Paediatric Heart Transplant Listing Criteria in Canada 2021

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Canadian Cardiac Transplant Network

General Principles for the Paediatric Age Group (fetal – <19 years):

1. The option for listing across compatible blood groups (i.e. ABO-incompatible heart transplantation), should exist in any paediatric patient in whom it is clinically appropriate. Eligibility for ABO-I listing is to be determined by a transplant physician or surgeon with the appropriate clinical expertise.

2. **Organ allocation will be made preferentially to postnatal patients regardless of status**. *In Utero* listing: prenatal testing should confirm that the fetus is viable and medically suitable to receive a transplant; the risk of associated complications becomes appropriately low at approximately 35-36 weeks gestational age; waiting time recommences at the time of birth.

3. Hearts from donors less than 19 years of age will be first considered for recipients less than 19 years of age (pursuant to size, blood type and clinical status). However, a suitable-sized paediatric donor may be better suited for a higher status older recipient and consideration for reallocation should proceed as per the principles of interprovincial organ sharing.

4. Following insertion of a longterm VAD the option for placing a patient on hold for rehabilitation should be left to the discretion of the Transplant Centre. Intubation and ventilation **for the purposes of** surgical VAD implantation and postoperative ICU care does not meet criteria for Status 4 listing. Similarly transient intubation for other surgical procedures or other interventions does not qualify for Status 4 listing.

National Prioritization – Interprovincial organ sharing eligible

Status 4

1) VAD in a **patient <10 kg** and **<1 year old** at implantation.
2) Paracorporeal VAD in a **single ventricle** patient.
3) **Continuous** mechanical ventilation or non-invasive ventilation dependent (e.g. 24 hours) and any intravenous inotropes/vasoactives **up to 2 weeks** in a **patient >10 kg**. Beyond 2 weeks if patient and a VAD is not implanted then approval must be sought to remain listed as Status 4.[1]
4) **Continuous** mechanical ventilation or non-invasive ventilation dependent (e.g. 24 hours) and any intravenous inotropes/vasoactives in a **patient <10 kg**.[2]
5) **Continuous** mechanical ventilation or non-invasive ventilation dependent (e.g. 24 hours) for heart failure management not amenable to VAD or inotropic support. Beyond 2 weeks if a patient remains dependent then approval must be sought to remain listed as Status 4.[3]
6) Meets criteria for Adult mechanical support status 4 listing *(see adult listing criteria)*.[4]
7) Hospitalized VAD patients with VAD complications *(VAD-related infection, arrhythmia, bleeding, right heart failure, and/or thrombosis)* meeting status 4 criteria.[5]
8) Approved Status 4 exception requests

Patients should be recertified every 7 days as a Status 4 by a qualified physician at local site if status still medically appropriate.

Status S

1) cPRA >80%

Local Allocation

Status 3.5

1) Hospitalized patient with a VAD who does not meet Status 4 criteria.
2) Congenital heart disease – prostaglandin dependent.
3) High dose or multiple inotropes/vasoactives in hospital *and* patient not a candidate for a VAD.
4) Continuous mechanical ventilation or non-invasive ventilation dependent (e.g. 24 hours) and any inotropes/vasoactives **greater than 2 weeks** in a **patient >10 kg** where approval was not granted to remain as Status 4, criteria 3 (above).
5) Refractory life-threatening arrhythmias requiring continuous intravenous antiarrhythmic drug therapy and not amenable to, or failed, ablation.

Status 3

1) VAD not meeting higher status criteria.
2) VAD complications *(VAD-related infection, arrhythmia, bleeding, right heart failure, and/or thrombosis)* **not** meeting status 4 criteria[5], requiring hospitalization OR intravenous therapies.
3) Less than 6 months of age with congenital heart disease.
4) Cyanotic congenital heart disease with resting saturation less than 65%.
5) Congenital heart disease – *arterial* shunt *or stented PDA* dependent (i.e. Norwood).
6) Adult-sized complex congenital heart disease with increasing dysrhythmic or systemic ventricular decline.
7) Patients on inotropes in hospital or as an outpatient, not meeting above criteria.
8) Inpatient with CPAP/BIPAP support *for HF management.*
9) Restrictive cardiomyopathy.

10) Hypertrophic cardiomyopathy with severe HF symptoms not secondary to LVOT obstruction that would be amenable to surgical or alcohol ablation AND for whom LVAD would not be an option.
11) Heart-Lung or Heart-Liver transplant candidates.
12) Dischargeable total artificial heart.

Status 2

1) Stable durable outpatient LVAD patients.
2) At Home with intermittent CPAP/BIPAP support *for HF management*.
3) Hospitalized patients for cardiac reasons in non-LVAD patients.[6]
4) Symptomatic cyanotic congenital heart disease limiting everyday day activities in the absence of surgical options
5) Fontan palliation
6) Heart-Kidney transplant candidates *(simultaneous or consecutive)*.

Status 1

1) All other out of hospital patients
2) *In Utero* (congenital heart disease or heart failure)

Comments/Clarifications

[1] Target patient population: VAD candidates but gives 2 week time frame for HF management, decision-making, scheduling and implantation

[2] Target patient population: potential VAD patients where centre variation in practice (VAD implantation) due to size is acceptable based on centre size and experience

[3] Target patient population: patients who are not expected to benefit from VAD or inotropic support, eg. Pulmonary atresia / intact ventricular septum. No specific weight criteria needed.

[4] Adult Status 4 criteria:

- Patients requiring biventricular temporary mechanical circulatory support (ie. ECMO, centrimag bivads, impella/tandem heart/protek Duo / Pedimag / Rotaflow and other similar devices in a configuration providing biventricular support)
- Patients requiring (and non-separable/unable to wean from) temporary right ventricular mechanical circulatory support.
- Patients dependent on temporary LV mechanical circulatory support (excluding IABP), unable to wean to inotrope/vasoactive medical therapy, and not a candidate for durable LVAD therapy
- Non-dischargeable total artificial heart for device and/or medical reasons or complications

[5] VAD complications as per CCTN "*Criteria for Status 4 Eligibility in LVAD complications*" Dec 2017. Includes pump thrombosis, infection, GI bleeding, arrhythmia, and right heart failure.

[6] Target patient population: patients in hospital for management of heart disease / heart failure not meeting any of the higher status criteria