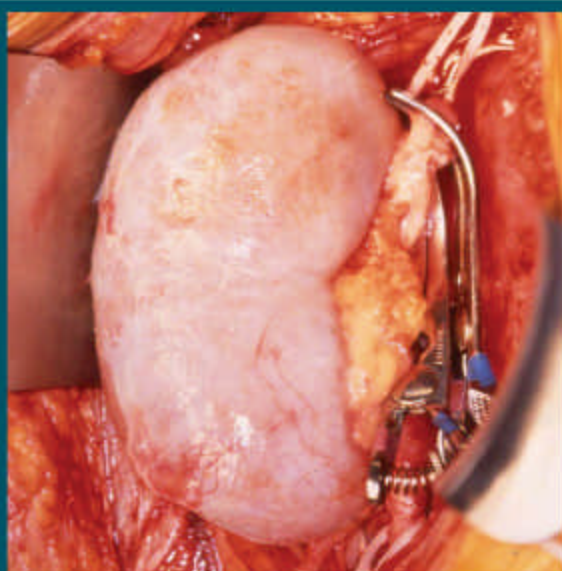


Consultation Meeting on
Transplantation with
National Health Authorities
in the Western Pacific Region



Manila, Philippines
7-9 November 2005



World Health
Organization
Western Pacific Region

Meeting Report

**WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC**



REPORT

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WITH NATIONAL HEALTH AUTHORITIES
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REPORT

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TRANSPLANTATION
WITH NATIONAL HEALTH AUTHORITIES
IN THE WESTERN PACIFIC REGION**

Convened by:

**WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC**

**Manila, Philippines
7-9 November 2005**

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NOTE

The views expressed in this report are those of the participants in the meeting and do not necessarily reflect the policy of the World Health Organization.

This report has been prepared by the World Health Organization Regional Office for the Western Pacific for governments of Member States in the Region and for those who participated in the Consultation Meeting on Transplantation with National Health Authorities in the Western Pacific Region, which was held in Manila, Philippines from 7 to 9 November 2005.

SUMMARY

The Consultation Meeting on Transplantation with National Health Authorities in the Western Pacific Region was conducted in Manila, the Philippines, from 7 to 9 November 2005. The meeting was supported by the WHO Regional Office for the Western Pacific and WHO Headquarters.

The objectives of the meeting were:

- (1) to share information on country transplantation activities, including regulatory, operational and organizational structures;
- (2) to discuss the goals outlined by resolution WHA 57.18 and to share information on current global issues in transplantation;
- (3) to discuss and recommend revisions to the WHO 1991 Guiding Principles on Human Transplantation in light of varying cultural perspectives of countries in the Region; and
- (4) to agree on essential components required to ensure effective regulatory control and surveillance by national authorities of allogeneic and xenogeneic human transplantation, including networking and collaboration between national authorities.

The meeting was attended by 30 participants from Brunei Darussalam, Cambodia, China, Fiji, Hong Kong (China), Japan, the Lao People's Democratic Republic, Macao (China), Malaysia, Mongolia, New Zealand, Papua New Guinea, the Philippines, the Republic of Korea, Samoa, Singapore and Viet Nam. Observers attended from the Asia-Pacific Association of Surgical Tissue Banking; the Ministry of Health, China; and the Department of Human Services, Victoria, Australia. One participant also represented the Asian Society of Transplantation. Five WHO temporary advisers, one WHO consultant and two WHO staff members, serving as the secretariat, supported the meeting.

The proceedings comprised presentations and plenary discussions on the background to WHO's involvement in transplantation and current achievements and strategy, the recent World Health Assembly Resolution WHA57.18, the 1991 Guiding Principles on Human Organ Transplantation, and an overview of the Global Knowledgebase on Transplantation. The situation in the Region and each country was also presented, followed by discussion. Presentations and discussions were held on five current issues: preventing organ trafficking and 'transplant tourism'; improving access to deceased donors; ethics and safety of living cell or organ donations; human cell and tissue products for transplantation; and xenotransplantation. Discussion on effective regulatory control and surveillance of transplantation by national authorities was undertaken. Participants also discussed issues and possible amendments to the 1991 Guiding Principles and agreed on meeting recommendations.

The recommendations of the meeting were as follows:

General issues

- (1) The implementation and enforcement of a national legal framework for cell, tissue and organ transplantation activities is an essential prerequisite to the safety, quality, efficacy, and ethics of transplantation practice. Consent to cell, tissue and organ donation should be defined by law, including specifying information and assessment of the voluntariness of both the consent and the donation.
- (2) Given the complexity of the issues involved, Member States introducing or revising legislation or guidelines should make full use of and adapt the existing laws, regulations, commentaries, documents and definitions on cell, tissue and organ transplantation that are commonly used/available at the international level. WHO should facilitate provision or identification of such materials for Member States.
- (3) The collection, processing, use and management of national resources in human cells, tissues and organs donated by living donors or resulting from donation after death should be coordinated at the national level and carried out by an appropriate body in charge of regular evaluation and under effective oversight of the national health authority. Efforts should be made to ensure national or regional self-sufficiency.
- (4) Access to suitable transplantation should be encouraged for cost-effective transplantation programmes. Transplantation should be promoted as renal replacement therapy whenever possible. Attention should be given to the cost and quality of immunosuppressive drugs, including generics.
- (5) All countries acknowledge progress towards a common basis for medical, psychosocial, ethical and legal requirements for living and deceased donors, and agree that this should continue.

Transparency, knowledge and information

- (6) Transparency in transplantation activities at national and global levels is essential to accountability and traceability, and to the prevention of trafficking. This includes fully understanding the means by which transplant services are funded within each country. Improvement of available information on transplantation activity in the Western Pacific Region is necessary. Transparency extends to information about the type and activities of all institutions involved in cell, tissue and organ collection and processing, and organ transplantation. Member States are responsible for transparency within their own borders.
- (7) Member States should provide WHO with data on national transplantation activity, which will be made public as part of the Global Knowledgebase on Transplantation (GKT) and the endeavour to create a global, common understanding of issues in transplantation. Working towards a Global Knowledgebase on Transplantation requires standardized definitions of the terms 'transplant', 'donor' and 'recipient' being integrated into user-friendly datasheets. Data collected should include the country of origin of donors and recipients, *inter alia*.

- (8) The development of a common global coding system for cells and tissues for transplantation should be explored by WHO and, if appropriate, its use recommended to improve traceability.

Organ donation

- (9) The specific preconditions of organ recovery after death need to be determined with regard to the cultural context in countries of the Region, particularly concerning individual and family consent. Member States should foster behaviour change to increase citizens' understanding of the need for and value of organ donation after death.
- (10) Member States with existing transplantation programmes should consider strengthening access to organs resulting from donation after death, where necessary through pilot programmes adapted to their context. This includes commencing programmes for donation after death, where appropriate. However, it is acknowledged that maintenance and access to deceased donors is heavily dependent on intensive care facilities and tertiary care infrastructure and is, therefore, more difficult to achieve in low-income countries.
- (11) Whenever possible, multiple organs as well as tissues should be recovered from the deceased donor. In this case, information and consent should explicitly include the recovery of multiple organs and tissues.

Kidney donation

- (12) Kidneys for transplantation from adult living donors should be considered for patients with kidney failure. Genetically or emotionally related living donors who are found to be medically and psychosocially eligible are often the solution for a timely transplantation. Programmes for organ donation after death should be promoted. Such programmes form the basis for transplantation of organs other than kidneys, and constitute an important source of kidneys for transplantation.

Compensation, payment and profiteering

- (13) The human body and its parts cannot be the subject of commercial transactions. Accordingly, profiteering from organ donation, or from providing access to organs or to organ transplantation, should be prohibited.
- (14) Compensating the living donor for loss of income or providing health care benefits/long-term follow-up or other direct costs incurred by the donation process should be acceptable and should not be seen as payment for the organ, providing that there is transparency. Modest non-monetary assistance, support or initiatives for the living donor may be appropriate in a particular national context, but if this is to occur it should be defined explicitly by the national health authority. Transparency is crucial.
- (15) Within the context of national laws and culture, compensating the deceased donor's family for direct costs incurred by the donation process may be acceptable.

Responsibility for the living donor

- (16) Providing for the health of a living donor in the long term is a societal obligation (refer to the Consensus Statement of the Amsterdam Forum on the Care of the Live Kidney Donor¹).
- (17) Each national health authority should ensure that registries of living donors allowing for the assessment of the short-, medium- and long-term outcomes of donations from a medical and psychosocial standpoint are mandated and maintained in an efficient manner.

Transplant tourism and trafficking

- (18) 'Transplant tourism', defined as the purchase of a transplanted organ abroad, including access to an organ whilst bypassing national laws, rules or processes of any or all countries involved, should be prohibited. This includes all potential parties: recipients, donors, service providers and brokers.
- (19) Transplant tourism should be distinguished from *bona fide* institutional, bilateral or regional agreements (or long-standing arrangements) to access transplantation services, which may constitute the only possible solution to provide transplantation for small countries. Such agreements should specify the necessary collaboration of clinical teams in both involved countries in order to ensure proper assessment and follow-up care of the recipient and, if appropriate, the donor, both from a medical and psychosocial perspective. Institutional arrangements or agreements with overseas authorities or institutions for transplantation services should probably be notifiable to or registered with national authorities.
- (20) In transplant tourism, the vulnerability of the recipient patient does not waive his or her personal responsibility for taking reasonable steps to ensure that the organ(s) which he or she will receive has been obtained legitimately and not through means that have bypassed or broken any laws, allocation or procurement rules or recognized processes in any of the countries involved. Countries whose citizens obtain transplants in resource-poor countries should take measures to prevent exploitation of poor foreign donors or breaches of another country's organ allocation rules.
- (21) Illicit trade (also known as 'trafficking') of human organs, tissues and cells is not acceptable under any circumstances. Member States should ensure that legislation and mechanisms are in place to prevent, detect and deter trafficking of organs, tissues or cells coming from another country or being transported between jurisdictional boundaries within a country. To achieve this, collaboration will be needed between national and local health authorities, relevant health professional groups, police and other government agencies responsible for border protection and customs control.

¹ The Ethics Committee of the Transplantation Society. The Consensus Statement of the Amsterdam Forum on the Care of the Live Kidney Donor. *Transplantation*, 2004, 78(4): 491-492.

Xenotransplantation

- (22) Attention should be given to the control by the national health authority of xenotransplantation practices taking place within the jurisdiction of a Member State. Clinical trials should only be approved in circumstances where (i) pre-clinical evidence justifies them, and (ii) stringent oversight and surveillance by the national health authority is in place.

Training

- (23) Training in transplantation sciences needs to be strengthened through national, regional and global scientific and professional societies and international collaboration.

Commentary from the Western Pacific Region on the 1991 Guiding Principles on Human Organ Transplantation

- (24) Commentary from the perspective of the Western Pacific Region, contained in section 2.5 of this report, together with the preceding recommendations, should be considered at a global level in any work or meetings that review or update the 1991 Guiding Principles on Human Organ Transplantation.

1. INTRODUCTION

1.1 Background information

Today, cell, tissue and organ transplantation is practised worldwide and has saved many thousands of lives and improved the quality of life for countless others. Transplantation offers an effective, and sometimes the only, treatment for many conditions. For example, kidney transplantation is the most cost-effective renal replacement therapy for end-stage kidney disease, while providing the best quality of life for the patient. Corneal transplantation still has no equivalent in routine practice to restore sight in corneal blindness and it is within reach of low-income countries.

Cell, tissue and organ transplantation, however, raises many ethical, legal, cultural and clinical issues. In 1991, the World Health Assembly endorsed nine Guiding Principles on Human Organ Transplantation. These principles were developed following earlier Health Assembly resolutions in 1987 and 1989 that arose primarily due to concerns about the commercial trafficking of human organs.

The field of transplantation has become increasingly complex and has continued to develop rapidly over the last few years. Issues related to transplantation were considered again in May 2004, when the World Health Assembly endorsed a resolution (WHA57.18) which, *inter alia*, stresses the importance of effective oversight by national health authorities of allogeneic (human-to-human) and xenogeneic (animal-to-human) transplantation activities. This resolution also requested the Director-General of WHO to update the Guiding Principles on Human Organ Transplantation in the light of data collected on the practice, safety, quality, efficacy and epidemiology of transplantation, as well as on ethical issues. In addition, WHO was requested to promote international cooperation to facilitate the access of citizens to therapeutic allogeneic transplant procedures, and to facilitate international collaboration and communication on issues relating to xenogeneic transplantation.

In response to this request, WHO is, *inter alia*, organizing a number of consultations globally to enable discussion about transplantation issues from different cultural perspectives to ensure that the Guiding Principles on Human Organ Transplantation remain appropriate in a global context. This meeting was a key contribution to the global review from the Western Pacific Region. In addition, the meeting aimed to facilitate networking and collaboration between national health authorities that have responsibility for overseeing transplantation activities at the country level.

1.2 Objectives

The objectives of the meeting were:

- (1) to share information on country transplantation activities, including regulatory, operational and organizational structures;
- (2) to discuss the goals outlined by resolution WHA 57.18 and to share information on current global issues in transplantation;

(3) to discuss and recommend revisions to the WHO 1991 Guiding Principles on Human Transplantation in light of varying cultural perspectives of countries in the Region; and

(4) to agree on essential components required to ensure effective regulatory control and surveillance by national authorities of allogeneic and xenogeneic human transplantation, including networking and collaboration between national authorities.

1.3 Participants

A list of participants, representatives, temporary advisers and secretariat members is given in Annex 1. The meeting was attended by 30 participants from Brunei Darussalam, Cambodia, China, Fiji, Hong Kong (China), Japan, Lao People's Democratic Republic, Macao (China), Malaysia, Mongolia, New Zealand, Papua New Guinea, the Philippines, the Republic of Korea, Samoa, Singapore and Viet Nam. Observers attended from the Asia-Pacific Association of Surgical Tissue Banking; the Ministry of Health, China; and the Department of Human Services, Victoria, Australia. One participant also represented the Asian Society of Transplantation. Five WHO temporary advisers, one WHO consultant and two WHO staff members, serving as the secretariat, supported the meeting.

1.4 Organization of the consultation

The adopted meeting agenda (see Annex 2) was structured to reflect the objectives of the meeting. A number of documents were distributed prior to or during the meeting, including a summary of developments under the auspices of WHO since 1987 and the 2004 World Health Assembly resolutions and background document; a draft report from the xenotransplantation advisory consultation in 2005; the Consensus Statement of the Amsterdam Forum on the Care of the Live Kidney Donor; a meeting report on Ethics, Access and Safety in Tissue and Organ Transplantation Issues of Global Concern (2003); and a report on the First Global Consultation on Regulatory Requirements for Human Cells and Tissues for Transplantation (2004).

The officers of the meeting were elected as follows:

- | | | |
|-------------------|---|---------------------------------------|
| Chairperson | - | Dr Huang Jiefu, China |
| Vice- Chairperson | - | Dr Noorimi binti Haji Morad, Malaysia |
| Rapporteur | - | Ms Sharon Woollaston, New Zealand |

The technical sessions of the meeting started with four background presentations and plenary discussions: WHO and transplantation and World Health Assembly resolution WHA57.18; the 1991 Guiding Principles on Human Organ Transplantation; WHO achievements and strategy; and an overview of the Global Knowledgebase on Transplantation. The situation in the Region and each country was then briefly presented, followed by discussions.

Presentations and discussion were held on five current issues: preventing organ trafficking and transplant tourism; improving access to deceased donors; the ethics and safety of living cell or organ donations; human cell and tissue products for transplantation; and xenotransplantation. This was followed by discussion on effective regulatory control and surveillance of transplantation by national authorities. In the final sessions of the workshop, the regional perspective of the 1991 Guiding Principles was discussed and possible amendments considered, followed by development of meeting recommendations.

1.5 Opening remarks

On behalf of Dr Shigeru Omi, WHO Regional Director for the Western Pacific, Dr Soe Nyunt-U, Director of Health Sector Development, delivered an opening speech.

He thanked the participants for their attendance at the important meeting and noted that, currently, cell, organ or tissue transplantation is not an area about which WHO, at the regional level, often receives requests for technical assistance from countries. However, as country resources increase and Member States grapple with the increasing magnitude of problems like diabetes, it is likely that more advice in this area will be sought in the future. Ideally, from a public health perspective, more emphasis should be placed on the prevention of various health problems like diabetes, heart disease, hepatitis, blindness and injuries, so that kidney, heart, liver, corneal and other transplants will not be needed to such a degree. However, it is also important to recognize the reality that today there are many people in need of transplants who are already affected by these health problems, and that not all causes of transplant need can be readily prevented.

The use of cell, tissue and organ transplants is very effective and very cost-effective in the longer-term treatment of various diseases and health problems. Thus, it is of continuing importance that, when these services are provided, they are carried out efficiently, with a high degree of technical quality, and from an appropriate ethical basis.

The ethical basis was the main reason why the World Health Organization originally became involved with transplantation activities. In 1987, a resolution was adopted by the World Health Assembly that led to the development of the 1991 Guiding Principles on Human Organ Transplantation. WHO's initial involvement in this area seems to have stemmed from concerns related to the inappropriate or illegal trade or trafficking of human organs. However, since that time, the field of transplantation has become much more complex and, as a result, was revisited by the World Health Assembly in 2004.

Dr Soe noted that the meeting would provide participants with an opportunity to discuss the goals outlined by the World Health Assembly Resolution adopted in 2004, and to share information about transplantation activities, including regulatory, operational and organizational structures in each country. The meeting would also provide an opportunity to identify the essential components required to ensure effective regulatory control and surveillance by national authorities of allogeneic and xenogeneic human transplantation, including networking and collaboration between national authorities.

In addition, participants would have the opportunity to discuss various current issues in transplantation, such as improving access to deceased donors, the ethics and safety of living cell or organ donations, and xenogeneic transplantation. Feedback on the WHO 1991 Guiding Principles on Human Organ Transplantation would also be sought during the meeting so that a perspective could be provided that encompassed, not only new advances in technology, but also the wide variety of cultural perspectives in the Region. This feedback would contribute to other regional and global work that aims to ensure the Guiding Principles remain relevant to all countries in the foreseeable future.

2. PROCEEDINGS

2.1 Background presentations (agenda item 3)

2.1.1 WHO and transplantation and World Health Assembly resolution WHA57.18 (Dr Luc Noel)

Dr Noel told participants that globally there has been an increase in organ and tissue transplantation activity, with most of the increase occurring in high- and middle-income countries. In 2004, there were over 90 000 organ transplants performed worldwide. Ninety-one countries (out of the 192 WHO Member States) currently have the capacity to perform kidney transplants. Almost all (99%) of these transplants occur in countries with a medium or high development index. In 2004, citizens living in 80% of the world had access to only 27% of all transplants performed.

Analysis by WHO region identifies that the Region of the Americas (whole American continent plus the Caribbean) is currently transplanting 45 organs per million population (pmp) per year, the European Region 32 organs pmp per year, and the Western Pacific Region seven to eight organs pmp per year.

There is undoubtedly currently a large unmet need for transplantation, particularly of kidneys and corneas, throughout Asia. One million persons are estimated to develop end-stage renal failure each year, with only approximately 60 000 receiving renal transplants annually (of which 50% are from deceased donors and 50% from live donors). Globally, there are over 10 000 000 people suffering from corneal blindness, many of them with the potential to benefit from corneal transplantation, while approximately only 120 000 corneal transplants are undertaken annually. In 2004, there were over 17 000 liver transplants performed worldwide, a significant increase from 12 000 in 1999; many of these are from live donation programmes. It was stressed that all of these activity estimates could be inaccurate, as existing data collection systems are fragmented and incomplete. The paucity of accurate data on tissue transplantation activity profiles is especially notable.

Organs and tissues for transplantation remain in high demand. There is little doubt that organ and tissue transplantation is an effective and often lifesaving therapy. Currently, available levels of human material for transplantation simply do not meet clinical and community demand. The shortfalls have resulted in everyday transplantation practices in 2005 that may not be in accordance with the Guiding Principles outlined in 1991. In particular, there has been an inexorable rise in living donation, particularly non-related live donation. There has also been an increasing acceptance of the use of so-called 'marginal' organs for transplantation and in the purchase and sale of organs and tissues.

Dr Noel emphasized the importance of balancing the need to maximize every opportunity for transplantation with an absolute requirement to avoid illegal activity (or activities that take advantage of the lack of a suitable legislative framework addressing organ and tissue donation and transplantation). Inappropriate use of 'incentives' for live donation, frank commercialization of donation and transplant tourism are some of the troublesome types of behaviour that appear to be on the increase both globally and within the Western Pacific Region.

Transplantation is a topic that interests many Member States, and WHO's involvement has been directly driven by issues raised by its Member States. For example, Spain launched the initial involvement of WHO in human transplantation. The role of Norway initiated discussions on the desirability of nations seeking to become self-sufficient in their supply of organs and tissues to limit the transfer of such human materials from resource-poor to resource-rich countries. China requested a review and update of the Guiding Principles on Human Organ Transplantation. And significant concerns have been raised internationally about xenotransplantation.

Dr Noel indicated that WHO is evolving its focus on the therapeutic use of human biological materials from a somewhat narrow focus on blood safety programmes. It is currently seeking to establish a portfolio of programmes that embrace the quality and safety of the therapeutic use of all materials of human origin and relevant alternative technologies, such as xenotransplantation. Recently, WHO global consultations on xenotransplantation led to the 2004 World Health Assembly resolution (WHA 57.18) on human organ and tissue transplantation, which reinforces critical principles in both allogeneic and xenogeneic transplantation.

Resolution WHA 57.18 requested that WHO: collect data on a global basis on both allogeneic and xenogeneic transplantation; promote international cooperation to improve access to transplantation; monitor outcomes, including infectious risks of xenogeneic transplantation; provide technical support to Member States for development of suitable transplantation programmes; and provide support to curb trafficking in organs. The current consultation with Western Pacific Member States was one of the key initial steps to assist WHO in responding to the requests set out in the resolution.

Dr Noel encouraged participants to focus during the consultation on frank and open discussion of current transplantation practices within their countries. Discussion of what is actually happening in the Region could then contribute to recommendations for realistic solutions to current problems. A revised set of Guiding Principles will underpin effective, fair, ethical global organ and tissue donation and transplantation practices. WHO advice on ethical issues in human transplantation inevitably influences global transplantation practice via its impact on national legislative frameworks and professional codes of conduct.

Points raised during discussion:

- Access to transplant services: It was noted that many countries in the Western Pacific Region, particularly in the Pacific, have populations that are widely distributed, with many citizens residing in small and relatively isolated communities with little health care infrastructure. There is a need to consider the possible means to create access to transplantation for those living in such communities.
- Resource constraints on developing deceased donation programmes: Cadaveric transplantation requires access to intensive care unit (ICU) beds. However, much of Asia's population resides in rural or regional areas with limited access to resuscitation facilities, timely transport to hospitals or emergency medical care. They have little or no access to ICU support. It may well be that in Asia, rather than focusing on deceased-donor programmes, WHO should move its emphasis to live-donor programmes. In the Western Pacific Region, access to live donors is a key resource and this reality should be reflected in any revision of the Guiding Principles.

However, despite limited ICU resources, it was recognized that this should not preclude developing donation-after-death programmes. Current evidence suggests very different levels of access in different communities across the world to cadaveric organ and tissue donation, even when there is an apparently similar level of ICU resource. This means that there must be factors other than the absolute ICU resources that influence cadaveric donations.

It is also important to determine the true cost of live-donor programmes and to compare the costs to the whole of society of both cadaveric and live-donor programmes before assuming that one or the other is more cost-effective in resource-constrained environments. It was noted that the resources needed for successful cadaveric donation go beyond ICU resources to include access to trained organ donor coordinators, retrieval surgical teams, medical transport and an operating theatre infrastructure that functions on a 24 hours a day, 365 days per year basis. Live donor programmes may require fewer health sector resources. Costs to individuals should also be considered, particularly in situations where government funding does not cover many of the costs of transplantation and ongoing care.

- The impact of variations in deceased donor consent processes on organ donation, such as 'opt-in' and 'opt-out' approaches, and the need for further information and analysis.
- Incentives for live donation: Further information was requested from Singapore about their incentives for live donation and how this can be achieved without encouraging transplant tourism, as well as the criteria for acceptance of live donors in Singapore.

Singapore provides transplant services for Brunei. These live donor transplants undergo the same scrutiny as every other live donor transplant in Singapore and are required to meet the same criteria as potential Singaporean live donor and recipient pairs. A donor physician in Singapore, who is independent from the transplant team, assesses the suitability of the live donor and obtains his or her informed consent. In addition to this independent advocacy for the potential live donor, there is a requirement that all such live donors be assessed by a team of experts, including a social worker and psychologist, and that live donation episodes be reviewed by a Transplantation Ethics Committee. The whole process of live donation is subject to strict regulatory oversight, and all such procedures must be reported to the National Health Authority. It was stressed that, in order to be able to monitor transplant tourism, national health authorities must be able to monitor the rationality of both the donor and the recipient when reviewing proposed live donor transplantation.

- Risks associated with xenotransplantation. This was discussed further in later sessions but, in brief, the discussion covered primate experiments having been associated with the transmission of transplantation-associated infection. At present, WHO's major concern regarding human xenotransplantation is the potential risk of disease transmission from animals to humans, either to the transplant recipient or to broader communities. It is this unquantifiable risk of a zoonotic pandemic related to animal-to-human transplantation that provides the major public health concern for xenotransplantation programmes. While this is currently only a potential risk, its significance means that it needs to be taken seriously. Both surveillance and vigilance mechanisms must be in place to monitor xenotransplantation, as well as methods to stop the use of animal organs and tissues in practices that are not underpinned by scientific evidence that supports likely efficacy.

- The definition of donation after death has several potential components. Donation after cardiac death (DCD) is one area that may be useful, to expand the use of deceased donors.

2.1.2 1991 Guiding Principles on Human Organ Transplantation (Dr Annette Schulz-Baldes)

“Preamble

1. As the Director-General's report to the seventy-ninth session of the Executive Board pointed out, human organ transplantation began with a series of experimental studies at the beginning of this century. That report drew attention to some of the major clinical and scientific advances in the field since Alexis Carrel was awarded the Nobel Prize in 1912 for his pioneering work. Surgical transplantation of human organs from deceased, as well as living, donors to sick and dying patients began after the Second World War. Over the past 30 years, organ transplantation has become a worldwide practice and has saved many thousands of lives. It has also improved the quality of life of countless other persons. Continuous improvements in medical technology, particularly in relation to tissue "rejection", have brought about expansion of the practice and an increase in the demand for organs. A feature of organ transplantation since its commencement has been the shortage of available organs. Supply has never satisfied demand, and this has led to the continuous development in many countries of procedures and systems to increase supply. Rational argument can be made to the effect that shortage has led to the rise of commercial traffic in human organs, particularly from living donors who are unrelated to recipients. There is clear evidence of such traffic in recent years, and fears have arisen of the possibility of related traffic in human beings. Health Assembly resolutions WHA40.13 and WHA42.5 are an expression of international concern over these developments.

2. These Guiding Principles are intended to provide an orderly, ethical, and acceptable framework for regulating the acquisition and transplantation of human organs for therapeutic purposes. The term "human organ" is understood to include organs and tissues but does not relate to human reproduction, and accordingly does not extend to reproductive tissues, namely ova, sperm, ovaries, testicles or embryos, nor is it intended to deal with blood or blood constituents for transfusion purposes. The Guiding Principles prohibit giving and receiving money, as well as any other commercial dealing in this field, but do not affect payment of expenditures incurred in organ recovery, preservation and supply. Of particular concern to WHO is the protection of minors and other vulnerable persons from coercion and improper inducement to donate organs.

Organs and tissues (referred to in this text as "organs") may be removed from the bodies of deceased and living persons for the purpose of transplantation only in accordance with the following Guiding Principles.

Guiding principle 1

Organs may be removed from the bodies of deceased persons for the purpose of transplantation if:

- (a) any consents required by law are obtained; and*
- (b) there is no reason to believe that the deceased person objected to such removal, in the absence of any formal consent given during the person's lifetime.*

Guiding principle 2

Physicians determining that the death of a potential donor has occurred should not be directly involved in organ removal from the donor and subsequent transplantation procedures, or be responsible for the care of potential recipients of such organs.

Guiding principle 3

Organs for transplantation should be removed preferably from the bodies of deceased persons. However, adult living persons may donate organs, but in general such donors should be genetically related to the recipients. Exceptions may be made in the case of transplantation of bone marrow and other acceptable regenerative tissues.

An organ may be removed from the body of an adult living donor for the purpose of transplantation if the donor gives free consent. The donor should be free of any undue influence and pressure and sufficiently informed to be able to understand and weigh the risks, benefits and consequences of consent.

Guiding principle 4

No organ should be removed from the body of a living minor for the purpose of transplantation. Exceptions may be made under national law in the case of regenerative tissues.

Guiding principle 5

The human body and its parts cannot be the subject of commercial transactions. Accordingly, giving or receiving payment (including any other compensation or reward) for organs should be prohibited.

Guiding principle 6

Advertising the need for or availability of organs, with a view to offering or seeking payment, should be prohibited.

Guiding principle 7

It should be prohibited for physicians and other health professionals to engage in organ transplantation procedures if they have reason to believe that the organs concerned have been the subject of commercial transactions.

Guiding principle 8

It should be prohibited for any person or facility involved in organ transplantation procedures to receive any payment that exceeds a justifiable fee for the services rendered.

Guiding principle 9

In the light of the principles of distributive justice and equity, donated organs should be made available to patients on the basis of medical need and not on the basis of financial or other considerations.”²

By way of introduction, Dr Schulz-Baldes presented each Guiding Principle (listed above) and then raised the following points for consideration:

Guiding Principle 1

Globally there are a range of views on the preconditions governing post-mortem organ and tissue donation. At the one extreme, some consider a deceased body as effectively a community resource available to assist the ‘common good’. In this paradigm, notions of presumed consent (or even no consent) are deemed to be an obviously acceptable means of maximizing organ and tissue donation opportunities. At the other extreme, a deceased body is considered individual property, with its use for transplantation requiring informed consent, as evidenced by either the individual’s previously stated wishes or by family consent as proxy decision-makers for the deceased. The full range of opinions has been reflected in different societies over time, and has delivered a broad range of theoretical models and legislative frameworks governing international organ and tissue donation processes.

Organ and tissue donation after death inevitably involves individuals other than the potential donor, health care professional and potential transplant recipient. Regardless of the particular framework adopted in any given circumstance, it remains incumbent upon health care professionals involved in organ and tissue donation to involve the family of the deceased in the process of donation. Such involvement has a pragmatic focus, in that details of medical and social/behavioural history of the potential donor are essential components in ensuring the suitability and safety of donation. It also acknowledges the duty of care that such professionals have to surviving family members. It is critically important to provide sufficient information to allow for genuine informed consent to both individuals considering becoming organ donors after death and families being asked to assent to post-mortem donation.

Guiding Principle 2

It is necessary for both transparency and accountability that health care professionals from transplantation teams distance themselves from the process of determination of death in potential donors and consent processes for donation.

Guiding Principle 3

When considering the relative merits of deceased-donor programmes versus living-donor programmes, it is of paramount importance to recognize that deceased-donor programmes offer access to transplantation without putting healthy individuals at risk. All live donor programmes involve some degree of risk for live donors, and every effort must be made both to minimize

² The text of the commentaries that accompany the Guiding Principles has not been included in this report, but can be found at http://www.who.int/ethics/topics/transplantation_guiding_principles/en/index2.html

such risks and to accurately and honestly communicate these risks to potential live donors. All realistic alternatives should have been looked at prior to consideration of live donation.

When considering the source of live donors (genetically or emotionally related donors or unrelated donors) a key ethical issue is that of voluntariness. It is a precondition of acceptable live donation programmes that the consent given by the live donor be both informed and voluntary. Any degree of overt or covert pressure to become a live donor seriously compromises the voluntariness of any consent process and provides the potential for abuse of such individuals. Such pressures might include social, psychological and economic factors that compromise voluntariness and hence informed consent. Unrelated donors are more likely to have less voluntary consent. They are thus at greater risk of exploitation and should, on this basis, be discouraged.

One issue for consideration is discussion of the appropriate means of oversight of live donation programmes in terms of their consent procedures. Consistent, credible definitions of the knowledge and voluntariness requirements that would see consent deemed 'informed' are lacking. Generating explicit definitions that are understood and interpreted in a consistent fashion may be problematic.

It may be inevitable that there will be a degree of arbitrary judgement involved in any determination on the legitimacy of the consenting processes. It hence remains crucial that those making such judgements are impartial and retain advocacy for the rights of the potential donor. There is an absolute requirement for transparency in these consenting processes and any evaluation of their integrity. Locally relevant data on risk to the potential donor and benefit to the potential recipient must be provided. Institutional procedures that ensure that consent from live donors has been based on such objective local data and is free of undue influence are essential to protect the rights of unrelated live donors.

Guiding Principle 4

When considering consent process for live donation by minors or others who are deemed not competent to make such decisions in their own right, it is imperative that clear and transparent processes exist to protect such individuals from decisions driven by conflict of interest of any participants in the determination. Typically the 'assent' of minors and the 'consent' of a responsible, disinterested next-of-kin (or suitably appointed proxy) would be required before live donation would be acceptable from minors or otherwise incompetent individuals. Perhaps different standards might be applied to the donation of regenerative tissues from these individuals.

Guiding Principles 5, 6, 7 and 8

Globally, much transplantation occurs in for-profit health care systems. In considering the equity of access and health system efficiency, an argument might be made to restrict transplantation to not-for-profit health sectors to allow optimal use of available resources and deliver communities best-value transplantation services.

When considering the principles governing 'commercial transactions' in organs and tissues, it is critical to examine closely what constitutes a commercial transaction and who makes this determination.

The current wording of Guiding Principle 5 is too imprecise. Increasingly there are instances of everyday practices that challenge this principle. Donors or their families frequently receive 'non-financial indirect benefits' following donation (such as the provision of free health care, transport, funeral expenses, offers of employment). At what level of benefits do such transactions become 'commercial'?

How best can the 'commodification' of organs and tissues for transplantation be avoided? Transparency of all processes is the basis of avoidance and control of commodification. The real costs need to be tracked. Someone, be it a physician, an institutions or a local or national health authority, must assume responsibility for ensuring that organs and tissues have not been procured by commercial means and that any payments made are justifiable on the basis of the service provided.

Guiding Principle 9

Health care professionals typically accept this Guiding Principle, indicating a requirement to allocate organs and tissues on the basis of 'medical need'.

It is, however, inevitable that there is a degree of arbitrary decision-making in all such determinations. The value judgements that underpin such decisions include the relative weightings given to age, sex, social circumstance and societal contribution, as well as the anticipated transplant outcomes in any potential recipient.

There are no precise definitions (or algorithms) to determine medical need. Any attempts at oversight of allocation processes will find it difficult to measure the absolute and relative medical needs of potential recipients.

Given these realities, it is crucial that the safety and quality measures supporting organ donation and transplantation programmes incorporate transparent data collection on such key decisions as allocation protocols and mechanisms to audit observed modes of behaviour against agreed protocols.

Points raised during discussion:

- The issue of how best to weigh the concerns of families, relatives and friends in determining the outcome of organ and tissue donation consent was raised. It was identified that there is a wide range of opinion in the international community on the role of next-of-kin and family in such decisions. It remains critical to allow the family to participate in the donation process, regardless of the legislative framework (i.e. presumed consent or informed consent). Local cultural influences may well ultimately determine the degree of influence that family concerns have in decision-making on donation consent.
- In the current Guiding Principles there is a need to clarify the intention of the term 'living minor' – for example, does this encompass a fetus as a donor? It was clarified that the existing Guiding Principles cover organs, tissues and haematopoietic stem cells, but not pluripotent stem cells or embryonic stem cells; the definition of 'organ' is contained in a footnote to the Guiding Principles, and for the purposes of the meeting, it does not include embryonic or fetal donation.

2.1.3 WHO achievements and strategy (Dr Luc Noel)

The WHO workplan and strategy in the area of human transplantation clearly stems from the founding principles articulated within resolution WHA 57.18. These are a need to deliver appropriate safety and quality systems; global harmonization of approaches; an agreed ethical framework; and improved access to human transplantation globally. Achieving these outcomes will be totally dependent on the actions taken globally by relevant national health authorities.

It was identified that this consultation would be the beginning of an enduring WHO-led programme that will build regional networks and identify specific issues of relevance to human transplantation within those networks. The issues may embrace resourcing and models of health care delivery in addition to religious, social and cultural issues. Having identified regionally specific issues, WHO will seek to work with countries, via their nominated national health authorities, to evolve approaches that ensure that countries have access to relevant, safe, high quality human organ and tissue transplantation programmes.

The regional approach will take account of regional specificities in issues confronting human transplantation. For example, South-East Asia and Africa face very large unmet needs and have particular social, economic, religious and cultural barriers to improving access to transplantation for their citizens. In Latin America, there is already the beginning of a functioning regional network overseeing human transplantation. In Africa, there has been an initial exchange of information with individual countries. Europe currently provides a relatively sophisticated model of international cooperation in the area of human transplantation, with the Council of Europe initially providing pertinent leadership and more recently the European Union embedding relevant principles in enforceable legislative frameworks.

Globally, there is a clear need for agreed common understanding and attitudes on key issues regarding human transplantation. WHO hopes to assist in defining a suitable global consensus on key issues, including the definitions of unacceptable practices in human transplantation and mechanisms to avoid such unacceptable practices and sanction those participating in such practices.

An essential first step in constructing globally agreed understanding and attitudes is access to good information regarding both best practice and current practices in human transplantation; hence the WHO focus on building a Global Knowledgebase on Transplantation (GKT). In partnership with the Global Alliance for Transplantation, WHO is to collate and collect various types of relevant transplant-related data from defined sources and assemble them into a GKT. The GKT must include activity measures and measures of transplantation safety and effectiveness. It is hoped that global consensus on key issues and shared global attitudes to human transplantation will arise from a planned Global Forum on Transplantation, to be held in 2008.

Data for the GKT will be drawn from both conventional and unconventional (so-called 'grey' literature, such as the Internet). Mechanisms will be developed to confirm the veracity of reported data. The GKT will provide both surveillance and vigilance information that will increasingly inform decision-making by WHO and others on important issues involving human transplantation. In addition, the Global Information Full-Text (GIFT) initiative has been established by WHO and other partners to provide information to countries that would not be able to afford access to publications, etc, and it is hoped that this will contribute to the gathering and sharing of information on global human transplantation, including activity levels, outcomes,

legal and organizational structures, surveillance and vigilance systems, identification of unacceptable practices, and xenotransplantation.

It is acknowledged that infection is a major risk in human transplantation. This and the rapidly developing science of transplantation appropriately receive significant emphasis in reporting on transplantation. However, at a societal level, the ethics of organ and tissue donation and transplantation is equally as relevant as the science and technology for those individuals and communities touched by organ and tissue donation and transplantation.

WHO plans to complete an initial round of regional consultations on the Guiding Principles on Human Organ Transplantation over 2005-2006. It is planned that a draft of the proposed revised Guiding Principles will go to the World Health Assembly in the second quarter of 2006, with a final draft going to the Health Assembly in 2007.

It is acknowledged that renal transplantation is a priority area for definition and establishment of best practice to inform the development of national renal replacement therapy (RRT) programmes. There must therefore be improved access to kidney transplantation through an increase in donation after death. WHO continues to support initiatives, such as the recent inaugural 'World Organ Donation and Transplantation Day', to encourage cadaveric donation. Best-practice models for optimizing donation after death need to be developed and applied in every country that provides RRT.

Best-practice guidance must incorporate optimal standards of care for live donors as an absolute necessity. Following the establishment of agreed best practice for the care of live kidney donors, guidance for the care of live liver, bowel, lung and pancreas donors will be addressed. WHO intends to include guidance on the use and scope of live donor registries within these frameworks and to develop a resource set on xenotransplantation that will be freely accessible to Member States. Ultimately, WHO wishes to see all 'health products' used in human therapeutics managed in accordance with defined common principles. These will include guidance on appropriate management of transplanted human organs and tissues, medical device management and xenotransplantation management.

Given the existing and increasing cross-border trade in materials for transplantation, a common internationally consistent approach to oversight of human transplantation programmes will be essential to deliver safe, high quality, human transplantation programmes of relevance to Member States.

2.1.4 Overview of the Global Knowledgebase on Transplantation (GKT) (Dr Maria del Mar Carona Sanz)

Dr Sanz explained that the GKT is being established because there are no accurate data available on transplantation activity throughout the world. Accurate data from the GKT will assist with transparency and accountability and will progressively inform evidence-based policy-making. It is anticipated that the information in the GKT will be useful to estimate the extent of ethically unacceptable practices and the relative efficacy and safety of transplantation in different conditions and settings.

As a first step in acquiring preliminary information, a questionnaire was designed to obtain an idea of the donation and transplantation activity in each country and to identify the legal and organizational situation of each country. The questionnaire was organized in four sections:

contact person and general country data; the organizational system; any relevant legislation; and donation and transplantation activities and centres. Copies of the questionnaire were distributed before the meeting and eight out of the 11 distributed were returned. The preliminary results of this survey of human transplantation activity were shared with participants. Key to the long-term success of the GKT will be establishing a contact person in each Member State; good cooperation and interaction between Member States, WHO and the GKT; and a commitment from all to improve the quality of data in the database. The potential power of such accurate data will include an ability to perform accurate comparative analyses of transplantation activities and outcomes in different contexts.

Dr Sanz also provided some background information on the Organización Nacional de Trasplantes (ONT). ONT has had a large international and multidisciplinary group in the field for more than 15 years, and has significant experience in cooperation with European institutions. This has now been extended to Latin America. ONT has been involved in data collection and analysis, in the development of reports, proposals and recommendations, and with participation in international projects. ONT produces an annual *Transplant* newsletter for the Council of Europe, which is widely disseminated and contains data together with the recommendations and guidelines approved by the Council of Europe Transplant Committee. Since 1996, the organization has been responsible for data collection and publications on specific topics: organ donation and transplantation (1996); waiting lists (2001); family refusals (2004); and tissues and haematopoietic stem cell transplant activity (2004). ONT has collaborated with a number of countries and areas: Europe (1996), Latin America (2004), and Australia, Canada, New Zealand and the United States of America (1996). The organization has also developed an International Observatory on Transplantation.

Points raised during discussion:

- The critical need for a principle contact point within each national health authority to gather reliable information on human transplantation within that country was reinforced. Without such a focal point, effective ongoing communication and regional development of relevant strategies will be compromised.
- Data collection and analysis: Several participants contributed to the discussion about the sources of information on transplantation given to WHO and the GKT. By convention, WHO expects national health authorities to take responsibility for provision of answers to any questions regarding activities within their countries, using their best available resources to source requisite data. However, it is also recognized that many of the needed data are not available within national health authorities, and that they frequently depend on experts in transplantation or representative specialist societies to gather these data. The best source(s) of data must be identified for each country, and data should be collected from that source. It is preferable to start collecting routine data than not to collect any at all, even if some of the data are 'bad'.

The experience of ONT in Europe has shown that it takes several years to harmonize data collection across different countries and regions. In Western European countries there are well organized, sophisticated resources that provide the required data. However, in Eastern Europe data sources are variable. The experience of ONT is that, after two or three years of data collection, regardless of the primary data source, reasonably reliable and consistent data that can be used for analysis and action become available. The European database, which was not a WHO initiative, started pragmatically and collected data from those who had the

data available and sought to harmonize data collection later. It is extremely important that those responsible for collecting any data have access to a clearly identified, reliable focal point for communication on data collection within each country. Over time, the available data collected will inform diagnostic interpretations and interventions.

It is important that WHO involves the national health authority in determining the relevant source of data for each country, as there is a possibility that some groups might distort reported data (or there could be a perception that they are doing so) because of potential conflicts of interest. Thus the national health authority must be involved in identifying a reliable appropriate contact person for liaison with WHO on these matters.

- Denominator populations for analysis: A point was raised about whether donors per million population (dpmp) is the correct statistic for comparison. What may be more relevant is the number of 'eligible deaths' (those who die in circumstances in which organ donation is possible); metrics that reflect the number of donors per eligible death would be preferable. However, in discussion this was considered too complicated when different countries are involved. It is more realistic to collect dpmp than to collect nothing or to attempt to collect statistics using measures that, at present, would not be possible for many countries.

2.2 Regional situation (agenda item 4)

2.2.1 Regional overview (Dr Luc Noel)

Dr Noel provided available data on the current levels of organ and tissue transplantation in the Western Pacific Region and compared the levels of activity with those in other WHO regions. There is a relatively close correlation between a community's level of economic and social development, as reflected in tools such as the Human Development Index (HDI), and overall transplantation activity. It was noted, however, that differences in observed transplantation activity within any given HDI band indicate that factors other than the level of economic and social development are impacting on donation and transplantation behaviour within communities.

2.2.2 Country presentations

Australia (Dr Neil Boyce)

In the absence of an official representative of the national health authority of Australia, Dr Boyce, WHO consultant, provided an overview of key activity indices and current issues impacting organ and tissue donation across the country. The number of cadaveric transplants undertaken in 2004 were: 405 kidney transplants; 177 liver; 80 heart; 6 heart/lung; 98 lung; 28 pancreas (including 12 islet cell). A number of tissues are also being transplanted (skin, bone, cornea, valves and vessels) and haematopoietic stem cells taken (ratio of five autologous to one homologous). The deceased donor rate is 10 per million population.

The Therapeutic Goods Administration regulates tissues and manipulated stem cells (but not other stem cells). The regulation of organs is under discussion. In general, funding is provided by the Government, except for some tissues and homologous stem cells. Registries have been established for deceased kidney, heart, lung and pancreas donors. Current issues and challenges include: increasing the deceased donor rate; the Australasian Donor Awareness Programme (ADAPT); a potential donor audit; establishing an Australian organ donor registry;

implementing the Australian Health Ministers' Council recommendations for changes in the arrangements and process for organ donation; donation after cardiac death; altruistic renal donation; and developing a model for the oversight of organ donation and transplantation.

Brunei Darussalam (Dr Chua Hock Beng)

In Brunei Darussalam, health care is free for all 389 000 (estimated population for 2006) citizens and permanent residents. Transplant services are not available in Brunei, and patients are sent abroad for treatment.

The major indication for transplantation in Brunei is end-stage renal failure. Dialysis services were established in 1968, and patients are considered for dialysis and transplantation regardless of age. There are currently 400 patients on dialysis (aged 7 to 80 years; median age 45); 150 of whom are suitable for transplantation. Twenty renal transplants were undertaken between 1992 (when the first transplant abroad occurred) and 2005 – 18 from live donors (13 in Singapore, five in India) and two from deceased donors in China. Currently, citizens of Brunei requiring access to renal transplantation and their potential live kidney donor are assessed for suitability for donation and transplantation by specialist teams in Singapore and the transplant surgery is undertaken in Singapore. There is currently a programme whereby local medical specialists from Brunei receive training from colleagues in Singapore, and it is anticipated that that local renal transplantation will be feasible and available in the future. Offering a deceased-donor programme within Brunei would be very difficult given its small population and cultural and religious considerations.

Corneal transplantation was first undertaken in 1962 using donor corneas obtained mainly from Sri Lanka. An average of 10 corneal transplants were undertaken per year, but the programme stopped in 1992 because of the unavailability of donor graft from the supplier. Brunei is now looking into cornea banks worldwide to restart the programme.

With respect to liver transplantation, no data are available on suitable liver failure patients for transplant; one patient had a liver transplant but died three years later. Given Brunei's small population, it is not feasible to establish local liver transplantation.

Cambodia (Dr Thong Sok Hean)

In Phnom Penh Hospital, a steady increase in new cases of renal failure has been noted over the last few years: 80 patients in 2002, approximately 85 patients in 2003, and almost 100 in 2004. Given that patients with renal failure must pay the full cost of their health care, fewer than 50% of those requiring access to renal replacement therapy are able to afford dialysis and very few ever have an opportunity for transplantation. Access to kidney transplantation occurs overseas, primarily from live donor sources. It is unknown whether any people in Cambodia have benefited from transplant tourism. The current aims are to enlarge the haemodialysis service (this includes improved laboratory services and follow up), and possibly to establish a transplantation centre in the future.

China (Dr Meng Qun)

There has been a rapid evolution of transplantation programmes across China over the past decade. China now has, by volume, the largest deceased donor renal and liver transplant programmes in the world (from 1993 to present): 59 540 kidney transplants, 6125 liver,

248 heart, 15 lung, 115 kidney-pancreas, 43 liver-kidney, and 11 heart-lung. By the end of 2003, the longest survival times were 27 years for kidney transplant, 10 years for liver, 13 years for heart, five years for lung, nine years for kidney-pancreas, and five years for liver-kidney. By the end of 2004, there were 56 heart transplant centres, 166 for liver transplants and 348 for kidney transplants. A variety of diversified procedures are undertaken for liver transplants, including standard liver transplantation, piggyback liver transplantation, cavaplasty liver transplantation, reduced-size liver transplantation, heterotrophic liver transplantation, living related liver transplantation (paediatric and adult), re-transplantation, and liver-kidney transplantation. Survival rates for liver transplantation have increased significantly in the last few years, with more than 2500 liver transplants since 1998 with a greater than 95% peri-operative survival rate and a 60%-80% one-year survival rate.

Lack of a legal framework for brain death and organ transplantation is the main restriction on the development of organ transplantation in China at present. Other challenges include insufficient donation and a consequent shortage of organs; lack of scientific and proper organization and allocation of donated organs; disparity in the technical abilities of different medical institutions; and a lack of laws and regulations and government oversight (although it is recognized that some degree of control occurs through the Law of the People's Republic of China on Medical Practitioners, and the Regulations of Medical Institutions). The principles that will be applied in drafting appropriate regulations are: voluntariness, fairness and justice, informed consent, people-centered, autonomous decision-making, technical accession, non-commercialization, and law-based management.

The challenges ahead are to establish an organ transplant registry, an organ-sharing network, a transplant permission regime, and transplant-related legislation; to develop the technical capability of services; to ensure the cost-effectiveness of services, to engage China with the global transplantation family; and to develop guidelines for indications and unified national protocols (pre-, peri- and post-transplant management).

Fiji (Dr Deo Narayan)

Fiji has a total population of approximately 772 000 (51% indigenous Fijian Melanesians; 44% Indo-Fijians), spread over an archipelago of 322 islands. Only a small percentage of the population is covered by medical insurance and a large percentage live below the poverty line. The Government spends most of its medical budget on free medical services and preventive medicine, and chronic renal failure is a big problem. Curative medical services need to be further developed, and there is currently no specialization in any disciplines in medicine and no specialized unit for organ retrieval and transplantation. Patients bear the total cost of continuous ambulatory peritoneal dialysis (CAPD) and renal transplantation; neither the Government nor insurance companies cover the cost for dialysis or organ transplantation. Eleven recipients of transplants, undertaken from 1992 to 2005, are currently living: 10 were kidney transplants (all live donors: eight undertaken in India, one in Australia, one in New Zealand) and one a live donor liver transplant (undertaken in the United States of America).

The regulatory and control mechanisms that the Government might use to control or limit transplant services offered by a provider include: not agreeing to be in partnership due to financial constraints; asking the provider country to continue funding for post-transplantation care; requesting training or setting up of a haemodialysis unit where acute renal failure can be treated or kidney biopsy facilities; making improvements in reporting techniques; requesting

payment for the cost of immunosuppressive drugs; and possible establishment of strict selection criteria for patients who might undergo transplant surgery.

Current issues and challenges: only live donor transplants are available, although there is a lot of public fear about donating a kidney related to concerns about potential complications or failure of their remaining kidney; and cadaveric organ transplantation is not currently considered feasible given that there is no organ transplant centre in Fiji. An awareness programme is needed to educate society on live donor and cadaveric organ donations. With regard to xenotransplantation, there are a number of cultural issues to be considered (eg. Hindu citizens would not accept organs from cows, and Islamic citizens would not accept organs from pigs), as well as superstitious beliefs, potential victimization and fear of infection.

Hong Kong (China) (Dr Kwok-wai Kwong)

From January 2000 to June 2005, Hong Kong undertook: 335 kidney transplants (280 deceased donors; 38 living – genetically related; 6 living – married couple; 11 living – unrelated); 359 liver transplants (126 deceased donors; 99 living – genetically related; 52 living – married couple; 82 living – unrelated); 1097 cornea; 95 sclera; 7 lung; 44 heart; 310 skin; 190 bone; 61 tendon; 4 others. It was noted that the number of unrelated donors may be overstated/misclassified, as some are potentially genetically related or married but the documentation is insufficient to confirm their relationship with the donor and hence they are classified as unrelated in the statistics collected.

Transplant activities in Hong Kong are regulated by the Human Organ Transplant Ordinance 1995, which regulates solid organs (structured tissues which, if removed from the body, cannot be regenerated) and includes parts of organs (excludes blood and bone marrow). It prohibits commercial dealing in and advertisement of organ transplantation and trading of human organs. It also regulates transplantation of imported organs and organ transplants between living persons (which is permitted when those persons are genetically related or are married couples of more than three years, or when approved by the Human Organ Transplant Board where they are not related). The Human Organ Transplant Board is also responsible for issuing the administrative guidelines to facilitate compliance of medical professionals with the Ordinance, and to receive reports on importation, transplantation and disposal of human organs. It comprises nine members: a non-medical chairman, four registered medical practitioners, one social worker, one legally qualified person and two other persons.

Other major provisions of the Ordinance include: donor consent may be waived under specific conditions (recipient is a minor or in an impaired state of consciousness); separate explanations must be given to donors and recipients; organs/tissues previously removed for therapy of the donor (eg. bone fragments) need not satisfy requirements such as mutual consent of donor and recipient; and living donors must be at least 18 years old. It also permits human tissue-based products for commercial sale (an application is required, the product must be safe and pose no public health impact, and no commercial dealing is permitted during harvesting of the tissue). It requires imported organs to be certified by an acceptable authority and it must be certified that the organ was obtained legally, is free from transmissible diseases and was not removed for payment, etc. Other issues covered include the opt-in approach used for cadaveric organ transplantation, and organ donation cards that may be signed by willing donors. By convention, consent is still obtained from next-of-kin, even if an organ donation card has been signed. There is a need for ongoing public education to promote cadaveric organ donation.

Japan (Mr Yoshikazu Kataoka)

A law related to organ transplantation was established in 1997 and permits transplantation of the human cornea, kidney, heart, lung, liver, pancreas and small intestine. It prohibits the selling and buying of organs, and provides the procedure for diagnosis of brain death and removal of organs. In 2004, 12 328 patients were waiting for a kidney transplant, 75 for a heart, 105 for a lung, 83 for a liver and 118 for a pancreas. Much of the transplantation activity in Japan involves live donor programmes.

The wishes of the family have a significant impact on deceased-donor programmes. For donation after death to occur, there must be a declaration during life from the potential donor and no family objection. Given existing cultural norms, donation after cardiac death is the only effective means of obtaining deceased donations. These programmes are predominantly for renal and corneal donation. There has been a concerted public awareness and education programme supporting organ donation in recent years. This has included wristband promotion campaigns in schools and the development of a national donor card, which is a 'doublet' (with one copy for the potential donor and one provided to their next-of-kin).

A key issue at present is the need to increase deceased donation in Japan. Currently, numbers of 'non-heart-beating' donors are not increasing as expected, and there is a need to increase brain-death donation. However, people need to have a better understanding of the need for donation after death; brain death is still not accepted widely. Planned changes in national procedures under consideration include: the introduction of an 'opt-in' choice by families (rather than requiring active declaration during life); an ability to allow 'priority offers' on deceased donor organs to a parent, child or spouse; and increased opportunities to register intention regarding donation via medical insurance and driver's licence application processes. Other steps include communication with the public via the news media; education of clinicians and patients; and setting up of coordinators in hospitals.

Lao People's Democratic Republic (Dr Bounthaphany Bounxouei)

No transplant surgery has been performed in the Lao People's Democratic Republic to date; patients needing transplants currently have to seek such services in other countries. However, as in other countries, health problems do exist that would warrant transplant services if they could be afforded: cases of chronic renal failure (there is one haemodialysis centre for the whole country, which treats approximately 50-70 cases per year for end-stage renal disease), hepatic disease (related to post-infectious cirrhosis or tumours) and heart disease are increasing.

The next five-year plan (2006-2010) proposes that one transplantation centre should be established, particularly for kidney transplantation. Construction of a new technical block at Mahosot Hospital will commence in 2006, with World Bank assistance, and the building should be suitable for transplant services. Currently, however, the country has only limited specialist expertise available (one nephrologist trained in Viet Nam, one urologist trained in Thailand and France, and one pathologist trained in Japan), and laboratory services are not adequate to support a transplant service. Thus it will be necessary to establish a suitable team, increase their technical capacity and establish a suitable laboratory. It will also be necessary to establish relevant Ministry policies and other regulations, to survey and collect data to clarify the need for transplant services, and to set up the organizational structure and logistics to support transplantation activities. The Lao People's Democratic Republic will need to draw on the models and experiences of other middle- or low-income countries to start the centre.

From a legal perspective, a draft Curative Law that includes prohibition of human body products for commercial purposes has been presented to the National Assembly. As far as the authorities know, no commercial trafficking of human organs occurs in the country.

Macao (China) (Dr Kuok Un I)

There is no transplant centre in Macao; live donors (genetically or emotionally related) are referred to Hong Kong for surgery, after which the donors and recipients come back to Macao for long-term follow-up. Standard procedures apply to organ transplantation involving living donors, including counselling in Macao, and independent assessment of the donor and recipient pair by transplant physicians and surgeons in Hong Kong and, if necessary, approval by the Hong Kong Human Organ Transplant Board. Most cases are funded by the hospital in Macao.

Currently, 68 post-transplant patients (10% received living-related kidney transplantation) are being followed up in the renal clinic, including two post-liver-transplant patients (50% received living-related transplantation).

Legislation that regulates transplantation activities in Macao (Law No. 296M) prohibits revealing the identity of the organ or tissue donor or recipient unless consent from the individual has been obtained, or after his or her death, and prohibits payment under any circumstances, including any compensation or reward involved in the donation of organs or tissues. It also requires that the physicians diagnosing the brain death of the potential donor cannot be involved in the organ removal or transplantation procedures. The donor has the right to medical care and indemnity when damage arises in relation to organ removal.

A Life Science Ethics Committee was established in 2005. Its function is to ensure that human rights and dignities are protected; its operational principles are still being finalized.

Malaysia (Dato' Dr Noorimi binti Haji Morad)

Transplantation activities in Malaysia started in 1970 with cornea transplantation. Kidney transplants followed in 1975, bone marrow in 1987, heart in 1995, upper limb in 1997 and liver in 2000, and permission has been given for the first heart-lung transplant (which is currently awaiting the availability of a donor). Funding is provided from the public sector, donations, out-of-pocket payments and corporate contributions to a Government-established National Medical Fund.

The Human Tissue Act 1974 provides the current legal framework, but this is not comprehensive and is under review. It only covers the handling of cadaveric organs and tissues. Two other laws are relevant: the Medical Act 1972 provides regulations on the appointment of medical staff (those who are allowed to practise within the country) and also addresses the medical ethics and professional conduct of medical doctors; and the Private Health Care Facilities and Services Act 1998, which regulates private hospitals (although regulations are still needed for this Act to replace the Private Hospital Act 1971, which is still being enforced).

Transplant activities are overseen by the National Transplant Coordinating Committee, chaired by the Director-General of Health, with five subcommittees on public education, professional matters, registry, planning and development, and law and ethics. In addition, due to the demand for living donors, the Unrelated Transplant Approval Committee was formed in 2003, and all unrelated living donors are required to submit themselves to this Committee for

examination and approval. The professional subcommittee has developed credentialing procedures and guidelines on transplants.

Transplant activities are undertaken under the control or oversight of the Ministry of Health, include cornea (all state hospitals and some private hospitals), kidney (Kuala Lumpur Hospital, Selayang Hospital and two university hospitals (UM, UKM)), bone marrow (UM, UKM), heart (National Heart Institute), limbs (Selayang Hospital) and liver (Selayang Hospital). Organ procurement is undertaken by the National Transplant Procurement Management Unit (TPMU) and six Tissue and Organ Procurement Teams. Tissue banks include: the National Tissue Bank in USM (skin, bone, amnion); bone banks in KLH, UMMC; eye banks in Kuala Lumpur Hospital and Tun Hussein Onn Hospital; and cord blood at the National Blood Bank.

Several issues remain. Under the 9th Malaysia Plan, new strategies will be implemented to strengthen transplant activities, but a national policy on transplantation needs to be developed to support this. A Comprehensive Transplant Act is also needed. There is no national transplant programme, and activities to date have been carried out based on funding for specific medical disciplines rather than as a transplantation activity. A national transplant programme should be able to consolidate human resources, funding and other resources coming directly from the Treasury. Although a registry was established in 2003, the data currently collected need to be expanded to include information on outcomes. Limited research is undertaken, but is confined to the universities and clinical research centres in Kuala Lumpur.

The challenges being faced are similar to those in other countries. Malaysia has a lack of organ donors, especially deceased donors. Half of the 38 kidneys transplanted in 2004 came from living donors (including unrelated donors); yet there were 6500 road traffic deaths, most healthy and aged 20-40 years. It is hoped that more donors can come from this group. Another challenge is that public perception and acceptance of transplantation is based on taboos or religious beliefs, and many still have reservations, especially family members – there are about 90 000 pledged donors but, at the point of death, approval or consent must come from the family. Retention of trained staff at public hospitals (where most transplants are undertaken) is also a challenge. Accessibility is also an issue in terms of both procurement of organs and bringing the recipients to the main transplant centres. Lastly, the availability of ICU beds is currently limited.

Mongolia (Dr Jargalsaikhan Nyamjav)

Training for organ transplantation in Mongolia started in 1994, when the transplantation team trained in Japan at Koho University. The group conducted their first trial kidney transplantation in 1996 in Princetown, and followed up in Mongolia. Also in 1996, the Transplantation Hemodialysis Centre was authorized by the Ministry of Health. In 2000, a law on organ donation and transplantation was approved by Parliament. This law establishes the legal, ethical, liability and procedural guidelines for transplantation in Mongolia. It provides national oversight for procurement and processing according to transplantation policy, and describes the rights and requirements of donors, recipients and health professionals. In 2001, with the support of the Korean International Cooperation Agency (KOICA), the Centre for Kidney Transplantation in Mongolia was strengthened, members of the transplantation team were trained and a tissue compatibility laboratory was established.

To date, 49 kidney transplants, eight liver transplants, two bone marrow transplants and 150 cornea transplants have been undertaken. Most transplants are done outside the country. Since 2003, a government budget of US\$ 250 000 to US\$ 300 000 has been provided for

immunosuppressive drug expenses, enabling recipient patients to receive these drugs free of charge. A recipient follow-up system has been established.

Current issues include: the need to address organizational, financial and procedural issues and coordination of policy at the national level; training for members of the transplantation project on procedural and laboratory matters; educational, ethical considerations and popularization of organ donation among physicians, citizens and medical workers; and organization and establishment of the national Organ Procurement and Transplantation Network (OPTN), which will be responsible for obtaining organs from donors and allocating and distributing those organs to recipients in Mongolia and the Western Pacific Region.

New Zealand (Dr Ian Dittmer)

New Zealand carries out transplants of the heart, lung, kidney, liver, pancreas, bone, heart valve, skin and cornea. Approximately 400 people are currently waiting for organs (350 for kidneys). The vast majority of kidney transplants performed in New Zealand are in the public health system; a few cornea transplants and heart valves replacements are performed in private hospitals. Currently, there is no formal regulation of organs or tissue for transplantation, but there are moves to regulate these under the new Trans-Tasman Joint Agency with Australia.

Organ Donation New Zealand (ODNZ) has the responsibility for coordinating the retrieval of organs and tissues from donors in New Zealand for transplant units in New Zealand and Australia and for tissue banks in New Zealand. ODNZ also provides advice on organ donation services, both to hospitals and to the public and media, and advice on processes (including improving clinical practice regarding identifying donors and discussions with families about donation), and is responsible for educating health professionals. In 2005, the Government agreed to provide welfare assistance for live kidney donors and live liver donors so that they would be reimbursed, if necessary, for any out-of-pocket expenses.

The organ donation rate is an issue in New Zealand. The country currently utilizes 35-46 deceased donors per year and performs another 40 live kidney donor transplants. An altruistic programme has started for those people who are willing to donate a kidney into the general pool, and those kidneys are allocated in the same way as deceased donor kidneys; a small live liver donor programme also exists. In 2004, New Zealand had a donation rate of 9.8 per million population. Increasing the number of deceased donors has proved to be problematic, despite considerable efforts over the last few years. There are also cultural concerns related to donation for Maori and Pacific Island peoples, who make up about 20% to 25% of the New Zealand population, have high rates of both renal and liver disease, and make up a high proportion of the number of people on the waiting lists.

The consent framework is another issue. People can indicate on their driver's licences that they would like to be organ donors and professionals should take this into account if they become deceased. However, this is an indicative rather than a consent register, and currently family are always asked to agree to donation. Even if a person has indicated willingness to donate, health professionals would feel quite uncomfortable about going against a family's wishes should they not want donation to proceed. Views are currently divided on whether the family's or the deceased person's wishes should prevail. The Ministry is working on a new consent framework as part of new legislation.

Legislative controls on xenotransplantation were introduced in 2002 in response to concerns about safety, a regulatory review and spiritual, cultural and ethical issues. Currently, the Minister of Health can consider applications on a case-by-case basis. New Zealand has had one case where a xenotransplantation researcher attempted to move his research to a Pacific island country where there were no regulations so that he could avoid the ethical rules and regulations which would have been applied in New Zealand. The Ministry of Health is aware of international responses on the oversight of xenotransplantation and is commissioning work on emerging research on its safety; this information will be a useful basis to determine whether xenotransplantation proceeds and, if so, the level of monitoring required.

Papua New Guinea (Dr Kaii Dagam)

Currently, no transplantation of organs or tissues is undertaken in Papua New Guinea other than skin grafts. The country has 27 transplant patients, mostly transplanted in Australia, but most are managed in the capital by general physicians. There are no specific facilities to care for these people, and there is no legislation on transplantation. However, due to the WHO development programme in the country, prevention of blindness is picking up momentum, and discussions have taken place over the last year regarding corneal grafts and a possible cornea bank. Other possible areas being considered are bone marrow and kidney, although this is likely to be some time away. Some open heart surgery is undertaken in Port Moresby, including valve replacement, in conjunction with the Australian Heart Team. There is a plan to undertake a review of transplantation for the country's largest hospital (800 beds), and possibly to establish these services after 2010.

Philippines (Dr Enrique Ona)

Since 1968, approximately 3000 kidney transplants have been undertaken in the Philippines; a liver transplant programme started in 198, along with pancreas and bone marrow. There are about 20 hospitals performing transplantation surgery, but only five carry out more than 10 transplants per year.

The most common cause of end-stage renal disease in the Philippines today is both diabetes and hypertension, similar to developed countries, and the estimated incidence of end-stage renal disease is 122 per million population. Although the number of new patients on dialysis increased steadily from 2001 to 2004 to an average of about 5000 patients annually, this is only 56% of the estimated incidence, and only 5% receive transplants. The prevalence and the annual number of new patients undergoing dialysis was almost the same during the period from 2001 to 2004. This means that, if patients are not transplanted within one year of commencing dialysis, they usually die because of their inability to pay to continue the treatment.

The number of transplants rose steadily from 1996 to 2004, and approximately 500 are now performed annually. Most donors are living donors, with only about 5% deceased. The number of living unrelated donors has increased markedly over the last few years (260 unrelated donors in 2004 compared with 153 related donors). This prompted the Department of Health to issue an Administrative Order in 2002, together with the Southeast Asian Bioethics Society, which defined the prerequisites for living unrelated donation as: minimum age of 18 years; absolutely no coercion; donors must be fully aware of the consequences of the operations; donors must pass a psychiatric and a social service evaluation and, of course, must be medically fit; an ethics committee must approve; and donors can withdraw at any time.

Other regulatory controls include the Organ Donation Act of 1991, which recognizes the concept of brain death. Following on from the 2002 Administrative Order and a National Policy on Kidney Transplantation from Living Unrelated Donors, the following were established: the National Transplant Advisory Board; the National Transplant Ethics Committee; the National Registry of Donors and Recipients; accreditation of hospitals that can perform a transplant operation; and a kidney donor care unit in the National Kidney Institute that follows up on all living donors that have undergone operations in the Institute. Accreditation of transplant hospitals also requires that all members of the transplant team be members of their respective specialist societies (the Philippine Society of Nephrology in Renal Transplantation and the Philippine Society of Transplant Surgeons).

The 2002 Administrative Order also approved certain gifts or assistance being given to the donor, based on the Amsterdam Forum. This includes a cash reimbursement equivalent to loss of income (pre- and post-donation) for up to four months (PHP25 000 x 4), a health insurance plan up to age 65 years, livelihood assistance, life insurance coverage of PHP100 000, a job placement for those who do not have work, a comprehensive health evaluation, an annual medical check up for 10 years, and sometimes educational aid. The indicative total value of this package is approximately US\$ 7000.

The following statistics are available on living, unrelated donors from the National Kidney and Transplant Institute: of 180 volunteer donors in 2004 and 149 to September 2005, 25% in 2004 and 22% in 2005 were rejected because of the concept of outright sale; 15% in 2004 and 9% in 2005 were rejected because they were medically unsuitable; and 43% in 2004 and 52% in 2005 failed to return or retracted their consent. This left 12% of donors in 2004 and 10% in 2005 that were accepted, but only nine (5%) in 2004 and 11 (7%) in 2005 were operated on and their organs given to recipients.

Nationwide surveys on public knowledge and opinions regarding organ donation in 2001 and 2005 (of approximately 2000 respondents) showed 64% were willing to become donors in 2001, increasing to 87% in 2005; 16% were willing to be deceased donors in 2001 compared with 78% in 2005; 31% were willing to be living donors in 2001 and 57% in 2005; 82% would donate their kidneys in 2001 and 77% in 2005; and 63% disagreed with compensated donation in 2001 and 66% in 2005.

Funding is an important issue in the Philippines. Dialysis costs about US\$ 8000 per year, and a kidney transplant about US\$ 18 000 - US\$ 20 000. PhilHealth, the national health insurance system, covers only 6% of the cost of a transplant and 11% of the cost of dialysis for a maximum of four months of dialysis. HMOs and private insurance schemes cover about US\$ 1000 for dialysis per annum, and for a transplant operation they may provide about US\$ 2000. Therefore, the main source of funding for transplants, as well as dialysis, is the patients themselves.

Organ donation advocacy and public awareness and understanding of organ donation are also continuing issues. Despite public advocacy efforts over the last 20 years, the very low referral rate for the deceased-donor programme remains a challenge; this is not helped by a lack of funds for transplant coordinators and poor cooperation from medical and paramedical practitioners. Other challenges include the Philippine Organ Donation Program, being able to provide ongoing accreditation for transplant hospitals, and establishing kidney donor care units in other transplant hospitals.

Republic of Korea (Dr Ha Jong Won)

The Organ Transplant Act was enacted 1999 and became effective one year later. This Act specifies the organs and tissues that may be transplanted: kidney, liver, heart, lung, pancreas, cornea and bone marrow. It controls, not only cadaveric donors, but also living donors, and establishes an organ transplant ethics committee (mainly dealing with living, unrelated donors and other problems) and a brain-death judgment committee (for determining brain death according to the doctor's examination).

The Korean Network for Organ Sharing (KONOS) was also established under three regions. Throughout the country there are 116 patient registration organizations, 67 brain-death judgment hospitals and 71 transplant centres. The number of donors has increased significantly since 2000: 1246 donor applicants registered in 2000, 2191 in 2001, 6638 in 2002, 9874 in 2003 and 36 323 in 2004. Paradoxically, however, the initial impact of the national legislation has been a decrease in organ donation (for example in 1998 and 1999 approximately 168 brain-dead donors were identified each year, but in 2000 the number was about 60, and this number has stayed at less than half the original level) and a decrease in kidney transplantation. It is believed that this is because a hospital no longer has any incentive to pursue organ and tissue donation because, under the revised legislation, organs must be offered on the basis of medical need to the best 'match' in the country, rather than being available for transplantation within that hospital. Currently 14 323 patients are on waiting lists for transplants (5634 for kidney, 1695 for liver, 153 heart, 159 pancreas, 50 lung, 3654 cornea, and 2978 bone marrow).

Current issues and challenges include: making the brain-death decision on the basis of medical examination; promoting the donor action programme; a campaign for organ donation; simplifying the donation procedure; education and training of related personnel, such as coordinators; and strengthening the social security system to support poor patients (it was noted that a patient's ability to pay for his or her own treatment significantly improved access to renal replacement therapy, including transplantation).

Samoa (Dr John Adams)

There is no organ transplantation programme in Samoa and no organ transplantation has been undertaken there. However, due to rheumatic heart disease, children are sent to New Zealand for heart valve replacements. To date no one who has received a transplant has come back to reside in Samoa.

Samoa is small country in the South Pacific, and access to transplant technology is a significant issue. Renal failure is a major problem in the Pacific islands, and there is a need to establish criteria regarding who should be able to access transplants, particularly kidney and corneal transplants. Financing is also a key issue and could impact in the future on donors travelling overseas and whether they can be compensated for donating a kidney, as well as on the importation of cadaveric organs. Various cultural issues also require consideration. Given that there are many small island nations in the Pacific, one issue that requires consideration is whether it is practical for individual countries to develop transplant services or whether it might be more feasible for one country to set up a unit and then all the other smaller Pacific island nations to contribute and access that unit's services.

Singapore (Dr A. Vathsala)

The Human Organ Transplant Act is presumed-consent legislation that covers cadaveric kidney, liver, heart and cornea donation and controls transplant activities in Singapore. The Act also safeguards against organ trading and regulates living-donor transplants. The Act provides for the establishment of a national organ donor registry, as well as for an objector registry. All transplant doctors and surgeons, as well as transplant centres, need to be gazetted. In addition to this Act, there is the Medical (Therapy, Education and Research) Act, under which donors can pledge organs and tissue not already covered by the Human Organ Transplant Act.

In 2004, Singapore enacted the Human Cloning and Other Prohibited Practices Act, which specifically bans human reproductive cloning. Under the Hospitals and Clinics Act, there are legislative guidelines on human embryology and the practice of reproductive technologies. At the national level, there is a Bioethics Advisory Committee and this has developed and introduced a set of guidelines for Institutional Review Boards (IRBs). All human biomedical research, including research involving human tissue, is reviewed and supervised by these IRBs, which are based in hospitals. The Ministry of Health is currently reviewing its controls to determine if added, specific legislation needs to be introduced.

In terms of clinical transplant activities, organs covered under the Human Organ Transplant Act (kidney, liver, heart and cornea) are managed as part of the National Transplant Programme, which operates in the public sector (the public sector in Singapore covers about 80% of hospital beds). Kidney and liver living-donor transplants are available in both the public and the private sectors. In 2005, Singapore will hold a National Transplant Awareness Week to increase the awareness of the population about the benefits of living-donor renal transplantation, and it is hoped this will become an annual event.

The kidney transplantation rate was 17 per million population in 2004 (Singaporeans transplanted in Singapore). Bone and skin transplants are carried out primarily as part of hospital-based programmes. A national cord blood bank has just been started, and there are also two private-sector-initiated banks in Singapore. All hospitals undertake bone marrow transplants.

Organ sufficiency is a key issue for Singapore. Currently there are about 600 persons on the kidney transplant waiting list, with a waiting time of up to seven years, and there is a need to promote living-donor transplants. There are also safety issues. For example, the constant threat posed to transplants from emerging and re-emerging diseases is a subject of current review by the Ministry of Health.

Viet Nam (Professor Do Tat Cuong)

Kidney transplantation in Viet Nam started in 1992; approximately 170 cases have been performed to date (all live donors); an additional 250 cases have been performed in China from brain-dead or cadaveric donors. In 2004, two paediatric cases of liver transplantation were performed at two different hospitals from living donors, 580 bone marrow transplants at four hospitals, more than 1000 corneal transplants, and bone and skin grafts.

With regard to regulatory control, from 1992-2002, the National Committee of Organ Transplantation decided which hospitals could perform transplants; this determination is now made by the Hospital Committee. Government funding is provided for the surgery only; medical

insurance pays for post-transplantation expenses for approximately one third all transplant recipients, but the majority of patients have to pay for themselves. Other funding sources are some pharmaceutical companies or charities.

A number of activities are currently under way: the Brain Death Law and legislation for organ donation are currently in preparation, as is the establishment of the National Organ Transplantation Co-Operation Office; a plan is being developed for the Organ and Tissue Transplant Programme to 2010 and a vision to 2020; national organ transplant manuals are being developed; an association of recipients and donors is being established; banks for transplantation are being set up. Major areas of clinical research are related to immunology, biochemistry and anatomy, as well as experimentation for other organ transplantation such as the heart. Experimental research is being undertaken on pigs, dogs and mice.

A number of challenges remain: the shortage of donors; funding for organ transplant services and for patient support; development of techniques for transplanting liver, heart, lung and pancreas; and overcoming various ethical and religious concerns.

2.2.3 Presentations from associations, societies and observers

The Asian Society of Transplantation (Dr A. Vathsala, Secretary of the Society)

The Asian Society of Transplantation comprises interested individuals who wish to share their knowledge and expertise to improve transplantation outcomes. It has no legal or regulatory powers. The society carries out two major activities: regional congresses, which offer local organ and tissue transplant professionals an affordable opportunity for professional development and education; and maintenance of the Asian Transplantation Registry, which captures invaluable information regarding human transplantation activity in the Region.

The realities of transplantation in Asia were discussed. Asia is the most populous continent in the world, but only the third highest number of transplants in the world. There are many obstacles to improving transplantation in Asia. These include religious, social, cultural and legislative barriers to organ donation and economic barriers to organ transplantation. There is also a need for more innovation with respect to techniques, including split liver transplants and live donor liver transplants, core-cooling for non heart-beating donors, 'paired exchange' live donor programs, and to greater access to generic immunosuppressive drugs. It was also noted that 'transplant tourism' programmes operating within the region are effectively reducing the access of Asians to transplantation - available local resources (both physical infrastructure and skilled personnel) are being diverted to support the healthcare needs of wealthy opportunistic transients.

Asia Pacific Association of Surgical Tissue Banking (Professor Yong-Koo Kang, Secretary-General)

The Asia Pacific Association of Surgical Tissue Banking (APASTB) was established in 1989 with the following aims: to promote the establishment of tissue banks in member countries; to encourage research for advancement of tissue banking in the field of medicine; and to promote scientific and social interactions among members of the association through symposia and publications. APASTB has received strong support from the International Atomic Energy Agency (IAEA) in the past. IAEA has organised workshops in host country to coincide with APASTB meetings, enabling participants to attend APASTB meetings. IAEA has also played a

key role in development of tissue banking in Asia-Pacific region through a project related to radiation sterilisation of tissue grafts. A regional co-operative agreement (RCA) with IAEA has also been completed amongst 15 member countries in Asia-Pacific region including Australia, Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Myanmar, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Vietnam. The IAEA has also contributed to setting up and developing 15 tissue banks in 12 RCA Member States including Bangladesh, China, India, Indonesia, Korea, Malaysia, Myanmar, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam, by providing equipment, experts and funding scientific visits and IAEA fellowships. APASTB has also received support from the IAEA to develop a curriculum on tissue banking, and for training courses starting in 1997, although funding for this has not been able to continue and the course has been converted into a series of smaller national courses and a distance-learning/multimedia option (which has also been converted into Spanish for Latin American countries).

Currently the APASTB has 150 regular members (medical and paramedical individuals), not only from the Asia Pacific Region, but also from Europe and the United States of America. The APASTB holds a scientific meeting every two years, conducts activities to improve the quality for tissue banks, trains tissue bank operators, arranges technical visits for the tissue banks, and has established APASTB standards. APASTB future plans include providing support to member countries to establish national training courses, establishing and revising the APASTB Standards on Tissue Banking and improving the quality standards of tissue banks, providing accreditation for tissue banks in the region, and facilitating the exchange of grafts from one country to another.

Points raised during discussion:

- Role of families in consent to donation after death: The issue was raised as to whether there should be mechanisms in place to ensure that an individual's wishes or final testimonial regarding his or her intention to become an organ donor after death should be respected, and that the family should not have the ability to override such a testimonial. However, it was noted from New Zealand experience that it is rare for a family to override a donor's known wishes, and that focusing on overcoming this perceived hurdle to better deceased-donor performance may not yield the speculated gains. It was acknowledged that a family overriding an individual's known intent to donate is also relatively uncommon in the United States of America. However, many states in the United States have, in recent years, legislated to make a donor's known intent legally binding. Such affirmative legislative frameworks can serve to reinforce the relevance of organ donor cards and donor registries in the general community and may avoid the unnecessary loss of potential donors in selected circumstances.

Successful development of legislation in this area requires clear definitions in law of the required consent process and care that the legislative framework developed is applicable within the local culture. It has proven difficult to apply legislation in countries such as Japan when there has been a disjuncture between the law and local culture. Thus it is important to ensure that any legal framework of this nature follows relevant local traditions, cultures and modes of behaviour and does not impose something inappropriate upon the health system.

The value of attempts to legislate for increased donation is questionable and there is no evidence that legislation has solved the problem of donor shortages where it has been introduced. The example of Spain was provided. It has the highest deceased donor rate in

the world. This has been achieved despite having relatively few of its citizens on organ donor registries, and it requires family consent for donation and does not override family refusals (refer also to section 2.3.2).

It was noted that legislative provisions may be thought to protect health care professionals from litigation, but it is doubtful that they achieve this protection.

Further discussion on this issue may be found in sections 2.4 and 2.5 (Guiding Principle 1) of this report.

- Small transplant programmes: It was noted that there appears to be many small transplant programmes in the Region performing relatively low numbers of procedures annually. It was suggested that consolidation of these multiple small programmes into fewer, larger centres should be considered. There is good evidence that a certain minimum volume of procedures is required to maintain team skills and competence and to optimize transplant outcomes. It may be pertinent to consider a renal transplant volume threshold of 100 procedures per year as a minimum to qualify a centre for national endorsement/certification.
- Tissue shortages: It was noted that most of the discussion concerned global organ donation shortages. There is also an urgent need for related strategies that solve the acute shortages of human tissues in most countries of the world.
- Further information was provided on the number of transplant centres in the United States of America: there are approximately 250 renal transplant centres and about half that number of liver transplant centres nationally.

2.3 Current issues (agenda item 5)

2.3.1 Preventing organ trafficking and transplant tourism (Dr Luc Noel)

Dr Noel told participants that there is very little reliable information on transplant tourism and trafficking in organs and tissues. There are literally hundreds of offers to sell organs and tissues on the Internet; these range from individuals touting their own tissue to identified clinics and hospitals offering cadaveric and live donation for a fee.

Often brokers or ‘middlemen’ dominate the world of commercial organ donation and transplantation, including transplant tourism. They link up with rogue surgical teams to satisfy their desire for monetary rewards by taking advantage of desperate patients. The activities of such brokers is outside legitimate channels and so there is very limited data on their actual level of activity and the outcomes of the activities in this sector – usually the only donor outcomes recorded are the occasional adverse events or medical catastrophes. It should also be noted that transplant tourism is not restricted to the developing world, as evidenced by recent admissions of illicit trading in organs in California, United States of America, which resulted in closure of a previously well respected liver transplant programme.

It is therefore imperative that common effective mechanisms are developed to protect living donors. Currently, too many countries either accept or tolerate the commercialization of organ and tissue donation, including situations where citizens travel to other countries for the purpose of illicit transplantation. There is an overriding responsibility for all engaged in organ donation and transplantation to treat all donors with dignity and to ensure the safety of live donors. In all cases of live donation of organs and tissues there is an inevitable tension between

the needs of the donor and those of the potential recipient. There must always be due respect paid to the requirement to balance these sometimes conflicting needs.

In the case of living, unrelated donation, there are only dubious benefits that accrue to the live donor. The experience in Iran, where the largest, long-term experience with unrelated live donation is found, is that donors do not gain long-term substantive benefit from their paid donation and many express active regret concerning their decision to donate. There are currently efforts underway in Iran to track down the many 'lost-to-follow-up' live donors to gain a better insight into the long-term consequences of this large-scale unrelated-live-donor programme.

Countries need health system oversight of human transplantation and legal restraints that prevent unauthorized transnational trading in human organs and tissue. It is pleasing to see leadership in this arena from countries such as Pakistan, which is about to introduce legislation into Parliament to curb the transplant tourism industry that has recently become an issue in the country.

The key to preventing inappropriate transplant activity includes implementation and enforcement of an appropriate and up-to-date legal framework, engagement of all transplantation stakeholders and, most importantly, transparency of all transplantation activities and practices. In this area, WHO is promoting global transparency, building up a global network of national health authorities and promoting tools such as the Global Knowledgebase on Transplantation (GKT).

Points raised during discussion

- Definition of 'transplant tourism': There appears to be a need for a more explicit definition of transplant tourism, given the realities of international mobility in the 21st century. As one example of this mobility, there are currently over three million Philippine citizens who reside in the United States of America and may even be United States citizens. These individuals may choose to return to the Philippines if they develop organ failure to seek access to transplantation services, and it would not be appropriate to see this as transplant tourism or as commodifying the human body. An initial definition of transplant tourism was proposed by WHO and is included in the meeting recommendations.
- Rewards/compensation for donors: An increasing number of countries are considering the issue of appropriate compensation and 'rewards' for donors. Many participants contributed to this discussion.

There was some feeling that the current WHO Guiding Principles on this issue strongly reflect Western values and thinking, in that any exchange of material goods that occurs between recipient and live donor immediately results in the transplant being labelled as 'commercial'. In Asian cultures and thinking there is a strong tradition of 'gratitude' for extended kindness. It is normal when gifts are given, for gratuities, including commodities, to be exchanged between the recipient of the gift and the giver of the gift. The exchange of something of value in this circumstance does not equate to commercialization of the transaction. Thus there is a need to formally differentiate compensation for costs and culturally acceptable gratitude from commodification and commercialization.

In Malaysia, there is currently no allowance for a monetary reward directly from the recipient to the live donor. While consideration is being given to the establishment of a nationally consistent incentive or reward scheme for live donors, this scheme would see the donor receive the reward directly from Government. In many ways this is similar to the

existing blood-donor compensation scheme in Malaysia, which sees regular donors granted access to free health care.

In the Philippines, hospital ethics committees are required to review every proposed non-related, live donation. These committees look for an intention by the donor to help a fellow human. Any economic or other benefits that flow to the donor must come from the Transplantation Foundation of the Philippines. This is a deliberate attempt to remove brokers, sellers and any other such middlemen from live donation.

In China, there is a significant public debate at present – there is some suggestion that convicted criminals who choose to donate an organ should be saved from the death penalty. This is a very difficult issue because it is appropriate from a societal perspective to acknowledge the value of a prisoner's donation when it has been provided with the right intention; at the same time, however, pardoning a criminal from the death penalty might also be considered as creating considerable coercion for all such prisoners to donate, and this would clearly not be appropriate.

In New Zealand, a compensation scheme has been developed to avoid out-of-pocket costs for New Zealand citizens who donate organs and tissues while alive. New Zealand has started a programme whereby the Government pays people so that they will not have any out-of-pocket expenses, including consideration for a loss of four to five weeks employment income, after they have been a live kidney or liver donor (this amounts to approximately US\$ 2000 to US\$ 3000). However, a situation has arisen where donors are being offered (by recipients) US\$ 4000 to US\$ 5000 to defray expenses, which is currently not acceptable. This is a difficult issue, as it impacts directly on Pacific island citizens who may wish to come to New Zealand as this level of surgery is not undertaken in their home country (and as part of this they wish to bring a donor into New Zealand), and they are not eligible for transplantation from the deceased donor registry (unless they are also New Zealand citizens). Certainly, offers of large sums of money from recipients have been greatly discouraged. There is also the added difficulty of assessing potential recipient/live donor pairs from the Pacific islands, including difficulties in communicating with clarity across language and cultural barriers. Some of this communication has to be done long distance before the donor comes to New Zealand since it is becoming increasingly difficult to get visa approval unless there is reasonable certainty that the surgery will proceed.

One 'reward' that was also mentioned is in relation to ensuring donors have long-term access to health care (such as payment of health insurance premiums) and routine follow-up to ensure their welfare. This does not seem to be unacceptable and is in line with other recent international developments which aim to put much more emphasis on ensuring the longer-term welfare of donors. It was noted, however, that in many developing countries access to health services is expensive and, in relation to individual incomes, may be a very strong incentive for a poor donor.

The point was also made that there is an important distinction between reward and payment that relates to the intention of the act. Gratitude and rewards are offered by way of acknowledgement of a gift. Payment is provided as a means of guaranteeing organ or tissue supply from the donor, thus securing the requisite organ for the recipient. However, it was noted that it is extremely difficult for an observer to evaluate the intention of a potential recipient objectively, as would be needed to support implementation of such a policy. One participant informed the meeting that the South East Asian Ethics Society has had discussions about this issue and the decision-making with regard to the ethics of rewards pivots on any possibility of 'abuse' of the donor; hence any proffered rewards should not be 'irresistible'.

In terms of defining what constitutes reasonable provision of welfare support and the removal of disincentives, it was identified that this decision must be made at a societal level. There was a suggestion that WHO should take the lead in this area and first ask Member States to define those donor welfare rewards that could clearly be considered indicative of gratitude and would thus be acceptable in their communities, as well as identifying those practices that they would deem clearly unacceptable, and then follow this with a global-level analysis.

Overall, it is evident that there are already a number of rewards provided routinely to live donors in some countries, and many others are being discussed. Through official channels, a number of mechanisms have been established to ensure these are appropriate and undertaken with transparency. The meeting concluded that the concept of gratitude or reward that involves the covering of reasonable expenses incurred by the donor is not an 'undue incentive'. The removal of disincentives to donate does not equate to commercialization of donation.

- Recognition that both buyers and sellers are involved: Member States should be encouraged to recognize that there are two aspects to this problem (aside from brokers and others providing surgery, etc) – there are individuals who are buying organs, as well as individuals participating in the sale of organs. It may be appropriate for WHO to consider explicitly prohibiting the purchase of human organs and tissues in tandem with a prohibition on the sale of such human materials. It is also important to recognize that transplant tourism acquires organs and tissues for transplantation from two distinct sources (i.e. living donors and deceased donors).
- Importance of trafficking: Trafficking was recognized as one of the most important and serious issues facing transplantation activities globally. Trafficking in human organs and tissues compromises the trust of the community in the entire donation and transplantation sector. Such loss of trust will inevitably influence international donation rates negatively. This is clearly both a health and a legal problem and strategies are needed in both domains for successful resolution. There is a need for appropriate definitions, but more importantly concerted international efforts are needed to avoid commercialization.
- Sharing of information: It was noted that, while Member States should take steps to curb the involvement of their citizens in transplant tourism, this is difficult. In order to do so, information needs to be shared among countries in order to better understand the potential level of involvement of their citizens. A recent example was provided from Japan, where one case of a recipient using an 'unknown donor' has been identified, making it very difficult to determine whether any illegal activity has occurred.
- Involvement of broader international agencies: Global trafficking of organs and tissues now appears to be moving, or to have moved to a blatant, overt, large-scale commercial market, rather than functioning as a rare, clandestine activity. Given the magnitude of the problem, the question was raised as to whether there should be a role for more general involvement of United Nations bodies, particularly to encourage countries to link health care organizations, legislators, law enforcement agencies and political will to collectively meet this challenge. This has happened in Europe, where the issue has been raised at the European Parliament.

However, although some possible role for the broader United Nations is possible, it was noted that the primary defences against any commercialization of human organ and tissue transplantation must be established at the level of each Member State, primarily through their national health authorities, which need to document and report on the volume of transplant tourism activity within their health systems. Having said this, it was also identified that, at

times, an influential 'outside' voice, such as WHO or another United Nations body, may have more influence within some member countries to catalyze the required health system and legal changes to avert transplant tourism than will 'inside' voices.

2.3.2 Improving access to deceased donors (Dr Rafael Mantesanz)

Dr Mantesanz summarized the activities and mode of operation of the Organización Nacional de Trasplantes (the Spanish National Transplant Organization, ONT). Like other countries, Spain has a shortage of human organs for transplantation, and this led to the establishment of ONT in 1989. As a result, deceased organ donations in Spain have increased significantly, from 14.3 pmp in 1989 to 34.6pmp in 2004, allowing for a reduction in the waiting lists for kidney transplants (with an additional 12 000 kidney transplants being possible compared with the pre-1989 baseline when ONT was established), and for the number of liver transplants to increase significantly from 170 in 1989 to more than 1000 in 2004. A number of 'classic' approaches were identified as not being successful in increasing organ donation, including changes to legislation, publicity campaigns, donor registries, donor cards/driving licenses and various other means of promotion.

Although an adequate legal and technical background is necessary to enable and support organ donation, the success of the Spanish ONT model has involved several components: a transplant coordination network and specific profiles for the three levels of transplant coordinator (national, regional and hospital-based); hospital coordinators inside hospitals; a continuous brain-death audit; a central office (ONT) that acts as the support agency; significant efforts in medical training; hospital reimbursement for the costs associated with donation; and attention to the mass media. All components are necessary and must work together. At the heart of the system are the transplant coordinators who work as part of the hospital team; over 80% of the donor coordinators are trained intensive care physicians or nephrologists. The hospital coordinators are hospital staff who report to hospital medical directors (not the transplant units), and their coordinator role is formally recognized. They are employed on a part-time dedicated basis to undertake this role. They work within their facilities to ensure optimal identification of potential donors and donor management. There is evidence of the effectiveness of the coordinators and hospital-based teams in Spanish hospitals: hospitals with transplant coordinators and teams achieve a rate of 20 donors pmp (62% of all donors) compared with 14 donors pmp in hospitals without such teams.

The importance of the commitment, enthusiasm and professionalism of the organ donor coordinators should not be underestimated. There is a direct relationship between the quality of their work and the observed donor rates, and it is necessary to change the coordinators regularly as there is evidence that they may become subject to 'burn-out' and their effectiveness tends to plateau or even decline after three to four years; this drop in effectiveness has been shown to reverse when a new coordinator is appointed. Appropriate training of medical professionals and other health care professionals engaged in organ and tissue donation is crucially important. This is the underpinning of the success of the Spanish model. Attention to the influence of the mass media and popular culture on community beliefs and attitudes regarding organ donation is also important.

The model may seem expensive (particularly establishing a separate organization, such as ONT, and the transplant coordinators), but actual costs are only 3.7% of the overall costs of human organ transplantation in Spain. The increased access to donor organs means that it more than pays for itself, particularly when the savings to society from the reduced need for renal haemodialysis are considered.

There is clear evidence that the model can be successfully transferred to other regions and countries – it has been used with considerable success in a number of Latin American countries. However, it is critically important that a country-specific approach is taken when seeking to spread the model into a new jurisdiction, as local traditions, modes of behaviour, cultures and practices must be considered in the design and implementation of a tailored version of the ONT model.

Points raised during discussion:

- Country experiences:

Experience in the Philippines confirms that many of the initiatives identified by Dr Matesanz as being ineffective in increasing donation rates do indeed not increase donation rates. There is a mandated requirement that hospitals appoint a part-time donor coordinator, but there are no accompanying resources to make this possible and so this has had little impact. In addition, there are significant geographical and language barriers in the Philippines that limit the support for and effectiveness of deceased donor programmes.

Japan has used donor coordinators for several years, but legal and cultural factors have prevented any significant increase in deceased donation. Dr Shinozaki's hospital is currently exploring the Spanish model and he has completed the Spanish training. They are now looking at how best to adapt the model to fit the Japanese health system, including considerations of whether the provision of incentives to health care professionals working with potential donors might have an impact on observed donor rates. Dr Matesanz confirmed that it may be appropriate to consider implementing the system in one or a few 'demonstration' hospitals rather than attempting a nationwide approach to start with.

In China, most of the approximately 2000 liver transplants and 6000 kidney transplants performed each year come from cadaveric organs derived from executed prisoners. There is often misinformation about the processes used in China, and the meeting was reassured that use of any organ from a prisoner only occurs after full consent from the prisoner, including families where appropriate, and the organ is obtained without coercion and within current legal requirements; no surgeon involved in the transplant is involved with the execution itself. However, China is aware that this practice does raise doubts in the minds of some individuals both inside and outside of China regarding human rights issues. Given the challenges that China faces in increasing deceased donations from other sources, and that the Ministry of Health is moving to increase the rates of live donor transplantation, there is an urgent need to improve the legal framework to support legitimate live donation programmes. Current draft legislation includes a strong emphasis on the rights of families to make the final decision regarding donation.

In Hong Kong (China), deceased-donor programmes follow the guidelines and protocols developed by the Department of Health. However, Chinese cultural preferences are for maintaining the integrity of the deceased body, and significant work needs to be done on this if there is to be any real increase in deceased donation rates.

Essentially similar social mores apply regarding the need for integrity of the body after death in Malaysia and Brunei Darussalam. There has been work done with Islamic religious leaders, who have issued a *fatwah* supporting cadaveric donation. In concert with several related initiatives, this has been linked to an increase in donation after death in Malaysia.

In Papua New Guinea, the dead body is culturally sacred and is deemed to belong to the extended family. Thus there are significant challenges involved in any attempt to convince

the entire extended family to allow donation. In reality, even obtaining traditional informed consent for simple surgical procedures offers major challenges within the social and cultural context of the country. Currently, developing a transplantation programme is not a priority; however, the issue of current relevance is how might citizens of Papua New Guinea might legitimately access transplantation services if they are in the personal financial position to be able to afford to do so.

Singapore's cadaveric donor programme utilizes organ donor coordinators, and the need to have close relationships with intensive care specialists was agreed. The idea of initiating a change in a country's cadaveric donation performance by starting in a single demonstration hospital, as identified by Dr Matesanz in response to the points raised by Japan, was felt to be useful. Singapore offered to host a WHO-sponsored training course in 2006 for staff from a demonstration hospital in each country of the Region currently engaged in clinical transplantation.

- Role of nurses as transplant coordinators: The work of a coordinator can be done equally well by doctors or nurses. However, in Spain, doctors are engaged to undertake the coordinator role, primarily to ensure engagement of the intensive care specialists. The need for this will depend on the working relationships and culture between different professional groups, but it is likely, at least initially, that if nurses are engaged as coordinators, other mechanisms will need to be put in place to engage the support and involvement of the intensive care specialists. Hopefully, health systems will evolve to the point where organ and tissue donation is recognized as a discrete activity with its own set of staff and skills. Organ and tissue donation programmes must be valued as equal to organ and tissue transplantation programmes.
- Completeness of donor registries: In Japan, the national donor registry is only a registry of intention to donate after death, and there is no existing regulation of living-donor programmes. Recently, problems have arisen with transplant recipients acquiring transplantation-transmitted infections where the status of donors was 'unknown'. WHO was encouraged to provide leadership to guide national health authorities to eliminate 'unknown donor' transplantation situations.

2.3.3 Ethics and safety of living cell or organ donations (Professor Francis Delmonico)

Over the last few years, much greater recognition and importance has been given to the ethical and safety issues regarding live donation. Internationally, there have been several key steps in this area.

In April 2004, the Ethics Committee of the Transplantation Society convened the Amsterdam Forum³ at which an international group of specialist physicians and surgeons developed a consensus statement on the care of the live kidney donor. It included statements on the importance of the donor, prior to live kidney donation, receiving a complete medical and psychosocial evaluation, irrespective of whether the recipient is known to the donor or not and for the potential donor to be fully informed of the processes involved, the risks, results of evaluation, expected outcomes and alternative renal replacement therapies available to the recipient. The potential donor should be capable of understanding the information presented in the consent process. The decision to donate should be voluntary and should be accompanied by

³ The Ethics Committee of the Transplantation Society. The Consensus Statement of the Amsterdam Forum on the Care of the Live Donor Kidney. *Transplantation*, 2004, 78(4): 491-2.

the freedom to withdraw from the process at any time. After kidney donation, the transplant centre should be responsible for overseeing and monitoring postoperative recovery.

A subsequent forum on live organ donation as it pertains to liver, lung, pancreas and intestine was organized by the Transplantation Society in Vancouver, Canada⁴. In relation to live liver donation, four key principles were identified:

- (1) Living liver donation should only be performed if the risk to the donor is justified by the expectation of an acceptable outcome in the recipient. The outcome of a live donor transplant should approximate the expected outcome for a recipient with the same disease etiology undergoing a deceased donor transplant.
- (2) The indications for live donor liver transplantation should be the same as those established for deceased donor transplantation, with the exception of institutionally approved protocol studies.
- (3) A deceased donor is preferable if at all possible. A live donor liver transplant should offer an advantage over a deceased donor transplant to a recipient in the context of:
 - elective scheduling of the transplant;
 - elimination of waiting time that would affect mortality;
 - enhanced quality of life.
- (4) The risk to the live donor should be minimal.

It was pointed out that there are significant potential complications for the donor in live donation. Live donors can die or may suffer a number of other serious complications. Thus it is important that attention is paid to the basic requirements to assure ethical, safe practice in living donation, and live donation should only be considered when there is a reasonable expectation of good recipient outcomes and no likelihood of access to a suitable cadaveric donor.

There is also a need for each country involved in human transplantation to have a reference group that reviews the consent of live donors. The need for psychosocial evaluation of donors, independent of the transplant team, is also important. Prospective donors should be provided with full and accurate information about donation, but there should be no solicitation for live donors. This distinction is important. The provision of information is legitimate; recruitment of live donors is not.

Given the potentially serious nature of complications, live donors cannot be seen as the final solution to the shortage of organs for transplantation; there is a need for a renewable source of donor organs and this inevitably will be via xenotransplantation, with genetically-manipulated pig organs looking most promising. However, the only current alternative is deceased donation, and in this regard it is notable that, over the past 18 months in the United States of America, a health system improvement methodology, called a 'breakthrough collaborative', has delivered a sustained increase in cadaveric organ donation – demonstrating the potential to improve rates of donation after death. Given the risks to live donors, it is important to focus seriously on

⁴ Barr ML *et al.* A report of the Vancouver forum on the care of the live organ donor: Lung, liver, pancreas and intestine: Data and medical guidelines. *Transplantation*, 2006 81(10): 1373-85.

optimizing deceased donor rates, even in countries where live donors are a significant source of organs for transplantation for cultural or other reasons.

Points raised during discussion:

- Unrelated donors: Several participants contributed to a discussion on unrelated, live donors. It is clear that in some countries this is a legitimate source of organ donation, provided it is undertaken in a system with appropriate transparency and oversight. A number of countries have in place mechanisms that restrict or independently check the suitability of any proposed unrelated, live donation. Participants were concerned that this is an area which is probably most open to abuse, and identified that the acceptability of unrelated-live-donor programmes hinge directly on two issues: commerce and informed consent.

It was also identified that in some contexts it is difficult to define 'unrelated'. In the Pacific, for example, relationships, not genes, often define linkages between individuals; unrelated, living donation is a logical extension of the social systems in Pacific islands, where relationships underpin the offering of gifts.

- Costs of living donation: Living donation is neither inexpensive nor simple, and communities may find living donation to be as costly as or even more costly than optimizing deceased donation. It is essential to have legal and ethical frameworks that ensure that live donation does minimal harm, particularly to vulnerable members within societies.
- Models for increasing cadaveric donation: Current models available provide examples of what is possible. However, it was noted that for these models to work successfully in different countries, they must be adapted, and countries must develop local, culture-specific models to optimize deceased donation. Each country approach must identify current obstacles to donation after death and implement strategies that help overcome those obstacles. It was also noted that smaller populations make it difficult to successfully sustain a deceased-donor programme.

The ONT model has been adapted in many countries, but its key strength – excellent national organization for donation activities – must be retained. Any approaches that seek to improve access to organs and tissues for transplantation must include interventions that focus on improving the organization of deceased-donor programmes. In Japan, it was noted that such an approach is starting to be effective in at least one Japanese hospital – after a lengthy period of discussion, routine referral for consideration of corneal donation has been implemented and has shown a marked increase in corneal donation rates. Programmes for kidney donation after death are now being considered and look promising, despite many predictions that religious, cultural and social barriers would mean that they would never work in the context of Japanese society.

2.3.4 Human cell and tissue products for transplantation (Dr Luc Noel)

A significant number of products of human origin are transplanted effectively throughout the world each year. Many of these products, including organs and tissues, are being trafficked across national boundaries, often with little or no official oversight. Examples of these include human amniotic membrane, cord blood, bone, skin, tendons and corneal tissue. There are a number of challenges facing this sector:

- Is it appropriate to have for-profit organizations involved in managing the transplantation of products of human origin?

- How can excessive income from trading in materials of human origin be prevented if for-profit participation is permitted?
- Given the often very limited nature of trial data demonstrating the safety and effectiveness of these therapies, should post-marketing surveillance programmes be mandatory?
- What is the role of good manufacturing practice (GMP) and other quality management systems in human transplantation?
- Who should develop standards and how will compliance with such standards be assured?
- Who should ensure the professionalism and competence of staff working in these sectors?
- How can we ensure appropriate and valid consent has been obtained from altruistic, voluntary donors?
- How can effective collaboration be developed between countries that will deliver safer and effective transplantation and harmonization of regulations?
- What mechanisms can be used to track/trace cells and tissues from 'origin to destination'?

Much work has already been done to improve the quality and safety of the use of human cell and tissue products for transplantation. This includes the development of aides-memoires on transplant services and their oversight, and key safety requirements in cell and tissue therapies. It is proposed that existing knowledge, protocols and guidance be used as a basis for developing internationally consistent minimum standards.

WHO is encouraging national health authorities to take responsibility for overseeing the use of products of human origin and medical devices within their countries. Each nation must have in place controls for the importation, use and export of cells and tissues for transplantation. There must be knowledge locally of the risks and benefits of using human materials and the patient populations in whom they are to be used. There should be a national plan for the most efficient and effective use of these valuable community resources. This will often require some degree of centralization for some services to ensure that economies of scale and best-practice operating standards are achieved.

Current WHO programmes include planning for global systems that protect donors and offer common vigilance and surveillance for all products of human origin, as well as relevant, effective quality management systems. The introduction of an international coding system for cells and tissues for transplantation is a specific example of a global initiative that would ensure the traceability of such materials from donor to recipient and improve sector safety. Other specific work includes updating standards and supporting the training of professionals who work in tissue banks. However the ability to undertake all of this work depends on WHO being able to attract additional resources for use in this area.

Points raised during discussion:

- Coding systems were recognized as very important, both for the tissue banking system and for traceability. This was suggested as a priority area in which WHO should take the lead.
- Definitions and regulations are potentially complex in this area, and it is not clear whether (and how) regulation should best cover products that have been genetically modified or bioengineered based on human tissues or cells. Although this was noted as an area in which further specialized advice will be needed at some point, it was also highlighted that the first priority in all countries should be to focus on the basics and ensure that base human tissues and cells (minimally processed tissues) are safe and can be tracked, etc. – even in countries with complex products available.

Higher levels of manipulation of materials of human origin bring with them a need for more complex oversight mechanisms; some countries in the Region have commenced regulation of cell and tissue therapeutics and there is growing experience of the better or best practices in this area. It was also noted that there would be cost implications to having a formal regulatory approach, particularly when, as in some countries, this type of activity is exclusively in the not-for-profit (public) sector and where there are no concerns that existing practices and facilities do not comply with international best practice. However, it was also noted that in some countries activities in this area, previously the exclusive domain of the public sector, are now starting to be undertaken in the private sector also (such as for-profit cord banks).

2.3.5 Xenotransplantation (Dr Carl-Gustav Groth)

Xenotransplantation, which includes animal-to-human transplantation of living xenogeneic cells, tissues or organs, as well as human bodily fluids, cells, tissues or organs that have had *ex vivo* contact with these living xenogeneic materials, has the potential to be used in human beings when suitable human material is not available and is a potential solution to the shortage of available human material. The pig is the currently preferred species for organs and tissues for human transplantation because of animal husbandry issues, ease of access, relative body size and organ function. There remain technical barriers to overcome, but kidney and heart transplants are likely to occur (the two main organs being considered). The lung is also being discussed as a potential organ, but liver transplantation from pigs is more doubtful because the liver makes a lot of proteins and complement factors that circulate in the blood and there would thus be more significant compatibility issues. However, transplantation of pig cells is probably top of the list – even 10 years ago some clinical trials were undertaken on injecting pig islet cells into diabetic patients; although these should be regarded as pilot studies that are unique and exceptional events and have to be controlled carefully.

The technical weaknesses or concerns mainly relate to physiological function, rejection of the graft, and the risk of transmitting a xenogeneic infectious agent. The risk of infectious transmission is unknown; there have been cases of transmission of viruses from xenotransplants from non-human primates, but there is no evidence that xenotransplantation using other animals, such as the pig, has caused infections. However, xenotransplantation carries a potential risk of such diseases developing. This risk is potentially significant, and not just for the recipient but also for the wider public and across national boundaries. There is a perceived reduction of the potential risk of infection for the recipient of a pig organ with porcine endogenous retroviruses. However, the risk remains that an unknown, highly pathogenic organism could be transmitted, possibly without clinical symptomatology, or possibly an organism associated with novel

unrecorded syndromes. Given these risks, it is expected that xenotransplantation will become significantly more regulated than human-to-human transplantation has been.

In addition to the technical issues, there is also the matter of public acceptance, and there is a wide range of views on xenotransplantation. Some see it as an anathema and simply against nature. Others view it as a miracle of modern science that will revolutionize life as we currently know it and alleviate much human pain and suffering. Resistance and concern are likely at first, as happened with the first human organ transplants, but once these procedures have been shown to be effective and safe, this should change.

Several issues in xenotransplantation are relevant to consider: the benefit/risks from a public health perspective as opposed to the individual; the need for informed and voluntary consent from potential recipients, possibly their family and other intimate contacts, as well as health care providers; the possible need to mandate monitoring of recipients for the long term; containment measures when transmission of an animal pathogen is suspected; and ethical issues related to the use of animals as sources of material.

Surveillance is an important matter for xenotransplantation. This includes archiving of blood samples and tissues from both the donor animal and the recipient. Thus, if something happens many years after the procedure, it is possible to go back and use these samples to attempt investigation of where and how any problem originated. An effective surveillance system is very important and has to be managed by the national health authority. WHO should be notified if something happens. A further important aspect is auditing of outcomes.

In April 2005, WHO convened a Consultation on Xenotransplantation in Geneva (the report of this meeting was provided to participants). During that consultation, it was identified that there are currently a number of xenotransplantation practices that are a matter of concern. In particular, animal cells are being injected supposedly to achieve, for example, 'rejuvenation' or as unproven 'treatments' for a variety of illnesses and complaints. In these unregulated practices, many types of animal cell have been used, with little attention to quality, safety or effectiveness. Even where there is probably no clinical benefit, such practices pose unacceptable public health risks of infection, need strict surveillance and oversight, and should not be permitted. The consultation identified that the national health authority of each Member State should:

- undertake an inventory of xenotransplantation practices in their country;
- only allow xenotransplantation if there is an effective regulatory system in place (Procedures should be regulated in proportion to the risks identified, with the aim of minimizing risks and improving safety and effectiveness.);
- ensure that regulatory authorities weigh the risks and potential benefits of any clinical trials or procedures properly before giving authorization (The likely benefits should be supported by evidence from appropriate pre-clinical studies.);
- develop national regulatory standards, including:
 - animal husbandry and the use of defined, pathogen-free source animals from closed colonies;
 - authorization of procedures, ethical approval for clinical trials and consent procedures;
 - education of patients, intimate contacts and health care workers, including those in public health;
 - quality management of xenotransplantation procedures, including laboratory testing; and
 - auditing of outcomes;

- ensure there are effective surveillance systems in place which would identify and manage events which pose a potential danger to the public health (WHO should be notified about major public health problems.);
- ensure transparency about xenotransplantation activities; and
- promote public awareness.

An example of the research underway is genetic modification of pigs to reduce immune reaction and then transplantation of the pig kidney together with the thymic tissue from the same pig under the capsule of the kidney, which reduces immune rejection (by acting to make the recipient more tolerant of the donor organ by providing a location where the recipient T-cells react with antigens and self-destruct and so effectively become depleted in the recipient). Recipients of such transplants have lived significantly longer than those without the thymus implant and, although they died, the transplant was functioning at death.

Points raised during discussion:

- Regulation and the need for common standards: Continued WHO involvement in this area was encouraged, particularly to assist developing countries with the regulatory issues involved. New Zealand has had one example where a researcher, who was not permitted to undertake xenotransplantation within the country, attempted to go overseas to a Pacific island that had no experience or regulation of this highly technical field. There is a role for WHO in providing support to countries to deal with such issues. In addition, as countries without suitable standards are at risk of entrepreneurial researchers, there is a need for common minimum standards encompassing all key aspects of xenotransplantation.
- Delayed benefits for developing countries: Although it may take some time for xenotransplantation to become common place, benefits for developing countries may be even further away. Much of the research and development occurring in xenotransplantation may be commercially focused. It would be disappointing if widespread access to suitable organs and tissues was restricted to very wealthy countries and/or individuals until the applicable patents expire.
- Awareness of xenotransplantation in Member States or received by citizens of Member States: A number of Philippine citizens have travelled to Germany over the past 30 years for 'rejuvenation' therapy that apparently involves injection of animal serum and tissue extracts; no xenotransplantation research or activities are being undertaken within the country at present. There are some xenotransplantation experimental activities in China at present, including porcine islet cell transplants into humans and transplantation of monkey thymus and skin.
- Bio-artificial livers: There are a number of bio-artificial livers available that contain pig cells, usually within a membrane; the blood goes out through this equipment then comes back to the body – the pig cells are supposed to purify and detoxify the blood. The results with these devices are questionable – some patients appear to get better, some do not. However, they are still being tested in some places.

2.4 Effective regulatory control and surveillance of transplantation by national authorities
(agenda item 6)

Points raised during discussion:

- Definition of brain death: It was noted that including definitions of brain death in legislation poses a challenge. This is contentious in the context of some societies, such as China. In New Zealand there is no definition of brain death in legislation and a recent review identified that it may be more appropriate to use professional guidelines, given that the definition and means of determining brain death are likely to continue to change and it can be a difficult and slow process to amend any definition(s) prescribed in legislation.
- Family consent: Many participants contributed to a discussion about the role of the family in consent for organ donation after death. Clear differences were identified between countries. In China, for example, the family (usually a senior member of the family) has the last word on consent. In the Philippines, this is not driven by culture, but rather from a legal perspective, because legally an individual loses his/her rights on death and so it is the opinion of the family that matters after death, and organs cannot be removed without their permission. However, there have not been any cases of families objecting when the wishes of the individual to donate have been known or stated before death. In New Zealand, while not a legal requirement, common practice is that the family is asked to consent and clinicians would not retrieve organs if the family did not agree. In Singapore, the wishes of the individual take precedence over the wishes of the family. It was also noted that different religious and cultural groups within countries may have quite different beliefs regarding organ donation, and that these beliefs may change over time.

Overall, from a regional perspective, therefore, it was considered important to ensure that a wide range of cultural, societal and legal differences can be accommodated in relation to the extent of family involvement in consent for organ and tissue donation, as is relevant to each society or cultural group.

- Consent covering organs and tissues: It was noted that in some countries, such as the Republic of Korea, consent is usually only sought to recover organs, but there is a need to include tissues as part of the consent to ensure that organs and tissues can be recovered together.
- Legislative framework: When considering legislation to govern activities related to transplantation in each country, it is important to look at the overall regulatory framework that is in place, as appropriate regulation of transplantation services is likely to involve several statutes. This includes the regulation of health professionals, licensing and accreditation of health providers, informed consent and patient rights, and privacy of information, among others.
- Other aspects that should be considered/covered in legislation: Making regulations work in a decentralized system was identified as an issue, particularly where administrative and enforcement authority does not lie directly with the Ministry of Health. It was noted that a key aspect of ensuring a decentralized system works effectively is to ensure very clear organizational arrangements and responsibilities and explicit and transparent accountabilities at all levels.

Other areas/aspects that could be considered by the regulatory authority for legislation include: punishment for brokers, restrictions on advertising, developing specialist registers

within the medical register to ensure that only qualified specialists perform transplant procedures, and fixing reasonable prices for organ transplantation for both the public and private sectors, which may help stop payments relating to organ procurement.

2.5 Revisions to 1991 Guiding Principles on Human Organ Transplantation (agenda item 8)

Points raised during discussion:

There was generally a high level of support for the philosophical and ethical constructs that underpin the 1991 Guiding Principles from the perspective of Member States in the Western Pacific Region (the Guiding Principles are detailed in section 2.1.2 of this report). Participants did note, however, that there are existing examples in clinical transplantation practices within their countries where these principles are not being translated into everyday practice. Specific points raised concerning the 1991 Guiding Principles include:

Preamble (particularly paragraph 2)

Reproductive tissues are currently excluded from guidance. However:

- it may be questionable whether the testes and ovaries should continue to be excluded as these organs/tissues are currently being transplanted in clinical practice in some countries; and
- there is a need for a determination on the desirability, or otherwise, of inclusion of the foetus and materials derived from foetal tissues within the scope of the guidelines.

There was general agreement that the association of a transfer of money, goods or services with organ, cell or tissue transplantation does not necessarily equate to profit or commercialization. This is particularly the case in the provision of cell and tissue products for transplantation. Ensuring the availability, quality and safety of such products requires systems for retrieval, processing, storage and distribution that must have mechanisms for cost-recovery that typically will include a payment for accessing the products. There are also specific issues related to repayment of any expenses incurred by living or deceased donors as a direct consequence of donation (e.g. laboratory tests, transport, hospital stays and medical follow-up). All such repayments are generally felt to be acceptable.

The current construction of the Guiding Principles that prohibits the giving and receiving of money, but then immediately follows this prohibition with provision of an exception, may be confusing. This is discussed further in recommendations 13, 14 and 15.

Guiding principle 1 (particularly related to clause (a))

In many countries in the Western Pacific Region, organ donation consent involves both individual and family decision-making. Many cultures would deem it unacceptable to obtain organs or tissues from a deceased donor if the family did not consent to donation, even if there is evidence that the person wished to donate after death. Such family consent may be required from the head of a family or kindred. In a few cultures, the body legally becomes the property of the family or closest next-of-kin. In law, their decision regarding donation is therefore binding, regardless of the expressed wishes of a potential donor. The definition of 'family' can be broad in some cultures, and may include people who have significant relationships with potential donors without a genetic or spousal relationship.

A proposed addition to this principle was: “where cultural sensitivities require the family to participate in the consent process for organ donation, such consent should be obtained”. Another participant proposed replacing (a) to read: “any consents required by law or applicable by culture or tradition are obtained.”

On balance, given the difficulties of different definitions of family and the legal status of the deceased person in different jurisdictions, there was general agreement that this principle should be left with the construct “any consents required by law”. This decision was not unanimous, however. It does assume that relevant current national laws adequately take account of all relevant factors for all cultural groups within each country (cultural, traditional, and religious) and that such laws exist in each jurisdiction. Further research to check whether relevant laws within the Region meet these assumptions may be warranted. It was noted that the Guiding Principles are a minimum requirement. They do not preclude any additional consent processes deemed relevant in a national context.

This also links with recommendation 1 of the meeting, which identifies that consent to cell, tissue and organ donation should be defined by law, including specifying that adequate information is provided and there is an assessment of the voluntariness of both the consent and donation.

Guiding principle 2

This principle was regarded as appropriate and important. However, in practice, occasional technical breaches may arise. For example, an emergency room physician may care for a brain-dead donor and subsequently may have some involvement in the later care of a transplanted recipient. Intensive care specialists also may care for a donor and then later be involved in the care of a recipient. A neurologist may be involved in certifying brain death and subsequently be involved with the recipient should a neurological problem develop.

It was felt that such technical breaches would not in fact breach the intention of this stated principle, which seeks to avoid conflict-of-interest in making critical decisions regarding the management of potential donors or the allocation of organs.

Guiding principle 3

- (1) "Organs for transplantation should be removed preferably from the bodies of deceased persons."

There was considerable discussion about this principle. Most of the discussion was in relation to kidney donation.

In a number of countries in the Western Pacific Region, use of deceased donors for kidney transplantation is not considered realistic at present. This reflects the complexities and costs of establishing and running coordination and retrieval systems for deceased donors, the availability of intensive care and tertiary facilities, and/or local cultural barriers to deceased donation. Live kidney donors were considered the main means by which kidneys would become available for transplantation in these countries. Live kidney donation offers medically superior recipient outcomes. Many meeting participants agreed that, where there is no access to kidneys from deceased donors, or significantly restricted access, live kidney donation should be considered appropriate.

Many also expressed the view that a more balanced emphasis on live kidney donation and deceased kidney donation than is currently in this Guiding Principle seems appropriate.

Some argued that, regardless of any improved graft survival in recipients of live donor kidneys, it remains preferable to emphasize deceased donors as the ideal source of kidneys for transplantation, for two main reasons. First, given the involvement of a live donor, the risks and benefits to that donor must be taken into account when determining the preferred source of kidneys for transplantation. Live donation involves some level of harm to a healthy individual, and this must be taken into account when determining the overall outcome and 'benefits' of a live donor transplant. There must be clear communication to any potential live donor of the known, locally relevant donation risks. Second, for live donor consent to be truly voluntary, there must be an alternative therapy available for potential recipients to avoid any element of coercion of the potential donor. Deceased donors provide such an option. It is therefore important that programmes look at ways to expand their use of cadaveric organs wherever possible, despite the challenges.

(2) Participants agreed that giving preference to genetically related live donors is no longer consistent with contemporary medical practice, nor scientifically necessary. The phrase "genetically or emotionally related" would now seem more appropriate.

(3) "Exceptions may be made" (third sentence of the first paragraph). This was thought to be potentially ambiguous. It needs to be clear that this refers only to exceptions on the basis of age for the donation by minors of bone marrow and other regenerative tissues.

(4) The term "regenerative tissues" may need to be defined. As currently worded, there may be some conflict regarding minors who are living donors – where this might be taken to suggest that partial liver donation by a minor is acceptable. While Guiding Principle 4 is clearer on these matters, there may still be a need for further clarification.

The example of partial liver donation by a minor is informative. Although the liver has a regenerative capacity, there are significant short- and longer-term risks associated with partial liver donation. In this case, the level of risk to the donor greatly exceeds that of collecting other types of cell that have the capacity to regenerate.

In general, participants felt that the retrieval of part or all of a solid organ from a minor for transplantation (which would therefore involve anatomical modification of that individual) is not acceptable.

Other meeting recommendations are also of relevance to this Guiding Principle.

Guiding principle 4

This guiding principle has links with the discussion on Guiding Principle 3 above (points 3 and 4). No additional issues were identified. If Guiding Principle 3 is to be revised, there will be a need to align such changes within this Guiding Principle.

Guiding principle 5

The issue of payment for donation is covered by other meeting recommendations which should be taken into account when this Guiding Principle is being reviewed (also noted in the discussion above on the preamble).

Guiding principle 6

No issues requiring change to this Guiding Principle were identified.

Guiding principle 7

No issues requiring change to this Guiding Principle were identified.

Guiding principle 8

No issues requiring change to this Guiding Principle were identified.

Guiding principle 9

The issue of whether “medical need” should be extended to “medical need and anticipated outcomes” was canvassed.

This issue was seen as particularly relevant in situations where long-term antirejection therapy is not state-funded or supported by other forms of subsidy through insurance schemes. If patients cannot afford these drugs, their overall transplant outcomes would be adversely impacted.

Various factors are currently used in different countries as part of assessment of medical need. These assessments already reduce the number of recipients placed on organ waiting lists. Existing determinations of medical need already involve value judgements that include consideration of anticipated recipient outcomes.

Concern was expressed that inclusion of factors such as the ability to personally fund immunosuppressant therapy was problematic. An ability to pay for any aspect of transplantation services should not be a decisive factor in any global guidance on the principles for the allocation of organs, tissues and cells to potential recipients.

The current Guiding Principle 9 was identified as an ideal. In many countries, current practice in human transplantation falls short of these high standards due to constraints such as the financing of transplantation.

The current wording may need review, as it is not clear to all what “distributive justice and equity” actually means. A suggestion was made that an amendment might be: “... donated organs should be made available on the basis of the medical rules defined at national level by an appropriately constituted expert committee”.

Possible additional Guiding Principles

(1) (Identified in relation to discussion on Guiding Principle 3): Long-term follow up of the live donor should be an integral component of all live donor transplant programmes and a requirement for such follow-up should be incorporated into the revised Guiding Principles. It is in society's best interest that live donors are well taken care of following the donation process. This is not currently mentioned in the 1991 Guiding Principles and warrants inclusion within an additional principle.

(2) (Identified in relation to discussion on Guiding Principle 9): Transplantation is not just a matter of transplant surgery. Transplant programmes must include all aspects of transplantation services. These include donor and recipient assessment, ongoing care of live donors, and the follow-up services and immunosuppressive therapy for recipients. While it may be difficult to make this an absolute requirement given the resource limitations in many countries, there may be value in a Guiding Principle that encourages the putting in place of planning, financing and

implementation strategies for a comprehensive package of component services before transplantation programmes are launched.

Additional point to note

Any evaluation of the complex issues involved in cell, tissue and organ donation and transplantation in humans inevitably requires the application of value judgments based on relevant available data and information. These judgments will differ between individuals and groups depending on their prior experiences, training and value systems.

Human transplantation services involve several identified groups, with sometimes competing interests: patients with organ failure awaiting transplantation, health care professionals who care for such patients, health care professionals involved in transplantation, those who fund health care, public health policy experts, medical ethicists, disinterested members of the community, those who act as advocates for potential donors, donors' families and organ and tissue donors themselves. These different groups will often weigh and value the various reported risks and benefits of human transplantation quite differently. It is very important that national health authorities seek a balance in the interests, experience and perspectives of participants when constituting panels to develop national frameworks, policies and procedures to govern local human transplantation practice guidelines.

3. RECOMMENDATIONS

The following recommendations were agreed upon by the meeting participants:

General issues

- (1) The implementation and enforcement of a national legal framework for cell, tissue and organ transplantation activities is an essential prerequisite to the safety, quality, efficacy, and ethics of transplantation practice. Consent to cell, tissue and organ donation should be defined by law, including specifying information and assessment of the voluntariness of both the consent and the donation.
- (2) Given the complexity of the issues involved, Member States introducing or revising legislation or guidelines should make full use of and adapt the existing laws, regulations, commentaries, documents and definitions on cell, tissue and organ transplantation that are commonly used/available at the international level. WHO should facilitate provision or identification of such materials for Member States.
- (3) The collection, processing, use and management of national resources in human cells, tissues and organs donated by living donors or resulting from donation after death should be coordinated at the national level and carried out by an appropriate body in charge of regular evaluation and under effective oversight of the national health authority. Efforts should be made to ensure national or regional self-sufficiency.
- (4) Access to suitable transplantation should be encouraged for cost-effective transplantation programmes. Transplantation should be promoted as renal replacement therapy whenever possible. Attention should be given to the cost and quality of immunosuppressive drugs, including generics.
- (5) All countries acknowledge progress towards a common basis for medical, psychosocial, ethical and legal requirements for living and deceased donors, and agree that this should continue.

Transparency, knowledge and information

- (6) Transparency in transplantation activities at national and global levels is essential to accountability and traceability, and to the prevention of trafficking. This includes fully understanding the means by which transplant services are funded within each country. Improvement of available information on transplantation activity in the Western Pacific Region is necessary. Transparency extends to information about the type and activities of all institutions involved in cell, tissue and organ collection and processing, and organ transplantation. Member States are responsible for transparency within their own borders.
- (7) Member States should provide WHO with data on national transplantation activity, which will be made public as part of the Global Knowledgebase on Transplantation (GKT) and the endeavour to create a global, common understanding of issues in transplantation. Working towards a Global Knowledgebase on Transplantation

requires standardized definitions of the terms 'transplant', 'donor' and 'recipient' being integrated into user-friendly datasheets. Data collected should include the country of origin of donors and recipients, *inter alia*.

- (8) The development of a common global coding system for cells and tissues for transplantation should be explored by WHO and, if appropriate, its use recommended to improve traceability.

Organ donation

- (9) The specific preconditions of organ recovery after death need to be determined with regard to the cultural context in countries of the Region, particularly concerning individual and family consent. Member States should foster behaviour change to increase citizens' understanding of the need for and value of organ donation after death.
- (10) Member States with existing transplantation programmes should consider strengthening access to organs resulting from donation after death, where necessary through pilot programmes adapted to their context. This includes commencing programmes for donation after death, where appropriate. However, it is acknowledged that maintenance and access to deceased donors is heavily dependent on intensive care facilities and tertiary care infrastructure and is, therefore, more difficult to achieve in low-income countries.
- (11) Whenever possible, multiple organs as well as tissues should be recovered from the deceased donor. In this case, information and consent should explicitly include the recovery of multiple organs and tissues.

Kidney donation

- (12) Kidneys for transplantation from adult living donors should be considered for patients with kidney failure. Genetically or emotionally related living donors who are found to be medically and psychosocially eligible are often the solution for a timely transplantation. Programmes for organ donation after death should be promoted. Such programmes form the basis for transplantation of organs other than kidneys, and constitute an important source of kidneys for transplantation.

Compensation, payment and profiteering

- (13) The human body and its parts cannot be the subject of commercial transactions. Accordingly, profiteering from organ donation, or from providing access to organs or to organ transplantation, should be prohibited.
- (14) Compensating the living donor for loss of income or providing health care benefits/long-term follow-up or other direct costs incurred by the donation process should be acceptable and should not be seen as payment for the organ, providing that there is transparency. Modest non-monetary assistance, support or initiatives for the living donor may be appropriate in a particular national context, but if this is to occur it should be defined explicitly by the national health authority. Transparency is crucial.

- (15) Within the context of national laws and culture, compensating the deceased donor's family for direct costs incurred by the donation process may be acceptable.

Responsibility for the living donor

- (16) Providing for the health of a living donor in the long term is a societal obligation (refer to the Consensus Statement of the Amsterdam Forum on the Care of the Live Kidney Donor⁵).
- (17) Each national health authority should ensure that registries of living donors allowing for the assessment of the short-, medium- and long-term outcomes of donations from a medical and psychosocial standpoint are mandated and maintained in an efficient manner.

Transplant tourism and trafficking

- (18) 'Transplant tourism', defined as the purchase of a transplanted organ abroad, including access to an organ whilst bypassing national laws, rules or processes of any or all countries involved, should be prohibited. This includes all potential parties: recipients, donors, service providers and brokers.
- (19) Transplant tourism should be distinguished from *bona fide* institutional, bilateral or regional agreements (or long-standing arrangements) to access transplantation services, which may constitute the only possible solution to provide transplantation for small countries. Such agreements should specify the necessary collaboration of clinical teams in both involved countries in order to ensure proper assessment and follow-up care of the recipient and, if appropriate, the donor, both from a medical and psychosocial perspective. Institutional arrangements or agreements with overseas authorities or institutions for transplantation services should probably be notifiable to or registered with national authorities.
- (20) In transplant tourism, the vulnerability of the recipient patient does not waive his or her personal responsibility for taking reasonable steps to ensure that the organ(s) which he or she will receive has been obtained legitimately and not through means that have bypassed or broken any laws, allocation or procurement rules or recognized processes in any of the countries involved. Countries whose citizens obtain transplants in resource-poor countries should take measures to prevent exploitation of poor foreign donors or breaches of another country's organ allocation rules.
- (21) Illicit trade (also known as 'trafficking') of human organs, tissues and cells is not acceptable under any circumstances. Member States should ensure that legislation and mechanisms are in place to prevent, detect and deter trafficking of organs, tissues or cells coming from another country or being transported between jurisdictional boundaries within a country. To achieve this, collaboration will be needed between

⁵ The Ethics Committee of the Transplantation Society. The Consensus Statement of the Amsterdam Forum on the Care of the Live Kidney Donor. *Transplantation*, 2004, 78(4): 491-492.

national and local health authorities, relevant health professional groups, police and other government agencies responsible for border protection and customs control.

Xenotransplantation

- (22) Attention should be given to the control by the national health authority of xenotransplantation practices taking place within the jurisdiction of a Member State. Clinical trials should only be approved in circumstances where (i) pre-clinical evidence justifies them, and (ii) stringent oversight and surveillance by the national health authority is in place.

Training

- (23) Training in transplantation sciences needs to be strengthened through national, regional and global scientific and professional societies and international collaboration.

Commentary from the Western Pacific Region on the 1991 Guiding Principles on Human Organ Transplantation

- (24) Commentary from the perspective of the Western Pacific Region, contained in section 2.5 of this report, together with the preceding recommendations, should be considered at a global level in any work or meetings that review or update the 1991 Guiding Principles on Human Organ Transplantation.

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AGENDA

1. Opening ceremony and group photograph; election of officers
2. Introduction: objectives of consultation, overview of agenda, adoption of agenda
3. Background presentations: WHO and transplantation (latest World Health Assembly resolutions; 1991 Guiding Principles; strategy); overview of the Global Knowledgebase on Transplantation
4. Regional situation: overview of the Western Pacific Region from a global perspective; country presentations
5. Current issues: preventing organ trafficking and transplant tourism; improving access to deceased donors; ethics and safety of living cell or organ donations; human cell and tissue products for transplantation; xenotransplantation.
6. Effective regulatory control and surveillance of transplantation by national authorities
7. Revisions to 1991 Guiding Principles on Human Organ Transplantation
8. Recommendations
9. Closing ceremony

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Keywords: Organ transplantation - ethics, legislation, trends / Tissue transplantation - ethics, legislation, trends / Tissue and organ procurement - ethics, organization and administration / Living donors - ethics, legislation / Western Pacific