



Clinical Process Instruction Manual

Perfusion & Packaging: Small Bowel & Abdominal Cluster Process Instruction

Policy:

For cases where Trillium Gift of Life Network (TGLN) provides surgical recovery support, TGLN's Surgical Recovery Coordinator (SRC) or designate will facilitate perfusion and packaging of organs, using aseptic technique and in accordance otherwise with the *Health Canada Safety of Human Cells, Tissues and Organs for Transplantation Regulations*. For recovery procedures performed by the transplant programs, the designate undertakes surgical recovery activities including perfusion and packaging. For the purposes of this process instruction, the small bowel may also include stomach as required by the transplant program.

The SRC or designate refers to the *Clinical Services Coordinator to Surgical Recovery Coordinator Communication Process Instruction, CPI-9-406* prior to departing for recovery.

Process:

Prior to Departing TGLN

1. The SRC obtains the appropriate documentation required for recovery. Forms include:
 - *Reporting Form: Clinical Services Coordinator to Surgical Recovery Coordinator*
 - *Organ Donor Surgery Information*
 - *Liver/Pancreas Retrieval Operative Note*
 - *Liver/Bowel Transplant Operating Room Data* (with attached ABO and Serology). See Exhibit 1.
 - *Pancreas Recipient Transplant Operating Room Data* (when applicable)
 - *Small Bowel Transplant Operating Room Data* (when applicable). See Exhibit 2.
 - *HLA Lab Requisition Form*
 - *Laboratory Services Requisition: STAT/NON-STAT Infectious Disease Testing of Organ Donors* (if required)
 - *Public Health Ontario: General Test Requisition* (if required)
 - Organ Labels
 - Specimen Labels
 - Surgical supply list (if needed)

For organ recoveries performed by transplant programs, the *Organ Donor Surgery Information* and the *Liver/Bowel Transplant Operating Room Data* (if recipient was Ontario based) are sent back to TGLN's Provincial Resources Centre (PRC) for filing with the donor chart.

Note: Separate cooler sheets are required when TGH accepts an organ combination and/or cluster.



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2. The SRC or designate prepares the abdominal organ surgical recovery kit. The SRC reviews the contents of the kit to ensure that all of the following required supplies are present:
 - 3 sterile Y perfusion tubing
 - 2 portal tubing (cannula)
 - 2 paediatric feeding tubes
 - 2 – 60cc Syringe
 - 2 gastrointestinal anastomosis (GIA) staplers
 - 6 GIA stapler refills
 - 6 CardioMed organ bags
 - 2 red top tubes
 - 2 purple top tubes
 - 4 yellow top tubes (ACD)
 - 2 pour spouts
 - 3 specimen containers (non-sterile)
 - 10specimen bags
 - 2 sterile specimen containers
 - 1 hammer (to break up slush if needed)
 - 12venous return cannulas (sizes 12,14,16,18, 21 & 24)
 - 10microbiology requisitions
 - 1 sterile abdominal retractor (if not provided at the recovery facility)
 - 1 sterile sternal saw (if not provided at the recovery facility)
3. The SRC confirms that all sealed items have not been compromised, equipment is sterile and all supplies fall within expiration dates. The SRC replaces supplies and/or equipment if there is any uncertainty regarding its integrity and places these supplies in a designated area in the surgical retrieval room.
4. The SRC obtains a large cooler from the TGLN surgical supply room and places the following items within:
 - wet ice (fill 1/3 of the cooler)
 - 6 – 10L Servator-B
 - 6 to 12 bags of slush (may break up slush at TGLN or recovery facility)

The SRC replaces depleted slush to maintain appropriate inventory of frozen slush, if required. Please note that perfusion solution may be subject to change.

5. The SRC may require a second small red cooler to contain all unused supplies post-recovery that may require refrigeration. A cooler is required for any organs not packaged together.



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6. The SRC departs for recovery and picks up the recovery team at predetermined time and location.

Upon Arrival at Recovery Hospital

7. The SRC notifies the PRC of their arrival time.
8. The SRC records the names of the OR staff (if time permits) and the civic address of donor hospital with contact information on the *Organ Donor Surgery Information*.
9. The SRC introduces the recovery team to the OR staff.
10. The SRC reviews the patient's chart with the recovery team, confirms ABO, serology results, declarations, consent and coroner involvement, if required.
11. The SRC ensures all appropriate blood samples have been collected and correctly labelled with:
 - TGLN identification number
 - donor date of birth
 - date and time of collection

The samples are placed into specimen bags containing the appropriate requisitions.

12. Prior to use, the frozen saline must be wrapped in a towel and hammered until broken up into a slush-like consistency.
13. The SRC asks the OR staff for 1 or 2 intravenous (IV) poles for use during perfusion, a table, 1 basin per organ, and 1 basin for abdominal ice, organ rinsing and packaging.
14. SRC opens the following sterile supplies to the scrub nurse to remain on the OR supply table:
 - 1 sterile abdominal retractor (if not provided by donor hospital)
 - 1 paediatric feeding tube
 - 1 – 60cc syringe
 - 1 venous return cannula (size to be determined by surgical staff)
 - 1 GIA stapler (for pancreas recovery)
 - 3 GIA stapler refills (for pancreas recovery)
15. The SRC scrubs in, as per aseptic protocol, and prepares the back table with the assistance of the circulating nurse. See Figure 1. The following materials are required:



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- 2 sterile basins
- 3 CardioMed organ bags
- 3 sterile specimen containers
- 6 to 10 bags of crushed slush
- 2 sterile Y perfusion tubing
- 1 portal tubing (cannula)

The SRC removes the cap from the three sterile specimen containers and leaves them open on the packaging table.

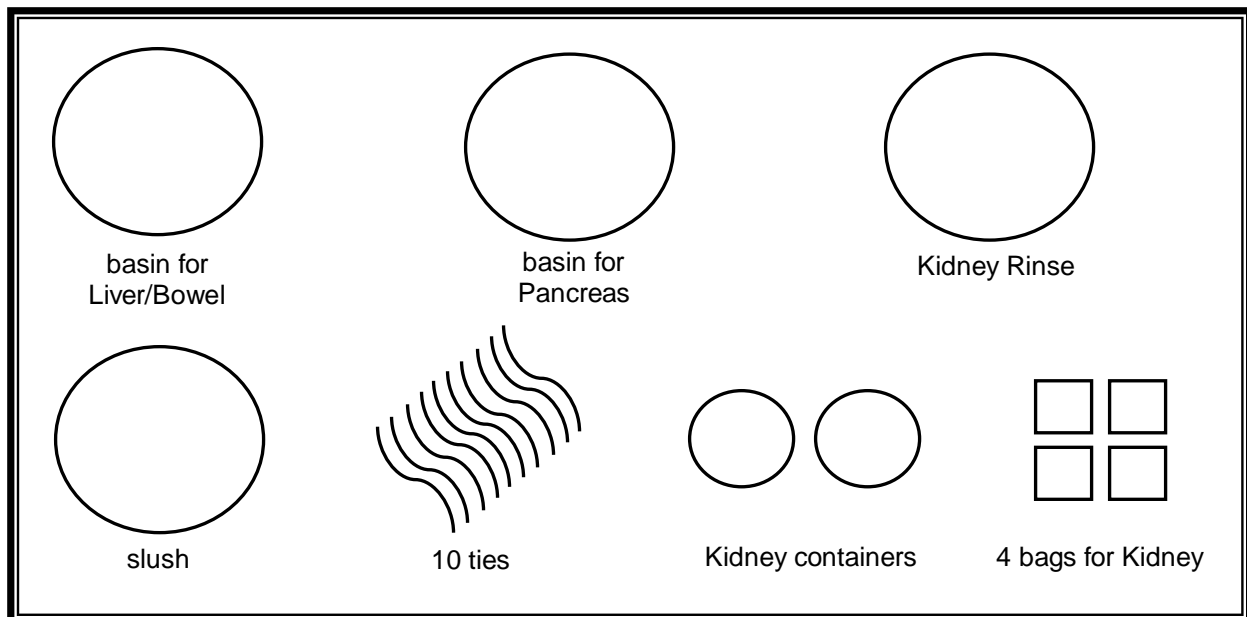


Figure 1: Sterile Back Table Set-up for Small Bowel and Abdominal Cluster

16. The SRC places one bag over the sterile basin. Depending on the size of the liver/small bowel or abdominal cluster, the SRC empties 1 to 2 bags of crushed slush into the basin. The SRC places the remaining two bags over the existing bag of ice and leaves the ties next to the basin. Additional bags and subsequently basins, may be required if the graft is too large to fit into a single package.
17. The SRC empties the remaining bags of crushed slush into the empty sterile basin. This slush is used for abdominal cooling post aortic cross-clamp and should be located in close proximity to the OR table to ensure accessibility. The SRC removes the cap from the three sterile specimen containers and leaves them open on the packaging table.



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18. Still scrubbed in, the SRC attaches the portal cannula to the distal end of one of the sterile Y perfusion tubing and attaches the aortic cannula to the distal end of the other set of sterile Y perfusion tubing. Both sets of perfusion tubing are separately attached to the foot of the OR table. The SRC breaks scrub and attaches the other ends of both the aortic and the portal perfusion lines to 2 separate IV poles. To avoid confusion, these lines may be labelled “aortic” and “portal.”
19. With the aid of the scrub nurse, the SRC uses perfusion solution to flush both the aortic and portal lines to ensure that all air is removed.

Surgical Recovery

20. Upon commencement of surgical recovery, the SRC records the “skin cut time” on the *Organ Donor Surgery Information*.
21. The SRC notifies the Clinical Services Coordinator (CSC) of skin cut time and the estimated time for aortic cross-clamp.
22. The SRC contacts the CSC when surgeons have assessed all of the organs intended for recovery. Accordingly, the CSC contacts the transplant physician upon notification.
23. The SRC records name and volume of perfusion solutions and the name of storage solutions on the *Organ Donor Surgery Information*.
24. The SRC records the time of heparin administration and the number of units administered on the *Organ Donor Surgery Information*.
25. When cross-clamp is imminent, the SRC hangs 3L bag of Servator-B on the aortic line and 2L bag of Servator-B on the portal line. The perfusate amounts and solutions used are subject to change as per request from surgical staff.
26. At cross-clamp, the SRC records the time and opens both the aortic and portal perfusion lines. The SRC will notify surgical staff as each litre of perfusate is used and stops perfusion upon request.
27. The SRC notifies the PRC of cross-clamp time and estimated time of departure.
28. Using a pour spout the SRC decants 1L to 2L of Servator-B 1 or approved substitute into the sterile basin on the packaging table. Also, approximately 40cc of Servator-B or approved substitute is decanted into each specimen container for vessel transport.



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29. The SRC obtains a splenic/lymph node sample from the surgical staff and places it in a small sterile specimen container filled with perfusate solution or normal saline. The container is appropriately labelled with the contents, TGLN identification number, donor date of birth, and the date and time of collection. The container is then placed into a specimen bag with the *HLA Lab Requisition Form*.
30. The surgeon places and liver/bowel into a CardioMed organ bag, ties off the top, and secures with umbilical tapes. This is repeated with the next two CardioMed organ bags.
31. The SRC labels the packaged organ(s) accordingly as per *Organ and Composite Tissue Labelling Process Instruction, CPI-9-417*. The organ bag is then placed into a large cooler and sufficiently covered with ice.
32. If unaccompanied by a member of the recovery team to the recipient OR, the SRC ensures the cooler is secured and sealed with a one-time use fastener. If accompanied by a recovery team member, it is not mandatory to secure a cooler.

Prior to Departing Recovery Hospital

33. A copy of the *Liver/Pancreas Retrieval Operative Note* is completed, signed by the appropriate surgical staff, and left in the hospital donor chart.
34. Surgical staff document any abnormalities and/or other comments on the backside of the *Organ Donor Surgery Information*, as necessary.
35. The SRC notifies the CSC and provides the aforementioned information, as well as their time of departure.

Post Recovery

36. Upon arrival at the transplanting hospital, the SRC or designate delivers the organ to the appropriate OR staff. The SRC or designate and OR staff must review all documentation and organ label, as well as date and sign the back of the *Liver/Bowel Transplant Operating Room Data*.
37. The SRC ensures that donor blood, spleen, samples, etc. are dropped off at the appropriate locations as per *Infectious Disease Testing – STAT Process Instruction, CPI-9-211* and *Infectious Disease Testing – Non-STAT Process Instruction, CPI-9-213*.



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38. The SRC repacks the surgical recovery kit upon completion of organ recovery. The SRC ensures the appropriate equipment is sterilized as per *Sterilization of Equipment – Organ Process Instruction, CPI-9-708*, if used.
39. The SRC ensures all lot numbers and expiry dates of all solutions and supplies used are recorded on the surgical supply list.

Records:

Record Name	Form No. (if applicable)	Record Holder	Record Location	Record Retention Time (as a minimum)
Organ Donor Surgery Information	CSF-9-57	PRC	PRC	16 years
HLA Lab Requisition Form	CSF-9-23	PRC	PRC	16 years
Liver/Bowel Transplant Operating Room Data	CSF-9-45	PRC	PRC	16 years
Small Bowel Transplant Operating Room Data	CSF-9-46	PRC	PRC	16 years
Surgical Supply List	CSF-9-58	PRC	PRC	16 years
Liver/Pancreas Retrieval Note	CSF-9-50	PRC	PRC	16 years

References:

- Infectious Disease Testing – STAT Process Instruction, CPI-9-211
- Infectious Disease Testing – Non-STAT Process Instruction, CPI-9-213
- Clinical Services Coordinator to Surgical Recovery Coordinator Communication Process Instruction, CPI-9-406
- Organ and Composite Tissue Labelling Process Instruction, CPI-9-417
- Sterilization of Equipment – Organ Process Instruction, CPI-9-708
- Safety of Human Cells, Tissues and Organs for Transplantation Regulations, Health Canada, June 2007




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Exhibit 1: Liver/Bowel Transplant Operating Room Data

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	<p>LIVER / BOWEL TRANSPLANT OPERATING ROOM DATA</p>	<p>TRILLIUM GIFT OF LIFE 483 Bay Street South Tower, 4th Floor Toronto, Ontario M5G2C9 Telephone (24/7): 1.877.363.8456 Facsimile: 1.866.557.6100 CTD # 100862</p>																				
<p>TRANSPLANT PROGRAMS: TORONTO: RETURN TO ORIGINATING COOLER AND NOTIFY TGLN FOR COOLER PICK UP. OUTSIDE TORONTO: FAX BOTH SIDES OF FORM TO TGLN @ 1-866-557-6100. CONTACT TGLN IF YOU HAVE ANY QUESTIONS</p>																						
<p>DONOR INFORMATION</p> <p>DONOR TGLN #: _____ DONOR CTD #: _____ RECOVERY SURGEON: _____ LIVER: _____</p> <p>DONOR AGE: _____ DONOR ABO & Rh: _____ DONOR HT: _____ cm DONOR WT: _____ kg DONOR CMV (PIN): _____</p> <p>NDD <input type="checkbox"/> CROSS CLAMP: _____ DATE: _____ TIME: _____ EST: _____</p> <p>DCD START WIT (WLS): _____ DATE: _____ TIME: _____ EST: _____ FLUSH TIME (END WIT)/CROSS CLAMP TIME: _____ DATE: _____ TIME: _____ EST: _____ TOTAL WIT: _____ (minutes)</p>																						
<p>DONOR LIVER / BOWEL DESCRIPTION: Vessels Enclosed: Y <input type="checkbox"/> N <input type="checkbox"/></p>																						
<p>RECIPIENT INFORMATION</p> <p>RECIPIENT TGLN #: _____ RECIPIENT CTR #: _____</p> <p>RECIPIENT HT: _____ cm RECIPIENT WT: _____ kg RECIPIENT CMV (PIN): _____ RECIPIENT ABO & Rh: _____</p> <p>RECIPIENT PRIMARY DISEASE: _____</p> <p>TRANSPLANT HOSPITAL: _____</p>		<p>MRN #: _____</p> <p>(May use hospital sticker or stamp if available)</p>																				
<p>RECIPIENT OR: PLEASE COMPLETE THIS BOX</p> <table style="width: 100%; font-size: x-small;"> <tr> <td>* TRANSPLANT START:</td> <td>DATE: _____</td> <td>TIME: _____</td> <td>EST: _____</td> </tr> <tr> <td>* PORTAL VEIN CROSS CLAMP:</td> <td>DATE: _____</td> <td>TIME: _____</td> <td>EST: _____</td> </tr> <tr> <td>* REMOVED FROM COOLD:</td> <td>DATE: _____</td> <td>TIME: _____</td> <td>EST: _____</td> </tr> <tr> <td>* PORTAL VEIN CLAMP OFF:</td> <td>DATE: _____</td> <td>TIME: _____</td> <td>EST: _____</td> </tr> <tr> <td>* HEPATIC ARTERY CLAMP OFF:</td> <td>DATE: _____</td> <td>TIME: _____</td> <td>EST: _____</td> </tr> </table> <p>Vessels Used (please identify): Y <input type="checkbox"/> N <input type="checkbox"/></p>			* TRANSPLANT START:	DATE: _____	TIME: _____	EST: _____	* PORTAL VEIN CROSS CLAMP:	DATE: _____	TIME: _____	EST: _____	* REMOVED FROM COOLD:	DATE: _____	TIME: _____	EST: _____	* PORTAL VEIN CLAMP OFF:	DATE: _____	TIME: _____	EST: _____	* HEPATIC ARTERY CLAMP OFF:	DATE: _____	TIME: _____	EST: _____
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Exhibit 2: Small Bowel Transplant Operating Room Data

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	<p>SMALL BOWEL TRANSPLANT OPERATING ROOM DATA</p>	<p>TRILLIUM GIFT OF LIFE 483 Bay Street South Tower, 4th Floor Toronto, Ontario M5G2C1 Telephone (247): 1.877.363.8496 Facsimile: 1.866.557.6100 CTO # 10096</p>																				
<p>TRANSPLANT PROGRAMS: TORONTO: RETURN TO ORIGINATING COOLER AND NOTIFY TGLN FOR COOLER PICK UP. OUTSIDE TORONTO: FAX BOTH SIDES OF FORM TO TGLN @ 1-866-557-6100. CONTACT TGLN IF YOU HAVE ANY QUESTIONS</p>																						
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* Removed From Cold:	DATE: _____	TIME: _____	EST																			
* Portal Vein Clamp Off:	DATE: _____	TIME: _____	EST																			
* Hepatic Art. Clamp Off:	DATE: _____	TIME: _____	EST																			
<p>RN: _____ Please fill in these OR times. Thank you - TGLN</p>																						
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