



Trillium
Gift of Life
Network

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POLICIES

Wait list, organ offers and allocation

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Introduction

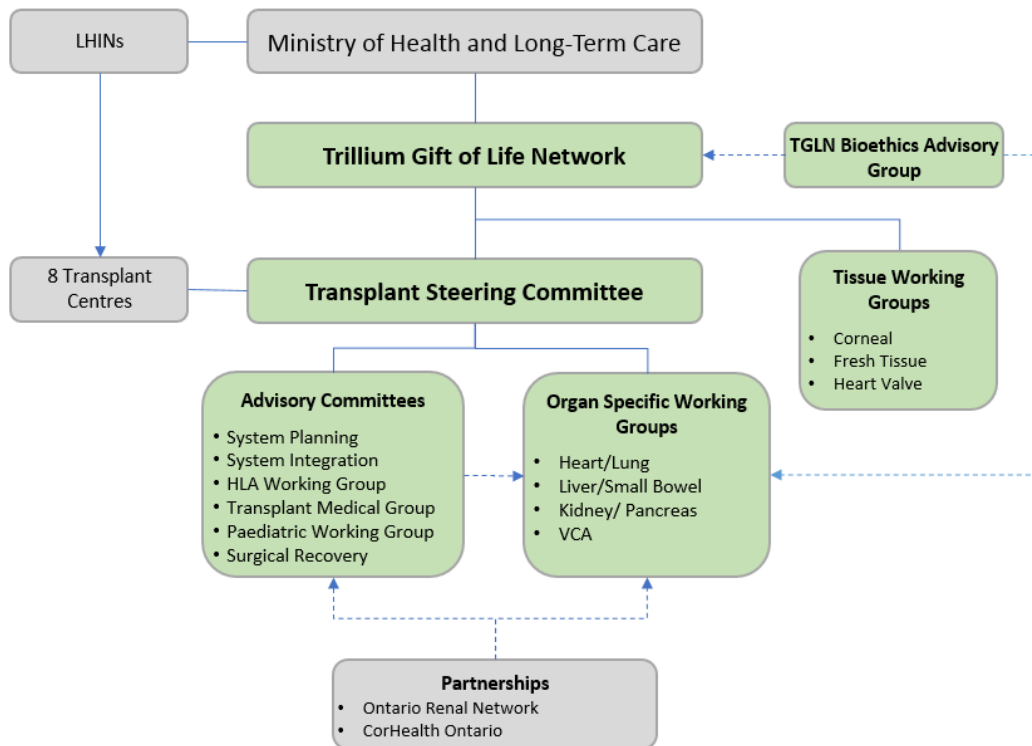
1.1 Trillium Gift of Life Network

Trillium Gift of Life Network (TGLN) is a not-for-profit agency of the Government of Ontario. TGLN plans, promotes, coordinates and supports organ and tissue donation and transplantation across Ontario. The mission of TGLN is to save and enhance lives through the gift of organ and tissue donation and transplantation in Ontario.

TGLN, in collaboration with the Ministry of Health and Long-Term Care (MOHLTC), oversees and manages the Transplant Program for the Government of Ontario. The mission of TGLN's Provincial Transplant Program is to support the development of a sustainable end-to-end transplant system and to continually strive to improve the dimensions of quality, safety, effectiveness, access, patient centered and integrated care in order to enable better patient outcomes.

1.2 Transplant System Governance

TGLN works with the MOHLTC and key stakeholders, including representatives from all eight of Ontario's transplant programs, to direct and oversee system monitoring. The Provincial Transplant Program is supported by a network of working groups and committees comprised of system experts who inform and guide TGLN. The Organ Specific Working Groups and Advisory Committees provide the Transplant Steering Committee with policy recommendations and decisions that are specific to their identified mandate. The Transplant Steering Committee then provides final approval for new and amended policies.



-----> Denotes advisory relationship

1.3 Allocation Policy Development, Amendment and Evaluation

The Organ Specific Working Groups at TGLN are tasked with recommending policies to ensure the allocation of deceased donor organs is equitable and wait list management is effective. These policies are:

- **Evidence-based:** Data-driven and informed by literature reviews and jurisdictional scans.
- **Use medical and clinical criteria:** Including medical urgency and medical compatibility.
- **Align with national guidelines and practices:** i.e.- Canadian Blood Services national organ sharing programs.
- **Consider key ethical principles:** Equity, utility, transparency, accountability and safety.

The Organ Specific Working Groups meet regularly to review transplant and wait list data to evaluate the allocation algorithms and ensure equitable access to transplantation.

1.4 National Organ Sharing Agreements

In order to provide greater access to organ transplants for Ontarians, TGLN participates in two national programs for deceased donor organ listing and sharing: The National Organ Waitlist (NOW) and the Highly Sensitized Patient (HSP) program. These programs are managed by Canadian Blood Services (CBS).

1.5 National Organ Waitlist Policy – Single Centre Listing

Transplant candidates of all organ types, can only be listed with one Canadian transplant centre.

1.6 Guide to this Document

The aim of this document is to provide the provincial policies relating to wait listing, wait times, organ offers and allocation to the deceased donor waiting list. These policies apply to all transplant candidates and recipients of organs from deceased donors. This document is updated regularly to reflect new or amended policies.

2. Organ Offers and Acceptance

2.1 Organ Offers and Acceptance

Organ offers are made directly to designated individuals at the transplant programs. Transplant programs must either accept or decline the organ offer within one hour of receiving information on the deceased donor. If the transplant program does not respond within this time, the offer expires and the organ is offered to next candidate on the allocation algorithm.

Exceptions:

- Programs have two hours to accept organ offers for kidneys from the national Highly Sensitized Patient (HSP) program in order to evaluate the human leukocyte antigen (HLA) match results.
- In cases where further information is needed to make an informed decision, TGLN and the transplant program make every effort to ensure a timely decision.

2.2 Back-Up Candidates

Once an organ has been offered and accepted for an intended candidate, the accepting transplant program is responsible for determining a candidate's suitability for transplant. If the accepting program determines that the intended candidate is unsuitable, they must notify TGLN immediately to allow for the organ to be re-allocated.

TGLN identifies potential back-up candidates at time of organ offer as required. However, the re-allocation of the organ(s) only occurs when the transplant program has declined the organ for the intended candidate and provided a decline reason.

TGLN re-allocates the organ(s) to back up candidates according to the following rules:

- If the donor organ(s) have not already been transported from the recovery operating room, TGLN will re-allocate the organ(s) to the next candidate(s) on the allocation algorithm.
- If the donor organ(s) have already been transported to the transplant program and found to be unsuitable for the intended candidate, TGLN re-allocates the organ(s) to the next candidate(s) on the allocation algorithm within the same transplant program.

3. Kidney & Pancreas Policies

3.1 Wait List Requirements and Statuses

3.1.1 Dialysis

Candidates must be undergoing regularly scheduled hemodialysis or peritoneal dialysis to be eligible for listing on the Ontario deceased donor kidney wait list, with the following exceptions:

- Pediatrics (<18 years old)
- Candidates with a GFR<15ml/min on two occasions (estimated or measured)

For more information on referral and listing policies, refer to Ontario's Referral and Listing Criteria: <https://www.giftoflife.on.ca/en/professionals.htm#transref>

3.1.2 Medical Status

Kidney, kidney/pancreas, pancreas and kidney cluster candidates are listed by their transplant program with one of the following medical statuses:

| Medical Status | Definition |
|----------------------------------|------------------------------------------------------------------------------------------------|
| High Priority (Medically Urgent) | Eligible for allocation. *Must be approved by the Kidney & Pancreas Special Case Committee. |
| Normal Priority | Eligible for allocation. |
| Temporarily On Hold | Candidates on hold are not eligible for allocation of donor kidneys but accrue wait time. |

3.1.3 Wait List Suspension

A candidate who has a medical status of "on hold" for longer than 120 consecutive days without having their medical status reviewed by their transplant program is suspended. A suspended candidate is not eligible for organ allocation and does not accrue wait time towards their allocation point calculation.

3.1.4 Serum Testing Requirements and Status

Candidates on the wait list are required to have Antibody (PRA) testing every 4 months as a minimum. A candidate must have a PRA result <180 days old (4 months plus 60-day grace period) to be allocated an organ. If serum testing results are not reported by 120 days, the candidate's transplant programs is alerted. If serum is still not reported by 181 days, the candidate's registration is placed on hold and the candidate's transplant program is alerted.

Kidney, kidney/pancreas and pancreas candidates on the wait list have a system-generated registration status that is based on serum testing requirements as follows:

| Serum Status | Definition |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Active | Serum testing meets requirements and candidate is eligible for organ allocation. |
| On Hold | Serum testing requirements have not been met and candidate is not eligible for organ allocation. However, candidate continues to accrue wait time. |

Kidney Cluster Candidates: With the exception of kidney/pancreas candidates, kidney cluster candidates are not required to meet the serum testing requirements outlined above and are not placed on hold as a result of out of date serum.

Sensitized Candidates: Minimum single antigen bead testing is required annually for sensitized candidates and every 4 months for candidates with cPRA > 95%.

3.1.5 Eligibility for the National Highly Sensitized Patient (HSP) Registry

Eligibility for the National Highly Sensitized Patient (HSP) Registry is determined by Canadian Blood Services (CBS) policies. In order to be listed on the HSP Registry, the following criteria must be met:

- a. The candidate must be undergoing regularly scheduled hemodialysis or peritoneal dialysis.
- b. The candidate must be wait-listed for a kidney transplant in a Canadian transplant centre.
- c. The recipient must have a calculated panel reaction antibody (cPRA) value of greater than or equal to 95%.
- d. The recipient must be at least 6 years of age.

3.1.6 Out of Province Transfers

Kidney and pancreas candidates on the wait list from another Canadian province may have their list date and dialysis start date transferred to an Ontario kidney transplant program only if they met the Ontario criteria at the time of listing. For candidates who did not meet the Ontario criteria at the time of listing, the date when criteria were met will be used as the date of listing. The following documentation must be provided:

- Date of activation on the non-Ontario wait list.
- Start date of regularly scheduled hemodialysis or peritoneal dialysis, or evidence required for pre-emptive listing.

3.2 Wait Time

3.2.1 Wait Time Calculations

Wait time is used to calculate allocation points (see Section 3.3.4). Wait time starts to accrue from the following time points:

| Candidate Group | Start of wait time calculation |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Adult Kidney and Kidney/Pancreas | The start date of regularly scheduled hemodialysis or peritoneal dialysis. |
| Pediatric | The earliest of the following: <ul style="list-style-type: none"> • Start date of dialysis • Date of listing |
| Pancreas After Kidney (PAK) | The earliest of the following: <ul style="list-style-type: none"> • Start date of dialysis for their most recent kidney transplant • Date of most recent kidney-only transplant |
| Pancreas Transplant Alone (PTA) | The date of listing. |
| Pancreas/PAK re-transplant - | The date of pancreas failure. This applies to candidates whose last transplant was a PTA, PAK or simultaneous pancreas-kidney transplantation (SPK). |

Suspension Time: The number of days that a candidate has been suspended from the wait list is subtracted from total wait time.

3.2.2 Wait Time Reinstatement

Kidney Recipients: Recipients with early graft failure (≤ 90 days) due to surgical (peri-operative factors including recipient coagulopathy, peri-operative graft loss or graft dysfunction) or donor related factors retain credit for previously accrued wait time. They are re-listed with their original start date of regularly scheduled hemodialysis or peritoneal dialysis.

Early graft failure is defined as kidney graft failure within the first 90 days of transplant evidenced by documentation that the recipient is either:

- on dialysis, or
- has measured creatinine clearance/calculated eGFR less than or equal to 20 ml/min on the date that is 90 days following the candidate's kidney transplant; or
- kidney graft removal within the first 90 days of transplant evidenced by a report of the nephrectomy for the transplanted kidney

Requests for wait time re-instatement not relating to surgical or donor related factors are reviewed by the Kidney Transplant Special Case Committee for consideration.

Pancreas Recipients: Recipients who lose their pancreas for technical reasons during the first 90 days after transplantation retain credit for previously accrued wait time. Pancreas failure that leads to the consideration of re-transplantation is defined by:

- Graft removal or the loss of graft function as evidenced by loss of c-peptide and return to insulin therapy at dosages similar to those used pre-transplant.

In rare circumstances that a non-technical failure occurs during the first 90 days after transplantation, pancreas recipients retain their original listing date.

3.3 Allocation

3.3.1 Identifying Potential Recipients (Matching)

Eligible candidates are matched based on their compatibility to the donor on the following criteria:

1) Blood Group:

| Donor blood group | Recipient blood group can be: |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------|
| O | O, A, B, AB |
| A | A, AB |
| B | B, AB |
| AB | AB |
| A, non-A ₁ and AB, non-A ₁ B | B candidates willing to cross the A ₂ barrier as identified by the transplant program |

- 2) **HLA Virtual Cross Matching:** Kidneys are matched to candidates with a negative virtual crossmatch (VXM) against the donor (see Appendix 3A for VXM rules), with the exception of multi-organ clusters. Organs will not be offered until VXM results are available.
 - Kidney only candidates with a positive VXM to the donor will be filtered out and not be eligible for organ offers.
 - Kidney/pancreas and pancreas alone candidates with current Class I or Class II positive VXM results are filtered out and not eligible for organ offers.
- 3) **Infectious Diseases Serology/NAT:**
 - Hepatitis B core Ab positive donor organs are matched to candidates who have been identified by their transplant program as HBV Ab positive acceptable recipients.
 - Hepatitis C Ab positive donor organs are matched to candidates who have been identified by their transplant program as HCV Ab positive acceptable recipients.
 - Hepatitis C NAT positive donor organs are matched to candidates who have been identified by their transplant program as HCV NAT positive acceptable recipients.
- 4) **Extended Criteria Donors (ECD):** ECD kidneys are matched to candidates who have been identified by their transplant program as potential recipients.
- 5) **Double Kidneys:** ECD donors with an eGFR <60 are eligible for double kidney allocation and are offered to transplant programs accepting double kidneys. All other donor kidneys are offered as singles first, and then offered as doubles once singles have been declined by all transplant programs.
- 6) **Kidneys from donors less than 4 years of age:** Kidneys from donors less than 4 years of age are only matched to candidates at London Health Sciences, Toronto General Hospital and The Ottawa Hospital.
- 7) **Recipient Specific Criteria:** Other criteria such as height, weight/BMI, age, etc. are taken into consideration by the transplant program for recipient-donor matching.

3.3.2 Local and Provincial/National Allocation

3.3.2.1 Local Allocation

One kidney is allocated to a matched candidate listed at a transplant program in the same region as the donor hospital (see Appendix 3B for a list of donor hospitals and corresponding region for local allocation). Adult kidney only candidates are the only group that have a local donor region. Multi-organ candidates (cluster, combination, staged kidneys), kidney/pancreas candidates, pancreas alone candidates, and pediatric candidates (<18 years) do not have a local donor region. These candidates appear in the highest step they are eligible for in all donor regions, regardless of which program they are listed in.

If there are no matched candidates within the local allocation region, the kidney is allocated to a matched Ontario candidate outside the local allocation region.

| Local Allocation Region (See Appendix 3B) | Corresponding Transplant Program(s) |
|----------------------------------------------|--------------------------------------------------------------------------------------|
| Ottawa | The Ottawa Hospital |
| Kingston | Kingston General Hospital |
| Toronto | Toronto General Hospital St. Michael's Hospital The Hospital for Sick Children |

| | |
|-----------------|----------------------------------|
| Hamilton | St. Joseph's Healthcare Hamilton |
| London | London Health Sciences Centre |

If there is only one kidney, or kidneys are to be used as doubles, the local kidney allocation takes priority over provincial/national allocation.

3.3.2.1 Provincial/National Allocation

The second kidney, if available, is allocated to a matched candidate on the Ontario wait list, regardless of region, or a matched candidate listed on the national Highly Sensitized Patient (HSP) program (as identified by the Canadian Transplant Registry).

Exceptions when Allocating to the National Highly Sensitized Patient (HSP) Program:

- A discussion occurs if an HSP allocation will lead to organ loss.
- Kidneys from donors < 4 years of age will be offered en bloc to Ontario candidates first then HSP.
- The HSP program has established thresholds to limit the number of exported kidneys by any one province. Once the national HSP export threshold for Ontario is met, TGLN will only export an HSP kidney when the following criteria are met:
 - HSP recipient cPRA = 100%

AND

- No multi-organ, pediatric, kidney-pancreas, list exchange/previous living donor, cPRA \geq 95% recipients appear on the Ontario kidney allocation.

3.3.2.2 Allocation of Non-Directed Living Donor and List Exchange Donor Kidneys

Transplant programs are encouraged to enter non-directed living donors and list exchange donors into the national Kidney Paired Donation (KPD) program.

- If allocated through the KPD program, Canadian Blood Services generates the match run. If a non-directed donor who starts the KPD chain is an Ontario living donor, TGLN will allocate the unmatched kidney at the end of the chain to the deceased donor wait list within the hospital where the living donor is registered.
- Non-directed living donors and list exchange donors who do not wish to enroll in the KPD program or were not matched through KPD may choose to donate to the Ontario deceased donor wait list and will be allocated within the donor hospital where the living donor is registered.

'Conditional' organ donation (i.e. where a donor nominates, or excludes certain categories of recipient) is not permitted. Non-directed/list exchange donors may become ineligible to be a donor if they are unwilling to have their kidney allocated as per the policy.

3.3.3 Priority Categories for Matched Candidates

Matched candidates are prioritized using the following categories, depending on donor type (see allocation tables in Appendix 3C for specific steps).

| Rank | Category |
|------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Medically urgent candidates |
| 2 | HSP candidates as identified by the CTR (for provincial/national kidney allocation only) |
| 3 | Pediatric candidates with cPRA=100, then ≥ 99 to < 100 for donors < 35 years old, ABO identical |
| 4 | Adult candidates with cPRA=100, then cPRA ≥ 99 to < 100 |
| 5 | List exchange/previous living donor (within the local donor region) |
| 6 | Multi-organ candidates with cPRA ≥ 95 to < 99 , then cPRA < 95 |
| 7 | Pediatric candidates (< 18 years old) for donors < 35 years old with cPRA ≥ 95 to < 99 , then cPRA < 95 , ABO identical |
| 8 | KP/PAK/PTA candidates with cPRA ≥ 95 to < 99 , then cPRA < 95 , ABO identical |
| 9 | Pediatric candidates (< 18 years old) for donors < 35 years old with cPRA ≥ 95 to < 99 , then cPRA < 95 , compatible ABO |
| 10 | KP/PAK/PTA candidates with cPRA ≥ 95 to < 99 , then cPRA < 95 , compatible ABO |
| 11 | Candidates with cPRA ≥ 95 to < 99 |
| 12 | Candidates with cPRA < 95 |
| 13 | Age matching: < 35 year old donor to < 55 year old candidates |

3.3.4 Ranking & Allocation Points

Within each of the priority categories identified in section 3.3.3, candidates are ranked according to ABO compatibility:

- 1) A₂ and A₂B into identified ABO B candidates
- 2) ABO Identical
- 3) ABO Compatible

Within each ABO compatibility group listed above, further ranking is determined by allocation points. Allocation points are calculated using the following formula:

$$\text{Allocation Points} = 0.1 \text{ point per 30 days waiting} + [(cPRA/100) \times 4]$$

Notes on allocation points calculation:

- cPRA refers to combined Class I and II cumulative cPRA.
- Candidates listed without a dialysis start date accrue allocation points for cPRA, but not waiting time.

In the event that two (or more) candidates have the same allocation points, priority is given to the candidate with the higher cPRA value, then wait time, and then earliest list date.

3.4 Kidney Recovery Policies

3.4.1 Kidney Pumps

Ontario deceased donor kidneys are placed on kidney pumps as the primary organ preservation method with the exception of the following:

- Standard Criteria Donor / Neurological Determination of Death Donor (SCD/NDD) kidneys allocated within the local region
- Pediatric donor kidneys
- Kidney/Pancreas donor kidneys

Note: The Ottawa Hospital has requested to use pumps for all kidneys.

Under exceptional circumstances, transplant programs may request an exemption to use kidney pumps for locally allocated SCD/NDD kidneys. In these cases, transplant programs must request a kidney pump from TGLN at the time of offer and provide a medical rationale for the request (e.g. long expected cold ischemic time, organ quality).

3.4.2 Left versus Right Kidney Allocation

The left kidney is allocated to a kidney/pancreas candidate. When a kidney/pancreas recovery is not taking place, the program recovering the kidneys receives the left kidney. This assignment may be altered at the discretion of the surgical recovery team.

3.5 Key Definitions

| | |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A2 and A2B into B Acceptable | ABO B candidates willing to cross the A2 barrier and accept ABO A donors as identified by the transplant program. |
| Allocation points | Allocation points are used to determine priority on the waitlist. Allocation points=0.1 point per 30 days waiting + [(cPRA/100) x 4]. Candidates listed without a dialysis start date accrue allocation points for cPRA but not waiting time. |
| Anonymous Donor | Living donors who may donate a kidney anonymously to the national Kidney Paired Donation (KPD) program or to the Ontario deceased kidney wait list. |
| Candidate | A person on the organ transplant waiting list. |
| cPRA | <p>cPRA is the percentage of Canadian deceased organ donors expected to have one of more of the candidate's unacceptable antigens. cPRA scores are calculated automatically when HLA labs enter a candidate's serum antibody results.</p> <ul style="list-style-type: none">• TGLN uses the Canadian cPRA calculator that is used by the Canadian Transplant Registry. cPRA scores include Class I and Class II cumulative cPRA. cPRA values will automatically recalculate if there are any additions or deletions to the candidate's unacceptable list. <p>cPRA scores for provincial and HSP kidneys are calculated for all unacceptable antigens at A, B, C, DRB1, DQA1, DQB1, DPA1, DPB1 and DRB345.</p> |

| | |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Deceased donor | A deceased person for whom at least one organ has been retrieved and transplanted. |
| Double Kidney Allocation | ECD donors with an eGFR <60 are eligible for double kidney allocation. Donor kidneys meeting the criteria for double kidneys are offered to programs accepting double kidneys. All other donor kidneys are offered as singles first, and then offered as doubles once singles have been declined by all programs. |
| Extended Criteria Donor (ECD) | All donors \geq 60 years of age; OR Donors age 50-59 with at least 2 of 3 of the following: <ul style="list-style-type: none"> • CVA as cause of death (definition – also known as stroke, occurring when there is an occlusion of an arterial vessel going to the brain or when is bleeding into the brain) • Pre-existing hypertension • eGFR \leq 70ml/min |
| ECD Recipient | ECD kidneys are allocated to candidates based on ECD recipient acceptability. ECD candidates must consent to receive ECD kidneys and meet one of the following criteria: <ul style="list-style-type: none"> • > 60 years of age • Diabetes candidate >50 years of age • Candidates with other significant co-morbidities as determined by the attending transplant physician. |
| Kidney-Pancreas | Candidates on the wait list for a simultaneous kidney and pancreas transplant. |
| List Exchange | A list exchange is when a living donor gives a kidney to the deceased donor list because they are not compatible with their intended recipient. Their list exchange recipient will then receive priority on the deceased donor allocation. <ul style="list-style-type: none"> • List exchange donor: Donor kidneys are allocated to the deceased kidney transplant wait list within the donor hospital. • List exchange recipient: The list exchange recipient is prioritized on the deceased waiting list in the local allocation region once the list exchange donor kidney is transplanted. |
| Multi-Organ Kidney Candidate | Multi-organ kidney candidates are defined as any cluster or combination of kidney with another organ (excluding kidney/pancreas): <ul style="list-style-type: none"> • Cluster: A candidate who is activated on the wait list for a kidney and non-kidney organ(s) (heart, lung, liver, or small bowel) and receives all organs simultaneously from the same deceased donor. • Combination: A candidate who is activated on the wait list for a kidney and non-kidney organ(s) (heart, lung, liver, or small bowel) and may receive each organ at different times from different donors. • Staged: A candidate who is activated on the wait list for a non-kidney organ(s) and receives a non-kidney organ(s) transplant (heart, lung, liver, or small bowel). These patients may be subsequently activated on the wait list for a kidney transplant once they recover from their non- |

| | |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | renal transplant. Staged kidney candidates must meet the multi-organ kidney listing criteria at time of listing for the non-renal organ. |
| Pancreas After Kidney (PAK) | <p>Candidates who have received a previous kidney only transplant and are now placed on the wait list for a pancreas are classified as PAK. In order to be considered PAK, candidates must meet the following conditions:</p> <ul style="list-style-type: none"> • Candidate qualified for both a kidney and a pancreas at the time of listing • Candidate received a living or deceased donor kidney only transplant and are now listed for a pancreas transplant. • Candidate's most recent transplant is the kidney only transplant |
| Pancreas Transplant Alone (PTA) | Candidates who are placed on the wait list for a pancreas transplant alone, without a receiving a prior kidney only transplant |
| Pancreas Re-Transplant | Candidates who have received a previous pancreas transplant and are registered for a second pancreas transplant. This includes patients whose last transplant was a PTA, PAK or SPK. |
| Previous Living Donors | Candidates who have previously donated a kidney to a recipient at a Canadian transplant program. |
| Virtual Crossmatch | A virtual crossmatch is a crossmatch that involves a determination of the presence or absence of donor HLA specific antibodies (DSA) in a patient by comparing the patients' HLA antibody specificity profile to the HLA typing of the proposed donor. Kidney only candidates with a positive virtual crossmatch to the donor are filtered out and not eligible for organ offers. Kidney/pancreas and pancreas candidates with positive virtual crossmatch results are not filtered out and are eligible for organ offers. |
| Wait List | A computerized list of candidates who are waiting to be matched with specific deceased donor organs for transplant. |

3.6 Kidney and Pancreas Policy Appendices

Appendix 3A: Virtual Crossmatch (VXM) Rules for Kidney Allocation

| VXM RULES |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cPRA for provincial and HSP kidneys includes all unacceptable antigens at A, B, C, DRB1, DQA1, DQB1, DPA1, DPB1 and DRB345. |
| VXM in Ontario is limited to A, B, Bw, C, DRB1, DRB3/4/5, and DQB1 loci. DQA1, DPA1 and DPB1 loci are <u>mandatory</u> in data entry, but are NOT taken into account when filtering out candidates. These loci are included in VXM results for information purposes only. |
| The scope of VXM for the purpose of filtering out candidates (i.e. determining whether a candidate should be displayed on the allocation list or not): Unacceptable, Cumulative, Class I or Class II, and on the core set of loci (A, B, Bw, C, DRB1, DRB3/4/5, DQA1, DQB1). |
| Candidates with DSA are filtered out (not displayed on the allocation list). However, if the ONLY DSA are on the optional loci (DPA1 or DPB1), then the candidate still appears on the allocation list as per the VXM scope above. The VXM on the allocation report reads something similar to "Positive: DP0401". The accepting program decides if they would like to accept the kidney in the setting of DP antibodies. |
| Only candidates with a negative VXM (no DSA) at A, B, Bw, C, DRB1, DRB3/4/5, DQA1, DQB1 appear on the allocation list. |
| Candidates with allele specific POSSIBLE DSA but with an otherwise negative VXM (no other DSA) appear on the allocation list. The VXM on the allocation report will read something like "Possible Allele Specific Ab to DR52". The alleles must be resolved by the candidate and donor HLA labs before the organ offer can be accepted. |
| If the donor's HLA typing is not yet done, or is partially done (i.e. with missing loci in the core set of loci), allocation will not be allowed. |
| If a candidate's HLA antibodies have never been tested (with a non-zero peak PRA and with no antigen specificities), the candidate will be filtered out (i.e. will not show up on the allocation list). |
| If a candidate has no DSA (negative VXM) but some of the antibodies to the donor HLA are untested, then the candidate will still show up on the allocation list. For example, suppose the donor's HLA typing is "A2 A80 B61 B72 CW7 DR1.....", but A80 was not tested in the candidate's serum, then the candidate will still appear on allocation, but the VXM will read "Untested: A80" on the allocation list. |
| K/P and pancreas candidates with a current class I or class II positive VXM result will not receive an offer. Cumulative class I and class II results are communicated to the transplant program at the time of offer and allocation. |

Appendix 3B: Donor Hospital Regions for Local Kidney Allocation

| Donor Hospital Name | Local Allocation Region |
|-------------------------------------------------------------|-------------------------|
| Bayshore Centre - Stoney Creek | Hamilton |
| Brantford General Hospital | Hamilton |
| Cambridge Memorial Hospital | Hamilton |
| Douglas Memorial - NHS | Hamilton |
| Georgetown Hospital | Hamilton |
| Grand River - Freeport | Hamilton |
| Grand River - Kitchener | Hamilton |
| Greater Niagara General | Hamilton |
| Groves Memorial | Hamilton |
| Guelph General Hospital | Hamilton |
| Hamilton General Hospital | Hamilton |
| Hotel Dieu Shaver | Hamilton |
| Joseph Brant Memorial Hospital | Hamilton |
| Juravinski Hospital - Ham | Hamilton |
| Kincardine & District General | Hamilton |
| Listowel Memorial Hospital | Hamilton |
| Louise Marshall Hospital | Hamilton |
| Mcmaster Children's - Ham | Hamilton |
| Niagara On The Lake | Hamilton |
| Palmerston & District Hospital | Hamilton |
| Paris General Hospital | Hamilton |
| Port Colborne General | Hamilton |
| St. Catharines General | Hamilton |
| St. Joseph's Health - Hamilton | Hamilton |
| St. Joseph's Health – West 5 th | Hamilton |
| St. Joseph's Hospital - Brantford | Hamilton |
| St. Josephs Hospital - Guelph | Hamilton |
| St. Mary's General Hospital | Hamilton |
| St. Marys Memorial Hospital - HP | Hamilton |
| St. Peter's Hospital HHS | Hamilton |
| Welland County General | Hamilton |
| West Haldimand General Hospital | Hamilton |
| West Lincoln Memorial Hospital | Hamilton |
| Wingham & District Hospital | Hamilton |
| Belleville Dialysis Clinic | Kingston |
| Campbellford Memorial Hospital | Kingston |
| Haliburton Hospital | Kingston |
| Kingston Health Sciences Centre - Hotel Dieu Hospital | Kingston |
| Kingston Health Sciences Centre - Kingston General Hospital | Kingston |
| Lennox & Addington County General | Kingston |
| Picton Dialysis Unit | Kingston |
| Quinte Health Care - Belleville General Hospital | Kingston |
| Quinte Health Care - Prince Edward County Memorial - Picton | Kingston |
| Quinte Health Care - Trenton Memorial Hospital | Kingston |
| Adam Linton Centre | London |
| Alexandra Hospital | London |
| Alexandra Marine & General Hos | London |
| Bluewater Health - Charlotte Eleanor Englehart | London |
| Bluewater Health – Sarnia/Norman Site | London |
| Chatham Kent Health Alliance | London |
| Children's Hospital Of Western Ontario | London |

| Donor Hospital Name | Local Allocation Region |
|-------------------------------------------------|--------------------------------|
| Clinton Public Hospital | London |
| Coroners Office: South Western Ontario | London |
| Funeral Home - South Western Ontario | London |
| Grey Bruce Regional Health Services | London |
| Health Sciences North | London |
| Home Death - South Western Ontario | London |
| Leamington District Memorial | London |
| Norfolk General Hospital | London |
| Nursing Home - South Western Ontario | London |
| Plummer Memorial Public Hospital | London |
| Richard's Landing Hospital | London |
| Sault Area Hospital | London |
| Seaforth Community Hospital | London |
| SJHC: Parkwood Hospital | London |
| South Huron Hospital Association | London |
| St Joseph's Health Centre - Sarnia | London |
| St. Joseph's Continuing Care - Sudbury | London |
| St. Joseph's Health - London | London |
| St. Joseph's Hospital - Chatham | London |
| St. Thomas Elgin General Hospital | London |
| Stratford General Hospital | London |
| Strathroy Middlesex General Hospital | London |
| Chatham Kent - Sydenham District Hospital | London |
| Thessalon Hospital | London |
| Tillsonburg District Memorial | London |
| University Hospital - London | London |
| Victoria Hospital- London | London |
| Weeneebayko General Hospital | London |
| Windsor Regional Hospital – Ouellette Campus | London |
| Windsor Regional Hospital - Metropolitan Campus | London |
| Windsor Regional Western Campus | London |
| Woodstock General Hospital | London |
| Almonte General Hospital | Ottawa |
| Arnprior District Memorial Hospital | Ottawa |
| Bayshore Home Health - Brockville | Ottawa |
| Brockville General Hospital | Ottawa |
| Carleton Place & District Memorial | Ottawa |
| Children's Hospital Of Eastern Ontario | Ottawa |
| Cornwall Community Hospital | Ottawa |
| Coroners Office: Eastern Ontario | Ottawa |
| Deep River & District Hospital | Ottawa |
| Elizabeth Bruyere | Ottawa |
| Funeral Home - Eastern Ontario | Ottawa |
| Glengarry Memorial Hospital | Ottawa |
| Hawkesbury & District General | Ottawa |
| Home Death - Eastern Ontario | Ottawa |
| Hotel Dieu Hospital - Cornwall | Ottawa |
| Kemptville District Hospital | Ottawa |
| Montfort Hospital | Ottawa |
| Nursing Home - Eastern Ontario | Ottawa |
| Ottawa - Carleton Dialysis Centre | Ottawa |
| Ottawa Heart Institute | Ottawa |
| Ottawa Hospital - Civic | Ottawa |
| Ottawa Hospital - General | Ottawa |

| Donor Hospital Name | Local Allocation Region |
|-------------------------------------------------|--------------------------------|
| Pembroke Civic Hospital | Ottawa |
| Pembroke General Hospital | Ottawa |
| Perth And Smith Falls Community | Ottawa |
| Perth Great War Memorial Hospital | Ottawa |
| Queensway Carleton Hospital | Ottawa |
| Quinte Healthcare North Hastings | Ottawa |
| Renfrew Victoria Hospital | Ottawa |
| Riverside Hospital - Ottawa | Ottawa |
| Salvation Army Grace Hospital (Ottawa) | Ottawa |
| St. Joseph's Continuing Care - Cornwall | Ottawa |
| St. Vincent De Paul Hospital | Ottawa |
| Winchester District Memorial | Ottawa |
| Addiction Research Foundation | Toronto |
| Anson General Hospital | Toronto |
| Atikokan General Hospital | Toronto |
| Attawapiskat | Toronto |
| Barry's Bay St. Francis Memorial | Toronto |
| Baycrest Centre Geriatric | Toronto |
| Bingham Memorial Hospital | Toronto |
| Blind River District Health Centre | Toronto |
| Branson Division North York General | Toronto |
| Bridgepoint Active Healthcare | Toronto |
| Bruce Peninsula Health Service | Toronto |
| Burk's Falls & District | Toronto |
| Burlington Dialysis Center | Toronto |
| Casey House Hospice | Toronto |
| Chapleau Health Services | Toronto |
| Chesley District Memorial Hospital | Toronto |
| Collingwood General & Marine Hospital | Toronto |
| Coroners Office: Northern Ontario | Toronto |
| Coroners Office: Central & GTA | Toronto |
| County Bruce Hospital | Toronto |
| DMC - Ajax | Toronto |
| DMC - Markham | Toronto |
| DMC - Peterborough | Toronto |
| Doctors Hospital | Toronto |
| Donwood Institute | Toronto |
| Dryden Regional Health Centre | Toronto |
| Dufferin-Caledon Health Care | Toronto |
| Durham Hospital | Toronto |
| Englehart & District Hospital | Toronto |
| Espanola General Hospital | Toronto |
| Fort Albany | Toronto |
| Four Counties General Hospital | Toronto |
| Funeral Home - Central & GTA | Toronto |
| Funeral Home - Northern Ontario | Toronto |
| Georgian Bay General Hospital – Midland Site | Toronto |
| Georgian Bay General Hospital - Penetanguishene | Toronto |
| Geraldton District Hospital | Toronto |
| Grey Bruce Health - Markdale | Toronto |
| Grey Bruce Health - Meaford | Toronto |
| Haldimand War Memorial Hospital | Toronto |
| Hanover & District Hospital | Toronto |
| Headwaters Healthcare Center | Toronto |

| Donor Hospital Name | Local Allocation Region |
|-------------------------------------------------------|--------------------------------|
| Holland Bloorview Kids Rehab | Toronto |
| Home Death - Central & GTA | Toronto |
| Home Death - Northern Ontario | Toronto |
| Hornepayne Community Hospital | Toronto |
| Hospital For Sick Kids | Toronto |
| Humber River Hospital | Toronto |
| Huntsville District Memorial Hospital | Toronto |
| Huron District Hospital | Toronto |
| James Bay General - Moosonee | Toronto |
| Kirkland Lake & District Hos | Toronto |
| Lady Dunn General Hospital | Toronto |
| Lady Minto Hospital | Toronto |
| Lake Of The Woods District Hospital | Toronto |
| Lakeridge Health Bowmanville | Toronto |
| Lakeridge Health Oshawa | Toronto |
| Lakeridge Health Port Perry | Toronto |
| Lakeridge Health Whitby | Toronto |
| Lions Camp Dorset | Toronto |
| Mackenzie Richmond Hill (Aka YCH) | Toronto |
| Manitoulin Health - Little Current | Toronto |
| Manitoulin Health Centre - Mindemoya | Toronto |
| Manitouwadge General Hospital | Toronto |
| Markham Stouffville Hospital | Toronto |
| Mattawa General Hospital | Toronto |
| Mccausland Hospital | Toronto |
| Milton District Hospital | Toronto |
| Minden Hospital | Toronto |
| Sinai Health System - Mount Sinai Hospital | Toronto |
| New Liskard Temiskaming Hospital | Toronto |
| Nipigon District Memorial | Toronto |
| North Bay Regional Hospital | Toronto |
| North West Gta | Toronto |
| North York General Hospital | Toronto |
| Northumberland Hills Hospital - Cobourg | Toronto |
| Notre-Dame | Toronto |
| Nursing Home - Central & Gta | Toronto |
| Nursing Home - Northern Ontario | Toronto |
| Halton Healthcare - Oakville Trafalgar Memorial | Toronto |
| Peterborough Clinic | Toronto |
| Peterborough Regional Health Centre | Toronto |
| Pickering Dialysis Management Centre | Toronto |
| Princess Margaret Hospital | Toronto |
| Providence Healthcare | Toronto |
| Rainy River Valley | Toronto |
| Red Lake Margaret Cochenour | Toronto |
| Ross Memorial Hospital | Toronto |
| Lakeridge Health Ajax Pickering | Toronto |
| Scarborough Rouge Hospital - Centenary | Toronto |
| Royal Victoria Hospital | Toronto |
| Runnymede Healthcare Centre | Toronto |
| Salvation Army Grace Hospital – Grace Manor (Toronto) | Toronto |
| Saugeen Memorial Hospital | Toronto |
| Scarborough Rouge Hospital - Birchmount | Toronto |
| Scarborough Rouge Hospital – General Site | Toronto |

| Donor Hospital Name | Local Allocation Region |
|---------------------------------------------------|--------------------------------|
| Scarborough Satellite | Toronto |
| Sensenbrenner Hospital | Toronto |
| Shelburne District Hospital | Toronto |
| Sheppard Centre | Toronto |
| Sioux Lookout General Hospital | Toronto |
| Smooth Rock Falls Hospital | Toronto |
| Soldiers' Memorial Hospital | Toronto |
| South Muskoka Memorial Hospital | Toronto |
| Southlake Regional Health Centre | Toronto |
| St Joseph's Health Centre - Toronto | Toronto |
| St Michael's Hospital | Toronto |
| St. John's Rehab | Toronto |
| St. Joseph's Care Group - Thunder Bay | Toronto |
| St. Joseph's General - Elliot Lake | Toronto |
| Stevenson Memorial Hospital | Toronto |
| West Nipissing General Hospital | Toronto |
| Sunnybrook Health Sciences | Toronto |
| Sunnybrook Ortho & Arthritic | Toronto |
| Sussex Centre | Toronto |
| TGLN - PRC | Toronto |
| Thunder Bay Regional | Toronto |
| Timmins & District Hospital | Toronto |
| Michael Garron Hospital | Toronto |
| Toronto General Hospital | Toronto |
| Toronto Western Hospital | Toronto |
| Trillium Health Partners – Queensway Health | Toronto |
| Trillium Health Partners – Mississauga Hospital | Toronto |
| Trillium Health Partners – Credit Valley Hospital | Toronto |
| Uxbridge Hospital - MSH | Toronto |
| West Park Healthcare Centre | Toronto |
| West Parry Sound Health Centre | Toronto |
| William Osler Health System - Etobicoke | Toronto |
| William Osler Health System - Brampton | Toronto |
| Wilson Memorial General Hospital | Toronto |
| Women's College Hospital | Toronto |

Appendix 3C: Kidney Allocation Tables

Candidates will be allocated to the highest ranking category which they are eligible for. Multi-organ candidates (cluster, combination, staged kidneys), kidney/pancreas candidates, pancreas alone candidates, and pediatric candidates (<18 years) do not have a local donor region and will appear in all local region steps, regardless of which program they are listed in.

Table 1. Allocation of Kidneys from Donors < 4 years

| LOCAL ALLOCATION | | | |
|---------------------------------------|------------------------------------|--------------------------------------------|---------------------------------------|
| | Candidates within: | Candidate category: | ABO Ranking within category: |
| 1 | Local Region | Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 2 | Local Region | cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 3 | Local Region | cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 4 | Local Region | Kidney List Exchange/Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 5 | All Ontario | Multi-Organ, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 6 | All Ontario | Multi-Organ, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 7 | Local Region | cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 8 | Local Region | cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 9 | Outside Donor Region | Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 10 | Outside Donor Region | cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 11 | Outside Donor Region | cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 12 | Outside Donor Region | cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 13 | Outside Donor Region | cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| PROVINCIAL/NATIONAL ALLOCATION | | | |
| # | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | All Ontario | Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 2 | All Ontario & Canada | HSP candidates identified by the CTR | N/A |
| 3 | All Ontario | cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 4 | All Ontario | cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 5 | All Ontario | Kidney List Exchange/Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 6 | All Ontario | Multi-Organ, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |

| | | | |
|----|-------------|-----------------------|---------------------------------------|
| 7 | All Ontario | Multi-Organ, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 8 | All Ontario | cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 9 | All Ontario | cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 10 | All Canada | Out of Province | N/A |
| 11 | U.S (UNOS) | U.S. | N/A |

Table 2. Allocation of Kidneys from Donors < 35 years

| LOCAL ALLOCATION | | | |
|-------------------------|----------------------------------------|------------------------------------------------|---------------------------------------|
| # | Candidates that are within the: | Candidate category: | ABO Ranking within category: |
| 1 | All Ontario | Medically Urgent, Pediatric | A2/A2B, identical ABO, compatible ABO |
| 2 | Local Region | Medically Urgent, Adult | A2/A2B, identical ABO, compatible ABO |
| 3 | All Ontario | Pediatric, cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 4 | All Ontario | Pediatric, cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 5 | Local Region | Adult, cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 6 | Local Region | Adult, cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 7 | Local Region | Kidney List Exchange/ Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 8 | All Ontario | Multi-Organ, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 9 | All Ontario | Multi-Organ, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 10 | All Ontario | Pediatric, cPRA >=95 to <99 | A2/A2B, identical ABO |
| 11 | All Ontario | Pediatric, cPRA <95 | A2/A2B, identical ABO |
| 12 | All Ontario | KP/PAK/PTA, cPRA >=95 to <99 | A2/A2B, identical ABO |
| 13 | All Ontario | KP/PAK/PTA, cPRA <95 | A2/A2B, identical ABO |
| 14 | All Ontario | Pediatric, cPRA >=95 to <99 | Compatible ABO |
| 15 | All Ontario | Pediatric, cPRA <95 | Compatible ABO |
| 16 | All Ontario | KP/PAK/PTA, cPRA >=95 to <99 | Compatible ABO |
| 17 | All Ontario | KP/PAK/PTA, cPRA <95 | Compatible ABO |
| 18 | Local Region | Adult <=55 years, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 19 | Local Region | Adult >55 years, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 20 | Local Region | Adult <=55 years, cPRA <95 | A2/A2B, identical ABO, compatible ABO |

| | | | |
|---------------------------------------|----------------------------------------|--------------------------------------------|---------------------------------------|
| 21 | Local Region | Adult >55 years, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 22 | Outside Donor Region | Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 23 | Outside Donor Region | Adult, cPRA = 100 | A2/A2B, identical ABO, compatible ABO |
| 24 | Outside Donor Region | Adult, cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 25 | Outside Donor Region | Adult </=55 years, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 26 | Outside Donor Region | Adult >55 years, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 27 | Outside Donor Region | Adult </=55 years, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 28 | Outside Donor Region | Adult >55 years, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| PROVINCIAL/NATIONAL ALLOCATION | | | |
| # | Candidates that are within the: | Candidate category | ABO Ranking within category: |
| 1 | All Ontario | Medically Urgent Pediatric | A2/A2B, identical ABO, compatible ABO |
| 2 | All Ontario | Medically Urgent Adult | A2/A2B, identical ABO, compatible ABO |
| 3 | All Ontario & Canada | HSP candidates identified by the CTR | N/A |
| 4 | All Ontario | Pediatric, cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 5 | All Ontario | Pediatric, cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 6 | All Ontario | Adult, cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 7 | All Ontario | Adult, cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 8 | All Ontario | Kidney List Exchange/Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 9 | All Ontario | Multi-Organ, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 10 | All Ontario | Multi-Organ, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 11 | All Ontario | Pediatric, cPRA >=95 to <99 | A2/A2B, identical ABO |
| 12 | All Ontario | Pediatric, cPRA <95 | A2/A2B, identical ABO |
| 13 | All Ontario | KP/PAK/PTA, cPRA >=95 to <99 | A2/A2B, identical ABO |
| 14 | All Ontario | KP/PAK/PTA, cPRA <95 | A2/A2B, identical ABO |
| 15 | All Ontario | Pediatric, cPRA >=95 to <99 | Compatible ABO |
| 16 | All Ontario | Pediatric, cPRA <95 | Compatible ABO |
| 17 | All Ontario | KP/PAK/PTA, cPRA >=95 to <99 | Compatible ABO |
| 18 | All Ontario | KP/PAK/PTA, cPRA <95 | Compatible ABO |

| | | | |
|----|-------------|-------------------------------------------------|---------------------------------------|
| 19 | All Ontario | Adult ≤ 55 years, cPRA ≥ 95 to < 99 | A2/A2B, identical ABO, compatible ABO |
| 20 | All Ontario | Adult > 55 years, cPRA ≥ 95 to < 99 | A2/A2B, identical ABO, compatible ABO |
| 21 | All Ontario | Adult ≤ 55 years, cPRA < 95 | A2/A2B, identical ABO, compatible ABO |
| 22 | All Ontario | Adult > 55 years, cPRA < 95 | A2/A2B, identical ABO, compatible ABO |
| 23 | All Canada | Out of Province | N/A |
| 24 | U.S (UNOS) | U.S. | N/A |

Table 3. Allocation of Kidneys from non-extended criteria donor ≥ 35 (non-ECD)

| LOCAL ALLOCATION | | | |
|---------------------------------------|------------------------------------|--------------------------------------------|---------------------------------------|
| | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | All Ontario | Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 2 | Local Region | cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 3 | Local Region | cPRA ≥ 99 to < 100 | A2/A2B, identical ABO, compatible ABO |
| 4 | Local Region | Kidney List Exchange/Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 5 | All Ontario | Multi-Organ, cPRA ≥ 95 to < 99 | A2/A2B, identical ABO, compatible ABO |
| 6 | All Ontario | Multi-Organ, cPRA < 95 | A2/A2B, identical ABO, compatible ABO |
| 7 | All Ontario | KP/PAK/PTA, cPRA ≥ 95 to < 99 | A2/A2B, identical ABO, compatible ABO |
| 8 | All Ontario | KP/PAK/PTA, cPRA < 95 | A2/A2B, identical ABO, compatible ABO |
| 9 | Local Region | cPRA ≥ 95 to < 99 | A2/A2B, identical ABO, compatible ABO |
| 10 | Local Region | cPRA < 95 | A2/A2B, identical ABO, compatible ABO |
| 11 | Outside Donor Region | Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 12 | Outside Donor Region | cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 13 | Outside Donor Region | cPRA ≥ 99 to < 100 | A2/A2B, identical ABO, compatible ABO |
| 14 | Outside Donor Region | cPRA ≥ 95 to < 99 | A2/A2B, identical ABO, compatible ABO |
| 15 | Outside Donor Region | cPRA < 95 | A2/A2B, identical ABO, compatible ABO |
| PROVINCIAL/NATIONAL ALLOCATION | | | |
| # | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | All Ontario | Medically Urgent | A2/A2B, identical ABO, compatible ABO |

| | | | |
|----|----------------------|--------------------------------------------|---------------------------------------|
| 2 | All Ontario & Canada | HSP candidates identified by the CTR | N/A |
| 3 | All Ontario | cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 4 | All Ontario | cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 5 | All Ontario | Kidney List Exchange/Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 6 | All Ontario | Multi-Organ, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 7 | All Ontario | Multi-Organ, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 8 | All Ontario | KP/PAK/PTA, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 9 | All Ontario | KP/PAK/PTA, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 10 | All Ontario | cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 11 | All Ontario | cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 12 | All Canada | Out of Province | N/A |
| 13 | U.S (UNOS) | U.S. | N/A |

Table 4. Allocation of Kidneys from extended criteria donors (ECD)

| LOCAL ALLOCATION | | | |
|-------------------------|------------------------------------|-------------------------------------------------|---------------------------------------|
| | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | All Ontario | ECD Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 2 | Local Region | ECD Candidates cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 3 | Local Region | ECD Candidates cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 4 | Local Region | ECD Kidney List Exchange/ Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 5 | All Ontario | ECD Multi-Organ, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 6 | All Ontario | ECD Multi-Organ, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 7 | Local Region | ECD Candidates, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 8 | Local Region | ECD Candidates, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 9 | Outside Donor Region | ECD Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 10 | Outside Donor Region | ECD Candidates, cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 11 | Outside Donor Region | ECD Candidates, cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |

| 12 | Outside Donor Region | ECD Candidates, cPRA \geq 95 to $<$ 99 | A2/A2B, identical ABO, compatible ABO |
|--------------------------------|-----------------------------|----------------------------------------------------|---------------------------------------|
| 13 | Outside Donor Region | ECD Candidates, cPRA $<$ 95 | A2/A2B, identical ABO, compatible ABO |
| PROVINCIAL/NATIONAL ALLOCATION | | | |
| # | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | All Ontario | ECD Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 2 | All Ontario & Canada | HSP candidates identified by the CTR | N/A |
| 3 | All Ontario | ECD Candidates, cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 4 | All Ontario | ECD Candidates, cPRA \geq 99 to $<$ 100 | A2/A2B, identical ABO, compatible ABO |
| 5 | All Ontario | ECD Kidney List Exchange/ Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 6 | All Ontario | ECD Multi-Organ, cPRA \geq 95 to $<$ 99 | A2/A2B, identical ABO, compatible ABO |
| 7 | All Ontario | ECD Multi-Organ, cPRA $<$ 95 | A2/A2B, identical ABO, compatible ABO |
| 8 | All Ontario | ECD Candidates, cPRA \geq 95 to $<$ 99 | A2/A2B, identical ABO, compatible ABO |
| 9 | All Ontario | ECD Candidates, cPRA $<$ 95 | A2/A2B, identical ABO, compatible ABO |

Table 5. Allocation of Kidneys from anonymous/living exchange (LE) living donors $<$ 35

| LOCAL ALLOCATION | | | |
|------------------|-----------------------------|--------------------------------------------|---------------------------------------|
| # | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | Donor Hospital | Medically Urgent Pediatric | A2/A2B, identical ABO, compatible ABO |
| 2 | Donor Hospital | Medically Urgent Adult | A2/A2B, identical ABO, compatible ABO |
| 3 | Donor Hospital | Pediatric, cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 4 | Donor Hospital | Pediatric, cPRA \geq 99 to $<$ 100 | A2/A2B, identical ABO, compatible ABO |
| 5 | Donor Hospital | Adult, cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 6 | Donor Hospital | Adult, cPRA \geq 99 to $<$ 100 | A2/A2B, identical ABO, compatible ABO |
| 7 | Donor Hospital | Kidney List Exchange/Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 8 | Donor Hospital | Multi-Organ, cPRA \geq 95 to $<$ 99 | A2/A2B, identical ABO, compatible ABO |
| 9 | Donor Hospital | Multi-Organ, cPRA $<$ 95 | A2/A2B, identical ABO, compatible ABO |
| 10 | Donor Hospital | Pediatric, cPRA \geq 95 to $<$ 99 | A2/A2B, identical ABO, compatible ABO |
| 11 | Donor Hospital | Pediatric, cPRA $<$ 95 | A2/A2B, identical ABO, compatible ABO |

| | | | |
|----|----------------|------------------------------------|---------------------------------------|
| 12 | Donor Hospital | Adult <=55 years, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 13 | Donor Hospital | Adult >55 years, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 14 | Donor Hospital | Adult <=55 years, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 15 | Donor Hospital | Adult >55 years, cPRA <95 | A2/A2B, identical ABO, compatible ABO |

Table 6. Allocation of Kidneys from anonymous/living exchange (LE) living donors >= 35

| LOCAL ALLOCATION | | | |
|-------------------------|------------------------------------|--------------------------------------------|---------------------------------------|
| # | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | Donor Hospital | Medically Urgent | A2/A2B, identical ABO, compatible ABO |
| 2 | Donor Hospital | cPRA=100 | A2/A2B, identical ABO, compatible ABO |
| 3 | Donor Hospital | cPRA >=99 to <100 | A2/A2B, identical ABO, compatible ABO |
| 4 | Donor Hospital | Kidney List Exchange/Previous Living Donor | A2/A2B, identical ABO, compatible ABO |
| 5 | Donor Hospital | Multi-Organ, cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 6 | Donor Hospital | Multi-Organ, cPRA <95 | A2/A2B, identical ABO, compatible ABO |
| 7 | Donor Hospital | cPRA >=95 to <99 | A2/A2B, identical ABO, compatible ABO |
| 8 | Donor Hospital | cPRA <95 | A2/A2B, identical ABO, compatible ABO |

4. Liver and Liver-Bowel Policies

4.1 Wait List Requirements and Statuses

4.1.1 Medical Status

Liver and liver cluster candidates are listed by their transplant program with one of the following medical statuses:

| Status | Medical Criteria |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4F | Imminent death; intubated and in fulminant hepatic failure (FHF): <ul style="list-style-type: none"> meets King's College criteria for poor prognosis includes acute M. Wilson, primary allograft failure i.e. allograft failure within 7 days of first transplant secondary to primary non function or hepatic artery thrombosis |
| 3F | ICU admission for fulminant hepatic failure (FHF): <ul style="list-style-type: none"> meets King's College criteria for poor prognosis includes acute M. Wilson, primary allograft failure (i.e. allograft failure within 7 days of first transplant secondary to primary non function or hepatic artery thrombosis) OR Young paediatric candidate (current age ≤ 12) for liver bowel grafts that are hospitalized for related disease |
| SMC | Sodium MELD Calculation or PELD for paediatric patients (see <i>Appendix 4A</i> for formula) |
| Temporarily On Hold | Candidates on hold are not eligible for allocation of donor livers but accrue wait time |

For more information on referral and listing policies, refer to Ontario's Referral and Listing Criteria: <https://www.giftoflife.on.ca/en/professionals.htm#transref>

4.1.2 Wait List Suspension

A candidate who has a medical status of "on hold" for longer than 120 consecutive days without having their medical status reviewed by their transplant program is suspended. A suspended candidate is not eligible for organ allocation and does not accrue wait time towards their allocation prioritization.

4.1.3 Lab Testing Requirements and Registration Status

Candidates on the wait list are required to have SMC lab values reported at a minimum of every 90 days but may be done at shorter intervals and as frequent as deemed appropriate by the treating physician. Candidates must have SMC lab values < 90 days old to be allocated an organ. If SMC lab values are not reported by 70 days, the candidate's transplant program is alerted. If SMC lab values are still not reported by 90 days, the candidate's registration is placed on suspension and the candidate's transplant program is alerted.

Candidates with Hepatocellular Carcinoma (HCC) who meet the HCC exception criteria are required to have HCC data reported at a minimum of every 120 days but may be done at shorter intervals and as frequent as deemed appropriate by the treating physician. HCC candidates that

meet the criteria must have HCC data < 120 days old to be allocated an organ. If HCC data is not reported by 70 days, the candidate's transplant program is alerted. If HCC data still not reported by 120 days, the candidate's registration is placed on suspension and the candidate's transplant program is alerted.

Liver and liver cluster candidates on the wait list have a system-generated registration status that is based on lab testing requirements as follows:

| Status | Definition |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Active | SMC and/or HCC lab testing meets requirements and candidate is eligible for organ allocation. |
| Suspension | SMC and/or HCC lab testing requirements have not been met and candidate is not eligible for organ allocation and does not accrue wait time. |

Note: Candidates that urgently need an organ (4F and 3F patients) are not required to meet the SMC or HCC lab testing requirements outlined above.

4.1.4 Out of Province Transfers

Liver and liver-bowel candidates transferred from another Canadian province to an Ontario liver transplant program may have their wait time transferred only if they met the Ontario criteria at the time of listing. Candidates who did not meet the Ontario criteria at the time of listing can use the date when the Ontario criteria was met as the date of listing in order to retain their time waiting. The following documentation must be provided:

- Date of activation on the non-Ontario wait list
- Dates a candidate was not active (not accruing wait time) on the non-Ontario wait list
- Date and evidence of meeting Ontario criteria after non-Ontario listing date, if applicable.

4.2 Wait Time

4.2.1 Wait Time Calculations

Wait time is calculated using the date a candidate is added to the Ontario wait list with a medical status (see Section 4.1.1). Wait time starts to accrue from the following time points.

| Candidate Group | Start of wait time calculation |
|-------------------|--------------------------------|
| Adult | The date of listing. |
| Paediatric | The date of listing. |

Suspension Time: The number of days that a candidate has been suspended from the wait list is subtracted from total wait time.

4.3 Allocation

4.3.1 Identifying Potential Recipients (Matching)

Eligible candidates are matched based on their compatibility to the donor on the following criteria:

1) **Blood Group:**

| Donor blood group | Recipient blood group can be: |
|-------------------|-------------------------------|
| O | O, A, B, AB |
| A | A, AB |
| B | B, AB |
| AB | AB |

NOTE: There are certain conditions where a candidate may receive an organ from an incompatible ABO donor (see section 4.3.5).

- 2) **Serology:** Hepatitis C Ab positive donor organs are matched to all candidates. Hep C NAT positive donor organs are matched to candidates who have been identified by their transplant program as potential recipients.
- 3) **Recipient Specific Criteria:** Other criteria such as height, weight/BMI, age etc. are taken into consideration by the transplant program for recipient-donor matching

4.3.2 Local and Provincial/National Allocation

4.3.2.1 Local Allocation (Locality Rule)

A liver donated from a hospital local to a transplant program (defined in *Appendix 4B*) will be allocated to that transplant program when the difference in SMC between the highest need patients at each program is ≤ 4 . Locality Rule does not apply to 4F and 3F patients.

4.3.2.2 Provincial/National Allocation

All Ontario donor livers are allocated to the highest status candidate in Ontario first.

4.3.3 Organ Offer Discussion

After an organ is accepted by a transplant program, a mandatory discussion must occur before the deferral of the organ to a high status (4F and 3F) patient that was listed after the initial organ acceptance took place. The final decision to defer the organ will be made by the transplant program that had initially accepted the organ offer.

4.3.4 Split Procedures

- The decision as to whether to perform a split procedure is at the discretion of the accepting surgeon for the highest priority patient.
- The remainder of the split liver will be allocated to the next highest SMC patient on the list.
- The accepting program with the highest listed patient makes the decision as to where the split procedure will be performed.

4.3.5 Priority Categories for Matched Candidates

Matched candidates are prioritized using the following categories:

| Rank | Category |
|------|----------------------------------------------------------------------------------------------------------|
| 1 | 4F Recipient (regardless of ABO) listed in Ontario |
| 2 | 4F Recipient (regardless of ABO) listed outside of Ontario in Canada |
| 3 | 3F ABO Identical Recipient listed in Ontario |
| 4 | 3F ABO Compatible Recipient listed in Ontario |
| 5 | 3F ABO Incompatible Recipient (selected paediatrics patients only)* listed in Ontario |
| 6 | 3F ABO Identical Recipient listed outside of Ontario in Canada (mandatory discussion prior to deferral) |
| 7 | 3F ABO Compatible Recipient listed outside of Ontario in Canada (mandatory discussion prior to deferral) |
| 8 | Highest SMC or PELD ABO Identical Recipient listed in Ontario |
| 9 | Highest SMC or PELD ABO Incompatible Recipient (selected paediatric patients only)** listed in Ontario |
| 10 | Highest SMC or PELD ABO Compatible Recipient listed in Ontario |
| 11 | ABO Identical Recipient listed outside of Ontario in Canada |
| 12 | ABO Compatible Recipient listed outside of Ontario in Canada |
| 13 | Patients listed by US transplant program (UNOS) |

*Selected cases of paediatric (age ≤ 17 years) 3Fs

**Selected infants (age < 12 months) that meet standard liver transplant criteria (for incompatible allocations)

4.3.6 Additional Ranking and Exception Points

Within each of the priority categories identified above, candidates are ranked in the following order:

- 1) **SMC or PELD** (only applicable to steps 8, 9 and 10 outlined above). The candidate with the highest SMC or PELD score will be prioritized on the allocation list.
- 2) **Wait Time** (days and hours) (not applicable to steps 11, 12 and 13 outlined above)
- 3) **List Date** (not applicable to steps 11, 12 and 13 outlined above)

4.3.6.1 Exception Points

Some candidates have diseases/conditions for which their calculated SMC score will not be used to prioritize them on the wait list. These diseases/conditions are ones in which the SMC does not always reflect the candidates medical urgency/need for an organ. Instead of the SMC score, candidates will receive exception points. Exception points apply to the following:

- 1) **Paediatric Patients**
- 2) **Multi-Organ Clusters**
- 3) **Exception Diseases**
- 4) **Hepatocellular Carcinoma (HCC)**

Paediatric patients and Multi-Organ Cluster patients are assigned exception point scores based on their disease/condition. Exception Disease patients and HCC patients will get a baseline of 22 points and a three point increase every 90 days up to a maximum of 40 points. Details of each exception type can be found in *Appendix 4C*.

Rare/unique cases that fall outside of the established criteria as defined in the Ontario Liver & Liver-Bowel Transplantation Allocation Algorithm can be brought forward to the Special Case Committee at the discretion of the treating physician for review and consideration for listing and/or assigning exception points.

4.4 Key Definitions

| Term | Description |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Candidate | A person on the organ transplant waiting list. |
| Cluster | A type of transplant that requires more than one organ to be retrieved from the same donor for a simultaneous transplant procedure. |
| Bridging Therapy | A type of therapy (embolization, radiation, etc.) aimed at reducing or preventing further growth of a tumour(s) for HCC patients on the liver transplant wait list |
| Deceased Donor | A deceased person for whom at least one organ has been retrieved and transplanted. |
| Downstaging | A type of therapy (embolization, radiation, etc.) aimed at reducing the size of a tumour(s) in order for HCC patients to meet the criteria to be a candidates on the liver transplant wait list. |
| Exception Disease | A type of condition/disease that candidates receive exception points for if meeting the criteria as applicable. |
| Hepatocellular Carcinoma (HCC) | A type of primary liver cancer. Candidates that meet the criteria for HCC will receive exception points. |
| Special Case Committee | A committee that reviews and responds to requests for listing patients and/or assigning exceptions points for unique cases that fall outside of the established criteria as defined in the Ontario Liver & Liver-Bowel Transplantation Allocation Algorithm. |
| Wait list | A computerized list of candidates who are waiting to be matched with specific deceased donor organs for transplant. |

4.5 Liver and Liver-Bowel Policy Appendices

Appendix 4A: SMC and PELD Calculations

| Item | Description |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Sodium MELD Calculation (SMC)</p> | <p><u>Model for End-Stage Liver Disease (MELD)</u> measures the 90-day wait list mortality risk for candidates with end-stage liver disease. MELD is calculated as follows:</p> $\text{MELD} = \{0.957 \cdot \text{Log } e(\text{creatinine mg/dL}) + 0.378 \cdot \text{Log } e(\text{bilirubin mg/dL}) + 1.12 \cdot \text{Log } e(\text{INR}) + 0.643\} \cdot 10$ <p><i>Calculation Notes:</i></p> <ul style="list-style-type: none"> • Range of MELD is between 1 and 40 • If On Dialysis then Creatinine = 353.6 $\mu\text{mol/L}$ or (4 mg/dL) • If Bilirubin < 17.1 then Bilirubin = 17.1 $\mu\text{mol/L}$ or (1.0 mg/dL) • If Serum Creatinine < 88.4 and not On Dialysis then Serum Creatinine = 88.4 $\mu\text{mol/L}$ or (1.0 mg/dL) • If INR < 1 then INR=1 <p><u>Sodium MELD</u> is used to further prioritize candidates with end-stage liver disease on the liver transplant wait list. It uses the MELD score and incorporates the sodium value to calculate a sodium MELD score – SMC.</p> <p>SMC is calculated as follows:</p> $\text{SMC} = \text{MELD} - \text{Na} - 0.025 \cdot \text{MELD} \cdot (140 - \text{Na}) + 140$ <p><i>Calculation Notes:</i></p> <ul style="list-style-type: none"> • Na = Sodium value • If Na is < 125 then Na = 125 mmol/L • If Na is > 137 then Na = 137 mmol/L |
| <p>PELD</p> | <p><u>Paediatric End-Stage Liver Disease (PELD)</u> is used to prioritize paediatric candidates < 12 years of age on the liver transplant wait list. PELD is calculated as follows:</p> $\text{PELD} = 0.480 \times \text{Log } e(\text{bilirubin mg/dL}) + 1.857 \times \text{Log } e(\text{INR}) - 0.687 \times \text{Log } e(\text{albumin g/dL}) + 0.436$ <p><i>Calculation Notes:</i></p> <ul style="list-style-type: none"> • If the patient is less than 1 year old (scores for patients listed for liver transplantation before the patient's first birthday continue to include the value assigned for age (< 1 Year) until the patient reached the age of 24 months) + 0.667 if the patient has growth failure (<-2 Standard deviation). • Multiply the score by 10 and round to the nearest whole number. • Laboratory values less than 1.0 are set to 1.0 for the purposes of the PELD score calculation. |

Appendix 4B: Locality Rule – Defined Donor Hospitals

| Donation Hospital Corporation Name | Transplant Program where Locality Rule Applies |
|-------------------------------------|------------------------------------------------|
| BLUEWATER HEALTH | LHSC |
| HOTEL DIEU GRACE HEALTHCARE | LHSC |
| LONDON HEALTH SCIENCES CENTRE | LHSC |
| WINDSOR REGIONAL HOSPITAL | LHSC |
| HOSPITAL FOR SICK CHILDREN | TGH/HSC |
| HUMBER RIVER HOSPITAL | TGH/HSC |
| LAKERIDGE HEALTH | TGH/HSC |
| MACKENZIE HEALTH | TGH/HSC |
| MARKHAM STOUFFVILLE HOSPITAL | TGH/HSC |
| MICHAEL GARRON HOSPITAL | TGH/HSC |
| NORTH YORK GENERAL HOSPITAL | TGH/HSC |
| ROYAL VICTORIA HOSPITAL | TGH/HSC |
| SCARBOROUGH AND ROUGE HOSPITAL | TGH/HSC |
| SINAI HEALTH SYSTEM | TGH/HSC |
| SOUTHLAKE REGIONAL HEALTH CENTRE | TGH/HSC |
| ST JOSEPH'S HEALTH CENTRE - TORONTO | TGH/HSC |
| ST MICHAEL'S HOSPITAL | TGH/HSC |
| SUNNYBROOK HEALTH SCIENCES CENTRE | TGH/HSC |
| TRILLIUM HEALTH PARTNERS | TGH/HSC |
| UNIVERSITY HEALTH NETWORK | TGH/HSC |
| WILLIAM OSLER HEALTH SYSTEM | TGH/HSC |

Appendix 4C: Exception Points

| Item | Description |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Paediatric Patients (current age < 18 years old) | <p>Paediatric candidates will get a baseline of 24 points and a three point increase every 90 days up to a maximum of 39 points.</p> <p>Paediatric candidates with a calculated PELD or SMC (children ≥ 12) that exceeds their exception points will receive a score equal to their calculated PELD or SMC.</p> <p>Paediatric candidates with a calculated PELD or SMC (children ≥ 12) > 25 and with one of the following criteria will be assigned a score of 43 and will be eligible to receive identical or compatible ABO donor livers:</p> <ul style="list-style-type: none"> ○ On a mechanical ventilator; or ○ Gastrointestinal bleeding requiring at least 30 cc/kg of red blood cell replacement within the previous 24 hours; or candidates also on the intestine list, at least 10 cc/kg of red blood cell replacement within the previous 24 hours; or ○ Renal failure or renal insufficiency defined as requiring dialysis or continuous CVVH or continuous CVVD; or ○ Glasgow coma score <10 within 48 hours of the listing/extension. ○ Status re-certification is required every 7 days otherwise patients will be assigned accumulated baseline score |
| Multi-Organ Clusters | <p>Liver-Lung or Liver-Heart Patients</p> <ul style="list-style-type: none"> ○ Adult and paediatric candidates requiring a liver-lung cluster or a liver-heart cluster from the same donor for a simultaneous transplant procedure will be assigned a score of 42 points <p>Liver-Bowel Patients</p> <ul style="list-style-type: none"> ○ Adult candidates requiring a liver-bowel cluster from the same donor for a simultaneous transplant procedure will get a baseline of 22 points plus 10% for the risk of three month mortality and a three point increase plus 10% every 90 days up to a maximum of 40 points. ○ Paediatric candidates requiring a liver-bowel cluster from the same donor for a simultaneous transplant procedure will get a baseline of 30 points and if not transplanted within 30 days will be assigned 38 points. <p>Liver-Kidney or Liver-Pancreas Patients</p> <ul style="list-style-type: none"> ○ Adult and paediatric candidates requiring a liver-kidney cluster or a liver-pancreas cluster from the same donor for a simultaneous transplant procedure will get a baseline of 22 points and a three point increase every 90 days up to a maximum of 40 |
| Exception Diseases | <p>Below is a list of the exception diseases for which all patients will get a baseline of 22 points and a three point increase every 90 days up to a maximum of 40 points:</p> <ul style="list-style-type: none"> ○ Cholangiocarcinoma (if treated within institutionally approved Mayo protocol) ○ Cystic fibrosis ○ Failed live donor / DCD graft (if transplanted within accepted criteria and graft failure due to biliary and/or vascular complication) ○ Familial amyloid polyneuropathy ○ Hepatoblastoma ○ Metabolic disorders ○ Polycystic liver disease ○ Primary hyperoxaluria ○ Primary sclerosing cholangitis (PSC) |

| | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none"> • Patients who have 2 culture-proven bacteraemias within a 6-month period or who have septic complications of bacterial cholangitis including either a biliary or hepatic abscess, bacterial meningitis, bacterial endocarditis, bacterial osteomyelitis, fungaemia • Bacteraemia should be noniatrogenic (unrelated to a procedure such as recent endoscopic retrograde cholangiogram or transhepatic cholangiogram) and should occur in a patient who does not have a biliary tube or stent; in addition, these bacterial cholangitic episodes should occur in patients who have been treated with antibiotic therapy that has failed to suppress these septic episodes <ul style="list-style-type: none"> ○ Severe hepatopulmonary syndrome (PaO₂ <60 mmHg on room air) ○ Other (e.g. neuroendocrine tumours) through a) individual patient review and approval by the Special Case Committee, or b) research protocol after appropriate approvals have been granted and reviewed by the Special Case Committee <p>Paediatric Exception Diseases</p> <ul style="list-style-type: none"> ○ Hepatoblastoma – assigned 30 points and if not transplanted in 30 days are assigned 38 points ○ Metabolic condition/disease – assigned a baseline of 29 points and a three point increase every 90 days to a maximum of 38 points <p>Exception disease patients with a calculated SMC that exceeds their exception points will receive a score equal to their calculated SMC.</p> |
| HCC | <p>HCC exception patients will get a baseline of 22 points and a three point increase every 90 days up to a maximum of 40 points if they meet the following criteria:</p> <ul style="list-style-type: none"> ○ Single HCC ≥ 2.0 cm <ul style="list-style-type: none"> ▪ OR ○ Multiple HCC (currently or over time) ≥ 1.0 cm <ul style="list-style-type: none"> ▪ OR ○ Single HCC > 1.0 cm and ≤ 2.0 cm that cannot be treated by intent to cure other than liver transplantation <ul style="list-style-type: none"> ○ OR ○ Any recurrent HCC ≥ 1.0 cm <ul style="list-style-type: none"> ▪ AND ○ TTV ≤ 145cm³ and AFP ≤ 1000 <ul style="list-style-type: none"> ▪ AND ○ No evidence of vascular invasion or extrahepatic spread <ul style="list-style-type: none"> ▪ AND ○ No HCC mixed with predominance of cholangiocarcinoma features on histology <p>HCC candidates with a calculated SMC that exceeds their exception points will receive a score equal to their calculated SMC.</p> <p>HCC candidates not fulfilling the specified criteria (outlined above) do not receive exception points but can be actively listed as per their calculated SMC.</p> <p><u>HCC imaging:</u></p> <ul style="list-style-type: none"> ▪ HCCs < 1.0 cm on imaging are indeterminate and do not count as HCC ▪ Random audits will be conducted on HCC patients. Documentation is required, including dynamic imaging (CT, MRI, CEUS) that has the following characteristics: <ol style="list-style-type: none"> 1. Increased contrast enhancement on late arterial phase (relative to hepatic parenchyma) 2. Washout during the later contrast phases AND/OR peripheral rim enhancement (capsule/pseudocapsule) on delayed phase; or biopsy |

| | |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p><u>Bridging therapy:</u></p> <ul style="list-style-type: none"> ▪ Candidate's whose tumours have been ablated after previously meeting the criteria will be eligible for exception points if the tumours fall within or below the minimum criteria (as reported every 90 days) <p><u>Downstaging:</u></p> <ul style="list-style-type: none"> ▪ Candidates undergoing downstaging treatment will be eligible for exceptions points if the HCC falls within or below the minimum criteria 90 days post procedure |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

5. Small Bowel Policies

5.1 Wait List Requirements and Statuses

5.1.1 Medical Status

Small bowel and small bowel cluster candidates are listed by their transplant program with one of the following medical statuses:

| Status | Notes |
|---------|-----------------------------------------------------------------------------------------------|
| 3 | Candidates are in ICU or step down admission for complication of bowel disease |
| 2 | Candidates are hospitalized for related disease |
| 1 | Candidates are waiting at home |
| On Hold | Candidates on hold are not eligible for allocation of donor Small Bowels but accrue wait time |

For more information on referral and listing policies, refer to Ontario's Referral and Listing Criteria: <https://www.giftoflife.on.ca/en/professionals.htm#transref>

5.1.2 Wait List Suspension

A candidate who has a medical status of "on hold" for longer than 120 consecutive days without having their medical status reviewed by their transplant program is suspended. A suspended candidate is not eligible for organ allocation and does not accrue wait time towards their allocation prioritization (see 5.3.2).

5.1.3 Out of Province Transfers

Small Bowel candidates transferred from another Canadian province to an Ontario small bowel transplant program may have their wait time transferred only if they met the Ontario criteria at the time of listing. Candidates who did not meet the Ontario criteria at the time of listing can use the date when the Ontario criteria was met as the date of listing in order to retain their time waiting. The following documentation must be provided:

- Date of activation on the non-Ontario wait list
- Dates a candidate was not active (not accruing wait time) on the non-Ontario wait list
- Date and evidence of meeting Ontario criteria after non-Ontario listing date, if applicable

5.2 Wait Time

5.2.1 Wait Time Calculations

Wait time is calculated using the date a candidate is added to the Ontario wait list with a medical status (see Section 5.1.1). Wait time starts to accrue from the following time points.

| Candidate Group | Start of wait time calculation |
|-----------------|--------------------------------|
| Adult | The date of listing. |
| Paediatric | The date of listing. |

Suspension Time: The number of days that a candidate has been suspended from the wait list is subtracted from total wait time.

5.3 Allocation

5.3.1 Identifying Potential Recipients (Matching)

Eligible candidates are matched based on their compatibility to the donor on the following criteria:

1) **Blood Group:**

| Donor blood group | Recipient blood group can be: |
|-------------------|-------------------------------|
| O | O |
| A | A |
| B | B |
| AB | AB |

2) **Serology:** Hepatitis C Ab positive donor organs are matched to all candidates. Hep C NAT positive donor organs are matched to candidates who have been identified by their transplant program as potential recipients.

3) **Recipient Specific Criteria:** Other criteria such as height, weight/BMI, age etc. are taken into consideration by the transplant program for recipient-donor matching.

5.3.2 Priority Categories for Matched Candidates

Matched candidates are prioritized using the following categories.

| Rank | Category |
|------|------------------------------------------------------------------------------------------|
| 1 | Status 3 ABO Identical Recipient listed by any Bowel Transplant Program (BTP) in Ontario |
| 2 | Status 2 ABO Identical Recipient listed by any BTP in Ontario |
| 3 | Status 1 ABO Identical Recipient listed by any BTP in Ontario |
| 4 | Status 3 ABO Identical Recipient listed by BTP outside of Ontario in Canada |

| | |
|----------|-----------------------------------------------------------------------------|
| 5 | Status 2 ABO Identical Recipient listed by BTP outside of Ontario in Canada |
| 6 | Status 1 ABO Identical Recipient listed by BTP outside of Ontario in Canada |
| 7 | Patients listed by US transplant program (UNOS) |

5.3.3 Additional Ranking

Within each of the priority categories identified above, candidates are ranked in the following order:

- 1) **Wait Time** (days and hours) (not applicable to steps 4, 5, 6 and 7 outlined above)
- 2) **List Date** (not applicable to steps 4, 5, 6 and 7 outlined above)

5.4 Key Definitions

| Term | Description |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Candidate | A person on the organ transplant waiting list. |
| Cluster | A type of transplant that requires more than one organ to be retrieved from the same donor for a simultaneous transplant procedure. |
| Deceased Donor | A deceased person for whom at least one organ has been retrieved and transplanted. |
| Wait List | A computerized list of candidates who are waiting to be matched with specific deceased donor organs for transplant. |

6. Heart Policies

6.1 Wait List Requirements and Statuses

6.1.1 Medical Status

Adult and paediatric heart candidates are listed by their transplant program with one of the following medical statuses.

Table 1. Adult Medical Status ≥ 18 Years Old

| Status | Medical Criteria |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | <ul style="list-style-type: none"> Mechanically ventilated candidate on high-dose single or multiple inotropes ± temporary mechanical circulatory support (e.g. Intra-aortic balloon pump, extra-corporeal membrane oxygenation (ECMO), abimed BVS5000, or biomedicus), excluding long-term ventricular assist devices (VAD). Candidate with VAD malfunction or complication, such as thromboembolism, systemic device-related infection, mechanical failure, or life-threatening arrhythmia. Candidate should be reconfirmed every 7 days as a Status 4 by a qualified physician, if still medically appropriate. |
| 4S | <ul style="list-style-type: none"> High cPRA (>80% using the Canadian cPRA calculator) <ul style="list-style-type: none"> cPRA includes all HLA loci (A, B, C, DRB1, DRB345, DQA1, DQB1, DPA1, and DPB1). |
| 3.5 | <ul style="list-style-type: none"> High-dose or multiple inotropes in hospital, and candidates not suitable for VAD therapy or no VAD available. Acute refractory ventricular arrhythmias |
| 3 | <ul style="list-style-type: none"> VAD not meeting Status 4 criteria. Candidates on inotropes in hospital, not meeting above criteria. Heart/Lung recipient candidates. Cyanotic congenital heart disease with resting saturation <65%. Congenital heart disease – arterial-shunt-dependent. Adult-sized complex congenital heart disease with increasing dysrhythmic or systemic ventricular decline. |
| 2 | <ul style="list-style-type: none"> In-hospital candidate, or candidate on outpatient inotropic therapy not meeting the above criteria. Candidates listed for multiple organ transplantation (other than heart-lung). |
| 1 | <ul style="list-style-type: none"> Adult with cyanotic Congenital Heart Disease: resting O₂ saturation 65–75% or prolonged desaturation to less than 60% with modest activity (i.e., walking). Adult with Fontan palliation with protein-losing enteropathy. All other out-of-hospital candidates |
| Temporarily On Hold | <ul style="list-style-type: none"> Candidates on hold are not eligible for allocation of donor hearts but accrue wait time. |

Table 2. Paediatric Medical Status <18 Years Old

| Status | Medical Criteria |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | <ul style="list-style-type: none"> • VAD in a candidate <8 kg and <1 year old at implantation • Paracorporeal VAD in a single ventricle candidate • Mechanical ventilator dependence on high dose single or multiple inotropes + mechanical circulatory support • Mechanical ventilator dependence for cardiac failure where cardiac condition precludes inotropes. • VAD malfunction or complication such as thromboembolism, systemic device-related infection, mechanical failure, ventilator dependence or life threatening arrhythmia • Candidates should be reconfirmed every 7 days as a Status 4 by a qualified physician if still medically appropriate |
| 4S | <ul style="list-style-type: none"> • High cPRA (>80% using the Canadian cPRA calculator) <ul style="list-style-type: none"> • cPRA includes all HLA loci (A, B, C, DRB1, DRB345, DQA1, DQB1, DPA1, and DPB1). |
| 3.5 | <ul style="list-style-type: none"> • Hospitalized candidate with a VAD • Congenital heart disease – prostaglandin dependent • High dose or multiple inotropes in hospital and candidates not suitable for VAD therapy or no VAD available • Acute refractory ventricular arrhythmias. |
| 3 | <ul style="list-style-type: none"> • VAD not meeting Status 4 criteria including outpatient VAD • Less than 6 months of age with congenital heart disease • Cyanotic congenital heart disease with resting saturation less than 65% • Congenital heart disease – arterial shunt dependent • Candidates on inotropes in hospital or as an outpatient, not meeting above criteria • Inpatient with CPAP/BIPAP support for HF management • Restrictive cardiomyopathy • Heart-Lung recipient candidates |
| 2 | <ul style="list-style-type: none"> • At Home with intermittent CPAP/BIPAP support for HF management • In Hospital for management of heart disease/HF not meeting the above criteria • Symptomatic cyanotic congenital heart disease limiting everyday day activities in the absence of surgical options • Fontan palliation with protein-losing enteropathy or plastic bronchitis • Multiple organ transplant recipient candidates |
| 1 | <ul style="list-style-type: none"> • All other out of hospital candidates • In Utero (congenital heart disease or heart failure) |
| Temporarily On Hold | <ul style="list-style-type: none"> • Candidates on hold are not eligible for allocation of donor hearts but accrue wait time. |

6.1.2 Secondary Medical Status

Candidates that are listed as 4S may have a secondary status (3.5, 3, 2, and 1) as described above.

6.1.3 Wait List Suspension

A candidate who has a medical status of “on hold” for longer than 120 consecutive days without having their medical status reviewed by their transplant program is suspended. A suspended candidate is not eligible for organ allocation and does not accrue wait time towards their allocation prioritization.

6.1.4 Out of Province Transfers

Heart candidates on the wait list from another Canadian province who relocate to Ontario may have their active wait time transferred only if they met the Ontario criteria at the time of listing. For candidates who did not meet the Ontario criteria at the time of listing, the date when criteria were met will be used as the date of listing. The Ontario list date will be calculated using the following documentation:

- Date of activation on the non-Ontario wait list.
- Dates a candidate is not active (not accruing wait time) on the non-Ontario wait list.
- Date and evidence of meeting Ontario criteria after non-Ontario listing date, if applicable.

6.2 Wait Time

6.2.1 Wait Time Calculations

Wait time is calculated using the date a candidate is added to the Ontario wait list with a medical status (see Section 6.1.1). Wait time starts to accrue from the following time points.

| Candidate Group | Start of wait time calculation |
|-----------------|--------------------------------|
| Adult | The date of listing |
| Paediatric | The date of listing |

Suspension Time: The number of days that a candidate has been suspended from the wait list is subtracted from total wait time.

6.3 Allocation

6.3.1 Identifying Potential Recipients (Matching)

Eligible candidates are matched based on their compatibility to the donor on the following criteria:

4) Blood Group:

| Donor blood group | Recipient blood group can be: |
|-------------------|-------------------------------|
| O | O, A, B, AB |
| A | A, AB |
| B | B, AB |
| AB | AB |

NOTE: There are certain conditions where a candidate may receive an organ from an incompatible ABO donor (see section 6.3.4).

- 5) **HLA Matching:** Non-4S candidates are matched according to virtual crossmatch (VXM) results under the transplant program's discretion. Hearts will not be allocated to 4S candidates if current or cumulative VXM is positive for any antibody. If not previously allocated as a 4S status due to positive VXM, 4S candidates are allocated according to their secondary status regardless of VXM.
- 6) **Serology:** Hepatitis C Ab positive donor organs are matched to all candidates. Hep C NAT positive donor organs are matched to candidates who have been identified by their transplant program as potential recipients.
- 7) **Recipient Specific Criteria:** Other criteria such as height, weight/BMI, age etc. are taken into consideration by the transplant program for recipient-donor matching.

6.3.2 Provincial/National Allocation

6.3.2.1 Provincial Allocation

All Ontario donor hearts are allocated to the highest status candidate in Ontario first. Ontario hearts from donors < 18 years of age will be allocated to candidates < 18 years of age before other candidates.

6.3.2.2 National Allocation

All out-of-province and out-of-country donor hearts will be allocated nationally to all programs with eligible Status 4 and 4S candidates.

6.3.3 Organ Offer Discussion

6.3.3.1 Ontario Donor Hearts

A discussion occurs between Ontario programs when there is decision to defer:

- An Ontario heart to an out-of-province candidate; or a
- A paediatric Ontario heart to an adult candidate.

6.3.3.2 4 and 4S Candidates

TGLN also notifies all other Canadian program(s) with a status 4 and 4S candidate of a potential donor heart. A mandatory discussion between physicians, in a timely manner, occurs when there are competing status 4 and 4S candidates.

- If consensus is not reached for Ontario hearts, the final decision about allocation will be made by the Ontario program who received the original offer.
- If consensus is not reached for out-of-province or out-of-country hearts, the final decision about allocation will be made by the Canadian program with the longest listed Status 4 or 4S candidate.

6.3.4 Priority Categories for Matched Candidates

Matched candidates are prioritized using the following categories, depending on donor type (see allocation tables in Appendix 6A for specific steps):

1) Hearts from Ontario Donors \geq 18 years

| Rank | Category |
|------|-----------------------------------------------------------------------|
| 1 | 4 candidate listed in Ontario |
| 2 | 4 candidate listed in Canada |
| 3 | 4S candidate listed in Ontario |
| 4 | 4S candidate listed in Canada |
| 5 | 3.5 candidate listed in Ontario |
| 6 | 3 candidate listed in Ontario |
| 7 | 2 ABO identical candidate listed in Ontario |
| 8 | 1 ABO identical candidate listed in Ontario |
| 9 | 2 ABO compatible or selected incompatible candidate listed in Ontario |
| 10 | 1 ABO compatible or selected incompatible candidate listed in Ontario |
| 11 | Candidates listed in Canada. |
| 12 | Candidates listed in the United States of America (UNOS). |

1) Hearts from Ontario Donors < 18 years

| Rank | Category |
|------|--------------------------------------------|
| 1 | 4 paediatric candidate listed in Ontario |
| 2 | 4 candidate listed in Ontario |
| 3 | 4 paediatric candidate listed in Canada |
| 4 | 4 adult candidate listed in Canada |
| 5 | 4S paediatric candidate listed in Ontario |
| 6 | 4S adult candidate listed in Ontario |
| 7 | 4S paediatric candidate listed in Canada |
| 8 | 4S adult candidate listed in Canada |
| 9 | 3.5 paediatric candidate listed in Ontario |
| 10 | 3 paediatric candidate listed in Ontario |

| | |
|----|----------------------------------------------------------------------------------|
| 11 | 2 paediatric ABO identical candidate listed in Ontario |
| 12 | 1 paediatric ABO identical candidate listed in Ontario |
| 13 | 2 paediatric ABO compatible or selected incompatible candidate listed in Ontario |
| 14 | 1 paediatric ABO compatible or selected incompatible candidate listed in Ontario |
| 15 | 3.5 adult candidate listed in Ontario |
| 16 | 3 adult candidate listed in Ontario |
| 17 | 2 adult ABO identical candidate listed in Ontario |
| 18 | 1 adult ABO identical candidate listed in Ontario |
| 19 | 2 adult ABO compatible or selected incompatible candidate listed in Ontario |
| 20 | 1 adult ABO compatible or selected incompatible candidate listed in Ontario |
| 21 | Candidates listed in Canada. |
| 22 | Candidates listed in the United States of America (UNOS). |

NOTE: The priority categories for out-of-province and out-of-country donor hearts vary, as hearts are first offered nationally to all programs with eligible status 4 and 4S recipients.

6.3.5 Ranking

Within each of the priority categories identified above, candidates are ranked by the following:

- 1) Wait Time
- 2) List Date

In the event that two (or more) candidates have the same wait time, priority is given to the candidate with the earliest list date.

6.4 Key Definitions

| | |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cPRA | <p>cPRA is the percentage of Canadian deceased organ donors expected to have one of more of the candidate's unacceptable antigens. CPRA scores are calculated automatically when HLA labs enter a candidate's serum antibody results.</p> <p>TGLN uses the Canadian cPRA calculator that is used by the Canadian Transplant Registry. CPRA scores include Class I and Class II cumulative cPRA. CPRA values will automatically recalculate if there are any additions or deletions to the candidate's unacceptable list.</p> |
| Virtual Crossmatch | <p>A virtual crossmatch is a crossmatch that involves a determination of the presence or absence of donor HLA specific antibodies (DSA) in a patient by comparing the patients' HLA antibody specificity profile to the HLA typing of the proposed donor.</p> |

6.5 Heart Policy Appendices

Appendix 6A: Heart Allocation Tables

**Please refer to Section 6.3.3.2 regarding status 4 and 4S candidates.*

Table 1. Allocation of Heart from Ontario Donors ≥ 18 years

| HEART ALLOCATION | | | |
|-------------------------|------------------------------------|----------------------------|-----------------------------------------------------------|
| # | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | All Ontario | *Status 4 | ABO identical or ABO compatible, or selected incompatible |
| 2 | All Canada | *Status 4 | ABO identical or ABO compatible, or selected incompatible |
| 3 | All Ontario | *Status 4S | ABO identical or ABO compatible, or selected incompatible |
| 4 | All Canada | *Status 4S | ABO identical or ABO compatible, or selected incompatible |
| 5 | All Ontario | Status 3.5 | ABO identical or ABO compatible, or selected incompatible |
| 6 | All Ontario | Status 3 | ABO identical or ABO compatible, or selected incompatible |
| 7 | All Ontario | Status 2 | ABO identical |
| 8 | All Ontario | Status 1 | ABO identical |
| 9 | All Ontario | Status 2 | ABO compatible or selected incompatible |
| 10 | All Ontario | Status 1 | ABO compatible or selected incompatible |
| 11 | All Canada | Canadian National List | N/A |
| 12 | U.S. (UNOS) | U.S. | N/A |

Table 2. Allocation of Heart from Ontario Donors < 18 years

| HEART ALLOCATION | | | |
|-------------------------|------------------------------------|----------------------------|-----------------------------------------------------------|
| # | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | All Ontario | *Paediatric Status 4 | ABO identical or ABO compatible, or selected incompatible |
| 2 | All Ontario | *Adult Status 4 | ABO identical or ABO compatible, or selected incompatible |
| 3 | All Canada | *Paediatric Status 4 | ABO identical or ABO compatible, or selected incompatible |
| 4 | All Canada | *Adult Status 4 | ABO identical or ABO compatible, or selected incompatible |
| 5 | All Ontario | *Paediatric Status 4S | ABO identical or ABO compatible, or selected incompatible |
| 6 | All Ontario | *Adult Status 4S | ABO identical or ABO compatible, or selected incompatible |

| | | | |
|----|-------------|-------------------------------|-----------------------------------------------------------|
| 7 | All Canada | *Paediatric Status 4S | ABO identical or ABO compatible, or selected incompatible |
| 8 | All Canada | *Adult Status 4S | ABO identical or ABO compatible, or selected incompatible |
| 9 | All Ontario | Paediatric Status 3.5 | ABO identical or ABO compatible, or selected incompatible |
| 10 | All Ontario | Paediatric Status 3 | ABO identical or ABO compatible, or selected incompatible |
| 11 | All Ontario | Paediatric Status 2 | ABO identical |
| 12 | All Ontario | Paediatric Status 1 candidate | ABO identical |
| 13 | All Ontario | Paediatric Status 2 candidate | ABO compatible or selected incompatible |
| 14 | All Ontario | Paediatric Status 1 candidate | ABO compatible or selected incompatible |
| 15 | All Ontario | Adult Status 3.5 | ABO identical or ABO compatible, or selected incompatible |
| 16 | All Ontario | Adult Status 3 | ABO identical or ABO compatible, or selected incompatible |
| 17 | All Ontario | Adult Status 2 | ABO identical |
| 18 | All Ontario | Adult Status 1 | ABO identical |
| 19 | All Ontario | Adult Status 2 | ABO compatible or selected incompatible |
| 20 | All Ontario | Adult Status 1 | ABO compatible or selected incompatible |
| 21 | All Canada | Canadian National List | N/A |
| 22 | U.S. (UNOS) | U.S. | N/A |

Table 3. Allocation of Heart from Out of Province Donors \geq 18 years

| HEART ALLOCATION | | | |
|-------------------------|------------------------------------|----------------------------|-----------------------------------------------------------|
| # | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | All Canada | *Status 4 | ABO identical or ABO compatible, or selected incompatible |
| 2 | All Canada | *Status 4S | ABO identical or ABO compatible, or selected incompatible |
| 3 | All Ontario | Status 3.5 | ABO identical or ABO compatible, or selected incompatible |
| 4 | All Ontario | Status 3 | ABO identical or ABO compatible, or selected incompatible |
| 5 | All Ontario | Status 2 | ABO identical |
| 6 | All Ontario | Status 1 | ABO identical |
| 7 | All Ontario | Status 2 | ABO compatible or selected incompatible |
| 8 | All Ontario | Status 1 | ABO compatible or selected incompatible |

| | | | |
|----|-------------|------------------------|-----|
| 9 | All Canada | Canadian National List | N/A |
| 10 | U.S. (UNOS) | U.S. | N/A |

Table 4. Allocation of Heart from Out of Province Donors < 18 years

| HEART ALLOCATION | | | |
|-------------------------|------------------------------------|----------------------------|-----------------------------------------------------------|
| # | Candidates that are within: | Candidate category: | ABO Ranking within category: |
| 1 | All Canada | *Paediatric Status 4 | ABO identical or ABO compatible, or selected incompatible |
| 2 | All Canada | *Adult Status 4 | ABO identical or ABO compatible, or selected incompatible |
| 3 | All Canada | *Paediatric Status 4S | ABO identical or ABO compatible, or selected incompatible |
| 4 | All Canada | *Adult Status 4S | ABO identical or ABO compatible, or selected incompatible |
| 5 | All Ontario | Paediatric Status 3.5 | ABO identical or ABO compatible, or selected incompatible |
| 6 | All Ontario | Paediatric Status 3 | ABO identical or ABO compatible, or selected incompatible |
| 7 | All Ontario | Paediatric Status 2 | ABO identical |
| 8 | All Ontario | Paediatric Status 1 | ABO identical |
| 9 | All Ontario | Paediatric Status 2 | ABO compatible or selected incompatible |
| 10 | All Ontario | Paediatric Status 1 | ABO compatible or selected incompatible |
| 11 | All Ontario | Adult Status 3.5 | ABO identical or ABO compatible, or selected incompatible |
| 12 | All Ontario | Adult Status 3 | ABO identical or ABO compatible, or selected incompatible |
| 13 | All Ontario | Adult Status 2 | ABO identical |
| 14 | All Ontario | Adult Status 1 | ABO identical |
| 15 | All Ontario | Adult Status 2 | ABO compatible or selected incompatible |
| 16 | All Ontario | Adult Status 1 | ABO compatible or selected incompatible |
| 17 | All Canada | Canadian National List | N/A |
| 18 | U.S. (UNOS) | U.S. | N/A |

7. Lung Policies

7.1 Wait List Requirements and Statuses

7.1.1 Medical Status

Lung candidates are listed by their transplant program with one of the following medical statuses:

| Status | Medical Criteria |
|----------------------------|-----------------------------------------------------------------------------------------|
| 3 | Heart-Lung or Rapidly Deteriorating |
| 2 | Decompensation |
| 1 | Out of Hospital (stable and waiting) |
| Temporarily On Hold | Candidates on hold are not eligible for allocation of donor lungs but accrue wait time. |

7.1.2 Wait List Suspension

A candidate who has a medical status of “on hold” for longer than 120 consecutive days without having their medical status reviewed by their transplant program is suspended. A suspended candidate is not eligible for organ allocation and does not accrue wait time towards their allocation prioritization.

7.1.3 Out of Province Transfers

Lung candidates on the wait list from another Canadian province who relocate to Ontario may have their active wait time transferred only if they met the Ontario criteria at the time of listing. For candidates who did not meet the Ontario criteria at the time of listing, the date when criteria were met will be used as the date of listing. The Ontario list date will be calculated using the following documentation:

- Date of activation on the non-Ontario wait list.
- Dates a candidate is not active (not accruing wait time) on the non-Ontario wait list.
- Date and evidence of meeting Ontario criteria after non-Ontario listing date, if applicable.

7.2 Wait Time

7.2.1 Wait Time Calculations

Wait time is calculated using the date a candidate is added to the Ontario wait list with a medical status (see Section 7.1.1). Wait time starts to accrue from the following time points.

| Candidate Group | Start of wait time calculation |
|----------------------|--------------------------------|
| Heart-Lung Recipient | The date of listing |
| Lung Recipient | The date of listing |

Suspension Time: The number of days that a candidate has been suspended from the wait list is subtracted from total wait time.

7.3 Allocation

7.3.1 Identifying Potential Recipients (Matching)

Eligible candidates are matched based on their compatibility to the donor on the following criteria:

1) **Blood Group:**

| Donor blood group | Recipient blood group can be: |
|-------------------|-------------------------------|
| O | O, A, B, AB |
| A | A, AB |
| B | B, AB |
| AB | AB |

NOTE: There are certain conditions where a candidate may receive an organ from an incompatible ABO donor (see section 7.3.3).

- 2) **Serology:** Hepatitis C Ab positive donor organs are matched to all candidates. Hep C NAT positive donor organs are matched to candidates who have been identified by their transplant program as potential recipients.
- 3) **Recipient Specific Criteria:** Other criteria such as height, weight/BMI, age etc. are taken into consideration by the transplant program for recipient-donor matching.

7.3.2 Provincial/National Allocation

Lungs are first allocated to Ontario lung transplant programs, then to other Canadian lung transplant programs, and then to United Network for Organ Sharing (UNOS).

7.3.3 Priority Categories for Matched Candidates

Matched candidates are prioritized using the following categories:

| Rank | Category |
|------|-----------------------------------------------------------|
| 1 | 3 ABO identical heart-lung candidate listed in Ontario |
| 2 | 3 ABO compatible heart-lung candidate listed in Ontario |
| 3 | 3 ABO incompatible heart-lung candidate listed in Ontario |
| 4 | 3 ABO identical lung candidate listed in Ontario |
| 5 | 3 ABO compatible lung candidate listed in Ontario |
| 6 | 3 ABO incompatible lung candidate listed in Ontario |
| 7 | 2 ABO identical heart-lung candidate listed in Ontario |
| 8 | 1 ABO identical heart-lung candidate listed in Ontario |
| 9 | 2 ABO compatible heart-lung candidate listed in Ontario |
| 10 | 1 ABO compatible heart-lung candidate listed in Ontario |
| 11 | 2 ABO incompatible heart-lung candidate listed in Ontario |
| 12 | 1 ABO incompatible heart-lung candidate listed in Ontario |
| 13 | 3 ABO identical heart-lung candidate listed in Canada |
| 14 | 2 ABO identical heart-lung candidate listed in Canada |
| 15 | 1 ABO identical heart-lung candidate listed in Canada |
| 16 | 3 ABO compatible heart-lung candidate listed in Canada |
| 17 | 2 ABO compatible heart-lung candidate listed in Canada |
| 18 | 1 ABO compatible heart-lung candidate listed in Canada |
| 19 | Candidates listed in the United States of America (UNOS). |

7.3.4 Ranking

Within each of the priority categories identified above, candidates are ranked by the following:

- 1) Wait Time
- 2) List Date

In the event that two (or more) candidates have the same wait time, priority is given to the candidate with the earliest list date.

