



Trillium
Gift of Life
Network

Ontario's Paediatric Listing Criteria for Lung Transplantation

Version 1.0



Ontario Health
Trillium Gift of Life Network

Ontario's Paediatric Listing Criteria for Lung Transplantation

Lung transplantation candidates who are under the age of 18 years old are considered paediatric patients.

PATIENT LISTING INDICATIONS:

Each patient is assessed individually for his or her suitability for transplantation by the transplant program. The criteria identified below are the conditions for which a patient may be eligible to be waitlisted for lung transplantation in Ontario.

- 1) Child Interstitial Lung Disease (chILD):** Listing for lung transplantation may be considered for patients with severe, life-threatening child interstitial lung disease (chILD) and have developed progressive respiratory insufficiency that is unresponsive to medical interventions.
- 2) Congenital Heart Disease (CHD):** Listing for lung transplantation may be considered for patients with appropriate congenital heart disease.
- 3) Cystic Fibrosis (CF) and Other Causes of Bronchiectasis:** Listing for lung transplantation may be considered for patients with CF or other causes of bronchiectasis. Such patients would have at least one or more of the following:
 - Chronic respiratory failure;
 - With hypoxia alone (PaO₂ <60 mmHg)
 - With hypercapnia (PaCO₂ >50 mmHg), if requiring long-term NIV
 - Frequent hospitalization that is related to CF and/or other causes of bronchiectasis;
 - Rapid lung function decline; or,
 - WHO functional class IV.
- 4) Pulmonary Vascular Disease:** Listing for lung transplantation may be considered for patients with pulmonary hypertension and/or pulmonary vascular disease. These patients would potentially have the following:

Patients with pulmonary vascular disease on maximal pulmonary vasodilatory treatment (unless has PVOD) with at least one or more of the following clinical characteristics:

Clinical

 - NYHA class III-IV

Echocardiography

 - RV/RA enlargement
 - RV systolic dysfunction
 - Pericardial effusion

Invasive measurements (if obtainable)

 - Cardiac index <2.4 L/min/m²
 - mRAp >10 mmHg

Biochemical

 - Increase in BNP or Nt-proBNP level in > 1 year old children on maximal therapy

-
- 5) **General:** Patients not included in the preceding categories but have a poor quality of life (based on the clinical judgment of the care team at the time of assessment) may be considered for lung transplantation. Listing for lung transplantation may also be considered for patients if the following requirements are met:
 - The absence of obvious contraindications for transplant; and,
 - The potential to undergo rehabilitation during listing and after transplantation.
 - 6) **Lack of Alternative Medical Options:** Patients who fail to respond to maximal medical therapy or the absence of alternative/conventional surgical options may be considered for lung transplantation.
 - 7) **Contraindications:** The absence of contraindication(s) for transplant is required to be eligible to be waitlisted for lung transplantation.

ABSOLUTE LISTING CONTRAINDICATIONS:

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

- 1) **Bleeding Diathesis:** Patients with uncorrectable bleeding diathesis are not candidates for lung transplantation.
- 2) **Infections:** Patients with a chronic infection with highly virulent and/or resistant microbes that are poorly controlled pre-transplant or patients with evidence of active tuberculosis (TB) infection are not candidates for lung transplantation.
- 3) **Malignancy:** Patients with active malignancy are not candidates for lung transplantation.
- 4) **Multisystem organ failure or dysfunction:** Patients with significant dysfunction or failure of other major organ system(s) and without an option for combined organ transplantation are not candidates for lung transplantation.
- 5) **Psychosocial Considerations:** Patients along with their family members must undergo a complete psychosocial evaluation prior to listing for transplantation. Patients who display the following are not candidates for lung transplantation:
 - Documented life-threatening medical non-compliance or inability to follow through with medical therapy or office follow-up, or both;
 - Psychiatric or psychologic conditions associated with the inability to cooperate with the medical/allied healthcare team and/or adhere with complex medical therapy; or,
 - Absence of a consistent or reliable social support system.
- 6) **Consent:** Patients (who can give informed consent) who do not want a transplant should not be listed for lung transplantation. Patients who are unable to give informed consent and do not have a substitute decision maker available, resulting in an inadequate or unsafe care plan post-transplant, are not candidates for lung transplantation.

RELATIVE LISTING CONTRAINDICATIONS:

The following are conditions relating to the lung transplant candidate that constitute relative contraindications to lung transplantation. While each patient is evaluated on an individual basis, the presence of one or more of the following may preclude a candidate from being listed on the lung transplantation wait list.

- 1) **Chest surgery:** Patients with extensive prior chest surgery with lung resection may not be eligible for lung transplantation. Patients who have multiple arteriovenous collaterals such as those seen in absent pulmonary artery syndromes, coupled with multiple prior thoracotomies may not be eligible for lung transplantation.
- 2) **Deformity:** Patients with significant chest wall/spinal deformity may not be eligible for lung transplantation.
- 3) **Disease:** Patients with untreatable advanced dysfunction of another major organ system (e.g. heart, liver, or kidney) may not be eligible for lung transplantation unless combined organ transplantation can be performed.

Other medical conditions that have not resulted in end-stage organ damage, such as diabetes mellitus, systemic hypertension, epilepsy, central venous obstruction, peptic ulcer disease, or gastroesophageal reflux, should be optimally treated before transplantation.

- 4) **Functional Status:** Patients with severely limited functional status with poor rehabilitation potential may not be eligible for lung transplantation.
- 5) **Infection:** Patients with the following infections may not be eligible for lung transplantation [1, 4]:
 - Colonization or infection with highly virulent bacteria, fungi, and certain strains of mycobacteria (e.g. chronic extra-pulmonary infection expected to worsen post-transplantation);
 - Non-tuberculous mycobacterium (NTM) and progressive pulmonary or extra-pulmonary disease secondary to NTM despite optimal medical therapy or inability to tolerate optimal medical therapy;
 - Hepatitis B and/or C infections with significant clinical, radiologic or biochemical signs of cirrhosis or portal hypertension, and do not achieve stability on appropriate therapy; or,
 - Burkholderia cenocepacia, Burkholderia gladioli, and multi-drug-resistant Mycobacterium abscessus that is not sufficiently treated pre-operatively, and an expectation of inadequate control in the post-operative period, should be considered as having relative contraindications to transplant.

Note: HIV infections may be considered for lung transplantation if their disease is controlled with undetectable HIV-RNA and patient is compliant with antiretroviral therapy. Patients should not have any current acquired immunodeficiency syndrome-defining illnesses.

- 6) **Malnutrition:** Patients with progressive or severe malnutrition may not be eligible for lung transplantation.

-
- 7) **Mechanical Ventilation:** Patients with mechanical ventilation and/or extracorporeal life support (ECLS) may not be eligible for lung transplantation.
 - 8) **Medical Stability:** Patients with acute medical instability, including, but not limited to acute sepsis, and liver failure may not be eligible for lung transplantation.

Version Control:

Name of Document	Ontario's Paediatric Listing Criteria for Lung Transplantation
Version 1.0	Created June 2024
Recommended Next Review	June 2026
Approved By	Provincial Lung Working Group Transplant Steering Committee