# REVIEW OF THE SUPER-URGENT HEART ALLOCATION SCHEME

## Introduction

The FTWG to review the Super-Urgent Heart Allocation Scheme (SUHAS) was established following concerns that the number of adult patients on the SUHAS was increasing and the impact this was having on other patients registered on the Urgent Heart Allocation Scheme (UHAS) and Non-Urgent Heart Allocation Scheme (NUHAS), the travel / cold ischaemic times and potentially heart transplant outcomes.

## Working Group Meetings

The Working Group included at least one representative from all the heart transplant centres. All the meetings were also attended by a patient representative (Richard Bird) and NHSBT support (Statistics and Clinical Research and Advisory Group Support).

The SUHAS FTWG held the first meeting on the 9th December 2024. At this meeting, the Group agreed to undertake a data collection exercise to better understand centre approaches to the use of temporary mechanical circulatory support (MCS), as the use of MCS was the primary indication for the SUHAS. The Group agreed to collect more granular data for all adult MCS cases identified from the National Database spanning two years of activity from April 2022 - March 2024. Following this meeting, the relevant data fields were agreed, and Sally Rushton sent a list of patients to each adult heart transplant centre. The use of MCS in the paediatric population and the paediatric SUHAS were not reviewed (a separate Paediatric Heart Allocation FTWG).

The second meeting was held on the 17th March 2025 for a preliminary review of the data that were collected. Some inconsistencies were identified. Most notably, the MCS database included patients with no transplant team involvement and were felt not to meet the criteria (i.e. patients were placed on MCS without any intention to bridge to transplant). These cases were removed from the analyses, and it was noted that removing these cases could potentially affect the reported outcomes from MCS (post hoc selection bias). Some data fields that had too many missing data points (e.g. pulmonary artery catheter data) were excluded from further analyses. Centres were directed to complete data collection on missing data points that were relevant.

The third meeting was held on the 17th April 2025. Results from the analysis of the complete dataset and a review of heart allocation systems across Europe (for comparison) were circulated prior to the meeting. The results of the analysis were presented by Lewis Simmonds at this meeting. The data indicated significant differences between centres in the characteristics of the patients being supported, the modality of support and the outcomes. These differences probably reflect the patients being referred



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and centre experience with different MCS modalities. The clinical significance of these differences were not clear.

Specific outcomes from this meeting were:

- There was consensus that the SUHAS should be maintained, but strong support for changes to the SUHAS.
- The introduction of objective criteria into the SUHAS was felt to be too challenging. The Group believed no single or combination of parameters could be used to identify patients for or exclude patients from MCS.
- The introduction of additional tiers based on MCS modality was suggested, especially for patients on isolated LV support, but this would be operationally challenging. The specific group of patients on isolated LV support (i.e. suitable for durable LVAD) generated considerable discussion and was highlighted for additional discussion at the next meeting. There was strong support for new criteria specifically for patients with congenital heart disease, as these patients are often not suitable for conventional MCS. The Newcastle team was tasked with producing specific criteria for patients with congenital heart disease.
- There was support for more joint MDT between centres for SUHAS cases. Time constraint was highlighted as a major barrier to regular MDTs between centres.
- There was general support for more regular (2-weekly) updates on the patients on the SUHAS to improve transparency.
- Patients who deteriorated on the UHAS leading to MCS and escalation to the SUHAS may need further review.

With the criteria for congenital heart disease finalised by the Newcastle team, the Group held the fourth meeting on the 26th June 2025. The criteria were circulated prior to the meeting. The Group agreed to accept the proposed criteria for patients with single ventricle physiology [Appendix]. Additional analyses on the results of the temporary MCS data were presented, leading on to the discussion on patients on isolated LV support (i.e. suitable for durable LVAD). There were extensive debates on isolated LV support and use of durable LVAD, but there was no majority support among the adult heart transplant centres to excluded patients on isolated LV support from the SUHAS.

A move to a points-based heart allocation system in the longer-term was discussed. It was noted that there may be advantages in a points-based system (over the current tiers) and points-based systems have already been adopted for donor organ allocation in other solid organ transplants. There is general acknowledgement that this will require commitment from all centres and input from the operational team.



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**Adjudication for Paediatric Super-Urgent Listing**

Additional questions were asked of the Working Group at the request the Director of CTAG(H) to address the point within POL 229/12: "For paediatric requests for urgent or super-urgent listing under categories 59 or 12 whereby a maximum acceptable donor size has been specified to be ≥160cm in height or ≥60kg in weight *(i.e. adult sizes)*, the full CTAG Heart Adjudication Panel must be approached", and some of the points that were raised when previous paediatric cases were adjudicated (e.g. data from right heart catheterisation).

- There was agreement that CTAG Heart Adjudication Panel approval is <u>not required</u> if the paediatric patient is on temporary MCS (e.g. VA ECMO) and there is agreement/ approval from the second paediatric centre (i.e. both paediatric centres agree to SU listing).
- There was agreement that CTAG Heart Adjudication Panel approval <u>is required</u> for paediatric patients with more than single organ failure/support on temporary MCS (e.g. VA ECMO but still intubated/ventilated and/or on dialysis), as it is currently applied to adult patients. However, several centres acknowledged some of the challenges in managing paediatric patients on MCS without sedation.
- There was agreement that right heart catheter is <u>not required</u> prior to SU listing in paediatric patients on temporary MCS. However, several centres indicated that right heart catheterisation should be considered in selected (older) paediatric patients, especially if transition to adult services prior to transplantation is likely.



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**Summary and Recommendations**

The donor heart allocation system was extensively discussed and debated, supported by a comprehensive review of relatively contemporaneous data. The FTWG did not achieve consensus in all the areas of discussion, which reflects the current limited evidence base of MCS in cardiogenic shock and more specifically MCS bridging to transplantation.

The SUHAS FTWG would like to make the following recommendations:

1. Adopt the proposed SUHAS criteria for patients with single ventricle physiology congenital heart disease.
2. Patients on isolated left ventricular support should not be excluded from the SUHAS.
3. The number of patients registered on the new SUHAS criteria for congenital heart disease and their outcomes should be reviewed at 12 or 24 months (depending on activity).
4. The number of patients on isolated LV support registered on the SUHAS and their outcomes should be reviewed at 12 or 24 months (depending on activity).
5. The Heart Allocation Scheme should be transitioned from a tier-based to a points-based system.
6. CTAG Heart Adjudication Panel approval should be removed for paediatric requests for urgent or super-urgent listing whereby a maximum acceptable donor size has been specified to be ≥160cm in height or ≥60kg in weight, if there is agreement/ approval from the second paediatric centre (i.e. both paediatric centres agree to SU listing).
7. CTAG Heart Adjudication Panel should be approached for paediatric requests for urgent or super-urgent listing whereby a maximum acceptable donor size has been specified to be ≥160cm in height or ≥60kg in weight with more than single organ failure/support on temporary MCS.



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**Appendix**

SUHAS criteria for congenital heart disease (single ventricle physiology)

Adult inpatient dependant on IV inotropes (on maximal tolerated dose of IV milrinone), worsening organ function and either ineligible or with high-risk anatomy for temporary MCS, AND one of the following:

- ICU admission and >1 inotrope with signs of hypoperfusion secondary to cardiogenic shock (lactate>2) and worsening renal (oliguria <1.0L/24 hours, eGFR<40), and/or liver function (bilirubin >2x upper limit of normal (40µmol/L) or transaminases >2x upper limit). There is normal renal size on imaging, eGFR>40 over the last 3 months. Liver size and hepatic function deemed acceptable for heart alone transplantation by pre-decompensation combined heart/liver MDT.
- Ineligible or too high-risk for EXCOR Revive/Fontan venous cannula VAD



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