



Clinical Process Instruction Manual

ABO Compatibility Process Instruction

Policy:

Review of donor ABO type for compatibility versus potential recipients is mandatory prior to organ allocation. Identical matches in blood type are preferred, but in some circumstances, an organ may be allocated to a recipient of a different blood type than the donor. An exact match in blood type is defined as “identical”; a difference in blood type is either defined as “compatible” or “incompatible”.

ABO BLOOD TYPE COMPATIBILITY			
Donor Blood Type	Identical Recipient Blood Type	Compatible Recipient Blood Type	Incompatible Recipient Blood Type
O	O	A, B, AB	
A ₁	A	AB	B, O
A ₂	A	B, AB	O
B	B	AB	A, O
A ₁ B	AB		A, B, O
A ₂ B	AB	B	A, O

Situations exist where an incompatible blood type may be used in hearts allocated to infants (dependent on the immunological development of the individual infant, and *not* age), high status liver recipients (4F- fulminant hepatic failure), and subtypes of ABO (e.g., A₂ or A₂B kidney and/or pancreas into B recipient only if anti-A titres are \leq 1:8). Acceptable, ABO incompatible matches are identified in TOTAL.

There is no real time testing available for non-A₁ antigens (A₂, A₃, A_{INT}, etc.) – there is only a test for whether the A₁ antigen is present or not. Therefore, when a blood group A or AB donor does not test positive for A₁, it’s called a “non A₁” or “A₁ negative”. These will be entered into TGLN’s system as A₂ or A₂B respectively.

A hard copy of donor ABO results (including Rh if available) and A subtype (when applicable) must be reviewed by two Trillium Gift of Life Network (TGLN) Clinical Services Coordinators (CSCs) and/or Referral Triage Coordinators (RTCs) and verified via electronic signature when entered in the database. Following entry and verification in the database, allocation lists are run and offering of organs may commence.

In rare circumstances, a donor’s ABO may be unknown. Directions regarding situations where donor ABO cannot be determined prior to allocation are described in steps 14 and 15 in the process section of this document



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Process:

Ontario Donors

1. The Specialist Organ and Tissue Donation (SOTD) ensures a hardcopy of the ABO that includes a minimum of two patient identifiers is available on the electronic donor chart. The SOTD must verify the ABO hardcopy using two patient identifiers consistent with the information on the donor assessment. The SOTD enters the ABO (including Rh if available) into the database and notifies the Clinical Services Coordinator (CSC) that the ABO has been entered.
2. If the ABO is “A or AB”, the SOTD should request A₁ lectin test to be completed. The SOTD will communicate the following to the donor hospital lab when they make the request:
 - The request is related to a determination of whether or not to offer a non-A₁ donor kidney/organ to blood type B recipients.
 - The transfusion history (in the last three months), if any, of the donor.
3. The SOTD/CR will verify the interpretation of the A subtype result with the donor hospital lab technician. Once verified, the SOTD/CR will transcribe the result into the donor management system and complete electronic signature indicating the verification.
4. Two CSCs/RTCs verify the scanned hardcopy of the ABO (including Rh if available) and electronically sign verification in the donor chart, as outlined in *CPI-9-220 Independent Double Check and Electronic Sign-off – ABO and Serology Process*.
5. After verification by two CSCs/RTCs, the information is “pushed” to the organ allocation system (OAS) and organ specific allocation lists may be generated.
6. If an A subtype is obtained it is also verified as described in process steps 1, 4 and 5.

Note: When a blood group A or AB donor does not test positive for A₁, it’s called a “non A₁” or “A₁ negative. These will be entered into TGLN’s system as A₂ or A₂B respectively.

7. If the donor ABO type is identical to the potential recipient, or compatible, the offer may be made to the transplant program in accordance with the appropriate algorithm.



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8. If the donor ABO type is incompatible with the potential recipient, the CSC offers the organ according to the appropriate algorithm. The CSC confirms the ABO mismatch if applicable, with the accepting program, and documents the offer and the acceptance by the transplant physician.
9. The CSC further ensures that documentation of mismatch and acceptance is noted on the *Organ Specific Recipient Transplant Operating Room Data*.
10. The CSC ensures that a redacted hardcopy of the donor ABO accompanies each allocated organ to the recipient's Operating Room (OR).

Non-Ontario Donors

11. Donor ABO results require independent double-checks and electronic sign-off by two (2) CSCs/RTCs in the TGLN donor management system prior to releasing organs for transplantation, as outlined in *CPI-9-220 Independent Double Check and Electronic Sign-off – ABO and Serology Process*.
12. After independent verification by two CSCs/RTCs, the donor information is “pushed” to OAS and organ specific allocation lists may be generated.
13. Process steps 7 through 10 are followed.

Donor ABO Unknown

14. In some cases, donor ABO testing may reveal the presence of two blood types. The CSC and/or SOTD will contact the Donation Support Physician (DSP) and Transplant Support Physician (TSP) on-call for joint consultation in how to proceed with allocation.
15. If the donor ABO cannot be adequately determined after consultation, the donor's ABO should be set as “AB” and allocation should proceed in this fashion as AB recipients can receive organs from all blood types.

Records:

Record Name	Form No. (if applicable)	Record Holder	Record Location	Record Retention Time (as a minimum)
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Donor Chart	—	PRC	PRC	16 years
“Organ Specific” Transplant Operating Room Data	—	Transplant Program	Transplant Program	As long as deemed necessary

References:

- *Donor Assessment Process Instruction, CPI-9-208*
- *Hemodilution Calculation Process Instruction, CPI-9-210*
- *Exceptional Distribution Process Instruction, CPI-9-217*
- *Independent Double Check and Electronic Sign-off – ABO and Serology Process, CPI-9-220*
- The Organ Procurement and Transplantation Network. Guidance for ABO Subtyping Organ Donors for Blood Groups A and AB. June/11