

Introduction to Paediatric Cardiac Transplantation

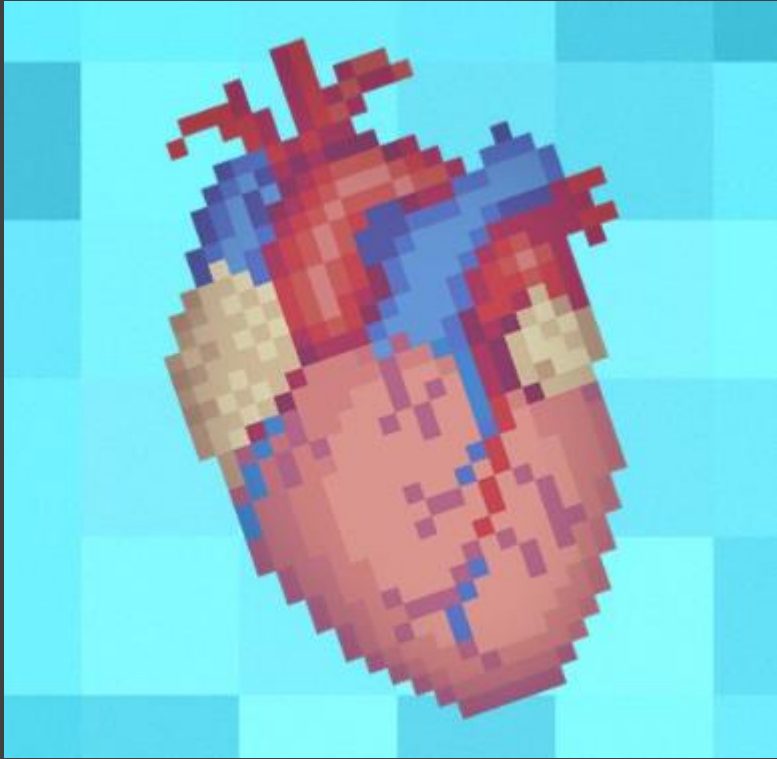
Transplantation Webinar (NENC-CHDN)

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Freeman Hospital, Newcastle

29.05.2020



Outline



Transplantation - History



Freeman Experience



Heart Failure



Transplant team & its role



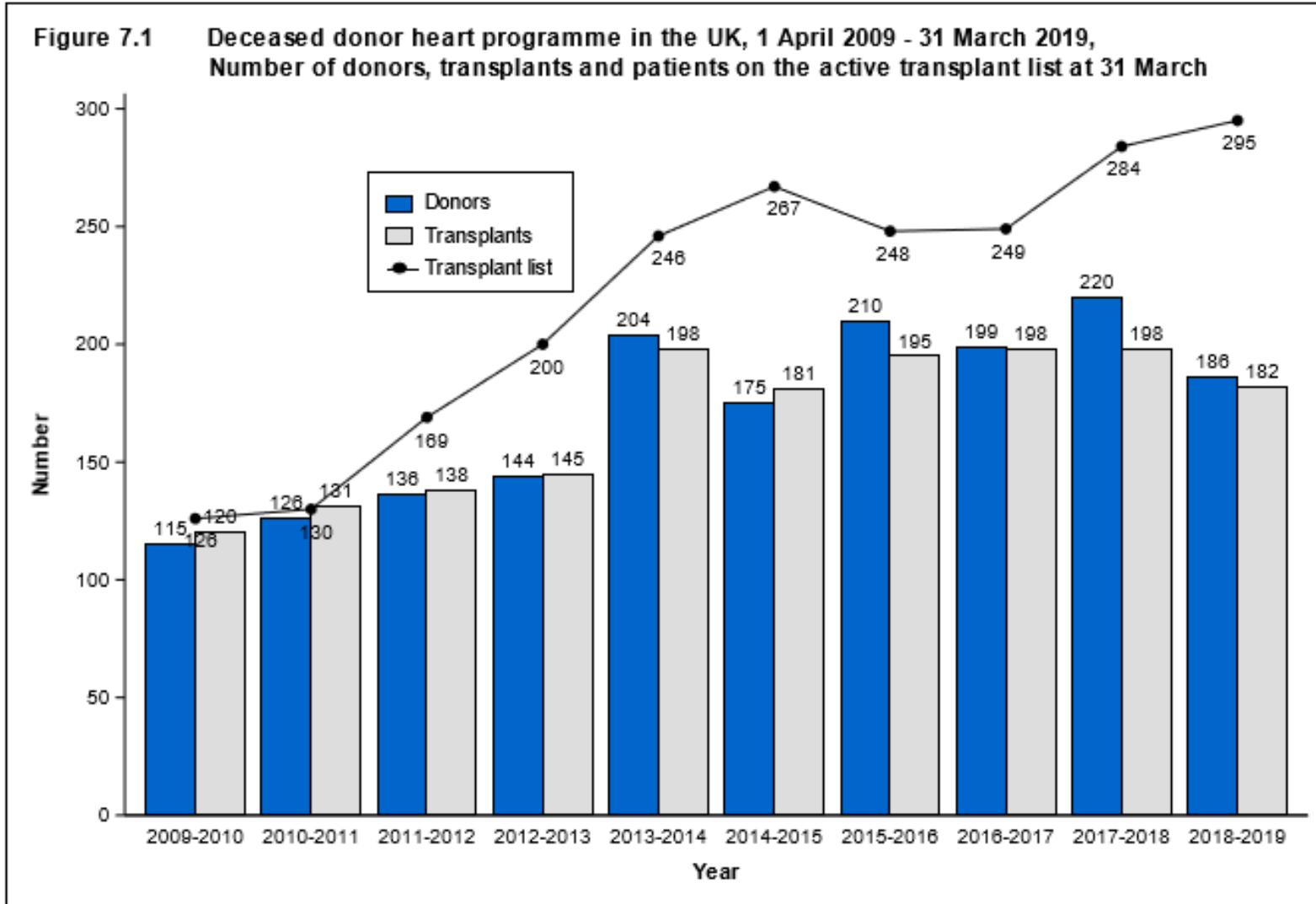
Key Learning Points

Max & Keira's Law



The Organ Donation Act will mean adults in England will be considered potential donors unless they chose to opt out or are excluded.

Organ Donation



<https://nhsbtdbe.blob.core.windows.net/umbraco-assets-corp/16416/section-7-cardiothoracic-activity.pdf>

Facts – Solid Organ Transplantation

6000 People
awaiting transplant in
the UK

80%
support organ donation
in England

38% have opted in

3 people die everyday
while on waiting list



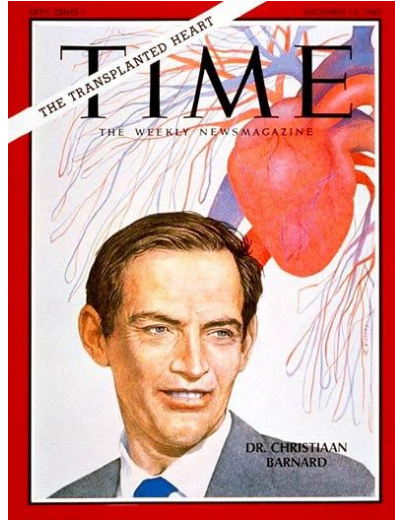
Less than **50%**
families consent to
donation for their loved
ones

Approx. **700** more
lives per year could be
saved

200 people receive
heart transplant each
year in the UK

Cost of CHD service to
NHS England

£ 175 million pa



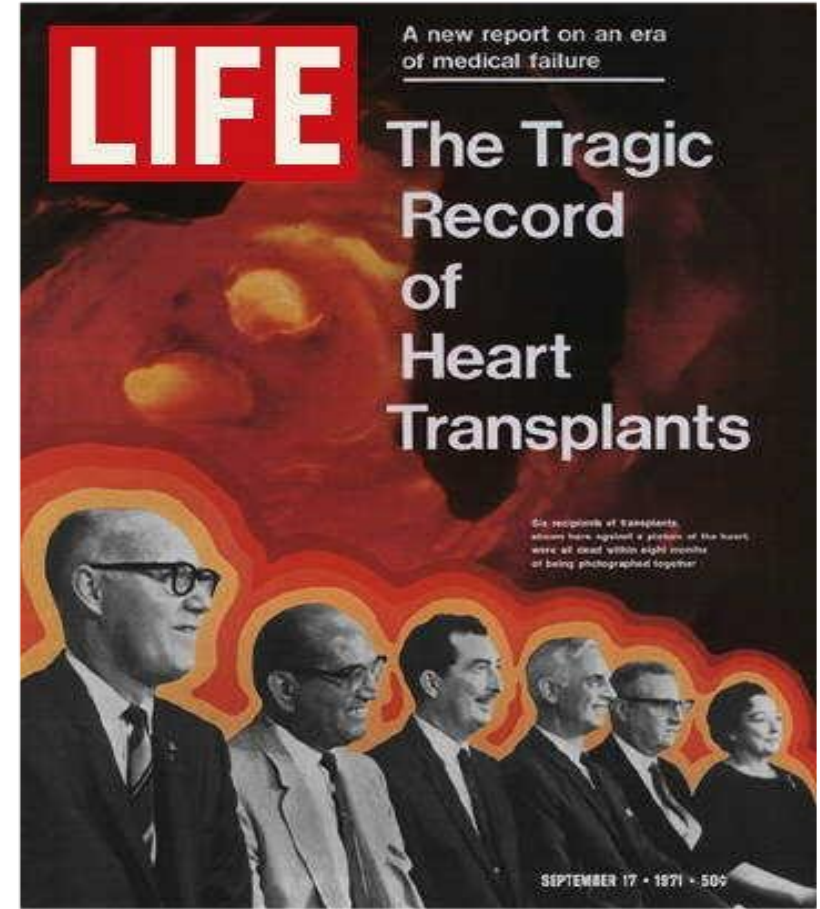
First human heart transplant

The first human heart transplant was carried out on December 3 by a South African surgeon called Christiaan Barnard in Cape Town. The patient, Louis Washkansky (pictured), survived for 18 days. However, Dr Barnard's second patient a month later, Philip Blaaiberg, lived for nearly two years

1967

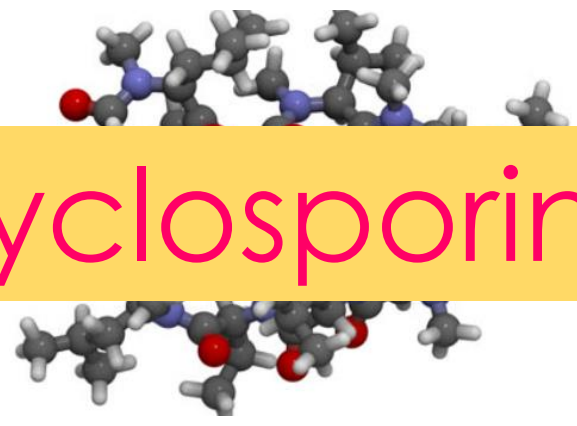
Poor Results

2/10
Initial
transplants
survived 13
& 24 years



1971

Cyclosporine



First successful UK heart transplant



1979 (5yrs)

1980-82

First successful child heart transplant

The first successful paediatric heart transplant took place at Columbia Hospital in New York. The recipient was James Lovette, aged four. He went on to have a second transplant at the age of 10, and he survived until 2006.

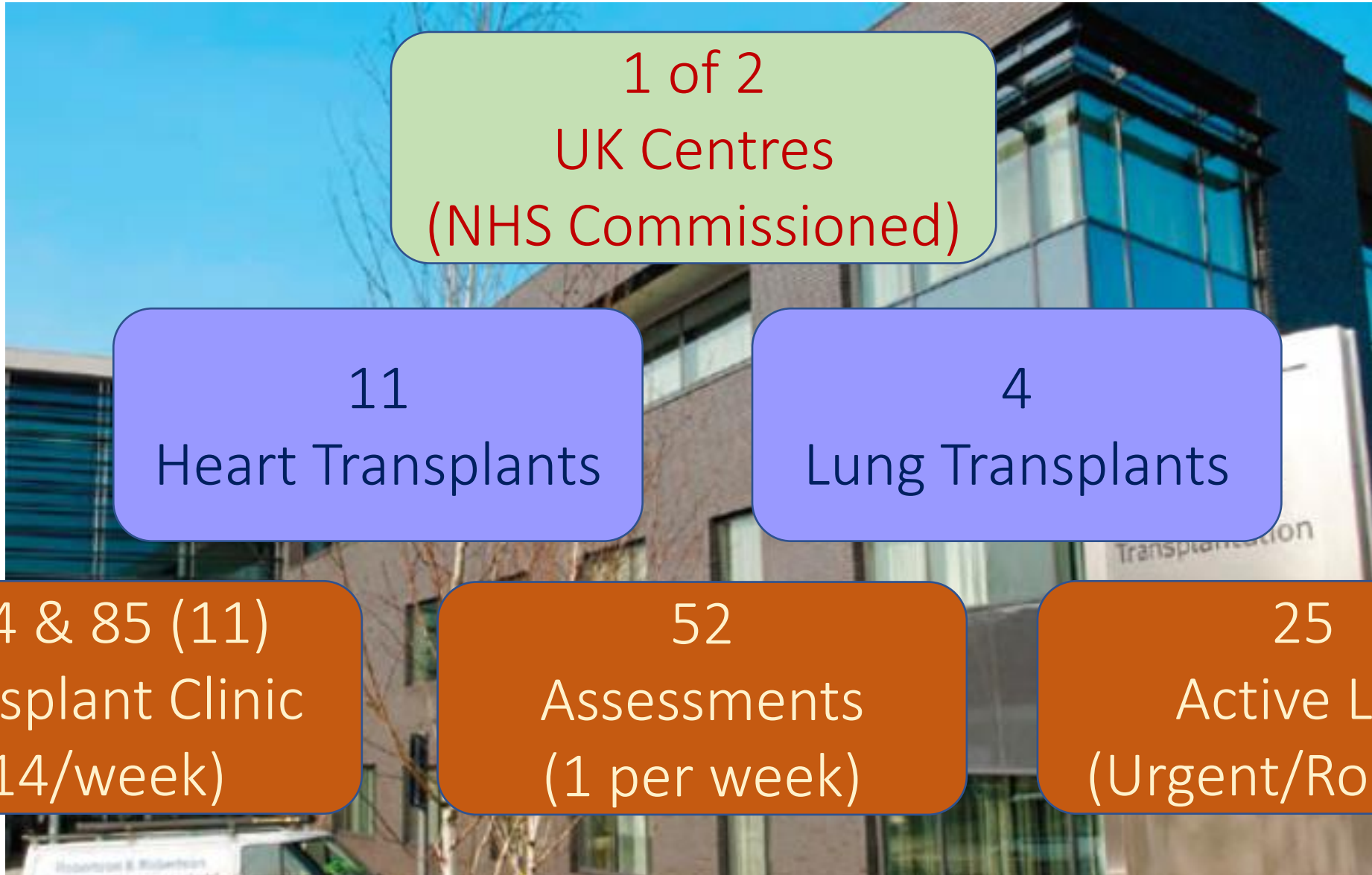
1984

First s
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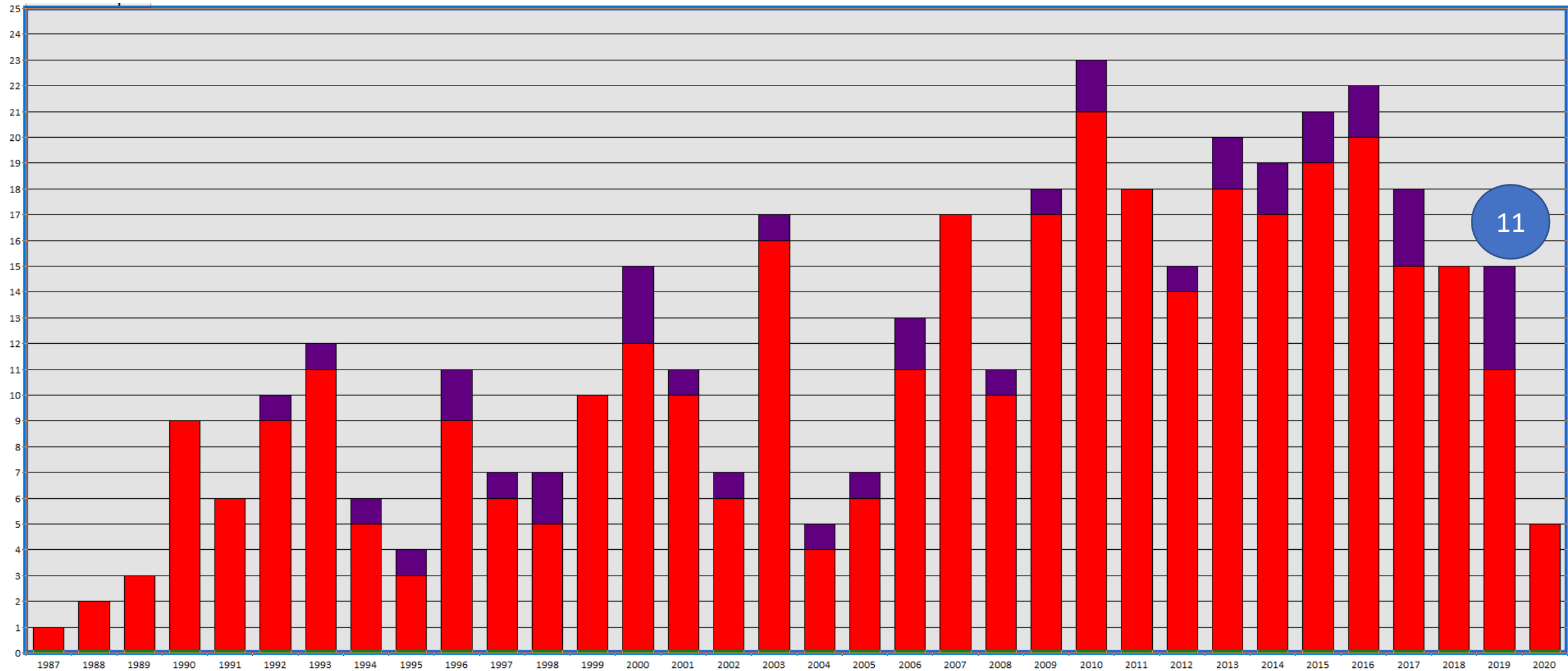
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1987



Paediatric Heart Transplants



Paediatric Heart Transplants - Newcastle

Figure 17.1 Number of paediatric heart transplants in the UK, by financial year and donor type, 1 April 2008 to 31 March 2018

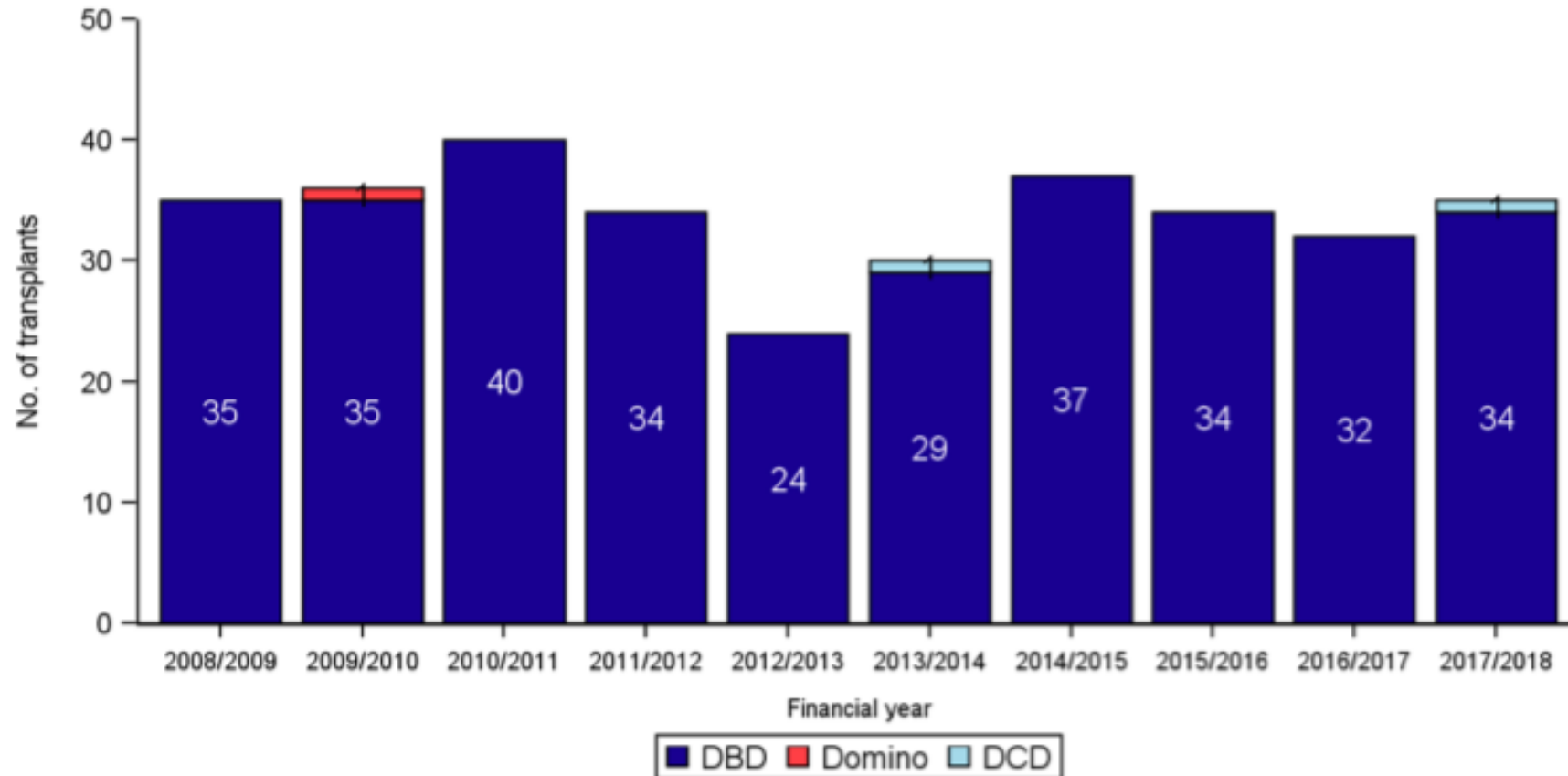
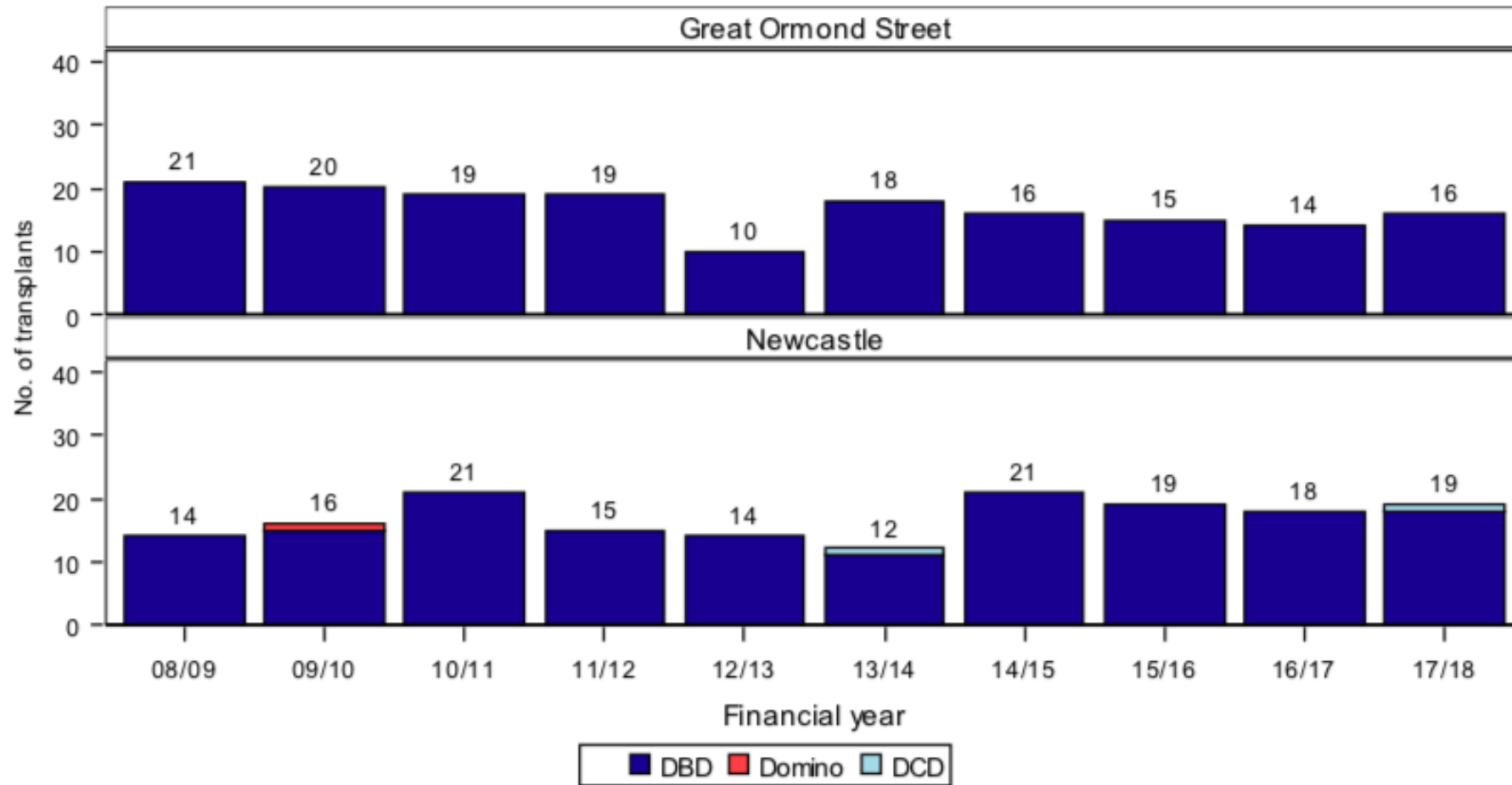


Figure 17.2 Number of paediatric heart transplants in the UK, by financial year, centre and donor type, 1 April 2008 to 31 March 2018



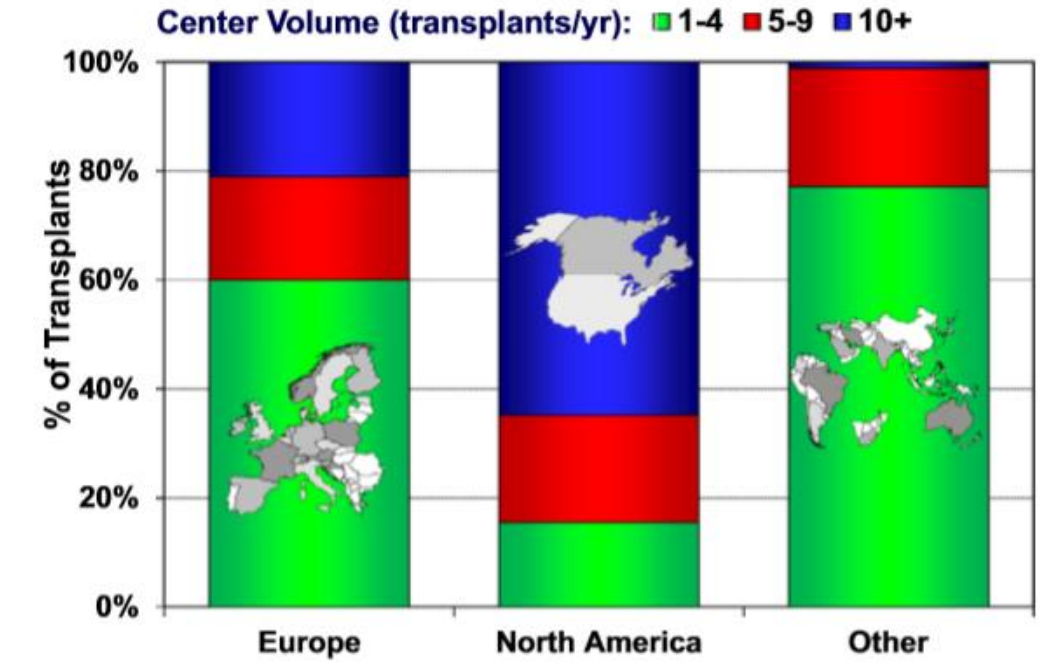
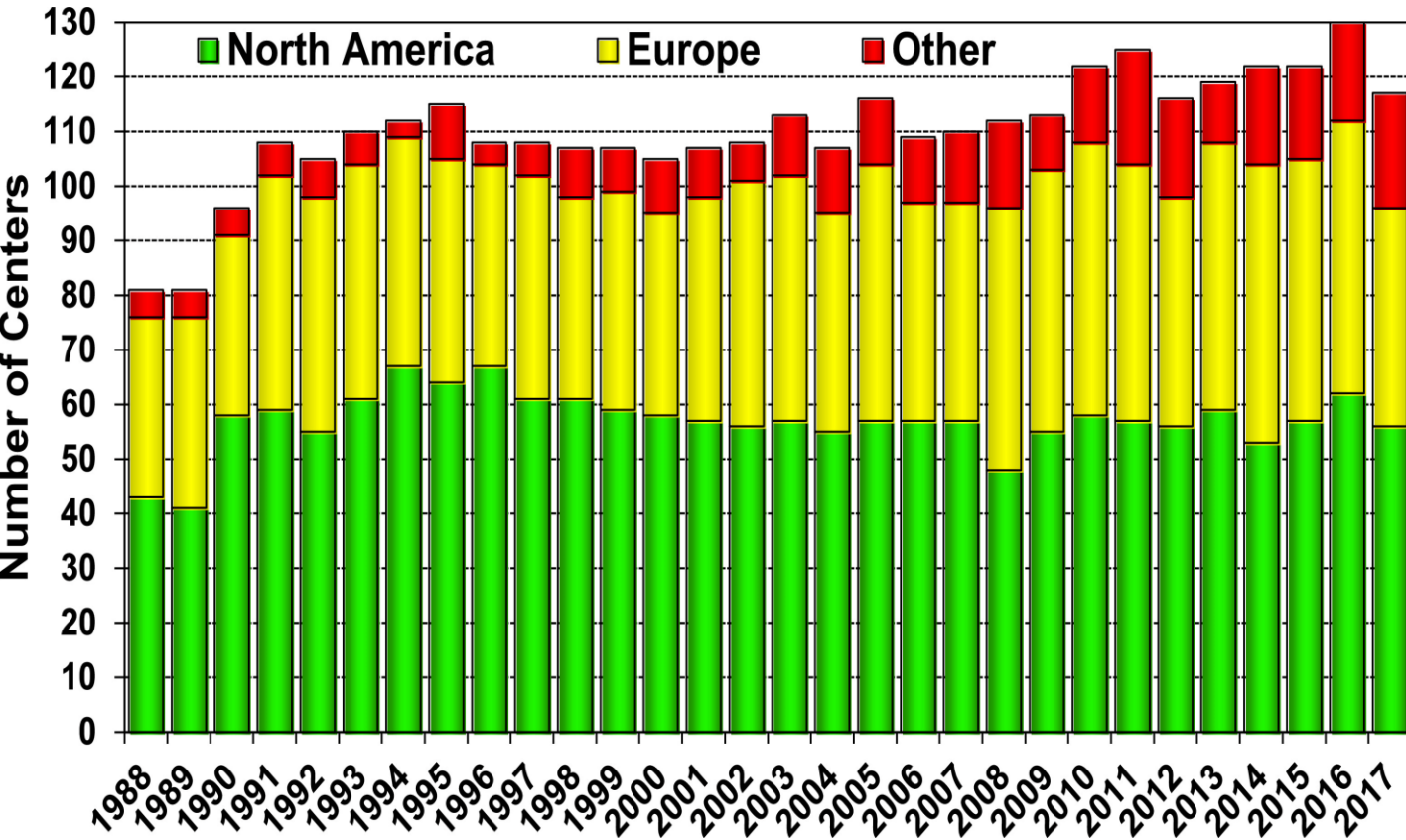
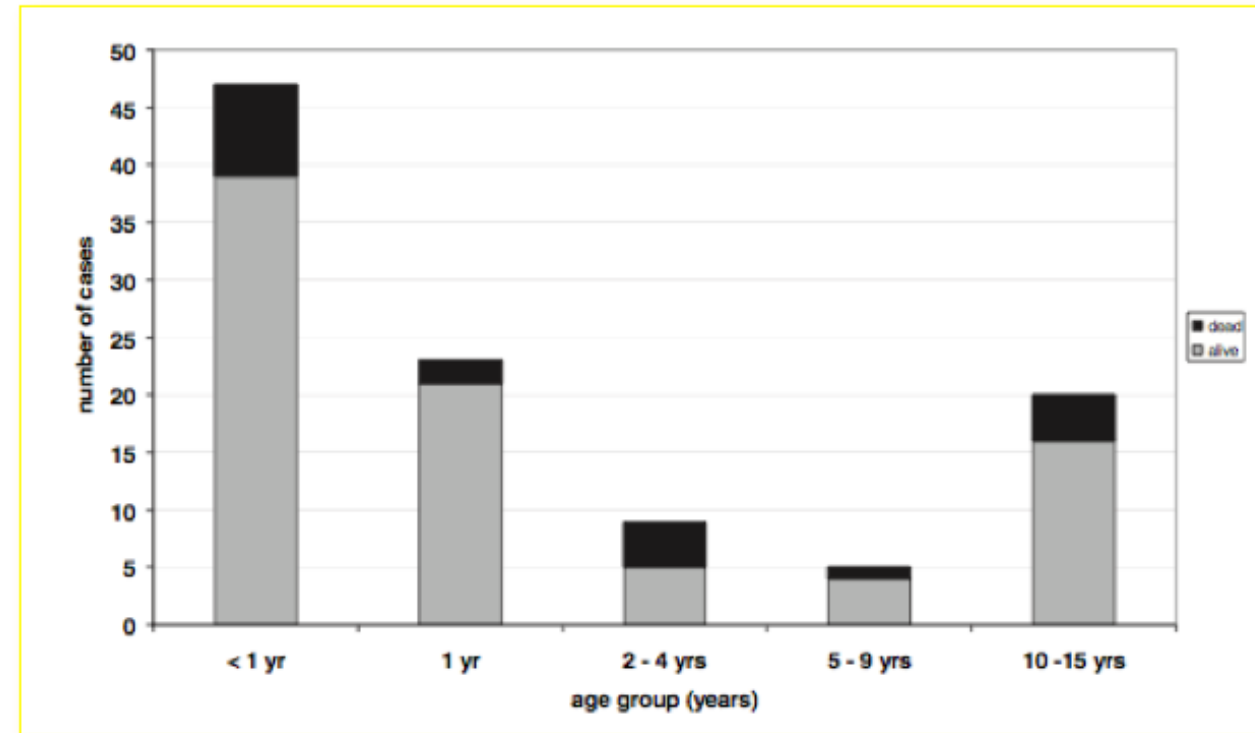
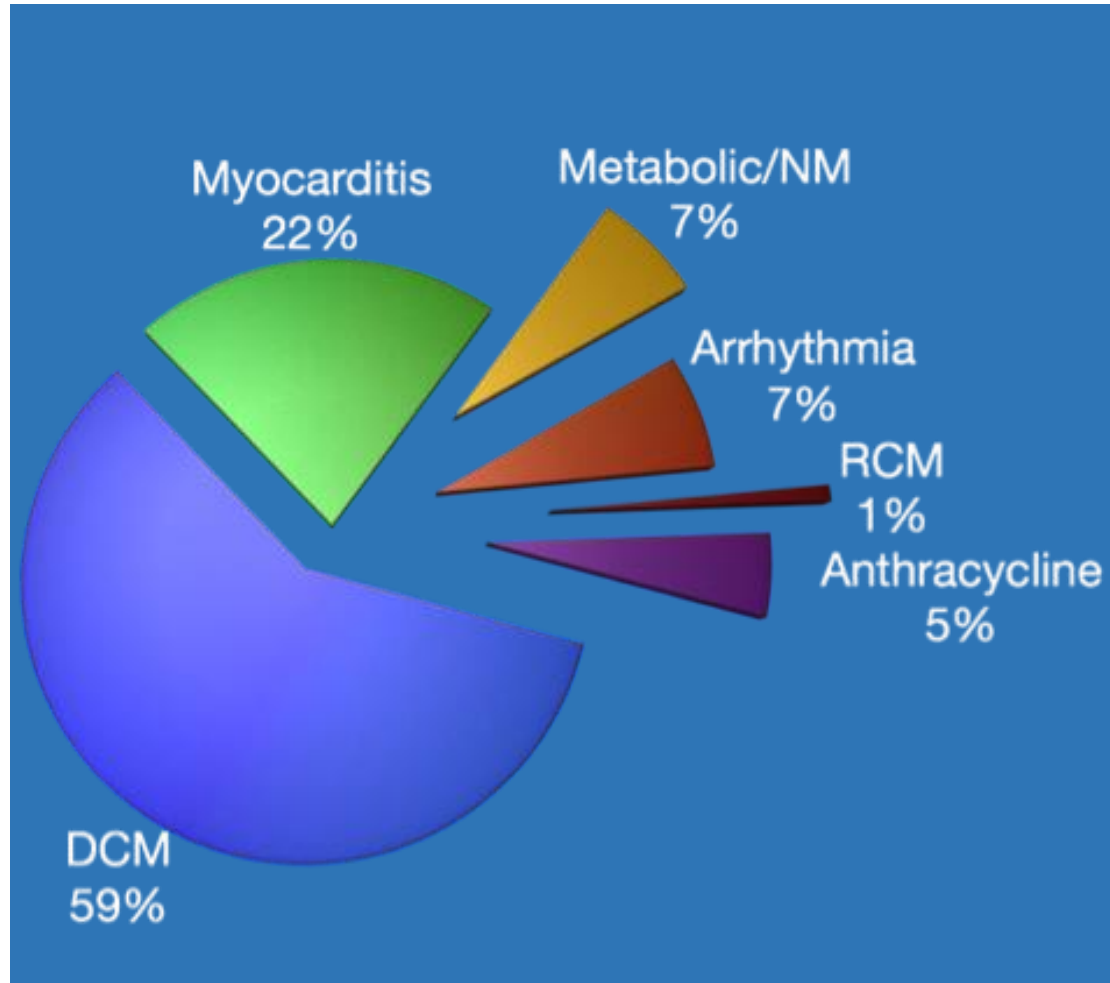


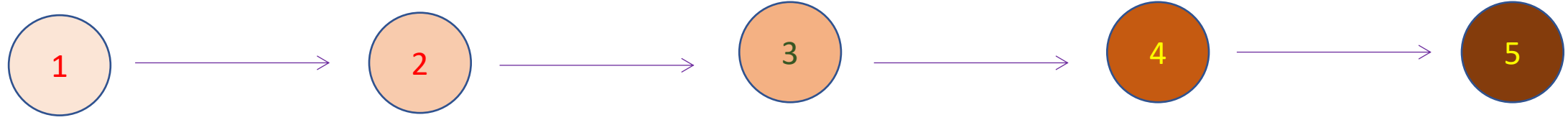
Figure 2 Distribution of transplants by location and average center volume (transplants: January 2004 to June 2016).

Heart Failure in Children



Distribution of new onset heart failure by age (Andrews et al Circ. 2008)

Heart Failure in Children



1
Oral
Anti-failure
Treatment



2
IV
Inotropes

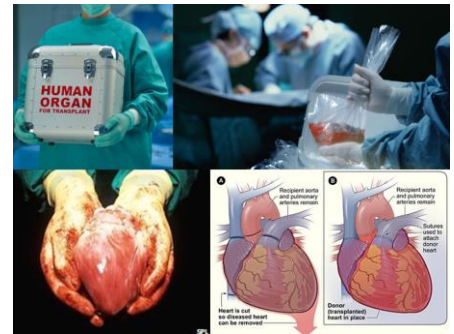


3
Extra
Corporeal
Membrane
Oxygenation
(ECMO)



4
Ventricular
Assist
Devices
(VAD)

5
Cardiac
Transplantation



Clinical

- Tx Consultants
- Tx Nurses
- Tx Coordinators
- Registrars
- CT Surgeons
- Perfusionist
- ICU/ward/theatre
- Physiotherapists
- Pharmacists
- Other specialist teams

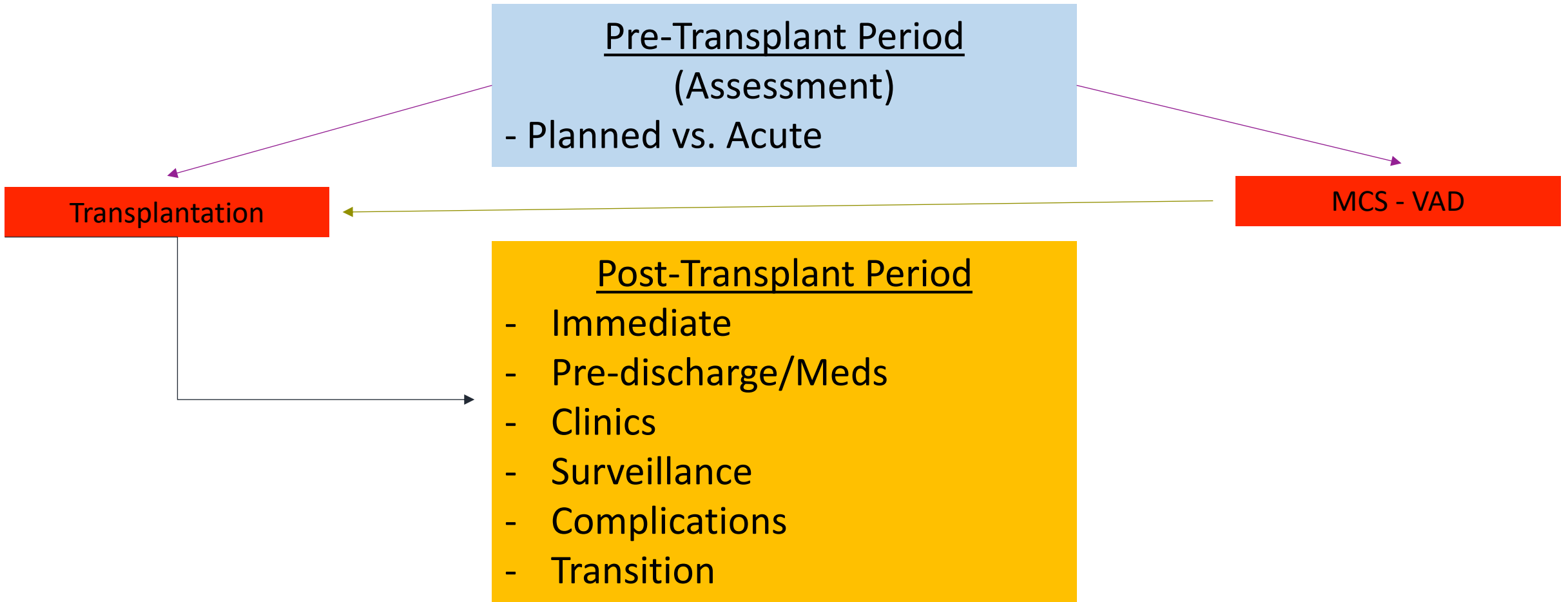
Non clinical

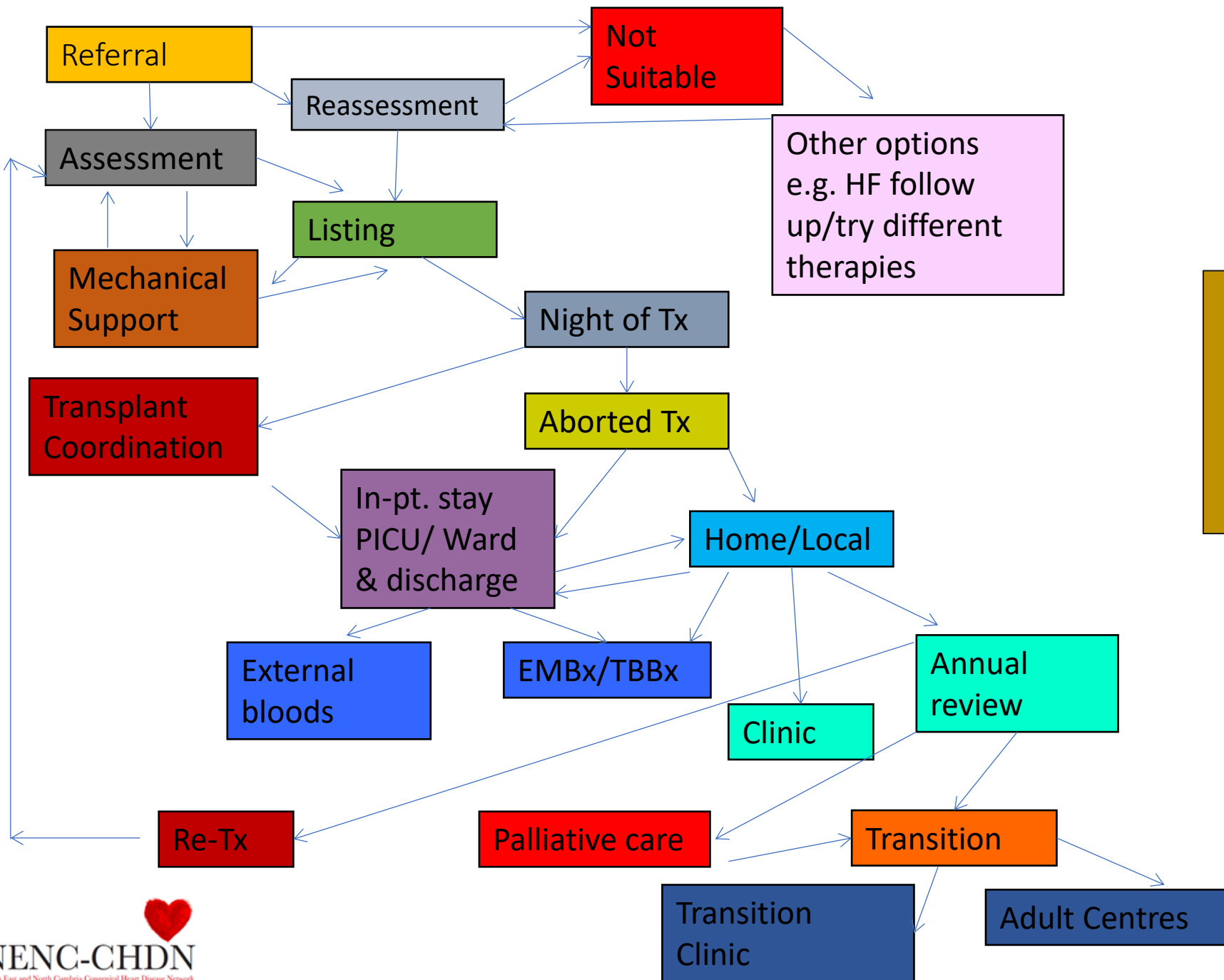
- Psychologists
- Social workers
- Play specialists
- Dieticians
- Chaplains
- Secretaries

Co-ordination/on-call team

- UKT/SNOD
- Donor Team
- Retrieval team
- Recipient family
- Consultants/Registrars
- Surgeons
- Theatre team
- Anaesthetics
- Ward/Bed Manager
- Perfusionist
- Blood bank
- Pharmacist
- Transport
- Tissue typing

Transplant Journey





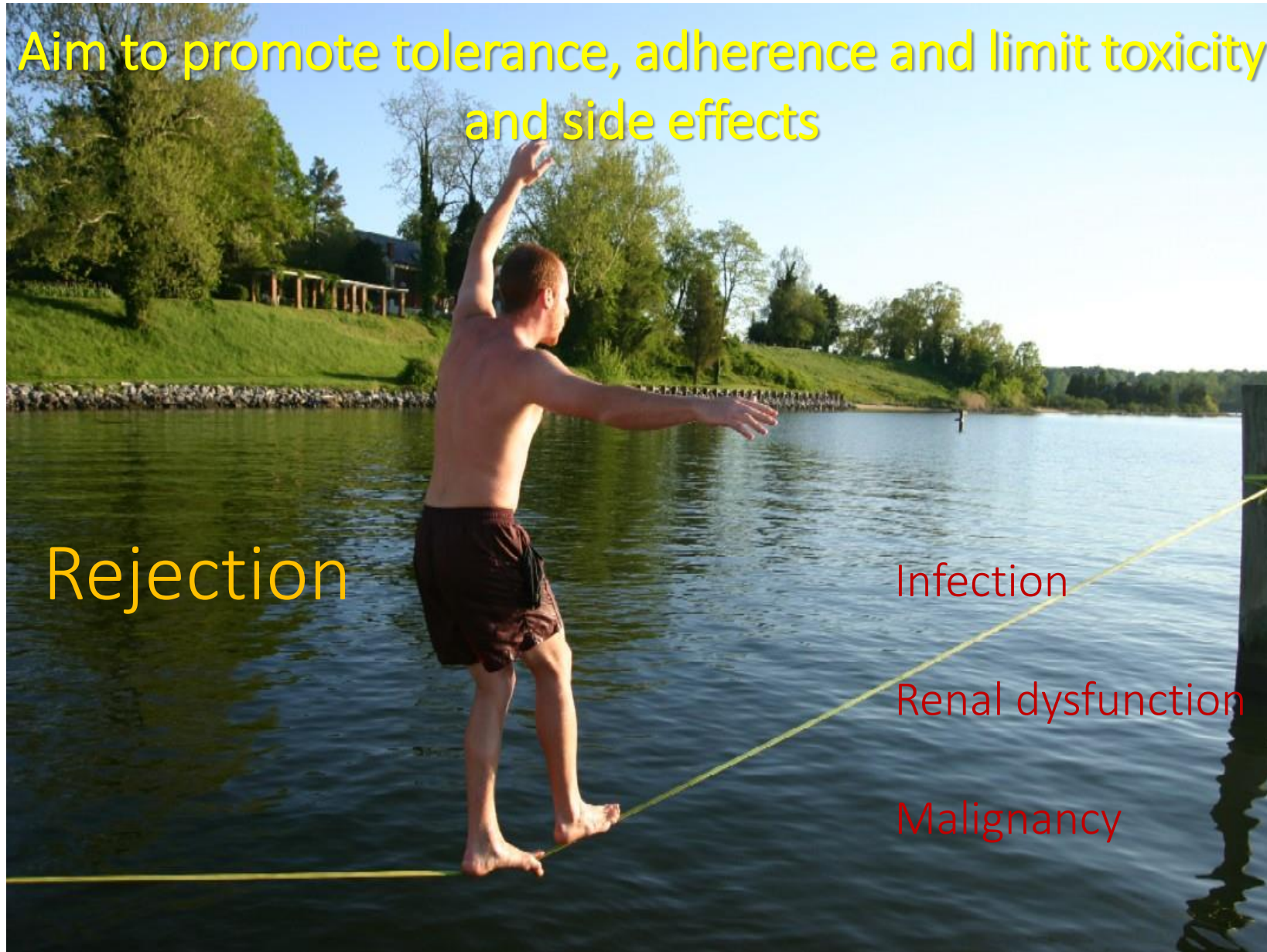
Transplant Journey

Life Expectancy

- Average 15-20 years
- Longest surviving UK recipient – 33 years



Immunosuppression: A Balancing Act



Aim to promote tolerance, adherence and limit toxicity and side effects

Rejection

Infection

Renal dysfunction

Malignancy



"BOY! TALK ABOUT ORGAN REJECTION!"

Endomyocardial Biopsy

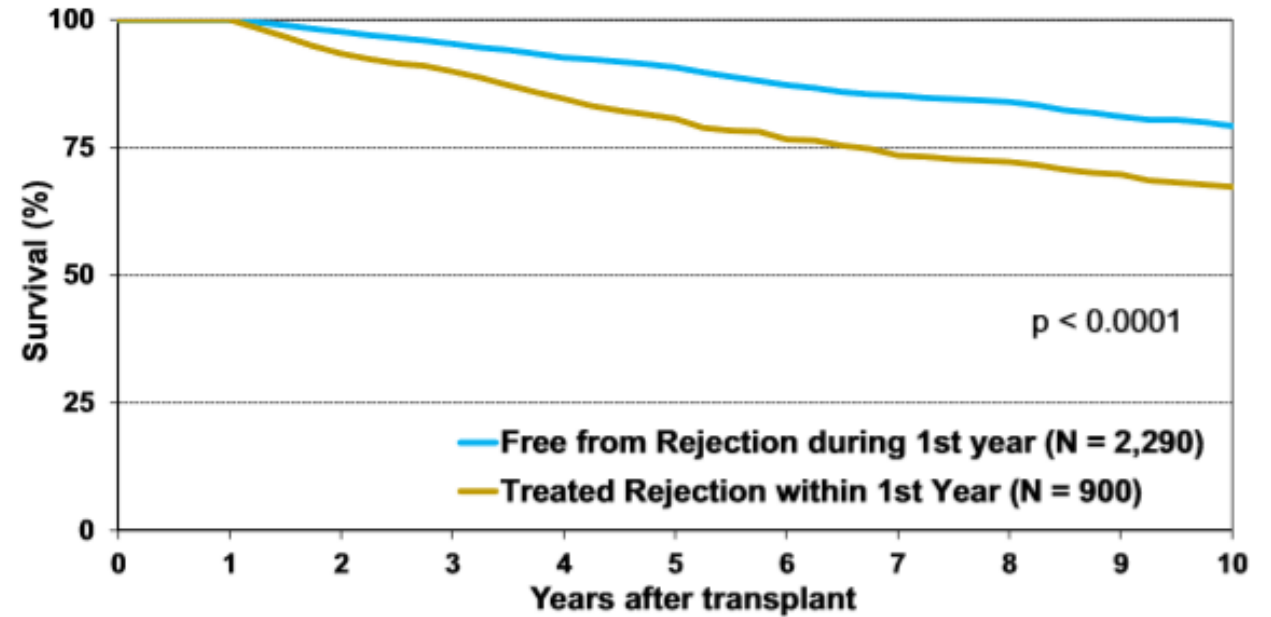
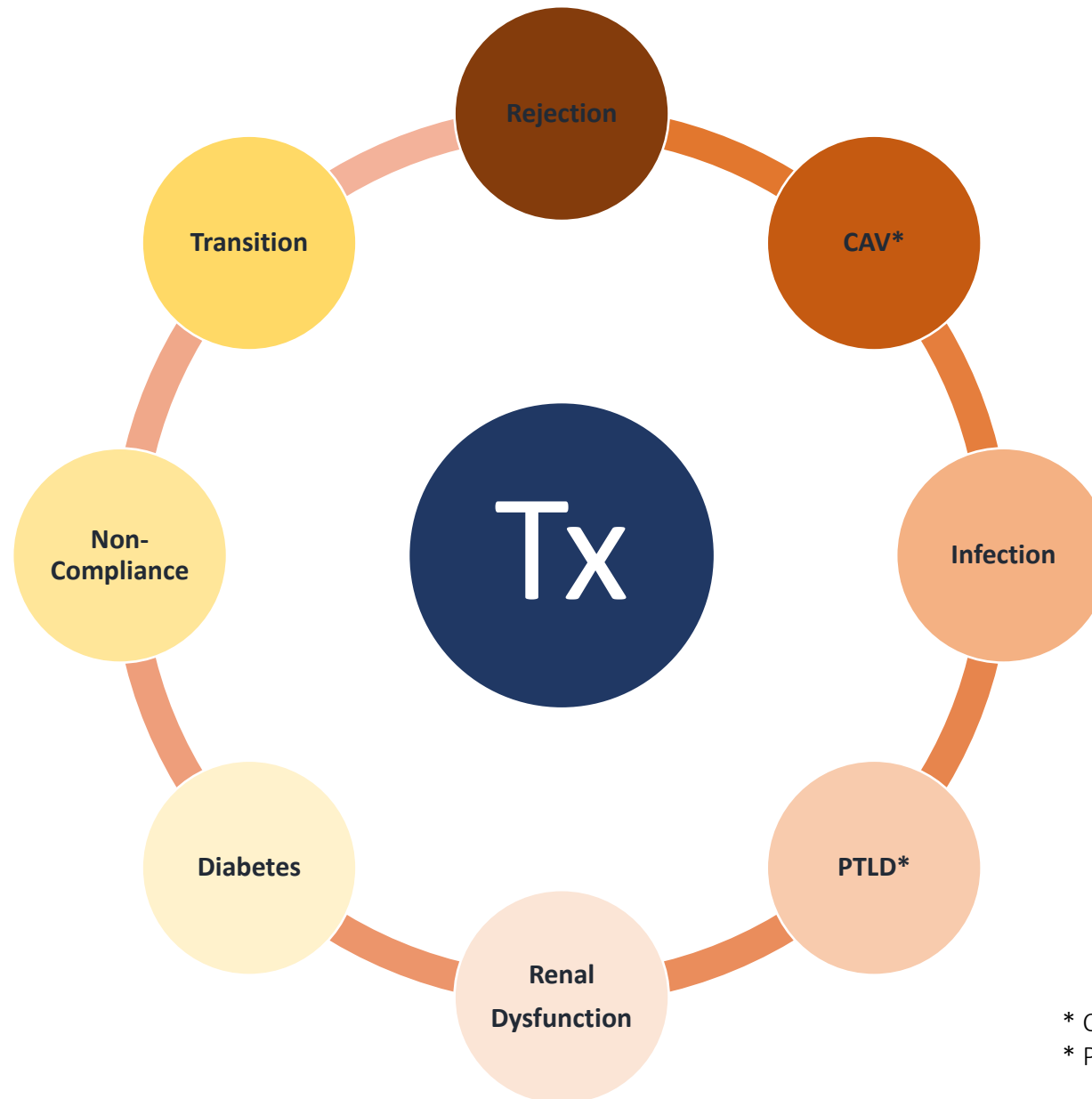


Figure 14 Kaplan–Meier survival based on treated rejection within the first year, conditional on survival to 1 year (1-year follow-ups: July 2004 to June 2015). Treated rejection—recipient was reported to: (1) have at least 1 acute rejection episode that was treated with an anti-rejection agent; or (2) have been hospitalized for rejection. No rejection—recipient had: (1) no acute rejection episodes; and (2) was reported either as not hospitalized for rejection or did not receive anti-rejection agents.

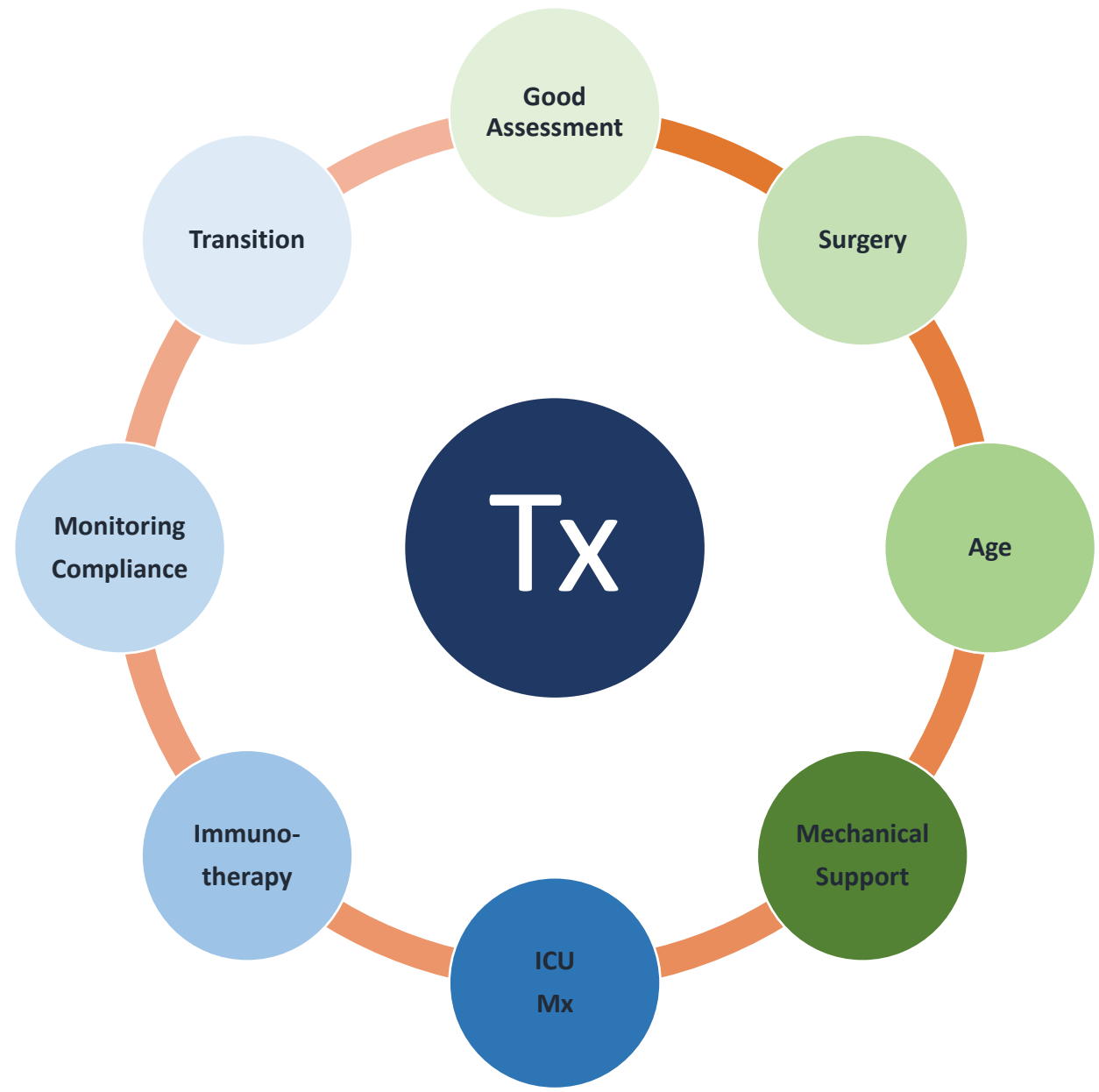
Transplantation Complications



* Coronary Allograft Vasculopathy

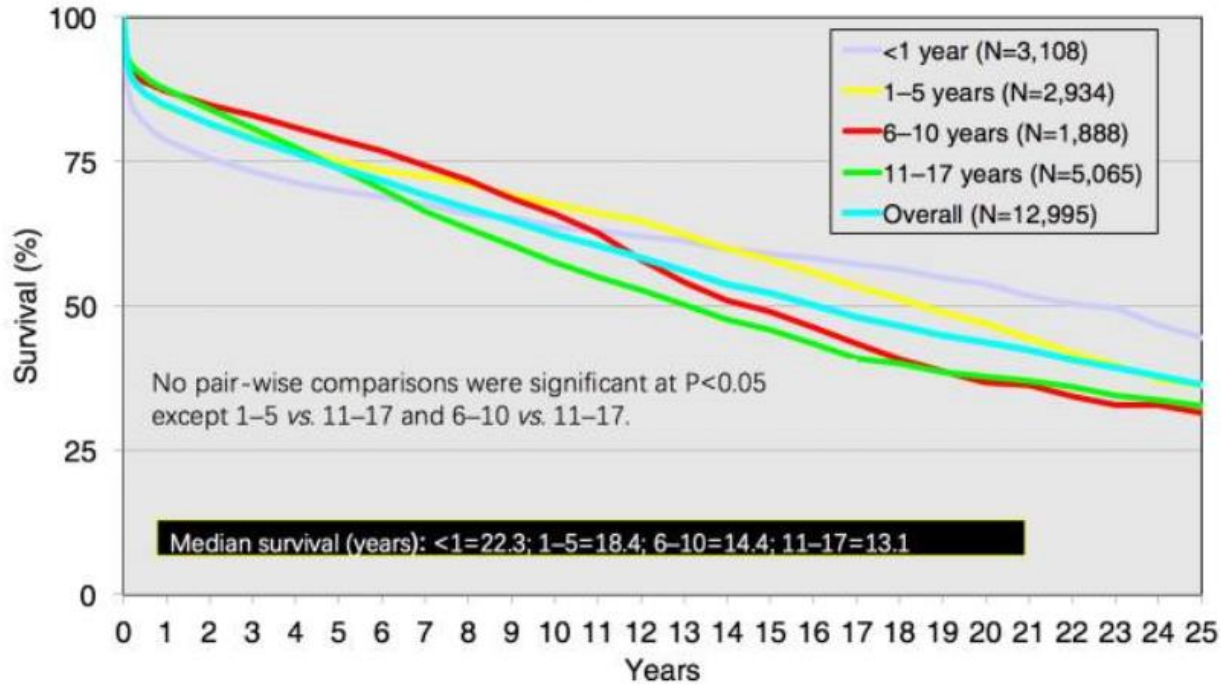
* Post-Transplant Lymphoproliferative Disease

Increased Survival Post-Transplant

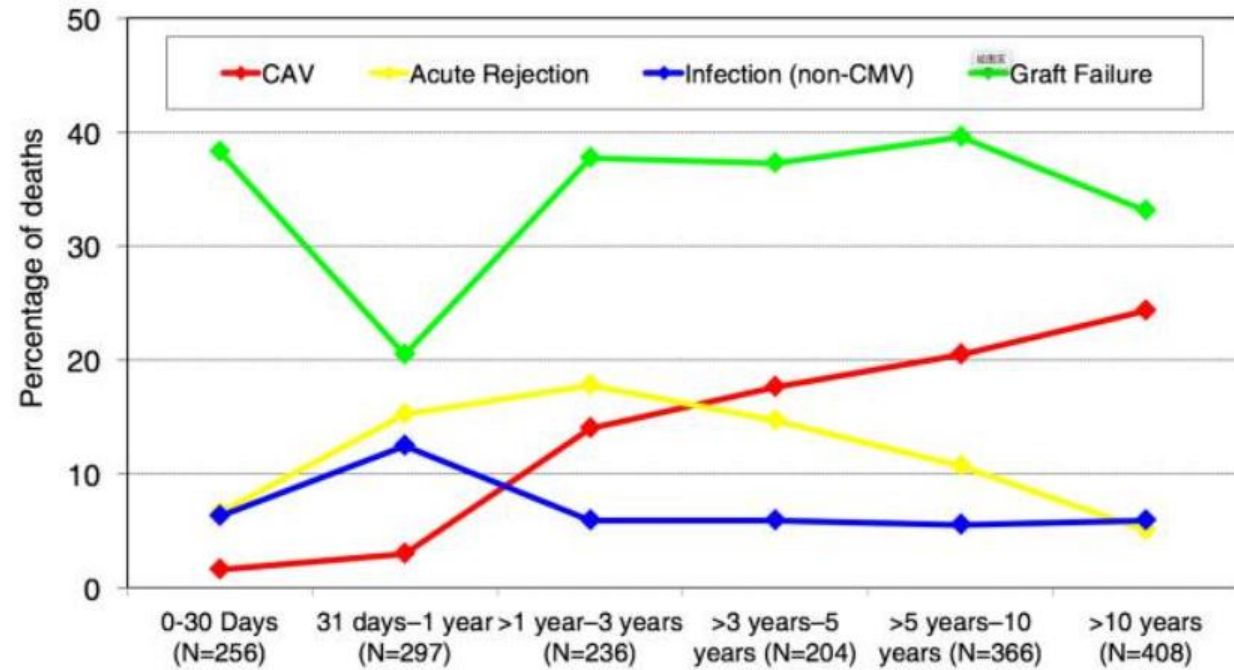


Pediatric heart transplants

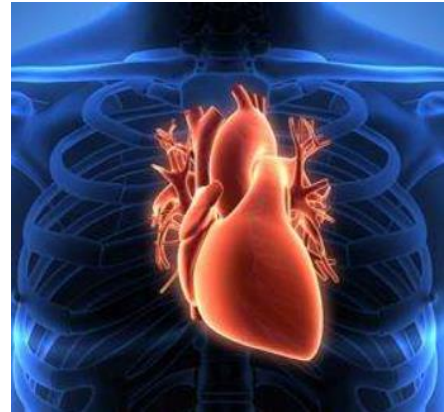
Kaplan-Meier survival (transplants: January 1982–June 2015)



Pediatric heart transplants Relative incidence of leading causes of death (Deaths: January 2004–June 2015)



Key Points



Good-excellent Quality of life (ESHF)

Waiting game for many (30% Mortality)

Significant Improvement Survival outcomes

Immunosuppression vs. Complications

Average graft life 15-20 years

Palliative and not curative

Thank You



Questions !!!