



Trillium
Gift of Life
Network

Ontario's Referral and Listing Criteria for Paediatric Kidney Transplantation

Version 3.0

Trillium Gift of Life Network

Paediatric Kidney Transplantation Referral & Listing Criteria

PATIENT REFERRAL CRITERIA:

The patient referral criteria are guidelines which a Health Care Provider would utilize to refer a patient to a transplant center for assessment. Paediatric patients should be referred for evaluation by the transplant program once renal replacement therapy is expected to be required within the next 12 months. In some circumstances, patients may need to be referred earlier. Patients expected to require urological re-construction prior to transplant should be referred up to 1-2 years prior to the expected time that renal replacement therapy will be necessary. Patients already requiring dialysis should be referred for transplant evaluation as soon as it is medically indicated.

The criteria below are the agreed upon conditions for which a patient should be referred for a kidney transplant assessment.

- 1) **Progressive Chronic Kidney Disease:** Referral for kidney transplantation should be considered for patients with progressive Chronic Kidney Disease.
- 2) **End Stage Renal Disease (ESRD):** Referral for kidney transplantation should be considered for patients with End Stage Renal Disease (ESRD).

PATIENT LISTING INDICATIONS:

In general, listing for kidney transplantation may be considered for all patients with end-stage renal disease provided no absolute contraindications exist. Each patient is assessed individually for their suitability for kidney transplantation by the kidney transplant program. Eligibility should be determined on medical and surgical grounds and should not be based on social status, gender, race or personal or public appeal.

A patient who does not meet the criteria for transplantation may request a second opinion from an alternative program able to assess the relative risks and benefits of kidney transplantation.

RELATIVE LISTING CONTRAINDICATIONS:

The following are conditions relating to the paediatric kidney candidate that constitute relative contraindications to kidney transplantation. While each patient is evaluated on an individual basis, the presence of one or more of the following will often preclude acceptance as a candidate for kidney transplantation.

- 1) **Active Disease:** Active disease must be in remission or resolved prior to being eligible for transplantation. Diseases that require this consideration may include but are not limited to:
 - a. Active glomerular disease should be in remission;
 - b. Vasculitis should be inactive for 6-12 months off cytotoxic agents;
 - c. Anti-GBM should be inactive for at least 6 months post-treatment;
 - d. HUS or TTP patients should defer transplant until disease process is inactive;
 - e. Wilm's Tumour must be at least 1 year post-active treatment.
- 2) **Proteinuria:** Some patients with proteinuria should have the condition resolved prior to transplant. Patients with severe proteinuria may require a nephrectomy prior to transplant (e.g. congenital nephrotic syndrome).
- 3) **Weight and Height:** It is preferred that patients undergo transplantation when they are above 10kg and above 80cm, but there may be some exceptions.

Multi-Organ Kidney Transplantation Referral & Listing Criteria

A multi-organ kidney transplant is defined as any cluster or combination of kidney with another organ (except kidney and pancreas), including staged kidney transplants. The referral and listing criteria will apply to all multi-organ patients, defined as:

1. **Kidney Cluster:** A patient 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.
2. **Kidney Combination:** A patient 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.
3. **Staged-Combined Kidney:** A patient who is activated on a non-kidney organ wait list and receives a non-kidney organ 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 organ transplant.

PATIENT REFERRAL CRITERIA:

The patient referral criteria are guidelines which a Health Care Provider and kidney transplant programs would utilize to refer a patient to a multi-organ transplant center for assessment. Patients with chronic kidney disease and other non-renal disease may be referred for multi-organ kidney transplant. Patients who do not meet the criteria for kidney transplant alone may be referred for a multi-organ kidney transplant including, but not limited to, the following cases:

- Cystic fibrosis, advanced chronic obstructive pulmonary disease
- Patients with primary oxalosis, atypical hemolytic uremic syndrome, and other primary enzyme replacement in rare hereditary metabolic diseases.
- Portal hypertension and compensated cirrhosis with risk of decompensation at time of kidney transplant
- Polycystic liver and kidney disease with severe mass effect in the setting of acceptable synthetic function
- Cardiac amyloidosis

PATIENT LISTING INDICATIONS:

In general, listing for multi-organ kidney transplantation may be considered for all patients with no absolute contraindications. Each patient is assessed individually for their suitability by kidney and multi-organ transplant programs. Eligibility should be determined on medical and surgical grounds and should not be based on social status, gender, race or personal or public appeal.

A patient who does not meet the criteria for multi-organ kidney transplantation should be offered, or may request, a second opinion from an alternative program able to assess the relative risks and benefits of transplantation.

The criteria identified below are the criteria for which a patient may be eligible to be waitlisted for a multi-organ kidney transplantation in Ontario.

- 1) **Renal Dysfunction:** Listing for multi-organ kidney transplantation may be considered for patients with the following renal function:

Time	On dialysis	GFR <30 mL/min, not on dialysis	GFR ≥30 mL/min
<1 month	Possibly eligible	Not currently eligible	Not currently eligible*
1 to <3 months	Possibly eligible	Possibly eligible	Not currently eligible*
≥ 3 month	Eligible	Possibly eligible	Not currently eligible*

*See exceptions for staged-combined kidney transplant and paediatric patients below.

- 2) **Non-Reversible Kidney Injury:** For patients who are “possibly eligible” based on their level and duration of renal dysfunction, listing for transplant may be considered by establishing non-reversibility of kidney injury. The work-up for establishing the non-reversibility of kidney injury may include history and duration of chronic kidney disease, clinical optimization, renal ultrasound, urine electrolytes, and renal biopsy. Irreversible kidney damage may be established using the following renal biopsy criteria:
- Minimum sample adequacy including greater than 10 glomeruli from at least two cores with > 75% glomerulosclerosis and > 75% interstitial fibrosis.

In the event the kidney biopsy is not possible or results are inconclusive, history of CKD and other tests results may support the diagnosis of chronic kidney damage.

- 3) **Staged-Combined Kidney Transplant:** For patients who do not meet the renal dysfunction indications outlined above, listing for a staged-combined kidney transplant may be considered with the following conditions:
- Patients may be eligible when uncertainty exists as to the irreversibility of renal dysfunction.
 - Patients may be eligible when expected physiological instability relating to the non-renal organ transplantation affecting potential recovery of the kidney function after transplantation.
 - Patients may be eligible if there is a medically approved living donor available for either the kidney or liver transplant, where applicable.
 - Patients may be eligible if DSA is detected against a donor in a patient who is on the wait list for a simultaneous multi-organ transplant.

Patients must meet at least one of the criteria to be eligible for staged kidney transplantation after the non-kidney organ is transplanted.

- 4) **Paediatric Specific Indications:** Paediatric patients with inherited metabolic diseases including propionic acidaemia, methylmalonic acidaemia and primary hyperoxaluria may be eligible for listing when GFR ≥ 30 mL/min.
- The following formula is used to estimate paediatric GFR¹: $GFR (mL/min/1.73 m^2) = (36.2 \times \text{Height in cm}) / \text{Creatinine in } \mu\text{mol/L}$

For patients who do not meet the listing indications, transplant programs may apply to the Kidney Special Case Committee for consideration.

¹ Schwartz, G. J., Munoz, A., Schneider, M. F., Mak, R. H., Kaskel, F., Warady, B. A., & Furth, S. L. (2009). New equations to estimate GFR in children with CKD. *Journal of the American Society of Nephrology*, 20(3), 629-637.

ABSOLUTE LISTING CONTRAINDICATIONS:

The following are conditions relating to the transplant candidate that constitute absolute contraindications to multi-organ kidney transplantation. As such, they prevent a transplant from being done until the condition is resolved.

- 1) **Non-Kidney Organ Transplant Criteria:** Patients who do not meet current listing eligibility criteria, including the perioperative mortality risk criteria as applicable, for liver, heart, lung, and small bowel transplant alone. This includes patients enrolled in a clinical trial for experimental extended eligibility of the non-kidney organ.

RELATIVE LISTING CONTRAINDICATIONS:

The following are conditions relating to the transplant candidate that constitute relative contraindications to multi-organ kidney transplantation. While each patient is evaluated on an individual basis, these conditions may preclude acceptance as a candidate for multi-organ kidney transplantation.

- 1) **High Status Heart Transplant Candidates:** Patients who are wait listed as Status 4 on the heart transplantation list may be eligible for multi-organ kidney transplantation and will be reviewed on a case-by-case basis.

Version Control:

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