

**CLINICAL GUIDELINES FOR ORGAN & TISSUE DONATION**

**Incorporating Donation after Brain Death (DBD),**

**Donation following Circulatory Determination of Death (DCD) and Tissue Donation**

**Associated documents: NICE Guidance (OCG135), UKPICS Standards on Organ Donation**

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| **Lead Executive Director** |  |
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| **Links to other policies or relevant documentation** | NICE Guidance (OCG135) UK PICS Standards  AoMRC – The Code of Practice for the Diagnosis and Confirmation of Death.  RCPCH – The diagnosis of death by neurological criteria in infants less than two months of age. |
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1. **ASSURANCE STATEMENT/POLICY SCOPE**
2. **Introduction**

Donation of solid organs can occur following determination of death using either a neurological (DBD) or cardiopulmonary determination (DCD).

Donation of solid organs can occur following appropriate consent according to the Human Tissue Authority (HTA).

Donation of Brain Death involves the donation of solid organs following determination of brain death, a period of donor optimisation is carried out following the confirmation of brain death (Section bordered in **red**)

Donation following Circulatory determination of Death (DCD) involves the donation of solid organs following active withdrawal of life sustaining treatment and determination of death using standard cardiopulmonary criteria. The clinical team caring for the child has reached a consensus opinion that the withdrawal of life-sustaining treatment is indicated. It is important to note that imminent death should be expected at the time of treatment withdrawal.

Patients who currently are expected to have a prolonged death or one way wean are not currently deemed potentials for organ donation (Section bordered in **blue**)

Potentially all patients that die have are able to donate tissues and this should be considered as part of normal end of life care (Section bordered in **green**)

In this guideline “parents” represents parents or those with parental responsibility (PR).

# Aims and objectives

The policy aims to offer clear guidance for health care professionals on organ and tissue donation in the paediatric setting. Donation should be a part of normal end of life care and decision making, families should be offered the opportunity to consider donation should it be a possibility.

# Definitions

* Required referral - a requirement under certain circumstances where a discussion should take place with the specialist teams.
* Donation following brain death - DBD
* Donation following circulatory determination of death - DCD
* Human Tissue Authority - HTA
* Specialist Nurse-Organ Donation - SN-OD

DCD

* Clinical Lead-Organ Donation - CL-OD

# Duties and responsibilities

The policy applies to all clinical staff in the Intensive Care areas (NICU, PICU & CICU). Tissue donation can apply to all clinical staff caring for a child at end of life.

Organ and tissue donation is the responsibility of all staff; the leads within the trust are the Specialist Nurse-Organ donation (SN-OD) and the Clinical Lead- Organ Donation (CL-OD).

# Main body of the policy

The following is split into three separate pathways; each assigned a different coloured border.

**Tissue Donation**

**Required referral**

**DBD**

**Retrieval process**

**DCD**

# Required referral

All units have clear and agreed triggers for referral to the SN-OD team as part of End of Life Care, enabling assessment for organ and tissue donation candidacy in a timely manner. These triggers follow best practice as identified and supported in NICE Guidance, UKPICS and NHSBT strategies for Organ Donation. If donation is considered an option the specialist team are then on hand to give all the information the family require to make an informed choice and offer support through that process.

These triggers are agreed and supported by all professions working in these areas.

The triggers that initiate a discussion with the SN-OD are as follows

# There is a plan to withdraw treatment and death is thought to be imminent following the withdrawal of care

* + - **The patient is suspected to be Brain Dead (BSD)**

**Triggers apply to all patients ≥37 weeks corrected gestation**

In cases where these triggers are met, the SN-OD must be informed and a discussion held regarding the suitability of the patient for organ donation.

In the case where there are absolute contraindications to donation, this discussion may be held over the phone during the initial contact.

If there is a more detailed assessment required or the patient is known to be suitable, the SN-OD will make a plan with the referrer to attend the unit. At this time an estimation of the arrival time should be given and updates made if this changes.

Cases which require referral to the coroner are not contra-indicated for organ donation; however permission MUST be gained prospectively.

There is currently no requirement to refer patients to the coroner if there is no requirement to ordinarily refer the patient to the coroner; however confirmation that this is the case and the death certificate can be issued should be clearly recorded in the medical notes.

Any member of the clinical team may make a referral to the SN-OD. The consultant and nurse - in - charge of the unit should be aware of this discussion.

The SN-OD can be contacted through switchboard or 24 hours/day on the following pager number **03000 20 30 40**.

# Donation following neurological determination of death and donor management of the brain dead donor (DBD)

The following section relates to the management of organ donation following neurological determination of death. UK PICS and NICE Guidance best practice states that if a patient meets the criteria for brain stem death they should be formally tested.

The AoMRC - The Code of Practice for the Diagnosis and Confirmation of Death should used for reference in brain stem death testing and if the patient is between 37 weeks (CGA) and 2 months of age the RCPCH - The diagnosis of death by neurological criteria in infants less than two months of age should be used in conjuction with the AoMRC Code of Practice.

Brain stem death should conventionally be satisfied and the relatives given consent for donation before the management to optimally preserve transplantable organs is undertaken.

# Physiology

The potential organ donor is at high risk for instability due to the loss of CNS- dependent homeostasis.

Hemodynamic instability and cardiac arrest after brain death accounts for the loss of up to 25% of potential donors; loss of hormonal and metabolic equipoise also contribute to physiologic derangements

* Hypertension and bradycardia preceding brain death characterise Cushing’s response.
* Vagal nucleus ischemia in the medulla oblongata → uncontrolled sympathetic stimulation

# The catecholamine “storm”

Systemic hypertension, tachycardia and tissue ischaemia (including pituitary gland).

Duration and severity of storm varies but within hours  depletion of catecholamines with subsequent generalised vasodilation and haemodynamic collapse.

Infarction of cerebral vasomotor centres  abrupt loss of sympathetic tone and hypotension.

Myocardial injury can result in right and/or left ventricular dysfunction this contributes to haemodynamic instability and organ dysfunction.

Hypothalamic-pituitary axis infarction during the course of brain death impairs ADH release and consequent Diabetes Insipidus (DI)  issues with haemodynamic stability and fluid and electrolyte balance.

Absence of DI after brain death probably due to preserved pituitary circulation

Notable reduction in thyroid hormone levels after brain death

Increasing evidence thyroid hormone supplementation may reverse metabolic abnormalities and stabilise haemodynamic parameters.

# Hormonal resuscitation now a management strategy for the organ donor

Studies regarding ACTH and cortisol levels inconclusive

Unclear if steroids significantly improve organ preservation, though? improve lung donation – so used

Hyperglycaemia in catastrophic TBI common likely due to increased catecholamines and relative insulin resistance – standard PICU management

# Organ Management

* Lungs

If a cuffed endotracheal tube is in situ it should be inflated to a maximum to optimally prevent aspiration and decrease leak. Consideration in stable cases should be given to changing to a cuffed endotracheal tube, especially if a leak is compromising ventilation.

There is some evidence that PRVC as a mode allows optimal lung retrival and this is standard.

The balance between hydration and dehydration on the ICU is altered in the organ donor to be slightly ‘wetter’ to permit optimal renal donation, however managing too wet may compromise lung donation - hence a balance of CVP 4-10 mmHg is reasonable. If either the lungs or kidneys are not transplantable this balance may shift in individual cases.

All standard unit VAP prevention measures should continue.

A BAL is performed to exclude infection, or enable targeting of post- transplantation antibiotics

Aggressive bronchoscopy for areas of collapse is mandated.

* Fully inflated cuffed endotracheal tube (i.e. high pressure >25 mmHg)
* PRVC
* CVP 4-10 mmHg
* VAP measures to continue (bed >20 degrees, Lansoprazole, etc.)
* BAL

Ventilatory support aims to provide adequate ventilation and oxygenation

* Goal FiO2 is 40%
* PEEP 5
* PIP <30 mmHg
* TV of 8-10 ml/kg (or 6-8 ml/kg if ARDS)

Goals are normal pH and pCO2, PaO2 >100, PaO2:FiO2 ratio >300 Minimize potential for VILI and haemodynamic instability

Low threshold for broad spectrum antibiotics - Piperacillin / Tazobactam and Vancomycin

* + Mallory GB Jr, Schecter MG, Elidemir O. [Management of the pediatric organ donor to optimize lung donation.](http://www.ncbi.nlm.nih.gov/pubmed/19418570?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&amp;ordinalpos=11) Pediatr Pulmonol. 2009 Jun;44(6):536-46.

# Cardiovascular

Invasive arterial blood pressure and ECG must be continuously measured Hemodynamics must be measured by standard for unit and optimised.

Appropriate inotropic support is controversial; however Noradrenaline and Adrenaline in high doses compromise cardiac transplantation.

The sympathetic storm associated with brainstem compression may require aggressive management of hypertension, however this is usually short lived and so agents with short half-life such as Esmolol are preferred

Vasopressin has dual function in these patients, with its role in diabetes insipidus well known and hence is the vasoconstrictor of choice

Resuscitation from asystole and EMD can be attempted if rapidly reversible cause is likely - i.e. neck line insertion associated pneumothorax, but otherwise are not recommended. The decision to resuscitate in these instances may be made in collaboration with the child’s parents.

Treat arrhythmias aggressively

* Correct electrolytes
* Cardioversion IS appropriate
* Prolonged resuscitation for VF is not appropriate
* SvO2 saturation (mixed venous saturation) >70%
* CVP 5-10 mmHg
* Cardiac index 2.5-6.0 l/min/m2
* SVRI 400-1200 dyne s/cm5/m2
* SaO2 saturation > 93%
* Normal serum lactate and base deficit
* Urine output >1 ml/kg/hr and <10 ml/kg/hr
* Good capillary refill and pulse quality
* Target normal range blood pressure

# Blood Pressure is age related

* Birth to 2 months – Systolic >60 mmHg and <90 mmHg
* 2 months to 1 year – Systolic >70 mmHg and <100 mmHg
* 1 year -10 years – Systolic > (2 x age + 70) and <40+ (2 x age + 70)
* 10 years – Systolic >100 mmHg and <140 mmHg Agents for haemodynamic support
* Dopamine: <10 microgram/kg/minute
* Vasopressin: 0.0003–0.0007 unit/kg/minute (to maximum dose of 2.4 units/hour)
* Noradrenaline or Adrenaline (caution if >0.2 microgram/kg/minute)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Drug | Standard Infusion | Diluent | Calculate | Rate of Infusion | Dose |
| DOPAMINE | Via central line:  15 mg / kg in 50ml | Sodium chloride 0.9%  or glucose 5% | Wt. x 15 = \_ mg / 50 ml | 1 ml / hr. =  5 microgram / kg / min | < 10 microgram / kg / min |
| Peripherally for < 5kg child:  15 mg / kg in 50ml | Sodium chloride 0.9%  or glucose 5% | Wt. x 15 = \_ mg / 50 ml | 1 ml / hr. =  5 microgram / kg / min | < 10 microgram / kg / min |
| Peripherally for > 5kg child:  80 mg in 50ml | Sodium chloride 0.9%  or glucose 5% | Wt. x 0.375 = \_ ml / hr. | 0.375 ml / kg / hr. = 10 microgram / kg / min | < 10 microgram / kg / min |
| NOR- ADRENALINE | Via central line  0.3 mg / kg in 50ml | Glucose 5% | Wt. x 0.3 = mg / 50 ml | 1 ml / hr. = microgram / kg / min | 0 - 0.5 microgram / kg / min |
| ADRENALINE | Via central line:  0.3 mg / kg in 50ml | Sodium chloride 0.9% or glucose 5% | Wt. x 0.3 = mg / 50 ml | 1 ml / hr. = microgram / kg / min | 0 - 0.5 microgram / kg / min |
| VASOPRESSIN (ARGIPRESSIN) | Resistant hypotension:  0.75 units / kg in 50ml | Sodium chloride 0.9%  or glucose 5% | Wt. x 0.75 = units / 50 ml | 2 ml / hr. = 0.0005 units / kg / min | 0.0003 - 0.002  units / kg / min |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Diabetes Insipidus:  1 - 2.5 units in 500ml | Sodium chloride 0.9% |  |  | Run solution to replace urine output + 10% |

# Drugs & Hormone Therapy

Indications:

* Echocardiographic assessment of ejection fraction ≤40% or
* Haemodynamic instability (i.e. shock, unresponsive to restoration of normovolaemia and requiring vasoactive support [Dopamine >10 microgram/kg/minute or any vasopressor agent])

# Thyroid replacement

Increases cardiac output, heart rate, and basal metabolic rate

Thyroid hormone administration typically T3 (Liothyronine) (active form of thyroid hormone)

T3 is converted from T4 by deiodinase. T3 is 4 times more active than T4

* T3 (Liothyronine) 0.05-0.2 microgram/kg/hour infusion

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Drug | Standard Infusion | Diluent | Calculate | Rate of Infusion | Dose |
| LIOTHYRONINE | 20  micrograms in 20 ml | Sodium chloride 0.9% | Wt. x 0.2 = ml / hr. | 0.2 ml / kg / hr. =  0.2 microgram / kg / hr. | 0.05 - 0.2  microgram / kg / hour |

# Gastrointestinal Tract

The optimal management is for enteral feed to continue, though it is important for both relatives and PICU staff to be clear this is being undertaken to best preserve abdominal organ function for transplantation rather than to provide nutrition per se.

Continuous NG feeds with a 4-hour break overnight if prolonged organ support is required are appropriate.

* Trophic feeds - half/full strength enteral feeds

If on full TPN change to IV fluids, if mostly enteral continue as tolerated and replace TPN with IV fluids

If on specific feed - continued, though the reasons for this MUST be conveyed to transplant staff (may preclude some organs being donated)

Stress ulcer prophylaxis is mandatory: Lansoprazole is the preference (IV Omeprazole if NBM)

Optimise electrolytes to prevent/improve ileus Treat constipation

Trophic/half full continuous enteral feeds (100%) maintenance)

* Previous type of feed
* Stop 4 hours before theatre
* Lansoprazole
* <1 yr. and <10 kg: 0.5-1mg/kg NG od
* 10-30 kg: 15mg NG od
* >30 kg: 30 mg NG od
* Stop TPN
* Optimise electrolytes if ileus
* Treat constipation - standard ICU treatment e.g. Lactulose, Movicol

# Steroids

Steroid production inhibited/lost due to CNS insult and loss of HPA axis.

Steroids up regulate adrenergic receptors and so enhance response to inotropes. May also help pulmonary function

* single dose of Methylprednisolone 15 mg/kg IV children (max 1 gm)
* or Hydrocortisone 1.5 mg/kg IV QDS (max dose of 100 mg)

# Diabetes insipidus

* Vasopressin 1-2.5 units in 500ml sodium chloride 0.9%, replace urine output +10%

# OR

* Commence vasopressin 0.0005 units/kg/minute and titrate as needed to maintain urine output less than 4 ml/kg/hr, replace urine ml for ml with 0.45% sodium chloride above 3-4 ml/kg

# Glucose control

* Insulin 0.05-0.1 units/kg/hr titrated to keep glucose 6-10 mmol/L
* Hourly glucose checks so as to avoid hypoglycaemia

# Coagulation

Correction of consumption coagulopathy, which is secondary to release of tissue thromboplastin from the injured brain

# Hypothermia can worsen this coagulopathy

Treatment includes

* FFP, Cryoprecipitate, platelets, Vitamin K
* Occasionally packed red blood cell transfusion may be required
* Prevention/correction of hypothermia

# Other management

* Temperature control
* Support of the family

Consideration of Donation following Neurological Determination of Death (DBD)

Does the patient fullfill the criteria for brain stem death testing (AoMRC / RCPCH Guidelines)

Refer to the Specialist Nurse – Organ Donation PAGER 03000 20 30 40

Ensure Brain Stem Death Testing is completed using the AoMRC / RCPCH Guidelines.



BSD confirmed

Unable to confirm BSD

No Consent

Ventilation support is withdrawn -

Follow End of Life Care

Policy.

Consider DCD pathway for donation

Family are informed of the results of the brain stem tests. Plan is made in conjunction with the Specialist Nurse – Organ Donation regarding approaching the family for organ donation if a possibility.

Verbal Consent

Blood taken for tissue typing and Virology

Formal consent is obtained and donor assessment performed

Contact made with coroner to gain permission for donation (consider contact as part of the assessment of potential)

Donor Optimisation performed in accordance with policy SCOUT Team may be mobilised

Donation takes place

Flow chart to be used in conjunction with the End of Life Care Policy.

Final cares performed

Offering process and co-ordination of

theatre teams – transfer to theatre occurs

# Donation after Circulatory determination of death (DCD)

This is a guideline regarding the management of organ donation following circulatory confirmation of death following a planned withdrawal of active life support treatment.

# Decision to Withdraw Life Sustaining Treatment

LST withdrawal decision is carried out in accordance with RCPCH guidelines.1

Decisions regarding futility and withdrawal of treatment in which DCD is considered should be reviewed and agreed, if possible, by a second ICU Consultant

Any withdrawal decision must be in the best-interests of the child, independent and uninfluenced by considerations of organ donation.

All staff act in the best interests of the child at all times.

# The Approach and Consent Process

Once child is referred to the Specialist Nurse-Organ Donation (SN-OD) an agreed plan will be made to attend the unit to undertake an initial assessment and plan the family approach with ICU staff.

The approach to the family can be part of LST withdrawal conversation, but may be deferred to SN-OD following their assessment. As a minimum there must be a plan between specialist teams and consultant for approach to the family. It is important to ensure that organ donation is a possibility before approaching a family.

It is important the family accepts and understands futility and imminent death before organ donation is mentioned as an option. Agreeing a plan with the SN-OD ensures that information can be given by the specialist team at the most appropriate time, ensuring the family have all end of life options (refer to PICS standards/NICE Guidance)

Organ donation may be introduced as an opportunity by either ICU consultant or SN-OD, but thereafter donation conversation will be led by SN-OD. If the child has expressed a wish to donate and/or stated their wishes by signing the National Organ Donation Register this should be taken into account.

If appropriate, consent from parents is obtained by SN-OD taking according to the Human Tissue Act and NHSBT Guidance Documentation.

***1*** Withholding or Withdrawing Life Sustaining Treatment in Children: A Framework for Practice. ISBN 1900954 96 6 (c) 2004 Royal College of Paediatrics and Child Health

In coroner’s cases it is essential to gain prior permission for DCD from H.M. Coroner (HMC) prior to LST withdrawal. (Though legally HMC has no jurisdiction before death)

Consent from parents and HMC permission is documented in medical notes by SN-OD.

After above has been satisfied, responsibility for continued clinical eligibility to proceed with DCD transfers to SN-OD in consultation with retrieval team.

SN-OD liaises with ICU team: obtain blood samples for donor virology screen, tissue typing and blood group (either after verbal consent given - permitted within Human Tissue Authority guidelines - or after written consent).

End of life care continues to be led by the ICU team; SN-OD will manage the process of donation and liaise with the ICU team, transplanting centres, retrieval teams and theatres.

Consent may be revoked at any stage up until commencement of surgical retrieval operation; this is made clear to families by SN-OD.

Tissue donation is offered to families as a matter of routine if appropriate.

# The Withdrawal Process

The biggest logistical limitation to successful DCD is the warm ischaemic damage to organs during the dying process that continues after death. To minimise this interval damage successful DCD requires rapid retrieval of solid organs in theatre after death.

Generally transfer to theatre occurs prior to withdrawal: the benefits of shorter ischaemic time/not moving a body rapidly through a busy hospital must be balanced against an ante-mortem transfer, which can only be in the child’s best-interests - insofar as we consider the wish to donate.

The SN-OD will arrange for transfer to theatre at the appropriate time either by the ITU staff or by the theatre team, depending on availability. The SN-OD will also discuss and identify the medical practitioner who will lead the withdrawal of treatment and certifying death.

Occasionally LST withdrawal occurs on ICU in the usual way, the death is certified/ verified and then the body is transferred to theatre - Family Liaison Sisters (FLS), Clinical Site Practitioners (CSP), Porters and Security must all be made aware at time of consent as they will need to help arrange expeditious transfer to theatre post certification/ verification.

Withdrawal of LST is carried out in accordance with standard practice and RCPCH guidelines - see above.

The following are confirmed before withdrawing LST:

* Decisions regarding futility and LST withdrawal clearly documented in medical notes
* Full explanation of withdrawal process, death certification and time constraints for successful DCD has been given to parents by SN-OD, and adapted to family’s individual needs/requests. All core minimum information will be given as required by NHSBT practice documents.
* Consent to DCD obtained from a person with parental responsibility. If shared responsibility the SN-OD should gain consensus: If Children’s Services have joint responsibility in the form of a protective order they must be contacted. Estranged parents/absence of person with parental responsibility should be dealt with on individual basis in accordance with Human Tissue Act.
* Family/friends the parents wish to be present are in attendance, and any routine care such as photographs or religious rituals have occurred
* HM Coroner has given approval for donation to proceed following death
* Theatre staff are notified and surgical retrieval team is prepared.
* Child’s bed and area readied pre-withdrawal for rapid transfer to theatre post certification/verification
* LST withdrawal is managed by the ICU team with the SN-OD in attendance. No transplant team member will attend ICU or advise on withdrawal of treatment.
* The method of LST withdrawal is at the discretion of treating ICU consultant: Evidence is accumulating that the sensation of hypoxia is less unpleasant than hypercarbia, and so usually oxygen is decreased to air prior to extubation.
* Upon LST withdrawal BP, ECG and oxygenation saturation continue to be monitored; ideally as discreetly as is possible.

All medications or interventions after LST withdrawal must have the intention of relieving pain or distress and under NO circumstances should they be performed prior to death, with the intention of improving organ viability or hastening death.

* Specifically no vascular access for perfusion should be inserted or Heparin should be given.
* The SN-OD will make observations from the time of withdrawal until cardiopulmonary arrest or stand-down.

At onset of cardiorespiratory arrest the ICU consultant and parents are informed.

Monitoring continues after asystole onset as outlined below.

If after LST withdrawal death does not occur within an agreed period of time, or a long period of hypoxia and/or hypotension elapses, the SN-OD in conjunction with the accepting centres and retrieval team may decide organ viability is too compromised and stand down from the process: usually if more than three to four hours have elapsed after withdrawal

If stand down occurs this will be communicated to those involved including the parents, who will be fully aware of this as discussed clearly in the consent process.

The child will be transferred back to the ICU and end of life care continued.

# Determination of Death (1)(2)

* Following onset of monitored cardiorespiratory arrest the child is fully monitored on ICU, or in the anesthetic room for FIVE (5) minutes.
* If during this time there is any return of cardiac or respiratory activity a further five minutes of observation should recommence

At the conclusion of five minutes of monitored cardiorespiratory arrest death is certified/ verified by ICU consultant ascertaining that child:

* is pulseless (absent arterial waveform OK)
* is apnoeic
* has fixed and dilated pupils
* shows no response to supra-orbital pressure
* has absent corneal reflexes

ICU consultant records death certification/verification in medical notes

Family may stay with child prior to, and during, LST withdrawal and until death has occurred. Parents are given the opportunity for farewells following asystole.

It is vital parents are made aware during consent process that after verification of death the body must be rapidly transferred to theatre for successful DCD donation.

Any extended farewell after death has been certified/verified may mean that the organ donation will not be able to proceed; this will be carefully explained to parents by SN-OD. Should the family wish to remain a stand down will occur at the discretion of the SN-OD.

Following certification/ verification parents will be supported back on the unit if they wish, monitoring is disconnected and the child’s body moved immediately to theatre.

Families are provided with the opportunity to see child once donation completed.

(1) Academy of Medical Royal Colleges. A Code of Practice for the Diagnosis and Confirmation of Death. (2008). 2010. PPG

(2) Institute of Medicine. Non-heart beating Organ Transplantation: Practice and Protocols. Washington DC. National Academy Press, 2000 [(http://www.n](http://www.nap.edu/books/0309066417/html/))a[p.edu/books/0309066417/html/)](http://www.nap.edu/books/0309066417/html/))



Consideration of Donation following Cardiac Death (DCD)

Dose the patient have a catastrophic neurosurgical injury or

other unsurvivable injury? and

the a decision has been made to withdraw treatment?

Refer to the Specialist Nurse – Organ Donation PAGER 03000 20 30 40

Suitable for DCD Unsuitable for DCD

Treatment withdrawn Follow End of Life Care Pathway

No Consent

ICU staff discuss withdrawal of treatment when accepting of end of life care, organ donation discussed by the specialist nurse in conjunction with the ITU team and family if a possibility.

Specialist Nurse attends the ICU

Consider Tissue donation

Verbal Consent

Consent obtained and donor assessment performed

Blood taken for tissue typing and Virology Transplant teams mobilised

Contact made with coroner to gain permission for donation (consider con tact as part of assessment of potential)

Treatment withdrawn Follow End of Life Care Policy

Treatment withdrawn at the negotiated time – use End of Life Care Pathway

Following asystole, there is a 5 minute period when the family can say their goodbyes – death is certified.

 Flow chart to be used in conjunction with the End of Life Care Policy.

Final cares performed

Donation takes place

# The Organ Retrieval Process

SN-OD responsibilities continue throughout the theatre process. National retrieval teams (NORS) perform the retrieval operation and are co-ordinated by the SN-OD. They commence the operation immediately on transfer to the operating table.

After organ retrieval the wound is sutured and dressed and the child’s body returned to ICU by theatre staff and SN-OD for final care and to be with family if desired.

All other procedures that apply after a death are completed as usual.

# Follow up Care

If families wish the lead SN-OD will send letters at approx three weeks and around the first anniversary of death. Families can request additional follow up if they wish.

For families whose child donated organs, if the families choose, the letter will contain anonymous recipient information and updates on progress following transplantation. Staff involved will also receive a letter containing similar information.

If donation did not occur for whatever reason, the family are written to and thanked for their kind decision to donate

# All standard GOSH ICU bereavement care and staff support occurs as usual

* Death certificates and cremation forms as per protocol
* Relevant Child Death Overview Panel notified by Bereavement Services (End of Life Care team)
* Register Office appointment
* Family Liaison Nurse contact, bereavement follow up meeting ICU consultant at six weeks and psychological support for staff

If any anticipated need for coronial action exists the Coroner has ‘possession’ of the body from time of death until inquiries are concluded

The Coroner’s officer will have been kept informed throughout the process as agreed in the memorandum of understanding between NHSBT and the coroner.

Occasionally it may be requested that a paediatric pathologist attends the retrieval or that witness statements are required from the surgical team. If this is the case it will be arranged by the SN-OD.

# Tissue Donation

There may be the potential for donation of tisues following the death of any child and this should be assessed on an individual basis.

The flow chart and appendix can be used to assess suitability at anytime both in anticipation of death and addressing questions that the family may have.

The National Referral Centre can also be contacted to give additional advice.

Retrival of tissues for donation purposes will take place in the mortuary in liaison with the National Referral Centre and the Mortuary Team.

# Appendix 1

|  |  |  |
| --- | --- | --- |
| **Tissue** | **Age Limit** | **Storage time** |
| **Skin** | No age limit  >9 stone / 57kg | Up to 3 years from the date of donation |
| **Heart Valves** | 32 weeks gestation up to 60 for aortic and 65 for pulmonary valves | Up to 10 years from the date of donation |
| **Eyes** | >3yr | Maximum of 30 days |

**Tissue Contraindications (affecting heart valves and skin)**

|  |  |
| --- | --- |
| **Contraindications** | **Examples** |
| Degenerative neurological disease | Muscular Dystrophy SMA |
| Autoimmune disease | Biliary Artresia Crohn’s Disease SLE |
| Previous valve surgery |  |
| Drowning - dependent upon time submerged and location (Bath & swimming pool drowning generally acceptable) |  |
| Risk of metastases/aggressive tumors/malignancies(including those in remission) | High grade brain tumor Myeloma |
| Genetic anomalies that affect heart valves & connective tissues. | Marfan’s Syndrome |
| Genetically transmitted disease, progressive muscle atrophy | Muscular Dystrophy |
| Degenerative muscular disease carried on X chromosome | Rhett’s Syndrome |
| Steroid treatment affecting virology. Unknown aetiology. | Rheumatoid arthritis |
| Established infection maybe resistant to antibiotics | Sepsis (systemic) |
| Steroid treatment >3months - Interferes with virology testing. Effect to connective tissue?? |  |

|  |  |
| --- | --- |
| Conditions of unknown aetiology | Ulcerative colitis |
| Piercings | Performed within the last 6 months due to Hepatitis B / HIV risk |
| Recent blood transfusion may affect  accuracy of virology testing. Decision depends on level of haemodilution |  |
| Tattoos performed within the last 6 months due to Hepatitis B / HIV risk |  |
| Patients on immunosuppressant’s / steroids affecting virology testing | Transplant patients |
| TB (active) |  |
| Infections where antibiotics are not effective | Viral dilated cardiomyopathy Viral infections  Viral meningitis (Bacterial meningitis accepted) |
| Active systemic infection two weeks leading to death that is not controlled. | Note if patient has pyrexia and raised CRP at time of death. |

**Ocular Tissue Contraindications**

|  |  |
| --- | --- |
| Infections | Acquired immunodeficiency syndrome (AIDS/HIV) Viral hepatitis (A, B, or C)  HTLV  Seropositivity: HIV, HBsAg, HBc, HCV, HTLV, syphilis  Behavior leading to risk of contracting HIV, HTLV, hepatitis B or C  Active viral encephalitis or encephalitis of unknown origin, viral meningitis Rabies  Congenital rubella Active tuberculosis Reyes syndrome  Progressive multifocal leukoencephalopathy Septicaemia  Active malaria |
| Previous Surgery | Receipt of human organ or tissue transplant Receipt of dura mater or brain/spinal surgery before August 1994  Receipt of human pituitary derived hormones Receipt of a corneal, scleral or limbal graft |
| Unknown aetiology disorders | Death from unknown cause  Creutzfeldt-Jakob disease (CJD, vCJD) and central nervous system diseases of unknown aetiology (e.g., Alzheimer’s disease, other dementias, Parkinson’s disease, multiple sclerosis, motor neurone disease)  Chronic fatigue syndrome (ME) |
| Malignancies and premalignancies | Leukaemia, lymphoma, myeloma, sideroblastic anaemia, polycythaemia and other myeloproliferative disorders and syndromes |
| Intrinsic eye disease | Ocular inflammation, including known ocular involvement by systemic disease, e.g.sarcoidosis, rheumatoid arthritis  Any congenital or acquired disorders of the eye, or corneal refractive surgery (laser surgery) that would preclude successful graft outcome  Retinoblastoma |

|  |  |
| --- | --- |
|  | Malignant tumours or ocular metastases in the anterior segment of the eye. |
| Steroid treatment | Long term corticosteroids of > 30mg/day prednisolone. Can donate if on corticosteroids for no more than 2 weeks in 6 months prior to death. |

Contact the National Referral Centre 0800 432 0559

National Referral Centre will return call and ask questions regarding clinical condition, fluids/blood products given, signs of infection.

If patient is suitable they will contact the family to consent.

Yes

No

Contact Specialis

Nurse Pager 03000 20 30 40

Consideration of Tissue Donation following certified death

**Has the death occurred in the last 24 hours?** Rationale – blood sample and consent required within 24 hours and retrieval within 48hrs (tissues) Corneas -retrieval required within 24 hours.





Does the patient have a potential for donation of any tissues?

Appendix 1

Yes No

Are there are any contraindications for tissue donation – Appendix 1

If in doubt seek advice from National Referral Centre 0800 432 0559

or SN-OD 03000 20 30 40

Suitable for Tissue Donation

Unsuitable for Tissue donation

Speak to the family about the option of tissue donation – give leaflet. Explanation that a referral will be made.

They will be contacted by a specialist should they wish to proceed.

Record of assessment made in notes. Give End of life information as policy.

Specialist – Nurse known to be in hospital

SN-OD or National Referral Centre will contact the family and gain consent for donation.

Donation takes place if possible.

Record made in notes / FLS record of referral and outcome.

Flow chart to be used in conjunction with the End of Life Care Policy and tissue donation information leaflets.

# Process for implementation

1. **Monitoring arrangements**

All potential solid organ donors and the processes are fully audited by the SN- OD and information fed to the Donation Committee/ End of Life Care Meeting. Discussion regarding the processes may take place in the form of debriefing, Mortality and Morbidity Meetings and Donation Committee discussions with appropriate actions taken forward by the Trust SN-OD and CL-OD.

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# Standards and Key Performance Indicators (KPI)

Trust Reports are received six monthly from NHS Blood and Transplant (NHSBT).

# Training

All training programs relating to donation will be offered by the SN-OD and CL-OD within the trust.