Trillium Gift of Life Network

Ontario VCA - Upper Limb Transplantation Allocation Algorithm

VCA Working Group

Allocation Principles:

- Limbs will be offered based on need of left, right, or bilateral graft(s)
- VCA's will be allocated using a negative virtual cross-match (VXM) with the donor (see Appendix A for VXM rules)
- STAT cross-match (XM) requirement is determined by center-specific protocol in conjunction with HLA laboratory

Allocation Algorithm:

VCA will be offered for transplantation according to the following priority algorithm within a donor category:

1. Recipient ABO identical and then compatible in province
2. Within the above category, allocation points are use to determine further priority using the following formula:
   Allocation Points =0.1 point per 30 days waiting + [(cPRA/100)x 4]
   (cPRA refers to combined Class I and II cumulative cPRA)
3. If all else is equal, priority will be given to bilateral recipients

Note: Wait time commences on the date and time when a patient is listed for transplantation. The number of days that a patient has been suspended from the wait list is subtracted from the wait time.

Status	Medical Criteria
N	• Normal priority – Eligible for allocation of VCA – upper limb, accrues wait time
0	• On hold – Not eligible for allocation of VCA – upper limb, accrues wait time
S	• Suspended – Not eligible for allocation of VCA – upper limb, does not accrue wait time

Serum Data

- Patients are required to have Antibody (PRA) testing every 4 months at a minimum
- Minimum annual Single Ag bead testing for sensitized pts.
- Single Ag bead testing for cPRA>95% pts every 4 months.
- A patient must have a PRA result <150 days old (4 months plus 30 day grace period for Ab testing and result entry) to be allocated VCA – upper limb. If serum data is not reported by 120 days programs will be alerted. If serum data is not reported by 151 days patients will be placed on hold and a notification alert will be sent to programs.

Allocation Considerations:

The following matching factors with potential VCA recipient are to be considered at time of allocation;

Factor	Considerations
Cold Ischemic Time	• Less than 6 hours
Gender	• May indicate gender preference

Age	• Paediatric Recipients ≥ 3 years and ≤ 16 years:
	  ○ Exclude donors < 2 years and > 25 years:
	  ▪ Donors for recipients aged ≥ 3 and ≤ 12 should be no more than 2 years younger, or 4 years older than recipient
	  ▪ Donors for recipients aged > 13 and < 16 should be no more than 2 years younger, or > 25 years old
	• Recipients > 16 years:
	  ○ Exclude donors < 14 years and > 65 years

Graft Size	• Length of donor limb from elbow to tip of middle finger within 25% of recipient limb from elbow to tip of middle finger

Skin pigmentation	• VCA should be offered to recipients within +/-1 Skin type of donor based on Fitzpatrick Scale
	  i. Type I White; very fair; freckles; typical albino skin. Always burns, never tans
	  ii. Type II White; fair. Usually burns, tans with difficulty
	  iii. Type III Beige; very common. Sometimes mild burn, gradually tans to a light brown
	  iv. Type IV Beige with a brown tint; typical Mediterranean Caucasian skin. Rarely burns, tans with ease to a moderate brown.
	  v. Type V Dark brown. Very rarely burns, tans very easily
	  vi. Type VI Black. Never burns, tans very easily, deeply pigmented

VXM Rules

VXM RULES
cPRA for VCA includes all unacceptable antigens at A, B, C, DRB1, DQA1, DQB1, DPA1, DPB1 and DRB345.
VXM in Ontario will be limited to A, B, Bw, C, DRB1, DRB3/4/5, and DQB1 loci. DQA1. DPA1 and DPB1 loci will be mandatory in data entry, but will NOT be taken into account when filtering out patients. These loci will be included into VXM for information purposes only.
The scope of VXM for the purpose of filtering out patients (i.e. determining whether a patient 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).
Patients with DSA will be filtered out (not displayed on the allocation list). However, if the ONLY DSA are on the optional loci (DPA1 or DPB1), then the patient will still show up on the allocation list as per the VXM scope above. The VXM on the allocation report will read something similar to "Positive: DP0401". The accepting program will decide if they would like to accept the VCA in the setting of DP antibodies.
Only patients with a negative VXM (no DSA) at A, B, Bw, C, DRB1, DRB3/4/5, DQA1, DQB1 will appear on the allocation list.
TOTAL will create a distinct data entry field for allele specific antibodies to help HLA labs manage them more accurately.
Patients with allele specific POSSIBLE DSA but with an otherwise negative VXM (no other DSA) will 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 patient and donor HLA labs before the patient can accept the offer.
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. The PRC will see an error message when attempting to run an allocation.
If a patient's HLA antibodies have never been tested (with a non-zero peak PRA and with no antigen specificities), the patient will be filtered out (i.e. not showing up on the allocation list).
If a patient has no DSA (negative VXM) but some of the antibodies to the donor HLA are untested, then the patient 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 patient's serum, then the patient will still appear on allocation, but the VXM will read "Untested: A80" on the allocation list.