

Current landscape of organ donation and transplantation

Lisa Mumford
Statistics and Clinical Research

Statistics & Clinical Research

- **Statisticians** (Bristol - Stoke Gifford, 25 staff) —
 - Supporting Organ Donation and Transplantation
 - Organ allocation, multivariable modelling
 - Clinical Trials work
 - Support for studies in blood, transfusion medicine, stem cells, tissues
 - Forecasting long-term demand for blood
- **Clinical Trials Unit** (Cambridge and Oxford, 20 operational staff) —
 - Trials in haematology and organ transplantation
- **R&D**



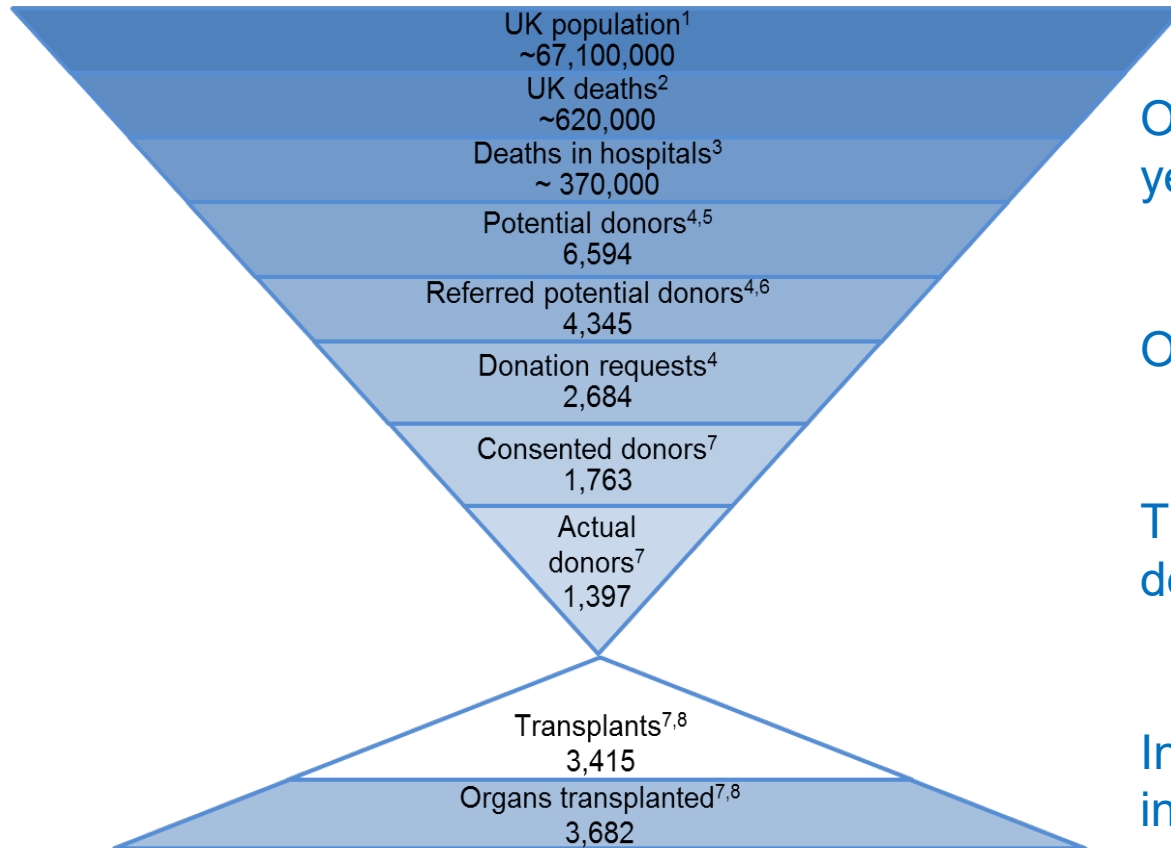
Outline

- Overview
- Possible organ donors
- Organ offering and retrieval
- Deceased organ donors
- Living organ donors
- Listing and outcomes

Overview of organ donation and transplantation in the UK

Overview

UK potential deceased organ donor population, 1 April 2021 – 31 March 2022



Only about 6,500 of 620,000 (1%) people who die each year, die in circumstances suitable to become organ donors

Of these, 1,397 (21%) became organ donors in 2021/22

These organ donors enabled approx. 3,400 deceased donor transplants to happen

In addition, approx. 900 living donor transplants took place in 2021/22

¹ Mid 2020 estimates: www.ons.gov.uk

² 2021 data: England & Wales www.ons.gov.uk; Scotland www.gro-scotland.gov.uk; Northern Ireland www.nisra.gov.uk

³ 2021 data: England & Wales www.ons.gov.uk; Scotland www.isdscotland.org; Northern Ireland www.nisra.gov.uk

⁴ 2021/2022 data: NHSBT, Potential Donor Audit as at 9 May 2022

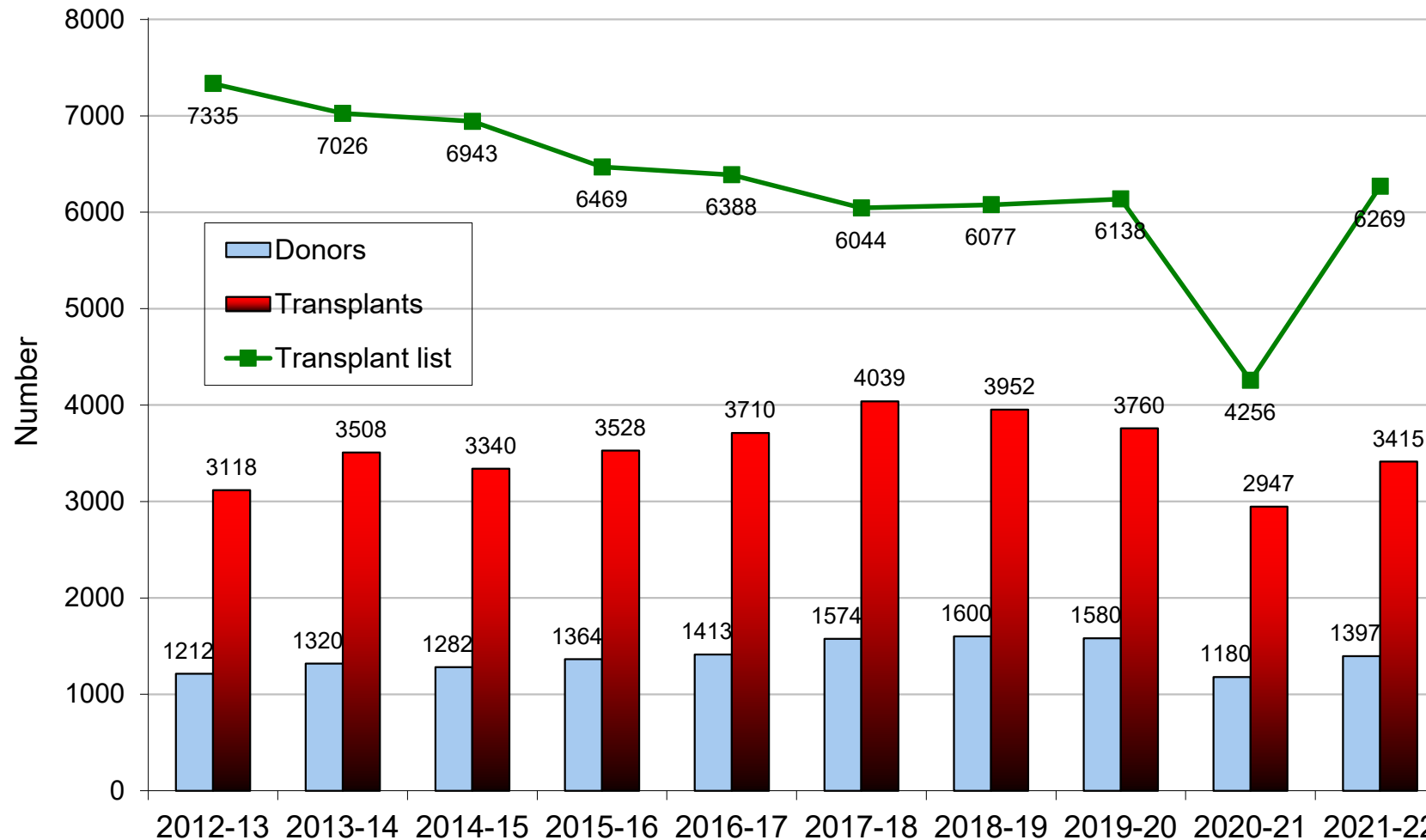
⁵ Potential donor - patients for whom death was confirmed following neurological tests or patients who had treatment withdrawn and death was anticipated within four hours

⁶ Referred potential donor - Potential donor who was discussed with a Specialist Nurse – Organ Donation

⁷ 2021/2022 deceased donor data: NHSBT, UK Transplant Registry

⁸ Using organs from actual donors in the UK

Deceased donors, transplants and transplant waiting list



Over the last
ten years

Over the last
year

**15% fall in
waiting lists**

**47% increase
in waiting lists**

**10% increase
in transplants
(all organs)**

**16% increase
in transplants
(all organs)**

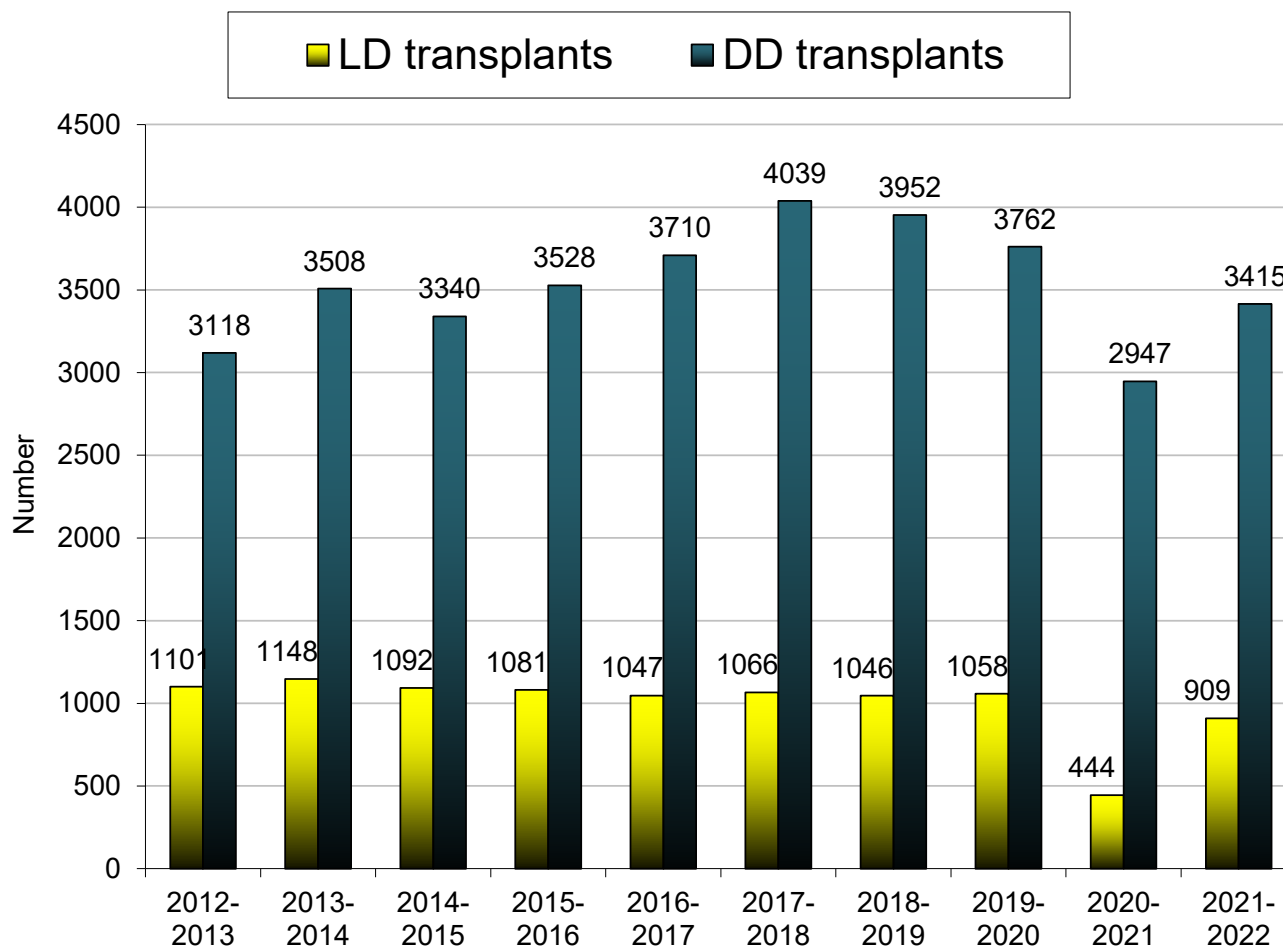
**15% increase
in deceased
organ donors**

**18% increase
in deceased
organ donors**



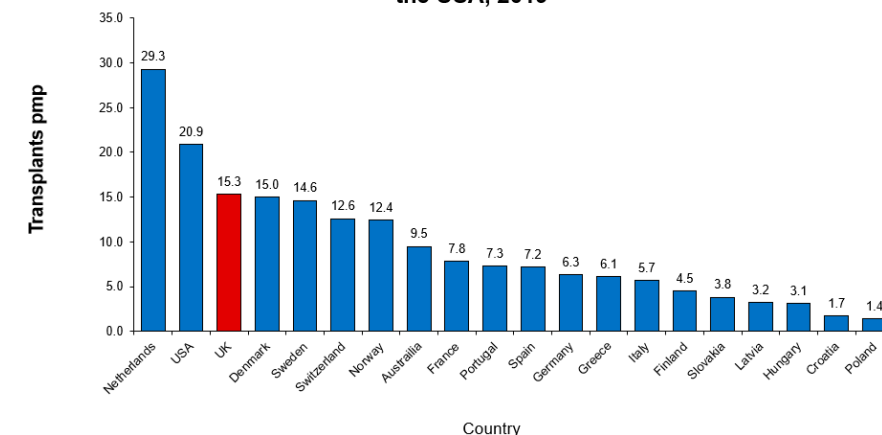
Yes I donate
ORGAN DONATION

Deceased and living donor transplants



Living donor kidney transplant rates

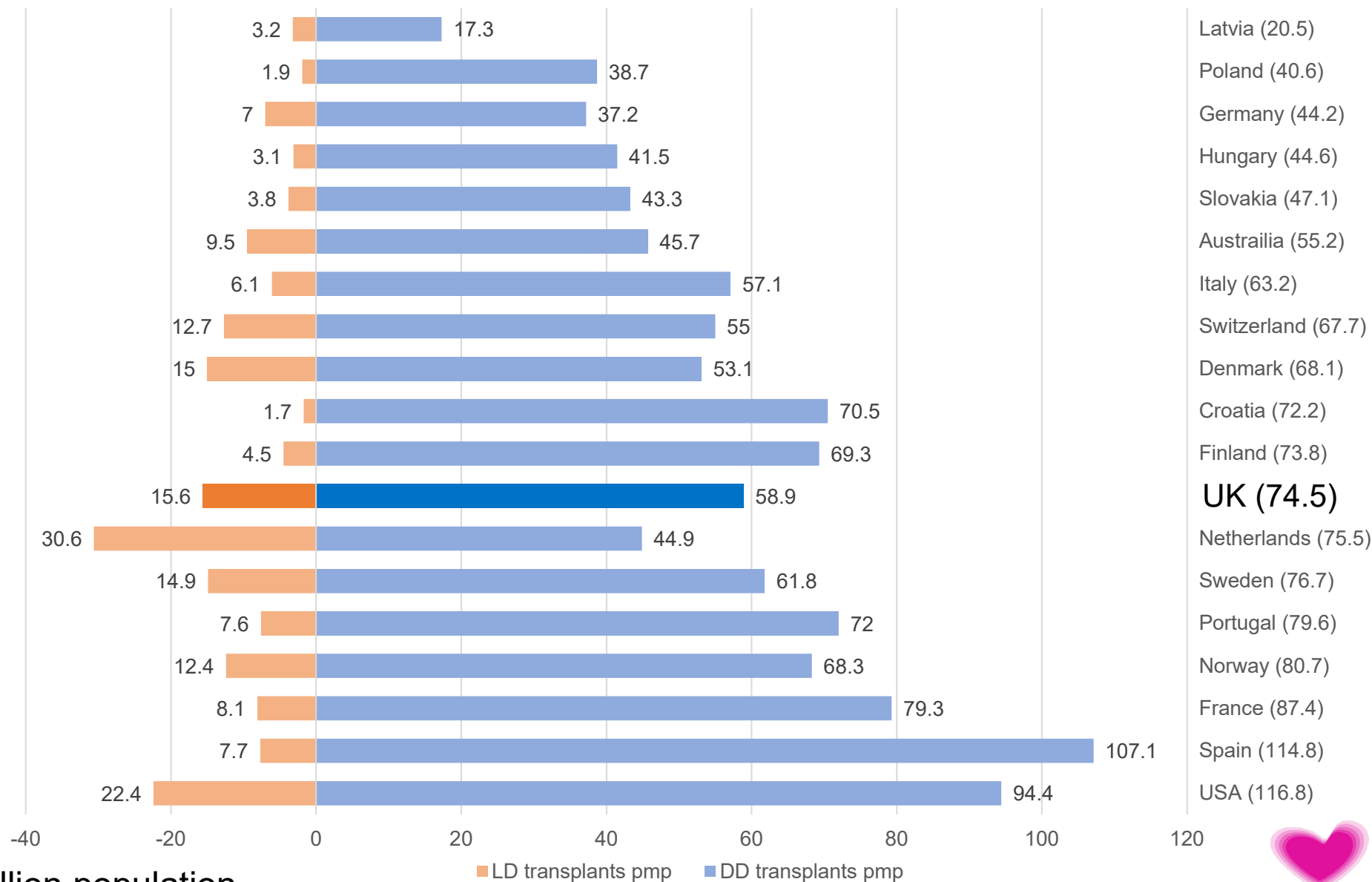
Living donor kidney transplant rates for Europe, Australia and the USA, 2019



Source: Council of Europe – Transplant Newsletter

Total transplant rates – international data, 2019

Blood and Transplant

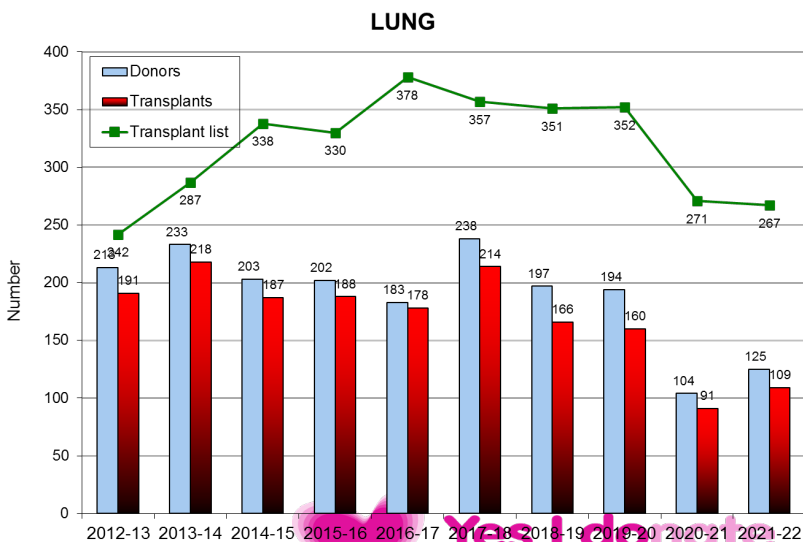
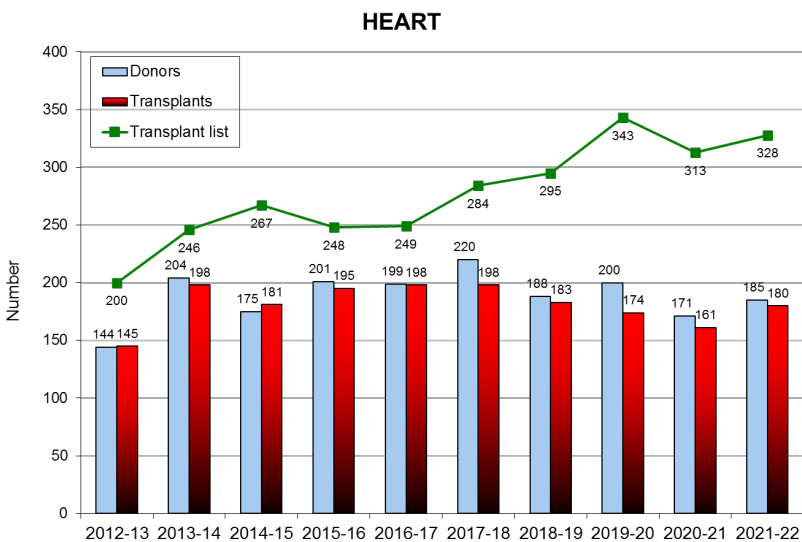
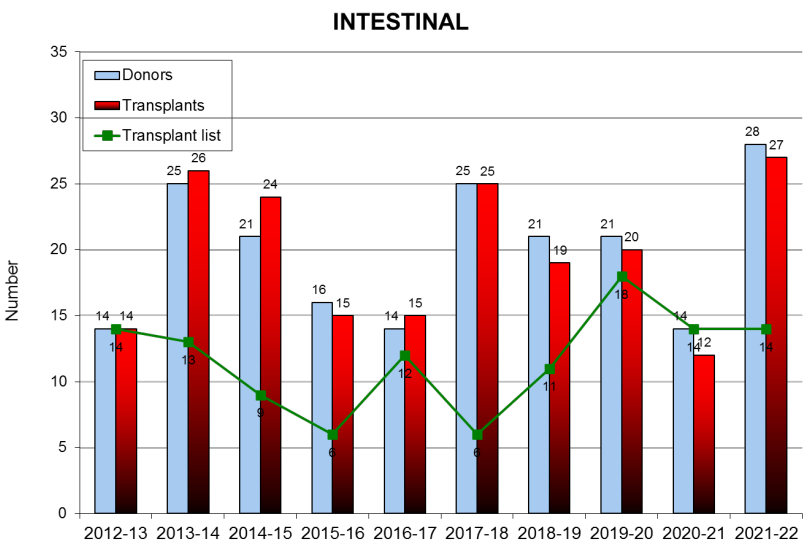
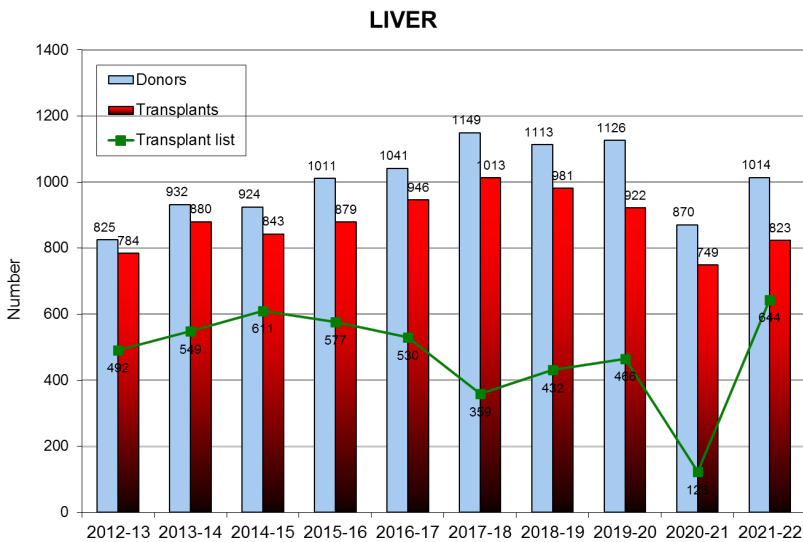
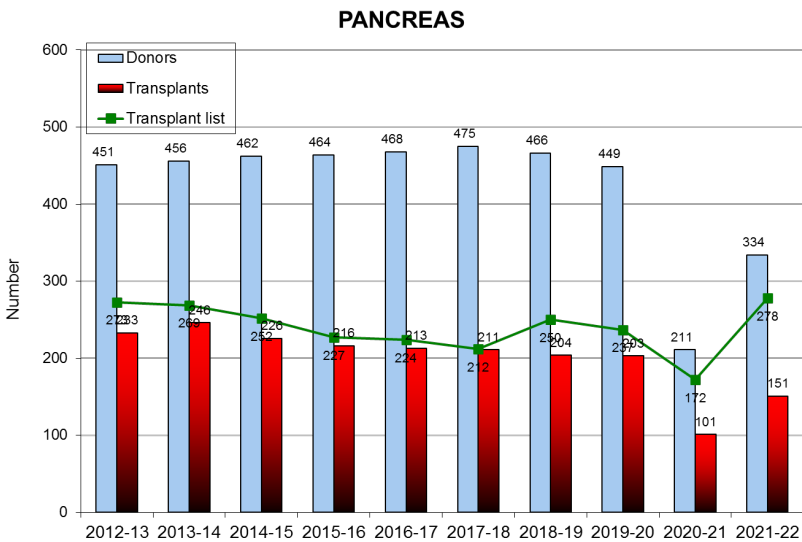
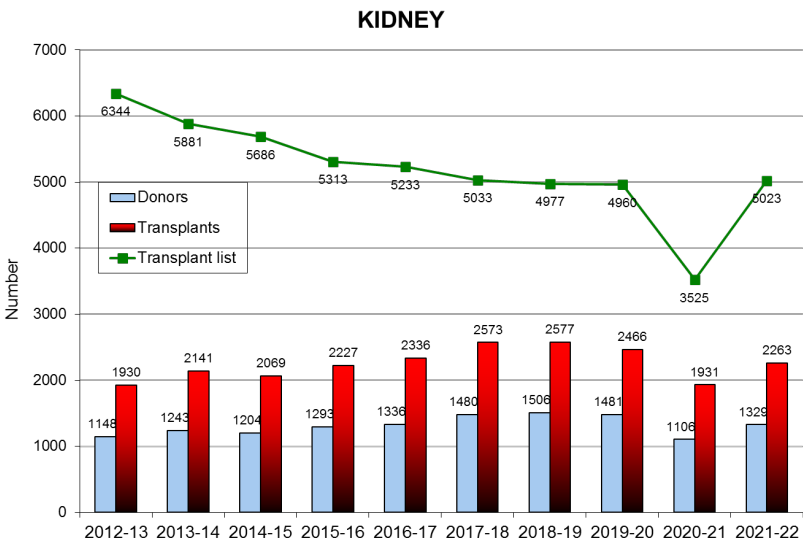


pmp = per million population

Deceased donors, transplants and transplant lists



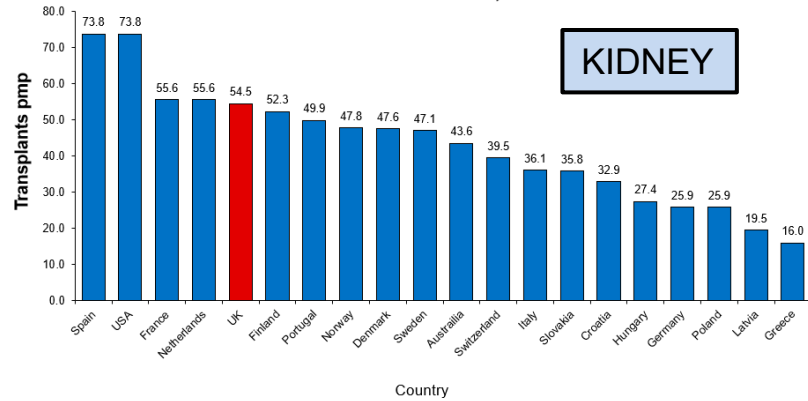
Blood and Transplant



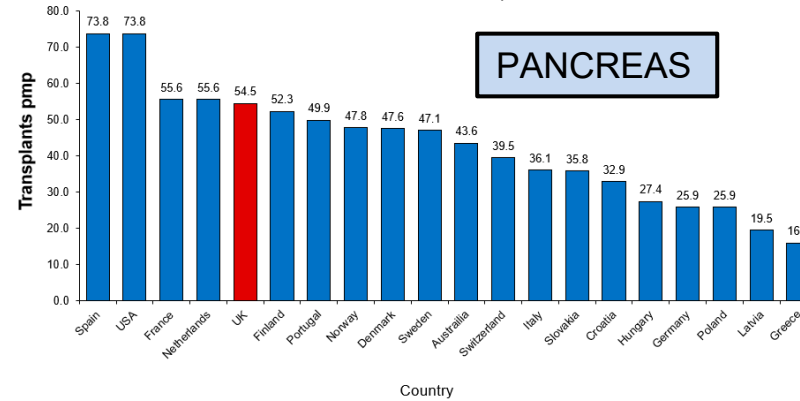
International data – transplant rates

Blood and Transplant

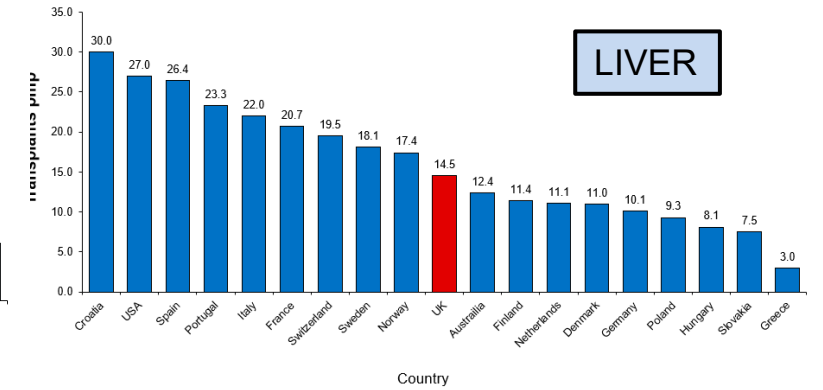
Deceased and living donor kidney transplant rates for Europe, Australia and the USA, 2019



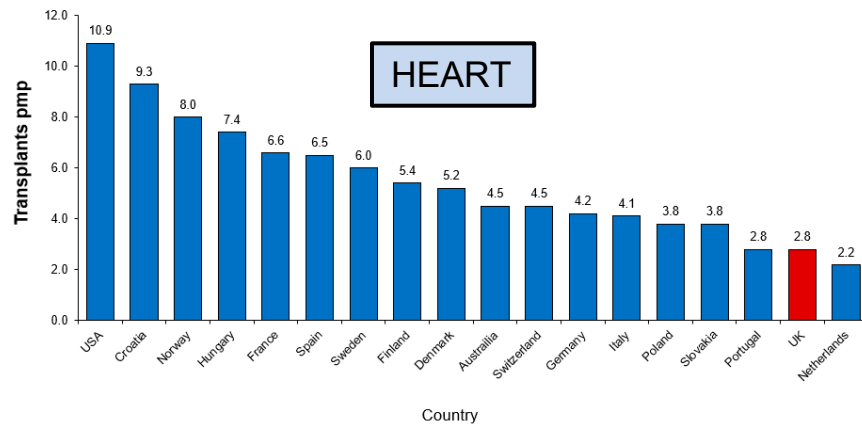
Deceased and living donor kidney transplant rates for Europe, Australia and the USA, 2019



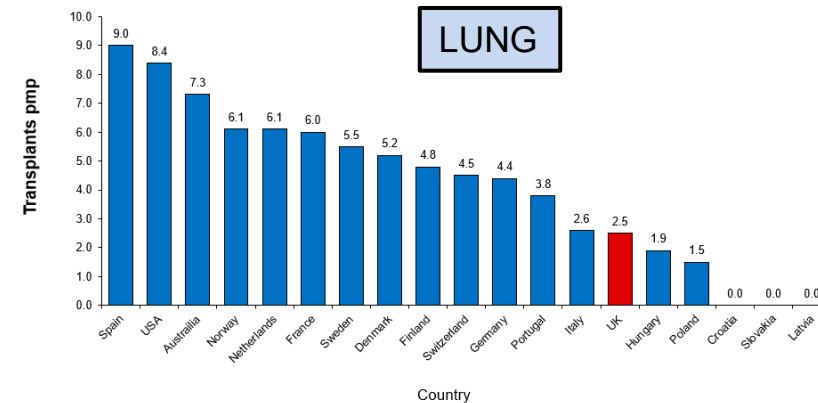
Liver transplant rates for Europe, Australia and the USA, 2019



Heart transplant rates for Europe, Australia and the USA, 2019



Lung transplant rates for Europe, Australia and the USA, 2019

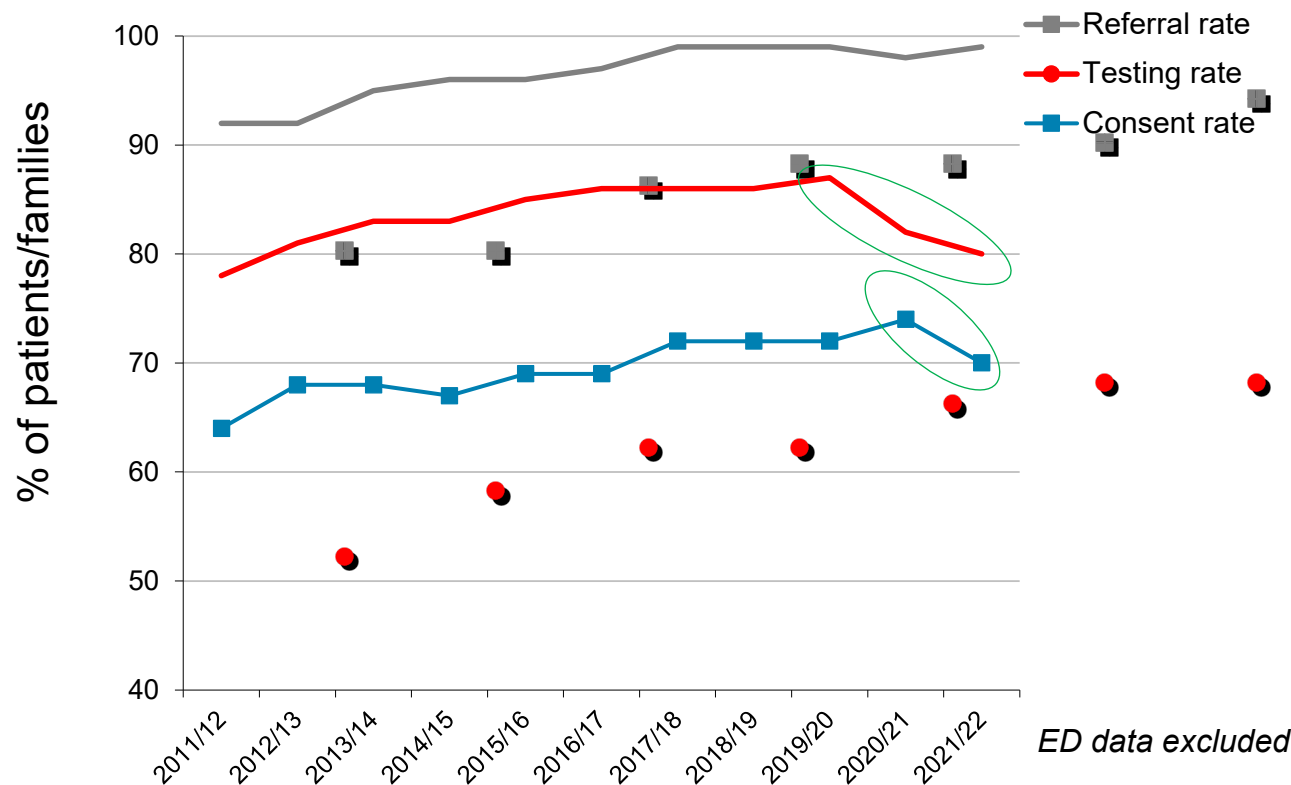


Possible organ donors

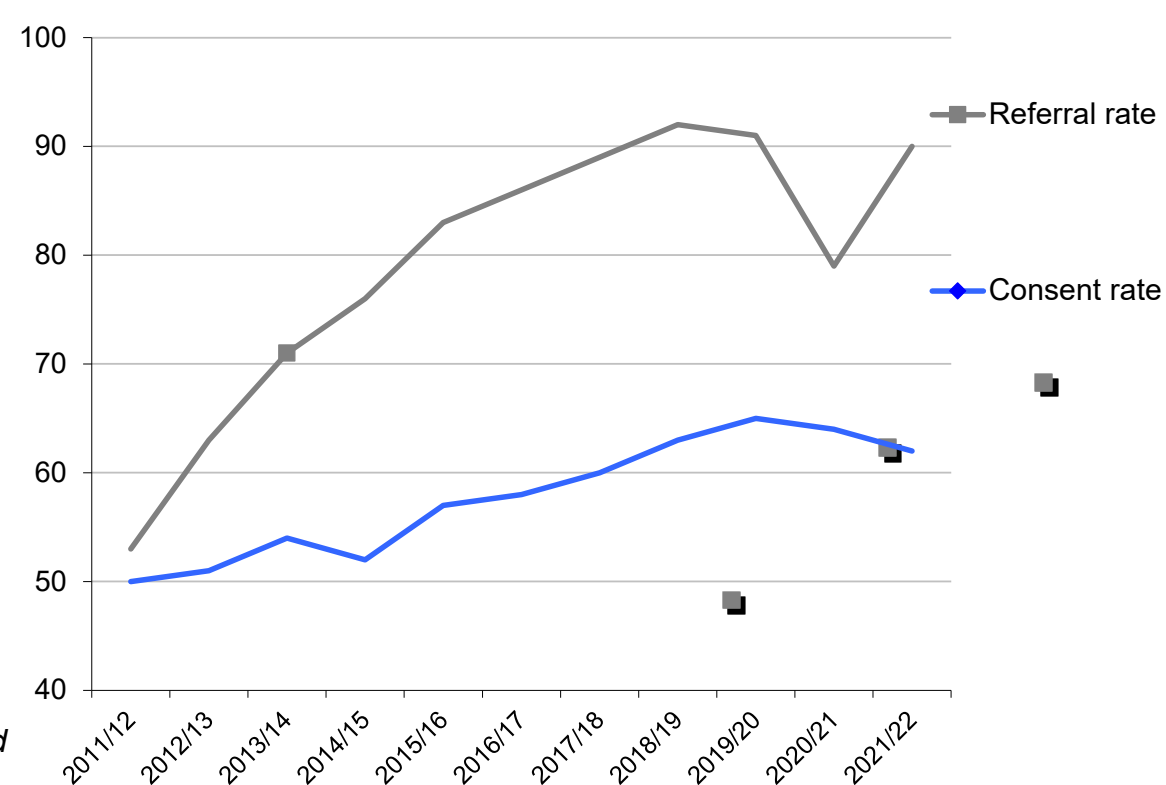
Key rates from the Potential Donor Audit

Blood and Transplant

DBD donation



DCD donation



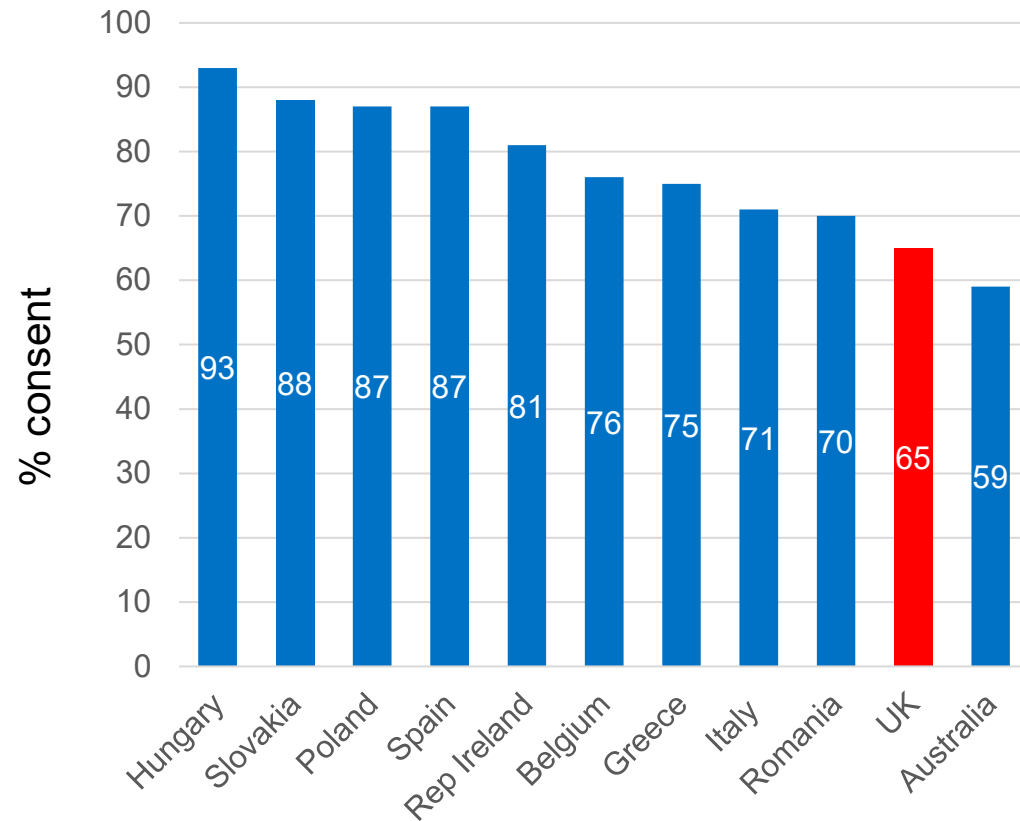
Referral rate - percentage of neurological death suspected (or imminent death anticipated) patients referred to SN-OD

Testing rate - percentage of neurological death suspected patients tested for brain death

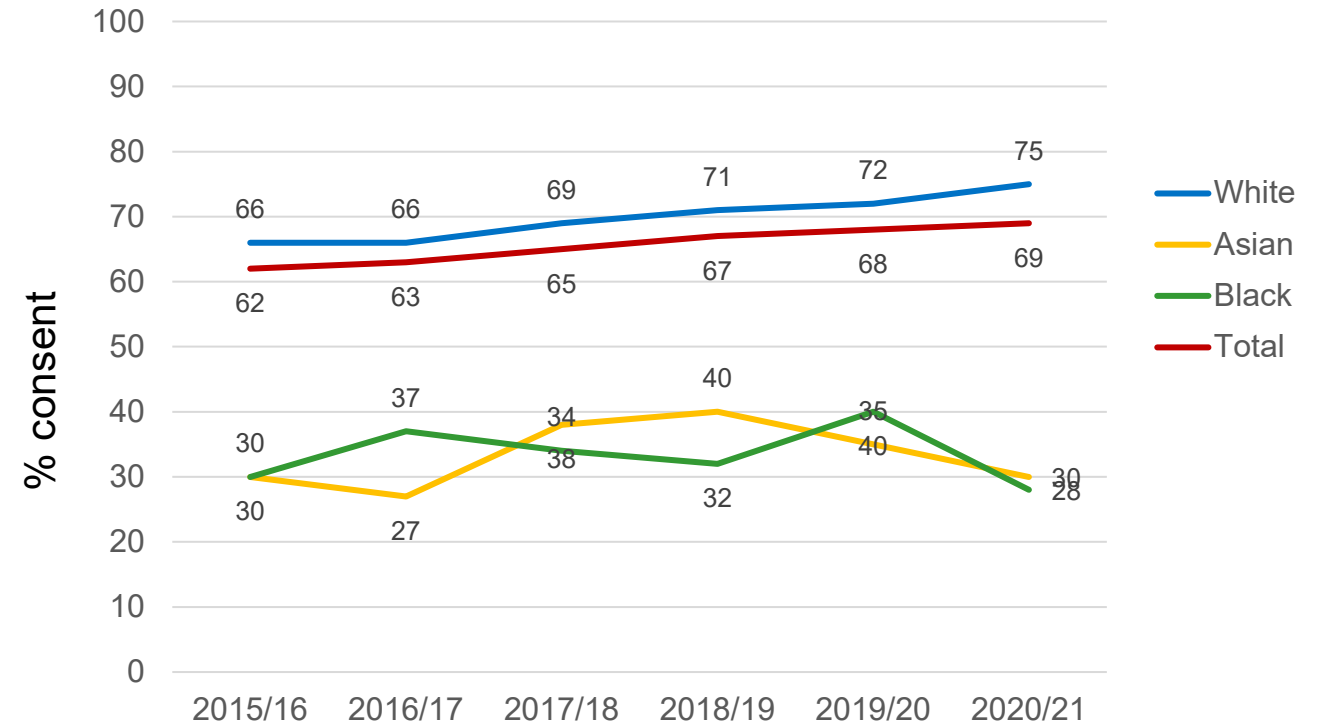
Consent/authorisation rate - percentage of families approached where consent/authorisation for donation was ascertained

Consent rates

International family consent rates, 2017



UK consent rates over time, by ethnicity



Note – limited international data available on family consent rates

Organ offering and retrieval

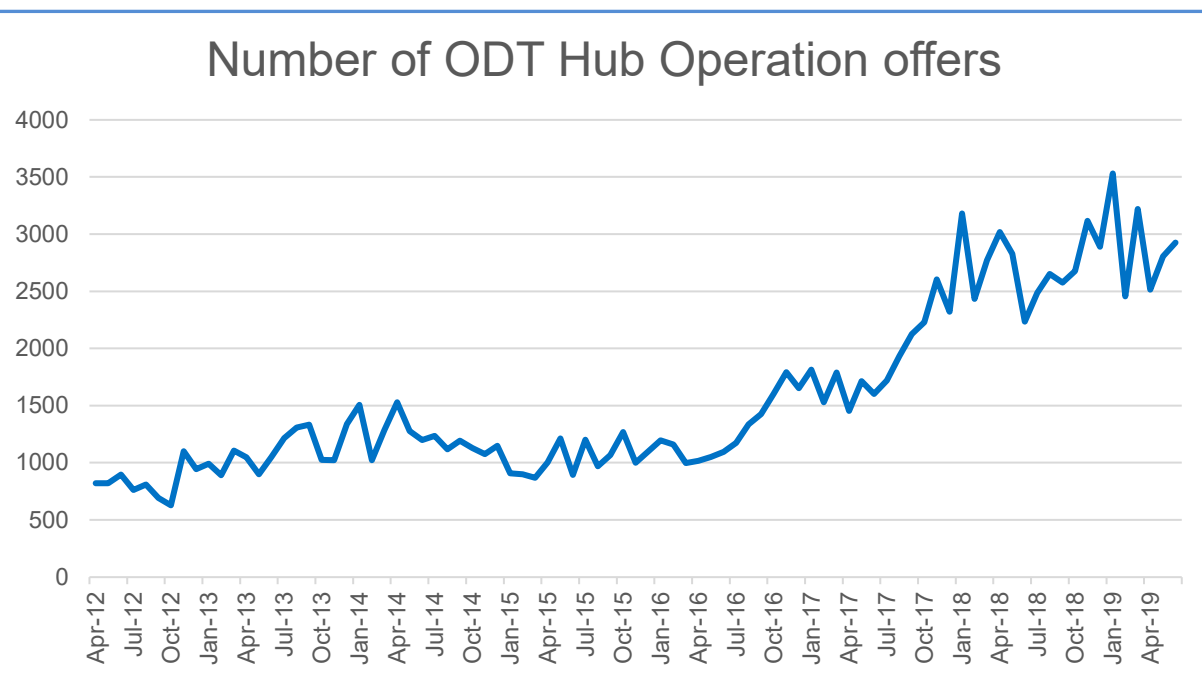
Summary of current organ offering schemes

Blood and Transplant

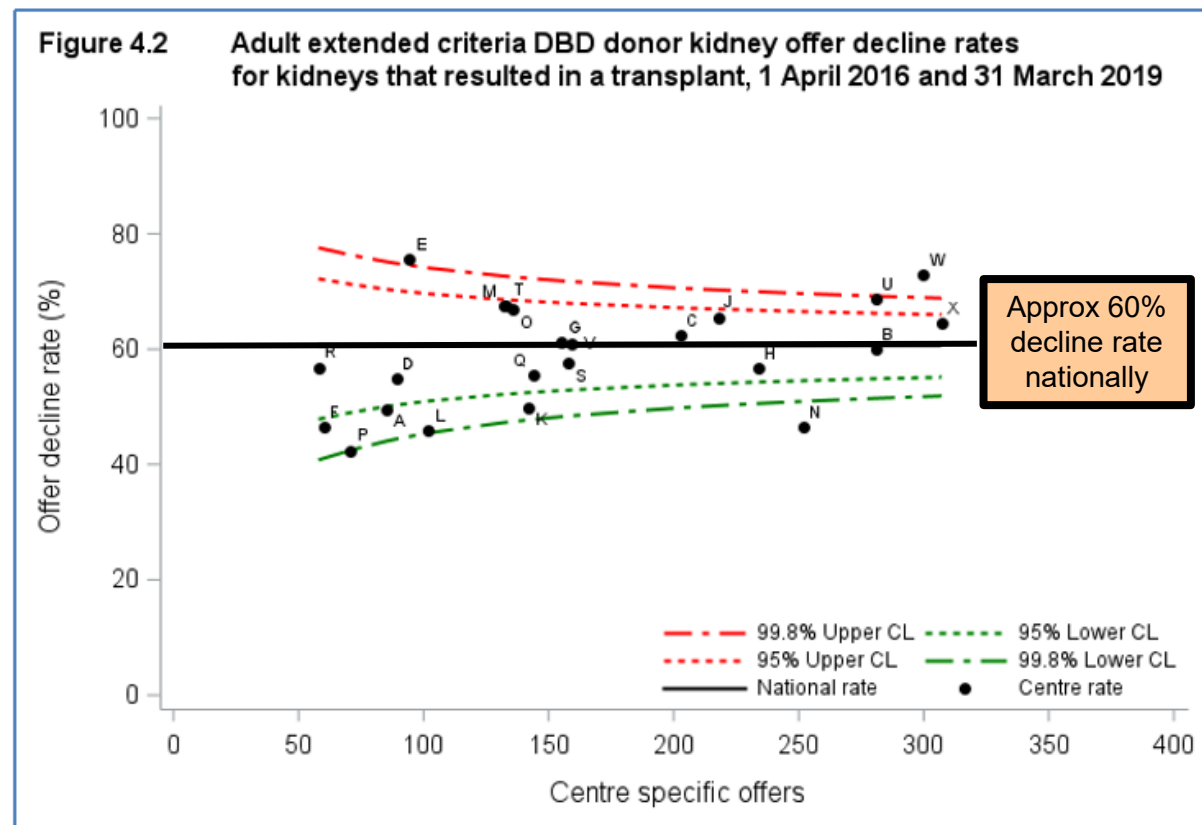
Organ	Patient specific or centre-based offers	Prioritises
Kidney	Patient (DBD: both kidneys >10 years; DCD since 2014)	Long waiting patients, good tissue match, match organ and patient life expectancy
Pancreas	Patient (since 2010)	Difficult to transplant and long waiting patients, good tissue match
Liver	DBD: Patient (since 2018) DCD: Centre based	DBD: Patients predicted to gain most survival benefit from specific donor liver
Heart (DBD)	Patient for urgent groups (>10 years); centre for others	Clinically urgent patients
Lung	Patient for urgent groups (since 2017); centre for others	Clinically urgent patients

Organ offers and decline rate variation

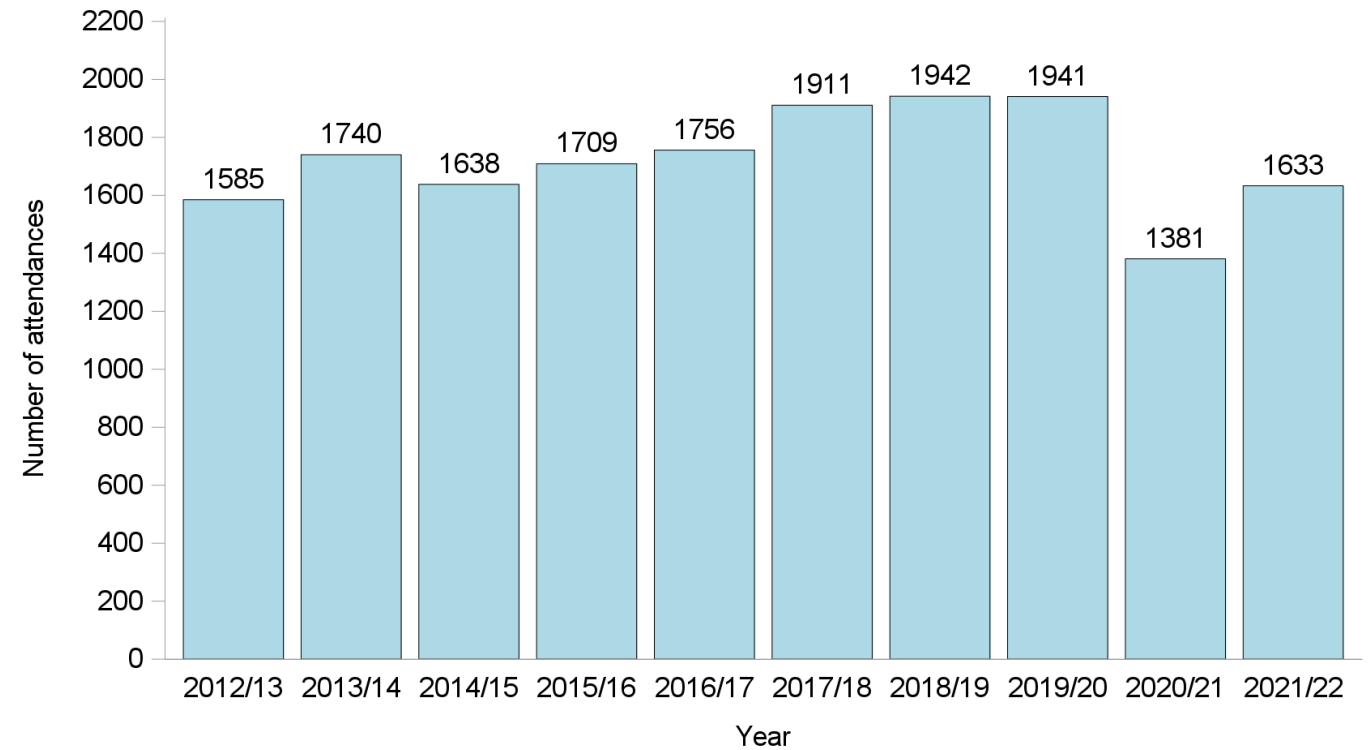
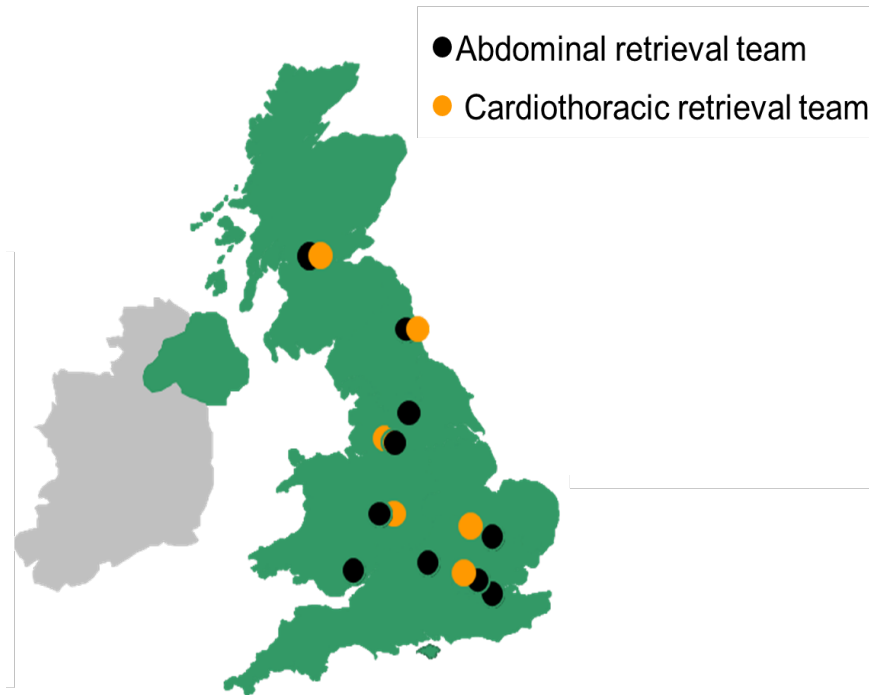
Patient based schemes lead to more (ODT Hub Ops) offers:



Offer decline rates can be high and vary by transplant centre – DBD kidney example -



National Organ Retrieval Service (NORS) team attendances



DBD retrieval times

2013/14

Weekday	Hour												TOTAL
	0-1	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22-23	
Monday	14	14	12	13	11	13	6	5	4	3	3	6	104
Tuesday	10	16	17	12	15	12	9	5	1	5	8	6	116
Wednesday	11	19	21	21	15	12	8	4	2	2	5	5	125
Thursday	15	12	23	15	10	11	9	8	1	2	4	6	116
Friday	11	23	21	13	12	10	2	2	2	5	1	4	106
Saturday	12	16	11	19	9	7	8	2	4	6	7	5	106
Sunday	12	19	22	8	12	9	11	5	3	0	3	12	116
													789

2016/17

Weekday	Hour												TOTAL
	0-1	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22-23	
Monday	12	9	15	10	9	17	8	8	14	4	7	3	116
Tuesday	7	12	11	7	8	11	15	12	12	6	2	3	106
Wednesday	10	15	12	14	18	14	10	19	10	6	9	8	145
Thursday	9	12	16	6	11	19	13	6	9	6	10	5	122
Friday	5	7	6	15	13	16	10	12	5	4	5	7	105
Saturday	7	13	17	11	10	18	13	10	12	3	4	9	127
Sunday	11	9	11	15	11	12	15	8	8	8	2	8	118
													839

2018/19

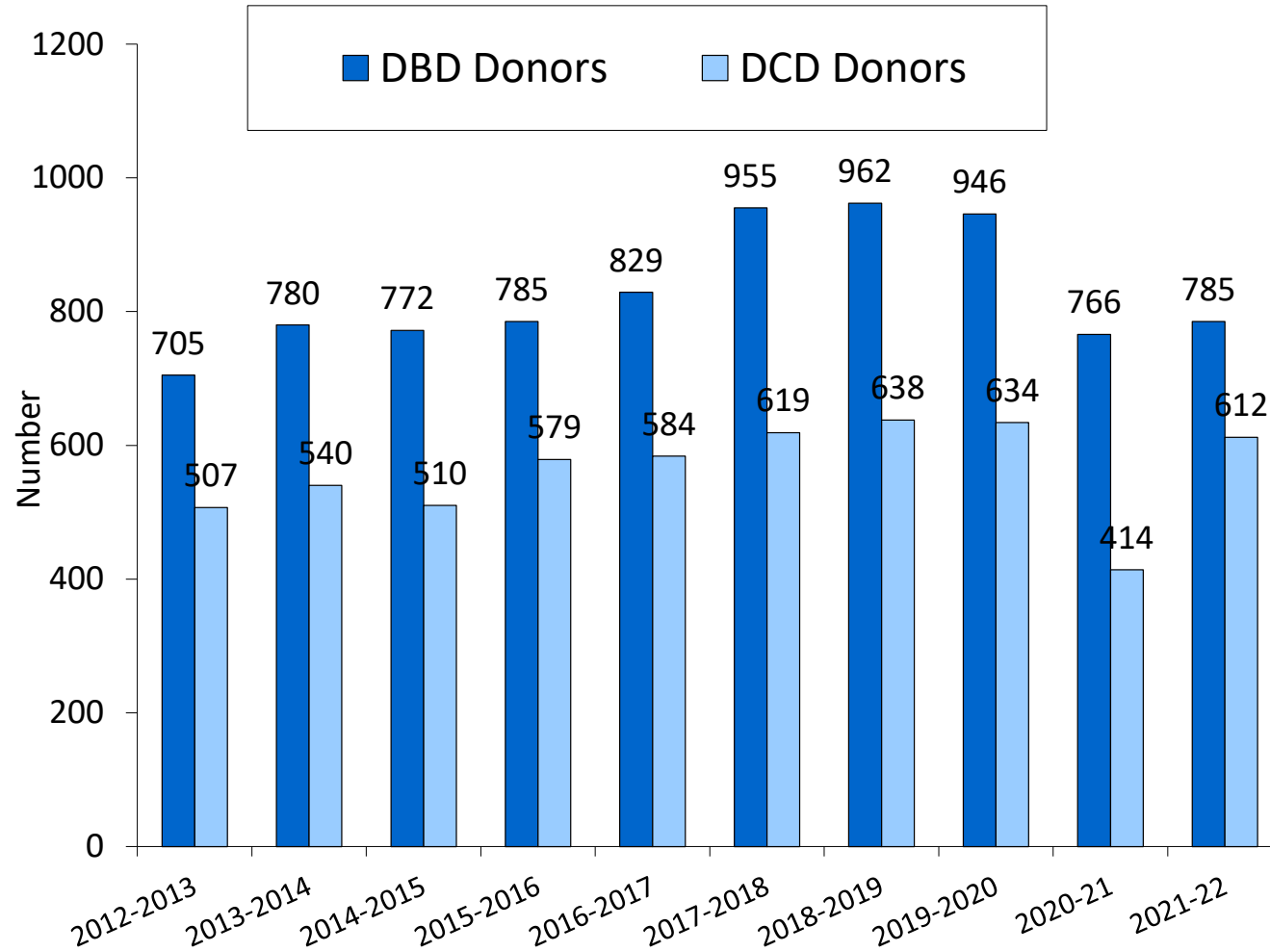
Weekday	Hour												TOTAL
	0-1	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22-23	
Monday	11	10	14	11	17	14	10	16	5	8	2	6	124
Tuesday	13	13	18	15	9	15	20	15	9	9	6	5	147
Wednesday	9	21	13	13	11	8	27	17	11	5	4	6	145
Thursday	12	14	22	14	8	14	6	14	9	9	3	12	137
Friday	7	20	15	13	14	11	16	13	3	6	11	6	135
Saturday	9	15	17	12	16	11	21	11	15	6	10	4	147
Sunday	12	15	9	13	7	21	18	15	7	3	7	8	135
													970

DBD organ retrieval is now a daytime activity that often competes with other demands on acute theatres

Deceased organ donation

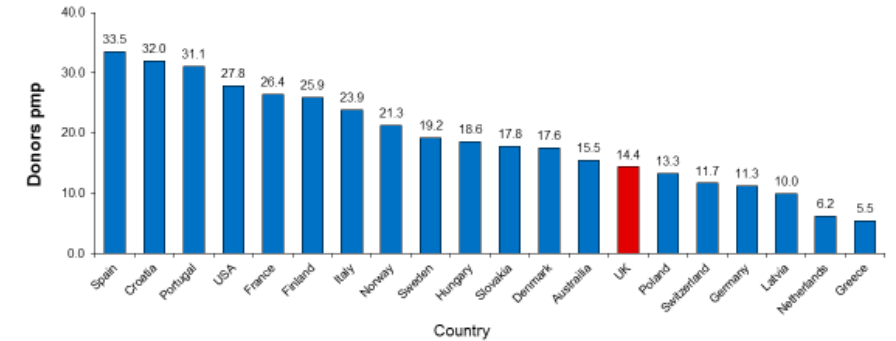
Deceased donors

Blood and Transplant



DBD donor rates

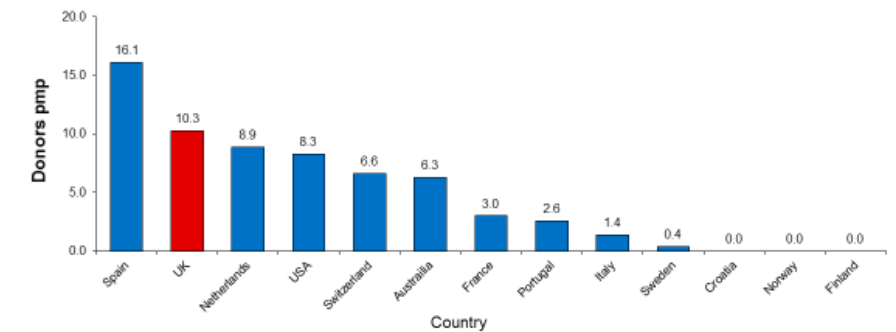
Actual* DBD organ donor rates for Europe, Australia and the USA, 2019



*Actual deceased organ donor at least one organ has been recovered for the purpose of transplantation, in contrast to a utilised donor, who is an actual donor from whom at least one organ has been transplanted. The number of utilised donors is therefore lower or equal than the number of actual donors.

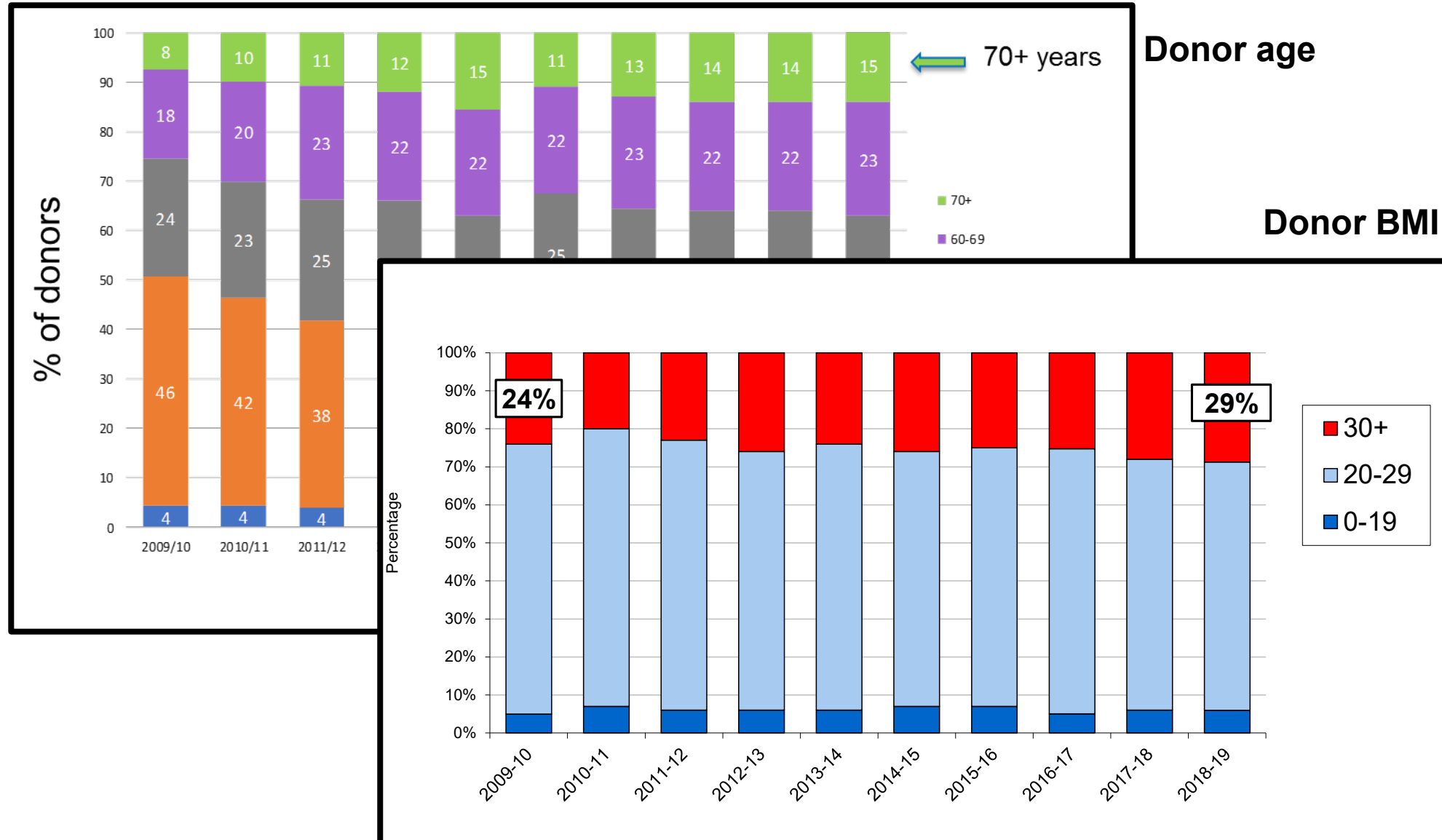
DCD donor rates

Actual* DCD organ donor rates for Europe, Australia and the USA, 2019



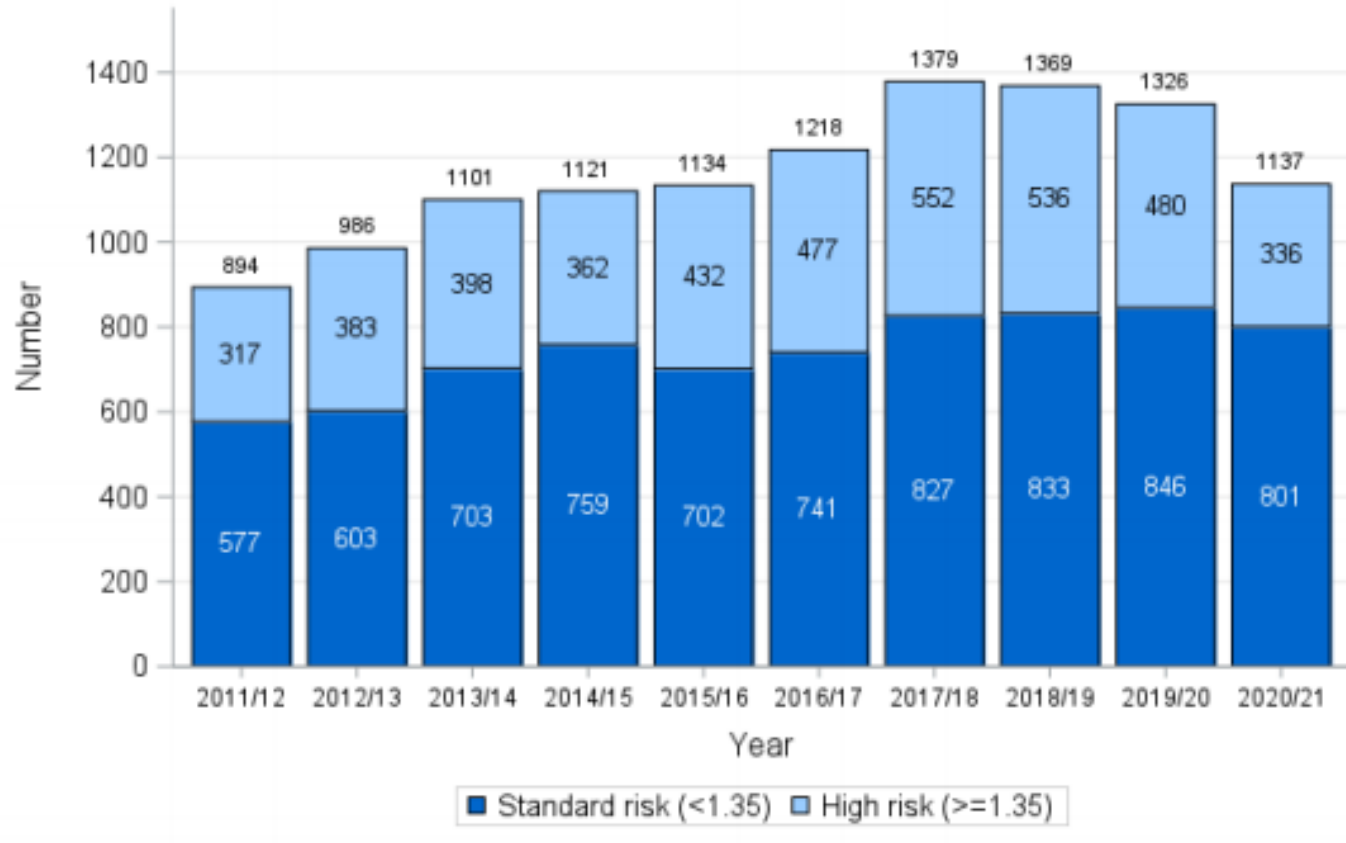
*Actual deceased organ donor at least one organ has been recovered for the purpose of transplantation, in contrast to a utilised donor, who is an actual donor from whom at least one organ has been transplanted. The number of utilised donors is therefore lower or equal than the number of actual donors.

Context: Increasing complexity of deceased donors



Transplant centres increasingly using more complex donor organs...

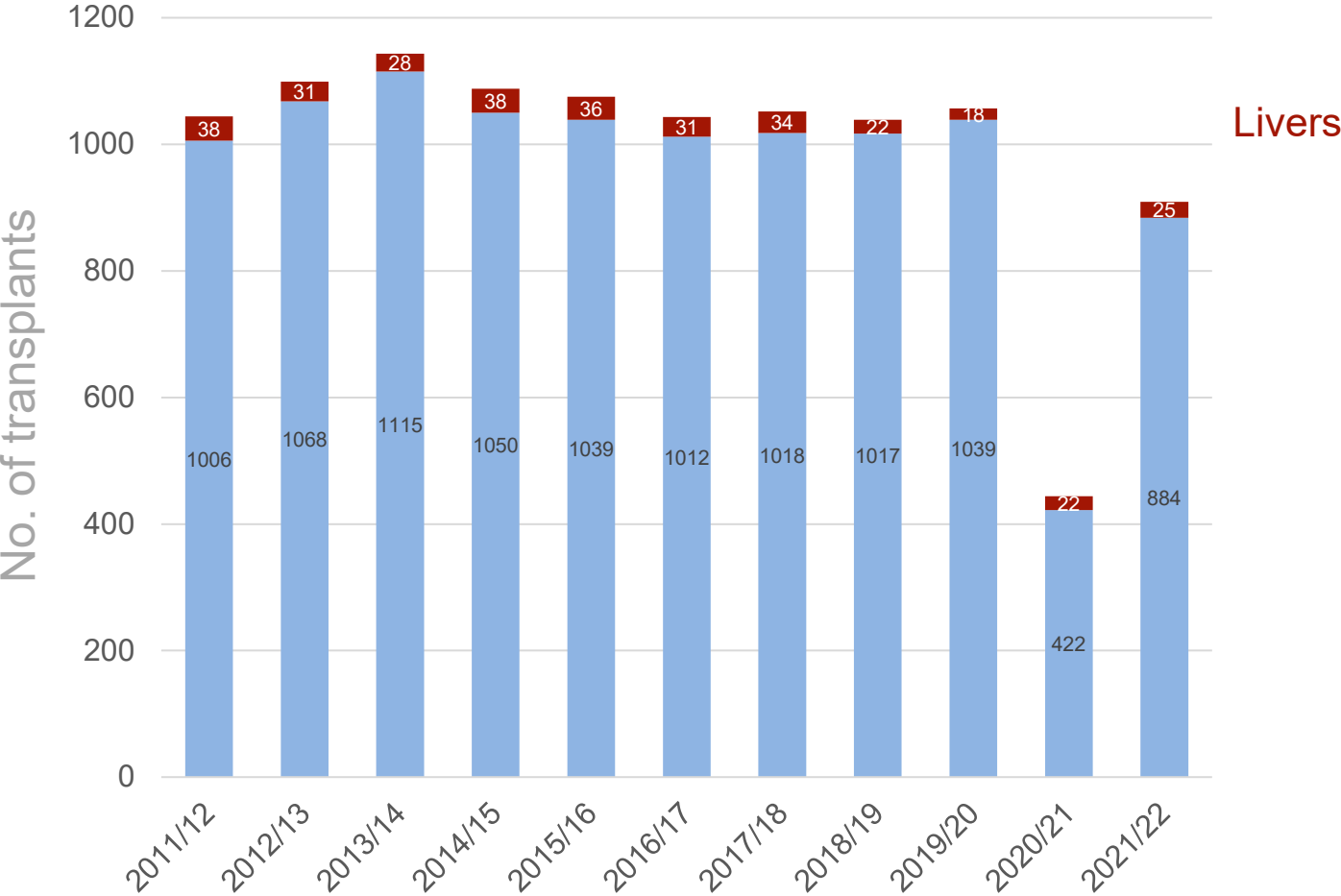
Figure 5.10 UK Kidney Donor Risk Index of transplanted DBD donor kidneys
1 April 2011 - 31 March 2021



Higher
risk
kidneys

Living organ donation

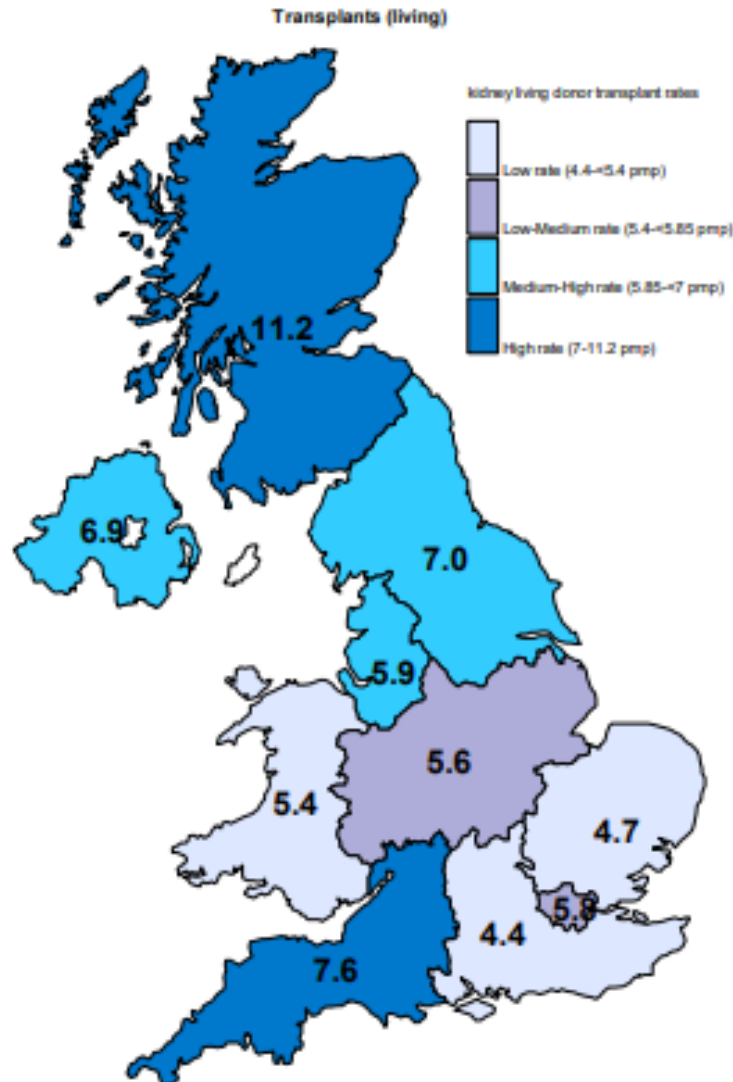
UK Living Donor Kidney & Liver Transplants



Includes adult and paediatric patients and transplants in private hospitals



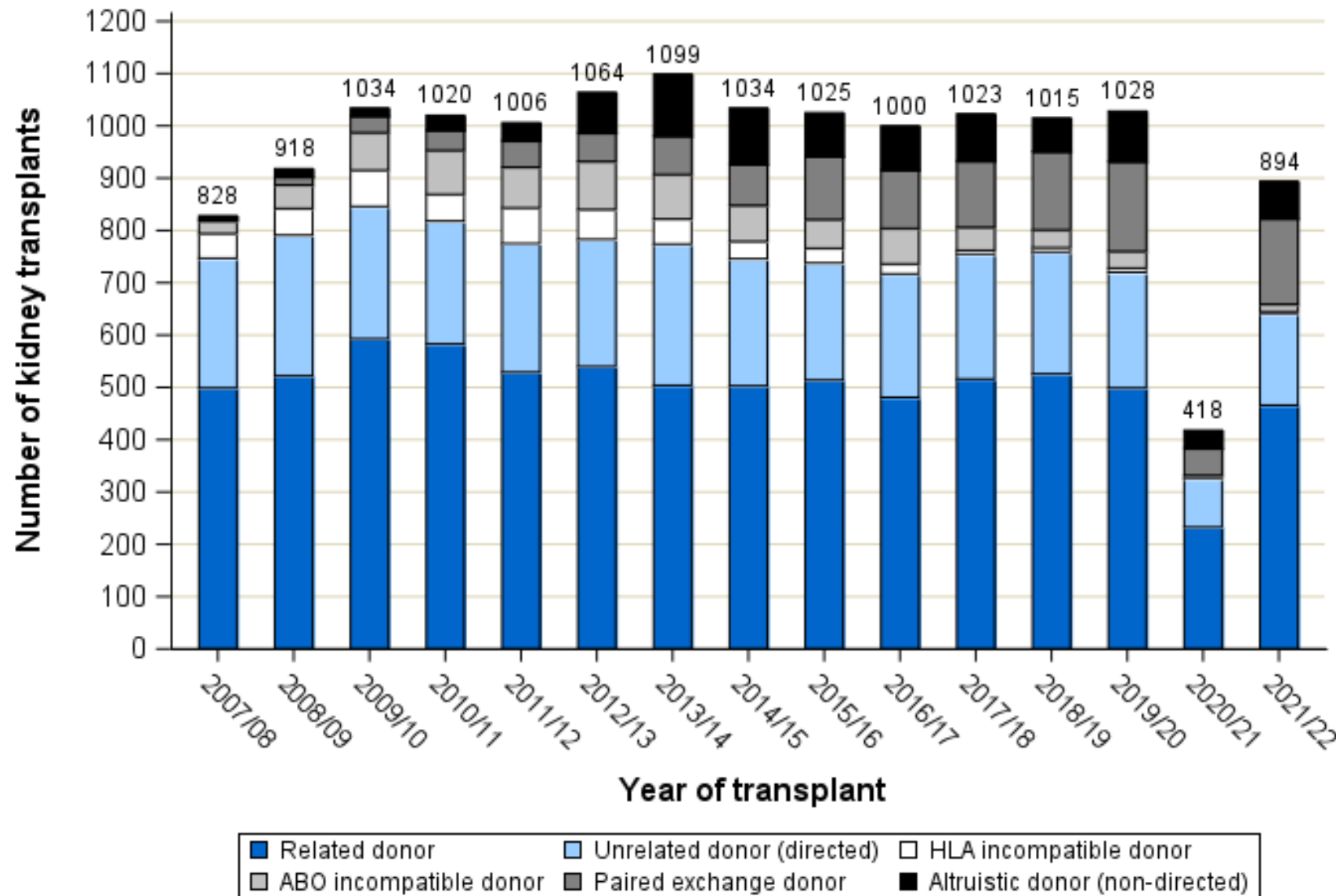
Living donor kidney transplant rates per million of population



Range across countries /
strategic health authorities:

4.4 – 11.2 pmp

Living donor kidney transplants

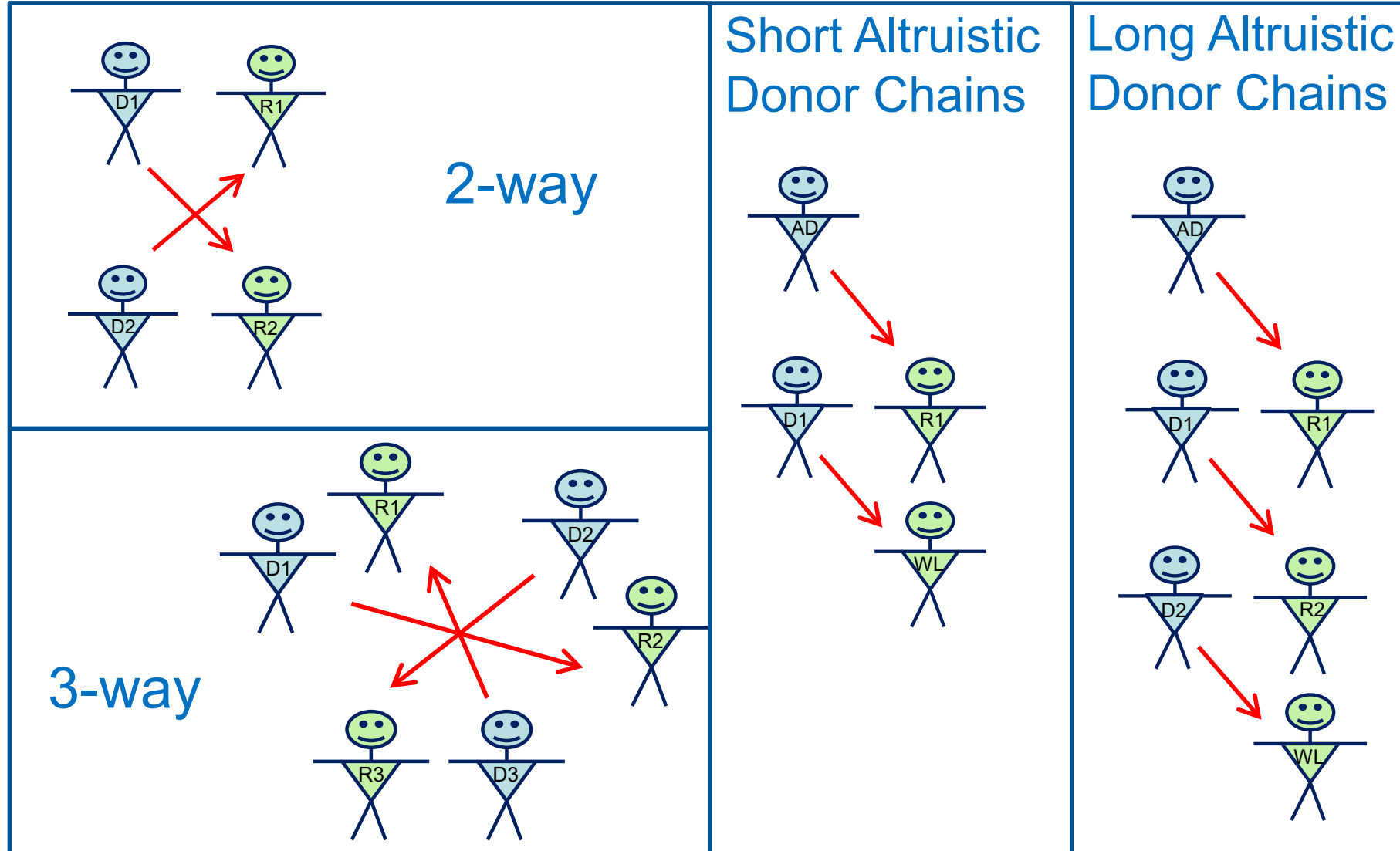


In 2020/21

2/4 UKLKSS matching runs performed

Living transplants ceased between 21 Mar and 27 Apr 2020

Living kidney sharing scheme – exchange types

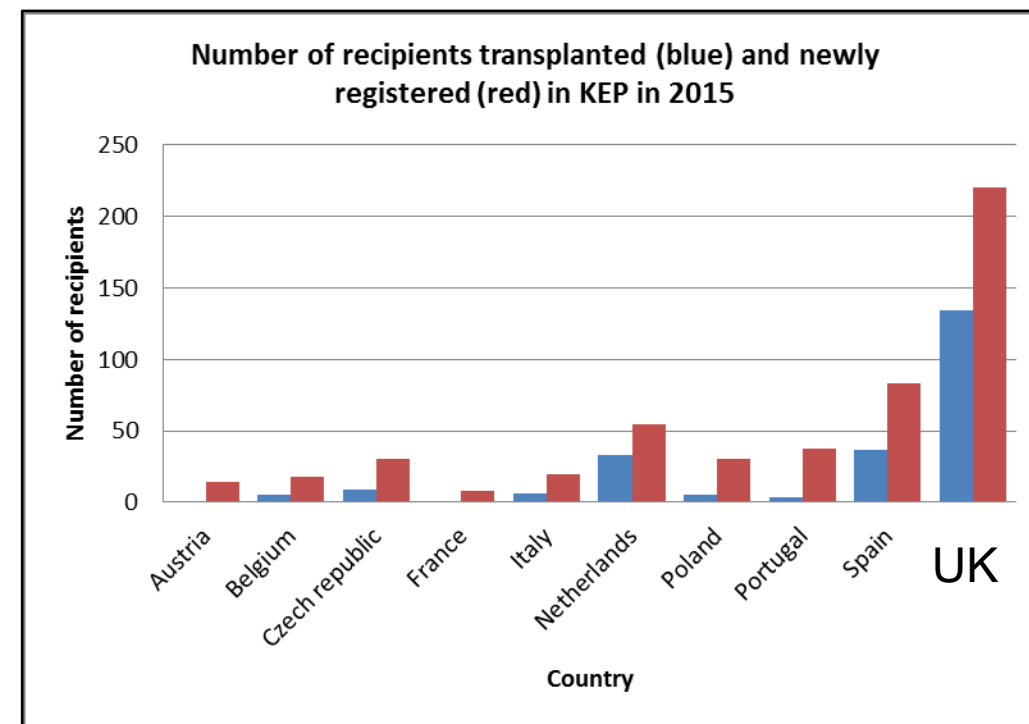
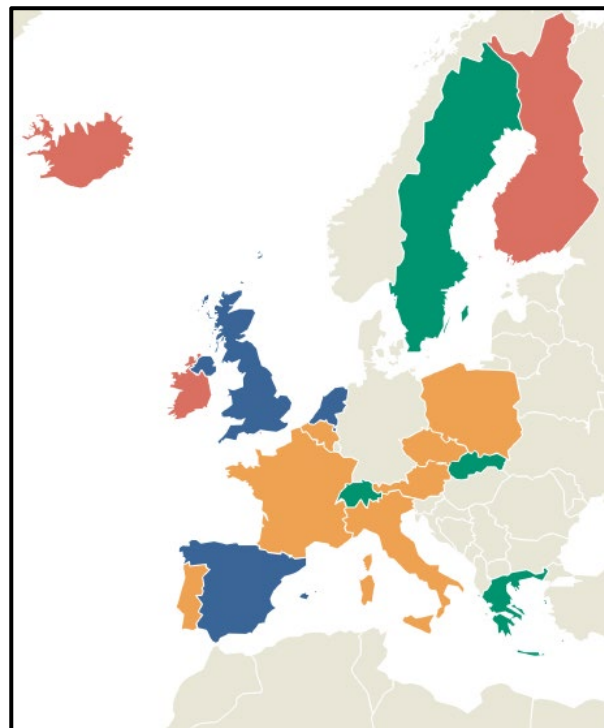


UK scheme - largest in Europe



European Network for Collaboration on Kidney Exchange Programmes (ENCKEP)

- Large, advanced programmes
- New, smaller programmes
- Programmes in development
- Countries with no programme



Transplantation

Building kidney exchange programmes in Europe - An overview of exchange practice and activities

Biró, P. et al. (2018) Building kidney exchange programmes in Europe - An overview of exchange practice and activities. *Transplantation*, (doi:[10.1097/TP.0000000000002432](https://doi.org/10.1097/TP.0000000000002432)) (PMID:[30247314](https://pubmed.ncbi.nlm.nih.gov/30247314/)) (Early Online Publication)

Listing and transplantation

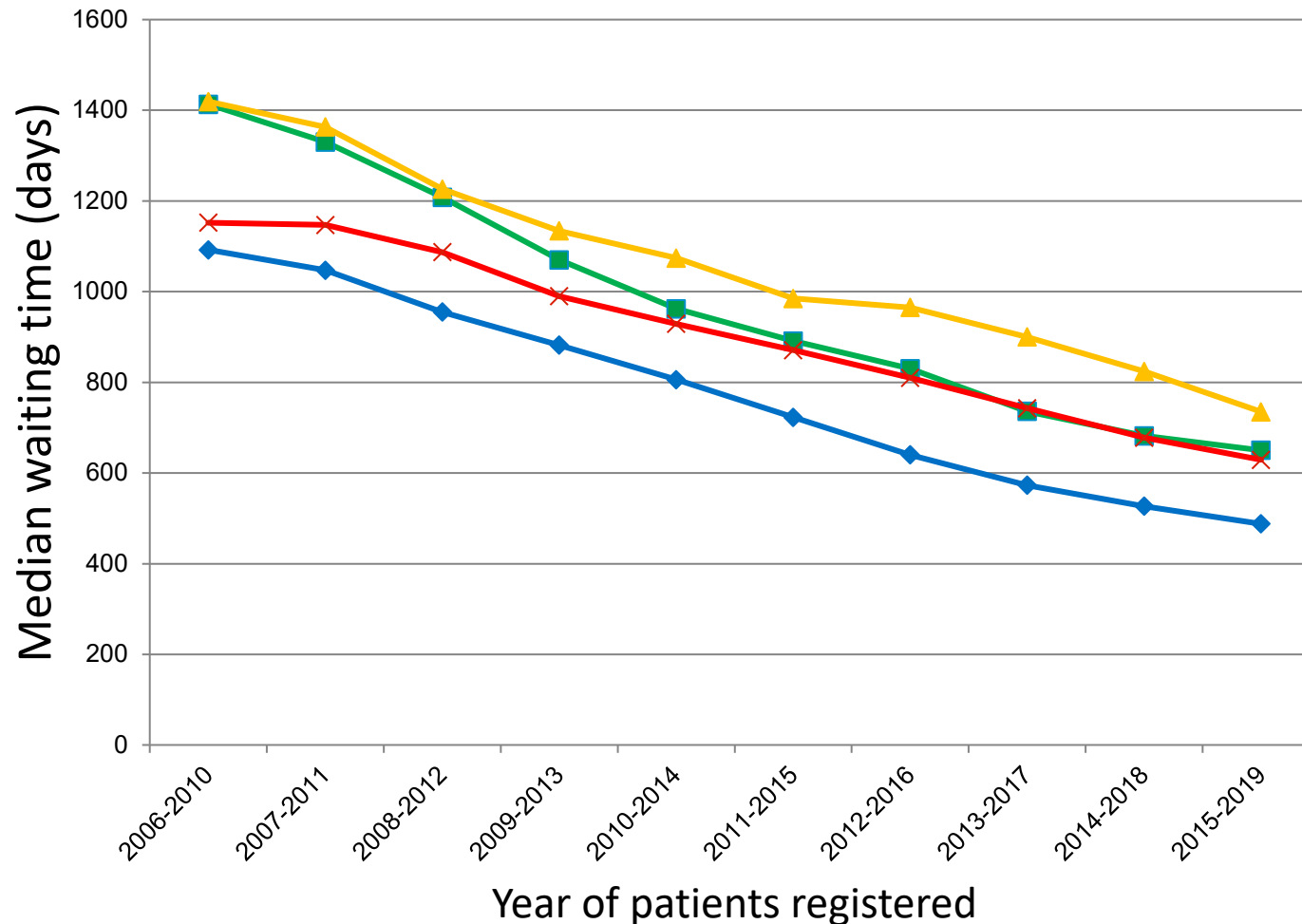
Median waiting times (months) to adult DD organ transplant

Organ	Waiting time - months	
	2012/13 report	2021/22 report
Kidney	38	18
Liver	5	2
Pancreas	12	12
Non-urgent Lung	9.5	12
Non-urgent heart	34*	71
Urgent heart	1*	1



* 2014/15 report

Median waiting time to adult kidney transplant



Ethnicity

Black patients

Asian patients

Other patients

White patients

Current median wait time

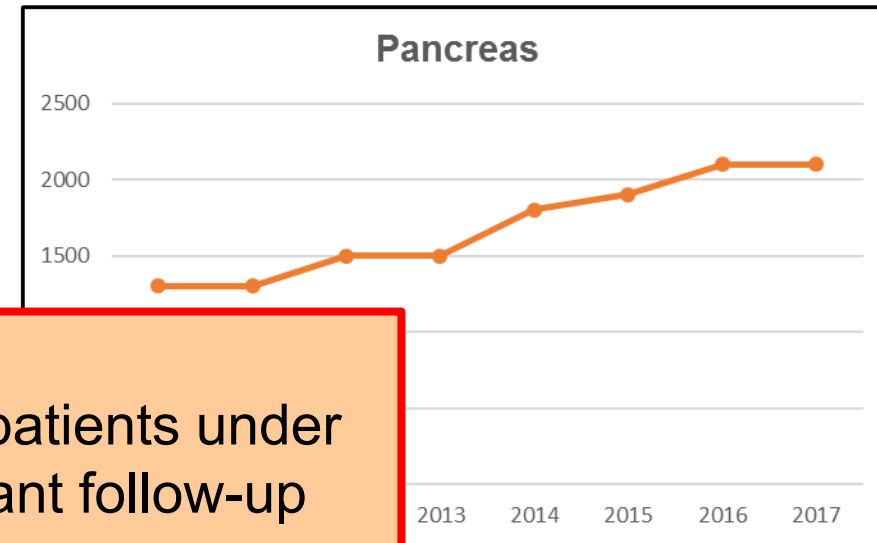
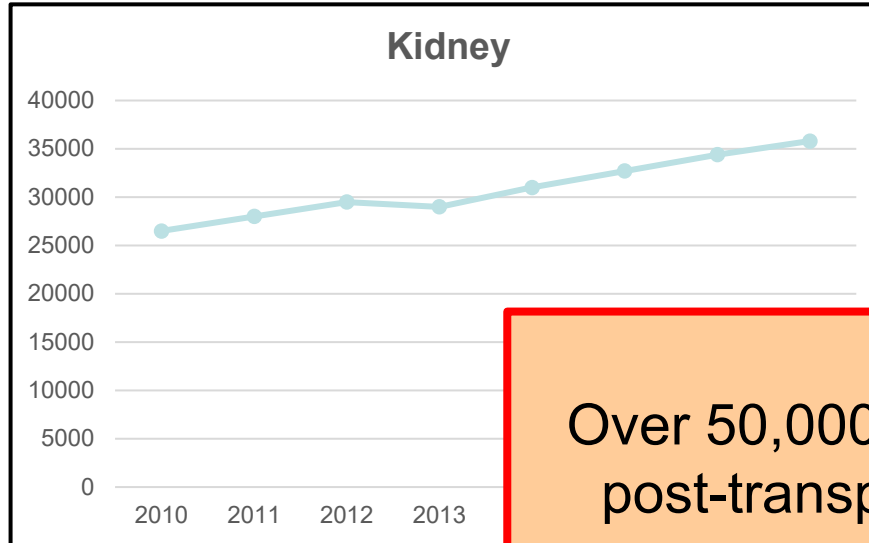
24 months

21 months

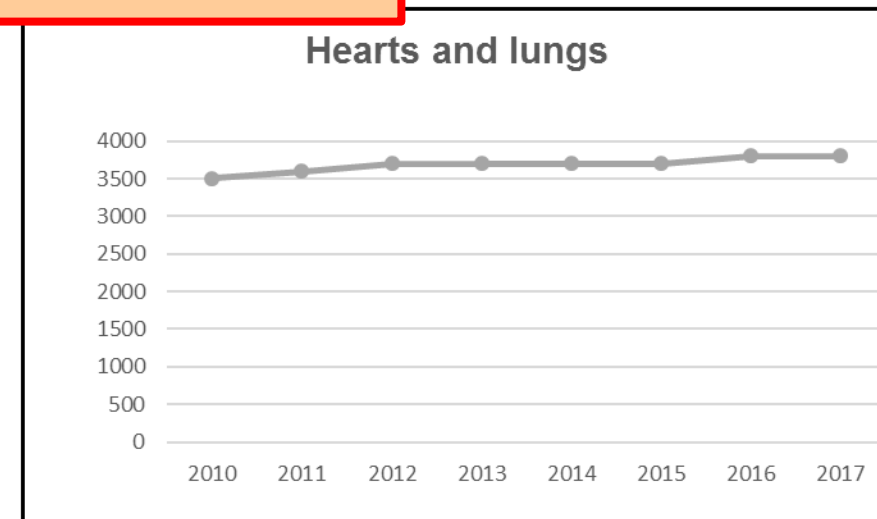
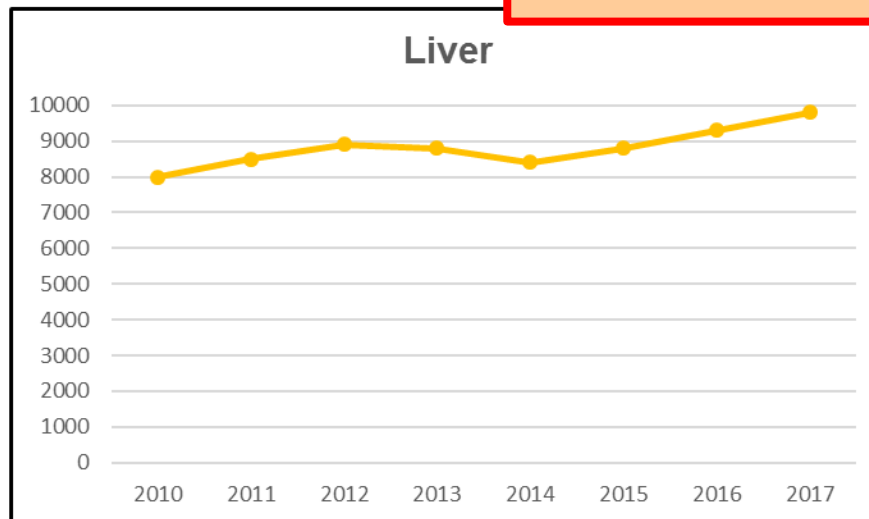
20 months

16 months

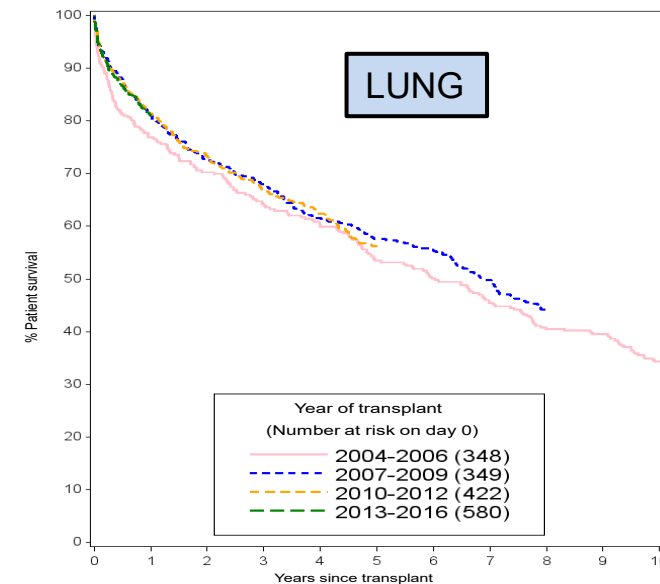
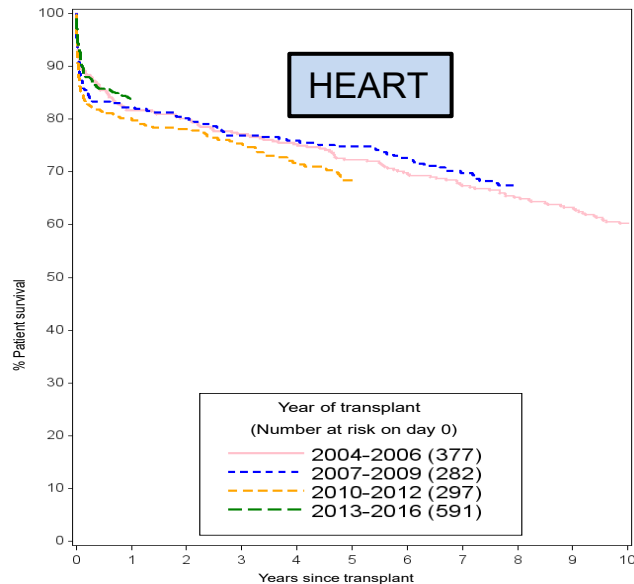
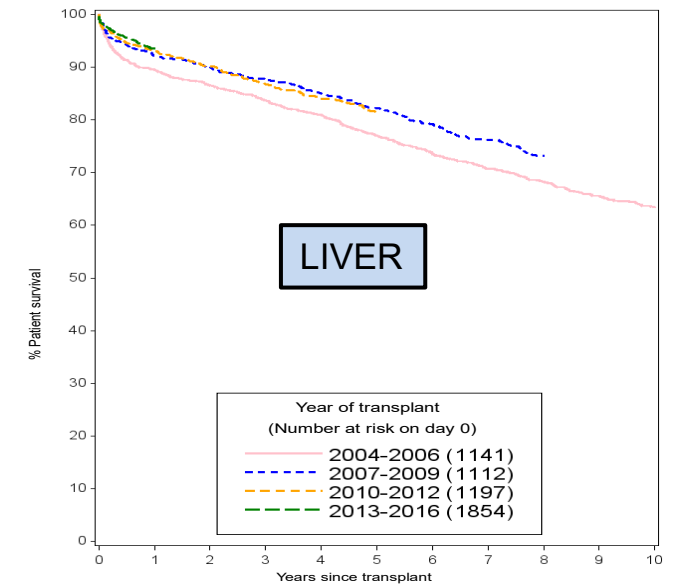
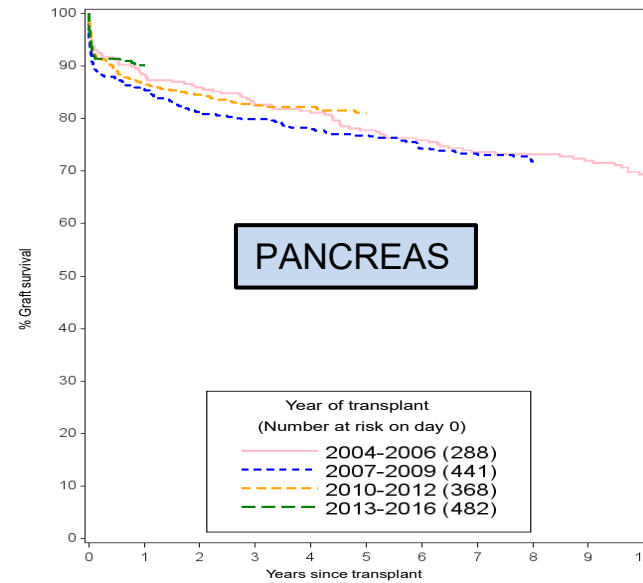
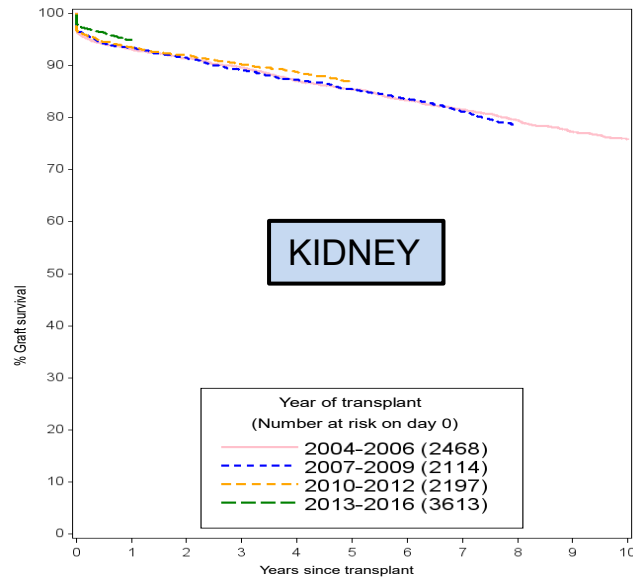
Number of patients under post-transplant follow-up care



Over 50,000 patients under post-transplant follow-up



DBD post-transplant outcomes



Thank you
Any questions?