contribution does not include the commitment of deCODE's major financial partner Roche to provide Icelanders with any medicine that is developed out of the alliance. This commitment is considered to be a borderline inducement. See: Jamaica Potts. At Least Give the Natives Glass Beads: An Examination of the Bargain Made Between Iceland and Decode Genetics with Implications for Global Bioprospecting. - Virginia Journal of Law & Technology, Vol 7 (2002). P 25.

[72] Jon F. Merz, Glenn E. McGee, Pamela Sankar. "Iceland Inc."?: On the Ethics of Commercial Population Genomics. – Social Science & Medicine, Vol 58 (2004). P 1202.

[73] Henry T. Greely. Iceland's Plan for Genomics Research: Facts and Implications. – Jurimetrics, Vol 40 (2000). P 187.

[74] Jamaica Potts (note 71), sections 87-88.

[75] Estonian title *Inimgeeniuuringute seadus*. 13.12.2001. - RT I 2000, 104, 685. English translation available: http://www.geenivaramu.ee/index.php?lang=eng&sub=18&eetika=1. The HGRA was drafted by a working group led by Jüri Raidla. The author of this dissertation had an opportunity to serve as a member of this working group as well as of the working group that drafted the implementing regulations for the HGRA.

[76] For a detailed overview of the project, see: Andres Rannamäe. Estonian Genome Project – Large Scale Health Status Description and DNA Collection. – Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003. P 17-36. See also: Ants Nõmper. Estonian Human Gene Research Act and its Implementation. – Ethics of Human Genetics: Challenges of the (Post)Genomic Era. Josef Glasa (ed). Bratislava: Charis, 2002. P 99-104.

The *Geenivaramu* database will be created and maintained by the non-profit foundation *Eesti Geenivaramu* (EGV), which was created and is controlled by the Republic of Estonia. The members of the highest body of EGV, the Supervisory Board, are appointed by the Estonian Parliament, the Estonian Government and the Estonian Academy of Sciences. The objectives of EGV encompass promoting the development of genetic research, collecting information on the health of the Estonian population and genetic information concerning the Estonian population, and using the results of genetic research to improve public health (Article 3 (2) HGRA). EGV is the chief processor of the *Geenivaramu* database and has the right to organise the taking of biological samples and the collection of information; to prepare, code, decode, store, destroy and issue data and biological samples; and to perform genetic research. Save for the coding and decoding activities, the chief processor can hand over its tasks to authorised processors. Authorised processors and third parties may gain access to the data in the *Geenivaramu* in personally non-identifiable form in accordance with the procedures set forth in law.

The Estonian Gene Bank Project is regulated principally by the HGRA and its implementing regulations.[77] The HGRA was adopted with considerable ease and without unduly extensive debate in the Parliament or by society.[78] Some of the HGRA's main principles are referred to throughout this dissertation. At this point, only the consent issue should be emphasised.[79] The HGRA provides that every participant is considered to give his informed consent to participate in the database as well as in research to be carried out using the data and biological materials contained in the database. This concept is a novel one, for it does not follow the traditional "one consent – one research project" approach. Yet it is not as

[77] There are five implementing regulations associated with the HGRA:

1. Requirements for authorised processors of the Gene Bank (Estonian title *Geenivaramu volitatud töötlejale esitatavad nõuded*); Decree No 43 of the Estonian Government. 23.01.2002. - RT I 2002, 10, 57.
2. Format of gene donor's consent and the procedure for the completion and preservation thereof (Estonian title *Geenidoonoriks saamise nõusoleku vorm, selle täitmise ja säilitamise kord*); Decree No 125 of the Minister of Social Affairs. 17.12.2001. - RTL 2002, 1, 6.
3. Procedure for issuing tissue samples, descriptions of DNA and descriptions of state of health (Estonian title *Geenidoonori koeproovi, DNA kirjelduse ja terviseseisundi kirjelduse väljastamise kord*); Decree No 126 of the Minister of Social Affairs. 17.12.2001. - RTL 2002, 1, 7.
4. Conditions for storage of DNA samples, coded descriptions of DNA and coded descriptions of state of health (Estonian title *Geenidoonori kodeeritud koeproovi, DNA kirjelduse ja terviseseisundi kirjelduse säilitamise tingimused*); Decree No 127 of the Minister of Social Affairs. 17.12.2001. - RTL 2002, 1, 8.
5. Procedure for destroying data which enables decoding, tissue samples, descriptions of DNA and descriptions of state of health (Estonian title *Geenidoonori koeproovi, DNA kirjelduse, terviseseisundi kirjelduse ja tagasikodeerimist võimaldavate andmete hävitamise kord*); Decree No 128 of the Minister of Social Affairs. 17.12.2001. - RTL 2002, 1, 9.

[78] For information on the process of preparing the HGRA, see: Jüri Raidla, Ants Nõmper. The Estonian Genome Project and the Human Gene Research Act. – Baltic Yearbook of International Law, Vol 2 (2002). P 51-69.

[79] For a comprehensive overview of various provisions and underpinnings of the HGRA, see: Jüri Raidla, Ants Nõmper (note 78), p 53-69; and Ants Nõmper, Krista Kruuv. The Estonian Genome Project. - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003. P 213-224.

radical as the opt-out regime set forth in the HSD Act. It is probably for this reason that the international community has welcomed the approach adopted in the HGRA, and has referred to the HGRA as a possible "/.../ starting point for drafting laws and guidelines for population genetic databases"[80] and "/.../ a reasonable balance of rights and interests involved with the establishment of a population based database /…/".[81] In fact, the HGRA has already served as the basis for other states' regulation of their own population genetic databases.[82]

Due to a high level of technological optimism, the HGRA and the project in general have been welcomed by the Estonian population and have largely enjoyed remarkable public support.[83] That support, however, has recently suffered a major setback due to turbulence surrounding the financing of the project. Given the cost of the endeavour, estimated at about 150 million USD, it was initially envisaged that the Estonian state and private investors would finance the project jointly.[84] In reality, the project was launched using money exclusively from the private sector. For that purpose, EGV established a company called AS EGeen and, on September 19th, 2001, executed a Gene Bank Agreement with EGeen that furnished EGeen with the exclusive rights to commercialise information contained in the *Geenivaramu*. EGeen had no right to ban non-commercial research on information in the *Geenivaramu*. For its exclusive right, EGeen was obligated to pay certain fees and to reimburse EGV for all its costs associated with carrying out the project.[85] For reasons not relevant here, EGV and EGeen terminated the Gene Bank Agreement in December 2004 and EGeen currently has no exclusive rights with regard to the data in the *Geenivaramu*. Up until the termination of the Gene Bank Agreement, EGeen had financed the activities of EGV in the amount of approximately 4.4 million USD. EGeen, in turn, was financed by a Delaware company called EGeen International Inc., which subsequently swapped 2.5 % of its shares with EGV for 100

[80] Michael J. Smith. Population-Based Genetic Studies: Informed Consent and Confidentiality. - Santa Clara Computer & High Technology Law Journal, Vol 18 (2001). P 91.

[81] Anja Meyer, Alissa C. Zeller. The Icelandic Health Sector Database and the Right to Privacy. - Human Rights Law Journal, Vol 21 (2000), No 9-12. P 413. For the same account from a German point of view, see: Niels v. Redecker, Ekkerhart Reimer. *Staatliche Genbanken unter dem Grundgesetz – Estland als Vorblid für Deutschland. – Jahrbuch für Ostrecht*, Vol 42 (2001). P 361-392.

[82] For instance the Latvian Human Genome Research Act is basically a translation of the HGRA. See: Ants Nõmper. *Eesti ja Läti geeniseadused – ühe munaraku kaksikud*. - *Eetikakeskuse aastaraaamat* (2001-2004), Tartu: *Eesti Keele Sihtasutus*, 2005. Translation of the Latvian law is available in: Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003. P 375-388.

[83] Külliki Korts. Becoming Masters of Our Genes: Public acceptance of the Estonian Genome Project. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 187-192.

[84] For instance section 7 of the Explanatory Report to the Human Gene Research Act suggests that one fifth of the total costs should be covered by public funding. Available: http://web.riigikogu.ee/ems/saros-bin/mgetdoc?itemid=003672949&login=proov&password=&system=ems&server=ragne1.

[85] An overview of payments and a comparison with the Icelandic project is provided in: Ants Nõmper, Krista Kruuv (note 79), p 215-217. See also: Rainer Kattel, Riivo Anton. The Estonian Genome Project and Economic Development. - Trames, Vol 8 (2004), No 1/2. P 106-128.

% ownership of Egeen. EGeen International then became the sole shareholder of EGeen. EGeen International unites different venture capital funds, Estonian angel-investors and key figures of the project. It is currently unclear where EGV will obtain further funding, but it can be expected that the project will be supported mainly by national and international grants and research funds. Thus, the financing of the project has undergone a remarkable metamorphosis – from a public-private partnership to an exclusively private arrangement (like the Icelandic HSD) to an exclusively public project (like the UK Biobank). Needless to say, each phase of this metamorphosis was vigorously attacked by both proponents and opponents of the project, which has caused a decline in public trust with regard to the project.

1.2.2.3 The UK Biobank

The UK Biobank initiative is probably at present the most rapidly developing population-based genetic database in Europe. The idea for this project was advanced in 1999. In 2002 the project secured financing for seven years in the amount of £ 61.5 million. The launch of the pilot project was projected for 2004 and the start of the main project is scheduled for late 2005.[86]

The UK Biobank aims to become the world's largest resource for studying the interplay between genes, lifestyle and common diseases. It will comprise biological samples, phenotype data and genealogies of up to 500,000 selected participants aged between 45–69 years. The participants will be monitored for at least 10 years and their phenotype data will be continuously added to the database. Although the UK Biobank is not truly a population-based project since not every inhabitant will have an opportunity to participate in it, the 500,000 benchmark ensures that the project will still be comprehensive enough to permit conclusions regarding the most common diseases affecting the entire population of the UK.[87] Tissue and data in the UK Biobank will be held in a form that is personally identifiable for the guardian of the biobank but not for researchers who receive data or tissue from the biobank.

The UK Biobank will be operated by UK Biobank Ltd., which has been set up as a charitable company limited under guarantee. This company will be the legal custodian of the database, data and biological samples and allegedly has ownership over them.[88] Given that the company has secured funding in the form of public donations, there are no additional contractual relationships in place that might include exclusivity as tool for ensuring

[86] UK Biobank Briefing Note April 2004. Available: http://www.ukbiobank.ac.uk/Documents/long%20briefing%20paper.pdf 10.05.2004.
[87] For more information, see: Protocol for the UK Biobank. A study of genes, environment and health. Available: http://www.ukbiobank.ac.uk/documents/draft_protocol.pdf 10.05.2004.
[88] UK Biobank Ethics and Governance Framework. Version 1. Section II A. Available: http://www.wellcome.ac.uk/en/images/ukgene bank_egf_comments2_7439.doc 2.10.2003.

investment. All researchers are granted access to the UK Biobank, although the access fee will be higher for commercial uses of the database. These fees and some income from intellectual property rights should allow the continuity of the project beyond the initial investment.[89]

Unlike in Estonia and Iceland, no special legislative framework is envisaged for the UK Biobank. The project will be carried out in a very complex legal environment that includes domestic statutory instruments such as the Data Protection Act of 1998, the Human Rights Act of 1998, the Human Tissue Act of 2004; common law doctrines of confidentiality, battery and negligence; professional guidelines issued by the Medical Research Council, the Department of Health, the General Medical Council, and the British Medical Association; and the case law of the European Court of Justice and the European Court of Human Rights. Against such a background, it can be expected that several legal controversies will arise. However, this does not mean that the rights of participants are less protected or that the legislative situation in England is *per se* inferior to that of countries that have opted in favour of specific legislation.

With regard to consent, the UK Biobank adopts an all-or-nothing concept that is very similar to the open consent concept advanced in this dissertation. According to proposed ethical and governance principles, "/…/ participants will have to be either in or not in UK Biobank" and they cannot choose "/…/ to allow use of some data about themselves but not other data, or by certain kinds of researchers but not others, or for certain purposes but not others".[90] Although obtaining additional consent at a later stage is not envisioned, this possibility is not excluded in cases where a proposed new use does not fall within the scope of the primary consent.[91]

1.3 CLASHING INTERESTS IN POPULATION GENETIC DATABASES

1.3.1 Types of interests and their assessment

Informed consent or, to be more precise, the form of informed consent that is used in the context of population genetic databases, must be able to take into account different interests surrounding these databases. Consent can be viewed as a compromise between different interests of different groups.

[89] UK Biobank Briefing Note (note 86), p 2 and 9.
[90] UK Biobank Ethics and Governance Framework Background Document. Section I B 1. Available: http://www.ukbiobank.ac.uk/documents/egf-background.doc 10.05.2004. For information to be given to participants, see: UK Biobank Ethics and Governance Framework (note 88), section I B 1.
[91] UK Biobank Ethics and Governance Framework (note 88), section I B 5.

The groups affected by the creation and operation of population genetic databases have different and partly conflicting interests. Given this jungle of interests, we first must create a system for classifying interests. One way of doing so is to consider what functions the consent requirement performs in biomedical research, and then attempt to analyse which interests weigh in favour of or against broadening the traditional concept of informed consent. Hence, in broad terms, these interests can be divided into positive and negative ones. It is important to note that the adjectives "positive" and "negative" in this context do not judge whether one particular interest is good or bad, right or wrong but rather simply whether one should modify the current concept of consent or not.

We will see in Chapter 2.1 that the informed consent requirement was introduced historically to protect research subjects from misuse by researchers. This function is still the essence of the consent requirement. To have a clear understanding of what risks a research project may entail, a researcher must first draft a research project, and only after the project has undergone ethical and scientific scrutiny may the researcher present the project to research subjects in order to obtain their consent. The negative interests discussed below point toward maintaining the current *status quo*, since their roots lie in preventing potential risks. On the other hand, positive interests place a greater value on potential benefits and argue in favour of modifying the traditional concept of informed consent. At the end of this chapter, we should be ready to conclude whether the balancing of different interests leads us to the traditional concept of informed consent or whether, against the background of interests in population genetic databases, there is some room for modifying the informed consent concept.

With regard to the interested parties, it is useful to split them into three sets – research participants, research performers and the groups between. All three of these groups have interests that clash in several respects, as explored below. In general, research participants have a negative interest in avoiding risks and a positive interest in promoting science that is beneficial to the community as a whole and to each and every community member individually. Researchers, whether working in academics or for private companies, are interested in success, and it is difficult to find any arguments against more and more research from their side. Yet, it is in the interests of researchers to maintain public trust in research so that they may be furnished with a sufficient number of research subjects and an adequate amount of funding. Looking through the eyes of the groups between, for example families, disease groups and subpopulations, we will recognise that these groups too have contradictory interests – more research is needed but not for a too-high price in terms of risks.[92]

[92] There are, of course, several different ways to structure risks and harms. For two interesting approaches, see: Joan E. Sieber. Privacy and Confidentiality as Related to Human Research in Social and Behavioural Science. -

Risk does not equal harm -- risk is the likelihood that harm may occur.[93] Under this definition, risk has two separate elements, harm and probability, both of which must be present in order to create a risk. Obviously, it does not make sense to talk about risk where a situation can amount only to a circumstance in which merely minor setbacks occur. It would be similarly inappropriate to speak about a risk in the context of harm that can occur only theoretically. Assessment of risk is rendered even more complex by the fact that the elements of risk can hardly be evaluated independently from one another. The fact (*i.e.*, the 100 % likelihood) that a research subject will feel moderate pain during a research intervention that lasts one hour does not imply that the person would not or may not consent to such research. On the other hand, even a small (for instance a 10 %) possibility of remaining paralysed after such an intervention may render research and consent to it unacceptable. Hence, the elements of risk are interrelated and interdependent and therefore should be assessed simultaneously.

An assessment of risks cannot be carried out without considering the safeguards in place to either reduce the possibility that a risk will in fact materialise, or to limit the negative consequences of such an occurrence. This is precisely why, in the following chapters, various risks are always explored with reference to the existing safeguards.

1.3.2 Interests of research participants

Research participants are people who have consented to participate in a population genetic database, *i.e.* those who are willing to give biological samples and data to be entered into the database. Research participants may have and certainly will have different interests in the context of population genetic databases. Provided that more scientific knowledge is beneficial, the positive interests of participants are advanced if research is carried out, but only insofar as the participants are not exposed to unbearably high risks arising from research (negative interests). Since the participants largely share positive interests, such as discovering new cures for a disease, with the community and other social groups (family, for instance), these interests are addressed in Chapters 1.3.3 and 1.3.5, below, and the following analysis concentrates on the negative interests of participants, *i.e.*, on risks.

To illustrate the relevant risks arising out of the creation and operation of population genetic databases, it might be useful to divide them into three main categories – physical risks, psychological risks and informational risks. Throughout this dissertation, a distinction

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Research Involving Human Biological Materials: Ethical Issues and Policy Guidance, Volume II Commissioned Papers. Rockville: NBAC, 2000. P N24-N33; and Anita Buchanan. An Ethical Framework for Biological Samples Policy. - Research Involving Human Biological Materials: Ethical Issues and Policy Guidance, Volume II Commissioned Papers. Rockville: NBAC, 2000. P B6-B15.

[93] Ernest D. Prentice, Bruce G. Gordon. Institutional Review Board Assessment of Risks and Benefits Associated with Research. – Ethical and Policy Issues in Research Involving Human Participants, Volume II Commissioned Papers and Staff Analysis. Rockville: NBAC, 2001. P L3.

between physical risks, psychological risks and informational risks is maintained not only because different legal concepts exist with the aim of protecting against each of these risks (*i.e.*, concepts of battery, data privacy and data protection, respectively), but also because it is essential to understand that population genetic databases are more databases than conventional research settings in which participants' health and physical well-being are constantly at stake.

1.3.2.1 Physical risks

Physical risks include physical injury and feelings of pain or suffering. Mere inconvenience or discomfort are usually not regarded as harms in the context of research and, thus cannot amount to a risk. Having said this, it is obvious that within the framework of genetic databases, physical risks are present only during the phase of interference with a participant's body, *i.e.*, when tissue samples are taken and certain bodily characteristics are measured. The physical risks associated with these procedures are well known and do not require further explanation here, as these risks are unanimously regarded as minimal (see Chapter 2.2.3.2). Furthermore, all possible physical risks are known at the moment of bodily intrusion. These risks therefore can be explained to the research participant and the traditional type of informed consent can be obtained.[94] Thus, this type of risk is not decisive for purposes of determining what form of consent may be used in population genetic databases.

1.3.2.2 Psychological risks

Although there is not a uniform definition of psychological risk, the term is traditionally used to include "undesired changes in thought process and emotion".[95] All risk assessment surveys emphasize that psychological risks are almost always minimal and transitory,[96] likely to occur, less quantifiable[97] or tangible.[98] These surveys nonetheless warn that these risks cannot be totally omitted when assessing research implications. There are two risks that especially stand out among psychological risks: the interest not to know certain information and the dignitary interest not to participate in certain research projects.

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[94] A minority opinion argues that upon consenting to the taking of a tissue sample a research participant places himself in a position of unwanted bodily intrusion at the hands of the researcher and therefore the consent given is still not valid. See: Anita Buchanan (note 92), p B10.

[95] Institutional Review Board Guidebook. United States Office for Human Research Protections, 1993. Section III A. Available: http://ohrposophs.dhhs.gov/irb/irb_guidebook.htm 7.06.2004.

[96] Institutional Review Board Guidebook (note 95), section III A.

[97] See for instance: Ernest D. Prentice, Bruce G. Gordon (note 93), p L4.

[98] Alexander M. Capron. Protection of Research Subjects: Do Special Rules Apply in Epidemiology. - Journal of Clinical Epidemiology, Vol 44 (1991), Supplement I. P 83.

Probably one of the most explicit psychological risks concerns the feedback of information to a research subject who does not want to know the information. For the protection against such a risk, the right not to know has been proposed.[99] However, especially in the case of genetic studies, such a right and any other similar kinds of rights can have only limited protective impact given that a person with the same (a monozygotic twin) or similar (other close blood relatives) genetic makeup may want to know information and may then relay this information to the first person. Moreover, since population genetic databases are focused on studying genetic traits in a population rather than in one particular person, it is more likely that the interest not to know will be violated in the course of ordinary genetic testing, rather than by genetic research conducted using population genetic databases. In both settings, the availability of counselling, especially genetic counselling, and other support to people in order to help them overcome psychological drawbacks is considered "ethically imperative at all stages",[100] and the counselling obligation has already found its way into binding legal documents.[101] As a corollary, the risk of unwanted knowledge of one's genetic data is no higher than in an ordinary research or clinical setting, and is no barrier to modifying informed consent.

A second set of psychological risks relates to negative feelings that a person may develop upon finding out that his data or tissue are used in a way or for purposes that the person opposes.[102] The literature offers numerous examples of this risk. The most common examples include Catholics who are opposed to research pertaining to contraceptives,[103] Afro-Americans who do not want to be involved in IQ studies, Native-Americans who hesitate to participate in alcohol addiction studies,[104] and individuals who do not want to be cloned. We may easily think of further examples like pacifists who may strongly disagree with studies on the impact of chemical and biological weapons and animal rights activists would rather not see their data and tissue be used in research that entails animal suffering.[105] Moreover, some people simply do not want to contribute in any way to the research or the profits of pharmaceutical companies. Although rich in terms of examples, these concerns are currently

[99] See for instance Article 10 of the UNESCO International Declaration on Human Genetic Data and Article 12 of the CHRB.
[100] International Declaration on Human Genetic Data, Article 11.
[101] Ants Nõmper (note 49).
[102] See more about that: Henry T. Greely. Human Genomics Research: New Challenges for Research Ethics. Perspectives in Biology and Medicine, Vol 44 (2001), No 2. P 224-225.
[103] Deryck Beyleveld, Elise Histed. Case Commentary: Anonymisation Is Not Exoneration. - Medical Law International, Vol 4 (1999), No 1. P 73.
[104] Ellen Wright Clayton. Informed Consent and Genetic Research. - Genetic Secrets. Protecting Privacy and Confidentiality in the Genetic Era. Mark A. Rothstein (ed). Yale University Press, 1997. P 133.
[105] See the discussion in: Ants Nõmper. What is Wrong with Using Anonymized Data and Tissue for Research Purposes? - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 121-126.

not recognised by laws, apart from, of course, reproductive cloning.[106] These concerns are not new and are not created by population genetic databases, although some may argue that since these databases boost research, greater importance should be placed upon these dignitary concerns. How should one assess this claim?

To start with, we could ask how serious is the harm that may result from the knowledge of contributing to research that a person condemns, but that an ethics committee still finds appropriate. It is difficult to imagine that such harm would be of a permanent nature or end up causing some adverse psychosomatic reactions; at least the literature does not refer to any such case. This is not to say that a person cannot be deeply offended, but such a feeling hardly outweighs the temporal moderate pain and discomfort that in the context of physical risks were regarded as not creating true harm. Of course, one can follow Capron and argue that harm is not even a necessary element for establishing that a person has been wronged,[107] but this stretches the boundaries of risk too broadly and puts an egocentric person at the focal point of regulations. If one concentrates only on the feelings that a person might have with respect to research, then it does not matter whether those feelings are commendable or not. If a person should in all cases have control over the use of his data and tissue, then along with adhering to the specific consent requirement we also must introduce regulations to protect the following interests: blood donation under the condition that it is "not to be used for helping suicide terrorists"; *post mortem* donated organs under the condition that they are "not to be transferred to women who have undergone an abortion"; and egg and sperm cells "to be used only for fertilisation of heterosexual couples". Hopefully, these examples convince the reader that harm is a necessary element of risk in order to avoid bizarre outcomes.

Be that as it may, another issue that needs to be addressed is the likelihood that the dignitary harm, if any, will occur. This likelihood depends on the ability of participants to find out that their particular data and tissue were used in research that they condemn. Although the possibility cannot be excluded that a person's data and tissue may be used in research projects that are against the wishes of that person, it is virtually impossible for a person to prove that even if his data or tissue matched the criteria for being included into a particular research project, his data or tissue were, in fact, included. Moreover, as noted several times above, the fact that population genetic databases pool data and tissue together renders the impact upon and the relevance of one particular data subject close to zero; to think that one person was crucial or important to a research outcome or even contributed in a meaningful way is a clear

[106] A general ban on reproductive cloning is contained in Article 11 of the Universal Declaration on the Human Genome and Human Rights and in the Additional Protocol to the Convention on Human Rights and Biomedicine on the Prohibition of Cloning Human Beings (ETS 168).

[107] Alexander M. Capron puts his claim in the following way: "People may have been wronged even when they have not suffered harm." See: Alexander M. Capron (note 98), p 83.

overestimation of the value of one's data and tissue.[108] Here again, one can follow an alternative approach and argue like Deryck Beyleveld and Elise Histed that instead of the test of likelihood, which these harms do not pass, the criterion should be whether harm and distress would occur if the person knew about such use.[109] By doing that, however, Beyleveld and Histed not only replace the test but, in fact, abandon the element of likelihood entirely, since risk assessment always begins by asking whether a situation, *should it occur*, constitutes harm. Indeed, if the only question that matters is "What happens if the harmful situation takes place?" then no research that presents any risk of death or bodily injury, no matter how remote, can be carried out, as consenting to death or serious bodily injury is not accepted in most modern societies.[110] The corollary argument is that dignitary risks do not pass the test of likelihood, and there is no justification for developing new tests for just one type of risk, particularly if that new concept renders the test of likelihood meaningless.

As to the safeguards through which current regulations aim to achieve an appropriate level of protection for dignitary interests, only few words can be said. So far, these interests have not been considered worthy of specific protection. The closest that existing regulations come to protecting dignitary interests are in the recognition of the right to withdraw without giving reasons and in the general right of ethics committees to decline to approve a research project that violates dignitary interests in an unbearable manner. Both safeguards are in one way or another incorporated into all population genetic databases to ensure that dignitary risks, inasmuch as they exist, are properly addressed. Consequently, it can be maintained that dignitary risks also do not present an impediment to modifying informed consent requirements with regard to population genetic databases.

1.3.2.3 Informational risks

An informational risk is a possible negative outcome of a breach of confidentiality. Informational risks and protection of confidentiality are by far the most important issues in the context of population genetic databases, and therefore the most stringent data protection safeguards should apply with respect to these databases. However, even the best data protection safeguards cannot totally prevent the risk of a breach of confidentiality. Disclosure as such may inflict psychological harm, but the main reason participants deserve protection from informational risks is that, once information has been disclosed, this information can be

[108] The John Moore case (*John Moore v the Regents of the University of California et al.* 51 Cal.3d 120), in which one person was absolutely essential to achieving a scientific breakthrough, is certainly an exception. In fact, the case of John Moore would not have taken place if he had participated in a genetic database and not referred to a hospital where researchers could come into direct contact with him.
[109] Deryck Beyleveld, Elise Histed. Betrayal of Confidence in the Court of Appeal. - Medical Law International, Vol 4 (1999), No 3-4. P 307.
[110] For that account, see Chapter 3.3.1.2.

used to inflict negative consequences on different spheres of research participants' everyday life.

For instance, if data are disclosed to third parties, the participant is exposed to social risks, *i.e.*, detriments to his social and especially family interactions. These risks include, for instance, stigmatisation, stereotyping and the discovery of "non-paternity". Such setbacks may also have clear financial implications, whether in the short term (*i.e.*, legal costs associated with the commencement of legal proceedings), or over a longer period (*i.e.*, the loss of insurance cover or of a job). In addition, participants may also be exposed to legal risks, such as where questionnaires include questions on their delinquent behaviour or where data in a genetic database are used to match the data found at a criminal scene. And finally, genetic research in particular may pose risks to other groups, chiefly to other members of a research subject's family when, for instance, the fact of adoption or donor insemination is revealed by the absence of common genetic markers.

Let us now consider what mechanisms are in place to prevent negative outcomes once unauthorised disclosure has occurred. It is difficult to mitigate social risks, since people's opinions of other people cannot be influenced by law, but rather only by education. Therefore, the law prohibits only active inducement of racial hate and similar forms of stereotyping or stigmatisation.[111] Moreover, it may be assumed that a research project whose scientific value does not justify possible negative social effects will be rejected by ethics committees, and confidentiality therefore will not be breached at all. As to paternity secrets, most jurisdictions consider it unlawful to reveal this information,[112] and this safeguard is common across Europe. Again, given that population genetic databases are interested in population markers and not in individual markers, far more threatening are secret paternity tests and laboratories that provide these tests via the Internet.

Potential financial pitfalls are also not an issue that first arose in the context of population genetic databases. As a general rule, pursuant to international instruments researchers rather than research participants bear the financial risk.[113] In the case of clinical trials of pharmaceuticals, insurance coverage is required to ensure that researchers have the necessary resources to liquidate possible financial damages.[114] The requirement of insurance

[111] See the discussion below in Chapter 3.1.4.3.
[112] In Estonia, for example, Article 40 of the Family Law (12 10.2004. – RT I 1994, 75, 1326) obliges persons who have taken part in organising artificial insemination to keep the circumstances related to insemination secret. Failure to do this is punishable under Article 157 of the Penal Code (06.06.2001. – RT I 2002, 86, 504).
[113] Guideline 19 of the CIOMS 2002 Guidelines and Article 24 of the CHRB.
[114] Articles 3.2.f and 6.3.i of the Directive 2001/20/EC of the European Parliament and of the Council of 4.04.2001 on the approximation of the laws, regulations and administrative provisions of the Member States relating to the implementation of good clinical practice in the conduct of clinical trials on medicinal products for human use. - OJ L 121, 01.05.2001, p 34-44.

coverage should also satisfactorily mitigate direct financial risks in the context of research conducted on the data received from a population genetic database. Probably due to the fact that indirect financial risks such as loss of jobs or health insurance have more resonance in the bioethical debate, there are more legal tools in place to fight these risks. One of the strictest rules is contained in the Estonian HGRA. That rule prohibits any kind of discrimination on the basis of genetic makeup, whether such discrimination occurs in the context of employment, insurance or other relationships.[115] In fact, the risk of discrimination with regard to health insurance in Europe, unlike in the United States,[116] is minimal given the principle of solidarity that underpins health insurance systems in Europe[117] and will, most likely, continue to underpin these systems.[118]

The mitigation of legal risks is probably the most controversial aspect of risk in the eyes of the general public. Polls show strong public support for using population genetic databases to prevent and combat crimes.[119] Nonetheless, for other good reasons, not the least of which is to ensure a sufficient number of volunteers, research databases have commonly been granted certain immunity from law enforcement agencies.

Informational risks are prevalent at every stage of the operation of population genetic databases. However, these risks are not new, but rather are common to already existing medical and genetic databases. These risks have led to various legal regulations that ensure that data is properly processed and, if data leakage occurs, that the results of such an event are minimised. Given that population genetic databases do not qualitatively alter the existing situation, informational risks do not require retention of the traditional concept of informed consent.

1.3.3 Interests of the society

"Science can produce both good and evil; it is a two-edged sword."[120] Certainly, science itself does not and the results of science do not always benefit the human kind.

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[115] See the discussion below in Chapter 3.1.4.3.

[116] In the case of the United States it has also been argued that since only a small percentage of insurance policies are dependant upon medical underwriting, the issue of genetic discrimination will not affect the majority of the population. See: Anita Buchanan (note 92), p B6. For the same account, see also: J. Stephenson. Genetic Test Information Fears Unfounded. – Journal of American Medical Association, Vol 282 (1999). P 2197-2198.

[117] The standards for health insurance systems set forth in the Revised European Social Charter and in the Revised European Code of Social Security are virtually impossible to meet without a health insurance system that is solidarity rather than risk assessment-based.

[118] See for instance Principle 5.5 of the Ljubljana Charter on Reforming Health Care, 1996. Available:: http://www.euro.who.int/eprise/main/WHO/AboutWHO/Policy/20010927_5.

[119] A recent comparative survey revealed that approximately 75 % of the population would permit police access to genetic databases. See: Külliki Korts, Sue Weldon, Margret Lilja Gudmundsdottir. Genetic Databases and Public Attitudes: a Comparison of Iceland, Estonia and the UK. - Trames, Vol 8 (2004), No 1/2. P 145.

[120] Daniel Callahan. Ethical Issues in Control of Science. - Genetics and the Law II Ed. Aubrey Milunsky, George J. Annas (ed). New York , London: Plenum Press, 1980. P 21.

However, properly conducted science is beneficial to us all and, even if a particular individual does not value scientific progress, we all have benefited from it. A few examples on the use of biological samples should illustrate this point. Research on casualties in the Korean War established a connection between atherosclerosis, age, exercise and diet that now is one of the cornerstones of public health policy; human papillomavirus was recognised as one cause of genital tumours through the study of Pap smear samples obtained from women; the link between smoking and lung cancer, radiation and cancer, etc. was established using tissue collections;[121] and even the annual influenza epidemic is better managed now than ever before thanks to tissue archives.[122] Turning from the public health context to a more individual level we see that research and a belief in scientific progress gives us hope for the future -- for ourselves, our descendants, and others. Why else are there so many volunteers wishing to take part in clinical trials of drugs combating, for instance, cancer or HIV -- so many, in fact, that bioethicists have started to debate the just distribution of opportunities to be involved in research?

Against this background it is not a surprise that more and more ethicists argue in favour of a moral obligation to participate in research.[123] In modern society we all are counterdependent; it is not a situation of *bellum omnium contra omnes*. In order to enjoy and receive benefits from society, one first must give something to society – one should not ask what society can do for him but rather what he can do for society. It has even been argued that minimal risk research is something that every reasonable and decent person who does not want to be a free-rider should participate in.[124] Onora O'Neill goes even further, arguing that the use of health data is an obligation of our society to assist in medical advances for future generations, thus repaying the debt to earlier generations for the medical benefits they brought about. Therefore, O'Neill maintains, subject to appropriate safeguards concerning privacy, no

[121] More information regarding these examples and more examples of beneficial research can be found in: David Korn. Contribution of the Human Tissue Archive to the Advancement of Medical Knowledge and the Public Health. - Research Involving Human Biological Materials: Ethical Issues and Policy Guidance, Volume II Commissioned Papers. Rockville: NBAC, 2000. P E1-E30.

[122] The Royal Liverpool Children's Inquiry: Summary & Recommendations. Chapter 11, section 1. Available: http://www.rlcinquiry.org.uk/download/sum.pdf.

[123] Ruth Chadwick, Kare Berg (note 31), p 318. See also: Jean McHale. Regulating Genetic Databases: Some Legal and Ethical Issues. - Medical Law Review, Vol 12 (2004), No 1. P 82. For the same account: Garrath Williams, Doris Schroeder. Human Genetic Banking and the Limits of Informed Consent. - Reconfiguring Nature. Issues and Debates in the New Genetics. Peter Glasner (ed). Aldershot: Ashgate, 2004. P 159.

[124] John Harris. Ethical Genetic Research on Human Subjects. - Jurimetrics Journal, Vol 40 (1999). P 87. In another article he makes clear that he does not have coercion in mind but suggests that the starting point of the discussion should be that people are willing to participate in research and sacrifice some personal freedom and comfort in their own and in the public interest. See: John Harris, Simon Woods. Rights and Responsibilities of Individuals Participating in Medical Research. – Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001. P 277.

individual should be entitled to exclude data from a database.[125] Thus, society in general certainly has an interest in the participation of its members in population genetic databases.

Society also has an interest in keeping the costs of research under control. Population genetic databases create one avenue for achieving this aim.[126] However, genetic databases are expensive to establish and they can fulfil societal expectations only if their scientific value can be fully exploited. For example, the establishment of the UK Biobank has already cost 61.5 million pounds, and the costs of the Estonian and Icelandic projects are estimated to be up to 1,000 euros per participant.[127] Expenditures on this scale are justified only if clear benefits are envisaged. The more scientific potential a database possesses, the better value the population will get for its money. Hence, by limiting the usefulness of a database, whether by requiring traditional informed consent or otherwise, we are also limiting the value of our investment. At some point, the benefits that the society will receive from such a database no longer justify the investment.

The high scientific value of a population genetic database and the ability to fully exploit it are also important to maintaining the quantity and quality of scientific progress. For instance, if individuals could voluntarily recall the data or samples they had supplied to different public registers or databases, this would diminish the scientific value of the register concerned, as it eliminates the possibility of conducting follow-up studies to verify research results. Further impairments may consist of limits concerning the purpose or the use of such registers and their linking possibilities. Thus, not every kind of population genetic database is worthwhile, but rather only those that are governed by regulations flexible enough to ensure high scientific value and ways of exploiting this value; otherwise, population genetic databases would be a waste not only of money but also of biological material. Needless to say, most of the above mentioned interests strongly argue in favour of loosening the very conservative standards of traditional informed consent.

1.3.4 Interests of researchers

It would be erroneous to think that researchers' only driving force is their desire to increase the knowledge of human kind. As a practical matter, personal well-being is at least as important for many scientists as is academic success. In fact, these two features go hand in hand. A good example is the case of drug development, and the fact that in societies where

[125] See Onora O'Neill's testimony at: House of Lords, Select Committee on Science and Technology (note 19), section 7.30.
[126] Lawrence O. Gostin, James G. Hodge, Jr. (note 15), p 38.
[127] Ants Nõmper (note 49).

research -- and especially genetic research -- is well developed, economic incentives play the central role.[128]

Freedom of science and freedom of enterprise are recognised as basic rights in the modern world. Most recently, the Charter of Fundamental Rights of the European Union proclaimed in Article 13 that scientific research shall be free of constraints and academic freedom shall be respected. With regard to the United States, similar rights are encompassed in the First Amendment.[129] Of course, even basic rights have their limits; in the case of scientific freedom, for instance, no one may be forced to be a research subject.

The trust that a population has in research plays a crucial role in ensuring that research can be carried out. If a population does not trust its researchers, there will not be a sufficient number of volunteers willing to participate in the research. Hence, having some restrictions on research can be viewed not only as detrimental but also as beneficial to research. This means that if one is to modify the concept of informed consent, the new concept must be able to maintain public trust in research.

1.3.5 Interests of "the groups between"

The title of this subsection refers to an influential article by Henry T. Greely in which he defined at least three types of "groups between" in the context of genetic research – ethnic groups, disease groups and families.[130] While the controversy surrounding population genetic databases is usually explored by confronting individual and community interests, we cannot ignore the fact that there are several interest groups between the individual and his community.

Broadly speaking, the positive interests of the groups between are comparable to those of the general population, and their negative interests are similar to those of research participants. On the one hand, these groups, especially disease groups, are interested in research that promises cure and relief, but at the same time, these groups are afraid of being unduly exploited for the general good and of being stigmatised or discriminated against due to some feature that they all share (see more on this topic in Chapter 3.1.4.3).

Given its individualistic nature, informed consent fails to protect the groups between. Nothing prevents a person from consenting to research with which all other members of his "group" strongly disagree due to the negative impact that such research may have on the

[128] Anita Buchanan (note 92), p B14.
[129] John A. Robertson. The Scientist's Right to Research and the Legitimacy of Governmental Regulation. - Genetics and the Law II Ed. Aubrey Milunsky, George J. Annas (ed), New York, London: Plenum Press, 1980. P 29. Also: Henry T. Greely. Informed Consent and Other Ethical Issues in Human Population Genetics. - Annual Review of Genetics, Vol 35 (2001). P 792.
[130] Henry T. Greely. The Control of Genetic Research: Involving the "Groups Between". - Houston Law Review, Vol 33 (1997). P 1398.

interests of this group. For the protection of groups, mechanisms like group consent and consultation have been instituted. Completely different validity criteria apply to these mechanisms. It is, therefore, simplistic and misleading to view specific consent as a safeguard for protecting the interests of the groups between.

1.3.6 Conclusion – room for modifying the concept of informed consent

This chapter has aimed to present a sketch of the different interests that clash around population genetic databases by distinguishing between different groups and briefly outlining their major concerns and hopes. Genetic databases in general are a battlefield of the many contradictory interests of different groups and, moreover, even the interests within one group sometimes clash. Broadly speaking, one has to find a balance that facilitates research without exposing participants to too many risks. For one reason or another, negative interests, *i.e.*, interests that speak in favour of not modifying the current concept of informed consent -- with the exception of informational risks to research participants -- are so small, and the expected benefits so great, that "it is no longer ethical to neglect the claims and the interests of those who may benefit from the research."[131] Regulation that limits research must offer a plausible – not merely a hypothetical – explanation as to why the restrictions it imposes are needed. This threshold is principally met with reference to the informational risks that research participants face in participating in population genetic research projects.

Having said this, we need to be clear about the risks that informed consent could successfully combat. For this purpose, it is necessary to draw a distinction between risks arising from the existence of a database as such and risks arising from research that makes use of the database. We have to be clear that requesting consent for every new research initiative does not in any way prevent data leakages from a genetic database. Even if no research is carried out using a database, the possibility of data leakage poses an intrinsic risk to every database. The risk of data leakage from a population genetic database is no greater than in routine clinical settings in which data is often kept in non-coded form, without the use of privacy enhancing technologies.[132] The simple fact that a database contains genetic data and the size of the database alone are not crucial, since it is unimportant how many genies there are in a bottle as long as the bottle is securely sealed. And whether the seal is firm enough

[131] John Harris (note 124), p 87.

[132] *Nationaler Ethikrat*, Germany. Opinion: Biobanks for research, 2004. P 68. Available: http://www.ethikrat.org/_english/publications/Opinion_Biobanks-for-research.pdf. Indeed, an Icelandic survey, though financed by deCODE, revealed that people are more afraid of data kept in local hospitals than in central databases. See: Anna Birna Almarsdottir, Janine Morgall Traulsen, Ingunn Björnsdottir. "We Don't Have That Many Secrets" – the Lay Perspective on Privacy and Genetic Data. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 193-200.

depends on what data protection safeguards are in place, not on the form of consent used in a population genetic database project.

Traditional informed consent can only provide protection from the risk of misuse of data by researchers. Here again, the consent requirement is by far not the only safeguard and apparently not the most important safeguard: data protection requirements always apply, whereas the consent requirement may be waived under certain circumstances (for instance, with respect to research on anonymised data). This suggests that, provided there are relevant data protection safeguards in place, the risk of misuse of data by researchers is mitigated and there is room to consider other interests, especially positive interests in allowing more research. The result of such a balancing is highly dependant upon the value that each of us places on scientific progress and upon the risks associated therewith; there cannot be one right outcome. The author cannot deny that in some cases specific consent should be used, but also believes that the risks present in population genetic databases are not so grave that the possibility of basing such databases on open consent should be *per se* excluded. On the contrary, there is much to recommend discarding the traditional concept of informed consent and recognizing that a "one-size-fits-all"-type of informed consent must be abandoned.[133]

[133] Peter Lucas. Toward a Tiered Approach to Consent in Biomedical Research. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 79.

2 THEORIES OF CONSENT IN POPULATION GENETIC DATABASES

In the previous chapter, several partly clashing interests were explored on a more or less theoretical level. Now it is time to examine how research ethics and law have balanced these interests so far, and whether the traditional concept of informed consent can be applied to population genetic databases. Should the existing framework deliver satisfactory outcomes for population genetic databases, no new concept would be necessary. However, as we will see below, population genetic databases do not fit well into the traditional concept of informed consent. Likewise, the commonly accepted exceptions to the informed consent requirement do not deliver a workable alternative. Therefore, existing population genetic databases have opted for a modified informed consent concept that, as explained below, appears to have some advantages. Before introducing these new approaches, we should briefly look at the history of consent and enhance our understanding of the underpinnings of informed consent and their relevance in the debate surrounding genetic databases.

2.1 A BRIEF HISTORY OF CONSENT

An attempt to provide even a short overview of the historical development of the consent concept is a very ambitious one and cannot be carried out without some generalisations of controversial value. The first of these generalisations is mentioned already in the title of this chapter, which refers to "consent" instead of "informed consent" or "informed consent in biomedical research". As we will see below, the history of "informed consent" is only one stage in the history of "consent" -- a stage that dominated the second half of the 20th century. Furthermore, the concept of consent to research basically emerged simultaneously with the concept of consent to treatment, and they share the same history. Secondly, although written documents such as various oaths, codes of ethics, etc. do not indicate anything about their implementation and the *de facto* situation, the author has assumed that these documents properly reflect the situation prevailing at the time. Thirdly, to limit the scope of this overview, the author concentrated on the Western World, while wholly aware of the fact that medicine was practiced in other parts of the world long before, for instance in the Middle East, India and China. Indeed, the first law regulating the professional behaviour of medical doctors is the Code of Hammurabi from Babylon.[134] Finally, the

[134] Amar Annus, Kaspar Kolk, Jaan Puhvel, Janika Päll. *Muinasaja seadusekogumike antoloogia*. Tallinn: Varrak, 2001. P 86-147. For an overview of consent in Eastern Europe before the Cold War, see: Richard H.

historical overview deals only with the issue of protecting bodily integrity, since consent as a tool for protecting informational autonomy has only a very short history (see Chapter 5).

2.1.1 From Hippocrates to Percival

In Europe, the earliest known document which casts light on medical practice is the Oath of Hippocrates.[135] The text of the oath fails to mention the importance of consent or of informing the patient, although the text does include other principles such as confidentiality and the primacy of the health of the patient. This justifies the conclusion that the doctor alone determined the course of treatment, and that communication between the patient and the doctor, if it existed at all,[136] served therapeutic purposes rather than prioritising respect for the patient.[137]

The principles of the Hippocratic Oath survived medieval times with only minor alterations. Instead of silence (medicine being *ars muta*), which seems to be typical for Hippocratic medicine, medieval medical ethics argued in favour of communication but solely for therapeutic benefit. Such communication should under no circumstances be understood as promoting patients' decision-making capacities. In fact, even deception was seen as justified and recommendable for therapeutic purposes.[138]

Enlightenment medicine also follows the Hippocratic pattern and, as far as it advocates seeking consent, it does so for therapeutic reasons; medically enlightened patients are more motivated to comply with physicians' recommendations.[139] Yet here we can also see the first signs of recognition that lying is wrong, as well as some improvement to the moral status of patients. Probably the most famous representative of the medical ethos of the Enlightenment is Thomas Percival, who maintained in his landmark 1803 book "Medical

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Nicholson. The Regulation of Medical Research: a Historical Overview. – Manual for Research Ethics Committees. Sue Eckstein (ed). Cambridge University Press, 2003. P 19; During the Cold War, see: Richard H. Nicholson. International Regulation, Informed Consent and Medical Research: the UK Perspective. – Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001. P 158-163.

[135] The Oath is only one among a collection of about 60 treatises known as the *Hippocratic Corpus*. The texts originate in the 5th century B.C. and continue until the post-Christian era. See: Karl-Heinz Leven. The Invention of Hippocrates: Oath, Letters and Hippocratic Corpus. - Ethics Codes in Medicine. Foundations and Achievements of codification since 1947. Ulrich Thöler, Stella Reiter-Theil (ed), Aldershot: Ashgate, 1998. P 3-23. An overview of the corpus is provided by Albert R. Jonsen. A Short History of Medical Ethics. Oxford University Press, 2000. P 1-12.

[136] The works of Plato suggest that physicians of free men consulted with their patients whereas physicians treating slaves did not. Edmund D. Pellegrino, David C. Thomasma. For the Patient's Good. The Restoration of Beneficence in Health Care. Oxford University Press, 1988. P 13.

[137] For instance the Oath contains the following passage: "I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous" The *Hippocratic Corpus* also contains other references evidencing the primacy of patient beneficence over truth-telling. See: Paul Carrick. Medical Ethics in the Ancient World. Georgetown University Press, 2001. P 215.

[138] For more about consent in medieval medicine, see: Ruth R. Faden, Tom L. Beauchamp. A History and Theory of Informed Consent. Oxford University Press, 1986. P 63-64.

[139] Ruth R. Faden, Tom L. Beauchamp (note 138), p 65.

Ethics" that truthtelling should be the norm for every physician unless preventing serious harm justifies abandoning it.[140] However, imposing value on truthtelling does not mean, as one could suggest, that Percival espoused seeking patient consent.

Greatly inspired by Percival's works, the American Medical Association published its Code of Medical Ethics in 1847,[141] which can be referred to as one of the earliest codes adopted not only by one physician or a group of physicians but by a larger society of physicians. With regard to informing the patient, the Code contains the following passage: "A physician should not be forward to make gloomy prognostications /…/ But he should not fail, on proper occasions, to give to the friends of the patient timely notice of danger, when it really occurs; and even to the patient himself, if absolutely necessary." Although the concept of informing patients receives progressively more attention, there is still no sign in the Code of the necessity of consent to medical intervention. If consent was sought, as evidenced by some surveys, it was still driven by medical beneficence rather than by concern for the autonomy of patients.[142] Yet, diaries of physicians, case studies and other sources reflecting 19th century medicine demonstrate that patients who refused treatment were usually not forced to undergo such treatment.[143]

A closer look into the reasons for the dominance of such paternalism discloses the inevitability of this situation. Making choices about how to run one's own life was not possible then for large groups of society, especially for those in slavery, poverty, etc. To this we can add that, in modern terms, most of the then-prevailing treatment methods were useless, if not detrimental, and that therefore the success of therapy owed largely to faith in the physician.[144] Against the background of this lack of scientific knowledge, it was almost impossible to explain to the patients the nature of the treatment, its risks and benefits, etc. However, all of this was about to change.

2.1.2 First court cases

Probably the first-documented court case concerning consent to medical treatment dates back to the year 1767. In the case of Slater v. Baker and Stapleton, an English court ruled that: "It is reasonable that a patient should be told what is about to be done to him, that he may take courage and put himself in such a situation as to enable him to undergo the

[140] Ruth R. Faden, Tom L. Beauchamp (note 138), p 69.
[141] Available: http://www.ama-assn.org/ama/upload/mm/369/1847code.pdf.
[142] Ruth R. Faden, Tom L. Beauchamp (note 138), p 74.
[143] Thomas Grisso, Paul S. Appelbaum. Assessing Competence to Consent to Treatment. A Guide for Physicians and other Health Professionals. Oxford University Press, 1998. P 5.
[144] ""Aesculapian power" was a major ingredient of cure." See: Thomas Grisso, Paul S. Appelbaum (note 143), p 13.

operation."[145] As one can see, it was not respect for patient autonomy but rather the goal of ensuring a beneficial outcome that was the main concern of the court.[146] In this respect, the earliest court case was driven by the same aims as physicians asking consent from their patients.

The first case to clearly incorporate autonomy-based arguments was under consideration in the *Reichsgericht*, the then-Supreme Court of Germany, in 1894.[147] In this case, a physician argued after the unsuccessful treatment of two children that the father of these two patients would in any case have refused to give his consent for an operation that possibly could have saved his children's lives, and therefore that the doctor's failure to discover the seriousness of the disease did not alter anything in the end result. The *Reichsgericht* ruled that, although the father's consent to treatment was necessary, it was not an absolute obligation and could have been substituted by seeking a special court order for treatment. Against this background, it is not a coincidence that the first statutory laws requiring not merely consent but enlightened consent (*aufgeklärte Einwilligung*) were adopted in Germany. As early as 1900, the Prussian government issued a directive which prohibited medical interventions if, among other features, the person concerned had not declared unequivocally that he consented to the intervention after being properly educated about the risks that the intervention may carry.[148]

American case law achieved a comparable stage of development with the early 20th century cases of Mohr v. Williams (1905),[149] Pratt v. Davis (1906)[150] and Schloendorff v. Society of New York Hospitals (1914).[151] In the Mohr case, in which the plaintiff consented to an operation on his right ear but his left ear was operated upon, the physician was found guilty of battery because "/…/ every person has a right to complete immunity of his person from physical interference of others /…/". The touching could have been justified by consent which, in respect of the left ear, however, was absent. The Schloendorff ruling contains the most famous common law citation regarding consent: "Every human being of adult years and sound mind has a right to determine what shall be done with his own body; and a surgeon who performs an operation without his patient's consent commits an assault, for which he is

[145] *Slater v. Baker and Stapleton*. 95 Eng. 860, 2 Wils. KB 359 (1767).
[146] Hugo Tristram Engelhardt. The Foundations of Bioethics. Oxford University Press, 1986. P 264.
[147] *Entscheidungen des Reichsgerichts in Strafsachen*, Vol 25 (1894). P 350. For a short discussion of the relevant facts, see: Ants Nõmper. *Jehoova tunnistajate lapse arstide kriminaalasjast*. - Juridica 2000, No 4. P 212.
[148] The text of this piece of legislation together with the 1931 Reich Health Council Circular that also required consent to medical intervention is reprinted in: Michael A. Grodin. Historical Origins of the Nuremberg Code. – The Nazi Doctors and the Nuremberg Code. Human Rights in Human Experimentation. George J. Annas, Michael A. Grodin (ed), Oxford University Press, 1992. P 127-132.
[149] *Mohr v. Williams*. 104 N.W. 12. Followed quickly by *Rolater v Strain* (1913), 39 Okla. 572.
[150] 224 Ill 300.
[151] 105 N.E. 92.

liable in damages." As to the English courts, it can be stated that they adopted the approach set forth in the Schloendorff case, and therefore did not make history themselves.[152]

Although the above cited cases constitute a giant leap towards informed consent, this term itself was not yet used at that time. The term "informed consent" was first used in academic literature in 1957,[153] and quickly won a central position in texts on medical ethics as well as in case law. But before examining the legal concept of informed consent in greater detail, a few references to consent in medical research will be made.

2.1.3 Shift from treatment to research

The beginning of the history of ethics in medical research dates back to the works of Claude Bernard published in 1865.[154] Like the then-circulating works in medical ethics, Bernard did not devote much attention to consent. As a result, the credit for "inventing" the consent requirement for medical research belongs to Oppenheim, who maintained in 1892 that consent is the only justification for medical experiments and that even consent cannot justify experiments which present too high risks to participants' health.[155] Ironically, this contribution of the German professor was not enough for international recognition of the consent principle; what was needed was genocide.

Americans proclaimed the principle of consent in the Nuremberg Code, which can be labelled -- with good reason -- the mother of all ethics codes in medical research.[156] The principle of consent is, however, not the central principle of the Code, although it is mentioned in the very first chapter as being "absolutely essential". The experiments conducted by the Nazis were horrible and needed to be condemned not because they were

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[152] Ian Kennedy, Andrew Grubb. Principles of Medical Law. Oxford University Press, 1998. Section 3.02.

[153] Tom L. Beauchamp. Informed Consent. - Medical Ethics. Robert M. Veatch (ed). Boston, Portola Valley: Jones and Bartlett Publishers, 1989. P 175.

[154] David J. Rothman. The Nuremberg Code in Light of Previous Principles and Practices in Human Experimentation. - Ethics Codes in Medicine. Foundations and Achievements of codification since 1947. Ulrich Thöler, Stella Reiter-Theil (ed). Aldershot: Ashgate, 1998. P 51-53. The above mentioned directive of the Prussian government covered only treatment and not research.

[155] L. Oppenheim. *Das ärztliche Recht zu körperlichen Eingriffen an Kranken und Gesunden*. Benno Schwabe Verlagsbuchhandlung, 1892. P 35-38.

[156] However, the consent principle of the Code of Nuremberg was not followed without exceptions even by the United States, the main drafter of the Code, as manifested by the so-called Ohio Soldiers and Sailors Orphanage Study, the Jewish Chronic Disease Hospital Case, the Willowbrook Case, the Tuskegee Syphilis Study, the Harold Blauer case and the Frank Olson case. For more details, see: David J. Rothman (note 154), p 57-58; George J. Annas. The Nuremberg Code in U.S. Courts: Ethics versus Expediency. - The Nazi Doctors and the Nuremberg Code. Human Rights in Human Experimentation. George J. Annas, Michael A. Grodin (ed), Oxford University Press, 1992. P 201-222. Katz has summed up the position of the United States with the words: "It was good code for barbarians but an unnecessary code for ordinary physician-scientists." See: Jay Katz. The Consent Principle of the Nuremberg Code: Its Significance Then and Now. - The Nazi Doctors and the Nuremberg Code. Human Rights in Human Experimentation. George J. Annas, Michael A. Grodin (ed), Oxford University Press, 1992. P 228. For the same account, see also: Claire Foster. International Regulation, Informed Consent and Medical Research: the UK Perspective. – Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001. P 143.

carried out without requesting the consent of "participants", but because of the nature and aim of these experiments. No consent, no matter how informed, could possibly have legitimised such experiments: consent might have justified participation in research but could not have contributed to a justification for carrying out the research. It has thus been argued that the Code refers to "voluntary consent" and not to "informed consent"′.[157] Indeed, the research was about killing people rather than overriding their autonomy, and was certainly not about the protection of privacy.[158]

The Code, which was actually a part of the judgement in United States v. Karl Brandt *et al*.,[159] was the Allies' response to the experiments[160] conducted by Nazis during the Second World War.[161] Karl Brandt *et al*. were charged with and found guilty of war crimes and crimes against humanity which consisted of "/…/ medical experiments without the subjects' consent in the course of which experiments the defendants committed murders, brutalities, cruelties, tortures, atrocities, and other inhuman acts."[162] It goes without saying that these crimes were committed against ultimate human values and not against values that are the fruits of modern legal thinking, such as privacy. Some scholars even argue that all early codes of research ethics were driven by the objective of protecting subjects from harm, exploitation and injustice, and not by respect for autonomy.[163] Indeed, neither the text of the tribunal's decision nor its interpretations[164] refer to the misuse of privacy. It is true that the text of the Code[165] may suggest that information about the further use of biological samples

[157] Robert J. Levine. Informed Consent: Consent Issues in Human Research. - Encyclopaedia of Bioethics. Warren T. Reich (ed). New York: Simon & Schuster MacMillan, 1995. P 1244.
[158] For critiques of the absolute consent requirement as it is stated in the Code, see: Sharon Perley, Sev. S. Fluss, Zbigniew Bankowski, Francoise Simon. The Nuremberg Code: An International Overview. – The Nazi Doctors and the Nuremberg Code. Human Rights in Human Experimentation. George J. Annas, Michael A. Grodin (ed), Oxford University Press, 1992. P 155–157.
[159] Proceedings of the Nuremberg Military Tribunal. Available http://www.mazal.org/NMT-HOME.htm.
[160] For more about the nature of the experiments, see: Bernard Kanovitch. The Medical Experiments in Nazi Concentration Camps. - Ethics Codes in Medicine. Foundations and Achievements of Codification Since 1947. Ulrich Thöler, Stella Reiter-Theil (ed). Aldershot: Ashgate, 1998. P 60-70.
[161] Experiments of a comparable extent and nature were also conducted by Japanese scientists in China, but the United States decided not to prosecute these scientists in order to avoid sharing information with other countries. See: Alexander M. Capron. Human Experimentation. - Medical Ethics. Robert M. Veatch (ed). Boston, Portola Valley: Jones and Bartlett Publishers, 1989. P 132-133 and 137-138.
[162] Proceedings of the Nuremberg Military Tribunal, Vol II (note 159). P 174-175.
[163] Tom L. Beauchamp (note 153), p 176. Disapproving: Baruch A Brody. A Historical Introduction to the Requirement of Obtaining Informed Consent from Research Participants. – Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001. P 7.
[164] See for instance: Ruth R. Faden, Tom L. Beauchamp (note 138), p 153-156. Also: Erwin Deutsch. The Nuremberg Code: The Proceedings in the Case, the Ten Principles of Nuremberg and the Lasting Effect of the Nuremberg Code. - Ethics Codes in Medicine. Foundations and Achievements of codification since 1947. Ulrich Thöler, Stella Reiter-Theil (ed), Aldershot: Ashgate, 1998. P 71-83.
[165] Section 1 of the Nuremberg Code requires that the research participant be made aware of "/…/ the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted; all inconveniences and hazards reasonably to be expected; and the effects upon his health or person which may possibly come from his participation in the experiment." Proceedings of the Nuremberg Military Tribunal, Vol II (note 159). P. 181.

and personal data should be given to the research participants, but this aspect was not on the agenda of the Nuremberg Tribunal. The Tribunal was concerned about experiments in which "/…/ the subjects experienced extreme pain or torture, and in most of them they suffered permanent injury, mutilation, or death /…/"[166], *i.e.*, practices for which comparable examples cannot be found within the framework of population based genome projects. Thus, it would be wrong to argue that the Code protects all legal values that are interferred with by biomedical research; the requirements of the Code are infringed only by interference with the bodily integrity of a research participant during the period in which bodily integrity is at stake -- *i.e.*, where the research continues to involve a research subject's body -- and not merely by the unauthorised use of data or body parts after their removal.

It was not until 1964, with the adoption of the Declaration of Helsinki,[167] that consent was once again brought into the spotlight as the principal requirement of medical research. Principle III 3a of the Declaration of Helsinki underscores that no non-therapeutic clinical research could be conducted without the fully informed and free consent of the human being concerned. Such a formulation has provoked Stefan Eriksson to ask who is the human being concerned in cases of research conducted on data and tissue from population genetic databases. He is of the opinion that "/…/ the fact remains that I am the *source* or the *origin* of the material, but it seems far-fetched to say that it is *me* the experiment is being performed on."[168] For the same reasons, Lucas questions even whether one should use the term "research subject" with respect to participants in population genetic databases.[169]

Further analysis of the original version of the Declaration of Helsinki reveals that the Declaration was not intended to cover all kinds of research, but rather only research that applies the results of laboratory experiments to human beings.[170] Jane Kaye has expressed very succinctly the point that the Declaration was designed "for [a] single research project within [a] medical setting, involving physical intervention."[171] Nowadays, however, we are

[166] Proceedings of the Nuremberg Military Tribunal, Vol II (note 159). P 183.
[167] Adopted by the 18th World Medical Association General Assembly at Helsinki in June 1964; lastly amended by the 52nd World Medical Association General Assembly at Edinburgh in October 2000. Currently effective version available: http://www.wma.net/e/policy/b3.htm. More information about the Declaration of Helsinki is provided in Chapter 6.2.1.1 below.
[168] Stefan Eriksson. Informed Consent and Biobanks. - The Use of Human Biobanks – Ethical, Social, Economical and Legal Aspects. Mats G. Hansson (ed). Uppsala University Press, 2001. P 46. Available: http://www.bioethics.uu.se/chapters/SEriksson.pdf.
[169] Peter Lucas (note 133), p 80. Such a concept has been vigorously attacked by Sade, who maintains that a person is always a research subject if his data is used somewhere by somebody. See: Robert M. Sade. Research on Stored Biological Samples is Still Research. Archives of Internal Medicine, Vol 162 (2002), No 13. P 1440. With regard to the Estonian Genome Project, the HGRA uses the term "gene donor" and not "research subject".
[170] See the third paragraph of the preamble.
[171] Jane Kaye (note 24), p 119. Of the same opinion: Anita Buchanan (note 92), p B16.

constantly confronted by many relationships that require slight modifications to the rules.[172] This justifies the conclusion that the Declaration was initially aimed only at the protection of participants' autonomy, but only so far as their physical integrity was concerned.[173]

2.1.4 Conclusion – history does not prevent the modification of informed consent

Based on the above discussion, we can draw one main conclusion -- truthtelling and consent cannot be considered historically immanent aspects of medical practice.[174] It is impossible to find better words for summarizing the history of disclosure and consent than those expressed by Jay Katz -- it is the history of the silent word of doctor and patient.[175] The roots of consent do not lie in medicine; consent was recognised only insofar as it contributed to a better treatment outcome, and it is very difficult to guess at what point medical science would have "discovered" consent as a tool for securing patient autonomy, had there been no intervention by the courts.[176] Although the term "informed consent" originated in the United States, the first court cases underscoring the need to obtain patient consent in the context of patient autonomy arose in Germany.

The consent requirement was introduced in the field of medical research as a reaction to the misuse of medical science during the Second World War, and was intended to protect the life and health of research subjects and to prevent them from becoming victims of harm, exploitation and injustice. The genesis of the early codes of ethics demonstrates that the intention of these codes was to regulate research, which interferes with individuals' physical integrity. In fact, the problems with the traditional informed consent concept are rooted in its genesis, since informed consent was not designed to "reflect the ethical exigencies of relatively small-scale non-therapeutic research, performed directly on the bodies of healthy volunteers."[177]

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[172] This argument is especially relevant in the clinical setting. See: Onora O'Neill. Informed Consent and Genetic Information. - Studies in History and Philosophy of Biological and Biomedical Sciences, Vol 32 (2001). P 692.

[173] There is much to be said for an interpretation that the Declaration still applies only in cases of physical intervention. See more about the requirements of the Declaration and the problems with implementing these principles without interpretation in Chapter 6.2.1.1.

[174] Jay Katz puts it even more drastically: "/…/ disclosure and consent, except in the most rudimentary fashion, are obligations alien to medical practice." See: Jay Katz. Informed consent - Encyclopaedia of Bioethics. Warren T. Reich (ed). New York: Simon & Schuster MacMillan, 1995, Vol 2. P 770.

[175] See a historical overview and the conclusion at: Jay Katz. The Silent Word of Doctor and Patient. Baltimore, London: John Hopkins University Press, 2002. P 1-29.

[176] Some hints in this respect are found in the ethics codes adopted by self-governing bodies of physicians, such as, for instance, the post Nuremberg codes, the Declaration of Geneva: Physician's Oath (available: http://www.cirp.org/library/ethics/intlcode/) and the International Code of Medical Ethics (available: http://www.cirp.org/library/ethics/intlcode/). These codes, although largely influenced by the events of the Second World War, do not emphasize the importance of consent at all. With remarkable reluctance the American Medical Association indirectly introduced the principle of informed consent into its Code of Medical Ethics only in 1980 thereby abandoning Percival's medical ethics. See: Ruth R. Faden, Tom L. Beauchamp (note 138), p 73-74.

[177] Peter Lucas (note 133), p 79.

Accordingly, it would be artificial to conclude that the current concept of informed consent is the only possible one. It might be the only possible concept for invasive research and research activities, the risks of which are somewhat similar to the concerns that gave birth to the Code of Nuremberg or the Declaration of Helsinki. As population genetic databases and population genetic research have a completely different agenda, they likewise merit a different concept of informed consent. By modifying the concept of informed consent, we do not discard historical experience, but rather recognise that in order to maintain the vitality of that principle and to meet new challenges, some modifications are necessary. Only this will keep informed consent alive should research move on to be conducted on tissue and data rather than by interfering bodily integrity.

2.2 THE TRADITIONAL CONCEPT OF INFORMED CONSENT FOR RESEARCH

2.2.1 Outline of the traditional informed consent approach

The historical overview provided above explained that the roots of the informed consent requirement lie in the clinical setting. In a clinical setting, patients' physical well-being is constantly at stake. As a general rule, every operation performed on a patient must be accompanied by the patient's consent, which can be obtained only after the activity has been planned by the doctor and all material aspects related to it are explained to the patient.

In general, the approach to informed consent described in simplified terms above has carried over to informed consent for research purposes. In both clinical and research settings, informed consent is specific -- whether operation-specific or research project-specific. That is, one operation or project requires one consent. Informed consent is a research subject's affirmative agreement to participate in research. Before being permitted to request the consent of potential participants, a researcher must draft a document stating the research hypothesis, the research methods, and the possible risks and benefits to participants. Such a document, called a research proposal, is then submitted to a review board (an ethics committee) for independent scrutiny of its ethical and scientific merits. Should the outcome of the board's review be favourable, the researcher may start recruiting research participants for the purpose of conducting research as described in the research proposal.

Thus, according to this scheme, individuals may not consent to research in general, but rather only to one specific research project. Probably the most typical and well-known type of medical research based on this concept of informed consent is the clinical trial of a drug.[178]

[178] See Directive 2001/20/EC.

Given that the traditional concept of informed consent is research project-specific, it is commonly referred to as "specific consent."[179]

Long before debates emerged over the shortcomings of specific consent with respect to population genetic databases, it became obvious that in some cases obtaining such consent was unrealistic (as in cases of epidemiological research) or even impossible (as with emergency room research). Supported by these practical arguments, some exceptions, among them the minimal risk exception, were introduced in order to ease the burden imposed by the specific consent requirement. Should a research project fall under one of these exceptions, researchers may, but are not required to and usually will not, obtain research subjects' consent.

In sum, under the traditional concept of informed consent, informed consent must be obtained each time a new research project is contemplated, unless an exception to the consent requirement applies.

2.2.2 Shortcomings of the traditional informed consent approach – a case study

2.2.2.1 The Genetic Privacy Act

Having outlined the traditional, specific research project-centred concept of informed consent, it is worth examining how this concept of informed consent could possibly be reflected in legislation concerning genetic research. There are far too many possible alternatives for incorporating the specific informed consent requirement into legislation on genetic research to permit dedicating even a few paragraphs to each of them, which makes it necessary to choose one example to illustrate the issue. The Genetic Privacy Act, as the most prominent piece of legislation of its kind, serves as an excellent example for this purpose.

In 1995, George J. Annas, Leonard H. Glantz and Patricia A. Roche drafted a comprehensive bill called the Genetic Privacy Act (the GPA) for federal regulation of issues related to genetic testing and research in the United States.[180] Although the bill was never

[179] There are some exceptions to this tradition, too. For instance, a report presented to UNESCO suggests the following: "By the term "specific" consent we mean it could include consent for complete genetic analysis of the DNA, or analysis for detailed purposes, but is should be clarified an informed." See: Chee Heng Leng *et al*. Bioethics and Human Population Genetics Research. A report to the International Bioethics Committee at UNESCO, 1995. UNESCO document CIP/BIO/95/CONF.002/5. Section II.2.1. Available: http://portal.unesco.org/shs/en/file_download.php/010b187e3c6c735b6870e903461bb0eapopulationCIB3_en.pdf It appears that this definition places more emphasis on the clarity of consent than on the question of whether only one or several research projects are authorised.

[180] On the debate surrounding the bill and alternative proposals see: Robert F. Weir. Differing Perspectives on Consent, Choice and Control. - Human DNA: Law and Policy International and Comparative Perspectives Bartha Maria Knoppers, Claude M. Laberge, Marie Hirtle (ed). The Hague, London, Boston: Kluwer Law International, 1997. P 92-102.

officially submitted to the federal legislative bodies of the United States,[181] it has significantly contributed to discussions of regulating genomics worldwide. The GPA was also one of the conceptual sources for the working party on the Estonian Human Gene Research Act, as evidenced, for example, by the fact that the first draft of that Act incorporated regulation of both genetic research and testing.[182]

The drafters of the GPA summarize their underlying idea as follows: "/…/ the overarching premise of the Act is that no stranger should have or control identifiable DNA samples or genetic information about an individual unless that individual specifically authorizes the collection of DNA samples for the purpose of genetic analysis, authorizes the creation of that private information, and has access to and control over the dissemination of that information."[183] The main tool for achieving such comprehensive control is the specific consent requirement, which recognises the tissue subject's property interest in the tissue and extracted DNA.[184]

As a rule, research[185] on individually identifiable DNA samples is prohibited under the GPA unless the sample source has consented to this research and other conditions, *inter alia*, the review board's approval, are met (section 131). In order to be valid, an individual's consent must meet the conditions that apply to consent with respect to all research (*i.e.*, a research proposal must be submitted to and accepted by a review board), plus the conditions set forth in section 103 of the GPA (section 131.a.3.B). Section 103 stipulates that, among other things, the consent form must be in writing and identify the facility in which the research will be conducted and the DNA stored, and must state all authorised uses of the DNA sample.

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[181] The Genetic Privacy Act has served as a model for later legislative proposals, for instance the Genetic Confidentiality and Nondiscrimination Act that was introduced in June 1996. See: George J. Annas, Leonard H. Glantz, Patricia A. Roche. The Genetic Privacy Act: A Proposal for National Legislation. – Jurimetrics, Vol 37 (1996). P 2. However, no action had been taken on the bill as of the end of 2002. See: Carol A. Schneider, Felicia Cohn, Cynthia Bonner. Patenting Life: A View From the Constitution and Beyond. - Whittier Law Review, Vol 24 (2002). P 415. As of the completion of the drafting of the Genetic Privacy Act, more than twenty Bills regulating the same sphere have been submitted to Congress. See: Sonia M. Suter. The Allure and Peril of Genetics Exceptionalism: Do We Need Special Genetics Legislation? - Washington University Law Quarterly, Vol 79 (2001). P 697.

[182] However, mainly out of desire to concentrate solely on the regulation of the Estonian Genome Project, and due to a lack of widespread agreement with regard to genetic testing, the Estonian Parliament decided to omit genetic testing from the scope of the Human Gene Research Act. See: Jüri Raidla, Ants Nõmper (note 78), p 53-55.

[183] The Genetic Privacy Act and Commentary. Part I Introduction. P 10. Available: http://www.bumc.bu.edu/www/sph/lw/pvl/act.html 14.11. 2003.

[184] The proprietary aspect was vigorously attacked by biotech companies and drug industry that argued that in order to conduct business they should have all proprietary rights over obtained tissue and products manufactured by using the tissue. Their lobby achieved at least in New Jersey the governor to veto the New Jersey act that was based on the Genetic Privacy Act and unanimously adopted by the New Jersey Parliament. See: Janet L. Dolgin. Choice, Tradition, and the New Genetics: the Fragmentation of the Ideology of Family. - Connecticut Law Review, Vol 32 (2000). P 550-551.

[185] The GPA uses, but does not define, the term genetic analysis that seems to cover both genetic testing and research.

2.2.2.2 Critical assessment of the Genetic Privacy Act

Let us now consider briefly what the GPA would have meant in the context of a population genetic database. The result of this consideration, as we will see, is plain and simple – population genetic databases could be established in a jurisdiction that contains a regulation similar to the GPA, but it would not be possible to use these databases in a sensible manner.

The GPA applies to individually identifiable tissue and data. The drafters of the GPA argue that the DNA sample is deemed to be personally nonidentifiable only if the link between the DNA sample and the sample source is completely absent.[186] The data and tissue in a population genetic database would therefore be considered individually identifiable as, given the need to constantly update information, the link between the person on the one hand and his data and tissue on the other will be maintained. Thus, the establishment and operation of a population genetic database would have to be in compliance with the GPA.

This in turn means that all future research projects that will use the data or tissue from the database must have been envisaged and set forth in research proposals, and these proposals must have been accepted by a review board, prior to the first contact with participants in the database project. Such a requirement cannot possibly be met by a population genetic database that aims to be a resource for different kinds of research over a longer period of time. The closest that a population genetic database could come to this requirement would be to draft an independent assessment of its structure, safeguards and acting principles and submit it for independent review. Such a document would not be a research proposal, however, and its positive assessment would not mean that the conditions for obtaining traditional informed consent could be met by acquainting research participants with the main aspects of the document.

The second hurdle involving valid informed consent under the GPA that population genetic databases are not able to overcome is the obligation to identify the researcher that will conduct the research. The operator of a population genetic database is only one research body, and certainly not the only one. Even with respect to privately funded population genetic databases, the investor does not have a research monopoly. There is even less justification for a research monopoly with respect to publicly funded databases. Population genetic databases aim to serve as a resource for the entire scientific community, not just one group of researchers. Therefore, the requirement contained in the GPA that researchers who will have

[186] The Genetic Privacy Act and Commentary, Part III Commentary. P 11. Available: http://www.bumc.bu.edu/www/sph/lw/pvl/act.html.

the right to conduct research on collected data and materials must be identified excludes the possibility for establishing modern population genetic databases.

One way around this problem could be to allow the creation of population genetic databases under the condition that each and every research project that uses tissue or data from the database will be subject to additional consent. Leaving aside the question of whether such an interpretation is possible under section 103.a.6 of the GPA and the traditional concept of informed consent, this interpretation also fails to present a reasonable solution. Should population genetic databases emerge as the tool for enhancing our understanding of the human genome, the number of research projects that will require access to these databases will probably number in the thousands rather than hundreds. And though not all of these projects will need data pertaining to every research participant, it can be expected that some participants will be asked to consent more than once a week. In addition to this aspect, the specific consent requirement is costly in terms of both money and time.[187] Although it is difficult to estimate the cost of the specific consent requirement in general, it has been argued that, for instance, given the current number of autopsies performed in the UK to assess the quality of treatment, imposing a specific consent requirement would result in some 150,000,000 minutes of extra working time yearly, which is equivalent to the working capacity of the entire staff of one medium-sized hospital.[188] Indeed, the specific consent requirement would render population genetic databases unworkable.[189]

2.2.3 Shortcomings of consent alternatives

2.2.3.1 Types of consent alternatives and their common weaknesses

Even before population genetic databases entered the scene, practical problems arose that could not be resolved without modifying the informed consent requirement. Broadly speaking, exemptions from the consent requirement have been recognised in cases where consent cannot be obtained (such as with emergency research), where consent undermines the validity of research outcomes, or where research poses no more than a minimal risk.

The first two exemptions cannot be employed in the context of population genetic databases. There is no need to recruit persons from emergency rooms or other people temporarily unable to provide valid consent. On the contrary, databases aim to collect data

[187] It has therefore been argued that, for instance, the need to contact the entire population is sufficient justification for not requesting consent. See: Ellen Wright Clayton *et al*. Consensus Statement: Informed Consent for Genetic Research on Stored Tissue Samples. - The Journal of the American Medical Association, Vol 274 (1995), No 22. P 1789.
[188] Peter Furness, Richard Sullivan. The Human Tissue Bill. - British Medical Journal, Vol 328 (2004). P 533.
[189] Jane Kaye (note 24), p 121.

that are as reliable, comprehensive and unified as possible, and they thus require full cooperation from participants in their normal environment. Consent is also sacrificed where participants, whether they are aware of the purpose for the research or not, modify their answers and activities, thus leading to unreliable research results. Such a problem is acute in behavioural and psychological research and, although people may also supply false answers during the collection of data for a population genetic database, there are other means of ensuring the accuracy of collected data. These include measuring up, tracking medical records, etc. In sum, the only consent alternative worthy of exploration for purposes of population genetic databases is the minimal risk exemption.

Before beginning the debate over minimal risk, a weakness common to all these consent alternatives – lack of flexibility -- is worth mentioning. Should a research project be eligible for a consent alternative, there is no need to request anything from the research participant. In fact, the research subject should in such a case more properly be called a research object, although being an object in this manner does not carry with it significant risks. Yet a solution that affords the individual at least some subject capacity and ensures trust is more in line with the moral principles explored below, and should be given priority. Thus, should we be able, by modifying our concept of informed consent, to achieve a solution that can reasonably be employed in the context of population genetic databases, we should not rely on consent alternatives. The puritanical view of informed consent, which does not recognise the possibility of modifying the standards but instead discards consent entirely wherever a consent exemption applies, resembles a child who, not being given the whole ice cream, refuses to take even a part of it.[190]

2.2.3.2 Minimal risk exemption

The notion of minimal risk is in one way or another present in almost every international instrument on biomedicine. In its most traditional context, minimal risk is used to determine what kind of research may be carried out in cases where consent cannot be obtained or where there are other reasons for not requesting consent. Should a research project entail only minimal risks to participants, the lack of consent does not by itself render research unethical or unlawful. Thus, the consent requirement attains its absolute value and becomes unavoidable at the point at which more than minimal risks are at stake. For example, CIOMS 2002 Guidelines contain the following statement: "/.../ when the research design involves no more than minimal risk and a requirement of individual informed consent would make the

[190] See also: Henry T. Greely. Breaking the Stalemate: A Prospective Regulatory Framework for Unforeseen Research Uses of Human Tissue Samples and Health Information. – Wake Forest Law Review, Vol 34 (1999). P 759.

conduct of the research impracticable (for example, where the research involves only excerpting data from subjects' records), the ethical review committee may waive some or all of the elements of informed consent." (Commentary to Guideline 4). Thus, at least under these guidelines, research on information contained in population genetic databases can be eligible for the consent exemption.

Some countries have also reached the same conclusion. The Common Rule stipulations in the United States provide that minimal risk means that the probability and magnitude of harm or discomfort anticipated with respect to the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.[191] Our daily life constantly leaves traces of us in different databases; indeed, we are a "database nation".[192] Thus, the right question to ask is whether population genetic databases create more risks than do already existing databases, and thereby whether they rule out the minimal risk exemption.

Compared to anonymous databases, population genetic databases pose an additional risk concerning the possibility that the code will be broken or others will gain unauthorised access to the code, *i.e.*, a security of coding issue. It appears, however, that all databases rely on the assumption that the security of the code can be ensured. After all, with due respect for our dignitary values, we have a comparable level of interest in the security of our money in a bank, which in modern times is mainly a database of different accounts protected by a code. Provided that the security of the code is at a level at which it is easier to try to identify gene donors from anonymised data[193] or to get access to the data using other means, the existence of the code does not itself present more than a minimal risk.

Another method of assessing minimal risk has been proffered by the NBAC. Although the NBAC does not define minimal risk, it draws attention to the issues that are of greatest relevance while assessing minimal risk with respect to population genetic databases. The issues that should be assessed in the light of existing physical and legal safeguards are:[194]

- How easily identifiable is the source?
- What is the likelihood that the source will be traced?
- If the source is traced, what is the likelihood that persons other than the researcher will obtain information about the source?

[191] The Common Rule is the name for Title 45 (Public Welfare), Part 46 (Protection of Human Subjects) of the Code of Federal Regulations, which regulates among other issues the consent requirement and alternatives to it. Available: http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm.
[192] Simson Garfinkel. Database Nation. The Death of Privacy in the 21st Century. Beijing, Cambridge, Farnham: O'Reilly, 2000.
[193] *Nationaler Ethikrat* (note 132), p 61.
[194] NBAC 1999 (note 39), p 67.

- If non-researchers obtain information regarding the source, what is the likelihood that harms will result, including adverse consequences arising from the reporting of uncertain or ambiguous clinical results?

Having considered all of these issues, the NBAC reached the conclusion that research on coded samples contains only minimal risk to the subject if confidentiality is ensured, no inappropriate release of information to a third party occurs, and there exists a plan for feedback of information to the person or his physician should this turn out to be necessary.[195] As all of these conditions can be met by population genetic databases, this justifies the conclusion that these databases at least can be of minimal risk. It is difficult to generalize about whether they are, in fact, of minimal risk.

Whereas the American standards conclude that population genetic databases pose no more than a minimal risk, Jane Kaye,[196] John F. Merz[197] and several other authors[198] are of a different opinion. They maintain that population genetic databases are not as much in the public interest as other population research projects and that they pose more than merely a minimal risk to participants. Their first argument is related to the fact that these databases will be established and operated by private bodies who are more interested in profit than research, who charge for access to the database and who monopolise information by applying for patents. Secondly, given the facts that different researchers will have access to the data and that for-profit research is allowed, participants are not protected by the trust relationship that they usually have with their doctors. Thirdly, these databases are more like "data mines" and do not comport with traditional data protection principles such as proportionality, since the data in the databank will not be deleted after their use and the amount of data is excessive in relation to any single research project. Fourthly, specific risks arise from the fact that the data in the database will constantly be updated and cross-linked with other databases, and the amount of this data is incomparably greater than in any other database used for medical research. The latter is also the reason why population genetic databases cannot be truly

[195] NBAC 1999 (note 39), Recommendation 10.
[196] See: Jane Kaye (note 24), p 122-130. Also: Jane Kaye. Broad Consent – the Only Option for Population Genetic Databases? - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 105.
[197] Jon F. Merz. Is Genetics Research "Minimal Risk"? – Institutional Review Board, Vol 18 (1996) No 6. P 7-8. But Merz is also of the opinion that if the linked anonymised database model is used, ethical issues that derive from the fact that such research might be more than of minimal risk, are properly dealt with. See: Jon F. Merz. On the Intersection of Privacy, Consent, Commerce and Genetics Research. - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003. P 258-261.
[198] See, for instance: Timothy Caulfield. Perceptions of Risk and Human Genetic Databases. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjàlmur Árnason. (ed). Reykjavik: University of Iceland Press, 2004. P 283-289.

anonymous. And finally, it has been argued that the nature of the research is different than that of conventional research.[199]

This dissertation tends to agree that population genetic databases do not pose more than a minimal risk to research participants, but is reluctant to make a definite case for this. It seems that there cannot be a general yes or no answer to the inquiry about minimal risk and population genetic databases. One cannot assess the level of risk pertaining to a database without knowing exactly what safeguards will be implemented in order to reduce the likelihood that these risks will materialize. Even if population genetic databases are more "risky business", they may also employ more stringent data protection safeguards to successfully maintain the balance that is achieved by other databases. Thus, we cannot make a definite case either in favour of or against the possibility of using the minimal risk exemption in the context of population genetic databases.

One thing is certain – since we cannot make a definite case, we should not build our regulation on unproved assumptions. Thus, the regulation should not simply rely on the disputable opinion that population genetic databases are of minimal risk and that no consent is needed, but should instead aim to ensure that at least some form of informed consent is sought. The latter approach furnishes research participants with at least some opportunity to exert control over the research, and also bows to the dignitary interests of research participants. Even those who oppose all concepts of informed consent other than specific consent accept this argument.[200]

2.2.4 Conclusion – the need for a new approach

One should not try to fix a situation that works. Therefore, any proposal to modify a situation must first explain what the problems are with the existing situation, *i.e.*, before exploring new proposed approaches to informed consent, we must be sure that the traditional concept of informed consent does not produce reasonable outcomes. For this purpose, the dissertation looked to the GPA model law for the United States that was based on the traditional concept of informed consent. It appeared from this analysis that the specific informed consent associated with traditional research projects is not appropriate for population genetic databases.

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[199] Interestingly, the same argument has been used to assert that research is minimal risk research. Beskow *et al* advance this argument on the basis that research using population genetic databases concentrates on questions that have public health implications rather than clinical implications for research participants. See: Laura M. Beskow *et al*. Informed Consent for Population-Based Research Involving Genetics. - Journal of American Medical Association, Vol 286 (2001), No 18. P 2318.

[200] See, for instance: Anita Buchanan (note 92), p B19 and B24.

The problems with informed consent are not new, a fact that is manifested by a set of commonly recognised exceptions to the consent requirement. The most promising one among these is the minimal risk exception. This dissertation maintains that the risks associated with a database can be properly addressed and kept to a minimum, with the result that no consent whatsoever is requested from research participants. However, such a solution should be used only as a very last resort if no other solutions are available. It seems that modifying the traditional informed consent approach allows us to avoid abandoning consent in its entirety. Although some ethicists may consider departures from the traditional concept of informed consent as a return to pre-Nuremberg times, modifying informed consent is not as radical as is relying on consent alternatives. Moreover, the main reason for requesting consent in population genetic databases does not have to do with risks but rather with respect – respect for people and their right to choose. Given that risks can be mitigated in population genetic databases, new approaches to consent produce a means of respecting both those who do not want to contribute to a database, and those who do.

For these reasons, several international instruments have already considered modified concepts of informed consent, and have treated them as an ethically sound solution for large-scale genetic databases and biobanks. On a worldwide level, the forerunners in advocating for more relaxed rules for population genetic databases have been the Human Genome Organization and the World Health Organization. These organizations have advanced an idea of consent which, under certain conditions, is able to justify any kind of research carried out on collected data and tissue.[201] On the European level, the CoE stated as early as 1998 that the collection of biological materials into biobanks and databases should be subject to flexible rules.[202] The CoE has maintained this approach until the present time (see Chapter 4.2). With regard to the EU, two different multinational and interdisciplinary working parties under the auspices of the EU have recently concluded that the traditional concept of consent does not meet society's needs, and therefore that other concepts should be introduced upon consideration of relevant ethical, legal and social issues.[203]

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[201] HUGO Ethics Committee Statement on Human Genomic Databases, 2002 (note 27), Recommendation 4; WHO Proposed International Guidelines on Ethical Issues In Medical Genetics and Genetic Services, 1998. Recommendation 10. Available: http://whqlibdoc.who.int/hq/1998/WHO_HGN_GL_ETH_98.1.pdf; WHO (note 52), Recommendations 6 and 9.

[202] Article 22 of the CHRB refers to "appropriate information and consent procedures" that, according to section 137 of the Explanatory Report (available: http://conventions.coe.int/Treaty/en/Reports/Html/164.htm) may even include presumed consent.

[203] 25 Recommendations to the EU on the ethical, legal and social implications of genetic testing, 2004. Recommendations 23 and 24. Available: http://europa.eu.int/comm/research/conferences/2004/genetic/pdf/recommendations_en.pdf; Biobanks for Health (note 46), p 22.

The issue of consent in relation to population genetic databases has been on the agenda of national legislators and ethics committees on several occasions. In Chapter 1.2.2, we saw that Iceland and Estonia have already adopted special legislation for population genetic databases that departs from the traditional concept of informed consent. It can be predicted that the list of these countries will continue to grow, given that national ethics committees in France,[204] Germany[205] and the United States,[206] as well as prominent bodies in the UK[207] and Australia[208] -- not to mention researchers themselves[209] -- have argued in favour of new rules for biobanks and population genetic databases. The next subchapter we provide some insight into the most prominent new approaches.

2.3 SOME PROPOSED NEW APPROACHES

Set forth are the most prominent concepts advanced thus far regarding consent and population genetic databases. In the author's personal, subjective opinion, these concepts have had the greatest influence in shaping bioethical debate on the consent issue. It should be noted at the outset of this overview that, due to the variety of settings in which these concepts have been proposed (for instance, those involving different legal backgrounds, different societal concerns, etc.) and the varying aims that these proposals have fulfilled (*i.e.*, creating binding laws, offering proposed laws, appearing in scientific writings, etc.) the comparison conducted below is somewhat difficult to carry out.

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[204] *Comité consultatif national d'éthique*, France. Opinion No 77. Ethical Issues raised by collections of biological material and associated information data: "biobanks", biolibraries", 2003. Recommendation 3. Available: http://www.ccne-ethique.fr/english/pdf/avis077.pdf.

[205] *Nationaler Ethikrat*, Germany. Joint declaration of *Comité consultatif national d'éthique* and *Nationaler Ethikrat* on the theme Biobanks, 2003. Recommendations 5, 6 and 10. Available: http://www.ethikrat.org/themen/pdf/gemeinsame_Erklaerung_NER-CCNE.pdf.

[206] For the views of the National Bioethics Advisory Committee, see Chapter 2.3.2 below.

[207] Human Genetics Commission, the United Kingdom. Inside Information: Balancing interests in the use personal genetic data, May 2002. P 95; Medical Research Council, the United Kingdom. Human tissue and biological samples for use in research 2001. Section 6.2. Available: http://www.mrc.ac.uk/pdf-tissue_guide_fin.pdf. Also: Nuffield Council on Bioethics, 1995. Human Tissue: Ethical and Legal Issues. Recommendation 13.13. Available: http://www.nuffieldbioethics.org/fileLibrary/pdf/human_tissue.pdf. On the one-time consent concept of the UK Biobank, see Chapter 1.2.2.3.

[208] Australian Law Reform Commission. The Protection of Human Genetic Information in Australia, 2003. Recommendation 15-4. Available: http://www.austlii.edu.au/au/other/alrc/publications/reports/96/15_Human_genetic_research_and_consent.doc.html#heading13.

[209] European Society of Human Genetics. Recommendations on Data Storage and DNA Banking for Biomedical Research: Technical, Social and Ethical Issues, 2001. Available: http://www.eshg.org/ESHGDNAbankingrec.pdf.

2.3.1 Iceland: community consent and personal opt-out

2.3.1.1 Summary of the concept

While discussing population databases in Iceland, one constantly runs the risk of mixing up different laws and databases. As explained above in Chapter 1.2.2.1, there is no single population genetic database in Iceland and there probably never will be. The population genetic database proposed by deCODE was a complex structure of three different databases with a sophisticated oversight and cross-linking system, encompassing at least three different kinds of consent and subject to at least three different laws. This fact has confused many authors.[210] Partly to avoid the same trap and partly because opt-out consent was initially incorporated into the Health Sector Database Act (HSD Act), the following passages are limited to the HSD Act and to the Health Sector Database (HSD).

Under the HSD Act, the Icelandic Government is entitled to issue a licence giving the licensee the right to establish a database containing data from health records. The HSD Act itself does not furnish the licensee with the right to access health records, but suggests that physicians and the licensee may agree upon the collection of medical data from records. Should a doctor and the licensee reach an agreement, all medical data about the doctor's patients will be entered into the HSD unless a patient exercises his right to prohibit this transfer of his data. Thus, the HSD Act can be considered a community consent model that legitimises the creation of the HSD and sets forth rules for collecting, storing, using and disclosing data.[211]

Some scholars prefer to talk about presumed consent,[212] which is, in fact, misleading. The HSD Act does not presume at any point that concerned persons have consented to the creation of the HSD, since individuals' consent is simply not necessary to the establishment of the HSD. Speaking in terms of presumed consent would be appropriate only if consent were a necessary condition for establishing the HSD which, as noted above, is not the case. Community consent in the form of the adoption of the HSD Act and an agreement between the licensee and a doctor is all that is needed to launch the HSD.

The most likely reason why the Icelandic project is usually referred to as a presumed consent project is that, under Article 8 of the HSD Act, every Icelander is entitled to request

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[210] A quote from Henry T. Greely: "The Icelandic legislation has been much misunderstood." See: Henry T. Greely (note 73), p 170.

[211] Jeffrey Gulcher, Kari Stefansson. The Icelandic Healthcare Database and Informed Consent. - The New England Journal of Medicine, Vol 342 (2000), No 24. P 1827; Onora O'Neill (note 172), p 701.

[212] Hrobjartur Jonatansson. Iceland's Health Sector Database: A Significant Head Start in the Search for the Biological Grail or an Irreversible Error? – American Journal of Law & Medicine, 2000. P 55; Henry T. Greely (note 129), p 789; Oddny Mjöll Arnardottir, David Thor Björgvinsson, Vidar Mar Matthiasson (note 65), p 321; Henriette D.C. Roscam Abbing. Central Health Database in Iceland and Patient's Rights. European Journal of Health Law, Vol 6 (1999). P 366.

that no data or only some data about him be transferred to the HSD. This opt-out right, however, does not imply that people can withdraw the consent that has been attributed to them. It should instead be viewed as a way to override community consent. To put it differently, the HSD Act, itself being an example of community consent, still values personal decisionmaking more highly and therefore allows individuals to invalidate community consent. Out of respect for individual self-determination, the HSD Act states that, although people are not asked to actively exercise their self-determination (as this exercise has been replaced by community consent), they nonetheless have the power (should they wish to exercise it) to declare that community consent does not encompass them.

With regard to the procedural aspects of the HSD Act, the Act states that this opt-out right may be exercised at any time by submitting a special form to the Director General of Public Health, although it has been widely and erroneously understood that opting out was possible only for the six-month period following the passage of the law.[213] After a person has exercised his right to opt out from the HSD, no further data will be transferred to the HSD.[214] However, this does not mean that the data already transferred to the HSD will be deleted from the HSD. It is important to note that a parent can opt out on behalf of a child, whereas there is no provision allowing relatives or any other person to prohibit the transfer of data concerning a deceased person to the HSD. Nevertheless, the Icelandic Supreme Court has recently ruled that, based on the right of privacy, a person might have an interest in preventing the transfer of health data concerning relatives to the HSD, as information about the person could be inferred from such data.[215]

2.3.1.2 Critical assessment of the concept

Most critics on the subject of community consent do not challenge the concept as such, but rather draw attention to the formal and material shortcomings of the manner in

[213] This misunderstanding was so extensive that the Director General of Public Health was forced to intervene and publish an official statement in one of Iceland's major newspapers on 15.02.2000. English translation available: http://www.mannvernd.is/english/news/irretrievable.html. Apparently, this statement has not been sufficient, and confusion persists. See for instance: Brian Salter, Mavis Jones. Biobanks and Bioethics: the Politics of Legitimation. P 11. Available: http://www.york.ac.uk/res/iht/projects/l218252005/SalterBiobanksAndBioethicsPaper.pdf; Hilary Rose. The Commodification of Virtual Reality. The Icelandic Health Sector Database. – Genetic Nature / Culture. Anthropology and Science beyond the Two-Culture Divide. Alan H. Goodman, Deborah Heath, M. Susan Lindee. University of California Press: Berkley, 2003. P 83; *Comité consultatif national d'éthique* (note 204), p 18-19.

[214] As of 30.06.2003, 20,436 opt-outs from the HSD had occurred. This number is roughly equal to 7.5 % of the population. See: http://www.mannvernd.is/english/home.html.

[215] Verdict of the Icelandic Supreme Court of 27.11.2003. *Ragnhildur Guðmundsdóttir v. The State of Iceland* Available: http://www.mannvernd.is/english/lawsuits/Icelandic_Supreme_Court_Verdict_151_2003.pdf.

which community consent was obtained in Iceland.[216] The community consent procedure has at least two aims – to determine whether a project can be carried out under its proposed terms in this particular society, and to allow people to make an informed decision about whether to support or oppose the project. The critics of the HSD hold that neither of these two aims was achieved in Iceland.

Vilhjalmur Árnason maintains that although the debate that surrounded the adoption of the HSD Act consisted of at least 700 newspaper articles and 150 TV and radio programs,[217] that debate was "uninformed, misleading and prejudicial," a contention he illustrates with reference to the fact that only 13 % of the population considered themselves to be well-acquainted with the regulations in the HSD Act on the eve of its passage.[218] Secondly, he argues that the period for public consultation and discussions in the Parliament was not long enough.[219] And given the influence that deCODE had on shaping the HSD Act, he also doubts whether the HSD Act itself is in fact an example of community consent or rather only a result of procedural democracy.[220] Skuli Sigurdsson calls even the procedural aspect into question by arguing that the opposition was ignored in debates and its proposals to hear expert witnesses were unfairly rejected.[221]

2.3.1.3 Lessons to be learned

It appears that a widespread understanding among scholars has emerged to the effect that, given the implications that a population genetic database and research conducted in relation to it may have for the population, individual consent is not enough.[222] Indeed, individual consent was never designed to resolve issues that are outside the scope of the

[216] George Annas suggests that we should talk in terms of community consultation rather than community consent since the community cannot force individuals to participate in research. Nevertheless, if we think of the community consent as an additional safeguard, his argument falls short. See: George Annas (note 50), p 1832.
[217] Gisli Palsson, Paul Rabinow. Iceland. The Case of a National Human Genome Project. - Anthropology Today, Vol 15 (1999). P 14. For more empirical data, see: Gisli Palsson, Paul Rabinow. The Icelandic Genome Debate. - Trends in Biotechnology, Vol 19 (2001), No 5. P 168-169; and Gisli Palsson, Kristin E. Hardardottir (note 58), p 277-281.
[218] Vilhjalmur Árnason (note 70), p 38. Gender scientists have also pointed out that the debate did not reflect concerns of women such as love and responsibility for their children, at all. See: Hilary Rose. Gendered Genetics in Iceland. - New Genetics and Society, Vol 20 (2001), No 2. P 131.
[219] The first draft of the HSD Act was presented to the Icelandic Ministry of Health by deCODE on 14.07.1997, almost eighteen months before it passed in the Parliament. This first draft is available: http://www.mannvernd.is/english/laws/HSDbill_english_firstdraft_140797.html.
[220] Vilhjalmur Árnason, Gardar Árnason. Informed Democratic Consent? The Case of the Icelandic Database. - Trames, 2004, Vol 8 (2004), No 1/2. P 170.
[221] Skuli Sigurdsson. Yin-yang Genetics, or the HSD deCODE Controversy. - New Genetics and Society, Vol 20 (2001), No 2. P 111-112.
[222] Even the critics of community consent who underscore the risk of genetic reductionalism and point out that there is nothing special about genes that justifies treating genetic research distinctly from other anthropological research admit some of the values that community consent may have. See: Eric T. Jungst. Groups as Gatekeepers to Genomic Research: Conceptually Confusing, Morally Hazardous, and Practically Useless. - Kennedy Institute of Ethics Journal, Vol 8 (1998), No 2. P 187.

researcher-participant relationship – a shortcoming that manifests itself especially strongly in genetics, where the interests of the population and of other "groups between" are constantly at stake.

The HSD Act demonstrates that at least in small western democracies, traditional problems related to community consent, such as how to define a population and who should represent the population, can be solved in a satisfactory manner. On the other hand, freedom of speech and parliamentary proceedings do not have value in and of themselves, nor are they able to guarantee valid community consent. Those best qualified to assess whether or not a community consent is a mere product of procedural democracy or is instead a genuine community consent are the individuals of the particular population in question. Unfortunately, in the case of Iceland, even Icelandic scholars are clearly split into two groups on this question -- a situation that population genetic database projects should try to avoid in the future.

This overview of the Icelandic approach can best be summarized with the statement that Iceland has made us aware of the need to obtain community consent, and has reminded us how difficult it is in practice to obtain this consent in a manner that makes the results acceptable to both opponents and proponents of the project. Nonetheless, community consent should not be seen as an alternative to individual consent but rather as a supplement to this form of consent. Thus, the aspect of the Icelandic concept that substitutes opt-in personal consent with opt-out community consent should not be followed. A more sound way that takes into account the ethical underpinnings of individual consent is to explicitly request both types of consent – community consent and individual consent.

2.3.2 NBAC: multi-level approach

2.3.2.1 Summary of the concept

No work on informed consent in relation to genetic databases would be complete without exploring the statements of the National Bioethics Advisory Commission (NBAC) established by the President of the United States. Although the NBAC focuses on issues related to biological samples, which are only one part of population genetic databases, and the legal regulation of human research in the U.S. differs materially from the type of regulation in force in Europe, the general idea of NBAC's proposal merits deeper examination.

In the 1999 report,[223] the NBAC specifically addressed the issue of consent in relation to population genetic databases. The NBAC begins its discussion by drawing very valuable

[223] Research Involving Human Biological Materials: Ethical Issues and Policy Guidance. National Bioethics Advisory Commission 1999. Available: http://www.georgetown.edu/research/nrcbl/nbac/hbm.pdf.

distinctions between research on unidentified, unlinked, coded and identified samples. In recommendation 1, the NBAC maintains that research on unidentified samples (*i.e.*, those that are anonymous from the beginning) is not research on human subjects, that research on unlinked samples (*i.e.*, those that are rendered anonymous at a later stage) does not require informed consent, and that research on coded or identified samples may be eligible for a waiver of the consent requirement. This flexible approach is the result of the NBAC rationale, which places the highest priority on research interests and allows restrictions on these interests only where risks to the research participants so require.[224]

In cases where consent is still needed, the NBAC relies heavily on the decisionmaking capacity of research subjects and favours consent forms that allow participants to choose between different options.[225] The NBAC itself differentiates between six options:

- Prohibiting the use of biological materials in research,
- Permitting the use only of unidentified or unlinked biological materials in research,
- Permitting the use of coded or identified biological materials for one particular study only, with no further contact permitted to enable requests for permission to conduct further studies,
- Permitting the use of coded or identified biological materials for one particular study only, with further contact permitted to enable requests for permission to conduct further studies,
- Permitting the use of coded or identified biological materials for any study relating to the condition for which the sample was originally collected, with further contact allowed in order to enable requests for permission to conduct other types of studies, or
- Permitting the use of coded biological materials for any kind of future study.

As the NBAC report reveals, the last two options were the source of the most heated debate on the issue, and gave rise to three dissenting opinions. Nonetheless, the majority of the NBAC maintained that prospective authorisation for future unknown research is consistent with NBAC's previous statements and with protection for autonomy: "Allowing individuals to express their preferences for future research is consistent with respecting persons, and it may be less problematic when the research will be conducted not on their bodies but on biological materials they have provided, when the risks are mainly psychosocial, when the risks are minimal or can be minimized — for example, through

[224] NBAC, 1999 (note 39), p 48.
[225] It seems that on this point, the NBAC followed the commissioned report of Alpert. See: Sheri Alpert. Privacy and the Analysis of Stored Tissue. - Research Involving Human Biological Materials: Ethical Issues and Policy Guidance, Volume II Commissioned Papers. Rockville: NBAC, 2000. P A-30.

unidentified or unlinked use—and when the risks have been explained to potential sources who then provide their biological materials for this purpose."[226] The NBAC also mentioned various interests that research participants might have with respect to the type of research conducted, the aims of the research, and financial arrangements.

2.3.2.2 Critical assessment of the concept

The NBAC's 1999 report begs the question of whether the aim of the report was to bolster or detract from the importance of informed consent. Greely rightly points out that by trying to fit its report into the existing Common Rule requirements, the NBAC inevitably ran into controversies: "It [the NBAC] cleaves to the Common Rule's requirement of informed consent, but, in effect, under the Report, informed consent is everywhere invoked and everywhere superfluous."[227] Indeed, in the report that followed in 2001, the NBAC clearly states that informed consent is not necessary in studies where there is "no interaction between investigators and participants, such as in studies using existing identifiable data."[228]

Another controversy surrounding the 1999 report relates to a pattern of inconsistent striving toward more "user friendly" consent forms. On one occasion, the NBAC recognises that the system of protection should be as clear and simple as possible,[229] but still favours lengthy consent forms. If we do not want to merely pay lip service to participants' right to choose, "a multitiered consent form with more options and permutations than an airline frequent-flyer program" must be drafted.[230] To that effect, Anita Buchanan makes the valid point that it is misleading to assume that the more choices people have, the more autonomy they have and that, should people not be furnished with choices, their autonomy will be violated.[231] Autonomy does not necessarily require the presentation of more and more options. Rather, what should be ensured is the opportunity to decide whether or not to participate in the research under the specified conditions.[232] This latter view is solidly

[226] NBAC, 1999 (note 39), p 49.
[227] Henry T. Greely (note 190), p 749. Of the same opinion also: David E. Winickoff. Governing Population Genomics: Law, Bioethics, and Biopolitics in Three Case Studies. – Jurimetrics Journal, Vol 43 (2003). P 194-195.
[228] National Bioethics Advisory Commission, the United States. Ethical and Policy Issues in Research Involving Human Participants, 2001. P 103. Available: http://www.georgetown.edu/research/nrcbl/nbac/human/overvol1.pdf.
[229] NBAC, 1999 (note 39), p ii.
[230] Wayne W. Grody. Molecular Pathology, Informed Consent, and the Paraffin Block. – Diagnostic Molecular Pathology, 1995, No 4. P 156. Also critical of NBAC are: Laura M. Beskow *et al* (note 199), p 2319.
[231] Anita Buchanan (note 92), p B12 and B16. For a similar opinion, see also: *Nationaler Ethikrat* (note 132), Recommendation 9.
[232] *Nationaler Ethikrat* (note 132), Recommendation 9.

supported by the practical arguments advanced by commissioner Miike, who delivered one dissenting opinion on the consent issue.[233]

It is not only the NBAC that favours the view that unknown amounts of research that is limited to one field -- for instance cancer --[234] is significantly less risky than research in several fields, and that the former should therefore be presented to participants as an option. One of the first proponents of this sectoral approach was the American Society of Human Genetics, which stated in 1996 that "subjects should be given options regarding the scope of the subsequent investigations, such as whether the sample can be used only for a specific disease under investigation, or for other unrelated conditions. It is inappropriate to ask a subject to grant blanket consent for all future unspecified genetic research projects on any disease or in any area if the samples are identifiable in those subsequent studies."[235] If one is truly engaged in preserving the traditional concept of informed consent, then it does not matter whether biological samples and data are used for research limited to one area or whether a broader scope for the research is envisaged: in both cases, the research presents unknown risks and therefore automatically excludes the possibility of providing informed consent.[236] Thus, while the sectoral consent approach attempts to combine practical needs with the traditional informed consent approach, such a combination fails because it lacks a theoretically sound underpinning: if one subscribes to the traditional concept of informed consent (*i.e.*, specific consent), no consent can be given without the existence of a scientific protocol. A lack of protocol cannot be justified by the argument that research will be carried out in the same field.

In addition to this conceptual argument, the adoption of such a form of consent would greatly restrict the possibilities for using population genetic databases. Modern population genetic databases are designed to improve the health of the population in general, rather than to improve it with respect to one particular field. It would simply be a waste of biological samples and public resources if only cancer research could be carried out using the population genetic database, for example. This is far from suggesting that the economic argument is the

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[233] NBAC, 1999 (note 39), p 65.

[234] Some authors consider even the sectoral approach to be too broad and therefore only accept the specific disease approach, i.e. instead of obtaining consent for cancer research, consent should be obtained only for breast cancer research. To that effect, see: Henriette D.C. Roscam Abbing. Human Tissue Research, Individual Rights and Bio-banks. P 4. Available: http://www.ccels.cf.ac.uk/pubs/roscam abbingpaper.pdf.

[235] American Society of Human Genetics. Statement on Informed Consent for Genetic Research, 1996. Available: http://genetics.faseb.org/genetics/ashg/policy/pol-25.htm. Almost the same pattern was proposed to the CoE. See: Proposal for an instrument on the use of archived human biological materials in biomedical research. Explanatory Report. Available: http://www.coe.int/T/E/Legal%5FAffairs/Legal%5Fco%2Doperation/Bioethics/Activities/Biomedical_research/CDBI-INF(2002)6E.pdf.

[236] Commissioner Capron grounded his dissenting opinion upon these arguments, rejecting the opportunity to provide both an open consent and sectoral consent. See: NBAC, 1999 (note 39), p 65.

most important one, but it implies that the argument has some weight in cases where there are safeguards in place for the protection of people and an individual is willing to participate in research that serves various aims.

And finally, the desire for multi-optional consent forms does not seem consistent with the results of empirical surveys. According to one American study, 91.9 % of participants did not want to impose greater safeguards on future research involving a disease different than the one for which the tissue was originally collected.[237] The same study revealed that 89 % of patients from whom biological samples were taken agreed to future research on the same disease, and 85 % on any kind of disease. Similarly, some European studies have produced results demonstrating that about 80 % of the participants are not concerned with providing their open consent to different kinds of genetic research projects provided the research is conducted on anonymised data.[238] Klaus Lindgaard Hoyer concludes from his empirical study on participants in the Umea genetic database that "people actually donating blood are not showing any particular interest in the information they are offered" and rarely ever read the consent form before signing it. If they consent or refuse to consent they display trust or, respectively, mistrust with respect to the framework and not with respect to a particular research project.[239] These surveys imply that people want to have control over the fact of whether their tissue and data will be used for research, but that they are not concerned with the particular disease that will be studied.[240] Therefore, it should not simply be assumed that people would not wish to act in the public interest, at least where the costs and risks involved are minimal; the assumption should instead be that people are public-spirited and wish to participate and provide their consent to different research activities.[241]

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[237] David Wendler, Ezekiel Emanuel. The Debate Over Research on Stored Biological Samples: What Do Sources Think? - Archives of Internal Medicine, Vol 162 (2002), No 13. P 1457-1462. A description of the study and its results is also available at: http://www.bioethics.nih.gov/research/humanres/Storedsamples.pdf.

[238] Birgitta Stegmayr, Kjell Asplund. Informed Consent for Genetic Research on Blood Stored for More Than a Decade: a population Based Study. - British Medical Journal, Vol 325 (2002). P 634.

[239] Klaus Lindgaard Hoyer. 'Science Is Really Needed--That's All I Know': Informed Consent and the Non-verbal Practices of Collecting Blood for Genetic Research in Northern Sweden. - New Genetics and Society, Vol 22 (2003), No 3. P 240. Similar results (83 % of donors did not wish to limit the types of diseases to be studied in the future) are reported also by: Jon F. Merz, Pamela Sankar. DNA Banking: An Empirical Study of a Proposed Consent Form. – Stored Tissue Samples. Ethical, Legal, and Public Policy Implications. Robert F. Weir (ed). Iowa: University of Iowa Press, 1998. P 210. Berg is also of the opinion that in real life, people are rarely afraid to give broad consent. See: Kare Berg. DNA Sampling and Banking in Clinical Genetics and Genetic Research. - New Genetics and Society, Vol 20 (2001), No 1. P 64.

[240] Hoyer has provided a valuable analysis to this effect and concludes that only approximately 4 % of donors regard being informed about the research purpose as the most important issue. See: Klaus Lindgaard Hoyer. Biobanks and Informed Consent. An Anthropological Contribution to Medical Ethics. Umea University, 2004. P 105. Available: http://publications.uu.se/umu/fulltext/nbn_se_umu_diva-358.pdf 7.12.2004.

[241] John Harris (note 124), p 85.

2.3.2.3 Lessons to be learned

The NBAC recommendations were driven by practical reasons. The NBAC had to strike a balance between practical considerations and the protection of research participants. One might disagree whether the balance point achieved is at the "right" place, but one cannot deny that the NBAC recommendations have incorporated the values of contemporary bioethics.

Multi-optional consent forms have the potential to attract more research participants. Individuals who fear the potential misuse of their tissue and data or who do not agree with certain types of research or research goals are not compelled to wholly abstain from participating in research. Therefore, this form of consent might prove very useful for studying populations that are reluctant to give their open consent.

2.3.3 Greely/Árnason: secured general permission/authorisation

2.3.3.1 Summary of the concept

Henry T. Greely, who is currently certainly one of the most distinguished and influential scholars writing about legal issues related to modern genomics, has proposed his own model concept for regulating unforeseen research uses of biological samples of human origin and personal data.[242] Unlike the NBAC, Greely does not merely interpret existing rules concerning biomedical research conducted in the United States, but considers the Common Rule to be incapable of delivering acceptable results, and therefore departs from it where necessary. Greely introduces a middle way specifically designed for the collection of data and samples for genetic databases. This approach increases the role of individual decision-making but diminishes the prerequisites for such decision-making.

Since Greely's concept has not been titled by its author, this dissertation refers to it as "secured general permission". Greely distinguishes between informed consent and general permission. The latter, though allowing the use of data and samples, falls, in his opinion, far short of informed consent. The notion of "secured" has to do with the safeguards Greely proposes "in exchange" for abandoning the informed consent requirement, with the goal of compensating for both the lack of the research subject's own risk-benefit assessment of the research, and for the research subject's diminished control over his personal data and tissue.[243]

Greely's secured general permission concept is similar to the general authorisation concept proposed by Vilhjalmur Árnason.[244] Árnason, too is of the opinion that general permission or, as he terms it, "general authorisation" for participating in a database project

[242] Henry T. Greely (note 190), p 737-766.
[243] Henry T. Greely (note 190), p 758.
[244] Vilhjalmur Árnason (note 70), p 27-49.

that includes unforeseeable future research projects is too broad and open to be labelled informed consent.[245]

General permission/authorisation is a research subject's approval of the use of his biological samples and data for unknown research purposes, the validity of which does not require a specific discussion of the research to be conducted, or its risks and benefits. Nevertheless, Greely and Árnason both provide a (partly overlapping) list of items which must be discussed as part of the process of obtaining general permission/authorisation.[246] This list includes, for instance, issues related to feedback, withdrawal, possible uses of the data and tissue, commercial interests, access to the data and tissue, privacy safeguards, foreseeable risks and benefits, recontacting policy, etc. With respect to time constraints, general permission can be obtained upon the collection of the data and tissue or at a subsequent time. On the other hand, general permission is preferably limited in time to up to 25 years, and only under exceptional circumstances is the use of the data and tissue for an indefinite period of time allowed.

In general, according to Greely and Árnason, informed consent to conducting research takes precedence over general permission/authorisation, and therefore the latter should only be sought in cases where specific research purposes cannot be reasonably anticipated at the time of requesting the research subject's consent. Nevertheless, if general permission/authorisation is not "counter-indicated", such permission can cover all possible subsequent research uses; a statement like "research into the association between genes and disease" is sufficient. Greely and Árnason both maintain that each research project that uses the data or samples collected under a grant of general permission/authorisation must be reviewed by an ethics committee and that, where the proposed research is of an unusually sensitive nature (*i.e.*, stigmatisation), the research project should not be commenced without the additional, informed consent of the sources of the data and tissue.

Obtaining general permission does not mean for Greely that a researcher is subsequently free to design future research projects without any additional constraints. There are at least three additional safeguards with which a researcher must often comply, *viz.* confidentiality, group permission and benefit sharing.[247] Unlike in cases where research will be carried out with specific consent, research based on general permission must meet the highest standards for protection of confidentiality. The data and samples should be completely

[245] For the same approach, see also: Timothy Caulfield, Ross EG Upshur, Abdallah Daar (note 21), p 4; and Ken M. Gatter. Genetic Information and the Importance of Context: Implications for the Social Meaning of Genetic Information and Individual Identity. – Saint Louis University Law Journal, Vol 47 (2003). P 446-447.
[246] Henry T. Greely (note 190), p 754-756. Vilhjalmur Árnason (note 70), p 45. Árnason's safeguards are almost identical to the ones set forth in Article 10 of Directive 95/46/EC.
[247] Henry T. Greely (note 190), p 756 – 758.

unlinked or, where this is not appropriate, a method of linking must exist "that makes it extremely difficult for any person, from inside or outside the research group, to determine the individual's identity"[248]. In order to prevent indirect identification through the use of additional data available about a person, ethics committees must pay special attention to this issue. To protect any group interests which may be at stake while conducting specific research (for instance a schizophrenia study among Old Order Amish people), ethics committees may require a group consent prior to commencing research, provided that such consent is feasible -- *i.e.*, that there exists an authoritative body which represents the common identity of such a group. Recognising the complications with respect to benefit sharing on the researcher-research participant level, Greely recommends sharing benefits with the group that is most directly connected with the research participants. With respect to the extension of benefit sharing, Greely endorses "something along the lines of ten % of the research organization's revenues from any product developed as a result of the research"[249].

2.3.3.2 Critical assessment of the concept

The secured general permission/authorisation concept is a valuable contribution to the discussions concerning the appropriate legal regulation of population genetic databases. Yet it seems that the concept has hastily taken for granted that informed consent cannot be obtained in the context of population genetic databases. This dissertation advances the opinion that informed consent does not have to be necessarily tailored to one specific project, and therefore that there can be several types of informed consent.

In addition to this conceptual disagreement, some additional critical points should be made. Henry T. Greely argues in favour of several safeguards by suggesting that these will significantly increase the level of protection for research participants. Nevertheless, it seems that this concept lacks a clear underlying idea, and randomly chosen safeguards do not make up a well-elaborated shield of protection. The author will dispute the effectiveness of some of the safeguards proposed by Greely, and will also raise issues of at least equal importance that Greely did not address. In addition, this dissertation argues that the informed consent concept does not necessarily need to be tailored to one specific project, and that therefore the assumption made by Henry T. Greely and Vilhjalmur Árnason is misleading.

The value of imposing time limits on the availability of the data and samples for research purposes is minimal, at least if the suggested time limit is extended to 25 years.[250] It is unclear whether limiting the lifetime of the data and samples is relevant at all for research

[248] Henry T. Greely (note 190), p 756.
[249] Henry T. Greely (note 190), p 758.
[250] Henry T. Greely (note 190), p 763.

participants once they have granted their consent. It is also unclear in which way research to be commenced after 25 years significantly increases research participants' risks.

With regard to the incompleteness of Greely's safeguards, it should be noted that, for instance, the issues of property rights and data protection have been unjustifiably omitted from the agenda to be discussed with research participants. It is one thing to inform research participants about potential commercial uses of the data and samples in general, and quite another thing to explain to research participants that upon consenting they waive all proprietary interests in the data and samples. The latter fact may easily have a greater influence on an individual's decision. Given that the data and samples will be contained in a databank, data protection measures ought to have great relevance to individuals, and these measures therefore merit a place in the explanation provided to research participants. The mere fact that data protection measures must meet the highest attainable standards does not justify failing to disclose them to those for whose protection the measures were established in the first place.

2.3.3.3 Lessons to be learned

Henry T. Greely's secured general permission concept is a brave attempt to reform the Common Rule currently effective in the United States with respect to biomedical research involving individuals. As it was the first such attempt, it neither does nor aims to answer all the questions surrounding an issue as complex as informed consent to biomedical research.

The dichotomy of the all-or-nothing approach to consent to biomedical research advocated by the specific consent concept is not acceptable in the era of population genetic databases. To increase public trust and respect for human dignity, research subjects' interests must be taken into account even if research could be conducted without their consent. Even if informed consent in its traditional sense cannot be achieved, research participants should receive information about the fate of their data and samples, and have an opportunity to make the basic "to be or not to be" decision.

Despite conceptual differences as to whether or not Henry T. Greely's and Vilhjalmur Árnason's general permission/authorisation qualifies as informed consent in the contemporary sense, this dissertation argues in favour of many of these scholars' proposals, *viz.*, the need for statutory action, the need for ethics committees' approval regarding every future research proposal, and the need to address the feedback issue, group consent, and benefit-sharing.

2.3.4 Kaye: broad consent with opt-out

2.3.4.1 Summary of the concept

Jane Kaye offers one of the most well-reasoned concepts of consent, which attempts to link the practical needs of population genetic databases and the moral underpinnings of informed consent.[251] She begins with a strict separation between two forms of consent – informed consent and explicit consent. The former type of consent is codified in the Declaration of Helsinki and the CHRB, and protects the bodily integrity of research subjects. The latter type of consent justifies the processing of personal data and is covered mainly by Directive 95/46/EC. In contrast to informed consent, explicit consent does not require informing individuals about risks and benefits – the minimum amount of information that individuals must receive includes the identity of the data controller, the purposes for processing, and categories of recipients.[252]

Jane Kaye recognises that the application of informed consent and explicit consent requirements to population genetic databases faces severe difficulties, since all possible research uses and researchers cannot be anticipated at the point when biological materials and data are collected. Informed consent cannot be obtained for even an overview of risks and benefits if the contemplated research cannot be explained to participants before a research project has been designed. Likewise, explicit consent cannot be obtained due to a lack of information concerning the details of processing. Kaye then moves on to consent alternatives and condemns the presumed consent approach that was implemented in the Icelandic HSD, faulting its negative impact on confidentiality and trust in the patient-doctor relationship.

Since neither informed consent nor explicit consent requirements can be properly met, and since presumed consent should not be used with respect to population genetic databases, Kaye goes on to analyse the conditions for conducting research without consent. Informed consent is not required when research produces social benefits and poses only a minimal risk to participants as, for instance, with epidemiological research. This is arguably not the case in population genetic databases that contain, in Kaye's opinion, more than minimal risks. With respect to the exemptions from explicit consent, she argues that the exemptions set forth in Directive 95/46/EC are applicable only if a research project for the contemplated research is available, which is not the case with population genetic databases.

Given that population genetic databases cannot be grounded upon informed, explicit or presumed consent, and exemptions from consent are also inapplicable, a completely new

[251] Jane Kaye (note 24), p 117-138. See also: Jane Kaye, Paul Martin (note 29), p 1146-1149. Although Kaye is not the first and only one to favour this approach, she has brought this concept to a level that other proponents have not reached. Arguments similar to Kaye have been put forward for instance by Smith, see: Michael J. Smith (note 80), p 83-84.

[252] See more about the disclosure requirement under Directive 95/46/EC in Chapter 5.3.2 of this dissertation.

approach is needed for these databases. She maintains that since population genetic databases pursue important scientific aims, they should be allowed to conduct research on previously collected data and tissue provided that there are suitable safeguards in place. Kaye maintains that a way to achieve this aim is through a combination of broad consent and opt-out rights for each future research project, along with appropriate, transparent safeguards.[253]

For Kaye, broad consent, the validity of which should be limited to a certain number of years, only justifies the collection and storage of data and tissue, but does not authorise their use in future research projects. For the latter purpose, a separate consent is needed that, given the lack of direct contact between a researcher and the research participant, can be implicit. If a person has not exercised his right to opt out from a research project within a certain amount of time after information about the research project has been made available to him, he is deemed to have consented to the research project. According to Kaye, such an "opt-out" system is "in conformity with the basic tenets of the Declaration of Helsinki" given that it ensures research participants' control over their data.[254] Regarding the appropriate safeguards, Kaye emphasises the need for involving participants through community consultation and through offering them membership on the committee that approves research projects. She also supports the idea of a trustworthy institution that will act on behalf of donors and ensure that information will remain within the community. Such a genetic trust will not have ownership over the information (it will be owned by donors), but will preserve it as a resource for the whole community, thus avoiding the commercialisation of genetic information, which is humanity's common heritage.

2.3.4.2 Critical assessment of the concept

The distinction between informed consent as a justification for interference with bodily integrity and explicit consent as a justification for processing personal data is a very valuable one. But let us once again explore the informed consent requirement. Jane Kaye correctly recognises that the classical consent to biomedical research was designed for a single research project and that the concept is therefore applicable to population genetic databases only with some modifications. She maintains that an implicit consent that in no way

[253] In this sense her proposal has been copied by Elger and Mauron. However, they suggest that instead of broad consent as initial consent one should speak in terms of presumed consent, as the authors do not accept broad consent as being equivalent to informed consent. Given the lack of information, an express consent obtained from a research participant is not an authorisation but rather simply indication that he might agree to the research in the future, i.e. his future consent is presumed. See: Bernice Elger, Alexandre Mauron. A Presumed-Consent Model for Regulating Informed Consent of Genetic Research Involving DNA Banking. - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003. P 282-290.

[254] Jane Kaye. Broad Consent – the Only Option for Population Genetic Databases? (note 196), p 106.

guarantees that research subject have accessed available information -- not to mention have understood the information -- comports with the underlying principle of the Declaration, whereas an explicit albeit broad consent does not. Such a conclusion is, at a minimum, dubious. Section 22 of the Declaration states clearly that "/…/ *After ensuring that the subject has understood the information*, the physician should then obtain subject's freely-given informed consent, preferably in writing." [emphasis added] It is true that under the Declaration consent does not necessarily have to be in written form, but one cannot deny that the Declaration explicitly obligates researchers to make sure that the person has understood the information upon which his consent is based. An opt-out system that only offers participants access to the information in no way ensures that people have understood that information. Because of this, broad consent and opt-out are at least as much at odds with the Declaration as is the concept favoured in this dissertation. Thus, if open consent cannot satisfy the requirements of the Declaration, neither can the broad consent approach. However, since the Declaration is in fact applicable only to the extent that physical integrity is at stake,[255] it is clear that informed consent can be obtained at the moment when biological samples are taken. Kaye's concept is therefore based on false premises.

Kaye's understanding of explicit consent also contains some misinterpretations. First of all, we must bear in mind that the term "explicit consent" is not been defined in Directive 95/46/EC,[256] and there is also no relevant European case law to that effect. By claiming that valid explicit consent requires the submission of detailed information about processing to data subjects, Kaye equates "explicit consent" with "specific consent". This is one interpretation, but certainly not the only one. Moreover, if one considers Article 10 of Directive 95/46/EC, which lists the type of information to be given to data subjects before obtaining their consent to the processing of data, one must admit that data subjects do not need to be aware of every detail of the data processing. Rather, general information must be given to the data subject, such as, for instance, the name of the chief processor, the purposes and categories of recipients, etc. These requirements can easily be met by population genetic databases upon initiating the data collection, and without a particular research protocol. Thus, one may also conclude that information disclosed to participants while obtaining their initial consent is sufficient for obtaining their explicit consent to a number of different research projects.

[255] For the discussion to that effect, see Chapter 6.2.1.1 below.
[256] Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. - OJ L 281, 23.11.1995, p 31 - 50.

Thirdly, Kaye's assertions concerning consent alternatives are not perfectly plausible.[257] She argues that, in order to apply a consent exemption, there "/…/ must be a defined scientific research project /…/" in place.[258] Unfortunately, such a requirement does not derive from Directive 95/46/EC but rather from Council of Europe Recommendation 97 (5), and it is applicable only in cases where consent cannot be obtained from the data subject.[259] Now, if one looks at the conditions of valid consent, one has to agree that, on that topic, Recommendation 97 (5) does not mention a research project at all. To the contrary, Recommendation 97 (5) explicitly states that the data subject can give his consent "/…/ for one or more *research purposes*" [emphasis added]. Thus, at least under Recommendation 97 (5), open consent is perfectly valid consent, and therefore the rules regarding consent exemptions should not be addressed at all. The closest Directive 95/46/EC comes to requiring that a specific research project be in place is with the purpose specification principle of Article 6 (1) b). According to that principle, personal data may be collected only for specified, explicit and legitimate purposes. How well-specified a purpose is specified enough? In Chapter 5.3.2, the author suggests that Directive 95/46/EC has followed the approach of Recommendation 97 (5), which is sectoral rather than project-specific. It is therefore also possible under Directive 95/46/EC to obtain open consent, and one need not rely on consent alternatives.

The fourth point of criticism concerns the argument that fresh consent should be regularly obtained after a certain period of time. Although the purpose of this idea is to protect participants from committing themselves to an indefinite timeframe for research, this idea also has its dark side. The main drawback of this idea is that it makes the database more vulnerable to "daily-politics" and more difficult to finance. For instance, in order to ensure continuous financing, the database must recruit as many participants as possible, and thus engages itself in "marketing" the database. It can also be expected that political parties will attempt to profit by inciting people either to re-consent or not to re-consent. More importantly, there are also scientific disadvantages, since many studies are able to produce valuable results only if they last for decades. It seems that a more suitable safeguard for protecting research participants from themselves would be a conventional opt-out opportunity, rather than re-consent.[260]

[257] There also seems to be a slight confusion with respect to references that makes it somewhat difficult to follow her ideas. Kaye refers to Article 8 (3) of the Directive as the basis for the consent exemption. However, it seems that in fact Kaye has Article 8 (4) in mind when she maintains that the European Commission should be notified of the exemption, since under Article 8 (6), only exemptions based on Articles 8 (4) and 8 (5) not of those based on Article 8 (3). See: Jane Kaye (note 24), fn 4.
[258] Jane Kaye (note 24), fn 4.
[259] See Article 12.2.c of the Recommendation No R (97) 5 (note 16).
[260] *Nationaler Ethikrat* (note 132), p 43-44.

2.3.4.3 Lessons to be learned

Despite the above-mentioned doubts regarding some aspects of Jane Kaye's concept, it would be unjust to set this concept aside. Kaye's concept encompasses some very valuable considerations and suggestions that every work on population genetic databases should take into account. Kaye points out that the research conducted using population genetic databases is very different from conventional practice. Personal data in a database will constantly be updated and cross-linked with other databases, and the amount of the data extends the needs of one specific research project. In fact, the amount of the data is enormous and can greatly exceed the expectations of data subjects. All this suggests that additional safeguards must be imposed on such databases. In addition, the idea of re-consent should be implemented in some cases, especially where there has been a major change in the principles according to which a population-based database was established, where amendments have been made to the legal regime applicable to the database, or in cases where participants had certain reasonable expectations that can no longer be met.

It appears that the main point of disagreement between Kaye's concept and the one described in this dissertation pertains to whether or not informed and explicit consent can be achieved. Kaye argues in favour of impossibility, this dissertation in favour of possibility. However, regardless of the correct outcome of such a debate, both concepts share several common features that are evident in Chapter 4.

2.4 CONCLUSION – ROOM FOR ANOTHER APPROACH

This survey of different proposals for regulating consent with respect to population genetic databases proceeded from the conclusion that the traditional concept of informed consent, together with recognised exceptions to it, do not provide a workable solution in the era of population genetic databases. How well have these new proposals performed?

It seems that each and every proposal makes some valid points about how to regulate consent with respect to population genetic databases. Some of the concepts advocate a new concept of informed consent (Iceland, NBAC), whereas others try to avoid compromising the informed consent concept and instead abandon it in exchange for a new concept (Kaye, Greely/Árnason).

Yet, without prejudice to the advantages that each of these concepts has over the traditional concept of informed consent, none of these proposals have been put into practice. The Icelandic approach set forth in the HSD Act has not been implemented, as the HSD does not exist in Iceland and probably never will exist, at least in the form envisioned in the Act.

There is no population genetic database in the United States, although proposals for creating such a database have been made. But even if such a database were to be created in the United States at some point, it can be expected that new guidelines would be issued, since the NBAC did not directly address the issue of tissue and data collection where no particular research project was envisaged. The approach advanced by Henry T. Greely and Vilhjalmur Árnason has also not been employed by any of the population genetic database projects analysed in this dissertation. Jane Kaye's concept could influence some aspects of the UK Biobank, but it is unlikely that the UK Biobank will be based on her concept. However, it can be expected that in the not–too-distant future at least some population genetic database projects will adopt Kaye's concept. The only concept that has been implemented is the concept of open consent. This fact alone demonstrates that each of the concepts outlined above has had some shortcomings on a practical level, and therefore that there is room for one more concept of informed consent.

Nevertheless, the fact that open consent alone has been put into practice in no way indicates that open consent is the approach every population genetic database should follow. On the contrary, all population database projects differ in the sense that the population they are mapping is unique, with its own values and considerations. Therefore, a concept that might be suitable for one population could be unacceptable for another. There is no one correct concept of informed consent; there are simply different concepts, and the question is whether they are a form of informed consent or not. The following chapter outlines the concept of open consent and advances the argument that open consent is a form of informed consent.

3 OPEN CONSENT

3.1 THE CONCEPT OF OPEN CONSENT

3.1.1 Definition of open consent

Open consent is a research subject's affirmative agreement to participate in a population genetic database and in research projects that use tissue and data from that database.

This definition emphasises that, by giving open consent, a research subject authorises at least three interferences with his legally protected interests. Firstly, given that obtaining a tissue sample constitutes an intervention, the subject agrees to interference with his bodily integrity. This aspect of open consent is probably the least dubious, given that the risks to bodily integrity can be explained to participants to an extent that also satisfies the criteria advocated by the proponents of the traditional informed consent concept. In that sense, open consent constitutes informed consent. At the same time, open consent delivers a defence against the interference with data privacy that is due because of collection of sensitive personal data and storing it in the database in an identifiable form. Thirdly, and most importantly, open consent permits further research on the data and tissue under conditions that this dissertation prefers to call "conditions of open consent". This list is by far not an exhaustive one. For instance, should one be of the opinion that further research carried out on linked anonymised data and tissue still amount to processing of personal data, open consent is, as we will see in Chapter 5.3.2, one of the justifications for lifting the general ban on the processing of sensitive personal data.[261]

To provide informed consent, the consenter must receive information concerning all three of these interferences. Firstly, information related to the procedure for obtaining the blood sample must be given. Secondly, the person must receive basic information about the database that will store his data and tissue. This set of information should address the following:[262]

- the identity of the data controller, *viz.*, the operator of the population database;

[261] Another example of the functions open consent can fulfil is provided in Recital 26 of Directive 98/44/EC on legal protection of biotechnological inventions. – OJ L 213, 30.7.1998, p 13-26. According to this provision, if an invention is based on biological material of human origin or if it uses such material, where a patent application is filed, the person from whose body the material is taken must have had an opportunity to give free and informed consent thereto, in accordance with national law. Given that no other consent will be obtained within the population genetic databases proposed thus far, open consent must satisfy this condition as well since these genetic databases will definitely be a source for patent applications in the future.

[262] This list follows Article 10 of Directive 95/46/EC.

- the purposes for the processing, *viz.*, facilitating scientific research as described in the "conditions of open consent";
- the recipients of the data, *viz.*, the researchers that have designed a research project that has been approved by an ethics committee and that the operator of the database considers appropriate for receiving data from the database;
- the existence of the right to access, delete and rectify the data, *viz.*, the respective aspects of the "conditions of open consent";
- the fact that consent is voluntary and that a refusal to consent does not lead to adverse consequences for the person.

Most importantly, the person must be informed of the "conditions of open consent". Information about the rules of the game plus information about the general nature of contemplated research projects is all that the database operator can possibly provide to participants, and this information constitutes the "informed" part of the above-mentioned third aspect of open consent – *i.e.*, consent to future research projects.

It should be made clear at the outset that open consent is under no circumstances consent to every kind of future research.[263] Significant limitations on the nature and type of research derive from the "conditions of open consent". For instance, if the rule is that all proprietary interests will vest in the database holder, this means in practice that commercial research is unlikely to be carried out on the tissue and data stored in the database, given that commercial research aims to protect the results of research using different intellectual property strategies.

Secondly, it must be noted that each population genetic database has its own objective that, albeit in quite a broad manner, imposes limits on the research. For instance, the purpose of the UK Biobank is to study the interplay between genes, lifestyle and common diseases. The Estonian *Geenivaramu* aims to improve public health through research on genes, genealogies and phenotype. It follows in both cases that a research project that does not contain a "genetic" element -- for instance a project that assesses the correlation between strokes and the number of children one has -- will not receive data and tissue from these databases. Similarly, a research project that lacks health-related purposes, such as a study aiming to locate "criminological" genes, will not be permitted to receive data and tissue.

Thirdly, the different bodies that monitor and supervise the database can prevent research that, according to their understanding, should not be carried out. Each population genetic database should have a body whose task is to ensure that a research project that is not in compliance with the aims of the database will not have access to data, even though such a

[263] So also: *Nationaler Ethikrat* (note 132), p 53.

project may pursue an important objective. Furthermore, all research projects must be approved by an external independent ethics committee that ensures that the ethical standards of the projects receiving data or tissue from a population genetic database are not lower than those of other projects.

3.1.2 Justification for the "open consent" notion

A variety of notions have been used in proposing new concepts of informed consent that would better suit the needs of modern biomedical research. Given that this dissertation advances the idea that open consent is a form of informed consent, the question that must be answered is whether we need a new term at all. Why cannot we use the term informed consent? Or can we? Introducing new terminology is justified only if it advances the understanding of relevant issues and if existing terminology does not achieve the same result in a satisfactory manner.

The Estonian *Geenivaramu* project not only gave rise to the first law to specifically address a population genetic database project, but also gave birth to a new concept of informed consent -- open consent.[264] The HGRA itself does not use the term "open consent", instead adhering to the traditional notion of informed consent. However, the concept of open consent was borne in mind by the drafting party of the HGRA. There were various reasons for not blowing the door wide open and introducing a new notion. First of all, the HGRA was drafted and adopted in the year 2000. In that same year, the controversy over the Icelandic HSD Act reached its height, and international criticism was strong. That criticism was on several occasions obsessed by emotion and confused by the complexity of the Icelandic project. In any case, that criticism did not see any alternative to informed consent. The perfunctory nature of the criticism manifested itself once again in the warm international reception of the HGRA: given that the term "informed consent" was expressly stated in the text of the HGRA, several commentators declined to dig into details that would have revealed that the HGRA is based on a novel concept of consent.[265] Only recently has this curiosity been clearly pointed out,[266] and a constantly growing number of international instruments and scientific articles view open consent as an option for population genetic databases. It is

[264] Judit Sandor. Genetic Information: Science, Society, and Legal Norms. - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003. P 34.

[265] For an example of such a perfunctory approach, see: Lone Frank. Estonia Prepares for National DNA Database. - Science, Vol 290 (2000), Issue 5489; Martina Habeck. Estonia Jumps on Gene Bank Train. - The Scientist, 17.10.2002. More recently: Ashok M. Pinto. Corporate Genomics: Decode's Efforts at Disease Mapping in Iceland for the Advancement of Science and Profits. - University of Illinois Journal of Law, Technology and Policy, 2002. P 489; and B. Godard, *et al*. Strategies for Consulting with the Community: The Cases of Four Large-Scale Genetic Databases. - Science and Engineering Ethics, Vol 10 (2004), Issue 3. P 19.

[266] On this topic, a good analysis is provided by Jacquelyn Ann K. Kegley, see: Jacquelyn Ann K. Kegley (note 2), p 834.

therefore the right time to consider whether the approach taken by the HGRA should be termed informed consent, or instead whether we need a new notion.

Depending on what aspect we emphasise, open consent can be a broader term than informed consent and *vice versa*. Given that the first stage of an open consent is an informed consent to subject oneself to the removal of bodily materials, open consent includes at least one informed consent in its traditional sense. In that sense, open consent is an informed consent plus something more. On the other hand, this dissertation advances the idea that there are different types of informed consent, and open consent for purposes of permitting future uses of data and biological materials in different research projects is merely one form of informed consent. To put it differently – informed consent is an umbrella term for different types of consent, including traditional specific consent and modern open consent. Hopefully, these examples convince the reader that a new notion is needed for meaningful discussion.

Having agreed that a new notion is required, we should inquire of what words this notion should consist. As a variety of new notions consisting of two words have been proposed, it is reasonable to address the "forename" and the "family name" separately. But before doing so, it must be acknowledged that, due to a lack of exact definitions in the literature, it is sometimes difficult to distinguish between different notions as well as between open consent and all other notions.

At the time the HGRA was adopted, David E. Winickoff used the term "open consent" to describe the form of consent used with respect to the Icelandic Health Sector Database.[267] Following David E. Winickoff's contribution, the notion of "open consent" has been used quite regularly to refer to consent that authorises not merely one specific research project, but rather several research projects that cannot be defined at the moment consent is obtained.[268] Of course, open consent is not the only term used with this objective in mind. Indeed, a variety of terms have been proposed, among them the notions of "open-ended consent",[269] "blanket consent",[270] "generic consent",[271] "general consent",[272] "generalised consent",[273] "advance consent"[274] and "broad consent".[275] Which word should we prefer as the forename?

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[267] David E. Winickoff (note 227), p 202. For details concerning the Icelandic Health Sector Database, see Chapter 1.2.2.1 above.

[268] See: Richard Tutton, Jane Kaye, Klaus Hoeyer. Governing UK Biobank: the Importance of Ensuring Public Trust. - Trends in Biotechnology, Vol 22 (2004), No 6. P 284; Jacquelyn Ann K. Kegley (note 2), p 833; Margit Sutrop, Kadri Simm. The Estonian Healthcare System and the Genetic Database Project: From Limited Resources to Big Hopes. – Cambridge Quarterly of Healthcare Ethics, Vol 13 (2004). P 259.

[269] Garrath Williams, Doris Schroeder (note 123), p 154; Anita Buchanan (note 92), p B17.

[270] Interestingly, the term "blanket consent" is used by both proponents and opponents of adopting a modified understanding of consent. For the views of opponents, see: Timothy Caulfield, Ross EG Upshur, Abdallah Daar (note 21), p 3; Council of Europe. Proposal for an instrument on the use of archived human biological materials in biomedical research. Explanatory Report. (note 235), section 63-64; ASHG Report. Statement on Informed Consent for Genetic Research (note 235); Vilhjalmur Árnason (note 70), p 33. For the views of proponents, see: HUGO Ethics Committee Statement on Human Genomic Databases (note 27), Recommendation 4; WHO

While it must be acknowledged that giving a name to a concept is always a somewhat subjective exercise, it nonetheless seems that the notion of "open consent" fits with the content of the feature probably better than do other notions. As stated above, the objective of this notion is to advance the idea that this form of consent is not restricted to one research project, but can be used on several occasions for several different research projects. Something that is not restricted to one particular thing should be called "open" and not broad or general. Another important point is that open consent is not consent to research in general, since open consent is coupled with different safeguards, one of which is the fact that the ethics committee's approval may be obtained only with respect to a particular research project, not with respect to research in general. Therefore, the notions of "generic consent" and "generalised consent" are somewhat misleading. The "broad consent" notion that seems to be the major alternative is misleading in the sense that this term is also used with respect to forms of consent that are broader than specific consent but not as broad as open consent. For instance, the consent provided for any kind of cancer research is commonly labelled "broad consent", but is still narrower than open consent.[276] It is true that open consent is broad, but to emphasize the specifics of open consent, the latter notion should be used instead of the notion of broad consent.

A far more important issue, however, is what will be the "family name" of the new notion. In Chapter 2.3.3, this dissertation explored the ideas of Henry T. Greely and Vilhjalmur Árnason. These scholars argue that the form of consent used with respect to population genetic databases should not be labelled "consent" at all, let alone "informed

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Proposed International Guidelines on Ethical Issues in Medical Genetics and Genetic Services, 1998. Recommendation 10. Available: http://whqlibdoc.who.int/hq/1998/WHO_HGN_GL_ETH_98.1.pdf; Sylvia Rumball, Alexander McCall Smith. Human Genetic Data: Preliminary Study by the IBC on its Collection, Processing, Storage and Use. UNESCO document SHS-503/01/CIB-8/3, 2002. Commentary on Guideline 11. Available: http://portal.unesco.org/shs/en/file_download.php/82e7c58d69d425a6fd9f100171e3c072Rapfinal_gendata_en.pdf.

[271] Jean McHale (note 123), p 80; George J. Annas, Sherman Elias. Generic Consent for Genetic Screening. The New England Journal of Medicine, Vol 330 (2002), No 22. P 1611-1613.

[272] Jon F. Merz (note 197), p 8; Alice Hsieh (note 56), p 402; Human Genetics Commission, 2002. Inside Information (note 207), p 95.

[273] Melissa A. Austin, Sarah Harding, Courtney McElroy. Genebanks (note 30), p 38; and Melissa A. Austin, Sarah E. Harding, Courtney E. McElroy. Monitoring Ethical, Legal, and Social Issues in Developing Population Genetic Databases (note 30), p 451.

[274] Robert F. Weir. Advance Directives for the Use of Stored Tissue Samples. – Stored Tissue Samples. Ethical, Legal, and Public Policy Implications. Robert F. Weir (ed). Iowa: University of Iowa Press, 1998. P 251.

[275] Jane Kaye (note 24); Jane Kaye. Broad Consent – the Only Option for Population Genetic Databases? (note 196).

[276] Some authors even distinguish between broad consent and open consent. On this topic, see: Hordur Helgi Helgasson. Informed Consent for Donating Biological Samples in Medical Research. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 130-132.

consent", since there is no such thing as "general informed consent."[277] In their view, it would be more appropriate to speak in terms of general authorisation or permission instead of informed consent.[278] This, however, appears to be an overreaction. Should one subscribe to the concept advanced in this dissertation, which maintains that open consent is a form of informed consent, there is no reason to avoid using the term "consent" even if one cannot agree upon the prefix to be attached to it, *i.e.*, whether this consent is open, broad, general, etc. Furthermore, the term "authorisation" has a long history and a specific meaning in the field of medical law and ethics. This term is used in the context of persons who are, for one reason or another, unable to provide their valid, informed consent, as is the case with infants, mentally ill people, etc.[279] Although the term "permission" does not suffer from this shortcoming, given that it has not been used in texts concerning bioethical matters in the European context, the term nonetheless contradicts established practice on the use of legal terms, since all recent international instruments that address the issue of further research uses contain the term "consent".[280]

It appears that the justification for using a new term instead of "informed consent" is founded upon the desire to distinguish this new form of consent from the traditional concept of consent. Although the traditional concept is, logically speaking, properly labelled "specific consent", too many written works and legal instruments equate specific consent and informed consent, with the result that the notion of informed consent effectively now only indicates specific consent. Being a newcomer, therefore, open consent must create a new notion. This does not mean, however, that open consent does not qualify as informed consent. To distinguish this new form of informed consent, it is enough to choose a new forename (open), while keeping the last name (consent) the same. Hence, we should employ a term that refers to informed consent but does not use this exact term. For this reason, "open consent" ought to be the best solution.

3.1.3 Is open consent informed consent?

In the chapter prior to the last, it was stated that open consent usually involves at least one informed consent, which is the informed consent for obtaining a tissue sample from a

[277] Vilhjàlmur Árnason (note 70), p 42.
[278] See more about their proposal in Chapter 2.3.3 above. In addition, Anita Buchanan maintains that "the difference between blanket consent and what is ordinarily understood by informed consent is so great that it is problematic even to use the same term, "consent"." See: Anita Buchanan (note 92), p B18. However, her proposed selective consent concept, which requires mere disclosure of the fact that tissue and data will be used, along with the approval of an ethics committee, in fact seems to be even more liberal than the concept of open consent. See: Anita Buchanan (note 92), p B20 and B24.
[279] See, for instance, Articles 6, 17 and 20 of the CHRB; Article 5 of the Universal Declaration on the Human Genome and Human Rights; Article 8 of the International Declaration on Human Genetic Data.
[280] For instance, Article 22 of the CHRB refers to "appropriate information and consent procedures".

research participant. Far more controversial is this dissertation's suggestion that informed consent can entail open consent. This argument is supported in the following chapters.

3.1.3.1 True informed consent and effective informed consent

Informed consent can have several meanings. It can refer to a piece of paper carrying a patient's signature, it can mean the process by which a researcher advises a patient about contemplated research, it can refer to a situation in which a patient authorises a physician to carry out treatment and, before a court, it is a defence against battery. But it is more important to distinguish between informed consent that meets the requirements of moral theory, and informed consent that fulfils the relevant legal requirements. Let us call these "true" informed consent and "effective" informed consent.[281]

Broadly speaking, the requirements for true consent are competence, disclosure, understanding, voluntariness and consent.[282] A true informed consent, therefore, can be obtained from a competent person to whom necessary information has been disclosed, and who has adequately understood the information, acts voluntarily, and expresses his consent.[283]

Effective informed consent requires nothing more and nothing less than the fulfilment of the criteria set forth in law or in a guideline. The only piece of legislation on the European level that contains a definition of informed consent for (one type of) medical research is the Clinical Trials Directive 2001/20/EC. Under Article 2 (j) of this Directive, informed consent means a "decision, which must be written, dated and signed, to take part in a clinical trial, taken freely after being duly informed of its nature, significance, implications and risks and appropriately documented, by any person capable of giving consent /…/". Given that this definition addresses only one particular type of research, which obviously is not the type that will be conducted using population genetic databases,[284] the only effective consent definition does not contradict the open consent concept – the definition is simply not applicable.[285]

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[281] Ruth R. Faden and Ton L. Beauchamp prefer to speak of informed consent in terms of $sense_1$ and $sense_2$. See: Ruth R. Faden, Tom L. Beauchamp (note 138), p 276-287.

[282] Tom L. Beauchamp, James F. Childress. Principles of Biomedical Ethics. Oxford University Press, 2001. P 79.

[283] CIOMS 2002 Guidelines, commentary on Guideline 4, paragraph 1.

[284] By definition, a clinical trial is an investigation *involving human subjects*. Thus, a human subject and not merely his data or tissue must be included in the research. Research that makes use of a population genetic database is therefore not an investigation involving a human subject under Article 2 (a) of Directive 2001/20/EC.

[285] Informed consent requirements have achieved their present contours in the context of clinical trials. The guideline for good clinical practice that has been accepted in the United States, the European Union and Japan requires that the following information be given to the participants (a requirement that it would be ridiculous to even attempt to fulfil in the context of a population genetic database):

(a) That the trial involves research.
(b) The purpose of the trial.
(c) The trial treatment(s) and the probability of random assignment to each treatment.
(d) The trial procedures to be followed, including all invasive procedures.
(e) The subject's responsibilities.

Several international guidelines have chosen not to provide a definition of informed consent, but instead to describe the features that informed consent must have. These features are analysed in greater detail in Chapter 6, and do not merit more attention at this point, given that, in any case, effective informed consent can only indicate the manner in which true consent has been interpreted and incorporated into legal texts, and not what true consent is.[286]

Effective consent does not necessarily mean that true consent was obtained, or *vice versa*. Hence, regardless of the answer to the question of whether open consent is treated as a form of informed consent under various legislative acts and ethical guidelines, the relationship between open consent and true informed consent must be analysed separately in order to assess the validity of the normative rules. The requirements for effective consent should overlap as much as possible with those for true consent, in order to avoid a situation in which the law is founded upon something other than moral rules. Thus, if we are able to advance one universal understanding of true informed consent, and this understanding does not permit

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(f) Those aspects of the trial that are experimental.
(g) The reasonably foreseeable risks or inconveniences to the subject and, when applicable, to an embryo, fetus, or nursing infant.
(h) The reasonably expected benefits. When there is no intended clinical benefit to the subject, the subject should be made aware of this.
(i) The alternative procedure(s) or course(s) of treatment that may be available to the subject, and their important potential benefits and risks.
(j) The compensation and/or treatment available to the subject in the event of trial-related injury.
(k) The anticipated prorated payment, if any, to the subject for participating in the trial.
(l) The anticipated expenses, if any, to the subject for participating in the trial.
(m) That the subject's participation in the trial is voluntary and that the subject may refuse to participate or withdraw from the trial, at any time, without penalty or loss of benefits to which the subject is otherwise entitled.
(n) That the monitor(s), the auditor(s), the IRB/IEC, and the regulatory authority(ies) will be granted direct access to the subject's original medical records for verification of clinical trial procedures and/or data, without violating the confidentiality of the subject, to the extent permitted by the applicable laws and regulations and that, by signing a written informed consent form, the subject or the subject's legally acceptable representative is authorizing such access.
(o) That records identifying the subject will be kept confidential and, to the extent permitted by the applicable laws and/or regulations, will not be made publicly available. If the results of the trial are published, the subject's identity will remain confidential.
(p) That the subject or the subject's legally acceptable representative will be informed in a timely manner if information becomes available that may be relevant to the subject's willingness to continue participation in the trial.
(q) The person(s) to contact for further information regarding the trial and the rights of trial subjects, and whom to contact in the event of trial-related injury.
(r) The foreseeable circumstances and/or reasons under which the subject's participation in the trial may be terminated.
(s) The expected duration of the subject's participation in the trial.
(t) The approximate number of subjects involved in the trial.

See: International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use, 1996. ICH Harmonised Tripartite Guideline for Good Clinical Practice - E6. Section 4.8.10. Available: http://www.ich.org/MediaServer.jser?@_ID=482&@_MODE=GLB.

[286] Sigridur Kristinsson. Databases and Informed Consent: Can Broad Consent Legitimate Research? - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 114.

open consent to be considered true informed consent, then legal instruments should not recognise open consent as effective consent.

Considering the elements of true informed consent listed at the beginning of this chapter, the two aspects with respect to which open consent and informed consent may clash to the greatest extent are those of disclosure of information and consent. These two aspects are, therefore, addressed below.

3.1.3.2 Disclosure of information

The element of disclosure in the context of true informed consent does not have a value *per se*, but is necessary only where the consenting person does not have all the relevant information he needs to make an informed decision. Thus, although in rare circumstances it may be the case that disclosure is totally redundant (such as if the researcher is also a research subject), the disclosure requirement can be of utmost importance for others in order to ensure an adequate level of awareness.

What constitutes an adequate level? How much disclosure is enough? In answering these questions, Sigurður Kristinsson and Vilhjálmur Árnason make the very valid point that the traditional concept of informed consent may provide evidence as to how the criteria for disclosure have been perceived, but the concept does not say anything about what the criteria are.[287] We therefore cannot limit ourselves to only a single understanding that might dominate the literature, but instead must dig deeper. In order to gain some insight into the disclosure requirement, one might wish to consider why consent is sought. Depending upon how one answers this question, one also reaches different conclusions with respect to adequate levels of disclosure. For an example to that effect, let us consider the views on an ignorant research subject who refuses to be informed of relevant information.

According to Ruth R. Faden and Tom L. Beauchamp, consent is necessary because it promotes individual autonomy, and disclosure is a necessary precondition for achieving autonomy, the fruit of which is informed consent. If a person is ignorant concerning certain information, that person is not able to provide informed consent, since such an action would not advance autonomy.[288] The failure to consider important circumstances inevitably results in an inability to provide true informed consent.[289] Given that the proponents of this notion usually consider aspects related to further research on tissue and data to be important

[287] Sigurður Kristinsson, Vilhjálmur Árnason. Informed Consent and Biobank Research. – Your Genes in a National Bank? Ethical, Legal and Social Concerns. Vilhjalmur Árnason *et al* (ed). (forthcoming).
[288] Doyal has labelled this understanding "critical autonomy", which requires that patients not only receive information but also critically reflect upon it. See: Len Doyal. Medical Ethics and Moral Indeterminacy. – Journal of Law and Society, Vol 17 (1990), No 1. P 1-11.
[289] Ruth R. Faden, Tom L. Beauchamp (note 138), p 253.

circumstances that must be disclosed in detail, this approach leads to the conclusion that open consent cannot be true informed consent.

In another article, Tom L. Beauchamp argues in favour of risk mitigation as the basis for the consent requirement.[290] According to this interpretation, the consent of a person who remains ignorant with respect to important circumstances is, for the sake of that person's own security, not considered valid. It is not difficult to discern the paternalistic roots of this understanding which, like the first concept, concludes that open consent cannot be informed consent.

A third possible reason for seeking consent is that this procedure demonstrates respect for individual autonomy which, unlike with the first concept, is not only a goal but in fact already an existing feature.[291] Since autonomy is already an existing feature, one has to respect it; one way of recognising autonomy in a decision-making procedure is to respect individuals' choices,[292] even if those choices are ignorant or irrational. Of course, there are situations in which ignorant or irrational choices cannot be respected, but the reasons for declining to respect these choices are, in these cases, founded upon a desire to ensure individuals' rights and freedoms, rather than upon a paternalistic rationale. This concept is rooted in John Stewart Mill's understanding of liberty, which maintains that liberty can only be limited in order to "/…/ prevent harm to others. His own good, either physical or moral, is not a sufficient warrant."[293]

Applying this concept to our case of an ignorant person, it appears that such a person is still treated as having the ability to provide true informed consent because this concept values the opportunity to engage in free decision-making above all. Accordingly, if a person does not wish to receive as much information as is required by the specific consent approach, that person can nonetheless still provide true informed consent.[294] Given the ignorance of the consenting person, it does not matter whether all the information that comprises specific consent is available, provided that it has been made perfectly clear to the person that, should the person wish to be informed up to the level required by specific consent, the requisite amount of information would not be available, and specific consent could thus not possibly be obtained.

Now, leaving aside the case of an ignorant person and moving on to consider a very conscious person who wants to contribute to the development of medical science by donating

[290] Tom L. Beauchamp, James F. Childress (note 282), p 88.
[291] For more about autonomy as a goal and autonomy as an existing feature, see Chapter 3.2.2.
[292] Jean McHale (note 123), p 80.
[293] John Stewart Mill. On Liberty and Other Essays. John Gray (ed). Oxford University Press, 1998. P 14.
[294] Some may argue at this point that instead of providing true informed consent the person has waived the consent requirement. For the reasons explained below in Chapter 3.3.3 such an understanding is not correct.

his DNA for science -- which, in some individuals' estimation, is our moral obligation in any case -- do we need to prevent these people from doing so? The first two concepts contemplate that, in order to avoid violating personal autonomy, these people should be stopped. The third concept, by contrast, reaches the exact opposite conclusion: preventing people from giving their open consent violates autonomy.[295]

Thus, where the first two concepts achieve the same paternalistic conclusion, the latter theory produces a dissenting opinion by emphasising more liberal views. This is only one example that demonstrates that true informed consent is by far not a monolithic concept capable of producing indisputable solutions. This, in turn, suggests that there can also be different forms of effective consents.

3.1.3.3 Consent

Consent in the context of informed consent is authorisation for doing something. In order to be valid, two requirements must be fulfilled upon giving consent, *i.e.*, (i) authorising: one must be aware that he is authorising; and (ii) understand what he is authorising.[296] Both the "that" and "what" elements are addressed below.

Discussions concerning the "that" aspect of authorisation do not usually relate to the question of whether the person truly grasped the fact that his action authorised somebody to do something, but rather to whether each and every action undertaken by somebody needs to be separately authorised. The procedure of taking a blood sample is a good example to that effect. Is it necessary for a researcher to ask consent for disinfecting the skin, penetrating the skin and a vein with a needle, sucking 50 ml blood into a tube, removing the needle and covering the wound with a plaster, or can consent simply be sought for taking 50 ml venous blood? Obviously, the latter concept must be adopted, given that a more complicated operation could probably consist of hundreds of similar small actions. Therefore, even proponents of specific consent admit that a person can consent broadly to actions carried out "in accordance with general guidelines".[297] If one is allowed to consent to several actions simultaneously, one must be allowed to provide open consent as well. As explained above, open consent is open only with respect to the number of projects, not with respect to the "conditions of open consent", which in this context are equivalent to general guidelines. Hence, at least on the "that" level, there is no contradiction between authorising several actions and research projects all at once and a true informed consent, provided that the person

[295] Also: Kare Berg (note 239), p 141-142; Jeffrey Gulcher, Kari Stefansson (note 211), p 1829.
[296] Ruth R. Faden, Tom L. Beauchamp (note 138) p 300.
[297] Ruth R. Faden, Tom L. Beauchamp (note 138), p 280.

consenting understands that his consent is relevant not for one research project but for an unlimited number of research projects.

Our discussion about "what" the person is authorising should begin with a recognition of the fact that consent is a propositional attitude: it is a reaction to a proposition describing an action, together with its foreseeable consequences and possible risks.[298] Therefore, what a person is consenting to depends upon what was proposed to be consented to. For instance, if a person received a proposal to consent to every research project that uses data and tissue from a population genetic database, and the person accepted this proposal, all these research projects would be authorised. At this point, advocates of specific consent would argue that a person should neither be asked nor allowed to consent to research projects in advance, for the person does not know what these research projects are all about.

This argument can be analysed using the Alder Hey case as a real-life example from.[299] Among other problems, this case revealed that when parents were asked to consent to the storage of tissue, they did not know that, in fact, their consent also justified storage of entire organs, as organs are made of tissue. Therefore, their consent to the storage of tissue (a generic term) should not have been used to justify the storage of organs (a specific category of tissue). The underlying idea of this argument is that a generic proposition does not automatically carry over to a specific one, and therefore that a generic proposition fails to justify actions. If this understanding holds, this would mean that open consent can be used with respect to population genetic databases, but that an additional consent must also be obtained for every research project.

Fortunately, as demonstrated by Onora O'Neill[300] and Sigridur Kristinsson[301], this understanding does not hold. Information to be given to research participants can be specified endlessly – regardless of what information has been given to a participant, it is always possible to provide additional information.[302] Therefore, the level that satisfies the proponents of specific consent is always incomplete, and reflects only our arbitrary opinion of what a person should know. The approach that espouses the view that true informed consent can only

[298] Onora O'Neill. Some Limits of Informed Consent. - Journal of Medical Ethics, 2003, Vol 29. P 5; Onora O'Neill (note 172), p 692.
[299] Chapter 11, section 2. Available: http://www.rlcinquiry.org.uk/download/sum.pdf. For more information about the case, see note 51 above.
[300] Onora O'Neill (note 298), p 5.
[301] Sigridur Kristinsson (note 286), p 115.
[302] Raanan Gillon uses this argument to suggest that one should not speak in terms of fully informed consent (since consent cannot be fully informed as long as some additional information can still be given to the consentor), and one should therefore aim toward adequately informed consent. See: Raanan Gillon. 'Fully' Informed Consent, Clinical Trials, and the Boundaries of Therapeutic Discretion. - Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001. P 258.

be given to a specific proposition is therefore doomed and condemns not only open consent but traditional informed consent as well.

Furthermore, the concept of true informed consent would also be called into question, since a strict application of this rule would mean that research participants would simply be over-informed. Therefore, at least some level of generalisation is necessary in order to achieve meaningful results. To put it differently, the goal should not be INFORMED consent for every detail but genuine CONSENT for treatment or research as a whole. Genuine consent is guaranteed if coercion and deception are excluded *de facto* as well as from the point of view of the consenting person.[303] Genuine consent and control require (i) accurate basic information about the contemplated action, (ii) the availability of additional information (to ensure a lack of deception), but not necessarily the provision of this additional information, and (iii) an unlimited opportunity to withdraw consent (to ensure a lack of coercion).

Given the complexity of biomedical research, it is obvious that laypersons cannot grasp the meaning of all relevant information. At most, they are able to give a very general and minimally informed consent. Requiring anything more will deepen their doubts about researchers and their feeling that, by giving consent, they are not authorising research to be carried out but releasing researchers from liability.[304] Onora O'Neill condemns those overly complicated and detailed consent forms that have been introduced allegedly for purposes of protecting autonomy.[305]

There are two ways to incorporate generalisation. One way, advanced by Ruth R. Faden and Tom L. Beauchamp, argues that requests for consent should entail only material descriptions and not all possible descriptions of what a person is consenting to.[306] Whether a description is material depends on the person consenting and is therefore entirely subjective – what a person considers material is material.[307] Another method of achieving generalisation is based on assumptions concerning what a person reasonably ought to know about what he is consenting to. If, for instance, a person consents to cancer research, he implicitly consents to liver cancer research since it can be reasonably expected that a person knows that liver can develop cancer and therefore that cancer research can be conducted on liver as well.[308] It is not difficult to see that these methods comport with the disclosure standards used in deciding whether an effective consent was obtained or not.

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[303] Onora O'Neill (note 298), p 6.
[304] Onora O'Neill (note 298), p 701.
[305] Onora O'Neill. Autonomy and Trust in Bioethics. Cambridge: Cambridge University Press, 2002. P 3. Onora O'Neill (note 298), p 3.
[306] Ruth R. Faden, Tom L. Beauchamp (note 138), p 302.
[307] Timothy Caulfield (note 23), p 285-286.
[308] Sigridur Kristinsson (note 286), p 115-116.

Neither of these avenues of generalisation (the subjective patient standard and the reasonable patient standard, respectively) excludes open consent. The purely subjective standard has to take into account that if a person does not consider information about further research to be material, such information is not material and therefore he knows what he is authorising. A person to whom it has been explained that all kinds of research accepted by an ethics committee will be conducted on his tissue and data can reasonably be expected to understand that his consent is open and that it can be used to justify several research projects. However, this is not the final conclusion, given that both concepts employ restrictions on how far the generalisation can go.

The first theory holds that the subjective standard must be accompanied by a slightly more objective one to ensure that the consenting person will, at a minimum, be aware of the details that other people in his position usually consider material, and that the researcher himself considers material.[309] These thresholds can be met with open consent. A type of open consent has been recommended and obtained for research biobanks for several years. Based on the experience of these biobanks, one ought to be able to resolve the concerns of an average participant, and then communicate these concerns to the person providing open consent. Of course, one can reject this argument by saying that population genetic databases are a totally new feature with different risks, etc., but then the whole proposal for limiting generalisation would also have to be rejected, as no one has ever participated in population genetic databases before, and thus concerns that people usually consider to be material cannot exist. With respect to the second ground for limiting generalisation, it should be noted that open consent is sought by a research nurse, physician, researcher or somebody else subject to a professional code of conduct. Under the professional code of conduct, such a person is free not to recruit potential participants if he believes that a participant should be provided with more material information about future research projects. On the other hand, if he believes that there is no additional material information that a research participant undoubtedly should know, then he may obtain true consent from the research participants.

The second type of generalisation does not employ a special concept to limit generalisation, but rather once again draws attention to the criterion of unreasonableness. Obviously, each new research project is capable of raising questions that the person did not think about, and it cannot be said that this person ought to have thought about certain questions. In the literature, the issue of feedback of results is mentioned to that effect,[310] but a comprehensive list of these possible issues would certainly consist of quite a number of items.

[309] Ruth R. Faden, Tom L. Beauchamp (note 138), p 308.
[310] Sigridur Kristinsson (note 286), p 116.

How does open consent address this problem? The open consent approach addresses these issues in conjunction with "conditions of open consent". Conditions of open consent should address all of these issues, and if the wording of the rule does not produce enough information to enable a conclusion about what a reasonable view should be, or, alternatively, if there is no rule for one issue at all, then open consent has reached its limits. These limits can only be overcome with recourse to other theories, including those that espouse obtaining a new consent. Provided that the conditions of open consent are sufficiently well-drafted and explained to participants, open consent is also capable of meeting the standards of this type of generalisation.

3.1.3.4 Conclusion – open consent is a form of informed consent

In the beginning of our analysis of whether open consent is informed consent, we distinguished between true consent and effective consent. It was far easier to answer the question posed in the context of effective consent, given the more straightforward wording of effective consent standards. We concluded and will conclude in later chapters that specifically address elements of effective consent that open consent is effective informed consent.[311] We can similarly conclude that open consent is true informed consent. In both cases, open consent is not the only form of consent that can fulfil the criteria of effective consent and true consent both separately and simultaneously.[312]

The elements of true informed consent that attain special importance in the context of population genetic databases are disclosure of information and consent. Our understanding of what objectives disclosure should pursue influences our opinion on the disclosure requirement. Graeme T. Laurie has shown that our opinion on how much information a person must receive before consenting, whether or not he really wants to receive this information, is a result of the balance struck between autonomy and paternalism.[313] Proponents of the traditional concept tend to use more paternalistic arguments, whereas the more liberal approach of open consent values liberty above all. Therefore, theories that aim to protect persons from their own actions reject open consent for its too low disclosure standard, whereas theories aiming to protect persons from the actions of others recognise open consent

[311] An additional understanding of open consent as a form of effective informed consent has been put forward within the framework of the HapMap project. Although the project aims only to create the human haplotype map, the map will be published on the Internet and the project expects that the map, i.e. the genetic information of the people who contributed to the map, will be used in numerous research projects. See the HapMap informed consent form at: http://www.hapmap.org/downloads/elsi/consent/Consent_Form_Template.doc.

[312] Various prominent bodies view a form of consent that justifies a very broad research agenda as one possible type of informed consent. See, for instance: *Comité consultatif national d'éthique* (note 204), Recommendation 3; *Nationaler Ethikrat* (note 132), p 52; NBAC, 1999 (note 39), Recommendation 9.

[313] Graeme Laurie. Genetic Privacy. A Challenge to Medico-Legal Norms. Cambridge University Press, 2002. P 194.

as true informed consent. Hence, open consent can still be seen as true informed consent, although those that value other concepts more highly may be of a dissenting opinion.

Consent as an element of true informed consent is construed with reference to considerations about "that" and "what" a person is authorising. The "that" issue does not create considerable controversies given that several consents that are limited only to general guidelines may be provided simultaneously. Consequently, open consent that can be viewed as consent that authorises several research projects that comply with general guidelines (conditions of open consent) meets the requirements of the "that" element of the authorisation.

The "what" issue is more problematic to analyse. What a person is consenting to depends upon what was proposed for his consent. It is tempting to argue that since a specific research project will not be proposed for one's consent with respect to population genetic database projects, no true consent may be obtained. However, this argument fails, as the level of a research project in its entirety is not the most specific level that can be obtained. In fact, disclosure can be endlessly specific, and therefore at least some level of generalisation is necessary to achieve meaningful results. Generalisation can be achieved through applying the subjective-objective approach or the approach that considers reasonable implications of provided consent.

The first approach is a mixture of what a person himself considers material, what other people in one particular situation usually consider material, and what a professional considers material. The author is reluctant to state that open consent is always or never able to contain a description of all material circumstances that a research subject should authorise. A general "yes or no" answer cannot be given, for the assessment criteria vary from case to case. What is material for one research participant may not be relevant for another at all; what is material for one professional can be completely redundant for his colleague, and there are no reasons to maintain that research participants will not be given information that people usually consider material. In short, if a person or a professional believes that open consent cannot provide information material to understanding what the research subject is authorising, then open consent is not true informed consent and *vice versa*: if both the research subject and the professional are confident with the level of information open consent provides, then open consent is true informed consent.

The traditional consent approach maintains that the appropriate level of generalisation is that of a research project. The open consent approach shifts the level of generalisation further away. Both approaches are arbitrary and therefore both are wrong and right at the same time. Moral theory allows us to understand the concept of true informed consent in

different ways, and one perfectly valid understanding is that open consent qualifies as informed consent.

3.1.4 Conditions of open consent

The informed consent requirement is not an ethical or legal panacea that eliminates all problems surrounding population genetic databases.[314] In fact, the results that informed consent could possibly achieve are quite limited and certainly do not cover all of the issues connected with population genetic databases. That is because of the limited number of questions one can ask a research participant to consider, and consequently to answer in the affirmative or the negative.

Each instance of consent is provided within a certain legal and ethical framework. For population genetic databases, the framework includes, for instance, issues related to providing feedback to the participant and other interested parties, proprietary issues, and issues related to sharing benefits, the data protection safeguards employed, the corporate aspects of the database holder, exit strategies, discrimination, etc. Given the number of different options within this framework, which are so numerous that a person could not possibly grasp them all, individuals are not even presented with them. It is simply assumed that the person is aware of the framework and considers it acceptable, or else trusts in its existence and sufficiency. Therefore, traditional informed consent offers only an all-or-nothing situation: one has all the options while not participating in research, while one basically has only two or three options once he has decided to participate.[315] Everything else, *i.e.*, the rules that cannot be modified by the consenter, must be recorded elsewhere – as with the "ethical software"[316] – and not on the consent form.

These rules are necessary not only to specify the conditions and boundaries within which informed consent was provided and is effective, but also to achieve a balance in society. Informed consent cannot reasonably be viewed as protecting the whole range of heterogeneous interests that may be affected by the uses of biological samples.[317] Informed consent was, is and always will be an expression of one's individualistic desires, which sometimes match the interests of others, but do not necessarily do so. In this situation, providing more options to an individual is not even a theoretically sound solution, since the individual will most likely put his individualistic interests over the interests of others.

[314] Klaus Hoyer, Niels Lynöe. Is Informed Consent a Solution to Contractual Problems? A Comment on the Article ""Iceland Inc."?: On the Ethics of Commercial Population Genomics' by Jon F. Merz, Glenn E. McGee, and Pamela Sankar. – Social Science & Medicine, Vol 58 (2004). P 1211.
[315] Graeme Laurie (note 313), p 205-206.
[316] John A. Robertson. Privacy Issues in Second Stage Genomics. – Jurimetrics, Vol 40 (1999). P 76.
[317] Anita Buchanan (note 92), p B16.

Therefore, other mechanisms are needed to balance out the individualistic nature of informed consent. "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 labour in which informed consent plays an important but limited role."[318]

In short, the conditions of open consent fulfil several functions simultaneously. They balance the individualistic nature of informed consent, they establish the framework within which consent is sought and is valid, they provide an avenue for excluding some information from a consent form, etc. Therefore, it is as important that the conditions of open consent exist and that they are a just social compromise as it is that people are informed of their existence so that they can trust in these rules.

A list of the issues that should be clearly regulated and explained to participants is provided and elaborated upon below. This list is by far not an exhaustive one; moreover, it is purely subjective and is not tailored to any specific population genetic database. It is impossible to provide an exhaustive list suitable for each and every population genetic database, given the differences in database designs and in the legal environments in which they operate. Therefore, for instance, the list of items considered suitable for the UK Biobank (*i.e.*, the purpose of the research envisioned, the procedures involved, the storage arrangements for the information, the implications of confidentiality issues for the participants, commercial use)[319] is considerably different from the list provided below.

3.1.4.1 Independent assessment of the operations

Research ethics committees and various review boards long ago acquired the status of public watchdogs charged with protecting the interests of research subjects without unduly limiting research or the scientific spirit. Their role and their working areas have constantly been broadening, and will be broadened still further in the context of open consent. The first and primary task of research ethics committees was and still is the approval of research projects upon consideration of each project's accompanying risks and benefits. Research ethics committees also have the additional function of deciding whether and what kind of consent is necessary for a particular study. Thirdly, ethics committees act as substitute decision-making bodies for approving research on people unable to give consent. This is not an exhaustive overview of the functions of research ethics committees, but illustrates the

[318] Anita Buchanan (note 92), p B5.
[319] Human Genetics Commission, Inside Information (note 207), p 104-105.

general understanding that ethics committees are used to balance the inequalities in knowledge, experience, resources, etc. between research subjects and researchers. The tendency is that the less control given to research subjects, the more authority research ethics committees gain.

Thus far, research ethics committees have functioned reasonably well. So well, in fact, that some authors who are generally critical toward open consent maintain that "[i]f the institutions that are supposed to oversee the ethicality of research are strong, independent, and function well, a blindness to the long term implications of a particular research direction should not be feared."[320] However, it seems that the functions of ethics committees should once again be rethought and significantly amended in the context of population genetic databases. These changes should probably be so significant that one should not speak in terms of an ethics committee, but rather of a monitoring body. To illustrate the problems that population genetic databases may face, the Estonian *Geenivaramu* provides a good example.

The operator of the Estonian *Geenivaramu* database has established an ethics committee as well as a scientific advisory board. In order to receive data or tissue from the *Geenivaramu*, a research project must be approved by the *Geenivaramu*'s ethics committee and by the research ethics committee of the Tartu University Clinics.[321] There is no body to assess the scientific aspects of the project, however . Given that the scientific advisory board of the *Geenivaramu* meets only twice a year, this body expresses opinions only on strategic scientific issues and is not in a position to assess the scientific quality of every single research project that applies to receive data and tissue from the database. This function is instead fulfilled by the management board of the operator of the *Geenivaramu* who, if necessary, orders an expert assessment.[322] Does the Estonian example provide an acceptable solution to the need for independent ethical and scientific review? To answer this question, we will look first at the requirements of the CHRB.

Article 16 (iv) of the CHRB states that every research project must be subjected to an independent examination by a competent body that will assess the project's scientific merits and conduct a multidisciplinary review of its ethical acceptability. It appears that the

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[320] Sigridur Thorgeirsdottir. The Controversy on Consent in the Icelandic Database Case and Narrow Bioethics. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 73.

[321] The database is located in Tartu. For more about research and clinical ethics committees in Estonia, see: Ants Nõmper. Research Ethics Committees in Estonia. EACME Newsletter, Vol 10 (2004); Ants Nõmper. Clinical Ethics Committees in Estonia - first steps on a long way. UK Clinical Ethics Network. Available: http://www.ethics-network.org.uk/international/intlspec/estonia.htm. See also: Arvo Tikk, Valdar Parve. Ethics Committees in Estonia. – Proceedings of the International Conference: Ethics Committees in Central & Eastern Europe – Present State & Perspectives for the 21st Century. Bratislava: Charis, 2000.

[322] Data of the Estonian Genome Project available for scientific research. Available: http://www.geenivaramu.ee/mp3/Issuance_of_the_data.pdf.

Convention has two different bodies in mind when referring to a "competent body" and a "multidisciplinary review". In fact, a competent body that assesses the scientific value of the project does not necessarily have to be multidisciplinary, and *vice versa*: a multidisciplinary body may not have the necessary expertise to assess the scientific aspects of a research project. The distinction between scientific and ethical assessments also appears in section 100 of the Explanatory Report to the Convention. However, provided that a body consists of members that have the necessary qualifications to render both scientific and multidisciplinary ethical opinions, and that body is independent, the formal distinction set forth in the Convention cannot be considered an obstacle.

The only body of the *Geenivaramu* that can possibly be considered "independent" under Article 16 (iv) of the CHRB is the Ethics Committee of the *Geenivaramu*. According to Article 29 of the HGRA, the members of the Ethics Committee will be appointed and the number of members will be determined by the supervisory board of the operator of the *Geenivaramu*. The same body may remove a member of the ethics committee prior to the expiration of that member's five-year term for good cause. Good cause includes, for instance, causing significant damage to the interests of the *Geenivaramu*. The members of the ethics committee are paid by the operator of the *Geenivaramu*, although formally the source of this money is the State budget. Against this background, Margit Sutrop has argued that the ethics committee of the *Geenivaramu* does not meet the internationally recognised standards of independence, and that it is therefore not a trustworthy institution.[323] Be this as it may, the ethics committee of the *Geenivaramu* is certainly not competent to assess the scientific aspects of research proposals, given that it consists mainly of lay-persons and there is no molecular biologist or geneticist among the members of the ethics committee. The Tartu University Clinics ethics committee is likewise not in a position to make statements concerning the scientific validity of research projects. Thus, the Estonian *Geenivaramu* database does not have an independent body to assess the scientific merits of research projects.

On the other hand, the solution of double checking the ethical aspects of each research project is something that should be advocated with respect to every population genetic database. While some may believe that this is only a duplication of work that does not significantly increase protection for research participants, this approach is short-sighted. Although there is a considerable overlap in the questions that both ethics committees will consider and in the methods that they will use to do so, their agendas are different. Ordinary ethics committees apply their traditional approach towards research proposals and therefore

[323] Margit Sutrop, Kadri Simm (note 268), p 260.

ensure that the research carried out using the data and tissue from a population genetic database meets all the requirements imposed on research that does not use such data and tissue. In contrast, the ethics committee of a genetic database has a much more specific agenda, and ensures that all the specific aspects of genetic databases, such as their objective, priorities, internal policies, the promises made to the public, etc., are properly taken into account. Furthermore, this ethics committee is also equipped to advise the database in its day-to-day activities, thus ensuring continuous ethics support for the database. In order to increase the trustworthiness of the ethical approval, the operator of the *Geenivaramu* might want to reconsider the procedure for nominating and removing members of the ethics committee.

It would be short-sighted to think that the functions that an independent body can carry out in the context of a population genetic database are limited to the assessment of ethical and scientific aspects. Several policy opinions also argue in favour of an independent body called a "curator" or an "administrator" to monitor the activities of biobanks and databases, regardless of the nature and objective of these biobanks and databases.[324] In addition to assessing ethical and scientific aspects, such a body could oversee:[325]

- custodianship of the DNA samples;
- management of the collection;
- the principles guiding priority setting;
- the quality of information available to participants; and
- the handling of complaints.

The idea of broadening the functions of oversight bodies is supported by several experts, including Ruth Chadwick and Onora O'Neill.[326] This approach should be met with approval, given that it takes into account the diverse issues surrounding population genetic databases. It is not only about science and ethics but also about ensuring trust and attempting to extract maximum social benefits with a minimum threat to the individual. Only an independent, multidisciplinary (encompassing also laypersons) and appropriately educated body that meets regularly (not biannually) and has enough resources to hire permanent staff is able to engage with the complex issues that population genetic databases create. Needless to say, in addition to the oversight carried out by this body, some additional monitoring is still

[324] See, for instance: *Comité consultatif national d'éthique* (note 204), Recommendation 2; Joint declaration of *Comité consultatif national d'éthique* and *Nationaler Ethikrat* (note 205), Recommendation 5.
House of Lords, Select Committee on Science and Technology (note 19), section 7.39.
[326] House of Lords, Select Committee on Science and Technology (note 19), section 7.36 – 7.37.

carried out by various state agencies, such as the data protection authority[327] and the tissue authority.[328]

In conclusion, the system for independently assessing the operations of a population genetic database should be comprehensive and should consist of multiple bodies that are not only *de facto* independent, but are also able to convince lay-people that they are independent. For various reasons that include the lack of an active scientific advisory board, the lack of an ethics committee that also gives the appearance of being independent, etc., the Estonian *Geenivaramu* project is far below the standards necessary to allow open consent to be used.

3.1.4.2 The charitable nature of the database operator

Another aspect that protects the interests of participants in population genetic databases is the nature of the database operator. To ensure trust in research, society must aim for a non-commercial relationship, rather than for an audit trail. This means that trustworthy institutions, rather than endless documented information and more regulation, are needed.[329]

For the reasons briefly explained below, there is an international consensus that the operator of a population genetic database should not be a purely for-profit organization, but rather should resemble a trust, foundation,[330] or charitable company[331]. In general, the advantages of a database operator that has a charitable nature are evident in its ability to act as a trusted third party that functions as a firewall between researchers and research subjects.[332] Nevertheless, the fact that a database holder may be charitable in nature does not imply that the database cannot be used to conduct commercial research. In any case, participants should in addition to receiving information about the nature of the database holder also receive information about the policy that the database holder has adopted with regard to commercial research and intellectual property issues.

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[327] To be established under Article 28 of Directive 95/46/EC.

[328] To be established under Article 4 of Directive 2004/23/EC of the European Parliament and of the Council of 31 March 2004 on setting standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human tissues and cells. – OJ L 102, 07.04.2004, p 48-58; and under Article 4 of the Directive 2002/98/EC of the European Parliament and of the Council of 27 January 2003 setting standards of quality and safety for the collection, testing, processing, storage and distribution of human blood and blood componentsand amending Directive 2001/83/EC. – OJ L 33, 08.02.2003, p 30-40.

[329] Onora O'Neill (note 305), p 159.

[330] The operator of the Estonian *Geenivaramu* database is a foundation under private law. According to Estonian law, a foundation has no shareholders or bodies with similar interests and therefore a foundation cannot distribute profits, but instead must use eventual profits in accordance with its established purpose. In the case of the Estonian Genome Project Foundation, this is the improvement of genetic research and public health. See Article 3 of the HGRA.

[331] That is the legal form of the UK Biobank.

[332] There are also private companies offering such services and some of them are using the term "trust" in their business name as well, for instance First Genetic Trust, Inc. An overview of their business models is provided by: Mary R. Anderlik. Commercial Biobanks and Genetic Research: Banking Without Checks? - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003. P 351-358.

Given that a charitable operator is not always bound to act in a manner that maximises its own profits, it has more flexibility in negotiating the terms and conditions of the payments to be made to the operator in exchange for receiving data and tissue from the database. A charitable operator is also a better solution than would be research participants from the perspective of feeding back profits generated from the use of data and tissue from database. Although some authors argue in favour of recognising property rights in donated material that would give donors more control over the use of their bodily material and allow them to claim some revenues,[333] such an approach has several shortcomings. Leaving aside arguments concerning the altruistic nature of donation and those that would ban the commodification of tissue, the role of one person's sample in a population genetic database is comparable to the role of one drop of water in the ocean. Since population genetic databases pool data and tissue together, this renders the impact and relevance of one data subject close to zero.[334] Moreover, potential profits might be generated only in the long run and probably after the death of the donor. And finally, the bargaining power, knowledge and experience of the operator of the database is by far greater than that of individual participants. Having said this, it appears that any direct payments to the participants could do more harm in terms of coercion[335] than good, and therefore that a charitable operator of population genetic databases is a good solution for sharing benefits.

The benefit sharing issue, which concerns the just allocation of burdens and profits, is closely related to the trust issue. In population genetic database projects "trust flows from justice".[336] Thus, a system that provides the necessary framework for a more just distribution of profits should be preferred. Needless to say, a charitable nature in and of itself helps to foster trust and to maintain the trustworthiness of the operator, provided that people are informed of the charitable nature of the database operator. Both factors are crucial to ensuring necessary public support for such projects.

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[333] This opinion is expressed, for instance, by: Graeme Laurie (note 313), p 299-328.

[334] The John Moore case (note 108), in which one individual was absolutely essential to achievement of scientific breakthrough, is certainly an overexploited exception. Indeed, the fact that the literature refers constantly to the Moore case, which is now almost 30 years old, is evidence that one person's contribution can be deemed insignificant and is therefore not a basis for sharing profits with donors.

[335] Different studies into reasons of healthy people for participating in medical research have drawn attention to the alarming fact that up to 83-96% of the participants are motivated by financial benefits that they get in form of free medical check-ups or as a contribution for their time and inconvenience. See: S. M. Loise Abrams, G.A.Browning. Informed Consent, Medical Research, and Healthy Volunteers. - Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001. P 243.

[336] Gerard Porter. The Wolf in Sheep's Clothing: Informed Consent Forms as Commercial Contracts. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 91.

3.1.4.3 Prohibitions against discrimination and stigmatisation

Clear regulation of and prohibitions against every kind of discrimination and stigmatisation based on individuals' genetic make-up are essential for responding adequately to the worries of the population. Genetic discrimination, whether with respect to employment, insurance or other relationships, is the most common concern named by individuals asked to think of risks related to the collection of genetic information.[337] This concern probably has to do with the fact that we are all mutants, *i.e.*, carriers of rare genetic conditions, and it is only a matter of time before we will discover to what extent each mutation influences our medical condition.[338] Individuals' concerns about this issue have been taken into account on a national and European level, and even in international instrumentsinstruments.

Probably the most straightforward regulation can be found in the Estonian HGRA (Articles 25-27). First, the Act imposes a general ban on genetic discrimination and on discrimination related to whether or not one chooses to participate in the project: "It is prohibited to restrict the rights and opportunities of a person or to confer advantages on a person on the basis of the structure of the person's DNA and the genetic risks resulting there from. It is prohibited to discriminate against a person on the basis of the person being or not being a gene donor." Second, employers are specifically prohibited from "collecting genetic data on employees or job applicants" and from "imposing discriminatory wages and working conditions for people with different genetic risks." Third, insurance companies are "prohibited from collecting genetic data on insured persons or persons applying for coverage and from requiring insured persons or persons applying for insurance cover to provide" genetic data. Further, insurance companies may not establish different insurance conditions for people with different genetic risks.

The situation in other European countries is far less black-and-white, although this does not mean that Estonia's very conservative approach of abolishing every kind of discrimination is necessarily the only right approach. For instance, in the UK and Sweden there is a voluntary moratorium on the use of genetic information by insurance companies.[339] In these countries, the regulation on genetic discrimination adopted by European authorities has more value.

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[337] Külliki Korts, Sue Weldon, Margret Lilja Gudmundsdottir (note 119), p 142. In a recent Eurobarometer survey almost 80 % of the respondents disagreed with insurance companies having access to genetic data. See: Europeans and Biotechnology in 2002. Eurobarometer 58.0 (2nd Edition: 03.21st 2003). A report to the EC Directorate General for Research from the project 'Life Sciences in European Society' QLG7-CT-1999-00286. P 34. Available: http://europa.eu.int/comm/public_opinion/archives/ebs/ebs_177_en.pdf.

[338] The chance that an individual has the most common type of every gene is about 1:44x10. See: Istvan Rasko. What Can We Do with Our Genetic Knowledge. - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003. P 70-71.

[339] Jane Kaye *et al* (note 32), p 30.

Both the CoE and the EC have addressed the issue of genetic discrimination in their basic documents. Article 21 (1) of the Charter of Fundamental Rights of the European Union prohibits any discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership in a national minority, property, birth, disability, age or sexual orientation. Its explanatory report adds that this rule was drafted in accordance with the regulation in the ECHR and the CHRB.[340] Although Article 14 of the ECHR does not explicitly mention genes as one basis for unlawful discrimination, this lacuna is covered by Article 11 of the CHRB, which deals exclusively with genetic discrimination. However, the Explanatory Report to the Convention (section 87) states that "national law may allow for the performance of a test predictive of a genetic disease outside the health field for one of the reasons and under the conditions provided for in Article 26 (1) of the Convention, including for the protection of the rights and freedoms of others. Thus, as mentioned in the previous paragraph, a ban on genetic discrimination does not have to be comprehensive, but may contain exceptions if these are necessary in a democratic society.

Discrimination and stigmatisation usually go hand in hand. For instance, the BRCA 1 and BRCA 2 gene mutations that make their carriers more susceptible to contracting breast cancer, and that could be a ground for requiring higher insurance premiums, were discovered by studying Ashkenazi Jews. These gene mutations are still generally labelled "their disease".[341] Genetic stigmatisation is a much harder nut to crack, given that it relates more to individuals' thoughts than actions, and no one can guarantee that the public will not mischaracterise the results of a valuable new discovery and associate negative results with certain groups. Therefore, binding legal documents have been silent on this matter. The closest an international instrument comes to regulating genetic stigmatisation is the IDHGD, which states in Article 7 (2) that, in order to fight genetic stigmatisation, appropriate attention should be paid to the findings of population-based genetic studies and their interpretations. This rule is probably addressed more to the ethics committees that play a key role in preventing genetic stigmatisation.

3.1.4.4 Data protection issues

For the average person, data protection and its methods, limits, costs, etc., is an extremely complicated issue. Yet this does not mean that people participating in population genetic databases do not wish to know the basics concerning the data protection safeguards

[340] See comments to Article 21.
[341] For similar reasons the genetic mutation causing sickle cell disease is considered to be an African American' gene. See: Ted T. Ashburn, Sharon K. Wilson, Barry I. Eisenstein (note 313), p 3378.

that are employed. Given their limited knowledge and also the fact that even experts cannot agree when, for instance, data are rendered anonymous,[342] participants should be informed of actual data protection measures in simple language.[343] For instance, it could be explained to participants that the database holder may, and in order to meet the needs of different research projects must, store identifiable information, but that such information must be kept anonymous toward third parties.

Furthermore, since there are quite a few different concepts and interpretations related to determining the scope of data protection terms, a population genetic database operator may always argue that it had this or that concept in mind while recruiting people. To exemplify this situation, let us refer back to the last sentence of the previous paragraph. This sentence reflects only one of several interpretations of anonymity, which include among them the very conservative idea that as long as someone in the world is possibly able to identify the individual by using the data from the population genetic database and combining it with other data, no data is anonymous.[344]

Ruth Chadwick correctly argues that people need to be aware of the practical aspects of data protection, such as who will have access to samples and research results, whether it is possible to break the code, etc.[345] For instance, the Estonian legislature has decided to mandate that all tissues must remain in Estonia (Article 18 (4) HGRA), data will be processed in compliance with the highest standards of data protection (Article 22 (1) HGRA), data enabling identification of people shall not be available through the external computer network (Article 22 (2) HGRA), and no data shall be issued unless the data matches at least 5 participants (to limit the possibility of indirect identification, Article 7 (2) HGRA), whereas Iceland has put much effort into regulating the coding aspect (Articles 3 and 7 HSD Act).

On the other hand, regulation must be precise enough to enable data protection experts to assess whether the above mentioned promises are enforceable. A proposal for establishing a population genetic database project should therefore be accompanied with a comprehensive analysis of data protection issues. Such an analysis was not present at the time the Estonian *Geenivaramu* project was launched, and the action plan targeting data protection issues in the

[342] For recent contributions to this debate, see: Deryck Beyleveld, David M.R. Townend. When is Personal Data Rendered Anonymous? Interpreting Recital 26 of Directive 95/46/EC. – Medical Law International, Vol 6 (2004), No 2; Carlos Maria Romeo Casabona. Anonymization and Psudonomization: The Legal Framework at a European Level. – The Data Protection Directive and Medical Research Across Europe. Deryck Beyleveld *et al* (ed) Aldershot: Ashgate, 2004.
[343] Onora O'Neil (note 305), p 159.
[344] For this view, see: Ellen Wright Clayton *et al* (note 187), p 1787.
[345] Ruth Chadwick. Informed Consent and Genetic Research. - Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001. P 207.

context of the Icelandic HSD was considered to be unprofessional and unconvincing.[346] As long as such a document does not exist or experts are not convinced of the truthfulness of the promises made in the document, such promises may not be made to participants in population genetic databases and open consent cannot be achieved.

3.1.4.5 Exit strategies

Questions concerning the means of withdrawing one's participation from a population genetic database project are as important as questions about whether to enter into such a project. Inadequate exit strategies can either render open consent to an inadmissible precommitment to research (see Chapter 3.3.2) or undermine the value and feasibility of the database. Exit strategies must take into account the time factor – not only because our opinions and values are constantly changing but also because our knowledge about genetics constantly increases. For instance, if on one day we discover that in most cases genes have the same influence on our health status as our astrological sign, several people might want to rethink their participation in genetic research. On the other hand, collections of data and tissue must have some means at their disposal for preserving their integrity and value, as large sums of money are required to establish a well-functioning biobank or database, and a failure to use it as effectively as possible would simply be a waste of resources.[347]

Article 5.3 of the CHRB states that "the person concerned may freely withdraw consent at any time". The Explanatory Report adds that withdrawal of consent may be considered ineffective only for the patient's own good (section 38). Such a simple regulation is sensible where the life and health of a person is at stake, considering that the CHRB was drafted with intervention in mind. The regulation is problematic, however, where there is no intervention or the intervention occurred in the distant past (see more about the CHRB's approach in Chapter 4.2.1). In addition, this regulation does not contain any information about the consequences of withdrawal, which has created confusion concerning what withdrawal amounts to.[348] To overcome this uncertainty, exit strategies in the context of population genetic databases must be clear, and should not simply restate general principles like the "right to unlimited withdrawal".

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[346] For an opinion of a data protection specialist, see: Ross Anderson. The deCODE Proposal for an Icelandic Health Database. Available: http://www.ftp.cl.cam.ac.uk/ftp/users/rja14/iceland.pdf.

[347] Stefan Eriksson (note 168), p 49. For these reasons also the UK Human Genetics Commission rejected the approach that allows an unlimited right to request the destruction of biological materials in a population genetic database, provided that this feature of the database has been clearly explained to the participants at the onset. See: Human Genetics Commission, 2002. Inside Information (note 207), p 95-96.

[348] Ruth Chadwick (note 345), p 209.

Several authors argue that withdrawal of consent means that all the data and biological samples collected should be destroyed as a consequence of withdrawal.[349] Such an understanding severely hampers not only the operation of population genetic databases but also the operation of ordinary disease registries and biobanks. If one is of the opinion that withdrawal amounts to the destruction of tissue and data, he has to apply this interpretation consistently to both small biobanks and population genetic databases. On the other hand, if in everyday clinical and research practice people do not have the right to require the destruction of all data, the same standard should also be adopted with respect to population genetic databases. So, what is the reality?

In reality, people do not have the opportunity to exclude their tissue and data from research. Thus, it is in practice objectively impossible to meet the requirements of Article 5 (3) of the CHRB if this Article is interpreted too broadly. First of all, patients' data are constantly used in epidemiological research in linked anonymised form, given that the hospital from which the data were forwarded to a researcher is able to identify the data subject. Arguably, the risks to a particular person are therefore even greater in such a case than they are in cases involving research conducted on data after full anonymisation by the operator of the population genetic database.[350] Secondly, patients' data are constantly used to assess the quality of health care, to reach health care policy decisions, and to conduct health surveys. For this purpose, some patient information is collected by different health registers and sometimes even kept in identifiable form without requesting the individual's consent. Thirdly, biological samples are constantly collected, stored and used for research purposes, as manifested by the proliferation of various biobanks. And finally, even the complete destruction of tissue and data does not erase the fact that a person participated in a research project, and does not bring the research project to a halt. For instance, researchers are still allowed to publish aggregate study results if a person withdraws his consent.[351] Hence, a claim that people must have an opportunity to be totally excluded from any kind of research is simply unrealistic and not worth pursuing. We should instead advocate providing people with exit options that they can rely upon effectively.

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[349] To that effect, see, for instance: John A. Robertson. Ethical and Legal Issues in genetic Biobanking. - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003. P 307.

[350] Full anonymisation is considered to be one alternative to destruction. See more in Chapter 3.3.2.

[351] The unlimited right to withdraw consent as stipulated in Article 5 (3) of the CHRB cannot, in fact, be completely unlimited as demonstrated, for example, in the following article: Bartha Maria Knoppers *et al*. Control of DNA Samples and Information. Genomics, Vol 50 (1998). P 385-401. For instance, the British Medical Journal, one of the leading medical journals, recently issued its new publishing guidelines, according to which the publication of data related to aggregate anonymised tissue and samples does not require consent of the people concerned and, in general, with respect to publishing research results the opinion of ethics committees plays the crucial role. See: Peter A. Singer. Consent to the Publication of Patient Information. – British Medical Journal, Vol 329 (2004). P 566-568.

After long discussions, the CoE's Working Party on Research on Stored Human Biological Materials has decided not to furnish research participants with an unlimited right to request the destruction of biomaterials in conjunction with the withdrawal of consent. According to the wording of the Draft Recommendation on Research on Human Biological Material as it currently stands, a withdrawal of consent does not automatically result in the destruction of samples, but the custodian of the samples instead has the right to opt for anonymising the samples rather than destroying them.[352] If one is serious about anonymisation as a safeguard, one has to admit that after anonymisation, privacy is no longer at stake, since the person cannot be reasonably identified. Given these considerations, Iceland and Estonia have already enacted legislation that does not obligate biobank holders to destroy collected tissue if the person concerned withdraws his consent.[353]

Thus, the first exit opportunity should be the anonymisation option. In some cases, this can also be the only option. For instance, the HapMap project explains to participants that there is no opportunity to withdraw consent at all, and draws attention to the inability to link one person with one particular sample.[354] However, on the same consent form, the HapMap also describes the privacy risks that arise out of the possibility that an individual may be identified by third parties through a comparison of the sample given to the HapMap project with a new sample obtained from the person. If a third party is able to identify an individual through the use of additional information, why is the HapMap project unable to do so? While one aspect is that the HapMap project does not intend to collect additional information or to match the data with other data, the possibility of doing so presents quite another issue. It is therefore correct to say that while the HapMap project is able to do so, it does not intend to re-identify the participant. Against this backdrop, it seems that the real issue is whether the HapMap project considers it necessary to provide people with the opportunity for complete destruction. And it is perfectly valid to consider it unnecessary to furnish people with the opportunity to request destruction if the right to anonymisation is ensured.

There is at least one situation in which people must have the opportunity to insist upon the destruction of all data and tissue. This is the situation in which the population genetic database operator has acted contrary to law and, because of that, the confidentiality of research participants was breached. With respect to this situation, the Estonian HGRA states the following (Article 10(2)): "If the identity of a gene donor is unlawfully disclosed, the gene

[352] Biomat dokumendist viide, kui avaldatakse.

[353] See, for instance Article 3.5 of the Icelandic Act on Biobanks 110/2000 (note 67) and Article 10 of the HGRA Some authors have argued that such an option in "/…/ effect undercuts any control the individual may have over his or her sample". See: Alice Hsieh (note 56), p 382.

[354] See the HapMap consent form at: http://www.hapmap.org/downloads/elsi/consent/Consent_Form_Template.doc.

donor has the right to apply to the chief processor for the destruction of the tissue sample, description of DNA and description of the state of health".

Another worthy question is whether research participants should have the right to withdraw only partly from a population genetic database. For instance, Henry T. Greely argues that research participants should have the right to withdraw their consent both in general or with respect to specific research topics.[355] Partial withdrawal always creates difficulties in drawing the line between prohibited and permitted research purposes. This line-drawing exercise ultimately results in legal disputes that do not increase public trust in biomedical research. But a more convincing argument against partial withdrawal can be derived from our discussion about the right to participate in research (see Chapter 3.3.4 below). In fact, withdrawal from certain types of research mirrors a situation in which only certain types of research are allowed. An individual wishing to limit the scope of research to be carried out on his tissue can do so by placing limits on the research from the beginning by authorising only a limited scope for the research, or by imposing limits afterwards by modifying the previous authorisation. In this scenario, individuals are not entitled to demand that they be recruited for a certain research project, but rather merely have the right to choose whether or not to participate. The same rule can apply with regard to withdrawal. Of course, population genetic database projects may offer participants a right of partial withdrawal to increase the number of potential participants who are willing to contribute, although not with respect to certain types of research. There is nothing wrong with a population genetic database project declining to offer such an opportunity, however.

In sum, in order to employ an open form of consent, a population genetic database project does not need to provide participants with an opportunity to request the destruction of all their data and biological materials unless the operator has committed an unlawful act that, as a result, diminishes trust in the operator. If the operator does not keep its promises and does not play by the rules, the participants do not have to do so either.

3.1.4.6 Formalised group consent – A legislative act

All of the conditions of open consent discussed above should be clearly stipulated in a binding legal document, preferably in a legislative act. There are three main reasons for this. The first relates to protecting privacy efficiently, the second to the idea of group consent, and the third to protecting the legitimate expectations of the participants in population genetic database projects.

[355] Henry T. Greely (note 190), p 755.

Thus far, Estonia and Latvia have been the only countries to regulate their population genetic database projects in a single legislative act. The UK has decided to rely on its existing laws, a decision that has been criticised by Jane Kaye and Paul Martin, who maintain that the UK legal framework is unclear, incoherent and inaccessible to people, and therefore that it should be improved significantly.[356] This suggestion has not been taken seriously thus far, as the Human Tissue Bill currently under consideration in the UK Parliament is not designed to regulate the UK Biobank but rather research in general. On the other hand, Icelandic law makers decided to divide the regulation between at least two legislative acts. This again is confusing, and might convey a misleading impression about the Icelandic project.

In fact, there is much to be said on the European level for regulating population genetic database projects using a specific law. There is no doubt that participation in a population genetic database project constitutes an interference with Article 8 (1) of the ECHR and must therefore be justified in accordance with Article 8 (2), which states that an interference must be "in accordance with the law".[357] This requirement has been interpreted by the ECtHR to relate also to the quality of the law, in the sense that the law should be accessible to the person concerned and its effects should be foreseeable.[358] The requirement of accessibility does not usually pose significant hurdles for defendant states, given that in most countries all significant pieces of legislation are published in an official gazette.

It is far more difficult to satisfy the criterion of foreseeable effects. The person must be able, if need be, with appropriate advice -- to foresee, to a degree that is reasonable in the circumstances, the consequences that his action may cause.[359] This requirement cannot be further specified on a general level. Rather, a case-by-case analysis of each law in question should be carried out. While it is beyond the scope of this dissertation to analyse all existing laws, two comments should be made with respect to the UK and Icelandic laws. With respect to the UK, a comparative legal analysis carried out within the framework of the ELSAGEN Project[360] clearly demonstrated that with regard to several questions of utmost importance concerning population genetic database projects, the answer could be found only after an in-depth legal analysis, if at all. It cannot be expected that a person will have enough resources in terms of time and money to assess the legal situation, even with the help of professionals. In the case of Iceland, the Icelandic Supreme Court has tackled the issue of the quality of the HSD Act and found in the case of *Ragnhildur Guðmundsdóttir v. the State of Iceland* that

[356] Jane Kaye, Paul Martin (note 29), p 1148.
[357] See more about the ECHR in Chapter 5.2.
[358] *Rotaru v. Romania*, 04.05.2000, application No 28341/95, section 52.
[359] *Andersson v Sweden*, 25.02.1992, application 12963/87, section 75.
[360] Ethical, Legal and Social Aspects of Human Genetic Databases: A European Comparison. Funded by the European Commission, contract No QLG6-CT-2001-00062. For more information see http://www.elsagen.net.

neither the HSD Act nor its implementing regulation were specific enough with regard to data protection issues to constitute meaningful protection against unlawful violations of privacy. It might be expected that the ECtHR would have reached the same conclusion had it had a chance to consider this case.[361]

Although this dissertation expresses doubts as to whether the UK and Icelandic legislation are in compliance with the ECHR, the Estonian HGRA is also not free from certain weaknesses. These shortcomings relate not so much to the legal quality of the HGRA as to the procedures leading to its adoption and the quality of debate prior to adoption. In Chapter 2.3.1.2, this dissertation discusses the criticism that has been levied at the procedures with which the HSD Act was adopted and debated. Though this criticism has more value in the case of the HGRA given that the quantity of debate was smaller,[362] the quality definitely not higher[363] and the time for debate shorter,[364] it is difficult to agree with Racine, who ignores the fact that a debate occurred at all, and simply states that Estonia "has in fact neglected citizen perspectives and public debate, even bypassing open debate."[365] Be that as it may, Estonia could certainly have been done a better job with adopting the HGRA.

Another reason for setting forth the conditions of open consent in a legislative act has to do with one element of the rule of law. The adoption of an act automatically creates legitimate expectations for the subjects of the law that the act will not be amended significantly without a reasonably long period of *vacatio legis*. In the case of population genetic databases, this would not only require sufficient time for the participants to analyse the new legal framework, but also a right to withdraw completely from the project. For instance, should the HGRA be amended so as to allow some type of genetic discrimination or

[361] The doubts on the "legal" quality of the HSD Act were expressed of course even before this judgement. See: Anja Meyer, Alissa C. Zeller (note 81), p 408.
[362] Piia Tammpuu. Constructing Public Images of New Genetics and Gene Technology: the Media Discourse on the Estonian Human Genome Project. Trames, Vol 8 (2004), No 1/2. P 192-216. In total there were only 81 articles published in the Estonian newspapers prior to the adoption of the HGRA. - Personal communication with Piia Tammpuu. 25.05.2004. The respective number in Iceland was 700 (see note 217 above).
[363] Tiiu Hallap Science Communication and Science Policy: Estonian Media Discourse on the Genetic Database Project. Trames, Vol 8 (2004), No 1/2. P 217-240. Even now it has been argued that the current debate surrounding the *Geenivaramu* database concentrates on scientific facts and not on social and ethical issues. See: B. Godard, *et al* (note 265), p 7. In addition, Estonian authors have emphasized the fact that the Estonian media discourse was mainly "techno-scientific". See: Piia Tammpuu. Making Genes Commonly Meaningful: Implications of National Self-images on Human Genetic Databases. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 164.
[364] It took only 4 months for the Estonian Parliament to adopt the HGRA whereas in Iceland the respective period lasted at least a year longer if one takes into account all the bills submitted to the Icelandic Parliament.
[365] Eric Racine. Discourse Ethics As an Ethics of Responsibility: Comparison and Evaluation of Citizen Involvement in Population Genomics. - Journal of Law, Medicine and Ethics, Vol 31 (2003). P 392.

police access,[366] or should the purpose of the *Geenivaramu* be amended,[367] the participants in the project must be provided with an opportunity to opt out from the database or, preferably, be asked to re-consent to the project under new conditions of open consent. On the other hand, not all alterations of the applicable legal regulation trigger the need to obtain new consent. As Ruth Chadwick points out, the risk of altering legal and ethical concepts governing genetic research is not only linked to open consent but also affects specific consent, and therefore every research participant has to take into account this uncertainty of the law.[368] It goes without saying that, due to the unlimited period for keeping data and tissue in a population genetic database, the likelihood that a legal regulation will be changed is ultimately higher than in a single research project framework.

3.1.5 Summary of the open consent concept

One of the most important contributions to the discussions surrounding informed consent is its division into true informed consent and effective informed consent. Separating informed consent in the moral sense and in the normative sense is necessary, as it allows true informed consent to be isolated from the perception of it that is manifested in legal documents -- effective consent. The first part of this chapter has proven that open consent can be both true informed consent and effective informed consent.

Although there is quite a strong consensus on the elements of true informed consent, the outcome of the assessment of these elements depends largely on what moral theories and arguments one embraces. In this chapter, the element of disclosure and the element of consent served as examples of these developments. Thus, the extensive literature on informed consent has not only contributed to clarifying the concept, but has also made the concept more opaque and therefore created a need to elaborate upon the concept of effective informed consent. Though effective consent, at best, can only reveal the path to true consent, it has a clear and tangible ending. By contrast, one can always question the presence of true informed consent. The downside of the true informed consent concept justifies elaborating upon the effective consent concept in this dissertation. Yet, the effective consent concept is only necessary if we can point to moral requirements that mandate a legal basis for informed consent. Otherwise,

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[366] A report recommends that UNESCO draw a clear line between research and forensic databases and urges national legislation to prevent the use of research databases for forensic purposes. See: Sylvia Rumball, Alexander McCall Smith (note 270), commentary on Guideline 11.

[367] For instance a population genetic database is converted into a bank of cell-lines. The author agrees with Sethe, who maintains that if cell lines will be created using the tissue from a population genetic database, a specific consent should be obtained exclusively for that purpose. See: Sebastian Sethe. Cell Line Research with UK Biobank. - Blood and Data. Ethical, Legal and Social Sspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 313-319.

[368] Ruth Chadwick (note 345), p 205.

we would create a legal duty to which no moral obligation corresponds. "It would not be correct to say that every moral obligation involves a legal duty; but every legal duty is founded on a moral obligation."[369] Or at least every legal duty should be so founded.

So, what are the moral underpinnings of open consent – a research subject's affirmative agreement to participate in a population genetic database and in research projects that use tissue and data from that database? Open consent is rooted in a liberal understanding of autonomy, and subscribes to limitations only where the rights and interests of others or common morals are at stake. It aims to explain to research participants what is important and known about contemplated research, and emphasizes the fact that people are agreeing to uncertainty. However, considering what we know about this uncertainty and the safeguards that can be employed to reduce the negative effects of this uncertainty, it is tolerant of uncertainty. The main reason for requesting consent with respect to population genetic databases relates not to risks but to respect – respect for people and their right to choose. And there is nothing wrong with showing respect for people, insofar as this respect does not amount to disrespect for a person who wants to participate in a modern scientific endeavour that some believe is our moral obligation in any case.[370] Moreover, contributing to science is sometimes the only hope for people who have or whose loved ones have a late onset disease that is at present incurable. Given that the risks can be mitigated using different safeguards, open consent provides a means for according respect to people who do not want to participate in a database, while not disrespecting those who want to contribute.

A sketch was drawn above of the safeguards of utmost importance for population genetic databases. This sketch of the conditions of open consent is not presented as a model framework or a minimal standard; rather, it addresses the concerns most commonly expressed with respect to population genetic database projects. In fact, each population genetic database is different, each will be established in a different community with different values and worries, will address slightly different issues, will vary in size from other such databases, etc. Therefore, a set of rules that might be appropriate for one project may not be suitable for another. Furthermore, any rules that are put in place may not be adopted by future projects without first conducting a critical assessment and tailoring the rules to local needs. Thus far, all the projects in existence have relied upon slightly different rules – the Icelandic rules were not copied by Estonia, and the UK opted for yet a third system.

Conditions for open consent are needed to overcome the perfunctory nature of informed consent. Informed consent is always limited (not all the conditions for carrying out a

[369] *R v. Instan* [1893] 1 QB at 453. Cited through: J.K. Mason, R.A. McCall Smith. Law and Medical Ethics. London, Edinburgh, Dublin: Butterworths, 1999. Front page.
[370] John Harris (note 124), p 85.

population genetic database project can possibly be set out in consent form), ego-centric (as opposed, for example, to community consent), and absolute (*i.e.*, this form of consent creates an all-or-nothing situation). Conditions for open consent that are tailored to the needs of the society in question should be set forth in a legislative document of the parliament. This is one component of ensuring trust. The other component involves explaining the rules to the participants, and ensuring that the operator of the database is also bound by the rules. Only in such an environment can open consent work.

Another goal of this chapter was to justify the use of the notion "open consent". Far too many different terms are used to describe the same thing – a concept of consent that authorises conducting several research projects, the details of which are not known at the moment of obtaining consent. Specific consent puritans would rather not use the term "consent" at all; a somewhat more moderate position employs the term "consent blanket", for the details of further research are not known; "broad consent" is used to emphasise that consent is not specific to one research project. The notion of open consent, the author believes, is a suitable term because it is not misleading like "authorisation", it is free from the negative emotional connotation of "blanket" and it has not been as extensively used in other settings as has broad consent. Open consent backed by certain conditions set forth in a legislative act should be used only in population genetic database projects and not be transposed to the clinical or traditional research settings. It is a form of informed consent for population genetic databases.

To be fair to open consent, this concept is not the most radical proposal for regulating population genetic databases. Jane Kaye has warned that in the UK, there unfortunately might be an unfortunate way of establishing a population collection using already existing samples and data without obtaining new consent at all.[371] The Icelandic HSD Act furnishes participants only with the right to opt out from the HSD database. HUGO is satisfied when a hospital has issued a kind of "Miranda warning"[372] to the effect that "everything you give us can be used in a biobank"; the Act states that biological samples "obtained during medical care and stored, may be used for research if: there is *general notification* of such a policy, /and/ the patient has not objected, /.../."[373]

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[371] Jane Kaye. Report May Lead to Population Collection by the Back Door. – British Medical Journal, Vol 323 (2001). P 632.

[372] *Miranda warning* is the text of the basic rights of those suspected a of crime in the United States: "You have the right to remain silent. Anything you say can and will be used against you in a court of law. You have the right to be speak to an attorney, and to have an attorney present during any questioning. If you cannot afford a lawyer, one will be provided for you at government expense." It derives from the US Supreme Court case of *Miranda v Arizona*, 384 US 436 (1966).

[373] HUGO Ethics Committee Statement on DNA Sampling: Control and Access, 1998. Available: http://www.biol.tsukuba.ac.jp/~macer/hugo2.html.

3.2 COMPLIANCE OF OPEN CONSENT WITH THE PRINCIPLES OF BIOETHICS

Ruth R. Faden and Tom L. Beauchamp have identified in their landmark book about informed consent three principles in moral theory that can be attached to the notion of informed consent. These three principles – respect for autonomy, beneficence and justice – are a suitable starting point for analysing the moral arguments that require informed consent to be sought. Of course, other scholars have proposed shorter[374] or longer[375] lists of principles of bioethics, but these three principles are in one form or another prevalent in most theories on contemporary biomedical ethics. However, the approach supported by a number of bioethicists in continental Europe[376] adds at least one notion to this list – the notion of dignity. Without trying to add anything to the discussion on the correctness of this list of principles, this subchapter examines whether the open consent approach is in compliance with these principles. Despite the fact that not all of these principles have equal standing in relation to the underpinnings of consent (obviously, autonomy is far more relevant than justice), this dissertation explores the principles one by one without excluding any of them at the outset.

3.2.1 The principle of human dignity

Human dignity is the property by virtue of which beings possess moral status.[377] Unfortunately, that is all that the scholars can agree upon; at least five different concepts of human dignity are used in the contemporary bioethical debate.[378]

Probably the most widely used understanding is that of Immanuel Kant, which maintains that the treatment of a person is never merely a means to the ends of others, but rather always an end in and of itself. The existence of a person is an end in and of itself and, simultaneously, an absolute value.[379] In this sense, the principle of dignity is the principle of principles. It is not hard to see that the Kantian concept of dignity requires respect for choices

[374] Hugo Tristram Engelhardt maintains that there are only two real principles in bioethics – the principle of autonomy and the principle of beneficence – and the principle of justice is nothing more than a symbiosis of these two. See: Hugo Tristram Engelhardt (note 146), p 84-85.
[375] According to Tom L. Beauchamp and James F. Childress, non-maleficence is an independent principle and not only a subcategory of beneficence, since the rules of non-maleficence are negative prohibitions rather than positive requirements of action, they must be followed impartially in contrast to the partiality of the rules of beneficence and they need to be secured by legal means. See: Tom L. Beauchamp, James F. Childress (note 282), p 168.
[376] Barcelona Declaration. Basic Ethical Principles in Bioethics and Biolaw. Available: http://www.ruhr-uni-bochum.de/zme/.
[377] Barcelona Declaration (note 376), section C2.
[378] According to Matti Häyry these are the Kantian, Christian, UNESCO's and utilitarian concept of dignity and the one of indigenous people. See: Matti Häyry. European Values in Bioethics: Why, What, and How to Be Used? - Theoretical Medicine and Bioethics, Vol 24 (2003), Issue 3. P 203-205.
[379] Immanuel Kant. Groundwork of the Metaphysic of Morals. - Western Philosophy. An Anthology. John Cottingham (ed). Oxford: Blackwell, 1996. P 380.

made by individuals. But human dignity is a two-edged sword – it can be both a source of empowerment and a constraint.[380]

A person who has been deprived of the opportunity to decide whether or not to undergo treatment or to participate in research is treated as a means to other ends rather than as an end in himself, whereas if a person freely consents to the research, he makes the purposes of it his own end and thereby becomes no longer simply a means to an end.[381] Hence, in general, if someone other than a research subject decides that the research subject will participate in research, and the research subject cannot object to that decision, human dignity is violated. In this context, human dignity acts as a constraint preventing people from being forced to undergo research.

The requirement that one's choices be respected also has a bearing on the converse situation in which people are deprived of their opportunity to participate in research. In this situation, the empowerment nature of human dignity is in the foreground. By virtue of dignity, a person is empowered to participate in research provided that the research does not pose significant risks that would justify limitations based on the *ordre public*. Against this backdrop, the following words have been uttered: "Overprotection is a form of dehumanization and lack of respect; for example, to classify persons as incompetent in order to protect them from their own judgement is the worst form of abuse."[382]

Thus, the principle of human dignity supports rather than works against the concept of open consent. Of course, this conclusion is open to debate, since the concept of Kant is so wide-ranging that it includes virtually every other commonly accepted principle in bioethics. Indeed, it is the principle of principles. By virtue of this, the power of the concept of dignity is somewhat compromised, thus necessitating a search for additional principles in bioethics.

3.2.2 The principle of autonomy

The term "autonomy" derives from two Greek words – *autos*, meaning "self" and *nomos*, meaning "law, rule and governance". The term initially referred to the independence and self-governing status of a *polis*, a city-state of ancient Greece. Since then, the concept of autonomy has been interpreted in so many ways that it is difficult to determine the dominant understanding of autonomy in modern bioethics. "So diverse has the notion become that it can refer equally to duty, a right, a freedom, a disposition, or an action. The following have all

[380] A very useful analysis is provided in: Deryck Beyleveld, Roger Brownsword. Human Dignity in Bioethics and Biolaw. Oxford University Press, 2001. P 9-48.
[381] Kenneth L. Vaux, Stanley G. Schade. The Research for Universality in the Ethics of Human Research. Andrew C. Ivy, Henry K. Beecher, and the Legacy of Nuremberg. - The Use of Human Beings in Research. Stuart F. Spicker *et al* (ed). Kluwer, 1988. P 9.
[382] Robert J. Levine. Informed Consent: Consent Issues in Human Research. - Encyclopedia of Bioethics. Warren T. Reich (ed)itor in Chief. Simon & Schuster MacMillan: New York 1995. P 1244.

been seriously proposed as philosophical explications of the central meaning of 'autonomy' /…/: 'authenticity', 'obedience to self-prescribed law', 'obedience to moral law', 'personal choice', 'moral choice', 'the freedom to choose', 'having preferences about one's preferences', 'choosing or creating one's own moral position', 'mental health', 'conscientiousness', 'responsible action' and 'accepting responsibility for one's views and actions'."[383] To pare down this long list, it is useful to return to the roots of autonomy and define it as "self-determination".

Now, if autonomy is personal self-determination, one basic question arises: Do we require informed consent because autonomy is an end-goal and consent promotes the achievement of this goal, or is autonomy an already existing feature of a person such that its presence inevitably forces us to seek consent? By choosing to argue that autonomy is not pre-existing but is rather only a goal, and thus that everything that promotes autonomy should be pursued, we must ask in what way the consent requirement advances autonomy.

Vilhjálmur Árnason and Sigurður Kristinsson examine several possibilities for how the consent requirement can contribute to autonomy. They conclude that autonomy as a goal cannot justify an absolute obligation to seek universal informed consent.[384] They argue that consent may furnish people with an opportunity to decide whether or not to participate in research, but this opportunity promotes autonomy only if one envisages risky and invasive research. In cases of research involving minimal risk and minimal interference, people may consider a failure to request their consent to be offensive, but such a policy does not cause significant setbacks in a person's ability to lead an autonomous life. Another way to view consent as a feature that promotes autonomy is to consider the societal consequences of a lack of a consent requirement. Again, non-invasive research and interventions backed by an overwhelming social good (compulsory vaccination, quarantine, etc.) do not involve actions that can be viewed as truly detrimental to the goal of achieving autonomy. The conclusion that one can draw from the previous arguments is that autonomy as a goal certainly sometimes justifies an obligation to obtain informed consent, but does not do so in all cases, and therefore that informed consent requirements set forth in various legal and ethical documents should allow some flexibility in determining what is required for valid consent.

If we consider autonomy to be something intrinsic to human beings,[385] then autonomy appears to be somewhat similar to dignity and, indeed, both are rooted in Kant's categorical

[383] Tom L. Beauchamp. Competence. - Competency. A Study of Informal Competency Determinations in Primary Care. Mary Ann Gardell Cutter, Earl E. Shelp (ed). Kluwer, 1991. P 63.
[384] Sigurður Kristinsson, Vilhjálmur Árnason (note 287).
[385] Of course, not every human being is an autonomous agent at the same time. Liberty and agency are usually considered the main features of an autonomous person. See: Tom L. Beauchamp, James F. Childress (note 282),

imperative. To respect autonomy means to respect people and how they choose to live their own lives. The exercise of autonomy is "what makes my life *mine*".[386] The link between autonomy and informed consent consists of two elements: the first refers to the notion of "consent" and the second to the notion of "informed".

Informed consent or, to put it more succinctly, giving or refusing to give consent, is just a term for choices made in the field of medicine. We make choices every day, but what makes choice so extremely important in medicine is that choice in that context concerns one's body, from which one cannot escape. Indeed, "my body *is* me".[387] However, this does not mean that the more choices a person has or may make, the more autonomy the person has – a person still has autonomy if he is not allowed to make all possible choices. One should not confuse the interest in autonomy with an interest in making choices. Otherwise, no one has autonomy, given that individuals are not asked to choose what kind of research will be conducted in general (this choice is made by researchers and public policymakers), which methods will be used (this choice is again made by researchers), who will pay for the research, etc. Thus, autonomy requires only that individuals be offered choices regarding significant decisions in their lives, and a claim that specific consent for all research uses is the only form of consent that is the true expression of autonomy is simply wrong.[388] The rules that are important in clinical medicine and invasive research and that can be considered a product of autonomy should not be applied without modification to research on tissue and data that are anonymous to researchers. To hold otherwise would limit, rather than protect, autonomy.

Respecting one's choices (a negative obligation) does not automatically give rise to an obligation to promote these choices by informing persons, *i.e.*, engaging in a positive action. But if consent in the context of medicine is really so important, it would be hypocritical to do nothing to ensure it, especially since an ordinary patient is unable to grasp the full meaning of the situation without a physician's assistance. Thus, in order to truly be a product of autonomy, an autonomous authorisation must be informed. Another question, of course, is how informed such an authorisation should be. Examining autonomy from the perspective that it is an existing feature, we discovered in Chapter 3.1.3.2 that different approaches deliver different outcomes. For instance, Onora O'Neill argues that all that is needed for informed consent is a lack of coercion and deception.[389] Once again, we can conclude that autonomy

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p 58. For different conceptions of an autonomous person throughout history, see: Gerald Dworkin. The Theory and Practice of Autonomy. Cambridge University Press, 1988. P 3-6.

[386] Gerald Dworkin (note 385), p 111.

[387] Gerald Dworkin (note 385), p 111.

[388] Anita Buchanan (note 92), p B12 and B16.

[389] See: Onora O'Neill (note 305), p 97; Onora O'Neill (note 298), p 5.

underpins informed consent but does not impose the same requirements for different research settings in order to be able to say that a valid informed consent was obtained.

Against this backdrop, we can conclude that the informed consent requirement is a practical application of the principle of respect for autonomy in the field of medicine. Since the practice of medicine inherently creates choices of the highest importance for most people, it must be required by law that these choices be respected and promoted. However, the less invasive, less risky and more necessary for the public good is the conduct to which these choices pertain, the less stringent should be the legal and ethical requirements for a valid consent. Thus, in the context of population genetic databases, open consent can be an acceptable option.

3.2.3 The principle of beneficence

The principle of beneficence is usually employed to present a counter argument to the principle of respect for autonomy in discussions concerning paternalism, and has therefore served, mostly from the side of physicians, as a principle limiting, if not eliminating, the need for obtaining informed consent. However, a closer look at the concept of beneficence reveals -- somewhat surprisingly -- that the principle of beneficence can also be a spokesman for consent.

According to Tom L. Beauchamp and James F. Childress, the principle of beneficence "/…/ establishes an obligation to help others to further their important and legitimate interests", and it falls into the categories of positive beneficence on the one hand, and utility on the other.[390] The latter category plays a central role in balancing benefits, costs and various risks, and is manifested mainly in cost-effectiveness and cost-benefit analyses. Positive beneficence, on the other hand, relates to more specific moral obligations, including but not limited to protecting the rights of others, preventing harm to others, etc. By combining these two notions, one may argue that where consent contributes favourably to the outcome of medical intervention, to those involved or to others in society, it ought to be sought.

As the historical overview below indicates, the practice of requesting a patient's consent is rooted in concerns about medical beneficence. To what extent have beneficence-related arguments gained value in research? The most commonly cited beneficence-based argument has to do with limiting the risks that derive from research.[391] This argument, however, seems a bit artificial since the principle of beneficence supports far more extensive

[390] Tom L. Beauchamp, James F. Childress (note 282), p 165-166.
[391] Tom L. Beauchamp, James F. Childress (note 282), p 77.

limitations on research projects on a completely different level – that is, on the level of the risk-benefit assessments carried out by ethics committees.

The second objective served by informed consent in the research context relates to the improvement of research. Knowing that a research project must be explained to participants encourages scientists to design the project more carefully, and contributes to more accurate study results.[392] Empirical evidence that supports the latter part of this argument is lacking, however. On the contrary, requesting consent and thereby making people conscious of being research participants may create several unintentional false perceptions known as the "nocebo effect".[393] Alternatively, doing so may simply give research participants' an incentive to lie,[394] and may therefore undermine the scientific value of research results.

Another set of positive outcomes arising from obtaining informed consent can be labelled "regularising relationships".[395] This includes creating a more equal, rather than a guinea pig-type relationship between researchers and participants. This, in turn, reduces the risk of litigation and ensures a necessary number of research participants,[396] and also promotes public health by ensuring that no one will refrain from seeking medical aid due to the risk of involuntarily becoming a subject of research.[397] However, if consent is sought too often, it will "irregularise" rather than regularise the relationship. As Kare Berg points out, requesting specific consent for each and every research project would foster negative attitudes and bring important research to a halt,[398] or could be viewed as an even larger intrusion into privacy than would rendering samples and data anonymous and using them without any consent.[399]

In conclusion, we may state that although the principle of beneficence provides to a certain extent a moral foundation for seeking informed consent for therapeutic interventions, it hardly does so for medical research, especially if we bear in mind that beneficence arguments have their dark side as well; the disadvantages of consent, such as time consumption, financial constraints, less representative research, etc., must be weighed against the possible benefits. Therefore, the principle of beneficence speaks instead for limiting the

[392] Alexander M. Capron (note 98), p 84.
[393] An overview of the most prominent nocebo cases is provided by: Gardiner Morse. The Nocebo Effect. – Hippocrates, Vol 13. No 10. Available: http://www.hippocrates.com/archive/November1999/11departments/11integrative.html.
[394] S. E. McNagny, R. M. Parker. High Prevalence of Recent Cocaine Use and the Unreliability of Patient Self-Report in an Inner-City Walk-in Clinic. The Journal of the American Medical Association, Vol 267 (1992), No 8. Abstract available: http://jama.ama-assn.org/cgi/content/abstract/267/8/1106.
[395] Alexander M. Capron (note 98), p 84.
[396] Ellen Wright Clayton *et al* (note 187), p 1787.
[397] Ellen Wright Clayton (note 104), p 127.
[398] Kare Berg (note 239), p 64.
[399] Bartha Maria Knoppers. Consent and Confidentiality: Introduction. - Human DNA: Law and Policy International and Comparative Perspectives. Bartha Maria Knoppers, Claude M. Laberge, Marie Hirtle (eds). The Hague, London, Boston: Kluwer Law International, 1997. P 69-70.

need to seek unnecessary specific and over-informed consent, and thus for the concept of open consent.

3.2.4 The principle of justice

"Justice" is probably one of the most exploited terms in moral and legal reasoning. What makes "justice" so popular is the fact that since virtually every school of philosophy has proposed its own understanding of justice, one may find arguments to label almost any action -- especially in cases of allocating scarce resources -- as just.[400] For purposes of this work, it is not crucial to delineate one particular theory of justice. To the contrary, the author will try to operate at the intersection of these theories.

There is a broad consensus among the different theories of justice that justice is done when an act meets a certain minimum requirement.[401] These theories also agree upon how to express this minimum requirement, but fail to attribute any content to the requirement. Thus, formally speaking, justice requires equal treatment of equals and unequal treatment of unequals -- a slogan attributed to Aristotle[402] -- but when are equals treated equally and unequals unequally? And what relevance does this have in the context of informed consent?

Regardless of whether we measure equality and inequality with reference to need, effort, contribution, etc.,[403] these measures do not create a valid ground for requiring informed consent. The common criterion, which binds all patients and research subjects, is that they will be subject to medical intervention and their data are going to be used. They are equal in that respect and therefore, if consent is to be sought from one of them, justice requires also obtaining consent from all others. On the other hand, patients are also treated equally when none of them is asked to consent to treatment. Thus, justice can also justify abandoning the consent requirement.

The principle of justice also has some relevance in disputes over the extent and content of the information that renders consent "informed". For instance, disclosing risks before requesting consent to treatment has been viewed as a kind of consumer protection tool that

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[400] There are at least four (utilitarian, libertarian, communitarian and egalitarian) major theories of justice, each has its own subtheories. See: Tom L. Beauchamp, James F. Childress (note 282), p 230-235.

[401] Tom L. Beauchamp, James F. Childress (note 282), p 227.

[402] This principle is prevalent already in the Institutes of Justinian under the maxim "to render everyone his due" (*Justitia est constans et perpetua voluntas jus suum cuique tribuens)*. See: Hugo Tristram Engelhardt (note 146), p 84.

[403] The Belmont Report mentions the following formulations (1) to each person an equal share, (2) to each person according to individual need, (3) to each person according to individual effort, (4) to each person according to societal contribution, and (5) to each person according to merit. See: the Belmont Report Ethical Principles and Guidelines for the Protection of Human Subjects of Research. The National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research. 1979. Available: http://ohsr.od.nih.gov/mpa/belmont.php3 5.01.2004. Some authors add to each person according to free-market exchanges. See: Tom L. Beauchamp, James F. Childress (note 282), p 228.

promotes equity and justice by providing participants with a more truthful picture of what will occur.[404] More importantly, modern society will probably consider it to be unjust where a researcher makes considerable profits using a research subject's tissue, which has tremendous economic value, without notifying the research subject about the value of the donated tissue in advance; here the concept of justice is used to prevent unfair economic exploitation. However, as with the principle of beneficence, the principle of justice has its greatest importance in other spheres of regulating biomedical research.[405]

As a result, we may maintain that the principle of justice itself is neutral toward the informed consent requirement. If society chooses to introduce the concept of consent, whether specific or open, justice requires that this form of consent has to be sought from each and every participant.

3.2.5 Conclusion – compliance with the principles of bioethics

The survey of the moral roots of the informed consent requirement presented above demonstrated that although each of the principles examined – dignity, autonomy, beneficence and justice -- do shape the informed consent concept, there is one principle that influences it the most. The principle of autonomy, as understood above, not only imposes a moral obligation with to respect consent, but also requires an active contribution to make consent informed. Therefore, it is most likely, and actually is in fact the case, as shown in the next chapter, that those who reject the open consent concept claim that it is incompatible with the principle of autonomy. Such a claim, however, is refutable.

Autonomy can be a quality that we all possess in reality, or instead only an ideal. In both cases, autonomy must be respected. Respect for autonomy requires that individuals' choices should be respected and supported. On the other hand, we cannot promote choices endlessly, or do so whenever there is a theoretical possibility of making a choice. Therefore, autonomy relates only to choices significant enough to influence the way we lead our lives, including whether we want to receive treatment or to participate in research that brings with it additional burdens. This is all that various theories on autonomy can agree upon, and constitutes the core of the autonomy principle.

In relation to population genetic database projects, respect for this core of autonomy requires that some sort of consent will be requested. Bearing in mind the relative risk-free

[404] Charles W. Lidz, Alan Meisel, Eviatar Zerubavel, *et al*. Informed Consent. A Study of Decisionmaking In Psychiatry. New York, London: The Guilford Press, 1984. P 7.

[405] It is in the context of selecting research participants, where justice has a twofold character - on the one hand it ensures a just allocation of the burdens and risks accompanying the research, but on the other hand it also contributes to fair access to research, where there are possible benefits at stake (especially acute in HIV trials). See: Alexander M. Capron (note 161), p 145.

nature of the research conducted using population genetic databases as opposed to clinical trials or other experiments on humans, the consent and disclosure standards may differ. Excluding this possibility and requiring specific consent in the superficially pleasing name of "respect for autonomy" in fact constitutes paternalism, and limits the autonomy of people who wish to provide open consent. It can therefore be concluded that open consent, at least when backed with appropriate safeguards, is the fruit of autonomy and not a violation of autonomy.

3.3 POSSIBLE CRITICISM OF OPEN CONSENT

Although this dissertation only presents an outline of open consent and tries to commence a discussion about it, some arguments will almost certainly be made against each non-specific consent approach. A defense against some of these arguments is provided below.

3.3.1 The unknown risk argument against open consent

Probably the most exploited argument against the non-specific consent approach is that involving unknown risks. This argument usually proceeds along the following lines: The informed consent principle requires that a person be informed of all the risks and benefits related to the research project to which he is asked to consent.[406] Researchers cannot know all the benefits and risks related to genetic research, since even the scientific hypotheses, nature and objectives of the research have not been formulated by the time of recruiting gene donors.[407] Therefore, people consenting to research cannot know all the risks either. Without ensuring that people are aware of all the risks and benefits, it is unethical to ask for their participation.[408]

3.3.1.1 General shortcomings of the counterargument

In previous chapters, it was argued that the concept of informed consent described above is not necessarily the correct one. In fact, the way in which we understand informed consent depends largely upon what concept of autonomy we use as the starting point for our argumentation. It was shown in Chapter 3.1.3.2 that different concepts of autonomy lead to different outcomes. The unknown risk argument is clearly based on a concept of autonomy that is centred around the protection of the person. When we shift from this concept to the concept of liberal autonomy, which does not value a "correct" decisionmaking process but

[406] Timothy Caulfield, Ross EG Upshur, Abdallah Daar (note 21), p 2.
[407] David E. Winickoff, Richard N. Winickoff. The Charitable Trust as a Model for Genomic Biobanks. – New England Journal of Medicine, Vol 349, No 12. P 1180; George Annas (note 50), p 1832. Sheri Alpert (note 225), p A 30 and A 33.
[408] Ellen Wright Clayton *et al* (note 187), p 1791.

rather recognises a person's ability to live with unknown risks (John Stewart Mill's liberal autonomy), and puts more emphasis on avoiding deceit and duress (Onora O'Neill's principal of autonomy), the unknown risks argument suddenly looses its ethical ground.

Another way of assessing the "ethicality" of this counterargument is to identify the nature of both the counterargument and the argument itself and to see how much weight each of them should be given in a particular framework. According to Claire Foster, the argument for preventing people from consenting to research for their own sake is founded upon the duty-based approach, while the goal-based and rights-based approaches do not consider this concern an ethical problem.[409] The rights-based approach accepts the idea of consenting to unknown risks because a person has the right to harm himself and the goal-based approach accepts taking risks provided that they are outweighed by the expected benefits of research.[410] The duty-based approach, by contrast, maintains that a researcher owes a duty of care toward research participants. The less therapeutic the research project, the more this duty increases in importance. The duty is therefore greatest in the context of non-therapeutic research. However, all of the examples used by Foster to illustrate the limits that are necessary for the sake of research participants are related to studies where there was a risk to the health or life of participants.[411] Obviously, these values are not at stake with respect to population genetic databases. Foster also argues that, as doctors know best what is an acceptable risk and what is not, doctors should decide whether to propose or not to propose that patients take part in research.[412] There is no question that population genetic databases will pass this test. Even the Icelandic medical community, which was very hostile toward the Icelandic HSD on the grounds that the project would undermine their duty of care, finally agreed to cooperate with deCODE.[413] In other countries, opposition by doctors has been considerably lower. This suggests that there will be enough doctors to recruit people for population genetic database projects.

Recognising that various ethical arguments are incapable of providing one "correct" outcome -- which, in all likelihood, is not in fact the obligation of ethics -- we next turn to international instruments. Unfortunately for the proponents of the unknown risks argument, none of these documents require that all risks be disclosed to potential participants. The Declaration of Helsinki refers to adequate information (Art. 22), the CHRB is silent, and the

[409] For the separation of goal-based, duty-based and rights-based approaches in general, see: Claire Foster. The ethics of medical research on humans. Cambridge University Press, 2001.
[410] Claire Foster (note 409), p 37-38.
[411] Claire Foster (note 409), p 103-110.
[412] Claire Foster (note 409), p 45.
[413] The Icelandic Medical Association and deCODE were able to issue a joint statement after several months of consultation. The statement urges Icelandic doctors to hand over the data to the HSD. See: http://www.decode.com/main/view.jsp?branch=174516&e342RecordID=488&e342DataStoreID=3917.

CIOMS 2002 Guidelines employ the term "foreseeable risks" (Guideline 5.9). Thus, criticism of open consent that is based on the idea that all of the risks cannot be disclosed to participants is not supported by international instruments.

Next, it was demonstrated in Chapter 3.1.3.2 that disclosing every single risk is not feasible given the virtually endless number of different risks. Even if a research protocol is drafted and the research is properly designed, not all of the possible risks will be taken into account, but rather only these that appear to have particular relevance. Moreover, unknown or hidden risks exist not only with respect to future research projects, but also with respect to ongoing and past research. Thus, the unknown risk argument is a weak one.

And finally, an argument can be made that there is no such thing as "unknown risk". What constitutes risk is the fact that no one can predict the future; not knowing something is a risk, but such a risk is not unknown. Not knowing something is an inseparable element and precondition of scientific research. Thus, the fact that all the possible outcomes of a project are not known is not a risk but rather a precondition of research. It is therefore misplaced to claim that nothing unknown may be inherent in a research project.

Yet, despite being ethically vague, unsupported by international instruments and practically impossible to implement, the unknown risks argument surfaces constantly when open consent is discussed. It seems to be the last resort of advocates of traditional informed consent, and this context provides another reason for rejecting this argument. To do so, let us imagine that there are unknown risks and that these risks are more than minimal. By accepting that, we have said nothing about why an individual may not accept these unknown risks. It seems that, in order to justify preventing people from taking these risks, the risks must be so grave that they violate the *ordre public* principle, they must be incapable of being balanced by the potential benefits, or they must not be able to be reasonably grasped. Do any of these three alternatives hold?

3.3.1.2 Are there any potential risks that violate the ordre public principle?

Very liberal understandings of autonomy, such as John Stewart Mill's, do not recognise any limits on individuals' autonomy for the individuals' own sake. As long as an individual does not interfere with others' interests, no limitations should be imposed on his autonomy. This extreme position has few supporters nowadays, a fact that is also reflected in various legal systems. Nevertheless, restrictions on autonomy are an exception that must be

justified.[414] One of the commonly accepted justifications has to do with the *ordre public* principle.

In the leading European case, the ECtHR left open the question of whether declining to accept a person's consent to or request to die interfered with her autonomy. The ECtHR ruled that, in any case, interfering with this choice was justified given that it was necessary in a democratic society to protect those who are weak and vulnerable: "The more serious the harm involved the more heavily will weigh in the balance considerations of public health and safety against the countervailing principle of personal autonomy."[415] In another case, the ECtHR took the position that it is necessary in a democratic society to prevent a person from consenting to activities that cause a significant degree of injury or wounding "which could not be characterised as trifling or transient."[416] Thus, where death or serious bodily injury are an expected outcome of an action for what consent is sought, the *ordre public* principle is violated under ECtHR case law.

A brief survey of national legislation reveals similar limitations. In Germany, consent that is deemed to be contrary to good morals is invalid and cannot be used as a defence against inflicting bodily injury or death.[417] The English common law has addressed the issue of the validity of consent on a case–by-case basis, and has usually found that if the act to which the person consented was not generally unacceptable, the consent is valid. Acts of killing,[418] of causing serious bodily injury[419] and of sadomasochism[420] have been found to violate the *ordre public* principle, and therefore to render the defence of consent unavailable.

In sum, liberty to consent to something, including research, reaches its limits where such consent would be seen as contrary to the *ordre public*. Research that is likely to result in death or serious bodily injury should not be conducted, and nobody should be allowed to consent to such research.[421] We should now explore whether population genetic database

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[414] For a comprehensive overview on the intersection of autonomy and harm to self, see: Joel Feinberg. Harm to Self. The Moral Limits of the Criminal Law. Oxford University Press: 1986.
[415] *Pretty v. the United Kingdom*, 29 April 2002; application No 2346/02. at 67 and 78.
[416] *Laskey, Jaggard and Brown v. the United Kingdom*, 19.02.1997; application No 21627/93, 21826/93, 21974/93, at 45.
[417] Article 228 of the Penal Code (German name *Strafgesetzbuch*). 15.05.1871. - *Reichsgesetzblatt* 1871. S 127. Although different jurisdictions employ different names for limiting a person's autonomy to consent to something (the *ordre public*, good morals, social acceptability) differences in their content are not crucial for the purposes of this dissertation. Therefore, all these concepts are referred to as the *ordre public*.
[418] *H.M.Advocate v. Rutherford*, 1947 S.L.T.3.
[419] *The King. v. Donovan*, 2 KB 498, [1934].
[420] Ian Kennedy, Andrew Grubb (note 152), sections 3.28-3.33. Interestingly, the courts did not consider consensual sadomasochistic acts between adults that were conducted behind closed doors to be socially acceptable. See: R v. Brown, [1994] 1 AC 212.
[421] Section 5 of the Code of Nuremberg states: "No experiment should be conducted where there is an a priori reason to believe that death or disabling injury will occur". Proceedings of the Nuremberg Military Tribunal, Vol II (note 159). P. 183.

projects and research conducted using the tissue and data from such databases can possibly result in death or serious bodily injury, or in comparable consequences.

The answer to the latter question is No. The bruising that may occur on the spot from which blood was taken definitely does not amount to serious bodily injury or death. Indeed, we saw in Chapter 1.3.2 that the main risks are of an informational nature. Unfortunately, the literature does not provide examples of informational risks that are even remotely similar to death or grave bodily injury. This strongly implies that informational risks can never achieve a comparable level of harm. We can therefore conclude that the risks accompanying population genetic databases do not rise to a level that would justify banning open consent to the use of data and tissue contained in such databases for several different research projects.

3.3.1.3 Are the potential risks and expected benefits in balance?

To assess the merits of an approach that would prohibit open consent on the basis of unknown risks for the research participants, we must weigh these risks against the potential benefits. On a theoretical level, one may question the validity of this balancing exercise because one cannot reasonably weigh something that is unknown. However, there are at least three counterarguments to this proposition. First, the *potential* benefits that will be weighed against the unknown risks are as imaginary as those risks. Secondly, although we use the term "unknown" risks, the general nature of the risks is nonetheless known, as is their magnitude which, as we concluded, does not violate the *ordre public* principle. And finally, this balancing exercise has been deemed appropriate in several international instruments on human research. Except for the Code of Nuremberg, international instruments do not impose absolute risk limits on research, such as a limitation preventing people from consenting to research that carries a risk of death or serious bodily injury. Instead, these legal instruments usually opt for a relative approach. For instance, the CHRB stipulates in Article 16 (ii) that the harm which may result may not be disproportionate to the potential benefit of research. Similar wording is also used in Article 18 of the Declaration of Helsinki. The CIOMS 2002 Guidelines try to achieve the same end by underscoring the need to minimise harms and achieve a reasonable balance between any harms and the importance of the knowledge to be gained from the research (Guideline 8).

In Chapter 2.2.3.2 above, this dissertation advanced the viewpoint that population genetic database projects ought to pose only minimal risks or risks that are slightly above the minimal risk standard. On the other hand, the expectations imposed upon population genetic databases are immense, and therefore the potential benefits, at least for society, are high. It is true that in most cases research participants will not benefit directly, but this fact does not

undermine the validity of the balancing process, given that population genetic databases can hardly by characterised as having been created "for the sole benefit of science and society".[422] It seems, therefore, that even if the potential benefits do not outweigh the unknown risks, the risks and benefits are at least in balance. If this is the case, then the unknown risks argument also fails in the light of most international instruments and does not prohibit research participants from accepting unknown risks in the context of population genetic databases.

3.3.1.4 Can a volunteer understand the potential risks?

True informed consent can be given only if a person understands the potential risks to which he is exposing himself. As mentioned in the introduction to the issue of unknown risks, it is widely argued that risks that are unknown cannot be understood by the consenter. If this is true, why do several international instruments,[423] proposed model consent forms,[424] and common practice accept consent to research with unknown risks? This paradox can be explained on a theoretical as well as a practical level.

Nationaler Ethikrat has advanced the idea that: "/…/ if donors have been informed of the indefinite nature of the actual future applications, they will be aware that they are agreeing to an uncertainty".[425] This comports with the UK Human Genetics Commission's view that instead of obtaining fresh consent prior to each research project, participants in population genetic databases should be given at the outset a clear explanation of the research aims to which the database is directed, and consequently to which their data and tissue can be subjected.[426] It appears that both bodies have decided to split the Gordon's knot by skipping the question of what a person authorises in terms of unknown risks and concentrating on the simple fact that a person is providing authorisation.[427] Indeed, in the case of population genetic databases, it is more important to explain to the research participants that they are agreeing to uncertainty rather than what possible risks may be embedded in the project. This, however, does not mean that no risks should be explained to participants, but rather that people can be made aware of the existence of unknown risks and of the general nature of these risks. Thus, the standard is not whether a person can understand the unknown risks but rather whether he can grasp the fact that there are unknown risks. Given that a person in any

[422] Research for the sole benefit of science and society is banned in the light of Article 5 of the Declaration of Helsinki and Article 2 of the CHRB.
[423] See, for instance Article 22 of the CHRB.
[424] See, for instance: Mylene Deschenes *et al*. Human Genetic Research, DNA Banking and Consent: a Question of 'Form'? Clinical Genetics, Vol 59 (2001). P 234-239; Laura M. Beskow (note 199), p 2322-2328.
[425] *Nationaler Ethikrat* (note 132), p 52. *Nationaler Ethikrat* adds that this uncertainty is not acceptable if it involves more than minimum health risks, which is not the case with biobanks.
[426] Human Genetics Commission, 2002. Inside Information (note 207), p 94.
[427] See Chapter 3.1.3.3 above.

case must have the capacity to understand the potential benefits, the foreseeable risks, the nature of the research, etc., it is obvious that an average volunteer will also understand the fact that he is consenting to a degree of uncertainty.

A more practical explanation is based on the role of ethics committees as safeguards for the protection of research participants. If, at some point, a previously unknown risk emerges in the light of a new research project, the ethics committee reviewing the research proposal has an obligation to assess the risk and if, as a result of this assessment, the value of the research does not justify exposing the research participants to this risk, the ethics committee must reject the research proposal, and the research project cannot proceed. To say that for fear of unknown risks population genetic databases should not be adopting open consent is to say that research ethics committees do not fulfil or cannot fulfil their task properly. In fact, it appears that we can rely on ethics committees' ability to intervene, and that people who trust in these committees should be offered an opportunity to provide open consent. By giving such consent, people must understand that they are conferring responsibility on ethics committees. The justification for doing so is that an ethics committee is comprised of experts and lay persons who, unlike the individual himself, are trained to discover and assess risks.

3.3.2 Inadmissible precommitment to research

Having defined open consent to include advance authorisation for subsequent uses of data and tissue in research projects, the issue of commitments arises. Based on several principles of bioethics, not least on the paramount principle of human dignity, which does not allow the sole interests of science to be prioritised over the interests of research subjects, such a commitment to research cannot be an unlimited one. One can donate but not subordinate oneself to science. We will learn in this chapter that open consent is not an unlimited precommitment to research, and therefore that potential criticism founded upon the unacceptability of open consent as a form of precommitment misses the point.

What is commonly understood as precommitment? To start with, all precommitments are commitments, but the opposite does not necessarily hold true. Commitments made at Time 1 leave options open at Time 2, while precommitments impose a limitation at Time 2 for any deviation if they permit a change at all. In any case, precommitments are decisions made by individuals to influence the payoff structure of their future decisions and to control these future choices.[428] The case of Odyssey, who needed to be tied to the mast to be able to

[428] Nevertheless, John A. Robertson does not expressly conclude that open consent is not a precommitment. See: John A. Robertson. Precommitment Issues in Bioethics. Texas Law Review, Vol 81 (2003). P 1849.

listen to the songs of the Sirens without jumping into the sea and killing himself is the most well-known example of this type of precommitment (known as a preemptive precommitment).[429] Thus, what is common to precommitments is that they restrict options for future decisionmaking, whether by excluding these options or rendering some of them more or less lucrative.

Arguably, there could be two different kinds of precommitments embedded in open consent. Some may argue that open consent includes a precommitment that excludes the opportunity to make decisions on a case–by-case basis concerning the use of a person's data and biological samples in research, since no additional consent is requested from the person.[430] However, as John A. Robertson rightly points out, in this context open consent is not used as a means of controlling one's future decisions rather than the actions of others.[431] A person does not grant open consent to achieve his selfish ends by limiting his choices but rather to contribute to different research projects. Moreover, there is no "price tag" attached to open consent, as there are no adverse implications attached to the possibility of changing one's own mind, given that there are no adverse consequences of cancelling one's participation in a population genetic database project. All leading international instruments on bioethics emphasise the importance of the right to withdraw freely, without any kind of discrimination or other negative consequences.[432] If this right is properly transposed into national laws, the only negative consequence for the person is that the person is forced to contact authorised officials to submit his withdrawal. But this is a mere procedural "discomfort" rather than a negative consequence which, by the way, is also inevitable if a person has granted specific consent and then wishes to withdraw from a research project.

Another precommitment that open consent may involve relates to the consequences of withdrawal of consent. Thus far, there is little clarity concerning what consequences such withdrawal may bring with it; some argue for complete destruction of all data and tissue originating from the person, others favour a more moderate position and consider anonymisation enough.[433] If complete destruction will be carried out, then open consent cannot be considered a precommitment at all. On the other hand, one may argue that in the case of anonymisation, the limitation of choices imposed by open consent consists of a

[429] There are also so-called "executory precommitments" that require an additional choice in the future about whether or not to follow one`s previous decision. See: John A. Robertson. "Paying The Alligator": Precommitment in Law, Bioethics, and Constitutions. Texas Law Review, Vol 81 (2003). P 1731.
[430] Arguments along these lines can be found at: Robert F. Weir (note 274), p 250-265. Weir considers open consent to be an advance directive and argues that, given the widespread use of different advance directives, an advance directive for the use of tissue should also be recognised. He presents three different types of such advance directives.
[431] John A. Robertson (note 428), p 1863.
[432] See, for instance, Articles 5 (1) and 15 v) of the CHRB.
[433] For more discussion on this topic, see Chapter 3.1.4.5.

foregone opportunity not to be included in research in any form. Although this argument is true and in this sense open consent is a precommitment, the argument wrongly assumes that people have an opportunity to avoid research even if research is carried out on their anonymised data or tissue. There is no such right, nor should there be, since such a desire is purely individualistic in nature. Strong arguments have been put forward to the effect that every reasonable and decent person who does not want to be a free-rider should or even must participate in research that does not present more than minimal risks.[434] While opinions differ on whether research on linked anonymised data in a population genetic database constitutes minimal risk research,[435] research on fully anonymised data falls clearly within the scope of minimal risk. In sum, since complete abstention from research is neither possible nor even desirable, the argument that open consent does not allow a complete exit from any kind of research, and therefore that it constitutes an unethical precommitment to science, is simply not a valid argument against open consent.

3.3.3 Inadmissible waiver of informed consent

Another issue that requires some clarification in the context of open consent is that of waiver of consent. It has been argued that open consent is nothing more and nothing less than a waiver of traditional informed consent.[436] To reflect on that opinion, we must first understand what is meant by "waiver of consent" and, provided that commonalities are found between open consent and waiver of consent, explore the preconditions of a legitimate waiver of consent.

Surprisingly, the term "waiver of consent" has two quite different meanings. Within the context of "common rule" regulation of research on human subjects in the United States, waiver of consent encompasses situations where research can be conducted without asking for a research subject's consent. For the sake of certain considerations,[437] the requirement of obtaining research participants' consent is waived, *i.e.*, the researcher is released from the obligation to seek consent. Another understanding of waiver of consent that concentrates on a right rather than on an obligation is put forward by scholars. For instance, Ruth R. Faden and Tom L. Beauchamp maintain that waiver of consent is a tool for patients to relinquish their

[434] See the discussion in Chapter 1.3.3 above.
[435] To that effect, see Chapter 2.2.3.2.
[436] George Annas (note 50), p 1832.
[437] Under Article 46.116 (d) (4) of the Code of Federal Regulations (note 191), an institutional review board may waive the requirement of consent if it finds that:
(1) the research involves no more than minimal risk to the subjects;
(2) the waiver or alteration will not adversely affect the rights and welfare of the subjects;
(3) the research could not practicably be carried out without the waiver or alteration; and
(4) whenever appropriate, the subjects will be provided with additional pertinent information after participation.

right to consent by excusing the researchers from the obligation to obtain informed consent.[438] The main difference between these concepts is evident here: under the latter approach, the obligation, as such, to obtain consent still exists but researchers simply do not have to fulfil this obligation, while under the former concept there is no obligation to obtain consent. To put it more simply, under the "common rule" an ethics committee makes the decision that research participants' consent is not required, while under the other concept the individual himself makes this decision.

Without digging more deeply into the nuances of the "common rule" understanding of waiver of consent, we can state that this concept is not applicable in Europe. The CHRB does not contain an article that corresponds to the "common rule" waiver of consent regulation. On the contrary, the stipulations of Article 16 of the Convention, which sets forth the consent requirement in the research framework, may not be restricted even by the states that are parties to the Convention, not to mention ethics committees. Even the interests of public safety, prevention of crime, protection of public health, etc., are not valid grounds for waiving an obligation to seek informed consent (see Article 26).

Nevertheless, the Convention is silent on whether the consenting person himself can waive his right to consent. In that respect, the broader protection rule contained in Article 27 is important. According to Article 27, a party to the convention may always grant a broader measure of protection with regard to the application of biology and medicine than is stipulated in the Convention. The Explanatory Report adds that additional safeguards must contribute to the greater protection of a person submitting to research, and not to that of other interested parties (section 161-162). Provided that prohibiting a consent waiver amounts to greater protection for a research subject, and assuming for the sake of argument that open consent is a waiver of specific consent, open consent may not be recognised by any state that is a member of the Convention. On the contrary, in accordance with the principles of Article 27, states should completely prohibit the use of any kind of consent waiver. However, the fact that all major jurisdictions recognise legitimate waivers of consent means that allowing waivers of consent does not amount to lowering the level of protection provided for in the Convention.

In any case, both the approach that is based on a waiver of obligation and that based on a waiver of right automatically assume that open consent does not meet the requirements for informed consent. This dissertation advances the idea that open consent is a form of informed consent and therefore that it cannot constitute a waiver of consent. A person who provides open consent is providing informed consent, and is not waiving his right to give informed consent. At most, the person can be considered to have waived his right to provide

[438] Ruth R. Faden, Tom L. Beauchamp (note 138), p 38.

another form of informed consent, *viz.* specific consent. The latter approach is, however, not workable since, according to this approach, we must take the position that every time we provide informed consent (which is always just a form of informed consent), we waive another type of informed consent (in fact, all other types of informed consent). Should open consent be treated as a form of informed consent, providing open consent cannot be considered a waiver of informed consent.

Recognising that not everyone might share the latter opinion, let us engage now in exploring the conditions for legitimate waiver and, for the sake of argument, assume that open consent constitutes a waiver of informed consent. Both moral and legal theory share the concern that the consent requirement should not be unduly undermined, and therefore argue in favour of certain minimum thresholds to ensure the legitimacy of waiver.[439] For our purposes, the most relevant threshold has to do with the minimum amount of information that the person exercising waiver must have received in advance. One of the most authoritative views on that subject is expressed by Ian Kennedy and Andrew Grubb. They argue that a person can waive the right to be informed of risks related to contemplated research but cannot waive the right to information as to the nature of and purpose for the research.[440]

If we subscribe to this argument, then open consent is a fully lawful waiver of informed consent, since the unforseeability of risks is the principal reason why open consent opponents refuse to consider open consent to be informed consent. Research that will be conducted using tissue and samples contained in a genetic database can be explained in broad terms, given that these projects share similar natures and purposes. At least for a layperson, the facts that the research compares different types of data and does not encompass invasive actions are far more important than the different methods that these projects could possibly employ. It is also possible to mention the common objective of these projects, which is the improvement of public health. Given that the disclosure of possible risks can be omitted, open consent satisfies the preconditions for a valid waiver of consent. Nevertheless, as maintained above, the author is of the opinion that open consent is, by its nature, not a waiver of the right to grant informed consent but rather is informed consent.

3.3.4 The event nature of open consent

This counterargument reproaches open consent for its more "event" than "process" approach toward informed consent. Beginning with the works of Jay Katz, informed consent has been viewed more as a process of mutual decisionmaking than a one-time event of signing

[439] See, for instance: Tom L. Beauchamp, James F. Childress (note 282), p 92-93.
[440] Ian Kennedy, Andrew Grubb (note 152), p 752.

a consent form. Informed consent as a process is said to have at least the following advantages in a clinical setting:[441] First of all, it recognises that it takes time to learn about the values and worries of a patient. Secondly, especially in cases of chronic illness, consent should be an ongoing dialogue to keep pace with the changes to the medical condition and values of the patient. Thirdly, especially in the case of invasive and complex medical interventions, the exchange of information between doctor and patient takes so much time that a one-shot event unavoidably becomes a longer lasting process in order to avoid interrupting the mutual information flow. And finally, modern medicine requires multiple decisions, some of which can be made only after initial results are known. This also means that the doctor and the patient meet regularly, and not only at the time the consent form is signed. This is all very appropriate in the context of medical care. When we attempt to apply these advantages to the context of population genetic databases, however, these advantages diminish greatly: there are no complex invasive procedures, chronic illnesses, multiple decisions, etc. The CIOMS 2002 Guidelines on biomedical research have therefore interpreted the process differently, principally from the point of view of ensuring that the research subject has understood the information provided to him. The CIOMS 1991 Guidelines on epidemiological research do not address the issue of consent as a process at all.[442]

Despite the fact that the question of consent as an event or a process is not as significant in the context of population genetic databases as it is in a clinical or traditional research setting, it has been argued that open consent as more of an event form of consent has at least two shortcomings for population genetic databases. First, it does not give the participants the opportunity to make choices about research they find objectionable -- *i.e.*, research on race or mental illness -- or to participate in a database only "partly".[443] Secondly, an event consent does not furnish participants with information pertaining to further research activities, and without such information participants cannot reasonably exercise their right to withdraw consent.[444] We shall see below whether this reproach is justified.

This alleged shortcoming is based on the premise that each and every person has a moral or legal right to participate in research that is consistent with his values and corresponds

[441] See: Stephen Wear. Informed Consent: Patient Autonomy and Physician Beneficence within Clinical Medicine. Dordrecht, Boston, London: Kluwer Academic Publishers, 1993. P 80. In fact, despite all these advantages, Wear still maintains that informed consent should be in most cases more an event than a process.

[442] CIOMS 2002 Guidelines, Commentary on Guideline 4. "Obtaining informed consent is a process that is begun when initial contact is made with a prospective subject and continues throughout the course of the study. By informing the prospective subjects**,** by repetition and explanation, by answering their questions as they arise, and by ensuring that each individual understands each procedure, investigators elicit their informed consent and in so doing manifest respect for their dignity and autonomy. Each individual must be given as much time as is needed to reach a decision, including time for consultation with family members or others. Adequate time and resources should be set aside for informed-consent procedures."

[443] See, for instance: David E. Winickoff (note 227), p 202.

[444] Henriette D.C. Roscam Abbing (note 234), p 5.

to his understanding of good science. Should such a right exist, the limitation of it would be indeed blameworthy. However, none of the legal instruments related to human rights on the European level establish a right to participate in research and a corresponding obligation of researchers to design research so as to comply with individuals' wishes. The situation is similar in the United States: although the First Amendment does include a right to conduct scientific research, there is no precedent for a legal right to participate in a research project.[445] And lastly, the basic international conventions on human rights explored below in Chapter 6.1 do not furnish people with the right to participate in research either. Thus, we can establish that there is no legal right to participate in research. But is there a moral right?

One can certainly argue that respect for individuals' autonomy and dignitary interests requires the recognition of such a right. Nevertheless, this is not the only opinion expressed in the literature. For instance, the *Nationaler Ethikrat* is of the opinion that "[t]he absence of options does not constitute a violation of the right of self-determination, for it is up to the donor to decide whether or not to participate in the research under the specified conditions."[446] This wording reflects the idea that research participants must have the final word about whether or not to take part in research, but not with respect to designing the study or the consent form.

It appears that the only workable approach in practice is one that does not grant individuals the right to participate in research. Once this right is recognised, it is impossible to construct limitations on how many options people should have for consenting to research and, more importantly, how a research project should be designed. If we are not to merely pay lip service to autonomy and respect for individuals, then it is not enough to simply allow people to exclude certain types of research or certain research projects, but researchers should also actively engage potential research participants in designing the studies and let the interests of potential participants prevail over their scientific interests. Thus, consent as a process should actually start before a research project is even designed or envisioned. Obviously, this is not the case, nor should it be.

Without prejudice to the arguments presented in the previous paragraphs, it must be observed that open consent is not just an event but rather that it also incorporates the elements of a process. Given the nature of population genetic databases, these elements differ slightly from the traditional means that are employed. Initial contact with the potential participant usually occurs in a physician's office, which ensures that the person can discuss the details of possible participation with a trusted and independent third-party professional. There is no

[445] Henry T. Greely (note 129), p 792.
[446] *Nationaler Ethikrat* (note 132), Recommendation 9.

obligation to decide in favour of or against the project during the first visit; in fact, inducing people to become participants in a scientific project is punishable as a crime.[447] Since, in the population genetic database context, there is no direct contact between researchers and research subjects, the body providing additional information is the operator of the database. In the case of Estonia, for instance, the operator has utilised different communication channels, including an Internet webpage and a calling centre, to keep the participants informed of the activities of the database. After providing consent, however, the person may always request additional information from his general practitioner if he does not trust the information provided by the operator of the database. Should the participant wish to cancel his involvement, open consent does not impede his ability to withdraw consent. It can therefore be concluded that, taking into account the specifics of a population genetic database project, open consent is not less of a process and not more of an event than the specific consent used in a traditional research setting.

3.3.5 The exploitation argument

One possible argument against open consent might proceed along the following lines: Assuming that people are eager to participate in population genetic database projects and provide open consent, without having been informed of the details of specific research projects, this still does not mean that a responsible researcher should allow them to do so. On the contrary, a regulation should aim to encourage participants to take an interest in the research and to exercise their autonomy on a case-by-case basis by giving or refusing to give specific consent. Hence, open consent should not be permitted since it allows individuals a means of escaping the burden of assessing every project separately. Without imposing this burden, some population groups, especially those who value public duty more highly and accept medical paternalism more readily, *i.e.*, presumably the older, the less educated, the less wealthy, etc., will end up being overrepresented in the database and therefore "overstudied" compared to other population groups. This situation would clash with the principle of justice that requires that both the burdens and benefits of research be equally distributed among population groups.

The exploitation argument is more relevant in the context of the UK Biobank than in that of other projects. As explained in Chapter 1.2.2.3 above, the UK Biobank does not target the whole population, but rather only one representative cohort of 500,000 people aged 45–69. Accepting participants from only one subpopulation may indeed create concerns regarding exploitation, although, as explained above, these concerns are not well-founded. In any case,

[447] At least, this is the case in Estonia. See Article 140 of the Penal Code.

genetic database projects that are truly population-based aim to recruit more or less every member of the population. As these projects do not impose limits regarding potential participants, no particular population group will intentionally be studied more than any other.

In addition, in the context of "whole population genetic databases", this argument is vulnerable from at least two different perspectives. First of all, the argument limits the autonomy of people that wish to provide open consent. Protection of autonomy may not lead to restrictions of autonomy unless these restrictions are truly necessary. In this case, it appears that the values and concerns of the cohort that is more sceptical about the research are simply being projected onto the cohort that has more trust in the researchers. Given that the interests at stake are not of crucial importance, such as those involving life or health, the arguments for limiting autonomy are weak.

Secondly, empirical data shows that population groups that are usually considered more vulnerable are less likely to participate in population genetic databases. At least, such is the case in Estonia.[448] The first table shows that people with lower education levels hesitate to participate and people with higher education levels are more willing to participate in a project than the average.

Do you intend to participate in the Estonian Genome Project, *i.e.*, to become a gene donor?					
EDUCATION		Yes	No	Not decided/ Does not know	Total
Lower or basic education	Count	6	37	25	68
	% within the group	8,8%	54,4%	36,8%	100,0%
Secondary education	Count	90	127	141	358
	% within the group	25,1 %	35,5%	39,4%	100,0%
Higher education	Count	39	57	45	141
	% within the group	27,7 %	40,4%	31,9%	100,0%
Total	Count	135	221	211	567
	% within the group	23,8 %	39,0%	37,2%	100,0%

The second table demonstrates that people up to the age of 50 are more willing than the average to participate in the project, whereas elderly people tend not to participate.

[448] Drawn from nationally representative survey of 914 people aged 18-75, conducted through face-to-face interviews in November and December 2002 within the framework of the ELSAGEN project. The author gratefully acknowledges the help of Külliki Korts who provided this information.

Do you intend to participate in the Estonian Genome Project, *i.e.*, to become a gene donor?					
AGE		Yes	No	Not decided/ Does not know	Total
18 - 29 years	Count	34	31	56	121
	% within the group	28,1 %	25,6 %	46,3%	100,0%
30 - 39 years	Count	28	29	54	111
	% within the group	25,2 %	26,1 %	48,6%	100,0%
40 - 49 years	Count	35	42	38	115
	% within the group	30,4 %	36,5 %	33,0%	100,0%
50 - 59 years	Count	20	40	32	92
	% within the group	21,7 %	43,5 %	34,8%	100,0%
above 60 years	Count	19	78	29	126
	% within the group	15,1 %	61,9 %	23,0%	100,0%
Total	Count	136	220	209	565
	% within the group	24,1 %	38,9 %	37,0%	100,0%

Finally, the third table draws our attention to the pattern of "the more I earn, the more likely that I will participate".

Do you intend to participate in the Estonian Genome Project, *i.e.*, to become a gene donor?					
NET PERSONAL INCOME PER MONTH		Yes	No	Not decided/ Does not know	Total
Less than 2000 EEK[449]	Count	26	99	52	177
	% within the group	14,7 %	55,9 %	29,4%	100,0%
2001 - 4000 EEK	Count	39	53	54	146
	% within the group	26,7 %	36,3 %	37,0%	100,0%
4001 - 6000 EEK	Count	26	27	41	94
	% within the group	27,7 %	28,7 %	43,6%	100,0%
More than 6000 EEK	Count	24	23	30	77
	% within the group	31,2 %	29,9 %	39,0%	100,0%
No income	Count	9	2	22	33

[449] One Estonian kroon (EEK) equals approximately 0.064 euro (EUR).

	% within the group	27,3 %	6,1%	66,7%	100,0%
Does not want to reveal	Count	11	16	11	38
	% within the group	28,9 %	42,1 %	28,9%	100,0%
Total	Count	135	220	210	565
	% within the group	23,9 %	38,9 %	37,2%	100,0%

While there are no European-wide surveys on this topic, surveys conducted in similar areas show that there are no significant differences in the perception of biotechnology among men and women, the young and elderly, the more educated and less educated, etc.[450]

3.3.6 Erosion of informed consent and trust

Another set of arguments against open consent maintains that accepting open consent as one option and as one form of informed consent would undermine the essence of the informed consent principle as well as trust in medical research.

The slippery slope concept underlies the first part of this argument. The idea is that open consent allegedly sets a dangerous precedent for future research (a slippery slope). Even if it is acceptable to use open consent with respect to research that uses data and tissue from a population genetic database, introducing the possibility of open consent may lead to the use of this form of informed consent in other types of research. If this happens, the informed consent principle would acquire the status of a myth and belong to history. Therefore, one should not relax the requirements of informed consent or introduce new types of informed consent.

Such an approach fails to see that, in fact, strict adherence to the specific consent principle has already done more harm than good for that principle. The fact that researchers, ethicists and lawyers are looking for ways around specific consent demonstrates the need to modify the concept. Until now, this need has usually been addressed by multiplying the various grounds for declining to seek consent. The price for such a puritan approach has been high – to maintain specific consent as the dominant form of informed consent, several types of research may now be conducted without consent. Therefore, if anything has eroded the informed consent principle, it is the very pursuit of specific consent, and not open consent, which preserves the consent requirement with respect to at least some of the research that would otherwise be conducted with reliance on consent alternatives or that would not be carried out at all.

[450] Eurobarometer 58.0, Table 18 at page 41.

Slippery slope arguments presume that social control mechanisms are not able to properly regulate society, and therefore that one cannot alter the *status quo*. This is a clear underestimation of the power of modern democracies and the decisionmaking procedures that are in place in these democracies, and this estimation has been proven false. For instance, 30 years ago many people had negative attitudes toward the first "test-tube baby," but now *in vitro* fertilisation and a number of other subsequent reproductive technologies are not regarded as ethically problematic by the majority. Against all odds, the slope has not been so slippery as to allow reproductive cloning, for instance.[451]

Furthermore, from a formal logical point of view, a slippery slope argument is nothing other than an often used "if-then" fallacy to illegitimately prove that proposition P is unacceptable due to a sequence of increasingly unacceptable events shown to follow from P.[452] A slippery slope argument should be taken seriously only if the following criteria are met:[453]

- Difference: there must be an ethically relevant difference between the debated activity and the objectionable end.
- Plausibility: the chain of actions and consequences must be plausible and the connection with the end clear.
- Evidence: the risk must be supported by evidence and empirical reasons.
- Clarity: the slippery slope argument may not be based on imprecise definitions of relevant terms or on references to vague concepts.

Thus far, nobody has offered a slippery slope argument against open consent that passes muster in the light of these four criteria.

The second part of the argument draws our attention to the fact that medical research is largely dependent on the trust the public has in researchers and research settings. It is therefore absolutely essential not to undermine this trust for the benefit of one project, say a population genetic database project. Opponents of open consent might claim that by not seeking specific consent, the trust that people currently have in research will diminish, as people will lose their control over the use of their data and tissue in research. Consequently, the participation rates in various biomedical research projects will drop. This counterargument is, however, if not erroneous, then at least open to debate.

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[451] A general ban of reproductive cloning is contained in Article 11 of the Universal Declaration on the Human Genome and Human Rights and in the Additional Protocol to the Convention on Human Rights and Biomedicine on the Prohibition of Cloning Human Beings.

[452] See examples of the slippery slope argument and the methods for refuting it in: Stephen's Guide to Logical Fallacies. Available: http://www.datanation.com/fallacies/distract/ss.htm.

[453] Lilian Schubert. Ethical Implications of Pharmacogenetics – Do Slippery Slope Arguments Matter? – Bioethics, Vol 18 (2004), No 4. P 365.

Onora O'Neill has put forward a convincing theory that trust does not depend so much on the form of consent used in research settings as upon the way we treat research participants. Requiring specific consent for every piece of tissue and for every action carried out thereupon leads us to an audit-type society which, as we all know, has failed to secure or to increase trust in medical sciences. "Paper trails like that are ideal from the point of view of administrative quality assurance and provide good defence against possible litigation. /…/ but /…/ may not reassure or secure the trust of patients, donors or relatives who are asked to consent."[454] Giving consent, ticking boxes, signing papers – all this can ensure the trustworthiness of an institution, but it creates suspicion and a divide between the researcher and research subject. There is a growing body of evidence that suggests people view consent as a way to waive their rights rather than as a safeguard -- consent is not a tool for ensuring control but rather for surrendering control.[455] Consent is a disempowerment rather than an empowerment, as Graeme Laurie has put it.[456] What is needed to bring researchers and people back together is an expression of gratitude for the generosity of research subjects.

The views of Onora O'Neill are supported by several authors who argue that requiring specific consent for each and every research project would foster negative attitudes toward medical research.[457] Since population genetic databases are a tool for medical research and research projects carried out in the context of these databases do not differ in their essence from other research projects, an argument can be made that specific consent would also foster negative attitudes toward population genetic databases. For similar reasons, the NBAC asserts that recontacting participants and providing them with additional information should be an exception with respect to research on biological materials.[458] People do not want to be contacted for every single research project, and are confused when they are repeatedly asked to consent. It can be expected that constant requests for consent devalue the importance of consent and render consent a routine procedure comparable to "how-do-you-do". The somewhat one-time nature of open consent can therefore even be seen as an advantage.

Furthermore, in the latest scandals (such as that of Alder Hey)[459] concerning the use of tissue, the nature of the consent given was not understood in the same way by the doctors on the one hand and research subjects on the other. This is an alarming problem that, due to the

[454] Onora O'Neill (note 305), p 157.
[455] See, for instance: Mairi Levitt, Sue Weldon. Genetic Databases and Public Trust. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjalmur Árnason (ed). Reykjavik: University of Iceland Press, 2004. P 178.
[456] Graeme Laurie (note 313), p 312.
[457] Kare Berg (note 239), p 64. See also: Jocelyn Kaiser. Privacy Rule Creates Bottleneck for U.S. Biomedical Researchers. – Science, Vol 305 (2004). P 168-169.
[458] NBAC, 1999 (note 39), p vi.
[459] See footnote 51 for more information.

propositional nature of consent and for other reasons addressed in Chapter 3.1.3.3 above, cannot be resolved by giving more information and obtaining additional specific consent. Thus, specific consent is not a tool that automatically ensures trust and that therefore cannot be modified in any way without compromising that trust. Open consent does not diminish trust more than specific consent.

3.3.7 Conclusion – no need to abandon the open consent concept

This chapter addressed some of the arguments that could be used to prove that open consent is not informed consent and that this form of consent should not be used for research on tissue and data. Those who are convinced that open consent is a misunderstanding of what informed consent is or should be probably will not agree with the conclusion that their critics fail to prove that there is only one right concept of informed consent and that everything beyond that cannot qualify as informed consent.

Probably the main argument against open consent focuses upon the lack of a determined research project and consequently on the unknown risks associated with such research. This is an argument based upon a researcher's duty of care. Yet, a debate on issues of bioethics cannot achieve reasonable outcomes if other arguments are not considered. A rights-based approach maintains that people have the right to choose whether or not to grant consent, and their refusal as well as their acquiescence should be respected. A third approach, the goal-based approach, compares expected benefits and possible risks and also concludes that open consent can be used with respect to population genetic database projects. Thus, even if one grounds one's arguments on duties, he has to take into account rights and goals. One way of doing so is to require that, for individuals' own sake, researchers and doctors may not request that an individual agree to research if the risks of research are unknown (a duty-based argument), unless the potential risks are not so grave that accepting them would be contrary to common morals (a rights-based argument) and the risks are less important than the pursued benefits (a goal-based argument). Along these lines, we saw that the unknown risk argument is important but does not require the abandonment of open consent in the context of population genetic databases.

Another issue explored in this chapter was the precommitment nature of open consent. Without denying that open consent has some elements of precommitment, it falls short of being an inadmissible precommitment. Although people are not asked to consent prior to each and every research project, they still have the opportunity to cancel their participation and to withdraw their open consent. Any restrictions that might be placed on the consequences of such withdrawal do not render anybody a slave to research.

Some might argue that, given the loose content of open consent, it should instead be called "waiver of consent". Such an argument is weak. Waiver of consent is not consent at all; that is, if consent can be waived, no consent will be sought at all. Open consent is not specific consent but it is informed consent. Hence, even if the person who grants open consent can be deemed to have waived his right to grant specific consent, this argument is based on the false premise that specific consent is the only form of informed consent that justifies research. Once we begin viewing open consent as a form of informed consent, the consent waiver argument loses its force.

Open consent does not reduce informed consent to a one-time event. Procedures for keeping participants up-to-date about what is going on in the field of genetics research can be built into the system using the Internet and other means of mass communication. People can take advantage of this new information by withdrawing from the project should they feel that the operations of a database are no longer consistent with their values.

Some empirical data has been provided to refute concerns that population genetic databases will take unfair advantage of people who have more communitarian values and therefore subject this cohort to greater risks. It appeared that population groups commonly considered vulnerable are less likely to participate in a project like the Estonian *Geenivaramu*. Thus, these concerns are unfounded, as is the slippery slope argument claiming that open consent will soon be the standard form of informed consent for every kind of research and that the trust people currently have in medical research will consequently diminish. Thus far, no analysis has plausibly shown the path from accepting open consent for population research to using open consent, for instance, in clinical trials. Furthermore, people's trust does not depend on how many informed consent papers they sign but rather upon whether the person really understands the meaning of consent, and upon the reliability of the rules in place to ensure that consent is not misused.

Regardless of arguments such as these that can be made against open consent, the author is still confident in concluding that there is no need to abandon the concept of open consent as one form of informed consent to be used for population genetic databases.

4 RESPECT FOR BODILY INTEGRITY

The previous chapter demonstrated that the main argument in moral theory for introducing a legal requirement for obtaining consent to medical treatment or research is the principle of respect for autonomy. Given the numerous implications that autonomy has in modern society, this dissertation must limit itself to only two aspects that have the greatest relevance in the field of biomedical research – bodily integrity and informational autonomy. This chapter will examine what kind of consent is required to justify interference with the human body on a European level, and the manner in which European-wide principles have been incorporated into two leading legal traditions in Europe. Given that the notion of informed consent arose in the United States (see Chapter 2.1.2) and, as we will see, has not been accepted in either Germany or the United Kingdom, a short comparative chapter on U.S. informed consent law is provided as well.

4.1 PROTECTED VALUES AND RIGHTS

We concluded above that in the very essence of the principle of autonomy reposes the understanding that, since we cannot exist without our body, we must be able to exercise self-governance over our body. This aspect of autonomy is labelled a person's bodily integrity, physical autonomy[460] or physical self-determination, and it protects persons from unauthorised touching. The authorisation to touch may derive, in turn, from other legally protected values, or may be given by the self-governor himself. A doctor cannot practice medicine without touching the patient. "Touching" should not be interpreted to encompass only skin contact, but rather to include everything a doctor uses to heal the patient, whether that may be manual therapy, injections, radiation, operations, etc. Thus, physicians too must have a valid justification for touching their patients. Even though the intention of touching is to improve health and save lives, this touching must be carried out skilfully and by persons trained to "touch". As discussed below, these considerations serve as a starting point for legal regulation in the common law countries as well as in civil law countries. Moreover, respect for physical integrity and the requirement of consent are the basic principles recognised by the CoE and by the 31 member states that have signed the CHRB.[461]

[460] Paula Case. Confidence Matters: The Rise and Fall of Informational Autonomy in Medical Law. – Medical Law Review, Vol 11 (2003), No 2. P 213.

[461] See chart of signatures and ratifications at: http://conventions.coe.int/Treaty/Commun/ChercheSig.asp?NT=164&CM=1&DF=13/02/04&CL=ENG.

4.2 COUNCIL OF EUROPE

The CoE has addressed issues of biomedicine in several instruments,[462] and codified its view in the CHRB in 1997. A more specific regulation that consists of two additional documents appended to the CHRB is currently under preparation. These two documents are:[463]

1. The Additional Protocol to the Convention on Human Rights and Biomedicine concerning Biomedical Research (hereinafter in this chapter referred to as the Biomedical Research Protocol);[464]
2. The Draft Recommendation on Research on Human Biological Materials (hereinafter in this chapter referred to as the Biobanking Recommendation).[465]

4.2.1 Convention on Human Rights and Biomedicine

Before examining these additional documents, some discussion of the relevant stipulations in the CHRB is warranted, although the CHRB does not specifically regulate the issues of population genetic databases and research on stored tissue. The requirements of the CHRB therefore require some interpretation to be properly applied in the context of population genetic databases.

In general, the CHRB recognises two types of applications of biology and medicine, the difference between them being that one type involves an intervention whereas the other does not. Section 34 of the Explanatory report to the CHRB[466] casts a bit more light on this distinction by stating that the term "intervention" must be understood in its widest sense: it covers all medical acts, in particular interventions performed for the purpose of preventive care, diagnosis, treatment, rehabilitation or research. An example of non-interventional applications is research on collected human biological samples and data, *i.e.*, the very type of research that is carried out using population genetic databases.

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[462] See a complete overview of the documents of the Council of Europe on Bioethical Matters at http://www.coe.int/T/E/Legal%5FAffairs/Legal%5Fco%2Doperation/Bioethics/Texts%5Fand%5Fdocuments/(INF_2004_6e%20PROV_vol_I_textes_CoE_bioethique).pdf and http://www.coe.int/T/E/Legal%5FAffairs/Legal%5Fco%2Doperation/Bioethics/Texts%5Fand%5Fdocuments/(INF_2004_6e_vol_II_textes_CoE_bioethique).pdf.

[463] There is also a third document currently under preparation by the Council of Europe, the Draft Instrument on Human Genetics, Document reference: CDBI (2004) 14, not published, the author has a copy. However, the document regulates only genetic testing and not genetic research or genetic tests for research purposes and therefore has only very limited importance for the purposes of this dissertation. The further analysis of it is thus omitted.

[464] Council of Europe, European Treaty Series No 195.

[465] Document reference: CDBI-CO-GT2biomat/RAP 3. Not published, author has a copy. The author of this dissertation had the honour to participate as an expert in the CoE working party responsible for drafting this recommendation.

[466] Available: http://conventions.coe.int/Treaty/en/Reports/Html/164.htm.

The practical relevance of the term "intervention" is twofold. On the one hand, whether or not the application of biology or medicine involves an intervention, the CHRB sets forth the conditions under which such an application is considered lawful. Needless to say, these conditions are stricter in cases of intervention, and consent is deemed to be the most important safeguard in such cases, although the person is, of course, not consenting to the application of biology or medicine but to interference with bodily integrity.[467] On the other hand, the CHRB has very little to say about the conditions for applying biology or medicine without intervention – the general rule of the primacy of the human being (Article 2) seems to be the only rule in cases of non-interventional applications of biology or medicine.[468] Consent is certainly not required under the CHRB if there is no intervention during the course of research. This statement is in keeping with the scope of the CHRB which, according to its title and first Article, encompasses the protection of human beings with respect to the application of biology and medicine. These applications in turn include preventive, diagnostic, therapeutic and research applications,[469] but only insofar as medicine and biology are literally used on human beings. Epidemiological research conducted only on data without applying medicine or biology to collect the data falls outside the scope of the CHRB. By not accepting this interpretation, one has to conclude that epidemiological research can only be conducted if the informed consent of each and every participant is obtained since, as will be explored below in greater detail, the consent requirement for research is not subject to any exceptions under the CHRB.

Intervention has relevance also in the context of the form of consent required. Under Article 5, any intervention in the health field must be accompanied with a consent, which must be prior, freely given and informed. In order to protect research subjects' freedom, Article 16 (v) adds the further requirement of express, specific and documented consent. According to the explanatory report, the notion of "specific consent" must be understood as authorisation "given to one particular *intervention* carried out in the framework of research" [emphasis added].[470] Thus, in both cases (treatment and research) an intervention is lawful only if it is based on informed consent. The only difference between these consent standards is that consent to treatment can be implicit, oral and given for unlimited interventions,

[467] Such conclusion is affirmed by other Articles of the Convention which all address consent only in context of intervention (see Articles 5, 6, 8, 9, 16, 17, 19 and 20).
[468] Other rules, such as non-discrimination, are applicable only in certain fields of biology and medicine (see Article 11 which relates only to genetics) or deal solely with the aftermath of application, such as protection of private life and the right to information (Article 10), or further use of tissue (Article 22).
[469] Section 10 of the Explanatory Report to the Convention.
[470] See section 102 of the Explanatory Report. This wording of the Explanatory Report is a bit misleading since in practice, consent is obtained for all interventions during a research project and not for each and every intervention. Thus, the consent is research project and not research intervention specific.

whereas research always requires express written consent limited to one particular intervention. The basis for such a regulation is the principle of the primacy of human beings (Article 2), which does not allow people to donate themselves to science without specifying the details of research. Article 2 is not violated, however, if a person "donates" himself to treatment. This concept is further strengthened by Article 26 of the CHRB, which prohibits Member States from adopting exemptions to the specific consent rule on any basis (whether waiver, the public interest, or the like), whereas restrictions pertaining to the consent requirement for health care purposes set forth in Article 5 are legitimate provided that they meet the requirements set forth in Article 26 (1). The corollary is that consent to an intervention, the purpose of which or risk inherent in which is unknown or not disclosed to the research participant, is not a valid consent for research, but might constitute a valid or waived consent for therapeutic interventions. However, the latter conclusion does not in any way limit the research that may be carried out on the biological samples and data in population genetic databases, given that such research does not include an intervention. An intervention occurs only at the moment that tissue and data are collected, and to what extent the consenter must be informed of possible further uses is a question of the disclosure standard.

Interestingly, the amount of information to be given to people does not depend on whether they are undergoing treatment or research, given that the disclosure standard applicable to both cases is described in Article 5 using the words "appropriate information as to the purpose and nature of the intervention as well as on its consequences and risks".[471] The only additional information that must be given to research participants as compared to ordinary patients relates to the research participants' rights and the safeguards set forth in law (Article 16 iv). This failure to impose a more extensive disclosure standard for cases involving research can possibly be explained by the other safeguards present in the CHRB. One of these safeguards is the requirement of specific, written, express consent, which forces the researcher and the individual to take the time to pay attention to the consent process. The other set of safeguards is outlined in Article 16, and requires the approval of an ethics committee, a lack of alternatives, and proportionality between the risks and benefits. Nevertheless, this explanation does not change the fact that under the CHRB, the disclosure standard for consent, which justifies interference with bodily integrity, is the same for the fields of treatment and research. Thus, the failure to require that all risks related to therapeutic intervention be disclosed means that the person does not have to be aware of all risks related to a research intervention either.

[471] This is confirmed also by section 35 of the Explanatory Report. "In order for their consent to be valid the persons in question must have been informed about the relevant facts regarding the *intervention* being contemplated." [emphasis added]

Another conclusion that we may draw from the CHRB's regulation of the amount and nature of information legitimising consent is that, since consent is given with respect to a specific intervention, only the nature, risks, benefits and alternatives of this specific intervention must be disclosed to the consenting person. Additional risks which may occur, for instance, during further studies are not relevant at the time of consenting to the first intervention. Of course, if further research studies in their turn include intervention, additional consent is needed and a research subject will receive information about additional risks. If no additional intervention occurs, then a person has surrendered control over his data and samples, which means that under the CHRB his specific consent is not needed in further studies. The most that the CHRB requires regarding further uses of already collected tissue is stipulated in Article 22 with the words "after appropriate information and consent procedures". Needless to say, such wording is far more relaxed than the specific consent requirement. It can therefore be concluded that the CHRB does not require specific consent for the use of collected samples, and therefore that the information to be given concerning further use at the time of collecting the samples neither has to be specific to one research protocol nor overwhelmingly comprehensive as to every possible risk.

To exemplify the CHRB's approach to consent using population genetic databases, we can conclude that written, specific and express consent is needed to take blood from research participants, but not for subsequent research conducted on the blood. And even if we consider the further uses to be so important that the person must be informed of the risks associated with them, we must acknowledge that only appropriate, rather than total, information on the risks must be given. Thus, should the risks associated with population genetic databases not be too significant, it can be considered appropriate to give only an overview of these risks rather than detailed information about them. This means that even if all of the risks are not known, valid informed consent can nonetheless be obtained under the CHRB, and therefore open consent is in accordance with the CHRB.

4.2.2 Additional Documents to the Convention on Human Rights and Biomedicine

In the additional documents to the CHRB, the CoE has recognised that the differentiation between interventional and non-interventional research fails to regulate some situations in a satisfactory manner, and has therefore introduced an additional criterion – the purpose of the intervention.

The scope of the Biomedical Research Protocol is defined unambiguously in Article 2 through the use of the term "intervention": "This Protocol covers the full range of research activities in the health field involving interventions on human beings." As intervention is

central to the Protocol, Article 2 (3) contains a legal definition of the term, which states that an intervention involves a physical intervention and any other intervention that involves a risk to the psychological health of the person concerned. With respect to psychological harm, section 17 of the explanatory report to the Protocol states that slight and temporary emotional distress are not regarded as psychological harm.[472] Thus, the purpose of this Protocol is to protect research participants during the first step in research; that is, to protect them from the risks related to intervention, defined to include touching as well as evoking chemical, physical or psychological changes or influencing people by other means. With all such forms of intervention, the researcher must be in physical contact with the person subject to the intervention, and a research protocol applies to the research to be carried out on the tissue obtained through intervention. Therefore, although the Biomedical Research Protocol states that it relates to all research activities, it in fact does not cover either interventions conducted for the purpose of collecting biological material for biobanking, or research conducted only on previously collected tissue and data.

The Biobanking Recommendation aims to eliminate this lacuna and contribute to the protection of human rights and dignity with respect to the application of medicine and biology where such applications contain risks not related to intervention. According to the scope of the Biobanking Recommendation (Article 2 (1)), the Recommendation only applies in cases where research uses biological materials of human origin which have been (i) removed to be stored for research purposes, including the intervention itself; or (ii) initially obtained for another purpose. To put it differently, the first alternative refers to population genetic databases that are established for research purposes, and the second addresses the further use of already collected biological material. Thus, the distinction between the Biobanking Recommendation on the one hand and the Biomedical Research Protocol on the other lies in whether or not the intervention was carried out with the purpose of obtaining biological material for carrying out a particular research project.[473] If so, then the Biomedical Research Protocol applies to that research project. In all other cases, including the case of population genetic databases, the Biobanking Recommendation applies.

The conclusion drawn above leads us to examine what kind of consent the Biobanking Recommendation considers acceptable. In Article 10 (1), the Biobanking Recommendation refers to the need to adhere to the relevant principles of the Biomedical Research Protocol when materials are removed for future research. One of these relevant principles might be the consent requirement set forth in Article 14 of the Biomedical Research Protocol. Article 14

[472] Available http://conventions.coe.int/Treaty/EN/Reports/Html/195.htm
[473] Peteris Zilgalvis. Research on Organs, Cells and Tissues. - Frontiers of European Health Law. Yearbook 2002. Andre den Exter, Judit Sandor (ed). Erasmus University Press, 2003. P 64.

(1) of the Biomedical Research Protocol requires the informed, free, express, specific and documented consent of the research participant. Given that specific consent in its traditional sense cannot be obtained where no research protocol has been drafted, one logical conclusion we may draw is that the principle of specific consent is not a relevant principle within the meaning of Article 10 (1) of the Biobanking Recommendation, and therefore that no specific consent is required for population genetic databases. Another interpretation that helps to resolve the problem redefines the understanding of specific consent in accordance with the ideas set forth in Article 11 (3) of the Biobanking Recommendation. According to this Article, information given to the consenting person and the consent itself must be as specific as possible with regard to any foreseen research uses. If the foreseen research uses are only general, then only general information can be given and, in that case, the general information is considered to be as specific as possible and it legitimises the consent. Thus, no matter which interpretation one prefers, in both cases one arrives at the conclusion that under the additional documents appended to the CHRB, open consent is a perfectly valid form of consent for population genetic databases.

4.3 DIFFERENT JURISDICTIONS

The following comparative analysis of different jurisdictions deals mainly with the requirements of consent to therapeutic interventions. There are several reasons for this. First, as noted in the historical part of this dissertation, consent first emerged in the therapeutic context, and the term "informed consent" that is used in the CHRB derives from U.S. court cases pertaining to consent for treatment. The second reason has to do with the fact that there is no statutory law in the UK that specifically and comprehensively addresses scientific research, and thus the common law principles developed for consent in the therapeutic context also inform the concept of consent for research purposes. Moreover, there is also no such “research” law in Germany. And finally, the justification for analysing consent to treatment derives from the CHRB which, as one might recall, does not set forth distinct disclosure standards for therapeutic and research interventions.

4.3.1 German (civil) law

The concept of *aufgeklärte Einwilligung* (informed consent) is probably one of the most extensively explored topics in German penal law, due to a more than century-old

controversy between the case law and the approaches taken by scholars.[474] In 1894, the *Reichsgericht*, the highest German Federal Court at the time, ruled that every medical intervention meets the criteria for a crime that causes bodily injury (*Körperverletzung*), and therefore every medical intervention must be accompanied by a justification for not finding the doctor guilty of causing bodily injury.[475] The most relevant of the possible grounds for justification is the consent of the injured person. This is the approach followed by the *Bundesgerichtshof*, which bases its rulings on the concept of the right to bodily integrity set forth in Article 2 (2) of the German *Grundgesetz*.[476] To afford effective protection to this basic right, every medical intervention is deemed to be both the crime (Article 223 Penal Code) and the tort (Article 823 (1) Civil Code)[477] of causing bodily injury.

The approach of the courts described above has been vigorously but unsuccessfully attacked by legal scholars for over a century. These scholars maintain that successful treatment,[478] treatment that does not result in substantial losses to the patient,[479] or treatment that has been carried out according to professional standards[480] is *per se* acceptable and cannot amount to an act of causing bodily injury.[481] The critics argue that both the crime and the tort of bodily injury were designed to protect the physical body only, and not bodily autonomy. Therefore, the argument goes, if there are no adverse consequences for the body, a mere violation of autonomy should not be viewed as an act of causing bodily injury.

Medical law, especially German malpractice law, is purely court-made case law. Given that the right to bodily integrity belongs to each and every human being and not merely to the average human being, the German courts apply the standard of the subjective patient to determine the scope of necessary disclosure.[482] The consequence of this approach has been that, in order to determine what risks should be disclosed, a doctor must turn not to the laws

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[474] Hans Joachim Hirsch. *Strafgesetzbuch. Leipziger Kommentar: Großkommentar*. Hans-Heinrich Jescheck, Wolfgang Ruß, Günther Willms (ed). 10th ed, Berlin, New York: Springer, 1985. Comment No 6 to § 223.
[475] *Entscheidungen des Reichsgerichts in Strafsachen*, Vol 25 (1894). P 375.
[476] *Entscheidungen des Bundesgerichtshofs in Strafsachen*, Vol 11 (1961). P 111.
[477] German title *Bürgerliches Gesetzbuch*,18.08.1896. - *Reichsgesetzblatt* 1896. P 195.
[478] Werner Hardwig. *Betrachtungen zur Frage des Heileingriffes. – Goldammers Archiv für Strafrecht*, 1965. P 169.
[479] Albin Eser. *Strafgesetzbuch: Kommentar*. Adolf Schönke, Horst Schröder. 25th ed, München: Beck, 1997, Comment No 31 to § 223.
[480] Karl Engisch. *Ärztlicher Eingriff zu Heilzwecken und Einwilligung. Zeitschrift für die gesamte Strafrechtswissenschaft*. Vol 58 (1946). P 5.
[481] For an overview of different proposals, see: Ants Nõmper. *Arzthaftung für mangelhafte Aufklärung nach deutschem Recht de lege lata und nach estnischem Recht de lege ferenda. Magisterarbeit zur Erlangung des Grades Magister Juris der juristischen Fakultät der Georg-August-Universität Göttingen*, 2000. Unpublished thesis, the author has a copy.
[482] Antje Reumann de Fernandez. *Arsti eraõigusliku vastutuse põhimõtted Saksa õiguses*. Juridica 1998, No 3. P 121.

adopted by Parliament, but rather to the relevant case law[483] -- a situation that is not common in civil law countries.

4.3.2 English (common) law

Under English law, medical treatment administered without valid consent can be viewed from a legal perspective as the crime of battery, the tort of battery or the tort of negligence under the common law.[484]

The concept of battery is rooted in ancient German law,[485] and was initially developed to regulate fist and sword fights.[486] Under the doctrine of battery, which is common to criminal as well as tort law, any (intentional) touching of another person is prohibited unless it is justified by consent or otherwise. The requirement of *mens rea* (a blameworthy mind) as a condition for imposing criminal sanctions is the only difference between the crime of battery and the tort of battery.[487] This does not mean, however, that battery presupposes a demeanour of hostility or rudeness, and that the lack of these features in the context of medical treatment removes the basis for a battery claim.[488] The protective function of the battery doctrine is thus twofold; it protects against bodily harm, but it also protects against any kind of offensive interference, whether or not such interference is beneficial.

The standards under English law for establishing valid consent as a defence to battery are low. Consent must be real, rather than informed, which explains why there have been only a few cases in which courts have found a doctor guilty of battery. It is unlikely that battery will ever have more than trivial importance in consent cases.[489] The threshold for "real consent" is minimal; indeed, even the failure to inform the patient of substantial risks does not invalidate consent.[490] Moreover, the patient bears the burden of proving a lack of real

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[483] For instance: Erich Steffen, Wolf-Dieter Dressler. *Arzthaftungsrecht: neue Entwicklungslinien der BGH-Rechtsprechung*. Köln: RWS, 1999; Karlmann Geiβ, Hans-Peter Geiner. *Arzthaftpflichtrecht*. München: Beck, 1999.

[484] Regarding the strengths and weaknesses of English law, see: P.D.G. Skegg. English Medical Law and 'Informed Consent': An Antipodean Assessment and Alternative. – Medical Law Review, Vol 7 (1999), Issue 2. P 147-151.

[485] Hugo Tristram Engelhardt (note 146), p 264.

[486] Ian Kennedy, Andrew Grubb (note 152), section 3.03.

[487] Ian Kennedy, Andrew Grubb. Medical Law. London, Dublin (ed)inburgh: Butterworths, 2000. P 578.

[488] Ian Kennedy, Andrew Grubb (note 152), section 3.03.

[489] P.D.G. Skegg (note 484), p 143. The same is also true with respect of the United States, where the concept of battery does not play an important role in at least 49 States. See: Peter de Cruz. Comparative Health Care Law. London, Sydney: Cavendish, 2001. P 331. For a systematic overview of medical law cases concerning battery see: Andrew Hockton. The Law of Consent to Medical Treatment. London: Sweet & Maxwell, 2002. Sections 3-018 - 3-027.

[490] Numbness of limb due to intrathecal injection. See: *Chatterston v. Gerson and Another*. [1981] Q.B. 432 [1976 C. No 1138] QBD.

consent,[491] which implies that, by virtue of their profession, physicians are expected to touch their patients.

A claim that consent is invalid due to the failure to disclose information supports a cause of action for medical negligence, rather than battery: "/…/ once the patient is informed in broad terms of the nature of the procedure which is intended, and gives her consent, that consent is real, and the cause of the action on which to base a claim for failure to go into risks and implications is negligence, not trespass [battery]."[492] It is the function of the tort of negligence to ensure that social duties are properly fulfilled. A physician's duty to disclose relevant information to the patient is well established under the common law, although the legal basis for this duty remains somewhat vague in England. Under English common law, the obligation to inform patients arises out of the physician's duty to act affirmatively for the patient's benefit.[493] That is, this duty arises to a large extent out of the principle of beneficence.[494] In the United States, by contrast, such a duty arises out of the special relationship doctrine or the fiduciary relationship concept.

The content of the duty to inform was also shaped by the pragmatic cutting of the Gordon's knot rather than by unravelling it with theoretically sound arguments. Out of the three possible concepts that give content to the duty to inform -- the subjective patient standard, the reasonable patient standard and the professional, that is the good medical practice, standard -- the third concept is that which is applied by English courts, in the form of the so-called "Bolam" test.[495] This standard of disclosure reflects the views of doctors as to what the patient ought to know, rather than what the patient may actually wish to know.[496] The result of this is that the law of negligence does not produce significantly different outcomes than those that arise from the concept of battery.[497] Therefore, and based on empirical studies,[498] it has been argued that the concept of informed consent is just another

[491] Jean McHale, Marie Fox, John Murphy. Health Care Law: Text, Cases and Materials. London: Sweet & Maxwell, 1997. P 333. For a contradictive approach, see: Ian Kennedy, Andrew Grubb (note 487), p 582.
[492] *Chatterston v. Gerson and Another* (note 490), p 443.
[493] Ian Kennedy, Andrew Grubb (note 152), section 3.106.
[494] This point is tackled by Jones who argues that the starting point for consent requirement should not be the physician's duty of care but rather the patient's right to make autonomous decisions. See: Michael A. Jones. Informed Consent and Other Fairy Stories. - Medical Law Review, Vol 7 (1999), No 2. P 107.
[495] *Bolam v Friern Hospital Management Committee* [1957] 1 W.L.R. 582.
[496] Ian Kennedy. Treat Me Right. Oxford: Clarendon Press, 1988. P 214. For further criticism, see: P.D.G. Skegg (note 484), p 148; Michael A. Jones (note 494), p 124.
[497] For instance, with respect to risks, it has been ruled that the risk to damage spinal cord in the course of laminectomy and foraminectomy does not have to be disclosed to the patient. *Sidaway v Board of Governors of the Bethlem Royal Hospital et al*. [1985] A.C. 871. Theoretically, however, a patient may be sufficiently informed to rule out battery but may still bring a successful claim for negligence. See: P.D.G. Skegg (note 484), p 139.
[498] Jones was able to locate only 30 cases during the 14 years following the landmark case of Sidaway and only 11 of those cases ended successfully for the plaintiff. See: Michael A. Jones (note 494), p 121-122.

fairy tale in England.[499] Indeed, UK case law has explicitly rejected the informed consent concept on several occasions, for example by maintaining in one case that "The doctrine of "informed consent" forms no part of English law"[500] and that "/…/ English law does not accept the transatlantic concept of "informed consent" /…/".[501]

4.3.3 The United States

It is in the case law of the American courts that the notion of "informed consent" has flourished, and it is from American jurisprudence that the concept has found its way into international legal instrumentsinternational instruments.

The term "informed consent" was mentioned for the first time in the 1957 case of *Salgo v. Leland Stanford Jr. University Board of Trustees et al*.[502] Although the *Salgo* court did not explain the basis for this new notion, it was obvious that the court had respect for autonomy in mind.[503] Only three years later, in 1960, respect for autonomy in the form of abstention from overriding autonomy (the negative aspect of autonomy), was expressly mentioned as a basis for the consent requirement in the case of *Natanson v. Kline*: *"*Anglo-American law starts with the premise of thorough-going self determination. It follows that each man is considered to be master of his own body, and he may, if he be of sound mind, expressly prohibit the performance of life-saving surgery, or other medical treatment."[504]

It took an additional 12 years for the courts to begin emphasising positive obligations under the principle of respect for autonomy, *i.e.*, the need not just for consent but for informed consent. The landmark case in this respect is *Canterbury v. Spence et al* (1972), in which the court ruled: "The average patient has little or no understanding of the medical arts, and ordinarily has only his physician to whom he can look for enlightenment with which to reach an intelligent decision. From these almost axiomatic considerations springs the need, and in turn the requirement, of a reasonable divulgence by physician to patient to make such a decision possible."[505]

With respect to the standard for disclosure, U.S. case law is moving toward the reasonable patient standard.[506]

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[499] Michael A. Jones (note 494), p 130.
[500] *Sidaway v. Board of Governors of the Bethlem Royal Hospital et al*. P 517.
[501] *In Re T. (Adult: Refusal of Treatment)* [1993] Fam. 95. P 115.
[502] 154 Cal.App2d 560. P 578.
[503] "/…/ to recognize that each patient presents a separate problem, that the patient's mental and emotional condition is important and in certain cases may be crucial, and that in discussing the element of risk a certain amount of discretion must be employed consistent with the full disclosure of facts necessary to an informed consent." (note 502)
[504] 186 Kan. 393, 350, P.2d 1093. P 1104.
[505] 464 F.2d 772. P 780.
[506] J.K. Mason, R.A. McCall Smith (note 369), p 280.

4.4 CONCLUSION

Due to the utmost importance of bodily integrity and the widespread reliance on the principles of autonomy and dignity, different jurisdictions have independently developed quite similar tools for protecting physical self-determination.[507] Under English law, the importance of battery lies in reminding doctors that patients are entitled to reject proposed care,[508] a feature that we previously identified as a negative obligation deriving from the concept of autonomy. The tort of negligence, albeit in a very limited way, plays a role in shaping the amount of information to be given to a patient, *i.e.*, it affects the extent to which a physician must promote patient autonomy (a positive obligation that derives from the concept of autonomy). In Germany, the tort and the crime of *Körprverletzung* were developed by the courts as a means of addressing both aspects of autonomy simultaneously. In spite of extensive criticism from legal scholars, who argue that *Körprverletzung* was meant to be a crime against the body and not against autonomy, the case law has remained unchanged for more than 100 years, and probably will remain unchanged until the legislature introduces new tools for protecting autonomy into German law.

We learned in this chapter that even though the concept of informed consent is not of European origin, it was accepted by the Council of Europe in 1997 when it was incorporated into the most powerful international legal tool in the contemporary regulation of biomedicine. However, due to an awareness of the different approaches toward consent among European countries, the CHRB abstained from favouring one approach over another, and provided member states with considerable latitude. This has, for instance, enabled the United Kingdom and Germany to preserve their domestic approaches toward the disclosure standard (the professional standard and the subjective patient standard, respectively). Considering that even these vastly different disclosure standards are acceptable under the CHRB, one has to conclude that the CHRB recognises different concepts of informed consent, among these the open consent approach.

The CHRB itself is very intervention-centred. Intervention, in turn, is very physical integrity-centred, which justifies exploring the terms and conditions of the CHRB under the heading of "bodily integrity". However, since bodily integrity is not the main issue at stake when discussing population genetic databases, the CHRB does not completely regulate such

[507] A general overview of similarities and differences is provided by: Dieter Giesen. Civil Liability of Physicians for New Methods of Treatment and Experimentation: A Comparative Examination. - Medical Law Review, Vol 3 (1995), No 1. P 22-52.
[508] Jonathan Montgomery. Health Care Law. Oxford University Press, 2003. P 228.

databases. The CHRB certainly does not prohibit the use of tissue and data for purposes that are unknown at the time of intervention (*i.e.*, the collection of a tissue sample). The CoE has attempted to address this issue in additional documents appended to the CHRB, particularly the Biobanking Recommendation. While doing so, the CoE acknowledged the inherent conflict between the traditional specific consent approach and the needs of population genetic databases. As a result, the Biobanking instrument states that consent need not be specific, but it must be as specific as possible with regard to foreseen uses. In fact, although it uses the term "specific", the approach taken by the CoE resembles open consent more than traditional specific consent – if the foreseen uses are known only in broad terms, then this information is as specific as possible and serves as the basis for informed consent under the Biobanking Recommendation. Thus, the CoE documents do not restrict the creation of population genetic databases, nor do they forbid consent that authorises blood samples to be entered into a genetic database for use in unknown future research projects.

5 RESPECT FOR INFORMATIONAL AUTONOMY

5.1 PROTECTED VALUES AND RIGHTS

In the Age of Information, the concept of autonomy is more and more defined through access to personal information, since harm to a person can be achieved not merely through violating a person's body, but also by collecting, disclosing or using information that refers to one particular person.[509] Information about us determines what other people think of us, how they treat us and what opportunities are available for us. To be the master of one's own life, one certainly has to be the master of his personal information: "In the electronic age, those who control information about my health, wealth, ambitions and weaknesses can manipulate, if not control, my life".[510] These considerations are reflected in contemporary legislation in several ways, which presents some difficulties for the task of composing a consistent system of legal values behind the regulation of this issue. At least three different legal concepts -- privacy, confidentiality and data protection -- surround the notion of informational autonomy.

In order to offer all-inclusive protection to a person's informational autonomy, legal regulation intervenes as early as the information collection stage. Control over data collection is usually justified by the right to privacy expressed in terms of "being left alone". The second critical point occurs when information is about to be disclosed to somebody who is not aware of the information, *i.e.*, when the circle of persons that possess the information is to be widened. This set of issues is usually addressed in the legal context using the notion of a "duty of confidentiality". But in addition to being at risk due to the collection and disclosure of information, people may also suffer harm if the data is used for unauthorised purposes. In this context, the personal data protection regulation that aims to create a fair data processing environment is of decisive value. It must be noted that all three of these notions -- privacy, confidentiality and data protection -- overlap to a certain extent due to their parallel, independent development.[511] Confidentiality, which is by far the oldest of these notions, and which appeared as early as the Hippocratic Oath, addresses only the issue of disclosure of data. The notion of privacy made its first appearance in the famous article of Warren and

[509] Sheri A. Alpert. Information, Confidentiality, and Good Practice. - Ethics, Computing, and Medicine. Informatics and the Transformation of Health Care. Kenneth W. Goodman (ed). Cambridge University Press, 1998. P 79.

[510] David Feldman. Information and Privacy. - Freedom of Expression and Freedom of Information. Essays in Honour of Sir David Williams. Jack Beatson, Yvonne Cripps (ed). Oxford University Press, 2000. P 299.

[511] For instance, the right to privacy is also violated by a failure to comply with the duty of confidentiality. Moreover, since both the collection and disclosure of data qualify as processing of data under the data protection framework, the improper collection or disclosure of data normally constitutes a violation of data protection requirements.

Brandeis in 1890.[512] The original idea behind privacy was to limit the opportunities for third parties to collect data about a person. However, the concept developed such that it currently addresses both major sources of information gathering; *i.e.*, first-hand collection of data, and the receipt of data from third parties. However, beginning as early as the 1970s, even this evolution of the concept was not considered sufficient, and the first steps were taken toward the comprehensive regulation of all aspects of data handling.[513]

Common to all three of these notions is the understanding that, upon a data subject's consent, data may be collected, disclosed and otherwise processed. This allows us to conclude that each of these three notions is rooted in respect for informational autonomy.[514] The purpose of the following paragraphs is to elaborate upon whether open consent meets the requirements set forth in international regulations for a form of consent that justifies interference with various aspects of informational autonomy. In doing so, the dissertation concentrates on two aspects of informational autonomy – data privacy and data protection. These are the two aspects that are used to criticise and question the validity of open consent and other forms of non-specific consent. Without intending to diminish the value of confidentiality, it must be stated that this aspect of informational autonomy poses fewer problems for population genetic databases and open consent, given that open consent does not relax the standards of confidentiality.

5.2 CONSENT AND INTERFERENCE WITH DATA PRIVACY

5.2.1 The concept of data privacy and the ECHR

Every serious attempt to engage in a meaningful discussion about an issue should begin by defining the issue. However, this cannot be done with respect to privacy, which evades definition. "A host of legal scholars has failed in its attempts to find a definition of privacy which can be used for legal purposes",[515] and this dissertation is reluctant to add to this list. Instead, the author subscribes to the view that the concept of privacy is too

[512] Samuel D. Warren, Louis D. Brandeis. The Right to Privacy. - Harvard Law Review, Vol 4 (1890), No 5. P 205.
[513] The first data protection law in the world was adopted in the German Federal State of Hessen in 1970. See: David Bainbridge, Nick Platten. EC Data Protection Directive. London, Dublin (ed)inburgh: Butterworths, 1996. P 14. The first federal law came into force in Sweden in 1973. See: Peter Blume. Privacy as a Theoretical and Practical Concept. - Privacy. Eric Barendt (ed). Aldershot, Singapore, Sydney: Ashgate, 2001. P 380. An excellent historical and comparative overview of data protection legislation is presented by Simitis, see: *Kommentar zum Bundesdatenschutzgesetz*. Spiros Simitis (ed) 5. Aufl. Nomos:Baden-Baden, 2003. Einleitung. P 112-135. Regarding the relationships between protection of privacy and data protection, see: Lee A. Bygrave. The Place of Privacy in Data Protection Law. - University of New South Wales Law Journal, 2001, No 1. Available: http://www.austlii.edu.au/au/journals/UNSWLJ/2001/6.html.
[514] For succinct analyses of various objectives and scope of these notions, see: Graeme Laurie (note 313), p 246-251.
[515] Serge Gutwirth. Privacy and Information Age. Lanham: Rowman & Littlefield Publishers, 2002. P 33.

multifaceted, fluid and evolving to be subject to one uniform definition.[516] Thus, instead of accepting one of the already too numerous definitions of privacy or proposing a new one, this chapter simply concentrates on one aspect of privacy, *viz.*, data privacy.

It was during the late 1960s and early 1970s that the concept of data privacy, as distinct from other aspects of privacy, appeared.[517] The non-data related aspects of privacy can be labelled physical (or spatial) privacy – also called bodily integrity -- decisional privacy and proprietary privacy.[518] As a response to the achievements in the field of genomics, the concept of genetic privacy has recently been added to this list.[519] By the end of the 1980s, the debate over data privacy had already touched upon numerous issues, including the right to individual autonomy, to be left alone, to a private life, to control information about oneself, to limit accessibility, to maintain exclusive control over access to private realms, to minimise intrusiveness, to expect confidentiality, to enjoy solitude, to enjoy intimacy, to enjoy anonymity, to enjoy secrecy.[520] It goes without saying that the contemporary debate over data privacy is even more wide-ranging. This proves the vitality of the concept but, on the other hand, also significantly reduces its power to fix upon core values that can be accepted worldwide.

Despite the somewhat chaotic nature of the contemporary data privacy debate, Bygrave has been able to distinguish between four major strands of that debate.[521] In one strand of argument, data privacy is related above all to the control of information.[522] The popularity of this approach can be explained by the fact that it can serve as a basis for most data protection principles. Another approach to privacy emphasises the traditional non-interference context, and provides a justification for the principles of minimality and purpose-

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[516] Sonia Le Bris, Bartha Maria Knoppers. International and Comparative Concepts of Privacy. - Genetic Secrets. Protecting Privacy and Confidentiality in the Genetic Era. Mark A. Rothstein (ed). Yale University Press, 1997. P 438.

[517] Adam Warren, James Dearnley, Charles Oppenheim. Sources of Literature on Data Protection and Human Rights. - The Journal of Information, Law and Technology 2001, No 2. P 4. Available: http://elj.warwick.ac.uk/jilt/01-2/warren.html.

[518] This is only one classification proposed in the literature for developing a systematic approach towards privacy. See: Anita L. Allen. Genetic Privacy: Emerging Concepts and Values. - Genetic Secrets. Protecting Privacy and Confidentiality in the Genetic Era. Mark A. Rothstein (ed). Yale University Press, 1997. P 33. An extended list of privacy concepts with 11 entries has been proposed by Rosemary Pattenden. The Law of Professional-Client Confidentiality. Regulating the Disclosure of Confidential Personal Information. Oxford University Press, 2003. P 11.

[519] Probably the best elaborated concept of genetic privacy is offered in: Graeme Laurie (note 313).

[520] David H. Flaherty. Protecting Privacy in Surveillance Societies. University of North Caroline Press, 1989. P 8. Cited through: Fred H. Gate. Privacy in the Information Age. Washington: Brookings Institution Press, 1997. P 21-22.

[521] Lee A. Bygrave (note 513).

[522] See, for instance: James Michael. Privacy and Human Rights: An International and Comparative Study, with Special Reference to Developments in Information Technology. Paris: UNESCO Publishing, 1994. P 3. For critiques, see: Anita L. Allen. Privacy-as-Data Control: Conceptual, Practical, and Moral Limits of the Paradigm. - Connecticut Law Review, Vol 32 (2000). P 861-875.

specification.[523] These principles have also been addressed when discussing data privacy in the third context, which is as a claim for secrecy.[524] And lastly, the data privacy debate that centres around intimacy[525] has contributed to a distinction between more and less private information, which is manifested in data protection laws that impose different safeguards on "ordinary" personal data and sensitive personal data. We will see below that the ECtHR has addressed data privacy using all four of these concepts. In fact, the ECtHR has devised its own concept, which is of utmost importance for the population genetic database projects explored in this dissertation.

Protection of privacy was addressed in several international instruments both before and after the adoption of the ECHR.[526] However, none of these has really gone further than simply mentioning the concept or referring to the ECHR. For instance, Article 12 of the UDHR and Article 17 of the ICCPR state that no one shall be subjected to arbitrary interference with his privacy, whereas Article 7 of the Charter of Fundamental Rights of the European Union[527] is treated as guaranteeing the same rights as Article 8 of the ECHR. Without exaggeration, the ECHR, and in particular Article 8, is currently the principal and most authoritative international legal instrument on the protection of data privacy. Article 8 states as follows:

(1) Everyone has the right to respect for his private and family life, his home and his correspondence.

(2) There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.

To begin with, Article 8 of the ECHR contains no explicit reference to the protection of data privacy; in fact, the term “privacy” does not appear in the text of the ECHR. However, the case law that will be explored below provides explicit evidence that Article 8 of the ECHR, which protects private and family life, also encompasses the right to data privacy.

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[523] This concept is rooted in the above mentioned pioneering article of Samuel D. Warren, Louis D. Brandeis (note 512).

[524] One advocate of this approach is: Patrick Boleyn-Fitzgerald. An Egalitarian Justification of Medical Privacy. - Privacy and Health Care. James M. Humber, Robert F. Almeder (ed). Totowa: Humana Press, 2001. P 56-57.

[525] The main advocates of intimacy in the privacy debate are probably: Julie C. Inness. Privacy, Intimacy and Isolation. Oxford University Press, 1992; and Ferdinand David Schoemann. Privacy and Intimate Information. - Philosophical Dimensions of Privacy: An Anthology. Ferdinand David Schoemann (ed). Cambridge University Press, 1984. P 403-418.

[526] Official text as of 01.02.2003 available: http://www.echr.coe.int/Convention/webConvenENG.pdf.

[527] See comments to Article 7. The text of the explanations relating to the complete text of the Charter is available: http://www.europarl.eu.int/charter/pdf/04473_en.pdf.

"The Court reiterates that the protection of personal data, particularly medical data, is of fundamental importance to a person's enjoyment of his or her right to respect for private and family life as guaranteed by Article 8 of the Convention."[528] Thus, at least for purposes of this chapter, protection for data privacy amounts to protection for private life under Article 8 of the ECHR.[529] Of course, Article 8 has a far broader protective ambit;[530] indeed, the notion of "private life" is an omnibus notion, the scope of which is so broad and elusive that even "[t]he Court does not consider it possible or necessary to attempt an exhaustive definition of the notion of "private life"".[531]

In order to find Article 8 to be applicable, the Court must determine that the claim presented by the applicant could constitute an interference with the rights protected by this Article. Since the Court has been reluctant to devise an exhaustive list of possible actions that may serve as a predicate for judicial review under Article 8, we must create such a list on our own by reviewing the pronouncements of the Court in various cases, bearing in mind that this list is under constant revision. Thus far, the Court has ruled that recording,[532] storing,[533] using,[534] releasing[535] and disclosing[536] information can constitute interference under Article 8. It is quite obvious that this list of different operations carried out upon data is consistent with the CoE's Data Protection Convention, and thus it is clear that the processing activities mentioned in the Convention will be considered by the Court to be relevant in the context of Article 8. Given that every operation performed upon personal data may potentially interfere

[528] *M.S. v. Sweden*, 27.08.1997, application No 20837/92. Section 41. In the line with *Z. v. Finland*, 25.02.1997, application No 22009/93. Section 95.

[529] For instance, in the following cases, violation of data protection requirements were addressed solely from the perspective of interference with the right to private life: *Perry v. the United Kingdom*, 17.07.2003, application No 63737/00; *Peck v. the United Kingdom*, 28.01.2003, application No 44647/98. Section 59-63. In addition, the European Court of Justice has ruled that the Community's legal order should preserve Article 8 of the ECHR, as it embodies fundamental rights acknowledged by all member states and it includes a person' s right to keep his state of health secret. *X v. Commission of the European Communities*, 05.10.1994, Case C-404/92. Section 17. See also Court of First Instance: *Commission of the European Communities v Germany*, 26.01.1995, Case C-62/90. Section 23.

[530] For an excellent introductory overview of the scope of Article 8, see: Ursula Kilkelly. The Right to Respect for Private and Family Life. A Guide to the Implementation of Article 8 of the European Convention on Human Rights. Human rights handbooks, No 1. Strasbourg: Council of Europe Publishing, 2001. Available: http://www.humanrights.coe.int/aware/GB/publi/materials/945.pdf.

[531] *Niemietz v. German*, 16.12.1992, application No 13710/1988. Section 29. For the consistent position of the Court since that case, see *Pretty v. the United Kingdom*, 29.04.2002, application No 2346/02. P 34; *Peck v. the United Kingdom* (note 529), section 57; *P.G. and J.H. v. the United Kingdom*, 25.09.01, application No 44787/98. Section 56.

[532] *Murray v. the United Kingdom*, 28.10.1994, application No 14310/88. Sections 84-86.

[533] *Amann v. Switzerland*, 16.02.2000, application No 27798/95. Section 65. *Rotaru v. Romania* (note 358), section 46.

[534] *Leander v. Sweden*, 26.03.1987, application No 9248/81. Section 59.

[535] *Malone v. the United Kingdom*, 02.08.1984, application No 8691/79. Section 84.

[536] Regarding disclosure of medical data, see: *Z. v. Finland* (note 528), section 71. Regarding disclosure of CCTV footages for public, see: *Peck v. the United Kingdom* (note 529), section 59-63.

with the right to data privacy, each operation must be addressed separately while assessing justifications for that interference under Article 8 (2).[537]

Secondly, not all information about a person can fall within the scope of private life. In several cases, defendant member states have argued that the information in question did not relate to an applicant's personal life, but rather was public information. However, the ECtHR has not reinvented the wheel by trying to differentiate between private and public information, but has instead followed the approach set forth in the Data Protection Convention and held that Article 8 must be interpreted in accordance with that Convention as protecting against the misuse of any information relating to an identified or identifiable individual.[538] Thus, the litmus test for the nature of the information is the same as that established by the Data Protection Convention and, concomitantly, provided that the information qualifies as personal data under the Data Protection Convention, the ECtHR is likely to find Article 8 to be applicable.[539]

The third constraint of the ECHR is that, in general, it may assure protection only against actions by state authorities. Accordingly, the ECtHR has done little to protect against the processing of personal information by private agents.[540] This is not to say that the CoE believes people do not deserve protection against intentional violations of their data privacy by other people or private entities. Quite the contrary, the CoE has urged member states to enact legislation to address violations of privacy by private sector actors,[541] and it probably would not affect the outcome of a case in Strasbourg if the source of a violation were not a public body.[542] However, it is questionable whether bodies established under private law can be subject to obligations imposed in the ECHR. The answer to this question is probably No

[537] Most illustrative in this respect is the analysis provided by the Court in *Z v. Finland* (note 528), section 95.
[538] *Rotaru v. Romania* (note 358), section 42-44.
[539] It appears that the now-defunct Human Rights Commission, was also influenced by the principles set forth in the Convention regarding personal data, by ruling that storing of anonymous information does not give rise to applicability of Article 8 insofar as the data collector has abstained from collecting identification data and identifying data subjects. See: *Friedl v. Austria, 19.05.1994*, application No 15225/89. Section 52. See also: *X. v. the United Kingdom*, 12.10.1973, application No 5877/72. However, some deviation is also noticeable. The Court has, for instance, maintained that even simple metering (i.e. collecting information about numbers dialled and calls accepted together with the length of conversation), interferes with private life, although it is doubtful whether this could be considered processing of personal data. See: *Malone v. the United Kingdom* (note 535), section 84, and *P.G. and J.H. v. the United Kingdom*, 25.09.01, application No 44787/98. Section 42.
[540] David Feldman. The Developing Scope of Article 8 of the European Convention on Human Rights. – European Human Rights Law Review, 1997, No 3. P 272.
[541] See Resolution 1165 on the Right to privacy adopted by the Parliamentary Assembly of the Council of Europe on 26.06.1998. Available: http://assembly.coe.int/Documents/AdoptedText/ta98/ERES1165.htm 1.03.2004.
[542] Rabinder Singh. Privacy and Media: the Human Rights Bill. - Protecting Privacy. The Clifford Chance Lectures, Volume Four. Basil S. Markensis (ed). Oxford University Press, 1999. P 177. It must be added of course, that the situation is far more complicated in cases in which the alleged violation by a private person falls within the scope of some other right, for instance the rights to freedom of press, acknowledged by the Convention. For an overview, see: Charles Gray. The Bastion of Freedom of Expression - Is It Threatened by the Laws of Confidentiality, Privacy or Contempt? - Essays in Honour of Sir Brian Neill: The Quintessential Judge. Mark Saville, Richard Susskind (ed). LexisNexis Butterworths, 2003. P 198-207.

To overcome this lacuna, the ECtHR has recognised some positive obligations under Article 8. Among these is the obligation of states to create a legal environment for the protection of people from the actions of private bodies.[543] Indeed, Article 8 (1) refers to "respect for private life", which in addition to prohibiting rights violations also positively promotes those rights.[544]

Putting the considerations explored above into the context of population genetic databases, it appears that establishing and operating such a database may amount to an interference with the right to data privacy protected by Article 8 of the ECHR. Yet, given that these databases will not be created by public bodies but by entities organised under private law (for instance, by deCode Genetics, SA Eesti Geenivaramu and UK Biobank Ltd.), any prospective action against these databases cannot be founded upon a claim of interference by public bodies, but instead must rest upon the ground that the state has an obligation to protect individuals' rights from interference with private law entities under Article 8 of the ECHR. In positive action cases, an action must be asserted against the state. In principle, such an action is similar to one brought before the European Court of Justice in response to a failure to incorporate a directive into domestic law. As with the broad discretionary power afforded to states in incorporating a directive, states will certainly be granted wide latitude in incorporating the ECHR.[545] After all, a common feature of almost all human rights is their abstract nature, which suggests that they need to be repeatedly and progressively interpreted, while nonetheless keeping their core intact. In the case of informed consent, the core certainly lies in the "consent" concept, rather than in the "informed" concept.

5.2.2 The standard of consent in relation to protecting data privacy

Given that population genetic databases constitute an interference under Article 8 of the ECHR, this interference needs to be justified in order to avoid violating the ECHR. The task of this chapter is to elaborate upon one of the most common justifications, *i.e.*, consent, and in particular to address the question of whether open consent can meet the requirements of ECtHR case law with respect to consent.

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[543] Clare Ovey, Robin White. The European Convention on Human Rights. Oxford University Press, 2002. Third Edition. P 219.

[544] A groundbreaking case on this issue is *Marckx v. Belgium*, 13.06.1979, application No 6833/74. Sections 31-32. See also *Rees v. the United Kingdom*, 17.10.1986, application No 9532/81 and *Keegan v. Ireland*, 26.05.1994, application No 16969/90. Probably the most famous recent case concerning positive obligations under Article 8 is the case of Princess of Monaco: *von Hanover v. Germany*, 24.06.2004, application No 59320/00.

[545] Lee A Bygrave. Data Protection Pursuant to the Right to Privacy in Human Rights Treaties. – International Journal of Law and Information Technology, Vol 6 (1998), No 3. P 258.

Interestingly, only two ECtHR judgements have used the term "informed consent". In the case of *Z. v. Finland*,[546] the term "informed consent" was used in the context of whether or not a medical doctor can be ordered to testify at a trial. In the second case, the term was used in a concurring opinion that considered whether free and informed consent can be granted in a situation in which various means of enticement, including financial reward, have been used.[547] These rulings obviously do not enable a conclusion as to which concept of informed consent the ECtHR favours.

Rather than using the term "informed consent", the ECtHR prefers to speak simply in terms of "consent". In the case of *M.S. v. Sweden*, the ECtHR maintained in the course of assessing whether or not an interference within the meaning of Article 8 had occurred that disclosing data for purposes for which no consent was sought constitutes interference with the applicant's right to respect for private life.[548] In the *Malone* case the ECtHR similarly found that "/…/ release of /…/ information to the police without the consent of the subscriber also amounts, in the opinion of the ECtHR, to an interference with a right guaranteed by Article 8 (art. 8)."[549] Thus, consent is crucial in determining whether or not interference occurred. The ECtHR has not expressed its views as to the nature or conditions of consent, however.

It seems that, from the perspective of the EctHR, consent is just one element of a multi-faceted approach that is used to determine whether interference has occurred and, if so, whether it was justified. According to Lee A. Bygrave, this multi-faceted approach for assessing whether or not the processing of personal data constitutes an interference with Article 8 consists of the following elements: (i) the context of the data processing, (ii) the knowledge or consent of the data subject, and (iii) whether or not the processing serves the objective of making a negative assessment of the data subject.[550]

In a framework in which consent is just one of the applicable safeguards, it can be presumed that the standard for consent will not be set extremely high. First, the ECtHR does not refer to informed consent but rather merely to consent. While open consent is certainly a form of consent, some might argue that it is not informed consent. Secondly, Bygrave refers to consent and knowledge (which can be understood as presumed consent), both of which can, under certain circumstances, justify interference. Needless to say, the standard of knowledge or presumed consent is below that of open consent, which is an explicit expression of wishes. If the former form of consent is acceptable, why wouldn't the latter one be? Thirdly,

[546] *Z. v. Finland* (note 528).
[547] *Laskey, Jaggard and Brown v. the United Kingdom*, 19.02.1997; application No 21627/93, 21826/93, 21974/93. Concurring opinion of Judge Pettiti.
[548] *M.S. v. Sweden* (note 528), sections 32 and 35.
[549] *Malone v. the United Kingdom* (note 535), section 84.
[550] Lee A. Bygrave (note 545), p 259-270.

considering the other two criteria (the context of processing and the goal of processing), one can readily state that, under these criteria, processing does not pose significant risks to a person's private life. Processing in the context of a population genetic database is not carried out for purposes of making a negative assessment about a person (for instance, to exclude a person from the circle of people receiving some benefits from the state), and the context of data processing is positive – it is conducted for the benefit of public health and science, it is not done secretly, several bodies have supervisory power, etc. This all supports the conclusion that open consent can be considered consent capable of justifying interference with data privacy by population genetic databases.

Another avenue for reaching the same conclusion draws attention to the fact that a claim that population genetic databases violate Article 8 by using open consent is a so-called positive action case, as explained above. The considerably wide latitude that is granted in negative action cases is even broader in positive action cases. Thus, even if the ECtHR imposes some positive obligations on states to frame their domestic laws in a certain manner so as to protect data privacy,[551] it is unlikely that the ECtHR will find that states may not use one or another form of consent. After all, the difference between the UK disclosure standard and the one used in Germany is at least as big as the difference between the disclosure standards of traditional informed consent and open informed consent. Therefore, it has been argued that "[t]he complexity of data protection issues requires regulation of a more sophisticated kind than can be derived from the simple standards of the Convention [ECHR]."[552]

5.2.3 Conclusion -- no requirement of specific consent

Over the course of several years, the ECtHR has sought to achieve a balance between private and public interests, and has created a sophisticated, multi-faceted scheme for the protection of data privacy, though without directly naming this concept in any rulings. The main characteristics of this scheme are pointed out above, but are worth summarising once again. First, not all the interests that a data subject might have with respect to his data fall

[551] Up to the present time, the Court has obligated States to introduce laws securing to data subjects the right to have access to their personal data held by various bodies, but only to the extent that access is necessary to knowing and understanding childhood and development. The court has specifically left open the question of whether a general right to access personal data can be derived from Article 8. See: *Gaskin v. the United Kingdom*. 07.07.1989, application No 10454/83. Section 37. Confirmed by *M.G. v. the United Kingdom*, 24.09.2002, application No 39393/98. Section 27. Another positive obligation has been expressed in the *Peck v. the United Kingdom* case, in which the Court obligated the United Kingdom to introduce a law that grants an effective remedy in cases involving the unlawful violation of a person's privacy. See: *Peck v. the United Kingdom* (note 529), section 90-114.

[552] D.J.Harris, M. O'Boyle, C.Warbrick. Law of the European Convention on Human Rights. London, Dublin, Edinburgh: Butterworths, 1995. P 310.

within the scope of Article 8. Secondly, in cases concerning the disclosure of personal data, the ECtHR has confirmed that considerable latitude should be afforded to the competent national authorities in striking a fair balance between the relevant conflicting public and private interests.[553] Thirdly, the ECtHR is reluctant to impose positive obligations on member states, especially in cases where such an obligation requires member states to regulate data subjects' relationships with a body established under private law. And fourthly, with respect to consent, it appears that where a data subject has consented in any form (even legitimate expectations can be meaningful), such consent leads to a finding that there was no violation of Article 8. This also justifies the conclusion that when a state introduces the open consent concept for its population genetic database, such a step will most likely survive the test of Article 8 of the ECHR.

In addition, it should be emphasised that the data privacy concept developed by the ECtHR in the context of Article 8 tracks to a large extent the Data Protection Convention's approach, and the Convention can be used as a source for interpreting the ECHR.[554] This is confirmed not only by judgements that contain clear references to the Convention, but also by the fact that such an approach has been accepted in the literature[555] and by the members of the ECtHR themselves: "For our part, we in Strasbourg should not ignore the basic principles laid down in the Data Protection Convention in addressing ourselves to those issues which do come before us."[556] We will see below that the Data Protection Convention is far from requiring specific consent. This reinforces the author's opinion that the ECtHR would not reject the open consent concept.

5.3 CONSENT AND PROCESSING OF SENSITIVE PERSONAL DATA

Both the CoE and the EU have been active regulators in the field of personal data protection, including medical and genetic data. The main legal sources are certainly the Data Protection Convention[557] of the CoE and the EU Data Protection Directive 95/46/EC. These two legal instruments are directly linked to each other, share common objectives, and are based upon the same principles. Directive 95/46/EC, which was adopted in the aftermath of

[553] *Peck v. the United Kingdom* (note 529), section 77.
[554] *Rotaru v. Romania* (note 358), section 46; *Amann v. Switzerland* (note 533), section 70; *Z. v. Finland* (note 528), section 95.
[555] Lee A Bygrave (note 545), p 256.
[556] Rolv Ryssdal. Data Protection and the European Convention on Human Rights. - Data Protection, Human Rights and Democratic Values. Proceedings of the 13th Conference of Data Protection Commissioners. Strasbourg: Council of Europe Publishing, 1992. P 42.
[557] The Convention was the first binding international document in the field of data protection and has still remained the world's only binding instrument in this field, that is open to signature by any country. Available: http://www.coe.int/T/E/Legal_affairs/Legal_co-operation/Data_protection/Background/2Presentation.asp#TopOfPage.

the Data Protection Convention, refers to the Convention in Recital 11 as a document containing principles that need to be amplified in the Directive. Both legal instruments expressly declare the protection of privacy to be their common aim (Recitals 2 and 4 of the Convention and Recitals 2, 7-11 of the Directive). A comparison of the underlying principles expressed in Article 5 of the Convention and Article 6 of the Directive does not reveal any significant differences. Thus, the interpretation of these documents should, at least in matters of central importance, not result in different outcomes.

This conclusion is supported by the EU's willingness to accede to the Data Protection Convention, which caused the CoE to amend the Convention to enable the EU's accession.[558] And, more recently, Article 8 of the Charter of Fundamental Rights of the EU, which establishes the right to protection of personal data, was drafted with both Directive 95/46/EC and the Data Protection Convention specifically in mind.[559] Given that the Data Protection Convention and Directive 95/46/EC share underlying principles, and taking into account that the Directive is far more comprehensive, provides more detailed rules, and is 14 years "younger", references to the Convention have been made below only where the Directive is not succinct enough and further guidance as to the interpretation of the Directive is required.[560]

In addition to these two fundamental legal instruments, there are a number of CoE recommendations that set forth data processing rules related to personal data of a particularly sensitive nature. Even though these recommendations are not additional protocols to a convention, there is no reason to treat these recommendations as inconsistent with the Convention or Directive. In fact, Recommendation No R(97)5[561], which is the central recommendation in the field of automatic processing of medical data, was, for instance, drafted in close cooperation with the CoE and the EU data protection authorities, and it incorporates "substantive provisions of the Data Protection Convention, the Biomedicine Convention and the EU Directive on which an international consensus exists."[562] Therefore, a

[558] On 15.06.1999, the CoE adopted the Additional Protocol to the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data regarding supervisory authorities and transborder data flows (ETS No 181), thus allowing the European Communities to accede. Given that entry into force of the amendments requires ratification by all Member States of the CoE, the EC has not yet been able to accede to the Convention.

[559] See Explanatory Report to the Charter. Comments to Article 8. Available: http://www.europarl.eu.int/charter/pdf/04473_en.pdf.

[560] The explanatory report to the Convention is also of some importance although the disclaimer provided in the beginning of it emphasises that it does not "constitute an instrument providing an authoritative interpretation of the text of the Convention". Still, the explanatory report is the most authoritative document for interpreting the Convention.

[561] Recommendation No R (97) 5 of the Committee of Ministers to Member States on the Protection of Medical Data. Available: http://cm.coe.int/ta/rec/1997/97r5.html.

[562] Council of Europe. Steering Committee on Bioethics (CDBI). Document No CDBI-CO-GT2 (99) 7, dated 24.02.1999. Section 4.2.

regulation set forth in a recommendation should be an authoritative source for interpreting the norms of the Directive, and it will be used for this purpose below.

5.3.1 The concept of processing sensitive personal data

The underlying idea of Directive 95/46/EC with respect to sensitive personal data is that the best sensitive personal data are those that do not exist or at least are not processed. Article 8 (1) of Directive 95/46/EC contains a general ban on processing any kind of sensitive personal information. It states: "Member States shall prohibit the processing of personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, trade-union membership, and the processing of data concerning health or sex life." Data that will be pooled together into a population genetic database certainly falls into the category of sensitive personal data. Furthermore, given that processing encompasses almost anything that could be done with data, it is obvious that population genetic databases process sensitive personal information. Against this backdrop, the question that must be answered is that of how a population genetic database can be established in a country that is bound to meet the requirements of Directive 95/46/EC.

An unlimited ban on the processing of sensitive personal data is not an ideal toward which we should aim, nor a solution that could work in practice. Therefore, Directive 95/46/EC contains a list of exceptions to the ban on the processing of personal information. For purposes of this dissertation, the consent exception is the most important one. The principle of a data subject's consent has been viewed as one of the main data protection safeguards throughout the history of data protection, and therefore it is not surprising that consent is one of the cornerstones of the Directive. Quite often, consent is considered to be *the* justification for processing sensitive personal data, although Directive 95/46/EC does not distinguish between more and less important justifications.[563] The purpose of the following paragraphs is consequently to examine makes consent valid for purposes of processing personal data.

5.3.2 The standard of consent for processing sensitive personal data

In order to be valid, consent obtained from the data subject must be given freely, be specific and be an informed indication of wishes (Article 2(h) of Directive 95/46/EC). Acknowledging the need for more stringent protection of certain categories of data, Directive 95/46/EC provides that consent for processing personal data must be given unambiguously

[563] Nevertheless, it has been argued, unconvincingly in my opinion, that consent should take priority over other exemptions. See: David M.R. Townend. Who Owns Genetic Information? - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003. P 131-132.

(Article 7(a)), and in cases of sensitive personal data, consent must also be explicit (Article 8.2(a)).

5.3.2.1 The requirement of "freely given, specific and informed consent"

These three notions, *i.e.*, freely given, specific, and informed, form the so-called "basic" consent for data processing. We will analyse only the last two notions, since these are more relevant for purposes of this thesis. This does not mean that the requirement of freely given consent is less important than the other ones. To the contrary, it can even be considered the most important requirement, since forced or induced consent is an unsupportable violation of modern European values.[564]

Due to an absence of additional guidelines in the Directive, probably the most ambiguous of these three requirements is the requirement that consent be "specific". The Directive says nothing more and nothing less than that consent must be a specific indication of wishes. One way to resolve this puzzle is to consider the other contexts in which the notion of "specific" has been used in the Directive. The second data protection principle expressed in Article 6 (1) b) permits the collection of personal data only for "specified purposes", and prohibits the processing of data for purposes incompatible with these specified purposes.[565] With some reluctance, we may conclude that specific consent is consent that specifies the purposes for the processing of personal data. If we understand specific consent in this way, the notion of "specific" corresponds to the purpose specification principle of Article 6 (1) b) and ensures that the purpose is not only specified and known for the data processor, but also made known to and accepted by the data subject.

Now, a harder question to answer is that of how specific a specific consent must be. To put it differently, is it necessary for the data processor to know from the beginning all the details of data processing, including the very narrow task for which processing is conducted, or can we take a more flexible approach that permits the purpose to be defined with reference to the more general goals of processing, *i.e.*, for scientific purposes, for commercial purposes, etc. On this point, Blume correctly draws our attention to the fact that the principle of purpose specification is not worded in a positive but rather in a negative manner ("shall not be incompatible"), which is "less restrictive and opens up the possibility of more flexible data

[564] For instance in Estonia, to ensure that the gene donor's consent is "freely given" as required by Articles 9 (1) and (2) of the HGRA, Article 140 of the Penal Code provides for imprisonment for up to one year for inducing a person to consent to participate in genetic research. At the same time, the Penal Code does not impose sanctions in cases where consent is uninformed or not specific.

[565] Member States shall provide that personal data must be collected for specified, explicit and legitimate purposes and not be further processed in a way that is incompatible with those purposes. Further processing of data for historical, statistical or scientific purposes will not be considered incompatible provided that Member States provide appropriate safeguards.

use."[566] However, the latter approach cannot be too flexible, since overwhelmingly general statements about the use of the data would be contrary to the common understanding of specific consent.[567] Upon answering the question posed in the beginning of this paragraph, it appears wise to distinguish between the Directive and the CoE's recommendations, although, as we will see, they lead us to the same result.

Under the Directive, a strict interpretation of Article 6 (1) b) may suggest that all further possible uses of the data must be known at the time of data collection -- no personal data may be collected if their specific use is unknown. To soften the implications of such a strict rule, Article 6 (1) b) adds that the further processing of data for historical, statistical or scientific purposes shall not be considered incompatible provided that appropriate safeguards are in place. Note that this exemption does not broaden the legitimate grounds for initial collection of the data, but only provides additional grounds for processing the data once they have been legitimately collected, *i.e.*, for a certain purpose. Thus, given that the creation of a population genetic database is never an aim in itself but only serves as a means for research, data collection would be legitimate only if people were provided with the details of all contemplated research projects. Obviously, such a requirement cannot be fulfilled, and no population genetic database that is based on consent rather than on other exceptions to the ban on processing could be established, should this be the correct interpretation of Directive 95/46/EC.

It seems, therefore, that to avoid such an outcome, the notion of "specific purpose" in Article 6 (1) (b) of the Directive must be interpreted in a more open way. Indeed, the Directive has been interpreted in a liberal manner at least with respect to direct marketing. It is common practice to request clients' consent to the use of their personal data for direct marketing without specifying the details of such marketing (for instance, what kind of offers client may receive, from whom, for how long, etc.). Thus, if the collection of personal data is allowed for direct marketing in general, it should also be allowed for medical research in general. Although the direct marketing example, which in most cases concerns only "ordinary data", may be considered to have little in common with research involving sensitive data, this counterargument is not supported by the Directive. The level of specificity of consent for the processing of sensitive or ordinary data is the same; *i.e.*, in both cases, the consent has to be specific. It would seem to make more sense to argue that the notion of "specific purpose" relates to general purposes such as medical research, direct marketing, fulfilment of an

[566] Peter Blume. Protection of Informational Privacy. Copenhagen: DJOF Publishing, 2002. P 33.
[567] Rosemary Jay, Angus Hamilton. Data Protection: Law and Practice. Sweet & Maxwell, 1999. Section 2-26. However, they maintain that consent is specific enough if it specifies the particular type of activity which the processing is intended to support, e.g. marketing.

agreement, etc., and not necessarily to subcategories within these general purposes. Thus, consent could be sector-specific and not purely project-specific.

This understanding of sector-specific consent is reflected in the recommendations issued by the CoE. Under Article 4.3 of Recommendation No R 81 (1), the data subject must be informed of the intended uses of the data before the data is collected. Pursuant to the explanatory memorandum, this requirement is fulfilled if information concerning the general purposes for this use, such as research, hospital records, etc., is given to the data subject.[568] In Recommendation No R 83 (10), the CoE takes this one step further by reaffirming the sectoral separation,[569] but also introduces restrictions on the use of data collected for one research project in connection with another research project that is substantially different in its nature or aims (Articles 4.1 and 4.2).[570] Such an approach is repeated in Recommendation No R (97) 5. Since data in the research databases are not collected for one specific research project, the issue of whether another research project is substantially different from the initial one does not arise. Thus, the question that one must ask is whether requesting consent not for a specific research project but for research in general is allowed.

Nothing in the recommendations mentioned above requires limiting consent to one specific research project. Indeed, the explanatory report to Recommendation 97(5) makes several general statements of a sectoral nature as to the purpose for data collection and processing, and states explicitly that: "Consent may be given for a clearly defined purpose, or the communication may be made for several purposes at once, *for example for medical research in general*." [emphasis added] (section 150). A similar approach has been adopted in situations involving medical research on personal data with the statement that informed consent can be for one "/…/ particular project, *or, at least, for the purposes of medical research.*" [emphasis added].[571] In sum, the CoE instruments do not necessarily require that a specific research protocol be in place as a precondition for consent to data collection and processing.

Having established that there is no explicit requirement of project-specific consent for research either in Directive 95/46/EC or in the instruments of the CoE, we should next ask whether or not the notion of specific consent should be interpreted restrictively. The first argument in favour of a less restrictive interpretation is that specificity of consent is a

[568] Explanatory Memorandum to the Recommendation No R (81) 1. Available: http://www.coe.fr/DataProtection/rec/r(81)1e.htm.
[569] Section 30 of the Explanatory Report illustrates sectoral separation by stating that data collected for research purposes may not be used for treatment of the data subject without his consent.
[570] "If the second research project, for which the data were not collected, or for which consent or authorisation was not given, is substantially different from the first project, then the whole procedure defined in Chapter 12 should be followed again." See: Explanatory Report (note 568), section 214.
[571] Explanatory Report (note 568), section 201. See also sections 108 and 201 for similar regulations.

prerequisite to any consent provided for the processing of personal data, and therefore the approach that we adopt in relation to sensitive personal data must also be justified in the context of "ordinary" personal data. In the light of the text of Article 8 2 (a) of Directive 95/46/EC, the sensitivity of the data does not change anything with respect to the specificity of consent, but rather adds only the requirement of explicitness. Thus, if we maintain that a data subject is able to provide specific consent to research only in cases where the research protocol has already been adopted and approved, any kind of data collection and processing would be subject to a comparable obligation. Needless to say, nothing even remotely as specific as a research project can be required in everyday life. For instance, if a person asks for another person's e-mail address, the answer may not be given unless information about the purposes for requesting the address, the safeguards in place for protecting the security of the address, the possible risks, and the period for storing the address, etc. are explicitly disclosed to the other person. No such requirements apply in other sectors of our lives, and it would be unjust to burden research with these requirements.

Secondly, by definition, consent is an indication of *wishes* (Article 2(h) of Directive 95/46/EC). Thus, an interpretation that produces the result that only one wish of the data subject regarding the purposes is valid -- *i.e.*, the data subject may wish for the data to be processed only for one single purpose -- is too restrictive. A data subject may also have multiple wishes with respect to the goal of processing, and should be allowed to express these wishes. It would be very paternalistic to maintain that a person who is interested in promoting science and health care and trusts in the existing settings can authorise research only on a case-by-case basis.

Lastly, pursuant to the second data protection principle, data may be processed only for the purposes to which the data subject has agreed. Nevertheless, bearing in mind the value of personal data and the need for scientific research, Article 6 (1) b), accompanied by Recital 29, adds that further processing for "/.../ scientific purposes shall not be considered incompatible provided that Member States provide appropriate safeguards." This regulation recognises the intrinsic value of scientific research in modern society and assumes that data subjects' privacy is not unduly violated by scientific research. Taking this argument further, we see that essentially every time a data subject consents to the processing of personal data, he must accept that these data can be used for scientific purposes, without specifying these purposes and without his additional consent. Against this backdrop, the fight for very specific consent is hypocritical, since the data will be available to researchers in any case, provided

that appropriate safeguards are in place.[572] Instead of denying the data subject's autonomous right to provide broader consent and trying to resolve the issue using the legal fiction of compatibility, a data subject's rights are far better promoted by disclosing the real purposes for the data collection and the fact that the data will be used for further research, and allowing the data subject to make a decision based on information that is available at the time.

Let us now consider what is required under Directive 95/46/EC to transform consent into informed consent. Directive 95/46/EC contains a list of information to be given to the data subject at the time of collecting personal data. It can be presumed that the contents of this list are sufficient to meet the requirements for informed consent.[573] Therefore, consent can be regarded as informed if it is provided after the receipt of the following information provided for in Article 10:

- the identity of the controller and his representative, if any;
- the purposes of the processing for which the data are intended;
- any further information such as:
    - the recipients or categories of recipients of the data,
    - whether replies to the questions are obligatory or voluntary, as well as the possible consequences of a failure to reply,
    - the existence of the right of access to and the right to rectify the data concerning him insofar as such further information is necessary, having regard to the specific circumstances in which the data are collected, to guarantee fair processing in respect of the data subject.

Thus, Directive 95/46/EC neither limits specific consent to one research protocol nor prohibits open-ended studies. The aim of the Directive is to provide data subjects with enough basic information to enable them to assess the risks related to data processing, and then to make a decision about whether or not to allow such processing. If the research is open-ended,

[572] The Directive remains almost silent as to what safeguards are required, and leaves plenty of room for member states to interpret the Directive's regulation. The only guidance regarding the type of safeguards is that they must, in particular, exclude measures or decisions pertaining to any particular individual (Recital 28). Considering the Estonian *Geenivaramu* database, in respect of which HGRA sets forth numerous safeguards starting from IT safeguards (PET anonymisation, minimising the risk of potential indirect identification) and scientific safeguards (necessity of ethics committee's approval for each single research proposal in future), and ending with formal safeguards (basic rules are set forth in an Act), we may find that these safeguards in their entirety can be deemed appropriate and thus satisfying the requirements of Article 6 (1) b.

[573] The definition of "informed consent" under the Recommendation No R (97) 5 is satisfied by providing even less information to the data subject – "Consent is "informed" if the data subject is informed in particular of the purposes involved and the identity of the data controller." See: Explanatory Report to Recommendation No R (97) 5. Section 131. Available: http://cm.coe.int/ta/rec/1997/ExpRec(97)5.htm.

consent may also be open-ended, provided that the person has been informed of this feature of the contemplated data usage, and then given an opportunity to assess the risk.[574]

5.3.2.2 The requirement of "unambiguous and explicit consent"

Even the EU has recognised that the use of the terms "unambiguous" and "explicit" in Directive 95/46/EC is misfortunate and requires further clarification in order to achieve uniform interpretation.[575] Basically, unambiguous and explicit consent can refer to the nature of consent or to the record of consent (written form).

Thus far, different states have incorporated these terms into domestic law mainly by requiring a written form of consent.[576] This manifests a desire to achieve a clear understanding as to whether and to what the data subject consented. Another approach used by member states emphasises the need for an affirmative action on the part of the data subject, and thus excludes the possibility of presumed or implicit consent.[577] In any case, the requirement of explicit and unambiguous consent neither refers to the information to be given to a data subject nor to the scope of consent, and therefore can easily be met with open consent.

5.3.3 Conclusion -- no requirement of specific consent

The issue explored above was whether the Directive explicitly provides that data subjects' consent to the processing of sensitive personal data is invalid where the aims of processing can be described only in general terms. To put it another way, does the Directive prohibit the establishment of genetic research databases based on data subjects' consent rather than on research exemptions?

Based on the above overview of the relevant portions of the Directive, it appears that the notion of "specific consent" plays the key role. Other concepts aim to ensure that the data subject has sufficient information to give his consent (the notion of informed consent), that this consent is free from undue external influence (the notion of freely given), and that consent is clearly manifested or documented (the notions of unambiguous and explicit consent).

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[574] Use and Disclosure of Health Data. Information Commissioner, 2002 Avaialable: http://ico-cms.amaze.co.uk/DocumentUploads/use%20and%20disclosure%20of%20health%20data.pdf. P 7. However, the same document also suggests that consent to the processing of data for "health care purposes" would be too general and therefore unacceptable. Ibid, p 6.

[575] First report on the implementation of the Data Protection Directive (95/46/EC). COM(2003) 265 final. Section 4.4.2. Available: http://europa.eu.int/eur-lex/en/com/rpt/2003/com2003_0265en01.pdf.

[576] Segolene Rouille-Mirza, Jessica Wright. Comparative Study on the Implementation and Effect of Directive 95/46/EC on Data Protection in Europe: General Standards. – The Data Protection Directive and Medical Research Across Europe. Deryck Beyleveld *et al* (ed) Aldershot: Ashgate, 2004. P 152-153.

[577] Segolene Rouille-Mirza, Jessica Wright (note 576), p 152-153.

In the author's opinion, the concept of "specific consent" is not necessarily tied to one particular research project, and does not prevent giving consent to research in general, provided that other safeguards for protecting data subjects' privacy are in place. A sensible interpretation of the Directive, taking into account its purposes and the legal instruments of the CoE, furnishes us with sufficient arguments for maintaining that a data subject's consent to the processing of sensitive personal data must be specific with respect to the function that processing serves, and not with respect to each activity undertaken to fulfil that function. Rather than being research project-specific, consent under the Directive can also be research-specific as opposed to being specific to treatment, commerce, marketing, etc.

At least in Estonia and the UK, it was determined that participants' consent should be sought for data processing activities carried out with respect to the database and for subsequent research uses. We saw above that the Directive requires freely given, specific, informed, unambiguous and express consent for the processing of sensitive personal data, and that all of these requirements can be fulfilled through consent to participate in a population genetic database project, without requiring that the participant be re-contacted to request new consent for further research uses.

This chapter can therefore be summarised with the conclusion that neither the data privacy requirements under the ECHR nor the data protection requirements under Directive 95/46/EC reject the concept of open consent. On the contrary, open consent can be used in both cases as a justification for interference with the interests of the person concerned.

6 INTERNATIONAL INSTRUMENTS ON BIOMEDICAL RESEARCH

The purpose of this chapter is to provide an overview of how the most relevant international instruments that have addressed the issue of consent to biomedical research approach open consent. If there is a consensus among international instruments that specific consent should be sought separately for every research project, then there is no room for the open consent approach advocated in this dissertation. The analysis below, however, reveals almost the opposite situation: documents that endorse the specific consent requirement do not dominate, some documents even argue in favour of blanket consent, and there is certainly no unified approach to this issue on an international level.

Given the rapid proliferation of different international guidelines, any selection of particular ones among them would be arbitrary. Nevertheless, there is no room in this dissertation to address even the majority of all possible international instruments, given that by the end of 1999, more than 100 documents pertaining to bioethics already existed on an international level.[578] To avoid being totally arbitrary, this dissertation focuses on the documents whose applicability is not limited to Europe and which are not legally binding (ethical guidelines), or the direct applicability of which is significantly restricted (general human rights instruments). The choice of organizations was determined by their influence in a particular field or toward a particular group of people. It is probably universally accepted that the most authoritative international organization is the United Nations, together with its specialised agencies, the World Medical Association at the level of physicians and CIOMS at the level of researchers.

6.1 THE UNITED NATIONS AND ITS SPECIALISED AGENCIES

6.1.1 General human rights instruments

6.1.1.1 Universal Declaration of Human Rights

The Universal Declaration of Human Rights (UDHR)[579] was the first international human rights document adopted in the aftermath of World War II, and thus it was clearly influenced by the horrors of the war. Among other rights, the UDHR mentions the right not to

[578] A very useful list is provided by: Sev S. Fluss. International Guidelines on Bioethics. Informal Listing of Selected International Codes, Declarations, Guidelines, etc. on Medical Ethics/Bioethics/Health Care Ethics/Human Rights Aspects of Health. Revised Edition. Available: http://www.biol.tsukuba.ac.jp/~macer/Declarations.html.

[579] Adopted and proclaimed by General Assembly resolution 217 A (III) of 10.12.1948. Available: http://www.un.org/Overview/rights.html.

be subject to torture or to cruel, inhuman or degrading treatment (Article 5) and the right to privacy (Article 12).

Article 5 of the UDHR condemns the experimentation conducted by Nazi doctors and describes the very essence of the Nuremberg trial. As explained above in Chapter 2.1.3, despite deeming consent absolutely essential for an experiment, the majority of Nazi experiments could not have been justified at all, and therefore the issue of consent was not the central question on the agenda at the trial. Adopting this approach, Article 5 of the UDHR confirms that conduct that involves cruel, inhuman or degrading treatment is *per se* prohibited and cannot be justified by consent or by any other means. In fact, the UDHR does not mention consent at all, l*et al*one consider the specific requirements for valid consent.

Unlike the right not to be subjected to certain kinds of treatment, privacy is not an absolute right under Article 12 of the UDHR. The UDHR prohibits only arbitrary interference with privacy. Although the UDHR does not contain a list of arbitrary or non-arbitrary examples of interference, one may presume that an interference with privacy to which one has consented is not arbitrary. However, the UDHR does not specify the standards for disclosure or set forth any other requirements for a valid consent to interference with privacy.

6.1.1.2 International Covenant on Economic, Social and Cultural Rights

Acknowledging the need to constantly promote the development of human rights, the United Nations adopted the International Covenant on Economic, Social and Cultural Rights in 1966 (ICESCR).[580] The ICESCR is the first international human rights document to mention the right to self-determination (Article 1). However, given the scope of the document, the right to self-determination provides a right only to determine one's political status and to freely pursue economic, social and cultural development. It would be artificial to argue that the ICESCR establishes a basis for the self-governance of information or of one's body.

6.1.1.3 International Covenant on Civil and Political Rights

Similarly to its elder "sister", the International Covenant on Civil and Political Rights (ICCPR)[581] recognises the right to self-determination. The aspect of self-determination recognised therein is not relevant to this dissertation, however. According to Article 1, the right to self-determination gives individuals the freedom to "determine their political status

[580] Adopted by General Assembly resolution 2200A (XXI) of 16.12.1966, entry into force 3.01.1976. Available: http://www.un.org/Overview/rights.html.
[581] Adopted by General Assembly resolution 2200A (XXI) of 16.12.1966, entry into force 23.03.1976. Available: http://www.un.org/Overview/rights.html.

and freely pursue their economic, social and cultural development". The freedom to be or not to be a research subject falls outside the scope of the ICCPR.

Other Articles of the ICCPR nevertheless have some relevance in the context of this dissertation. Article 7 of the ICCPR not only addresses the right not to be subjected to cruel, inhuman or degrading treatment, but also adds that "[i]n particular, no one shall be subjected without his free consent to medical or scientific experimentation". For the first time in history, the need for a research subject's consent broke through the drafting committees and found a place in the text of an international legal document. As we know, consent continues to enjoy this position today. As it was influenced by the Nuremberg Trial, Article 7 refers only to one aspect of consent, stating that consent must be freely given. Nothing in the text of the ICCPR supports the argument that consent must be informed or specific in terms of being related to one particular scientific project.

6.1.2 UNESCO Universal Declaration on the Human Genome and Human Rights

The Universal Declaration on the Human Genome and Human Rights (UDHGHR)[582] is the first universal instrument in the field of genetics, though it is not legally binding.[583] Apart from being the first such instrument, the value of the UDHGHR resides in the balance it strikes between safeguarding respect for human rights and the need to ensure freedom of research.[584]

The informed consent principle can be found in Article 5 (b) of the UDHGHR. Article 9 adds that the principle of consent may only be restricted by law, "/…/ for compelling reasons within the bounds of public international law and the international law of human rights." Given that the UDHGHR is a universal declaration that contains principles to be followed in almost every country of the world, the thought of imposing stringent standards on the information to be given to research participants and requiring very specific consent is simply not realistic. We must constantly bear in mind that the autonomy-based approach is mainly a fruit of western thinking, and is not accepted worldwide. For instance, disclosure and consent practices in clinical setting cover the full range from non-disclosure to over-

[582] Adopted by the General Conference of UNESCO at its 29th session on 11.11.1997. Available: http://www.unesco.org/shs/human_rights/hrbc.htm 10.02.2004.
[583] It is hoped that the Declaration will be a source of international law in the future and will be used to interpret the UDHR. See: Harry Rothman. Disseminating the Principles of the Universal Declaration on the Human Genome and Human Rights. – New Genetics and Society, Vol 19 (2000), No 1. P 93.
[584] On the genesis of the Declaration, see: Roberto AndorNo Seeking Common Grounds on Genetic Issues: The UNESCO Declaration on the Human Genome. - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003. P 105-124; *Genmedizin und Recht. Rahmenbedingungen und regeleungen für Forschung, Entwicklung, Klinik, Verwaltung.* Stefan F. Winter, Hermann Fenger, Hans-Ludwig Schreiber (ed). München: Beck, 2001. P 195-198.

disclosure among different ethnic groups,[585] and a unified standard regarding consent in genetic research cannot, at least for the time being, be higher than the absolute minimum. This might ultimately be the reason why section C of the UDHGHR, which addresses the issue of research, does not mention consent at all and instead concentrates on prohibiting practices contrary to human dignity and ensuring just access to research results.

6.1.3 UNESCO International Declaration on Human Genetic Data

The International Declaration on Human Genetic Data (IDHGD) is the most recent international instrument regulating genetic research, and also by far the most comprehensive one.[586] The consent principle is present throughout the text of the IDHGD and consent is also extensively regulated. Interestingly, the IDHGD does not use the notion of "informed consent" but rather simply "consent"; the word "informed" is used as a descriptive attribute among the list of other attributes.

In Article 2 (iii) of the IDHGD, consent is defined as "any freely given specific, informed and express agreement of an individual to his or her genetic data being collected, processed, used and stored". Although the notion of "specific" is used as the first adjective to describe consent, a textual analysis of the IDHGD reveals that this concept has less importance. Despite defining the term "consent" in the general part of the IDHGD, the document emphasises aspects of the definition in almost every situation where consent is at stake. The IDHGD constantly uses the phrase "prior, free, informed and express consent" (Articles 6(d), 8(a), 14(b), 16(a), 16(b), 17(a)), and only in Article 22 does the IDHGD simply require "consent" (for cross-matching data and samples stored, for instance, for scientific purposes with those stored for clinical purposes). A systematic interpretation of the text implies that in cases where the text emphasises some aspects of consent without referring to other aspects, the general definition of consent can be treated as having been amended (*lex specialis derogat legi generali*), or at least, the elements not emphasised have very limited importance. Thus, freely given, *specific*, informed and express consent is required only for cross-linking data and samples, whereas in all other cases the required consent is prior, free, informed and express. Therefore, open consent, which most likely cannot be considered specific in the context of the IDHGD, conflicts only with Article 22 of the IDHGD. This conflict, in fact, is again a minor one, for, as explained below, the IDHGD takes a sector-specific rather than a project-specific approach, and therefore the use of samples within one

[585] On different cultural views on autonomy and consent in research, see: Ruth Macklin. Against Relativism. Cultural Diversity and the Search for Ethical Universals in Medicine. Oxford University Press, 1999. P 187 – 217.

[586] Adopted at the 20th plenary meeting of UNESCO, on October 16, 2003. Available: http://unesdoc.unesco.org/images/0013/001331/133171e.pdf#page=45.

area is not considered cross-matching. Consequently, the consent requirement of Article 22 normally does not apply to research conducted using population genetic databases.

As for the disclosure standard, Article 6 (d) of the IDHGD requires that clear, balanced, adequate and appropriate information be given to the participants regarding the purpose for which human data are being derived from biological samples, and for which they are used and stored, together with the risks and consequences related to these activities, etc. If clear, balanced, adequate and appropriate information can be given to research participants concerning the risks and consequences of population genetic databases and the research associated with these databases, participants can give their valid consent under the IDHGD to participate in these databases. A closer look into the possible risks that emerge from future research is provided in Chapter 3.3.1, with the conclusion that potential risks are not so grave as to justify limiting a person's wish to contribute to the development of medicine. Therefore, there is no reason to maintain that research subjects in population genetic databases cannot be adequately informed in accordance with the terms of the IDHGD.

Such a conclusion is supported by the fact that nothing in the IDHGD appears to limit the purpose for which the tissue and data can be collected to one scientific project that has an approved protocol at the time the data and tissue are collected. On the contrary, based on Article 16(a), we may assert that the IDHGD does not consider the use of tissue and data collected for one research project in connection with another research project to be a change of purpose. Consequently, no additional consent is needed. Article 16(a) contains a regulation which implies that new consent must be sought only in cases where the new research is incompatible with the original purpose, *i.e.*, with the purpose for which the sample was collected. In assessing incompatibility, the IDHGD appears to adopt the sector-specific approach explored in greater detail in Chapter 5.3.2.1. The wording of the IDHGD suggests that if consent was given for the purposes of one of the categories listed in Article 5 (diagnosis and health care; medical and scientific research; forensic medicine and legal proceedings; and other such purposes) only an activity that falls outside this particular area would be considered incompatible. Given that different research projects will nonetheless fall within the same category under Article 5 of the IDHGD -- namely the category of medical and scientific research, including population-based genetic studies (Article 5 paragraph ii) -- it can be argued that the use of genetic data for different research projects does not need to be accompanied by additional consent, as the new research might be found to be compatible with the previous research.

6.1.4 WHO International Guidelines on Ethical Issues in Medical Genetics and Genetic Services

The World Health Organization (WHO) is the United Nations' specialised agency for health, and aims at the attainment of the highest possible level of health for all humankind. Given that genetics is an inseparable part of modern medicine and health protection, the WHO has proposed its own ethical guidelines on how to address issues arising from the application of genetics in the health field.[587]

The proposed guidelines contain a chapter dedicated to DNA banks which expresses surprisingly liberal views on the collection and use of collected samples. The guidelines emphasise the need to allow multiple uses of samples in different and even unforeseen research projects: "A blanket informed consent that would allow [the] use of [the] sample for genetic research in general, including future as yet unspecified projects, appears to be the most efficient and economical approach, avoiding costly re-contact before each new research project."[588] Needless to say, the specific consent requirement has been completely rejected in this document. With respect to existing collections, the guidelines maintain that these collections should not be subject to new rules of consent which have been adopted or will be adopted in the future.[589] This implies that the guidelines do not require specific consent with respect to existing biobanks either.

6.2 ETHICAL GUIDELINES OF OTHER INTERNATIONAL BODIES

6.2.1 World Medical Association

6.2.1.1 Declaration of Helsinki

The Declaration of Helsinki (Declaration) is one of the most well-known instruments on medical research among physicians.[590] Despite having been updated several times,[591] the Declaration still does not specifically address issues surrounding genetic research, and has failed to provide a regulation on the use of personal data at all; in fact, the Declaration still adheres to its original concept explored above in Chapter 2.1.3. Therefore, the clauses of the

[587] WHO Proposed International Guidelines on Ethical Issues In Medical Genetics and Genetic Services, 1998. Available: http://whqlibdoc.who.int/hq/1998/WHO_HGN_GL_ETH_98.1.pdf. It is worth mentioning that these guidelines, though not yet an official document of the WHO, represent a unanimous consensus of 16 experts, including Kare Berg, Bartha Maria Knoppers and J.C.Fletcher.
[588] WHO Proposed International Guidelines (note 587), p 13.
[589] WHO Proposed International Guidelines (note 587), p 12.
[590] On drafting of the Declaration, see: Delon Human, Sev S. Fluss. The World Medical Association's Declaration of Helsinki: Historical and Contemporary Perspectives. Available: http://www.wma.net/e/ethicsunit/pdf/draft_historical_contemporary_perspectives.pdf.
[591] Lastly by the WMA General Assembly, Washington 2002.

Declaration require extensive adaptation and interpretation,[592] an exercise which has been conducted below.

The problems relating to the application of the Declaration begin in the very first Article, which provides that the Declaration is concerned with medical research involving human subjects. By the same token, research on identifiable human material or data is deemed to be research involving human subjects. However, further analysis shows that not all of the requirements that the Declaration imposes on research can be complied with, for the Declaration does not contain any exemptions based on minimum risk or impracticability. For instance, according to Article 20, participants in a research project must be informed volunteers. Article 22 specifies the content of the information to be given to an informed volunteer by stipulating the following: "[i]n any research on human beings, each potential subject must be adequately informed of the aims, methods, sources of funding, any possible conflicts of interest, institutional affiliations of the researcher, the anticipated benefits and potential risks of the study and the discomfort it may entail," and that consent must be in writing or at least documented and witnessed. This is not an exhaustive list of requirements that, for obvious reasons, could not be followed in conducting epidemiological research[593] or other types of research.[594]

To avoid conflicts between actual practice and the Declaration, the scope of the Declaration must be interpreted restrictively, *i.e.*, by maintaining that the application of the Declaration presupposes interference with a participant's bodily integrity, or by accepting the idea that if the researcher is not able to identify research subjects, research is not considered to be conducted on identifiable tissue or data, and therefore falls outside the scope of the Declaration. Given that the WMA is an umbrella body for doctors only and has no power to regulate situations in which a doctor has no contact whatsoever with research participants, both interpretations are consistent with the original idea of the Declaration – to protect research subjects from doctors conducting research. In cases where, due to a lack of intervention, there is no physical contact with research subjects and where, due to the

[592] Of the same opinion are: Caroline Trouet, Dominique Sprumont. Biobanks: Investigating in Regulation. – Baltic Yearbook of International Law, Vol 2 (2002). P 11. One of the authors of the Declaration even states that the Declaration has failed to address new biobanks. See: Povl Riis. The Helsinki Declaration 1964-2003. New Review of Bioethics, Vol 1 (2003). P 21.

[593] Further examples include the requirement of having a clinician in charge of every research project (Art. 15).

[594] For instance efficient cancer research requires collection of representative amount of cancer data, which cannot be achieved under the narrow informed consent requirement. See: Guidelines on Confidentiality in Population-Based Cancer Registration in the European Union. European Network of Cancer Registries, 2002. Section 4.9. Available: http://www.encr.com.fr/confidentiality.pdf. A real-life example to illustrate this point is the case of Germany, where, after introducing the consent requirement for cancer registration that is carried out using identifiable data, the cancer registry of Hamburg began receiving 70% less notifications. This destroyed its scientific value, and this cancer registry is no longer referred to in comparative studies. See: Chris Verity, Angus Nicoll. Consent, Confidentiality, and the Threat to Public Health Surveillance. BMJ Vol 324 (2002), 18.05.2002. P 1211.

impossibility of identifying a research subject, "informational" contact is not at stake either, it is difficult to find reasons why the Declaration should apply. Any remaining contact, if there is any, is so remote and trivial that it was certainly not under consideration while the Declaration was being drafted. After all, one should not forget that the Declaration was doctors' response to the crimes committed during World War II by their fellow doctors.

Applying this approach to population genetic database projects produces the result that the Declaration is relevant only to the first part of these projects, *viz.* to the stage of taking blood samples and processing data within a genetic database in personally identifiable form. At this stage, intervention occurs and there is little doubt that this intervention has to be carried out in accordance with the stipulations of the Declaration. On the other hand, researchers outside a genetic database can obtain access only to linked anonymised data which, from the point of view of a researcher, are similar to the anonymous data upon which epidemiological research is conducted. Given that a researcher working on linked anonymised data creates the same additional risks in relation to a research subject's rights as a researcher working on fully anonymous data, both researchers should be subject to the same requirements. The fact that the database operator is able to identify the person through linked anonymised data is completely beyond the control of the researcher, and imposing additional restrictions on the researcher would be unwarranted. Additional risks to research subjects are created by database operators and not by researchers, and therefore the activities of the former should be more stringently regulated. Researchers outside the database cannot do more harm than those working with fully anonymised data.

Since research on linked anonymised data from a genetic database neither involves interference with bodily integrity nor research on identifiable tissue or data, it should fall outside the scope of the Declaration. By the same token, research participants should be informed only of the risks inherent in taking the blood sample, since further research is not covered by the Declaration. Such an approach is supported by the fact that, for instance, patients whose data are used for epidemiological purposes are not informed of the risks accompanying such research either. It would be advisable to amend the Declaration and clearly state this principle by using, for instance, model wording proposed by Harris: "In the case of archival tissue where consent to its acquisition has already been given, further study is permissible under the same conditions of importance where anonymity and untraceability by third parties can be guaranteed."[595]

[595] John Harris (note 124), p 87.

6.2.1.2 Declaration on Ethical Considerations Regarding Health Databases

Since the Declaration of Helsinki falls short of providing contemporary regulation for genetic databases, the WMA has attempted to overcome this lacuna by adopting the Declaration on Ethical Considerations Regarding Health Databases (DECRHD).[596] Even though the DECRHD does not mention genetic data, the principles outlined in the DECRHD are also directly applicable with respect to population genetic databases. It is interesting to note that the DECRHD uses quite different language than that in the Declaration of Helsinki or in other international instruments regarding the protection of personal data. This could be one sign of recognition of the deadlock created by the conventional approach, and may indicate an attempt to address contemporary issues in contemporary language.

Probably the best example of this new language is the definition of consent, which does not use traditional notions of informed, express, specific, prior, etc., at all. According to Article 7.4, consent is "a person's voluntarily given permission for an action, based on a sound understanding of what the action involves and its likely consequences." Such a definition of consent manifests the shift from the traditional, research-centred approach toward a more patient-centred one. Indeed, instead of dividing research into several projects and justifying the use of the data for the purposes of new projects by referring to research exemptions or employing the concept of research that is not substantially different, the Declaration emphasises the need to provide an individual with a complete picture of what is likely to happen with his data after it is entered into a database.

By the same token, Article 16 of the Declaration requires only that general information on the purposes for which information may be used in a database be given to persons. To ensure the proper management of data, Article 21 imposes an absolute obligation to obtain an ethics committee's approval for research projects not envisaged at the time the data were collected, whereas the obligation to seek additional consent has clearly shifted to the background, and is deemed to be necessary only if the ethics committee so decides.

6.2.2 Council for International Organizations of Medical Sciences

The Council for International Organizations of Medical Sciences (CIOMS) is an international, non-governmental, non-profit organization established jointly by the WHO and UNESCO in 1949. It currently has 48 international member organizations and 18 national members, mainly representing national academies of sciences and medical research

[596] Adopted by the WMA General Assembly, Washington 2002. Available: http://www.wma.net/e/policy/d1.htm.

committees. This makes the CIOMS by far the most representative organization to have issued guidelines on medical research.[597]

6.2.2.1 International Ethical Guidelines for Biomedical Research Involving Human Subjects

The International Ethical Guidelines for Biomedical Research Involving Human Subjects were first adopted in 1982, but were substantially amended in 2002. As a result, the guidelines are known as the "CIOMS 2002 Guidelines".[598] The guidelines address all types of biomedical research, including research carried out on patient records or on previously removed tissue.

Article 4 begins by asserting that voluntary informed consent is needed for all biomedical research. This obligation, however, can be waived upon the approval of an ethics committee. Pursuant to the guidelines, the situations in which the consent requirement can be waived pertain to research with minimal risk, for instance research only on medical data. In fact, this corresponds exactly to situations involving the use of data and tissue from population genetic databases. With respect to such situations, the comments to Article 4 state that the "/…/ secondary uses are generally constrained by the conditions specified in the original consent".[599] This implies that the initial consent must also address further uses of tissue and data for which traditional specific informed consent cannot be obtained. Thus, it can be stated that the guidelines recognise departures from the traditional concept, and do not exclude the open consent approach.

Moreover, to ensure appropriate flexibility, the comments underscore the need to address any possible further use and to seek consent for secondary uses by determining whether or not such secondary uses will be limited to one particular type of study, and by setting forth the conditions under which research subjects' additional consent will be sought (comments to Article 4). Thus, upon consenting to the collection of data and tissue, a person should be informed as much as possible about further possible uses in order to be able to provide valid consent to further research (see also Articles 5.18 and 5.19). Even if no indication whatsoever concerning further research is given to a person, his data and tissue can still be used for research purposes provided that the use does not present more than a minimal risk. Hence, the guidelines provide for an approach that allows researchers to obtain open consent for future uses.

[597] See: http://www.cioms.ch/frame_what_is_cioms.htm.
[598] Available: http://www.cioms.ch/frame_guidelines_nov_2002.htm.
[599] See: CIOMS 2002 Guidelines.

6.2.2.2 International Guidelines for Ethical Review of Epidemiological Studies

The CIOMS International Guidelines for Ethical Review of Epidemiological Studies (also known as the CIOMS 1991 Guidelines[600]) are particularly relevant for purposes of this dissertation, since they are dedicated to epidemiological research. In the vast majority of cases, research conducted on tissue and data from a population genetic database is similar to epidemiological studies with respect to the risks for research participants. Epidemiological research falls into three subcategories (cross-sectional studies, case-control studies, and cohort studies). Common to all three of these subcategories is the fact that they present only a minimal risk to research participants.[601] Indeed, a database based on an entire population can be viewed as one large epidemiological research project, and therefore the principles governing epidemiological research can provide valuable insight into the establishment and operation of population genetic databases.

Paragraphs 1, 2 and 4 of the guidelines confront the issue of informed consent by setting forth the general principle pursuant to which informed consent is needed, and listing four situations in which a researcher can depart from this principle. These situations are where the data are accessed *ex officio*, where locating the participants is impracticable, where doing so is necessary to ensure valid research results, and where there is an awareness of the general policy of making data available for epidemiological research in identifiable form. Although the last exception can be considered somewhat similar to open consent in the sense that it informs participants on a general level, it in fact does not contain a consent element at all. After being informed of the general policy of using the data in epidemiological studies, research subjects are not asked to consent or even provided with an opportunity to opt out. In that respect, open consent respects the autonomy of people far more than any of these consent exemptions.

In cases where exceptions to the consent requirement do not apply and consent is therefore needed, the guidelines emphasise the need to have flexible rules for obtaining consent (Principle 1). This desire for flexibility is manifested, for instance, in the rules regarding informing participants. The level of information to be given to research participants about the use of their data and tissue in future epidemiological research is not high. To the contrary, this requirement can be satisfied simply by publishing public announcements, the length of which obviously cannot be compared to traditional informed consent forms, which span several pages (Principle 2). Hence, the guidelines are not driven by the goal of ensuring specific consent for every research protocol; they instead tend to aim to inform every

[600] These guidelines are currently under revision. Previous text available: http://www.cioms.ch/frame_1991_texts_of_guidelines.htm.
[601] For more information, see the introductory part of the Guidelines (note 598).

participant of the fact that it is likely that some kind of epidemiological research will be carried out on his data or tissue at some point in the future and, since the exact details of the contemplated research are not yet known, the main safeguard is the ethics committee's approval if the participant does not expressly prohibit the use of his data or tissue in further research.

6.3 CONCLUSION – NO SINGLE STANDARD

The principal conclusion to be drawn from the analysis of international instruments on biomedical research regarding the nature of consent has been encapsulated in the heading of this chapter: no single standard emerges from international instruments, but the appropriate standard must instead be actively decided upon.[602] In deciding upon such a standard, nothing in the international instruments explored above would ultimately prevent the adoption of the open consent concept or require us to preserve the specific consent concept.

The basic human rights instruments are too generally worded to be decisive in choosing between conflicting concepts. The UDHGHR fails to mention consent with respect to genome research at all. While this failure is compensated for by the International Declaration on Human Genetic Data, that Declaration includes inconsistent uses of the term "consent", and therefore supports arguments for either concept. At the level of the United Nations, only the guidelines proposed by the WHO are succinct in that respect, and maintain that consent requirements should not prohibit the use of biological samples and data for genetic research in general, including for future unspecified projects. It can be presumed that these guidelines very much support the idea of open consent that is advocated for in this dissertation.

The last weapon of the advocates of the specific consent concept has traditionally been the Declaration of Helsinki. However, it appears that these advocates have not analysed the Declaration of Helsinki in depth. At a minimum, the Declaration of Helsinki is no longer current, and requires extensive interpretation. One avenue for interpretation maintains that the Declaration is applicable only in cases where a researcher is in contact with the research subject. Being "in contact" in the context of population genetic databases means in "physical contact" (which does not occur after the task of collecting biological samples has been completed), or in "informational contact" (which does not occur by virtue of the fact that researchers are furnished only with linked anonymised data). If there is no contact, then there

[602] Ian Ellis, G. Mannion, A. Warren-Jones. Retained Human Tissues: A Molecular Genetics Goldmine or Modern Grave Robbing? A Legal Approach to Obtaining and Using Stored Human Samples. - Medicine and Law, Vol 22 (2003), No 3. P 367.

is no need for the stringent protection standard and specific consent mandated by the Declaration of Helsinki.

And finally, the CIOMS guidelines offer a well-balanced approach that recognises the value of human materials and does not impose unrealistic consent and disclosure standards.

CONCLUSIONS

Population genetic databases are children of two revolutions – the genetic revolution and the IT revolution. It has been argued that legal concepts are extremely ill-equipped to handle any kind of revolution, and that the genetic revolution will almost certainly tie lawyers up into knots.[603] And if the genetic revolution does not succeed in doing so, the IT revolution ensures that the knot is tight enough to resist being untied using conventional means. In this dissertation, population genetic databases are the knots and specific informed consent is in turn the conventional and unsuccessful means for untying the knots. This dissertation not only proves that the specific consent concept fails to produce meaningful results in the context of population genetic databases, but also simultaneously proposes a new form of informed consent that provides a solution for untying the knot without splitting it: The informed consent principle does not have to be abandoned in the era of population genetic databases. Rather a new form of informed consent should be recognized. The structure of this summary reflects that of the dissertation, and falls into three distinctive parts: the need for open consent, open consent, and a compliance assessment of open consent.

THE NEED FOR OPEN CONSENT

This dissertation began by distilling the innovations that differentiate population genetic databases from other, similar collections, and that consequently require a new approach with respect to informed consent. Some have argued that anything genetic is automatically special, and triggers the applicability of new norms. It seems, however, that the consensus is moving toward an understanding that genetic data are a type of sensitive personal data similar to medical data and, rather than introducing higher standards for the protection of genetic data, all medical data merits a unified, high level of protection. It appears that the principal innovation does not have to do with the fact that these databases contain genetic data, but rather with the way and the purposes for which these databases combine different data sets and biological materials.

With some degree of generalisation, it can be maintained that a population genetic database consists of (for example, the Estonian *Geenivaramu* project) or links together (the Icelandic Biogenetic project) a biobank (a collection of biological samples), health information (a collection of health records and information from other sources), genetic information (DNA in physical or, in the future, in digital form) and genealogical information

[603] Roger Brownsword, W.R. Cornish, Margaret Llewelyn. Human Genetics and the Law: Regulating a Revolution. Modern Law Review, Vol 61 (1998), No 5. P 593.

(pedigrees and family data). The main purpose for establishing such institutions is not to use them in clinical practice (hospital biobanks), for forensic purposes (police DNA databases) or within the framework of one research project, but rather to create a source for numerous research projects. Given that a population genetic database must satisfy the needs of various research projects, it must be comprehensive in terms of the data and tissue collected, and flexible in terms of the uses for the data and tissue. The latter aspect also requires a more flexible form of consent than the common specific consent approach. This more flexible form of consent is exactly the approach proposed in this dissertation.

Population genetic databases belong to the super-league of medical databases that is characterised by the following features. First, these databases combine various types of data (medical data, genetic data, family data, environmental data, etc.) and data carriers (tissue as a physical substance, DNA in its natural form and in electronic form, and other data in electronic form), which makes them by far the most diversified databases created thus far. Secondly, such data does not relate only to one cohort or population group (an exception is the UK Biobank), but instead aims to encompass an entire population, or at least a representative part of it. This data will therefore be more numerous and more comprehensive than in other, similar databases. Comprehensiveness in terms of the types and forms of data and the size of population databases can only be achieved if sufficient financial means are available. Population genetic databases are not cheap, and therefore many, if not all, population genetic databases contemplate seeking private sector funding at some stage. This is another novelty of these databases in the medical sector. The Icelandic and Estonian projects were established with financing only or mainly from private sources, whereas the UK Biobank will be established with a grant from the public sector. After the end of the grant, however, it is anticipated that the UK Biobank will be able to finance its activities without additional support from the public sector.

The use of solely public financing can also be considered a somewhat irresponsible approach, as there is no guarantee that the investment required to establish a population genetic database will turn out to be a profitable investment in terms of contributing to scientific research. Nevertheless, expectations are high at present, and the promises are many, beginning with improved knowledge and personalised risk assessment, and ending with new treatments and drugs. Population genetic databases are currently considered absolutely essential to introducing second stage genomics and implementing the knowledge that we have gained through cracking the genetic code and mapping the human genome.

It should be clear by now that, once they have been established and are in operation, population genetic databases will impact the entire population. These databases therefore

create the need to strike a balance between the various interests of different members of the population. The list of the primary stakeholders in population genetic databases includes, at a minimum, the participants, researchers, society and the groups between. The situation is rendered even more complex by the fact that there might be conflicting interests among a group of stakeholders: positive interests that contribute to relaxing the rules on research and negative interests that weigh in favour of preserving the *status quo*, if not making it even more conservative.

The interests of participants in population genetic database projects are twofold. On the one hand, it is in their interest that research be carried out and that new medicine or better treatment ultimately be made available, but it is also in their interest to not be treated merely as guinea pigs in the interests of science, in the light of the fact that no research is completely risk-free. The risks that a participant in a population genetic database project may face are threefold – physical, psychological and informational. The physical risks that are the most important risks in clinical trials and human experiments are the least relevant risks in the context of population genetic databases, as the only physical risk with respect to these databases is presented when biological material (a blood sample) is obtained from the participant. Psychological risks, *i.e.*, unwanted changes in thought process and emotion, are far more likely to occur when the person realises, for instance, that his data and tissue have been used in a research project the objectives of which he condemns. The significance of these risks is correspondingly lower than that of physical risks, however. It is the category of informational risks that furnishes us with the most important considerations for population genetic databases. Informational risks exist because no database is absolutely "burglar-proof", and there is always a possibility that information and tissue contained in a population genetic database will leak and be misused. The consequences of leakage can be catastrophic for a person in different spheres of his everyday life, especially with respect to family (establishing non-paternity), work (terminating an employment contract) and insurance (higher premiums or loss of insurance coverage) relationships, as well as in the legal context (establishing delinquent behaviour). However, these informational risks are not unique to population genetic databases; rather, these risks are common to all databases that contain sensitive personal data, particularly medical data. There are several means of making databases virtually burglar-proof, and there is no reason to believe that population genetic databases cannot be made as secure as necessary. Hence, if properly managed, informational risks do not prevent the revision of some principles related to the use of data, including the informed consent principle. Furthermore, one has to bear in mind that the form of consent sought does not itself render a population genetic database more secure from data leakage. Therefore, the

argument that informed consent is needed due to informational risks is to a large extent misplaced and unconvincing.

The interests of society, researchers and the groups between, *i.e.*, families, disease groups, etc., argue, in principle, for less stringent rules governing research, in order to facilitate more research with less bureaucracy and lower costs. Recognising new forms of informed consent certainly contributes to that goal. Nevertheless, it is not in the interests of society or researchers to relax the requirements excessively, as this results in a loss of trust in research, and is counterproductive. Thus, the interests of society, researchers and the groups between do not weigh in favour of abandoning the informed consent principle altogether, but rather modifying it to take into account modern challenges.

Thus far, this summary has suggested that there are some difficulties with informed consent in the context of population genetic databases, without elaborating upon this issue. To analyse these shortcomings, one must first define the dominant form of informed consent that has been used thus far: specific consent. Specific consent is a research subject's affirmative agreement to participate in a research project. The specific consent requirement was developed as a reaction to the shocking events in the Nazi concentration camps, although the Code of Nuremberg refers to voluntary consent and not to informed consent, and does so in the context of human experiments in which the researcher has direct contact with research subjects, and the research interferes with bodily integrity and poses risks to the research subject's health and/or life (thus, the original version of the Declaration of Helsinki contains the words "laboratory experiments"). Valid specific consent requires extensive disclosure of various aspects of the contemplated research; the ultimate example is probably that of clinical trials of pharmaceuticals, where the list of items to be explained to participants consists of 20 entries. These requirements can be satisfied only if the research that will be carried out has been designed and set forth in a research protocol before volunteers are asked to participate. It can be said that specific consent is research protocol-related consent and cannot be obtained in its traditional sense without a research protocol.

It is precisely because of this that specific consent cannot be used in the context of population genetic databases. As mentioned above, population genetic databases will be created not only for one but for numerous research projects. These databases have a forward-looking agenda, and will act as a resource for future research projects that have not yet been envisioned. Needless to say, there cannot be a document even remotely similar to a research protocol at the time a population genetic database is established and biological samples and data are collected from participants. Thus, if population genetic databases are considered valuable and worthy of being established, a new form of informed consent must be adopted,

or else informed consent must be abandoned altogether. The latter option is not merely a science-fiction scenario given that a large portion of medical research, especially minimal risk research in the field of epidemiology, is already carried out without consent. Although research in the context of population genetic databases might possibly be considered minimal risk research, and shares some similarities with epidemiological research – a fact that might make abandoning informed consent lucrative -- we should opt for that approach only as a last resort. Should there be other options that are more in accordance with the principles and values of bioethics without posing unreasonable obstacles to the establishment and operation of population genetic databases, one should pursue these options rather than completely abandoning informed consent.

What are the options in terms of the informed consent innovations proposed or implemented thus far? This dissertation presents a selection of four new approaches: community consent, multi-level consent, general authorisation and broad consent. These concepts overlap to some extent with each other and with open consent. Therefore, drawing clear distinctions between some of these concepts is not always possible. Nevertheless, some basic principles and a brief critique of each concept is provided below.

With regard to the Health Sector Database, Iceland chose not to furnish its citizens with the right to consent, but rather with the right to opt out from its database. Such a decision was partly justified by the extensive community debate and community support that in effect amounted to community consent. To avoid completely overriding individual interests, each Icelander has the right to opt out from the database. This form of consent is suitable for population genetic databases, but unnecessarily restricts a person's opportunity to decide whether to participate in the first place. Therefore, it should not be used as a model form of consent for population genetic databases.

The multi-level consent approach has mainly been advanced in the United States. Under this approach, every person has various options when deciding what can be done with the data and tissue collected from him. The options vary from a complete ban on any kind of research to an authorisation for only one research project or for several research projects within the same sphere of medicine (for instance cancer research), to consent to various types of research and an unlimited number of research projects on anonymised tissue and data. Provided that, other than complete refusal or full authorisation of various types of research, not all the options can be presented to the consenting person, this form of consent can also be used in the framework of population genetic databases as, in this reduced form, the multi-level consent approach is similar to open consent. For the reasons explained above, population genetic databases cannot be specific to one project, and they also must have a broader scope

than merely one area of research in order to serve as a flexible resource for research and not as just another collection of cancer data or a database that is similarly limited.

Advocates of the general authorisation approach maintain that specific consent is the only form of informed consent, and since the requirements of specific consent cannot be fulfilled by population genetic databases, these databases should employ a completely new approach with a completely new name. In fact, this completely new approach is almost identical to the open consent approach, with the main difference being in the views as to whether general authorisation is a form of informed consent (as the open consent approach maintains) or not (as the general authorisation approach maintains).

Jane Kaye has advanced an interesting and well-balanced position. She too argues that specific consent is a dead-end concept for population genetic databases, but does not believe that open consent (in her case, broad consent) fulfils the criteria for informed consent. Nevertheless, she favours broad consent at the time of collecting the data and tissue, accompanied by a system of providing the person with additional information about specific research projects and an opt-out opportunity prior to launching these projects. After the database publishes a notice on the Internet that it is contemplating issuing data and tissue for a certain research project, the person will have a limited time to opt out of this particular research project without withdrawing from the database altogether. To foster a more active role for the participants, each participant must be recontacted every 5-10 years and new consent to being included in the database must be obtained. The requirements of keeping participants informed of the activities of the population genetic database and the right to opt out (though not on a project-by-project basis but on a more general level) are also incorporated into the open consent concept, yet the open consent approach does not consider broadly-worded consent to be uninformed consent, and therefore does not agree with all the limitations proposed by Jane Kaye.

This portion of the summary can be summarized as follows. Due to the values and risks at stake, no one really argues that specific consent should be replaced with lower standards of consent, at least not with respect to medical research that does not directly benefit research subjects' health. Population genetic databases and research conducted using data and biological material from these databases have, however, different agendas and merit different forms of regulation. Several proposals have already been made to fit population genetic databases into the framework of research ethics and human rights. But contrary to the open consent approach, these proposals either do not recognise open consent as a form of informed consent (the general authorisation and broad consent theory), or are unnecessarily restrictive (community consent and multilevel consent).

OPEN CONSENT

Open consent is a research subject's affirmative agreement to participate in a population genetic database and in research projects that use tissue and data from that database, provided that the database and research endeavours adhere to certain rules. These rules or conditions of participation, which are explained to the participants at the time consent is obtained, are referred to in this dissertation as the "conditions of open consent". These conditions cover a number of areas, including independent assessment and oversight, the nature of the database holder, prohibitions against discrimination and stigmatisation, exit strategies, data protection, and the formalisation of these rules. This list is by no means exhaustive, but rather addresses only the issues of utmost importance. An exhaustive list cannot be provided due to the variations among legal regimes and database projects. It can be expected, however, that the issues contained in this list arise when designing rules for any population genetic database, and clear regulation of these issues is vital for ensuring trust in research and providing participants with security.

Population genetic databases must be subject to comprehensive, independent and continuous assessment and monitoring. It is not sufficient that research projects that apply to receive data and tissue from a population genetic database have been duly approved by an ethics committee. Each population genetic database must have its own ethics committee and an expert committee for assessing the scientific aspects of proposed projects. Only in this way may a database ensure that the data and tissue from the database are used for the purposes described to the participants, and that the database does not lose sight of its priorities. In addition, external monitoring should be carried out by public bodies in a manner commensurate with the particular competencies (data protection, insurance questions, financial issues, etc.) of each such body. An additional body should be established only if there exists a lacuna between the spheres of competence of these monitoring bodies.

Population genetic databases are not only of scientific but also of economic value. However, the primary aim of a population genetic database should not be maximising profits. This fact should be reflected by the non-profit nature of the owner of the database. A non-profit trust, company, foundation, etc. is more suitable for providing a firewall between researchers and participants, negotiating the terms of access to the database, and returning profits, should these be made at some point, to the population that has established the database. Including such a provision for handling profits is necessary, as the non-profit nature of the database owner by no means suggests that for-profit research may not be carried out using the tissue and data from the database.

Fear of discrimination and stigmatisation is commonly mentioned as the main reason for declining to participate in a population genetic database. It is therefore necessary to reiterate once again the internationally accepted ban on discrimination and stigmatisation in the context of population genetic databases. Population genetic databases that aim to include an entire population must ensure not only that participants are not discriminated against on the basis of their genetic make up, but must also take steps to ensure that no one receives either positive or negative discriminatory treatment on the basis of a decision to participate or not to participate in the database. Without doing so, freedom of participation is no longer a reality but merely a myth.

Giving consent and withdrawing it are two sides of the same coin and, as emphasised in numerous international instruments, both options must be reserved to individuals. Another similarity between consent and withdrawal of consent is that, although both are of a fundamental nature, neither is absolute. Population genetic databases can impose different restrictions on the right to withdraw or, in fact, on the consequences of withdrawal. Some databases, for instance, will not destroy data and tissue but rather render them anonymous unless the withdrawal of consent was due to unlawful conduct on the part of the database owner. In any case, different exit possibilities have to be presented to the participant at the time consent is obtained, so that the person can consider this aspect before reaching a decision with respect to participation.

One reason for using the term "population genetic database" to describe collections of tissue and data was to emphasise the fact that tissue is collected only insofar as it contains data, and not because it has value by virtue of being tissue. Thus, population genetic databases are more databases than biobanks, and must meet the highest possible standards for data protection. Participants must know the basics concerning the data protection measures employed, and must be able to trust that the database holder will do everything reasonably possible to ensure the confidentiality of the data in the database.

While we have dealt thus far with the contents of the conditions for open consent, the formal aspect of these rules is of comparable importance. It is not enough that the rules are explained to participants and set forth in the consent form, it is not enough to rely on the internal rules of the database holder, and it is not enough to refer to various laws and legislative documents – what is needed is a separate law for the population genetic database that sets forth the conditions for open consent. Admittedly, this is a very legalistic approach, but if a society has decided to legislate on the size of bananas then it is more than reckless not to regulate population genetic databases. Incorporating all the relevant conditions for open consent into one legislative act has several advantages: it sends a clear message to participants

that the highest legislative body of a state has considered these rules and found them suitable for the population (similar to community consent); the rules will be easily accessible without the need to conduct cumbersome legal research through a myriad of statutory laws and case law; and the rules cannot be amended without the participants' additional consent in a way that makes the participants significantly worse off (due to the principle of legitimate expectation).

Open consent is a form of informed consent. The notion of "informed consent" has several meanings. To deepen our understanding of informed consent, it is useful to examine informed consent as both a form of true consent and effective consent. Effective informed consent is consent that meets all the requirements set forth in legal documents or ethical guidelines. Since open consent has been incorporated into Estonian law, one can conclude that open consent is effective consent in Estonia. Nevertheless, far more important than this fact is the answer to the question of whether open consent is effective consent in the light of internationally recognised principles. We will answer this question affirmatively below, but will first consider the criteria for true informed consent.

Broadly speaking, these criteria are competence, disclosure, understanding, voluntariness and consent. The debates surrounding open consent focus on the disclosure and consent elements, for these are the areas in which open consent differs from specific consent most significantly. The disclosure element requires that a research participant receive all relevant information prior to consenting. "Relevant information" is a vague term and its content depends upon the balance we strike between paternalism and autonomy. Interestingly, adhering to the traditional concept of informed consent, which is one of the most significant fruits of autonomy, introduces paternalistic elements at the same time: the works of those who want to prevent people from consenting to unknown research projects echo paternalistic arguments. From the philosophical point of view, open consent is based largely on Mill's concept of liberal autonomy and on the idea of principled autonomy, whereas specific consent proponents usually rely on the modern works addressing autonomy and consent written by Tom L. Beauchamp, Ruth R. Faden and James F. Childress. It is obvious that one's preferences in interpreting the concept of autonomy lead to different outcomes with respect to the question of whether or not open consent is true informed consent. Each of these outcomes are both right and wrong. On the consent level, open consent has been criticised for failing to ensure that people know what they are consenting to. After all, one cannot know what he is consenting to if the initiative for which consent is sought (here, a research project) does not yet exist. But this common argument against open consent is weak given that both the information to be given to people and the consent obtained can be endlessly specified. Hence,

the idea that a research protocol delivers enough information for satisfying the true informed consent requirement is as arbitrary and as right and as wrong as any other level of information. Again, a stalemate.

Novel understandings of informed consent, including open consent, can be attacked and to some extent have been attacked on several additional grounds. It has been suggested that non-specific consent is an unacceptable precommitment to research. This is untrue, however, as limitations are imposed on the research that may be performed pursuant to open consent, and the commitment to participate is not irrevocable. It has been said that non-specific consent constitutes a waiver of specific consent – an argument that is based on the incorrect assumption that specific consent is the only form of consent that legitimises research. It has also been argued that open consent that does not compel researchers to constantly contact participants to obtain new consent reduces consent to a one-time event rather than an ongoing process. This argumentation fails to see that all population genetic databases envisage extensive information distribution programs, and if people are too often required to decide whether or not to give consent, he importance of consent diminishes, and consent is devalued. In that sense, a one-time event is not necessarily counterproductive. Empirical data has been presented in this dissertation to convince readers that the open consent approach does not take advantage of vulnerable population groups, as these groups are, in any case, less likely to participate in such projects. And finally, this dissertation does not argue that open consent should be used in any context other than population genetic databases. Thus, the slippery slope argument to the effect that all medical research will soon be carried out using non-specific consent is misplaced.

ASSESSMENT OF COMPLIANCE

In addition to establishing the need for open consent and fashioning the concept for this new form of informed consent, this dissertation promptly tested this concept against the backdrop of international legal instruments and ethical guidelines on the protection of bodily integrity and informational privacy. These are the two legal values (human rights) that are the most threatened by the creation of population genetic databases. Since they take the form of principles, human rights are subject to interpretation. One should not consider human rights to be something static, but should instead view them as a set of elusive concepts that must be constantly interpreted in order to take new developments into account. With due regard to the core principle of informed consent, which is expressed with the word “consent” rather than with the word “informed”, it is our duty to develop the concept of informed consent, and open

consent is just one aspect of the informed consent concept to be used for population genetic databases.

With respect to bodily integrity, open consent has been tested in the light of the CoE's CHRB and the additional documents appended to that Convention, as well as against the legal frameworks of three national jurisdictions. In all of the jurisdictions that were compared (Germany, the United States, English common law), consent is a defence to the unlawful touching of another person. Despite differences in disclosure standards, risks related to bodily integrity are so minor and well-known that they in no way undermine the validity of open consent as a defence to unlawful touching. The CoE's legal instruments are very physical-intervention centred, and impose few limitations on research that does not present significant threats to physical integrity. For instance, the CHRB requires "appropriate information and consent procedures" for the use of collected data and biological samples (Article 22). Given the latitude afforded to states that are parties to this Convention, open consent can be seen as an appropriate information and consent procedure for population genetic databases. This is confirmed by an additional Recommendation of the CoE, currently under preparation, concerning biobanks. According to this instrument, consent should be as specific as possible, and if it is not possible to provide information about further research projects, this does not invalidate consent.

To assess open consent against the backdrop of informational autonomy, this dissertation distinguished between the ECHR, which provides a basis for the concept of data privacy on the one hand, and data protection documents on the other. An analysis of the ECHR as it has been interpreted by legal scholars and by the ECtHR lead to the conclusion that nothing in the text of Article 8 of the ECHR or in the case law of the ECtHR supports the conclusion that specific consent is the only form of consent that justifies interfering with data privacy. On the contrary, the relevant criteria for assessing data privacy are (i) the context of data processing, (ii) the knowledge or consent of the data subject and (iii) whether or not processing serves the objective of making a negative assessment about the data subject. Needless to say, in the light of these criteria, there is much to support the conclusion that open consent possesses all the necessary elements to be considered valid consent under the ECHR.

With respect to data protection requirements, the most problematic area is assessing the degree to which the open consent concept complies with the requirement of "specific consent". However, as the dissertation reveals, specific consent in the context of data protection is not necessarily bound by one research project, and consenting to research in general is not prohibited, provided that other safeguards for protecting data subjects' privacy are in place. A sensible interpretation of Directive 95/46/EC that takes into account the

purposes of the Directive and the documents legal instruments of the CoE, particularly the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data and Recommendation R (97) 5, furnishes sufficient support for the argument that a data subject's consent to processing sensitive personal data must be specific with respect to the function that the processing serves, rather than with respect to each activity undertaken to fulfil that function. In addition to being research-project specific, consent under the data protection regulations can also be research-specific as opposed to being specific to treatment, commerce, marketing, etc.

Finally, open consent was scrutinised against the backdrop of various international instruments. The general human rights documents, the UDHR, the ICESCR and the ICCPR are silent as to the form of consent that may justify interference with the right to self-determination.

UNESCO has recently issued two Declarations in the field of human genetics, *viz.* the UDHGHR and the IDHGD. The latter document specifies that consent is "any freely given specific, informed and express agreement of an individual to his or her genetic data being collected, processed, used and stored". Although this definition contains the term "specific", which furnishes the opponents of open consent with the argument that open consent that is not specific violates the International Declaration on Human Genetic Data, such an argument is defeated by an examination of all the stipulations of the Declaration. In fact, every time the Declaration requires consent to be obtained, it also specifies what kind of consent must be obtained; only in cases involving cross-linked databases does consent have to be specific (Article 22). In all other cases, the requirements set forth with respect to consent do not include specific consent.

Another UN's agency, the WHO has expressly articulated its view that consent should be as broad as possible. Hence, consent that is even less specific than open consent would be appropriate for the WHO.

The WMA's Declaration of Helsinki has been used to convince the public that this Declaration does not allow a relaxation of consent standards, and that open consent is certainly not consistent with the Declaration. It is beyond any doubt that the Declaration of Helsinki is not current and, without careful interpretation, it fails to produce acceptable solutions for various types of research, particularly epidemiological research. Since the Declaration of Helsinki contains no exceptions to the consent requirement, specific consent proponents must accept that the Declaration of Helsinki is violated every day and probably in every European country, or else interpret the scope of the Declaration in such a way that the Declaration is applicable only in cases where a researcher is in contact with research subjects.

No matter which interpretation one prefers, the Declaration of Helsinki has unfortunately become more like a paper tiger, and is not taken seriously. In fact, in recent instruments of the WMA, for instance in the Declaration on Ethical Considerations Regarding Health Databases, the WMA itself has abandoned the strict approach embodied in the Declaration of Helsinki, and does not view consent as absolutely essential for each and every research project.

The CIOMS has also issued some useful documents that should be taken into account while assessing whether open consent is consistent with international ethical standards. In both documents, *viz.* the International Guidelines for Ethical Review of Epidemiological Studies and the International Ethical Guidelines for Biomedical Research Involving Human Subjects, the CIOMS has tried to balance the interests of research participants and science and achieved an outcome that views open consent as one possible solution.

Open consent is not a "miracle drug" that can cure all the ethical and legal problems that population genetic databases present. Every population genetic database is designed differently, exists in a different society with different values, worries and traditions, and utilises different safeguards. Hence, open consent is only one option that should be considered when designing the ethical and legal framework for one particular database.

This option was adopted in Estonia, and is recommended by several policy documents. This dissertation does not suggest that other approaches cannot be used with respect to future population genetic databases, but instead explains the underlying concept of informed consent contained in the HGRA. The intent of the drafters of the HGRA, including the author of this dissertation, was to deliver a workable compromise – being attentive to reality without unduly compromising the core of informed consent.

Although population genetic databases are children of two revolutions, there is no need for a legal revolution in order to cope with the two previous revolutions. What is needed is a broadening of our understanding of what informed consent is, where it comes from, what its limits are, and what functions it should perform in an altered environment. Thus, the principal aim of this dissertation was to describe one form of informed consent and to recognise it as one solution among others. Whether the author has succeeded in doing so is something that the readers must, of course, judge for themselves.

RESÜMEE

AVATUD NÕUSOLEK – UUT LIIKI TEAVITATUD NÕUSOLEK POPULATSIOONIPÕHISTE GEENIVARAMUTE JAOKS

I SISSEJUHATUS

Riigikogu võttis 13. detsembril 2000. a vastu Inimgeeniuuringute seaduse (RT I 2000, 104, 685). Selle seadusega loodi õiguslik alus Geenivaramu projekti läbiviimiseks. Geenivaramu projekti eesmärk on koguda ligikaudu ühe miljoni Eesti elaniku tervise- ja sugupuuandmed ning koeproovid ehk luua Eesti Geenivaramu. Kogutavaid andmeid ja koeproove kasutab Geenivaramu pidaja SA Eesti Geenivaramu Inimgeeniuuringute seaduse § 3 lg 2 kohaselt geeniuuringute arengu edendamiseks, teabe kogumiseks Eesti rahvastiku tervise ja pärilikkuse informatsiooni kohta ning rahva tervise parandamiseks.

Eesti Geenivaramu projekt ei ole maailmas ainukordne. Juba enne Eesti Geenivaramu projekti väljatöötamisele asumist 1998. a oli Islandil käivitatud deCODE Genomics eestvedamisel kogu elanikkonda hõlmava terviseandmekogu (*Health Sector Database*) projekt ning vastu võetud ka sellekohane seadus. Aastal 2000 teatati Ühendkuningriigi biopanga projekti ettevalmistustööde alustamisest. Ainukordne ei ole enam ka Inimgeeniuuringute seadus. Läti parlament võttis 13. juunil 2002. a vastu Inimgenoomi uuringute seaduse, mida võib pidada Eesti Inimgeeniuuringute seaduse kohanduseks Läti oludele. Käesoleval ajal planeerivad populatsioonipõhiste geeniandmekogude ehk geenivaramute loomist paljud Euroopa riigid ning näiteks ka Austraalia, Ameerika Ühendriigid ja Kanada.

Mitmesugustel põhjustel on geenivaramute projektid veel algfaasis. Islandi projekt sattus suure rahvusvahelise ja siseriikliku kriitika alla, mis tegi projektile etteheiteid eetilisest aspektist. SA Eesti Geenivaramu lõpetas koostöö oma senise rahastajaga ning projekti elluviimine seiskus pärast 10 000 geenidoonori[604] kaasamist. Läti geenivaramu ei ole siiani leidnud raha projekti alustamiseks ja seetõttu ei ole ka ühtegi inimest veel kaasatud. Ainsana liigub jõudsalt edasi Ühendkuningriigi biopanga projekt, millele avalik sektor eraldas 2002. a 61,5 miljonit naelsterlingit seitsmeks aastaks ja mis käesoleval aastal hakkas kaasama ka esimesi doonoreid.

[604] Mõiste geenidoonor tähendab Inimgeeniuuringute seaduse § 2 punkti 4 kohaselt inimest, kes annab seaduse alusel oma koeproovi ja kelle kohta koostatakse terviseseisundi kirjeldus ning sugupuu. Kuivõrd geenivaramu projektis osalejad lühikeses ajaperspektiivis ise mingit otsest vastutasu saamata ning riskid tervisele on identsed tavalisele vere annetamisele, võib neis projektides osalejaid nimetada pigem doonoriteks kui uuringualusteks.

Geenivaramutega ja laiemalt arengutega inimgenoomi tundmaõppimisel on kaasnenud mitmed uued eetilised ja õiguslikud probleemid. Võib väita, et inimese geenidega seonduv on käesoleval ajal bioeetika ja meditsiiniõiguse üks keskseid teemasid. Seda tõendab näiteks ka asjaolu, et nii UNESCO kui ka Euroopa Nõukogu viimased bioeetikaalased dokumendid on suunatud inimgeneetika arenguga seotud küsimuste lahendamisele. Seega on tööd, mis käsitlevad geenivaramutega seonduvaid küsimusi, rahvusvaheliselt aktuaalsed. Viimasest kaalutlusest tulenevalt on ka käesolev töö kirjutatud inglise keeles. Samas tuleb märkida, et käesoleva väitekirja aktuaalsus tuleneb ka asjaolust, et Inimgeeniuuringute seadus võeti vastu ilma märkimisväärse õigusteadusliku, eetilise ja ühiskondliku debatita. Seetõttu võib väitekirja vaadelda ka Inimgeeniuuringute seaduse aluseks võetud ühe instituudi – teavitatud nõusoleku – põhistusena.

II VÄITEKIRJA ALUSPROBLEEM

Selleks, et mõista väitekirja aluseks olevat probleemi ning väitekirja akadeemilist põhiteesi, on esmalt vajalik anda ülevaade teavitatud nõusoleku kujunemisloost ning geenivaramutes teostatavate uuringute eripärast. Pärast probleemi püstitamist on vaadeldud siiani pakutud lahendusvariante ja hinnatud nende sobilikkust geenivaramute kontekstis.

2.1 Teavitatud nõusoleku ajalooline taust ja klassikaline kontseptsioon

Reegel, et arst või teadlane peab patsiendi või uuringualuse raviks ja uurimiseks saama isiku teavitatud nõusoleku, on ligikaudu pool sajandit vana. Erinevalt teistest meditsiinieetika ja –õiguse põhimõtetest (mittekahjustamine, saladuse hoidmine jne), ei leia me patsiendi teavitamise ja tema nõusoleku saamise kohustust Hippokratese vandest ega ka keskaja meditsiini käsitletavatest dokumentidest. Ka meditsiinilisi teadusuuringuid käsitletavates teostes ei pööratud kuni 20. sajandi keskpaigani erilist tähelepanu nõusoleku küsimustele. Võib väita, et teavitatud nõusolek oli meditsiinile võõras ning see ei saanud meditsiinile omaseks mitte evolutsioonilisel, vaid revolutsioonilisel teel. Revolutsionääridеks seejuures olid juristid.

Ameerika sõjatribunal langetas 19. augustil 1947. a otsuse asjas *Ameerika Ühendriigid v. Karl Brandt et al*. Otsusega mõisteti surma seitse arsti, kes juhtisid teadusuuringute tegemist natsliku Saksamaa koonduslaagrites II Maailmasõja ajal. Otsuse üheks osaks on 10 reeglit, mille alusel kontrollida, kas tegemist on eetilise ja õiguslikult lubatava teadusuuringuga inimesel. Neid 10 reeglit nimetatakse Nürnbergi koodeksiks. Nürnbergi koodeksi esimene reegel algab järgmiste sõnadega: “Uuringualuse vabatahtlik nõusolek on absoluutselt vajalik.” Siiski oleks ebaõige pidada Nürnbergi koodeksit teavitatud nõusoleku

sünnimomendiks, kuivõrd koodeksis on viidatud vabatahtlikule, mitte aga teavitatud nõusolekule. Viimane omakorda tuleneb koonduslaagrites tehtud uuringute iseloomust – tihti olid uuringud suunatud ravimatute haiguste esilekutsumisele ja inimese füsioloogiliste taluvuspiiride kindlakstegemisele. On selge, et selliseid uuringuid ei saanud õigustada ka ükskõik kui hästi teavitatud nõusolek. Tegemist oli inimsusevastaste kuritegudega, mis pandi toime koonduslaagrites, kus vabatahtlikkusest ei saanud juttugi olla. Seega kehtestas Nürnbergi koodeks nõusoleku nõude uuringualuse elu ja tervise kaitseks.

Siiski astuti Nürnbergi koodeksi sõnastamisega suur samm teavitatud nõusoleku nõude poole. Esimest korda kasutati seda terminit (*informed consent*) Ameerika Ühendriikides 1957. aastal ning lühikese ajaga leidis teavitatud nõusolek tee nii kohtuotsustesse, eetikakoodeksitesse kui ka bioeetikaalasesse kirjandusse. Aastal 1964 võttis Maailma Arstide Organisatsioon vastu Helsingi deklaratsiooni, mis nõudis teavitatud nõusoleku küsimist ka meditsiiniliste teadusuuringute puhul.

Teavitatud nõusoleku nõude sünnimomendi teadusuuringuid iseloomustas nende läbiviimine tervishoiuteenuse osutamise raames, risk uuringualuse tervisele, uuringu seotus konkreetse uurimisprojektiga. Tüüpiliseks teadusuuringuks oli mõne uuema ravivõtte efektiivsuse võrdlus vanema meetodiga. Seetõttu ongi Helsingi deklaratsioonis kehtestatud nõue, et teadusuuringu tohib läbi viia ainult pärast seda, kui sõltumatu eetikakomitee on andnud vastava loa. Loa saamise eelduseks on detailse uuringuprojekti esitamine, mis käsitleb nii uuringu teaduslikku poolt kui ka võimalikke riske. Ilma uuringuprojektita ei tohtinud läbi viia ühtegi teadusuuringut ning ilma uuringuprojektita ei saanud olemas olla ka teavitatud nõusolekut. Teavitatud nõusolek oli seega lahutamatu konkreetsest teadusuuringust ehk projektipõhine.

Selline ongi teavitatud nõusoleku klassikaline kontseptsioon, mis on näiteks sõnastatud Euroopa Nõukogu Inimõiguse ja Biomeditsiini Konventsiooni (RT II 2002, 1, 2) artiklis 16 – inimuuringu võib teha ainult siis, kui uuringuprotokoll on heaks kiidetud ning uuringualune on pärast teavitamist uuringu otstarbest, olemusest, tagajärgedest ja riskidest andnud oma nõusoleku konkreetse juhtumi kohta.

Projektipõhist teavitatud nõusolekut peetakse siiani ainuvõimalikuks lahenduseks ka näiteks kliinilistes ravimiuuringutes (vt Direktiiv 2001/20/EC, Euroopa Ühenduse Ametlik Teataja, L 121, 01.05.2001). Direktiivi artiklis 2.j on defineeritud teavitatud nõusolekut järgmiselt: “Teavitatud nõusolek on kirjalik, dateeritud ja allkirjastatud otsus võtta osa kliinilisest ravimiuuringust, mis on vastu võetud vabatahtlikult pärast asjakohase informatsiooni saamist uuringu olemuse, tähtsuse, mõjude ja riskide kohta /.../”. Seega ei saa

isik anda nõusolekut võtta osa kliinilistest ravimiuuringutest üldiselt, vaid ainult konkreetsest kliinilisest ravimiuuringust.

2.2 Geenivaramute ja populatsiooniuuringute eripära

Geenivaramud erinevad kõikidest senistest andmekogudest ja koeproovide kollektsioonidest. Samuti erinevad traditsioonilistest teadusuuringutest need uuringud, mis viiakse läbi geenivaramutesse kogutavate andmete ja koeproovide alusel.

Geenivaramute esimene eripära seisneb andmete ja koeproovide kombineerimises. Siiani oli üldjuhul tegemist kas terviseandmete koguga või koeproovide koguga ehk biopangaga. Geenivaramutesse kogutakse aga nii andmed kui ka koeproovid. Teise erisusena võib välja tuua geenivaramute populatsioonipõhisust. Geenivaramud püüdlevad kogu populatsiooni või vähemalt populatsiooni representatiivse osa kaasamisele. Võrreldes seniste kogudega on erinev ka geenivaramute eesmärk. Kui senised kogud olid suunatud ühe ülesande täitmisele - kliinilise töö (haigla biopangad), teatud uurimisprojekti (uurija biopank) või teatud uurimisvaldkonna jaoks (vähiregister), siis geenivaramud püüavad olla universaalsed, s.t püüavad olla sobilikud väga mitmekesiseks uurimistööks ja kliiniliseks tööks. Selleks, et geenivaramu saaks teenida erinevaid eesmärke, peab geenivaramusse kogutama võimalikult palju informatsiooni, see informatsioon peab olema võimalikult täpne ning kaasajastatud ja informatsiooni kasutamiseks peab olema võimalikult vähe piiranguid. Samas ei tohi olla doonorite huvid ülemäära kahjustatud.

Geenivaramu projekt ise ei ole teadusuuring, vaid tulevaste teadusuuringute alus ja eeldus. Geenivaramud luuakse enne, kui teadlastel tekib isegi idee mõni konkreetne teadusuuring läbi viia. Seega ei ole geenivaramu loomisel ja doonorite kaasamise ajahetkel olemas uuringuprotokolli ega eetikakomitee nõusolekut ning teada ei ole ka uuringu läbiviija. Samas on vajadus geenivaramute järele olemas juba käesoleval ajal, mida tõendab kasvõi fakt, et geenivaramuid on hakatud rajama. Eelkõige tuleneb vajadus asjaolust, et inimgenoomiga seonduvad teadusuuringud vajavad võimalust võrrelda üheaegselt mitmete tuhandete inimeste koeproove, terviseandmeid ja sugupuid, et leida seoseid haiguste ja geenide vahel. Seega, kuigi geenivaramu ise ei loo lisateadmisi, on teaduse praeguse arusaama kohaselt geenivaramu tingimata vajalik, et astuda samm esimese tasandi genoomikalt (inimese genoomi järjestamine, mis lõppes 2002. aastal) teisele tasandile (inimese genoomi funktsioonide kindlakstegemine). Geenivaramutega seostatakse eelkõige järgmisi ootusi:

- uued teadmised haiguste etioloogiast ning haiguste geneetilise ja keskkonnakomponendi vahekorrast;

- uuendused farmakoloogias ja geeniteraapias;
- uued testid ravimite mõjude määramiseks (farmakogeneetika), patoloogiate varasemaks avastamiseks, riskihindamiseks ja preventsiooniks nii indiviidi kui ka populatsiooni tasandil;
- uued strateegiad keskkonna, elustiili ja söömisharjumuste riskide maandamiseks enamohustatud populatsioonides.

Vajaduse geenivaramute järgi on osaliselt tinginud ka muud põhjused. Näiteks on äärmiselt aeganõudev ja kallis igal teadlasel hakata ise koguma piisavalt representatiivset hulka uuringus osalejaid. Ühe uuringu jaoks kogutud koeproovist piisab teoreetiliselt mitmesaja erineva uuringu läbiviimiseks. Ka on riskid juhul, kui koeproovid ja andmed asuvad erinevate teadlaste käes isikustatud kujul, oluliselt suuremad kui olukorras, kus üks organisatsioon kontrollib koeproove ja andmeid. Seega on geenivaramud tänapäevaste uuringute eeldused, võimaldades kokku hoida uuringutele kuluvat aega ja raha ning vähendades uuringutega seotud riske.

2.3 Probleemipüstitus

Eelnevast ülevaatest nähtub, et traditsiooniline projektipõhine teavitatud nõusoleku nõue ja geenivaramud on omavahel otseses konfliktis (see konflikt, nagu hiljem selgitatud, on ületatav). Kui geenivaramutelt nõuda, et nende rajamise või doonorite kaasamise hetkel peab olema selge, millistes teadusprojektides koeproove ja andmeid kasutatakse, teadusprojekti protokoll peab olema kinnitatud eetikakomitees ning doonorile peab olema selgitatud kõiki asjaolusid, siis ühtegi geenivaramut luua ei saa. Geenivaramu eesmärk ongi olla varamu seniteadmata projektideks. Geenivaramu on nagu pank, kes korjab elanikkonnalt andmeid ja koeproove ning hiljem jagab need andmed ja koeproovid isikutele, kes neid pangast taotlevad.

Põhimõtteliselt on selle vastuolu lahendamiseks kolm varianti. Kõige konservatiivsem seisukoht nõuab senistest põhimõtetest kinnipidamist ja projektipõhise nõusoleku kohaldamist ka geenivaramutele. Teine seisukoht leiab, et traditsiooniline teavitatud nõusolek ja geenivaramud on omavahel niivõrd põhimõttelises vastuolus, et nende ühildamine on võimatu ning seetõttu tuleb geenivaramute jaoks välja töötada uut tüüpi luba (mida aga ei saa nimetada enam teavitatud nõusolekuks). Kolmas seisukoht, mis on aluseks Inimgeeniuuringute seadusele ja mida toetab käesolev väitekiri, leiab, et vastuolud teavitatud nõusoleku ja geenivaramute vahel ei ole ületamatud ning nõusolek geenidoonoriks hakkamise kohta on käsitletav teavitatud nõusoleku ühe alaliigina.

Peamisteks argumentideks, millega püütakse põhjendada vajadust kinni hoida senisest projektipõhisest teavitatud nõusolekust on asjaolu, et doonor geenivaramus osalemise eest ise

otsest kasu ei saa, puuduvad kirjapandud teadusprojektid, pärilikkuse informatsioon on midagi sensitiivset ja geenivaramud ise väga haavatavad. Selle suuna esindajateks on peamiselt Bostoni ülikooli professorid George J. Annas, Leonard H. Glantz ja Patricia A. Roche, kes juba 1995. aastal töötasid välja Ameerika Ühendriikide Geneetilise privaatsuse mudelseaduse (*Genetic Privacy Act*). Viidatud mudelseadus lähtus põhimõttest, et isikul peab olema täielik kontroll oma geneetiliste andmete üle ning iga kord, kui soovitakse läbi viia mõni teadusprojekt juba olemasolevate geneetiliste andmete põhjal, tuleb tagasi minna geenidoonorini, viia läbi põhjalik teavitamine ning saada temalt teavitatud nõusolek konkreetse teadusprojekti jaoks. See mudelseadus leidis siiski järgimist ainult üksikutes osariikides, kuivõrd sellise reegli rakendamine praktikas oleks tähendanud teadusuuringutele olulist tagasilööki eelpoolselgitatud põhjustel. Käesoleval ajal toetavad niivõrd konservatiivset lähenemist ainult üksikud teoreetikud.

Ilmselt valdavaks seisukohaks võib pidada ajalises järjestuses järgmisena tekkinud arusaama, et praktilistel põhjustel ei ole võimalik geenivaramutelt nõuda traditsioonilist teavitatud nõusolekut, ning seetõttu tuleks kasutada hoopis alternatiivseid lahendusi, mis aga ei ole ei nime ega ka sisu poolest ühildatavad teavitatud nõusolekuga.

Näiteks Islandil 1998. aastal vastu võetud Tervisevaldkonna andmekogu seadus (*Act on a Health Sector Database*) kehtestas regulatsiooni, mille kohaselt iga islandlase terviseandmed võis koguda tsentraalsesse andmekogusse, välja arvatud juhul, kui inimene avaldas andmete kogumisele oma vastuseisu. Seega ei küsitud isikutelt nõusolekut projektis osalemiseks, vaid anti neile võimalus mitte osaleda. Sellist lähenemist põhjendati ühiskondliku kokkuleppega, mis saavutati pika ja intensiivse ühiskondliku väitluse tulemusena ning, mis väljendati rahvaesindajate poolt vastuvõetud seaduses. Seega Islandi lahenduses asendati teavitatud nõusolek ühiskondliku kokkuleppega. Selline lähenemine sai välisekspertide ägeda kriitika osaliseks ning käesolevaks ajaks on Islandil loobutud projekti elluviimisest. Kuigi üldjoontes võib nõustuda rahvusvahelise kriitikaga, mis heidab ette individuaalsete õigushüvede ohverdamist kollektiivsele huvile, tuleb möönda, et populatsioonipõhiste geenivaramute loomiseks ei piisa ainult individuaalsete nõusolekute summast – vaja on ka ühiskondlikku kokkulepet.

Bioeetikaga seonduvate küsimuste arutamiseks Ameerika Ühendriikide president Bill Clintoni poolt moodustatud Riiklik Bioeetika Nõustamise Komisjon (*National Bioethics Advisory Commission*, NBAC) soovitas 1999. aastal pakkuda igale isikule, kelle koeproove või andmeid säilitatakse väljaspool nende kogumise esialgset otstarvet (näiteks konkreetse haiguse ravi või teadusprojekt) võimalust keelata või lubada andmete ja koeproovide edaspidine kasutamine. Andmete ja koeproovide kasutamiseks töötas NBAC välja

kuuetasandilise lähenemise (*multi-level approach*), mille kohaselt sai isik anda nõusoleku näiteks alates täielikult anonümiseeritud andmete kasutamisest ja kodeeritud andmete kasutamisest konkreetses teadusprojektis kuni kodeeritud andmete kasutamiseni ükskõik millistes tulevastes teadusprojektides. Viimase tasandi kohta avaldas mitu NBAC-i liiget eriarvamust, leides, et tegemist ei ole enam teavitatud nõusolekuga. NBAC-i lähenemisest võib järeldada, et isiku autonoomia on ainult siis piisavalt tagatud, kui talle on antud erinevad võimalused otsustamiseks, s.h. võimalus keelata teadusuuringud täielikult või lubada need tingimusteta. *Multi-level approach'*i üldiseks puuduseks on aga väga erinevale õiguslikule staatusele allutatud andmete ja koeproovide teke geenivaramutesse, mis omakorda tekitab alati piiritlemisprobleeme ning vähendab geenivaramu üldist võimet olla universaalne allikas võimalikult paljudele teadusprojektidele.

NBAC-i lähenemisega konkureeriva seisukoha pakkus välja Stanfordi ülikooli professor Henry T. Greely kohe pärast NBAC-i seisukoha avaldamist. Hiljem on seda seisukohta toetama hakanud ka Islandi projekti üks juhtivaimaid kodumaiseid kriitikuid professor Vilhjalmur Árnason. Nende lähtekoht on, et teavitatud nõusoleku kontseptsioon on ühildamatu geenivaramute vajadusega ning seetõttu tuleb leida uus lahendus, mis nii sisuliselt kui nimeliselt erineb teavitatud nõusolekust. Nemad eelistavad kasutada mõistet "tagatud üldine autoriseering". "Autoriseering" viitab sellele, et vaja on puudutatud isiku "jah" sõna, millega eristutakse Islandi ühiskondlikust kokkuleppest. "Üldine" viitab sellele, et isik saab autoriseerida teadmata hulga teadusprojekte korraga. "Tagatud" viitab asjaolule, et siiski ei ole tegemist piiramatu autoriseerimisega, vaid projekti läbiviimine peab vastama teatud täiendavatele tingimustele, mis puudutavad andmekaitset, kasu jagamist jne. Kuigi praktikas võib selline lähenemine isegi töötada, on sellel üks ületamatu kontseptuaalne puudus – nõrgalt põhjendatud arusaam, et teavitatud nõusolek peab tingimata olema projektipõhine ning sellest tulenev seisukoht, nagu ei saa tagatud üldine autoriseering olla üks teavitatud nõusoleku alaliike.

Oxfordi Ülikooli doktor Jane Kaye pakkus 2004. aastal välja kaheastmelise nõusoleku kontseptsiooni. Ka tema on seisukohal, et traditsioonilist teavitatud nõusolekut ei saa geenivaramutes küsida ning samuti ei ole kohaldatavad nõusolekust täielikult loobumise alused nagu minimaalne risk ja nõusoleku küsimise võimatus. Seetõttu leiab ka tema, et ainus väljapääs on laiaulatuslik nõusolek (*broad consent*) geenivaramus osalemiseks, mis aga tuleks kombineerida isiku aktiivse järelkontrolliga. Selline järelkontroll eeldaks doonorite teavitamist igast uuest teadusprojektist, mis soovib geenivaramust andmeid või koeproove saada. Kui geenidoonorid ei ole teatud aja jooksul (näiteks kuus kuud) keelanud nende andmete või koeproovide edastamist teadusprojektile, siis rahuldab geenivaramu pidaja

teadlase taotluse. Selleks, et tagada isikute aktiivsus, tuleks Kaye arvates piirata ka *broad consent*'i kehtivusaega näiteks viie aastaga, mis tähendaks, et viie aasta pärast tuleks isikult saada uus nõusolek geenivaramus osalemiseks. Tegemist on ilmselt lähenemisega, mis kõige suuremas ulatuses sarnaneb käesoleva väitekirja põhiseisukohaga, kuid millel on siiski nii kontseptuaalseid (vt. eelmine lõik) kui ka praktilisi puudusi. Viimased seisnevad pealesunnitud paternalismis (isikul ei lubata anda ajas piiramatut nõusolekut; ebareaalses püüdluses hoida isikuid kogu aeg kursis teadusprojektidest, mis soovivad saada andmeid ja koreproove) ning liigses kulukuses (pidev teavitamine nõuab täiendavaid ressursse, kuid tulemuse saavutamine on kaheldav ning nõusoleku perioodiline uuendamine ei luba teha pikaajalisi uuringuid, kuivõrd kindlasti jätab osa doonoreid oma nõusoleku uuendamata).

Seega on käesoleva dissertatsiooni eesmärk pakkuda välja uus teavitatud nõusoleku kontseptsioon geenivaramutele, hülgamata seejuures teavitatud nõusoleku ideed ning säilitades kontseptsiooni rakendatavuse praktikas.

III AKADEEMILINE VÄIDE

Käesoleva väitekirja keskne tees on seisukoht, et geenivaramute jaoks tuleb välja töötada uut tüüpi teavitatud nõusolek. Seega selle asemel, et teavitatud nõusoleku nõudest loobuda, tuleks teavitatud nõusoleku kontseptsioon ümber hinnata. Hinnates teavitatud nõusoleku doktriini ümber tulenevalt muutunud olukorrast ja riivatavatest õigushüvedest, jõuab töö tulemuseni, et vähemalt ühte tüüpi teavitatud nõusolek on võimalik ka geenivaramu projektides.

3.1 Avatud nõusolek

Sellist uut tüüpi teavitatud nõusolekut populatsioonipõhiste geenivaramute jaoks on käesolevas väitekirjas nimetatud avatud nõusolekuks (*open consent*). Avatud nõusolek on geenidoonori jaatav tahteavaldus osalemiseks populatsioonipõhises geenivaramu projektis ja teadusuuringutes, mis kasutavad geenivaramust saadavaid koeproove ja andmeid. Andes avatud nõusoleku, õigustab isik kahe põhiõiguse riivet. Esiteks tähendab avatud nõusolek isiku kehalise enesemääramisõiguse riive (koeproovi võtmine) õigustamist. Teise elemendina sisaldab avatud nõusolek isiku luba sekkuda tema eraellu. Eraellu sekkumine seisneb nii tema andmete töötlemises (kogumine, säilitamine, analüüsimine jne) geenivaramu pidaja poolt isikustatud kujul kui ka (väidetavalt) nende andmete väljastamises ja kasutamises väljaspool geenivaramut läbiviidavates teadusuuringutes. Tuleb nentida, et isiku enda jaoks pakub avatud teavitatud nõusolek vähem kaitset kui projektikeskne traditsiooniline teavitatud

nõusolek. Sellise tagasilöögi osaliseks heastamiseks on vajalik kehtestada täiendavad reeglid (*conditions of the consent*).

Väitekirjas on ära toodud peamised mängureeglid, mida avatud nõusolek eeldab. Esimese reeglina võib välja tuua nõude geenivaramu tegevuse üle sõltumatu eetilise ja teadusliku kontrolli teostamiseks, mis näiteks Eesti Geenivaramu projekti puhul on puudulikult täidetud. Teise reeglina võib välja tuua geenivaramu pidaja õiguslikku olemust, mis peaks välistama kasumi taotlemise peamise eesmärgina. See ei tähenda, et geenivaramud saaksid olla ja peaksid olema üksnes avaliku sektori vahenditest rahastatud ning ei välista ka "isemajandamist". Kasumit peamise eesmärgina mittetaotlev õiguslik staatus võimaldab paremini tasakaalustada geenidoonorite ja investorite huve ning loob eeldused näiteks ka positiivsete tulemuste tagasivahendamiseks geenidoonoritele ja ühiskonnale (*benefit sharing*). Kolmanda reeglina tuleb rõhutada vajadust keelustada igasugune diskrimineerimine ja stigmatiseerimine. Ühelt poolt väljendub see reegel üldises diskrimineerimiskeelus, kuid teisalt eeldab see reegel ka, et geenivaramud ei väljastaks andmeid ja koeproove teadusuuringuteks, mille tulemus tooks kaasa liiga suure riski diskrimineerimiseks või stigmatiseerimiseks. Neljanda aspektina tuleb mainida reegleid, mis puudutavad geenivaramu projektist lahkumist ehk situatsiooni, kus isik ei soovi enam projektis osaleda. See aspekt on tihedalt seotud nõusoleku tagasivõtmise küsimusega. Minimaalselt peab olema isikule tagatud võimalus nõuda oma andmete ja koeproovi anonüümseks muutmist.

Viienda kaitseabinõuna tuleb paika panna andmekaitse reeglid. Selleks, et andmeid saaks pidevalt uuendada ja töödelda, on vajalik, et geenivaramutes on andmed isikustatud kujul. Seega on geenivaramutes delikaatsed isikuandmed, mida tuleb kaitsta lähtudes kõige kõrgematest andmekaitsestandarditest. Samas ei ole andmed, mis geenivaramu väljastab teadlastele, enam isikuandmed, kuivõrd andmed väljastatakse ilma isikut identifitseerivate andmeteta ning agregeerituna. Seega puudub ka vajadus kehtestada rangeid teavitamise nõudeid teadusprojektidele, kuivõrd võimalus, et nendega kahjustatakse eraelu, on nullilähedane.

Eraldi märkimist vajab autori seisukoht, et kuivõrd geenidoonor nõustub avatud nõusolekut andes tulevikus aset leidvate sündmustega ja võtab sealjuures arvesse kehtivat õiguslikku regulatsiooni, siis peavad geenidoonorile piisava kindluse loomiseks ülalmärgitud mängureeglid olema kehtestatud seadusega. Nii tekib geenidoonoril õiguspärane ootus, et mängureegleid ei muudeta ning kui toimub oluline muutus, siis kaotab geenidoonori nõusolek kehtivuse. Seega ei ole avatud nõusolek mitte projektikeskne, vaid mängureeglite keskne. Reeglite kehtestamiseks seadusena teiseks oluliseks eeliseks on ühiskondliku kokkuleppe saavutamine projekti läbiviimiseks. Kuivõrd tegemist on kogu elanikkonda hõlmava

projektiga, siis on lisaks individuaalsetele nõusolekutele vajalik ka ühiskondlik nõusolek, mille kõige autoriteetsem väljendaja on üldjuhul seadusandlik kogu.

Mõiste "avatud nõusolek" on erialakirjanduses veel vähe kasutamist leidnud. Vähese kasutamise positiivse külg seisneb selles, et mõistet ei ole erinevad autorid erinevalt sisustanud. Samas vajab aga uue mõiste väljapakkumine omakorda õigustamist, mida väitekirjas on ka tehtud. Eelkõige peab uus mõiste sisaldama sõna "nõusolek", et rõhutada seost teavitatud nõusolekuga. Avatud nõusolek vastandub seega juba kontseptuaalsel tasandil ülalkäsitletud üldise autoriseeringu mudeliga. Sõna "avatud" viitab asjaolule, et nõusolek ei ole piiratud konkreetse teadusprojektiga, uurijaga, uurimisvaldkonna ega ajaga. Keelendil "avatud nõusolek" ei ole negatiivsest varjundit nagu "blanketsel nõusolekul" (*blanket consent*) ja "üleüldisel nõusolekul" (*generic consent*), ning see aitab kontseptsiooni eristada näiteks Kaye poolt pakutud laiaulatuslikust nõusolekust (*broad consent*), mida viimane ei käsitle teavitatud nõusoleku alaliigina.

Väitekirja akadeemilise teesi tõestamine eeldab vastamist vähemalt kolmele küsimusele. Esiteks vajab analüüsi väide, et avatud nõusolek on teavitatud nõusolek. Teiseks on vajalik analüüsida, kas avatud nõusolek vastab bioeetikas üldiselt omaksvõetud põhimõtetele. Kolmandaks, on vaja ümber lükata teoreetilisel tasandil olemasolevad võimalikud vastuargumendid avatud nõusoleku kontseptsioonile.

3.2 Avatud nõusolek kui teavitatud nõusolek

Selleks, et vastata küsimusele, kas avatud nõusolek on ka teavitatud nõusolek, tuleb kõigepealt avada teavitatud nõusoleku mõiste. Teavitatud nõusolek võib tähistada väga erinevaid faktilisi ja õiguslikke nähtusi. Nii on näiteks teavitatud nõusolek ka paberileht, millele geenidoonor annab allkirja.

Käesoleva väitekirja raames on vajalik eristada teavitatud nõusolekut kui eetilist ja õiguslikku kategooriat (*true informed consent* ja *effective informed consent*). Teavitatud nõusolek õiguses on nõusolek, mis vastab õigusaktides sätestatud kriteeriumitele. Seega kuna näiteks Eestis on Inimgeeniuuringute seadusega kehtestatud teavitatud nõusoleku nime all avatud nõusolekuga võrreldav kontseptsioon, siis on avatud nõusolek vähemalt Eestis ka õiguslikult kehtiv teavitatud nõusolek. Seda, kas Inimgeeniuuringute seaduse lahendus ehk avatud nõusolek on kooskõlas ka rahvusvahelise õiguse normidega ja võiks seega kehtida teavitatud nõusolekuna ka teistes Euroopa riikides, on analüüsitud allpool.

Teoreetilises plaanis on muidugi olulisem analüüsida avatud nõusoleku vastavust bioeetikas omaks võetud teavitatud nõusoleku kriteeriumitele. Need on isiku nõusolekuvõimelisus, teavitamise läbiviimine, mõistmine isiku poolt, vabatahtlikkus ja

nõustumise väljendamine. Võib koheselt väita, et kõige olulisemad vastuolud ilmnevad teavitamise läbiviimise tasandil. Selle tasandi eesmärgiks on anda isikule piisavalt informatsiooni, et isik saaks teha teavitatud otsustuse, kas osaleda uuringus või mitte. Seega on keskseks küsimuseks see, kui palju informatsiooni on piisav nõusoleku lugemiseks ideaalseks teavitatud nõusolekuks?

Teoreetilisse diskussiooni laskumata võib väita, et see, missugust informatsiooni hulka peab keegi piisavaks, on ära määratud eelkõige tema arusaamaga autonoomiast. Kui isik peab autonoomiat ideaaliks, mille poole püüelda, siis ta seab tavaliselt kõrged nõudmised teavitamisele ja leiab, et avatud nõusolek ei ole teavitatud nõusolek. Tegemist on mõnes mõttes paternalistliku lähenemisega, mis ei tunnista isiku enda otsustamispädevust, kui teatud informatsiooni tase ei ole saavutatud. Seejuures on selge, et igasugune teavitamine on propositsionaalse iseloomuga, peegeldades teavitaja arusaama sellest, mida teavitatav peaks teadma ning nõusolek on vastus teavitamisele. Kuivõrd alati on võimalik anda täpsemat teavet, siis on alati võimalik teha ettepanek veelgi täpsema nõusoleku saamiseks ja seega ei saa me kunagi saavutada täiesti teavitatud nõusolekut. Vältimatult on vajalik tõmmata kuhugi piir ja selle piiri tõmbamine on subjektiivne. Valitseva teavitatud nõusoleku kontseptsiooni puudus on see, et informatsiooni tase loetakse saavutatuks üldjuhul lähtudes kehtivast standardist, s.t. võttes aluseks olemasoleva, kehtestatakse nõuded olemasolevale. Antud juhul tähendab see, et lähtudes Nürnbergi koodeksi põhimõtetest, mis olid suunatud inimsusevastaste kuritegude ärahoidmisele, soovitakse sama rangeid tingimusi kehtestada ka juhtudele, kus kaalul ei ole elu ega tervis, vaid ainult isiku eraelu, täpsemalt informatsiooniline enesemääramisõigus.

Kui aga pidada autonoomiat igal isikul juba olemasolevaks, siis võib väita, et isikul on autonoomiast tulenevalt pädevus teha otsustusi sellise infohulga pealt, mida ta peab ise piisavaks. Seega, kui isik peab võimalikuks anda nõusolek, kuid ei tea konkreetselt, millistes teadusprojektides tema andmeid ja kudesid kasutatakse, siis on tegemist teavitatud nõusolekuga. Selline liberaalne autonoomia käsitlus ei ole muidugi piiramatu, vaid möönab, et isiku autonoomia leiab piirid seal, kus nõusolek läheks vastuollu teiste isikute autonoomiaga või heade kommetega (näiteks liiga suurte riskide tõttu elule). On selge, et geenivaramu projektid ei too endaga kaasa riske, mis tulenevalt oma raskusest võiks muuta nõusoleku kehtetuks. Pealegi, kui sellised riskid oleksid geenivaramu projektidega kaasnevad, siis oleks ka traditsiooniline teavitatud nõusolek kehtetu, kuivõrd isik ei saa selliste riskidega kehtivalt nõustuda.

Kokkuvõtvalt võib seega väita, et vähemalt õigusaktides on avatud nõusolek teavitatud nõusoleku üks alaliikidest. Vastus küsimusele, kas see on õige, s.t. kas avatud nõusolekut saab

ka eetilisel tasandil lugeda teavitatud nõusolekuks, sõltub iga isiku vaadetest autonoomiale. Siinjuures on võimalikud erinevad käsitlused, muuhulgas nii käesoleva dissertatsiooni autori poolt toetatav seisukoht, et avatud nõusolek vastab teavitatud nõusoleku ideaalile.

3.3 Hinnang avatud nõusoleku võimalikule kriitikale

Kuigi avatud nõusoleku kontseptsioon leiab esmakordselt põhjalikku teoreetilist läbitöötamist alles käesolevas väitekirjas, on võimalik rahvusvahelisest diskussioonist teavitatud nõusoleku ümber leida argumente, mida potentsiaalselt võidakse avatud nõusoleku lähenemisele ette heita.

Ühe peamise vastuargumendina võib väita, et riskide suhtes, mis ei ole teada, ei ole võimalik saada ka teavitatud nõusolekut. Kuna ei ole teada, millistes teadusprojektides geenivaramusse kogutud andmeid ja koeproove kaasatakse, siis ei ole võimalik ka teavitatud nõusoleku küsimine. Selline vastuargument tugineb ainult ühel arusaamal autonoomiast – tegemist on kohustustele tugineva kontseptsiooniga, kusjuures teised valitsevad lähenemised (õigustel põhinev ja eesmärgil põhinev lähenemine) ei pea avatud nõusolekut eetiliselt problemaatiliseks. Lisaks nõrkustele moraaliteoorias, on see vastuargument ka hüljatud mitmete rahvusvaheliste dokumentide poolt (näiteks CIOMS 2002 Juhtnöörid), mille kohaselt ei ole vaja teavitada kõikidest riskidest, vaid ettenähtavatest riskidest. Seega tuleks hinnata, kas geenivaramutega kaasnevad potentsiaalselt sellised riskid, mida isik peaks tingimata detailides teadma. Kirjanduses ei ole viiteid sellele, et geenivaramutega kaasnevad riskid, mida isik ei suudaks mõistlikult ette näha ja neid otsuse tegemisel arvesse võtta. Sellised riskid ei saa ka teoreetiliselt esineda, kuivõrd ei ole võimalik anda vastust üldisele küsimusele riskide suuruse kohta teadmata, milliseid kaitseabinõusid võetakse tarvitusele selleks, et risk ei realiseeruks. Seega saab ainult tõdeda, et puudub *per se* alus väita, et geenivaramutega kaasnevad sellise iseloomu või avaldumistõenäosusega riskid, mis automaatselt tingivad võimatuse avatud nõusoleku küsimiseks.

Teine potentsiaalne vastuargument näeb avatud nõusolekus lubamatut aheldatust teaduse külge (*precommitment to research)*. See vastuargument oleks veenev, kui isikul puuduks võimalus geenivaramu projektist väljumiseks. Samas, kui isikule on tagatud võimalus oma nõusolek tagasi võtta ja teatud tingimustel nõuda ka andmete ja koeproovi hävitamist, siis on põhjendamatu rääkida tingimusteta allutamisest teaduse hüvanguks.

Avatud nõusolekut võib põhimõtteliselt vaadata ka loobumisena õigusest anda teavitatud nõusolek. Selle väite aluseks on muidugi seisukoht, et avatud nõusolek ei vasta teavitatud nõusoleku tunnustele, millega aga käesolev väitekiri ei nõustu.

Teavitatud nõusoleku standardite ükskõik millisel viisil modifitseerimises on nähtud ka nõrgemate populatsioonigruppide ärakasutamist, teavitatud nõusoleku põhimõtte õõnestamist ja libedat teed (*slippery slope*) teistes uuringutes kasutatavate nõusoleku liikide jaoks. Empiirilised uuringud näitavad siiski, et geenivaramu projektides osalevad eelkõige need isikud, keda tavaliselt ei loeta haavatavaks populatsioonigrupiks (noored, haritumad ja rikkamad). Teavitatud nõusoleku kontseptsiooni modifitseerimine ei tähenda selle nõrgestamist, vaid pigem näitab kontseptsiooni elujõulisust ja võimet kaasa minna muutunud olukorraga. Hoopis enam õõnestavad teavitatud nõusolekut seisukohad, mille kohaselt on geenivaramu ja teavitatud nõusolek ühildamatud, mistõttu on vajalik täiesti uus kontseptsioon. Kuivõrd käesolevas väitekirjas leitakse, et avatud nõusolekut on võimalik kasutada ainult seaduses sätestatud mängureeglite olemasolul ning üksnes populatsioonipõhistes geenivaramutes ning mitte muudes teadusprojektides, siis ei saa pidada ka tuleviku "libeda tee" argumenti mõjusaks.

IV VÄITE KONTROLL

Selleks, et veenduda väljapakutud uudse teavitatud nõusoleku kontseptsiooni elujõulisuses, tuleb kontrollida, kas rahvusvahelise õiguse dokumentides ja eetikakoodeksites seni omaks võetud seisukohad välistavad võimaluse rajada geenivaramuid avatud nõusoleku kontseptsioonile. Seejuures on kasulik eristada kehalise enesemääramisõiguse riivet, informatsioonilise enesemääramisõiguse riivet ja biomeditsiinilisi uuringuid käsitlevaid dokumente. Enne tuleks aga kontrollida ka teavitatud nõusoleku ajaloost või bioeetika põhimõtetest tuleneb võimatus avatud nõusoleku tunnustamiseks teavitatud nõusoleku ühe alaliigina.

4.1 Kooskõla teavitatud nõusoleku ajaloost tulenevate nõuetega

Teavitatud nõusoleku ajaloost ja tekkimisest on antud ülevaade eespool. Siinkohal väärib ülerõhutamist ainult asjaolu, et nõusolek ning teavitatud nõusolek tekkisid teadusuuringute taustal, mis mitte ainult ei sisaldanud ohtu kõige olulisematele õigushüvedele, vaid seisnesid nende õigushüvede äravõtmises – tihti ei olnud küsimus selles, kas katsealune hukkub, vaid selles, millal, mis põhjusel, mil viisil või milliste kannatustega ta hukkub.

Avatud nõusolekut küsitakse hoopis teises ajaloolises situatsioonis. Inimõigused on leidnud üldist aktsepteerimist ja nende üle on seatud sisse efektiivne kaitse. Teadusuuringute üle teostatakse rahvusvahelist kontrolli. Geenivaramu projektiga kaasnev risk elule ja tervisele on sisuliselt olematu ning reaalsed riskid on seotud ainult informatsioonilise

enesemääramisõigusega. Projektis osalejad on vabatahtlikud, kes omakasupüüdlikel (lootuses teaduslikule läbimurdele haiguse osas, mida isik ise või tema lähedane põeb) või omakasupüüdmatutel (soov edendada teadust, tänuvõlg varasemate põlvkondade ees jne) eesmärkidel soovivad kaasa aidata geeniuuringutele. Ka on täielikult erineva riskid ja nende realiseerumise tõenäosus. Tegemist ei ole uuringutega, mis hõlmavad riski elule ja tervisele, vaid eelkõige ainult informatsioonilisele enesemääramisõigusele, kusjuures selle riski realiseerumist on püütud minimiseerida.

Selle taustal on ebaõige pidada avatud nõusolekut teavitatud nõusoleku ajaloo lõpuks, vaid pigem on tegemist ühe etapiga teavitatud nõusoleku kujunemisel, ning võib eeldada, et see ei jää viimaseks etapiks.

4.2 Kooskõla bioeetika aluspõhimõtetega

Kuigi erinevad koolkonnad (näiteks Ameerika ja Euroopa koolkonnad) ei suuda täpselt kokku leppida bioeetika aluspõhimõtete osas, on erinevatest väljapakutud põhimõtetest käesoleva väitekirja jaoks olulised eelkõige autonoomia, inimväärikuse, heategemise ja õigluse põhimõtted. Kuivõrd autonoomiapõhimõtet on käsitletud ülal ja jõutud tulemusele, et vähemalt liberaalse autonoomiakäsitlusega on avatud nõusolek kooskõlas, siis keskendutakse alljärgnevalt ülejäänud neljale põhimõttele.

Inimväärikuse austamine tähendab kantiaanlikus traditsioonis eelkõige inimese austamist eesmärgina ja keeldu kasutada inimest üksnes vahendina kellegi teise jaoks. Avatud nõusoleku küsimisega näidatakse üles austust inimese kui iseenesest eesmärgi ees ning välditakse tema kasutamist üksnes vahendina näiteks teaduse huvides. Seega võib väita, et avatud nõusolek ei riku inimväärikuse põhimõtet.

Heategemise põhimõtte kohaselt on teavitatud nõusolekut vaja niivõrd, kuivõrd see on geenidoonorile ja projektile kasulik. Võib eeldada, et inimeste usaldus geenivaramu vastu on suurem, kui inimestelt küsitakse nõusolekut nende andmete ja koeproovide kogumisel. Seega vähemalt mingisugune nõusolek on heategemise seisukohalt vajalik. Siiski ei ole selle printsiibi pinnalt võimalik üheselt vastata, kas see nõusolek peaks olema traditsiooniline projektikeskne või nn avatud ja geenivaramu mängureeglite keskne. Ühelt poolt võib väita, et inimesed soovivad suuremat kontrolli oma andmete ja koeproovide üle ning seetõttu neile sellise kontrolli andmine tagaks nii projekti edukuse kui ka inimeste hüvede edendamise. Teisalt näitavad empiirilised uuringud, et inimesed on enamikul juhtudel nõus andma oma andmeid ja koeproove teadusele vabalt kasutamiseks, kui eetikakomiteed kasutamise üle kontrolli teostavad. Korduv nõusoleku küsimine on pigem segadust tekitav (“ma ju andsin korra nõusoleku!”), koormav (isik sunnitakse jälle kaaluma argumente), soodustab negatiivse

hoiaku tekkimist teadusesse ning on pigem kahjulik kui kasulik usalduse tekitamiseks (mahukaid nõusoleku vorme loevad inimesed pigem teadlaste kui nende endi kaitseks koostatuks). Huvitav on ka Islandi kogemus – kui inimestele anti võimalus välistada andmete kasutamine geenivaramus, siis ainult alla 7 protsendi elanikkonnast kasutas seda võimalust, s.t. üle 90 protsendi inimestest pidas ühe kirja postitamist ebaproportsionaalselt koormavaks võrreldes riskidega, mida geenivaramu kaasa toob. Seega ei tulene heategemise põhimõttest kindlasti keeldu avatud nõusoleku juurutamiseks praktikasse.

Üldlevinud arusaama kohaselt on õigluse nõue täidetud, kui võrdseid koheldakse võrdselt ja ebavõrdseid ebavõrdselt. Peamiseks järelduseks, mis õigluse põhimõttest tuleneb teavitatud nõusoleku jaoks on see, et kui nõusolekut küsitakse, siis tuleb seda küsida kõigilt. Samas on õiglus realiseeritud ka siis, kui kelleltki nõusolekut ei küsita. Seega tingimusel, et avatud nõusolekut küsitakse kõigilt geenidoonoritelt, on ka õiguse põhimõttega arvestatud.

4.3 Kooskõla kehalise enesemääramisõiguse rahvusvahelise regulatsiooniga

Kõige olulisem dokument Euroopa tasandil, mis reguleerib kehalist enesemääramisõigust teadusuuringute kontekstis, on Euroopa Nõukogu Inimõiguste ja Biomeditsiini Konventsioon.

Konventsioon, mis võeti vastu juba 1995. a, tugineb mõistele „sekkumine tervise valdkonnas" (art 5). Kuigi sekkumist tuleb Konventsiooni seletuskirja kohaselt tõlgendada laiendavalt, eeldab see siiski, et sekkumisse on inimene ise kuidagi kaasatud. Geenivaramu projekti raames esineb sekkumine kindlasti siis, kui toimub koeproovi võtmine. Hilisemad analüüsid koeprooviga ning andmete töötlemine ei kvalifitseeru aga sekkumisena Konventsiooni tähenduses, kuivõrd neid viiakse läbi olukorras, kus puudub igasugune side konkreetse inimesega. Seetõttu ei saa ka teavitamise standard olla sama kõrge kui uuringutes, kus on otesene oht inimese tervisele. Et mitte jätta isikuid täiesti kaitseta andmete ja koeproovi täiendava kasutamise eest, lisab Konventsiooni art 22, et koeproovi ja andmete kasutamine tulevikus peab toimuma kooskõlas kohase teavitamise ja nõusoleku protseduuriga. Kuivõrd avatud nõusoleku eelduseks on kogu teabe andmine kehalise enesemääramisõigusega seotud riskidest ning olulise teabe andmine riskidest seoses koeproovi ja andmete säilitamise ja edasise töötlemisega, võib väita, et avatud nõusolek on kooskõlas Konventsiooni nõuetega.

4.4 Kooskõla informatsioonilise enesemääramisõiguse rahvusvahelise regulatsiooniga

Informatsiooniline enesemääramisõiguse kaitse on Euroopas reguleeritud eelkõige Direktiiviga 95/46/EC (Euroopa Ühenduse Ametlik Teataja L 281, 23.11.1995) ning Euroopa

Nõukogu Isikuandmete kaitse konventsiooniga (RT II 2001, 1, 3) ja Inimõiguste ja põhivabaduste konventsiooniga (RT II 1996, 11/12, 34).

Inimõiguste ja põhivabaduste konventsiooni art 8, mis kohustab riike austama inimeste eraelu, on väga üldiselt sõnastatud säte, mis Euroopa Inimõiguste Kohtu praktika kohaselt hõlmab ka õiguse andmete privaatsusele (*data privacy*). Isikul on õigus anda nõusolek oma andmete privaatsusesse sekkumiseks, ning selle nõusoleku kehtivusele ei ole Kohus seadnud rangeid tingimusi. Eelkõige tuleb arvestada seda, millises kontekstis toimub andmete töötlemine (antud juhul teaduslikel eesmärkidel), kas isik on andmete töötlemisest teadlik (antud juhul on teadlik ning andnud ka nõusoleku) ning kas töötlemise eesmärk on anda negatiivne hinnang isiku kohta (antud juhul ei ole üldse eesmärk anda individuaalset hinnangut ning diskrimineerimine on ka välistatud). Kohaldades eeltoodud kriteeriume avatud nõusolekule geenivaramus, võib väita, et avatud nõusolek vastab Inimõiguste ja põhivabaduste konventsiooni art 8 nõuetele ja seega ei riku avatud nõusoleku alusel geenivaramu rajamine selles osas inimõigusi.

Isikuandmete kaitse konventsiooni ja Direktiivi 95/46/EC eesmärk on samuti kaitsta informatsioonilist enesemääramisõigust, kuid need dokuemndid sisaldavad oluliselt detailsemat regulatsiooni. Delikaatsete isikuandmete, s.h. terviseandmete ja pärilikkuseandmete, töötlemine toimub üldjuhul ainult isiku nõusoleku alusel. Direktiivi kohaselt peab andmete töötlemiseks antav nõusolek olema spetsiifiline (*specific*), mis esmapilgul välistab avatud nõusoleku kui ühe konkreetse teadusprojektiga mitteseotud nõusoleku. Samas on võimalik ka teistsugune tõlgendus, mis tugineb Isikuandmete kaitse konventsioonile ja Euroopa Nõukogu soovitusele R (97) 5 ning mille kohaselt spetsiaalne nõusolek ei pea olema mitte konkreetse teadusprojekti keskne, vaid kasutamisotstarbe keskne. Seega võib isik anda spetsiaalse nõusoleku tema andmete kasutamiseks teaduse otstarbel ning välistada näiteks andmete kasutamise turustamiseks, raviks, haldusmenetluse läbiviimiseks jne. Tuleb möönda, et tugevaid argumente on ka teistsugusel seisukohal, kuid arvestades asjaolu, et liikmesriikidel on suur suvaõigus Direktiivi 95/46/EC sätete ülevõtmisel ning võrdlev analüüs näitas, et riigid on väga erinevalt rakendanud viidatud direktiivi sätteid ilma, et nende vastu oleks alustatud menetlust Euroopa Komisjoni poolt, võib asuda seisukohale, et avatud nõusolek on kooskõlas ka Direktiiviga 95/46/EC ja Isikuandmete kaitse konventsiooniga.

4.5 Kooskõla rahvusvaheliste inimõiguste deklaratsioonide ja eetikakoodeksitega

Käesoleva väitekirja viimases osas on kontrollitud avatud nõusoleku vastavust erinevate rahvusvaheliste inimõiguste deklaratsioonide ja eetikakoodeksitega. Reeglina on

tegemist üsna üldsõnaliselt formuleeritud dokumentidega, mistõttu on võimalikud erinevad tõlgendused ning puudub alus väita, et avatud nõusolek ei ole kooskõlas nende dokumentidega.

Kõige problemaatilisemaks osutub avatud nõusolek Helsingi deklaratsiooni taustal, mis vaatamata korduvatele täiendustele sisaldab mitmeid aegunud seisukohti. Nii näiteks võib deklaratsiooni grammatiline tõlgendamine viia meid tulemuseni, et deklaratsioon kohaldub ka siis, kui tegemist on teadusuuringuga ainult isikuandmetel sõltumata sellest, kas andmete kasutaja ise neist andmetest isiku identifitseerida suudab. Selle probleemi ületamiseks on kaks alternatiivi – kas tõdeda, et Helsingi deklaratsiooni sätted kohalduvad ainult siis, kui lisaks andmete kasutamisele toimub ka sekkumine kehalisse enesemääramisõigusesse (meenutagem, et just kehaline enesemääramisõigus oli Helisingi deklaratsiooni vastuvõtmise ajend) või asuda seisukohale, et kui andmete kasutaja ise ei suuda andmete alusel isikut tuvastada, siis Helsingi deklaratsioon ei kohaldu. Ükskõik kumba teed valides jõutakse tulemusele, et avatud nõusolek ei ole vastuolus Helsingi deklaratsiooniga, kuivõrd teadusuuringud, mis on autoriseeritud avatud nõusolekuga, jäävad väljapoole Helsingi deklaratsiooni kohaldamisala.

V KOKKUVÕTE

Käesoleva väitekirja eesmärk on välja pakkuda ja põhjendada ühte võimalikku kontseptsiooni teavitatud nõusolekust, mida oleks võimalik kasutada populatsioonipõhistes geenivaramutes. Töös kirjeldatakse teavitatud nõusoleku traditsioonilist kontseptsiooni ning selgitatakse põhjusi, miks see kontseptsioon ei saa ilma muudatusteta kehtida geenivaramute suhtes. Seejärel kontrollitakse, kas juba välja pakutud alternatiivid lahendavad kõik probleemid ning leitakse, et esineb vajadus vähemalt ühe uue kontseptsiooni järele. Tegemist on avatud nõusoleku kontseptsiooniga.

Väitekirja keskne seisukoht ongi, et avatud nõusolek, nii nagu seda on sisustatud töös, on teavitatud nõusoleku alaliik, mis on mõeldud kasutamiseks geenivaramutes. Pärast selle väite esitamist on väitekirjas kontrollitud, kas avatud nõusoleku rakendamist välistavad bioeetika printsiibid, teavitatud nõusoleku ajalugu, rahvusvahelise õiguse dokumendid või erinevad eetikakoodeksid. Kuivõrd avatud nõusoleku kontseptsiooni võib pidada eeltoodud nõuetega kooskõlas olevaks, siis saab seda kontseptsiooni ka pidada aktsepteeritavaks geenivaramute puhul. Praktikas on seda kontseptsiooni järginud juba näiteks Eesti, Läti ja Ühendkuningriik. Samas ei püüa käesolev töö väita, et avatud nõusolek on ainuõige või ainuvõimalik kontseptsioon kõikide geenivaramute jaoks. Arvestades iga geenivaramu ja ühiskonna eripärasid, kus see on loodud, on avatud nõusolek ainult üks alternatiiv teiste hulgas.

ABBREVIATIONS

CHRB	Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine: Convention on Human Rights and Biomedicine (Council of Europe)
CIOMS	Council for International Organizations of Medical Sciences
CoE	Council of Europe
ECtHR	European Court of Human Rights
ECHR	Convention for the Protection of Human Rights and Fundamental Freedom (Council of Europe)
GPA	Genetic Priacy Act (United States)
ICESCR	International Covenant on Economic, Social and Cultural Rights (United Nations Organization)
ICPPR	International Covenant on Civil and Political Rights (United Nations Organization)
IDHGD	International Declaration on Human Genetic Data (UNESCO)
HSD	Health Sector Database (Iceland)
HGRA	Human Gene Research Act (Estonia)
NBAC	National Bioethics Advisory Commission (USA)
UDHGHR	Universal Declaration on the Human Genome and Human Rights (UNESCO)
UDHR	Universal Declaration of Human Rights (United Nations Organization)
UN	United Nations Organization
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHO	World Health Organization
WMA	World Medical Association

CIOMS 2002 Guidelines	International Ethical Guidelines for Biomedical Research Involving Human Subjects
CIOMS 1991 Guidelines	CIOMS International Guidelines for Ethical Review of Epidemiological Studies

REFERRED ACADEMIC LITERATURE

1. Abbott, Allison. Icelandic Database Shelved as Court Judges Privacy in Peril. - Nature, Vol 429 (2004).
2. Abrams, Loise, S. M., Browning, G.A. Informed Consent, Medical Research, and Healthy Volunteers. - Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001.
3. Allen, Anita L. Genetic Privacy: Emerging Concepts and Values. - Genetic Secrets. Protecting Privacy and Confidentiality in the Genetic Era. Mark A. Rothstein (ed). Yale University Press, 1997.
4. Allen, Anita L. Privacy-as-Data Control: Conceptual, Practical, and Moral Limits of the Paradigm. - Connecticut Law Review, Vol 32 (2000).
5. Almarsdottir, Anna Birna, Traulsen, Janine Morgall. Björnsdottir, Ingunn. "We Don't Have That Many Secrets" – the Lay Perspective on Privacy and Genetic Data. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, Vilhjálmur Árnason (ed). Reykjavik: University of Iceland Press, 2004.
6. Alpert, Sheri A. Information, Confidentiality, and Good Practice. - Ethics, Computing, and Medicine. Informatics and the Transformation of Health Care. Kenneth W. Goodman (ed). Cambridge University Press, 1998.
7. Alpert, Sheri A. Privacy and the Analysis of Stored Tissue. - Research Involving Human Biological Materials: Ethical Issues and Policy Guidance. Volume II Commissioned Papers. Rockville: NBAC, 2000.
8. Anderlik, Mary R. Commercial Biobanks and Genetic Research: Banking Without Checks? - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003.
9. Anderlik, Mary R., Rothstein, Mark A. Privacy and Confidentiality of Genetic Information: What Rules for the New Science? - Annual Review of Genomics and Human Genetics. Vol 2 (2001).
10. Anderson, Ross. The DeCODE Proposal for an Icelandic Health Database. Available: http://www.ftp.cl.cam.ac.uk/ftp/users/rja14/iceland.pdf.
11. Andorno, Roberto. Seeking Common Grounds on Genetic Issues: The UNESCO Declaration on the Human Genome. - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003.
12. Annas, George J. Privacy Rules for DNA Databanks. Protecting Coded 'Future Diaries'. - Journal of American Medical Association, Vol 270 (1993), No 19.
13. Annas, George J. Rules for Research on Human Genetic Variation - Lessons from Iceland. - New England Journal of Medicine. Vol 342 (2000), No 24.
14. Annas, George J. The Nuremberg Code in U.S. Courts: Ethics versus Expediency. - The Nazi Doctors and the Nuremberg Code. Human Rights in Human Experimentation. George J. Annas, Michael A. Grodin (ed), Oxford University Press, 1992.
15. Annas, George J., Elias, Sherman. The Major Social Policy Issues Raised by the Human Genome Project. - Gene Mapping: Using Law and Ethics As Guides. George J. Annas, Sherman Elias (ed). Oxford University Press, 1992.
16. Annas, George J., Glanz, Leonard H., Roche, Patricia A. Drafting the Genetic Privacy Act: Science, Policy, and Practical Considerations. – Journal of Law, Medicine & Ethics, Vol 23 (1995) No 4.
17. Annas, George J., Glantz, Leonard H., Roche, Patricia A. The Genetic Privacy Act: A Proposal for National Legislation. – Jurimetrics, Vol 37 (1996).
18. Annus, Amar, Kolk, Kaspar, Puhvel, Jaan, Päll, Janika. *Muinasaja seadusekogumike antoloogia*. Tallinn: Varrak, 2001.

19. Arnardottir, Oddny Mjöll, Björgvinsson, David Thor, Matthiasson, Vidar Mar. The Icelandic Health Sector Database. - European Journal of Health Law, Vol 6 (1999).
20. Árnason, Vilhjalmur. Coding and Consent: Moral Challenges of the Database Project in Iceland. - Bioethics, Vol 18 (2004).
21. Árnason, Vilhjalmur, Árnason, Gardar. Informed Democratic Consent? The Case of the Icelandic Database. - Trames, 2004, Vol 8 (2004), No 1/2.
22. Árnason, Einar. Personal Identifiability in the Icelandic Health Sector Database. - The Journal of Information, Law and Technology, 2002 (2). Available: http://elj.warwick.ac.uk/jilt/02-2/arnason.html.
23. Ashburn, Ted T., Wilson, Sharon K., Eisenstein, Barry I. – Human Tissue Research in the Genomic Era of Medicine. Archives of Internal Medicine, Vol 160 (2000), No 22.
24. Austin, Melissa A., Harding, Sarah, McElroy, Courtney. Genebanks: A Comparison of Eight Proposed International Genetic Databases. - Community Genetics, Vol 6 (2003).
25. Austin, Melissa A., Harding, Sarah, McElroy, Courtney. Monitoring Ethical, Legal, and Social Issues in Developing Population Genetic Databases. – Genetics in Medicine. Vol 5 (2003), No 6.
26. Bainbridge, David, Platten, Nick. EC Data Protection Directive. London, Dublin Edinburgh: Butterworths, 1996.
27. Beauchamp, Tom L. Competence. - Competency. A Study of Informal Competency Determinations in Primary Care. Mary Ann Gardell Cutter, Earl E. Shelp (ed). Kluwer, 1991.
28. Beauchamp, Tom L. Informed Consent. - Medical Ethics. Robert M. Veatch (ed). Boston, Portola Valley: Jones and Bartlett Publishers, 1989.
29. Beauchamp, Tom L., Childress, James F. Principles of Biomedical Ethics. Oxford University Press, 2001.
30. Berg, Kare. DNA Sampling and Banking in Clinical Genetics and Genetic Research. - New Genetics and Society, Vol 20 (2001), No 1.
31. Beskow, Laura M, *et al*. Informed Consent for Population-Based Research Involving Genetics. - Journal of American Medical Association, Vol 286 (2001), No 18.
32. Beyleveld, Deryck, Brownsword, Roger. Human Dignity in Bioethics and Biolaw. Oxford University Press, 2001.
33. Beyleveld, Deryck, Histed, Elise. Betrayal of Confidence in the Court of Appeal. - Medical Law International, Vol 4 (1999), No 3-4.
34. Beyleveld, Deryck, Histed, Elise. Case Commentary: Anonymisation Is Not Exoneration. - Medical Law International, Vol 4 (1999), No 1.
35. Beyleveld, Deryck, Townend, David M. R.. When is Personal Data Rendered Anonymous? Interpreting Recital 26 of Directive 95/46/EC. – Medical Law International, Vol 6 (2004), No 2.
36. Blume, Peter. Privacy as a Theoretical and Practical Concept. - Privacy. Eric Barendt (ed). Aldershot, Singapore, Sydney: Ashgate, 2001.
37. Blume, Peter. Protection of Informational Privacy. Copenhagen: DJOF Publishing, 2002.
38. Boleyn-Fitzgerald, Patrick. An Egalitarian Justification of Medical Privacy. - Privacy and Health Care. James M. Humber, Robert F. Almeder (ed). Totowa: Humana Press, 2001.
39. Bris, Sonia Le, Knoppers, Bartha Maria. International and Comparative Concepts of Privacy. - Genetic Secrets. Protecting Privacy and Confidentiality in the Genetic Era. Mark A. Rothstein (ed). Yale University Press, 1997.
40. Brody, Baruch A. A historical introduction to the requirement of obtaining informed consent from research participants. – Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001.

41. Brownsword, Roger, Cornish, W. R., Llewelyn, Margaret. Human Genetics and the Law: Regulating a Revolution. Modern Law Review, Vol 61 (1998), No 5.
42. Buchanan, Anita. An Ethical Framework for Biological Samples Policy. - Research Involving Human Biological Materials: Ethical Issues and Policy Guidance. Volume II Commissioned Papers. Rockville: NBAC, 2000.
43. Burgess, Michael M., *et al*. Above and Beyond: Industry Innovation Related to Genetic Privacy. - Genomics, Health and Society Emerging Issues for Public Policy. Bartha Maria Knoppers, Charles Scriver (ed). Policy Research Initiative, Canada, 2002.
44. Bygrave, Lee A. Data Protection Pursuant to the Right to Privacy in Human Rights Treaties. – International Journal of Law and Information Technology, Vol 6 (1998), No 3.
45. Bygrave, Lee A. The Place of Privacy in Data Protection Law. - University of New South Wales Law Journal, 2001, No 1. Available: http://www.austlii.edu.au/au/journals/UNSWLJ/2001/6.html.
46. Callahan, Daniel. Ethical Issues in Control of Science. - Genetics and the Law II Ed. Aubrey Milunsky, George J. Annas (ed). New York, London: Plenum Press, 1980.
47. Capron, Alexander M. Human Experimentation. - Medical Ethics. Robert M. Veatch (ed). Boston, Portola Valley: Jones and Bartlett Publishers, 1989.
48. Capron, Alexander M. Protection of Research Subjects: Do Special Rules Apply in Epidemiology. - Journal of Clinical Epidemiology, Vol 44 (1991) Supplement I.
49. Cardinal, Genevieve, Deschenes, Mylene. Surveying the Population Biobankers. - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003.
50. Carrick, Paul. Medical Ethics in the Ancient World. Georgetown University Press, 2001.
51. Casabona, Carlos Maria Romeo. Anonymization and Psudonomization: The Legal Framework at a European Level. – The Data Protection Directive and Medical Research Across Europe. Deryck Beyleveld *et al* (ed) Aldershot: Ashgate, 2004.
52. Case, Paula. Confidence Matters: The Rise and Fall of Informational Autonomy in Medical Law. – Medical Law Review, Vol 11 (2003), No 2.
53. Caulfield, Timothy. Perceptions of Risk and Human Genetic Databases: Consent and Confidentiality Policies. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
54. Caulfield, Timothy, Upshur, Ross EG, Daar, Abdallah. DNA Databanks and Consent: A Suggested Policy Option Involving an Authorization Model.- BMC Medical Ethics, Vol 4 (2003).
55. Chadwick, Ruth, Berg, Kare. Solidarity and Equity: New Ethical Frameworks for Genetic Databases. - Nature Reviews: Genetics, Vol 2 (2001), No 4.
56. Clayton, Ellen Wright. Informed Consent and Genetic Research. - Genetic Secrets. Protecting Privacy and Confidentiality in the Genetic Era. Mark A. Rothstein (ed). Yale University Press, 1997.
57. Clayton, Ellen Wright *et al*. Consensus Statement: Informed Consent for Genetic Research on Stored Tissue Samples. - The Journal of the American Medical Association, Vol 274 (1995), No 22.
58. Collins, Francis S. The Case for a US Prospective Cohort Study of Genes and Environment. Nature, Vol 429 (2004).
59. Collins, Francis S. *et al*. A Vision for the Future of Human Genomics Research. - Nature, Vol 422 (2003).
60. de Cruz, Peter. Comparative Health Care Law. London, Sydney: Cavendish, 2001.
61. Deschenes, Mylene *et al*. Human Genetic Research, DNA Banking and Consent: a Question of 'Form'? Clinical Genetics, Vol 59 (2001).

62. Deutsch, Erwin. The Nuremberg Code: The Proceedings in the Case, the Ten Principles of Nuremberg and the Lasting Effect of the Nuremberg Code. - Ethics Codes in Medicine. Foundations and Achievements of Codification since 1947. Ulrich Thöler, Stella Reiter-Theil (ed), Aldershot: Ashgate, 1998.
63. Dyer, Clare. Human Tissue Bill is Modified Because of Research Needs. British Medical Journal. Vol 328 (2004).
64. Dolgin, Janet L. Choice, Tradition, and the New Genetics: the Fragmentation of the Ideology of Family. - Connecticut Law Review, Vol 32 (2000).
65. Doyal, Len. Medical Ethics and Moral Indeterminancy. – Journal of Law and Society. Vol 17 (1990), No 1.
66. Dworkin, Gerald. The Theory and Practice of Autonomy. Cambridge University Press, 1988.
67. Elger, Bernice, Mauron, Alexandre. A Presumed-Consent Model for Regulating Informed Consent of Genetic Research Involving DNA Banking. - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003.
68. Ellis, Ian, Mannion, G., Warren-Jones, A. Retained Human Tissues: A Molecular Genetics Goldmine or Modern Grave Robbing? A Legal Approach to Obtaining and Using Stored Human Samples. - Medicine and Law, Vol 22 (2003), No 3.
69. Engelhardt, Hugo Tristram. The Foundations of Bioethics. Oxford University Press, 1986.
70. Engisch, Karl. *Ärztlicher Eingriff zu Heilzwecken und Einwilligung*. *Zeitschrift für die gesamte Strafrechtswissenschaft.* Vol 58 (1946).
71. Eriksson, Stefan. Informed Consent and Biobanks. - The Use of Human Biobanks – Ethical, Social, Economical and Legal Aspects. Mats G. Hansson (ed). Uppsala University Press, 2001, p 46. Available: http://www.bioethics.uu.se/chapters/SEriksson.pdf.
72. Faden, Ruth R., Beauchamp, Tom L. A Theory and History of Inforrmed Consent. Oxford University Press, 1986.
73. Feinberg, Joel. Harm to Self. The Moral Limits of the Criminal Law. Oxford University Press: 1986.
74. Feldman, David. Information and Privacy. - Freedom of Expression and Freedom of Information. Essays in Honour of Sir David Williams. Jack Beatson, Yvonne Cripps (ed). Oxford University Press, 2000.
75. Feldman, David. The Developing Scope of Article 8 of the European Convention on Human Rights. – European Human Rights Law Review, 1997, No 3.
76. Flaherty, David H. Protecting Privacy in Surveillance Societies. University of North Caroline Press, 1989.
77. Foster, Claire. International Regulation, Informed Consent and Medical Research: the UK Perspective. – Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001.
78. Foster, Claire. The Ethics of Medical Research on Humans. Cambridge University Press, 2001.
79. Furness, Peter, Sullivan, Richard. The Human Tissue Bill. - British Medical Journal, Vol 328 (2004).
80. Garfinkel, Simson. Database Nation. The Death of Privacy in the 21st Century. Beijing, Cambridge, Farnham: O'Reilly, 2000.
81. Gate, Fred H. Privacy in the Information Age. Washington: Brookings Institution Press, 1997.
82. Gatter, Ken M. Genetic Information and the Importance of Context: Implications for the Social Meaning of Genetic Information and Individual Identity. – Saint Louis University Law Journal, Vol 47 (2003).

83. Geiβ, Karlmann, Geiner, Hans-Peter. *Arzthaftpflichtrecht*. München: Beck, 1999.
84. Gertz, Renate. An Analysis of the Icelandic Supreme Court Judgement on the Health Sector Database Act. *SCRIPT-ed*, Vol 1 (2004). No 2. Available: http://www.law.ed.ac.uk/ahrb/script-ed/issue2/iceland.asp.
85. Giesen, Dieter. Civil Liability of Physicians for New Methods of Treatment and Experimentation: A Comparative Examination. - Medical Law Review, Vol 3 (1995) No 1.
86. Gillon, Gillon. 'Fully' Informed Consent, Clinical Trials, and the Boundaries of Therapeutic Discretion. - Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001.
87. Godard, B. *et al*. Strategies for Consulting with the Community: The cases of four large-scale genetic databases. - Science and Engineering Ethics, Vol 10 (2004), Issue 3.
88. Gostin, Lawrence O., Hodge, James G., Jr. Genetic Privacy and the Law: An End to Genetics Exceptionalism. - Jurimetrics Journal, Vol 40 (1999).
89. Gray, Charles. The Bastion of Freedom of Expression - Is It Threatened by the Laws of Confidentiality, Privacy or Contempt? - Essays in Honour of Sir Brian Neill: The Quintessential Judge. Mark Saville, Richard Susskind (ed). LexisNexis Butterworths, 2003.
90. Greely, Henry T. Breaking the Stalemate: A Prospective Regulatory Framework for Unforeseen Research Uses of Human Tissue Samples and Health Information. – Wake Forest Law Review, Vol 34 (1999).
91. Greely, Henry T. Human Genomics Research: New Challenges for Research Ethics. - Perspectives in Biology and Medicine, Vol 44 (2001), No 2.
92. Greely, Henry T. Iceland's Plan for Genomics Research: Facts and Implications. – Jurimetrics, Vol 40 (2000).
93. Greely, Henry T. Informed Consent and Other Ethical Issues in Human Population Genetics. - Annual Review of Genetics, Vol 35 (2001).
94. Greely, Henry T. The Control of Genetic Research: Involving the "Groups Between". - Houston Law Review, Vol 33 (1997).
95. Greer, Steven. The Exceptions to Article 8 to 11 of the European Convention on Human Rights. Strasbourg: Council of Europe Publishing, 1997. Available: http://www.coe.int/T/E/Human_rights/h-inf(2002)10eng.pdf.
96. Grisso, Thomas, Appelbaum, Paul S. Assessing Competence to Consent to Treatment. A Guide for Physicians and other Health Professionals. Oxford University Press, 1998.
97. Grodin, Michael A. Historical Origins of the Nuremberg Code. – The Nazi Doctors and the Nuremberg Code. Human Rights in Human Experimentation. George J. Annas, Michael A. Grodin (ed), Oxford University Press, 1992.
98. Grody, Wayne W. Molecular Pathology, Informed Consent, and the Paraffin Block. – Diagnostic Molecular Pathology, 1995, No 4.
99. Gutwirth, Serge. Privacy and Information Age. Lanham: Rowman & Littlefield Publishers, 2002.
100. Gulcher, Jeffrey, Stefansson, Kari. The Icelandic Healthcare Database and Informed Consent. - The New England Journal of Medicine, Vol 342 (2000), No 24.
101. Hallap, Tiiu. Science Communication and Science Policy: Estonian Media Discourse on the Genetic Database Project. Trames, Vol 8 (2004), No 1/2.
102. Hardwig Werner. *Betrachtungen zur Frage des Heileingriffes. – Goldammers Archiv für Strafrecht*, 1965.
103. Harris, D.J., O'Boyle, M., Warbrick, C. Law of the European Convention on Human Rights. London, Dublin, Edinburgh: Butterworths, 1995.
104. Harris, John. Ethical Genetic Research on Human Subjects. - Jurimetrics Journal, Vol 40 (1999).

105. Harris, John, Woods, Simon. Rights and Responsibilities of Individuals Participating in Medical Research. – Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001.
106. Helgasson, Hordur Helgi. Informed Consent for Donating Biosamples in Medical Research. In: Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
107. Hockton, Andrew. The Law of Consent to Medical Treatment. London: Sweet & Maxwell, 2002.
108. Holm, Soren. There Is Nothing Special about Genetic Information. - Genetic Information. Acquisition, Access, and Control. Alison K. Thompson, Ruth F. Chadwick (ed). Kluwer Academic/Plenum Publishers, 1999.
109. Hondius, Frits W. Protecting Medical Data and Genetic Data. European Journal of Health Law, Vol 4 (1997), No 4.
110. Hoyer, Klaus Lindgaard. Biobanks and Informed Consent. An Anthropological Contribution to Medical Ethics. Umea University, 2004. Available: http://publications.uu.se/umu/fulltext/nbn_se_umu_diva-358.pdf.
111. Hoyer, Klaus Lindgaard. 'Science Is Really Needed - That's All I Know': Informed Consent and the Non-Verbal Practices of Collecting Blood for Genetic Research in Northern Sweden. - New Genetics and Society, Vol 22 (2003), No 3.
112. Hoyer, Klaus Lindgaard, Lynöe, Niels. Is Informed Consent a Solution to Contractual Problems? A Comment on the Article ""Iceland Inc."?: On the Ethics of Commercial Population Genomics' by Jon F. Merz, Glenn E. McGee, and Pamela Sankar. – Social Science & Medicine, Vol 58 (2004).
113. Hsieh, Alice. A Nation's Genes For a Cure To Cancer: Evolving Ethical, Social and Legal Issues Regarding Population Genetic Databases. - Columbia Journal of Law and Social Problems, Vol 37 (2004).
114. Human, Delon, Fluss, Sev S. The World Medical Association's Declaration of Helsinki: Historical and Contemporary Perspectives. Available: http://www.wma.net/e/ethicsunit/pdf/draft_historical_contemporary_perspectives.pdf.
115. Häyry, Matti. European Values in Bioethics: Why, What, and How to Be Used? - Theoretical Medicine and Bioethics, Vol 24 (2003), Issue 3.
116. Inness, Julie C. Privacy, Intimacy and Isolation. Oxford University Press, 1992.
117. Jaroff, Leon. The Gene Hunt. - Time Magazine, 20 March 1989.
118. Jay, Rosemary, Hamilton, Angus. Data Protection: Law and Practice. Sweet & Maxwell, 1999.
119. Jescheck, Hans-Heinrich, Ruß, Wolfgang, Willms, Günther (ed). *Strafgesetzbuch. Leipziger Kommentar: Großkommentar*. 10th ed, Berlin, New York: Springer, 1985.
120. Jonatansson, Hrobjartur. Iceland's Health Sector Database: A Significant Head Start in the Search for the Biological Grail or an Irreversible Error? – American Journal of Law & Medicine, Vol 26 (2000).
121. Jones, Michael A. Informed Consent and Other Fairy Stories. - Medical Law Review, Vol 7 (1999), No 2.
122. Jonsen, Albert R. A Short History of Medical Ethics. Oxford University Press, 2000.
123. Jungst, Eric T. Groups as Gatekeepers to Genomic Research: Conceptually Confusing, Morally Hazardous, and Practically Useless. - Kennedy Institute of Ethics Journal, Vol 8 (1998), No 2.
124. Kaiser, Jocelyn. Privacy Rule Creates Bottleneck for U.S. Biomedical Researchers. – Science, Vol 305 (2004).
125. Kanovitch, Bernard. The Medical Experiments in Nazi Concentration Camps. - Ethics Codes in Medicine. Foundations and Achievements of codification since 1947. Ulrich Thöler, Stella Reiter-Theil (ed). Aldershot: Ashgate, 1998.

126. Kant, Immanuel. Groundwork of the Metaphysic of Morals. - Western Philosophy. An Anthology. John Cottingham (ed). Oxford: Blackwell, 1996.
127. Katz, Jay. Informed Consent. - Encyclopaedia of Bioethics. Warren T. Reich (ed). New York: Simon & Schuster MacMillan, 1995.
128. Katz, Jay. The Consent Principle of the Nuremberg Code: Its Significance Then and Now. - The Nazi Doctors and the Nuremberg Code. Human Rights in Human Experimentation. George J. Annas, Michael A. Grodin (ed). Oxford University Press, 1992.
129. Katz, Jay. The Silent Word of Doctor and Patient. Baltimore, London: Johns Hopkins University Press, 2002.
130. Kattel, Rainer, Anton, Riivo. The Estonian Genome Project and Economic Development. - Trames, Vol 8 (2004), No 1/2.
131. Kaye, Jane. Abandoning Informed Consent: the Case of Genetic Research in Population Collections. - Genetic Databases: Socio-ethical issues in the collection and use of DNA. Richard Tutton, Oonagh Corrigan (ed). London, New York: Routledge, 2004.
132. Kaye, Jane. Broad Consent – the Only Option for Population Genetic Databases? - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
133. Kaye, Jane. Genetic Research on the U.K. Population - Do New Principles Need to be Developed? - Trends in Molecular Medicine, Vol 7 (2001), No 11.
134. Kaye, Jane. Protecting Privacy in Population Collections. Is the Icelandic Health Sector Database an appropriate model for the European Union? Thesis submitted for the degree of Doctor of Philosophy, University of Oxford, 2004 (unpublished).
135. Kaye, Jane. Regulating Human Genetic Databases in Europe. – Your Genes in a National Bank? Ethical, Legal and Social Concerns. Vilhjálmur Árnason *et al* (ed). (forthcoming).
136. Kaye, Jane. Report May Lead to Population Collection by the Back Door. – British Medical Journal, Vol 323 (2001).
137. Kaye, Jane, Martin, Paul. Safeguards for Research Using Large Scale DNA Collections. - British Medical Journal, Vol 321 (2000).
138. Kaye, Jane *et al*. Population Genetic Databases: A Comparative Analysis of the Law in Iceland, Sweden, Estonia and the UK. - Trames, Vol 8 (2004), No 1/2.
139. Kegley, Jacquelyn Ann K. Challenges to Informed Consent. EMBO Reports, Vol 5 (2004), No 9.
140. Kennedy, Ian. Treat Me Right. Oxford: Clarendon Press, 1988.
141. Kennedy, Ian, Grubb, Andrew. Medical Law. London, Dublin, Edinburgh: Butterworths, 2000.
142. Kennedy, Ian, Grubb, Andrew. Principles of Medical Law. Oxford University Press, 1998.
143. Kilkelly, Ursula. The Right to Respect for Private and Family Life. A Guide to the Implementation of Article 8 of the European Convention on Human Rights. Human rights handbooks, No 1. Strasbourg: Council of Europe Publishing, 2001. Available: http://www.humanrights.coe.int/aware/GB/publi/materials/945.pdf.
144. Kinderlerer, Julian, Longley, Diane. Human Genetics: The New Panacea. - The Modern Law Review, Vol 61 (1998), No 5.
145. Knoppers, Bartha Maria. Consent and Confidentiality: Introduction. - Human DNA: Law and Policy International and Comparative Perspectives. Bartha Maria Knoppers, Claude M. Laberge, Marie Hirtle (ed). The Hague, London, Boston: Kluwer Law International, 1997.
146. Knoppers, Bartha Maria, Fecteau, Claudine. Human Genomic Databases: A Global Public Good? – European Journal of Health Law, Vol 10 (2003), No 1.

147. Knoppers, Bartha Maria *et al*. Control of DNA Samples and Information. Genomics, Vol 50 (1998).
148. Kopelman, Loretta M. Informed Consent and Anonymous Tissue Samples: the Case of HIV Seroprevalence Studies. - Journal of Medicine and Philosophy, Vol 19 (1994).
149. Korn, David. Contribution of the Human Tissue Archive to the Advancement of Medical Knowledge and the Public Health. - Research Involving Human Biological Materials: Ethical Issues and Policy Guidance. Volume II Commissioned Papers. Rockville: NBAC, 2000.
150. Korts, Külliki, Weldon, Sue, Gudmundsdottir, Margret Lilja. Genetic databases and public attitudes: a comparison of Iceland, Estonia and the UK. - Trames, Vol 8 (2004), No 1/2.
151. Kristinsson, Sigridur. Databases and informed consent: can broad consent legitimate research? - Blood and Data. Ethical, legal and social aspects of human genetic databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
152. Kristinsson, Sigurður, Árnason, Vilhjálmur. Informed consent and biobank research. – Your Genes in a National Bank? Ethical, Legal and Social Concerns. VilhjálmurÁrnason *et al* (ed). (forthcoming).
153. Laurie, Graeme. Genetic Privacy. A Challenge to Medico-Legal Norms. Cambridge University Press, 2002.
154. Leng, Chee Heng *et al*. Bioethics and Human Population Genetics Research. A report to the International Bioethics Committee at UNESCO, 1995. UNESCO document CIP/BIO/95/CONF.002/5. Available: http://portal.unesco.org/shs/en/file_download.php/010b187e3c6c735b6870e903461bb0eapopulationCIB3_en.pdf.
155. Leven, Karl-Heinz. The Invention of Hippocrates: Oath, Letters and Hippocratic Corpus. - Ethics Codes in Medicine. Foundations and Achievements of codification since 1947. Ulrich Thöler, Stella Reiter-Theil (ed), Aldershot: Ashgate, 1998.
156. Levine, Robert J. Informed Consent: Consent Issues in Human Research. - Encyclopaedia of Bioethics. Warren T. Reich (ed). New York: Simon & Schuster MacMillan, 1995.
157. Levitt, Mairi, Weldon, Sue. Genetic Databases and Public Trust. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
158. Lewis, Graham. Tissue Collection and the Pharmaceutical Industry. Investigating Corporate Biobanks. - Genetic Databases: Socio-Ethical Issues in the Collection and Use of DNA. Richard Tutton, Oonagh Corrigan (ed). London, New York: Routledge, 2004.
159. Lidz, Charles W., Meisel, Alan, Zerubavel, Eviatar, *et al*. Informed Consent. A Study of Decisionmaking In Psychiatry. New York, London: The Guilford Press, 1984.
160. Lucas, Peter. Toward a Tiered Approach to Consent in Biomedical Research. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
161. Macklin, Ruth. Against Relativism. Cultural Diversity and the Search for Ethical Universals in Medicine. Oxford University Press, 1999.
162. Markett, Michael J. Genetic Diaries: An Analysis of Privacy Protection in DNA Data Banks. - Suffolk University Law Review, Vol 30 (1996).
163. Mason, J.K., McCall Smith, R.A. Law and Medical Ethics. London, Edinburgh, Dublin: Butterworths, 1999.
164. McInnis, Melvin G. The Assent of a Nation: Genethics and Iceland. - Clinical Genetics, Vol 55 (1999).

165. McHale, Jean. Regulating Genetic Databases: Some Legal and Ethical Issues. - Medical Law Review, Vol 12 (2004), No 1.
166. McHale, Jean, Fox, Marie, Murphy, John. Health Care Law: Text, Cases and Materials. London: Sweet & Maxwell, 1997.
167. McNagny, S. E., Parker, R. M. High Prevalence of Recent Cocaine Use and the Unreliability of Patient Self-Report in an Inner-City Walk-In Clinic. - The Journal of the American Medical Association, Vol 267, (1992) No 8. Abstract available: http://jama.ama-assn.org/cgi/content/abstract/267/8/1106.
168. Merz, Jon F. Is Genetics Research "Minimal Risk"? – Institutional Review Board, Vol 18 (1996) No 6.
169. Merz, Jon F. On the Intersection of Privacy, Consent, Commerce and Genetics Research. - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003.
170. Merz, Jon F., Sankar, Pamela. DNA Banking: An Empirical Study of a Proposed Consent Form. – Stored Tissue Samples. Ethical, Legal, and Public Policy Implications. Robert F. Weir (ed). Iowa: University of Iowa Press, 1998.
171. Merz, Jon F., McGee, Glenn E., Sankar, Pamela. "Iceland Inc."?: On the Ethics of Commercial Population Genomics. – Social Science & Medicine, Vol 58 (2004).
172. Meyer, Anja, Zeller, Alissa C. The Icelandic Health Sector Database and the Right to Privacy. - Human Rights Law Journal, Vol 21 (2000), No 9-12.
173. Michael, James. Privacy and Human Rights: An International and Comparative Study, with Special Reference to Developments in Information Technology. Paris: UNESCO Publishing, 1994.
174. Mill, John Stewart. On Liberty and Other Essays. John Gray (ed). Oxford University Press, 1998.
175. Montgomery, Jonathan. Health Care Law. Oxford University Press, 2003.
176. Morse, Gardiner. The Nocebo Effect. – Hippocrates, Vol 13, No 10. Available: http://www.hippocrates.com/archive/November1999/11departments/11integrative.html.
177. Murray, Thomas H. Genetic Exceptionalism and "Future Diaries": Is Genetic Information Different from Other Medical Information? - Genetic Secrets: Protecting Privacy and Confidentiality in the Genetic Era. Mark A. Rothstein (ed). Yale University Press, 1997.
178. Nicholson, Richard H. International Regulation, Informed Consent and Medical Research: the UK Perspective. – Informed Consent in Medical Research. Len Doyal, Jeffrey S. Tobias (ed). London: BMJ Publishing, 2001.
179. Nicholson, Richard H. The Regulation of Medical Research: a Historical Overview. – Manual for Research Ethics Committees. Sue Eckstein (ed). Cambridge University Press, 2003.
180. Nõmper, Ants. *Arzthaftung für mangelhafte Aufklärung nach detuschem Recht de lege lata und nach estnischem Recht de lege ferenda. Magisterarbeit zur Erlangung des Grades Magister Juris der juristischen Fakultät der Georg-August-Universität Göttingen,* 2000. Unpublished thesis, the author has a copy.
181. Nõmper, Ants. Clinical Ethics Committees in Estonia - First Steps on a Long Way. UK Clinical Ethics Network. Available: http://www.ethics-network.org.uk/international/intlspec/estonia.htm.
182. Nõmper, Ants. *Eesti ja Läti geeniseadused – ühe munaraku kaksikud*. - Eetikakeskuse aastaraaamat (2001-2004), Tartu: Eesti Keele Sihtasutus, 2005.
183. Nõmper, Ants. Estonian Human Gene Research Act and its Implementation. – Ethics of Human Genetics: Challenges of the (Post)Genomic Era. Josef Glasa (ed). Bratislava: Charis, 2002.
184. Nõmper, Ants. *Jehoova tunnistajate lapse arstide kriminaalasjast*. - Juridica 2000, No 4.

185. Nõmper, Ants. Research Ethics Committees in Estonia. EACME Newsletter, Vol 10 (2004).
186. Nõmper, Ants. Transforming Principles of Biolaw into National Legislation : Comparison of Four National Laws in Three Aspects. – Your Genes in a National Bank? Ethical, Legal and Social Concerns. VilhjálmurÁrnason *et al* (ed). (forthcoming).
187. Nõmper, Ants. What is Wrong With Using Anonymized Data and Tissue for Research Purposes? - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
188. Nõmper, Ants, Kruuv, Krista. The Estonian Genome Project. - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003.
189. Nõmper, Ants, Raidla, Jüri. The Estonian Genome Project and the Human Gene Research Act. – Baltic Yearbook of International Law, Vol 2 (2002).
190. O'Neill, Onora. Autonomy and Trust in Bioethics. Cambridge: Cambridge University Press, 2002.
191. O'Neill, Onora. Informed Consent and Genetic Information. - Studies in History and Philosophy of Biological and Biomedical Sciences, Vol 32 (2001).
192. O'Neill, Onora. Some Limits of Informed Consent. - Journal of Medical Ethics, Vol 29 (2003).
193. Oppenheim, L. *Das ärztliche Recht zu körperlichen Eingriffen an Kranken und Gesunden*. Benno Schwabe Verlagsbuchhandlung, 1892.
194. Ovey, Clare, White, Robin. The European Convention on Human Rights. Oxford University Press, 2002.
195. Palsson, Gisli, Hardardottir, Kristin E. For Whom the Cell Tolls. Debates about Biomedicine. - Current Anthropology, Vol 43 (2002), No 2.
196. Palsson, Gisli, Rabinow, Paul. Iceland. The Case of a National Human Genome Project. - Anthropology Today, Vol 15 (1999).
197. Palsson, Gisli, Rabinow, Paul. The Icelandic Genome Debate. - Trends in Biotechnology, Vol 19 (2001), No 5.
198. Pattenden, Rosemary. The Law of Professional-Client Confidentiality. Regulating the Disclosure of Confidential Personal Information. Oxford University Press, 2003.
199. Pellegrino (ed)mund D., Thomasma, David C. For the Patient's Good. The Restoration of Beneficence in Health Care. Oxford University Press, 1988.
200. Perley, Sharon, Fluss, Sev. S., Bankowski, Zbigniew, Simon, Francoise. The Nuremberg Code: An International Overview. – The Nazi Doctors and the Nuremberg Code. Human Rights in Human Experimentation. George J. Annas, Michael A. Grodin (ed), Oxford University Press, 1992.
201. Pinto, Ashok M. Corporate Genomics: Decode's Efforts at Disease Mapping in Iceland for the Advancement of Science and Profits.- University of Illinois Journal of Law, Technology and Policy, 2002.
202. Porter, Gerard. The Wolf in Sheep's Clothing: Informed consent forms as commercial contracts. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
203. Potts, Jamaica. At Least Give the Natives Glass Beads: An Examination of the Bargain Made Between Iceland and Decode Genetics with Implications for Global Bioprospecting. - Virginia Journal of Law & Technology, Vol 7 (2002).
204. Prentice, Ernest D., Gordon, Bruce G. Institutional Review Board Assessment of Risks and Benefits Associated with Research. – Ethical and Policy Issued in Research Involving Human Participants, Volume II Commissioned Papers and Staff Analysis. Rockville: NBAC, 2001.

205. Racine, Eric. Discourse Ethics As an Ethics of Responsibilty: Comparison and Evaluation of Citizen Involvement in Population Genomics. - Journal of Law, Medicine and Ethics, Vol 31 (2003).
206. Rannamäe, Andres. Estonian Genome Project – Large Scale Health Status Description and DNA Collection. – Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003.
207. Rasko, Istvan. What Can We Do with Our Genetic Knowledge. - - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003.
208. von Redecker, Niels, Reimer, Ekkerhart. Staatliche Genbanken unter dem Grundgesetz – Estland als Vorblid für Deutschland. – Jahrbuch für Ostrecht, Vol 42 (2001).
209. Reumann de Fernandez, Antje. *Arsti eraõigusliku vastutuse põhimõtted Saksa õiguses.* Juridica 1998, No 3.
210. Riis, Povl. The Helsinki Declaration 1964-2003. New Review of Bioethics, Vol 1 (2003).
211. Robertson, John A. Ethical and Legal Issues in Genetic Biobanking. - Populations and Genetics: Legal and Socio-Ethical Perspectives. Bartha Maria Knoppers (ed). Leiden, Boston: Martinus Nijhoff Publishers, 2003.
212. Robertson, John A. "Paying The Alligator": Precommitment in Law, Bioethics, and Constitutions. Texas Law Review, Vol 81 (2003).
213. Robertson, John A. Precommitment Issues in Bioethics. Texas Law Review, Vol 81 (2003).
214. Robertson, John A. Privacy Issues in Second Stage Genomics. – Jurimetrics, Vol 40 (1999).
215. Robertson, John A. The Scientist's Right to Research and the Legitimacy of Governmental Regulation. - Genetics and the Law II Ed. Aubrey Milunsky, George J. Annas (ed), New York, London: Plenum Press, 1980.
216. Roscam Abbing, Henriette D.C. Central Health Database in Iceland and Patient's Rights. European Journal of Health Law, Vol 6 (1999).
217. Roscam Abbing, Henriette D.C. Human Tissue Research, Individual Rights and Bio-banks. Available: http://www.ccels.cf.ac.uk/pubs/roscam_abbingpaper.pdf.
218. Rose, Hilary. Gendered Genetics in Iceland. - New Genetics and Society, Vol 20 (2001), No 2.
219. Rose, Hilary. The Commodification of Virtual Reality. The Icelandic Health Sector Database. – Genetic Nature / Culture. Anthropology and Science beyond the Two-Culture Divide. Alan H. Goodman, Deborah Heath, M. Susan Lindee. Berkley: University of California Press, 2003.
220. Rothman, David J. The Nuremberg Code in Light of Previous Principles and Practices in Human Experimentation. - Ethics Codes in Medicine. Foundations and Achievements of codification since 1947. Ulrich Thöler, Stella Reiter-Theil (ed). Aldershot: Ashgate, 1998.
221. Rothman, Harry. Disseminating the Principles of the Universal Declaration on the Human Genome and Human Rights. – New Genetics and Society, Vol 19 (2000), No 1.
222. Rouille-Mirza, Segolene, Wright, Jessica. Comparative Study on the Implementation and Effect of Directive 95/46/EC on Data Protection in Europe: General Standards. – The Data Protection Directive and Medical Research Across Europe. Deryck Beyleveld *et al* (ed) Aldershot:Ashgate, 2004.
223. Rumball, Sylvia, McCall Smith, Alexander. Human Genetic Data: Preliminary Study by the IBC on its Collection, Processing, Storage and Use. UNESCO document SHS-503/01/CIB-8/3, 2002. Available: http://portal.unesco.org/shs/en/file_download.php/82e7c58d69d425a6fd9f100171e3c072Rapfinal_gendata_en.pdf.

224. Ryssdal, Rolv. Data Protection and the European Convention on Human Rights. - Data Protection, Human Rights and Democratic Values. Proceedings of the 13th Converence of Data Protection Commissioners. Strasbourg: Council of Europe Publishing, 1992.
225. Sade, Robert M. Research on Stored Biological Samples is Still Research. Archives of Internal Medicine, Vol 162 (2002), No 13.
226. Salter, Brian, Jones, Mavis. Biobanks and Bioethics: the Politics of Legitimation. Available: http://www.york.ac.uk/res/iht/projects/l218252005/SalterBiobanksAndBioethicsPaper.pdf.
227. Sandor, Judit. Genetic Information: Science, Society, and Legal Norms. - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003.
228. Schneider, Carol A., Cohn, Felicia, Bonner, Cynthia. Patenting Life: A View From the Constitution and Beyond. - Whittier Law Review, Vol 24 (2002).
229. Schoemann, Ferdinand David. Privacy and Intimate Information. - Ohilosophical Dimensions of Privacy: An Anthology. Ferdinand David Schoemann (ed). Cambridge University Press, 1984.
230. Schönke, Adolf, Schröder, Horst. Strafgesetzbuch: Kommentar. 25th ed, München: Beck, 1997.
231. Schubert, Lilian. Ethical Implications of Pharmacogenetics – Do Slippery Slope Arguments Matter? – Bioethics, Vol 18 (2004), No 4.
232. Sethe, Sebastian. Cell Line Research with UK Biobank. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
233. Sieber, Joan E. Privacy and Confidentiality as Related to Human Research in Social and Behavioral Science. - Research Involving Human Biological Materials: Ethical Issues and Policy Guidance. Volume II Commissioned Papers. Rockville: NBAC, 2000.
234. Sigurdsson, Skuli. Yin-yang Genetics, or the HSD deCODE Controversy. - New Genetics and Society, Vol 20 (2001), No 2.
235. Simitis, Spiros (ed). *Kommentar zum Bundesdatenschutzgesetz*. Baden-Baden: Nomos, 2003.
236. Singer, Peter A. Consent to the Publication of Patient Information. – British Medical Journal, Vol 329 (2004).
237. Singh, Rabinder. Privacy and Media: the Human Rights Bill. - Protecting Privacy. The Clifford Chance Lectures. Volume Four. Basil S. Markensis (ed). Oxford University Press, 1999.
238. Skegg, P.D.G. English Medical Law and 'Informed Consent': An Antipodean Assessment and Alternative. – Medical Law Review, Vol 7 (1999), Issue 2.
239. Smith, Michael J. Population-Based Genetic Studies: Infromed Consent and Confidentiality. - Santa Clara Computer & High Technology Law Journal, Vol 18 (2001).
240. Stegmayr, Birgitta, Asplund, Kjell. Informed Consent for Genetic Research on Blood Stored for More than a Decade: a Population Based Study. - British Medical Journal, Vol 325 (2002).
241. Stephenson, J. Genetic Test Information Fears Unfounded. – Journal of American Medical Association, Vol 282 (1999).
242. Suter, Sonia M. The Allure and Peril of Genetics Exceptionalism: Do We Need Special Genetics Legislation? - Washington University Law Quarterly, Vol 79 (2001).
243. Sutrop, Margit. Human Genetic Databases: Ethical, Legal and Social issues. - Trames, Vol 8 (2004), No 1/2.

244. Sutrop, Margit, Simm, Kadri. The Estonian Healthcare System and the Genetic Database Project: From Limited resources to Big Hopes. – Cambridge Quarterly of Healthcare Ethics, Vol 13 (2004).
245. Steffen, Erich, Dressler, Wolf-Dieter. *Arzthaftungsrecht: neue Entwicklungslinien der BGH-Rechtsprechung*. Köln: RWS, 1999.
246. Takala, Tuija. Why We Should Not Relax Ethical Rules in the Age of Genetics. - Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
247. Tammpuu, Piia. Constructing Public Images of New Genetics and Gene Technology: the Media Discourse on the Estonian Human Genome Project. Trames, Vol 8 (2004), No 1/2.
248. Tammpuu, Piia. Making Genes Commonly Meaningful: Implications of National Self-Images on Human Genetic Databases. -Blood and Data. Ethical, Legal and Social Aspects of Human Genetic Databases. Gardar Árnason, Salvör Nordal, VilhjálmurÁrnason (ed). Reykjavik: University of Iceland Press, 2004.
249. Tansey, J, Burgess, Michael M. The Foundations, Applications and Ethical Dimensions of Biobanks. - Electronic Working Papers Series. W. Maurice Young Centre for Applied Ethics, University of British Columbia at http://www.ethics.ubc.ca.
250. Tikk, Arvo, Parve, Valdar. Ethics Committees in Estonia. – Proceedings of the International Conference: Ethics Committees in Central & Eastern Europe – Present State & Perspectives for the 21st Century. Bratislava: Charis, 2000.
251. Townend, David M.R. Who Owns Genetic Information? - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed). Budapest, New York: CEU Press, 2003
252. Trouet, Caroline, Sprumont, Dominique. Biobanks: Investigating in Regulation. – Baltic Yearbook of International Law, Vol 2 (2002).
253. Tutton, Richard, Kaye, Jane, Hoeyer, Klaus. Governing UK Biobank: the importance of ensuring public trust. - Trends in Biotechnology, Vol 22 (2004), No 6.
254. Vaux, Kenneth L., Schade, Stanley G. The Research for Universality in the Ethics of Human Research. Anrew C. Ivy, Henry K. Beecher, and the Legacy of Nuremberg. - The Use of Human Beings in Research. Stuart F. Spicker *et al* (ed). Kluwer, 1988.
255. Verity, Chris, Nicoll, Angus. Consent, Confidentiality, and the Threat to Public Health Surveillance. British Medical Journal, Vol 324 (2002).
256. Warren, Adam, Dearnley, James, Oppenheim, Charles. Sources of Literature on Data Protection and Human Rights. - The Journal of Information, Law and Technology 2001, No 2. Available: http://elj.warwick.ac.uk/jilt/01-2/warren.html.
257. Warren, Samuel D., Brandeis, Louis D. The Right to Privacy. - Harvard Law Review, Vol 4 (1890), No 5.
258. Wear, Stephen. Informed Consent: Patient Autonomy and Physician Beneficence Within Clinical Medicine. Dordrecht, Boston, London: Kluwer Academic Publishers, 1993.
259. Weir, Robert F. Differing Perspectives on Consent, Choice and Control. - Human DNA: Law and Policy International and Comparative Perspectives Bartha Maria Knoppers, Claude M. Laberge, Marie Hirtle (ed). The Hague, London, Boston: Kluwer Law International, 1997.
260. Weir, Robert F. Advance Directives for the Use of Stored Tissue Samples. - Stored Tissue Samples. Ethical, Legal, and Public Policy Implications. Robert F. Weir (ed). Iowa: University of Iowa Press, 1998.
261. Weldon, Sue. "Public Consent" or "Scientific Citizenship"? What Counts as Public Participation in Population-Based DNA Collections? Genetic Databases: Socio-Ethical

Issues in the Collection and Use of DNA. Richard Tutton, Oonagh Corrigan (ed). London, New York: Routledge, 2004.
262. Wendler, David, Emanuel, Ezekiel. The Debate Over Research on Stored Biological Samples: What Do Sources Think? - Archives of Internal Medicine, Vol 162 (2002), No 13. Study description and results also available: http://www.bioethics.nih.gov/research/humanres/Storedsamples.pdf.
263. Wilson, Sarah. Population Biobanks and Social Justice: Commercial or Communitarian Models? A Comparative Analysis of Benefit Sharing, Ownership and Access Arrangements. - Trames, Vol 8 (2004), No 1/2.
264. Williams, Garrath, Schroeder, Doris. Human Genetic Banking and the Limits of Informed Consent. - Reconfiguring Nature. Issues and Debates in the New Genetics. Peter Glasner (ed). Aldershot: Ashgate, 2004.
265. Winickoff, David E. Governing Population Genomics: Law, Bioethics, and Biopolitics in Three Case Studies. – Jurimetrics Journal, Vol 43 (2003).
266. Winickoff, David E., Winickoff, Richard N. The Charitable Trust as a Model for Genomic Biobanks. – New England Journal of Medicine, Vol 349, No 12.
267. Winter, Stefan F., Fenger, Hermann, Schreiber, Hans-Ludwig (ed). Genmedizin und Recht. Rahmenbedingungen und regeleungen für Forschung, Entwicklung, Klinik, Verwaltung. München: Beck, 2001.
268. Wylie, Jean E., Mineau, Geraldine P. Biomedical Databases: Protecting Privacy and Promoting Research. - Trends in Biotechnology, Vol 21 (2003), No 3.
269. Zilgalvis, Peteris. Research on Organs, Cells and Tissues. - Frontiers of European Health Law. Yearbook 2002. Andre den Exter, Judit Sandor (ed). Erasmus University Press, 2003.

REFERRED POLICY DOCUMENTS

270. Europeans and Biotechnology in 2002. Eurobarometer 58.0 (2nd Edition: March 21st 2003). A report to the EC Directorate General for Research from the project 'Life Sciences in European Society' QLG7-CT-1999-00286. Available: http://europa.eu.int/comm/public_opinion/archives/ebs/ebs_177_en.pdf.
271. 25 Recommendations to the EU on the ethical, legal and social implications of genetic testing, 2004. Available: http://europa.eu.int/comm/research/conferences/2004/genetic/pdf/recommendations_en.pdf.
272. American Medical Association. Code of Medical Ethics, 1847. Available: http://www.ama-assn.org/ama/upload/mm/369/1847code.pdf.
273. American Society of Human Genetics. Statement on Informed Consent for Genetic Research, 1996. Available on the Internet at http://genetics.faseb.org/genetics/ashg/policy/pol-25.htm 22.05.2004.
274. Australian Law Reform Commission. Essentially Yours. The Protection of Human Genetic Information in Australia, 2003. Available: http://www.austlii.edu.au/au/other/alrc/publications/reports/96/.
275. Barcelona Declaration. Basic Ethical Principles in Bioethics and Biolaw. Available: http://www.ruhr-uni-bochum.de/zme/.
276. Biobanks for Health. Optimising the Use of European Biobanks and Health Registries for Research Relevant to Public Health and Combating Disease. Report and Recommendations, 2003. Available: http://www.fhi.no/dav/87D4A120459E4FB8827DD7E98DFEBB1C.doc.
277. *Comité consultatif national d'éthique*, France. Opinion No 77. Ethical Issues raised by collections of biological material and associated information data: "biobanks", biolibraries", 2003. Available: http://www.ccne-ethique.fr/english/pdf/avis077.pdf.
278. European Network of Cancer Registries. Guidelines on Confidentiality in Population-Based Cancer Registration in the European Union, 2002. Available: http://www.encr.com.fr/confidentiality.pdf.
279. European Society of Human Genetics. Recommendations on Data Storage and DNA Banking for Biomedical Research: Technical, Social and Ethical Issues, 2001. Available: http://www.eshg.org/ESHGDNAbankingrec.pdf.
280. European Union Data Protection Working Party. Working Document on Genetic Data. Draft 17 March 2004. Available: http://europa.eu.int/comm/internal_market/privacy/docs/wpdocs/2004/wp91_en.pdf.
281. European Union. First report on the implementation of the Data Protection Directive (95/46/EC). COM(2003) 265 final. Available: http://europa.eu.int/eur-lex/en/com/rpt/2003/com2003_0265en01.pdf.
282. House of Lords. Select Committee on Science and Technology, the United Kingdom. Fourth Report. Human Genetic Databases – challenges and opportunities. Available: http://www.parliament.the-stationery-office.co.uk/pa/ld200001/ldselect/ldsctech/57/5701.htm.
283. HUGO Ethics Committee Statement on DNA Sampling: Control and Access, 1998. Available: http://www.biol.tsukuba.ac.jp/~macer/hugo2.html.
284. HUGO Ethics Committee Statement on Human Genomic Databases, 2002. Available: http://www.hugo-international.org/Statement_on_Human_Genomic_Databases.htm.
285. Human Genetics Commission, the United Kingdom. Inside Information: Balancing interests in the use of personal genetic data, May 2002.
286. Ljubljana Charter on Reforming Health Care, 1996. Available: http://www.euro.who.int/eprise/main/WHO/AboutWHO/Policy/20010927_5.
287. Medical Research Council, the United Kingdom. Human tissue and biological samples for use in research 2001. Available: http://www.mrc.ac.uk/pdf-tissue_guide_fin.pdf.

288. National Bioethics Advisory Commission, the United States. Research Involving Human Biological Materials: Ethical Issues and Policy Guidance, 1999. Available: http://www.georgetown.edu/research/nrcbl/nbac/hbm.pdf.
289. National Bioethics Advisory Commission, the United States. Ethical and Policy Issues in Research Involving Human Participants, 2001. Available: http://www.georgetown.edu/research/nrcbl/nbac/human/overvol1.pdf.
290. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, the United States. The Belmont Report. Ethical Principles and Guidelines for the Protection of Human Subjects of Research, 1979. Available: http://ohsr.od.nih.gov/mpa/belmont.php3.
291. *Nationaler Ethikrat*, Germany. Joint declaration of *Comité consultatif national d'éthique* and *Nationaler Ethikrat* on the theme Biobanks, 2003. Available: http://www.ccne-ethique.fr/english/pdf/avis077.pdf. German version available: http://www.ethikrat.org/themen/pdf/gemeinsame_Erklaerung_NER-CCNE.pdf.
292. *Nationaler Ethikrat*, Germany. Opinion: Biobanks for research, 2004. Available: http://www.ethikrat.org/_english/publications/Opinion_Biobanks-for-research.pdf. German version available: http://www.ethikrat.org/themen/pdf/Stellungnahme_Biobanken_04-03-17.pdf.
293. Nuffield Council on Bioethics, the United Kingdom. Human Tissue: Ethical and Legal Issues, 1995. Available: http://www.nuffieldbioethics.org/fileLibrary/pdf/human_tissue.pdf.
294. Office for Human Research Protections, the United States. Institutional Review Board Guidebook, 1993. Available: http://ohrp.osophs.dhhs.gov/irb/irb_guidebook.htm.
295. Royal Liverpool Children's Inquiry: Summary & Recommendations, 2001. Available: http://www.rlcinquiry.org.uk/download/sum.pdf.
296. UK Biobank Briefing Note, April 2004. Available: http://www.ukbiobank.ac.uk/Documents/long%20briefing%20paper.pdf.
297. UK Biobank Ethics and Governance Framework. Version 1. Available: http://www.wellcome.ac.uk/en/images/ukgene bank_egf_comments2_7439.doc.
298. UK Biobank Ethics and Governance Framework Background Document. Available: http://www.ukbiobank.ac.uk/documents/egf-background.doc.
299. UK Biobank Protocol. A study of genes, environment and health. Available: http://www.ukbiobank.ac.uk/documents/draft_protocol.pdf.
300. UK Information Commissioner. Use and Disclosure of Health Data, 2002. Avaialable: http://ico-cms.amaze.co.uk/DocumentUploads/use%20and%20disclosure%20of%20health%20data.pdf.
301. UNESCO Report on Confidentiality and Genetic Data. A report to the International Bioethics Committee at UNESCO, 2000. UNESCO document BIO-503/99/CIB-6/GT-2/3. Available: http://portal.unesco.org/shs/en/file_download.php/82e7c58d69d425a6fd9f100171e3c072Rapfinal_gendata_en.pdf.
302. World Health Organization. European Partnership on Patients' Rights and Citizens' Empowerment. Genetic Databases: Assessing the Benefits and the Impact on Human & Patient Rights, 2003. Available: http://www.law.ed.ac.uk/ahrb/publications/online/whofinalreport.pdf.
303. World Health Organization. European Partnership on Patients' Rights and Citizens' Empowerment, 2003. Genetic Databases: Assessing the Benefits and the Impact on Human & Patient Rights. Available: http://www.law.ed.ac.uk/ahrb/publications/online/whofinalreport.pdf.
304. World Health Organization. Proposed International Guidelines on Ethical Issues In Medical Genetics and Genetic Services, 1998. Available: http://whqlibdoc.who.int/hq/1998/WHO_HGN_GL_ETH_98.1.pdf.

REFERRED LEGAL INSTRUMENTS

INTERNATIONAL

UNITED NATIONS AND ITS ORGANIZATIONS

305. Universal Declaration of Human Rights, 1948. Available: http://www.un.org/Overview/rights.html.
306. International Covenant on Civil and Political Rights, 1966. Available: http://www.unhchr.ch/html/menu3/b/a_ccpr.htm.
307. International Covenant on Economic, Social and Cultural Rights, 1966. Available: http://www.unhchr.ch/html/menu3/b/a_cescr.htm.
308. UNESCO International Declaration on Human Genetic Data. Available: http://unesdoc.unesco.org/images/0013/001331/133171e.pdf#page=45.
309. UNESCO Universal Declaration on the Human Genome and Human Rights. Available: http://www.unesco.org/shs/human_rights/hrbc.htm.

COUNCIL OF EUROPE

310. Convention for the Protection of Human Rights and Fundamental Freedom, 1950. European Treaty Series 005. Available: http://www.echr.coe.int/Convention/webConvenENG.pdf.
311. Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine: Convention on Human Rights and Biomedicine, 1997. European Treaty Series No 164.
312. Explanatory Report to the Convention on Human Rights and Biomedicine. Available: http://conventions.coe.int/Treaty/en/Reports/Html/164.htm.
313. Additional Protocol to the Convention on Human Rights and Biomedicine on the Prohibition of Cloning Human Beings, 1998. European Treaty Series No 168
314. Additional Protocol to the Convention on Human Rights and Biomedicine regarding Biomedical Research, 2005. European Treaty Series No 195.
315. Explanatory Report to the Additional Protocol to the Convention on Human Rights and Biomedicine on Biomedical Research. Council of Europe. Available: http://conventions.coe.int/Treaty/EN/Reports/Html/195.htm.
316. Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data, 1981. European Treaty Series No 108.
317. Additional Protocol to the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data regarding supervisory authorities and transborder data flows. European Treaty Series No 181.
318. Revised European Code of Social Security, 1990. European Treaty Series No 139.
319. Revised European Social Charter, 1996. European Treaty Series No 163.
320. Recommendation No R (81) 1 of the Committee of Ministers to Member States on regulations for automated medical data banks. Available: cm.coe.int/ta/rec/1981/81r1.htm.
321. Explanatory Memorandum to the Recommendation No R (81) 1. Available: http://www.coe.fr/DataProtection/rec/r(81)1e.htm.
322. Recommendation No R (83) 10 of the Committee of Ministers to Member States on the Protection of Personal Data Used for Scientific Research and Statistics. Available: http://www.coe.int/T/E/Legal%5Faffairs/Legal%5Fco%2Doperation/Data%5Fprotection/Documents/International%5Flegal%5Finstruments/Recommendation%20(83)%2010.asp#TopOfPage.
323. Recommendation No R (97) 5 of the Committee of Ministers to Member States on the Protection of Medical Data. Available: http://cm.coe.int/ta/rec/1997/97r5.html.

324. Explanatory Memorandum to Recommendation No R (97) 5 of the Committee of Ministers to Member States on the Protection of Medical Data. Available: http://cm.coe.int/ta/rec/1997/ExpRec(97)5.htm.
325. Proposal for an instrument on the use of archived human biological materials in biomedical research. Explanatory Report. Available: http://www.coe.int/T/E/Legal%5FAffairs/Legal%5Fco%2Doperation/Bioethics/Activities/Biomedical_research/CDBI-INF(2002)6E.pdf.
326. Resolution 1165 on the Right to privacy adopted by the Parliamentary Assembly of the Council of Europe on 26 June 1998. Available: http://assembly.coe.int/Documents/AdoptedText/ta98/ERES1165.htm.
327. Draft Instrument on Human Genetics. Council of Europe, document reference: CDBI (2004) 14. Not published, the author has a copy.
328. Draft Recommendation on Research on Human Biological Materials. Council of Europe, document reference: CDBI-CO-GT2biomat/RAP 3. Not published, the author has a copy.
329. Proposal for an instrument on the use of archived human biological materials in biomedical research. Council of Europe. Available: http://www.coe.int/T/E/Legal%5FAffairs/Legal%5Fco%2Doperation/Bioethics/Activities/Biomedical_research/CDBI-INF(2002)5E.pdf.

EUROPEAN UNION AND EUROPEAN COMMUNITY

330. Charter of Fundamental Rights of the European Union. OJ C364, 18.12.2000, p 1-22.
331. Explanatory Report to the Charter of Fundamental Rights of the European Union. Available: http://www.europarl.eu.int/charter/pdf/04473_en.pdf.
332. Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions. – OJ L 213, 30.7.1998, p 13-26
333. Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. OJ L 281, 23.11.1995, p 31 - 50.
334. Directive 2001/20/EC of the European Parliament and of the Council of 4 April 2001 on the approximation of the laws, regulations and administrative provisions of the Member States relating to the implementation of good clinical practice in the conduct of clinical trials on medicinal products for human use. OJ L 121, 01.05.2001, p 34-44.
335. Directive 2002/98/EC of the European Parliament and of the Council of 27 January 2003 setting standards of quality and safety for the collection, testing, processing, storage and distribution of human blood and blood componentsand amending Directive 2001/83/EC. OJ L 33, 08.02.2003, p 30-40.
336. Directive 2004/23/EC of the European Parliament and of the Council of 31 March 2004 on setting standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human tissues and cells. OJ L 102, 07.04.2004, p 48-58.

WORLD MEDICAL ORGANIZATION

337. Declaration of Geneva. Physician's Oath. Adopted by the General Assembly of the World Medical Association at Geneva in September 1948 and amended by the 22nd World Medical Assembly at Sydney, 1968. Available: http://www.cirp.org/library/ethics/geneva/.
338. International Code of Medical Ethics. Adopted by the Third General Assembly of the World Medical Association at London, 1949. Available: http://www.cirp.org/library/ethics/intlcode/.
339. Declaration of Helsinki. Adopted by the 18th World Medical Association General Assembly at Helsinki in June 1964; lastly amended by the 52nd World Medical

Association General Assembly at Edinburgh in October 2000. Original text printed in British Medical Journal, Vol 2 (1964). Currently effective version is available: http://www.wma.net/e/policy/b3.htm.
340. Declaration on Ethical Considerations Regarding Health Databases. Adopted by the WMA General Assembly, Washington 2002. Available: http://www.wma.net/e/policy/d1.htm.

OTHER ORGANIZATIONS
341. International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use, 1996. ICH Harmonised Tripartite Guideline for Good Clinical Practice - E6. Available: http://www.ich.org/MediaServer.jser?@_ID=482&@_MODE=GLB.
342. International Guidelines for Ethical Review of Epidemiological Studies. CIOMS, 1991. Available: http://www.cioms.ch/frame_1991_texts_of_guidelines.htm.
343. International Ethical Guidelines for Biomedical Research Involving Human Subjects. CIOMS, 2002. Available: http://www.cioms.ch/frame_guidelines_nov_2002.htm.

NATIONAL LEGISLATIVE DOCUMENTS
ESTONIA
344. Family Law (Estonian title *Perekonnaseadus*); adopted on 12.10.2004, published in RT I 1994, 75, 1326). English translation available: http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X1017K5&keel=en&pg=1&ptyyp=RT&tyyp=X&query=perekonnaseadus.
345. Human Gene Research Act (Estonian name *Inimgeeniuuringute seadus*); adopted on 13.12.2001, published in RT I 2000, 104, 685. English translation available: http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X50010&keel=en&pg=1&ptyyp=RT&tyyp=X&query=inimgeeni. German translation available in: Jahrbuch für Ostrecht, Vol 42 (2001), p 459-470. Russian translation available: http://www.geenivaramu.ee/index.php?lang=rus&sub=17&eetika=1.
346. Explanatory Report to the Human Gene Research Act. Available: http://web.riigikogu.ee/ems/saros-bin/mgetdoc?itemid=003672949&login=proov&password=&system=ems&server=ragne1.
347. Conditions for storage of DNA samples, coded descriptions of DNA and coded descriptions of state of health (Estonian name *Geenidoonori kodeeritud koeproovi, DNA kirjelduse ja terviseseisundi kirjelduse säilitamise tingimused*); Decree No 127 of the Minister of Social Affairs, 17 December 2001, published in RTL 2002, 1, 8.
348. Format of gene donor's consent and the procedure for the completion and preservation thereof (Estonian name *Geenidoonoriks saamise nõusoleku vorm, selle täitmise ja säilitamise kord*); Decree No 125 of the Minister of Social Affairs, 17 December 2001, published in RTL 2002, 1, 6.
349. Procedure for destroying data which enables decoding, tissue samples, descriptions of DNA and descriptions of state of health (Estonian name *Geenidoonori koeproovi, DNA kirjelduse, terviseseisundi kirjelduse ja tagasikodeerimist võimaldavate andmete hävitamise kord*); Decree No 128 of the Minister of Social Affairs, 17 December 2001, published in RTL 2002, 1, 9.
350. Procedure for issuing tissue samples, descriptions of DNA and descriptions of state of health (Estonian name *Geenidoonori koeproovi, DNA kirjelduse ja terviseseisundi kirjelduse väljastamise kord*); Decree No 126 of the Minister of Social Affairs, 17 December 2001, published in RTL 2002, 1, 7.
351. Requirements for authorised processors of Gene Bank (Estonian name *Geenivaramu volitatud töötlejale esitatavad nõuded*); Decree No 43 of the Estonian Government, 23 January 2002, published in RT I 2002, 10, 57.

352. Penal Code (Estonian title *Karistusseadustik*); adopted on 06.06.2001, published in RT I 2002, 86, 504). English translation available: http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X30068K4&keel=en&pg=1&ptyyp=RT&tyyp=X&query=karistusseadustik.

GERMANY

353. Penal Code (German name *Strafgestzbuch*), adopted on 15.05.1871, published in *Reichsgesetzblatt* 1871, S. 127.
354. Civil Code (German title *Bürgerliches Gesetzbuch*), adopted on 18.08.1896, published in *Reichsgesetzblatt* 1896, S. 195.

ICELAND

355. Regulations on the keeping and utilisation of biological samples in biobanks No 134/2001. Icelandic name *Reglugerd um vörslu og nýtingu lífsýna í lífsýnasöfnum*. Adopted 6 February 2001, entry into force 6 February 2001. English translation available: http://brunnur.stjr.is/interpro/htr/htr.nsf/pages/lawsandregs0001.
356. Act on the Rights of Patients No 74/1997. Icelandic name *Lög um réttindi sjúklinga*. Passed 28 May 1997, entry into force 1 July 1997. English translation available: http://heilbrigdisraduneyti.is/interpro/htr/htr.nsf/pages/act-rightspatients.
357. Biobanks Act No 110/2000. Icelandic name *Lög um lífsýnasöfn*. Passed 13 May 2000, entry into force 1 January 2001. English translation available: http://brunnur.stjr.is/interpro/htr/htr.nsf/pages/Act-biobanks.
358. Act on a Health Sector Database No 139/1998. Icelandic name: *Lög um gagnagrunn á heilbrigðissviði*. Passed 17 December 1998, entry into force 17 December 1998. English translation available: http://brunnur.stjr.is/interpro/htr/htr.nsf/pages/gagngr-log-ensk.
359. Bill on a Health Sector Database. Available: http://brunnur.stjr.is/interpro/htr/htr.nsf/pages/gagnagr-ensk#1.
360. First draft of the Icelandic health Sector Database Act. Available: http://www.mannvernd.is/english/laws/HSDbill_english_firstdraft_140797.html.

NORWAY

361. Act on Biobanks No 2003/12. Norwegian name *Lov om Biobanker*. Passed on 21 February 2003, entry into force 1 July 2003. Available: http://www.lovdata.no/all/nl-20030221-012.html.

SWEDEN

362. Biobanks [Health Care] Act. Passed 23 May 2002, entry into force 1 January 2003. English translation available: http://www.codex.uu.se/texts/Swedish%20Act%20on%20Biobanks%20in%20Health%20Care.doc.

UNITED KINGDOM

363. United Kingdom Human Tissue Bill. Available: http://www.parliament.the-stationery-office.co.uk/pa/cm200304/cmbills/009/2004009.pdf.

UNITED STATES

364. United States Genetic Privacy Act and Commentary. Available: http://www.bumc.bu.edu/www/sph/lw/pvl/act.html.
365. Code of Federal Regulations, Title 45 Public Welfare, Part 46 Protection of Human Subjects. Available: http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm

REFERRED CASE LAW

EUROPEAN COURT OF HUMAN RIGHTS

366. *Amann v. Switzerland*, 16.02.2000, application No 27798/95.
367. *Andersson v Sweden*, 25.02.1992, application 12963/87.
368. *Friedl v. Austria*, 19.05.1994, application No 15225/89.
369. *Gaskin v. the United Kingdom*, 07.07.1989, application No 10454/83.
370. *Keegan v. Ireland*, 26.05.1994, application No 16969/90.
371. *Laskey, Jaggard and Brown v. the United Kingdom*, 19.02.1997, applications No 21627/93, 21826/93, 21974/93.
372. *Leander v. Sweden*, 26.03.1987, application No 9248/81.
373. *M.G. v. the United Kingdom*, 24.09.2002, application No 39393/98.
374. *M.S. v. Sweden*, 27.08.1997, application No 20837/92.
375. *Malone v. the United Kingdom*, 02.08.1984, application No 8691/79.
376. *Marckx v. Belgium*, 13.06.1979, application No 6833/74.
377. *Murray v. the United Kingdom*, 28.10.1994, application No 14310/88.
378. *Niemietz v. Germany*, 16.12.1992, application No 13710/1988.
379. *P.G. and J.H. v. the United Kingdom*, 25.09.01, application No 44787/98.
380. *Peck v. the United Kingdom*, 28.01.2003, application No 44647/98.
381. *Perry v. the United Kingdom*, 17.07.2003, application No 63737/00.
382. *Pretty v. the United Kingdom*, 29.04.2002, application No 2346/02.
383. *Rees v. the United Kingdom*, 17.10.1986, application No 9532/81.
384. *Rotaru v. Romania*, 04.05.2000, application No 28341/95.
385. *von Hanover v. Germany*, 24.06.2004, application No 59320/00.
386. *X. v. the United Kingdom*, 12.10.1973, application No 5877/72.
387. *Z. v. Finland*, 25.02.1997, application No 22009/93.
388. *X v Germany*, 10.03.1981, application No 874/79 COMMISSION.

EUROPEAN COURT OF JUSTICE, COURT OF FIRST INSTANCE

389. Court of First Instance. *Commission of the European Communities v Germany*, 26.01.1995, Case C-62/90.
390. *X v. Commission of the European Communities*, 05.10.1994, Case C-404/92.

GERMANY

391. *Entscheidungen des Reichsgerichts in Strafsachen*. Vol 25 (1894), S 375.
392. *Entscheidungen des Bundesgerichtshofs in Strafsachen*. Vol 11 (1961), S 111.

ICELAND

393. *Ragnhildur Guðmundsdóttir v. The State of Iceland*. Verdict of the Icelandic Supreme Court of 27 November 2003. Available: http://www.mannvernd.is/english/lawsuits/Icelandic_Supreme_Court_Verdict_151_2003.pdf.

UNITED STATES

394. *Canterbury v. Spence et al*. 464 F.2d 772.
395. *John Moore v the Regents of the University of California et al.* 51 Cal.3d 120.
396. *Miranda v Arizona*. 384 US 436 (1966).
397. *Mohr v. Williams*. 104 N.W. 12 (1905).
398. *Natanson v. Kline*. 186 Kan. 393, 350, P.2d 1093.
399. *Rolater v. Strain.* 39 Okla. 572 (1913).
400. *Salgo v Leland Stanford Jr. University Board of Trustees et al*. 154 Cal.App.2d 560.
401. *Schloendorff v. Society of New York Hospitals*. 105 N.E. 92 (1914).

402. *Pratt v. Davis.* 224 Ill 300. (1906).

UNITED KINGDOM
403. *Bolam v Friern Hospital Management Committee*, [1957] 1 W.L.R. 582.
404. *Chatterston v. Gerson and Another*, [1981] Q.B. 432 [1976 C. No 1138] QBD.
405. *H.M.Advocate v. Rutherford*, 1947 S.L.T.3.
406. *The King v. Donovan*, 2 KB 498, [1934].
407. *Sidaway v Board of Governors of the Bethlem Royal Hospital et al*, [1985] A.C. 871.
408. *Slater v. Baker and Stapleton*, 95 Eng. 860, 2 Wils. KB 359 (1767).
409. *R v. Instan*, [1893] 1 QB at 453.
410. *R v. Brown*, [1994] 1 AC 212.
411. *Re T. (Adult: Refusal of Treatment)*, [1993] Fam. 95.

OTHERS
412. *United States v. Karl Brandt et al*. Nuremberg Military Tribunal Porceedings. Available: http://www.mazal.org/NMT-HOME.htm.

OTHER SOURCES

INTERNET SITES

413. http://conventions.coe.int/Treaty/Commun/ChercheSig.asp?NT=164&CM=1&DF=13/02/04&CL=ENG.
414. http://snp.cshl.org/
415. http://www.bristol-inquiry.org.uk/final_report/.
416. http://www.cioms.ch/frame_what_is_cioms.htm.
417. http://www.coe.int/T/E/Legal_affairs/Legal_co-operation/Data_protection/Background/2Presentation.asp#TopOfPage.
418. http://www.datanation.com/fallacies/distract/ss.htm.
419. http://www.decode.com
420. http://www.decode.com/main/view.jsp?branch=167011&e342RecordID=2221&e342DataStoreID=3917.
421. http://www.decode.com/main/view.jsp?branch=174516&e342RecordID=488&e342DataStoreID=3917.
422. http://www.elsagen.net
423. http://www.gdb.org/hugo
424. http://www.geenivaramu.ee/mp3/Issuance_of_the_data.pdf.
425. http://www.hapmap.org/downloads/elsi/consent/Consent_Form_Template.doc.
426. http://www.mannvernd.is/english/optout.html.
427. http://www.shareholder.com/common/edgar/1022974/1047469-04-8049/04-00.pdf.
428. http://www.sm.ee/est/pages/index.html.

MISCELLANEOUS

429. Compendium of documents of the Council of Europe on Bioethical Matters. Available: http://www.coe.int/T/E/Legal%5FAffairs/Legal%5Fco%2Doperation/Bioethics/Texts%5Fand%5Fdocuments/(INF_2004_6e%20PROV_vol_I_textes_CoE_bioethique).pdf and http://www.coe.int/T/E/Legal%5FAffairs/Legal%5Fco%2Doperation/Bioethics/Texts%5Fand%5Fdocuments/(INF_2004_6e_vol_II_textes_CoE_bioethique).pdf.
430. Council of Europe, Steering Committee on Bioethics (CDBI), Document No CDBI-CO-GT2 (99) 7, dated 24 February 1999, Section 4.2.
431. Council of Europe. Steering Committee on Bioethics (CDBI). Document No CDBI-CO-GT2 (99) 7, dated 24 February 1999.
432. Nature, Vol 409, 15 February 2001.
433. Personal communication with Piia Tammpuu. 25.05.2004
434. Roche Genetics Education Program. CD Version 4.0.0
435. Science, Vol 261, 16 February 2001;
436. Europeans and Biotechnology in 2002. Eurobarometer 58.0 (2nd Edition: March 21st 2003). A report to the EC Directorate General for Research from the project 'Life Sciences in European Society' QLG7-CT-1999-00286. Available: http://europa.eu.int/comm/public_opinion/archives/ebs/ebs_177_en.pdf.

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IV MEMBERSHIP

- Estonian Society of Academic Jurisprudence, member since 1998;
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- Legal Comparison and Harmonisation of Doping Rules, University of Erlangen, TCM Asser Institute of the Hague, Max Planck Institute of Freiburg, 2001;
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- Privacy in Research Ethics and Law (Privireal), financed by the European Union, www.privireal.org

LIST OF PUBLICATIONS

1. Further Development of a Problem: *Culpa in Contrahendo* and Letter of Intent. – Juridica, 1999, No 1, p 22-26 (in Estonian);
2. Transfer of a Co-Owned Apartment. - Juridica, 1999, No 3, p 133-135 (in Estonian);
3. The Criminal Case of the Coctors of Jehovah's Witnesses' Child. - Juridica, 2000, No 4, p 212-223 (in Estonian);
4. Human Body as an Object of Property and Patent Law – a Path to Modern Slavery? - Juridica, 2000, No 6, p 351-368 (in Estonian);
5. The Case of Stigma Abortion. - Juridica, 2000, No 7, p 435-450 (in Estonian);
6. On the Legal Regulation of Genetic Testing. - Juridica, 2001, No 2, p 113-123 (in Estonian);
7. Legal Liability of a Physician I. - Eesti Arst, Vol 81 (2002), No 1, p 43-48 (in Estonian);
8. Legal Liability of a Physician II. - Eesti Arst, Vol 81 (2002), No 2, p 102-109 (in Estonian);
9. Human Genes Research Act: a Pioneer in Regulating Biomedical Research. - Juridica, 2002, No 3, p 155-163 (in Estonian);
10. Comments to the articles on medical law. Estonian Penal Code. Commented Edition. Jaan Sootak, Priit Pikamäe (ed), Tallinn: Juura, 2002;
11. Legal Liability and Quality in Medicine. - Eesti Arst, Vol 82 (2003), Supplement I, p 19-22;
12. Societal Contract in the Context of the Estonian Genome Project. - Vikerkaar, 2004, No 1-2, p 137-142 (in Estonian);
13. Ants Nõmper, Jaan Sootak. Estonia and Iceland - Pioneers in Regulating Genebanks. In: Strafrecht, Biorecht, Rechtsphilosophie. Festschrift für Hans-Ludwig Schreiber. Knut Amelung *et al* eds. Heidelberg: C.F.Müller, 2003 (in German);
14. Estonian Genome Project: Legal Aspects. - Novõi Tallinn. Literatura, Isskustvo, Kritika, 2003, No 3-4, p 28-33 (in Russian);
15. Ants Nõmper, Taavi Annus. The Right to Health Protection in the Estonian Constitution. - Juridica International, 2002, No 1, p 117-126;
16. Ants Nõmper, Jüri Raidla. The Estonian Genome Project and the Human Gene Research Act. - Baltic Yearbook of International Law, Vol 2 (2002);
17. Ants Nõmper, Krista Kruuv. The Estonian Genome Project. - Society and Genetic Information. Codes and Laws in the Genetic Era. Judit Sandor (ed), Budapest: CEU Press, 2003, p 213-225;

18. Estonian Human Gene Research Act and its Implementation. - Ethics of Human Genetics. Josef Glasa (ed), Strasbourg: Council of Europe, 2003;
19. Ants Nõmper, Raino Paron. Changes in the Legal Status and Liability of Members of Management and Supervisory Boards in Estonia. - International Financial Law Review. Corporate Governance 2003, p 86-89;
20. Ants Nõmper *et al*. Population Genetic Databases: a Comparative Analysis of the Law in Iceland, Sweden, Estonia and the UK. Trames. - Journal of the Humanities and Social Sciences, Vol 8 (2004), No 1/2, p 15-33;
21. What is Wrong with Using Anonymized Data and Tissue for Research Purposes? - Blood and Data. Gardar Arnason, Salvör Nordal, Vilhjalmur Arnason (ed), Reykjavik: University of Iceland Press, 2004, p 121-126;
22. Research Ethics Committees in Estonia. EACME Newsletter, Vol 10 (2004);
23. Clinical Ethics Committees in Estonia - First Steps on a Long Way. - UK Clinical Ethics Network. Available: http://www.ethics-network.org.uk/international/intlspec/estonia.htm ;
24. Personal Data Protection Regulation in Estonia and Directive 95/46/EC. In: Implementation of the Data Protection Directive in Relation to Medical Research in Europe. Derryck Beyleveld *et al* (ed), Aldershot: Ashgate, 2004, p 73-85;
25. Book review of "Genetic Databases: Socio-Ethical Issues in the Collection and Use of DNA. Richard Tutton, Oonagh Corrigan (ed), London, New York: Routledge". SCRIPT-ed. A Journal of Law and Technology. Issue 3 (2004). Available: http://www.law.ed.ac.uk/ahrb/script-ed/issue3/genetic-review.asp;
26. Transforming Principles of Biolaw into National Legislation: Comparison of Four National Laws in Three Aspects. - Your Genes in a National Bank? Ethical, Legal and Social Concerns. Vilhjálmur Árnason, Gardar Árnason, Ruth Chadwick, Matti Häyry (ed), Cambridge University Press, in press, (approx 15 p);
27. Genome laws of Estonia and Latvia – Monozygotic Twins. - *Eetikakeskuse aastaraaamat* (2001-2004), Tartu: *Eesti Keele Sihtasutus*, 2005 (approx 20 p) (in Estonian);
28. Ants Nõmper *et al*. Regulation of Ethical Aspects of Scientific Research in Estonia. Brussels: European Commission, in press, (approx 20 p) (in Estonian and in English).

Over 10 contributions to the Estonian daily newspapers and medical journals.