



When you support
organ donation,
you help others live on.



Understanding HOTA

Human Organ Transplant Act (HOTA)

认识 HOTA

人体器官移植法令 (HOTA)

Memahami HOTA

Akta Pemindehan

Organ Manusia (HOTA)

HOTA-வைப் புரிந்துகொள்வோம்

மனித உறுப்பு மாற்றுச் சட்டம் (HOTA)

What does it mean to live on
with a donated organ?

To Keng Siang, it brought
a second chance at life.



Organ Recipient - Keng Siang

When Keng Siang learnt he had liver cancer, he lost all hope of leading a happy and fulfilling life. His condition did not improve even after undergoing chemotherapy and two operations. It got to a point where he was given only a few months to live, unless a suitable transplant came along.

This race against time and worrying about what would happen to his young family if he died made every day spent waiting for an organ seem like a lifetime. Keng Siang desperately wanted a chance to be able to provide for his family, see his two young children grow up, and grow old with his wife.

Thankfully a liver transplant saved him. Today, Keng Siang is grateful for a second chance to live his life to the fullest, and to continue his life journey with his loved ones.

Every year there are more than 400 patients waiting to receive a life-saving transplant in Singapore. For these patients, the wait is not only agonising, but also emotionally draining. Most patients have to wait 5 to 17 years before a suitable organ is found.

However, some will die waiting, simply because there aren't enough available organs.

This booklet explains organ donation in Singapore, including the relevant legislation. We appreciate your continued support of the national effort to save lives through organ transplantation.



What is the Human Organ Transplant Act (HOTA)?

HOTA allows for the kidneys, liver, heart and corneas to be recovered in the event of death from any cause for the purpose of transplantation.

Prior to the implementation of HOTA in 1987, the kidney-donation rate was at a low 3 per year, and only involved cases of accidental deaths. But with the introduction of HOTA, the average number of transplants per year increased to 13.

In 2004, HOTA was amended to include the recovering of the corneas, heart and liver in both accidental and non-accidental deaths. Besides this form of organ donation, regulations were made for living donor organ transplantations (i.e. the removal of organs from a living donor for transplantation into a patient). This raised the average number of patients benefiting from organ donation to 46 per year.

To further increase organs available for transplantation, from 1 November 2009, all Singapore Citizens and Permanent Residents 21 years old and above, who are not mentally disordered, are included under HOTA unless they have opted out.

Those who are under HOTA will not only have the chance to help others, but will also have higher priority on the waiting lists should they need an organ transplant. This will be critical when the need arises.

For more details on HOTA, please log on to www.liveon.sg

Can I donate more than what is covered under HOTA?

Yes, any gift of life is welcomed. Medical (Therapy, Education and Research) Act (MTERA) is an opt-in scheme, where people can pledge to donate their organs or any body part for the purpose of transplantation, education or research upon their death.

Anyone 18 years old and above can pledge to donate his organs and/or tissues. Under MTERA, you can choose to donate all your organs and tissues or specify those you wish to donate.

In cases where a person had not pledged his organs under MTERA before passing away, the family members would be able to donate his organs under MTERA upon his death if they wish to do so.

For more details on MTERA, log on to www.liveon.sg

Frequently Asked Questions

HOTA and MTERA at a Glance

| | HOTA | MTERA |
|----------------------------|---|--|
| Who is included? | <ul style="list-style-type: none">• All Singapore Citizens & Permanent Residents not mentally disordered unless they have opted out.• Must be 21 years old and above. | <ul style="list-style-type: none">• Anyone regardless of nationality and who is 18 years old and above can pledge to donate his organs and/or tissues. |
| Which organs are included? | <ul style="list-style-type: none">• Liver• Kidneys• Heart• Corneas | <ul style="list-style-type: none">• All organs and tissues such as kidneys, liver, heart, corneas, lung, bone, skin, etc. |
| What is the purpose? | <ul style="list-style-type: none">• To provide patients with organ failure with a suitable donor organ, for the purpose of transplantation only. | <ul style="list-style-type: none">• To provide patients with organ failure with a suitable donor organ;• To further medical education; and• To support research and advancement of medical science. |
| How is consent given? | <ul style="list-style-type: none">• All Singapore Citizens & Permanent Residents who meet the age requirement and are not mentally disordered will be automatically included under HOTA unless they have opted out. | <ul style="list-style-type: none">• People who are not covered under HOTA, as well as those who wish to donate any organ and/or tissue not covered by HOTA, will only have their organs recovered if they have pledged their organs and/or tissues for donation. |



Changes Made to HOTA

From 1 November 2009, HOTA will cover all Singapore Citizens and Permanent Residents 21 years old and above, who are not mentally disordered, unless they have opted out. The upper age limit of 60 years has been removed.

1. If I have already opted out of HOTA before I was 60 years old and I am now above 60 years old, do I need to opt out again?

No. Those who have registered their objection to organ donation will continue to be excluded from HOTA and will not have to opt out again. The objection is organ specific. However, an objection to HOTA can be withdrawn at anytime.

2. Are older organs suitable for donation?

With increasing life expectancy, healthier ageing and improvement in health technology, it is now becoming clearer that the condition of an internal organ is not always linked to age. Hence most countries in the world no longer have an upper age limit for organ donation.

3. How will the suitability and allocation of organs from older donors be determined?

There are internationally established protocols for evaluating organs from older donors to ensure the suitability of the organs for transplantation. To ensure optimum transplant outcomes, the allocation of organs will depend on the medical evaluation of organs and clinical parameters, such as blood group and tissue matching with potential recipients.

4. Will older organ failure patients waiting for an organ also benefit from these changes?

The upper age limit of 60 years old for patients to be placed on the kidney transplant waiting list will be removed. This would mean that elderly patients suffering from organ failure will now have an opportunity to benefit from an organ transplant if they are medically suitable.

Frequently Asked Questions

Opting Out of HOTA

5. If I want to opt out of HOTA, what should I do?

HOTA regulates the removal of four organs – the kidneys, liver, heart and corneas. Anyone who decides against having his organs recovered upon death can do so by completing the pink “Objection to Organ Removal under Section 9(1)” form and send it to the National Organ Transplant Unit[#].

6. Does HOTA allow me to opt out from donating a specific organ?

Yes. Anyone who does not wish to donate a particular organ can register his objections using the same form above and send it to the National Organ Transplant Unit[#]. The registrant can opt out of any or all of the four organs under HOTA.

7. What are the implications of opting out of HOTA?

Anyone who opts out of HOTA receives lower priority for receiving an organ on the national waiting list should he require an organ transplant in the future. This will apply specifically to the organs which he opted out of.

8. Can I withdraw my objections to HOTA?

Yes, an objection can be withdrawn at anytime. The withdrawal forms are available from the National Organ Transplant Unit[#]. Alternatively, the form can be downloaded from http://www.liveon.sg/content/dam/moh_liveon/docs/forms/Blue%2009.pdf

9. How is the public informed about HOTA?

All Singapore Citizens and Permanent Residents who turn 21 years old, or foreigners who obtain Singapore Citizenship or Permanent Residence status, will receive a letter from the Ministry of Health, Singapore (MOH) informing them that they will be included under HOTA. They are also told that they can opt out if they object to having their organs recovered upon death. MOH also informs the general public of HOTA at least once a year through the main local newspapers in the four official languages.



Potential Organ Donors

10. Can I decide to whom I want my organs to be donated?

Organs that are recovered under HOTA are intended for donation to the common pool of patients on the respective organ transplant waiting lists. It is therefore neither possible to specify the recipients of organs recovered under HOTA, nor specifically exclude certain people from receiving organs. It is also not possible to release donor information to organ recipients.

11. Will my body be disfigured after organ donation?

The donor's body will always be cared for with the utmost respect by the transplant team. The same surgical standards being applied to any living person undergoing surgery will also be applied to organ donors. Any incisions made during the removal of organs are carefully repaired after the procedure. In the case of cornea donation, only the cornea (the front part of the eye the size and shape of a contact lens) is removed and a plastic cap is inserted afterwards. The eye remains otherwise intact.

12. Will the medical care of potential organ donors be compromised to expedite the recovery of organs?

Medicine is an ethical profession. No doctor would risk one life to save another. We would like to reassure you that every patient is given full medical care and every chance at survival irrespective of suitability and acceptance of organ donation. Organ donation is only considered after death has been declared by two well-qualified independent doctors who are not involved in the care of the patient.

13. Would relatives of donors be made to pay for the costs of organ recovery?

The hospital bills for any organ removal-related procedures and tests are not charged to the donor's family.

14. If I have not opted out of HOTA, and I die at home, will my body be brought to hospital for transplantation purposes?

No, HOTA only applies to death in hospitals which fulfil specific conditions (see next page).

Frequently Asked Questions

15. If I have not opted out of HOTA, and I die in the hospital, will my organs be recovered for transplantation?

Organs will be recovered only if the following conditions are fulfilled:

- First, the donors must be at least 21 years old, be not mentally disordered, and not be an objector.
- Second, the organs must be suitable for transplantation.
- Third, there must be a suitable recipient(s) to benefit from the organ(s) recovered.

Death and Organ Donation

16. What is the difference between cardiac death and brain death?

Cardiac Death The death as we are normally familiar with is technically called cardiac death. This happens when the heart stops beating irreversibly. At the point of cardiac death, all vital functions of the body stop. The vital organs quickly become unusable for transplantation after cardiac death. However tissues such as bone, skin, heart valves and corneas can be donated within 24 hours of death.

Brain Death In some cases, when there is a brain injury (e.g. due to an accident or stroke), the brain may stop functioning before the heart. Brain death means there is no flow of blood or oxygen to the brain and therefore, the brain cannot function in its capacity and never will again. Other organs, such as the heart, lungs, kidneys, pancreas or liver, may function for a brief period of time after brain death if the person is supported on a ventilator. Unless damaged by disease or injury, these organs may benefit other individuals in need of organ transplants.

Donation of vital organs such as the kidneys, heart and liver is usually possible only after brain death. Brain death is accepted as the legal definition of death in Singapore and in other advanced countries. It is determined based on a standard, well-defined set of clinical criteria. This definition is similar to those used in countries such as Australia, Canada, Denmark, the United Kingdom and the United States of America.



17. How is death certified?

There are well-defined and internationally accepted clinical criteria and tests for certification of death, including brain death. The clinical criteria for death must be met in the patient, as observed by two doctors, before death can be certified. Should the two doctors have differing opinions, death would not be certified. The two doctors who examine the patient must:

- not have been involved in the care or treatment of the patient being certified;
- not belong to the team of medical practitioners who will remove the organ from the body;
- not have been involved in the selection of the proposed recipient of the organ; and
- not be involved in the care or treatment of the proposed recipient of the organ during his hospitalisation for the transplant.

18. Is there a difference between being brain dead and being in a coma?

Being comatose is being in a state where a person is unarousable but tests confirm that some brain functions are still present. A comatose person may still recover or regain consciousness. Organs are never taken from a person in a coma. Brain death is when a person is unarousable and tests confirm that all brain functions have stopped irreversibly. Persons declared brain dead cannot recover or regain consciousness again.

19. Can someone who is declared brain dead come back to life?

Brain death can be heartrending and difficult to accept, particularly for families who are confronted with the sudden death of someone they love. A brain dead person on a ventilator can feel warm to the touch and look 'alive'. The heart still beats and the ventilator is pushing oxygen and air into the lungs making the person's chest rise and fall. When this happens, some families expect the person they love to be kept on the ventilator in the hope that their condition may improve. However, to be brain dead is to be actually dead and no improvement or recovery is possible. There is no method to revive a brain that has been deprived of blood and whose cells have died. Brain death is recorded only following certification by two independent medical practitioners.

There is no clinically documented case where a patient who has been declared brain dead following proper procedures, is later restored to a normal life.

Frequently Asked Questions

Pledging Organs under the Medical (Therapy, Education and Research) Act (MTERA)

20. If I want to pledge my other organs, what do I need to do?

Under MTERA, anyone above 18 years of age can sign up as an organ pledger to donate any organ and/or tissue for the purposes of transplant, education, or research. You can do so by completing the yellow “Organ Donation Pledge Form” and send it to the National Organ Transplant Unit#. You are encouraged to discuss your decision to pledge your organs and/or tissues with family members so that they will be aware of your wishes.

21. I am a foreigner. Can I donate my organs?

Yes, foreigners can choose to pledge their organs under MTERA. This pledge is effective only in Singapore, i.e. only if the foreigner passes away in Singapore, then his organs will be considered for donation. However, if a pledge has not been made, the next-of-kin can be approached for consent to organ donation.

22. How to make a Full Body Donation

Those who want to pledge their bodies can also do so under MTERA, by completing the yellow “Organ Donation Pledge Form” and send it to the National Organ Transplant Unit. Singaporeans and Non-Singaporeans can donate their bodies, but they must be at least 18 years old and not mentally disordered.

How the body will be recovered

If death occurs at the hospital, the body will be transferred to the mortuary, and collected by the assigned hospitals or university on the same day.

If death occurs at home or other locations other than the hospital, the Next of Kin should contact the National Organ Transplant Unit, for them to inform the assigned hospitals or university to make arrangements to collect the body from the residence on the same day.



Staff from the assigned hospitals or university will have to speak with the deceased's family before the body is released. This is to sort out any requests or questions the family members may have, or vice versa. For example, the family might want to know more about the process of body donation, and how to collect the remains afterward. Staff members might ask the family about the donor's medical and social history.

Donation suitability

Bodies cannot be used if the person had an infectious disease such as Tuberculosis (TB), Hepatitis B, Hepatitis C or HIV. But the bodies of those with chronic illnesses or cancer may still be used for education and research purposes.

How the donation helps medical care and science

Whole body donation allows doctors and medical students the ability to research new life-saving medical and surgical procedures and techniques. Every donation is treated with compassion, care, respect and dignity.

How the body would be used

Bodies or Cadavers are used to teach medical, dental, nursing, pharmacy and life sciences undergraduates and postgraduate students.

Cadavers are embalmed before storing in chillers. In the classroom, students are divided into groups of 15 to 18, with each group working on a cadaver. The cadavers are dissected in various ways and angles to show different views of the human body. Students learn about the structures of the human body close-up, such as the position of organs and blood vessels, and which major arteries should not be punctured during medical procedures. After classes, the cadavers are put back in the chillers.

For more information on HOTA, visit www.liveon.sg or email MOH_Info@moh.gov.sg or call 1800-2254122.

Please refer to the MUIS website at www.muis.gov.sg for questions relating to Islam and Organ Donation.

Frequently Asked Questions

Students at the school are taught to treat the human bodies with respect. The cadavers are used for 6 months to or four years. Afterwards, the remains are cremated and the ashes returned to the families of those who had donated their bodies to science.

In the event if the family members do not wish to collect the ashes, the ashes shall be scattered into the sea. If you require further clarifications, please feel free to contact the National Organ Transplant Unit at 6321 4390.

Living Organ Donation

23. What are living donor organ transplants and what are the concerns in such transplants?

Living donor organ transplants are transplants in which a living person donates one kidney or part of a liver to another person. It's a concern that living donors face a small chance of developing complications following surgery or sometimes even death after donating their organs.

24. What are the risks of living organ donation?

Since living donors have to undergo surgery for organ donation, there are risks involved. These risks can differ among donors and also according to the organ donated. Based on international studies, kidney donation is considered to be a generally safe procedure. There may however be other minor long-term medical problems such as back pain associated with organ donation in a small proportion of donors. Liver donation carries a higher risk of death and complications.

All living donors are encouraged to seek full information about the donation process, outcomes and risks from their doctors before deciding to proceed with donating their organ.

25. How are living donor organ transplants regulated?

Prior authorisation from the hospitals' Transplant Ethics Committee (TEC) is required before any living donor organ transplant can proceed. The TEC has to be satisfied that two major professional and ethical concerns are adequately addressed. First, the donor must thoroughly understand the nature and



consequences of the medical procedures and give his or her full informed consent. Second, there must not be any form of coercion or financial inducement to donate the organ. This applies to all living donor organ transplants, regardless of whether the donor and recipient are related or not.

26. What are the financial considerations which Donors should be aware of?

HOTA will allow for payments to altruistic living donors, only for reimbursing or defraying the costs or expenses or loss of earnings that may be reasonably incurred as a result of organ donation. This will include costs for health checks, laboratory tests, donation operations, follow-up visits and limited indirect costs such as loss of earnings by self-employed or daily-wage workers.

It is important for a donor to fully understand the medical and financial implications of donation. Once this is done, the donor may choose to seek reimbursement for expenses incurred in relation to donation. However, this will not be compulsory. Donors can waive the right to receive reimbursement or payment from the recipient.

Proposals are being considered in which VWOs will work with hospitals to support needy recipients who cannot afford to provide minimal donor welfare such as payments for the donor's medical evaluation, surgery and follow-up care. This will be limited to Singaporeans/PRs.

27. What are the penalties for organ trading?

HOTA prohibits the selling or buying of organs. Any person who is involved in the buying and selling of organs shall be liable to a maximum fine of \$100,000 or a maximum imprisonment term of 10 years or both.

