

NATIONAL STANDARDS FOR ORGAN RETRIEVAL
FROM DECEASED DONORS VERSION 1.11.2009

REVIEW DATE 1.11.2010

Introduction

Transplantation is well established as the best and often the only treatment for many patients with end-stage kidney, liver, intestinal, cardiac and pulmonary failure. Whilst some types of transplant can be achieved with organs from living donors, most patients are reliant upon organs from deceased donors.

Because of an increasing shortfall between the diminishing number of deceased donor organs available and the increasing waiting list of patients in need of transplantation in the UK, the Department of Health assembled an Organ Donation Taskforce in 2006 with a brief to identify the obstacles to organ donation and suggest solutions which would deliver a substantial increase in the number of transplants performed each year.

Following an extensive analysis of systems in the UK and in other countries, the Taskforce produced a report in January 2008 which concluded that a 50% increase in organ donation after death was possible and achievable in the UK within five years provided that three key issues were resolved: effective donor identification and referral; improved donor co-ordination; and efficient organ retrieval arrangements.

Background

Transplantation involves two operations: retrieval of organs from the donor and organ replacement in the recipient. Both these operations are highly specialised procedures requiring special skills and training. However, whilst the recipient operation focuses on the replacement of one or two organs, the donor operation requires a coordinated approach to the retrieval of multiple organs and tissues.

Currently, organs are retrieved from approximately 900 deceased organ donors in the United Kingdom each year, yielding approximately 3,000 organs for transplantation. The Organ Donor Task Force estimated that, following implementation of their recommendations, the number of transplants should increase by 50%. The increase will come mainly from an increased number of donors. However, by optimising donor management, there is also the potential to increase the number of transplantable organs retrieved from each individual donor.

Evolution of Retrieval Arrangements

Historically, until the early 1990s, the responsibility for retrieving organs from donors in the UK lay with the surgical team at the recipient's transplant centre. Thus the local transplant coordinator at the donor hospital invited separate kidney, liver, cardiothoracic and, occasionally, pancreas transplant teams to assemble at the donor hospital, retrieve their various organs and transport them to their individual transplant centres for use in their various recipients.

These *ad hoc* arrangements were modified in the 1990s following the introduction of liver and cardiac zones which were introduced to facilitate a more rational allocation system for donated livers and hearts. Each liver and cardiac centre was responsible for retrieving all livers or hearts from a defined zone of the country and, in general, had first option for use of donated organs within their zone. Subsequently, pancreas zones were also introduced. The sizes and configurations of the zones surrounding each liver, cardiothoracic and pancreas centre differed and were based upon the annual transplant activity of individual centres for each type of organ. Following implementation of these zonal arrangements, further rationalisation resulted in many of the liver teams retrieving kidneys and often pancreas, without the need for separate renal or pancreatic teams to attend.

Organ Donation Taskforce Report

The Taskforce remarked upon several aspects of the current retrieval arrangements:

- Although liver transplant units performed the majority of liver and kidney removals, a number of renal units also played a role – predominately in kidney removal in the case of donation after cardiac death (DCD) from non heart-beating “kidney only” donors.
- Whilst some liver transplant centres provided a single team able to retrieve all abdominal organs, others were joined by a separate team to retrieve the pancreas.
- Removal of cardiothoracic organs was the responsibility of the cardiothoracic transplant centres which were usually based at separate institutions from the abdominal transplant centres.
- The retrieval teams varied in size and composition, their funding was often obscure and their level of experience and expertise was variable.
- The smaller teams relied heavily on consultant staff, and few teams were available specifically for organ retrieval – many team members had elective clinical commitments which restricted their ability to respond quickly.
- The teams all relied, to a greater or lesser extent, on significant help from medical and nursing staff from the donor hospital.
- Changes to both junior and consultant contracts, and the effects of the European Working Time Directive, threatened the sustainability of the retrieval service because of incompatibility with good clinical governance.
- Finally, few teams were able to provide early, expert assistance in donor management to donor hospitals which might influence both the number and quality of transplantable organs.

The Taskforce recommended that a UK-wide network of dedicated Organ Retrieval Teams should be established to ensure timely, high quality organ removal from all heart beating and non-heart beating donors. These teams would be responsible for working

with critical care staff in the donor hospital to ensure optimal donor care and maximise the number and viability of organs retrieved from every donor.

Based upon advice from a working party of the British Transplantation Society, the Taskforce recommended that the national network of the retrieval teams should be developed such that:

- Each team is virtually self-sufficient and not require anaesthetic, theatre or surgical staff from the donor hospital other than the minimum needed for local liaison.
- Each team is available 24 hours a day, without elective commitments during their time on call for retrieval.
- Teams are able to respond appropriately if there is more than one donor in the same region on the same day.
- Teams are able to provide opportunities for training.

The Taskforce recommended that NHSBT should take on the responsibility for commissioning national organ retrieval teams and for audit and performance management. Commissioning should be based upon a framework of common standards covering retrieval arrangements, infrastructure, staffing levels, training and qualifications, and audit of outcomes such as response time, transplantable organs retrieved, organ damage and graft survival.

The Rationale for National Standards

Standards are required to ensure that:

1. The best possible outcomes are achieved for all organs offered for transplantation by donors and their families.
2. Organs offered for transplant are retrieved in a timely and coordinated fashion.
3. All donors are managed by experienced personnel whose objective is to optimise subsequent function of all organs retrieved for transplantation.
4. The retrieval operation is performed by experienced surgical teams to ensure that the quality of transplantable organs is not compromised during the retrieval process.
5. Donor hospitals throughout the United Kingdom receive a rapid and efficient service, minimising disruption to their other services.
6. Finally, the Standards are based on the overriding principle that the safety of transplant recipients with respect to the quality of the organs that they receive is paramount.

This document specifies the Standards which solid organ retrieval teams in the UK should fulfil in order to provide a high quality national organ retrieval service (NORS) in the UK.

The standards cover cardiothoracic, renal, pancreatic and liver retrieval from deceased heart-beating and controlled non heart-beating donors. They do not cover retrieval of organs from uncontrolled non heart-beating donors or from living donors, nor do they cover retrieval of tissues such as corneas, bone and skin.

The Task Force Recommendations included the suggestion that retrieval teams should aim to be independent of on-call anaesthetic staff at the donor hospital. The options for anaesthetic and donor management support to DBD donors are currently being explored in consultation with the relevant national bodies.

1. Topic 1 Retrieval Zones

- 1.1.** A national system of multiorgan retrieval zones will be established centred upon national multiorgan retrieval teams appointed by NHSBT.
- 1.2.** The National Organ Retrieval Service (NORS) retrieval teams will be responsible for retrieving from both heart-beating (DBD) donors and from controlled non heart-beating (DCD) donors.
- 1.3.** The retrieval zones will be based primarily upon the proximity (measured by response time by ambulance) of multiorgan retrieval teams to donor hospitals.
- 1.4.** Organ retrieval at each donor hospital will be provided primarily by the closest (1st on-call) abdominal and cardiothoracic retrieval teams, with back-up from the closest available NORS team (2nd, 3rd, 4th etc on-call) if that 1st on-call retrieval team is already committed to retrieval elsewhere.
- 1.5.** In the event that the 1st on-call cardiothoracic or abdominal retrieval team is already committed to retrieval elsewhere, then the retrieval team from the recipient cardiothoracic or liver centre may request to retrieve cardiothoracic or abdominal organs provided that this does not delay the retrieval process. Otherwise the closest available (2nd, 3rd, etc on-call) cardiothoracic or abdominal retrieval team must retrieve.
- 1.6.** In the event that specific organs are offered and accepted from a donor outside the UK (e.g. Ireland), then the NORS retrieval team covering the recipient centre will retrieve if asked to do so by the DTC at the donor hospital.
- 1.7.** In cases of intestinal donation, then the recipient intestinal transplant centre will be called to retrieve the intestine, and will also retrieve the other abdominal organs if competent to do so.
- 1.8.** In the event of a paediatric abdominal organ donor, the paediatric liver recipient centre will be given the option to provide the abdominal retrieval team or to send a surgeon to assist the designated retrieval team if they wish to do so. Similarly, in the event of a paediatric cardiothoracic donor, the paediatric cardiothoracic recipient centre will be given the option to retrieve heart and lungs.
- 1.9.** In the event that organs such as liver, pancreas and lungs are to be retrieved from a non heart-beating (DCD) donor, the recipient centre may send a surgeon to assist the designated retrieval team and assess the organs *in-situ* if they wish to do so, provided that this does not delay the retrieval process and prejudice the chance of donation occurring.

- 1.10.** In the event of a heart-beating (DBD) or controlled non heart-beating (DCD) “kidney only” donor (i.e. if consent has only been granted for kidney retrieval, or if liver, pancreas and cardiothoracic organs have been offered but declined by all recipient centres), then the local renal transplant team may retrieve if they are willing and able to do so without the support of a multiorgan team.
- 1.11.** If, for any reason, the local renal transplant team is unwilling or unable to retrieve, then the national multiorgan retrieval teams will retrieve the kidneys from such “kidney only” donors.
- 1.12.** In the event that, in a donor attended by a retrieval team, a specific organ is found to be unsuitable for transplantation and is declined by the relevant transplant centres, then the retrieval team may retrieve it for research purposes provided that appropriate consent has been obtained.
- 1.13.** The national retrieval teams are not expected to attend uncontrolled non heart-beating (DCD) donors. Due to time constraints, such donors will continue to be attended by the local transplant team.
- 1.14.** When possible, retrieval teams will travel by road. However, if this is not possible (e.g. for Northern Ireland), or if estimated road travel time is greater than 3 hours, or if organ viability might be compromised by any delay, then air transport may be used.

2. Topic 2 Donor Hospitals

- 2.1.** All hospitals in the UK should comply with the Organ Donation Taskforce recommendations which have been accepted by the Department of Health and the Devolved Health Administrations
- 2.2.** The current arrangements for critical care and for anaesthetic and theatre support will remain unchanged until, and unless, robust alternative arrangements can be made. (These arrangements are currently under review with input from the relevant national bodies.)
- 2.3.** The donor hospital will provide a fully equipped operating theatre for the retrieval procedure, including appropriate anaesthetic equipment and drugs to support the donor.
- 2.4.** The donor hospital is responsible for the safe transfer of the donor to the operating theatre.

- 2.5. The donor hospital will provide an anaesthetist to support DBD donors in the operating theatre during the retrieval procedure.
- 2.6. The donor hospital will provide a qualified theatre nurse and/or operating department assistant who is familiar with the theatre facilities and the whereabouts of the surgical and anaesthetic equipment, instruments and drugs which may be needed by the retrieval surgeons and anaesthetist.
- 2.7. This/these individual(s) will remain in theatres during the retrieval procedure to provide assistance to the scrub nurse (provided by the retrieval team) and the anaesthetist, and assist the DTC with the final act of care.

3. Topic 3 The Donor Transplant Coordinator (DTC)

- 3.1. Every potential donor hospital in the UK will have access to a DTC who will be responsible for counselling the family, obtaining consent and organising and coordinating organ retrieval at that hospital.
- 3.2. The DTC will liaise, when necessary, with the Coroner/Procurator Fiscal to obtain permission to proceed with organ retrieval.
- 3.3. Whenever a potential organ donor is referred, the DTC will alert the appropriate NORS abdominal and cardiothoracic retrieval centres (usually the nearest available abdominal and cardiothoracic centres).
- 3.4. Once brain stem death has been established or a decision has been made to withdraw active treatment, and when consent/authorisation for organ donation has been obtained, then the DTC will arrange theatre facilities and call out the retrieval team to attend.
- 3.5. Theatre arrangements should take account of the time required for effective donor assessment and management to optimise the quality of the donated organs as well as the wishes of the donor family. They should also take into consideration the time required to prepare recipients for surgery.
- 3.6. The DTC will ensure that all potential donor organs are offered to transplant centres, subject to any absolute contraindications specified by relevant organ Advisory Groups (e.g. disseminated malignancy).
- 3.7. A potential donor kidney will only be deemed unsuitable for transplantation if the organ is declined for the same clinical reason (excluding HBcAb positive) by the local renal team and the five renal transplant centres at the top of the kidney offering sequence, and is also not accepted by any of the centres that participate in the 'unsuitable kidney scheme'.

- 3.8.** A potential cardiothoracic organ donor will only be deemed unsuitable for transplantation if the organs are declined because of grossly subnormal organ function by at least four centres in the cardiothoracic offering sequence. Well functioning organs declined for other reasons (e.g. hepatitis C positive donor) must be offered to all cardiothoracic transplant units, except where the Cardiothoracic Advisory Group have notified NHSBT of absolute contraindications to donation.
- 3.9.** For liver, pancreas and intestine a potential donor organ will only be deemed medically unsuitable for transplantation if all potential recipient centres decline the organ except where the Liver, Pancreas and Intestinal Advisory Groups have notified NHSBT of absolute contraindications to donation.
- 3.10.** The DTC should document reasons for the decline of any organ, or the loss of any organ for transplantation due to the non-availability of a retrieval team and feed back this information to staff at the donating hospital.
- 3.11.** In the event that consent has only been granted for kidney donation, or if all organs other than kidneys have been offered but declined by all centres (i.e. a “kidney only” donor), then the DTC will contact the local renal transplant team to inform them that a NORS team will retrieve unless they are willing to retrieve the kidneys themselves and if they are able to do so in a timely fashion without support from a NORS team.
- 3.12.** If the local renal team is unwilling or unable to retrieve from such a “kidney only” donor, then the closest available NORS abdominal retrieval team must attend the donor to retrieve the kidneys (see paragraphs **1.9** and **1.10**).
- 3.13.** The DTC will liaise with the donor hospital, the donor retrieval teams and with recipient transplant centres so that organs offered for transplant are maintained in the best possible condition and are retrieved and dispatched expeditiously to recipient centres.
- 3.14.** The DTC will arrange operating theatre facilities for the retrieval operation at the donor hospital and the safe transfer of the donor to theatres.
- 3.15.** For heart-beating donors, the DTC will ensure that the necessary tests for the establishment of brain stem death have been completed and recorded by the appropriate medical staff at the donor hospital before organ retrieval, and that the retrieving surgeons have checked that brain stem death has been recorded appropriately and verified the donor blood group before embarking on the retrieval operation.
- 3.16.** The DTC will ensure that appropriate investigations (e.g. blood group, virology, ECG) are performed before the retrieval operation and that the

results of these investigations are available for the surgeons to review in theatres.

- 3.17.** The DTC should record details of any transfusions the donor received prior to consent. If blood transfusion is required the DTC should request that either leukocyte depleted or CMV negative packed red blood cells are used whenever possible.
- 3.18.** The DTC will ensure that appropriate consent/authorisation has been obtained and recorded for the removal of individual organs prior to organ retrieval and that the retrieving surgeons have checked the identification of the donor, the consent/authorisation form and all other relevant documentation before commencing the retrieval operation.
- 3.19.** The DTC will attend the retrieval operation to liaise with recipient centres and assist with setting up and running the perfusion fluids for the abdominal organs when asked to do so.
- 3.20.** The DTC will record all the necessary key time points required both for EOS and for each of the organ specific donor record forms, including the time that each organ was removed from the operative field and placed in cold solution.
- 3.21.** The DTC is responsible for the correct packaging and labelling of organs retrieved for transplant, and that the organs are dispatched to the correct recipient centres.
- 3.22.** The DTC will ensure that any blood vessels, blood samples, lymph node and spleen samples required by recipient centres accompany the organs and are appropriately labelled.
- 3.23.** The DTC will ensure that the Core Donor Form has been fully completed on EOS and that the Organ Specific donor forms have been fully completed and are dispatched with the retrieved organs to recipient centres.
- 3.24.** The DTC will ensure that a copy of the donor's blood group form accompanies each organ.
- 3.25.** The DTC will liaise with recipient centres, keep them informed about the progress of the retrieval process, and alert them when the organs are dispatched from the donor hospital.
- 3.26.** The DTC will report any significant adverse occurrence during retrieval to the Clinical Governance organisation at NHSBT.

4. Topic 4 Retrieval Centres

- 4.1.** Abdominal and cardiothoracic retrieval centres must provide fully staffed on-call retrieval teams available 24 hours per day, 7 days per week for organ retrieval.
- 4.2.** Retrieval teams will be first on call for donors within their designated retrieval zones (primary catchment areas) and 2nd, 3rd, etc on-call for donors in other zones. NHSBT will provide a list of on-call arrangements for every potential donor hospital in the UK.
- 4.3.** The retrieval centre must be able to dispatch their team within one hour of notification of an organ donor, unless the team is already committed to retrieval elsewhere.
- 4.4.** If, when notified, their team is already committed to retrieval elsewhere and is unable to attend within three hours of the intended theatre time, then the retrieval centre must inform the DTC who will then contact the closest available team (2nd, 3rd, etc on-call). This closest available team will be asked to retrieve if it can attend the donor three hours sooner than the 1st on-call team.
- 4.5.** A Retrieval Centre Coordinator must be available 24 hours to receive calls from DTCs and to muster and dispatch the retrieval team when called upon to do so.
- 4.6.** Retrieval centres must provide NHSBT with a single contact telephone number which must be available 24 hours to enable DTCs to access the Retrieval Centre Coordinator.
- 4.7.** The Retrieval Centre is responsible for making transport arrangements for their retrieval team.
- 4.8.** An on-call Consultant Surgeon must be available by telephone for the team to consult during the retrieval process.
- 4.9.** Robust, published duty rotas must be in place for all team members including, when available, anaesthetic and donor care support, and for on-call Consultants and Retrieval Centre Coordinators.
- 4.10.** Rotas must conform to working time directives as advised by the Departments of Health and be made available to NHSBT upon reasonable request.

- 4.11. There should be clear and accountable leadership of the retrieval service at each centre with a Named Consultant notified to NHSBT.
- 4.12. The Named Consultant is responsible for ensuring that all members of the team are competent and possess the appropriate qualifications, experience and skills to perform the roles and duties assigned to them.
- 4.13. The Named Consultant will provide a list of all lead abdominal and cardiothoracic surgeons together with a declaration that each has been formally assessed as competent to lead the team.
- 4.14. A Named Manager notified to NHSBT should support the Named Consultant.
- 4.15. Each centre must have clear, written protocols for the retrieval procedures that they will undertake, including both heart-beating and non heart-beating operations. These protocols should be approved by the relevant advisory groups to NHSBT.
- 4.16. Each centre should have clear guidelines for the management of the multi-organ donor. These guidelines should be approved by the relevant advisory groups to NHSBT, and distributed to all donor hospitals in their primary catchment area.
- 4.17. Currently a number of retrieval centres provide donor care practitioners who assist with donor management in the donor hospitals. This role is currently under review. Where provided, donor care practitioners must possess appropriate qualifications, experience and skills to perform the duties required of them.
- 4.18. There should be effective and sustainable workforce planning covering all professional disciplines included in the multidisciplinary team. All staff should have regular appraisal and agreed professional development plans.
- 4.19. Retrieval centres must provide opportunities for training for all members of the team. There should be explicit consultant involvement in the educational aspects of the retrieval programme and the assessment of competency of the lead surgeons.
- 4.20. All centres must hold monthly meetings to audit their own activity and performance, and to identify and rectify deficiencies in donor care, organ integrity, inefficient processes and poor communications.
- 4.21. Audit meetings should address outcome of retrieved organs, organ damage and dysfunction, punctuality and delays, difficulties encountered in donor hospitals, transport problems and feedback from donor hospitals and coordinators.

- 4.22. Audit meetings should be chaired by the named consultant and attended by as many members of the team as possible together with at least one member of their regional DTC team.
- 4.23. Minutes of audit meetings should be recorded, distributed to all members of the team and made available to NHSBT on request.
- 4.24. All centres should, when requested, contribute data to national audits and registries. Such data should be accurate, complete and transmitted on time.
- 4.25. There should be provision of appropriate staff for the collection, storage and transmission of audit and registry data.
- 4.26. Each unit should provide NHSBT with an Annual Report, which includes activity and progress during the year, compliance with these Retrieval Standards and their plans for a sustained and improved service.
- 4.27. All centres are expected to participate in national clinical research projects aimed at improving the quality of retrieved organs when called upon to participate.
- 4.28. There should be clear accounting for all income to the Trust that is designated for the delivery of retrieval services in accordance with the fiscal guidance issued by NHSBT. This will include finance directly managed by the transplant service and finance that is managed by the financial infrastructure within the Trust. Methods should be used which ensure an equitable comparison of costs of the service between centres.
- 4.29. There should be regular business meetings to address issues specific to the transplant service including financial reports, activity reports, education, audit, clinical governance and research.
- 4.30. Robust arrangements should be in place for timely and accurate collection of data. Data should be made available to NHSBT under agreed reporting mechanisms.

5. Topic 5 Retrieval Teams

- 5.1. All team members must be qualified and competent to perform the roles to which they are assigned.
- 5.2. When the retrieval is confined to abdominal organs only, the team should include, as a minimum, a lead abdominal surgeon, an assistant surgeon and a

scrub nurse. If they wish, centres may also provide an abdominal perfusionist; otherwise, the donor transplant coordinator will assist with setting up and running the perfusion fluids for the abdominal organs.

- 5.3.** A cardiothoracic retrieval team should include, as a minimum, a lead cardiothoracic surgeon, a scrub nurse and a trained individual able to provide the necessary technical support for organ perfusion and retrieval. An assistant cardiothoracic surgeon will usually accompany the team; otherwise the abdominal team will provide assistance.
- 5.4.** Lead abdominal surgeons must be capable of accurately assessing and retrieving liver, kidneys and pancreas; lead cardiothoracic surgeons must be capable of accurately assessing and retrieving heart and lungs.
- 5.5.** The scrub nurses and perfusionists (both abdominal and cardiothoracic) are responsible for taking all necessary equipment, perfusion fluids, drugs and documentation (HT A forms) for the retrieval process.
- 5.6.** Every cardiothoracic retrieval team should bring the equipment needed for cardiac output and pressure measurements within the central circulation and to perform bronchoscopy.
- 5.7.** Members of the team must be available 24 hours a day, without elective commitments, whenever they are on-call for retrieval.
- 5.8.** The team is expected to respond rapidly when notified of a potential donor; team members must be able to leave the retrieval centre within one hour of call-out. The lead surgeon must notify the DTC of any unexpected delays due to traffic problems etc.
- 5.9.** Before embarking on the retrieval operation, the lead retrieval surgeons should review the patient notes. In particular they must check:
 - the identity, blood group and virology status of the donor;
 - that brain stem death has been documented correctly;
 - that appropriate consent has been obtained for the organs to be retrieved.
- 5.10.** Cardiothoracic and abdominal lead surgeons must discuss and agree details of the procedure before retrieving the organs
- 5.11.** All aspects of the retrieval operation should be conducted in accordance with appropriate infection control procedures.
- 5.12.** Members of the retrieval team are expected to behave in a professional manner and to work to agreed protocols during the retrieval procedure.

- 5.13.** If, for any reason, there is an unusual aspect which is not clear in previously agreed protocols, and agreement cannot be reached by the attending retrieval surgeons, then they must refer to their respective consultants who will discuss the situation and reach an agreement.
- 5.14.** On completion of the operation, the lead surgeons are responsible for producing an accurate operation record in the donor patient notes. This should include clear documentation of all organs and tissues removed from the body, a note of any abnormalities/injuries noted during laparotomy or thoracotomy, and the time of respiratory and/or cardiac arrest.
- 5.15.** After signing the notes the surgeons must clearly write their names and the names of their retrieval centre together with a contact number in case the coroner/procurator fiscal wishes to contact them.
- 5.16.** The retrieval surgeons must ensure that organs are appropriately packaged and labelled and that any blood vessels, blood, lymph node and spleen samples required by recipient centres accompany the organs.
- 5.17.** The retrieving surgeons must notify the recipient centre immediately if any organ appears sub-optimal or if any unexpected damage or abnormality is encountered which might compromise the function or safe use of that organ.
- 5.18.** Retrieving surgeons must comprehensively complete the organ specific (HTA) forms including a legible name and contact telephone number of the lead retrieving surgeon, and ensure that the appropriate documents accompany each retrieved organ.
- 5.19.** All abnormalities/anomalies, organ damage, sub-optimal perfusion or donor instability during the procedure must be documented in the organ specific forms and should be communicated directly to the consultant surgeon(s) at the recipient centre(s).
- 5.20.** All members of the team are expected to participate in continuing professional development by attending appropriate courses and meetings.
- 5.21.** Trainees in higher surgical training programmes should be instructed in all aspects of organ retrieval and maintain a log book of surgical procedures in accordance with SAC guidelines.

6. Topic 6 Recipient Centres

- 6.1.** A recipient coordinator, transplant nurse or clinician must be available at all times to take calls on donor offers and to liaise with the DTC and the transplant team.
- 6.2.** Recipient centres must provide NHSBT with a single contact telephone number which must be available 24 hours for notification of organ offers.
- 6.3.** The recipient centre is responsible for arranging transport of retrieved organs from the donor hospital to recipient transplant centre.
- 6.4.** A consultant transplant surgeon must be available at all times to receive information from coordinators and give advice to retrieval teams.
- 6.5.** The names and contact numbers of both the recipient coordinator and the consultant surgeon must be supplied to the donor coordinator when an offer of a donor organ is accepted.
- 6.6.** Surgeons accepting an organ offer should be mindful of the guidance given by The Advisory Committee on the Safety of Blood, Tissues and Organs regarding the risks of disease transmission from donors with specific infections or tumours.
- 6.7.** Centres should maintain a record and summary of all offers of donor organs assessed and accepted or rejected for transplantation. Transplant centres will undertake a rolling audit of donor offers, and notify NHSBT of their reasons for declining individual organs.
- 6.8.** On receipt of a retrieved organ, the consultant transplant surgeon is responsible for checking the integrity and suitability of the retrieved organ, including donor details on the HTA A form and the blood group, before implanting it into the recipient.
- 6.9.** The recipient centre should record the time that the organ arrived at the centre and the time that the organ was transferred from cold solution into the operative field (i.e. end of cold ischaemia time).
- 6.10.** The transplant surgeon must complete a HTA B form for each organ intended for transplant in accordance with the Human Tissue Act (2004) and the Human Tissue (Scotland) Act (2006).
- 6.11.** The recipient centre must return both HTA A and HTA B forms to NHSBT within seven days of receipt of the organ.
- 6.12.** Centres should record any abnormality or damage to organs that they receive or if the organ fails to function following transplantation and notify NHSBT of these events.

- 6.13.** Recipient centres must notify retrieval teams of any organ damage or abnormality that was not recognised or recorded on the HTA A form during the retrieval process.
- 6.14.** Recipient centres must participate in organ retrieval audits when called upon to do so.
- 6.15.** Centres should have a clear policy on the storage and disposal of any unused organs or surplus tissue in compliance with the Human Tissue Act (2004) and the Human Tissue (Scotland) Act (2006).

Appendix 1

Audit and Monitoring

A. Times to be Recorded:

- Time that each retrieval centre (abdominal & cardiac) is first notified of the donor
- Time of telephone call from a DTC asking retrieval centre to muster a team
- Time agreed with the DTC that the retrieval team should leave base hospital
- Time that the team leaves base hospital
- Time that the team arrives at donor hospital
- Time that donor arrives in theatres
- Time that cardiac assessment in theatres starts and ends (if applicable)
- Abdominal surgical start time ("knife to skin")
- Cardiothoracic surgical start time
- Time of aortic cross clamp, cessation of ventilation and start of in situ perfusion
- Time that each organ is removed from the body and placed in cool solution for ex situ perfusion
- Time that each organ is placed under ice in the transport box
- Time donor operation ends (completion of skin closure)
- Time each organ is dispatched from the donor hospital theatre
- Time each organ arrives at a recipient hospital
- Time each organ is removed from cool solution for implantation into a recipient
- Time each organ is reperfused with blood

In addition For Non Heart-Beating Donors (DCDs):

- Time treatment withdrawn
- Time systolic BP < 50
- Time Oxygen Saturation < 80%
- Time of asystole
- Stand-down time for DCDs that do not progress to donation

B. Record of Organ Damage

- Details of damage to be recorded by both retrieving and implanting surgeon:
 1. Severe if the organ unusable
 2. Moderate if the organ requires surgical repair to render it usable
 3. Mild if it is of no consequence
- Was the organ damaged at the retrieval centre or at the recipient centre or during transport between centres?
- If the organ was damaged at retrieval centre, was this recognised or not recognised by the retrieval surgeon?

C. Reasons for Non-Use of an Organ

- Declined without attempt at retrieval due to:
 - Unsuitable donor
 - Poor quality graft
 - Other
- Declined following surgical exploration due to:
 - Poor quality graft
 - Graft damaged during the retrieval process
 - Poor perfusion
- Unable to Place the graft due to:
 - No suitable recipients in the UK or abroad
 - Prolonged ischaemia
- Failure to retrieve
 - Retrieval centre unable to muster a team

Donor becomes too unstable before the team can reach donor hospital.

D. Constituent Personnel of Retrieval Team

Identity, Role and Status

(e.g. Mr Smith, Lead abdominal surgeon, Consultant
Ms White, Assistant surgeon, SpR
Mr Green, Scrub Nurse, ODA)

E. Outcome Measures

- “Primary non-function”

Liver and Heart	No evidence that the organ ever functioned leading to death or retransplantation.
Kidney	Need for permanent dialysis post transplant
Pancreas	No reduction in insulin requirements post transplant

- “Primary dysfunction”

Liver:	Peak AST/ALT > 2000
Kidney:	Need for temporary post-operative dialysis
Cardiothoracic:	Need for device support

- 30 day Patient and Graft Survival using risk-adjusted funnel plots for each organ type.