

Introduction

Organ Recovery Assistants (ORA) are a very important part of the BC Transplant retrieval team. The ORA's primary roles in the organ retrieval surgery are to assist the SRS and OR staff during OR set-up, assemble and prepare perfusion lines, assist at X-clamp with organ perfusion and cooling the donor with slush, packaging of organs, assisting the hospital scrub nurse who may not be familiar with the procedure and, with the SRS, to support the OR staff if any of them are struggling emotionally with the procedure.

Pre-donor

The SRS will notify the ORA of where and when he/she would like the ORA to meet for the case. Upon arrival at the donor hospital the ORA will introduce him/herself and give a brief description of the ORA role during the retrieval. Then the ORA will help with the OR set-up.

SOP's - ORA: Roles and Responsibilities, Recovery of Organs

Operating Room Preparation

The donor hospital OR is set up similarly to a laparotomy procedure with the following additional equipment (Refer to NDD/DCD operating room set-up cards):

- 2 Cautery Machines
- 3 Suction Machines
- 1 IV Pole for Below Diaphragm (four prong)
- 2 IV Poles for Above Diaphragm (Heart and Lungs) – separate from Anesthesia's poles
- Slush Machine (available at VGH, SPH and BCCH OR's)
- Designated back table for BCT perfusion
- 2 Single Ring Stands
- 4 Basins (2 in the above ring stands for slush, 2 on ORA back table for liver & lungs)
- Stainless steel bleed out bucket (often a kick bucket without a bag in it)
- Designated Back Table for Lungs (if recovering lungs; this table is considered contaminated once the lungs are retrieved)
- Bronchoscope and sputum trap (if recovering lungs)
- Crash cart available with internal paddles (in or near room)

Prior to going to the ICU, the SRS will instruct the ORA on what to open for the donor case. The ORA will assist in getting the OR ready by opening the SRS provided items to the hospital's scrub nurse. The ORA can count the BCT instrument pans with the scrub nurse.

Retrieval Bags and Equipment

- Below Bag (green): BCT Below Instrument Set
- Cooley or O'Connor Retractor (chest) and Balfour Retractor (abdomen)
- Above Bag (blue): BCT Above Instrument Set
- Sternal Saw Bag: Sternal Saw & blade
 - Note: Hand off the Stryker Saw after the Sternotomy is completed

See ORA Equipment Guide (copied at bottom) for a more in-depth description of what items need to be opened from each bag based on which organs will be recovered. **Please always check with the SRS before opening any BCT items** to help prevent unneeded items being wasted.

BCT Below Instrument Set (green):

The following items are commonly used:

- 9" Straight Cooley Coarctation Clamp
- Tubing Clamps x2
- Metzenbaum Scissors long and short
- Debaquey Tissue Forceps long and short
- Lowers
- Westphals
- Towel Clips

Cardiac and Lung Set Up

Set-up the following from the Above set on the top Mayo Stand:

- Bone Wax
- Silk 0 GI x2 - for pericardial retraction
- Umbilical Tapes x2 - use with long Vascular Tourniquets
- Prolene 4-0 x2 - used as purse strings on the aorta and pulmonary artery
- Vascular Tourniquets x2 - one each on the purse string for the aorta and pulmonary artery
- Aortic Root Cannulas - aorta and pulmonary artery
- Metzenbaum Scissors long and short
- Debaquey Tissues Long and Short
- Needle Drivers
- Cross Clamp
- Mosquitoes
- Tubing clamps x2
- Towel clips x2

Multi-Organ Perfusion Lines

- Cardiac Line
- Pulmonary Line
- Aortic Line (below organs)
- Bleed Out Line (some surgeons will not use – may bleed into chest and suction)

Cardiac Line attaches to the Aortic Root Cannula. This Cannula is placed into the Aorta after placing a Prolene 4-0 x 1 purse string and a vascular tourniquet with a mosquito on the end of the suture.

Pulmonary Line attaches to the Aortic Root Cannula. This Cannula is placed into the Pulmonary Artery after placing a Prolene 4-0 x 1 purse string and a vascular tourniquet with a mosquito on the end of the suture.

Aortic (below diaphragm) Line Polystan catheter is placed into the Aorta below the Renal Arteries. This cannula is tied using Silk 4 ties cut in half.

- Push the roller clamp towards the ODP/SRS so they have control

All lines are initially primed with Normal Saline 1000 ml from the hospital. This is to ensure that all air has been removed from the lines in case of an unexpected cardiac arrest, where the lines would need to be inserted immediately.

Bleed out line (called a Multi-Organ Bleed out line – looks different than the Multi-Organ Perfusion lines) is attached directly to a Polystan Catheter which is placed in the Inferior Vena Cava. This cannula is tied in place using Silk 4 ties cut in half. The non-catheter end goes into a bleed-out bucket on the floor.

Polystan Catheters range in size from 12 French to 32 French. Most common sizes are 24F for inflow (Aortic Line) and 32F for outflow (Bleed-out line). (If two different sized cannulas requested, the smaller one always goes on the aortic line, and the larger one always goes on the bleed-out line)

Perfusion Solutions (SOP - Perfusion of Organs)

- Perfadex Plus: Lungs
- HTK: Heart, Liver, Pancreas, Kidneys, Vessels

Packaging Requirements (SOP - Packaging of Organs)

Heart

- Place heart into a Kidney jar, cover with the cold HTK and secure lid.
- Place the jar into a 10x14 Organ bag and tie closed.
- Place the bagged jar into a 2nd 10x14 Organ bag, make sure first bag is tucked completely inside the second bag and then tie second bag closed

Lungs

- ORA prepares the lung table with the following:
 - Basin lined with 3 - 20.75x20.75 Organ bags (no ice between bags)
 - Ties for closing the bags
 - Catheter and 10cc leuc lock syringe for filling the balloon

The Surgeon will package the lungs because they are contaminated once removed from the donor.

Liver

- Line a basin with 3 - 20.75x20.75 Organ bags
- Place 4 or 5 large pieces of ice between the inner most and middle bags
- SRS will fill the lined basin with 2L of HTK solution for storage
- Place the liver in the lined, solution filled basin
- Prepare a 60cc syringe filled with HTK attached to the 5Fr feeding tube to flush the bile duct prior to packaging the liver
- Note: some surgeons do a retrograde flush of the liver. Check with surgeon prior to packaging
- Close the inner most bag, squeezing out as much air as possible before tying the bag closed
- Tuck the top of the closed first bag safely inside the second bag before closing and tying it
- Repeat with the third bag

Kidneys, Pancreas and Vessels

- Place into appropriate jar (i.e. Kidney or vessel jar) with enough HTK to cover the organ, and secure lid.
- Place the jar into a 10x14 organ bag and tie closed
- Place bagged jar into a 2nd 10x14 organ bag, tuck the top of the closed first bag safely inside the second bag before closing and tying it

Kidneys may be placed on a Kidney Pump: Follow procedure of SOP - Kidney Perfusion Pumps

Note:

- A piece of spleen will be recovered and placed in a specimen jar for Tissue Typing

Post Donor

- If the donor hospital is located in the lower mainland, assist the OR staff in preparing the body for transfer to the morgue.
Please help provide any emotional support that the OR staff may require as donor recovery is often unfamiliar and difficult for them

ORA Equipment Guide

(This is only a guide, do not open items unless asked to by the SRS)

All Below Organ Cases:

1	Multi-organ perfusion line
1	Multi-purpose bleed-out line
1	5 Ethibond Suture (Closure)
1	4 Silk Ties (Cut in ½ - for securing perfusion cannulas)
1	Bone Wax
1	BCT Below Instrument Set (Green lid)
1	Balfour Retractor
1	Cooley or O'Conner Retractor (Surgeon Specific)
1	Stryker Saw & Blade

Liver:

1	Organ Bags 20.75" x 20.75"
1	Feeding Tube (for flushing bile duct)
1	60cc Syringe (for flushing bile duct)
1	Vessel Jar
1	Organ Bags 10 x 14
1	Cysto Tubing (only if doing retrograde flush)

Kidney(s):

2	Kidney Jars with bags (1 per kidney, if <u>not</u> being pumped)
2	Pump Cassettes (1 per kidney, if being pumped)

Pancreas (Whole or Islets)

1	Kidney Jar with bags (Islets)
	OR
1	Kidney Jar with bags (Whole Pancreas)
1	Vessel Jar
1	Organ Bags 10 x 14

All Thoracic Organ Cases:

1	BCT Above Instrument Set (Blue lid)
1-2	4-0 Prolene Suture (for securing Aortic Root Cannula)
2	0 Silk Suture (for tacking pericardium)
1	Umbilical Tape (for identifying vessels)

Heart:

1	Multi-organ perfusion line
1	Aortic Root Cannula

1	Vascular Tourniquet Set
1	Kidney Jar with bags

Lungs:

1	Multi-organ perfusion line
1	Aortic Root Cannula
1	Vascular Tourniquet Set
1	Organ Bags 20.75" x 20.75" (2 if taking lungs as single lobes)
1	16Fr, 5cc Foley Catheter (for retrograde flush)
1	10cc Syringe (to fill catheter balloon)

*If recovering heart & lungs, only open one Vascular Tourniquet Set

Staplers: (For information only, always to be opened by SRS)

1	TLC55m Ethicon Linear Stapler (Pancreas: Islets and Whole)
1	TX30V Ethicon Vascular Stapler – <u>Red</u> (Pancreas: Whole)
1	TX30B Ethicon Stapler – <u>Blue</u> (Lungs: one reload needed if splitting lungs)