

Organs, Tissues and Cells

Safety, Quality and Ethical Matters Concerning Procurement, Storage and Transplantation

Council of Europe Convention, Resolutions,
Recommendations and Reports

2nd Edition



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Quality and Ethical Matters
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Storage and Transplantation**

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and Reports

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Foreword

Founded in 1949, the Council of Europe is the oldest and largest of all European institutions and now numbers 47 member states. One of its founding principles is that of increasing co-operation between member states to improve the quality of life of all Europeans.

Within the context of inter governmental co-operation in the field of health, the Council of Europe has consistently selected ethical problems for study. One of the most important of these ethical issues relates to the non-commercialisation of human substances, i.e. blood, organs, tissues and cells.

The human right to health and dignity includes the recognition of all human needs for transplantation. Every country should progress towards the global goal of meeting patients' needs based on their individual resource availability and levels of economic and health system development, and through regulated and ethical regional or international co-operation when needed. Therefore, all countries need a legal and professional framework to govern organ donation and transplantation activities, as well as quality management and transparent regulatory oversight systems that ensure donor and recipient safety and the enforcement of standards and prohibitions on unethical practices.

The work of the Council of Europe in the area of organ, tissue and cell transplantation started in 1987, and it actively contributes to the implementation of high standards for the protection of public health and for the promotion of human rights and dignity. In 2007, the Secretariat with responsibility for activities related to organ, tissue and cell transplantation was transferred to the European Directorate for

the Quality of Medicines and HealthCare (EDQM) of the Council of Europe.

The European Committee on Organ Transplantation (CD-P-TO) is the steering committee in charge of organ transplantation activities at the EDQM. It actively promotes the non-commercialisation of organ donation, the protection of donors and recipients of organs, tissues and cells, the fight against organ trafficking and the development of ethical, quality and safety standards in the field of organ, tissue and cell transplantation.

Within the framework of sharing knowledge through international co-operation, the Council of Europe and the CD-P-TO and its predecessors have elaborated widely recognised legal instruments, reports and surveys in the field of transplantation covering ethical, social, scientific and training aspects of organ, tissue and cell donation and transplantation.

Whereas agreements and conventions are binding on the states that ratify them, resolutions and recommendations are policy statements that propose a common course of action that governments can follow.

Additionally, since 2002, the CD-P-TO has been publishing the *Guide to the Safety and Quality Assurance for the Transplantation of Organs, Tissues and Cells*.¹ This Guide deals with different aspects of the transplantation process, from risk assessment to disease transmission, collating information to provide transplant professionals with a useful overview of the most recent advancements in the field.

¹ <http://www.edqm.eu/en/blood-organ-guides-1131.html>

Contents

Foreword	3
CONVENTION	9
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	11
Explanatory report to 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 (ETS No. 164) ...	29
Additional protocol to the Convention on human rights and biomedicine concerning transplantation of organs and tissues of human origin	77
Explanatory report to Additional protocol to the Convention on human rights and biomedicine concerning transplantation of organs and tissues of human origin (ETS No. 186)	89
RECOMMENDATIONS	131
Recommendation No. R (94) 1 of the Committee of Ministers to member states on human tissue banks	133
Recommendation No. R (97) 15 of the Committee of Ministers to member states on xenotransplantation	137
Recommendation No. R (97) 16 of the Committee of Ministers to member states on liver transplantation from living related donors	139
Recommendation No. R (98) 2 of the Committee of Ministers to member states on provision of haematopoietic progenitor cells.....	143

Recommendation Rec(2001)5 of the Committee of Ministers to member states on the management of organ transplant waiting lists and waiting times	149
Recommendation Rec(2003)10 of the Committee of Ministers to member states on xenotransplantation	153
Explanatory memorandum to Recommendation Rec(2003)10 of the Committee of Ministers to member states on xenotransplantation	169
Recommendation Rec(2003)12 of the Committee of Ministers to member states on organ donor registers	239
Recommendation Rec(2004)7 of the Committee of Ministers to member states on organ trafficking	245
Recommendation Rec(2004)8 of the Committee of Ministers to member states on autologous cord blood banks	253
Explanatory memorandum to Recommendation Rec(2004)8 of the Committee of Ministers to member states on autologous cord blood banks	257
Recommendation Rec(2004)19 of the Committee of Ministers to member states on criteria for the authorisation of organ transplantation facilities ..	261
Recommendation Rec(2005)11 of the Committee of Ministers to member states on the role and training of professionals responsible for organ donation (transplant “donor co-ordinators”).....	265
Recommendation Rec(2006)15 of the Committee of Ministers to member states on the background, functions and responsibilities of a National Transplant Organisation (NTO).....	269
Recommendation Rec(2006)16 of the Committee of Ministers to member states on quality improvement programmes for organ donation.....	277
RESOLUTIONS	281
Resolution (78) 29 on harmonisation of legislations of member states relating to removal, grafting and transplantation of human substances.....	283
Resolution CM/Res(2008)4 on adult-to-adult living donor liver transplantation	289

Resolution CM/Res(2008)6 on transplantation of kidneys from living donors who are not genetically related to the recipient..... 295

REPORTS.....301

Organ shortage: current status and strategies for improvement of organ donation – A European consensus document303

Executive summary of the Joint Council of Europe/United Nations Study on trafficking in organs, tissues and cells and trafficking in human beings for the purpose of the removal of organs 355

Convention

European Treaty Series – No. 164

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

Oviedo, 4.IV.1997

Preamble

The member states of the Council of Europe, the other States and the European Community, signatories hereto,

Bearing in mind the Universal Declaration of Human Rights proclaimed by the General Assembly of the United Nations on 10 December 1948;

Bearing in mind the Convention for the Protection of Human Rights and Fundamental Freedoms of 4 November 1950;

Bearing in mind the European Social Charter of 18 October 1961;

Bearing in mind the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights of 16 December 1966;

Bearing in mind the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data of 28 January 1981;

Bearing also in mind the Convention on the Rights of the Child of 20 November 1989;

Considering that the aim of the Council of Europe is the achievement of a greater unity between its members and that one of the methods by which that aim is to be pursued is the maintenance and further realisation of human rights and fundamental freedoms;

Conscious of the accelerating developments in biology and medicine;

Convinced of the need to respect the human being both as an individual and as a member of the human species and recognising the importance of ensuring the dignity of the human being;

Conscious that the misuse of biology and medicine may lead to acts endangering human dignity;

Affirming that progress in biology and medicine should be used for the benefit of present and future generations;

Stressing the need for international co-operation so that all humanity may enjoy the benefits of biology and medicine;

Recognising the importance of promoting a public debate on the questions posed by the application of biology and medicine and the responses to be given thereto;

Wishing to remind all members of society of their rights and responsibilities;

Taking account of the work of the Parliamentary Assembly in this field, including Recommendation 1160 (1991) on the preparation of a convention on bioethics;

Resolving to take such measures as are necessary to safeguard human dignity and the fundamental rights and freedoms of the individual with regard to the application of biology and medicine,

Have agreed as follows:

Chapter I – General provisions

Article 1 – Purpose and object

Parties to this Convention shall protect the dignity and identity of all human beings and guarantee everyone, without discrimination, respect for their integrity and other rights and fundamental freedoms with regard to the application of biology and medicine.

Each Party shall take in its internal law the necessary measures to give effect to the provisions of this Convention.

Article 2 – Primacy of the human being

The interests and welfare of the human being shall prevail over the sole interest of society or science.

Article 3 – Equitable access to health care

Parties, taking into account health needs and available resources, shall take appropriate measures with a view to providing, within their jurisdiction, equitable access to health care of appropriate quality.

Article 4 – Professional standards

Any intervention in the health field, including research, must be carried out in accordance with relevant professional obligations and standards.

Chapter II – Consent

Article 5 – General rule

An intervention in the health field may only be carried out after the person concerned has given free and informed consent to it.

This person shall beforehand be given appropriate information as to the purpose and nature of the intervention as well as on its consequences and risks.

The person concerned may freely withdraw consent at any time.

Article 6 – Protection of persons not able to consent

1. Subject to Articles 17 and 20 below, an intervention may only be carried out on a person who does not have the capacity to consent, for his or her direct benefit.
2. Where, according to law, a minor does not have the capacity to consent to an intervention, the intervention may only be carried out with the authorisation of his or her representative or an authority or a person or body provided for by law.
The opinion of the minor shall be taken into consideration as an increasingly determining factor in proportion to his or her age and degree of maturity.
3. Where, according to law, an adult does not have the capacity to consent to an intervention because of a mental disability, a disease or for similar reasons, the intervention may only be carried out with the authorisation of his or her representative or an authority or a person or body provided for by law.
The individual concerned shall as far as possible take part in the authorisation procedure.
4. The representative, the authority, the person or the body mentioned in paragraphs 2 and 3 above shall be given, under the same conditions, the information referred to in Article 5.

5. The authorisation referred to in paragraphs 2 and 3 above may be withdrawn at any time in the best interests of the person concerned.

Article 7 – Protection of persons who have a mental disorder

Subject to protective conditions prescribed by law, including supervisory, control and appeal procedures, a person who has a mental disorder of a serious nature may be subjected, without his or her consent, to an intervention aimed at treating his or her mental disorder only where, without such treatment, serious harm is likely to result to his or her health.

Article 8 – Emergency situation

When because of an emergency situation the appropriate consent cannot be obtained, any medically necessary intervention may be carried out immediately for the benefit of the health of the individual concerned.

Article 9 – Previously expressed wishes

The previously expressed wishes relating to a medical intervention by a patient who is not, at the time of the intervention, in a state to express his or her wishes shall be taken into account.

Chapter III – Private life and right to information

Article 10 – Private life and right to information

1. Everyone has the right to respect for private life in relation to information about his or her health.
2. Everyone is entitled to know any information collected about his or her health. However, the wishes of individuals not to be so informed shall be observed.

3. In exceptional cases, restrictions may be placed by law on the exercise of the rights contained in paragraph 2 in the interests of the patient.

Chapter IV – Human genome

Article 11 – Non-discrimination

Any form of discrimination against a person on grounds of his or her genetic heritage is prohibited.

Article 12 – Predictive genetic tests

Tests which are predictive of genetic diseases or which serve either to identify the subject as a carrier of a gene responsible for a disease or to detect a genetic predisposition or susceptibility to a disease may be performed only for health purposes or for scientific research linked to health purposes, and subject to appropriate genetic counselling.

Article 13 – Interventions on the human genome

An intervention seeking to modify the human genome may only be undertaken for preventive, diagnostic or therapeutic purposes and only if its aim is not to introduce any modification in the genome of any descendants.

Article 14 – Non-selection of sex

The use of techniques of medically assisted procreation shall not be allowed for the purpose of choosing a future child's sex, except where serious hereditary sex-related disease is to be avoided.

Chapter V – Scientific research

Article 15 – General rule

Scientific research in the field of biology and medicine shall be carried out freely, subject to the provisions of this Convention and the other legal provisions ensuring the protection of the human being.

Article 16 – Protection of persons undergoing research

Research on a person may only be undertaken if all the following conditions are met:

- i. there is no alternative of comparable effectiveness to research on humans;
- ii. the risks which may be incurred by that person are not disproportionate to the potential benefits of the research;
- iii. the research project has been approved by the competent body after independent examination of its scientific merit, including assessment of the importance of the aim of the research, and multidisciplinary review of its ethical acceptability;
- iv. the persons undergoing research have been informed of their rights and the safeguards prescribed by law for their protection;
- v. the necessary consent as provided for under Article 5 has been given expressly, specifically and is documented. Such consent may be freely withdrawn at any time.

Article 17 – Protection of persons not able to consent to research

1. Research on a person without the capacity to consent as stipulated in Article 5 may be undertaken only if all the following conditions are met:
 - i. the conditions laid down in Article 16, sub-paragraphs i to iv, are fulfilled;

- ii. the results of the research have the potential to produce real and direct benefit to his or her health;
 - iii. research of comparable effectiveness cannot be carried out on individuals capable of giving consent;
 - iv. the necessary authorisation provided for under Article 6 has been given specifically and in writing; and
 - v. the person concerned does not object.
2. Exceptionally and under the protective conditions prescribed by law, where the research has not the potential to produce results of direct benefit to the health of the person concerned, such research may be authorised subject to the conditions laid down in paragraph 1, sub-paragraphs i, iii, iv and v above, and to the following additional conditions:
 - i. the research has the aim of contributing, through significant improvement in the scientific understanding of the individual's condition, disease or disorder, to the ultimate attainment of results capable of conferring benefit to the person concerned or to other persons in the same age category or afflicted with the same disease or disorder or having the same condition;
 - ii. the research entails only minimal risk and minimal burden for the individual concerned.

Article 18 – Research on embryos *in vitro*

1. Where the law allows research on embryos *in vitro*, it shall ensure adequate protection of the embryo.
2. The creation of human embryos for research purposes is prohibited.

Chapter VI – Organ and tissue removal from living donors for transplantation purposes

Article 19 – General rule

1. Removal of organs or tissue from a living person for transplantation purposes may be carried out solely for the therapeutic benefit of the recipient and where there is no suitable organ or tissue available from a deceased person and no other alternative therapeutic method of comparable effectiveness.
2. The necessary consent as provided for under Article 5 must have been given expressly and specifically either in written form or before an official body.

Article 20 – Protection of persons not able to consent to organ removal

1. No organ or tissue removal may be carried out on a person who does not have the capacity to consent under Article 5.
2. Exceptionally and under the protective conditions prescribed by law, the removal of regenerative tissue from a person who does not have the capacity to consent may be authorised provided the following conditions are met:
 - i. there is no compatible donor available who has the capacity to consent;
 - ii. the recipient is a brother or sister of the donor;
 - iii. the donation must have the potential to be life-saving for the recipient;
 - iv. the authorisation provided for under paragraphs 2 and 3 of Article 6 has been given specifically and in writing, in accordance with the law and with the approval of the competent body;
 - v. the potential donor concerned does not object.

Chapter VII – Prohibition of financial gain and disposal of a part of the human body

Article 21 – Prohibition of financial gain

The human body and its parts shall not, as such, give rise to financial gain.

Article 22 – Disposal of a removed part of the human body

When in the course of an intervention any part of a human body is removed, it may be stored and used for a purpose other than that for which it was removed, only if this is done in conformity with appropriate information and consent procedures.

Chapter VIII – Infringements of the provisions of the Convention

Article 23 – Infringement of the rights or principles

The Parties shall provide appropriate judicial protection to prevent or to put a stop to an unlawful infringement of the rights and principles set forth in this Convention at short notice.

Article 24 – Compensation for undue damage

The person who has suffered undue damage resulting from an intervention is entitled to fair compensation according to the conditions and procedures prescribed by law.

Article 25 – Sanctions

Parties shall provide for appropriate sanctions to be applied in the event of infringement of the provisions contained in this Convention.

Chapter IX – Relation between this Convention and other provisions

Article 26 – Restrictions on the exercise of the rights

1. No restrictions shall be placed on the exercise of the rights and protective provisions contained in this Convention other than such as are prescribed by law and are necessary in a democratic society in the interest of public safety, for the prevention of crime, for the protection of public health or for the protection of the rights and freedoms of others.
2. The restrictions contemplated in the preceding paragraph may not be placed on Articles 11, 13, 14, 16, 17, 19, 20 and 21.

Article 27 – Wider protection

None of the provisions of this Convention shall be interpreted as limiting or otherwise affecting the possibility for a Party to grant a wider measure of protection with regard to the application of biology and medicine than is stipulated in this Convention.

Chapter X – Public debate

Article 28 – Public debate

Parties to this Convention shall see to it that the fundamental questions raised by the developments of biology and medicine are the subject of appropriate public discussion in the light, in particular, of relevant medical, social, economic, ethical and legal implications, and that their possible application is made the subject of appropriate consultation.

Chapter XI – Interpretation and follow-up of the Convention

Article 29 – Interpretation of the Convention

The European Court of Human Rights may give, without direct reference to any specific proceedings pending in a court, advisory opinions on legal questions concerning the interpretation of the present Convention at the request of:

- the Government of a Party, after having informed the other Parties;
- the Committee set up by Article 32, with membership restricted to the Representatives of the Parties to this Convention, by a decision adopted by a two-thirds majority of votes cast.

Article 30 – Reports on the application of the Convention

On receipt of a request from the Secretary General of the Council of Europe any Party shall furnish an explanation of the manner in which its internal law ensures the effective implementation of any of the provisions of the Convention.

Chapter XII – Protocols

Article 31 – Protocols

Protocols may be concluded in pursuance of Article 32, with a view to developing, in specific fields, the principles contained in this Convention.

The Protocols shall be open for signature by Signatories of the Convention. They shall be subject to ratification, acceptance or approval. A Signatory may not ratify, accept or approve Protocols without previously or simultaneously ratifying accepting or approving the Convention.

Chapter XIII – Amendments to the Convention

Article 32 – Amendments to the Convention

1. The tasks assigned to “the Committee” in the present article and in Article 29 shall be carried out by the Steering Committee on Bioethics (CDBI), or by any other committee designated to do so by the Committee of Ministers.
2. Without prejudice to the specific provisions of Article 29, each member state of the Council of Europe, as well as each Party to the present Convention which is not a member of the Council of Europe, may be represented and have one vote in the Committee when the Committee carries out the tasks assigned to it by the present Convention.
3. Any State referred to in Article 33 or invited to accede to the Convention in accordance with the provisions of Article 34 which is not Party to this Convention may be represented on the Committee by an observer. If the European Community is not a Party it may be represented on the Committee by an observer.
4. In order to monitor scientific developments, the present Convention shall be examined within the Committee no later than five years from its entry into force and thereafter at such intervals as the Committee may determine.
5. Any proposal for an amendment to this Convention, and any proposal for a Protocol or for an amendment to a Protocol, presented by a Party, the Committee or the Committee of Ministers shall be communicated to the Secretary General of the Council of Europe and forwarded by him to the member states of the Council of Europe, to the European Community, to any Signatory, to any Party, to any State invited to sign this Convention in accordance with the provisions of Article 33 and to any State invited to accede to it in accordance with the provisions of Article 34.
6. The Committee shall examine the proposal not earlier than two months after it has been forwarded by the Secretary General in

accordance with paragraph 5. The Committee shall submit the text adopted by a two-thirds majority of the votes cast to the Committee of Ministers for approval. After its approval, this text shall be forwarded to the Parties for ratification, acceptance or approval.

7. Any amendment shall enter into force, in respect of those Parties which have accepted it, on the first day of the month following the expiration of a period of one month after the date on which five Parties, including at least four member states of the Council of Europe, have informed the Secretary General that they have accepted it.

In respect of any Party which subsequently accepts it, the amendment shall enter into force on the first day of the month following the expiration of a period of one month after the date on which that Party has informed the Secretary General of its acceptance.

Chapter XIV – Final clauses

Article 33 – Signature, ratification and entry into force

1. This Convention shall be open for signature by the member states of the Council of Europe, the non-member states which have participated in its elaboration and by the European Community.
2. This Convention is subject to ratification, acceptance or approval. Instruments of ratification, acceptance or approval shall be deposited with the Secretary General of the Council of Europe.
3. This Convention shall enter into force on the first day of the month following the expiration of a period of three months after the date on which five States, including at least four member states of the Council of Europe, have expressed their consent to be bound by the Convention in accordance with the provisions of paragraph 2 of the present article.
4. In respect of any Signatory which subsequently expresses its consent to be bound by it, the Convention shall enter into force

on the first day of the month following the expiration of a period of three months after the date of the deposit of its instrument of ratification, acceptance or approval.

Article 34 – Non-member states

1. After the entry into force of this Convention, the Committee of Ministers of the Council of Europe may, after consultation of the Parties, invite any non-member state of the Council of Europe to accede to this Convention by a decision taken by the majority provided for in Article 20, paragraph d, of the Statute of the Council of Europe, and by the unanimous vote of the representatives of the Contracting States entitled to sit on the Committee of Ministers.
2. In respect of any acceding State, the Convention shall enter into force on the first day of the month following the expiration of a period of three months after the date of deposit of the instrument of accession with the Secretary General of the Council of Europe.

Article 35 – Territories

1. Any Signatory may, at the time of signature or when depositing its instrument of ratification, acceptance or approval, specify the territory or territories to which this Convention shall apply. Any other State may formulate the same declaration when depositing its instrument of accession.
2. Any Party may, at any later date, by a declaration addressed to the Secretary General of the Council of Europe, extend the application of this Convention to any other territory specified in the declaration and for whose international relations it is responsible or on whose behalf it is authorised to give undertakings. In respect of such territory the Convention shall enter into force on the first day of the month following the expiration of a period of three months after the date of receipt of such declaration by the Secretary General.
3. Any declaration made under the two preceding paragraphs may, in respect of any territory specified in such declaration, be

withdrawn by a notification addressed to the Secretary General. The withdrawal shall become effective on the first day of the month following the expiration of a period of three months after the date of receipt of such notification by the Secretary General.

Article 36 – Reservations

1. Any State and the European Community may, when signing this Convention or when depositing the instrument of ratification, acceptance, approval or accession, make a reservation in respect of any particular provision of the Convention to the extent that any law then in force in its territory is not in conformity with the provision. Reservations of a general character shall not be permitted under this article.
2. Any reservation made under this article shall contain a brief statement of the relevant law.
3. Any Party which extends the application of this Convention to a territory mentioned in the declaration referred to in Article 35, paragraph 2, may, in respect of the territory concerned, make a reservation in accordance with the provisions of the preceding paragraphs.
4. Any Party which has made the reservation mentioned in this article may withdraw it by means of a declaration addressed to the Secretary General of the Council of Europe. The withdrawal shall become effective on the first day of the month following the expiration of a period of one month after the date of its receipt by the Secretary General.

Article 37 – Denunciation

1. Any Party may at any time denounce this Convention by means of a notification addressed to the Secretary General of the Council of Europe.
2. Such denunciation shall become effective on the first day of the month following the expiration of a period of three months after the date of receipt of the notification by the Secretary General.

Article 38 – Notifications

The Secretary General of the Council of Europe shall notify the member states of the Council, the European Community, any Signatory, any Party and any other State which has been invited to accede to this Convention of:

- a. any signature;
- b. the deposit of any instrument of ratification, acceptance, approval or accession;
- c. any date of entry into force of this Convention in accordance with Articles 33 or 34;
- d. any amendment or Protocol adopted in accordance with Article 32, and the date on which such an amendment or Protocol enters into force;
- e. any declaration made under the provisions of Article 35;
- f. any reservation and withdrawal of reservation made in pursuance of the provisions of Article 36;
- g. any other act, notification or communication relating to this Convention.

In witness whereof the undersigned, being duly authorised thereto, have signed this Convention.

Done at Oviedo (Asturias), this 4th day of April 1997, in English and French, both texts being equally authentic, in a single copy which shall be deposited in the archives of the Council of Europe. The Secretary General of the Council of Europe shall transmit certified copies to each member state of the Council of Europe, to the European Community, to the non-member states which have participated in the elaboration of this Convention, and to any State invited to accede to this Convention.

Explanatory report to the 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 (ETS No. 164)

The Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community entered into force on 1 December 2009. As a consequence, as from that date, any reference to the European Community shall be read as the European Union.

This explanatory report to the Convention on human rights and biomedicine was drawn up under the responsibility of the Secretary General of the Council of Europe, on the basis of a draft prepared, at the request of the Steering Committee on Bioethics (CDBI), by Mr Jean Michaud (France), Chairman of the CDBI. It takes into account the discussions held in the CDBI and its Working Group entrusted with the drafting of the Convention; it also takes into account the remarks and proposals made by Delegations.

The Committee of Ministers has authorised the publication of this explanatory report on 17 December 1996.

The explanatory report is not an authoritative interpretation of the Convention. Nevertheless it covers the main issues of the preparatory

work and provides information to clarify the object and purpose of the Convention and to better understand the scope of its provisions.

Introduction

1. For several years now, the Council of Europe, through the work of the Parliamentary Assembly and of the *ad hoc* Committee of Experts on Bioethics (CAHBI), later renamed the Steering Committee on Bioethics (CDBI), has concerned itself with the problems confronting mankind as a result of advances in medicine and biology. At the same time, a number of countries have done their own internal work on these topics, and this work is proceeding. So far, therefore, two types of endeavour have been undertaken, one at a national and the other at international level.
2. Basically, these studies are the fruit of observation and concern: observation of the radical developments in science and their applications to medicine and biology, that is fields in which people are directly involved and concern about the ambivalent nature of many of these advances. The scientists and practitioners behind them have worthy aims and often attain them. But some of the known or alleged developments of their work are taking or could potentially take a dangerous turn, as a result of a distortion of the original objectives. Science, with its new complexity and extensive ramifications, thus presents a dark side or a bright side according to how it is used.
3. It has subsequently become necessary to ensure that the beneficial side prevails by developing awareness of what is at stake and constantly reviewing all the possible consequences. No doubt the ethics committees and other national bodies and legislators, as well as the international organisations, have already applied themselves to this task, but their efforts have remained either restricted to a particular geographical area or incomplete because of their focus on a particular topic. On the other hand, common values are more often than not claimed as a basis for the various texts, opinions

and recommendations. But differences may, nonetheless, become apparent in connection with certain aspects of the problems dealt with. Even simple definitions may give rise to profound differences.

Drafting of a Convention

4. It has consequently become apparent that there was a need to make a greater effort to harmonise existing standards. In 1990, at their 17th Conference (Istanbul, 5-7 June 1990), the European Ministers of Justice, following the proposal of Ms Catherine Lalumière, Secretary General of the Council of Europe, adopted Resolution No. 3 on bioethics which recommended that the Committee of Ministers instruct the CAHBI to examine the possibility of preparing a framework convention “setting out common general standards for the protection of the human person in the context of the development of the biomedical sciences”. In June 1991, taking up the contents of a report submitted on behalf of the Committee of science and technology by Dr Marcelo Palacios (see Document 6449), the Parliamentary Assembly recommended, in its Recommendation 1160, that the Committee of Ministers “envisage a framework convention comprising a main text with general principles and additional protocols on specific aspects”. In September of the same year the Committee of Ministers, chaired by Mr Vincent Tabone, instructed the CAHBI “to prepare, in close co-operation with the Steering Committee for Human Rights (CDDH) and the European Health Committee (CDSP) ... a framework Convention, open to non-member states, setting out common general standards for the protection of the human person in the context of the biomedical sciences and Protocols to this Convention, relating to, in a preliminary phase: organ transplants and the use of substances of human origin; medical research on human beings”.
5. In March 1992 the CAHBI, then the CDBI, which has been chaired in turn by Mrs Paula Kokkonen (Finland), Dr Octavi Quintana (Spain) and Mrs Johanna Kits Nieuwenkamp née Storm

van'SGravesande (the Netherlands), set up a Working Party to prepare the draft Convention, which was chaired by Dr Michael Abrams (United Kingdom). Until his untimely death, Mr Salvatore Puglisi (Italy) was a member of this Group, after having been Chair of the Study Group set up to examine the feasibility of the draft Convention.

6. In July 1994, a first version of the draft Convention was subjected to public consultation and was submitted for an opinion to the Parliamentary Assembly. Taking account of this opinion and of several other positions taken, a final draft was established by the CDBI on 7 June 1996 and was submitted to the Parliamentary Assembly for an opinion. The latter put forward Opinion No. 198 on the basis of a report submitted on behalf of the Committee on Science and Technology by Mr Gian-Reto Plattner and for the Committee on Legal Affairs and Human Rights and the Social, Health and Family Affairs Committee by Messrs Walter Schwimmer and Christian Daniel respectively. The Convention was adopted by the Committee of Ministers on 19 November 1996. It was opened for signature on 4 April 1997.

Structure of the Convention

7. The Convention sets out only the most important principles. Additional standards and more detailed questions should be dealt with in additional protocols. The Convention as a whole will thus provide a common framework for the protection of human rights and human dignity in both longstanding and developing areas concerning the application of biology and medicine.

Comments on the provisions of the Convention

Title

8. The title of the instrument is “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”.

9. The term “human rights” refers to the principles laid down in the Convention for the protection of human rights and fundamental freedoms of 4 November 1950, which guarantee protection of such rights. The two Conventions share not only the same underlying approach but also many ethical principles and legal concepts. Indeed, this Convention elaborates some of the principles enshrined in the European Convention for the protection of human rights. The concept of the human being has been used because of its general character. The concept of human dignity, which is also highlighted, constitutes the essential value to be upheld. It is at the basis of most of the values emphasised in the Convention.
10. The phrase “application of biology and medicine”, was preferred to “life sciences” in particular, which was considered too broad. It is used in Article 1 and restricts the scope of the Convention to human medicine and biology, thereby excluding animal and plant biology insofar as they do not concern human medicine or biology. The Convention thus covers all medical and biological applications concerning human beings, including preventive, diagnostic, therapeutic and research applications.

Preamble

11. Various international instruments already provide protection and guarantees in the field of human rights, both individual and social: the Universal Declaration of human rights, the International Covenant on civil and political rights, the International Covenant on economic, social and cultural rights, the Convention on the rights of the child, the Convention for the protection of human rights and fundamental freedoms, the European Social Charter. Several instruments of a more specific nature prepared by the Council of Europe are also relevant, such as the Convention for the protection of individuals with regard to automatic processing of personal data.

12. They must now be supplemented by other texts so that full account is taken of the potential implications of scientific actions.
13. The principles enshrined in these instruments remain the basis of our conception of human rights; hence they are set out at the beginning of the preamble to the Convention, of which they are the cornerstone.
14. Starting with the preamble, however, it was necessary to take account of the actual developments in medicine and biology, while indicating the need for them to be used solely for the benefit of present and future generations. This concern has been affirmed at three levels:
 - The first is that of the individual, who had to be shielded from any threat resulting from the improper use of scientific developments. Several articles of the Convention illustrate the wish to make it clear that pride of place ought to be given to the individual: protection against unlawful interference with the human body, prohibition of the use of all or part of the body for financial gain, restriction of the use of genetic testing, etc.
 - The second level relates to society. Indeed, in this particular field, to a greater extent than in many others, the individual must also be considered to constitute part of a social corpus sharing a number of ethical principles and governed by legal standards. Whenever choices are involved in regard to the application of certain developments, the latter must be recognised and endorsed by the community. This is why public debate is so important and is given a place in the Convention. Nevertheless, the interests at stake are not equal; as indicated in Article 2, they are graded to reflect the priority in principle attached to the interests of the individual as opposed to those of science or society solely. The adjective “alone” makes it clear that care must be taken not to neglect the latter; they must come immediately after the interests of the individual. It is only in very precise situations, and subject to the respect of strict conditions that the general interest, as it is defined in Article 26, would take priority.

- The third and final concern relates to the human species. Many of the current achievements and forthcoming advances are based on genetics. Progress in knowledge of the genome is producing more ways of influencing and acting on it. This knowledge already enables considerable progress to take place in the diagnosis and, sometimes, in the prevention of an increasing number of diseases. There are reasons to hope that it could also enable therapeutic progress to take place. However, the risks associated with this growing area of expertise should not be ignored. It is no longer the individual or society that may be at risk but the human species itself. The Convention sets up safeguards, starting with the preamble where reference is made to the benefits to future generations and to all humanity, while provision is made throughout the text for the necessary legal guarantees to protect the identity of the human being.
15. The preamble refers to the developments in medicine and biology which should be used only for the benefit of present and future generations and not be diverted in ways that run counter to their proper objective. It proclaims the respect due to man as an individual and as a member of the human species. It concludes that progress, human benefit and protection can be reconciled if public awareness is aroused as a result of an international instrument devised by the Council of Europe in line with its vocation. Stress is laid on the need for international co-operation to extend the benefits of progress to the whole of mankind.

Chapter I – General provisions

Article 1 – Purpose and object

16. This article defines the Convention's scope and purpose.
17. The aim of the Convention is to guarantee everyone's rights and fundamental freedoms and, in particular, their integrity and to secure the dignity and identity of human beings in this sphere.

18. The Convention does not define the term “everyone” (in French “toute personne”). These two terms are equivalent and found in the English and French versions of the European Convention on human rights, which however does not define them. In the absence of a unanimous agreement on the definition of these terms among member states of the Council of Europe, it was decided to allow domestic law to define them for the purposes of the application of the present Convention.
19. The Convention also uses the expression “human being” to state the necessity to protect the dignity and identity of all human beings. It was acknowledged that it was a generally accepted principle that human dignity and the identity of the human being had to be respected as soon as life began.
20. The second paragraph of the Article specifies that each Party shall take in its internal law the necessary measures to give effect to the provisions of this Convention. This paragraph indicates that the internal law of the Parties shall conform to the Convention. Conformity between the Convention and domestic law may be achieved either by applying directly the Convention’s provisions in domestic law or by enacting the necessary legislation to give effect to them. With regard to each provision, the means will have to be determined by each Party in accordance with its constitutional law and taking into account the nature of the provision in question. In this respect, it should be noted that the Convention contains a number of provisions which may, under the domestic law of many States, qualify as directly applicable (“self-executing provisions”). This is the case, particularly, of the provisions formulating individual rights. Other provisions contain more general principles which may require the enactment of legislation in order that effect be given to them in domestic law.

Article 2 – Primacy of the human being

21. This article affirms the primacy of the human being over the sole interest of science or society. Priority is given to the former, which

must in principle take precedence over the latter in the event of a conflict between them. One of the important fields of application of this principle concerns research, as covered by the provisions of Chapter V of this Convention.

22. The whole Convention, the aim of which is to protect human rights and dignity, is inspired by the principle of the primacy of the human being, and all its articles must be interpreted in this light.

Article 3 – Equitable access to health care

23. This article defines an aim and imposes an obligation on States to use their best endeavours to reach it.
24. The aim is to ensure equitable access to health care in accordance with the person's medical needs. "Health care" means the services offering diagnostic, preventive, therapeutic and rehabilitative interventions, designed to maintain or improve a person's state of health or alleviate a person's suffering. This care must be of a fitting standard in the light of scientific progress and be subject to a continuous quality assessment.
25. Access to health care must be equitable. In this context, "equitable" means first and foremost the absence of unjustified discrimination. Although not synonymous with absolute equality, equitable access implies effectively obtaining a satisfactory degree of care.
26. The Parties to the Convention are required to take appropriate steps to achieve this aim as far as the available resources permit. The purpose of this provision is not to create an individual right on which each person may rely in legal proceedings against the State, but rather to prompt the latter to adopt the requisite measures as part of its social policy in order to ensure equitable access to health care.
27. Although States are now making substantial efforts to ensure a satisfactory level of health care, the scale of this effort largely depends on the volume of available resources. Moreover, State measures to ensure equitable access may take many different forms and a wide variety of methods may be employed to this end.

Article 4 – Professional standards

28. This article applies to doctors and health care professionals generally, including psychologists whose interactions with patients in clinical and research settings can have profound effects and social workers who are members of teams involved in the decision making process or in the carrying out of interventions. From the term “professional standards” it follows that it does not concern persons other than health care professionals called upon to perform medical acts, for example in an emergency.
29. The term “intervention” must be understood here in a broad sense; it covers all medical acts, in particular interventions performed for the purpose of preventive care, diagnosis, treatment or rehabilitation or in a research context.
30. All interventions must be performed in accordance with the law in general, as supplemented and developed by professional rules. In some countries these rules take the form of professional codes of ethics (drawn up by the State or by the profession), in others codes of medical conduct, health legislation, medical ethics or any other means of guaranteeing the rights and interests of the patient, and which may take account of any right of conscientious objection by health care professionals. The Article covers both written and unwritten rules. When there is a contradiction between different rules, the law provides the means of resolving the conflict.
31. The content of professional standards, obligations and rules of conduct is not identical in all countries. The same medical duties may vary slightly from one society to another. However, the fundamental principles of the practice of medicine apply in all countries. Doctors and, in general, all professionals who participate in a medical act are subject to legal and ethical imperatives. They must act with care and competence, and pay careful attention to the needs of each patient.
32. It is the essential task of the doctor not only to heal patients but also to take the proper steps to promote health and relieve pain, taking into account the psychological well-being of the

patient. Competence must be determined primarily in relation to the scientific knowledge and clinical experience appropriate to a profession or speciality at a given time. The current state of the art determines the professional standard and skill to be expected of health care professionals in the performance of their work. In following the progress of medicine, it changes with new developments and eliminates methods which do not reflect the state of the art. Nevertheless, it is accepted that professional standards do not necessarily prescribe one line of action as being the only one possible: recognised medical practice may, indeed, allow several possible forms of intervention, thus leaving some freedom of choice as to methods or techniques.

33. Further, a particular course of action must be judged in the light of the specific health problem raised by a given patient. In particular, an intervention must meet criteria of relevance and proportionality between the aim pursued and the means employed. Another important factor in the success of medical treatment is the patient's confidence in his or her doctor. This confidence also determines the duties of the doctor towards the patient. An important element of these duties is the respect of the rights of the patient. The latter creates and increases mutual trust. The therapeutic alliance will be strengthened if the rights of the patient are fully respected.

Chapter II – Consent

Article 5 – General rule

34. This article deals with consent and affirms at the international level an already well-established rule, that is that no one may in principle be forced to undergo an intervention without his or her consent. Human beings must therefore be able freely to give or refuse their consent to any intervention involving their person. This rule makes clear patients' autonomy in their relationship with health care professionals and restrains the paternalist approaches which might ignore the wish of the patient. The word "intervention" is understood in its widest sense, as in Article 4 – that is to say, it

covers all medical acts, in particular interventions performed for the purpose of preventive care, diagnosis, treatment, rehabilitation or research.

35. The patient's consent is considered to be free and informed if it is given on the basis of objective information from the responsible health care professional as to the nature and the potential consequences of the planned intervention or of its alternatives, in the absence of any pressure from anyone. Article 5, paragraph 2, mentions the most important aspects of the information which should precede the intervention but it is not an exhaustive list: informed consent may imply, according to the circumstances, additional elements. 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. This information must include the purpose, nature and consequences of the intervention and the risks involved. Information on the risks involved in the intervention or in alternative courses of action must cover not only the risks inherent in the type of intervention contemplated, but also any risks related to the individual characteristics of each patient, such as age or the existence of other pathologies. Requests for additional information made by patients must be adequately answered.
36. Moreover, this information must be sufficiently clear and suitably worded for the person who is to undergo the intervention. The patient must be put in a position, through the use of terms he or she can understand, to weigh up the necessity or usefulness of the aim and methods of the intervention against its risks and the discomfort or pain it will cause.
37. Consent may take various forms. It may be express or implied. Express consent may be either verbal or written. Article 5, which is general and covers very different situations, does not require any particular form. The latter will largely depend on the nature of the intervention. It is agreed that express consent would be inappropriate as regards many routine medical acts. The consent is therefore often implicit, as long as the person concerned

is sufficiently informed. In some cases, however, for example invasive diagnostic acts or treatments, express consent may be required. Moreover, the patient's express, specific consent must be obtained for participation in research or removal of body parts for transplantation purposes (see Articles 16 and 19).

38. Freedom of consent implies that consent may be withdrawn at any time and that the decision of the person concerned shall be respected once he or she has been fully informed of the consequences. However, this principle does not mean, for example, that the withdrawal of a patient's consent during an operation should always be followed. Professional standards and obligations as well as rules of conduct which apply in such cases under Article 4 may oblige the doctor to continue with the operation so as to avoid seriously endangering the health of the patient.
39. Furthermore, Article 26 of the Convention, as well as Article 6 concerning protection of persons not able to consent, Article 7 concerning protection of persons who have mental disorders and Article 8 concerning emergency situations, define the instances in which the exercise of the rights contained in the Convention and hence the need for consent may be limited.
40. Information is the patient's right, but as provided for in Article 10, the patient's possible wish not to be informed must be observed. This does not, however, obviate the need to seek consent to the intervention proposed to the patient.

Article 6 – Protection of persons not able to consent

41. Some individuals may not be able to give full and valid consent to an intervention due to either their age (minors) or their mental incapacity. It is therefore necessary to specify the conditions under which an intervention may be carried out on these people in order to ensure their protection.
42. The incapacity to consent referred to in this article must be understood in the context of a given intervention. However, account has been taken of the diversity of legal systems in Europe:

in some countries the patient's capacity to consent must be verified for each intervention taken individually, while in others the system is based on the institution of legal incapacitation, whereby a person may be declared incapable of consenting to one or several types of act. Since the purpose of the Convention is not to introduce a single system for the whole of Europe but to protect persons who are not able to give their consent, the reference in the text to domestic law seems necessary: it is for domestic law in each country to determine, in its own way, whether or not persons are capable of consenting to an intervention and taking account of the need to deprive persons of their capacity for autonomy only where it is necessary in their best interests.

43. However, in order to protect the fundamental rights of the human being, and in particular to avoid the application of discriminatory criteria, paragraph 3 lists the reasons why an adult may be considered incapable of consenting under domestic law, namely a mental disability, a disease or similar reasons. The term "similar reasons" refers to such situations as accidents or states of coma, for example, where the patient is unable to formulate his or her wishes or to communicate them (see also paragraph 57 below on emergency situations). If adults have been declared incapable but at a certain time do not suffer from a reduced mental capacity (for example, because their illness improves favourably), they must, according to Article 5, themselves consent.
44. Whenever a person is acknowledged to be incapable of giving consent, the Convention establishes the principle of protection whereby, according to paragraph 1, the intervention must be for the direct benefit of the person. Deviation from this rule is possible in only two cases, covered by Articles 17 and 20 of the Convention, on medical research and the removal of regenerative tissue respectively.
45. As indicated before, the second and third paragraphs prescribe that when a minor (paragraph 2) or an adult (paragraph 3) is not capable of consenting to an intervention, the intervention may be carried out only with the consent of parents who have custody of the minor, his or her legal representative or any person or body provided for

by law. However, as far as possible, with a view to the preservation of the autonomy of persons with regard to interventions affecting their health, the second part of paragraph 2 states that the opinion of minors should be regarded as an increasingly determining factor in proportion to their age and capacity for discernment. This means that in certain situations which take account of the nature and seriousness of the intervention as well as the minor's age and ability to understand, the minor's opinion should increasingly carry more weight in the final decision. This could even lead to the conclusion that the consent of a minor should be necessary, or at least sufficient for some interventions. Note that the provision of the second subparagraph of paragraph 2 is consistent with Article 12 of the United Nations Convention on the rights of the child, which stipulates that "States Parties shall assure the child, who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child".

46. Furthermore, the participation of adults not able to consent in decisions must not be totally ruled out. This idea is reflected in the obligation to involve the adult in the authorisation procedure whenever possible. Thus, it will be necessary to explain to them the significance and circumstances of the intervention and then obtain their opinion.
47. Paragraph 4 of this article draws a parallel with Article 5 concerning consent in general, stating that the person or body whose authorisation is required for the intervention to take place must be given adequate information about the consequences and risks involved.
48. According to paragraph 5, the person or body concerned may withdraw their authorisation at any time, provided that this is done in the interest of the person not able to consent. The first duty of doctors or other health care professionals is to their patient and it is also part of the professional standard (Article 4) to act in the interest of the patient. It is, in fact, a duty of the doctor to protect the patient against decisions taken by a person

or body whose authorisation is required, which are not in the interest of the patient; in this respect, national law should provide adequate recourse procedures. The subordination of consent (or its withdrawal) to the interest of the patient is in keeping with the objective of protecting the person. While a person capable of giving consent to an intervention has the right to withdraw that consent freely, even if this appears to be contrary to the person's interest, the same right must not apply to an authorisation given for an intervention on another person, which should be retractable only if this is in the interest of that third party person.

49. It was not considered necessary to provide in this article for a right of appeal against the decision of the legal representative to authorise or refuse to authorise an intervention. In the very terms of paragraphs 2 and 3 of this article, the intervention may be carried out only "with the authorisation of his or her representative or an authority or a person or body provided for by law", which in itself implies the possibility of appealing to a body or authority in the manner provided for in domestic law.

Article 7 – Protection of persons who have mental disorder

50. This article deals with the specific question of the treatment of patients suffering from mental disorders. On the one hand it constitutes an exception to the general rule of consent for persons able to consent (Article 5), but whose ability to decide on a proposed treatment is severely impaired by their very mental disorder. On the other hand, it guarantees the protection of these people by limiting the number of instances in which they may be subjected to treatment for their mental disorders without their consent, by subjecting such interventions to specific conditions. Moreover, this Article does not provide for the specific emergency situations mentioned in Article 8.
51. The first condition is that the person must be suffering from a mental disorder (*trouble mental* in French). In order for the article to apply, an impairment of the person's mental faculties must be observed.

52. The second condition is that the intervention is necessary to treat specifically these mental disorders. For every other type of intervention, the practitioner must therefore seek the consent of the patient, insofar as this is possible, and the assent or refusal of the patient must be followed. The refusal to consent to an intervention may only be disregarded under those circumstances prescribed by law and where a failure to intervene would result in serious harm to the health of the individual (or to the health and safety of others). In other words, if persons capable of consent refuse an intervention not aimed at treating their mental disorder, their opposition must be respected in the same way as for other patients capable of consent.
53. A number of member states have laws about the treatment of patients with mental illness of a serious nature who either are compulsorily detained or have a life-threatening medical emergency. They permit intervention for certain serious situations, such as the treatment of a serious somatic illness in a psychotic patient or also for certain serious medical emergencies (for example, acute appendicitis, an overdose of medication or the case of a woman with a severe psychotic illness who has a ruptured ectopic pregnancy). In such cases the legislation permits a life-saving treatment, so long as the physician concerned believes it is proper to do so. The procedure is covered by Article 6 (Protection of persons not able to consent) or Article 8 (Emergency situations).
54. The third condition is that, without treatment of his or her mental disorder, serious harm is likely to result to the person's health. Such a risk exists, for example, when a person suffers from a suicidal tendency and is therefore a danger to himself or herself. The article is concerned only with the risk to the patient's own health, whereas Article 26 of the Convention permits patients to be treated against their will in order to protect other people's rights and freedoms (for example, in the event of violent behaviour). On the one hand, therefore, the article protects the person's health (in so far as treatment of the mental disorder without consent is allowed when failure to administer the treatment would seriously harm the person's health), and on the other hand it protects their autonomy

(since treatment without consent is prohibited when failure to administer the treatment represents no serious risk to the person's health).

55. The last condition is that the protective conditions laid down in national law must be observed. The article specifies that these conditions must include appropriate supervisory, control and appeal procedures, such as mediation by a judicial authority. This requirement is understandable in view of the fact that it will be possible for an intervention to be carried out on a person who has not consented to it; it is therefore necessary to provide an arrangement for adequately protecting the rights of that person. In this connection, Recommendation No. R (83) 2 of the Committee of Ministers of the Council of Europe concerning the legal protection of persons suffering from mental disorder placed as involuntary patients establishes a number of principles which must be respected during psychiatric treatment and placement. The Hawaii Declaration of the World Psychiatric Association of 10 July 1983 and its revised versions and the Madrid Declaration of 25 August 1996, as well as Parliamentary Assembly Recommendation 1235 (1994) on psychiatry and human rights, should also be mentioned.

Article 8 – Emergency situations

56. In emergencies, doctors may be faced with a conflict of duties between their obligations to provide care and seek the patient's consent. This article allows the practitioner to act immediately in such situations without waiting until the consent of the patient or the authorisation of the legal representative where appropriate can be given. As it departs from the general rule laid down in Articles 5 and 6, it is accompanied by conditions.
57. First, this possibility is restricted to emergencies which prevent the practitioner from obtaining the appropriate consent. The article applies both to persons who are capable and to persons who are unable either *de jure* or *de facto* to give consent. An example that might be put forward is that of a patient in a coma who is thus unable to give his consent (see also paragraph 43 above), or that of

a doctor who is unable to contact an incapacitated person's legal representative who would normally have to authorise an urgent intervention. Even in emergency situations, however, health care professionals must make every reasonable effort to determine what the patient would want.

58. Next, the possibility is limited solely to medically necessary interventions which can not be delayed. Interventions for which a delay is acceptable are excluded. However, this possibility is not reserved for life-saving interventions.
59. Lastly, the article specifies that the intervention must be carried out for the immediate benefit of the individual concerned.

Article 9 – Previously expressed wishes

60. Whereas Article 8 obviates the need for consent in emergencies, this article is designed to cover cases where persons capable of understanding have previously expressed their consent (that is either assent or refusal) with regard to foreseeable situations where they would not be in a position to express an opinion about the intervention.
61. The article therefore covers not only the emergencies referred to in Article 8 but also situations where individuals have foreseen that they might be unable to give their valid consent, for example in the event of a progressive disease such as senile dementia.
62. The article lays down that when persons have previously expressed their wishes, these shall be taken into account. Nevertheless, taking previously expressed wishes into account does not mean that they should necessarily be followed. For example, when the wishes were expressed a long time before the intervention and science has since progressed, there may be grounds for not heeding the patient's opinion. The practitioner should thus, as far as possible, be satisfied that the wishes of the patient apply to the present situation and are still valid, taking account in particular of technical progress in medicine.

Chapter III – Private life and right to information

Article 10 – Private life and right to information

63. The first paragraph establishes the right to privacy of information in the health field, thereby reaffirming the principle introduced in Article 8 of the European Convention on human rights and reiterated in the Convention for the protection of individuals with regard to automatic processing of personal data. It should be pointed out that, under Article 6 of the latter Convention, personal data concerning health constitute a special category of data and are as such subject to special rules.
64. However, certain restrictions to the respect of privacy are possible for one of the reasons and under the conditions provided for in under Article 26.1. For example, a judicial authority may order that a test be carried out in order to identify the author of a crime (exception based on the prevention of a crime) or to determine the filiation link (exception based on the protection of the rights of others).
65. The first sentence of the second paragraph lays down that individuals are entitled to know any information collected about their health, if they wish to know. This right is of fundamental importance in itself but also conditions the effective exercise of other rights such as the right of consent set forth in Article 5.
66. A person's "right to know" encompasses all information collected about his or her health, whether it be a diagnosis, prognosis or any other relevant fact.
67. The right to know goes hand in hand with the "right not to know", which is provided for in the second sentence of the second paragraph. Patients may have their own reasons for not wishing to know about certain aspects of their health. A wish of this kind must be observed. The patient's exercise of the right not to know this or that fact concerning his health is not regarded as an impediment to the validity of his consent to an intervention; for example, he can validly consent to the removal of a cyst despite not wishing to know its nature.

68. In some circumstances, the right to know or not to know may be restricted in the patient's own interest or else on the basis of Article 26.1, for example, in order to protect the rights of a third party or of society.
69. Therefore, the last paragraph of Article 10 sets out that in exceptional cases domestic law may place restrictions on the right to know or not to know in the interests of the patient's health (for example, a prognosis of death which might, in certain cases if immediately passed on to the patient, seriously worsen his or her condition). In some cases, the doctor's duty to provide information which is also covered under Article 4 conflicts with the interests of the patient's health. It is for domestic law, taking account of the social and cultural background, to solve this conflict. Where appropriate under judicial control, domestic law may justify the doctor sometimes withholding part of the information or, at all events, disclosing it with circumspection ("therapeutic necessity").
70. Furthermore, it may be of vital importance for patients to know certain facts about their health, even though they have expressed the wish not to know them. For example, the knowledge that they have a predisposition to a disease might be the only way to enable them to take potentially effective (preventive) measures. In this case, a doctor's duty to provide care, as laid down in Article 4, might conflict with the patient's right not to know. It could also be appropriate to inform an individual that he or she has a particular condition when there is a risk not only to that person but also to others. Here too it will be for domestic law to indicate whether the doctor, in the light of the circumstances of the particular case, may make an exception to the right not to know. At the same time, certain facts concerning the health of a person who has expressed a wish not to be told about them may be of special interest to a third party, as in the case of a disease or a particular condition transmissible to others, for example. In such a case, the possibility for prevention of the risk to the third party might, on the basis of Article 26, warrant his or her right taking precedence over the patient's right to privacy, as laid down in paragraph 1, and as a result

the right not to know, as laid down in paragraph 2. In any case, the right not to know of the person concerned may be opposed to the interest to be informed of another person and the interests of these two persons should be balanced by internal law.

Chapter IV – Human genome

71. Genetic science has undergone dramatic changes in recent years. In human medicine, apart from the pharmaceutical field, there are other areas in which, it can be applied, namely: genetic testing, gene therapy and the scientific elucidation of disease causes and mechanisms.
72. Genetic testing consists of medical examinations aimed at detecting or ruling out the presence of hereditary illnesses or predisposition to such illnesses in a person by directly or indirectly analysing their genetic heritage (chromosomes, genes).
73. The aim of gene therapy is to correct changes to the human genetic heritage which may result in hereditary diseases. The difference between gene therapy and the analysis of the genome lies in the fact that the latter does not modify the genetic heritage but simply studies its structure and its relationship with the symptoms of the illness. In theory, there are two distinct forms of gene therapy. Somatic gene therapy aims to correct the genetic defects in the somatic cells and to produce an effect restricted to the person treated. Were it possible to undertake gene therapy on germ cells, the disease of the person who has provided the cells would not be cured, as the correction would be carried out on the cells whose sole function is to transmit genetic information to future generations.

Article 11 – Non-discrimination

74. The mapping out of the human genome, which is advancing rapidly, as well as the development of the genetic tests which are linked with it are likely to bring substantial advances in the

prevention of illnesses and the administration of treatment. But genetic testing also raises considerable concerns. Among these the most widespread is probably the concern that genetic testing, which can detect a genetic disease, a predisposition or a susceptibility to a genetic disease, may become a means of selection and discrimination.

75. The fundamental principle established in Article 11 is that any form of discrimination against an individual on grounds of his or her genetic heritage is prohibited.
76. Under Article 14 of the European Convention on human rights, the enjoyment of the rights and freedoms set forth in the Convention must be secured without discrimination on any ground such as sex, race, colour, language, religion, political or other opinion, national or social origin, association with a national minority, property, birth or other status. Article 11 adds to this list a person's genetic heritage. The prohibition of discrimination set out thus applies to all areas included in the field of application of this Convention. This notion also includes non-discrimination on grounds of race as understood by the 1965 United Nations Convention on the elimination of all forms of racial discrimination and as it has been interpreted by the Convention Committee (CERD).
77. Whereas the term "discrimination" has usually a negative connotation in French, this is not necessarily the case in English (where one must use the expression "unfair discrimination"); it has, however, been decided to keep the same term in both languages, as it is in the European Convention of human rights and in the case law of the Court. Discrimination here must, therefore, in French as in English, be understood as unfair discrimination. In particular, it cannot prohibit positive measures which may be implemented with the aim of re-establishing a certain balance in favour of those at a disadvantage because of their genetic inheritance.

Article 12 – Predictive genetic tests

78. Progress in the study of human genetics has occurred at a remarkable rate over the course of the last ten years. Developments in the field now make it possible to identify with much greater precision than ever before those who carry specific genes for major single gene disorders (for example, cystic fibrosis, haemophilia, Huntington's disease, retinitis pigmentosa, etc.) and also those who carry genes which may increase their risk of developing major disorders later in life (for example, heart disease, cancer and Alzheimer's disease). It has been possible to identify those who were destined or likely to develop certain single gene disorders on the basis of a clear mendelian pattern of inheritance or through the identification of phenotypic characteristics (either through clinical observation or through standard laboratory biochemical tests) which permit action to be taken to prevent the onset of clinical disease. Advances in genetics have led to much more sophisticated and precise techniques for testing for some disorders. However, the identification of a particular abnormal gene does not necessarily imply that the carrier will develop the disease nor does it predict the pattern or severity of the disease.

79. Modern techniques have also made it possible to identify genes which contribute to the development of major disorders later in life – and to which other genes and environmental and lifestyle factors also made a contribution. It has also been possible to identify some of these genetically determined risk factors in the past through the identification of phenotypic characteristics. The probability of individuals developing the disease later in life is, however, much less certain than in the case of the single gene disorders, since the probability of doing so depends upon factors which are outside individuals' control (for example, other genetic characteristics) as well as factors which may be modified by individuals in ways which will alter the risk (for example, diet, smoking, lifestyle factors, etc.).

80. Tests which are predictive of certain genetic diseases may offer considerable benefits to an individual's health by allowing timely

preventive treatment to be instituted or by offering opportunities to diminish the risks through modifications in behaviour, lifestyle or environment. This, however, is not possible at present in many genetically determined disorders. The right to know as well as the right not to know and proper informed consent are, therefore, of particular importance in this field since problems may clearly arise for the individual resulting from tests predictive of genetic disease for which there is currently no effective treatment.

A further complicating factor is that tests predictive of genetically determined diseases may also have implications for members of the family and the offspring of the person who has undergone testing. It is essential that appropriate professional standards are developed in this field.

81. The situation is even more complicated with predictive testing for serious late onset diseases, when there is at present no treatment available. Screening for serious late onset diseases should remain exceptional, even when screening is related to scientific research: it would put too much strain on the free participation and on the privacy of individuals.
82. Because of the particular problems which are related to predictive testing, it is necessary to strictly limit its applicability to health purposes for the individual. Scientific research likewise should be carried out in the context of developing medical treatment and enhancing our ability to prevent disease.
83. Article 12 as such does not imply any limitation of the right to carry out diagnostic interventions at the embryonic stage to find out whether an embryo carries hereditary traits that will lead to serious diseases in the future child.
84. Because there is an apparent risk that use is made of genetic testing possibilities outside health care (for instance, in the case of medical examination prior to an employment or insurance contract), it is of importance to clearly distinguish between health care purposes for the benefit of the individual on the one hand and third parties' interests, which may be commercial, on the other hand.

85. Article 12 prohibits the carrying out of predictive tests for reasons other than health or health-related research, even with the assent of the person concerned. Therefore, it is forbidden to do predictive genetic testing as part of pre-employment medical examinations, whenever it does not serve a health purpose of the individual. This means that in particular circumstances, when the working environment could have prejudicial consequences on the health of an individual because of a genetic predisposition, predictive genetic testing may be offered without prejudice to the aim of improving working conditions. The test should be clearly used in the interest of the individual's health. The right not to know should also be respected.
86. Insofar as predictive genetic testing, in the case of employment or private insurance contracts, does not have a health purpose, it entails a disproportionate interference in the rights of the individual to privacy. An insurance company will not be entitled to subject the conclusion or modification of an insurance policy to the holding of a predictive genetic test. Nor will it be able to refuse the conclusion or modification of such a policy on the ground that the applicant has not submitted to a test, as the conclusion of a policy cannot reasonably be made conditional on the performance of an illegal act.
87. However, 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.
88. According to Article 5, a genetic test may only be carried out after the person concerned has given free and informed consent. Article 12 adds a supplementary condition which is that predictive tests must be accompanied by appropriate genetic counselling.

Article 13 – Interventions on the human genome

89. The progress of science, in particular in knowledge of the human genome and its application, has raised very positive perspectives,

but also questions and even great fears. Whilst developments in this field may lead to great benefit for humanity, misuse of these developments may endanger not only the individual but the species itself. The ultimate fear is of intentional modification of the human genome so as to produce individuals or entire groups endowed with particular characteristics and required qualities. In Article 13, the Convention provides the answer to these fears in several ways.

90. In every case, any intervention which aims to modify the human genome must be carried out for preventive, diagnostic or therapeutic purposes. Interventions aimed at modifying genetic characteristics not related to a disease or to an ailment are prohibited. As long as somatic cell gene therapy is currently at the research stage, its application can be allowed only if it complies with the standards of protection provided for in Article 15 and the following Articles.
91. Interventions seeking to introduce any modification in the genome of any descendants are prohibited. Consequently, in particular genetic modifications of spermatozoa or ova for fertilisation are not allowed. Medical research aiming to introduce genetic modifications in spermatozoa or ova which are not for procreation is only permissible if carried out *in vitro* with the approval of the appropriate ethical or regulatory body.
92. On the other hand the article does not rule out interventions for a somatic purpose which might have unwanted side-effects on the germ cell line. Such may be the case, for example, for certain treatments of cancer by radiotherapy or chemotherapy, which may affect the reproductive system of the person undergoing the treatment.

Article 14 – Non-selection of sex

93. Medically-assisted procreation includes artificial insemination, *in vitro* fertilisation and any technique having the same effect which permits procreation beyond the natural process. According to this Article, it is not permissible to use a technique of medically-assisted

procreation in order to choose a future child's sex, except where serious hereditary sex-related disease is to be avoided.

94. It is for internal law to determine, according to the procedures applied in each state, the seriousness of a hereditary sex-related disease. In some countries, guidelines are laid down by political or administrative authorities or by national ethics committees, *ad hoc* committees, professional bodies, etc. In every case, appropriate genetic counselling of the persons concerned is necessary.

Chapter V – Scientific research

Article 15 – General rule

95. Freedom of scientific research in the field of biology and medicine is justified not only by humanity's right to knowledge, but also by the considerable progress its results may bring in terms of the health and well-being of patients.
96. Nevertheless, such freedom is not absolute. In medical research it is limited by the fundamental rights of individuals expressed, in particular, by the provisions of the Convention and by other legal provisions which protect the human being. In this connection, it should be pointed out that the first Article of the Convention specifies that its aim is to protect the dignity and identity of human being and guarantee to everyone, without discrimination, respect for their integrity as well as for other rights and fundamental freedoms. Any research will therefore have to observe these principles.

Article 16 – Protection of persons undergoing research

97. This Article lays down the conditions for all research on human beings. These conditions were largely inspired by Recommendation No. R (90) 3 of the Committee of Ministers to member states on medical research on the human being.

98. The first condition is that there must be no alternative of comparable effectiveness to research on humans. Consequently, research will not be allowed if comparable results can be obtained by other means. Invasive methods will not be authorised if other less invasive or non-invasive methods can be used with comparable effect.
99. The second condition is that the risks which may be incurred by that person are not disproportionate to the potential benefits of the research.
100. The third condition is the need for an independent examination of the scientific merit as well as of the ethical, including legal, social and economic acceptability of the research project. The examination of the latter aspects have to be carried out by independent multi-disciplinary ethics committees.
101. Paragraph iv underlines the obligation to inform the person in advance of their legal rights and guarantees, for example, their right to freely withdraw their consent at any time.
102. Paragraph v reinforces conditions set forth in Article 5 concerning consent. In the sphere of research, implicit consent is insufficient. For this reason the Article requires not only the person's free and informed consent, but their express, specific and written consent. The words "specific consent" are to be understood here as meaning consent which is given to one particular intervention carried out in the framework of research.

Article 17 – Protection of persons not able to consent to research

Paragraph 1

103. In its first paragraph this Article establishes a principle with regard to research on a person who is not able to consent: the research must be potentially beneficial to the health of the person concerned. The benefit must be real and follow from the potential results of the research, and the risk must not be disproportionate to the potential benefit.

104. Moreover, to allow such research, there should be no alternative subject with full capacity. It is not sufficient that there should be no capable volunteers. Recourse to research on persons not able to consent must be, scientifically, the sole possibility. This will apply, for instance, to research aimed at improving the understanding of development in children or improving the understanding of diseases affecting these people specifically, such as infant diseases or certain psychiatric disorders such as dementia in adults. Such research can only be carried out, respectively, on children or the adults concerned.
105. Protection of the person not able to consent is also strengthened by the requirement that the necessary authorisation as provided for under Article 6 be given specifically and in writing. It is also stipulated that such authorisation may be freely withdrawn at any time.
106. The research must not be carried out if the person concerned objects. In the case of infants or very young children, it is necessary to evaluate their attitude taking account of their age and maturity. The rule prohibiting the carrying out of the research against the wish of the subject reflects concern, in research, for the autonomy and dignity of the person in all circumstances, even if the person is considered legally incapable of giving consent. This provision is also a means of guaranteeing that the burden of the research is acceptable to the person at all times.

Paragraph 2

107. Under the protective conditions prescribed by domestic law, paragraph 2 provides, exceptionally, for the possibility of waiving the direct benefit rule on certain very strict conditions. Were such research to be banned altogether, progress in the battles to maintain and improve health and to combat diseases only afflicting children, mentally disabled persons or persons suffering from senile dementia would become impossible. The group of people concerned may in the end benefit from this kind of research.

108. As well as the general conditions of research on persons not able to consent, a certain number of supplementary conditions must be fulfilled. In this way the Convention enables these people to enjoy the benefits of science in the fight against disease, while guaranteeing the individual protection of the person who undergoes the research. The required conditions imply that:

- in order to obtain the necessary results for the patient group concerned, there is neither an alternative method of comparable effectiveness to research on humans, nor research of comparable effectiveness on individuals capable of giving informed consent;
- the research has the aim of contributing to the ultimate attainment of results capable of conferring a benefit to the person concerned or to other persons in the same age category, or afflicted with the same disease or disorder or having the same condition, through significant improvements in the scientific understanding of the individual's conditions, disease or disorder;
- the research entails only minimal risk and minimal burden for the individual concerned (for example, blood sampling – see paragraphs 111 and 113 below);
- the research project not only has scientific merit but is also ethically and legally acceptable and has been given prior approval by the competent bodies;
- the person's representative or an authority or a person or body provided for by law has given authorisation (adequate representation of the interests of the patient);
- the person concerned does not object (the wish of the person concerned prevails and is always decisive);
- authorisation for this research may be withdrawn at any time throughout a research project.

109. One of the first supplementary conditions is that this research should be likely to significantly improve the scientific understanding of a person's health condition, disease or disorder and obtain, in the end, results benefitting the health of the person

undergoing research or the health of persons in the same category. This means, for example, that a minor may participate in research on an ailment from which he or she suffers even if the minor would not benefit by the results of the research, provided that the research might be of significant benefit to other children suffering from the same disease. In the case of healthy minors undergoing research it is obvious that the result of the research might be of benefit only to other children. In cases where healthy minors participate in research, clearly it is to obtain results of benefit to other children; however such research may well be of ultimate benefit to healthy children taking part in this research.

110. The research on “the individual’s condition” might cover, with regard to research on children, not only diseases or abnormalities peculiar to childhood or certain aspects of common diseases that are specific to childhood, but also the normal development of the child where knowledge is necessary for the understanding of these diseases or abnormalities.
111. While Article 16.ii restricts research in general by establishing a criterion of risk/benefit proportionality, Article 17 lays down a more stringent requirement for research without direct benefit to persons incapable of giving consent, namely only minimal risk and minimal burden for the individual concerned. Indeed, it is only in respecting these conditions that such research may be carried out without constituting an instrumentalisation of these persons contrary to their dignity. For example, taking a single blood sample from a child would generally only present a minimal risk, and might therefore be regarded as acceptable.
112. Diagnostic and therapeutic progress for the benefit of sick children depends to a large extent on new knowledge and insight regarding the normal biology of the human organism and calls for research on the age-related functions and development of normal children before it can be applied in the treatment of sick children. Moreover, paediatric research concerns not only the diagnosis and treatment of serious pathological conditions but also the maintenance and improvement of the state of health of children

who are not ill, or who are only slightly ill. In this connection mention should be made of prophylaxis through vaccination or immunisation, dietary measures or preventive treatments whose effectiveness, especially in terms of costs and possible risks, urgently requires evaluation by means of scientifically controlled studies. Any restriction based on the requirement of “potential direct benefit” for the person undergoing the test would make such studies impossible in the future.

113. As examples, the following fields of research can be mentioned, provided all conditions outlined above are met (including the condition that it is impossible to obtain the same results through research carried out on capable persons and the condition of minimal risk and minimal burden):
- in respect of children: replacing X-ray examinations or invasive diagnostic measures for children by ultrasonic scanning; analyses of incidental blood samples from newborn infants without respiratory problems in order to establish the necessary oxygen content for premature infants; discovering the causes and improving treatment of leukaemia in children (for example, by taking a blood sample);
 - in respect of adults not able to consent: research on patients in intensive care or in a coma to improve the understanding of the causes of coma or the treatment in intensive care.
114. The above-mentioned examples of medical research cannot be described as routine treatment. They are in principle without direct therapeutic benefit for the patient. However, they may be ethically acceptable if the above highly protective conditions, resulting from the combined effect of Articles 6, 7, 16 and 17, are fulfilled.

Article 18 – Research on embryos *in vitro*

115. The first paragraph of Article 18 stresses the necessity to protect the embryo in the framework of research: where national law

allows research on embryos *in vitro* the law must ensure adequate protection of the embryo.

116. The article does not take a stand on the admissibility of the principle of research on *in vitro* embryos. However, paragraph 2 of the Article prohibits the creation of human embryos with the aim to carry out research on them.

Chapter VI – Organ and tissue removal from living donors for transplantation purposes

Article 19 – General rule

117. Organ transplants are current medical techniques helping to save, prolong or greatly facilitate the lives of persons suffering from certain serious disorders. The purpose of this chapter is to establish a framework to protect living donors in the context of organ (in particular liver, kidney, lung, pancreas) or tissue removal (for instance, skin). The provisions in this chapter do not apply to blood transfusions.

118. According to the first principle of the text, organs or tissues should be removed from deceased donors rather than from living donors whenever possible.

Removing organs or tissue from living donors always represents a risk for the donors, if only because of the anaesthesia they sometimes have to undergo. This implies that organs from living persons should not be used where an appropriate organ from a deceased person is available.

119. The second condition in the case of living donors is that there exists no alternative therapeutic method of comparable effectiveness. In view of the risk involved in any organ removal, there is no justification for resorting to this if there is another way of bringing the same benefit to the recipient. The transplant must therefore be necessary in the sense that there is no other solution that would produce similar results, such as “conventional” treatment, or tissues of animal origin, cultured tissues or tissues

transplanted from the recipient. In this respect dialysis treatment is not considered to provide results in terms of the patient's quality of life comparable with those obtained by a kidney transplant.

120. In order for an organ to be removed, the express and specific consent of the donor must be given, in accordance with Article 5 of the Convention. Moreover, Article 19, paragraph 2, stipulates that this consent must be specific and given in written form or before an official body, making the conditions set forth in Article 5 more stringent for this particular type of intervention. The official body concerned could be a court or a notary, for example.
121. The removal of organs may only be carried out for the therapeutic benefit of the recipient where the need was known before the removal. Tissue, for its part, can be stored in tissue banks for future needs (it should be stressed that this concerns, in most cases, unused tissue – for example tissue removed after an intervention – see Article 22); in this case the provisions of Recommendation No. R (94) 1 of the Committee of Ministers to the member states on human tissue banks are applicable.

Article 20 – Protection of persons not able to consent to organ removal

122. Article 20 deals specifically with the question of the removal of organs or tissue from persons incapable of giving consent. The principle is that this practice is prohibited.
123. Only in very exceptional circumstances may exceptions be made to this rule, and only for the removal of regenerative tissue. Within the meaning of this Article, regenerative tissue is that capable of reconstituting its tissue mass and function after partial removal. These exceptions are justified by the fact that regenerative tissue, in particular bone marrow, can only be transplanted between genetically compatible persons, often brothers and sisters.
124. If, at the present time, bone marrow transplants among brothers and sisters is the most important situation which meets with the

- condition of this article, the formula “regenerative tissue” takes into account future developments in medicine.
125. Paragraph 2 therefore permits removal of bone marrow from a minor for the benefit of his or her brother or sister. It is the principle of mutual aid between very close members of a family which, subject to certain conditions, can justify an exception to the prohibition of removal which is intended to protect the persons who are not able to give their consent. This exception to the general rule is qualified by a number of conditions set forth in Article 20, designed to protect the person who is incapable of giving consent, and these may be supplemented by national law. The conditions of Article 19, paragraph 1, also apply.
 126. The first condition is the absence, within reasonable limits, of a compatible donor who is able to consent.
 127. Moreover, the removal is only authorised on the condition that, in the absence of the donation, the life of the recipient is in danger. It goes without saying that the risks to the donor should be acceptable; the professional standards of Article 4 naturally apply, in particular as regards the balance between risk and benefit.
 128. It is also required that the beneficiary be a brother or sister. This restriction is intended to avoid both family and doctors going to extreme lengths to find a donor at any price, even if the level of kinship is distant and the chances for a successful transplant are not very likely, because of tissue incompatibility.
 129. Furthermore, in keeping with Article 6, the authorisation of the representative of the person not able to consent or the authorisation of the authority or body provided for by law is needed before the removal can be carried out (see under 38 above for withdrawal). The agreement of the competent body mentioned in Article 20, iv is also required. The intervention of such a body (which might be a court, a professionally qualified body, an ethics committee, etc.) aims to guarantee that the decision to be taken is impartial.

130. Finally, the removal may not be carried out if the potential donor objects in any way. As in the case of research, this opposition, in whatever form, is decisive and must always be observed.

Chapter VII – Prohibition of financial gain and disposal of a part of the human body

Article 21 – Prohibition of financial gain

131. This article applies the principle of human dignity set forth in the preamble and in Article 1.
132. It states in particular that the human body and its parts must not, as such, give rise to financial gain. Under this provision organs and tissues proper, including blood, should not be bought or sold or give rise to financial gain for the person from whom they have been removed or for a third party, whether an individual or a corporate entity such as, for example, a hospital. However, technical acts (sampling, testing, pasteurisation, fractionation, purification, storage, culture, transport, etc.) which are performed on the basis of these items may legitimately give rise to reasonable remuneration. For instance, this Article does not prohibit the sale of a medical device incorporating human tissue which has been subjected to a manufacturing process as long as the tissue is not sold as such. Further, this Article does not prevent a person from whom an organ or tissue has been taken from receiving compensation which, while not constituting remuneration, compensates that person equitably for expenses incurred or loss of income (for example, as a result of hospitalisation).
133. The provision does not refer to such products as hair and nails, which are discarded tissues, and the sale of which is not an affront to human dignity.
134. The question of patents was not considered in connection with this provision; accordingly the latter was not intended to apply to the question of the patentability of biotechnological inventions. Such was the complexity of the problem of patents that a detailed

study was necessary before any regulations were drawn up. If such a study led to the conclusion that regulations on the subject were desirable, the regulations should include principles and rules suited to the specific nature of the subject. In this respect, it has been noted that the European Community has issued a proposal for a Directive containing the principle according to which “the human body and its elements in their natural state shall not be considered patentable inventions”.

Article 22 – Disposal of a removed part of the human body

135. Parts of the human body are often removed in the course of interventions, for example surgery. The aim of this article is to ensure the protection of individuals with regard to parts of their body which are thus removed and then stored or used for a purpose different from that for which they have been removed. Such a provision is necessary in particular, because much information on the individual may be derived from any part of the body, however small (for example, blood, hair, bone, skin, organ). Even when the sample is anonymous the analysis may yield information about identity.
136. This provision thus establishes a rule consistent with the general principle in Article 5 on consent, i.e. that parts of the body which have been removed during an intervention for a specified purpose must not be stored or used for a different purpose unless the relevant conditions governing information and consent have been observed.
137. The information and consent arrangements may vary according to the circumstances, thus allowing for flexibility since the express consent of an individual to the use of parts of his body is not systematically needed. Thus, sometimes, it will not be possible, or very difficult, to find the persons concerned again in order to ask for their consent. In some cases, it will be sufficient for a patient or his or her representative, who have been duly informed (for instance, by means of leaflets handed to the persons concerned at the hospital), not to express their opposition. In other cases,

depending on the nature of the use to which the removed parts are to be put, express and specific consent will be necessary, in particular where sensitive information is collected about identifiable individuals.

138. This article must not be understood to authorise an exception to the principle in Article 19 that removal of organs for transplantation purposes may be carried out only for the benefit of the recipient. However, in a case where the organ appears not to be suitable for transplantation purposes, because of its condition, it may then exceptionally be used for research in transplantation medicine specifically related to the particular organ.

Chapter VIII – Infringements of the provisions of the Convention

Article 23 – Infringement of the rights or principles

139. This article requires the Parties to make available a judicial procedure to prevent or put a stop to an infringement of the principles set forth in the Convention. It therefore covers not only infringements which have already begun and are ongoing but also the threat of an infringement.
140. The judicial protection requested must be appropriate and proportionate to the infringement or the threats of infringement of the principles. Such is the case, for example, with proceedings initiated by a public prosecutor in cases of infringements affecting several persons unable to defend themselves, in order to put an end to the violation of their rights.
141. Under the Convention, the appropriate protective machinery must be capable of operating rapidly as it has to allow an infringement to be prevented or halted at short notice. This requirement can be explained by the fact that, in many cases, the very integrity of an individual has to be protected and an infringement of this right might have irreversible consequences.

142. The judicial protection thus provided by the Convention applies only to unlawful infringements or to threats thereof.

The reason for this qualifying adjective is that the Convention itself, in Article 26.1, permits restrictions to the free exercise of the rights it recognises.

Article 24 – Compensation for undue damage

143. This Article sets forth the principle that any person who has suffered undue damage resulting from an intervention is entitled to fair compensation. The Convention uses the expression “undue damage” because in medicine some damage, such as amputation, is inherent in the therapeutic intervention itself.

144. The due or undue nature of the damage will have to be determined in the light of the circumstances of each case. The cause of the damage must be an intervention in the widest sense, taking the form of either an act or an omission. The intervention may or may not constitute an offence. In order to give entitlement to compensation, the damage must result from the intervention.

145. Compensation conditions and procedures are prescribed by national law. In many cases, this establishes a system of individual liability based either on fault or on the notion of risk or strict liability. In other cases, the law may provide for a collective system of compensation irrespective of individual liability.

146. On the subject of fair compensation, reference can be made to Article 50 of the European Convention on human rights, which allows the Court to afford just satisfaction to the injured party.

Article 25 – Sanctions

147. Since the aim of the sanctions provided for in Article 25 is to guarantee compliance with the provisions of the Convention, they must be in keeping with certain criteria, particularly those of necessity and proportionality. As a result, in order to measure the expediency and determine the nature and scope of the sanction, the domestic law must pay special attention to the content and

importance of the provision to be complied with, the seriousness of the offence and the extent of its possible repercussions for the individual and for society.

Chapter IX – Relation between this Convention and other provisions

Article 26 – Restrictions on the exercise of rights

Paragraph 1

148. This article lists the only possible exceptions to the rights and protective provisions contained in all the provisions of the Convention, without prejudice to any specific restrictions which this or that Article may involve.
149. It echoes partially the provisions of Article 8, paragraph 2, of the European Convention on human rights. The exceptions made in Article 8, paragraph 2, of the European Convention on human rights have not all been considered relevant to this Convention. The exceptions defined in the article are aimed at protecting collective interests (public safety, the prevention of crime, and the protection of public health) or the rights or freedoms of others.
150. Compulsory isolation of a patient with a serious infectious disease, where necessary, is a typical example of an exception for reason of the protection of public health.
151. A person who may, due to his or her mental disorder, be a possible source of serious harm to others may, according to the law, be subjected to a measure of confinement or treatment without his or her consent. Here, in addition to the cases contemplated in Article 7, the restriction may be applicable in order to protect other people's rights and freedom.
152. Protection of the rights of others may also, for example, justify an order by a judicial authority for a test to be carried out to establish parentage.

153. It may also be justified to use genetic assessments (DNA tests) for the identification of persons in connection with criminal investigation.
154. Certain legislations provide for court-ordered psychiatric treatment of an accused person who, failing such treatment, would be unfit to stand trial, with the object of enabling the accused to make a proper defence. Such court-ordered treatment, with attached appropriate safeguards, may be considered as relevant within the scope of Article 26, which refers namely to necessary measures for the fair administration of justice (“prevention of crime”) which, in a democratic society, include the defence of the accused.
155. The protection of the patient’s health is not mentioned in this paragraph as one of the factors justifying an exception to the provisions of the Convention as a whole. In order to clarify its scope, it seemed preferable to define this exception in each of the provisions expressly alluding to it. Article 7, for example, specifies the conditions on which individuals suffering from mental disorders may, without their consent, be given treatment if their health might seriously suffer otherwise.
156. Moreover, defending the economic well-being of the country, public order or morals and national security are not included amongst the general exceptions referred to in the first paragraph of this article, unlike Article 8 of the European Convention on human rights. It did not appear desirable, in the context of this Convention, to make the exercise of fundamental rights chiefly concerned with the protection of a person’s rights in the health sphere subject to the economic well-being of the country, to public order, to morals or to national security.
157. The economic aspect is however referred to in Article 3 by the words “available resources”; however, within the meaning of this article this notion does not represent a reason for allowing for an exception to the rights secured in other provisions of the Convention.

158. War and armed conflict were also ruled out as possible grounds for exceptions. However, this is not meant as preventing the law from taking specific measures in the military aiming at protecting public health in that particular context.
159. The reasons mentioned in Article 26.1 should not be regarded as justifying an absolute exception to the rights secured by the Convention. To be admissible, restrictions must be prescribed by law and be necessary in a democratic society for the protection of the collective interest in question or for the protection of individual interests, that is the rights and freedom of others. These conditions must be interpreted in the light of the criteria established with regard to the same concepts by the case-law of the European Court of Human Rights. In particular, the restrictions must meet the criteria of necessity, proportionality and subsidiarity, taking into account the social and cultural conditions proper to each State. The term “prescribed by law” should be interpreted in accordance with the meaning usually given to it by the European Court of Human Rights, that is a formal law is not required and each State may adopt the form of domestic law it considers most appropriate.

Paragraph 2

160. The restrictions set out in the first paragraph of the Article shall not apply to the provisions mentioned in the second paragraph. It concerns the following provisions: Article 11 (Non-discrimination), Article 13 (Interventions on human genome), Article 14 (Non-selection of sex), Article 16 (Protection of persons undergoing research), Article 17 (Protection of persons not able to consent to research), Articles 19 and 20 (Organ and tissue removal from living donors for transplantation purposes) and Article 21 (Prohibition of financial gain).

Article 27 – Wider protection

161. In pursuance of this article, the Parties may apply rules of a more protective nature than those contained in the Convention. In other words, the text lays down common standards with which States must comply, while allowing them to provide greater protection of the human being and of human rights with regard to applications of biology and medicine.
162. A conflict may arise between the various rights established by the Convention, for example between a scientist's right of freedom of research and the rights of a person submitting to the research. However, the expression "wider protection" must be interpreted in the light of the purpose of the Convention, as defined in Article 1, namely the protection of the human being with regard to the application of biology and medicine.
- In the example quoted, any additional statutory protection can only mean greater protection for a person submitting to research.

Chapter X – Public debate

Article 28 – Public debate

163. The purpose of this article is to prompt the Parties to create greater public awareness of the fundamental questions raised by the application of biology and medicine. Society's views must be ascertained as far as possible with regard to problems concerning its members as a whole. To this end, appropriate public discussion and consultation are recommended. The word "appropriate" leaves the Parties free to select the most suitable procedures. Where appropriate, for example, States may organise ethics committees and have recourse to the teaching of ethics in the field of medicine, biology and health to health care professionals, teachers and the general public.

Chapter XI – Interpretation and follow-up of the Convention

Article 29 – Interpretation of the Convention

164. This article allows the possibility of requesting the European Court of Human Rights' advisory opinion on legal questions concerning the interpretation of the Convention. The opinion shall be without direct reference to any specific proceedings in a court.
165. This Convention does not itself give individuals a right to bring proceedings before the European Court of Human Rights. However, facts which are an infringement of the rights contained in this Convention may be considered in proceedings under the European Convention of Human Rights, if they also constitute a violation of one of the rights contained in the latter Convention.

Article 30 – Reports on the application of the Convention

166. According to the model of Article 57 of the European Convention of human rights, this Article stipulates that any Party, on the request of the Secretary General of the Council of Europe, shall furnish an explanation of the manner in which its internal law ensures the effective implementation of any of the provisions of the Convention.

Chapter XII – Protocols

Article 31 – Protocols

167. The Convention establishes principles valid for all applications of biology and medicine in human beings. This article makes provision for the immediate drawing up of protocols containing rules on specific fields. As the purpose of the protocols is to develop further the principles contained in the Convention, their provisions should not depart from those therein. In particular, they cannot lay down rules affording human beings less protection than that resulting from the principles of the Convention.

168. To be able to sign or ratify a protocol, a State must have simultaneously or previously signed or ratified the Convention. On the other hand, States which have signed or ratified the Convention will not be obliged to sign or ratify a protocol.

Chapter XIII – Amendments to the Convention

Article 32 – Amendments to the Convention

169. Amendments to the Convention shall be examined by the CDBI, or by any other committee designated by the Committee of Ministers. Accordingly, each member state of the Council of Europe, as well as each Party to the Convention which is not a member of the Council of Europe, will have the right to vote concerning the proposed amendments.
170. This article provides that the Convention shall be re-examined no later than five years from its entry into force and thereafter at such intervals as the Committee in charge of the re-examination may determine.

Chapter XIV – Final clauses

Article 33 – Signature, ratification and entry into force

171. Other than the member states of the Council of Europe, the following States, which took part in its preparation, may sign the Convention: Australia, Canada, the Holy See, Japan and the United States of America.

Article 35 – Territories

172. Since this provision is mainly aimed at overseas territories, it was agreed that it would be clearly against the philosophy of the Convention for any Party to exclude parts of its main territory from the application of this instrument, and that there would be no need to lay this down explicitly in the Convention.

Article 36 – Reservations

173. This article, on the model of Article 64 of the European Convention of human rights, permits reservations in respect of any particular provision of the Convention, to the extent that any law in force is not in conformity with the provision.
174. The term law does not imply that a formal law is required (for example, in some countries, the professional bodies issue their own deontological rules which are applicable to their members to the extent that they do not contradict State norms). However, according to paragraph 1, a reservation of a general character, that is couched in terms too vague or broad for it to be possible to determine its exact meaning and scope, is not permitted.
175. Furthermore, according to paragraph 2, any reservation made shall contain a brief statement of the law concerned; this statement constitutes an evidential factor and contributes to legal certainty, and is not a purely formal requirement but a condition of substance (see European Court of Human Rights, *Belilos Case*, sections 55 and 59).
176. It was agreed that any declaration, even described as interpretative, made by the State or the European Community relating to any provision of the Convention, which seeks to modify for the declaring State the obligations deriving from such provision should meet, in order to be valid, the requirements set out in Article 36.

Additional protocol to the Convention on human rights and biomedicine concerning transplantation of organs and tissues of human origin

Strasbourg, 24.I.2002

Preamble

The member states of the Council of Europe, the other States and the European Community signatories to this Additional Protocol to the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine (hereinafter referred to as “Convention on Human Rights and Biomedicine”),

Considering that the aim of the Council of Europe is the achievement of greater unity between its members and that one of the methods by which this aim is pursued is the maintenance and further realisation of human rights and fundamental freedoms;

Considering that the aim of the Convention on Human Rights and Biomedicine, as defined in Article 1, is to protect the dignity

and identity of all human beings and guarantee everyone, without discrimination, respect for their integrity and other rights and fundamental freedoms with regard to the application of biology and medicine;

Considering that progress in medical science, in particular in the field of organ and tissue transplantation, contributes to saving lives or greatly improving their quality;

Considering that transplantation of organs and tissues is an established part of the health services offered to the population;

Considering that, in view of the shortage of organs and tissues, appropriate action should be taken to increase organ and tissue donation, in particular by informing the public of the importance of organ and tissue transplantation and by promoting European co-operation in this field;

Considering moreover the ethical, psychological and socio-cultural problems inherent in the transplantation of organs and tissues;

Considering that the misuse of organ and tissue transplantation may lead to acts endangering human life, well being or dignity;

Considering that organ and tissue transplantation should take place under conditions protecting the rights and freedoms of donors, potential donors and recipients of organs and tissues and that institutions must be instrumental in ensuring such conditions;

Recognising that, in facilitating the transplantation of organs and tissues in the interest of patients in Europe, there is a need to protect individual rights and freedoms and to prevent the commercialisation of parts of the human body involved in organ and tissue procurement, exchange and allocation activities;

Taking into account previous work of the Committee of Ministers and the Parliamentary Assembly of the Council of Europe in this field;

Resolving to take such measures as are necessary to safeguard human dignity and the rights and fundamental freedoms of the individual with regard to organ and tissue transplantation,

Have agreed as follows:

Chapter I – Object and scope

Article 1 – Object

Parties to this Protocol shall protect the dignity and identity of everyone and guarantee, without discrimination, respect for his or her integrity and other rights and fundamental freedoms with regard to transplantation of organs and tissues of human origin.

Article 2 – Scope and definitions

1. This Protocol applies to the transplantation of organs and tissues of human origin carried out for therapeutic purposes.
2. The provisions of this Protocol applicable to tissues shall apply also to cells, including haematopoietic stem cells.
3. The Protocol does not apply:
 - a. to reproductive organs and tissue;
 - b. to embryonic or foetal organs and tissues;
 - c. to blood and blood derivatives.
4. For the purposes of this Protocol:
 - the term “transplantation” covers the complete process of removal of an organ or tissue from one person and implantation of that organ or tissue into another person, including all procedures for preparation, preservation and storage;
 - subject to the provisions of Article 20, the term “removal” refers to removal for the purposes of implantation.

Chapter II – General provisions

Article 3 – Transplantation system

Parties shall guarantee that a system exists to provide equitable access to transplantation services for patients.

Subject to the provisions of Chapter III, organs and, where appropriate, tissues shall be allocated only among patients on an official waiting list, in conformity with transparent, objective and duly justified rules according to medical criteria. The persons or bodies responsible for the allocation decision shall be designated within this framework.

In case of international organ exchange arrangements, the procedures must also ensure justified, effective distribution across the participating countries in a manner that takes into account the solidarity principle within each country.

The transplantation system shall ensure the collection and recording of the information required to ensure traceability of organs and tissues.

Article 4 – Professional standards

Any intervention in the field of organ or tissue transplantation must be carried out in accordance with relevant professional obligations and standards.

Article 5 – Information for the recipient

The recipient and, where appropriate, the person or body providing authorisation for the implantation shall beforehand be given appropriate information as to the purpose and nature of the implantation, its consequences and risks, as well as on the alternatives to the intervention.

Article 6 – Health and safety

All professionals involved in organ or tissue transplantation shall take all reasonable measures to minimise the risks of transmission of any disease to the recipient and to avoid any action which might affect the suitability of an organ or tissue for implantation.

Article 7 – Medical follow-up

Appropriate medical follow-up shall be offered to living donors and recipients after transplantation.

Article 8 – Information for health professionals and the public

Parties shall provide information for health professionals and for the public in general on the need for organs and tissues. They shall also provide information on the conditions relating to removal and implantation of organs and tissues, including matters relating to consent or authorisation, in particular with regard to removal from deceased persons.

Chapter III – Organ and tissue removal from living persons

Article 9 – General rule

Removal of organs or tissue from a living person may be carried out solely for the therapeutic benefit of the recipient and where there is no suitable organ or tissue available from a deceased person and no other alternative therapeutic method of comparable effectiveness.

Article 10 – Potential organ donors

Organ removal from a living donor may be carried out for the benefit of a recipient with whom the donor has a close personal relationship as defined by law, or, in the absence of such relationship, only under the conditions defined by law and with the approval of an appropriate independent body.

Article 11 – Evaluation of risks for the donor

Before organ or tissue removal, appropriate medical investigations and interventions shall be carried out to evaluate and reduce physical and psychological risks to the health of the donor.

The removal may not be carried out if there is a serious risk to the life or health of the donor.

Article 12 – Information for the donor

The donor and, where appropriate, the person or body providing authorisation according to Article 14, paragraph 2, of this Protocol, shall beforehand be given appropriate information as to the purpose and nature of the removal as well as on its consequences and risks.

They shall also be informed of the rights and the safeguards prescribed by law for the protection of the donor. In particular, they shall be informed of the right to have access to independent advice about such risks by a health professional having appropriate experience and who is not involved in the organ or tissue removal or subsequent transplantation procedures.

Article 13 – Consent of the living donor

Subject to Articles 14 and 15 of this Protocol, an organ or tissue may be removed from a living donor only after the person concerned has given free, informed and specific consent to it either in written form or before an official body.

The person concerned may freely withdraw consent at any time.

Article 14 – Protection of persons not able to consent to organ or tissue removal

1. No organ or tissue removal may be carried out on a person who does not have the capacity to consent under Article 13 of this Protocol.
2. Exceptionally, and under the protective conditions prescribed by law, the removal of regenerative tissue from a person who does not have the capacity to consent may be authorised provided the following conditions are met:
 - i. there is no compatible donor available who has the capacity to consent;
 - ii. the recipient is a brother or sister of the donor;
 - iii. the donation has the potential to be life-saving for the recipient;
 - iv. the authorisation of his or her representative or an authority or a person or body provided for by law has been given specifically and in writing and with the approval of the competent body;
 - v. the potential donor concerned does not object.

Article 15 – Cell removal from a living donor

The law may provide that the provisions of Article 14, paragraph 2, indents ii and iii, shall not apply to cells insofar as it is established that their removal only implies minimal risk and minimal burden for the donor.

Chapter IV – Organ and tissue removal from deceased persons

Article 16 – Certification of death

Organs or tissues shall not be removed from the body of a deceased person unless that person has been certified dead in accordance with the law.

The doctors certifying the death of a person shall not be the same doctors who participate directly in removal of organs or tissues from the deceased person, or subsequent transplantation procedures, or having responsibilities for the care of potential organ or tissue recipients.

Article 17 – Consent and authorisation

Organs or tissues shall not be removed from the body of a deceased person unless consent or authorisation required by law has been obtained.

The removal shall not be carried out if the deceased person had objected to it.

Article 18 – Respect for the human body

During removal the human body must be treated with respect and all reasonable measures shall be taken to restore the appearance of the corpse.

Article 19 – Promotion of donation

Parties shall take all appropriate measures to promote the donation of organs and tissues.

Chapter V – Implantation of an organ or tissue removed for a purpose other than donation for implantation

Article 20 – Implantation of an organ or tissue removed for a purpose other than donation for implantation

1. When an organ or tissue is removed from a person for a purpose other than donation for implantation, it may only be implanted if the consequences and possible risks have been explained to that person and his or her informed consent, or appropriate authorisation in the case of a person not able to consent, has been obtained.
2. All the provisions of this Protocol apply to the situations referred to in paragraph 1, except for those in Chapters III and IV.

Chapter VI – Prohibition of financial gain

Article 21 – Prohibition of financial gain

1. The human body and its parts shall not, as such, give rise to financial gain or comparable advantage.

The aforementioned provision shall not prevent payments which do not constitute a financial gain or a comparable advantage, in particular:

- compensation of living donors for loss of earnings and any other justifiable expenses caused by the removal or by the related medical examinations;
- payment of a justifiable fee for legitimate medical or related technical services rendered in connection with transplantation;
- compensation in case of undue damage resulting from the removal of organs or tissues from living persons.

2. Advertising the need for, or availability of, organs or tissues, with a view to offering or seeking financial gain or comparable advantage, shall be prohibited.

Article 22 – Prohibition of organ and tissue trafficking

Organ and tissue trafficking shall be prohibited.

Chapter VII – Confidentiality

Article 23 – Confidentiality

1. All personal data relating to the person from whom organs or tissues have been removed and those relating to the recipient shall be considered to be confidential. Such data may only be collected, processed and communicated according to the rules relating to professional confidentiality and personal data protection.
2. The provisions of paragraph 1 shall be interpreted without prejudice to the provisions making possible, subject to appropriate safeguards, the collection, processing and communication of the necessary information about the person from whom organs or tissues have been removed or the recipient(s) of organs and tissues in so far as this is required for medical purposes, including traceability, as provided for in Article 3 of this Protocol.

Chapter VIII – Infringements of the provisions of the Protocol

Article 24 – Infringements of rights or principles

Parties shall provide appropriate judicial protection to prevent or to put a stop to an unlawful infringement of the rights and principles set forth in this Protocol at short notice.

Article 25 – Compensation for undue damage

The person who has suffered undue damage resulting from transplantation procedures is entitled to fair compensation according to the conditions and procedures prescribed by law.

Article 26 – Sanctions

Parties shall provide for appropriate sanctions to be applied in the event of infringement of the provisions contained in this Protocol.

Chapter IX – Co-operation between Parties

Article 27 – Co-operation between Parties

Parties shall take appropriate measures to ensure that there is efficient co-operation between them on organ and tissue transplantation, *inter alia*, through information exchange.

In particular, they shall undertake appropriate measures to facilitate the rapid and safe transportation of organs and tissues to and from their territory.

Chapter X – Relation between this Protocol and the Convention, and re-examination of the Protocol

Article 28 – Relation between this Protocol and the Convention

As between the Parties, the provisions of Articles 1 to 27 of this Protocol shall be regarded as additional articles to the Convention on Human Rights and Biomedicine, and all the provisions of that Convention shall apply accordingly.

Article 29 – Re-examination of the Protocol

In order to monitor scientific developments, the present Protocol shall be examined within the Committee referred to in Article 32 of the Convention on Human Rights and Biomedicine no later than five

years from the entry into force of this Protocol and thereafter at such intervals as the Committee may determine.

Chapter XI – Final clauses

Article 30 – Signature and ratification

This Protocol shall be open for signature by Signatories to the Convention. It is subject to ratification, acceptance or approval. A Signatory may not ratify, accept or approve this Protocol unless it has previously or simultaneously ratified, accepted or approved the Convention. Instruments of ratification, acceptance or approval shall be deposited with the Secretary General of the Council of Europe.

Article 31 – Entry into force

1. This Protocol shall enter into force on the first day of the month following the expiration of a period of three months after the date on which five States, including at least four member states of the Council of Europe, have expressed their consent to be bound by the Protocol in accordance with the provisions of Article 30.
2. In respect of any Signatory which subsequently expresses its consent to be bound by it, the Protocol shall enter into force on the first day of the month following the expiration of a period of three months after the date of the deposit of the instrument of ratification, acceptance or approval.

Article 32 – Accession

1. After the entry into force of this Protocol, any State which has acceded to the Convention may also accede to this Protocol.
2. Accession shall be effected by the deposit with the Secretary General of the Council of Europe of an instrument of accession which shall take effect on the first day of the month following the expiration of a period of three months after the date of its deposit.

Article 33 – Denunciation

1. Any Party may at any time denounce this Protocol by means of a notification addressed to the Secretary General of the Council of Europe.
2. Such denunciation shall become effective on the first day of the month following the expiration of a period of three months after the date of receipt of such notification by the Secretary General.

Article 34 – Notification

The Secretary General of the Council of Europe shall notify the member states of the Council of Europe, the European Community, any Signatory, any Party and any other State which has been invited to accede to the Convention of:

- a. any signature;
- b. the deposit of any instrument of ratification, acceptance, approval or accession;
- c. any date of entry into force of this Protocol in accordance with Articles 31 and 32;
- d. any other act, notification or communication relating to this Protocol.

In witness whereof the undersigned, being duly authorised thereto, have signed this Protocol.

Done at Strasbourg, this 24th day of January 2002, in English and in French, both texts being equally authentic, in a single copy which shall be deposited in the archives of the Council of Europe. The Secretary General of the Council of Europe shall transmit certified copies to each member state of the Council of Europe, to the non-member states which have participated in the elaboration of this Protocol, to any State invited to accede to the Convention and to the European Community.

Explanatory report to Additional protocol to the Convention on human rights and biomedicine concerning transplantation of organs and tissues of human origin (ETS No. 186)

The Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community entered into force on 1 December 2009. As a consequence, as from that date, any reference to the European Community shall be read as the European Union.

- I. This explanatory report to the Additional protocol to the Convention on human rights and biomedicine, concerning transplantation of organs and tissues of human origin, was drawn up under the responsibility of the Secretary General of the Council of Europe, on the basis of a draft prepared, at the request of the Working Party, by Dr Peter Doyle (United Kingdom), member of the Working Party.
- II. The Committee of Ministers has authorised the publication of this explanatory report on 8 November 2001.
- III. The Explanatory Report is not an authoritative interpretation of the Protocol. Nevertheless it covers the main issues of the preparatory work and provides information to clarify the object and purpose of the Protocol and to better understand the scope of its provisions.

Introduction

1. This Additional protocol to the Convention on human rights and biomedicine on the transplantation of organs and tissues of human origin amplifies the principles embodied in the Convention, with a view to ensuring protection of people in the specific field of transplantation of organs and tissues of human origin.
2. The purpose of the Protocol is to define and safeguard the rights of organ and tissue donors, whether living or deceased, and those of persons receiving implants of organs and tissues of human origin.

Drafting of the Protocol

3. In 1991 in its Recommendation 1160, the Council of Europe Parliamentary Assembly recommended that the Committee of Ministers “envisage a framework convention comprising a main text with general principles and additional protocols on specific aspects”. The same year, the Committee of Ministers instructed the CAHBI (*ad hoc* Committee of Experts on Bioethics), re-designated the CDBI (Steering Committee on Bioethics) “to prepare, ... Protocols to this Convention, relating to, in a preliminary phase: organ transplants and the use of substances of human origin; medical research on human beings”.
4. At its 14th meeting (Strasbourg, 5-8 November 1991), the CAHBI appointed the Working Party on Organ Transplantation, responsible for preparing the draft Protocol⁽¹⁾. The CAHBI-CO-GT1, later the CDBI-CO-GT1, chaired by Mr Peter Thompson (United Kingdom), held its first meeting in January 1992 and began its activities concurrently with the CDBI’s work on the Convention.
5. At the second meeting of the CDBI in April 1993 the Working Party submitted a draft Protocol on organ transplantation and in June 1994, the Ministers’ Representatives agreed to declassify this document. However, as CDBI focused its efforts on the preparation of the Convention, the work on the draft Protocol was postponed until January 1997.

6. The Convention on human rights and biomedicine was adopted by the Committee of Ministers on 19 November 1996 and was opened for signature on the 4 April 1997 in Oviedo (Spain). The CDBI, at its 11th meeting in June 1996, decided to give the CDBI-CO-GT1⁽²⁾, chaired by Dr Örn Bjarnason (Iceland), extended terms of reference to examine the draft Protocol on transplantation in the light of the Convention provisions.
7. This Protocol extends the provisions of the Convention on human rights and biomedicine in the field of transplantation of organs, tissues and cells of human origin. The provisions of the Convention are to be applied to the Protocol. For ease of consultation by its users, the Protocol has been drafted in such a way that they need not keep referring to the Convention in order to understand the scope of the Protocol's provisions. However, the Convention contains principles which the Protocol is intended to develop. Accordingly, systematic examination of both texts may prove helpful and sometimes indispensable.
8. The draft Protocol, which was examined by the CDBI at its 15th meeting (7-10 December 1998), was declassified by the Committee of Ministers at its 658th meeting (2-3 February 1999, item 10.1) for the purposes of consultation. Those consulted, including member states, relevant European non-governmental organisations and particularly the Parliamentary Assembly (specifically the Social, Health and Family Affairs Committee, the Committee on Science and Technology and the Committee on Legal Affairs and Human Rights) have contributed to the development of the text. After re-examination, the CDBI finalised the text of the Protocol during its meeting from 5 to 8 June 2000.
9. The Protocol was approved by the CDBI on 8 June 2000 under the chairmanship of Dr Elaine Gadd (United Kingdom). The Parliamentary Assembly gave an opinion on the Protocol, Opinion No. 227 (2001) of 25 April 2001, Professor Jean-François Mattei being the Rapporteur. The Protocol was adopted by the Committee of Ministers on 8 November 2001.

10. The Protocol is accompanied by this explanatory report, drawn up under the responsibility of the Secretary General of the Council of Europe on the basis of a draft prepared, at the request of the Working Party, by its member Dr Peter Doyle (United Kingdom). It takes into account the discussions held in the CDBI and its Working Party entrusted with the drafting of the Protocol; it also takes into account the remarks and proposals made by Delegations. The Committee of Ministers has authorised its publication on 8 November 2001. The explanatory report is not an authoritative interpretation of the Protocol. Nevertheless it covers the main issues of the preparatory work and provides information to clarify the object and purpose of the Protocol and make the scope of its provisions more comprehensible.

Comments on the provisions of the Protocol

Title

11. The title identifies this instrument as the “Additional protocol to the convention for the protection of human rights and dignity of the human being with regard to the application of biology and medicine, concerning transplantation of organs and tissues of human origin”.
12. The expression “of human origin” underlines the exclusion of xenotransplantation from the scope of the Protocol.

Preamble

13. The Preamble highlights the fact that Article 1 of the Convention on human rights and biomedicine protecting the dignity and the identity of all human beings and guaranteeing everyone respect for their integrity, forms a suitable basis on which to formulate additional standards for safeguarding the rights and freedoms of donors, potential donors and recipients of organs and tissues.
14. In November 1987 the Third Conference of European Health Ministers convened in Paris dealt with organ transplantation, and a

number of guidelines on the subject were adopted as a result. This Preamble echoes the main introductory paragraphs of their Final Declaration: while the transplantation of organs and tissues is an established part of the health services offered to the population, helping to save lives or improve their quality, emphasis is placed on the need to take specific measures to promote organ and tissue donation but also to prevent misuse of transplantation and the risk of commercialisation.

15. In addition, the Preamble stresses that it is important to take into account previous work of the Committee of Ministers and the Parliamentary Assembly of the Council of Europe on transplantation of organs and tissues, in particular Committee of Ministers Resolution (78) 29 on harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances and on the management of organ transplant waiting lists and waiting times, Recommendation Rec(2001)5.

Chapter I – Object and scope

Article 1 – Object

16. This article specifies that the object of the Protocol is to protect the dignity and identity of everyone and guarantee, without discrimination, respect for his or her integrity and other rights and fundamental freedoms with regard to transplantation of organs and tissues of human origin.
17. The term “everyone” is used in Article 1 because it is seen as the most concordant with the exclusion of embryonic and foetal organs or tissues from the scope of the Protocol as stated in Article 2 (see paragraph 24 below). The Protocol solely concerns removal of organs and tissues from someone who has been born, whether now living or dead, and the implantation of organs and tissues of human origin into someone else who has likewise been born.

Article 2 – Scope and definitions

18. This article sets out the scope of the Protocol and defines the main terms used.

Scope

19. The Protocol applies solely to the transplantation of organs, tissues and cells of human origin (see paragraph 22 below). Organs, tissues and cells used for implantation are normally obtained from any one of the following three sets of circumstances:
- a. a living person may, under certain conditions, consent to the removal of an organ or tissue for the purpose of implantation into another person; Chapter III was therefore drafted with the aim of protecting living donors from the psychological and physical risks and the consequences of implantation, particularly with regard to confidentiality and burdens arising from the requirements of traceability;
 - b. organs or tissues may be removed from a deceased person and implanted into another person; Chapter IV was designed to regulate the various stages of removal from deceased persons and to guarantee in particular that no removal is carried out if the deceased person had objected to it;
 - c. a person who is undergoing a procedure for his/her own medical benefit may consent to any removed organ or tissue being implanted into another person; Chapter V was designed to specify the conditions under which such organs or tissues may be implanted, in particular by stipulating that specific information must be provided and informed consent or appropriate authorisation obtained.
20. The second paragraph of Article 2 states that the provisions of this Protocol applicable to tissues shall also apply to cells. Indeed Chapter VI of the Convention enunciates the fundamental principles with regard to removal of organs and tissues from living donors for the purpose of transplantation, but none of these provisions mention the term “cells”. However, in many

respects, transplantation of cells poses problems, particularly the consequences of testing and traceability, which are the same as those relating to the transplantation of tissues. Therefore, subject to Article 15, the Protocol applies the same regulations to the transplantation of cells as it does to the transplantation of tissues. In particular, the provisions concerning informed consent or authorisation by or on behalf of the donor, confidentiality, health and safety, and the prohibition of profit apply as for tissues.

21. The transplantation of haematopoietic stem cells, whatever their origin, comes within the scope of the Protocol, as does the transplantation of any kind of cells other than those that have been specifically excluded (see paragraphs 23 to 25 below). It should be emphasised that Recommendation No. R (98) 2 of the Committee of Ministers to member states on provision of haematopoietic progenitor cells is also relevant.
22. This Protocol does not apply to organs or tissues, whether genetically modified or not, removed from animals. These types of treatment are largely theoretical or at best experimental in the present state of scientific knowledge, and raise particular ethical problems. One should note that it is moreover foreseen that the issue of xenotransplantation will be addressed in another instrument presently under preparation. Thus it was agreed to place xenotransplantation outside the Protocol's scope.
23. Reproductive organs and tissues (comprising ova, sperm and their precursors) are excluded from the scope of the Protocol because organ and tissue transplantation is deemed to have different implications from those of medically assisted procreation and therefore should not be governed by the same rules. Therefore ovaries and testes are excluded but the uterus is not.
24. Transplantation of embryonic and foetal organs and tissue, including embryonic stem cells are also excluded from the scope of this Protocol. It is foreseen that these subjects will be addressed in another Protocol now being prepared on protection of the human embryo and foetus.

25. Blood and its derivatives covers blood and the products derived from blood for use in transfusion medicine. Blood and such products are thus subject to specific regulations, or specific standards, such as Recommendation No. R(95) 15 on the Preparation, use and quality assurance of blood components. Blood and its derivatives are therefore excluded from the scope of the Protocol. However, haematopoietic stem cells, whatever their origin, are within the scope of this Protocol as noted in paragraphs 21 and 109.
26. Implantation, in its traditional sense, does not include utilisation of tissues of human origin in the form of medical devices or pharmaceuticals; nevertheless, it was agreed that professional standards imply that the principles contained in this Protocol regarding namely safety, traceability, information and consent for such uses should be applicable *mutatis mutandis*.

Definitions

27. It is not a simple matter to decide what terms to use to signify the grafting or implantation of organs and tissues. In normal usage organs are “grafted” and tissues “implanted”, or we refer to the “implantation of a graft”. For the purposes of this Protocol it was agreed that in English “implantation” best described the surgical procedures involved.
28. There is also difficulty in agreeing on a scientifically precise definition of “organ” and “tissue”. Traditionally an “organ” has been described as part of a human body consisting of a structured arrangement of tissues which, if wholly removed, cannot be replicated by the body. In 1994 the Committee of Ministers adopted a definition of tissues as being

“All constituent parts of the human body, including surgical residues, but excluding organs, blood, blood products as well as reproductive tissue such as sperm, eggs and embryos. Hair, nails, placentas and body waste products also excluded”

(Recommendation No. R (94) 1 of the Committee of Ministers to member states on human tissue banks). These were useful definitions in the early days of transplantation when only a few solid organs were transplanted, e.g. kidney, heart and liver. However, developments in transplantation have given rise to difficulties of definition. For example, only a part of an adult liver may be removed and transplanted into a child and the residual liver will re-grow and the transplant will grow to adult size. This is a liver transplant but is clearly not an “organ” transplant according to the traditional definitions. Conversely, if a whole bone is removed and transplanted, the body cannot replicate the bone, but bone is normally considered to be a tissue not an organ.

29. The Protocol sets out to overcome this difficulty by using the terms “organs” and “tissues” throughout the text, except in Article 10 (see paragraphs 30 to 32 below), so that all provisions apply to all parts of the body. The distinction between the removal of “tissues” and “cells” is also difficult. In effect, more than one cell may be considered to be a tissue. Similarly, the Protocol sets out to overcome this difficulty by stating that the provisions applicable to tissues shall also apply to cells. In the same way, unless specifically stated, explanations relating to tissues in this explanatory report also apply to cells.
30. It is nevertheless possible to distinguish between vascularised grafts that is organs or parts of organs which need re-connection of their blood supply, e.g. heart, lungs, liver, kidney, pancreas, bowel, from non vascularised tissue grafts and cells. The former, once removed from the body, normally only remain viable for relatively short periods and need to be transplanted within a few hours. Thus they cannot currently be processed and stored as can most tissues and cells. For this reason the rules relating to transplantation of vascularised “organs” may differ from those applying to tissues and cells.
31. Live organ donation is currently confined primarily to kidneys, lobes of either liver or lung, and isolated sections of small bowel.

Their removal is a major procedure which carries a high risk. On the other hand, removal of tissues from a living donor generally carries a low risk of harm, and removal of cells might in certain cases involve an even smaller risk (see paragraph 90 below). These differences justify different rules; for this reason Article 10 deals with the specific case of organ removal from a living person and Article 15 with the case of cell removal from a living person.

32. For the purposes of this Protocol, the term “organ” is accordingly applied to vascularised organs or parts of organs which require a major surgical procedure for removal and which need to be transplanted rapidly. The terms “tissues” and “cells” cover all other parts of the body except those specifically excluded.
33. Transplantation is defined as the whole process starting with removal of an organ or tissue from one person and ending with implantation of that organ or tissue into a different person. The person from whom the material is removed is generally designated by the word donor and the person into whom the material is implanted by the word recipient. Furthermore tissues such as bone may be processed and the resulting products implanted into more than one recipient. Similarly, cells may be cultured to supply more than one recipient. Increasingly livers removed from a deceased person are split so that even in the case of organ transplantation there may be more than one recipient. The safeguards in the Protocol apply to all possible steps in the transplant process and to all possible recipients. Moreover, they apply to the entire process of each step in transplantation; for example the word “removal” refers to all the medical interventions necessary for the removal, including investigation and preparation of the donor.
34. The provisions of this Protocol concerning removal apply if its purpose is transplantation. Removal of tissue carried out for any other purpose is not covered by the Protocol. Nevertheless, as stated in Article 20, when in the course of an intervention an organ or tissue is removed for a purpose other than donation for implantation, it may be suitable for implantation but may only be

so used if the consequences and possible risks have been explained to that person and informed consent or, in the case of a person who is not able to consent, appropriate authorisation, has been obtained (see paragraphs 108 to 111 below). Besides, the protection afforded to recipients by this Protocol applies to all transplanted human material irrespective of why it was removed.

Chapter II – General provisions

Article 3 – Transplantation system

35. Parties to the Protocol undertake to ensure that a transplant system exists in their State within which transplant services operate. The nature or organisation of the system is not defined in this Protocol; it rests with individual States to decide whether to use local, regional, national or international organisations to meet the requirements of this article. As indicated in the 9th paragraph of the Preamble, institutions must be instrumental in ensuring that conditions protecting the rights and freedoms of donors, potential donors and recipients are observed.
36. The requirements of this article are that access to a transplant service is equitable – that is, all people, whatever their condition or background, must be equally able to be assessed by whatever transplant services are available. The concern is to ensure that there is no unjustified discrimination against any person within the jurisdiction of the Party who might benefit from a transplant. It has to be emphasised that there is a severe shortage of most organs and some of the tissues which can be transplanted. Scarce organs and tissues should be allocated so as to maximise the benefit of transplantation. The State-recognised system will be responsible for ensuring equitable access to assessment for transplantation and to transplant waiting lists.
37. The criteria by which organs and tissues are allocated should be determined in advance but be capable of amendment, be evaluated regularly and modified if or when circumstances change.

The system governing transplantation may lay down different criteria according to the type of graft because of the particular characteristics and availability of the different organs and tissues.

Organs and tissues should be allocated according to medical criteria. This notion should be understood in its broadest sense, in the light of the relevant professional standards and obligations, extending to any circumstance capable of influencing the state of the patient's health, the quality of the transplanted material or the outcome of the transplant. Examples would be the compatibility of the organ or tissue with the recipient, medical urgency, the transportation time for the organ, the time spent on the waiting list, particular difficulty in finding an appropriate organ for certain patients (e.g. patients with a high degree of immunisation or rare tissue characteristics) and the expected transplantation result.

It should be noted that the transplantation of organs removed from a living donor takes place generally between persons having a close personal relationship; for this reason, the general provision in Article 3 is subject to the specific provisions contained in Chapter III, Articles 10 (Potential organ donors) and Article 14, paragraph 2, sub-paragraph ii (Protection of persons not able to consent to organ or tissue removal).

Organs removed from deceased persons should only be allocated to patients registered on an official waiting list. As to the tissues, there may be or there may not be an official waiting list.

Patients may be registered only on one official transplant list, be it regional, national or international so as not to prejudice the chances of others. However this principle does not preclude a system where a patient is registered on a local waiting which is part of a national waiting list (see Recommendation Rec(2001)5 of the Committee of Ministers to member states on the management of organ transplant waiting lists and waiting times).

The most important factor is to maximise equality of opportunity for patients and to do so by taking into account objective medical

criteria. The allocation system should be as far as possible patient-oriented.

In case of international organ exchange arrangement, the procedures for distribution across participating countries should take into account the principle of solidarity within each country.

38. In order to ensure the allocation rules are transparent and well founded, they should state clearly who, within the system recognised by the member state, has the responsibility for the determination and the application of these rules. The person(s) or body(ies) responsible for organ and tissue allocation should be accountable for their decisions. Parties should bear in mind the provisions of Recommendation Rec(2001)5 on the management of organ transplant waiting lists and waiting times.
39. Traceability means being able to track all organs or tissues from donor to recipient and vice versa. It is required because it is impossible to eliminate entirely the risks of transmission of disease from donor to recipient and contamination of preserved material. Furthermore, new diseases or disease risks may emerge. Therefore for both public health reasons and the need to inform donors or recipients of potential problems that come to light following transplantation, it is important that any transplant material can be traced forward to recipients and back to the donor. For example, bone may be processed and turned into a variety of products with a long storage life available to treat multiple recipients. If a transmissible disease had been detected not at the outset but later in a recipient, donors would have to be traced to identify the one who transmitted the disease and unused products withdrawn. When seeking consent, both donors and recipients should be warned of such long-term consequences of transplantation and the possible need for prolonged surveillance. In addition, it may be necessary to analyse how organs and tissues were used to detect illegal or unethical use of such material, prevent organ and tissue trafficking and to validate allocation systems. For these reasons the transplant system must ensure a comprehensive system to enable all transplant

material to be traced, without prejudice to the provisions on confidentiality set out in Article 23 (see paragraphs 122 and 123).

40. The question of methods for verifying the effectiveness with which the Parties implement systems for applying the various principles set out in Article 3 is related to the general issue of Parties' honouring of the obligations in the Convention on human rights and biomedicine, or any of its Protocols. In this context, reference should be made to i) the second paragraph of Article 1 of the Convention, which stipulates that "Each Party shall take in its internal law the necessary measures to give effect to the provisions of this Convention", ii) Article 28 of this Protocol, according to which Articles 1 to 27 are regarded as additional articles to the Convention, and iii) Article 30 of the Convention, which empowers the Secretary General to request any Party to "furnish an explanation of the manner in which its internal law ensures the effective implementation of any of the provisions of the Convention".

Article 4 – Professional standards

41. The provisions here use the wording of Article 4 of the Convention and apply to all health care professionals whether involved in the decision-making process or in performing a transplant. The text of the explanatory report of the Convention also applies in general, but some further explanation is required for the purposes of this Protocol.
42. The term "intervention" must be understood here in a broad sense. It covers all medical acts performed in connection with transplantation of organs or tissue for purposes of treating a patient. An intervention carried out in connection with experimental transplantation must furthermore comply with the rules governing research.
43. The relevant professional obligations and standards in accordance with which all interventions must be performed, are those laws, specific or general and any codes of practice or rules of conduct in

force in the member state. Such codes or rules may take various forms such as health legislation, a code of professional practice or accepted medical ethical principles. Specifically, transplants should only be performed in accordance with the agreed allocation criteria. The rules and criteria may differ somewhat between countries but the fundamental principles of medical practice apply in all countries.

44. The competence of a doctor or other health care worker to take part in a transplant procedure must be determined in relation to the scientific knowledge and clinical experience appropriate to transplantation of organs or tissue at a given time. However, it is accepted that medical knowledge is rarely absolute and while acting according to the highest professional standards more than one therapeutic option may be perfectly justified. Recognised medical practice may therefore allow several alternative forms of intervention leaving some justified clinical freedom in the choice of methods or techniques. However, the choice of technique may affect the risk of inducing disease in the recipient, e.g. lymphoma or graft versus host disease, and such considerations should also be taken into account and the safest transplantation technique used.
45. Professional standards also require that organ and tissue implantation is only performed in accordance with a clear and specific medical indication for the recipient and not for any other reason such as a perceived social benefit. The recipient must have a defined medical problem which should be improved by a successful transplant before a transplant can be performed. The potential benefit of the procedure to the recipient must outweigh any risk. At all times, a decision to transplant must be taken only in the best interests of the patient.
46. Professional standards related to live transplantation require that, even if there is only one transplant team, different clinicians take responsibility for the care of the donor and the recipient, to ensure that the clinical needs of each party are properly and independently managed. In addition, it may be advisable to offer donors systematic long-term follow-up.

Article 5 – Information for the recipient

47. This article sets forth the recipient's right to be properly informed prior to implantation. Even though a transplant is intended to improve the health or even save the life of the recipient, the fact remains that the recipient shall be informed beforehand of the purpose and nature of the implantation, its consequences and risks, as well as on the alternatives to the intervention. This information must be as exact as possible and couched in terms which the recipient can understand. Information should be provided in a format appropriate to the needs of the recipient. In addition to proper discussion, written information which the recipient can study when there is adequate time may be particularly helpful. When the recipient is too ill to be able to give informed consent, in particular in emergency cases, the information shall also be given to the person or body providing the authorisation to the implantation, as foreseen by Article 6 of the Convention of human rights and biomedicine.

Article 6 – Health and safety

48. This article deals with the health and safety aspects of the transplant process. It places an obligation on all those involved in the transplant process of organ and tissue to do everything that can be reasonably expected of them to ensure that organs and tissues are healthy and undamaged, that they are handled, transported and where appropriate preserved and stored by means that maximise their viability and minimise the risk of contamination. These measures will ensure that when grafted into a recipient, the risk to the health of the recipient has been minimised. However, it recognises that the risk of transmission of disease cannot be entirely eliminated. Exceptionally, circumstances may arise when some risk of transmission of disease to the recipient, or of failure of the organ or tissue graft, is acceptable if the consequence of not grafting is more serious, in particular, if the alternative is certain death. An assessment of the risks and benefits should be made on a case-by-case basis.

49. The expression “transmission of any disease” covers also the transmission of a pathology to the recipient which may or may not later develop into the disease (for instance, in the case of hepatitis C virus, the recipient might be infected but never develop overt disease).
50. The ultimate responsibility for deciding whether to use a particular graft lies with the recipient’s implant team. However, it is essential that, in deciding whether to proceed with a graft, the practitioner has access to all the relevant information pertaining to the likely viability of the graft and the risk of transmission of disease. It is the responsibility of everyone involved to ensure that accurate information about the donor and the graft are collected, recorded and accompany the graft. The practitioners responsible for the removal of an organ or tissue have a duty to ensure that the donor is properly screened for transmissible diseases, both infectious and malignant. They are responsible for ensuring that a proper medical history has been obtained and that appropriate tests have either been performed or the necessary samples collected for testing.
51. However, organ transplantation sometimes has to be carried out in difficult circumstances as a matter of extreme urgency without having all the necessary information or knowing whether there is a risk for the recipient. In such circumstances, the doctor in charge should balance the risks and benefits and consequently, the implant should only be performed if the benefits to the recipient outweigh the risks and consent or authorisation has been given after information appropriate to the circumstances has been provided.
52. Moreover, because of the shortage of organs and some tissues, even when a disease risk is detected, it may not be appropriate to reject the donor without first checking whether there is a suitable recipient. The more urgent the type of transplant, the more essential it is to assess the risk and check whether there is any recipient who could benefit. For example, in fulminant liver failure, the patient may only have a few hours to live and even a high risk organ may be considered preferable to almost certain death. In the case of tissue transplants which, except for bone marrow, are rarely if ever life saving, donor screening and testing should be more

rigorous and disease transmission as far as possible prevented. Consequently, it may still be reasonable to bank tissues, i.e. keep them in quarantine, awaiting the outcome of further investigations such as a post mortem or retesting of a living donor.

53. It is the responsibility of the persons involved in the removal of organs and tissues to use the highest standards of removal, preservation and, where appropriate, storage. They shall also take reasonable steps to ensure the continued quality and safety of the organs and tissues to minimise the risk of damage to the graft and to maximise its viability. In the case of organs this also means ensuring transport is available to minimise delays.
54. Those involved in the transport, preservation and storage of grafts are also responsible for ensuring that all relevant information has been obtained, checked, and accompanies the graft to the recipient, albeit nothing in this provision overrides the obligation of confidentiality as stated in Article 23.
55. Parties should also take account of other relevant national or international instruments in the field of health and safety, for example, guidance on the avoidance of transmission of infectious or malignant diseases during transplantation produced under the auspices of the European Health Committee⁽³⁾.

Article 7 – Medical follow-up

56. Article 7 of the Protocol states that a medical follow-up must be offered to living donors and recipients after transplantation. This is also a further specification of a principle of professional standards. The nature and duration of such follow-up should depend on the nature of the intervention and its potential impact on the individual's health. Short term follow up is essential to ensure recovery from the procedure. Life long follow up is essential for recipients requiring immunosuppressive therapy. Such follow-up is also desirable for living organ donors to enable any long term effects of the donation to be identified. However, living donors and even recipients cannot be forced to accept long term follow up.

Article 8 – Information for health professionals and the public

57. It is for Parties to the Protocol to ensure that appropriate information about organ and tissue transplantation is made available to health professionals and to the general public. The information should cover all the relevant medical, legal, social, ethical and other issues concerned, particularly sensitive issues such as the means of certifying death. In view of the organ shortage it is seen as advisable to inform all health care workers about the success and benefits of transplantation because of their ability to inform the general public. Parties should also use every opportunity to inform the general public directly of those same benefits and successes. Informing the general public is important in promoting organ and tissue donation but it is also important that people make up their minds on the issues in full knowledge of the facts. Information for the public should be available on donation both from the living and the deceased (however, the provision of this general information should be without prejudice to that which is given to living donors in accordance with Article 12). The information should include the consequences and risks of organs or tissues being implanted into another person. Testing may reveal unrecognised diseases which may have implications for any living donor and possibly for the relatives of deceased persons from whom organs and tissues are removed. The need to ensure traceability should also be explained as the consequences may not be realised until some time in the future. It is particularly important that such information is made available for people who may opt to become organ donors.
58. There is a very specific duty for the Parties, that is to ensure that the rules on consent and/or authorisation for organ or tissue retrieval and transplantation are well known and acceptable to the society. It is important to establish a relationship of trust between potential donors and the transplantation system. Transplant issues are constantly changing so the provision of information is an ongoing responsibility, not just an occasional one.

Chapter III – Organ and tissue removal from living persons

Article 9 – General rule

59. According to the first principle set out in the text, organs or tissues should be removed from deceased persons rather than from living donors whenever possible. Removing organs or tissues from living donors for implantation purposes always has consequences and may carry some risk for that donor. This implies that organs and tissues from living persons should not be used where an appropriate organ or tissue from a deceased person is available.
60. The second condition in the case of living donors is that there exists no alternative therapeutic method of comparable effectiveness. In view of the risk involved in any organ and tissue removal, there is indeed no justification for resorting to this if there is another way of bringing the same benefit to the recipient, such as the use of artificial skin for instance. The transplant must therefore be necessary in the sense that there is no other treatment that would produce similar results. In this respect dialysis treatment is not considered to provide results in terms of the patient's quality of life comparable with those obtained by a kidney transplant.
61. However, if the results of a living donor transplantation are expected to be significantly better than those expected utilising a graft removed from a deceased person, live donation may be the preferred therapeutic option for a particular recipient.

Article 10 – Potential organ donors

62. This article is specific to the removal of organs as defined in Article 2. It does not apply to the removal of tissues or cells. It defines the conditions under which, in addition of those of Article 9, living donation of an organ may be performed.
63. Those conditions would normally require that a close personal relationship, based on the principle of mutual aid, exists between the donor and recipient. The exact nature of the relationship is a

matter for national law to determine and may depend on cultural or other local factors. Those with a close personal relationship with the recipient may include for instance members of the recipient's immediate family, parents, brothers, sisters, spouses or long-standing partners, godparents or close personal friends. Most countries have laws defining the nature of the relationship which is required to exist between donor and recipient and which makes live donation acceptable. The intention of such laws and this Article is to prevent undue pressure to donate being brought to bear on people without a strong emotional relationship with the recipient.

64. However, not all national laws define close personal relationship, and where relationships are defined, the question of donation by a person not in such a relationship may be proposed. As there is some evidence that, despite the risks incurred, there may be perceptible long-term psychological benefit to organ donors who, even if not closely related, have helped improve the health or even save the life of a recipient, this Article allows such circumstances to be taken into account. But they may only be considered when the national law sets out the conditions under which such circumstances may be considered. Those conditions include the provision of an appropriate independent body, for example an ethics committee, to consider each case. The body is responsible for ensuring that the other conditions required by law have been met, and that, for example, no coercion or inducement is involved. These provisions are thus an important safeguard against potential organ trafficking or the use of inducements.
65. The independent body required under this Article is not the same as the official body identified in Article 13 before which the living donor can give his/her consent. However, the law may provide for the independent body provided for by Article 10 to be the same as the competent body identified in Article 14, even if their responsibilities are different (see paragraph 87 below).
66. The reason for excluding tissues from this Article is that the therapeutic interests of a recipient who may not be known at the time of removal have to be taken into account. Here, the principles

of Recommendation No. R (94) 1 of the Committee of Ministers to member states on human tissue banks are relevant.

Article 11 – Evaluation of risks for the donor

67. This article deals with evaluation of risk to the donor, which must be kept to a minimum. The health care professional's role here is twofold: to carry out whatever investigations may be required to evaluate the donor's state of health and therefore the potential risk of donation and, second, to take all reasonable measures to limit the risks to the donor without compromising the quality or viability of the organ or tissue removed for transplantation. The principal risks for the donor are the physical risks arising for the surgical procedure. However, there are also short and long-term psychological risks that also need to be fully assessed.
68. Whereas the word "investigation" covers all the examinations or tests to be performed, the word "intervention" is to be understood in a broad sense as covering all relevant medical acts.
69. The article places a ban on removal from a living donor where there is serious risk to the donor's life or health. This raises questions as to what a serious risk to the donor is and who judges the risk to be a serious one. Essentially there are three possible parties who may deem it a serious risk, the donor, the recipient or the medical team. For the purposes of this article, the decision about the risk is a matter for the transplant medical team looking after the donor or the body authorising the donation. The medical team should not propose a removal which they think presents an unacceptable risk even if the donor (for example, because he/she is a relative of the recipient) is ready to consent. In judging the risks involved, the donor's interests must take precedence, although in some circumstances the balance of risk to the donor compared to potential benefit to the recipient may be taken into consideration. The donation being acceptable or not depends not just on the physical risk associated with the procedure but must include psychological factors. Thus, the donor's emotional status should be

independently assessed. An example of psychological harm is if the donor develops an undue sense of ownership towards the recipient or the recipient feels unduly obligated to the donor. If, following full assessment, the medical team looking after the donor judge there to be a significant risk of death or long term severe disability to the donor, the donation procedure should not go ahead.

Article 12 – Information for the donor

70. This article sets out the donor's right to be given appropriate information. In the case of donation of regenerative tissue, the most common instance is bone marrow transplantation between brothers and sisters, where the donor may be a minor. It is specifically to cater for this type of donation that the article requires the supply of information also to the representative, authority, person or body providing authorisation according to Article 14.2 of this Protocol.
71. There are two main requirements in the first part of the Article. The information should be appropriate to explain the purpose and nature of the proposed removal as well as its consequences and risks, and the need for appropriate testing prior to the removal. It must be given prior to consent or authorisation and removal. Thus the information has to be as accurate as possible and given in terms the donor can understand, e.g. comparing the risks of a complication with other risks encountered in everyday life. In particular, in cases where the donor is a very young child, the content and form of the information presented must be adapted to his or her age and capacity for understanding. The donor must be given adequate time to fully consider the information provided and discuss it with friends and/or relatives. In addition to proper discussion, written information which the donor can study when there is adequate time may be particularly helpful. If the donation requires an authorising party under Article 14.2 those discussions will normally include the potential donor.
72. The second paragraph defines a more specific right for the donor in that it requires all concerned to inform the potential donor of

his/her rights and safeguards under domestic and international law. In particular, it states that the donor shall be informed of the right to have access to a source of independent advice about the risks of the removal procedure. This source of information, who may be a doctor or other suitably qualified health care worker, must be independent of the team or teams involved in the transplant. However, that person must have appropriate experience of the risks associated with donation and transplantation to be able to give proper advice. This advice can be requested by the donor if he/she wishes. An authorising party under Article 14.2 should have the same access to independent advice.

Article 13 – Consent of the living donor

73. This article is based on Article 5 of the Convention and requires that interventions in the field of organ and tissue transplantation can only be performed after a person has given free and informed consent which can be freely withdrawn at any time. In order to avoid undue pressure on the donor, he/she should be assured that he/she can refuse to donate or withdraw his/her consent at any time in complete confidence. To that end, the donor should be interviewed in private and helped to cope with the consequences of his/her decision.
74. In seeking the consent of the donor it is essential to discuss what should happen if for any reason the proposed recipient can not accept the donation. Any possible alternative use for the donated organ or tissue should be considered prior to the donation.
75. This article does not apply to persons who do not have capacity to consent to the removal of an organ, such persons being protected by the provisions of Article 14 and 15 of this Protocol.
76. The first paragraph of this article is more stringent than Article 5 of the Convention in that, for organ or tissue removal, the donor's consent must also be specific and given in written form or before an official body, a court, a judge or an official notary for example. The

responsibility of this body is to ensure that consent is adequate and informed.

77. The second paragraph provides the freedom to withdraw consent to the removal at any time. There is no requirement for withdrawal of consent to be in writing or to follow any particular form. The donor need simply say no to the removal at any time, even if a procedure performed under local anaesthetic has commenced. Article 14 affords the same protection to donors of regenerative tissue lacking capacity to consent to their removal. However, professional standards and obligations may require that the team continue with the procedure if not to do so would seriously endanger the health of the donor.
78. This article concerning consent of the living donor is included in Chapter III “Organ and tissue removal from living persons”. The consent, as well as withdrawal of consent, therefore only applies to the removal process. If, exceptionally, the donor seeks to withdraw consent to the agreed implantation after removal, national law or professional standards should provide a means of resolving such problems.

Article 14 – Protection of persons not able to consent to organ or tissue removal

79. Provisions relating to consent to organ or tissue removal for implantation apply in the case of live donors having the capacity to consent. Those relating to authorisation apply where a potential donor cannot formally give consent on account of incapacity.
80. Article 14 deals specifically with the question of the removal of organs or tissues from a living person not having the capacity to give consent. The principle is that this practice is prohibited. Article 14 follows the wording of Article 20 of the Convention.
81. Only in very exceptional circumstances may derogations be made to this rule and only for the removal of regenerative tissues. Within the meaning of this article, regenerative tissue is that capable of reconstituting its tissue mass and function after partial removal.

These exceptions are justified by the fact that regenerative tissue, in particular bone marrow, can only be transplanted between genetically compatible persons, often brothers and sisters.

Furthermore, Article 15 provides that Article 14, paragraph 2, indents ii and iii might not be applied, only in cases in which cell removal implies minimal risk and minimal burden for the donor.

82. If at the present time bone marrow transplants among brothers and sisters is the most important situation which meets the condition of this article, the formula “regenerative tissue” takes into account future developments in medicine.
83. Paragraph 2 therefore permits removal of bone marrow from a minor for the benefit of his or her brother or sister. The principle of mutual aid between very close members of a family and the possibility for psychological benefits to the donor arising from donation can justify, subject to certain conditions, an exception to the prohibition of removal which is intended to protect the persons who are not able to give their consent. This exception to the general rule is qualified by a number of conditions designed to protect the person who is incapable of giving consent, and these may be supplemented by national law. The conditions stated in the general rule of Article 9 also apply.
84. The first condition is the absence, within reasonable limits, of a compatible donor who is able to consent.
85. It is also required that the beneficiary be a brother or sister. This restriction is intended to avoid both family and doctors going to extreme lengths to find a donor at any price, even if kinship is distant and the chances for a successful transplant are not very likely because of tissue incompatibility.
86. Moreover, removal is only authorised on the condition that, in the absence of the donation, the life of the recipient is in danger. It goes without saying that the risks to the donor should be acceptable; the professional standards of Article 4 naturally apply, in particular as regards the balance between risk and benefit.

87. Furthermore, in keeping with Article 6 of the Convention, the authorisation of the representative of the person not able to consent or the authorisation of the authority or person or body provided for by law is needed before the removal can be carried out.
88. The agreement of the competent body is also required. The intervention of such a body (which might be a court, a professionally qualified body, an ethics committee, etc.) aims to guarantee that the decision to be taken is impartial. When the donor is an adopted person, it is for this body to verify that there has not been any misuse of the adoption process to enable a removal which would otherwise be forbidden. In this respect, it is important to note the important guarantees established in Article 14 for the protection of incapable persons and reinstated in the above paragraphs 80 to 86.
89. Finally, the removal may not be carried out if the potential donor objects in any way. This opposition, in whatever form, is decisive and must always be observed.

Article 15 – Cell removal from a living donor

90. Although transplantation procedures for cells generally pose problems similar to those related to the transplantation of tissues, there may however be a significant difference with regard to the risks arising from the removal of cells in comparison with removal of tissues. In certain cases such as obtaining a limited number of cells from the skin, the procedure itself may not involve more than minimal risk and minimal burden for the donor. In such cases, and only in such cases, it is foreseen that the Parties to the Protocol can choose not to apply the provisions of Article 14, paragraph 2, indents ii and iii. The purpose of those provisions is to protect the donor from physical risks and from instrumentalisation contrary to their dignity, but where the risks and burdens are minimal it may not be appropriate to prohibit, for example, a minor donating cells to a family member other than a sibling.

91. One should also emphasise that the requirements of Article 14, paragraph 2, indents i, iv and v remain applicable. If compatibility is not medically required, it will always be possible to obtain a donor with capacity to consent. It is therefore not envisaged that cell removal be carried out on persons not able to consent outside of the immediate family circle.
92. This provision is an option for States, not an obligation; States can make use of this option at the time of ratification of the Protocol or at a later stage, depending on scientific and technical developments. Moreover, having in mind that technical developments in the future could permit the reconstitution of tissue in the laboratory from a limited number of cells, the inclusion of this option in the Protocol alleviates the potential need to amend it later if these foreseeable developments become reality.
93. Moreover, in recognition of the need to monitor the appropriate use of this provision, it was decided during the adoption of the draft Protocol by the CDBI that the States utilising this option would be requested to inform the other Parties by a notification addressed to the Secretary General.

Chapter IV – Organ and tissue removal from deceased persons

Article 16 – Certification of death

94. According to the first paragraph, a person's death must have been established before organs or tissues may be removed "in accordance with the law". It is the responsibility of the States to legally define the specific procedure for the declaration of death while the essential functions are still artificially maintained. In this respect, it can be noted that in most countries, the law defines the concept and the conditions of brain death.
95. The death is confirmed by doctors following an agreed procedure and only this form of death certification can permit the transplantation to go ahead. The retrieval team must satisfy

themselves that the required procedure has been completed before any retrieval operation is started. In some States, this procedure for certification of death is separate from the formal issuance of the death certificate.

96. The second paragraph of Article 16 provides an important safeguard for the deceased person by ensuring the impartiality of the certification of death, by requiring that the medical team which certifies death should not be the same one that is involved in any stage of the transplant process. It is important that the interests of any such deceased person and the subsequent certification of death are, and are seen to be, the responsibility of a medical team entirely separate from those involved in transplantation. Failure to keep the two functions separate would jeopardise the public's trust in the transplantation system and might have an adverse effect on donation.
97. For the purposes of this Protocol, neonates including anencephalic neonates receive the same protection as any person and the rules on certification of death are applicable to them.

Article 17 – Consent and authorisation

98. Article 17 bars the removal of any organ or tissue unless the consent or authorisation required by national law has been obtained by the person proposing to remove the organ or tissue. This requires member states to have a legally recognised system specifying the conditions under which removal of organs or tissues is authorised. Furthermore, by virtue of Article 8, the Parties should take appropriate measures to inform the public, namely about matters relating to consent or authorisation with regard to removal from deceased persons (see paragraph 58 above).
99. If a person has made known their wishes for giving or denying consent during their lifetime, these wishes should be respected after his/her death. If there is an official facility for recording these wishes and a person has registered consent to donation, such consent should prevail: removal should go ahead if it is possible.

By the same token, it may not proceed if the person is known to have objected. Nonetheless, consultation of an official register of last wishes is valid only in respect of the persons entered in it. Nor may it be considered the only way of ascertaining the deceased person's wishes unless their registration is compulsory.

100. The removal of organs or tissues can be carried out on a deceased person who has not had, during his/her life, the capacity to consent if all the authorisations required by law have been obtained. The authorisation may equally be required to carry out a removal on a deceased person who, during his/her life, was capable of giving consent but did not make known his wishes regarding an eventual removal post-mortem.
101. Without anticipating the system to be introduced, the Article accordingly provides that if the deceased person's wishes are at all in doubt, it must be possible to rely on national law for guidance as to the appropriate procedure. In some States the law permits that if there is no explicit or implicit objection to donation, removal can be carried out. In that case, the law provides means of expressing intention, such as drawing up a register of objections. In other countries, the law does not prejudge the wishes of those concerned and prescribes enquiries among relatives and friends to establish whether or not the deceased person was in favour of organ donation.
102. Whatever the system, if the wishes of the deceased are not sufficiently established, the team in charge of the removal of organs must beforehand endeavour to obtain testimony from relatives of the deceased. Unless national law otherwise provides, such authorisation should not depend on the preferences of the close relatives themselves for or against organ and tissue donation. Close relatives should be asked only about the deceased persons expressed or presumed wishes. It is the expressed views of the potential donor which are paramount in deciding whether organs or tissue may be retrieved. Parties should make clear whether organ or tissue retrieval can take place if a deceased person's

wishes are not known and cannot be ascertained from relatives or friends.

103. When a person dies in a country in which he/she is not normally resident, the retrieval team shall take all reasonable measures to ascertain the wishes of the deceased. In case of doubt, the retrieval team should respect the relevant applicable laws in the country in which the deceased is normally resident or, by default, the law of the country of which the deceased person is a national.

Article 18 – Respect for the human body

104. A dead body is not legally regarded as a person, but nonetheless should be treated with respect. This article accordingly provides that during removal the human body must be treated with respect and after removal the body should be restored as far as possible to its original appearance.

Article 19 – Promotion of donation

105. Because of the shortage of available organs, this article makes a provision for Parties to take all appropriate measures to promote the donation of organs and tissues.
106. The “appropriate” measures are not defined but will include the provisions on information to be provided to health professionals and to the public (Article 8), the need to set up a transplant system (Article 3) and to have recognised means of giving consent or authorisation (Article 17).
107. It is also appropriate to remember that organ and tissue removal from deceased persons has to be given priority if living donation is to be minimised, in conformity with Article 9. However, organ and tissue removal from deceased persons must itself carry safeguards and these are set out in Chapter IV.

Chapter V – Implantation of an organ or tissue removed for a purpose other than donation for implantation

Article 20 – Implantation of an organ or tissue removed for a purpose other than donation for implantation

108. In principle, this Protocol applies to the removal of organs or tissues for transplantation purposes. There are particular circumstances, however, in which those organs or tissues are removed for another purpose than donation for implantation but will nevertheless be donated at a later stage. The classic situation is the so-called “domino” transplant. When for instance a person needs a heart, or more often a lung transplant, it may be technically easier to remove their heart and lungs en bloc and replace them with a donor heart/lung block. Depending on the reason for the transplant, it is possible that the explanted heart, or at least the heart valves, will be in good condition and suitable for transplantation into another recipient. In this way the first recipient becomes a live donor for the second recipient. In the case of a “domino” heart transplant, the heart valves might be harvested from the second recipient’s heart and be transplanted into a third person.
109. This article is also applicable where, in the course of a medical intervention, tissues are removed then processed and re-implanted into someone else, even if they are regarded as discarded tissues at the time of the intervention. In this respect, one could mention the following examples: the use of bone from femoral heads removed during hip replacement; the implant of a kidney removed for medical reasons; the use of vessels obtained from placentae or haematopoietic stem cells from cord blood.
110. The first paragraph of the article stresses the need to inform a person from whom organ or tissue have been removed for a purpose other than donation for implantation of the consequences associated with implantation of the organ or tissue into another person, namely the need for appropriate testing and recording

of information which ensures the traceability of the organs or tissues; the information must include potential risks, for instance any modification, even minor, of the surgical procedure needed to retrieve the organ or tissue in the best possible condition for implantation. The first paragraph also stresses the need to obtain the informed consent of the person from whom organ or tissue have been removed or appropriate authorisation for the use of the organ or tissue for implantation. The first recipient of a heart can for instance be a child. In turn his/her heart or the valves which are removed can be implanted in another child, if the persons providing authorisation have agreed after being duly informed.

111. As indicated in Article 2, the second paragraph of Article 20 provides that all the provisions of this Protocol, except for those in Chapters III and IV, which concern issues relating to removal for implantation purposes, apply to the situations referred to in paragraph 1. Indeed, the general provisions of the Protocol that guarantee fundamental rights (with regard namely to safety, confidentiality, non-commercialisation) will apply to the cases referred to in this Article.

Chapter VI – Prohibition of financial gain

Article 21 – Prohibition of financial gain

112. This article applies the principle of human dignity as laid down in Article 1 of this Protocol.
113. It states in particular that the human body and its parts must not, as such, give rise to financial gain or comparable advantage. Under this provision, organs and tissues should not be bought or sold or give rise to direct financial gain for the person from whom they have been removed for a third party. Nor should the person from whom they have been removed, or a third party, gain any other advantage whatsoever comparable to a financial gain such as benefits in kind or promotion, for example. A third party involved in the transplant process such as a health professional or a tissue

- bank may not make a profit from organs or tissues or any products developed from them (but see paragraph 115 below).
114. However, Article 21 states that certain payments that a donor may receive are not to be treated as financial gain within the meaning of this article. Essentially, apart from the last indent, these provide examples of expenses that may be incurred during or as a result of donation or other parts of the transplant process. This paragraph does not make exceptions to the principle laid down but gives examples of compensation to avoid possible financial disadvantage which may otherwise occur. In the case of the donor it allows for compensation for loss of earnings and other justifiable expenses.
 115. The second indent of the first paragraph refers to payment of a justifiable fee for medical or technical services performed as part of the transplant process. Such acts might include the cost of retrieval, transport, preparation, preservation and storage of organs or tissues, which may legitimately give rise to reasonable remuneration.
 116. The third indent allows donors to receive compensation for undue damage resulting from the removal. By undue damage is meant any harm whose occurrence is not a normal consequence of a transplant procedure. This provision refers to the compensation provided for in Article 25.
 117. The second paragraph of this article makes it clear that any attempt to advertise anything to do with organ or tissue transplantation with a view to financial or equivalent gain for any party is prohibited.
 118. This article refers solely to organs and tissues covered by the Protocol. The provision does not refer to such products as hair and nails for example, which are discarded tissues, and the sale of which is not an affront to human dignity.

Article 22 – Prohibition of organ and tissue trafficking

119. As stated by Article 21 of the Convention, the human body and its parts shall not, as such, give rise to financial gain. Any trade in

organs and tissues for direct or indirect financial gain, as defined by Article 21 of this Protocol is prohibited. Organ trafficking and tissue trafficking are important examples of such illegal trading and of direct financial gain. Organ or tissue traffickers may also use coercion either in addition to or as an alternative to offering inducements. Such practices cause particular concern because they exploit vulnerable people and may undermine people's faith in the transplant system. This is why the prohibition of trafficking in organs and tissues is specifically referred to in Article 22.

120. This does not in any way reduce either the seriousness of infringements of other rights and principles enshrined in the Protocol, or the force of the prohibition of infringements of these rights and principles, as laid down in Articles 24 and 26.
121. In conformity with Article 26 of this Protocol, Parties shall provide for appropriate sanctions to deter organ and tissue trafficking or any attempt at commercial trade in organs or tissues.

Chapter VII – Confidentiality

Article 23 – Confidentiality

122. Article 23 lays down the principle of confidentiality. Preserving the anonymity of the person from whom organs or tissues have been removed may be impossible in certain circumstances, for example because of the requirement of an appropriate relation between the latter and the recipient in the case of living organ donation. However, personal data concerning persons from whom organs or tissues have been removed and recipients must nonetheless be treated as confidential and handled in accordance with the rules on professional confidentiality⁽⁴⁾ and personal data protection. Here, the principles laid down in the Convention for the protection of individuals with regard to automatic processing of personal data of 28 January 1981 (ETS No. 108) must be observed. In particular, Article 5.b of Convention 108 provides that personal data are “stored for specified and legitimate purposes and not

used in a way incompatible with those purposes”. Parties should take account of other national or international instruments, such as Recommendation No. (97) 5 of the Committee of Ministers to the member states on the protection of medical data and, where applicable, 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 free movement of such data.

123. In transplantation, it is nevertheless essential that the principle of confidentiality should not prevent the medical team involved in any transplant process from obtaining the necessary information on the person from whom organs or tissues have been removed and the recipient, and keeping track of the exchange of organs or tissues between them, subject to appropriate safeguards to ensure adequate data protection. One such person may in fact supply several organs or tissues to be implanted in more than one recipient. If a disease is subsequently detected in that person, the recipients must be traceable. Equally, if a recipient of a transplant develops a disease which may have been transmitted, the person from whom organs or tissues had been removed must be identified, again to trace any other recipients. The rules applicable to traceability of organs and tissues are as set out in Article 3, paragraph 3 of this Protocol.

Chapter VIII – Infringements of the provisions of the Protocol

Article 24 – Infringements of rights or principles

124. This article requires the Parties to make available a judicial procedure to prevent or put a stop to an infringement of the principles set forth in the Protocol. It therefore covers not only infringements which have already begun and are ongoing but also the threat of an infringement.

125. The requisite judicial protection must be appropriate and proportionate to the infringement or the threats of infringement of the principles. Such is the case, for example, with proceedings initiated by a public prosecutor in cases of infringements affecting several persons unable to defend themselves, in order to put an end to the violation of their rights.
126. Under the Protocol, the appropriate protective machinery must be capable of operating rapidly as it must ensure that an infringement is prevented or halted at short notice. This requirement can be explained by the fact that, in many cases, the very integrity of an individual has to be protected and an infringement of this right might have irreversible consequences.
127. The judicial protection thus provided by the Protocol applies only to unlawful infringements or to threats thereof.

Article 25 – Compensation for undue damage

128. This article sets forth the principle that the person who has suffered undue damage resulting from a transplantation is entitled to fair compensation. Like the Convention, the Protocol uses the expression “undue damage” because there can be damage which is inherent in the transplantation itself.
129. The due or undue nature of the damage will have to be determined in the light of the circumstances of each case. The cause of the damage must be either an act or an omission during the transplantation procedure. In order to give entitlement to compensation, the damage must result from the transplantation. Potential donors might be wronged during investigations to determine their suitability, as might recipients. In view of the altruistic nature of live organ donation, particular attention should be paid to the rights of donors and potential donors to an adequate compensation for damage resulting from transplantation.
130. Compensation conditions and procedures are not prescribed in this Article. In many cases, the national law establishes a system of individual liability based either on fault or on the notion of risk or

strict liability. In other cases, the law may provide for a collective system of compensation irrespective of individual liability.

131. On the subject of fair compensation, reference can be made to Article 41 of the European Convention on human rights, which allows the Court to afford just satisfaction to the injured party.
132. Article 21 of this Protocol makes reference to the aforementioned compensation in such terms as to exclude it from any payments constituting a financial gain or a comparable advantage.

Article 26 – Sanctions

133. Since the aim of the sanctions provided for in Article 26 is to guarantee compliance with the provisions of the Protocol, they must be in keeping with certain criteria, particularly those of necessity and proportionality. As a result, in order to measure the expediency and determine the nature and scope of the sanction, domestic law must pay special attention to the content and importance of the provision to be complied with, the seriousness of the offence and the extent of its possible repercussions for the individual and for society.

Chapter IX – Co-operation between Parties

Article 27 – Co-operation between Parties

134. International co-operation in transplantation matters is important for two main reasons. The first is that information about the organisation and effectiveness of services, successful methods of e.g. informing and educating the public or procuring organs, success rates and new developments should all be freely exchanged to help all States achieve the most effective transplant services possible within the resources available.
135. Secondly, difficulties of tissue matching or the urgency of the clinical condition may require access to a large or very large population if the transplant is to be successful. For example, matching for unrelated bone marrow transplants requires a very

large pool of donors. People with fulminant liver failure may need a suitable organ within a few hours if they are to survive. If an organ becomes available in a country which has no suitable patient on its waiting list, there must be arrangements in place to allow that organ to be offered rapidly to patients on other transplant waiting lists if the organ is not to be wasted. States Party to this Protocol are expected to set up transborder links so as to facilitate the exchange of information and the transportation of organs and tissues between States but without prejudice to public safety as specified in Article 6 and the need for confidentiality as specified in Article 23.

Chapter X – Relation between this Protocol and the Convention, and re-examination of the Protocol

Article 28 – Relation between this Protocol and the Convention

136. As a legal instrument, the Protocol supplements the Convention. Once in force, the Protocol is subsumed into the Convention vis-à-vis Parties having ratified the Protocol. The provisions of the Convention are therefore to be applied to the Protocol.
137. Thus, Article 36 of the Convention, which sets out the conditions under which a State may make a reservation in respect of any particular provision of the Convention, will also apply to the Protocol. Using this provision States may, under the conditions set out in Article 36 of the Convention, make a reservation in respect of any particular provision of this Protocol.

Article 29 – Re-examination of the Protocol

138. This article provides that the Protocol shall be re-examined no later than five years from its entry into force and thereafter at such intervals as the Committee in charge of the re-examination may determine. Article 32 of the Convention identifies this Committee as the Steering Committee on Bioethics (CDBI), or any other

Committee so designated by the Committee of Ministers. The provisions of the Protocol to be re-examined would especially concern aspects of transplantation where scientific developments would give rise to particular ethical or legal issues; for example, it is conceivable that the question of removing cells from a living person will need to be reconsidered after a few years.

Chapter XI – Final clauses

Article 30 – Signature and ratification

139. Only States which have signed or ratified the Convention may sign this Protocol. Ratification of the Protocol is subject to prior or simultaneous ratification of the Convention. Under the provisions of Article 31 of the Convention, a State which has signed or ratified the Convention is not obliged to sign the Protocol or, if applicable, to ratify it.

Notes

1. Membership of the CAHBI-CO-GT₁: Dr Örn Bjarnason (Iceland), Dr Radkin Honzák (Czechoslovakia), Ms Sophie Jacquot-David (France), Dr Jaman Örs (Turkey), Dr Daniel Serrão (Portugal) and Mr Peter Thompson (United Kingdom).
2. Membership of the CDBI-CO-GT₁: Dr Christiane Bardoux (European Commission), Dr Örn Bjarnason (Iceland), Dr Peter Doyle (United Kingdom), Ms Isabelle Erny (France), Dr Radkin Honzák (Czech Republic), Dr Blanca Miranda (Spain), Dr Lars-Christoph Nickel (Germany) and Mr Ergün Özsunay (Turkey).
3. A draft text on health and safety from the medical point of view is being prepared by the European Health Committee.
4. In this respect, it has been agreed that the wording “professional confidentiality” in English conveys the same meaning as the wording “secret professionnel” in French.

Recommendations

Council of Europe Committee of Ministers

Recommendation No. R (94) 1 of the Committee of Ministers to member states on human tissue banks

(Adopted by the Committee of Ministers on 14 March 1994 at the 509th meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the health field;

Taking account of the ethical principles set out in Recommendation No. R (88) 4 on responsibilities of health authorities in the field of blood transfusion concerning voluntary, non-remunerated blood donation;

Considering that, in the procurement and distribution of human tissues, the ethical principles concerning organ transplantation as set out in Resolution (78) 29 on the harmonisation of legislation of member states relating to removal, grafting and transplantation of

human substances, and agreed at the 3rd Conference of European Health Ministers (Paris, 16-17 November 1987), should be respected under all circumstances and that consent is required for the removal of tissues and their proposed use, whether therapeutic, diagnostic or research;

Taking account of World Health Organisation Resolution WHA 42.5 condemning the purchase and sale of organs of human origin;

Noting the fact that human tissue is donated by the public for altruistic reasons;

Taking note also of the questions of interpretation provided for in the appendix to this recommendation,

Recommends to the governments of member states:

1. That activities related to the banking of human tissue be divided into the following separate functions, it being understood that such functions in no case extend to the collection of such tissue:
 - organisation;
 - processing;
 - preservation;
 - internal quality control;
 - storage;
 - distribution;
2. That these functions be carried out by non profit-making institutions which are officially licensed by national health administrations, or recognised by the competent authorities;
3. That, by way of derogation from paragraph 2, in the case of a public health need, the activities described in paragraph 1 may be carried out by a duly authorised profit-making body;
4. That tissue banks ensure that tissue be tested for transmittable diseases, in compliance with the law and practice of the country concerned;

5. That tissue banks store the tissue safely according to scientifically recognised state-of-the-art techniques and respecting the criteria established by general medical and laboratory practice;
6. That records of all tissues retrieved and issued be kept by the tissue banking organisations in such a way that their source and their destination are clearly identifiable, providing always that access to such records will be restricted to the extent necessary to protect confidentiality of information and individual privacy;
7. That distribution take place in such a way as to permit optimal use of the tissues on an equitable basis in accordance with national law, rules and practice and objective selection criteria;
8. That close mutual co-operation be pursued by all officially recognised exchange and tissue banking organisations and that follow-up data on donor/recipient combinations should be shared between relevant institutions within the framework of national guidelines and legislation providing always that the privacy of the person concerned is fully respected.

Appendix to Recommendation No. R (94) 1

Definition of human tissue (for example, skin, bone and cornea)

For the purposes of this recommendation, human tissue includes all constituent parts of the human body, including surgical residues but excluding organs, blood and blood products as well as reproductive tissue, such as sperm, eggs and embryos. Hair, nails, placentas and body waste products are also excluded.

Council of Europe Committee of Ministers

Recommendation No. R (97) 15 of the Committee of Ministers to member states on xenotransplantation

(Adopted by the Committee of Ministers on 30 September 1997 at the 602nd meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the health field;

Taking into account Resolution (78) 29 on the harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances, the final text of the 3rd Conference of European Health Ministers (Paris, 16-17 November 1987) and Articles 19 and 20 of the Convention on Human Rights and Biomedicine;

Considering that xenotransplantation, that is, the use of living organs, tissues and/or cells from animals, whether genetically modified or not, for transplantation into humans, may become a practicable therapeutic intervention in the very near future;

Aware that there is a risk of transmission of disease as a result of xenotransplantation procedures,

Recommends that governments of member states should, with a view to minimising the risk of transmission of known or unknown diseases and infections to either the human or animal populations, establish a mechanism for the registration and regulation of the following aspects of xenotransplantation:

- i. basic research and clinical trials;
- ii. the source and care of animals for use in xenotransplantation;
- iii. xenotransplantation programmes;
- iv. long term follow-up and review of xenograft recipients and the xenograft source animals.

Council of Europe Committee of Ministers

Recommendation No. R (97) 16 of the Committee of Ministers to member states on liver transplantation from living related donors

(Adopted by the Committee of Ministers on 30 September 1997 at the 602nd meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the health field;

Considering that liver donations by living related donors saves the lives of children;

Bearing in mind that, in liver transplantation with living related donors, the ethical principles concerning organ transplantation as set out in Resolution (78) 29 on the harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances, and agreed at the 3rd Conference of European

Health Ministers (Paris, 16-17 November 1987), should be respected under all circumstances and that fully informed consent is required from both the donor and the recipient;

Mindful of the provisions of Articles 19, 20 and 21 of the Convention on Human Rights and Biomedicine;

Taking account of World Health Organisation Resolution WHA 42.5 condemning the purchase and sale of organs of human origin,

Recommends that governments of member states conform to the rules set out in the appendix to this recommendation in carrying out living related liver transplantation (LRLT).

Appendix to Recommendation No. R (97) 16

- i. LRLT should be considered only when there is a shortage of cadaver organs, that is when alternatives that do not carry the risks incurred by a living donor have been exhausted.
On the evidence currently available, LRLT should be considered only for children and should not be recommended for adults nor in an emergency situation such as fulminant liver failure.
- ii. Potential recipients of LRLT should have been previously assessed as suitable for cadaveric transplant and, if considered suitable for LRLT, should still be retained on the waiting list for the cadaveric programme in case a suitable liver becomes available. If it is unlikely that a suitable cadaveric liver will become available within the required timescale, then the patient and relatives should be informed of the possibility of LRLT.
- iii. The potential risks, including morbidity and mortality, arising from LRLT as well as its benefits should be explained to the potential recipient. The consent of the donor should be

obtained only after a full explanation of the risks of LRLT and an assessment of the donor's suitability by a third party, that is a "donor advocate" independent of the transplant team.

Fully informed consent should also be obtained from the recipient (or recipient's representative).

- iv. Minors and adults not having the capacity to consent to an intervention because of a mental disability, a disease or for similar reasons should not be considered as donors.
- v. Centres performing LRLT should have available a body of medical and non-medical professionals independent of the team performing the transplant to provide guidance on ethical issues relating to LRLT. A mechanism for independent assessment of the donor should be available as a minimum requirement to ensure that he/she is not under pressure to consent.
- vi. LRLT should be performed only in centres with extensive experience of all aspects of liver surgery, notably liver splitting techniques, and adult and paediatric liver transplantation, and within the framework of a quality assurance programme.
Centres should perform LRLT procedures only with the approval of an appropriate transplant regulatory body.

The procedures should be registered with the regulatory authority and the results monitored by a recognised method of peer review (until the results are considered acceptable).

- vii. Living related donors should not participate in medical experiments unless their objective is to evaluate the LRLT.

Council of Europe Committee of Ministers

Recommendation No. R (98) 2 of the Committee of Ministers to member states on provision of haematopoietic progenitor cells

(Adopted by the Committee of Ministers on 12 February 1998 at the 620th meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the health field;

Taking account of the ethical principles set out in Recommendation No. R (88) 4 on responsibilities of health authorities in the field of blood transfusion concerning voluntary, non-remunerated blood donation;

Taking account of the ethical principles set out in Recommendation No. R (94) 1 on human tissue banks;

Recalling its Recommendation No. R (95) 14 on the protection of the health of donors and recipients in the area of blood transfusion;

Recalling the guidelines and principles defined in Recommendation No. R (95) 15 on the preparation, use and quality assurance of blood components;

Recalling also its Recommendation No. R (97) 5 on the protection of medical data;

Considering that, in the procurement and distribution of haematopoietic progenitor cells, the ethical principles concerning organ transplantation as set out in Resolution (78) 29 on the harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances, and confirmed at the 3rd Conference of European Health Ministers (Paris, 16-17 November 1987), should be respected under all circumstances and that consent is required for the removal of tissues and their proposed use, whether therapeutic, diagnostic or research;

Taking account of World Health Organisation Resolution WHA 42.5 condemning the purchase and sale of organs of human origin;

Taking note of the definition provided for in the appendix to this recommendation;

Bearing in mind the Convention on Human Rights and Biomedicine as well as Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data,

Recommends to the governments of member states the principles set out in the appendix to this recommendation.

Appendix to Recommendation No. R (98) 2

1. The activities relating to the provision of haematopoietic progenitor cells can be divided into the following separate functions:
 - donor selection;
 - organisation;

- collection;
 - processing;
 - preservation;
 - internal quality control;
 - storage and release/issue from storage;
 - distribution;
 - quality assurance and good laboratory practice (GLP).
2. The functions described under paragraph 1 should be carried out by institutions which are officially licensed by national health administrations, or recognised by the competent authorities. These institutions should not make any gain from their activities as such.
 3. The organisations involved in haematopoietic progenitor cells should ensure that donors of haematopoietic progenitor cells be tested for transmittable diseases, in compliance with the law and practice of the country concerned.
 4. The organisations involved in work on haematopoietic progenitor cells should implement scientifically recognised state-of-the-art techniques (such as CD34 positive cell numbers, cell viability and sterility) and respect the criteria established by general medical and laboratory practice, and implement an effective quality assurance system (such as GLP).
 5. Records of all haematopoietic progenitor cells retrieved and issued should be kept by the organisations involved in haematopoietic progenitor cell transplantation in such a way that their source and their destination are clearly identifiable, providing always that access to such records will be restricted to the extent necessary to protect confidentiality of information and individual privacy; donors and recipients should be followed up for at least twenty years.
 6. Criteria for the collection of haematopoietic progenitor cells should be established in accordance with national law. Distribution should take place in such a way as to permit optimal use of haematopoietic

progenitor cells on an equitable basis in accordance with national law, rules and practice and objective selection criteria. Cells for transplantation should be released only to those centres which according to national law are qualified to perform autologous or allogenic progenitor cell transplantations.

7. Close mutual co-operation between different professional groups such as those working in bone marrow transplantation and blood banks should be pursued by all officially recognised organisations concerned with activities involving haematopoietic progenitor cells, and follow-up data on donor/recipient combinations should be shared between relevant institutions within the framework of national guidelines and legislation, provided always that the privacy of the person concerned is fully respected.
8. Close mutual co-operation between different professional groups such as those working in bone marrow transplantation and blood banks should be pursued by all officially recognised organisations concerned with activities involving haematopoietic progenitor cells with the aim of agreeing common minimum quality standards for haematopoietic progenitor cells and the procedures for handling haematopoietic progenitor cells outlined under paragraph 1.
9. All family and unrelated donors of haematopoietic progenitor cells, and the mothers of infants donating cord blood, are to be given appropriate information on known risks about the methods of donation, from a physician who is independent of the Bone Marrow Transplant team. Mothers of infants donating cord blood must give their consent prior to collection which must be non-remunerated.
10. Cord blood banks should observe ethical standards and such banks should achieve the standards recommended under paragraph 5 from their inception.

Definition of haematopoietic progenitor cells

11. For the purposes of this recommendation, haematopoietic progenitor cells (HPC) are primitive pluripotent cells capable

of self renewal as well as differentiation and maturation into all haematopoietic lineages. They are found in bone marrow, foetal liver, in the mononuclear cells of circulating blood and in umbilical cord blood.

12. Haematopoietic progenitor cell preparations (from all four sources) are intended to provide a successful engraftment of haematopoietic stem cells leading to a restoration of all types of blood cells to a normal level and function in the recipient. The infused haematopoietic cells may originate from the recipient or from another individual.

Council of Europe Committee of Ministers

Recommendation Rec(2001)5 of the Committee of Ministers to member states on the management of organ transplant waiting lists and waiting times

(Adopted by the Committee of Ministers on 7 March 2001 at the 744th meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the public health field;

Bearing in mind Article 11 of the European Social Charter on the right to the protection of health;

Recalling that Article 3 of the Convention on Human Rights and Biomedicine requires that Contracting Parties provide “equitable access to health care of appropriate quality”;

Taking into account Resolution (78) 29 on the harmonisation of legislations of member states relating to removal, grafting and transplantation of human substances, the final text of the 3rd Conference of European Health Ministers (Paris, 16-17 November 1987) and Articles 19 and 20 of the Convention on Human Rights and Biomedicine;

Having regard to Recommendation No. R (99) 21 on criteria for the management of waiting lists and waiting times in health care;

Considering that the collection of medical data raises special concerns with regard to data protection, especially where the data are to be collected or used for purposes other than immediate health benefits to the individual;

Having regard to the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (ETS No. 108) and to Recommendation No. R (97) 5 on the protection of medical data;

Aware that waiting lists and waiting times may appear when the demand for organs exceeds availability;

Taking account of World Health Organisation Resolution WHA 42.5 condemning the purchase and sale of organs of human origin;

Considering that organ transplantation is severely restricted by the availability of organs for transplantation and that a properly managed waiting list is essential to ensure equality of access to organ transplantation,

Recommends that governments of member states conform to the following rules:

1. Member states should guarantee that a system exists to provide equitable access to transplantation services for patients which ensures that organs and tissues are allocated in conformity with transparent and duly justifiable rules according to medical criteria.
2. There should be a mechanism, enforceable by law or regulations, for establishing and managing an officially recognised regional, national or international waiting list for each of the main types of organ transplantation.

3. Cadaveric organs should only be allocated to patients registered on the official waiting list. Patients receiving organs from a living donor should also be registered if there is any possibility that they might need an organ from a deceased person.
4. Patients may only be registered on one official transplant waiting list be it regional, national or international. Individual transplant units may have their own local waiting list but only as a subset of the official waiting list.
5. Criteria for registration on the waiting list should be established by a process of consensus based on medical criteria. Registration should include the data essential to identify patients individually, their location and the criteria for their inclusion on the waiting list. The criteria for inclusion should ensure there is no discrimination on the grounds of race, religion, disability or any other non-medical factor. Priority on the waiting list such as “urgent” or “very-urgent” categories should be based solely on medical factors relating to the severity of risk for the individual patient. If patients are registered who do not normally reside in the area covered by the official waiting list, then those managing the waiting list should make all reasonable efforts to check with other transplant organisations that the patient is only on one waiting list.
6. Only transplant units recognised by the official waiting list should be able to register patients in their charge on the waiting list and should do so directly with the organisation managing the official waiting list. Patients should be informed that they are on the waiting list and notified if for any reason they are subsequently suspended or removed.
7. There should be a nationally recognised organisation responsible for the management of the waiting list and the allocation of organs. Organs should be allocated on behalf of the transplant units on the basis of objective rules. The allocation rules should be agreed by all the relevant transplant organisations within the geographical area covered by the waiting list.

8. The waiting list should be regularly updated in conjunction with the transplant units. In particular, the situation of suspended patients or those who have been on the list for a long time should be reviewed to make sure they still meet the registration criteria.
9. Allocation rules should ensure that, as far as possible, no group of patients waits longer than another group waiting for the same type of organ. Waiting times should be analysed regularly to ensure that no patient group is disadvantaged. The allocation rules should be changed when necessary to ensure similar waiting times for all groups of similar patients on the waiting list.
10. The organisation responsible for managing the waiting list should provide information, on at least an annual basis, for health professionals and the public. Information should include:
 - i. the criteria for registration, the allocation rules and any changes thereto;
 - ii. the numbers and flows of patients registered;
 - iii. the waiting times on the various transplant lists including:
 - a. the actual waiting time for patients who have been transplanted;
 - b. the time patients still on the list have waited; and
 - c. the average time patients in any group on any organ transplant list can expect to wait.
11. All organisations managing transplant waiting lists should exchange information with comparable organisations to help improve practice. Research should be promoted to analyse and improve the quality of organ transplant waiting lists and waiting time management.
12. Member states should guarantee that a system is put in place for implementing, monitoring and supervising the rules set out in this recommendation.

Council of Europe Committee of Ministers

Recommendation Rec(2003)10 of the Committee of Ministers to member states on xenotransplantation

(Adopted by the Committee of Ministers on 19 June 2003 at the 844th meeting of the Ministers' Deputies)

Preamble

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve a greater unity between its members;

Having regard to the European Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine and its Additional Protocol Concerning Transplantation of Organs and Tissues of Human Origin;

Having regard to the European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes;

Having regard to the Resolution of the Committee of Ministers (78) 29 on the harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances, the Final Text of the 3rd Conference of European Health Ministers (Paris, 16-17 November 1987) and the Recommendation R (97) 15 of the Committee of Ministers to member states on xenotransplantation;

Bearing in mind Recommendation 1399 (1999) of the Parliamentary Assembly on xenotransplantation;

Bearing in mind recent reports from the OECD, the WHO and other national and international organisations;

Taking into account the shortage of organs and tissues of human origin available for transplantation;

Considering that xenotransplantation might be one of the possible therapeutic responses to this shortage;

Noting that xenotransplantation remains largely an experimental activity and that research is essential for the achievement of progress in this field;

Aware of the risks of rejection and illness xenotransplantation may cause in the recipient patient;

Mindful of the considerable risks which might arise from xenotransplantation in the field of public health and the transmission of diseases;

Considering that it is the responsibility of each member state to adopt adequate measures in order to address them and conscious that in some countries no appropriate regulations exist;

Considering that public health concerns require common provisions applicable in all the member states of the Council of Europe in which xenotransplantation is envisaged;

Considering that worldwide cooperation between states in this field is necessary;

Considering that no clinical xenotransplantation research should take place unless sufficient efficacy and safety is demonstrated through pre-clinical research;

Conscious that the need for such a demonstration will considerably limit the number of xenotransplantations in the coming years, thus allowing for an appropriate risk assessment;

Considering that xenotransplantation of cells and tissues is already being carried out in a number of states and that stringent regulations are thus urgently required;

Mindful of the social, ethical, cultural, legal and psychological problems which might be associated with xenotransplantation;

Mindful of the ethical and welfare issues associated with the use of animals for xenotransplantation and the associated research;

Noting the public concern over the issues related to xenotransplantation and stressing the importance of undertaking a public debate on this subject,

A. Recommends that the governments of member states:

- take the necessary measures to put their legislation and practice in the field of xenotransplantation in conformity with the following principles and guidelines with a view to minimising the risk of transmission of known or unknown diseases and infections to populations;
- co-operate in the setting-up of world-wide surveillance procedures and agreements;
- ensure a wide dissemination of this recommendation, in particular among all persons, organisations and bodies, public or private, responsible for organising and carrying out xenotransplantation;
- take steps to make the provisions of this recommendation subject to public debate.

- B. Decides that this recommendation will be re-examined at appropriate intervals and not later than in three years' time.
- C. Instructs the Secretary General to bring the contents of this recommendation to the attention of the non-member states and international organisations which have participated in its preparation and to invite them to participate in the setting-up of an international surveillance network.

GUIDELINES

Chapter I – Object, scope and definitions

Article 1 – Object of the recommendation

This recommendation aims:

- to protect, in both the short and long term, public health, patients, their close personal contacts and the professional staff involved in xenotransplantation, and
- to provide adequate protection for the animals used in xenotransplantation.

Article 2 – Scope of the recommendation

This recommendation covers all xenotransplantation activities involving human beings as recipients.

Article 3 – Definition

For the purpose of this recommendation, xenotransplantation is defined as any procedure that involves the transplantation or infusion into a human recipient of:

- live animal cells, tissues or organs, or
- human body fluids, cells, tissues or organs that have had *ex vivo* contact with live animal cells, tissues or organs.

Chapter II – General provisions

Article 4 – Xenotransplantation – the setting

No xenotransplantation should be carried out in a member state that does not provide regulation for xenotransplantation activities in conformity with the provisions of this recommendation.

Article 5 – Xenotransplantation authorisation

No xenotransplantation activity should be carried out in a member state unless authorisation is given by a body officially recognised as competent for this purpose, in accordance with the provisions contained in the following two paragraphs:

1. Authorisation for clinical xenotransplantation research should only be given if:
 - a. pre-clinical research has demonstrated, in accordance with internationally accepted scientific standards, that:
 - i. in the light of current scientific knowledge it is highly probable that there is no risk, in particular of infection, for public health;
 - ii. the potential level of efficacy and safety for the patient may justify the intervention having regard to the risks incurred;
 - b. all substantive and procedural conditions generally applicable to clinical research are fulfilled.
2. Xenotransplantation should not be authorised other than in clinical research unless, on the basis of clinical data:
 - i. there is adequate evidence, in accordance with internationally accepted scientific standards, that no risks, in particular of infection, to the general population exist, and
 - ii. the therapeutic benefit of the xenotransplantation has been established.

Article 6 – Xenotransplantation teams and centres

No xenotransplantation should be carried out unless it is undertaken by an accredited team in an authorised centre.

- a. The teams carrying out the xenotransplantation should be appropriately qualified and comprise all the necessary scientific and medical expertise.
- b. The centres should have received an authorisation by the competent bodies prior to beginning the xenotransplantation.

Chapter III – Protection of Public Health

Article 7 – Public Health protection plan

Member states should have a plan in place to address any events, in particular of infection, possibly related to a xenotransplantation which could compromise public health.

In particular, public authorities should take appropriate measures, in conformity with the principles of necessity and proportionality, to respond to events of transmissible or previously unknown illness related to xenotransplantation. These measures, if exceptional circumstances so require, might include isolation.

Article 8 – Collection and storage of biological samples and information

Information and biological samples concerning the source animals used in xenotransplantation and the recipients should be collected and stored in order to ensure traceability and long-term monitoring.

Article 9 – Follow-up

1. All protocols for clinical research should be accompanied by a plan to ensure the traceability and monitoring of the recipients, their close personal contacts and the professional staff involved in xenotransplantation in order to detect and deal with any

adverse events, in particular of infection, possibly related to xenotransplantation.

The plan should include communication without delay to the competent body at national level of any such events.

2. Any xenotransplantation other than in clinical research should be accompanied by a plan to:
 - ensure the traceability of the recipient as well as, depending on the circumstances, of other persons mentioned in paragraph 1;
 - monitor, wherever necessary, the persons mentioned in paragraph 1.

The plan should include communication without delay to national public health authorities of any events, in particular of infection, possibly related to xenotransplantation and which could be of relevance to public health.

Article 10 – Precautions relating to the transmission of disease

All appropriate measures, in accordance with internationally recognised criteria, should be taken to prevent the risk of transmission of infectious agents from source animals.

Only animals bred specifically for xenotransplantation should be used. An appropriate Quality Assurance system encompassing all the stages from the production of the source animals to the final collection of the xenotransplants should be set up.

Article 11 – Prohibition relating to the use of non-human primates

1. Non-human primates should not be used as source animals for xenotransplantation.
2. Exceptionally, authorisation for the xenotransplantation of cell lines obtained from non-human primates may be given if:
 - the conditions under Article 5 are fulfilled, and
 - specific protective measures for these animals have been addressed. This implies that Great Apes should not be used as source animals in xenotransplantation.

Chapter IV – Protection of patients and close personal contacts

Article 12 – Conditions for patient participation

No xenotransplantation should be carried out unless the following specific conditions are fulfilled:

- i. There is no other appropriate therapeutic method of comparable effectiveness available for the patient.
- ii. The data resulting from pre-clinical research suggest or, where appropriate, the data resulting from prior clinical research indicate a clear therapeutic benefit for the xenotransplantation patient. In particular these data should:
 - have demonstrated an adequate function of the xenotransplant in relevant models for an appropriate period of time through a clinically applicable methodology,
 - provide sufficient reasons to believe that rejection can be overcome and that the xenotransplant can function adequately in humans.
- iii. The risks which may be incurred by the patient are not disproportionate to the potential therapeutic benefit of the procedure.

In particular, the evaluation through pre-clinical research of the risks for adverse events and transmission of infectious agents to the recipient, as based on international standards for laboratory results and diagnostic assays, should have demonstrated sufficient safety.

Article 13 – Information to be given to patients

1. Patients participating in a xenotransplantation should be adequately informed in a comprehensible manner of the nature, objectives, possible benefits, potential risks and consequences of the procedure, as well as of any constraints that may be linked to it.
2. In particular patients should also be made aware of the constraints of monitoring and precautionary measures that may become

necessary subsequent to xenotransplantation. Such measures will, according to the principles of necessity and proportionality, be adapted to the circumstances and adjusted in accordance with the assessment, based on current scientific and medical knowledge, of the risks generated by each of the procedures involved, and may in particular include:

- a. the collection of personal data and inclusion in a register;
 - b. the provision by the medical team, in accordance with Article 14, of information concerning the risks of infection and the constraints associated thereto;
 - c. long-term medical monitoring including repeated biological samples being taken and archived;
 - d. reporting any significant unexplained symptoms or illness that may arise after the xenotransplantation;
 - e. maintaining contact with the medical team;
 - f. taking precautions with respect to sexual activity;
 - g. the need for the patient to agree that information is provided by a medical team to any future close personal contacts, in accordance with Article 14, concerning the risks of infection and the constraints associated thereto;
 - h. the other constraints which might be applicable if circumstances so require, in particular the possibility of isolation which may become necessary in the event of a contagious or previously unknown illness occurring.
3. Patients should be informed that, in accordance with Article 21, constraints mentioned hereinabove may be imposed if the person concerned refuses to comply with them.

Article 14 – Information to be given to close personal contacts of the patient

To protect close personal contacts and warn of the possible risks they might pose to the general public, the patient's close personal contacts should, with his or her consent, be informed by the medical team of the

patient's envisaged participation in a xenotransplantation, of the risks of infection and of the consequences for them of such participation, and in particular, of the constraints which may be applicable.

The patient should also ensure that such information is provided to any future close personal contacts.

Article 15 – Information to be given to the professional staff involved in xenotransplantation

Professional staff involved in xenotransplantation should be fully aware of the risks of infection as well as the possible consequences and constraints which may derive from their participation in xenotransplantation.

Article 16 – Consent to xenotransplantation

1. No xenotransplantation should be carried out without:
 - i. the documented, specific, free and informed consent of the patient to the procedure and any necessary specific constraints; and
 - ii. the provision by the patient to the medical team of the necessary information concerning his or her current close personal contacts and the acceptance by the patient that his or her current and future close personal contacts be given information in accordance with Article 14.
2. Prior to xenotransplantation, the consent to carry out the intervention may be freely withdrawn at any time.

Article 17 – Counselling and support

The patients and their close personal contacts should be given proper information and have access to counselling and support by experts outside the team both before and after the xenotransplantation. This informing and counselling process should include the biomedical, ethical, psychological and social aspects of xenotransplantation.

Article 18 – Right to medical care

A refusal to participate, or a withdrawal of consent prior to the xenotransplantation, should not prejudice the patient's right to receive all other appropriate medical care in due course. The patient's consent to participate in a xenotransplantation should not prejudice his or her right to benefit from an allotransplant that becomes available while awaiting xenotransplantation, if medically indicated.

Article 19 – Patients not able to consent

1. Where xenotransplantation has been authorised for use other than in clinical research according to Article 5 paragraph 2, it may be carried out on a person not able to consent only if the following conditions are fulfilled:
 - there is no therapeutic alternative of comparable effectiveness available to the patient,
 - taking into account the constraints and conditions to which the person will or may be subjected according to Articles 13 and 14, the intervention is expected to result in a direct and important benefit for the patient, and
 - the representative or an authority or a person or body provided for by law, after receiving the information referred to in Article 13, has authorised both the intervention and the provision of the necessary information to the present and future close personal contacts of the patient.
2. Patients unable to consent should not undergo clinical xenotransplantation research as referred to in Article 5, paragraph 1.

Exceptionally, a patient unable to consent may participate in a clinical xenotransplantation research intervention if the following specific conditions are fulfilled:

- there is adequate indication, on the basis of prior clinical research, that the xenotransplantation might be lifesaving,

- there is no alternative means of saving the life of the patient,
- taking into account the constraints and conditions to which the person will or may be subjected according to Articles 13 and 14, the intervention is expected to result in a direct and important benefit for the patient, and
- the representative or an authority or a person or body provided for by law, after receiving the information referred to in Article 13, has authorised both the patient's participation in the clinical xenotransplantation research and the provision of the necessary information to the present and future close personal contacts of the patient.

Article 20 – Confidentiality

All personal data relating to the recipient person and, where such data exist, their close personal contacts should be considered to be confidential.

Without prejudice to the provision of Article 8, such data should be collected, processed and communicated according to the rules relating to professional confidentiality and personal data protection.

Article 21 – Compulsory constraints

If, after the xenotransplantation has been carried out, the recipient or his or her close personal contacts refuse to comply with the constraints associated with xenotransplantation, public authorities should intervene and take appropriate measures, where public health protection so requires, in conformity with principles of necessity and proportionality.

Depending on the circumstances and in accordance with the procedures provided for by national law, such measures might include registration, compulsory medical follow-up and sampling.

Chapter V – Protection of animals

Article 22 – Compliance with animal protection regulations

All animal use in xenotransplantation should comply with the provisions of the European Convention for the protection of vertebrate animals used for experimental and other scientific purposes including the principles of Appendix A and Council Directive 86/609/EEC on the approximation of laws, regulations and administrative provisions of member states regarding the protection of animals used for experimental and other scientific purposes including Annex II.

These provisions should apply to source animals in addition to their sires and dams in source production units, pre-transplantation holding facilities, tissue harvest areas and during transport.

Article 23 – Husbandry, care, use and requirements of animals

The husbandry and care for all animals used in xenotransplantation should take account of their physiological, social and behavioural needs and should be designed to ensure their well being, particularly where breeding animals are maintained for long periods. The pain, suffering or distress and the number of animals used should be minimised.

Article 24 – Responsibility for husbandry and care of animals

There should be clearly assigned and documented responsibilities for husbandry and care of the animals used in xenotransplantation from birth to death, with a sufficient number of appropriately trained and competent staff available to inspect and care for them.

Article 25 – Surgical derivation and early weaning techniques

Surgical derivation and segregated/medicated early weaning production techniques should only be used where essential to produce animals of appropriate health status for use in xenotransplantation.

Article 26 – Transport of animals

Transport of animals for xenotransplantation should be kept to a minimum. If transportation is necessary, adequate arrangements should be made for the dispatch, receipt, acclimatisation and quarantine of animals in order to minimise the associated stress. The relevant national and international legislation/regulations (including European Union Directive 95/29/EEC modifying Directive 91/628/EEC on the protection of animals during transport, and the European Convention for the Protection of Animals During International Transport (revised)) should be complied with.

Article 27 – Organ and tissue procurement from animals

Analgesia or anaesthesia should be used for the procurement of organs, tissues and cells for xenotransplantation, where it is necessary to minimise pain, suffering and distress of the animals.

If, as a result of the procurement, the subsequent health and welfare of the animals would be compromised, the animals should be killed by an appropriate method.

Sequential harvest of solid organs from individual animals should not be permitted.

Article 28 – Collection of animal records

Detailed records should be maintained of the derivation, source, use and final disposal of all animals bred for or used in xenotransplantation. Any unusual or unexpected traits or events should be recorded.

Article 29 – Pre-clinical research

The provisions of Articles 22 to 28 should also apply to animals used in pre-clinical research carried out to support clinical xenotransplantation research.

Chapter VI – Provisions relating to the ethical, social and psychological acceptability of xenotransplantation

Article 30 – Public debate

In accordance with the principles stated in Article 28 of the Convention on Human Rights and Biomedicine, member states should take active steps to ensure that the fundamental questions raised by xenotransplantation are the subject of appropriate public discussion particularly in light of relevant medical, psychological, cultural, ethical, legal, social and economic implications.

Chapter VII – Co-operation between parties

Article 31 – International co-operation in medical research

Member states should co-operate through international surveillance procedures and agreements. They should also take appropriate steps to facilitate the co-ordination of research in xenotransplantation in order to improve its efficacy and safety, to avoid unnecessary duplication and to minimise animal use and suffering.

Article 32 – International co-operation in public health

Every member state should communicate without delay to national public health authorities of other member states and other concerned states any events, in particular of infection, possibly related to a xenotransplantation which could compromise public health.

Chapter VIII – Compensation for undue damage

Article 33 – Compensation for undue damage

The person who has suffered undue damage resulting from a xenotransplantation is entitled to fair compensation according to the conditions and procedures prescribed by law.

Chapter IX – Reports on the implementation of the recommendation

Article 34 – Implementation of the recommendation

On receipt of a request from the Secretary General of the Council of Europe any member state should furnish an explanation on the manner in which its legislation and practice in the field of xenotransplantation integrate the principles and guidelines of this recommendation, on any xenotransplantation activity and on any adverse event as referred to in Article 9.

Explanatory memorandum to Recommendation Rec(2003)10 of the Committee of Ministers to member states on xenotransplantation

Summary of contents

Introduction

Drafting of the Recommendation

Preamble

Chapter I – Object, scope and definitions

Chapter II – General provisions

Chapter III – Protection of Public Health

Chapter IV – Protection of patients and close personal contacts

Chapter V – Protection of Animals

Chapter VI – Provisions relating to the ethical, social and psychological acceptability of xenotransplantation

Chapter VII – Co-operation between parties

Chapter VIII – Compensation for undue damage

Chapter IX – Reports on the implementation of the Recommendation

Appendix – Summary of the discussions with the representatives of the European Court of Human Rights concerning legal issues relevant to xenotransplantation

Introduction

The transplantation from humans to humans of organs, tissues and cells has been recognised as a successful therapeutic solution to several previously incurable diseases relating to heart, liver, lung and kidney disorders. Furthermore, this procedure could potentially address other unmet medical needs such as incurable neurological diseases (Parkinson's and Alzheimer's disease), paraplegia due to spinal cord lesions and pancreatic islet or beta cell transplants for treatment of diabetes.

At the moment, most organ transplants are derived from deceased human donors. However, the needs exceed many times the supply and a number of patients continue to die on waiting lists. Because of this acute shortage, some scientists have studied the possibility of transplanting organs originating from animals to human persons, which is referred to as xenotransplantation.

However, because of the particular nature of these animal organs and since there are certain dangers in xenotransplantation which do not exist, or are less clear, in allotransplantation (human to human), additional precautions are necessary for this activity. This is especially the case with respect to immunological difficulties, the potential threat of animal pathogens in humans and intricate issues related to the quality of xenotransplants, animal welfare⁽¹⁾ and the ethical acceptability of using animals for this purpose. Though some of these difficulties

could eventually be overcome, there is still insufficient knowledge concerning the potential risks involved in most of the procedures, such as the transmission of animal pathogens in human beings.

Because of these risks, the *Recommendation on Xenotransplantation* asserts the need for very stringent and demanding conditions whereby no animal to human xenotransplantation should be carried out in a member state that does not provide regulation for such a procedure. This condition is extremely important to protect patients, public health and the animals used. Therefore, if a state does not provide regulation for animal to human xenotransplantation, it should not be allowed to proceed with any clinical intervention be it for research or for any other reason.

During the three years of the Working Party, competing biotechnologies, such as stem cell technology, have been emerging which could potentially address the needs for cell and tissue (but not for complete organ) transplantations. At the moment, it is uncertain whether these new discoveries will have similar or even better prospects than xenotransplantation, particularly with respect to clinical applications.

Drafting of the Recommendation

The Parliamentary Assembly of the Council of Europe, having considered the risks to public health which xenotransplantation could involve asked the Committee of Ministers, on the 29th of January 1999 (Recommendation 1399 (1999) on Xenotransplantation), to initiate a study concerning the different aspects of the relevant issues relating to xenotransplantation taking into account the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine (European Treaty Series – ETS No. 164).

The same year, the Committee of Ministers established a Working Party (CDBI/CDSP-XENO) under the joint authority of the Steering Committee on Bioethics (CDBI) and the European Health Committee (CDSP) to evaluate the risks in xenotransplantation and establish appropriate safeguards.

Chaired by Mr Bart Wijnberg (The Netherlands), the Working Party was composed of Prof. Didier Houssin (Vice-Chair, France), Prof. Annika Tibell (Vice-Chair, Sweden), Prof. Pekka Häyry (Finland), Prof. Karin Ulrichs (Germany), Dr Marialuisa Lavitrano (Italy), Dr Dag Sorensen (Norway), Prof. Alexander Tonevitsky (Russian Federation), Dr Rafael Manez (Spain), Dr Theodor Weber (Switzerland), Dr David Cook (United Kingdom), Dr Maggy Jennings (United Kingdom) and Dr Line Matthiessen (European Community).

It should be noted that representatives from several non-member states (Prof. Eda Bloom (United States) and Dr Larry Whitehouse (Canada)) in addition to several organisations (International Xenotransplantation Association (IXA), OECD, Office International des Epizooties (OIE) and WHO) were active participants, as observers, in the work. Indeed, it was considered that worldwide cooperation between states was necessary in this field and that the participation of representatives of these non-member states and international organisations would enable the drafting of common standards, especially with respect to protecting public health.

The Working Party finalised a draft Recommendation on xenotransplantation in September 2001. In this Recommendation, the Working Party drafted stringent and careful provisions in order to address the concerns expressed by the Parliamentary Assembly. Accordingly, the text states that no animal to human xenotransplantation can be carried out unless sufficient efficacy and safety has been demonstrated. Furthermore, the Recommendation recognises that the xenotransplantation of cells and tissues is already taking place in a number of countries. Therefore, provisions encouraging international co-operation in public health, including with countries where xenotransplantation is prohibited, are incorporated.

The Recommendation is accompanied by this explanatory report drawn up under the responsibility of the Secretary General of the Council of Europe. It takes into account the discussions held in the CDBI and CDSP as well as in the Working Party entrusted with the initial drafting of the Recommendation; it also takes into account the remarks and proposals made by Delegations. The explanatory report is not an authoritative interpretation of the Recommendation. Nevertheless, it covers the main issues of the preparatory work and provides information to clarify the object and purpose of the Recommendation and makes the scope of its provisions more comprehensible.

Preamble

Protection and guarantees in the field of biology and medicine are provided by the European Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine. In the specific field of transplantation, complementary protection for patients is also given by the Additional Protocol to the aforementioned Convention concerning Transplantation of Organs and Tissues of Human Origin.

Furthermore, the European Convention for the Protection of Vertebrate Animals used for experimental and other Scientific Purposes guarantees protection for animals involved in investigatory procedures including those used in xenotransplantation.

The preamble stresses the importance of the 3rd Conference of European Health Ministers convened in Paris in November 1987 dealing with organ transplantation and also takes due regard to the previous work of the Committee of Ministers and the Parliamentary Assembly of the Council of Europe in the field of transplantation and xenotransplantation.

In addition, the preamble emphasises the importance of considering the work of other national and international organisations relating to xenotransplantation since a communal approach has been recognised as being essential in addressing the relevant issues.

Chapter I

Object, scope and definitions

Article 1 – Object of the Recommendation

1. The aim of the Recommendation is to protect all persons involved in xenotransplantation (patients, close personal contacts and the professional staff involved in xenotransplantation) as well as public health, both in the short term and long term. The provisions also aim to ensure that the welfare of animals used for xenotransplantation is adequately protected. This will include ensuring that source animals are provided with husbandry and care appropriate to their needs and ensuring that the collection of organs, tissues or cells is carried out in a humane manner.

Article 2 – Scope of the Recommendation

2. In the broadest sense, xenotransplantation covers source animals, procurement of organs, tissues and cells, informed consent, surgery and post-operative follow-up and all other activities involving the transplantation of animal parts or human materials which have been in contact with animal parts into human recipients.

Article 3 – Definition

3. Concerning the definition of xenotransplantation:
 - The first indent covers the transplantation of parenchymal organs (e.g. kidney, heart, liver, pancreas, lung) and the implantation or infusion of tissues and cells (e.g. skin, bone marrow, blood, pancreatic islets or beta-cells) that have been derived from animals into a human recipient.
 - The second indent covers the exposure by a person to human blood or blood constituents that have been in contact with live animal tissues (for example, via perfusion), or to human organs, cells or tissues cultured on, or in contact with, live animal cells (regardless of whether they are alive or lethally irradiated but metabolically active), or implanted (stored) in animals.
4. This definition of xenotransplantation includes the transplantation of human stem cell lines and skin cells grown on animal feeder cells but does not include non-living animal products, many of which are regulated as devices (e.g. porcine heart valves), drugs (e.g. porcine insulin) and other biological products (e.g. anti thymocyte globulin, vaccines prepared from animal sources or animal sera used for the culture of human cells).

Chapter II

General provisions

Article 4 – Xenotransplantation – the setting

5. This Article asserts the need for very stringent and demanding conditions whereby no xenotransplantation should be carried out in a member state that does not provide regulation for such a procedure.
6. This regulation should apply the relevant principles of the *Convention on Human Rights and Biomedicine*⁽²⁾, *inter alia*, those relating to biomedical research. It should also take into account the specific principles and rules relating to transplantation in particular, which are included in the *Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin* (ETS No. 186) and in *The Transplantation Society Recommendation for Legislation in Transplantation*⁽³⁾. On the other hand, recommendations relating to xenotransplantation can be found in the *Transplantation Society's Recommendation on Xenotransplantation*⁽⁴⁾, in the WHO's recommendation on the *Prevention of Infectious Disease in Xenotransplantation*⁽⁵⁾, in appropriate US FDA⁽⁶⁾ and PHS⁽⁷⁾ recommendations and other national recommendations when available^(8,9).

7. Because it is extremely important to ensure that patients, their close personal contacts, public health and the animals used are adequately protected, the term “regulation” in this Article includes the requirement for an “authorisation” to be given by a body officially recognised as competent for this purpose before a xenotransplantation takes place.
8. The regulation should cover all aspects of the proposed procedure such as:
 - the collection and maintenance of animal records and the health surveillance plans of the source animals;
 - the genetic manipulation of animals or tissues (where relevant);
 - the procurement of the xenotransplants and the xenotransplantation procedure;
 - the details relating to the qualifications and the necessary scientific and medical expertise of all professional staff involved in xenotransplantation;
 - the management of the recipient and his or her close personal contacts;
 - the criteria for recipient selection and details of the informed consent document;
 - the information programs for the recipient, his or her close personal contacts, the professional staff involved in xenotransplantation and the public;
 - the infection control methodologies;
 - the immunosuppressive regimens;
 - the follow-up time-table and format and the archiving of donor and recipient medical records and specimens.
9. The regulation should also contemplate the possibility of applying constraints such as those mentioned in Article 13.

Article 5 – Xenotransplantation authorisation

Paragraph 1. Clinical xenotransplantation research

10. To maximise the safety of xenotransplantation in clinical research, each procedure should not only fulfil the general conditions applicable to biomedical research and be authorised by a body officially recognised as competent for this purpose but also comply with specific requirements, namely that the intervention is justified having regard to the risks incurred and the potential level of efficacy and safety for the patient and that, in the light of current scientific knowledge it is highly probable that there is no risk, in particular of infection, for public health. In conformity with Article 12, the results from pre-clinical research should also suggest or, where appropriate, the results from prior clinical research indicate that a clear therapeutic benefit for the xenotransplantation recipient exists.
11. As long as xenotransplantation remains experimental, last resort procedures should not be considered as possible exceptions to the requirements applicable to clinical research.

Paragraph 2. Xenotransplantation other than in clinical research

12. When a xenotransplantation activity is no longer considered as medical clinical research, authorisation for this activity should only be given by a body officially recognised as competent for this purpose if there is adequate evidence that no risks, in particular of infection, to the general population exist and it has an established therapeutic utility. One example of xenotransplantation which cannot be considered research, as it has been in clinical use for over 10 years, is the use of human skin cells grown on mouse feeder cells for the treatment of burns patients. Similar techniques may be used to grow limbal cells to repair damaged corneas. Such techniques are of proven clinical effectiveness but do carry a very small risk of transmission of mouse retrovirus and so should be subject to a risk

assessment and proportional patient information and surveillance (see Article 9, paragraph 2).

13. It should be noted that paragraphs 1.a.i and 2.i use two different expressions in relation to the absence of risk for public health. Paragraph 1.a.i uses the expression “highly probable” since indications concerning the absence of such a risk are provided by studies undertaken on animal models; the second paragraph uses the expression “adequate evidence, in accordance with internationally accepted standards” because this evidence is based on research having taken place on human persons. The requirement of a high probability of absence of risks for public health ensures a high level of protection. The wording in paragraphs 1.a.i and 2.i is meant to imply that, in accordance to the state of the art, there is no foreseeable risk. In science, however, an absolute certainty cannot be given and there is always the possibility of an unknown risk.

Article 6 – Xenotransplantation teams and centres

14. This Article asserts the need for very stringent and demanding conditions whereby no xenotransplantation should be carried out in a member state unless it is undertaken by an accredited team and in an authorised centre.

Indent a. (xenotransplantation team)

15. The detection, diagnosis and effective treatment of a recipient subject to an infection in addition to the design and implementation of appropriate measures to limit dissemination of a xenosis, if and when it occurs, are only possible in a well co-ordinated xenotransplantation team. Furthermore, in order to address any possible difficulties arising with the animals this xenotransplantation team should liaise efficiently with the source animal production team.
16. In addition to transplant clinicians and associated staff, the xenotransplantation team should include or have access to an infectious diseases physician with expertise in zoonosis,

transplantation and microbiology, a veterinarian with specific expertise in animal husbandry and care issues as well as in infectious diseases of source animals and a hospital epidemiologist/infection control specialist (a team may have more than the indicated number of individuals in order to encompass the necessary expertise). Moreover, the term “appropriately” in indent a) also means that other disciplines such as psychology or counselling can be included. Only once the team is composed of experts having recognised qualifications and the necessary skills and experience in all the required disciplines should the team be officially acknowledged as being competent. Several guidelines, in particular in the United States⁽¹⁰⁾ and Canada⁽¹¹⁾, describe the necessary composition of the xenotransplantation team. Each member state should specify under which conditions a team may be accredited.

17. The xenotransplantation team should be able to fully explore the proposed project with hospital and university administrations with regards to physical resources, the scale of the initial trials and the ensuing clinical program. Moreover, the legal and financial implications of the activity, including reimbursement methods, storage costs of the samples and overall impact on health care expenditures should be considered.

Indent b. (xenotransplantation centre)

18. Because xenotransplantation should only take place in centres with relevant experience and equipment, in practice it may mean, particularly in the case of solid organs, that only centres already authorised to carry out allotransplantations corresponding to the xenotransplantation procedure to be tested could participate in a xenotransplantation (provided that the additional constraints are satisfied).

Chapter III

Protection of public health

Article 7 – Public health protection plan

19. Because there is no room for improvisation in dealing with the risks of xenosis, all provisions and procedures designed to address any events, in particular of infection, possibly related to a xenotransplantation and to react without delay to an event if it occurs, should be thoroughly described in a xenotransplantation plan. These provisions and procedures should include measures to be taken by public authorities to respond to events of transmissible or previously unknown illness possibly related to xenotransplantation. In very exceptional circumstances, such measures might even include the isolation of a patient to prevent any further infections.
20. It should also be noted that, in accordance to Article 32, member states should communicate without delay to national public health authorities of other member states and other concerned states any events, in particular of infection, possibly related to a xenotransplantation, which could compromise public health.
21. Additional information concerning the setting-up of a surveillance framework can be found in the OECD/WHO consultation report on xenotransplantation surveillance⁽¹²⁾ and other WHO reports^(13,14).

22. The surveillance procedures associated with xenotransplantation can only be effective if they are complied with to the letter. The lifelong constraints which may be imposed on some xenotransplantation recipients and their close personal contacts are such that they may conflict with a number of national and international human rights regulations. This is explained in the discussions with the representatives of the European Court of Human Rights (see annex) which states that “[m]any of the rights in the Convention [on Human Rights] were subject to permissible restrictions and involved establishing a proper balance between competing interests.” In particular, the constraints may conflict with the right for one’s medical records to remain confidential, the right to mobility and liberty and the right to refuse the constraints which may arise resulting from the xenotransplantation⁽¹⁵⁾.

Article 8 – Collection and storage of biological samples and information

Biological samples

23. In order to ensure traceability and long term monitoring, a number of biological samples should be taken from the source animal used in xenotransplantation and the recipients either for immediate testing or for future reference.
- a) With respect to the source animal and source herd, guidelines on the breeding conditions of the source animals include a requirement for appropriate regular sampling to monitor the microbiological status of the herd. This is part of the routine procedures to ensure that xenotransplantation material originates from specified/designated/qualified pathogen-free animals.
 - b) Appropriate blood/tissue samples of the source animal should also be kept indefinitely for future reference. The United States PHS *Guideline on Infectious Disease Issues in Xenotransplantation*⁽¹⁶⁾ describes in a specific paragraph “Archives or Source Animal

Medical Records and Specimens” the desirable samples and conditions for storage.

- c) Provisions should be made for the monitoring of the personnel caring for the animal, the patient, his or her close personal contacts, and the medical and non-medical staff in charge of the patient’s care. In relation to the specific xenotransplantation procedure to be tested, the details concerning who is eligible for monitoring, the frequency of such monitoring and the tests to be performed should be determined in advance.
 - d) In addition, a number of samples should be collected and archived for potential future reference. A proposed patient sampling schedule is given in the United States guideline⁽¹⁷⁾. According to this document, specimens appropriate to the specific xenotransplant situation, and including systematically blood, plasma and peripheral mononuclear cells, should be collected:
 - a. every month (or as much apart as possible) before the xenotransplantation,
 - b. immediately after the xenotransplantation period,
 - c. approximately 1 month and 6 months post xenotransplantation, then
 - d. annually for the first 2 years and, finally,
 - e. every 5 years for the rest of the recipient’s life.
24. Specimens of any xenotransplant that is removed (e.g. post-rejection) should be banked. Additionally, it is recommended that specimens of the xenotransplant, serum, blood, white blood cells, and samples of the patient should be stored after his or her death. These specimens should undergo appropriate histological, microbiological and viral assays. Snap-frozen tissue samples, paraffin embedded tissue and tissue suitable for electron microscopy from the xenotransplant and all major organs should be stored.

Health care records

25. The following records should be established and archived:
- an institutional xenotransplantation record;
 - a record of hospital acquired infections which may have occurred because of the xenotransplantation;
 - individual xenotransplant recipient medical records.

National Registry

26. All countries where xenotransplantation is performed should establish a national registry. Archiving of samples of sera, plasma, leukocytes and tissue of the source animal and recipient should be included in all national guidelines for xenotransplantation.

Article 9 – Follow-up

Paragraph 1. Clinical xenotransplantation research

27. A plan ensuring the traceability and monitoring of recipients, close personal contacts and professional staff involved in xenotransplantation should be set up. This plan should include the collection and storage of information and biological samples from recipients in accordance with Article 8. The existence of this plan is important in order to detect and deal with any infections possibly related to xenotransplantation and any other complications of relevance to public health. Because of the potentially serious implications of contagion in particular, the plan should also ensure that public authorities are alerted without delay of any events, in particular of infection, possibly related to xenotransplantation.
28. The Article does not define the term “adverse event” as such but this term is meant to imply any adverse incident or occurrence, relevant that is possibly related to the xenotransplantation. An adverse event does not only relate to infections but might also cover incidents such as the appearance of a prion disease. The

requirement to communicate information on all such events to the national public health authorities ensures that those authorities will be able to make a judgment on the possible relevance of the event to public health, rather than such a judgment being made by the research team.

Paragraph 2. Xenotransplantation other than in clinical research

29. Because some xenotransplantation procedures, such as the use of human skin cells grown on animal feeder cells in the treatment of burns victims, have already been used for many years without any evidence of infectious events, the constraints associated with these procedures would only be required insofar as they are necessary and in accordance with the principle of proportionality. It has been recognised that these cells do not pose the same potential risks as some other xenotransplantation interventions and therefore need not be subject to all of the precautions of other xenotransplantation procedures, but that some of them are still appropriate (e.g. recipient notification of the use of mouse cells, initial archiving of recipient samples and passive monitoring, archiving of samples, databasing of recipients, etc.). However, because it is impossible to foresee all possible consequences of an intervention, a plan should also be set up for xenotransplantation other than in clinical research to ensure that public authorities are alerted without delay of any events, in particular of infection, possibly related to such a procedure which could be of relevance to public health.

Article 10 – Precautions relating to the transmission of disease

General considerations

30. It is recognised that one of the key safety issues in xenotransplantation is the risk of xenosis for the recipient with the theoretical possibility of a new, contagious, disease emerging in the human species. Such a scenario is only possible if:

- a potentially pathogen micro-organism is transmitted to the recipient;
 - this micro-organism is adapted or adapts to its new environment (the recipient);
 - the micro-organism multiplies in the recipient;
 - the micro-organism causes a disease;
 - inter-human transmission of the micro-organism occurs;
 - the (possibly new) micro-organism is also infectious and pathogenic to a section of the population which is large enough to allow its dissemination.
31. Possible actions to minimise such a risk are:
- selection of the source animal species to minimise the risk of xenosis;
 - control of the microbiological quality of the xenotransplant;
 - prevention of infection in the xenotransplant recipient;
 - detection, diagnosis and effective treatment of a possible infection in the recipient;
 - limitation of the infection by education and surveillance of the recipient, his or her close personal contacts and any potentially infected person;
 - warning without delay in the event that a significant public health hazard is identified, so that appropriate measures can be taken worldwide.
32. Many known micro-organisms which might cause xenosis can be eliminated from the xenotransplant material by the use of appropriate source animal breeding and husbandry conditions, microbiological screening, and organ, cell or tissue procurement procedures. For these reasons, prior to any xenotransplantation authorisation, the breeding and husbandry conditions and procedures, the source animal screening procedures and the xenotransplant procurement and preparation procedures should be thoroughly documented and checked for compliance with

appropriate microbiological quality requirements (e.g. qualified pathogen-free). Additionally, a microbiological monitoring and surveillance system encompassing all the stages from the production of the source animals to the final collection of the xenotransplants, should be constantly maintained.

Quality Assurance

A Quality Assurance system should be set up encompassing:

1. All the stages of production of the source animals

33. Breeding source animals devoid of a number of pre-defined micro-organisms (so-called specified/designated/qualified pathogen-free animals), and minimising the risk of external contamination of the source animals or xenotransplants are important. Complex technical recommendations have been or are being elaborated, e.g. in Canada (proposed Canadian Standard for Xenotransplantation⁽¹⁸⁾), in the United States (PHS Guideline on Infectious Diseases Issues in Xenotransplantation⁽¹⁹⁾) and in the UK⁽²⁰⁾.
34. Xenotransplantation source animals should be from lines maintained in biosecure facilities over several generations. The health (specified/designated/QPF) status should be maintained during movement and transport.
35. Pre-clinical screening of source animals should include the most advanced methods for detection of potential infectious agents (bacteria, viruses, prions, parasites and fungi). Microbiological screening should be species-specific and characterise the potential infectious agents for humans. Testing for endogenous retroviruses, persistent viral infections and prions should be considered based on the available technology for such studies.
36. Source animals should come from closed herds or colonies maintained in biosecure facilities under experienced veterinary supervision practising the highest quality of veterinary care. The animals should be screened and qualified as pathogen-free for specific agents as appropriate for the clinical application and

be maintained in an environment that minimises exposure to infectious agents and their vectors whilst taking account of their husbandry and care needs as set out in Article 23.

2. The final collection of the xenotransplants

37. Xenotransplanted cells, tissues or organs should be procured with a documented aseptic methodology in facilities meeting the highest surgical standards. Where possible, xenotransplants should be tested repeatedly both before and at the time of xenotransplantation for contamination by infective agents with standard and co-cultivation assays, the latter including appropriate indicator cells and cell lines derived from human peripheral blood mononuclear cells and cells from the xenotransplantation site (e.g. Central Nervous System, bone marrow, etc.).

Hospital infection control

38. Standard biohazard precautions should be maintained. When the source of a significant illness in a recipient remains unidentified despite standard diagnostic procedures, comprehensive testing of body fluid and tissue samples using validated culture systems, genomic detection methodologies and other advanced techniques should be undertaken. Archiving of acute and convalescent sera and blood cells is also important. An occupational health services program for professional staff involved in xenotransplantation should include an education program together with worker surveillance protocols. Protocols should be established for post-exposure (e.g. needle-stick, splash, mucous membrane exposure) evaluation and management.
39. Should a potential xenogeneic infection related to a clinical episode occur, an epidemiological investigation to assess the potential public health significance of the infection should be initiated without delay in co-ordination with the appropriate public health authorities.

Article 11 – Prohibition relating to the use of non-human primates

Paragraph 1

40. It is presently acknowledged, worldwide, that non-human primates (macaques, baboons, etc.) should not be used as source animals for human xenotransplantation until more information is obtained, allowing a better assessment of the infectious risks. This position is developed in a specific US Food and Drug Administration Guidance Document entitled *Public Health issues posed by the use of non-human primate xenografts in humans*⁽²¹⁾. Further reasons to prohibit the use of non-human primates as a source species are the serious welfare implications of maintaining these primates in biosecure conditions together with the wider ethical implications of their use.

In Sweden, for example, because of concerns relating to the involvement of non-human primates in xenotransplantation, the Swedish Committee on Xenotransplantation, in their 1999 report, has explicitly banned their use as a source species⁽²²⁾. Similarly, the proposed Canadian Standard for Xenotransplantation states that despite the greater immunological proximity to humans of primates (absence of preformed antibodies, and therefore, of xenotransplant hyperacute rejection), their use as source animals is not feasible. This is because the phylogenetic proximity of humans to other primates is suspected to increase the probability of xenosis.

Paragraph 2

41. Though non-human primates should not be used as source animals, it should be noted that the literature^(23,24), shows that Vero cells (long ago obtained from African Green Monkey kidney cells) have already been used in Switzerland as a vehicle to transfer a gene (interleukin-2) to cancer patients. In addition, there is an *in vitro* fertilization technique used in France in which a Vero

cell feeder layer is used^(25,26,27). In this technique, co-cultures of human embryos, particularly with Vero cells, are used mainly in cases of successive failures of implantation. Thus, the use for xenotransplantation of cell lines obtained from non-human primates may be permissible if substantial evidence addressing the infectious disease risks, ethical issues and animal welfare concerns is supplied to the appropriate body (see Article 5), and the said body determines that the evidence is sufficient. However for some types of non-human primates, such as the Great Apes, it is envisaged that no permission for their use as source animals should be given because of serious ethical and animal welfare concerns.

Chapter IV

Protection of patients and close personal contacts

Article 12 – Conditions for patient participation

42. This Article builds on the previous very stringent and demanding conditions whereby no xenotransplantation should be carried out in a member state unless regulation for xenotransplantation activities exists and sufficient efficacy and safety is demonstrated through pre-clinical research.
43. The need for the pre-clinical demonstration of efficacy and safety of the planned therapeutic procedure is not specific to xenotransplantation. These requirements are generally applicable to any new therapeutic procedure being submitted to a clinical evaluation which should establish that the expected benefits outweigh the risks of the procedure.
44. This principle is stated in the *European Convention on human rights and biomedicine* of the Council of Europe (ETS No. 164) which states in Chapter V (Scientific research), Article 16, indents i and ii, that: “Research on a person may only be undertaken if (i) there is no alternative of comparable effectiveness to research on humans

and (ii) the risks which may be incurred by that person are not disproportionate to the potential benefits of the research”.

45. The objective of pre-clinical research is to quantify, as far as possible, the expected benefits as well as the potential risks to the subject in such a way that the physicians in charge of the patients, the ethics committees and the patients themselves are in a position to make a decision which is as rational as possible. The expected benefits should be carefully weighed against the potential risks, whether quantifiable or not (i.e. a given risk can be foreseeable though not quantifiable), because the nature and level of acceptable risks will depend on the nature and magnitude of the expected benefits.

Specific aspects relating to xenotransplantation

46. In the above key statement of the European Convention on human rights and biomedicine, it is generally considered that the potential benefits of the clinical research may assist either the research participant or other persons (e.g. future patients), or both, but that any risks may only concern the research participant.
47. However, in the field of xenotransplantation, another dimension has to be considered in the decision making process, namely the potential risks to persons other than the patient being treated. These potential risks are mainly of an infectious nature and are, at present, not adequately quantified. They concern (a) the close personal contacts of the xenotransplant recipient and (b) the population at large, with the theoretical possibility of a new disease emerging as a consequence of xenotransplantation. Such a scenario may only occur if a transmitted micro-organism becomes capable of causing a human disease (although there could be a long latency between infection and disease symptoms). Therefore, no xenotransplantation activity should be carried out unless there is adequate evidence, in accordance with internationally accepted scientific standards, that no risks, in particular of infection, to the general population exist.

Therapeutic results expectations

48. The pre-clinical evaluation of efficacy and safety of the proposed xenotransplantation should be addressed separately. However, it is emphasised that any decision to proceed or not with a given xenotransplantation should be based on the evaluation not only of efficacy and safety, but also on a thorough evaluation of the acceptability of a certain level of potential risks, both to the patients and to others, given the level of expected benefits to the patients of the planned study.

Indent i. Absence of appropriate alternatives

49. Xenotransplantation should not take place if other therapeutic procedures of comparable effectiveness are available for the patient. Indeed, in view of the risk involved in any xenotransplantation, there is no justification for using this procedure if there is another appropriate way of bringing the same benefit to the recipient, such as “conventional” treatment, or tissues of human origin, cultured tissues or tissues transplanted from the recipient. When an appropriate organ or tissue of human origin (allotransplantation) becomes essential to a patient, the shortage of such elements could justify having recourse to xenotransplantation if all other conditions are fulfilled.

50. For patients with acute organ failure, it is often difficult to obtain a suitable allotransplant. Xenotransplantation may in this case provide the best available therapy. The xenotransplant could then either be a permanent solution or be performed as a bridging procedure until a human transplant becomes available.

51. In case of non life-saving procedures, such as renal transplantation, xenotransplants might increase the number of organs available for transplantation and may possibly also increase the transplantation possibilities of patients that are highly sensitised against human tissue and have developed antibodies to the majority of human HLA-antigens.

52. Some diseases causing organ failure are likely to re-occur in the transplanted human organ. The use of a xenotransplant may in some cases reduce this risk since so-called species-specific disease resistance may exist.
53. Xenotransplantation has also been suggested for diseases that are only rarely treated by allotransplantation. Attempts to treat these diseases may use, for example, neuronal cells from fetal tissue which must be procured from the fetus during a very specific developmental stage. In some countries, the use of human fetal material has been explored while in others this is not considered to be acceptable. Besides the ethical problems, the aborted tissue is often of suboptimal quality.
54. The use of xenogeneic material, on the other hand, may provide a possibility to optimise the procurement technique which may improve the quality of the cells. It might also serve to improve the ability of medical staff to prepare and plan xenotransplantation procedures while at the same time providing a larger accessibility to xenotransplant material. Furthermore, xenotransplantation avoids some of the ethical problems connected with the use of tissue from human aborted fetuses.
55. As in any other clinical procedure, patients should be selected amongst those for whom the likely benefits outweigh the potential risks. Considering the lifelong surveillance and lifestyle restrictions that may be necessary in xenotransplantation it is reasonable to reserve xenotransplantation for serious or life threatening disorders. Another prerequisite should be that safe and effective alternative treatments have not been developed or are not available to all the patients in need. The International Society for Heart and Lung Transplantation, at their April 2000 meeting in Osaka, Japan⁽²⁸⁾, made public a set of recommendations on patient selection criteria and experimental prerequisites to heart xenotransplantation. These can also serve as a basis for setting up requirements.
56. It should be noted that the consideration of a xenotransplantation procedure may evolve with time and that this should be taken into

account in indent i. Indeed, some procedures may eventually be considered as safe, while others are set aside, with the accumulation of experience.

Indent ii. Data suggesting suitable efficacy

57. The expression “clear therapeutic benefit” should be defined for the individual xenotransplantation proposed and the term should be interpreted to cover a number of benefits in different fields. However, the importance of these benefits should always be weighed against the risks for patients and for society.

First indent

58. The precise technical requirements to demonstrate sufficient efficacy of the proposed xenotransplantation can only be addressed on a case by case basis. Precise requirements have not been laid down in individual countries. However, the Xenotransplantation Commission of the Spanish Committee of Transplants, in their 1998 recommendation⁽²⁹⁾, has proposed the following “indispensable requirement” in terms of pre-clinical efficacy: “Survival and adequate function of the cells, tissues or organs grafted during a period of at least 6 months.” This statement can serve as a broad basis for further elaboration because it indicates that a sufficient pre-clinical period for demonstrating efficacy should be required. However, the following should also be taken into account:

- the nature of the xenotransplant (e.g. whole organ such as heart, isolated cells such as dopaminergic neurons, tissues such as pancreatic islets, etc.);
- the performance level of the xenotransplant required to reach the expected benefit (stage of differentiation or growth, metabolic functions, secretions, ability to proliferate, physiological regulations, etc.);
- the medical condition of the potential human recipients;
- the prognosis of the condition to be treated in the absence of a xenotransplantation (i.e. with conventional treatments);

- the source animal species;
 - the recipient animal species and its relevance to the prospective xenotransplantation;
 - the data pertaining to the quality of life of the recipient animals and their relevance to the xenotransplantation (e.g. level of immune suppression, side effects of the concomitant treatments, global physiology of the recipient, etc.)
59. The use of animal models is important in demonstrating adequate function of a xenotransplant, and it is recognised that the use of non-human primates is likely to be necessary at some stage in the development programme before the procedures are approved for use in humans. However it is expected, in accordance with the provisions of Convention ETS No. 123 of the Council of Europe and Directive 86/609/EEC of the European Union that animals will only be used where there is no alternative, and that non-human primates in particular will only be used where no other suitable species is appropriate. In general, progression to non-human primate studies should only follow a thorough and critical assessment of the need to use these species, including a detailed evaluation of *in vitro* development work and, where appropriate, development work in other animal models. Every effort should be made to limit the duplication of research on any species, and to refine the use of animals, for example by improved husbandry and care practices. The programme should be subject to continuous review to ensure that animal use and suffering is minimised. In this context, it is generally accepted that non-human primates should not be used as source animals, both because of cross-species infection risks and because of the serious welfare implications of keeping these animals in biosecure facilities (see Article 11). However, it is recognised that the use of non-human primates as models is necessary to the pre-clinical evaluation of the efficacy of xenotransplantation, especially in terms of whole organ transplantation. The pre-clinical use of animals as recipients, and particularly non-human primates, is another factor to take into consideration when defining the period of time required for demonstrating safety and efficacy. This period

should be sufficient to allow both demonstrative and convincing assessment but also calculated to minimise, as far as possible, the suffering caused to the animals.

60. The American Society for Testing and Materials issued draft guidelines for discussion⁽³⁰⁾ in which the pre-clinical requirements for tissue and cell products, whether allogeneic or xenogeneic, are outlined. The three classical aspects of therapeutic products, i.e. quality, safety and efficacy, are considered. These can also serve as a basis for further elaboration.

Second indent

61. A transplant from a distant species, such as a pig, to a human person elicits a very strong response, termed hyper-acute rejection whereby the organ turns into a black, swollen, useless mass, within several minutes or hours. Moreover other rejections exist such as acute vascular and cellular rejections which may occur within days of transplantation and chronic rejection which may suddenly appear months or even years after the operation. This provision states, therefore, that pre-clinical studies should provide sufficient reasons to believe that the problems related to rejection can be overcome.

Indent iii. Risks related to xenotransplantation

62. In any medical procedure such as xenotransplantation, the risks to the patient should be properly evaluated and should be balanced against the potential therapeutic benefits which may result (principle of proportionality).
63. Moreover, xenotransplantation should only take place if it is expected to provide better results than other therapies available to the patient. In this context, better results should be interpreted to cover several possibilities, for example, xenotransplants cannot be expected to provide better results than the survival rates currently obtained with human allotransplants.

Infectious risks of xenotransplantation

64. Xenotransplantation creates particular conditions where transmission of known or unknown pathogens from source animal to human recipient becomes a possibility and might ultimately become a public health risk. A number of factors contribute to this situation since:
- the transplantation bypasses the recipient's normal physical protective barriers;
 - the recipient, in many cases, will be in an immunocompromised state in order to promote xenotransplant acceptance;
 - the recipient will be continuously exposed to a xenotransplant in which pathogens may be present, thereby increasing the risks of the micro-organisms adapting to the human species;
 - clinical recognition of a previously unknown, possibly slow-developing, disease may be difficult;
 - laboratory tests may be inadequate or lacking altogether.

Need for experimental data to evaluate the risk of xenosis

65. Even under the most stringent conditions, a number of potential pathogens, in particular certain viruses, cannot be eliminated. Of particular concern are (a) retroviruses, especially endogenous retroviruses, which constitute part of the genome of the source animals, and (b) prion diseases. Therefore, because infectious risks cannot, at present, be completely eliminated through animal breeding techniques, the screening of source animals and the xenotransplant procurement procedures, it is necessary that the planned xenotransplantation should have been thoroughly tested experimentally. Thus, tests studying the potential for xenotransplantation to cause infectious diseases in the recipients should be performed during a sufficiently long period of time without any evidence of an increased risk being observed. In this respect, any research involving animals should fully address the

relevant ethical and animal welfare concerns and comply with relevant regulations (such as Convention ETS No. 123). These issues are further addressed in Chapter V of the Recommendation relating to the protection of animals.

66. In the event of any transmissions of an infectious agent arising, an appropriate monitoring period should be required to evaluate the consequences. As an example, the Spanish Xenotransplantation Commission, in their 1998 Recommendation⁽³¹⁾, have proposed the following three “indispensable requirements” to demonstrate pre-clinical safety:
- Demonstrated an absence of transmission of infectious agents in the recipient animal during a period of at least 6 months.
 - Demonstrated an absence of any non-accidental transmission of infectious agents to the caretakers and other personnel involved in the research programme.
 - Demonstrated, in the case of transmission of any infectious agents, that a minimum follow-up of one year has been carried out to evaluate the consequences both to the recipient and to the other animals in contact with the source animal.

However, the limited number of pre-clinical testing studies that good research practice recommends when using animals, and particularly non-human primates, entails that the lack of transmission of infectious diseases from the source animal to the recipient will not rule out completely a risk of xenosis. Thus, the consequences for the recipient of known infectious agents present in the source animal which cannot be excluded by the pathogen-free qualification should be explicitly investigated.

Non-infectious risks

67. Non-infectious risks should be explored in the pre-clinical xenotransplantation investigations. The details should be addressed on a case by case basis. Appropriate data should be provided to assess in particular:
- the risks linked to the immunological manipulation of the recipient and/or of the xenotransplant;

- the risks linked to the physiological adaptation of the xenotransplant to its new environment;
- the potential psychological or sociological risks to the recipient and/or his or her close personal contacts.

Article 13 – Information to be given to patients

68. Information given to the patient is an essential element for the validity of his or her consent. Paragraph 1 of this Article enunciates the general content of the information to be provided. Paragraph 2 addresses issues specific to information on xenotransplantation procedures.

Paragraph 1

69. Patients participating in a xenotransplantation should be adequately informed in a comprehensible manner of the nature, objectives, possible benefits, potential risks and consequences of the procedure, as well as of any constraints that may be linked to it.
70. It is important to ensure that patients are given all the appropriate information which should be presented in an unbiased manner and in a way that should easily be understood by lay people. During the decision making process, the patient should have access to discussions both with independent experts not involved in the proposed xenotransplantation and members of the team.

Paragraph 2

71. The patient should be informed of the constraints associated with the specific xenotransplantation procedure that he or she is planning to undergo.
72. This paragraph lists the most relevant personal constraints, which may directly affect the patient. The constraints will vary, in conformity with the principles of necessity and proportionality, depending on the nature and the circumstances of the procedure.

If a specific xenotransplantation procedure has already been used as a clinical treatment for a sufficiently long period of time and if there is sufficient evidence to show that this procedure is safe, the constraints would be proportional to the risks perceived. This would happen, for example, for burns patients using human skin cells grown on animal feeder cells. If, on the other hand, a specific xenotransplantation procedure remains an experimental activity or is in clinical practice but continues to be perceived as being associated with high risks, then the patient should be informed of the more stringent constraints associated with the procedure.

73. Paragraph 2b) addresses the requirement for the patient to provide information to the medical team concerning his or her current close personal contacts so that, where there is a need to do so, they may also be made aware of the risks of infection and the constraints associated to xenotransplantation.

If the patient does not agree to his or her close personal contacts being informed when it is considered there is a need to do so then the xenotransplantation should not take place.

74. Because of the potential risks of infection and the possible constraints resulting from these risks, paragraph 2g) specifies that the patient should, where necessary, also be notified, and agree that, a medical team should provide future close personal contacts with information which may help them respond to xenotransplantation concerns. Thus, it would be the recipient's responsibility to put future close personal contacts in relationship with an appropriate medical team having experience in xenotransplantation so that they may be given this information. The requirement for patients to agree that appropriate information is provided to future close personal contacts is important since the xenotransplantation team may not be aware of the existence of these contacts (see Article 14).

75. Documented informed consent and recipient education should include, in addition to the constraints presented in Article 3, paragraph 2, information on the following:

- the known and unknown potential for infection by zoonotic agents and the unknown risk of transmission of xenogeneic infectious agents to the recipient's close personal contacts;
- the need for isolation procedures during hospitalisation and their nature;
- the possibility of future isolation which may become necessary in the event of a contagious or previously unknown illness occurring;
- the fact that immunosuppressed persons may be at an increased risk of xenogeneic infection and that specialised precautions (e.g. dietary, personal, travel) may be required following hospital discharge;
- the need for the patient to comply with long-term (potentially lifelong) surveillance necessitating routine physical evaluations with archiving of tissue and/or serum specimens including the schedule for clinical and laboratory monitoring;
- the need for any serious or unexplained illness arising in the recipient or his or her close personal contacts to be reported to a physician without delay;
- the unknown impact of possible psychological or social problems for xenotransplant recipients, their close personal contacts or other individuals in society;
- the possibility that in the event of death, the need for a complete autopsy may exist;
- the requirement that recipients should never donate blood, or any blood constituent or any other body fluid, tissue or part for use in humans.

Paragraph 3

76. The special constraints which may be connected with xenotransplantation should be explained repeatedly and in detail since they may conflict with a number of national and international human rights regulations. This is explained in the discussions with the representatives of the European Court of Human Rights (see

annex) which states that “[m]any of the rights in the Convention [on Human Rights] were subject to permissible restrictions and involved establishing a proper balance between competing interests.” It should also be noted that restrictive measures such as quarantine procedures are not specific to xenotransplantation but are also applied for other contagious illnesses when they occur. The possibility for the state to intervene and take coercive measures should be discussed and assessed with respect to the national legal situation.

Article 14 – Information to be given to close personal contacts of the patient

77. In contrast to most other therapeutic procedures, xenotransplantation has direct consequences on the lifestyle of the patient’s close personal contacts. Thus, in accordance with Article 16, paragraph 1, indent ii, the patient should be aware that he or she should, where required, provide to the medical team the necessary information concerning his or her current close contacts. Furthermore the patient should accept that his or her current and future close personal contacts may need to be informed of the envisaged xenotransplantation and of the risks and constraints possibly associated with such a procedure. This is especially important with respect to the measures to be taken to minimise potential infections (Spain⁽³²⁾, Canada⁽³³⁾, United Kingdom⁽³⁴⁾, United States⁽³⁵⁾).

However, this information should only be provided by the medical team to the close personal contacts if the patient has given his or her informed consent to such a course of action; if the patient refuses to authorise the provision of such information, the xenotransplantation should not be carried out (see comments on Article 16, paragraph 1, indent ii).

78. In this Article close personal contacts can be described as persons who have “engaged in activities that could result in intimate

exchange of body fluids”⁽³⁶⁾. For example, close personal contacts could include:

- persons with whom the recipient is having sexual contact without protection,
- persons with whom the recipient is exchanging blood or saliva,
- children which are breast-feeding from a xenotransplant recipient,
- “household members who share razors or toothbrushes”⁽³⁶⁾, and
- “health care workers or laboratory personnel with repeated percutaneous, mucosal or other direct exposures.”⁽³⁶⁾

At the same time, the FDA draft guidance document entitled *Precautionary Measures to Reduce the Possible Risk of Transmission of Zoonoses by Blood and Blood Products from Xenotransplantation Product Recipients and Their Intimate Contacts*⁽³⁶⁾ indicates that the “[s]haring of housing or casual contact, such as hugging or kissing without the exchange of saliva, would not be interpreted as intimate contact.”

79. It is also desirable that the recipient and close personal contacts should never donate body fluids or body parts for use in humans following a xenotransplantation. Such a requirement is explicit in the United States and Canadian documents^(37,38).
80. If a close personal contact refuses to listen or abide to the information given by the medical team, then the medical team should consider whether the xenotransplantation should take place on a case by case basis. It should be noted, however, that with respect to xenotransplantation research, a specific right to participate in such a procedure does not exist.
81. If the close personal contact and the patient begin a relationship after the xenotransplantation, it is the patient’s responsibility to provide information to be given to the close personal contact or to ensure that this information is otherwise provided. For example, the patient should inform any future close personal contacts of the possibility of obtaining additional information from a medical team.

Article 15 – Information to be given to the professional staff involved in xenotransplantation

82. Because professional staff involved in xenotransplantation may also be exposed to infectious agents, it should be ensured that these professionals are fully aware of the potential risks and consequences related to such a procedure including possible constraints associated with their involvement in the procedure.

Article 16 – Consent to xenotransplantation

Paragraph 1

Indent i

83. No person should undergo xenotransplantation without his or her free and informed consent. A patient's consent is considered to be free and informed if it is given on the basis of objective information as to the nature and the potential consequences (including any necessary specific constraints) of the xenotransplantation and its alternatives, in the absence of any pressure from anyone. Information on the risks involved in the xenotransplantation and in alternative courses of action should cover not only the risks inherent in xenotransplantation but also any risks related to the individual characteristics of each patient, such as age or the existence of other pathologies.

84. Often, the decision to consent to a procedure will influence the lifestyle of the patient and his or her close personal contacts including the requirement for lifelong surveillance and the possibility of extensive coercive measures. The legal basis for the performance of lifelong surveillance of patients will probably differ between countries but, in most cases, a strong suspicion or a definite demonstration of a potential risk is likely to be necessary.

85. Information relevant to consent should be presented and explained to the patient or, if the patient does not have the

capacity to consent, the next-of-kin (or person(s) responsible) by an independent person, such as a patient advocate (helped, if necessary, by an interpreter) who is not a member of the xenotransplantation team. The patient or the next-of-kin (or person(s) responsible) should have enough time to consider the information and always more than 24 hours before the proposed xenotransplantation.

Indent ii

86. Xenotransplantation should not be carried out without the provision by the patient to the medical team of the necessary information concerning his or her current close personal contacts. The patient should also accept that his or her current and future close personal contacts may need to be given the information mentioned in Article 14 by the relevant medical team so that they may also become aware of the risks of infection and the constraints associated to xenotransplantation.

Paragraph 2

87. Freedom of consent implies that consent may be withdrawn at any time prior to a xenotransplantation and that the decision of the person shall be respected once he or she has been fully informed of the consequences. However, this principle does not mean, for example, that the withdrawal of a patient's consent once he or she has been exposed to the animal material should always represent an end to the possible constraints mentioned in Article 13. Because of the risks of infection, a state may indeed impose constraints to protect public health.

Article 17 – Counselling and support

88. Xenotransplantation is a very complex process involving not only medical but also ethical, psychological and social aspects. Because of this, the patients and their close personal contacts should be

given proper information and have access to counselling and support that is individually adapted to the patients' and their close personal contacts' backgrounds and previous experiences. It is also important that patients and their close personal contacts be given appropriate updates on developments in xenotransplantation and have long-term access to counselling in addition to education about xenotransplantation and its consequences.

Article 18 – Right to medical care

89. The decision whether or not to participate in a xenotransplantation should be taken without any fear that a refusal to participate in the procedure would jeopardise the possibility of obtaining good medical care or lead to impaired relations with the medical team in the future. This is a prerequisite when approaching patients for participation in any clinical procedure including xenotransplantation. Even if it may seem obvious to the clinician or investigator, it is important that this is made clear to the patients and their close personal contacts so that inappropriate pressure during the decision making process is avoided.

90. Though xenotransplantation can be used for some patients instead of allotransplantation, a refusal to participate or a withdrawal from a xenotransplantation should not prejudice a patient's right to benefit from an allotransplant if medically indicated. Similarly, if a suitable human transplant becomes available after a patient has consented to participate in a xenotransplantation, the patient should still be considered for an allotransplantation. If a patient has been removed from the allotransplant waiting list because of a xenotransplantation which eventually proves unsuccessful, the patient should be put back on the waiting list without the xenotransplantation having influenced the patient's position on the list. A patient could of course still be given priority, with respect to an allotransplant, for medical reasons.

Article 19 – Patients not able to consent

Paragraph 1. Xenotransplantation other than in clinical research

91. Xenotransplantation other than in clinical research for patients not able to consent should only be allowed if there is no therapeutic alternative of comparable effectiveness available to the patient. Moreover, for patients unable to consent, xenotransplantation should only be authorised if there is adequate evidence, in accordance with internationally accepted scientific standards, that no risks, in particular of infection to the general population, exist and the therapeutic benefit of the xenotransplantation has been established as indicated in Article 5, paragraph 2.
92. Because of the specific vulnerability of patients unable to consent this Article also specifies that they may only be included in a xenotransplantation other than in clinical research if the intervention is expected to result in a direct and important benefit for the patient which would offset the constraints and conditions to which the person will or may be subjected according to Articles 13 and 14. Furthermore, the representative or an authority or a person or body provided for by law, after receiving the information referred to in Article 13, should have authorised both the intervention and the provision of the necessary information to the present and future close personal contacts of the patient.

Paragraph 2. Clinical xenotransplantation research

93. As a principle, a patient incapable of giving informed consent should not undergo clinical xenotransplantation research. Only under exceptional circumstances, and when there is adequate indication, on the basis of prior clinical research, that the clinical xenotransplantation research procedure might be lifesaving and there is no alternative means of saving the life of the particular patient unable to consent, should it be considered. Under all circumstances, the intention to include patients incapable of giving

informed consent should be clearly stated in the application to the xenotransplantation body defined in Article 5 and should be specifically considered during the authorisation procedure.

94. Because of the specific vulnerability of patients unable to consent this Article also specifies that they may only be included in clinical xenotransplantation research if the intervention is expected to result in a direct and important benefit for the patient which would offset the constraints and conditions to which the person will or may be subjected according to Articles 13 and 14. Furthermore, the representative or an authority or a person or body provided for by law, after receiving the information to be given to the patient referred to in Article 13, should have authorised both the patient's participation in the clinical xenotransplantation research and the provision of the necessary information to the present and future close personal contacts of the patient.
95. Though it is important that patients unable to consent should be protected against undue experimentation, it has also been pointed out that such patients should have a right to be involved in research related to problems that cannot be studied in other groups. These patients would, otherwise, be excluded from the development of new treatment strategies.

Article 20 – Confidentiality

96. Personal data concerning the recipients and their close personal contacts should be treated as confidential and handled in accordance with the rules on personal data protection. Here, the principles laid down in the *Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data* of 28 January 1981 (ETS No. 108) should be observed. In particular, Article 5.b of this Convention provides that personal data are “stored for specified and legitimate purposes and not used in a way incompatible with those purposes”. Parties should take account of other national or international instruments, such as Recommendation No. (97) 5 of the Committee of Ministers to the member states on the protection

of medical data and, where applicable, 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 free movement of such data.

97. In xenotransplantation, it is nevertheless essential that the principle of confidentiality should not prevent the medical team involved in any procedure from obtaining the necessary information on the recipient and their close personal contacts, subject to appropriate safeguards to ensure adequate data protection.

Article 21 – Compulsory constraints

98. An infectious event related to a xenotransplantation is a complication that not only affects the patient but may also pose a risk to close personal contacts, professional staff involved in xenotransplantation and even to the general public. Because of this, and when a xenotransplantation has already been carried out, a state may intervene, in accordance with national law and the principles of necessity and proportionality, if the patients or their close personal contacts refuse to comply with the agreed surveillance, lifestyle restrictions or treatment schedules. It is important that patients and their close personal contacts are fully informed of the nature of such an intervention. States should also have regulations in place relating to xenotransplantation which take into account the risks of infectious disease as stated in the provisions relating to Article 4 of the Explanatory Report.

99. Patient compliance with surveillance and lifestyle restrictions will greatly influence the risk for the public if a transmission of a micro-biological agent occurred. It is thus very important that patients involved in xenotransplantation are likely to be compliant with the xenotransplantation regulations. Non-compliance with immunosuppressive medication and the postoperative follow-up is today one of the most common causes for renal graft loss in many countries. Special care should be taken in this respect and psychological evaluations should be included in the selection process.

Chapter V

Protection of animals

Article 22 – Compliance to animal protection regulations

100. A source animal is an animal that will provide cells, tissues or organs for use in xenotransplantation. The animals used to provide eggs or sperm in the breeding programme to produce source animals are generally referred to as dams or sires respectively.
101. Source animals for xenotransplantation will be reared under highly specialised conditions comparable to those for laboratory animals. They are likely to be derived using techniques designed to improve and maintain their microbiological status which give rise to associated welfare concerns. Source animals should also have to undergo scientific procedures (e.g. blood and tissue typing) to ensure their suitability for subsequent use. Additionally, the animals are likely to need to undergo regular, detailed monitoring, not only with respect to their welfare but also to assess and ensure their suitability for use. Since all of the techniques applied to the animals are being performed for a scientific purpose Directive 86/609/EEC⁽³⁹⁾ and Convention ETS No. 123⁽⁴⁰⁾ should apply to the source animals as well as to those used for research purposes.

102. Pigs have been considered to be the preferred source animal for xenotransplantation and most of the detailed guidelines available for source animal husbandry and care refer to this species. However, the widening of the definition of xenotransplantation means that other species may now be used. The detailed points in the explanatory notes refer to pigs but the principles should apply to all species used.
103. Detailed guidance on the maintenance of pigs in xenotransplantation programmes has been developed in documents such as the UK Home Office's *Draft Code of Practice for the Housing and Care of Pigs used as Xenotransplant Source Animals*⁽⁴¹⁾. These documents set out standards for all xenotransplantation programmes. Further guidance regarding the maintenance and welfare of pigs is available in the Report of the EU Scientific Veterinary Committee, 1997⁽⁴²⁾ and in the scientific literature^(43,44).
104. It should be noted that this Article indicates that the "principles" of Appendix A of the European Convention for the protection of vertebrate animals used for experimental and other scientific purposes should be complied with. Indeed, although this European Convention foresees that there are exceptions, it may not always be possible to fully follow the provisions of this Appendix because of the requirements of biosecurity necessary for xenotransplantation.

Article 23 – Husbandry, care, use and requirements of animals

105. Pigs are sentient, intelligent and inquisitive animals that have retained many of the complex behavioural characteristics of their wild ancestors. These include rooting and exploratory behaviour, and social interactions within small, stable groups. They have limited thermo-regulatory ability, but their hearing and, in particular, their olfactory abilities are highly developed. Housing, husbandry and general management of pigs should take account of these needs.

106. The optimal environment depends on many factors including age, feeding regime and social circumstances. There are general guidelines in the scientific and technical literature^(45,46,47,48,49) but decisions regarding the adequacy of the environment on a day to day basis should be based on frequent observation by an experienced stockperson of the behaviour and physical well being of the pigs themselves.
107. Animals should be housed in facilities appropriate for the species, built and operated in line with recommendations available such as the *Guide for the Care and Use of Laboratory Animals*⁽⁵⁰⁾ and meet regular inspection requirements, including details of source animal and health surveillance record systems.
108. To achieve satisfactory standards of welfare for pigs, the systems of accommodation, husbandry and care should ensure that the animals have:
- a) company of their own kind, allowing them to live in stable groups with other familiar individuals – animals should never be held in complete isolation without visual, auditory and olfactory contact with other pigs;
 - b) adequate amounts of space, in both a lying area (in which all pigs should be able to lie down together in lateral recumbency) and the general “loafing”/dunging area, in order to allow all pigs to move around freely and be able to escape and hide from other pigs if necessary;
 - c) housing which protects against physical discomfort, providing a clean, dry, comfortable lying area, suitable non-abrasive, non-slip flooring, and an enclosure without sharp protrusions or other characteristics likely to cause injury;
 - d) adequate quantities of clean, fresh water continuously available; adequate quantities of diet formulated to satisfy the nutritional requirements of the animals and ensure good welfare. Where animals are held in groups, care should be taken to ensure that subordinate animals have adequate access to food and water to avoid potential sources of aggression;

- e) a thermally comfortable environment, ensuring that the temperature remains within the pigs' thermoneutral range and avoiding lengthy exposure to low humidity;
- f) an acceptable atmosphere, maintaining appropriate ventilation for the stocking densities in use; ensuring that aerial contaminants (e.g. ammonia, inhalable dust) are kept within non-aversive and non-harmful limits; and avoiding draughts;
- g) appropriate lighting for a period equivalent to normal daylight hours, and providing a period of darkness – pigs should never be kept in continuous complete darkness;
- h) minimum levels of continuous background noise and avoidance of unexpected loud noise since high levels of noise are potential stressors;
- i) environmental enrichment, providing adequate amounts of straw or other suitable materials for manipulation, to satisfy pigs' behavioural needs in terms of rooting, recreational and investigative behaviour;
- j) competent, knowledgeable stock-persons who understand the pigs' needs and behaviours, and are dedicated to promoting their well-being and preventing or minimising any fear, distress and discomfort at all times – gentle, calm human contact with the pigs is important, as this will minimise stress during handling and procedures;
- k) competent, knowledgeable, veterinary care, by those with specialist experience and understanding of pig health and welfare.

Space allowances

109. Minimum pen dimensions and space allowances for individual and groups of animals are specified below. These comply with the current recommendations in the European Convention ETS No. 123⁽⁵²⁾ and Directive 86/609 EEC⁽⁵³⁾. Note that the shape of the pen, its complexity and contents are as important to the animal as overall size.

Space Allowances for Weaners, Growing & Adult Pigs

Species – Pigs	Minimum Floor Area – Groups (per pig)	Minimum Floor Area – Single Pigs	Minimum Feed Rack
Up to 10 kg	0.25 m ²	1.0 m ²	0.15 m
10 – 20 kg	0.5 m ²	1.5 m ²	0.20 m
20 – 30 kg	1.0 m ²	2.0 m ²	0.20 m
30 – 50 kg	1.3 m ²	2.0 m ²	0.25 m
50 – 100 kg	2.0 m ²	3.0 m ²	0.30 m
100 – 150 kg	2.7 m ²	4.0 m ²	0.35 m
Over 150 kg	3.75 m ²	5.0 m ²	0.40 m
Adult Boars	–	7.5 m ²	0.50 m

Service pens should have a minimum floor area of 10.5 m², to allow a sufficient area for mating.

*Breeding animals***Sows**

110. The design of the farrowing area should be appropriate for the size of the sow, to allow the animal to lie down comfortably, to stand upright and to expose all teats to the piglets. The sow should be provided with a solid floored lying area, at least equal to 75% of the overall area and some form of nesting material should be provided, especially as farrowing approaches.
111. The accommodation where sows and piglets are kept should enable the fulfilment of the special behaviour patterns of the sow before and after parturition, and those of the piglets after birth. Thus even though the use of farrowing crates can safeguard piglets' survival and welfare under some conditions, the close confinement of sows during the perinatal and suckling periods should be limited as far as possible and loose housing systems should be preferred. Farrowing crates significantly limit the behavioural repertoire of the sow and therefore the sow should

be given greater freedom in later lactation when piglet viability is well established. From five days after farrowing, sows should have at least enough space to turn around easily and the more welfare friendly systems which allow this should be promptly adopted.

112. The period of confinement should be minimised, with animals crated no more than 5 days pre-farrowing, and returned to an extensive group housing system at weaning, generally by 4 weeks post-partum, or earlier if early weaning practices (segregated/medicated early weaning) are considered necessary and are used.

Boars

113. Adult boars are commonly housed singly. However, animals raised together from an early age have been maintained successfully in pairs as adults. Group housing is therefore encouraged, provided that social harmony can be maintained. If single housing is unavoidable then auditory and olfactory stimuli with other pigs should be available at all times, with the opportunity for visual and safe tactile contacts.
114. Boars tend to be physically segregated for long periods; therefore particular care should be taken to provide an enriched environment that addresses their behavioural needs.

Additional animal requirements

115. Young animals should be weaned into social groups. Siblings from one litter should not be separated unnecessarily.
116. Some types of biocontainment facilities are totally inappropriate for some species. For example, pigs should not be wholly reared in gnotobiotic conditions and should not be reared beyond the age of four weeks in an isolator.
117. Pigs living within a barriered animal unit are totally dependent on humans for their health and well being. The physical and psychological state of the animals will be influenced by their surroundings, food, water and the nature and quality of the care and attention provided by the animal house staff.

118. Restricted environments can lead to behavioural and physiological abnormalities. Adequate complexity is required within the basic pen design to allow the animal to carry out a range of normal behaviours. For example, visual barriers can be useful to allow the pigs to control social interactions and provide refuges. In extensive systems, pigs spend many hours exploring their environment, using their highly sensitive snout to root; laboratory housed pigs have little opportunity to express this sort of behaviour. In the absence of suitable foraging substrate and when there is insufficient diet to maintain satiety, abnormal stereotypic behaviours, such as bar chewing, and increased aggression can develop. Material, such as straw, can provide for many of these behavioural requirements, and should be provided where possible. If such material cannot be provided because of the nature of the barrier system, then alternative enrichment strategies should be included, e.g. food balls; other “toys”; pebble trays; chains; scratching posts; showers.
119. Where pigs develop stereotypes or abnormal behaviours that injure other animals (e.g. tail, ear or vulva biting) additional enrichment to encourage foraging/rooting should be provided as a matter of urgency and an appropriate enrichment programme developed and implemented. If necessary, animals may need to be removed from the group.
120. Castration, tooth clipping or grinding, and tail docking should not be necessary for pigs produced for xenotransplantation programmes⁽⁵⁴⁾. They should only be carried out to deal with specific welfare problems by specially trained and competent persons using appropriate equipment. If these do arise then the cause should be examined and if resulting from the husbandry system this should be adjusted to avoid repetition.

Training of Staff

121. Appropriate training of staff is essential to ensure that high standards of pig husbandry and care are provided, and that barrier security can be maintained. The importance of such training was recognised by the Multilateral Consultation of parties to

Convention (ETS No. 123)⁽⁵⁵⁾. Attendance on a course satisfying the requirements of the appropriate Federation of European Animal Science Associations (FELASA) training category should be strongly recommended.

122. Training should include an introduction to the natural history and behaviour of the pig, which will illustrate their needs in a captive breeding system. Animal care staff should be trained to recognise normal behaviour, in order that any abnormalities can be identified at an early stage. Pig husbandry, care and welfare, principles of barrier production and maintenance, barrier hygiene, internal management practices, breeding and health record keeping practices should also be included.

Article 24 – Responsibility for husbandry and care of animals

123. Records should be kept of the numbers of animals used in both xenotransplantation and pre-clinical procedures.

Article 25 – Surgical derivation and early weaning techniques

124. Records should be kept of all surgical derivation and segregated/medicated early weaning procedures and any associated welfare problems. Such records should be subject to regular review.

Article 26 – Transport of animals

125. All transport should be carried out in strict compliance with EU and other international legislation (the *European Convention for the Protection of Animals During International Transport*⁽⁵⁶⁾ currently being revised; *Draft Code of Conduct for the International Transport by Road of cattle, sheep, goats, pigs, horses, poultry, deer, reindeer, rabbits and ostriches*⁽⁵⁷⁾). Detailed guidance specifically on transport of pigs is provided in the *Draft Code of Practice* published by the UK Home Office⁽⁵⁸⁾.

126. Only animals in good health should be transported. The time in transit should be kept to a minimum. Stress should be minimised by making animals as comfortable as possible in their pens or containers with due regard to conditions likely to prevail throughout the journey. Animals that are incompatible should not be transported together.
127. There is evidence that pigs may become travel sick⁽⁵⁹⁾ so withdrawal of food for four hours prior to transportation is recommended, although free access to water (and milk in the case of pre-weaned piglets) should be provided at all times. It should be noted, moreover, that since pigs should not be denied food for long periods, journeys should not be prolonged.
128. Pregnant animals should not be transported during the first six weeks of pregnancy, and particularly not within the last 11 days of the expected birth and the 48 hours thereafter (see draft *European Transport Convention*⁽⁶⁰⁾). Special consideration should be given to the welfare of young piglets during transport, in particular with regard to the maintenance of suitable environmental controls and arrangements for feeding and watering.
129. Emergency plans should be in place to deal with possible problems during transport, such as vehicle breakdown.
130. Those in charge of pigs during transport should be trained with the necessary skills. Moreover they should be knowledgeable of the behaviour and physical needs of pigs. Drivers should be trained in such a way as to minimise risk of injury or stress to the animals.

Article 27 – Organ and tissue procurement from animals

131. Where surgery is to be performed, suitable operating facilities should be provided, including separate preparation areas for the animals, equipment and staff. General veterinary treatment rooms should also be provided.

132. Surgery and killing of animals should not be performed in rooms where animals are normally housed, unless in the case of the emergency killing of a badly injured animal, welfare may be further compromised by moving the animal.
133. To avoid animal suffering, the sequential harvest of solid organs from individual animals in xenotransplantation should not be permitted unless this is performed under a single general anaesthetic from which the source animal does not recover consciousness.
134. The procurement of tissues and cells from individual animals during xenotransplantation research should be undertaken in conformity with Article 11 of the European Convention for the protection of vertebrate animals used for experimental and other scientific purposes (ETS No. 123), which states:
 1. At the end of the procedure it shall be decided whether the animal shall be kept alive or killed by a humane method. An animal shall not be kept alive if, even though it has been restored to normal health in all other respects, it is likely to remain in lasting pain or distress.
 2. The decision referred to in paragraph 1 of this Article shall be taken by a competent person, in particular a veterinarian, or the person who, in accordance with Article 13, is responsible for, or has performed, the procedure.
 3. Where, at the end of the procedure:
 - a. an animal is to be kept alive, it shall receive the care appropriate to its state of health, be placed under the supervision of a veterinarian or other competent person and kept under conditions conforming to the requirements of Article 5. The conditions laid down in this sub paragraph may, however, be waived where, in the opinion of a veterinarian, the animal would not suffer as a consequence of such exemption;

- b. an animal is not to be kept alive or cannot benefit from the provisions of Article 5 for its well being, it shall be killed by a humane method as soon as possible.
- 4. No animal which has been used in a procedure entailing severe or enduring pain or suffering, irrespective of whether anaesthesia or analgesia was employed, shall be used in a further procedure unless it has returned to good health and well being and either:
 - a. the further procedure is one in which the animal is subject throughout to general anaesthesia which is to be maintained until the animal is killed; or
 - b. the further procedure will involve minor interventions only.

Article 28 – Collection of animal records

- 135. Biological samples and records from the source animal should be systematically archived. Archived items should include all the source animal's necropsy reports together with stored serum and plasma, viable leukocytes and samples of xenotransplant cells and tissues in addition to other major organs (spleen, liver, kidney, heart, bone marrow, gut, central nervous system).
- 136. If genetically modified animals are used, recording of any unusual or unexpected traits such as abnormal phenotypes or behaviour is very important in order to monitor the effects of the genetic modification which may not become apparent until at least the second generation. If abnormal traits are detected then additional justification for the use of these animals for xenotransplantation may be required.

Article 29 – Pre-clinical research

- 137. Since the European Convention and the European Council Directive addressing the protection of animals used for experimental and other scientific purposes mentioned in

Article 22 may not be applicable in some member states, and in order to protect animals used in pre-clinical research, Article 29 of the Recommendation extends the protection provided by Articles 22 to 28 to all animals used in pre-clinical research. This is in addition to providing husbandry and care appropriate to the needs of animals and ensuring that any experimental technique is carried out in a humane manner. This includes following current international laboratory animal science principles such as seeking replacements for animals, reducing the numbers used and the refinement of interventions.

Chapter VI

Provisions relating to the ethical, social and psychological acceptability of xenotransplantation

Article 30 – Public debate

138. Because of the novelty of xenotransplantation and the potential risks involved both for the individual and the community, public information is crucial. This is especially the case since clinical xenotransplantation research using tissues and cells is already underway and the results of such activities in addition to any further clinical work should be carefully and fully monitored and reported. This will help scientists, legislators and the general public understand both what is involved in xenotransplantation and the consequences and implications of such a procedure. Indeed the information will provide the necessary framework for the development and application of licensing, monitoring and the surveillance of future xenotransplantations.
139. It is vital that all results – both negative and positive should be accurately reported and fully accessible both to the general public and to those who carry responsibility for the regulation and

control of xenotransplantation. Negative results and consequences carry considerable weight in any assessment of further work and development of xenotransplantation technology.

140. Assessing the public's reaction, concern, approval or disapproval of xenotransplantation will require careful presentation through the various media of all information about xenotransplantation research and raises questions about how public debate on such issues is conducted and public opinion assessed.
141. The fact that certain xenotransplantation activities begun before any public information was provided does not mean that it is pointless to provide such information.

Chapter VII

Co-operation between parties

Article 31 – International co-operation in medical research

142. This Article indicates that member states should take appropriate steps to facilitate the co-ordination of research in xenotransplantation. This is important in order to improve the efficacy and safety of xenotransplantation, to avoid unnecessary duplication and to minimise animal use and suffering.
143. It is important that commercial concerns relating to xenotransplantation are included at the very beginning of the international co-operation and collaboration process so that their views and suggestions can be included in the discussions.

Article 32 – International co-operation in public health

144. In order to ensure that member states communicate without delay to national public health authorities of member states and other concerned states of any events, in particular of infection, possibly related to a xenotransplantation, all relevant information should be centralised at a national level. It would be desirable that an

international registry of xenotransplantation together with an international data communication procedure is established to ensure that timely measures are taken to protect public health.

145. International co-operation and collaboration should also encourage different countries engaged in xenotransplantation to prepare a uniform set of guidelines. This should be undertaken both because international conventions require that states do not put their neighbours at risk and because much benefit may be obtained in sharing the experience arising from national deliberations regarding medical safety, research and clinical work.

Chapter VIII

Compensation for undue damage

Article 33 – Compensation for undue damage

146. This Article applies to the xenotransplantation field the general principle already contained in the Convention on Human Rights and Biomedicine (ETS No. 164), that any person who has suffered undue damage resulting from an intervention is entitled to fair compensation. The Convention uses the expression “undue damage” because in medicine some damage, such as amputation, is inherent in the therapeutic intervention itself.
147. The due or undue nature of the damage will have to be determined in the light of the circumstances of each case. The cause of the damage might take the form of either an act or an omission. In order to give entitlement to compensation, the damage must result from the xenotransplantation.
148. Compensation conditions and procedures are prescribed by national law. In many cases, this establishes a system of individual liability based either on fault or on the notion of risk or strict liability. In other cases, the law may provide for a collective system of compensation irrespective of individual liability.
149. On the subject of fair compensation, reference can be made to Article 41 of the European Convention on human rights, which allows the Court to afford just satisfaction to the injured party.

Chapter IX

Reports on the implementation of the Recommendation

Article 34 – Implementation of the Recommendation

150. Because of the possible new developments in xenotransplantation, guidelines in the form of recommendations were considered as being more appropriate to regulate this field than a Convention, whose entry into force usually takes a number of years. Accordingly, the present guidelines are in the form of an official Recommendation from the Committee of Ministers of the Council of Europe to all member states; they are also communicated to the non-member states who have participated in the drafting of this document. The Secretary General of the Council of Europe can ask any member state to provide an explanation on the manner in which its internal law ensures the effective implementation of any of the provisions of this Recommendation, of any xenotransplantation activity and on any adverse event as referred to in Article 9.

Appendix

Summary of the discussions with the representatives of the European Court of Human Rights concerning legal issues relevant to xenotransplantation

The representatives of the European Court of Human Rights introduced the Convention for the Protection of Human Rights and Fundamental Freedoms of the Council of Europe by explaining that it should be understood as a legal instrument aimed at securing individual rights and as such it may be of limited relevance to policy issues in the field of bioethics. Many of the rights in the Convention were subject to permissible restrictions and involved establishing a proper balance between competing interests.

In determining whether a restriction or “interference” is in conformity with the requirements of the Convention, the Court examines whether it has a proper legal basis, and in particular whether the law is accessible and the effect of its application is foreseeable, and whether the interference can be regarded as justified in a democratic society in pursuit of one of the legitimate aims specified in the Convention.

In the context of xenotransplantation, this implied the need for a clear legal basis for obtaining informed consent and for providing an adequate explanation of the related risks.

The Convention did make provision for the compulsory confinement of individuals but only in specific cases, an exhaustive list of which was given in the Convention. In addition, detention had to be

both “lawful” and “in accordance with a procedure prescribed by law” and the Convention added a variety of safeguards against arbitrary deprivations of liberty. More specifically, the Convention in Article 5 (1) (d) permitted the lawful detention of persons to limit the spreading of infectious diseases.

With regard to Article 8 of the Convention, which protects the right to respect for, *inter alia*, private and family life, it was explained that interferences could be justified provided they were necessary in a democratic society. Moreover, in certain circumstances it might be considered that an individual, by giving consent to a particular interference, had waived his or her rights.

The representatives of the European Court of Human Rights concluded that the Convention did not address any rights to a treatment of a patient, as such, but might be relevant to the question whether a state had the appropriate legal framework and procedures in place to resolve any possible conflicts between actors. Furthermore, with specific regards to xenotransplantation, very little jurisprudence of any relevance could be found in the case-law of the Convention during the last 40 years.

Notes

1. A more detailed discussion of these concerns can be found in the state of the art report on xenotransplantation drafted by the Working Party (CDBI/CDSP-XENO).
2. Council of Europe, 1997, Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine (ETS No. 164).
3. Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin (ETS No. 186).

Santiago-Delpin, EA for the Ethics Committee of the Transplantation Society: Guidelines to Assist Authorities in Each Country with regards to Transplantation. The Transplantation Society Bulletin 1997 (ISSN 1070-0676).

4. Sheil EGR for the Ethics Committee of the Transplantation Society: The Transplantation Society and Xenotransplantation. The Transplantation Society Bulletin 1997 (ISSN 1070-0676).
5. Xenotransplantation: Guidance on Infectious Disease Prevention and Management. WHO/EMC/ZOO/98.1.
6. US FDA Draft Guidance for Industry: Source Animal, Product, Pre-clinical, and Clinical Issues Concerning the Use of Xenotransplantation Products in Humans <http://www.fda.gov/cber/guidelines.htm>.

7. PHS Guideline on Infectious Disease Issues in Xenotransplantation, February 7, 2001. <http://www.fda.gov/cber/gdlns/clinxen00201.pdf>.
8. Such as the United Kingdom Xenotransplantation Interim Regulatory Authority (UKXIRA) report entitled: Infection Risks in Xenotransplantation, Department of Health, April 2001.
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Council of Europe Committee of Ministers

Recommendation Rec(2003)12 of the Committee of Ministers to member states on organ donor registers

(Adopted by the Committee of Ministers on 19 June 2003 at the 844th meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common regulations in the health field;

Having regard to the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine (the Convention on Human Rights and Biomedicine) (ETS No. 164);

Having regard to the Additional Protocol to the Convention on Human Rights and Biomedicine concerning the Transplantation of Organs and Tissues of Human Origin (ETS No. 186);

Bearing in mind that:

- the Protocol concerning the Transplantation of Organ and Tissues of Human Origin requires member states to have a legally recognised system specifying the conditions under which removal of organs or tissues is authorised;
- by virtue of Article 8 of the said protocol, member states should take appropriate measures to inform the public, namely about matters relating to consent or authorisation with regard to the removal of organs or tissues from deceased persons;
- Article 17 of the said protocol prohibits the removal of any organ or tissue unless the consent or authorisation required by national law has been obtained by the person proposing to remove the organ or tissue;

Recalling the general principles relating to data protection of the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (ETS No. 108),

Recommends to governments of member states to conform with the principles contained in the appendix to this recommendation as regards organ donor registries:

Appendix to Recommendation Rec(2003)12

1. Careful consideration should be given to the need for, and purpose of, an organ donor register.
2. In those member states with a legal framework for organ donation which assumes people are willing to donate their organs or tissues unless they have registered their refusal (opt-out system), states must provide an effective means for people to register their decision. A national register can be an effective means of recording such decisions.

3. For member states in which consent to donation is actively sought from the donor and/or those close to them prior to organ donation (opt-in system), an organ donor register may also fulfil important functions:
 - as a means of registering the wishes of people willing to donate their organs;
 - as a means of improving the efficiency of the organ and tissue donation process by making those wishes available rapidly after the death of a potential donor has been confirmed;
 - as a means of publicising organ donation, and of involving people and organisations in realising the benefits of organ donations for themselves and for others in society.
4. Consideration should be given to the primary function of the organ donor register. Organ donor registers may:
 - be opt-out only;
 - be opt-in only;
 - register both choices, or even a third choice, such as “ask my relatives”;
 - allow simply a general agreement to donate organs and/or tissues;
 - allow wishes about the donation of particular organs and/or tissues to be specified;
 - allow registration of wishes with respect to other sensitive procedures, such as post-mortem examinations or the donation of organs/tissue for medical research.
5. Organ donor registers should ensure, that:
 - people wishing to register their wishes can do so easily and reliably;
 - people can, if they wish, specify organs and tissues they do/do not wish to donate;
 - people can revoke their entry at any time;
 - all information on people who die is removed from the organ donor registry.

6. If the organ donor register is intended to facilitate organ donation it must:
 - have details of a high proportion of potential donors/non-donors. If enquiries about potential donors give no results, health professionals will consider it a waste of time trying to access the register;
 - enable easy and rapid twenty-four hour access by health professionals needing information about a potential donor.
7. Careful consideration should be given to the costs and benefits of setting up and maintaining an organ donor register:
 - member states operating an opt-out system should, as a minimum, have a central register for those who do not wish to donate organs or tissues or any particular organ or tissue;
 - a centrally-run information technology-based organ donor register offers the greatest flexibility in terms of content, updating and rapidity of access, but data security has to be ensured;
 - everyone should be able to register their wishes;
 - registration must be easy, preferably by both written and/or electronic means;
 - written confirmation should be sent to all who register;
 - people should have a simple means of checking and amending their entry;
 - specified healthcare professionals such as intensive care staff and/or transplant co-ordinators must have twenty-four-hours-a-day access to check the wishes of potential donors by phone, fax or electronically. Such checks should normally be made only after the death of a potential donor;
 - checking the register could be made mandatory as a condition of donation.

8. Member states with organ donor registers should consider whether their register is designed and operated in a way which best meets the needs of their population and transplant service. Those member states which have an organ donor register are advised to consider the purposes and the likely advantages and disadvantages before establishing a new organ donor register.

Council of Europe Committee of Ministers

Recommendation Rec(2004)7 of the Committee of Ministers to member states on organ trafficking

(Adopted by the Committee of Ministers on 19 May 2004 at the 884th meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the field of health;

Taking into account Resolution (78) 29 on harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances and the final text of the 3rd Conference of European Health Ministers (Paris, 16-17 November 1987), and the World Health Organisation Resolution WHA 42.5 condemning the purchase and sale of organs of human origin;

Having regard to the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine (ETS No. 164) and in particular to Articles 19 and 20 thereof;

Bearing in mind the requirements of the *Additional Protocol to the above convention on Transplantation of Organs and Tissues of Human Origin*, and in particular that Article 22 requires the prohibition of organ and tissue trafficking; that Article 3 requires member states to have a transplant system in place which allocates organs, and where appropriate tissues, only to those on the official waiting list; that Article 26 requires member states to provide for appropriate sanctions to be applied in the event of any infringement of the provisions contained in the aforementioned protocol; that Article 21 requires that the human body and its parts shall not, as such, give rise to financial gain or comparable advantage,

Considering that:

The universal shortage of organs and tissues can lead patients to a desperate search for a transplant which may involve unacceptable practices from a legal or ethical point of view;

Organ shortage can also encourage illegal organisations to traffic human beings for the purpose of organ transplantation, or to traffic organs obtained as a result of inducement or coercion;

Organ trafficking may undermine public confidence in organ and tissue transplantation services, decreasing the public's disposition to legitimate organ donation, thereby exacerbating the shortage of organs and tissues for transplantation,

Recommends that the governments of member states conform with the requirements set out in the appendix to this recommendation.

Appendix to Recommendation Rec(2004)7

Article 1 – Object

Member states should protect the dignity and identity of all persons and guarantee without discrimination their fundamental rights and freedoms with regard to organ and tissue transplantation.

Member states should make it clear to all that organ trafficking exploits human beings and is illegal, and should take all possible measures to prevent organ trafficking (see Article 4).

Article 2 – Scope and definitions

1. The provisions of this recommendation shall apply to all living persons and to the removal of organs, tissues and cells from those recently deceased.
2. The provisions of this recommendation applicable to tissues shall apply also to cells, including haematopoietic stem cells.
3. The provisions of this recommendation do not apply to blood or blood derivatives.
4. For the purposes of this recommendation the term “organ and tissue trafficking” applies to:
 - the transportation of a person to a place for the removal of organs or tissues without his or her valid consent;
 - the transportation of a person to a place for the removal of organs or tissues with his or her consent but in contravention of legislation or other controls in operation in the relevant jurisdiction;
 - the transplantation of removed organs and tissues, whether transported or not, in contravention of legislation or other regulations in operation in the relevant jurisdiction or in contravention of international legal instruments.

5. For the purposes of this recommendation:
 - the term “transplantation” covers the complete process of removal of an organ or tissue from one person and implantation of that organ or tissue into another person, including all procedures for preparation, preservation, storage and transportation;
 - the term “removal” refers to removal from the body of an organ or tissue intended for transplantation, by a surgical procedure or by other means.

Article 3 – Prevention

Prevention of organ trafficking should be undertaken in an integrated way by:

- improving organ and tissue availability by well-established means such as those described in the Council of Europe consensus document “Meeting the organ shortage: current status and strategies for improvement of organ donation” (1999);
- approving a legal framework which strictly forbids any kind of commercialisation of the human body and its parts consistent with the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine (ETS No. 164). Legislation should be extended to citizens going abroad. However, medical care should not be denied;
- assuring the traceability of human organs and tissues through the accreditation and control of centres for procurement and/or transplantation, tissue banks, and the follow up of patients;
- in the case of a living donor transplant, member states should provide for official authorisation of all such transplants;
- in all cases where the living donor is a foreign citizen, the relevant officially recognised bodies in the country of transplantation and in the home country of the living donor must be informed;
- in the case of a living donor, all payments to the donor should be strictly prohibited and considered a criminal offence.

This provision should not apply to payments which do not constitute a financial gain or a comparable advantage, in particular:

- compensation of living donors for loss of earnings and any other justifiable expenses caused by the removal or by related medical examinations;
- payment of a justifiable fee for legitimate medical or related technical services rendered in connection with transplantation;
- compensation in case of unjustified harm resulting from the removal of organs or tissues from living donors.

Article 4 – Legal instruments

1. Member states should ensure that there are legal instruments in place which prohibit the trafficking of persons for the purpose of organ or tissue transplantation and the trafficking of organs and tissues themselves.
2. Member states should ensure that those legal instruments prohibit:
 - the removal of organs and tissues except in centres or circumstances recognised for the purpose and by health professionals with appropriate training and experience;
 - the implantation of organs and tissues except in centres or circumstances recognised for the purpose and by health professionals with appropriate training and experience;
 - financial gain from the human body or parts of the body intended for transplantation;
 - advertising with the intention of securing persons or organs or tissues for trafficking or for financial gain;
 - organising or running an organisation or service involved in organ or tissue trafficking.
3. Member states shall ensure that legislation provides for appropriate sanctions to be applied in the event of any infringement of the provisions of this recommendation.

Article 5 – The transplantation system

1. Member states shall ensure the provision of a nationally recognised transplantation system which guarantees equitable access to transplant services.
2. National transplant waiting lists should be established in compliance with the Committee of Ministers' Recommendation Rec(2001)5 on the management of organ transplant waiting lists and waiting times.
3. The system shall ensure that:
 - appropriate information is recorded on all organs and tissues removed for the purposes of transplantation;
 - all organs, and where appropriate tissues, are only allocated to persons who are on a nationally recognised waiting list;
 - appropriate information is recorded on all organs and tissues used for implantation or other purposes;
 - information on the risks associated with organs obtained illegally is provided.
4. The information provided should ensure traceability from donor to recipient but shall be collected, processed and communicated in accordance with regulations relating to confidentiality and personal data protection.

Article 6 – International co-operation

1. Organ trafficking is a universal problem. Therefore international co-operation is required to combat it.
2. Member states should ensure full co-operation with all other states and with international agencies, including law enforcement agencies, in order to combat organ trafficking, and apply the sanctions provided for in this recommendation to any person or entity involved in organ trafficking.

3. Member states should present a full report of any allegations or instances of organ trafficking within their territory to the Secretary General of the Council of Europe.

Article 7 – Information for the general public

Member states should ensure that the general public is fully informed about organ trafficking and the penalties which may be incurred. In particular:

- accurate information about organ and tissue donation and transplantation should be provided;
- organ and tissue donation should be promoted as positive behaviour that contributes to saving lives and improving the health of many people;
- false reports on organ trafficking may alarm the general public and adversely affect organ and tissue donation and should be refuted.

Council of Europe Committee of Ministers

Recommendation Rec(2004)8 of the Committee of Ministers to member states on autologous cord blood banks

(Adopted by the Committee of Ministers on 19 May 2004 at the 884th meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the field of health;

Taking into account Resolution (78) 29 on harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances and the final text of the 3rd Conference of European Health Ministers (Paris, 16-17 November 1987);

Having regard to the European Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine (ETS No. 164) and in particular to Articles 19 and 20 thereof;

Having regard to the Additional Protocol to the Convention on Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine concerning the Transplantation of Organs and Tissues of Human Origin (ETS No. 186);

Considering that:

The principal current use of blood cells collected at the time of birth from the umbilical cord (cord blood) is the collection of haematopoietic progenitor cells (HPC) that can be transplanted into patients with acquired or congenital diseases of the bone marrow. It is likely that such cells will, in the future, constitute a valuable source of cell therapies for the treatment of a wide range of diseases;

Cord blood stored only for autologous use, that is, by the donor or his or her immediate family, is only very rarely used. Furthermore, there is no scientific evidence that umbilical cord blood can be stored for long enough to be of any use to the vast majority of donors. Such storage could limit altruistic donation and thereby limit the possibility of treating those in need;

The unregulated collection of blood at the time of birth could distract the staff caring for mother and child at a critical time;

Even if it is the case that these children do, in the future, develop diseases requiring an HPC transplant, there is evidence to suggest that it is preferable to use allogeneic transplantation to achieve the “graft vs. tumour effect” in hematological diseases. In cases of congenital disease and in some leukaemias with intrauterine cell mutations, autologous HPC transplantation is contraindicated;

The health services of member states should only provide their citizens with proven clinical and cost effective therapies as resources are always limited;

With the aim of ensuring the availability of transplant treatments for an increasing number of people,

Recommends to the member states that:

1. If cord blood banks are established, they should be based on altruistic and voluntary cord blood donation and used for allogeneic transplantation and related research;
2. The promotion of donation for autologous use and the establishment of cord blood banks for autologous use should not be supported by member states or their health services;
3. Accurate information should be provided to the population about the advantages and disadvantages of cord blood banks;
4. Where autologous cord blood banks are being established, the promotional material or information provided to families must be accurate, and fully informed consent to cord blood storage must be obtained;
5. Autologous cord blood banks that are being established must meet the quality and safety standards set out in the Council of Europe's Guide to safety and quality assurance for organs, tissues and cells.

Explanatory memorandum to Recommendation Rec(2004)8 of the Committee of Ministers to member states on autologous cord blood banks

The principal current use of umbilical cord blood (UCB) is the collection of haematopoietic progenitor cells that can be transplanted into patients with acquired or congenital diseases of the bone marrow. In addition, it is known that umbilical cord blood could be a source of stem cells.

Autologous umbilical cord blood banks reserve the use of stored UCB for donors who develop pathologies that can be addressed by haematopoietic progenitor cell (HPC) transplantation. In certain cases, these banks also allow the use of a donor's UCB by his or her relatives.

Some of the reasons given by the industry supporting the creation of these banks are analysed below:

Autologous UCB banks as a source of HPC

Reasoning:

UCB can be stored for possible future use if the child or its relatives develop pathologies that might be curable by HPC transplantation.

Explanation:

- Currently, umbilical cord blood is one of the sources of HPC; these cells can be used to treat patients with acquired or congenital diseases of the bone marrow.

The creation of autologous UCB banks and the promotion of donations for autologous use could endanger altruistic and voluntary UCB donations, essential for an important number of patients (in Spain, for example, more than 400 people a year need non-related donations). There is an international system in place for locating compatible donors. There are 8.5 million bone marrow donors in the world and about 141 000 stored units of voluntarily donated UCB. Even though the number of donors seems to be increasing, due to the need for HLA compatibility between donor and recipient, only 30-40% of patients succeed in finding a compatible donor. For that reason, a decrease in altruistic and voluntary donations will make it increasingly difficult to find HLA compatible donors.

- The probability that the autologous UCB stored in these banks will be used (in other words the probability that these children will develop a pathologies requiring HPC transplantation) is very low. The vast majority of autologous stored UCB units will never be used.
- Even if it is the case that these children do, in the future, develop diseases requiring an HPC transplant, there is evidence to suggest that it is preferable to use allogeneic transplantation to achieve the “graft vs. tumor effect” in hematological diseases. In cases of congenital disease and in some leukemias with intrauterine cell mutations, autologous HPC transplantation is contraindicated.

However, if UCB is donated to a normal UCB bank it can be located in the future either for autologous or heterologous use.

Autologous UCB banks as a source of stem cells

Reasoning:

UCB could be a source of stem cells for the child in the future. It could be used to obtain cells or even organs for transplantation. For this reason, the storage of UCB of all newborns is justified.

Explanation:

- From a scientific point of view, at present, the clinical use of stem cells from UCB is a promising treatment but is still in a research phase. Two ongoing experimental trials in mice demonstrate the potential of stem cells from UCB to regenerate nervous tissue. However, these studies are still in an early experimental phase and no clinical trials have been carried out in humans. Stem cell production from adult tissue is also a possibility and the methodology will probably be improved in the future.
- Stem cells are also being used in clinical trials to regenerate heart muscle, but these cells can be harvested from adults. On the other hand, the development of organs from stem cells is not yet a realistic option.
- The storage of UCB of all newborns would mean the creation of a significant number of UCB banks (autologous banks), and also the collection, storage and preservation of a very large number of UCB units. Sooner or later, these banks would fall under the auspices of national health systems, resulting in very high costs without any clear benefits.
- The other option is private UCB autologous banks. Parents who voluntarily wish to store their child's UCB could do so by paying the bank for the collection, preservation and storage of UCB units. Such banks already exist in countries such as the United States, the United Kingdom and Germany, but are prohibited in countries such as Italy.

At present there is no scientific rationale for the universal storage of UCB. It is not justified that parents pay for an unproven service without definite therapeutic use. There is therefore a need for controls, to facilitate the provision of accurate information to the family, and to ensure that proper informed consent is obtained. Autologous blood banks should be regulated by the same rules and should meet the quality standards recommended by the Council of Europe.

- There is a conflict of interest between parental freedom to invest money as they choose and the obligation of the administration, for public health reasons, to restrict this type of commercialisation.

UCB mixed banks (autologous banks and voluntary banks)

A UCB unit could be divided in two parts, one to be stored for autologous use and the other to be donated voluntarily to an allogeneic bank.

- It is necessary to take into account that the viability of a UCB transplantation is dependent on the number of HPCs. Using only 50% of the volume of the unit could endanger the success of a transplant.
- The other possibility is to collect a UCB aliquot of newborns and create a bank of UCB samples for their use in the future, and donate the rest of the UCB to an allogeneic bank. Currently, cellular expansion techniques are not well developed, therefore the collection of this aliquot is without value as its subsequent growth is not feasible.

Name	Country	Start of activity	Number UCB
	Europe	2000	7 500
	Germany		
	United Kingdom		
Cryo - Cell	Belgium		
	Netherlands		
	Austria		
	Ireland		
	Switzerland		
Cryo care (part of Cryo-Cell)	United Kingdom	2001	917
Vita 34	Germany	1997	12 000
New England Cord Blood Bank	United Kingdom	2002	300
New England Cord Blood Bank	Turkey	2002	
Vita cord	Austria	2002	
Lifecord	Austria	2002	
Cryocare	Germany	2001	2 000
	Ireland	2002	

Council of Europe
Committee of Ministers

**Recommendation Rec(2004)19 of the
Committee of Ministers to member
states on criteria for the authorisation
of organ transplantation facilities**

(Adopted by the Committee of Ministers on 15 December 2004 at the 909th meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the health field;

Taking into account Resolution No. R (78) 29 on harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances, the final text of the 3rd Conference of European Health Ministers (Paris, 16-17 November 1987); Articles 19 and 20 of the Convention of Human Rights and Biomedicine, and Articles 3 and 4 of the Additional Protocol to the Convention on Human Rights and Biomedicine, on Transplantation of Organs and Tissues of Human Origin;

Considering that:

- organ transplantation is a well-established, life-saving, and effective treatment: a successful organ transplantation may be the only treatment available for some forms of end stage organ failure and is the most clinically and cost effective treatment for chronic renal failure;
- organ exchange and circulation of recipients among member states is becoming a more frequent phenomenon, and that a minimum common standard should be guaranteed to the citizens;
- member states should therefore provide high-quality transplant services for the benefit of their citizens. Considering the limited organ supply, all necessary steps should be taken to make sure all available organs are properly safeguarded and used so as to maximise the benefit to patients;
- the highest professional standards are to be maintained in the area of organ transplantation,

Recommends that the governments of member states take all necessary measures to ensure the following:

1. An appropriate mechanism for the authorisation¹ of health care facilities carrying out organ transplantations² should be set up. In order to obtain authorisation these facilities should meet the following criteria:
 - feasibility of programme, based on clinical need assessment and a documented estimate of organ supply, to ensure that projected activity levels are sufficient to maintain clinical expertise and programme quality;
 - standards of vocational training of team members, and infrastructural conditions relating to availability of beds,

1 For the purpose of this Recommendation, the term “authorisation” refers to any appropriate mechanism for designating, authorising, accrediting or licensing health care facilities carrying out organ transplantations.

2 This Recommendation refers to the facilities where organs are being “implanted”.

intensive care facilities, and diagnostic and therapeutic back-up services (radiology, microbiology, immunology services, etc.), and to care provided by nursing, physiotherapy, social services and related medical professionals.

2. Medical professionals forming part of an organ transplant team should be properly qualified and their previous training in the field of transplantation should be documented and personalised.
3. A quality-management system should be put in place to evaluate performance against established national and/or international standards as applicable, and to ensure the quality of the process of organ procurement and transplantation, following the principles described in the Council of Europe's Guide to safety and quality assurance for organs, tissues and cells.
4. Authorisations should be regularly reviewed against agreed quality criteria and standards, as well as against audit results.
5. Outcome results for each type of transplant should be within the margins of international registers, at an equivalent degree of complexity of patients. In order to guarantee clinical results and cost-effective performance, minimal yearly activity standards shall be established in order to maintain an active programme.
6. These minimal activity standards, required to keep active each kind of transplant programme, should be related to the mean number of cadaveric organs available to the transplant team in recent years.
7. Any transplant centre which, after several warnings, continues to fail to meet activity or outcome criteria may have its authorisation withdrawn.
8. No new transplant centre may be authorised if there are not enough organs available to enable a new centre to reach the required standards.
9. Any new transplant centre should be authorised, accredited or licensed on the basis of agreed criteria and initially should be limited in time. If, within an agreed timescale, the new centre does not achieve the required standards, authorisation shall be withdrawn.

Council of Europe
Committee of Ministers

**Recommendation Rec(2005)11 of the
Committee of Ministers to member
states on the role and training of
professionals responsible for organ
donation (transplant “donor co-
ordinators”)**

(Adopted by the Committee of Ministers on 15 June 2005 at the 930th meeting of the Ministers’ Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the health field;

Taking into account Resolution (78) 29 on the harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances, the final text of the 3rd Conference of European Health Ministers (Paris, 16 and 17 November 1987); Articles 19 and 20

of the Convention on Human Rights and Biomedicine, and Articles 3 and 4 of the Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin, and principles established in the 1998 Council of Europe consensus document entitled “Meeting the organ shortage”;

Considering that organ transplantation is a well-established, life-saving, and effective treatment: a successful organ transplant may be the only treatment available for some forms of end stage organ failure and is the most clinically effective and cost-effective treatment for chronic renal failure;

Considering the universal shortage of organs for transplantation;

Considering that the transplant process is complex, involves various services and therefore requires effective organisation and co-ordination of health care professionals;

Bearing in mind that in many member states the training and employment of health care professionals responsible for detecting potential deceased organ donors and organising the donation process has increased the efficiency of the procurement of organs and improved the functioning of local and national transplant systems; and that such professionals can also increase the rate of donation of tissues for transplantation,

Recommends that the governments of member states take the measures contained in the appendix to this recommendation as regards the role and training of professionals responsible for organ donation (transplant “donor co-ordinators”).

Appendix to Recommendation Rec(2005)11

1. A professional responsible for the identification of potential deceased organ and/or tissue donors should be appointed in every hospital with an intensive care unit. This professional should have appropriate training and experience, be independent of any transplant teams, and have clearly defined responsibilities for the establishment, management and audit of a hospital-based system for potential deceased donor identification and organ/tissue procurement. The person should also be responsible for monitoring the donation and procurement process and for identifying and implementing improvements. For the purposes of this recommendation, the professional will be termed a transplant “donor coordinator”.
2. Donor co-ordinators should be properly accountable to senior management of the relevant health institution and to any regional or national transplant organisations. Donor co-ordinators may be complemented by, or responsible to, other transplant co-ordinators at regional or national level.
3. Donor co-ordinators, and any other transplant co-ordinators should have a high standard of professional training consistent with internationally recognised standards, to ensure the highest possible professional and ethical standards in organ donation and procurement. Member states should establish formal national or international accreditation for donor co-ordination activities/donor co-ordinators.

Council of Europe
Committee of Ministers

**Recommendation Rec(2006)15 of the
Committee of Ministers to member
states on the background, functions
and responsibilities of a National
Transplant Organisation (NTO)**

(Adopted by the Committee of Ministers on 8 November 2006 at the 979th meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, in particular by the adoption of common rules in the public health field;

Bearing in mind the Convention on Human Rights and Biomedicine (ETS No. 164), in particular its Articles 19 and 20, and Article 3 of the Additional Protocol to the Convention on Human Rights and Biomedicine on Transplantation of Organs and Tissues of Human Origin (ETS No. 186);

Recalling its Recommendations to member states, Rec(2001)5 on the management of organ transplant waiting lists and waiting times, and Rec(2004)7 on organ trafficking, and recalling its Resolution (78) 29 on harmonisation of legislations of member states relating to removal, grafting and transplantation of human substances;

Considering that:

- organ transplantation is a well-established, life saving, and effective treatment. It may be the only treatment available for some forms of end stage organ failure and is the most clinically effective and cost effective treatment for chronic renal failure; tissue and cell transplantation may be life saving or life enhancing;
- organ transplantation, and sometimes tissue transplantation, is severely limited by the availability of organs for transplantation;
- a properly established and managed transplantation system is essential to maximise the rate of organ and tissue donation and provide equitable access to transplantation services for patients by guaranteeing the allocation of organs and tissues following rules which are transparent, objective and justified according to medical criteria, and by guaranteeing traceability and accountability,

Recommends that the governments of member states:

- i. set up a comprehensive national transplantation system (NTS) for the authorisation¹, organisation and monitoring of organ, tissue, and cell donation and transplantation, taking into account the differences in the procedures of organ, tissue and cell donation and transplantation in member states;
- ii. ensure that the NTS has a statutory basis which clearly sets out the structure of the system, its powers and responsibilities. It is preferable to have a single public body (a national transplant organisation (NTO)) which is officially recognised, and non-profit making with overall responsibility for donation, allocation,

¹ The term “authorisation” is meant to include the following three functions: accreditation, licensing, and designation.

traceability and accountability. However, a combination of local, regional, national and/or international bodies may work together to co-ordinate donation, allocation and/or transplantation, provided that the framework in place ensures accountability, co-operation and efficiency;

- iii. ensure that the NTS has competencies and mechanisms to organise and oversee the whole process of transplantation including: public education on transplantation; organ (and tissue) donation and retrieval; national transplant recipient waiting lists; organ (and tissue) allocation; organ (and tissue) transportation including international exchanges; authorisation of organ transplant teams or institutions; the traceability of organs and tissues and monitoring of outcomes of transplantation and donations from living donors. Other NTS competencies may include research into transplantation and responsibility for identifying and reporting to the relevant authorities any breaches of the national transplantation law;
- iv. implement the above recommendations taking into account the appendix to this recommendation.

Appendix to Recommendation Rec(2006)15

Transplantation is a complex process requiring a large number of functions to be managed effectively. Ideally, these functions should all be the responsibility of a single national transplant organisation (NTO), particularly with regard to organ transplantation. However, if the national transplantation system (NTS) integrates more than one structure, it is critical to ensure that the functions performed by each structure are appropriate, and complement those of the other transplant structures. The following allocation of functions is consistent with internationally recognised practice.

1. The essential functions of an NTO (with its advisory committees) are the following:
 - running a central office which is operational 24 hours a day, 7 days a week, with which all donors have to be registered and which manages national or international organ allocation;
 - ensuring that all relevant donor data, including screening results, are collected and communicated to the recipient's transplant team;
 - managing specific national waiting lists for organs, and, if applicable, for tissues, on the basis of agreed and transparent national admission criteria, containing sufficient up-to-date data on the recipient to ensure optimal matching;
 - ensuring that all donated organs are allocated to the most appropriate recipient in compliance with nationally agreed and transparent allocation rules, to ensure as far as possible equal access to transplantation for all patients who could benefit from a transplant;
 - ensuring that arrangements are in place for the safe and rapid transport of organs from the donor's hospital to the recipient's hospital;
 - ensuring the maintenance of a transplant database of all donors and recipients, including follow-up data on living donors and recipients, to ensure traceability and to audit the outcome of transplant programmes;
 - taking responsibility for running a transplant quality assurance system consistent with internationally recognised standards;
 - providing accurate information to professionals on organ and tissue donation and the outcomes of transplantation as well as being responsible for professional education about transplantation and raising the awareness of the public about organ and tissue donation and transplantation;

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- ensuring complete transparency of national transplant procedures and processes in order to maintain or improve public and patient trust in the NTS;
 - taking up national/international responsibility for tissue donation and transplantation.
2. The following functions should ideally be the responsibility of the NTO, or its advisory committees; alternatively they could be taken by other bodies in co-operation with the NTO:
- taking responsibility for the recruitment, training and appointment of donor transplant co-ordinators in all major hospitals likely to provide organ donors;
 - taking responsibility for the co-ordination and management of donors and/or other transplant co-ordinators;
 - conducting a regional/national potential donor audit to assess the total potential donor “pool” and identify reasons for non-donation;
 - managing national organ donor/non-donor registers;
 - reviewing donor screening methods and requirements to ensure compatibility with international standards and adapting them to any specific local requirements, if applicable;
 - determining specific information requirements for organ and tissue donors;
 - setting standards for donor management;
 - setting standards for organ retrieval procedures, in particular multi-organ retrieval operations, in order to maximise organ quality and preservation;
 - organising and co-ordinating organ donation and retrieval procedures;
 - setting standards for organ and tissue packaging, labelling and transportation;

- organising the transport of organs and tissues from the donor's hospital to the recipient's hospital or tissue bank;
- setting criteria for the admission of patients to national organ or tissue-specific waiting lists;
- reviewing and analysing national transplant waiting lists, that is, waiting times according to demography, geography, etc., as a basis for recommending changes to allocations rules in order to ensure optimum allocation of organs;
- managing and analysing transplant data through the donation process, including an analysis of allocation, to ensure that the rules are properly applied and to prevent organ trafficking;
- taking responsibility for offering organs to other NTOs if a compatible recipient is not available;
- maintaining registers of all donors, including living donors, and all transplant recipients and/or designing and operating an integrated national transplant information system;
- in cases where a disease is transmitted to a recipient, identifying all other recipients of organs or tissues from that same donor, and/or allowing the retrieval and disposal of any unused organs or tissues;
- offering advice on the types of transplant that should be paid for by national health systems and any that may be allowed in the private sector;
- accrediting transplant teams and/or institutions allowed to perform organ and tissue transplants;
- inspecting and accrediting tissue banks in line with international standards, such as the standards set by the Council of Europe Guide to safety and quality assurance in organs, tissues and cells and the requirements set by the European Union Directive 2004/23/EC on setting standards for quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human tissues and cells;

- managing and overseeing haemopoietic progenitor cell (HPC) transplants, including the importing of HPC cells;
 - collecting data on outcomes and follow-up from transplant teams and units;
 - auditing transplant procedures and outcomes to allow constant improvements in the safety and quality of organ transplantation;
 - submitting outcome data to international transplant registers;
 - organising and managing public relations and communication strategies on national transplantation issues;
 - identifying patients registered on more than one national waiting list, and exposing possible cases of organ trafficking;
 - setting standards for the screening and preparation of potential living donors;
 - authorising living donor transplants, if foreseen by the NTS.
3. In view of a potential conflict of interest, the following function should not be the responsibility of the NTO but of a separate body, not related to a transplant organisation:
- setting the criteria to determine death either according to brain and brain stem failure or after cardiorespiratory failure to allow heartbeating and non-heartbeating organ donation, if foreseen by national law.
4. Member states wishing to collaborate within the framework of a supranational organisation should consider that the NTO should remain responsible for deciding on the functions to be allocated to an international body.

Council of Europe
Committee of Ministers

**Recommendation Rec(2006)16 of the
Committee of Ministers to member
states on quality improvement
programmes for organ donation**

(Adopted by the Committee of Ministers on 8 November 2006 at the 979th meeting of the Ministers' Deputies)

The Committee of Ministers, under the terms of Article 15.b of the Statute of the Council of Europe,

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued in particular by the adoption of common rules in the public health field;

Taking into account Resolution (78) 29 on harmonisation of legislations of member states relating to removal, grafting and transplantation of human substances, the final text of the 3rd Conference of European Health Ministers (Paris, 16 and 17 November 1987), Articles 19 and 20 of the Convention of Human Rights and Biomedicine (ETS No. 164), and Articles 3 and 4 of the Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin (ETS No. 186);

Considering that:

- organ transplantation is a well-established, life saving, and effective treatment. It may be the only treatment available for some forms of end stage organ failure and is the most clinically effective and cost effective treatment for chronic renal failure;
- member states should provide high quality transplant services for the benefit of their citizens. Considering the organ shortage, all necessary steps should be taken to ensure that all available organs are properly safeguarded and used so as to maximise the benefit of patients;
- the process of organ donation and transplantation is a complex process which involves a long series of stages which should be followed rigorously in order to be effective. Each of these stages should be analysed whenever a problem arises in order to detect weaknesses in the process and take the necessary corrective measures;
- the document “Meeting the organ shortage” approved by the Council of Europe, states the need to develop a protocol to identify potential donors, including the registration of donors, and to clarify the roles and responsibilities of hospital professionals in donor identification,

Recommends that the governments of member states take all necessary measures to ensure that:

- i. a quality improvement programme for organ donation is put in place in every hospital where there is a potential for organ donation;
- ii. the quality improvement programme is primarily a self-evaluation of the whole process of organ donation, jointly performed by the specialists in intensive care and the transplant co-ordinator of every hospital. Whatever the nature of the programme, it should represent an appropriate mechanism for monitoring the whole process of organ donation in intensive care units;
- iii. the hospital programme is harmonised at regional and national level in order to compare adequately the results obtained and to adopt the most appropriate measures to improve organ donation;

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- iv. external audits performed by experts from other hospitals, regions or countries are performed regularly after the implementation of the self evaluation programme, in order to further improve the process and provide greater transparency;
 - v. the objectives of these programmes include:
 - definition of the theoretical capacity of organ procurement, depending on the characteristics of the hospital;
 - detection of obstacles to the process of organ donation and procurement and analysis of the causes of potential donor losses, as a tool to identify areas for improvement;
 - a description of factors with regard to hospitals which can influence the donation and transplantation process;
 - vi. a systematic review of all medical records of patients who have died in intensive care units (ICU) and possibly in other similar units is performed on a regular basis in order to analyse any undetected potential donor and establish means for improvement;
 - vii. in every hospital, region and country the following data must be periodically monitored:

General data:

- number of available hospital beds;
- number of available ICU beds;
- number of neurosurgery procedures;
- number of patients admitted to the ICU and emergency rooms;

Specific data:

- hospital deaths;
 - brain deaths;
 - number of potential organ donors;
 - number of organ donors;
- viii. appropriate standards must be defined in every country according to the characteristics of the hospital and the health system in order to compare the results with those of other regions or countries, so as to better define the areas for improvement.

Resolutions

Council of Europe
Committee of Ministers

**Resolution (78) 29 on harmonisation
of legislations of member states
relating to removal, grafting and
transplantation of human substances**

(Adopted by the Committee of Ministers on 11 May 1978 at the
287th meeting of the Ministers' Deputies)

The Committee of Ministers,

Considering that the aim of the Council of Europe is to achieve a
greater unity between its members, in particular through harmonising
legislations on matters of common interest;

Considering that because of the substantial increase in recent years
in the treatment of patients by transplantation or grafting of removed
human organs, tissues, or other substances, the need for new and more
specific legislation was felt in all member states;

Considering that harmonisation of legislations of member states on removal, grafting and transplantation of human substances will ensure better protection of donors, prospective donors and recipients of human substances and enhance the progress of medical science and therapeutics;

Recommends to the governments of member states:

- a. to conform their laws to the rules annexed to this resolution or adopt provisions conforming to these rules when introducing new legislation;
- b. to introduce appropriate sanctions to ensure the application of the rules adopted when implementing this resolution;
- c. to study the desirability and the possibility of inserting in an appropriate document a statement so that the wish of the deceased person as mentioned in Article 10 of the rules might be determined more easily;
- d. to intensify, by appropriate means, their efforts to inform the public and arouse the interest of doctors in the need and importance of donations of substances, while keeping the confidential character of individual operations;
- e. to provide, or to encourage the preparation of practical guidelines for those entitled to decide according to paragraph 1 of Article 11 that a substance may be removed from a deceased person;
- f. to apply the rules annexed to this resolution, in particular Articles 9 and 14, to substances originating from states which are not members of the Council of Europe.

Invites the governments of member states to inform the Secretary General of the Council of Europe in due course and at any rate every five years, of the action taken on the recommendations contained in this resolution.

Appendix to Resolution (78) 29

RULES**Chapter I – Field of application**

Article 1

1. These rules apply to removals, graftings, transplantations and other use of substances of human origin removed or collected for therapeutic or diagnostic purposes for the benefit of persons other than the donor and for research purposes.
2. The transfer of embryos, the removal and transplantation of testicles and ovaries and utilisation of ova and sperm are excluded from the field of application of these rules.

Chapter II – Removals, graftings and transplantations of substances from living persons

Article 2

1. The donor and his legal representative in the case of a minor or otherwise legally incapacitated person (both hereafter referred to as “legally incapacitated person”), must be given appropriate information before the removal about the possible consequences of this removal, in particular medical, social and psychological, as well as the importance of the donation for the recipient.
2. The anonymity of the donor and of the recipient must be respected except where there are close personal or family relations between the two.

Article 3

A removal must not be effected without the consent of the donor. This consent must be given freely.

In cases of removal of substances which can regenerate which presents risks for the donor and of removal of substances which cannot regenerate, this consent must be given in writing.

Article 4

Removal of substances which cannot regenerate must be confined to transplantation between genetically related persons except in exceptional cases where there are good chances of success.

Article 5

Where removal of substances presents a foreseeable substantial risk to the life or the health of the donor, a removal may only be permitted exceptionally when it is justified by the motivations of the donor, the family relationship with the recipient and the medical requirements of the case. However a state can prohibit such removal.

Article 6

1. For legally incapacitated persons removals of substances which can regenerate must be limited to exceptional cases. Such a removal may be permitted when it is necessary for therapeutic or diagnostic reasons. It may only be effected with the consent of the legal representative of the incapacitated person if the incapacitated person does not, himself, object to it. If the removal represents a risk to the health of the incapacitated person, prior authorisation must also be obtained from an appropriate authority.
2. The removal of substances which cannot regenerate, from legally incapacitated persons is forbidden.
However, a state may permit such a removal in a special case justified for therapeutic or diagnostic reasons if the donor, having the capacity of understanding, has given his consent, if his legal representative and an appropriate authority have authorised removal and if the donor and the recipient are closely genetically related.
3. A removal of substances which presents foreseeable substantial risk to the life or the health of the donor who is a legally incapacitated person is forbidden.

Article 7

Before the removal and transplantation appropriate medical examinations must be made to evaluate and reduce the risks to the health and life of both donor and recipient.

Article 8

1. Substances must be removed under conditions representing the least possible risk to the donor.
2. Removals, graftings and transplantations of substances which cannot regenerate must take place in properly equipped and staffed institutions.

Article 9

No substance may be offered for profit. However, loss of earnings and any expenses caused by the removal or preceding examination may be refunded. The donor, or potential donor, must be compensated, independently of any possible medical responsibility, for any damage sustained as a result of a removal procedure or preceding examination, under a social security or other insurance scheme.

Chapter III – Removals, graftings and transplantations of substances from deceased persons

Article 10

1. No removal must take place when there is an open or presumed objection on the part of the deceased, in particular, taking into account his religious and philosophical convictions.
2. In the absence of the explicit or implicit wish of the deceased the removal may be effected. However, a state may decide that the removal must not be effected if, after such reasonable inquiry as may be practicable has been made into the views of the family of the deceased and in the case of a surviving legally incapacitated

person those of his legal representative, an objection is apparent; when the deceased was a legally incapacitated person the consent of his legal representative may also be required.

Article 11

1. Death having occurred a removal may be effected even if the function of some organ other than the brain may be artificially preserved.
2. A removal can be effected if it does not interfere with a forensic examination or autopsy as required by law. A state may, when such requirement exists, decide that a removal can only be effected with the approval of a competent authority.

Article 12

1. Removals for therapeutic, diagnostic or research purposes must be effected in appropriate places and under suitable conditions.
2. Grafting and transplantations must take place in public or private institutions which possess proper staff and equipment.
3. Death must be established by a doctor who does not belong to the team which will effect the removal, grafting or transplantation. However, this doctor can effect a removal in cases of minor operations when no other suitable doctor is available.

Article 13

The identity of the donor must not be disclosed to the recipient and the identity of the recipient to the family of the donor.

Article 14

Substances must not be offered for any profit.

Council of Europe Committee of Ministers

Resolution CM/Res(2008)4 on adult-to-adult living donor liver transplantation

(Adopted by the Committee of Ministers on 12 March 2008 at the 1021st meeting of the Ministers' Deputies)

The Committee of Ministers, in its composition restricted to the representatives of the States Parties to the Convention on the elaboration of a European Pharmacopoeia,¹

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the public health field;

Having regard to the 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

¹ States concerned: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, "the former Yugoslav Republic of Macedonia", Turkey and United Kingdom.

Biomedicine – ETS No. 164), and in particular Article 19 (General rule) and Article 20 (Protection of persons not able to consent to organ removal) thereof;

Having regard also to the Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin (ETS No. 186), and, in particular, Chapter III (Organ and tissue removal from living persons);

Recalling its Resolution No. (78) 29 on the harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances;

Recalling its Recommendation Rec(2001)5 to member states on the management of organ transplant waiting lists and waiting times;

Recalling its Recommendation Rec(2004)7 to member states on organ trafficking;

Recognising that, in facilitating the transplantation of organs in the interest of patients in Europe, there is a need to protect individual rights and freedoms and to prevent the commercialisation of parts of the human body involved in organ procurement, exchange and allocation activities;

Considering that organ transplantation is a well-established, life-saving, and effective treatment and may be the only treatment available for some forms of end-stage organ failure;

Aware of the fact that tissue and cell transplantation may be life saving or life enhancing;

Concerned by the universal shortage of organs for transplantation;

Considering that adult-to-adult living donor liver transplantation (Domino liver transplantation, i.e. transplantation into a recipient whose own organ was respected and transplanted into another recipient, is excluded from the scope of this resolution) may be envisaged when suitable organs from deceased donors are not available, provided that all safeguards are implemented in order

to guarantee the freedom and safety of the donor and a successful transplant in the recipient;

Convinced also that adult-to-adult living donor liver transplantation is an effective treatment for end-stage liver disease, with the potential benefit of reducing mortality of patients awaiting a transplantation;

Conscious of the risks that living donor liver transplantation may have for the donor and of the need to ensure that all measures are taken to safeguard the donor's health;

Recalling that no organ removal may be carried out on a person who does not have the capacity to consent;

Recommends to member states the following:

1. to instruct the organisation responsible for accrediting transplantation programmes and regulating the allocation of organs to address explicitly the issue of adult-to-adult living donor liver transplantation and establish transplantation programmes accredited to perform this type of transplantation;
2. to ensure that adult-to-adult living donor liver transplantation programmes adhere to the following minimum requirements:
 - a. substantial experience in liver surgery and liver transplantation;
 - b. an active liver-transplantation programme;
 - c. significant mortality in the waiting list;
 - d. a multidisciplinary team experienced in routine and complex liver surgery, covering all operative;
 - e. aspects (pre-operative, peri-operative and post-operative);
3. to ensure that the indications for adult-to-adult living donor liver transplantation are recognised indications for deceased donor liver transplantation;
4. to ensure that the organisation responsible for the allocation of organs and accreditation of transplantation programmes establishes clear conditions under which adult-to-adult living donor liver transplantation is ethically acceptable, namely:

- a. adult-to-adult living donor liver transplantation is only to be performed within authorised/licensed programmes with ongoing feedback;
- b. the donor and the recipient have a close personal relationship as required and defined by law;
- c. each single procedure should be approved on a case-by-case basis;
- d. the motive to donate is solely altruistic. Any financial gain or comparable advantage in connection with the donation is considered illegal;
- e. the donor has been given appropriate information as to the purpose and nature of the removal as well as on its consequences and risks. The donor has also been informed of the rights and the safeguards prescribed by law for his or her protection, in particular of the right to have access to independent advice about such risks by a health professional having appropriate experience and who is not involved in the organ removal or subsequent transplantation procedures. Finally, the donor is provided with comprehensive information on:
 - i. the alternatives to adult-to-adult living donor liver transplantation;
 - ii. the previous experience of the centre where the procedure will be carried out;
 - iii. the risks of morbidity and mortality of the procedure for the donor and the recipient;
 - iv. the likely long-term outcome for the recipient;
- f. the living donor has given free, informed and specific consent either in written form or before an official body; the donor may freely withdraw consent at any time;
- g. the donor has been properly screened to identify any physical or psychological contra-indication; the removal may not be

carried out if there is a serious risk to the life or health of the donor;

5. to ensure immediate access to the emergency waiting list for organs from deceased donors in case of failure of the remnant liver in the donor or graft failure in the recipient and that specific rules for non-residents apply according to national regulations;
6. to ensure that the necessary conditions and provisions are in place for long-term medical follow up of both donor and recipient, including the monitoring of the short- and long-term effects of transplantation on the health of donors, by the establishment of national registries;
7. to guarantee equitable access to liver transplantation services for all patients in need of a liver transplant, regardless of personal financial means;
8. to ensure that all costs related to the operations and follow-up of donor and recipient are covered, according to the competent organisation's own procedures;
9. to provide for a system of fair compensation for any person who suffered undue damage resulting from transplantation procedures, according to the conditions and procedures prescribed by law.

Council of Europe Committee of Ministers

Resolution CM/Res(2008)6 on transplantation of kidneys from living donors who are not genetically related to the recipient

(Adopted by the Committee of Ministers on 26 March 2008 at the 1022nd meeting of the Ministers' Deputies)

The Committee of Ministers, in its composition restricted to the representatives of the States Parties to the Convention on the Elaboration of a European Pharmacopoeia,¹

Considering that the aim of the Council of Europe is to achieve greater unity between its members and that this aim may be pursued, *inter alia*, by the adoption of common action in the health field;

¹ States concerned: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Republic of Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, "the former Yugoslav Republic of Macedonia", Turkey and United Kingdom.

Taking into account its Resolution (78) 29 on the harmonisation of legislation of member states relating to removal, grafting and transplantation of human substances and the final text of the 3rd Conference of European Health Ministers (Paris, 16-17 November 1987);

Having regard to the 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 – ETS No. 164), and in particular to Article 19 (General rule) and Article 20 (Protection of persons not able to consent to organ removal) thereof;

Having regard also to the Additional Protocol to the Convention on Human Rights and Biomedicine concerning the Transplantation of Organs and Tissues of Human Origin (ETS No. 186);

Recalling its Recommendation Rec(2001)5 to the member states on management of organ transplant waiting lists and waiting times;

Recalling its Recommendation Rec(2004)7 to the member states on organ trafficking;

Recognising that, in facilitating the transplantation of organs in the interests of patients in Europe, there is a need to protect individual rights and freedoms and to prevent the commercialisation of parts of the human body involved in organ procurement, exchange and allocation activities;

Recalling the principle that organ removal can be undertaken on a living donor only in the case where a suitable organ from a deceased donor is not available and only when no alternative therapeutic method of comparable effectiveness is available;

Considering that there is a shortage of kidneys for transplantation to patients having reached the end stage of renal failure;

Taking note that the increasing number of transplantations of organs from living donors is one way of reducing the increasing gap between the growing number of patients waiting for kidney transplantation and the limited number of organs procured from deceased donors;

Stressing that transplantation of a kidney from a living donor to a genetically related recipient is a well-established practice in most of the States Parties to the Convention and that in some countries living donor kidney transplantations account for a large proportion of the transplants performed each year;

Knowing that there is very good evidence that living donor kidney transplants, even if the donor is not genetically related to the recipient, lead to similar or better clinical outcomes than with kidneys transplanted from deceased donors;

Stressing that living donor kidney transplants allow for the optimum treatment of receiving a transplant before going on to dialysis (pre-emptive transplant);

Taking into consideration that the removal of a kidney from a carefully selected, healthy individual carries a low risk of complications and has not been shown to have long-term effects on the health of such a donor;

Recalling that no organ removal may be carried out on a person who does not have the capacity to consent,

Recommends to the governments of States Parties to the Convention to take note of the general principles and measures listed in the attached appendix when they draw up the regulations and procedures relating to the donation of a kidney in view of transplantation by a living donor non genetically linked to the receiver.

Appendix to Resolution CM/Res(2008)6

1. States Parties to the Convention may permit the transplantation of kidneys from non-genetically related living donors on condition that:
 - the living donor and the recipient have a relationship as required and defined by law; the donor has been given appropriate

- information as to the purpose and nature of the removal as well as on its consequences and risks. The donor has also been informed of the rights and the safeguards prescribed by law for his or her protection, in particular of the right to have access to independent advice about such risks by a health professional having appropriate experience and who is not involved in the organ removal or subsequent transplantation procedures;
- the living donor has given free, informed and specific consent, either in written form or before an official body; the donor may freely withdraw consent at any time;
 - no pressure is exerted on the living donor into donation;
 - the organ does not, as such, give rise to financial gain or comparable advantage;
 - the living donor has been properly screened to identify any physical or psychological contraindications; the removal may not be carried out if there is a serious risk to the life or health of the donor;
 - long-term medical follow-up is provided to living donors. This includes the monitoring of short- and long-term effects of organ removal on the health of the living donor notably by the establishment of officially recognised registries.
2. States Parties to the Convention may require that persons waiting for such transplants be placed on a national waiting list during the period of approval of the potential donor for donation.
 3. Any States Parties to the Convention allowing for non-genetically related living kidney donation should establish a register for such transplants which includes a donor register and donor follow-up procedures in line with those existing for transplantations of kidneys removed from genetically related living donors.
 4. States Parties to the Convention may permit or prohibit by law non-directed living kidney donations – i.e. “good Samaritan” donors, truly altruist donors or donors involved in a “paired exchange” donation for the purpose of transplantation from a person with no established close personal relationship with the recipient. (This

type of donation is in contrast to donation where the donor and the recipient are in close personal relation called “directed donation”). In the States Parties to the Convention authorising donations from non-related living donors, national regulations and appropriate management must be put in place in view of prohibiting and preventing organ trafficking, namely by clearly defined rules for non-residents.

5. States Parties to the Convention should establish an independent mechanism for approving non-genetically related living kidney donor transplants in compliance with Article 10 of the Additional Protocol to the Convention on Human Rights and Biomedicine concerning the Transplantation of Organs and Tissues of Human Origin. It is also recommended that States Parties to the Convention establish such a mechanism for all cases of non-directed donation. Particular attention should be given to cases where the donor is not a resident of the member state concerned. Within the requirements of data protection legislation, registered activities should be reported on a regular basis to the national health authority.

Reports

Organ shortage: current status and strategies for improvement of organ donation – A European consensus document

Contents

Glossary

1. Summary
2. Summary of recommendations
 - 2.1. Organ procurement
 - 2.2. International co-operation
3. Introduction
4. Organ procurement
 - 4.1. The transplantation process
 - 4.1.1. Overview
 - 4.1.2. The six steps
 - 4.2. Donor detection: potential and identification
 - 4.2.1. Scope of the problem
 - 4.2.2. Improving donor detection
 - 4.2.3. Donor detection programmes
 - 4.2.4. The role of the “Key Donation Person”
 - 4.3. Donor screening: acceptability of organs
 - 4.4. Donor management
 - 4.4.1. Scope of the problem
 - 4.4.2. Potential for improvement

- 4.5. Brain death
 - 4.5.1. Legal requirements
 - 4.5.2. Diagnosis and legal certification
 - 4.5.3. Potential for improvement
- 4.6. Authorisation or consent to organ donation
 - 4.6.1. Legal considerations
 - 4.6.2. Obtaining authorisation or consent
 - 4.6.3. Factors affecting willingness to allow organ donation
 - 4.6.4. Public attitudes: impact of the media
 - 4.6.5. Communication strategies
 - 4.6.6. Target audiences
 - 4.6.7. Transplant “Hotline”
 - 4.6.8. The need of professional support
 - 4.6.9. Approaching the relatives
- 4.7. Organ retrieval
 - 4.7.1. Introduction
 - 4.7.2. Multi-organ retrieval
 - 4.7.3. Organ damage
- 4.8. Organ allocation and organisational issues
 - 4.8.1. Introduction
 - 4.8.2. Organ allocation/exchange organisations
- 4.9. Organisational support for transplantation
 - 4.9.1. Introduction
 - 4.9.2. Hospital organisation
 - 4.9.3. Organ procurement organisation
 - 4.9.4. Transplant support: organisational objectives
 - 4.9.5. Transplant support organisations
 - 4.9.6. National responsibilities
- 5. International co-operation
- References

Glossary

The following definitions will be used throughout this document:

Transplantation – The procedure, comprising a series of technical steps which need to be followed in a defined order, that enables the organs (or tissues) obtained from dead people (donors) to be transplanted into an appropriate live donor. It starts with the identification of all potential donors and ends with the transplantation (or storage) of the organs (and/or tissues) retrieved.

Brain Death – Complete and irreversible cessation of all cerebral and brain stem functions which, from the scientific, ethical and legal point of view is accepted as equivalent to the death of the individual. Strict testing according to agreed protocols is required to establish brain death beyond doubt.

Potential Donor – Any person diagnosed as brain dead, by means of clinical examination, following the elimination of any medical contraindications to donation, i.e. conditions representing a potential risk for recipients.

Effective Donor – A potential donor from whom at least one solid organ (or tissue) has been retrieved for transplantation.

Potential and/or effective donor rates can be expressed either by reference to the catchment population (donors per million population – pmp) or by reference to hospital parameters (e.g. donors as a percentage of overall hospital mortality; of intensive care mortality or as a rate per hundred hospital beds, etc.).

Retrieval – removal of an organ or tissue intended for transplantation whether subsequently transplanted or not.

Key Donation Person – A person responsible for organ donation in a specific area or hospital. He/she may or may not be the transplant co-ordinator.

Organ Sharing Office (OSO)¹ – Bureau responsible for the collection and management of data from donors and recipients and allocation of organs according to agreed criteria.

Organ Exchange Organisation (OEO)¹ – Organisation responsible for the organ +/- tissue allocation in a specific region/country.

Organ Procurement Organisation (OPO)¹ – A body or organisation responsible for organ donation and procurement in a specific region/country.

¹ In some countries one organisation may perform more than one or all of the above functions within a region or country.

1. Summary

- 1.1.** Organ transplantation is the best available established technique for the treatment of end stage failure of most essential organs (liver, heart and lungs). Corneal transplantation is similarly well established and tissue transplantation, particularly of bone but also of skin, tendons, etc., is growing very rapidly. Over 1 million people world-wide have benefited from successful organ transplantation. A number of transplant patients have survived well over 25 years and five years survival rates for most organ transplant programmes are around 70%. With modern techniques of organ preservation and advances in immuno-suppression, a significant proportion of patients can now expect to achieve long-term survival with a high quality of life.
- 1.2.** Many more people could benefit from organ transplantation than receive transplants at present. There are currently nearly 40 000 patients waiting for a kidney in Western Europe. Mortality rates for patients waiting for a heart, liver or lung range between 15% and 30%, i.e. 400 plus die waiting for an organ each year. These figures do not represent the true position. Because of the chronic shortage of organs, some transplant clinicians are extremely selective about the patients they put on the waiting list. Currently only those patients most likely to benefit will be even considered for transplantation.
- 1.3.** The critical factor is the supply of organs for transplantation. Only good quality organs are likely to function satisfactorily and there are strict limits on the time that can be taken to retrieve and

transplant the organ. In practice this means that, for most organs, only relatively young donors are suitable who are admitted into intensive care units and subsequently declared brain dead so that organs can be retrieved while the donors heart is still beating. A typical donor has suffered either a road traffic accident or a severe cerebrovascular accident. Due to improvements in road safety in European countries, donors in the former group are in decline. Kidneys are somewhat less sensitive to ischaemia (shortage of oxygen).

- 1.4. In view of the potential for successful transplantation, it is considered essential that countries with an organ transplant service, take all possible measures to ensure that all potential donors are identified and as many as possible converted into effective donors.
- 1.5. The organ donation/transplantation process is necessarily complex. There is a number of important steps each of which needs to be recognised and an effective system put in place to manage that every part of the process if potential donor organs are not to be lost. The steps are:
 - i. **Donor identification** – all potential donors should be identified at as early a stage as possible. This will facilitate donor screening and donor management (see below).
 - ii. **Donor screening** – donors should not be used if there is a risk of transmission of serious disease (cancer, infection) to the recipient. Guidance has been prepared by the Council of Europe and some member states on the serological and other screening methods that should be used to minimise the risk of transmission of infectious or malignant diseases to the recipient. Whenever possible, screening should include a social history taken from the relatives to exclude recent high risk behaviour, which might indicate a risk of a transmissible disease which is at too earlier stage to be detected by serological screening.

- iii. **Donor management** – it is essential that organs procured are in good condition prior to retrieval. The management of the potential donors physiological state while on intensive care and of the donor prior to and during retrieval can make a major difference to the condition of the organs. Poor donor management can make organs unusable.
 - iv. **Consent/authorisation** – appropriate consent or authorisation has to be obtained before organs can be removed. Countries have different legal requirements, in some consent is presumed while in others specific consent has to be sought from either relatives or some body. Whatever the system, it is advisable to discuss donation with any relatives as part of the screening process. There is evidence that the approach to the relatives can affect their willingness to agree to donation. Staff seeking to obtain the agreement of relatives should be appropriately trained.
 - v. **Organ retrieval** – the surgical technique for removing organs from the body and the way those organs are subsequently handled and preserved prior to and during transportation are critical to the successful outcome of the transplant. Each year a number of organs are damaged during removal and/or transportation. Some can be repaired but a few will have to be discarded.
 - vi. **Organ allocation** – for some organs, particularly kidneys, the successful long-term outcome of the transplant depends partly on appropriate matching between donor and recipient. A well-organised system for allocating and transporting donated organs to the most appropriate recipient is important. In some cases, optimum allocation will require exchange of organs or tissues between transplant organisations and countries. Co-operation between countries is increasingly important.
- 1.6. The purpose of this document is to provide a step-by-step guide to the most effective ways of procuring the maximum number

of high quality organs for transplantation from cadaveric donors based on an analysis of the scientific data available and relevant international experience. Recommendations are made on the most effective ways of procuring organs from such donors and for monitoring the procurement process. In making the recommendations, local and national requirements and the legal, ethical and cultural frameworks within which individual countries have to operate have been taken into account.

- 1.7. If at each stage of the process and level of organisation, certain key objectives can be met, countries can maximise the rate of organ transplantation.

2. Summary of recommendations

2.1. Organ procurement

- i. The transplant process is long and complex and cannot be left to chance. Protocols should be developed for each step. A key person should be made responsible in each area/hospital for managing and monitoring the process with the power to determine where efforts and resources should be directed.
- ii. Published figures cannot be extrapolated to provide local rates of potential versus effective donors (although marked differences from published rates for potential donors should be considered as suggestive of under detection). A donor detection gap should be established for each hospital/area and systems for monitoring the rates established.
- iii. A means should be developed to evaluate the size and characteristics of the potential donor pool to measure and monitor potential donor detection rates. To ensure reliability, data should be collected prospectively and analysed retrospectively as recommended in the “Donor Action Programme”.
- iv. Proactive donor detection programmes should be instituted in every acute hospital using specially trained professionals (key donation persons) working to agreed protocols and ethical rules.
- v. A “key donation person”, independent from transplant teams, should be appointed in every acute hospital with a clearly defined role and responsibility for establishing, managing and auditing systems for donor identification and identifying potential areas for improvement.

- vi. Protocols should be developed setting out the criteria for screening potential donors and their organs for the risk of disease transmission and potential viability. All appropriate steps should be taken to avoid the transmission of infectious and neoplastic diseases and primary organ failure.
- vii. The incidence of irreversible cardiac arrest, sepsis and other contraindications to organ donation relating to donor management of potential donors should be monitored and audited to detect and correct any problems identified.
Involvement of Intensive Care Unit staff in research and/or educational programmes on donor management should help raise standards.
- viii. An appropriate legal framework for donation and transplantation is required which adequately defines brain death; the type of consent or authorisation required for retrieval (see below); the means of organ retrieval, which ensures traceability but maintains confidentiality and which bans organ trafficking.
- ix. Law professionals should be fully aware of the transplant process and the co-operation of those most closely involved, i.e. judges and coroners, should be sought to reduce legal refusals to a minimum.
- x. It is advisable to ascertain the opinion of the public and health professionals about presumed or informed consent for organ donation before considering legal changes that might be potentially detrimental. The key donation person appointed in each centre/area must be aware of all local legal criteria and should be responsible for meeting these requirements. There should be a system for the safe custody of all certificates and test results required by the law.
- xi. Because both positive and negative messages can affect the public's willingness to donate organs, there is a need for a professional attitude towards, and support from experts in the field of, communications. They should help to minimise the impact of "bad news" on, and to maximise the communication

of “good news” about transplantation to, health professionals, the media and the public. Special attention should be paid to both the content of the message and the best means of dealing with the most controversial topics. The preparation of specific briefing materials should be considered.

- xii. The most cost effective means of increasing the public's willingness to donate seems to be improving the knowledge of health professionals (not directly involved in transplantation) and the media about transplantation issues. Continuing education should form an essential element of any communication strategy. A transplant hotline manned by appropriately trained professionals should be considered.
- xiii. People should be encouraged to speak about organ donation and transplantation and to communicate their wishes to their relatives. As a donor's wishes will not always be known, staff in a position to make requests for agreement to organ donation to relatives should be properly trained for the purpose. If such requests are well handled the rate of donation refusals can be reduced.
- xiv. Organ retrieval procedures should be well planned to minimise delay and disruption to donor hospital. Retrieval teams should be led by experienced surgeons trained, where appropriate, in multi-organ retrieval. Organ damage during retrieval should be reported and monitored and further training provided as necessary to minimise damage during retrieval or transportation.
- xv. An organ sharing/allocation organisation is essential but its roles and responsibilities must be clearly defined, particularly if it is to have a role in organ donation and procurement (see below).
- xvi. Attention should be paid to ensuring that hospitals are properly resourced and, if necessary, reimbursed for maximising organ procurement.
- xvii. In order to optimise organ donation there is need for a supra hospital transplant organisation, appropriate in size and structure to the local situation with specific responsibilities for the whole process of organ procurement.

- xviii. The most effective organisational approach is one which balances the requirements for effective organ procurement (small, local) with those for organ allocation (large, national/multinational) (see below). The aim should be to optimise organ procurement whilst ensuring the most clinically effective allocation of organs and tissues.
- xix. Health Administrations are responsible for ensuring that there is proper organisational support for organ donation and distribution and should guarantee the fairness, transparency and safety of the whole system.

2.2. International co-operation

- xx. International co-operation on the promotion of organ donation is desirable to help maximise organ donation and equalise access to transplantation between countries. Governments should actively promote such co-operation.
- xxi. Priority should be given to international co-operation which improves standards of training, exchange of experience, and which helps guarantee the safety of organs and the ethical standards by which they are retrieved and transplanted.

3. Introduction

After four decades of experience, progress in transplantation medicine and surgery has been impressive. Advances in technique and the development of new immunosuppressive drugs have made it possible to transplant successfully several major organs, i.e. kidney, heart, heart/lung, lung and liver, into an increasingly large number of patients. Transplants of the pancreas and small bowel are also being performed. Over 1 million people world-wide have received an organ transplant and some have already survived more than 25 years. Five-year survival rates for most organs are now at least 70%. Transplantation of parts of organs or tissues including corneas, heart valves, bone, tendons, etc. are also well established and in some cases like bone, demand is growing very rapidly.

However, a severe shortage of cadaveric organ donors remains a major obstacle preventing the full development of transplant services and imposes a severe limit to the number of patients who benefit from this form of therapy. Although organ transplants save thousands of lives and transform the quality of life of thousands more, many people will die or remain on renal replacement therapy because the organ supply falls drastically short of demand. Nearly 40 000 patients are at the moment waiting for a kidney in Western Europe whilst the number of cadaveric donors remains stable at around 5 000 each year.⁽¹⁾ This is also the case in USA where the gap between the number of available organs and patients on the waiting list is also very high. They have more than 30 000 patients on the waiting list and the number of cadaveric donors is around 5 000 each year.⁽²⁾ Mortality rates while

waiting for a heart, liver or lung transplant generally range between 15% and 30% but are even higher in some reports depending on the type of the organ needed.^(1,2) In 1994 there were no suitable livers for some 400 European citizens and around a further 400 died while waiting for a heart.⁽¹⁾

These figures do not reveal the true levels of unmet need for such organs. The potential need for the different organs is much higher.⁽³⁾ The shortage of organs means that only the patients most likely to benefit are put on the waiting list for an organ transplant. To put patients on a waiting list who have no hope of receiving an organ is both pointless and highly questionable ethically.⁽⁴⁾

The increasing demand for organs with no increase in the supply poses problems for many countries, particularly countries in which regulation of live donation is nonexistent or poorly regulated, as the risk of organ trafficking increases. In some countries outside Europe, adults have voluntarily sold one of their kidneys in exchange for money or some other kind of compensation. There have been rumours of kidnapping and coercion to force the donation of a kidney although these are fortunately mostly unfounded. Organ trafficking not only poses major ethical problems, but also makes it more difficult to guarantee the quality and safety of the organ. Organ donation, properly regulated, allows the safety and quality of the organs to be properly assessed. For this reason there is now a strong international consensus that, until or unless some alternative such as xenotransplantation becomes available, the only acceptable course of action is to make every effort to maximise the procurement of cadaveric organs for transplantation. Member states of the Council of Europe and the European Union and their respective transplant organisations have taken steps to eliminate the possibility of coercion or organ trafficking. Specifically, Article 21 of the Convention on Human Rights and Biomedicine states “the human body and its parts shall not, as such, give rise to financial gain”.

Transplantation comprises the processes of organ donation and subsequent implantation or grafting. The two parts are totally

interdependent. However, historically, the techniques of organ implantation have received far more attention from the scientific community in terms of both research effort and resources than organ and tissue procurement. Until very recently, only 2-3% of papers submitted to International transplant meetings were devoted to organ donation, procurement and preservation. Most transplant professionals now recognise the severity of the organ shortage and the need to address the problems posed. Editorials in specialist journals have recently addressed the problem,^(5,6) but there are still few research papers in this field.

Increasingly, national health departments, international working groups and meetings of experts are seeking to develop a closer co-operation between health professionals and administrations. Private companies and foundations are also now dedicating financial resources to support the development of educational or research programmes relating to organ procurement. The programmes of all international transplant meetings now include sessions devoted to organ procurement. However, organ procurement is not just a matter for transplant teams. The whole medical community needs to be aware of the problem and become involved either indirectly or directly in the process of organ procurement. Indirectly health care professionals can educate others about the problem, allay fears and encourage a positive attitude to donation. Directly, all health care staff can help identify potential donors and ensure that such patients are recognised and assessed. As in any other medical activity, the overall success of transplantation is ultimately the responsibility of all health care professionals.

This document provides an analysis of the steps necessary to achieve an effective process for organ procurement taking into account the available scientific evidence and describing relevant international experience. The document focuses on the technical and organisational aspects of cadaveric organ donation.

It should however be remembered that the deceased's wishes and the sentiments of his/her family have to be treated with respect.

The communication established with the deceased's family and the consideration given to their wishes are essential elements in the process of procurement itself.

Recommendations are made wherever opportunities exist for improving the process.

This document does not discuss living donation.

It does not discuss organ retrieval from non-heart beating donors (NHBDs) either, since such techniques are not currently universally accepted due to additional ethical, legal, technical and organisational problems.

4. Organ procurement

4.1. The transplantation process

4.1.1. Overview

Transplantation is a complex process involving a number of discrete but interconnected steps. Before considering the practicalities of the process, it is important to recognise the context within which it takes place. The use of substances derived from one human being for the treatment of others imposes unique ethical questions for society, particularly when, in the case of organs and most tissues, those substances are not renewable. Society now demands this type of treatment and itself benefits from the results. As Arthur Caplan testified before the US congress in 1990:

“What is truly distinctive about transplantation is not technology or cost, but ethics. Transplantation is the only area in all of health care, which cannot exist without the participation of the public. It is the individual citizen who while alive, or in the case of vital organs, after death, who makes organs and tissues available for transplantation. If there were no gift of organs or tissues, transplantation would come to a grinding halt.”⁽⁷⁾

Essentially, any acceptable organ transplant service depends totally on altruistic organ donation by either living or cadaveric donors. However, the Convention on Human Rights and Biomedicine states that:

“Removal of organs or tissue from a living person for transplantation purposes may be carried out solely for the therapeutic benefit of the

recipient and when there is no suitable organ or tissue available from a deceased person and no other alternative therapeutic methods of comparable effectiveness.”

When considering aspects of the transplant process, these important societal principles have to be taken into account.

Health professionals are essential to transplantation, as transplants are medical procedures. Such factors as economic benefit, institutional or individuals reputations, surgical ego, municipal pride or chauvinism, however, should never be the *raison d'être* for a transplant programme⁽⁸⁾. The overriding aim of any transplant programme should be to minimise the donor organ and tissue shortage by optimising the levels of altruistic donation of organs and tissue and ensuring their allocation to the most clinically appropriate recipient. The system should be based on strict adherence to widely accepted ethical rules.⁽⁹⁾ Any practice contravening such principles is to be deprecated.

4.1.2. The six steps

The donation/transplant process should start with the identification (donor identification) of all individuals with brain death being ventilated in intensive care units (ICUs). Such potential donors should be carefully assessed to exclude contraindications to donation (donor screening) pending the necessary clinical and legal procedures required to establish and certify brain death. During this phase, the haemodynamic stability of the potential donor must be maintained (donor management) to preserve the viability of the organs. The legal or social requirements for authorising the removal of organs or tissues have to be met. The relatives will have to be approached and interviewed either to obtain formal consent or to obtain a social history about the potential donor. Adequate support for the family from trained staff at this time is essential. The existence of the donor has to be notified to a transplant co-ordinator or appropriate transplant organisation to ensure that an appropriately trained person takes charge of the process of organ removal. Arrangements, both within and outside the hospital, for (multiple) organ retrieval (and/or

tissue) must also be made. Organ retrieval, preparation, preservation and packaging preparatory to transportation are a difficult process, which requires significant expertise if organs are not to be damaged and rendered unusable. The organs retrieved should be allocated (organ allocation) according to previously agreed criteria preferably by an organisation, which holds a common waiting list and can co-ordinate the distribution and transport of organs. Organs will normally be transplanted within a few hours of retrieval, although kidneys can be stored for up to 24 hours. Many tissues may be stored for much longer periods but may require further processing.

The whole process can take many hours and involve a large number of staff with very different skills and from many backgrounds. Such a process cannot be left to chance. Protocols or operating procedures are needed for each step and the staff involved needs to be properly trained and adequately experienced in their respective roles. Even in the best centres with the most complete infrastructure, difficulties sometimes arise and there is a risk that either the donor or the organs will be lost. It is important to have a means of auditing the procedures to identify problems and modify procedures accordingly, if the continued effectiveness of the process is to be ensured. Ideally, one key (donor) person should be appointed in each area/hospital with the specific role of managing and monitoring the transplant process.

Recommendation: The transplant process is long and complex and cannot be left to chance. Protocols should be developed for each step and a key person should be made responsible in each area/hospital for managing and monitoring the process with the authority to determine where efforts and resources should be directed.

4.2. Donor detection: potential and identification

4.2.1. Scope of the problem

Detecting potential donors is the starting point of transplantation and is possibly the most difficult to subject to standard protocols.

The only way to be sure that donors are not missed is to have a means of identifying and monitoring the potential and effective donor pools within relevant hospitals or areas. To do so requires collecting information about the total number of people certified as brain dead and the reasons, including relatives refusal, why some did not become donors. Reasons other than strict medical contraindications need to be examined including non-admission to an ICU. This in turn depends on the physicians in charge of patients identifying potential donors. The question remains how to monitor rates of potential and effective donation in such a way as to identify hospitals or areas where rates are low because of poor organisation or reluctance on the part of health care staff or relatives.

There are a number of possible indicators which depend on calculating rates of donation either in relation to the population of a specific area, or based on hospital indices such as the rate of donation compared to the hospital death rate, ICU death rate, or number of hospital beds, etc. The advantage of using indices based on large areas, e.g. a population of 10 million plus, is that rates are more reliable and stable over time. Data based on smaller populations or units may be affected by many factors.

Several studies using different methods suggest that rates of over 50 potential donors per million population per year (pmp/yr)⁽¹⁰⁻¹⁷⁾ can be achieved. None of the studies achieved 100% donor detection rates (Table I). Studies of hospital indexes⁽¹⁸⁻²⁰⁾ have suggested that 2% to 3% of all people dying in a hospital and around 14% of those dying in the intensive care units, will suffer brain death. Of these, between 17% and 20% will have a medical contraindication to organ donation. Such studies suggest that rates of effective donation of well over 30 pmp/year, can be achieved. (Such rates cannot apply to all organs. Suitable donors for heart and lungs, for example, need to be younger and fitter). In contrast the mean organ donor rate in the European Union during 1995 was 14 donors pmp/yr. The cadaveric kidney transplant rate over the same period was 27.3 pmp/yr.⁽¹⁾

Such studies give an estimate of the possible “donor detection gap” between current donor rates and potential rates if this first step of donor detection were to be fully effective. It is, in theory, possible that in some countries the transplant rates could be more than doubled. However, it is difficult to extrapolate from such studies to provide expected local rates as these will vary due to local factors such as road death rates, intracranial haemorrhage prevalence, population density, number of ICU beds, age structure, etc.^(21, 22) It is preferable to establish the donor detection gap for each hospital/area. Steps can then be taken locally to analyse the causes of the gap and implement measures to improve performance.

Recommendation: Published figures cannot be extrapolated to provide local rates of potential versus effective donors (although marked differences from published rates for potential donors should be considered as suggestive of under detection). The donor detection gap should be established for each hospital/area and systems for monitoring the rates established.

4.2.2. Improving donor detection

Knowledge of the environmental characteristics in the catchment area, e.g. health resources, infrastructure of the hospitals, location of neurosurgery teams and trauma centres, mortality rates, incidence of traffic accidents, cerebrovascular accidents, cerebral tumours, bullet wounds, etc. will help estimate the likely overall size of the donor detection pool. However, the best means of improving donor detection rates require an effective system for the early identification and follow up of all patients admitted to acute hospitals that may eventually be diagnosed as brain dead. The Donor Action Programme⁽²³⁾ advises that information on potential brain death patients should be recorded prospectively but analysed retrospectively by means of a review of the medical record. This type of analysis will identify localities or hospitals with both an underdetection problem⁽¹⁷⁾ and failure to convert detected potential donors into effective donors.

Recommendation: A means should be developed to evaluate the size and characteristics of the potential donor pool to measure and monitor the potential donor rates. To ensure reliability, data should be collected prospectively and analysed retrospectively as recommended in the “Donor Action Programme”.

4.2.3. Donor detection programmes

The best means by which potential donors are detected and rates monitored is a proactive system of donor detection every acute hospital for which a person of sufficient authority is given responsibility. Ideally a key individual (key donation person) should be given the responsibility for:

- i. development of a protocol for identifying potential donors which includes events to be recorded and clarifies the roles and responsibilities of hospital professionals in donor identification;
- ii. educational programmes for health staff about transplantation;
- iii. auditing donor procurement and problems on a regular basis.

Recommendation: Proactive donor detection programmes should be instituted in every acute hospital using specially trained professionals (key donation persons) working to agreed protocols and ethical rules.

4.2.4. The role of the “key donation person”

The key donation person needs to be a member of the hospital staff, well respected and closely related with the intensive care units. He/she should work in close relation, but independent from any transplant team(s) and report directly to the medical director of the institution and the OPO/OEO, who are accountable for overall performance. The role of the key donation person is now considered by many to be fundamental to improving donor detection rates. It is he/she who will be responsible for integrating the actions noted above; for development of donor detection programmes and specific protocols, etc., and for defining local benchmark figures and targets for improvement. The

appointment of such a person will make the difference between a successful and a non-successful donation programme.

Recommendation: A “key donation person”, independent from transplant teams, should be appointed in every acute hospital with clearly defines roles and responsibilities for establishing, managing and auditing systems for donor identification and identifying potential areas for improvement.

4.3. Donor screening: acceptability of organs

It is important to ensure that, as far as possible, any organs retrieved from a donor are of acceptable quality and do not pose an unacceptable risk to the recipient. The major risks to the recipient are the transmission of infectious or malignant disease with the organ. Advice on microbiological screening has been prepared by the Council of Europe⁽²⁴⁾ and others and guidance on screening donors for malignancy has also been published by the Council of Europe.⁽²⁵⁾ Standard protocols for screening potential donors should be developed locally.

The risk factors which determine the suitability of potential donors change from time to time and include not just the risk of transmission but the quality of the organ in terms of its viability. Improvement in donor management, organ preservation and transplant experience have meant that increasingly transplant teams can use organs which were considered marginal a few years ago.⁽²⁶⁾ Protocols to assess the suitability of donor and each of their organs should be developed but will need to be reviewed from time to time to maintain the balance between minimising the risk of organ transplantation for the recipient and maximising the supply of organs.

Recommendation: Protocols should be developed setting out the criteria for screening potential donors and their organs for the risk of disease transmission and potential viability. All appropriate steps should be taken to avoid the transmission of infectious and neoplastic diseases and primary organ failure.

4.4. Donor management

4.4.1. Scope of the problem

There is time further to evaluate and screen the potential donor. After completing brain death certification, obtaining appropriate consent; fulfilling legal requirements (see below) and organising the retrieval procedure (see below), it is necessary to maintain the potential donor in a medical condition which will maximise the viability of the organs. Depending on time necessary to complete the above processes, donor management may be critical over a period of 24 hours or more during which time the donor's condition could deteriorate sufficiently to prevent the use of some or all of the organs. Prevention of severe sepsis, maintenance of haemodynamic stability and avoidance of cardiac arrest are examples of good donor management. In a five-year study performed in a hospital in Barcelona, 14% (55/399) of otherwise acceptable organ donors suffered from either a cardiac arrest or uncontrolled sepsis which were contraindications to retrieval.⁽²⁷⁾ In a Madrid study,⁽¹⁸⁾ 9.5% (107/1137) of all brain death subjects suffered a cardiac arrest at some point in the process. Similarly, a 1993 Basque study⁽¹⁶⁾ reported cardiac arrest in 11 of 131 potential donors (8.4%). In a multicentre Spanish audit performed during 1995, the figure had been reduced to 4%.⁽²⁰⁾ In another study, an aggressive approach to donor management resulted in the transplantation of 44 donor hearts that might otherwise have been turned down.⁽²⁸⁾

4.4.2. Potential for improvement

The medical management of a potential donor is primarily the responsibility of the physician in charge of the ICU. However, at this stage the time for which such a doctor can be expected to keep and maintain a potential donor is limited, particularly given the pressure on ICU beds. Once death has been declared, donor management should transfer to the retrieval team leaving a potential gap. Therefore, the "key donor person" should also have responsibilities for donor management and particularly for overcoming problems, which can slow down the process.

The audit of potential donors, proposed in section 4.2 above, should also enable any complications arising in potential donors to be identified and analysed. Evidence of poor donor management which resulted in a loss of donated organs should be analysed and steps taken to avoid such complications in the future.

Research programmes into, and educational courses for, donor management have an important place improving our understanding of the problems and will help minimise the risk of complications, which will affect the acceptability of donors. New techniques or therapies that could help should be widely disseminated. Donor management training programmes for clinicians and nurses working with organ donors have proved very successful.⁽²⁹⁾

Recommendation: The incidence of irreversible cardiac arrest, sepsis and other contraindications to organ donation relating to donor management of potential donors should be monitored and audited to detect and correct any problems identified. Involvement of ICU staff in research and/or educational programmes on donor management should help raise standards.

4.5. Brain death

4.5.1. Legal requirements

Most countries have laws or codes of practice that define the brain death. Ideally, the means by which brain death is established and certified and its relation to transplantation should be explicit and agreed nationally. However, there are still some countries, which do not have a comprehensive legal framework covering all aspects of transplantation. Countries are strongly advised to review, and where necessary enact, laws that should cover as a minimum:

- i. an adequate definition of brain death which enables organ and tissue retrieval from donors after diagnosed brain death;
- ii. the form of consent or authorisation required to enable organ and tissue donation;

- iii. a requirement to register both the donor and recipient in such a way that donation is traceable but which maintains confidentiality;
- iv. bans absolutely any form of trade in organs or tissues (organ trafficking);
- v. the terms on which hospital staff and/or Health Authorities are permitted to retrieve and transplant the organs and tissues.

Recommendation: An appropriate legal framework for donation and transplantation is required which adequately defines brain death; the type of consent or authorisation required for retrieval (see below); the means of organ retrieval, traceability, confidentiality and which bans organ trafficking.

4.5.2. Diagnosis and legal certification

The clinical criteria to be met to establish a diagnosis of brain death are well recognised and accepted world-wide. They are discussed and explained in specialised publications.⁽³⁰⁾ Where differences in practice exist, this is normally a result of the necessary legal criteria to be met in a particular country.

If there is any doubt about the cause of death, then a judge or a coroner must be informed. This requirement is not necessarily a bar to donation. Such deaths represent some 40% of all donations in Spain or the USA. The impact of judge's/coroner's practices on organ recovery has not been widely investigated but is thought to be variable. For example, between 1991 and 1994 in the Madrid region, judges refused organ removal from some 3.5% of all such cases.⁽¹⁸⁾ In the USA from 1990 to 1992 organs retrieval was refused in between 7% and 11.4% of coroner's cases.⁽³¹⁾

4.5.3. Potential for improvement

There are no internationally agreed criteria by which judges or coroners can decide in which cases it is appropriate to allow organ retrieval. Depending on the legal system and the nature of the suspect

death (e.g. trauma or sudden death versus suspected murder), some lawyers will see no reason to refuse organ removal whereas others may believe that it could prejudice full investigation, particularly in a suspicious death. It is advisable not just to keep such professionals fully informed about the benefits of transplantation, but to actively involve them in discussions about how best to minimise the loss of organs as a result of necessary legal procedures.

Recommendation: Law professionals should be fully aware of the transplant process and the co-operation of those most closely involved, i.e. judges and coroners, should be sought to reduce legal refusals to a minimum.

4.6. Authorisation or consent to organ donation

4.6.1. Legal considerations

Most countries have laws relating to consent or authorisation required for organ and/or tissue donation for transplantation purposes. In many the consent of the relatives prior to organ procurement is required (Table II). However, (see below), there is a debate between authors about the relative merits of laws which presume consent (unless the individual has opted out) and those which require either the positive consent of the donor (via donor card or register) or the consent of relatives. Presumed consent laws, when fully accepted, seem to benefit donation,⁽³²⁾ but, in practice, are often not applied mainly because of reluctance within the medical and legal communities to enforce donation.⁽³³⁾ The King's Fund Report did not recommend immediate implementation of presumed consent legislation in the UK on the basis that it could lead to public disagreement between professionals which would have an adverse impact on transplantation.⁽²¹⁾ If countries wish to apply a presumed consent law strictly, they need to develop a non-donor register which requires a significant infrastructure. Even then unfortunate misunderstandings are possible if the information about organ donation is not kept up to date or given out by untrained or under-trained staff.

In spite of the support organ donation receives in Spain, a recent survey showed that most people are against a change in current practice. Only 6% believed that organ removal should be performed without first consulting the wishes of the relatives.^(34,35) Reasons given by the general public in support of this attitude include the view that strict presumed consent represents an abuse of authority and/or that it is an offence against the relatives. Only one in five respondents to an UK survey in 1992 were in favour of the introduction of presumed consent whereas 50% were against the proposal.⁽²¹⁾

In practice, because of the need to take a social history from available relatives, even in those countries with presumed consent laws, clinicians are reluctant to retrieve organs if the relatives object for fear of adverse publicity. It is essential that good records are kept of all consents or authorisations obtained for each donor.

Recommendation: It is advisable to ascertain the opinion of the public and health professionals about presumed or informed consent for organ donation before considering legal changes that might be potentially detrimental. The key donation person appointed in each centre/area must be aware of all local legal criteria and should be responsible for meeting these requirements. There should be a system for the safe custody of all certificates and test results required by the law.

4.6.2. Obtaining authorisation or consent

The approach to the relatives of a potential donor is another of the key steps in the transplant process and one of the most sensitive given that it necessarily coincides with the distress and trauma surrounding any death, particularly if that death is sudden or unexpected as is so often the case when the patient is young. Together with the initial identification of potential donors, refusal by relatives to consent to organ retrieval remains one of the major causes of loss of potential donor and a serious obstacle to improving organ donation rates.

4.6.3. Factors affecting willingness to allow organ donation

There is evidence⁽¹⁹⁾ that relatives will rarely refuse to allow organ donation if the donor has previously made clear his/her willingness to donate. A few people and/or their relatives will have strongly held beliefs, which will make them unwilling to donate organs under any circumstances. The majority of the people are “neither for or against” transplantation. The key questions are, therefore:

- i. What factors will influence people to willingly agree to organ donation in advance and to make their wishes known to relatives and friends?
- ii. What factors will influence relatives to agree to donation when the views of the potential donor are not known in advance? As noted above, although the legal position could, in theory, be a major factor, in practice it is not. The underlying public and professional attitudes to donation/transplantation are more important. One of the key factors influencing the willingness of individuals and their relatives to agree to organ donation, is the public attitude to transplantation at the time. Consideration should be given to how public and professional perceptions about transplantation can be positively influenced.

4.6.4. Public attitudes: impact of the media

As surveys have shown,^(21,35,36) there is significant public support for organ donation. One recent Spanish national survey shows a significant link between the public’s predisposition to organ donation and their view that transplantation is a “good” health care service. This suggests that bad publicity about important matters such as brain death, organ trafficking, or fairness of access to transplantation, can have an adverse effect on the public’s predisposition to agree to organ donation.

Many transplant professionals believe that adverse publicity about transplantation generates an increase in refusals to consent by lowering the image of transplantation among both the public and health care

workers not specifically involved in transplantation. The impact of positive or negative publicity is usually underestimated by the scientific community. There are some classic examples of negative effects. In 1980, after a prime time TV current affairs programme in the UK had questioned the validity of brain-death criteria (Panorama BBC), it took 15 months for donor referral rates to recover. France and Belgium, both countries with traditionally high organ donation rates, have recently experienced significant drops, attributed at least in part to negative publicity. In France it was revealed that there had been a failure to fully inform relatives of procurement procedures. In Belgium publicity was given to the high percentage of non-residents on national transplant waiting lists.

Rumours about organ trafficking (mainly false) have achieved the status of a “modern myth” probably because they embody some of the most potent fears about “science” in modern day life. Such rumours have caused significant damage to altruistic attitudes to organ donation all over the world.

In contrast, the so-called “Nicholas Green effect” is claimed to have had a positive effect on Italian public opinion with regards to organ donation. Nicholas was a 7-year old American child, shot dead by a bandit near Reggio Calabria in September 1994. His parents agreed to donate his organs after being asked to do so by Italian doctors. The Italian media reporting of the story – that the parents could still be generous to the Italian people in the face of the violence inflicted on their son – added to the positive impact of the parents’ decision on organ donation rates.

The media can have either a positive or negative influence on willingness to consent to donation. Journalists do not appear to deliberately promote or sensational stories about organ transplantation. Often they ask real questions about a complex and sensitive area but may report mistaken or imprecise answers. Such problems could be reduced by either better self control on the part of the media or better education of the media about transplantation issues (see below).

4.6.5. Communication strategies

There is no evidence that media stories, particularly the positive ones, have any long term effect on public attitudes to donation or on overall organ donation rates. This raises the question as to whether formal public education programmes can influence public attitudes to transplantation. In general, there is little evidence to suggest that direct publicity campaigns would influence the public unless resources comparable to the publicity budgets of major international companies are used. A television campaign conducted by the Department of Health in the UK showed a drop in the refusal rates from 30% to 22% during a period of intense publicity but it soon returned to precampaign levels.⁽²¹⁾ In 1987 an Australian national survey was undertaken to determine the population's knowledge about organ donation and transplantation. Two years later TV advertisements highlighting the need for organ donation were screened over a period of 6-12 months. A national follow-up survey in 1990 showed that knowledge about the next of kin's decision increased from 30% to 60%, but the percentage expressing a willingness to donate remained unchanged.⁽³⁷⁾ There are no convincing reports from the medical literature, which support the idea that this type of approach can predispose people to organ donation.⁽²¹⁾ On the contrary, there is a growing feeling that such campaigns are ineffective or at least have a very high cost-effectiveness ratio.

During the last few years, attention has turned to trying to provide the media with accurate and positive information about organ donation and transplantation. In Spain, the Organisation National de Transplant (ONT) is responsible not only for co-ordination transplant services and providing guidance for the health care professions, but also for provision of information for the public and the media. Several strategies have been followed in an attempt to harness the power of the mass media and to improve the general level of information about these topics. The aims of these strategies are clearly defined:

- i. to manage all potentially adverse publicity by trying to turn the media attitude to donation from negative to at least a receptive

and, if possible, a positive attitude towards organ donation and transplantation;

- ii. creating a more positive atmosphere towards organ donation through the periodic dissemination of positive news.

The central messages to get over to the public have also been made very clear:

- i. transplants are very effective and well-established procedures;
- ii. they can offer long term survival and a high quality of life for increasing numbers of patients with no other hope of cure;
- iii. organ donation is the only way to save such patients' lives;
- iv. organ shortage is the main limitation to saving the live of more such patients;
- v. any of us might need an organ.

In contrast there are negative messages which need to be countered. Organ transplantation should not be seen as:

- i. an experimental procedure;
- ii. a procedure whose main objective could be to benefit an individual surgeon, institution or any other form of self interest;
- iii. a procedure only available for the wealthy or influential.

News or many kinds of programme, although not negative in themselves, can still pass on implicitly negative messages of this sort and need to be guarded against.

4.6.6. Target audiences

Given that the impact of public education is likely to be limited and also that the greatest potential for increasing the donor pool is detecting currently undetected donors, other types of education and/or communication might be more effective in increasing the supply of donors. The most important group which needs to receive adequate and appropriate information is health professionals, particularly

those responsible for identifying potential donors and/or approaching the grieving relatives. Most such health care professionals are not themselves involved directly in the transplant process and their knowledge of the success rates, etc. can be sparse. This group is also prone to being influenced by negative stories about transplantation.

It takes a special type of courage to discuss organ donation with shocked and distraught relatives and is not surprising, therefore, that health care staff put in such a position, are easily discouraged. Equally, the more such staff feel that what they are doing is beneficial and necessary, the more likely they are to be willing to try. The support of this group of health professionals is essential so that they should not just be the focus of communication strategies but should be directly involved in the development of such strategies to ensure that they have full confidence in the messages and are willing themselves to pass them on to other health care workers and the general public.

As noted above, another important target audience for any communication strategy is the media. Their influence on public opinion has already been discussed and it would be helpful to have the media generally better informed. One strategy being tried in Spain and Portugal is periodic meetings between journalists, experts in communications and leaders in the field of transplantation which are aimed at educating the media, addressing their misconceptions and emphasising the positive life-saving aspects of donation/transplantation.

4.6.7. Transplant “hotline”

Another information tool that has proved popular in some countries is a transplant hot line. Most comprise a single telephone number for a country or region, which is manned 24 hours/day, 7 days/week, by trained staff who can provide relevant and accurate information rapidly. Originally intended for the public, such hotlines are popular with health care professionals, especially GPs, and the media. The fact that anyone, including the media, can, at any time, obtain medical, legal or statistical information about organ donation, has

helped reduce the incidence of adverse stories about transplantation, increased public confidence and helped generate a climate of trust and transparency about organ transplantation.

4.6.8. The need of professional support

Developing and managing an effective communications strategy is in itself a complex task. There are a number of elements for which either specialised training or the support of communications professionals are advisable. Training in communication and media skills is essential for those members of the transplant community who are highly visible and so likely to be approached by the media, and those who can and should act as spokespersons. Credibility is a major factor in good communications and it is helpful to be able to field representatives who can unhesitatingly produce positive messages.

Many transplant issues are either very delicate or complex. Some of the topics, e.g. brain death, organ trafficking, access to transplants, are controversial. If not handled correctly, they can have a catastrophic effect, at least in the short term, on organ donation rates. Professional advice should be sought on the best way to get over difficult messages. Again, help with the preparation of material, press releases, briefing packs, leaflets, etc., intended to explain such matters to the public and media. It may be helpful to issue to health professionals involved in transplantation with specific guidelines, which explain clearly and accurately such difficult topics to help them get effective messages to other health professionals, the public and the media.

Recommendation: Because both positive and negative messages can affect the public's willingness to donate organs, there is a need for a professional attitude towards, and support from experts in, the field of communications. They should help to minimise the impact of "bad news" on, and to maximise the communication of "good news" about, transplantation to health professionals, the media and the public. Special attention should be paid to both the content of the message and the best means of dealing with the most controversial topics. The preparation of specific briefing materials should be considered.

The most cost effective means of increasing the public's willingness to donate seems to be improving the knowledge of health professionals (not directly involved in transplantation) and the media about transplantation issues. Continuing education should form an essential element of any communication strategy. A transplant hot line manned by appropriately trained professionals should be considered.

4.6.9. Approaching the relatives

The other major factor in reducing refusals when the wishes of the donor are not known is the manner in which the approach is made to the relatives at the time consent is sought. The high percentage of relatives refusing to agree to donation when the request is made has been noted. It is known that, when the wishes of the deceased are not known, only 50% of people will agree to organ retrieval from their relatives.^(35,36) One answer is to encourage people to speak about organ donation and transplantation and make their wishes known to their relatives. This could completely change the picture^(31,34) resulting in 93-94% of people allowing donation. But, as it is unlikely that the wishes of most people will be known, it is important to ascertain whether the attitude and skills of the staff in a position to seek agreement from relatives can influence their decision.

In the USA the Uniform Anatomical Gift Act 1987 contains a provision that requires staff to make routine enquiries of all potential donor's relatives about organ donation. It provides that failure on the part of hospitals to adopt routine enquiry will lead to the denial of Medicare and Medicaid reimbursements. In spite of the requirements, it has been reported⁽³⁸⁾ that up to 20% of potential donor families are not approached by the hospital staff. The reasons given include views of staff that donation can compound the family's grief; there is a perceived conflict of interest, they are uneasy with the idea of donation itself or presenting the option to the relatives, or simply that staff lack of awareness of the process. The USA experience illustrates that simply to enact required request legislation is not enough. If you simply cite the law when asking relatives about organ donation the consent will be zero.⁽³⁹⁾

Analysis of the reasons for relatives refusing retrieval (Table III) do not vary very much from one country to another.^(19,40,41) In at least a proportion of the cases, the relatives' decision could have been influenced by the way, in which the family was approached and informed. A large Spanish multicentre trial showed that an initial negative response can be changed into consent if the approach is right and the relatives doubts relate to brain death, the integrity of the corpse or religious causes. It is not so easy if the relatives have a negative attitude to transplantation or there have been problems with the hospital staff.⁽⁴⁰⁾

A study by the Partnership for Organ Donation⁽⁴²⁾ and another Spanish study⁽⁴³⁾ have demonstrated that bereaved families can also benefit from organ donation. The feelings of donor and non-donor families were studied one year after the death. Among donor families, 85% in one study and 86% in the other believe that donation provided a positive outcome of the death. Some 80% said that donation helps the bereaved families, and 89% or 100% would donate again. Of the families that refused consent, 30% in both studies would have changed their mind one year later.

In many cases, the willingness or otherwise of relatives to agree to donation is not fixed but can be influenced by the attitude and skills of the health care staff who have to tell relatives bad news. It is essential that such staff are fully trained and experienced, not just in breaking the bad news of the donor's death, but also in communicating the request for organ donation sensitively and being able to answer any doubts the relatives may have. Formal training should be mandatory for all such staff to give them the confidence to approach the relatives in the first place and to give them the best chance of obtaining a positive response. Contrary to the opinion of some authors, it seems that, if skilfully requested, agreement rates by relatives can be improved,^(44,45,46) or, at least, such training is not detrimental to organ donation.⁽⁴⁷⁾ Some of the key attitudes include:

- i. we must realise that we are there to help and be useful and never to upset anyone;

- ii. it is essential to make a comprehensive offer of help by trained staff who will continue to support the relatives independent of their decision;
- iii. the first approach must be carefully prepared including learning about the family members/relatives; the time and place carefully considered and the request for organ donation separated from the communication of the death to allow the family the time necessary to accept the news;
- iv. the relatives must not feel they are being hurried, for them there is no longer any need for speed;
- v. it is advisable to continue to provide support and information to the family after donation.

Staff approaching grieving families should have been on specifically designed training programmes. Interviews should be carefully analysed in a follow up process by the responsible donation team to identify avoidable errors, e.g. not having provided adequate information; not following the rate of assimilation of concepts by the relatives; having lost control following some reactions, etc. Such routine evaluation helps determine and maintain best practice.

Recommendation: People should be encouraged to speak about organ donation and transplantation and to communicate their wishes to their relatives. As a donor's wishes will not always be known, staff in a position to make requests for agreement to organ donation to relatives should be properly trained for the purpose. If such requests are well handled, the rate of donation refusals can be reduced.

4.7. Organ retrieval

4.7.1. Introduction

Once brain death has been established and the necessary consent or authorisation obtained, organ retrieval can take place. The age, condition and management of the donor will determine the number

of organs and tissue that can be retrieved. The retrieval procedure should be efficient and dignified so as to minimise the disruption to the donor hospital and staff. The key donation person or a transplant co-ordinator should be made responsible for making the arrangements including alerting the transplant centres to a possible donation early; providing donor data to a transplant centre or organ allocation organisation (see below) for identification of the most appropriate recipient; preparing for the retrieval team(s) and ensuring packing and transport is available for organs to be used in other centres. Procedures should be carefully planned, well rehearsed and regularly audited to ensure delays are kept to a minimum and that procedures are amended as necessary.

4.7.2. Multi-organ retrieval

A single donor can provide multiple organ and tissue donations (2 kidneys, heart, 2 lungs, liver, pancreas, small bowel, 2 corneas, heart valves, etc.). It is now recognised that as many organs as possible should be retrieved from each donor. Reported multi-organ donation rates vary from 30-80% but are improving. The latest report from the UKTSSA⁽⁴⁸⁾ shows an average of 3.5 organs retrieved per donor. However, organ transplant centres tend to be based on a single organ (kidney, liver and heart and lung). This has meant that specific organs have been retrieved by teams from different centres. Sometimes two or even three teams have arrived at the donor hospital each wanting to retrieve particular organs. This creates problems of timing as others may have to wait for the slowest team, prolongs retrieval times and risks one team damaging or affecting the viability of other organs. Such complex procedures can be distressing for the staff of the donor hospital making them less willing to participate in future organ donation.

Increasing use is being made of area or zonal retrieval teams with the skills and experience to retrieve several organs, preserve them and prepare them for transport to other centres. Appropriately trained teams can greatly improve the efficiency and dignity of the retrieval process. They arrive quickly and will often take a complete team

including anaesthetist and nursing staff so that staff of the donor hospital do not have to be involved in the retrieval. Countries should examine their retrieval methods and, where necessary, establish a retrieval system, which maximises multi-organ (and tissue) retrieval and minimises the length of the retrieval process and the disruption to the donor hospital.

4.7.3. Organ damage

There are very few reports of rates of organ damage during retrieval. However, recently there was sufficient concern about damaged kidneys in Finland to organise courses in retrieval training.⁽⁴⁹⁾ Similarly a report to the UKTSSA Kidney Advisory Group in 1997⁽⁵⁰⁾ showed that some 20% of kidneys were being damaged. Most were repaired and used but a further analysis of data for 1995-1996 showed that approximately 1% of all organs (kidneys, hearts, lungs and livers) were not used because of damage during retrieval.⁽⁵¹⁾ In view of the organ shortage even the loss of one organ as a result of poor retrieval procedures is a matter for concern. All organ retrieval teams should be led by a senior surgeon experienced in organ retrieval. Consideration should be given to ensuring that, as far as possible, all organs are retrieved by appropriately trained multi-organ retrieval teams. Organ damage should be reported and audited and, if necessary, further training provided. Regular training courses in organ retrieval should be provided for transplant surgeons in training. Finally, procedures for organ preservation, packaging and transport need to be well established and regularly reviewed. There is anecdotal evidence of organs being damaged, e.g. by ice due to faulty packaging.

Recommendation: Organ retrieval procedures should be well planned to minimise delay and disruption to donor hospital. Retrieval teams should be led by experienced surgeons trained, where appropriate in multi-organ retrieval. Organ damage during retrieval should be reported and monitored and further training provided as necessary to minimise damage during retrieval or transportation.

4.8. Organ allocation and organisational issues

4.8.1. Introduction

Given the short time (a few hours) that some organs (heart, lungs and liver) can be maintained in good condition prior to implantation, and the necessity to ensure that the organ is matched to a suitable recipient (size, blood group, HLA match, etc.), it is essential that effective systems are in place to ensure that the organs (and/or tissues) retrieved are allocated to the most appropriate patient(s). There should be at least a national patient waiting list with some form of co-ordinating office, covering a defined area which could be a region, country or even group of countries, in charge of all the organisational and administrative tasks necessary to ensure rapid and fair organ allocation. Every country should ensure there is in place a system which has transparent and justifiable organ allocation rules.

4.8.2. Organ allocation/exchange organisations

There is general agreement about the need for some sort of organisation to support transplant activity in a specific area, country or group of countries. Many such organisations already exist. Many are primarily organ sharing offices (OSOs) or Organ Exchange Organisations (OEOs) which were originally closely related to the tissue typing laboratories. The first and largest European organisations (Eurotransplant and France Transplant) had their origin and philosophy on HLA based kidney sharing during the sixties. They were created and developed as a result of professional agreements, which evolved further during the eighties to cover non-renal organs. However, such existing transplant organisations vary significantly from country to country in terms of:

- i. scope – regional, national, supranational;
- ii. size of population served – small < 10 m; medium 10-60 m; large > 60 m;
- iii. management – professional; health administration; mixed;
- iv. structure – non-for-profit foundation; state agency; private agency;
- v. organisation – centralised/decentralised;

- vi. objectives and responsibilities – organ sharing/exchange/procurement;
- vii. activities – organs +/- tissues +/- bone marrow.

Such differences result from the origin and development of the organisation, the national health system of the country, the resources available and even the personal profiles of the founders and directors. Most such organisations world-wide are, however, dedicated at least to maintaining common patient waiting lists, agreeing and effecting organ sharing and allocation methods, registering donors and/or transplants, producing statistics and, in some cases, organising organ retrieval team arrangements.

Recommendation: An organ sharing/allocation organisation is essential but its roles and responsibilities must be clearly defined, particularly if it is to have a role in organ donation and procurement (see below).

4.9. Organisational support for transplantation

4.9.1. Introduction

The preceding sections have covered the essential steps in transplantation and considered how the effectiveness of each step can be improved to maximise the procurement of high quality organs and their distribution to the most appropriate recipients. However, some sort of organisational framework is required to support, monitor and regulate not just organ allocation and exchange, but the whole process. This final section considers what support is required and how best it might be delivered.

4.9.2. Hospital organisation

Starting at the beginning, the potential donors are to be found primarily in the ICU units of hospitals. There is a need to develop policies, which encourage hospitals to engage actively in organ donation. Such policies

should address the financial and other resource issues relating to organ donation. For example, the number of ICU beds, the facilities available for retrieval, the cost of maintaining patients on ICU, cumbersome brain death certification or organ retrieval procedures can, unless addressed, all inhibit a hospital from seeking to maximise organ donation.

Recommendation: Attention should be paid to ensuring that hospitals are properly resourced and, if necessary, reimbursed for maximising organ procurement.

4.9.3. Organ procurement organisation

There is no single formula for an appropriate supra hospital organisation that can ensure good results. It is increasingly argued that the ideal situation is an integrated organisation that can support the whole process of organ donation and allocation (see below). There is, however, an apparent contradiction, which must be recognised because it has implications for the optimum size and type of organisation. As far as organ sharing is concerned, and with some limitations (time, cost), it has been accepted that “the larger the pool of patients, the better the match.”⁽⁵²⁾ Suitable organs cannot easily be found for urgent patients and “difficult” recipients (children, highly sensitised renal patients, and rare HLA types) within the scope of a small organisation. Such considerations point to a large organisation as the optimum model.

However, when it comes to maximising organ donation, there are data, which indicate the opposite is true, i.e. that smaller organisations are more effective than the bigger ones.⁽⁵³⁾ This is thought to be due to a better knowledge of local factors, knowing and being able to influence the professionals involved and more direct accountability for the whole process. Large centralised organisations whose staff do not fully participate in the decision making process are generally strongly de-motivating and so would not readily promote increased organ donation. Moreover, there are those who would argue strongly that cadaveric organs procured within a community should be considered assets of the community and that the community rather than just the medical profession should determine their allocation through agreed criteria.⁽⁵⁴⁾

Recommendation: In order to optimise organ donation there is need for a supra hospital transplant organisation, appropriate in size and structure to the local situation with specific responsibilities for the whole process of organ procurement.

4.9.4. Transplant support: organisational objectives

Ideally, any transplant-co-ordinating organisation should fulfil two fundamental functions. It should provide overall support for the donation/transplant process and be in direct charge of distributing organs with all that entails. Such an organisation would not be an OPO or OSO, i.e. concerned only with organ sharing, but have a clear objective of maximising the supply of donor organs. Such an organisation should be able to detect any problem, which could lead to a loss of donors, and offer solutions. This would only be possible if the organisation could develop well established protocols covering the whole process described above, audit the results of hospitals or local organisations through effective data analysis, promote relevant research, provide training programmes and supply accurate and appropriate information.

The organisation would be responsible for ensuring the legal and ethical acceptability of the donation process and be able to guarantee the fairness and transparency of both organ allocation criteria and the equity of access of all recipients. The organisation should also be responsible for organ (and tissue) exchange between it and other recognised national or supranational organ transplant co-ordinating organisations. In summary, the organisation should be able to agree and implement operational policies covering all aspects of the donation/transplant process.

4.9.5. Transplant support organisations

The question then arises as to whether there are any existing examples of organisations which have attempted to combine the benefits of smaller local organisations directed to organ procurement with those of the large, possibly multinational OEO? As has been noted above, there are

in Europe (and elsewhere) a number of large transplant organisations, which vary in their roles and responsibilities, Eurotransplant, France Transplant, Scandia Transplant, ONT, and the UKTSSA. The UKTSSA maintains a common waiting list and is responsible for organ allocation, but has also agreed protocols for organ retrieval. Three years ago, it introduced zoning arrangements throughout the UK to improve organ retrieval and distribution. In Spain, ONT is implementing a system of interdependence between district/regional based procurement arrangements which work as part of a national transplant organisation. The type of organisational solution, which seems to be the most appropriate, is one which offers the possibility of ensuring a common approach and standards with sufficient local autonomy to maintain enthusiasm.

Recommendation: The most effective organisational approach balances the requirements for effective organ procurement (small/ local) with those for organ allocation (large, national/ multinational). The aim should be to optimise organ procurement whilst ensuring the most clinically effective allocation of organs and tissues.

4.9.6. National responsibilities

Whatever organisation is established, the direct, or at least indirect involvement, of national health administrations in the transplant system is essential to provide the necessary legal framework and resources and to guarantee that someone is held accountable for the performance of the transplant service and the safety and traceability of the organs and tissues donated.

Recommendation: Health Administrations are responsible for ensuring that there is proper organisational support for organ donation and distribution and should guarantee the fairness, transparency and safety of the whole system.

5. International co-operation

The majority of organs retrieved will be used either in the same region or within a country of organ transplant organisation, but some international exchange of organs is desirable either for urgent cases (livers) or difficult tissue matches (kidneys, bone marrow). It is important that the clinicians using such organs can feel confident in the screening and retrieval systems in the donor country. The organisation of organ retrieval systems will be regional and/or national and be adapted to best meet local health service organisation and legal framework. Again, however, it is desirable that such systems achieve some common standards. Bad publicity about organ transplantation in one country may have an impact on organ donor rates in others. Patients may try to get put on waiting lists in different countries. There is, therefore, a common interest in ensuring that transplant services are, and are seen to be, above reproach. Organisations may have much to learn from each other about solutions to problems and cost effective organisation.

Such co-operation should be established and may be achieved either by international agreement or by some sort of supranational organisation.

The following aspects of the organ donation/transplantation process might be the subject of such international co-operation:

- i. learning, exchange of experience;
- ii. training of people involved in organ donation;
- iii. prevention of commercialisation;
- iv. validation of waiting lists;
- v. finding organs for “problem” recipient;

- vi. tracing of organs from donor to recipient;
- vii. accountability and transparency of transplantation services;
- viii. standardisation and/or accreditation of e.g. hospitals, laboratories and transplantation services;
- ix. educating and informing the population and the media.

Recommendation: International co-operation on the promotion of organ donation is desirable to maximise organ donation and equalise access to transplantation between countries. Governments should actively promote such co-operation.

Recommendation: Priority should be given to international co-operation which improves standards of training, exchange of experience, and which helps guarantee the safety of organs and the ethical standards by which they are retrieved and transplanted.

Table I. Potential organ donation rates and effectiveness in donor detection in different countries/areas

	Year	Potential donor pool (donors pmp/year)	Donor detection effectiveness rate
	1988	50.8	75%
Siminof <i>et al.</i> Pennsylvania + Minnesota ⁽¹¹⁾ 1995	1991-92	65.4(*)	91.5%
Nathan <i>et al.</i> Pennsylvania ⁽¹²⁾ 1991	1987	38.3-55.2	52%
Espinel <i>et al.</i> Cataluña ⁽¹³⁾ 1989	1987	40	92%
Aranzabal <i>et al.</i> Euskadi ⁽¹⁴⁾ 1995	1993	53	90
Evans <i>et al.</i> USA ⁽¹⁵⁾ 1992	—	43.7	Estimation
Multicentre Spanish study ⁽¹⁶⁾ 1994	1994	65 (*)	90

*Brain dead declared people medical contra-indications including () = References

Table II. The type of consent required in different countries

Presumed consent	Theoretically presumed consent but practically informed consent
Finland	
Portugal	Spain
Austria	Italy
Sweden	Greece
Czech Republic	Belgium
Slovak Republic	Luxembourg
Hungary	France
Poland	
Informed consent	No legislation. Practically: informed consent
USA	
Latin America	
United Kingdom	
Ireland	
Denmark	
Netherlands	
Germany	

Table III. Reasons for refusal by country

Reasons for refusal	Spain	France	Spain (Madrid)
Study Date	1993-94	1992-93	1993-94
Centres	12	8	11
Interviews	618	213	352
Refusal Rate	16.6	26	25.2
Reference	(30)	(32)	(17)
Lack of/Inaccurate information provided to the family			
– Brain Death	5.8%	22%	9%
– Corpse Integrity	4.8%		5%
Family opposed	24.2%	32.3%	25%
Lack of information about donors wishes	3.8%		3%
Social claims	3.8%		2%
Negative attitude of the deceased during his/her life	40%	36.7%	38%
Religious reasons	2.9%		7%
Problems with hospital staff	7.7%	9%	12%

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Executive summary of the Joint Council of Europe/United Nations Study on trafficking in organs, tissues and cells and trafficking in human beings for the purpose of the removal of organs

In 2008, the Council of Europe and the United Nations agreed to prepare a *Joint Study on trafficking in organs, tissues and cells and trafficking in human beings for the purpose of the removal of organs*. This Joint Study was prepared in the framework of the co-operation between the two international intergovernmental organisations, in particular in keeping with the United Nations General Assembly Resolution on Co-operation between the *United Nations and the Council of Europe* (A/RES/63/14), which specifically states:

“[The General Assembly] Takes note with appreciation of the entry into force on 1 February 2008 of the Council of Europe Convention on Action against Trafficking in Human Beings, to which any non-member state of the Council of Europe may accede after having obtained unanimous consent of the parties to the Convention, commends the enhanced co-operation between the United Nations and the Council of Europe in this regard, and expresses its appreciation for the preparation of a joint study on trafficking in organs, tissues and cells and trafficking in persons for the purpose of the removal of organs”.

The Study notes, first of all, that trafficking in human beings for the purpose of organ removal is a small part of the bigger problem of trafficking in organs, tissues and cells (“OTC”). Secondly, it highlights the existence of widespread confusion in the legal and scientific community between “trafficking in OTC” and “trafficking in human beings for the purpose of the removal of organs”. Thirdly, the Joint Study underlines that solutions for preventing the two types of trafficking had to be different because the “trafficked objects” are different: in one case the “organs, tissues and cells” and in the other case the “person him/herself” who is trafficked for the specific purpose of removing his/her organs. One of the major aims of the Joint Study is therefore to distinguish between trafficking in OTC and trafficking in human beings for the purpose of organ removal.

The Joint Study only covers trafficking in OTC for the purpose of transplantation. Other purposes of trafficking in OTC are outside the scope of the Joint Study. The starting point of the Joint Study is the prohibition of making financial gains with the human body or its parts. This principle was established for the first time in a legally binding instrument in Article 21 of the 1997 Council of Europe Convention on Human Rights and Biomedicine [CETS No. 164]: “The human body and its parts shall not, as such, give rise to financial gain”. The principle was then reaffirmed in the 2002 *Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin* [CETS No. 186]. Article 22 of the Protocol states: “Organ and tissue trafficking shall be prohibited”. The principle of the prohibition of making financial gains with the human body is also very important in order not to jeopardise the donation system based on altruism, both from living and from deceased donors, which must be the basis of the organ transplantation system. Given that trafficking in organs mainly exists because of the lack of available organs, it is also essential to take the organisational measures needed to increase the availability of organs for transplantation.

Taking into account the above-mentioned considerations, the main conclusions and recommendations of the Joint Study can be summarised as follows:

- The need to distinguish clearly between “Trafficking in OTC” and “Trafficking in human beings for the purpose of the removal of organs”. The two are frequently confused in public debate and in the legal and scientific community. This leads to general confusion and consequently hinders effective efforts to combat them and also to provide comprehensive victim protection and assistance.
- The principle of the prohibition of making financial gains with the human body or its parts should be the paramount consideration in relation to organ transplantation. All national legislation concerning organ transplantation should conform to this principle.
- The need to promote organ donation and establish organisational measures to increase organ availability. Preference should be given to deceased organ donation, which should be developed to its maximum therapeutic potential. In addition, there is a need to extend worldwide the organisational and technical capacity for the transplantation of organs.
- The need to collect reliable data on trafficking in OTC and on trafficking in human beings for the purpose of organ removal. There is limited knowledge of the two issues since little information is available from official sources. The information about the number of victims and trafficked OTC therefore remains rather fragmentary. This hinders both the quantification of the two and also their qualitative description. The data should be disaggregated by sex in order to assess whether and to what extent the processes disproportionately affect women and girls. States should make efforts in terms of data collection in relation to both problems.

- The need for an internationally agreed definition of “Trafficking in organs, tissues and cells”. This Joint Study did not aim to provide a definition of “Trafficking in OTC”. Such a definition should be agreed upon at international level with the involvement of all the relevant players. While underlining that all national systems should be based on the principle of the prohibition of making financial gains with the human body or its parts, the starting point for such a definition should be the idea that any organ transaction outside the national systems for organ transplantation should be considered organ trafficking. It is therefore recommended that an international legal instrument be prepared, setting out a definition of “Trafficking in OTC” and the measures to prevent such trafficking and protect the victims, as well as the criminal-law measures to punish the crime.
- “Trafficking in human beings for the purpose of the removal of organs” is included in the definition of trafficking in human beings in the Council of Europe *Convention on Action against Trafficking in Human Beings* [CETS No. 197] and in the United Nations *Protocol to Prevent, Suppress and Punish Trafficking in Persons, especially Women and Children, Supplementing the United Nations Convention against Transnational Organised Crime*. Indeed, the definition of trafficking in human beings set out in both legal instruments explicitly states that exploitation also includes the removal of organs. The principles and measures applicable to other forms of exploitation of trafficking in human beings must also be applied to combat this type of trafficking for organ removal. There is no need for the further development of a legally binding international instrument at universal or regional level. All relevant aspects for preventing and combating trafficking in human beings for organ removal are set out in the above-mentioned legally binding international instruments.

Organs, Tissues and Cells – Safety, Quality and Ethical Matters Concerning Procurement, Storage and Transplantation

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The EDQM is a Directorate of the Council of Europe, an international organisation founded in 1949 that covers almost the entire continent of Europe. The Council of Europe aims to develop common democratic and legal principles based on the European Convention on Human Rights and other reference texts on the protection of individuals.