HEART TRANSPLANTATION:
SELECTION CRITERIA AND RECIPIENT REGISTRATION

This policy has been created by the Cardiothoracic Advisory Group (CTAG) on behalf of NHSBT.

The policy has been considered and approved by the Organ Donation and Transplantation Clinical Audit, Risk and Effectiveness Group (ODT CARE) and the Senior Management Team of the Organ Donation and Transplantation Directorate (ODT). It has also received final approval from the Transplant Policy Review Committee (TPRC), who act on behalf of the NHSBT Board, and who will be responsible for annual review of the guidance herein.

Last update: April 2014
Next review: [Month 2015]

The aim of this document is to provide a policy for the selection of adult and paediatric patients on to the UK national transplant list and, where necessary, criteria for their de-selection. These criteria apply to all proposed recipients of organs from deceased donors.

In the interests of equity and justice all centres should work to the same selection criteria. Non-compliance to these guidelines will be handled directly by NHSBT, in accordance with the *NHS Blood and Transplant Organ Donation and Transplantation: Policy on Non-compliance with Selection and Allocation policies.*

It is acknowledged that these guidelines will require regular review and refreshment. Where they do not cover specific individual cases, mechanisms are in place for selection of exceptional cases (see section X).

Comment [KA1]: This is not explicitly covered in the policy – suggest adding in some details, or removing this sentence

Heart transplantation is an established treatment in patients who have a likelihood of poor survival or impaired quality of life secondary to acute or chronic heart disease.

Selection criteria for adult transplantation are largely based on outcome measures post-transplant. While the same general principles apply to children, in some circumstances a smaller probability of long-term success may be a very worthwhile outcome for some children and their families.

In selected patients, heart transplantation improves survival and quality of life. Data on over 78, 000 transplants from the Registry of the International Society for Heart and Lung Transplantation show that half of the patients survive for more than 10 years and that the median survival for those who survived the first year after transplantation is currently 13 years.[1] Current UK data (UK Transplant Registry) show that current 1- and 5-year survival are 81% and 76% for adults and over 90% for paediatrics.[2]

Comment [KA2]: Please advise exactly where on the website these statistics can be found so that we can add a full reference – I have struggled to find it

The decision to recommend heart transplantation depends on a balance of the benefits, risks and alternatives. However, the scarcity of suitable donor hearts makes it necessary to also consider the population of potential heart transplant candidates; selection is based both on the patient's clinical need and on their capacity to benefit. Decision making should be fair and transparent.

Transplant centres make a list of decisions in a multidisciplinary team meeting and in the light of relevant guidelines. Nevertheless, selection cannot be an exact science, and any patient who is dissatisfied with the decision made in his/her case is entitled to an opinion from a second transplant centre.

1. Conditions that are considered for transplantation

1.1 General indications

Most patients will have an established diagnosis of chronic heart failure (HF) due to left ventricular systolic dysfunction that is not attributable to correctable structural, valvular or coronary artery disease.

1.1.1 Heart failure

The most frequent indications for heart transplant in adults are heart failure due to dilated cardiomyopathy and ischaemic heart disease. A small number of patients with valvular disease and severe secondary ventricular dysfunction also undergo transplantation.

1.1.2 Adult congenital heart disease (ACHD)

An increasing number of patients with ACHD present in adult life with advanced heart failure. Although the evidence base is sparse, most specialists extrapolate from clinical trials in patients with acquired disease to guide optimal care. Assessment for transplantation is challenging because symptoms often occur late and the prognostic tools used in acquired heart disease have not been validated in ACHD. Patients with ACHD may present with additional complexities for the transplant team such as human leucocyte antigen (HLA) sensitisation, complex surgery (abnormal anatomy and previous surgery), elevated or uncertain pulmonary vascular resistance and sometimes, profound cyanosis and erythrocytosis. These factors lead to a higher early mortality after transplantation, although the long-term outcome is more encouraging. Multidisciplinary

discussion between the specialist ACHD unit and the transplant service is needed during referral and assessment.

1.1.3 Heart muscle disorders

Patients with a specific heart muscle disease may be candidates for transplantation and need to be considered on a case-by-case basis. General considerations include the following:

- Systemic manifestations of the disease and the likely impact on organ function
- Perioperative risk and overall prognosis
- The patient's ability to tolerate pharmacological immunosuppression
- The possibility of disease recurrence in the cardiac allograft

1.2. Referral

Clinicians looking after potential transplant candidates should discuss referral with one of the designated heart transplant units in the UK and, when appropriate, arrange for formal referral. Paediatric patients (aged less than 16 years) will be referred to one of the two designated paediatric heart transplant units (Newcastle and Great Ormond Street, London).It is advisable that patients are discussed with transplant units at an early stage so a combined approach can be formulated.

1.2.1 Referral of outpatients

Indications that should prompt consideration of referral include:

- Two or more admissions for treatment of decompensated heart failure within 12 months
- Persistent clinical evidence of overt heart failure despite optimised therapy
- Calculated Seattle Heart Failure score indicating a >20% 1-year mortality
- Echocardiographic evidence of right ventricular dysfunction or increasing pulmonary artery pressure despite optimal treatment; patients should be referred before the pulmonary artery pressure >50 mmHg
- Side-effects of heart failure such as anaemia, involuntary weight loss, liver dysfunction, hyponatremia, deteriorating renal function attributable to heart failure or its treatment (patients should be referred before the creatinine clearance falls to <50 mL/min or estimated glomerular filtration rate (eGFR) falls below 40 mL/min/1.73m^2)
- Significant episodes of ventricular arrhythmia despite full drug and electrophysiologic or device treatment
    - Increasing plasma BNP or N-terminal pro-brain natriuretic peptide (NT-proBNP) levels despite adequate treatment of heart failure

A low left ventricular (LV) ejection fraction alone is insufficient reason to consider transplantation. Patients who have near-normal resting haemodynamics (cardiac index

and filling pressures) after medical treatment generally have a good prognosis, and if other indicators are favourable, transplantation may be deferred. The timing of referral is of central importance, and the aim should be to refer patients before complications (such as cardiorenal syndrome or secondary pulmonary hypertension) have developed, which will increase the risk of, or potentially contraindicate, transplantation.

1.2.2 Referral of inpatients

Urgent assessment should be considered for hospital inpatients who fulfil the criteria below and have no contraindications. The aim should be to refer such patients before the development of complications such as secondary organ dysfunction or sepsis that may be a contraindication to transplantation or ventricular assist device (VAD) implantation.

Indications for urgent inpatient referral include:

- Requirement for continuous inotrope infusion and/or intraaortic balloon pump to prevent multi-organ failure
- No scope for revascularisation in the setting of ongoing coronary ischemia
- Persisting and unresponsive circulatory shock resulting from a primary cardiac disorder

1.3 Indications for selection for transplantation

1.3.1 Indications for selection for chronic heart failure

- Impaired left ventricular systolic function
    - New York Heart Association status III or IV (for example, the patients cannot climb one flight of stairs without symptoms, AND
    - Receiving optimal medical treatment (including target or maximum tolerated β-adrenergic antagonists, ACE-inhibitors and aldosterone antagonists, OR
    - Cardiac resynchronisation treatment (CRT) implantable cardioverter defibrillator (ICD) or CRT device (CRTD) (CRT or ICD treatment), OR
    - Other evidence of poor prognosis:
        - Cardiorespiratory exercise testing (VO2 max 2ml/kg/min if on β-blockade or <14 ml/mg/min if not on blockade, ensuring respiratory quotient >1.05
        - Markedly elevated BNP or NT-proBNP serum concentration despite full medical treatment
        - Established composite prognostic scoring system such as Seattle Heart Failure Model

1.3.2 Other indications in ambulatory patients

While the main indication is HF due to systolic ventricular dysfunction, transplantation may also be considered for other indications:

- Persistent haemodynamically compromising ventricular arrhythmias refractory to therapy (including anti-arrhythmic drugs, catheter ablation, electrical device treatment and revascularisation)
- Refractory angina with clear and objective evidence if recurrent and significant and debilitating myocardial ischemia not amenable to conventional treatment, including all forms of revascularisation and full medical anti-anginal therapy
- Restrictive and hypertrophic cardiomyopathy with persisting NYHA III or IV symptoms refractory to conventional therapy and/or recurrent admissions with decompensated heart failure. Patients should have clear echocardiographic evidence of restrictive filling confirmed by invasive haemodynamic studies, with clearly defined aetiology to ascertain likelihood of systemic disease and risk for recurrence

2. Assessment of patients

Patients should be fully assessed in one if the designated Heart Transplant Units and fully evaluating the patients. Patients should be discussed at the Multi-Disciplinary Team meeting and, if appropriate for transplantation, should be offered listing.

3. Selection criteria

Eligible patients can be placed on the UK national transplant list only following registration with NHSBT. Patients who have not been registered should not be offered an organ. Patients are required to consent to transfer of their data onto the UK Transplant Registry, which is maintained by NHSBT on behalf of transplant services in the UK and holds detailed information about each patient awaiting any organ transplant in order that they may have an up-to-date status of the transplant list.

Patients will be placed on the national transplant list on the day on which details are received at NHSBT. Discrepancies or missing information will be followed up with the local centre and might cause a delay.

Determination of eligibility for NHS treatment should be determined by the hospital and advice may be given by the national Department of Health. Accepted patients are classified as Group 1 or Group 2 (as defined by The NHS Blood and Transplant (Gwaed a Thrawsbkniadau'r GIG) (England) Directions 2005 – Guidance). It should nevertheless be noted that nationals of a non-UK country may only be registered on a transplant list after they have been accepted by a consultant as suitable for treatment. It is the responsibility of the consultant registering such a patient on the transplant list to confirm that they have been accepted under E112 or similar arrangements.

NHSBT is working with stakeholders to develop processes for validation of registration and review of the Appeals process to facilitate appropriate listing.

3.1 Rationale for choice of selection criteria
3.2 Clinical criteria for selection
3.2.1 Criteria for selection

Comment [KA3]: Add in details on selection of non-urgent recipients here.

3.2.1.1 Rational for super-urgent and urgent classification

Separate selection criteria have been devised for those cases requiring emergency transplantation (urgent transplantation criteria) compared to those who require a non-urgent procedure. The two groups have a different range of aetiologies with markedly different short-term prognoses; different criteria are required to define that prognosis. Similarly, allocation processes are different for urgent and non-urgent transplantation, reflecting those patient groups with a different risk of death without transplantation.

3.2.1.2 Criteria for super urgent and urgent classification

Process for urgent registration

Registration on the urgent heart scheme must be made by faxing an urgent heart registration form to the ODT Duty Office, who will then place the recipient on the urgent heart scheme and notify all heart transplant centres in the UK by facsimile and paging service. The recipient urgent registration form must be sent to the ODT Duty Office by facsimile or email. On receipt, the ODT Duty Office will facsimile an anonymised copy of the form to all designated cardiothoracic transplant centres. If there are any clear errors or missing data, the ODT Duty Office will call the centre immediately for clarification.

Centres wishing to seek clarification of the details of a recipient on the urgent heart scheme must notify the ODT Duty Office by telephone or email, the clinician from the centre seeking clarification will make direct contact with the registering centre and discuss the case clinician to clinician. In cases where clarification has been sought, the ODT Duty Office will seek confirmation of the patient's status from the registering centre 24 hours after a registration. Where there remains a dispute this should be discussed with the Chairman of CTAG and discussed at the Adjudication Panel.

A summary of recipients on the urgent heart scheme will be sent by facsimile to all designated centres by the ODT Duty Office each day. The summary will show the date and time of registration on the urgent heart scheme.

For patients who remain on the urgent list for more than 7 days, Urgent Heart Recipient Weekly Update forms should be submitted each week.

It is important that the information supplied in the 'indication for registration' section of these forms aligns with the category selected. For example, if a patient is registered under Category 4 then the extra-corporeal membrane oxygenation (ECMO) box must

state 'Yes'. If this information is inconsistent, the Duty Office will contact the centre 1 day after registration to clarify the correct category. If following this consultation the registration is deemed invalid, the patient may be suspended from registration. In such scenarios, this decision will be made by the NHSBT Medical Director.

Process for super urgent registration
When the super urgent heart scheme is implemented in 2015, the registration process will work in the same way as for the urgent scheme. The same form will be used for urgent and super urgent registrations. Centres will be required to indicate which scheme a patient is to be listed on and to provide supporting information.

Selection criteria for adult urgent heart transplantation
In order for an adult patient to be immediately accepted on to the urgent heart allocation scheme (UHAS), the patient must fulfil one of the following criteria:

Category 1 – Adult with short-term mechanical circulatory support device (MCSD)
Mechanical circulatory support for acute haemodynamic decompensation using a short-term right, left or bi-ventricular device, implanted as a specific bridge-to-transplantation provided the patient remains otherwise stable with maintenance of renal function (urine output 12 ml/kg/day and reasonable evidence of an eGFR >40 ml/min/1.73m^2) and does not have identified failure of ≥3 organ systems which require machine support.

Category 2 – Adult with MCSD with device-related complications
Mechanical circulatory support with objective medical evidence of significant device-related complications such as thrombo-embolism, device infection, mechanical failure and/or life-threatening ventricular arrhythmias. Panel reactive antibody sensitisation does not qualify for urgent registration in this criterion.

Category 3 – Adult with intra-aortic balloon pump (IABP)
Mechanical circulatory support with an IABP, with or without inotropic support.

Category 4 – Adult with ECMO
Mechanical circulatory support using ECMO as a specific bridge-to-transplantation, provided the patient remains otherwise stable with maintenance of renal function (urine output 12 ml/kg/day and reasonable evidence of an eGFR>40 ml/min/1.73m^2) and does not have identified failure of ≥3 organ systems which require machine support.

Category 5 – Adult on high-dose inotropes
Continuous central infusion of a high dose intravenous inotrope (dopamine >5 μg/kg/min, dobutamine >7.5 μg/kg/min, epinephrine >0.05μg/kg/min, enoximone >5 μg/kg/min, levosimandan – any dose, milrinone >0.375 μg/kg/min or adjusted to

achieve therapeutic milrinone levels of 100–300 ng/ml (which may correspond to a lower dose in patients with impaired renal function)).

Category 6 – Adult on combination of inotropes
Continuous infusion of combination of inotropic support including:

- Any β-andrenoreceptor agonist + a phosphodiesterase inhibitor
- Epinephrine ≥0.02 μg/kg/min + a second β-andrenoreceptor agonist
- Dopamine + dobutamine provided that one or other drug is infused at ≥5 μg/kg/min
- Other drug combinations commensurate with the level of support listed above.

Category 7 – Adult on non-invasive ventilation
Non-invasive ventilation required for the management of heart failure provided inotropic support is also being used in the heart failure management.

Selection criteria for paediatric urgent heart transplantation
In order for a paediatric patient to be immediately accepted on to the UHAS, the patient must fulfil one of the following criteria:

Category 51 – Paediatric with short-term MCSD
Mechanical circulatory support for acute haemodynamic decompensation using a short-term right, left or bi-ventricular device (including Berlin Heart), implanted as a specific bridge-to-transplantation.

Category 52 – Paediatric with MCSD with device-related complications
Mechanical circulatory support with objective medical evidence of significant device-related complications such as thromboembolism, device infection, mechanical failure and/or life-threatening ventricular arrhythmias. Panel reactive antibody sensitisation does not qualify for urgent registration in this criterion.

Category 53 – Paediatric with IABP
Mechanical circulatory support with an intra-aortic balloon pump, with or without inotropic support.

Category 54 – Paediatric with ECMO
Mechanical circulatory support using extra-corporeal membrane oxygenation as a specific bridge-to-transplantation.

Category 55 – Paediatric >15 kg on high-dose inotropes
Patients >15 kg on continuous central infusion of a high dose intravenous inotrope.

Category 56 – Paediatric ≤15 kg on ventilation and inotropes

Patients ≤15 kg who are ventilated and on inotropes.

Selection criteria for super urgent listing
A new category of critical patients has been defined for a subset of those requiring emergency transplantation (the urgent group). These patients are considered to be the most critical and will form the super urgent group. Although the scheme is not anticipated to be implemented until 2015, the criteria for super urgent listing will be as follows:

- Patients on short-term mechanical circulatory support which includes short-term VADs (a device with which a patient cannot be discharged to home), ECMO and IABP
- A patient meeting criteria for urgent listing that is not suitable for a long term left VAD. Access for this latter type of patient will be approved by the Adjudication Panel

Criteria for super-urgent listing of long term VAD patients:

- Right ventricular failure dependent on intravenous inotropes
- Recurrent systemic infection related to the VAD (does not have to be an in-patient)
- Other VAD issues including recurrent or refractory VAD thrombosis (after appeal to the Adjudication Panel, see section 5). This category does not have to be an in-patient

Exceptionally sick patients referred to the Appeals Panel (see section 5)
In exceptional circumstances, patients with a risk of dying >50% at 30 days without a transplant, that do not meet either the urgent or super urgent listing criteria can be placed on one of these lists after approval by a majority of delegates from other transplant centres.

3.2.2 Process for selection of variants
3.2.3 Multiple organ transplants

3.3 Contraindications
Not all patients who meet criteria for transplantation are suitable for a variety of reasons. Patients need full evaluation by a multi-disciplinary team and full discussion. Some of these are absolute contraindications and others are relative. The team needs to take a balanced decision based on need and avoiding futility.

3.3.1 Risk factors related to heart failure
Advanced HF can lead to dysfunction in other organs, which will increase the risk associated with transplantation and may eventually become irreversible; referral should be considered before these complications become established. Whenever possible,

intrinsic organ damage should be differentiated from potentially reversible abnormalities secondary to HF.

Cardiorenal syndrome

Impaired renal function is an independent predictor of mortality in HF and following transplantation. Intrinsic renal damage should be distinguished from reversible dysfunction secondary to congestion and low cardiac output. Ultrasonography is essential to assess renal shape and size as well as excluding obstruction. Any albuminuria should be assessed. Functional reassessment following a reduction in neurohormonal antagonists or after inotropic support to improve cardiac output may be required. Irreversible renal dysfunction, defined as creatinine clearance persistently <50 ml/min or an eGFR <40 ml/min/1.73 m^2, may preclude transplantation.

Hyponatraemia

Mild hyponatraemia is relatively common in patients with chronic HF. Studies have consistently shown that it is a powerful independent predictor of poor prognosis across a spectrum of HF severities, including patients with severe or decompensated HF. Persistent hyponatraemia may, therefore, help identify patients who should be considered for advanced HF assessment.

Liver dysfunction

Abnormal liver function tests are common in HF; liver dysfunction is a predictor of adverse outcome following transplantation, and an elevated bilirubin is a predictor of mortality both in chronic HF and after transplantation. Standard liver 'function' tests are insensitive for detecting cardiac cirrhosis, and specialist investigation may be required in patients with chronic right HF causing severe systemic venous hypertension or refractory ascites.

Secondary pulmonary hypertension

High pulmonary vascular resistance is associated with an increased risk of right HF and mortality after heart transplant. Concomitant lung disease, obstructive sleep apnoea and pulmonary embolic disease should be excluded. Pulmonary hypertension that is irreversible despite treatment with pulmonary vasodilators is a contraindication to heart transplant, and pharmacologically reversible hypertension is an incremental risk factor. A number of variables need to be assessed, and the acceptable limits vary between centres; however, a pulmonary vascular resistance >5 Wood units, a transpulmonary gradient >15 mmHg and a pulmonary artery systolic pressure >60 mmHg are regarded as a contraindication by most centres.

Anaemia and cardiac cachexia

Anaemia is common in HF and is an independent predictor of hospitalisation and mortality. Exclusion of haematinic deficiency (including functional iron deficiency) is necessary. Absolute iron deficiency may reflect gastrointestinal pathology and must be investigated. Intravenous iron is associated with short-term symptomatic improvement in iron-deficient patients and may benefit patients prior to transplantation. Involuntary weight loss (>7.5%) is an adverse prognostic factor in HF and other causes should be excluded. However, a low body mass index (BMI) does not adversely affect the outcome of transplantation.

3.3.2 Comorbidities
Some comorbidities constitute an absolute contraindication to transplantation, and others are incremental risk factors. Relative contraindications, when present in combination, may become absolute barriers to surgery.

Age
Age is not a contraindication to transplantation, but increasing age is an incremental risk factor, and it is often associated with other comorbidities. Few UK patients have been transplanted above the age of 65 years.

Previous cardiac surgery
Previous cardiac surgery is not a contraindication with outcomes typically comparable to patients undergoing transplantation as their primary procedure. However, multiple prior sternotomies are an incremental risk factor.

Diabetes mellitus
Diabetes is not a contraindication but is a risk factor; good diabetic control must be established (glycosylated haemoglobin below 7.5%). Microvascular complications other than non-proliferative retinopathy are usually considered an absolute contraindication to transplantation. A pre-transplant BMI >30 kg/m^2 is a risk factor.

Obesity
Obese patients are required to lose weight, and those with a BMI >32 kg/m^2 are unlikely to be accepted by UK centres.

Vascular disease
Symptomatic peripheral or cerebrovascular diseases are relative contraindications, given their impact on patient prognosis. Extracardiac vascular disease is an important risk factor for perioperative mortality after heart transplantation.

Infection
Sepsis and active infection are absolute contraindications. Chronic infections should be eradicated by appropriate antimicrobial and surgical treatment. Chronic viral infections

are relative contraindications, given the potential for organ injury, disease exacerbation by pharmacological immunosuppression and drug interactions between antiviral and immunosuppressive drug treatment.

Pulmonary embolism

Recent pulmonary embolism is a contraindication because it may increase pulmonary vascular resistance and result in post-operative right ventricular failure. Additionally, if there has been pulmonary infarction, there is a risk of the patient developing a lung abscess or other septic complication. Transplantation, therefore, should normally be delayed until the infarct has healed.

Immunosuppression

Pharmacological immunosuppression is associated with an increased incidence of malignancies and by more aggressive tumour biology.

Current and previous malignancy

Active malignancy, other than localised non-melanoma skin cancer, is a contraindication to transplantation. However, patients who have achieved a sustained remission following cancer treatment may become transplant candidates. Decision making should include advice from a cancer specialist, and the outcome will be influenced by the nature of the malignancy and the patient's expected prognosis for survival free of relapse.

Autoimmune disease

Autoimmune disorders (e.g., systemic lupus erythematosus, rheumatoid arthritis and ulcerative colitis) are relative contraindications owing to the expectation of higher complication rates and disease recurrence. However, such diseases often respond well to the immunosuppression used after transplantation, and so decisions should be made on a case-by case basis. Infiltrative cardiac diseases such as systemic amyloidosis and sarcoidosis are associated with a risk of progression of extra-cardiac disease or of recurrence in the cardiac allograft.

Other co-morbidities

Transplantation may be appropriate when there is limited extracardiac disease and when other treatment can control the underlying disease. Some forms of non-ischaemic dilated cardiomyopathy are associated with a skeletal myopathy. Patients suitable for transplantation will have mild skeletal involvement with a good medium-term outlook (e.g., Becker muscular dystrophy). More aggressive skeletal myopathies are unsuitable for transplantation.

Social factors

Psychosocial factors may have an important impact on the outcome of transplantation and patients listed for transplantation should be capable, with support if indicated, of withstanding the physical and emotional aspects of being on the waiting list and the post-transplant follow-up.

Substance and alcohol use
Substance abuse (including tobacco and excessive alcohol consumption) is a strong relative contraindication. Relapse of smoking is associated with poor outcomes after cardiac transplantation by increasing coronary allograft vasculopathy and malignancy. Tobacco abstinence for at least 6 months before transplantation is normally required and potential candidates should be offered full support to become abstinent prior to listing.

Abuse of alcohol or drugs may be associated with other problems such as poor adherence to treatment; active alcohol dependence and use of illegal drugs are strong contraindications to transplantation. Patients should be offered full medical, psychiatric and social support to become and remain abstinent before and after transplantation.

Non-adherence
Non-adherence to treatment after transplantation is an important predictor of poor long-term outcome. A history of prior non-adherence to treatment or follow-up needs further evaluation and may represent a relative or absolute contraindication. Such patients need psychological/psychiatric evaluation. Adequate, stable accommodation and family or social support are essential for successful outpatient care of transplant patients.

Mental capacity
Unlike most types of surgery, transplantation commits the patient to a lifelong programme of monitoring and drug treatment. Therefore, all potential recipients should have mental capacity to give their informed consent or consent given according to the local legal requirements.

Mental illness
Mental illness is not a contraindication to transplantation. Patients with current or past significant mental illness should be assessed by a multi-disciplinary team and offered treatment. Severe, unresponsive treatment with significant morbidity may contraindicate transplantation.

3.4 Selection for re-transplant

4. Follow up on list

All patients undergoing organ transplantation require lifelong follow-up before listing as well as after transplantation.

4.1 Monitoring
Patients who are listed for transplantation should be monitored at appropriate intervals, to ensure their suitability for transplantation, maintain current clinical and other data and address any concerns of the patient and their carers and ensure consent continues to be current

4.1.1 Re-assessment on list
Patients awaiting a heart transplant are ill and their condition may deteriorate to the extent that the probability of survival post-transplant falls to a level deemed unsuitable for transplant. In these circumstances, the patient will be removed from the transplant list but only after full discussion with them. Such patients, although in greatest need, are at greatest risk of not benefiting after transplantation. Patients are entitled to a second opinion.

5. Appeals process
It is recognised that no system can describe every clinical situation and an equitable system must allow for consideration for individual cases in a transparent and equitable way.

For patients who do not fall into the above listed categories, the case should be taken to the Appeals Panel to decide whether the patient may be registered.

The centre must provide the panel with relevant details. The patient may be registered if the majority agree on the case for listing but if the panel cannot reach a consensus, the CTAG Chairman has the casting vote. The decisions of the Appeals Panel will be presented at each meeting of the CTAG.

5.1 Listing of patients by the Appeals Panel
Patients agreed for listing by the Adjudication Panel should be marked on these forms as either Category 9 or 59 as follows:

- *Category 9* – Adult, Other
  Patients outside the criteria listed in 3.2.1.2, but for whom the patient's transplant physicians believe urgent listing is justified using acceptable medical criteria not included above. Documentation of the reasons justifying assigning urgent status should be detailed and agreed by the Chairman of CTAG.
- *Category 59* – Paediatric, Other

Paediatric patients outside the criteria listed in 3.2.1.2, but for whom the patient's transplant physicians believe urgent listing is justified using acceptable medical criteria not included above. Documentation of the reasons justifying assigning urgent status should be detailed and agreed by the Chairman of CTAG

References

1. Taylor DO, Stehlik J, Edwards LB, *et al*. Registry of the International Society for Heart and Lung Transplantation: twenty-sixth official adult heart transplant report 2009. *J Heart Lung Transplant* 2009;28:1007e22.
2. www.odt.nhs.uk Accessed April 2014.