ORGAN DONATION: CIRCULATORY DEATH DETERMINATION PATHWAY (DCDD)

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- Organ donation may only occur after the neonate, infant or child donor has been pronounced dead according to legally recognised criteria (brain death or circulatory death). In this document we will only be discussing the procedure for Organ donation following circulatory death.
- Exceptional end-of-life care must be the focus for ICU staff and this is not altered by the decision of a family to consent to organ donation. The respect and dignity of the deceased and the families' well-being will always be our paramount concern.
- A family has the right to withdrawal their consent to the donation process at any time.
- This document provides an operational outline of how organ donation can be facilitated at SCHN.
- Enquiries concerning this Practice Guideline please contact:
  - Medical Specialist (DSM) or Nursing Specialist (DSN) via switch

Related policies:

Designated Officer - http://webapps.schn.health.nsw.gov.au/epolicy/policy/2906

READ ACKNOWLEDGEMENT

- Clinical staff (medical and nursing) working in intensive care areas must read and acknowledge they understand the contents of this document.
- Other relevant clinical staff, as identified, should read this document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st March 2018	**Review Period**: 3 years
Team Leader:	Emergency Consultant	**Area/Dept**: Intensive Care Unit

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1 Organ Donation

1.1 Introduction

In accordance with NSW Ministry of Health and ANZICS policy, the intensive care units within the Sydney Children's Hospital Network (SCHN) support the donation of organs after death with informed parental consent.

ICU staff are aware and sensitive to the extreme stress and grief felt by parents/relatives following the death of a child. Accordingly this guideline, recommends ways to discuss the possibility of organ donation in a way that supports the parents and family and respects their values and decisions.

Organ donation may ONLY occur after a neonate, infant or child has died, i.e. been lawfully declared dead.

Circumstances where organ donation may be feasible in the ICU setting are

- when death has been declared on the basis of neurological criteria (i.e. the patient has declared brain dead) or
- when death has been declared on the basis of circulatory standstill ("acirculation") following (planned) removal of cardiorespiratory support (inotropes and mechanical ventilation).

Donation after circulatory death (DCDD), formally known as Non Beating Heart Donation (NBHD) and donation after cardiac death (DCDD), enables children who do not meet the criteria for brain death to donate organs.

1.2 Suitable Donors

Neonates, infants and children (weight>3 kg) who have a planned removal of cardiorespiratory support (mechanical ventilation and inotropes) are suitable to be considered as potential organ donors.

Once a child meets the clinical **GIVE Trigger** (**G**lasgow Coma Score <5, **I**ntubated, **V**entilated and **E**nd of Life Care) a referral to the NSW Organ and Tissue Donation Service (OTDS) should be made by contacting the Donation Specialist Nurse (DSN) or Donation Specialist Medical (DSM) via switch. Medical suitability is assessed by the OTDS team in conjunction with transplant physicians and not by staff at Sydney Children Hospital Network.

Optimising end-of-life care for the patient and the family should take precedent at all times.

Donation after Circulatory Death Determination (DCDD) criteria:

-Ventilated patient from whom life sustaining treatment is to be withdrawn (i.e. severe irreversible brain injury, severe cardiac or respiratory failure, or ventilator-dependent quadriplegia)-When death is likely to occur within a time frame following removal of life-sustaining treatment that permits organ retrieval for transplantation; and

-medical suitability as determined by TSANZ criteria

It may be difficult to predict the likelihood that circulatory arrest will occur within the 30-90 minutes after removal of life-sustaining treatment. The most influential factor is whether the patient will breath effectively after extubation. Prediction may be assisted by observing a patient during a trial of spontaneous ventilation. The test should only be conducted if patient is able to tolerate the test without becoming unstable.

2 DCDD Donor categories

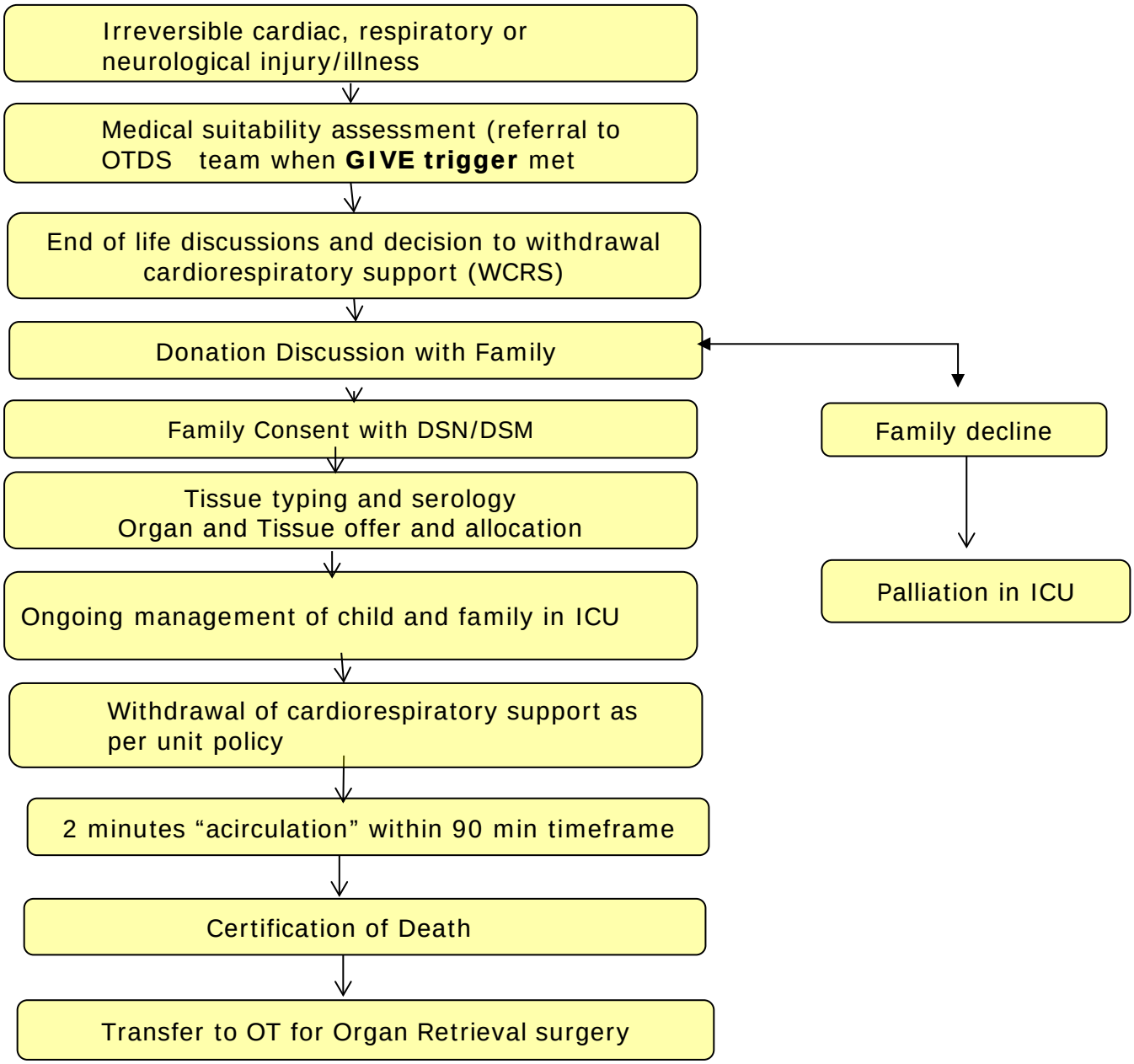
The following categories for DCDD have been developed and accepted internationally to categorise potential donors on a clinical basis.

- *Category 1:* Dead on scene (out of hospital) - Unknown warm ischaemic time.
- *Category 2:* Unsuccessful resuscitation- Known warm ischaemic time.
- *Category 3:* Waiting cardiac death after planned treatment withdrawal - Known and limited warm ischaemic time.
- *Category 4:* Cardiac arrest after confirmation of brain death but before planned organ retrieval - Known and potentially limited warm ischaemic time.
- *Category 5:* Cardiac arrest in a hospital patient.

Of these, only **category 3** and **category 4 are currently permitted to become organ donors in NSW.**

Optimising end-of-life care for the patient and family should take precedent at all times

2.1 Pathway to Organ Donation after Circulatory Death Determination (DCDD)



2.2 Family Donation conversations

After a discussion regarding prognosis and plan for end of life care, time should be allowed for the family to process and understand this information and ask questions.

After the family has had time to process and understand the information about the death of their child, a second meeting should be arranged by the intensive care consultant to discuss the possibility of organ and tissue donation. If organ donation is raised earlier by the family, it is to the discretion of the intensivist to continue or defer the organ and tissue donation conversation to a later time.

In cases where DCDD is being considered, a multidisciplinary meeting should be convened involving the intensivist, the primary medical / surgical team, nursing staff, social worker,

pastoral care and other consulting services as relevant. The purpose of the meeting is to review any possible conflicts of interest and anticipate any other clinical or ethical concerns or issues that should be addressed in the consent process.

All attending medical specialists involved in the patient's care should be informed where DCDD is being considered.

Clear documentation in the medical record of any discussions with the family regarding organ and tissue donation is mandatory.

2.3 Donor Referral and Coordination

The **Donation Specialist Nurse** (DSN) and/or **Donation Specialist Medical** (DSM) are notified when a patient meets the GIVE trigger as described in the NSW Health Policy Directive (PD2013_001) "Deceased Organ and Tissue Donation - Consent and Other Procedural Requirements". This enables the determination of medical suitability for donation. They will be available to meet with the family to provide information regarding the donation process. They can be contacted via the hospital switch board.

The role of the DSN includes:

- Consult with the ICU team to obtain accurate information regarding the child's current medical status.
- Meet with the family and provide information about organ and tissue donation to support informed decision making.
- Obtain formal documentation of consent (with the Designated Officer present)
- Complete a medical and social history to determine suitability of organs and tissues for donation.
- Refer information via the Electronic Data Referral to the Donor State Coordinator (DSC) who will liaise with the surgical and theatre teams, Transplant coordinators, Forensic pathologist and Coroner.
- Organise donor bloods for serology, tissue typing and HLA testing.
- Ensure all documentation is complete (including determination of death, consent forms ensuring all legal requirements have been met).
- Liaise with ICU staff, Designated Officer, Donor State Coordinator, Coroner (as indicated), theatre staff
- Ensure confidentiality of both donor and recipients.
- Provides ongoing care to the family including information on available support services and feedback on transplant recipient outcomes.
- Support health professional and provide feedback to teams involved with the donation process
- Maintain up to date documentation and data base records.

2.4 Screening

Interventions for the benefit of the future organ recipient and of no benefit of the child cannot be administered in order to optimise organ function. Blood samples are permitted as part of the authorisation process.

- The DSN will require the following information about the potential donor for assessment of medical suitability:
  - Name, DOB, Weight, Girth and Height
  - Cause of death and current status
  - ABO blood group (including A/AB subtypes)
  - FBC, EUC, LFT, CMP, coags , troponin, transaminases and microbiology
  - ABG on 100% 0_2, PEEP 5cm for 30minutes prior to gas
  - Current Chest x-ray
  - Medications and fluids
- Changes in the child's condition or care should be discussed with the DSN/DSM
- Advice regarding medical management of potential donors is available at all times through the DSN/DSM.

The Donor Coordinator will confirm operating theatre times and be present in the OR with the child to coordinate the donation and ensure the wishes of the family are met.

3 Consent

3.1 Consent issues specific to DCDD

Consent to any pre-mortem intervention, which is not in the best interest of the child, by surrogate decision-makers, such as a child's parents, would not be permitted under the *Children And Young Persons (Care and Protection) Act 1998 and Guardianship Act 1987 (NSW)*. The Act requires that 'the safety, welfare and well-being of the child or young person must be the paramount consideration' and those providing consent may do so only for treatments that 'promote or maintain the health and well-being' of the person involved.

Consent regarding DCD must include:

- The decision to WCRS must be made independently to the consideration of donation with agreement of the family and medical teams
- Permission must be sought from the family for all aspects of the donation process
- Members of the transplant and retrieval teams must NOT participate in the decision or be present for withdrawal of treatment. They cannot participate in the certification of death.

The process involved in organ donation following circulatory death must be explained to the parents in detail by the DSN/DSM. Interpreters are available if English is not the family's first language. Consent must be given for each organ and/or tissue to be removed, as well as a post-mortem examination if appropriate.

The withdrawal of life sustaining treatments will be conducted in a compassionate and sensitive fashion that respects the wishes and dignity of the child and family. There is no change in the care of their child in ICU and no hastening of death by the DCD protocol.

Parents will be provided with the following information in order to give informed consent:

- Possibility that some or even all of the organs may not be suitable for transplantation;
- Anticipated time frames for the donation process
- Tissue donation alone (e.g. corneas, heart valves) can be an alternative to organ donation;
- If their child does not die in the designated time frame palliative care will continue in the ICU
- The steps in the process of rapidly transporting to the operating theatre for retrieval surgery after death certification, duration of retrieval surgery and then returning to single room in the ICU to spend time with their child
- Whether the death will need to be reported to the Coroner and, if it does, the coronial process
- The fact that organ donation doesn't have any benefits for their child
- The family can change their mind at any stage and rescind consent

Parents need to be given time to consider if organ donation is the right option for them as a family. Bloods for serology and tissue typing at the SEAL laboratory/ARCBS may be collected following verbal consent due to the length of processing time. Pre mortem blood sampling is permissible in NSW for the purpose of Organ Donation. The DSN will organise the collection and transportation of these bloods.

If the child is **<18months of age** or has been breast fed in the last 6 months, **maternal bloods** and a medical/social history will need to be collected for screening

When the family are ready, parents (or 'senior available next of kin') are requested to sign the Consent Form (SMRO20.030 Consent and Authority for Removal of Tissue After Death) with the DSN / DSM.

The Designated Officer (DO) for the SCHN campuses is contacted via switchboard. The Designated Officer must sign and verify consent has been given by the Senior Next of Kin and authorise the organ donation and removal of tissue. The DO may want to be present for the consent and speak to the consenting family. The DSN will ensure the DO is informed as soon as possible.

3.2 Coroners Cases

If the case is Coronial, consent from the Coroner for organ donation will need to be obtained by the Donor State Coordinator (DSC). The Coroners Forensic Pathologist is contacted regarding limitations on organ and tissue retrieval.

The Coroner does not have jurisdiction over a child's body until death has been certified. The DSC will contact the Coroner to inform them of the time of death and authority for removal of organs. Consent from the Coroner must be after death and before the retrieval

surgery commences. Once Coronial consent is obtained the DO is able to authorise the organ donation.

The medical officer that has certified the death will be required to complete Form A (SMR010.510 Report of Death of a Patient to the Coroner)

The local police will be contacted and identify the child with the Next of Kin following organ retrieval surgery. The Police will organise the Government Contractor to collect the child from the hospital morgue.

3.3 Child in the care of the State

Where a child is in the care of the State immediately prior to their death (i.e. in FACS care/under the care of the Minister for Community Services), consent must be obtained from:

- the Coroner;
- the Principal Care Officer (PCO) of the designated agency which has full case management responsibility of the child, must "…must use reasonable efforts to contact persons who have been significant in the child's or young person's life and who the PCO considers to be appropriate to assist in the decision making process. These may include: Birth parents; Foster parents; Extended family; If the child/young person is Aboriginal or Torres Strait Islander, appropriate persons from the child's or young person's Aboriginal and/or Torres Strait Islander community; and persons considered relevant by the PCO". (Deceased Organ and Tissue Donation - Consent and Other Procedural Requirements; PD2013_001)
- the Designated Officer; must ensure that the above has occurred prior to authorising the retrieval of organs

3.4 Withdrawal of life-sustaining treatment (WLST)

The responsibility for all end-of-life care will remain with the patient's treating team. The DSN/DSM will coordinate with the ICU team with regards to patient condition, retrieval team arrival and timing of withdrawal of life-sustaining treatment. Removal of cardiorespiratory support includes discontinuation of mechanical ventilation, extubation and cessation of inotropes. Analgesia and sedation should be provided for symptom relief as per unit policy. Intra-arterial blood pressure monitoring, heart rate and oxygen saturations must be measured to record the warm ischaemic time and determine cessation of circulation.

A patient on Extracorporeal Membrane Oxygenation (ECMO) who would be a potential donor should have both ECMO and cardio-respiratory support withdrawn.

Continuation of palliation

Any pain or distressing symptoms following withdrawal of life-sustaining treatment should be managed with analgesia and sedation, as they would be in any other instances of palliation of a dying patient. Analgesia and sedation should be provided by whatever route is necessary for relief, in proportion with clinical need, and with the primary goal of relieving pain or other distressing symptoms.

The family should be informed that the comfort of their child is paramount and that all steps will be taken to ensure that is achieved. They must be informed that any drugs given following removal of life-sustaining treatment are to keep the patient comfortable, and do not form any part of the donation process.

'Non-therapeutic' premorbid interventions

In NSW it is not legally permitted to use drugs, such as Heparin to prevent small vein thrombosis, or cannulation of the femoral vessels, to infuse preservation solutions (once death has occurred) in the period before withdrawal of life-sustaining treatment.

Keeping at the forefront the needs of the family and child during the end-of-life phase, efforts should made to ensure that warm ischaemic time is minimised during the DCDD process. For this reason the new NSW Ministry of Health guidelines recommend that withdrawal of life-sustaining therapy should occur in the operating theatres. However the location is flexible and it is current practice that withdrawal of life-sustaining therapy across the SCHN occurs either in the Intensive Care Unit or recovery suite.

DSN checklist prior to withdrawal of life-sustaining treatment (WLST):

- Process for certification of death – Designated officer/Coroner
- Record keeping, timing and methods of communication with the DSC
- Consent and appropriate forms complete
- ABO in hard copy
- Theatre checklist complete
- Identification bands x 2
- Current and old notes/scans
- Family contact details and introduction to DSC
- Skin is prepared (including shaving if age appropriate)
- Bed is ready for immediate transfer to OT (ie Porters in unit on standby/route & access to OT planned)

The family should be made fully aware prior to withdrawal of life-sustaining treatment that, in the event of death not occurring within the 90 minute period, DCDD cannot proceed, but that the patient will be given continued care. This care is aimed at symptom control, optimal comfort and dignity.

The family should be prepared for the need to leave the bedside once death certification is completed. If they are unable to do so, the organ retrieval surgery will not proceed. The family may withdraw consent for donation at any time during the process.

During the WLST, all vital signs will be recorded by the DSN on the DCDD observation chart with intervals of no longer than 5 mins. A single clock must be used to time all events consistently. Telephone calls and text messages between the DSN and DSC in OT are made at regular intervals to update changes including:

- Withdrawal of life-sustaining treatment
- Systolic BP <50mmHg
- Cessation of circulation
- 2 minute observation period with NO pulsatile waveform on the arterial line due to absence of circulation (phase of acirculation)
- Certification of Death
- Transfer to OT

3.5 Certification of Death

Consistent with the *NSW Human Tissue Act 1983* and *ANZIC Statement on Death and Organ Donation*, death is declared when the attending Intensivist, or other designated doctor, determines that there is **irreversible cessation of circulation of blood in the person's body**.

Death should be confirmed by clinical examination revealing:

- immobility,
- apnoea
- absent skin perfusion, and
- absence of circulation (absence of pulsatile waveform on arterial line) for **2 minutes**

Death is not to be certified by a member of the organ retrieval or transplant team.

4. Post-donation care

At the completion of surgery the family have the option to see their child. This can be negotiated and the child can either return to ICU or go to the mortuary viewing room, arranged by ICU staff and social workers.

If the death is a Coronial case, formal identification of the child with the police and family is required post donation surgery.

4.1 Family follow up

1. The unit social worker will have telephone follow-up with the bereaved family at least once during the first week following the child's death. The family will be contacted by the DSN 48 hours after the child's death, to outline the outcome of the donation process and provide feedback and support to the family.
2. Parents are offered an opportunity to re-visit the ICU approximately six weeks after the death of their child to meet with the intensive care consultant or Co-Consultant most involved emotionally with the family, together with the Social Worker. The DSN/DSM is also invited to this meeting.
3. Telephone follow-up ,with the offer of further meetings or counselling, should be continued for at least twelve months.
4. Parents of children who are organ donors are provided with support through NSW Organ & Tissue Donation Network NSW. This program includes regular contact and information regarding donation outcomes, counselling services, support groups and anonymous exchange of letters.

4.2 Patient privacy issues

It is important to maintain the privacy of the transplant recipients and donor families. is The identity of recipients and donors **MUST NOT** be relayed to the family. It is an offence in Australia to disclose information regarding the donor or recipient under The Human Tissue

Act 1983 Section 37(2) and 37(3). The DSN and staff at OTDS will provide families with appropriate information about the transplant recipient outcomes

4.3 Staff Support

The staff involved in the donation process will receive information about the outcomes of the donation from the DSN. Letters will be sent to all areas involved in the donation process. The DSN will arrange a case review at an appropriate date and time following each donation.

This will provide feedback to all staff involved in the donation process and provide an opportunity to identify process issues that may be improved upon for future donations.

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5 Glossary

Acirculation

A state of no blood flow throughout the body; although there may be residual electrical activity, the heart muscle does not contract (c.f. 'asystole' where there is no electrical (ECG) activity or contraction of the heart muscle).

Brain death

Death defined by irreversible cessation of all function of the person's brain

Circulatory death

Death defined by irreversible cessation of circulation of blood in the person's body.

Cold ischaemic time

The period following cooling of the organs until perfusion to the transplanted organ/s is re-established in the recipient.

Warm ischaemic time

The period of time following cessation of circulation (older child <50mmHg systolic BP; neonate/infant <30mmHg) and blood flow to the organs until the commencement of cold perfusion.

Designated Officer (DO)

The role of the Designated Officer is to authorise:

- the removal of tissue from a body for transplant or other therapeutic, medical or scientific purposes;
- the performance of non-coronial post mortem examination;
- the release of a body for anatomical examination

The Designated Officer has discretionary authority not simply administrative authority. The role may require decision-making, conflict resolution, and high level communication and negotiation skills.

The Public Health Organisation Board of Governing Authority must appoint a Designated Officer in any hospital where post mortems, donation of tissue etc. are carried out.

The appointment of several Designated Officers may be necessary to ensure that one is available when required, particularly after hours.

Source: NSW Human Tissue Act 1983 No.164 (includes amendments up to Act 2003 No. 45 and NSW Health Circular 2004/1).

Donation Specialist Nurse (DSN)

A Clinical Nurse Consultant who is a member of the Organ and Tissue Donation Service.

Donation State Coordinator (DSC)

A member of the OTDS service, in operating theaters to coordinate donation process

Donation Specialist Medic (DSM)

Specialised doctor trained in the management of potential organ and tissue donors who is a member of the Organ and Tissue Donation Service.

Family

Recognising the collaborative nature of end-of-life decision-making, the term 'family' is used to refer to a person or persons who have a close, ongoing, personal relationship with the patient, whom the patient may have expressed a desire to be involved in treatment decisions, and who have indicated a preparedness to be involved in such decisions. This may or may not include biological family. However, it may include relatives, partner (including same sex and de facto), friend, or 'person responsible' according to any express wish of the patient.

GIVE Trigger

The GIVE Trigger tool is a national government initiative to identify patient who may be considered for organ or tissue donation. The GIVE tool identifies intubated and ventilated patients who have started to have end of life conversations. . If a child meets the GIVE Trigger the treating team should notify the DSN/DSM for a referral to the NSW Organ and Tissue Donation Service for assessment of medical suitability.

Intensive Care Unit (ICU)

Includes Paediatric Intensive Care Unit (PICU) and Neonatal Intensive Care Units (NICU)

Intensivist

Refers to Paediatric Intensive Care physicians

Life-sustaining treatment

Life-sustaining treatment is any medical intervention, technology, procedure or medication that is administered to forestall the moment of death, whether or not the treatment is intended to ameliorate life-threatening diseases or biological processes.

These treatments may include, but are not limited to, artificial airways, mechanical ventilation, artificial hydration and nutrition, cardiopulmonary resuscitation, or drugs to support circulatory function.

Organ and Tissue Donation Service (OTDS)

State service that is responsible for the coordination and management of potential organ and tissue donors.

Senior Available Next of Kin (SANOK)

The hierarchy of Senior Available Next of Kin is defined in S4 of the Human Tissue Act 1983. In relation to a deceased child it is:

- Parent of the child;
- Sibling of child who is 18 years of age or over where a parent is not available; or
- Guardian of the child at the time of death where none of the above is available.
- If the child is in the care of the state specific provisions for consent to organ and tissue donation apply (see Human Tissue Act 1983).

6 References and Further Reading

1. NSW Health, Policy Directive 2013_001, Deceased Organ and Tissue Donation -Consent and other Procedural requirements http://www.health.nsw.gov.au/policies/PD/2013_001.html
2. NSW Health, Policy Directive 2016_001, Donation, Use and Retention of Tissues from living persons http://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2016_001.pdf
3. NSW Health, Guidelines for End-of-Life Care and Decision Making, 2005. http://www0.health.nsw.gov.au/policies/gl/2005/pdf/GL2005_057.pdf
4. NSW Health Guideline Organ Donation after Circulatory Death NSW Guidelines. 2014. http://www.health.nsw.gov.au/policies/gl/2014/pdf/GL2014_008.pdf
5. NSW Health, Policy Directive 2013_002, Designated officer Policy and Procedures http://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2013_002.pdf
6. NSW Organ and Tissue Donation Service. NSW Donation after Circulatory Death- Multi Professional Standard Operating Procedure (2013)
7. Transplantation Society of Australia and New Zealand (TSANZ), Organ transplantation from Deceased Donors: Consensus statement on Eligibility Criteria and Allocation Protocols Vers 1.1 (2017) https://www.tsanz.com.au/organallocationguidelines/documents/ClinicalGuidelinesV1.1May2017.pdf
8. Human Tissue Act 1983 (NSW) www.legislation.nsw.gov.au/inforcepdf/1983-164
9. Human Tissue Amendment (Children in Care of State) Act No 164 (2008) (Date of commencement-13.2.2009) www.parliament.nsw.gov/prod/.../nsw.../b2008-017-d07-House.pdf
10. The ANZICS Statement on Death & Organ Donation (Edit 3.2 2013) Australian & New Zealand Intensive Care Society
11. National Health and Medical Research Council (2007) Organ and Tissue Donation After Death for Transplantation: Guidelines for Ethical Practice for Health Professionals. http://www.nhmrc.gov.au/publications/synopses/files/e75.pdf .
12. Australian Transplant Coordinators Association (2008) National Guidelines for Organ and Tissue Donation 4th Edit.
13. SESIAHS Policy on Organ Donation (Deceased Infant or Child) 2007.