ASSOCIATION OF ORGAN PROCUREMENT ORGANIZATIONS

DCD GUIDELINES -AND- NRP SAFEGUARDS

The Kerr Family with Jared (Donor) & Ashlyn (Recipient). Photo Credit: Gift of Life Donor Program.

INTRODUCTION

Donation after Circulatory Death (DCD) has become a cornerstone of modern transplantation and now accounts for approximately half of all organ donors nationwide. As DCD and normothermic regional perfusion (NRP) and normothermic machine perfusion (NMP) activity continues to grow and evolve, it is essential that core ethical, clinical, and legal standards are consistently upheld to preserve donor dignity, protect families, ensure compliance with hospital policy, and maintain public trust in the transplant system.

These guidelines and safeguards prioritize patient safety, donor dignity, clear communication with the healthcare team and Legal Next of Kin/Donor's Agent, adherence to hospital policy, and responsible stewardship of organs while allowing thoughtful flexibility based on donor presentation, clinical judgment, and institutional practice.

Overarching Principles of Operationalizing DCD

- Patient and donor safety remain the top priority in every stage of the DCD evaluation and donation process.
- All decisions regarding withdrawal of life-sustaining therapies (WLST) are made exclusively by the healthcare team and family, independent of the OPO and the donation decision.
- **Active collaboration and communication** between the healthcare team, family, and OPO are essential for successful outcomes.
- OPO personnel should understand the goals of both the healthcare team and family and ensure alignment with goal-concordant care.
- Clarity of roles and responsibilities across all stakeholder groups fosters both transparency, efficiency, and high-quality care.
- Support neurologic assessment and re-examination guidelines to support consistency.
- Advanced perfusion strategies allow donation opportunities that historically would not have been possible, expanding donation opportunities.

Effective Communication

OPO personnel must remain expert communicators and not rely on text messages or EMR chats, but on direct, clear, and timely dialogue with the healthcare team and family.

Family Disclosure and Authorization

- The Legal Next of Kin (LNOK)/Donor's Agent must be informed that organ donation will occur after withdrawal of life-sustaining treatment (WLST) and only after death is determined by a qualified member of the healthcare team, in accordance with hospital policy and accepted medical standards.

- WLST is a clinical decision made entirely independent of organ donation, determined solely by the patient's healthcare team and LNOK/Donor's Agent. The OPO and transplant teams should have no influence on the appropriateness of WLST.

- LNOK/Donor's Agent must be informed that heparin may be administered for the purpose of preventing microthrombi to improve organ transplant outcomes.

- A mandatory five-minute observation of sustained circulatory arrest will be completed prior to initiating organ recovery.

- LNOK/Donor's Agent understanding must be confirmed, and all disclosures thoroughly documented.

- Additional topics that should be reviewed with the family include:
    - The planned location of WLST.
    - The possibility that death may not occur within a timeframe conducive to donation.
    - The possibility that warm ischemic time may render organs non-transplantable.
    - Consent for any additional invasive procedures to determine organ suitability.

Location of Withdrawal of Life-Sustaining Therapy (WLST)

- End-of-life care is focused on the patient and family, not organ recovery.

- WLST should be coordinated collaboratively among the healthcare team, the OPO, and the family, with sensitivity to the patient's clinical situation and the family's preferences.

- The ideal location for WLST is the Critical Care Unit, reflecting the patient's typical care environment.

- Flexibility is permitted when appropriate:
    - If WLST is unable to occur in the Critical Care Unit due to proximity to the operating room, the patient may be moved to an ancillary space such as the pre-op holding area or post-anesthesia care unit (PACU). This will allow the family and other loved ones to be with the patient during the extubation process.

    - WLST may occur in the Operating Room (OR) based on patient presentation, organ type, clinical considerations, or logistical factors that enhance the likelihood of successful organ recovery and transplant.

    - Regardless of location, the healthcare team maintains full and independent control or all aspects of the withdrawal process.

    - If WLST occurs in the OR:
        - Prepping and draping before death declaration is discouraged.

        - If it is clinically necessary to prep and drape the patient prior to WLST, the family must be informed, and healthcare team, operating room staff, and LNOK/Donor's Agent must acknowledge and agree to this approach.

Comfort-Focused Care and Determination of Death

Comfort-Focused Care

- The healthcare team is responsible for neuroprognostication and end-of-life care.
- The healthcare team should routinely evaluate and re-evaluate the patient to determine if neuroprognostication and clinical assessment is consistent with end-of-life. The OPO documents the healthcare team's assessment.
- All comfort-focused medications and interventions during WLST are ordered, administered, and managed exclusively by the patient's attending or covering healthcare team.
- The sole priority of comfort care is to relieve distress and maintain dignity at the end of life.
- The OPO and transplant teams do not direct, influence, recommend, or participate in comfort-care decision-making.

Determination of Death

Determination of Death

The determination of death is fully independent of the OPO, transplant surgery, and perfusion teams.

- Death is determined independently by the attending or covering physician (or designated provider) based on the permanent cessation of circulation and respiration, including:
    - Absence of arterial pulse
    - Absence of heart sounds
    - Unresponsiveness
    - Apnea

- No organ recovery or perfusion activity begins until:
    - The five-minute observation period has elapsed.
    - Death is formally pronounced.

Family Communication

Prior to withdrawal, families should be informed on the following:

- Any concerns about patient comfort or distress should be directed to the healthcare team.
- The OPO and transplant teams play no role in end-of-life care or declaration of death.
- The family may call for a pause at any time should there be concerns whether it is still appropriate to move forward with WLST. **NOTE:** *A DCD Pause is not intended to address issues or questions related to first-person authorization for donation*.

  If a pause is implemented, the family should be informed that the donation process will be stopped while a review of the clinical situation occurs.
- Description of procedures and medications that may be administered by the healthcare team.
- Location of withdrawal of life sustaining therapies and time frames for donation to occur.
- If applicable, an appropriate explanation of NRP including the rationale for the recovery technique, select organ function will likely occur (heart will beat, liver will make bile, kidneys will make urine) and interventions will occur to prevent blood flow to the brain.

Plan if Patient Does Not Die

In collaboration with the healthcare team, the OPO will communicate to the family the plan for what will happen should the patient not die in a timeframe that allows for donation to occur.

FIVE-MINUTE OBSERVATION PERIOD

FIVE-MINUTE OBSERVATION PERIOD

A five-minute period of continuous observation following complete circulatory arrest is mandatory prior to incision to ensure the permanence of arrest and absence of autoresuscitation.

- Surgeons and other recovery practitioners may not be present from the time of extubation to the declaration of death.
- No member of the organ recovery team or OPO staff may guide or administer palliative care or declare death.
- This aligns with national evidence and is consistent with the ASTS/AST recommendations.
- The pronouncing provider:
    - Confirms absence of circulatory and respiratory function
    - Confirms absence of autoresuscitation
    - Determines circulatory death before organ recovery activity begins
    - Completes documentation of death

  In the event the pronouncing provider is not present for the mandatory 5-minute observation period, then a process to confirm the patient has absence of autoresuscitation needs to be in place independent of the OPO.

Pause for Clinical or Ethical Concern

The healthcare team may call for a pause at any time should there be concerns whether it is still appropriate to move forward with WLST. **NOTE:** *A DCD Pause is not intended to address issues or questions related to first-person authorization for donation*.

If a pause is implemented, the donation process will be stopped while a review of the clinical situation occurs.

- The nature of the concern must be clearly stated so the relevant individuals can address it.
- Depending on the issue, the attending physician or consulting service must re-assess the patient or situation.
- The pause remains in effect until the concern is resolved.
- This mechanism reinforces transparency, ethical integrity, and public trust and aligns with national expectations for safe and accountable DCD practice.

OPOs need to ensure they have an escalation policy in place to address OPO staff concerns around donation moving forward.

Normothermic Regional Perfusion (NRP) Safeguards

Normothermic Regional Perfusion (Thoraco-Abdominal Normothermic Regional Perfusion (TA-NRP) and Abdominal Normothermic Regional Perfusion (A-NRP) may be used to perfuse targeted organs after death to optimize organ viability.

Cerebral Reperfusion Protective Strategies

To ensure ongoing compliance with the dead donor rule and ASTS/AST recommendations:

- Appropriate cerebral protective strategies must be implemented to prevent any return of cerebral perfusion following declaration of death.

- Required procedural safeguards:

    - TA-NRP: Confirmation of clamping *and venting* of the aortic arch vessels
    - A-NRP: Confirmation of clamping *and venting* of the aorta

- These measures ensure there is no return of circulation to the brain following declaration of death.

- These procedural safeguards will remain in place unless future conclusive evidence supports modification.

- If there is any concern that cerebral perfusion protective strategies may not be functioning as intended, initiation or continuation of the NRP circuit should be paused, and the protective measures should be reviewed and confirmed prior to proceeding**.**

- Documentation of method and timing of cerebral perfusion protective strategies is required.

INDEPENDENCE OF DEATH DETERMINATION

NRP may begin only after:

- Death is declared.
- The five-minute observation period is completed.

NRP does not alter the criteria or process of death determination.

Conclusion

End-of-life care must remain centered on the patient and their family with comfort, dignity, and trust. While OPOs may already integrate these guidelines and safeguards into their DCD and NRP practices, the AOPO DCD Task Force recommends a comprehensive review to ensure that every organization explicitly meets these standards. Clear alignment of policies and practices with the principles around independence in end-of-life care, determination of death, and cerebral isolation will standardize and strengthen national consistency and uphold ethical integrity. This clarity and consistency will reduce uncertainty for the healthcare teams, OPO, and families, and preserve the public trust that underpins every donation opportunity.

Special Thanks To the AOPO DCD Task Force:

Lori Markham
Vice President & Chief Clinical Officer
Midwest Transplant Network
AOPO DCD Task Force Chair

John Edwards
Sr. Vice President of Clinical Operations
Gift of Life Donor Program
AOPO NRP Task Force Chair

PJ Geraghty
Vice President of Clinical Operations
LifeCenter Northwest
AOPO DCD Task Force Co-Chair

Deana Clapper
Chief Operating Officer
Tennessee Donor Services
AOPO NRP Task Force Co-Chair

Stephanie Pouch, MD, MS, FAST
Assoc. Professor Infectious Diseases
Emory University School of Medicine;
Associate Medical Director
LifeLink of Georgia
AOPO Medical Advisor

Charles Strom, MD
Senior Director, Organ Surgical Services
New England Donor Services
AOPO Medical Advisor-Elect

Jackie Russe
Associate Director of Organ Services
Nevada Donor Network
AOPO IMPACT Committee Chair

Thomas Nakagawa, MD, FAAP, FCCM
Pediatric Critical Care Medicine
Professor, Retired
University of Florida College of Medicine-Jacksonville
Associate Medical Director
HonorBridge