

Heart Failure and Pathway to Transplant



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Pulmonary blood flow

Problems

- Pulmonary artery narrowing
- IVC- PA stenosis
- Increased PVR
- Ap collaterals

Therapies

- Stents PAs
- Pulmonary vasodilators
- Embolise collaterals

Thrombus risk

Options include

- Optimise circulation
- Anticoagulation

AP Fontans

?Fontan upgrade

Saturations

Problems

- Balancing saturations with cardiac output
- Pulmonary AVMs

Therapies

- Open/ reduce size of fenestrations
- Embolise AVMs, medical management

Systemic blood flow

Problems

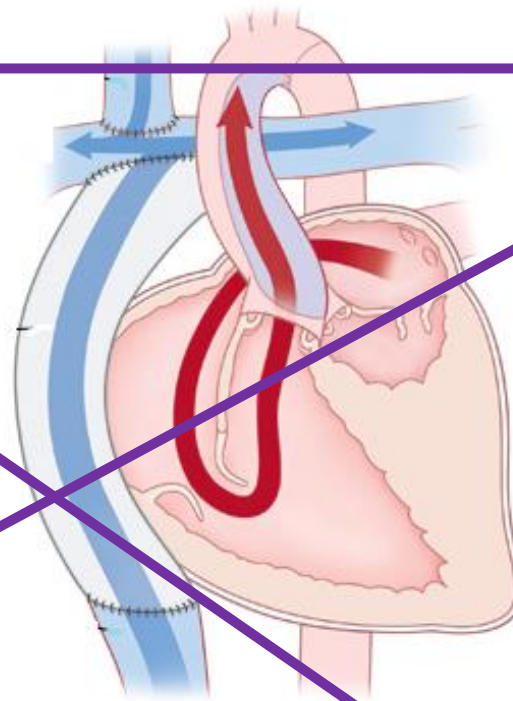
- Impaired ventricular function
- Impaired filling
- Residual valve lesions
- SVR/ Aorta obstruction
- Rhythm

Therapies

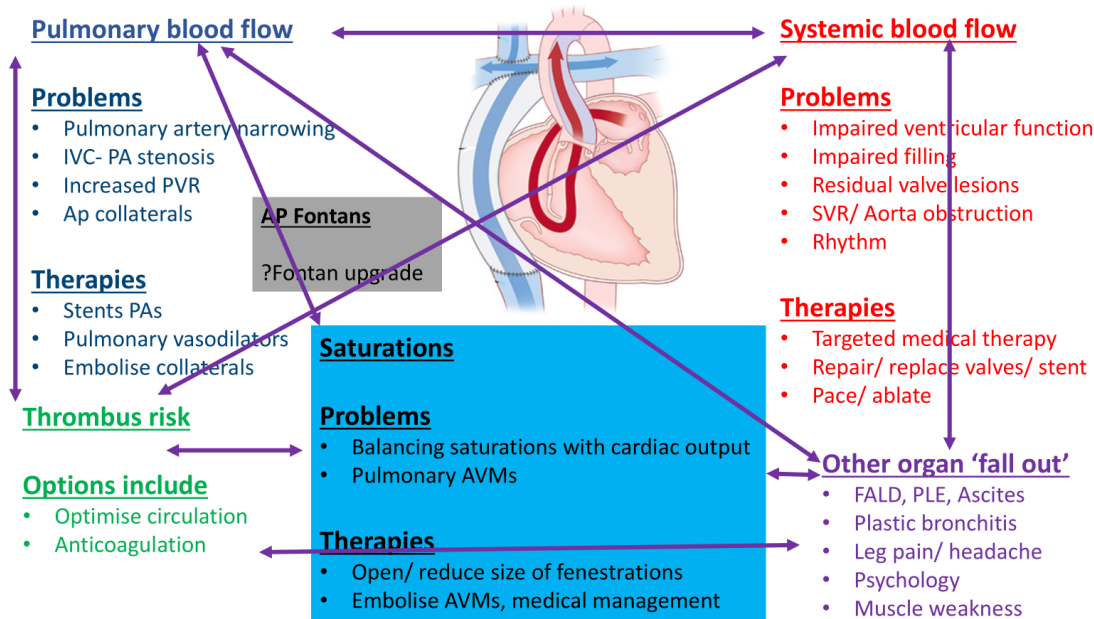
- Targeted medical therapy
- Repair/ replace valves/ stent
- Pace/ ablate

Other organ 'fall out'

- FALD, PLE, Ascites
- Plastic bronchitis
- Leg pain/ headache
- Psychology
- Muscle weakness



Fontan failure management



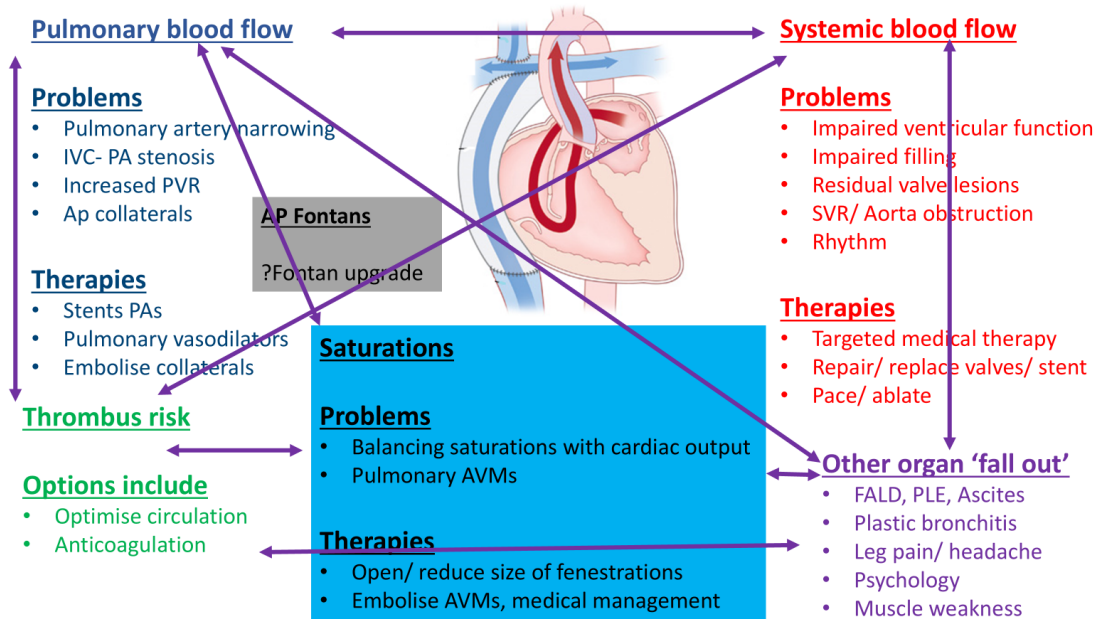
Living the best life with a Single Ventricle Heart Circulation

Wrapped within Fontan interested groups, Fontan clinics and ACHD advanced HF clinics

- Physiology based management
- Use data when available
- The data can be individualised



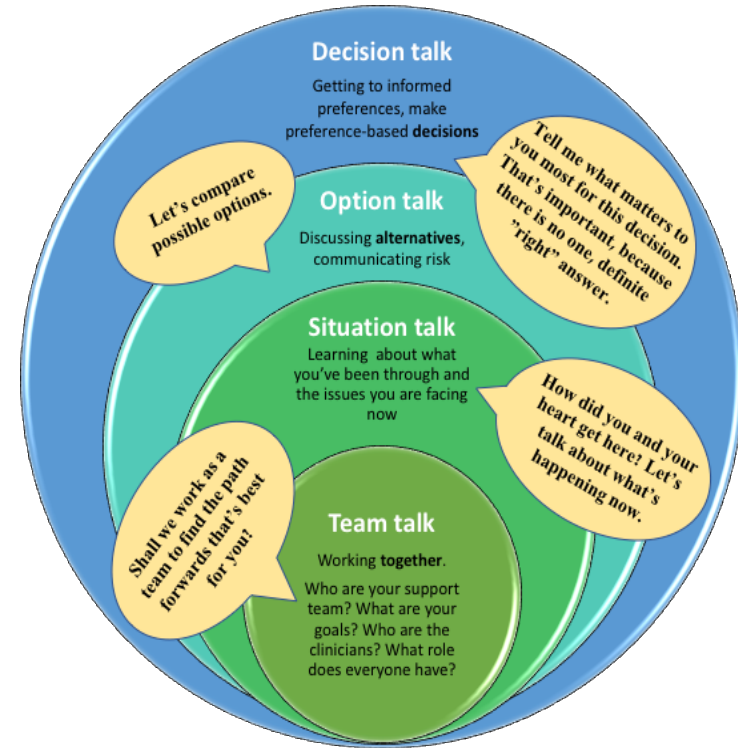
Fontan failure management



- Physiology based management
- Use data when available
- The data can be individualised

Active listening

Paying close attention and responding accurately



Deliberation

Thinking carefully about options when facing decisions

Crossland, Van De Bruaene, Roche. CJC 2019;12:1723



The pathway to transplant

Acute/ single problem failure

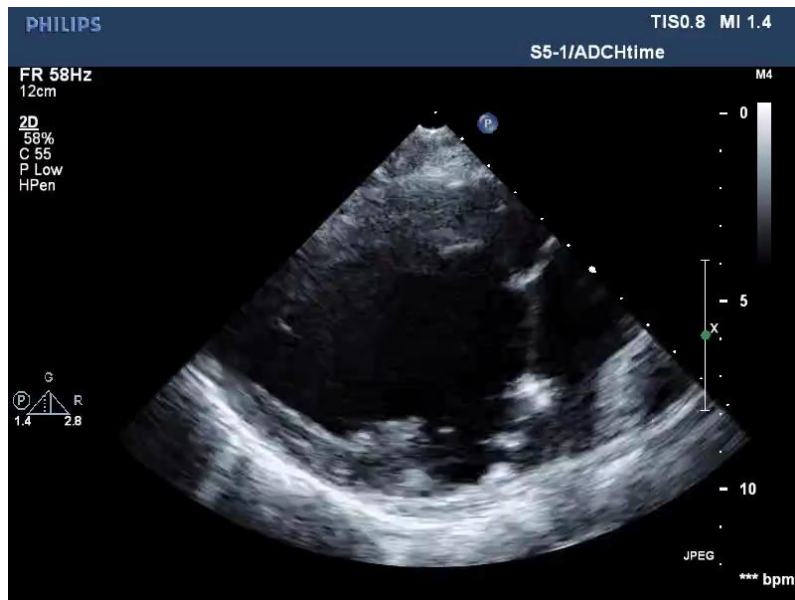
Maily paediatric, paediatric data



Transplant for 'single' problem failure

Rescue cardiac transplantation for early failure of the Fontan-type circulation in children

Chaudhari et al J Thorac Cardiovasc Surg 2005;129:416-22



Isolated Protein Losing Enteropathy



Transplant for 'single' problem failure

Rescue cardiac transplantation for early failure of the Fontan-type circulation in children

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5 year survival approx. 90% Fontan tx, similar to DCM

5 year survival approx. 75-80% single ventricle non Fontan
All early mortality, all deaths multimodal failure



FRH paediatric data 2000-2015: CHD patients are-

- Less likely to be mechanically supported
 - 21% vs 48% $p < 0.0001$
 - Because anatomical constraints
- Less likely to be transplanted from list
 - 61% vs 78% $p = 0.014$
 - Because die before organ/ Bail out patients. Listing criteria
 - **Despite having the same chance of being listed following assessment**
- More likely to die on waiting list
 - 29% vs 13% $p = 0.009$
 - See above



The pathway to transplant

Chronic Fontan failure

Maily adult, adult data



The pathway to transplant: Perceived barriers

The results from transplant are not very good

Patients don't get listed after referral

Patients die on the waiting list or are removed from the waiting list

There are not enough organs to go around

Patients need heart liver transplant
Not deliverable in the UK



The pathway to transplant: listing from referral

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FRH turn down following assessment/ initial MDT 30%

- Too high risk
 - Low BMI/ Poor muscle mass, High HLA, Anatomical
- Potentially modifiable
 - High BMI, smoking, compliance, not want because of process



The pathway to transplant: Transplant results

The results from transplant are not very good

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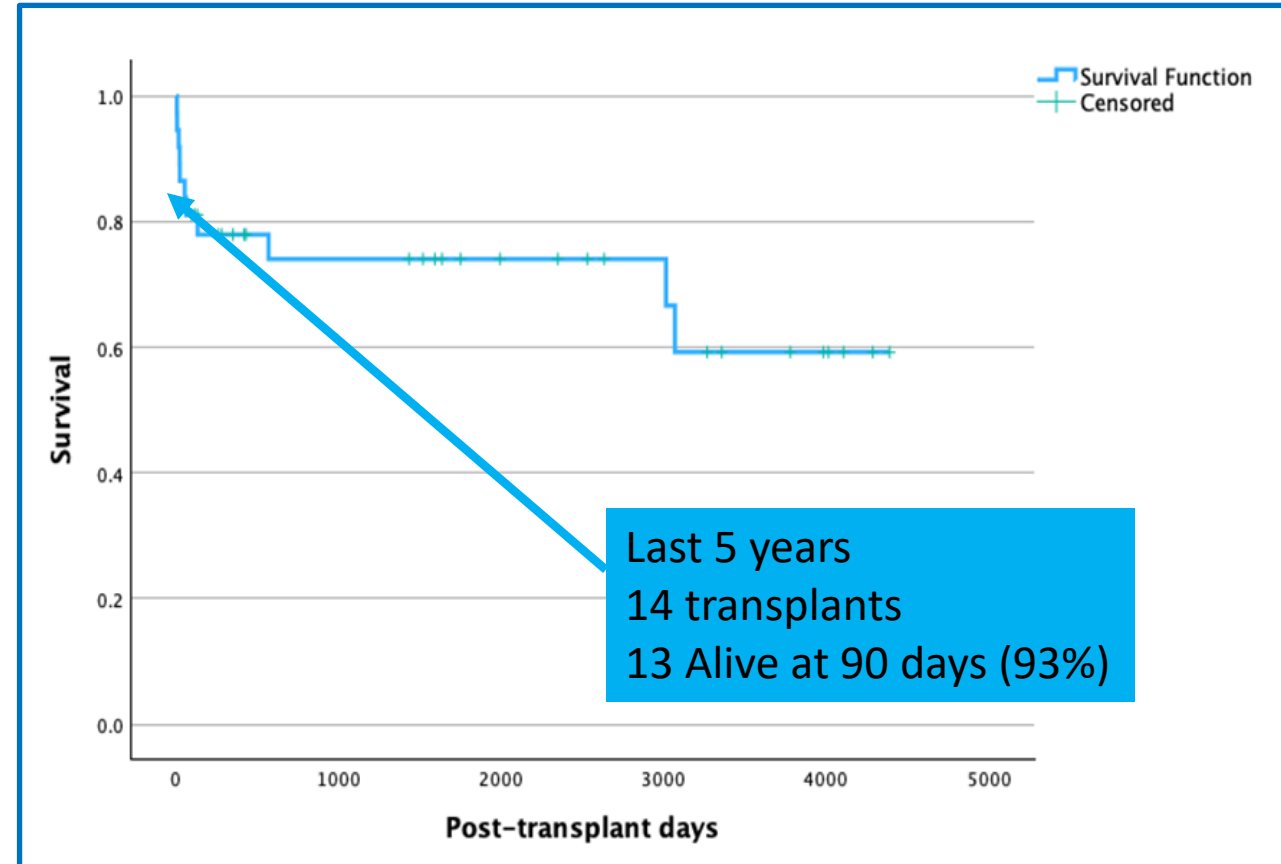
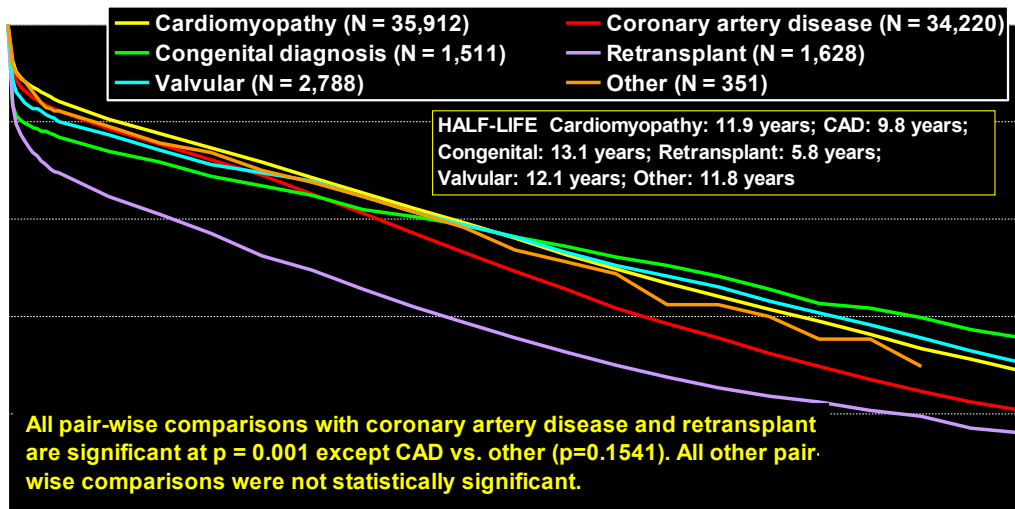
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The pathway to transplant: Transplant results



2011

J Heart Lung Transplant. 2011 Oct; 30 (10): 1071-1132

37 adults, heart alone transplants, May 2011 - October 2023



The pathway to transplant: Transplant results

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Improving early survival 93% 90 day

- Change in assessment process
- Liver team in MDT
- Patient selection
- Referral centres in MDT and part of assessment team
- Increased experience with NA and European centres

The pathway to transplant: Equity on the list

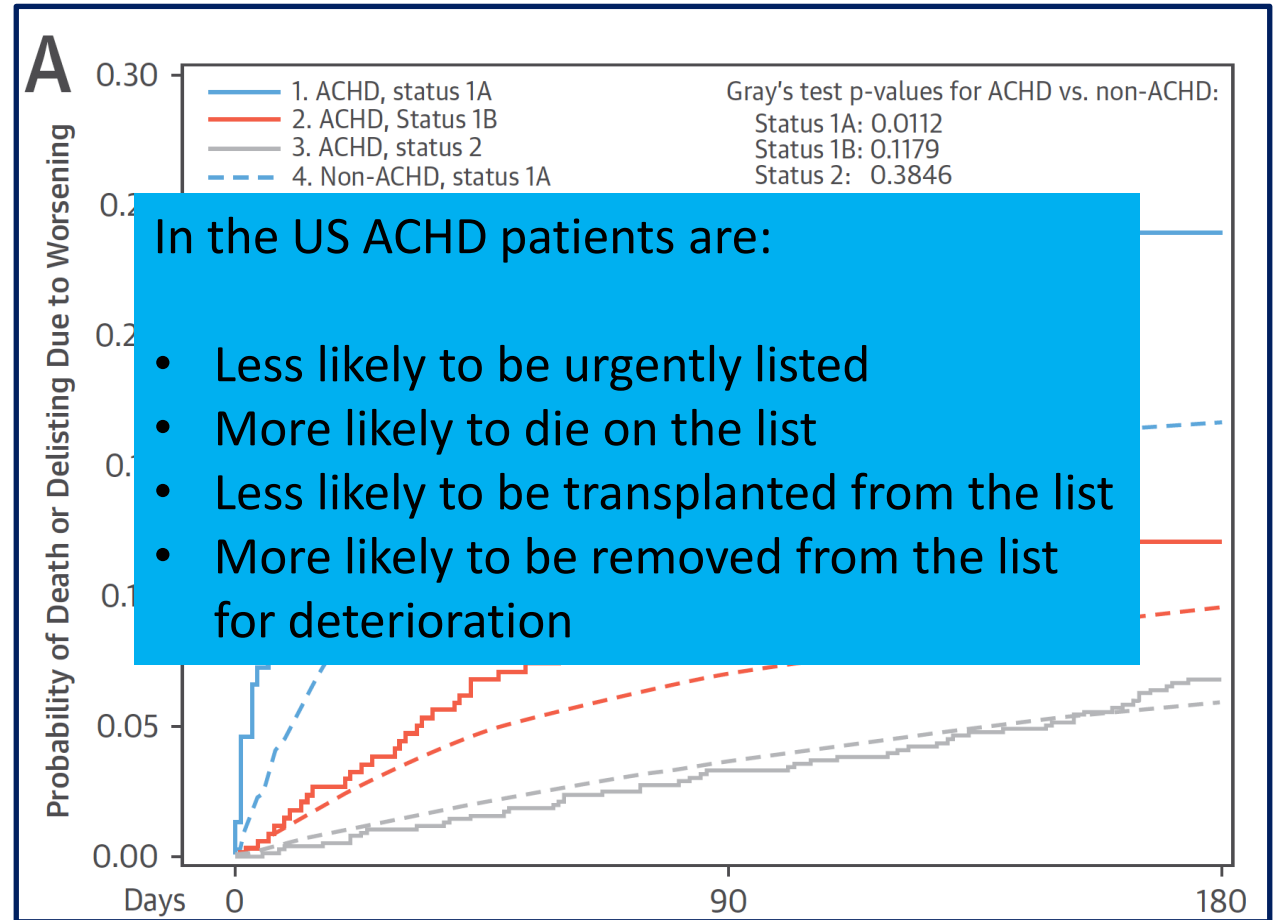
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The pathway to transplant: Equity on the list

UK urgent listing criteria

2017

- Short term mechanical support
 - ECMO
 - Balloon Pump
- Complications requiring intensive support
- High dose immunosuppression
- Agreement of unit directors
 - CTAG

UK urgent listing criteria

2017

- Significant deterioration in last 3 months
- Failure of medical therapy
- Failure of dialysis
- Failure of therapy
- Failure of support
- Failure of function
- Failure of patient
- Failure of PLE requiring
- Meet current standard urgent listing criteria

At the same meeting:

Introduction of super urgent listing for short term mechanical support



The pathway to transplant: Survival on the list



The pathway to transplant: Survival on the list

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Berlin Heart- Cavo-pulmonary assist



The pathway to transplant: Increasing donors

The results from transplant are not very good

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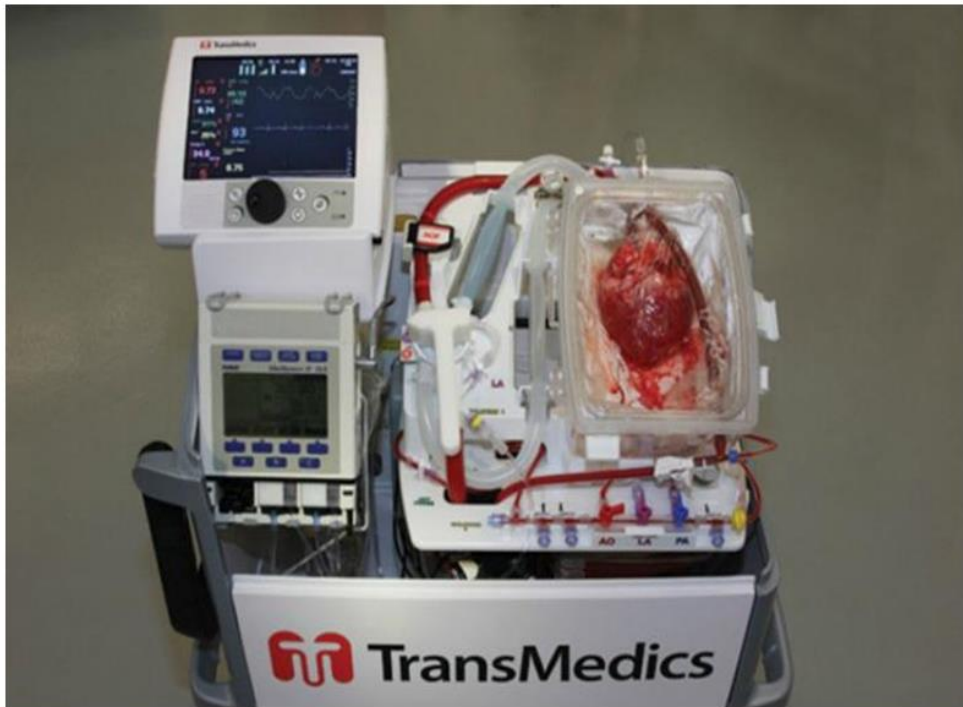
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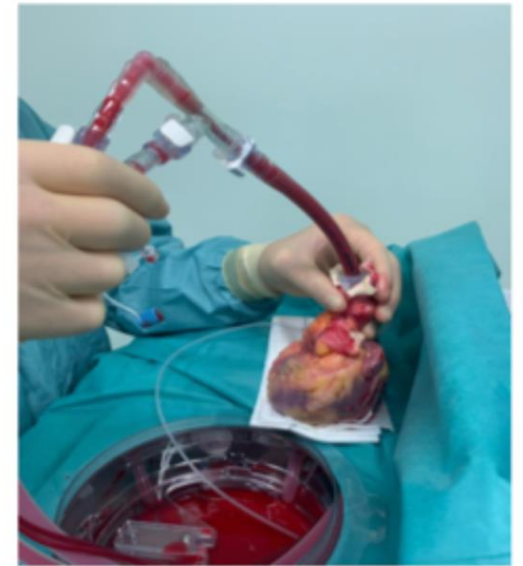
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The pathway to transplant: Organ care systems and DCD



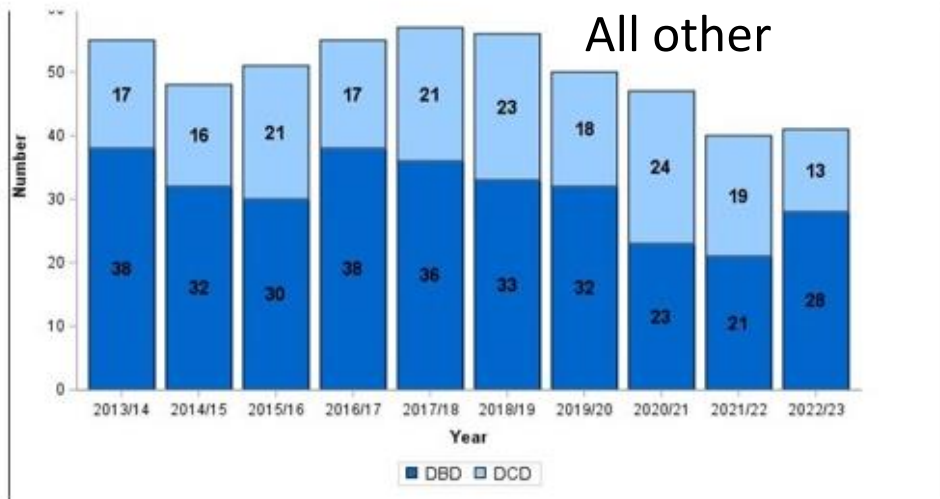
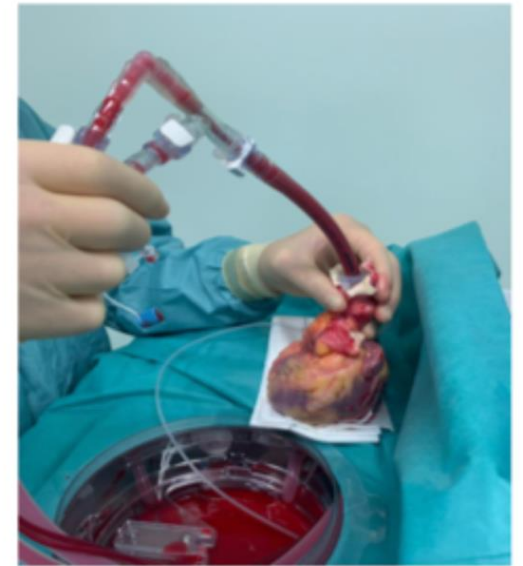
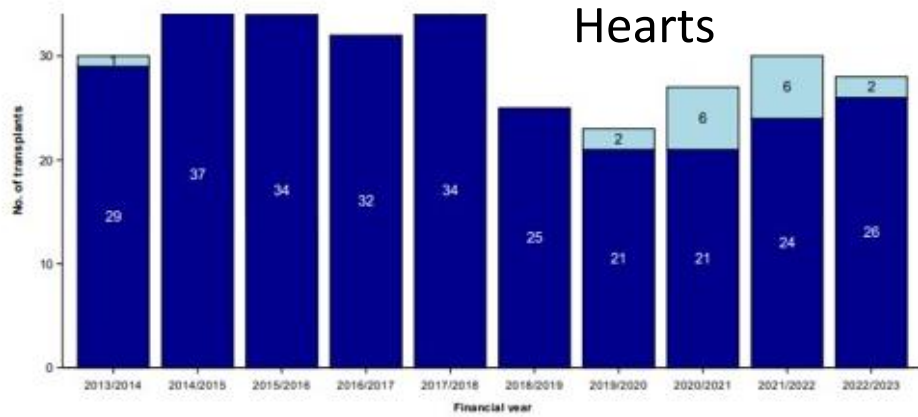
Normothermic oxygenated perfusion



XVIVO hypothermic oxygenated perfusion



The pathway to transplant- Organ care systems and DCD



XVIVO hypothermic oxygenated perfusion

The pathway to transplant: Heart Liver Transplant

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Patients need multi organ transplant
Not deliverable in the UK

- 5 x Heart livers
 - 3 for FALD
 - 2 for FALD associated HCC
- 3 Changed from Heart Liver to Heart alone
 - Related to optimisation
 - All successful transplant
- Ongoing meetings with NHSBT to discuss combined or sequential thoracic organ + abdominal organ transplant



The pathway to transplant: Overcoming the barriers

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The pathway to transplant: Overcoming the barriers

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Excellent medium-term outcomes
Continuously improving short term outcomes

Inequity of access to transplant referral
Limited data as to best timing for listing

Fontan patients listing status review National discussion

Organ care technology for DCD. Access and funding?

Heart liver transplant is available
Criteria are evolving (who and how)



Heart Failure and Pathway to Transplant

- Patient centred, individualised discussion and treatment plan
 - Goes well beyond Sildenafil, Entresto and Dapa!
- Transplant is a deliverable, effective and worthwhile option
- There are real barriers to transplant- the majority have a solution
 - Perceived barriers- referral bias
 - Late referrals/ timing of referrals
 - National priorities for donor allocation
 - Potentially funding for DCD technology

