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# RETRIEVAL OF HEARTS FOR RESEARCH FROM DBD DONORS BY ABDOMINAL NORS TEAM

## Objective

This SOP is to support abdominal NORS teams to retrieve Hearts for research in DBDs donors when a heart has been accepted for research, following families consent to INOAR. The SOP outlines the process that looks to reduce CIT and increase the number of hearts accepted for research.

## Changes in this version

New

### Roles

- Abdominal NORS team: Performs organ retrieval.

### Restrictions

- This protocol is only to be trained to competent NORS abdominal Surgeons who are also competent in abdominal normothermic regional perfusion (aNRP) and therefore familiar with the DLP cannula .

### Items Required

- DLP cannula.
- University of Wisconsin (UW) Perfusion fluid
- Abdo retrieval pack
- Perfusion giving set
- Frozen Normal Saline
- 1 Litre of Normal saline

## Instructions

### 1. Background

Supporting transplant research and innovation is a cornerstone of the 10 year vision for organ donation and transplantation (<https://nhsbtdbe.blob.core.windows.net/umbraco-assets-corp/23463/meeting-the-need-2030.pdf>), with one of the key goals to increase number of organs available for research through INOAR (Increasing the Number of Organs Available for Research). Although the introduction of INOAR has led to increases in the number of lungs and diabetic pancreas removed for research purposes, there has not been the anticipated increase in the numbers of hearts for research, (data from Jan 2021- Aug 2022: 219 Hearts offered for research, 41 accepted, 19% acceptance rate). Discussion with the UK cardiac research groups suggests that one of the main barriers to accepting hearts for research is the requirement for the heart to be retrieved using the same protocols as if it were going to be used for transplantation. At the moment, this generally limits acceptance of hearts for research to those occasions when a cardiothoracic NORS team will be in attendance, and

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this occurs relatively infrequently (in <10% of occasions when the lungs are still being retrieved?). One possible solution is that hearts for research from DBD donors that are being attended by either the Cambridge or Edinburgh NORs teams would be retrieved by that team using the protocol below. This mirrors the approach adopted by cardiothoracic NORs teams when retrieving the heart for implantation purposes, and critically, retrograde perfusion with cold University of Wisconsin solution will act as a cardioplegic agent and ensure rapid cardiac stasis. Discussions with cardiac researchers with active RINTAG projects have confirmed that this would allow them to accept these hearts for research. We propose that at offering of the heart for research, the researchers are notified that the hearts will be retrieved using UW solution as for implantation purposes:

## **2. Process**

Organs will be offered as per SOP4442 there will be no changes to how INOAR hearts are offered for research if a family has given consent/authorisation to INOAR.

If the heart is accepted for researchers Hub op will notify the NORs team when mobilising as per SOP4442 so they know to bring the correct equipment.

Researchers if interested in the heart for research offer they will have to call hub ops to identify which abdo team is attending.

The abdo team will then follow the process below.

Once abdominal dissection is complete, and just prior to commencing abdominal perfusion:

- Heparinise the donor in the conventional fashion
- Cannulate the abdominal aorta and secure as usual
- Apply cross clamp to aorta as for standard abdominal retrieval.

For heart retrieval (for research), it is required to vent IVC in pericardium to empty the heart.

- Cut inferior vena cava in pericardium
- Start abdominal cold perfusion as usual (Assistant to pour ice slush in abdomen as usual)
- Place the DLP cannula in the aortic arch attached to a litre of ice cold UW
- **Occlude Aortic arch distal to DLP cannula with clamp.**
- Commence aortic DLP perfusion with UW
- Cut open left atrial appendage or pulmonary vein.
- Pour ice slush around heart.
- Retrieve abdominal organs. (At an opportune time, the heart can be removed to the back table)
- Remove heart to bag of ice cold saline on back table.
- Bag and pack heart according to standard packing instructions for heart transplant

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- Complete Cardiothoracic Human Tissue Authority Research A Form
  - Heart to be packaged and labelled as per MPD1043, SOP5499 and INF1512

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 **End of Procedure**

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## Definitions

- **DLP Cannula** - retrograde cannula used to flush perfusion fluid into the coronary artery .

## Related Documents / References

- **FRM 6297** – Cardiothoracic Human Tissue Authority Research A Form.
- **SOP4442** – Allocation of Organs and Tissues for Research and Novel Technologies – Hub operations.
- **MPD 1043** – National Standards for Organ Retrieval Deceased Organ Donor
- **SOP 5499**- Theatre Manual for Deceased Organ Donors
- **INF 1512** – Instructions for use Organ Boxes