Impact of Gender Matching in Deceased Donor Renal Allograft Survival

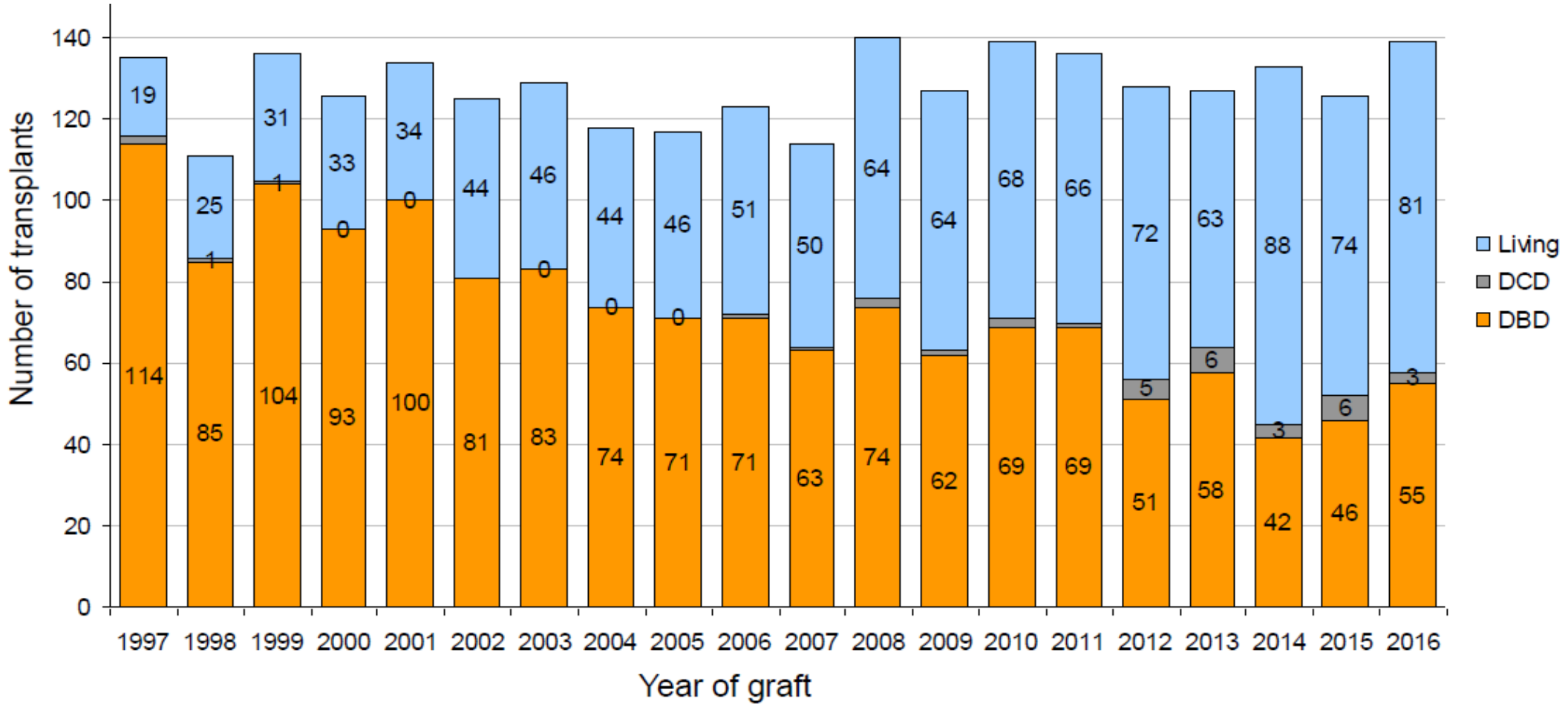
Nadeesha Mudalige[1] Kate Martin[2] , Stephen D Marks[1,3]

1. University College London Great Ormond Street Institute of Child Health, London, UK
2. NHS Blood and Transplant, National Health Service, Bristol, UK
3. Great Ormond Street Hospital for Children NHS Foundation Trust, London, UK

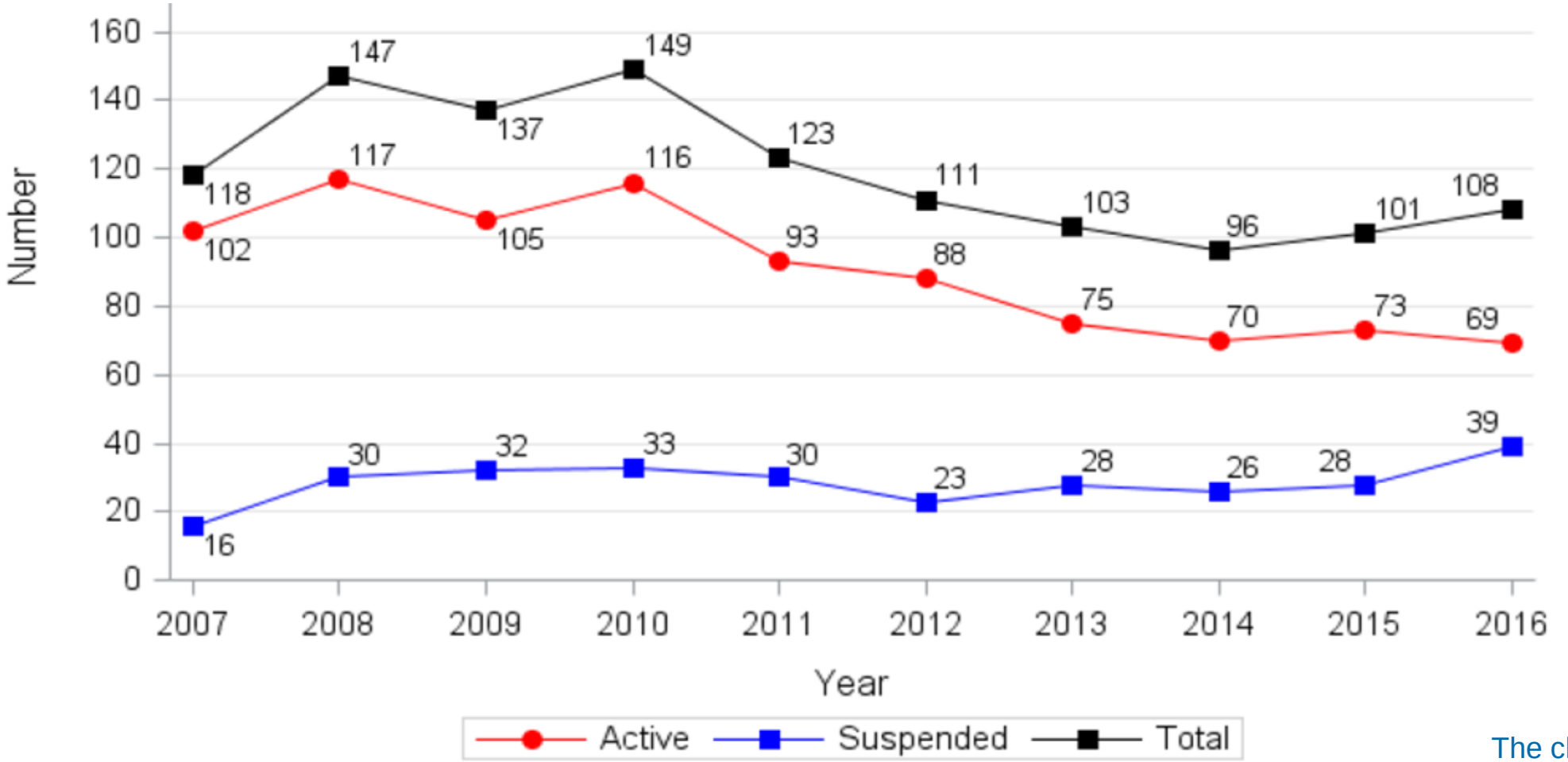
Introduction

- Incidence of 5.5 per million children for ESKD.
- Increasing transplantation of younger children.
- Multiple factors influence renal allograft survival.
- Population, practices and policy have changed over time.

Annual Paediatric Renal Transplantation Rates



Children awaiting transplantation



Deceased Donor Renal Allograft Allocation

1989

Paediatric donor to paediatric recipient.

1998

Points scoring scheme for the preferable kidney.

2nd favourable kidney from adult to national paediatric before local favourable adult.

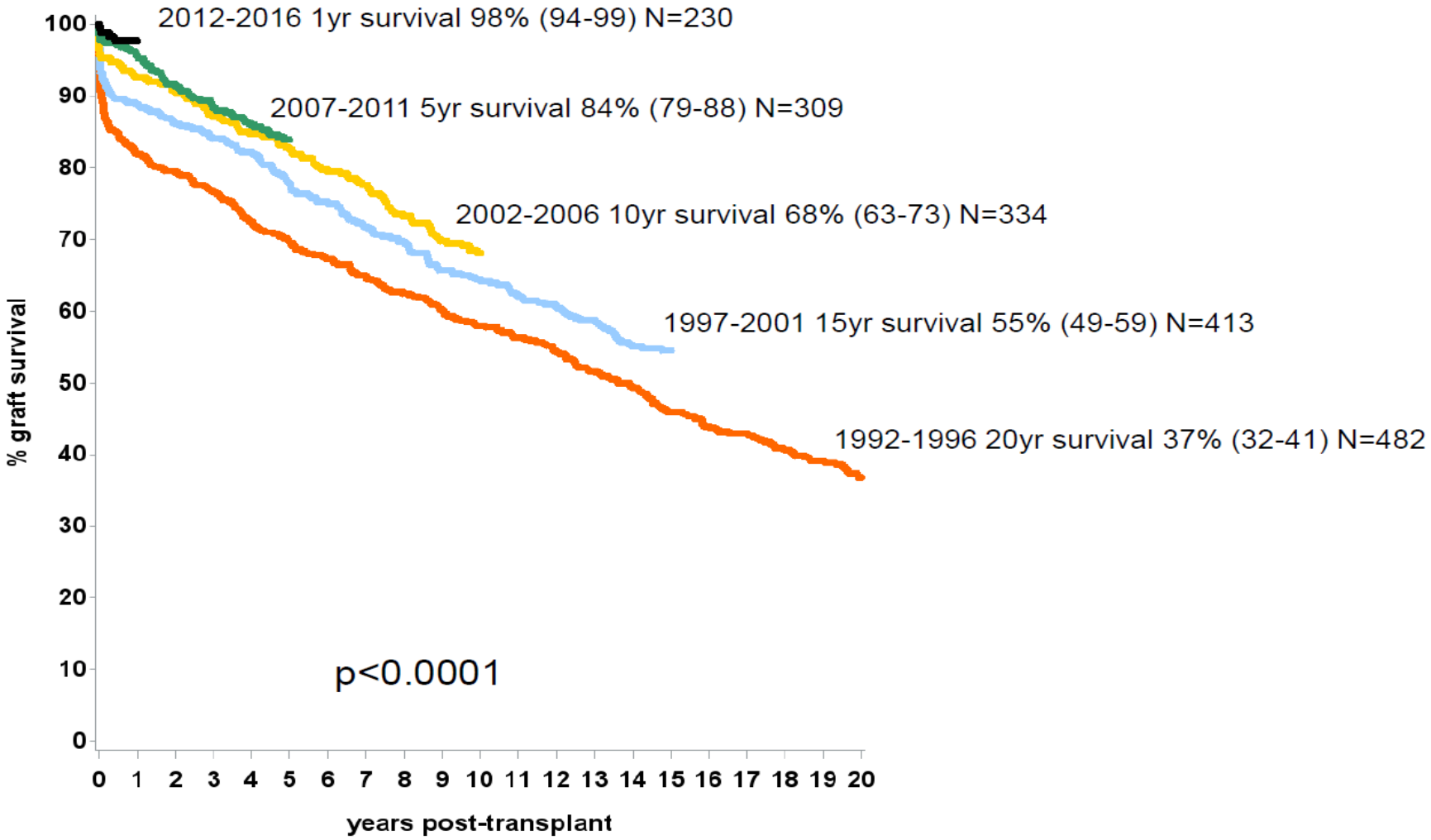
2006

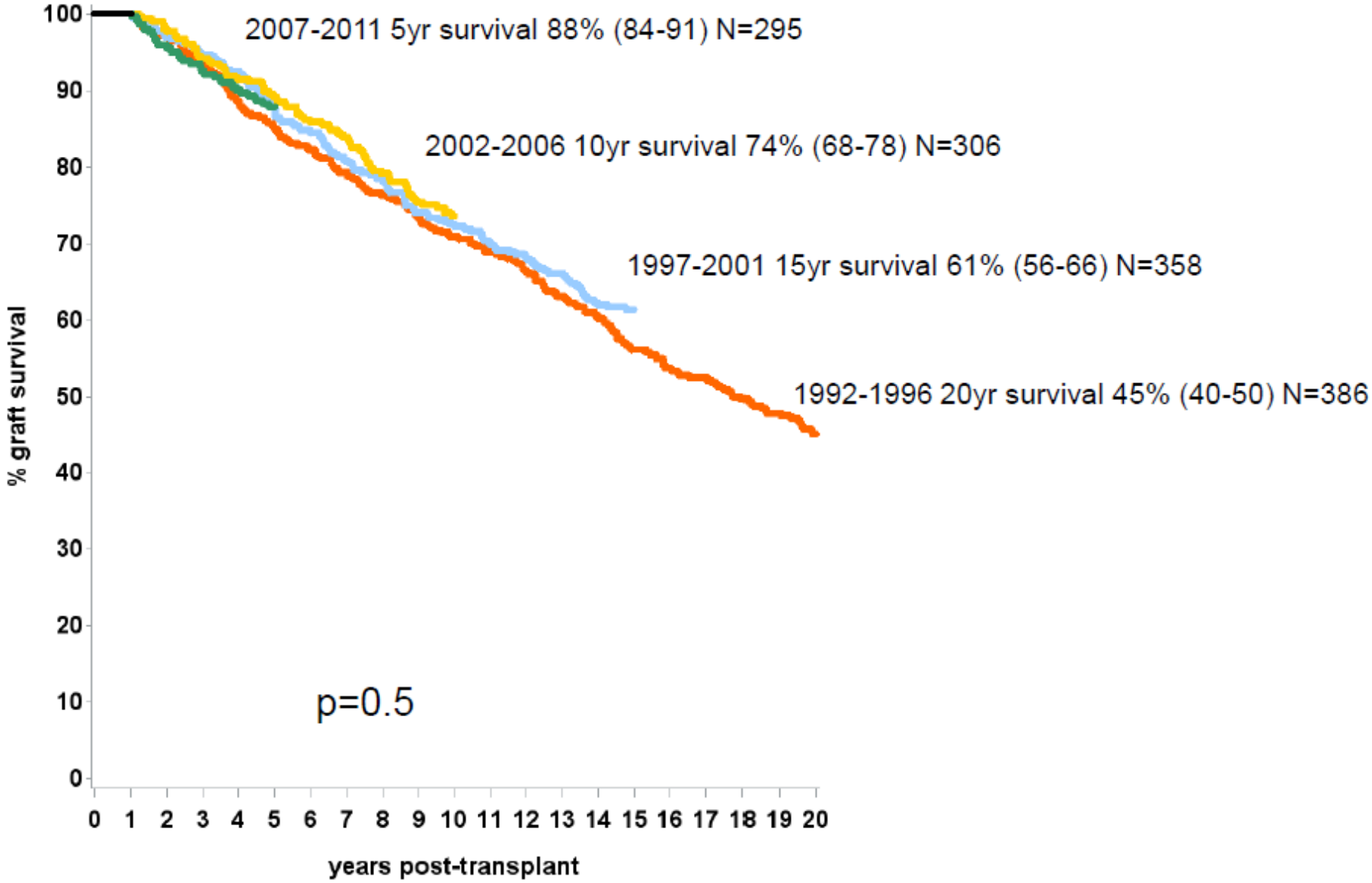
Points scoring scheme for both kidneys from deceased donation.

2014

DCD scheme: one kidney retained locally, second kidney shared regionally.

Graft survival following first DBD kidney only Tx




2007-2011 5yr survival 88% (84-91) N=295
2002-2006 10yr survival 74% (68-78) N=306
1997-2001 15yr survival 61% (56-66) N=358
1992-1996 20yr survival 45% (40-50) N=386
p=0.5
% graft survival
100
90
80
70
60
50
40
30
20
10
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
years post-transplant

Null Hypothesis

Donor and recipient gender matching does has not influence

DBD renal allograft survival.

Current Evidence

- Tosi et al 2013 cohort study in a population of 3630 heart transplant recipients less than 18 years old. After adjustment for other risk factors affecting transplant mortality, female recipients had decreased survival compared to male recipients (HR 1.27, CI 1.12-1.44; p = 0.020) and gender matching had no effect.

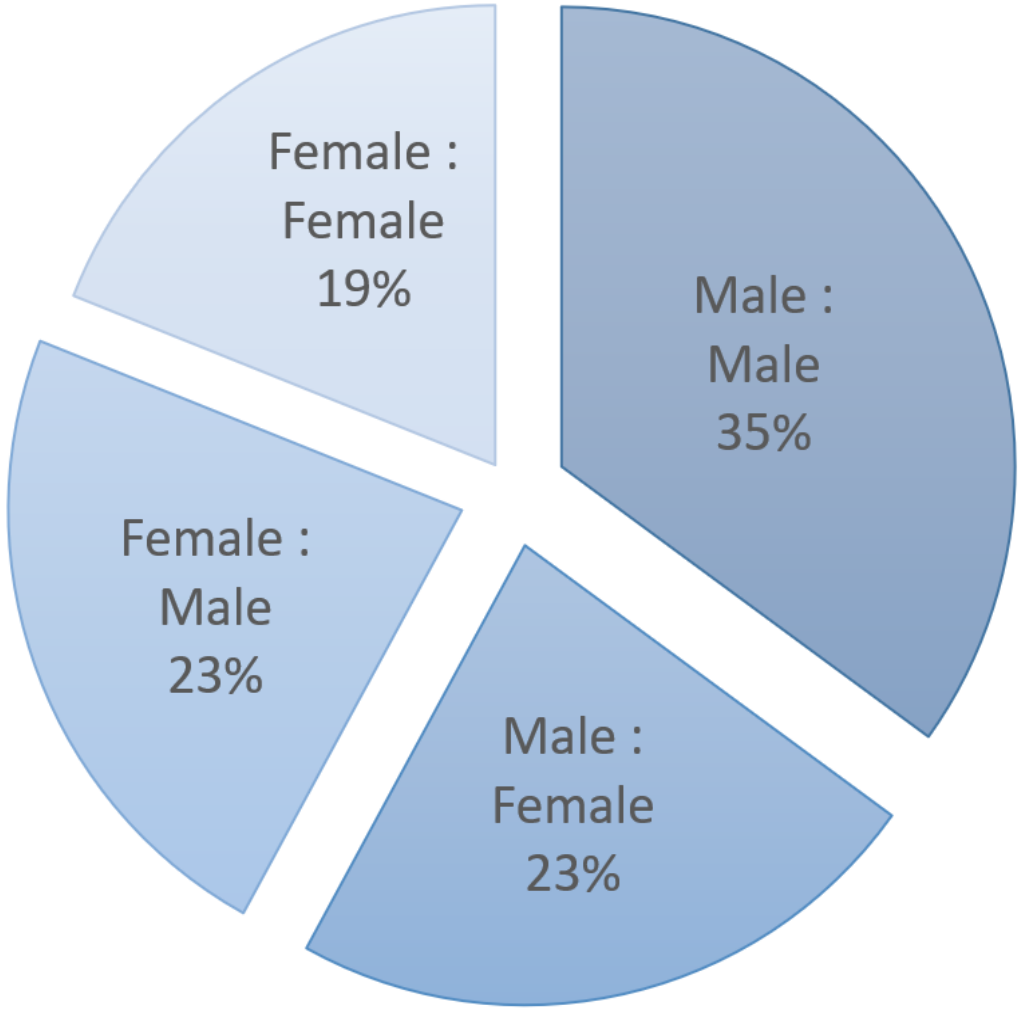
- Chen et al The 5-year graft survival rates for female and male patients were 87.9% and 81.3%, respectively. The risk ratio of graft failure for male renal transplant recipients was 1.3732, when compared with that for female patients. The risk ratios for those with acute rejection and delayed function were 1.8330 and 1.5422, respectively.

Methods

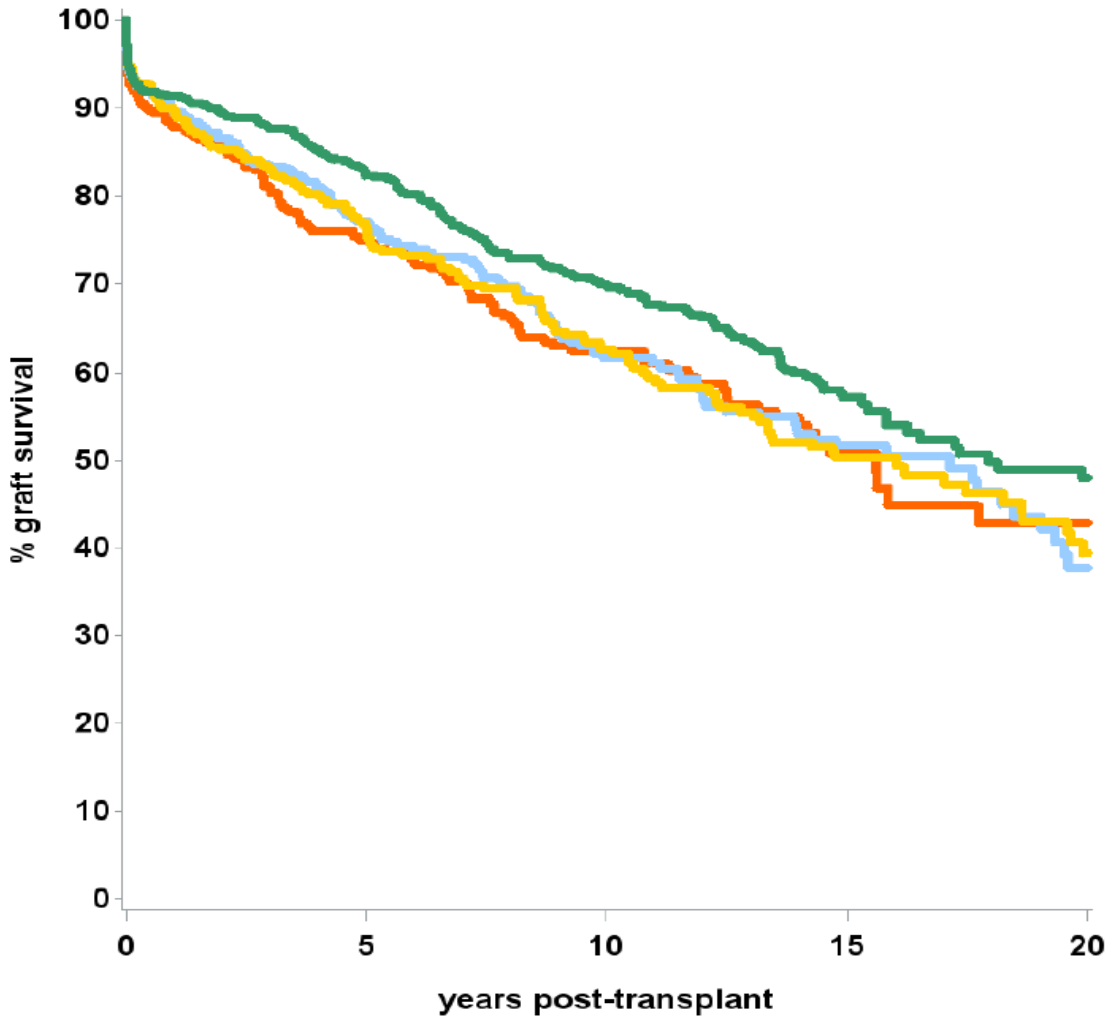
- Retrospective analysis DBD paediatric (<18 years of age) renal transplants.
  - UK transplants between January 1996 and December 2016.
  - NHSBT registry data.
- Kaplan Meier survival curves were calculated for all donor: recipient gender combinations and the log rank test used to determine significant differences between groups.
- Renal allograft survival was defined as time from transplantation to graft failure, re-transplantation or patient death.

Sample Characteristics

RECIPIENT / DONOR	Male	Female	TOTAL
Male	623 35%	404 23%	1027
Female	408 23%	332 19%	740
TOTAL	1031	736	**1769**



Graft survival following first DBD kidney Tx



	5 yr survival	10 yr survival	20 yr survival
MM (n=623)	82 (79 - 85) p=0.04	70 (66 - 74) p=0.04	48 (41 - 54) p=0.05
FF (n=332)	75 (70 - 80)	63 (56 - 68)	43 (33 - 52)
MF (n=404)	76 (71 - 80)	63 (57 - 68)	39 (32 - 47)
FM (n=408)	77 (72 - 81)	62 (56 - 67)	38 (29 - 47)

Summary

- Paediatric renal allograft survival has improved.
- Donor demographics, HLA matching, CIT and immunosuppression have changed markedly in the UK over the last 20 years.
- Male to male DBD transplantation associated with greater survival than other gender combinations.