

2024 Annual Report

Kidney Transplantation

Royal Prince Alfred Hospital

Transplantation Services

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Executive Summary

In 2024, one hundred and two patients received a kidney transplant under the care of the Royal Prince Alfred kidney transplantation service, up from 89 the previous year.

Of the 102 kidney transplants performed in 2024, 67 recipients received kidneys from deceased donors, (64% donation after brain death and 36% from donation after circulatory death). There were 35 living donor transplants performed, an increase from the previous year of 26 living donor transplants.

The number of people active on the transplant waiting list fell from 135 to 128 wait listed patients, possibly reflecting an increasing number of transplant recipients in recent years. The previous 12 month overall patient survival was 100% and the 12 month graft survival was 97%.

We are grateful to all the generous donors and donor families who make transplantation possible. We are also privileged to work with an exceptional multidisciplinary team of clinicians and dedicated staff involved across this hospital and at least 15 referring institutions, and thank them for all their support and dedication.

Prof Kate Wyburn
A/Professor Jerome Laurence
Mark Wells
Karen Chan

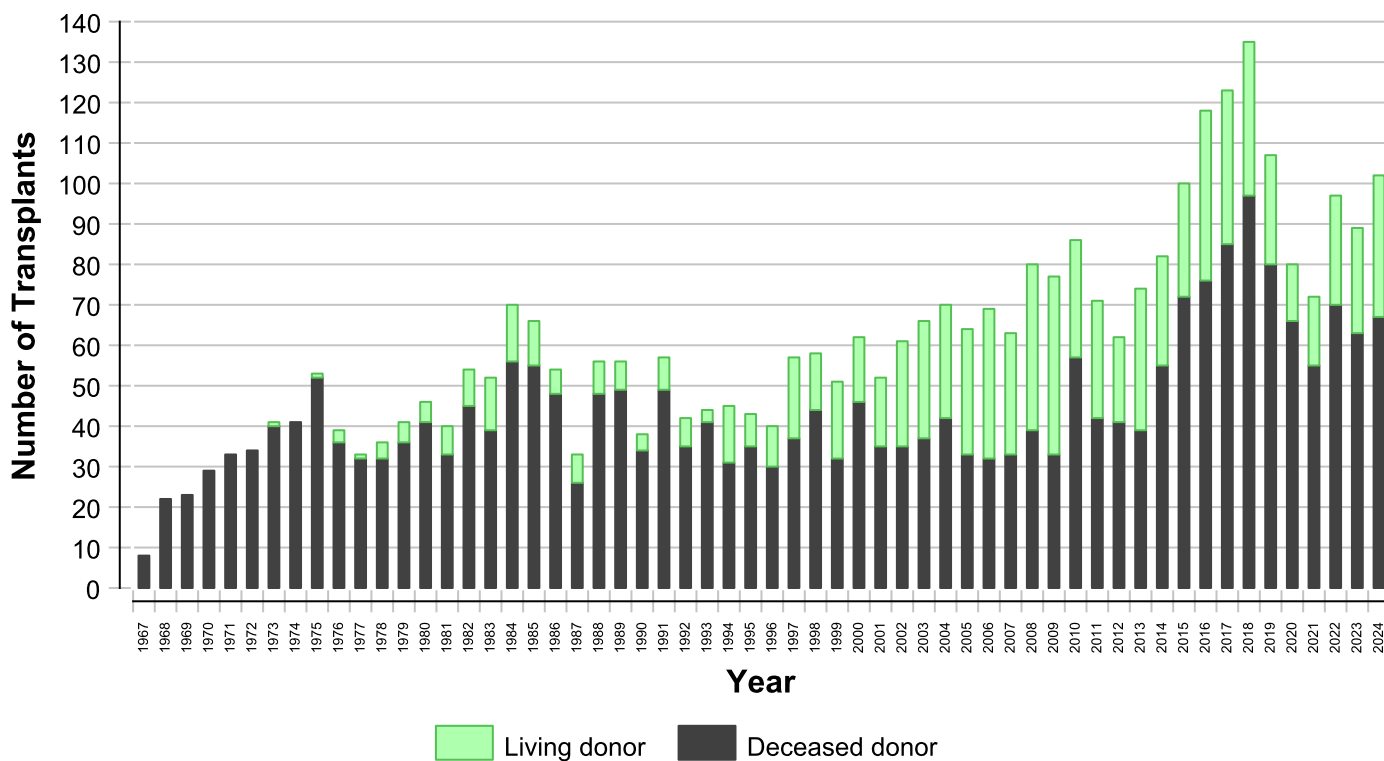
RPAH Kidney Transplant Team

Surgeons	Jerome Laurence	Carlo Pulitano	David Joseph
	Charbel Sandroussi	Raffi Qasabian	Paul Sved
	Suzanna Lam		
Living Donor surgeons	Arthur Vasilaris	Scott Leslie	
Transplant Physicians	Kate Wyburn	Steve Chadban	David Gracey
	Leyla Aouad	Tracey Ying	
Anaesthetists	Greg Lindsay	Robert Hackett	Gerald Wong
Psychiatrists	Kirsty Morris		
Surgical Fellows	Andrew Jacques	Ahmed Althahi	
Medical Fellows	Rose-Marie Scarlato	Sophie Harnos	Adrienne Cohen
Radiologists	Richard Waugh	Jim Raleigh	Chris Rogan
Kidney Transplant Coordinators	Jane Mawson	Allyson Newman	Marvin Marquez
Nursing Team in Operating Suite	Kate Barraclough	Alfonzo Mayngo	Deb Goh
	Rachel Jang		
Inpatient Nurse Unit Managers	Breeana Alder		
Post Transplant Ambulatory Care Team	Ainslie Mansell	Christopher De Leon	Gillian Orr
	Michelle Burton		
Clinical Nurse Educators	Ashanthi Abeyewardene		
Clinical Trials Team	Ellen Yeo	Lin Lin	Karen Jeffrey
	Christina Gong		
Dietitians	Arian Chong	Bridget Heathcote	

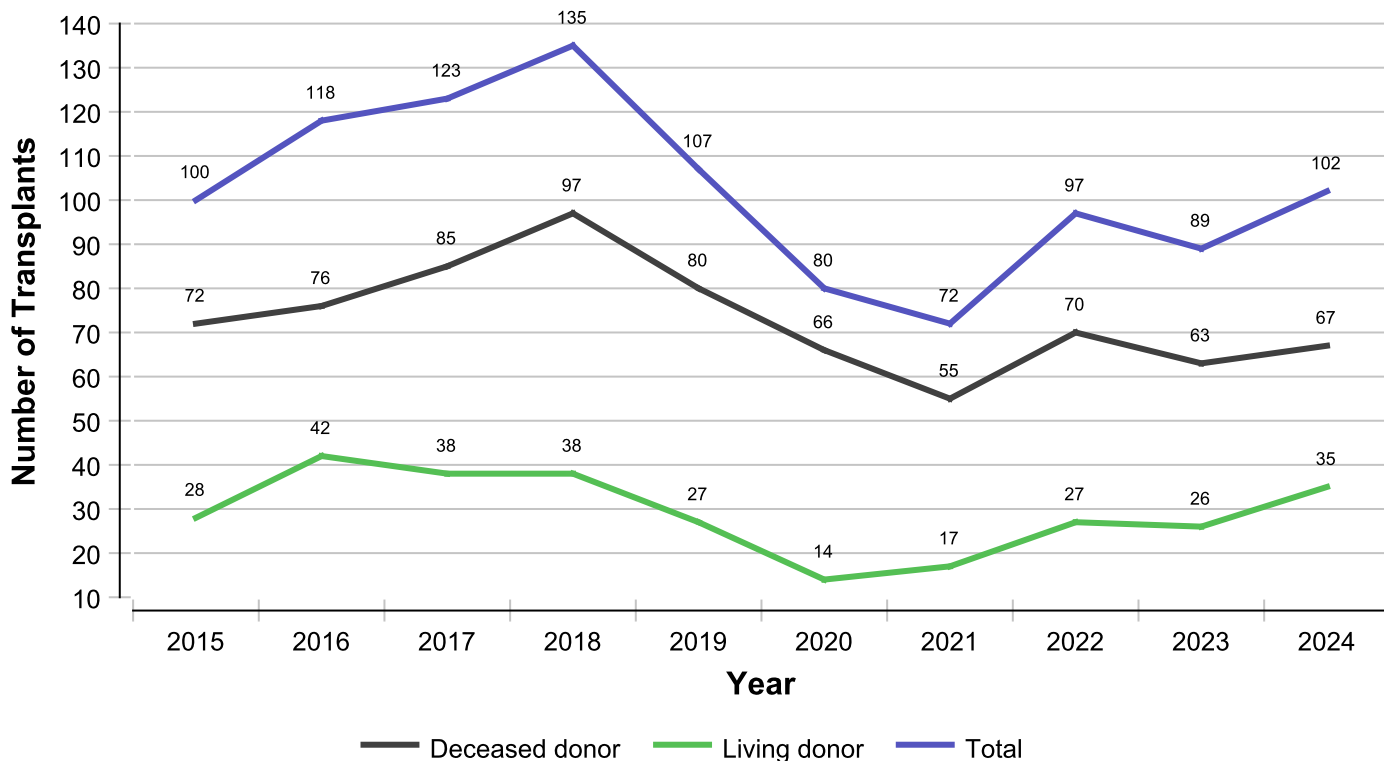
Social Workers	Jacqueline Rist	Matthew Nutt	
Data Management	Mark Wells	Karen Chan	Suganthi Manickam
Administrative Support	Rose Musumeci	Michelle Dubuisson	Jane Manzie
	Marc De Palma	Sandra Rees	Sylvia Micallef
	Gylcy Eiroa	Jessica Hobson	Melanie Pike
	Ewa Fedorowicz	Sut Jat Nu Nan Lamung	

Kidney Transplant Activity at RPAH

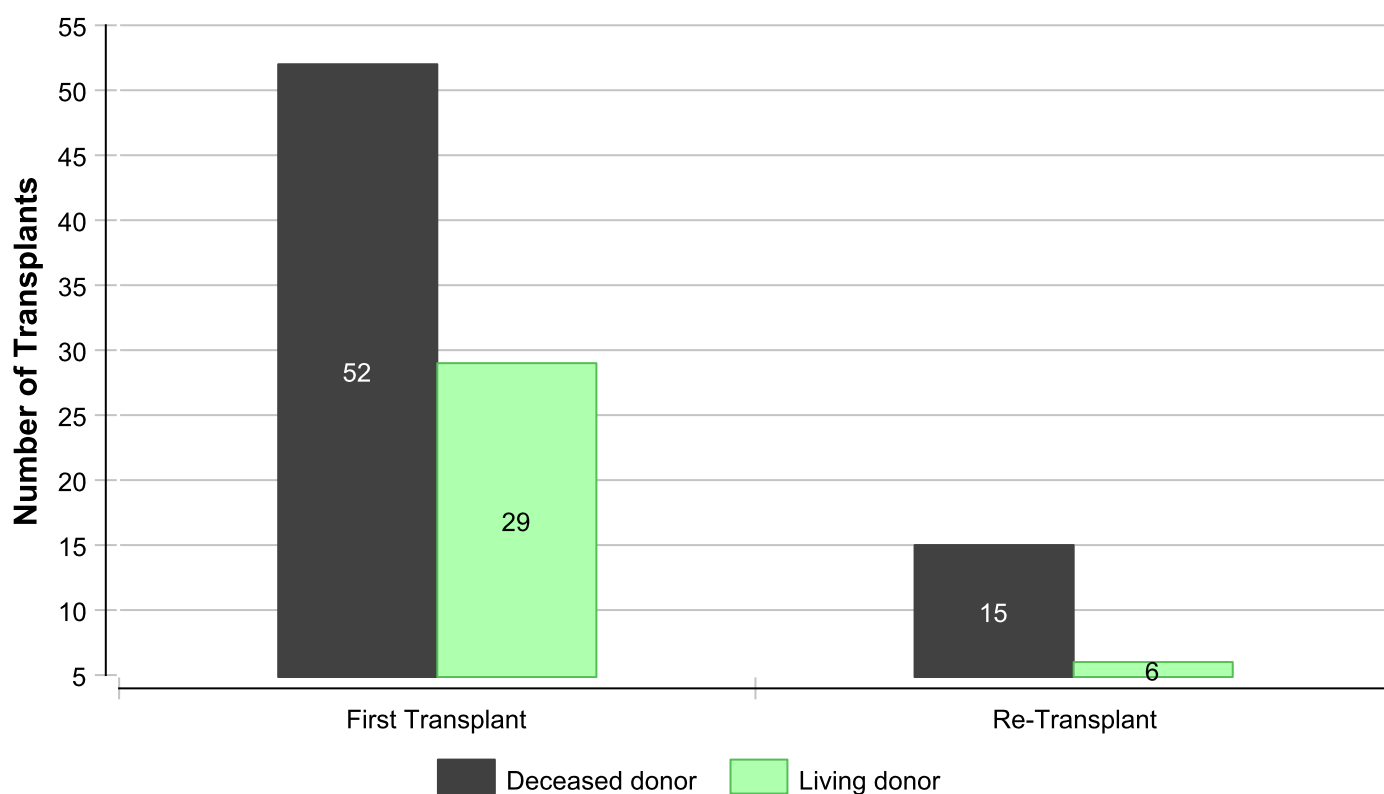
Kidney Transplantation at RPAH (n=3497)



Kidney Transplantation Trend at RPAH from 2015 to 2024 (n=1023)



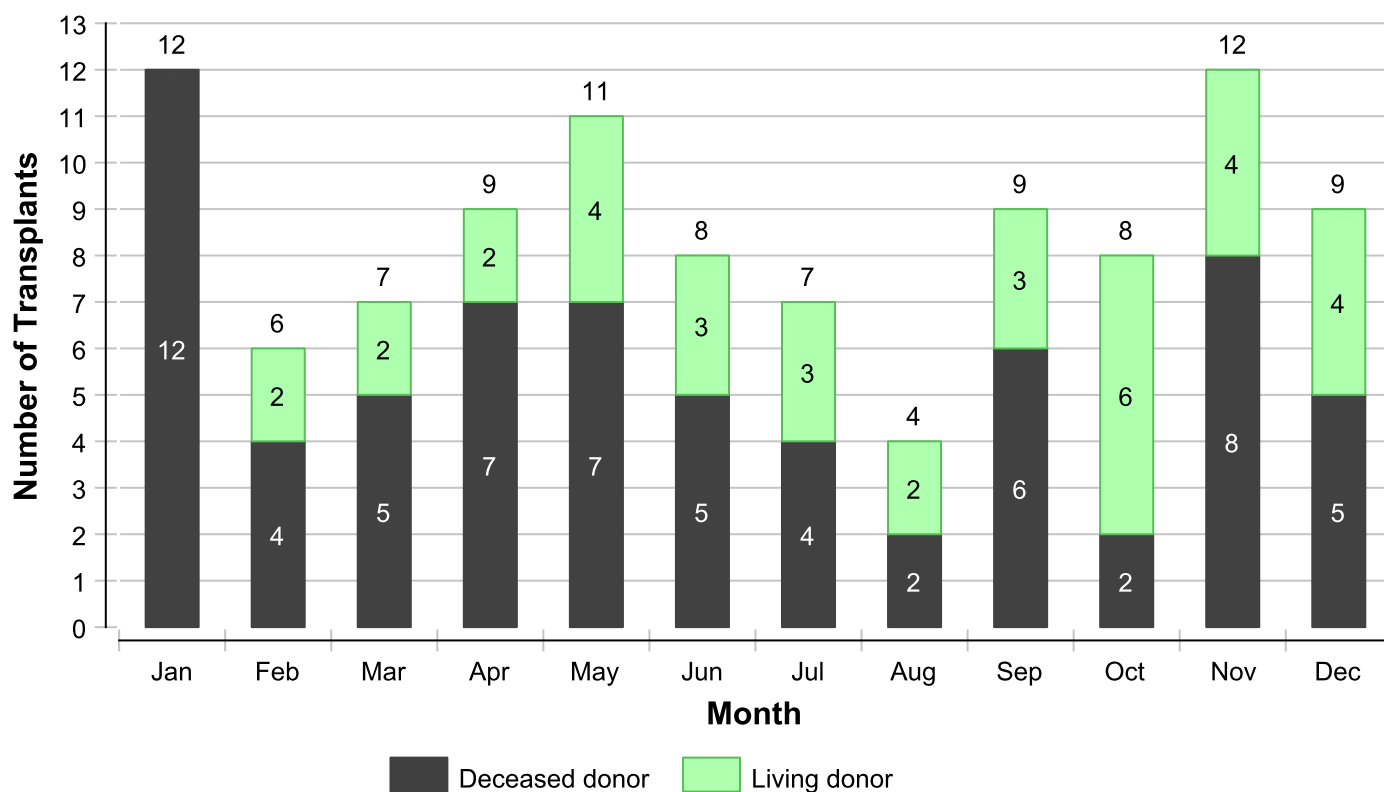
Kidney Transplant Donors at RPAH in 2024 (n=102)



Deceased donor n=67. Living donor n=35

Considerably more first transplants, the majority from deceased donors

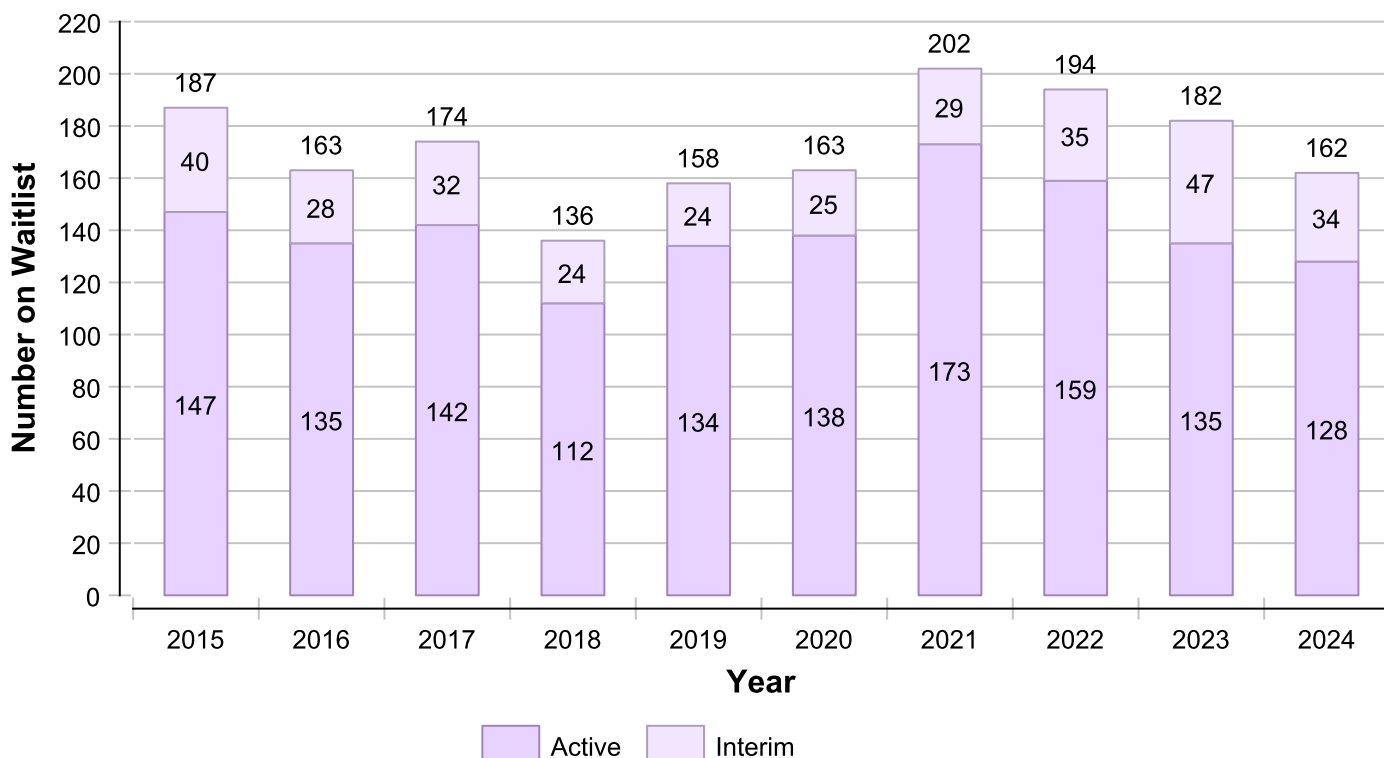
Monthly Kidney Transplantation at RPAH in 2024 (n=102)



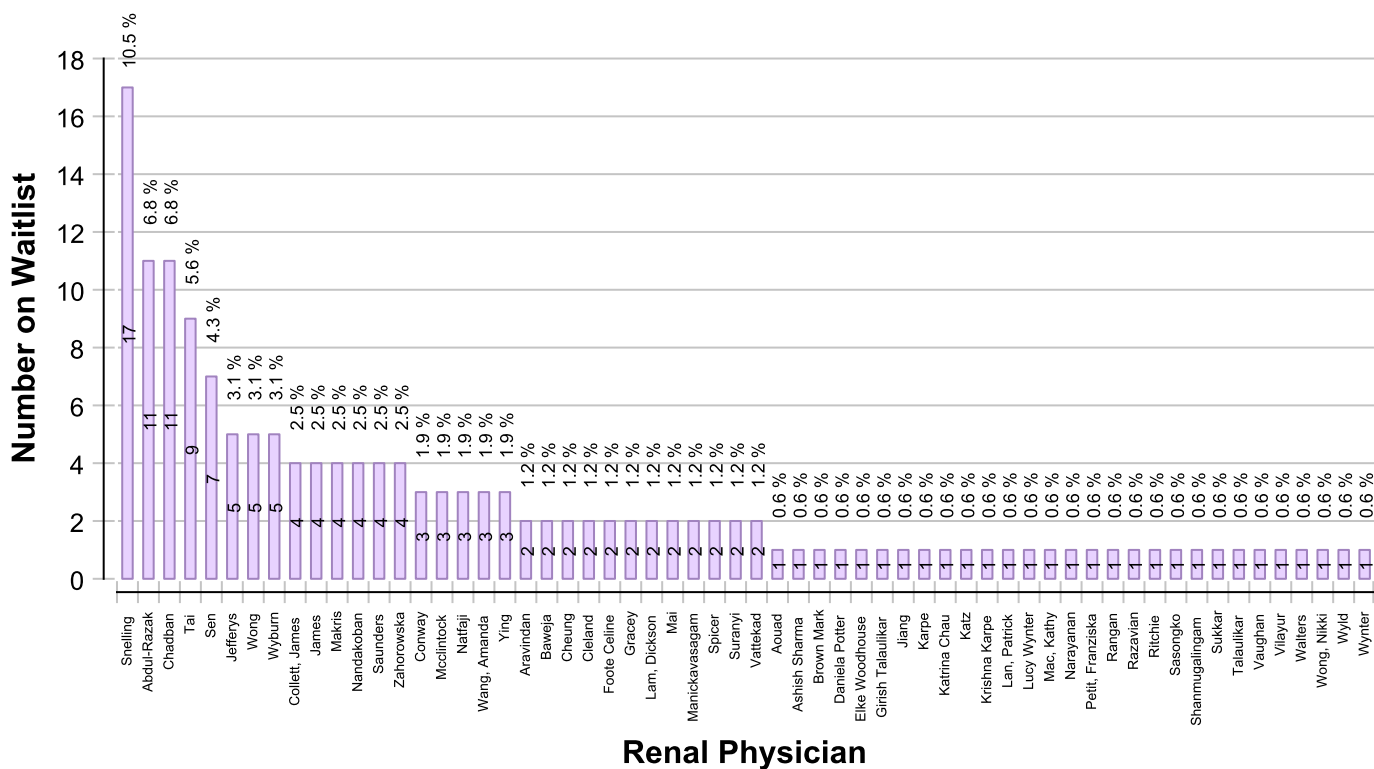
Month on month variation with a low of 4 transplant, and peak of 12

Waiting List for Kidney Transplantation at RPAH (excludes New Caledonia)

Kidney Waitlist Trend at RPAH from 2015 to 2024 (at 31-Dec, n=795)



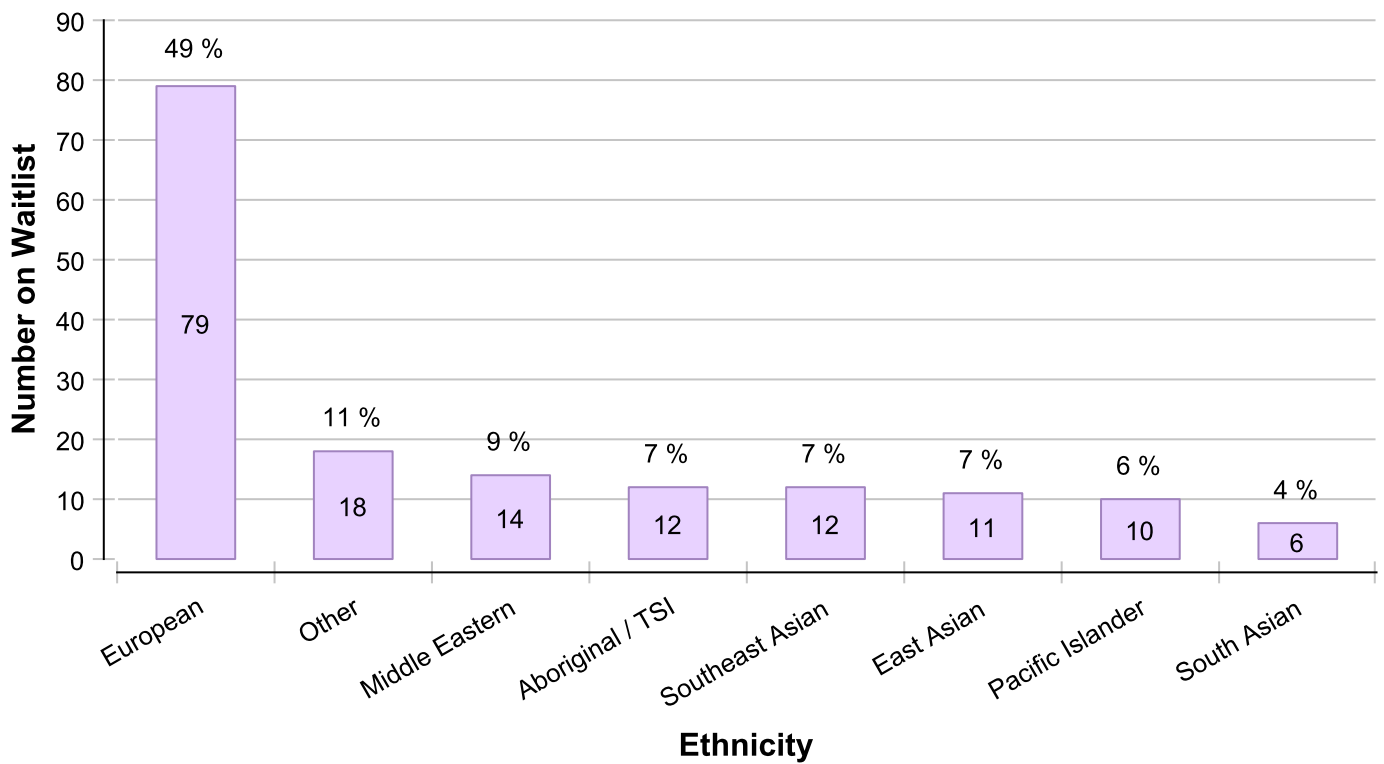
Physician of Patients on Kidney Waitlist at RPAH in 2024 (at 31-Dec, n=162)



Renal Physician

Active and Interim on waitlist

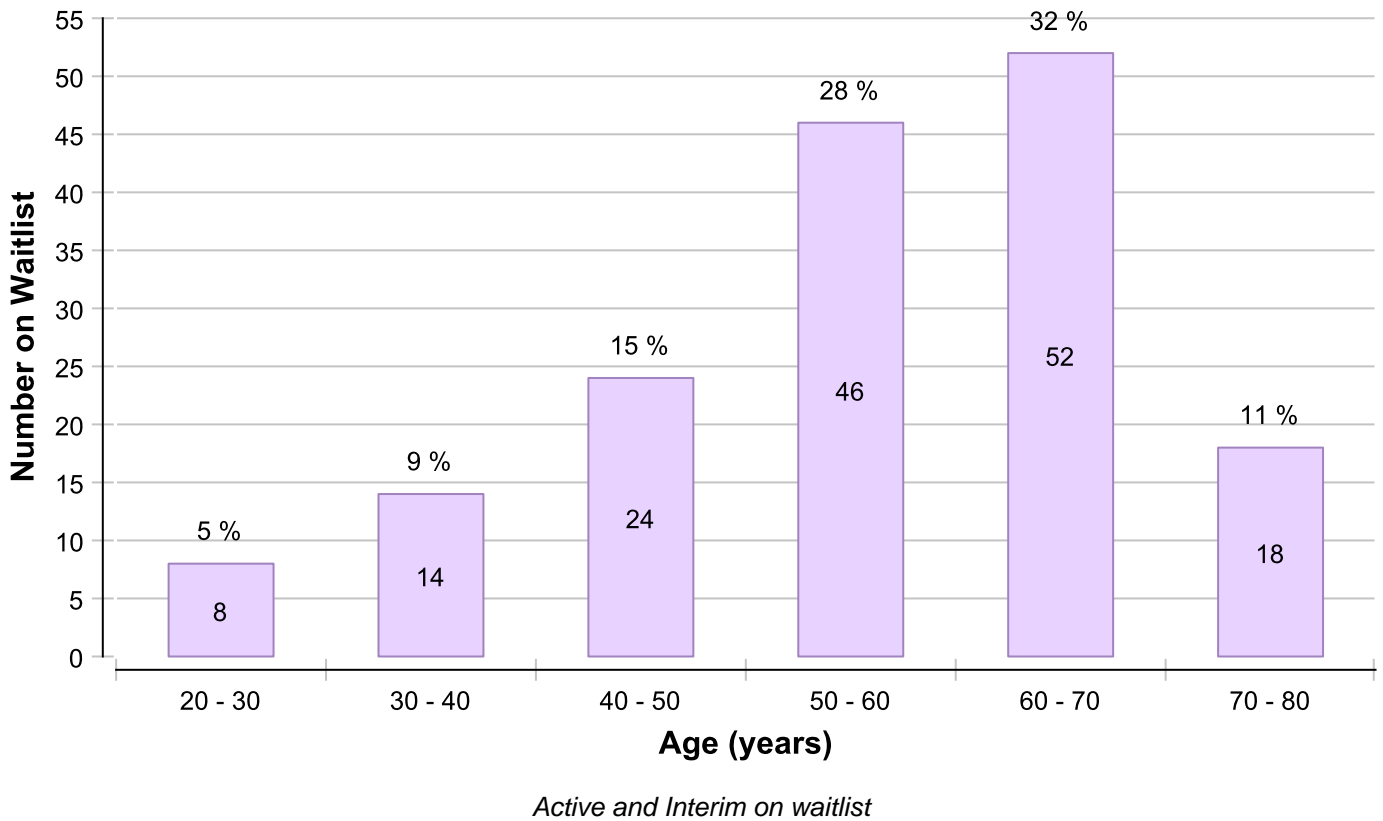
Ethnicity of Patients on Kidney Waitlist at RPAH in 2024 (at 31-Dec, n=162)



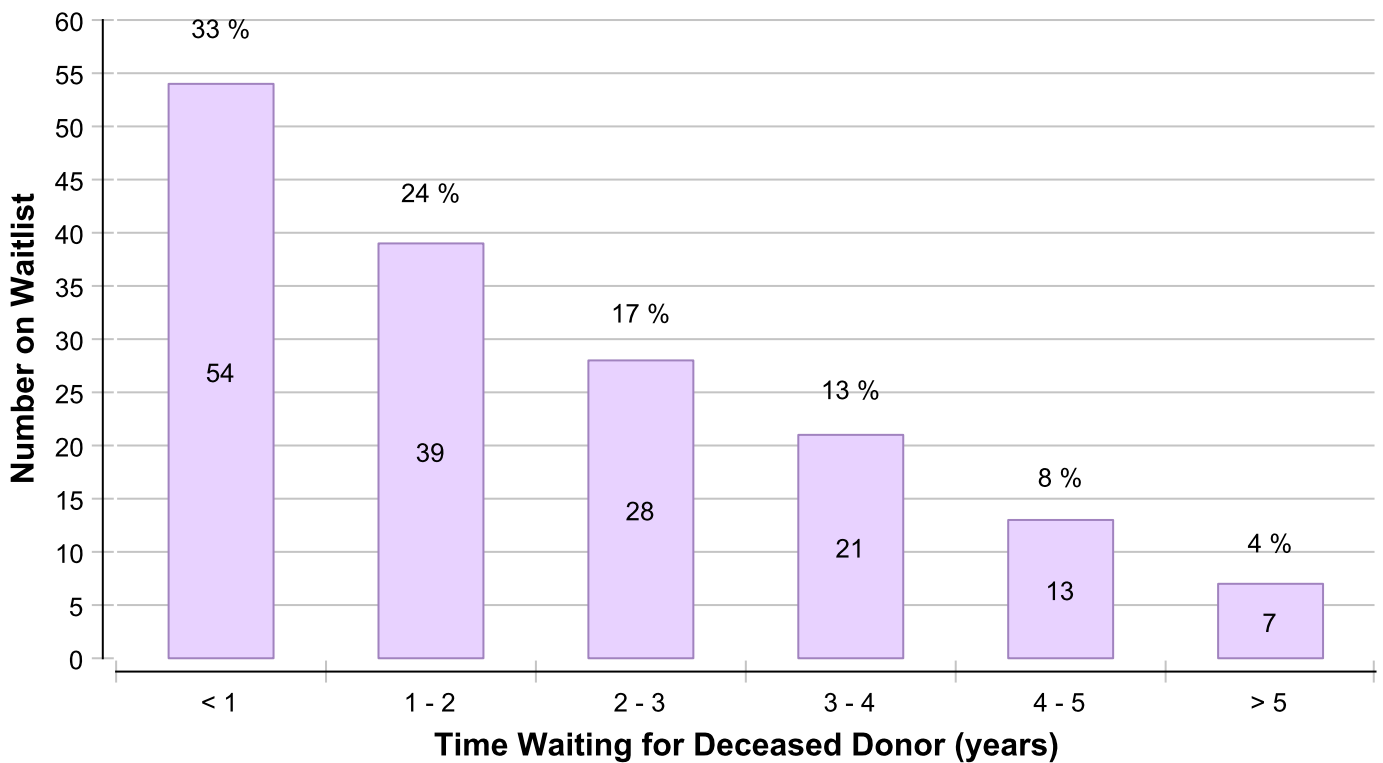
Active and Interim on waitlist

Waitlist ethnicity at the end of the year was predominantly European, around half, with indigenous representation under 10%

Age of Patients on Kidney Waitlist at RPAH in 2024 (at 31-Dec, n=162)

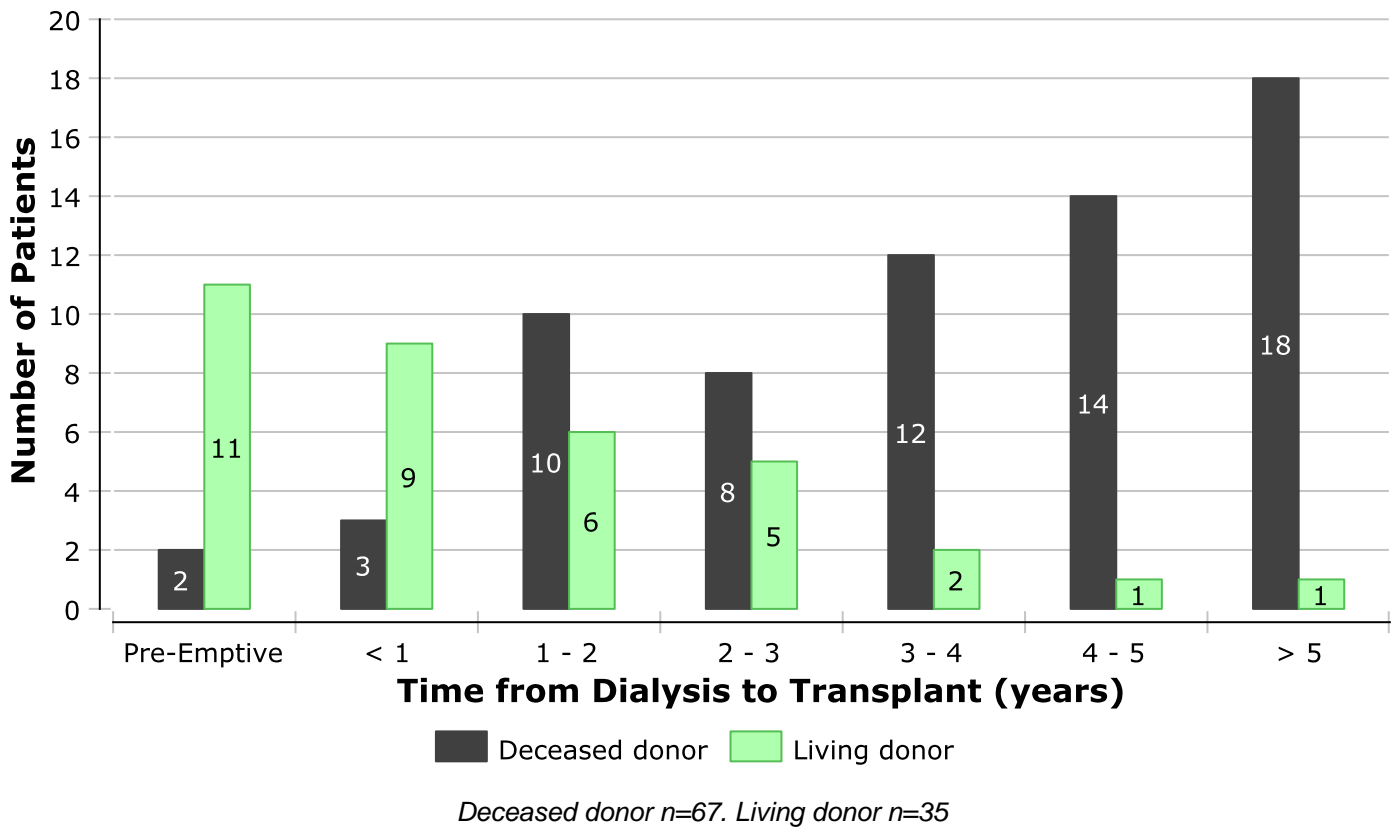


Time on Kidney Waitlist at RPAH in 2024 (at 31-Dec, n=162)



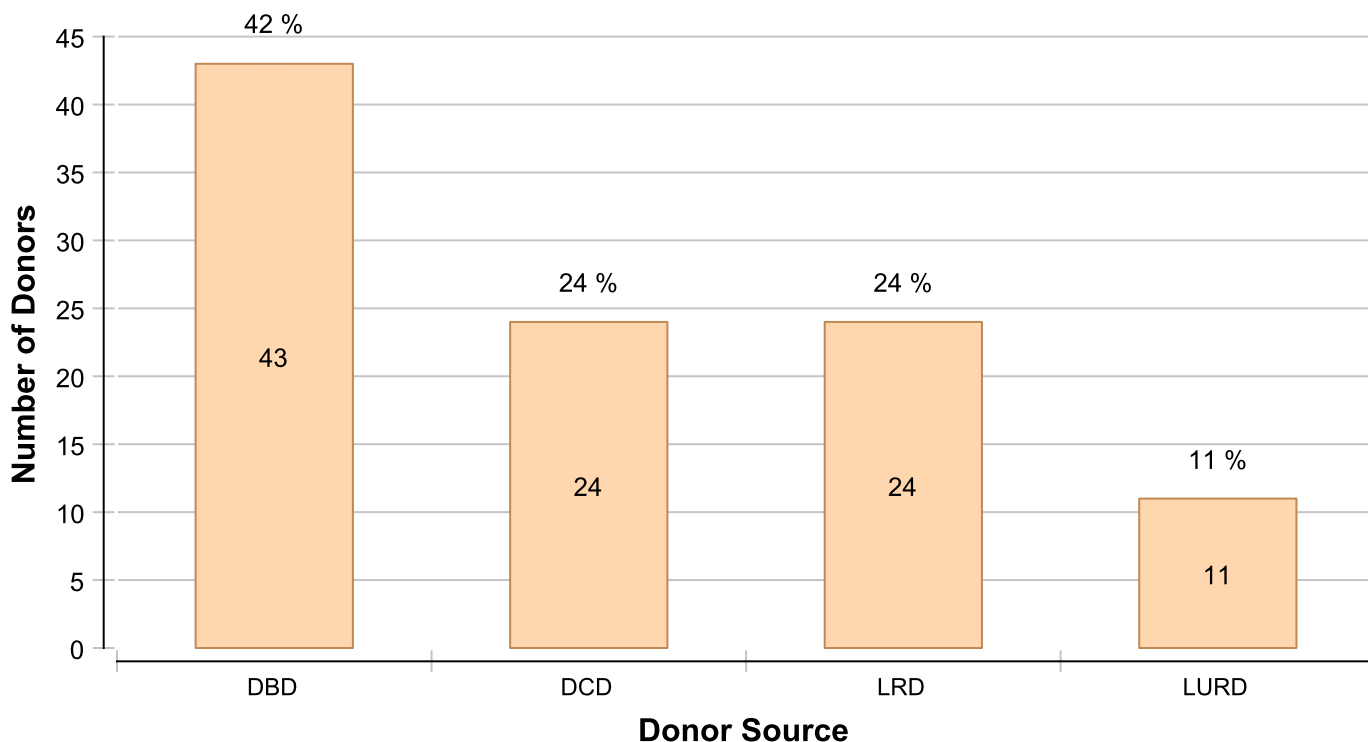
Time on the waitlist at the end of the year was predominantly less than 1 year

Kidney Transplantation Waiting time at RPAH in 2024 (n=102)



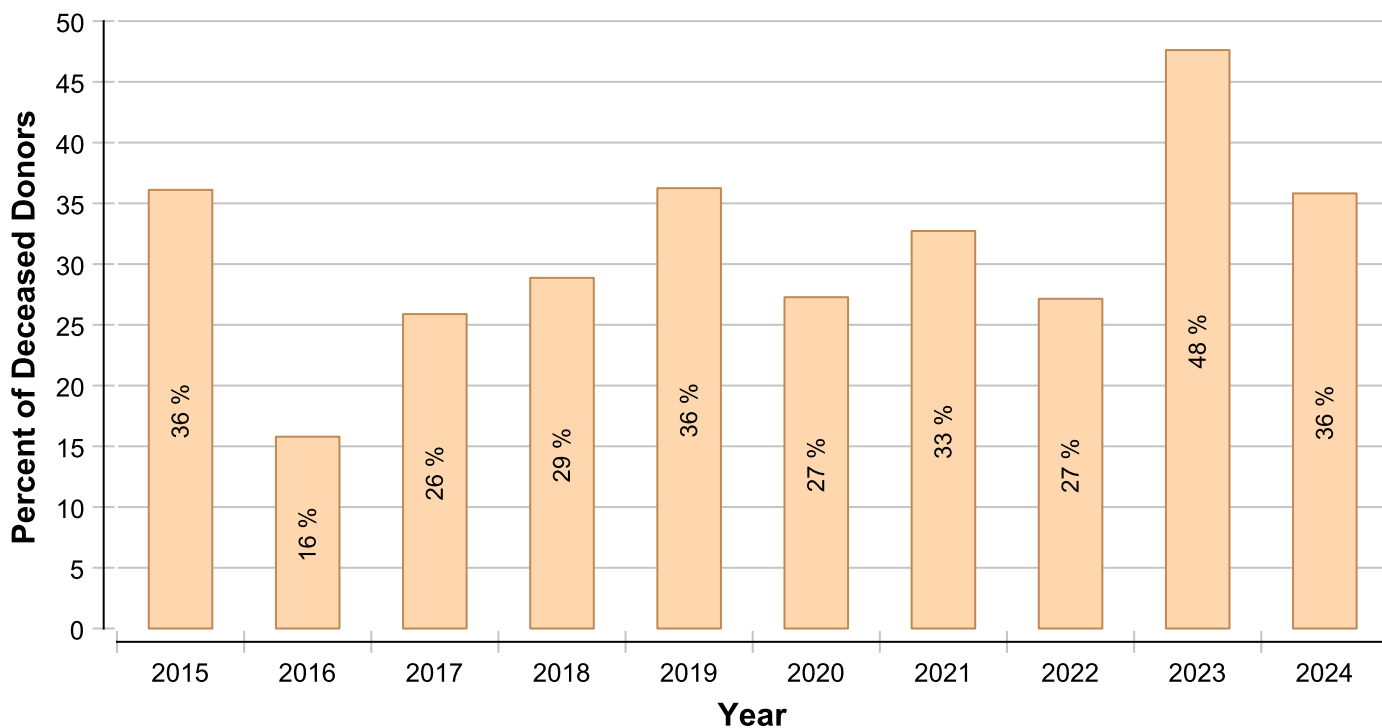
Kidney Donor Demographics

Kidney Donor Source for RPAH in 2024 (n=102)



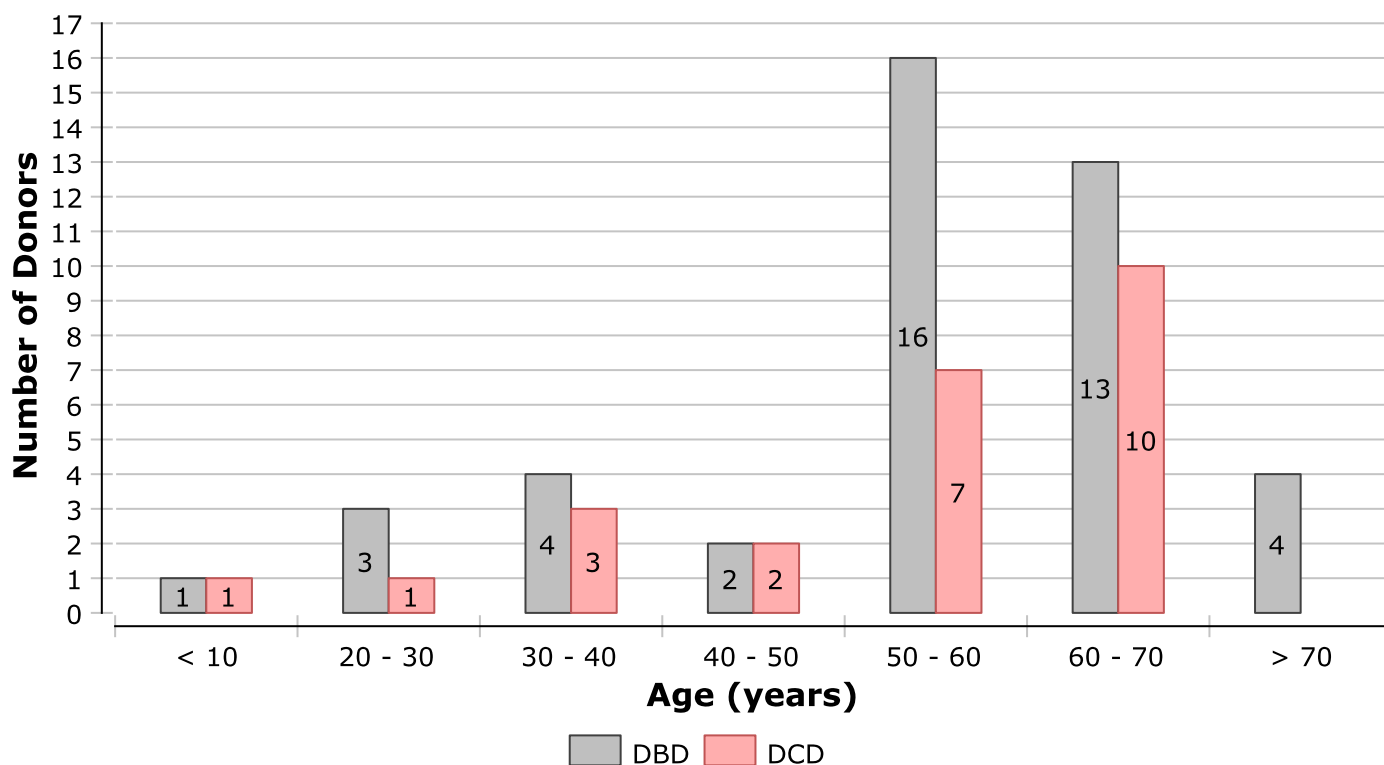
Donation after Brain Death was the predominant source of donors, followed by Donation after Circulatory Death and Living Related Donor, then Living Un-Related Donor

DCD Kidney Transplantation Trends for RPAH from 2015 to 2024 (n=226)



Donation after circulatory death as percentage of annual deceased donor transplants at RPAH

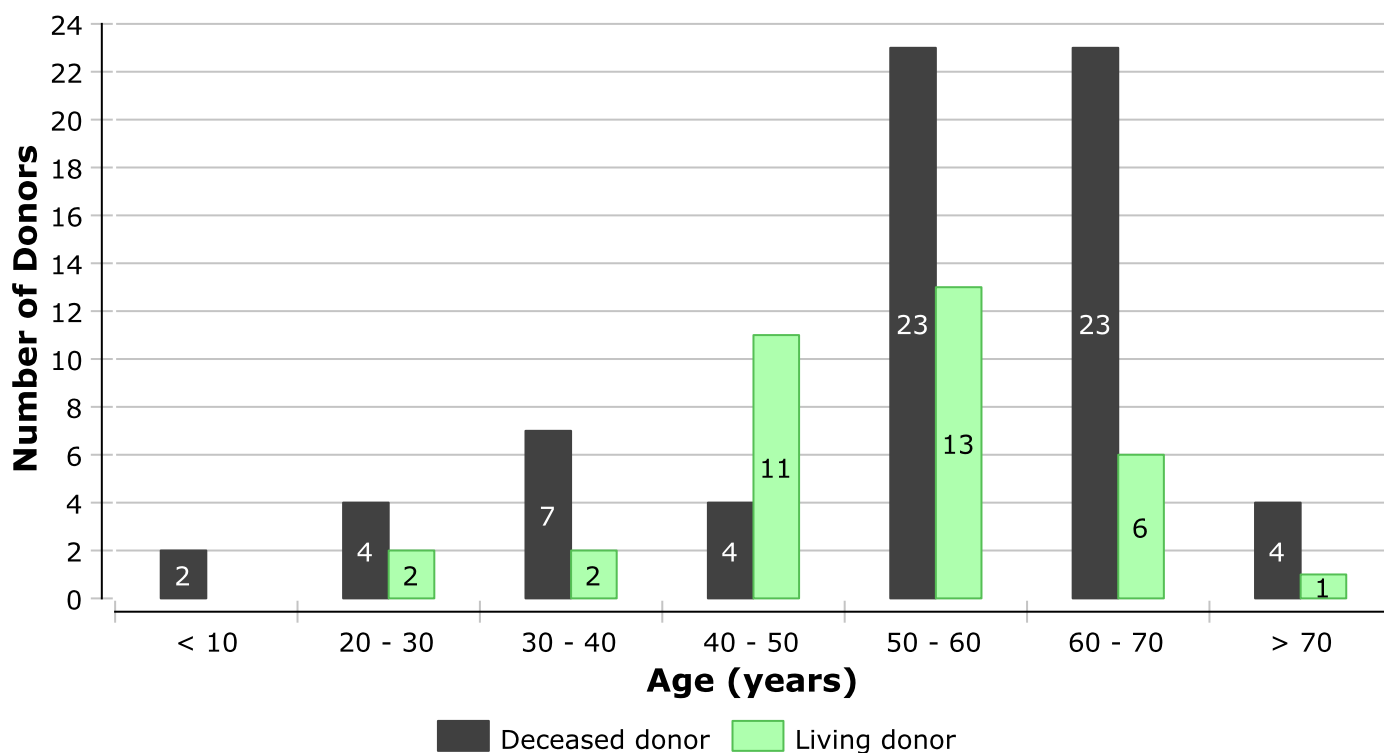
Age of Deceased Donor for RPAH in 2024 (n=67)



Donation after brain death n=43. Donation after circulatory death n=24

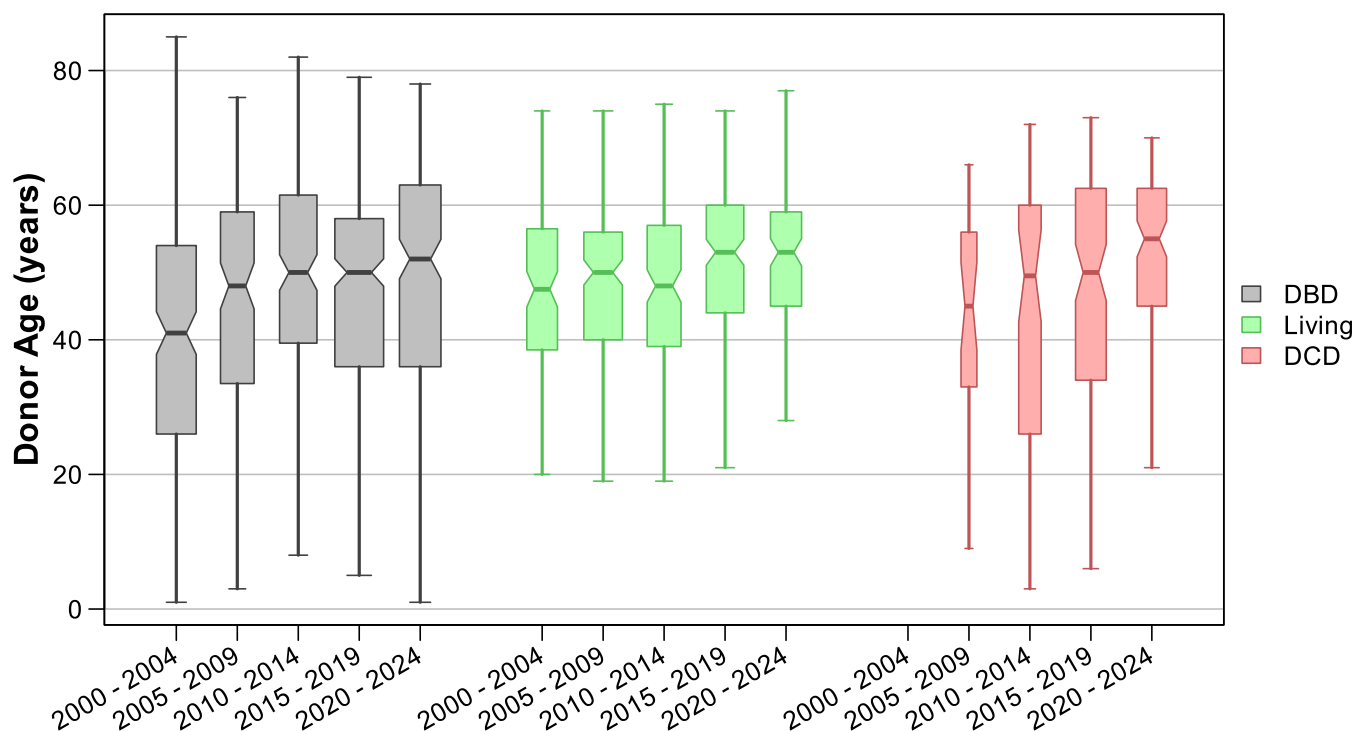
The peak age for Donation after Brain Death was 50-60 yr, while the peak for Donation after Circulatory Death was 60-70 yr

Donor Type and Age of Kidney Donors for RPAH in 2024 (n=102)



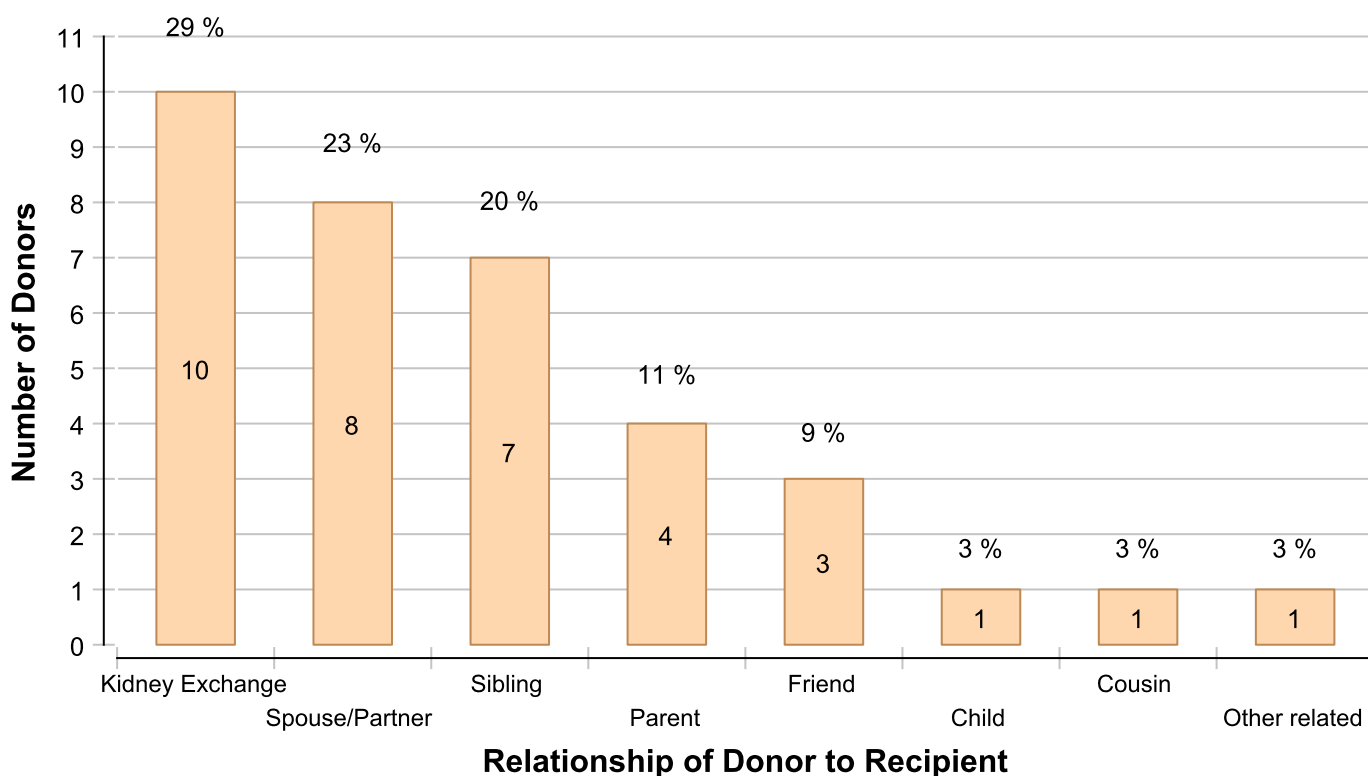
Deceased median age 56, n=67. Living median age 50, n=35

Donor Age Trends at RPAH by Donor Source



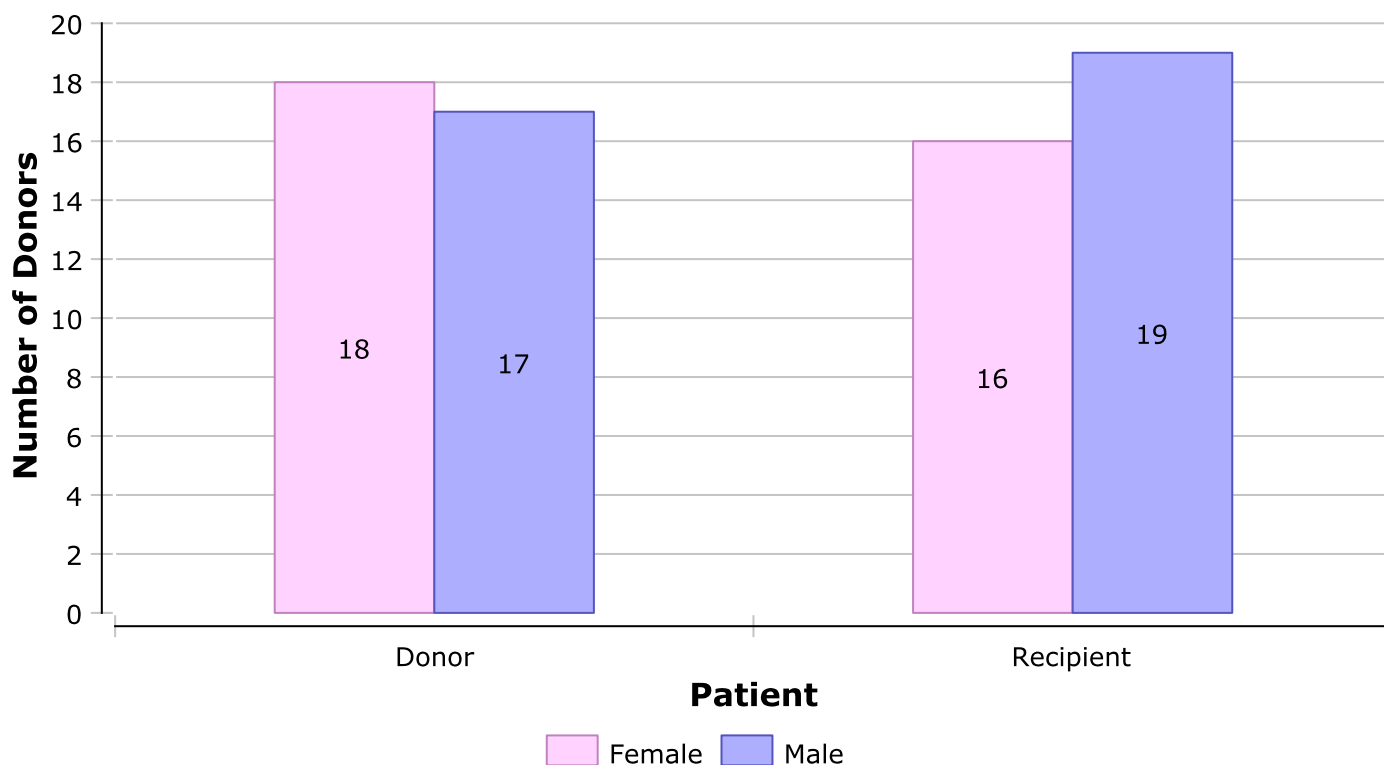
Median line. Notches ~95% confidence of median. Box interquartile range. Whiskers furthest case < 1.5xIQR from quartile. Outliers not shown

Relationship of Living Kidney Donors at RPAH in 2024 (n=35)



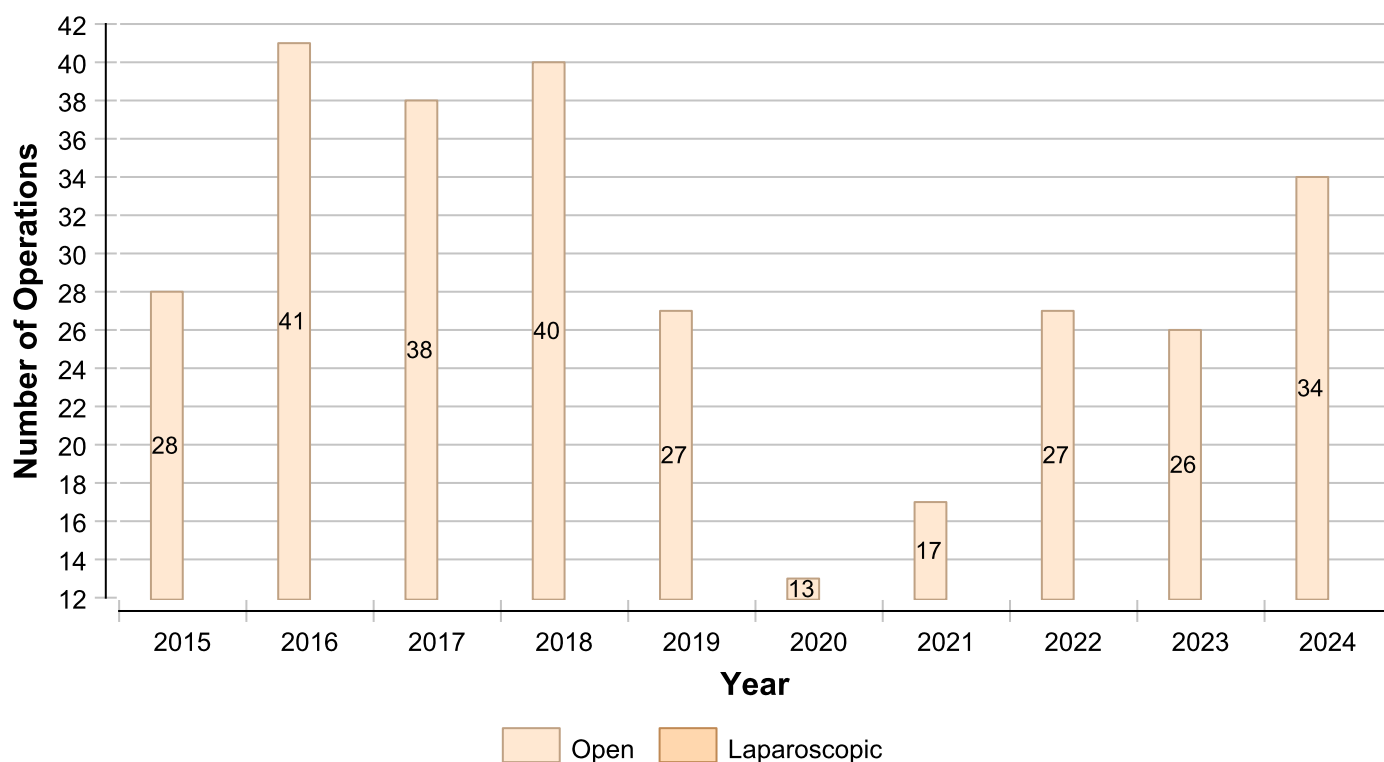
The most common relationships of living donors last year were Kidney Exchange, followed by Spouse/Partner, then by and Sibling

Gender of Living Kidney Donors and Recipients at RPAH in 2024



Living Donors n=35, Recipients of Living Donors n=35

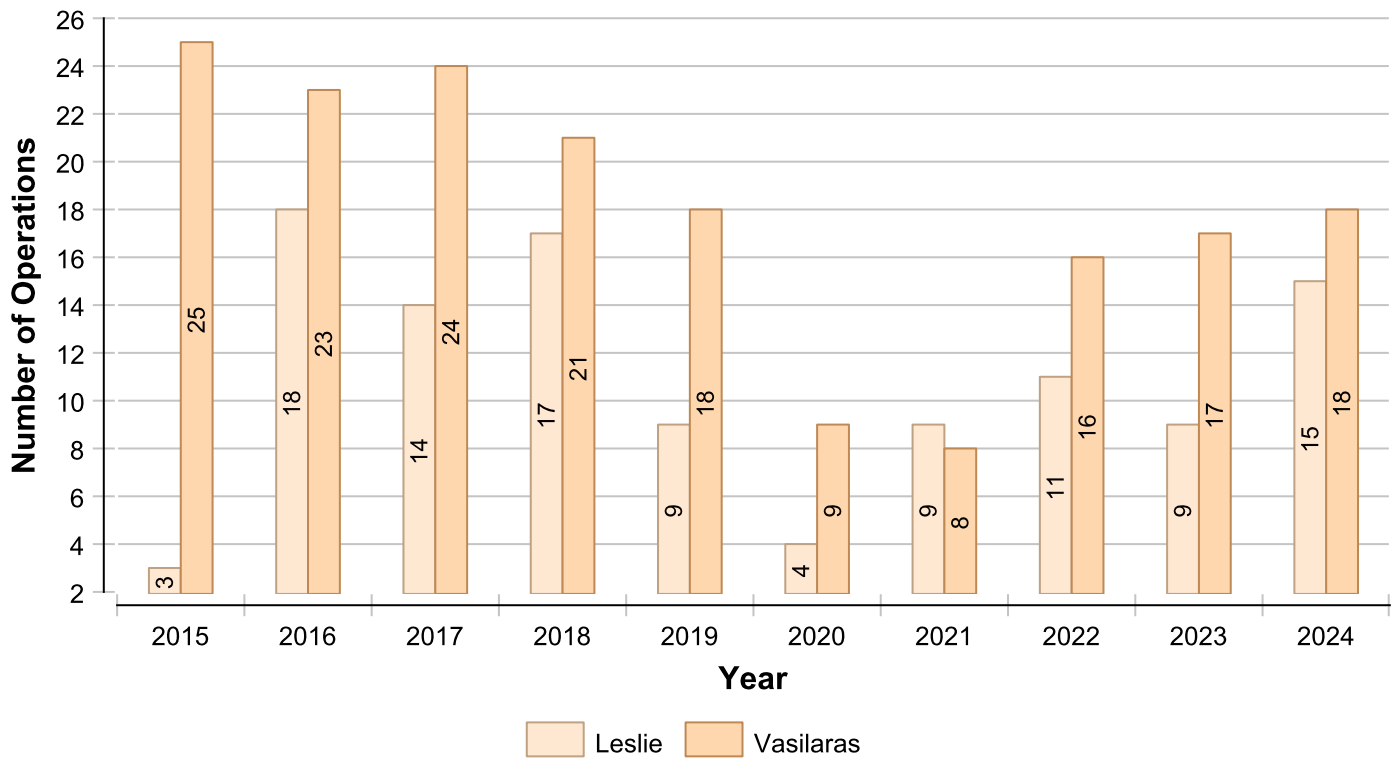
Living Donor Nephrectomies at RPAH from 2015 to 2024 (n=291)



Includes Kidney Exchange and Non-directed donations.

34 instead of 35 in 2024, as a relative of an exchange recipient could not donate for medical reasons

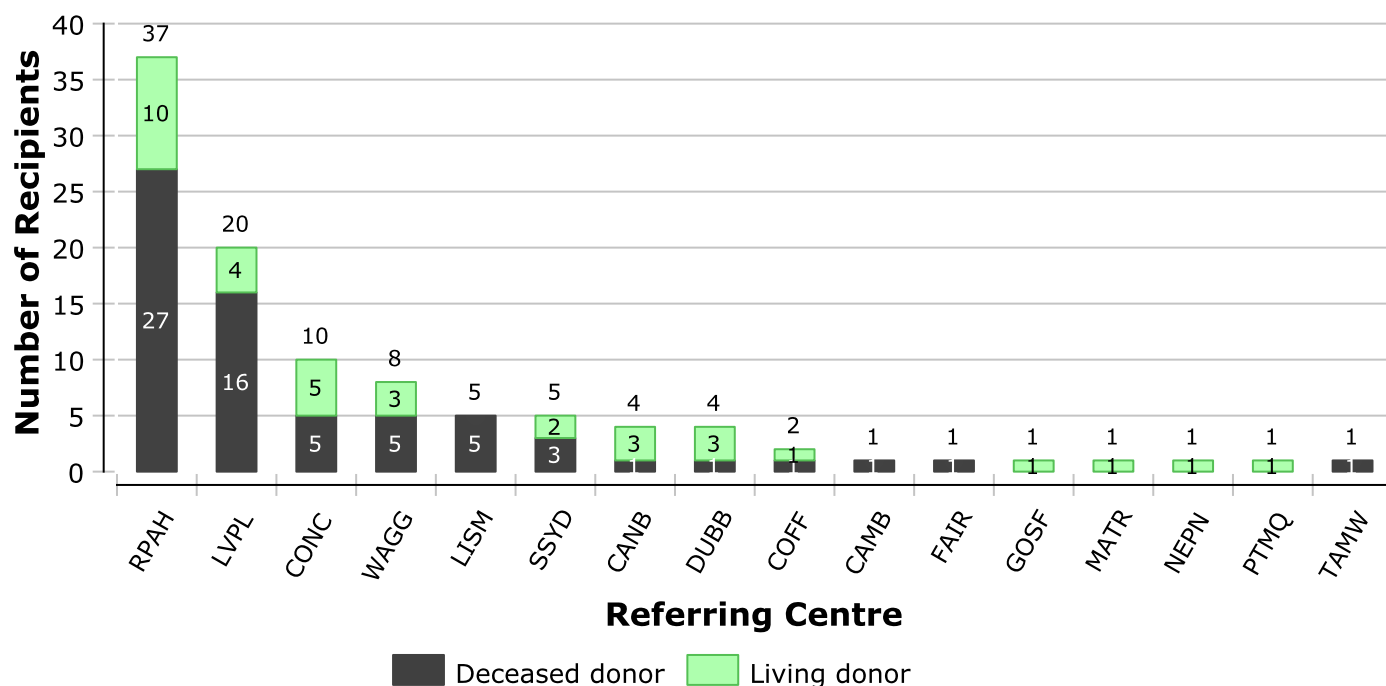
Living Donor Surgeon Trend at RPAH from 2015 to 2024 (n=288)



Includes Kidney Exchange and Non-directed donations.

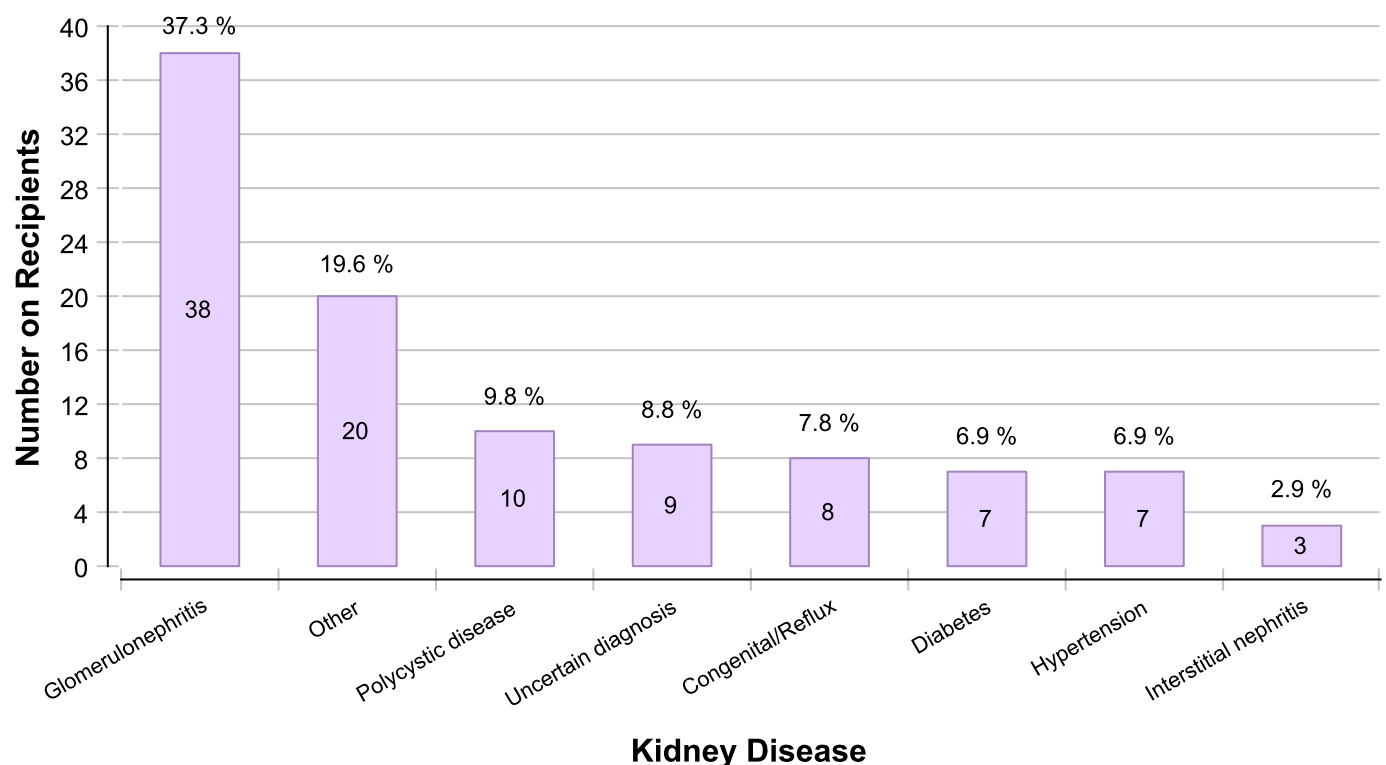
Kidney Recipient Demographics

Referring Centre for Kidney Recipients at RPAH in 2024 (n=102)

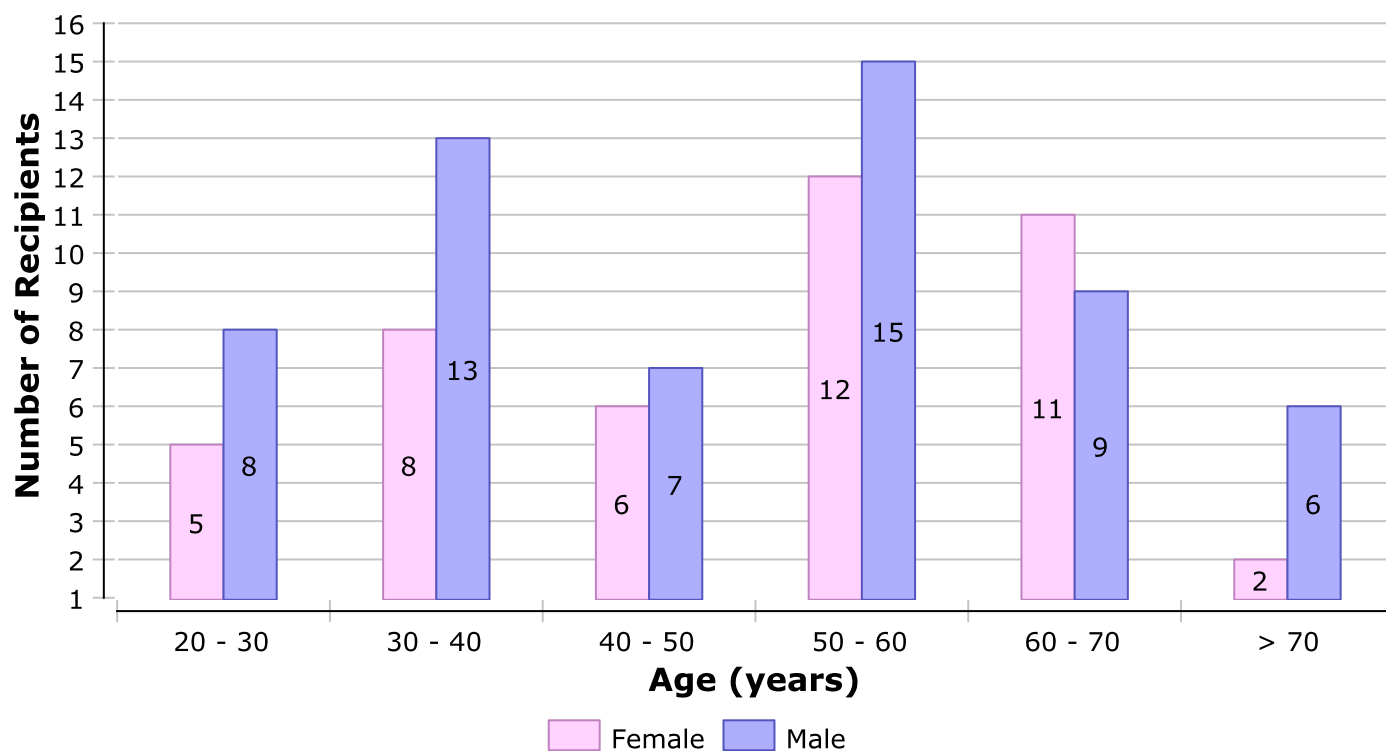


Deceased donor n=67. Living donor n=35

Primary Disease of Kidney Recipients at RPAH in 2024 (n=102)



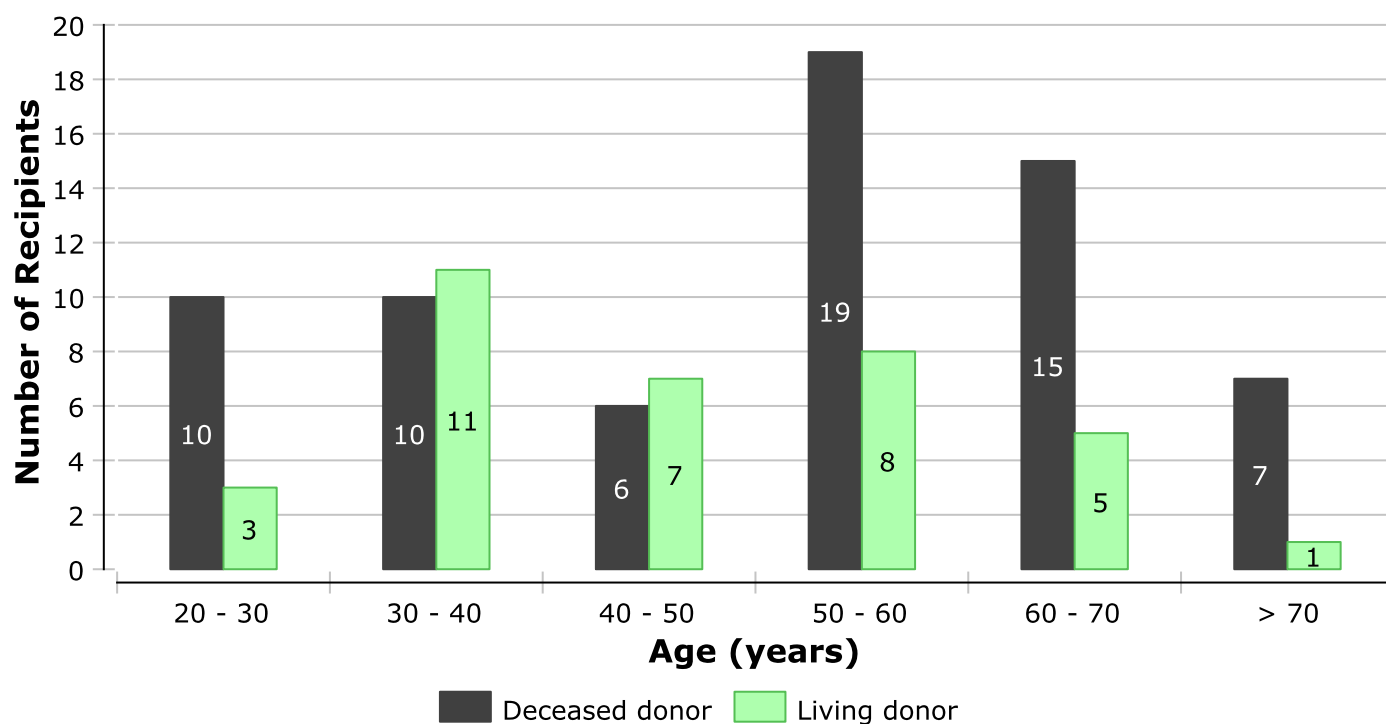
Age and Gender of Kidney Recipients at RPAH in 2024 (n=102)



Female median age 51, n=44. Male median age 51, n=58

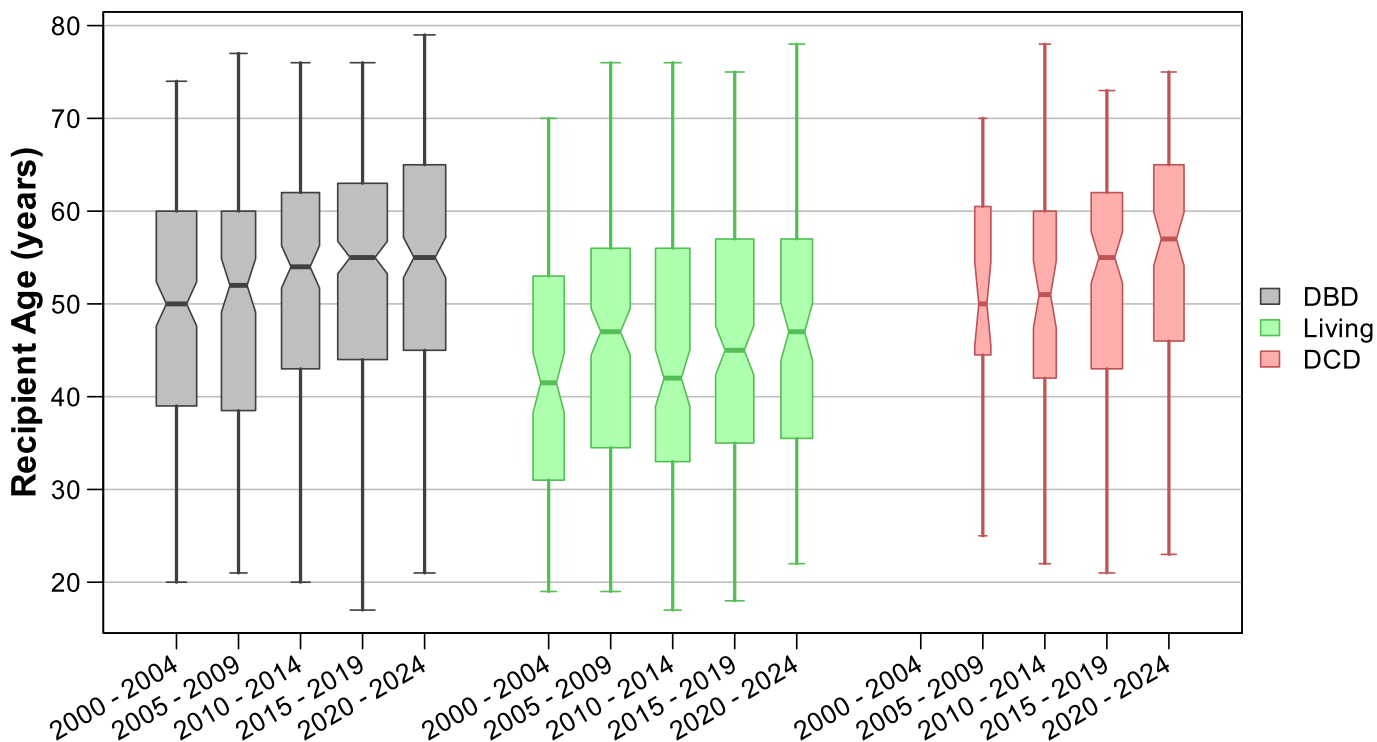
The peak age for Female and Male transplant recipients was 50-60 yr, with secondary peaks for both at 30-40 yr

Donor Type and Age of Kidney Recipients at RPAH in 2024 (n=102)



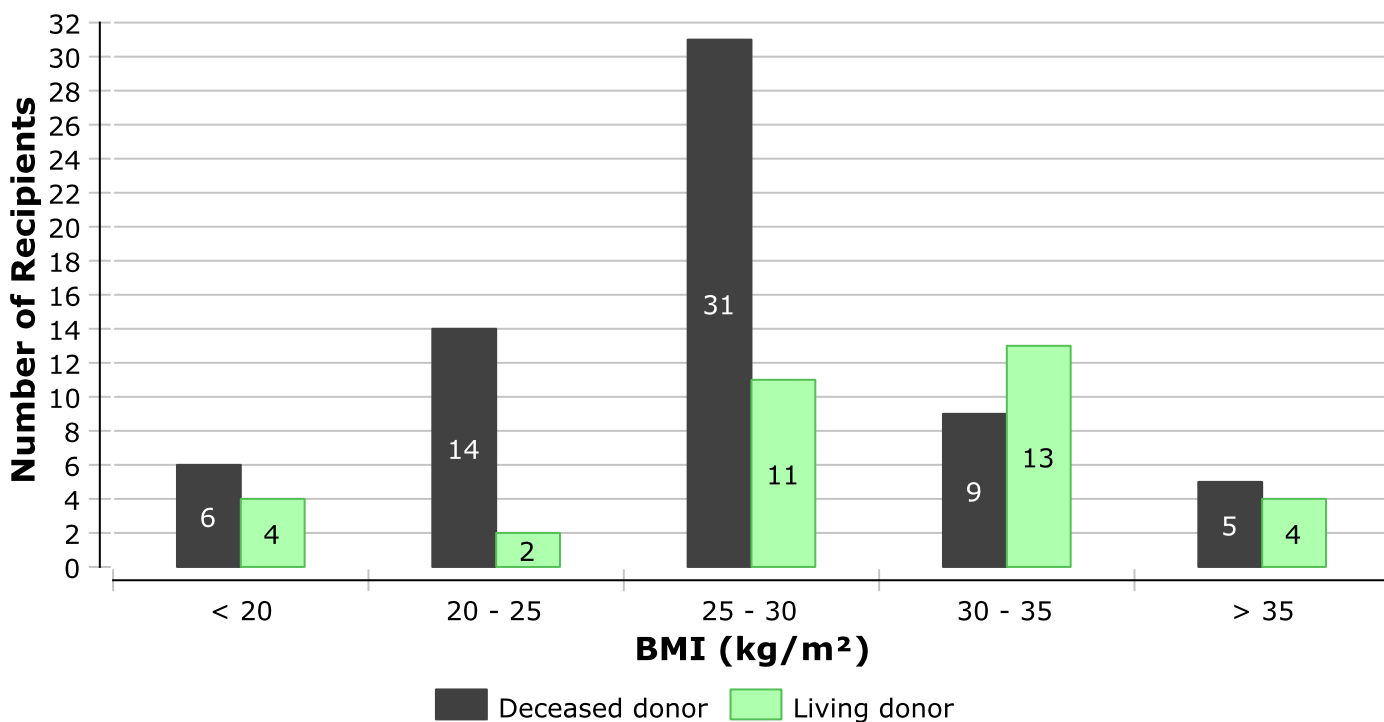
Deceased median age 52, n=67. Living median age 47, n=35

Recipient Age Trends at RPAH by Donor Source



Median line. Notches ~95% confidence of median. Box interquartile range. Whiskers furthest case < 1.5xIQR from quartile. Outliers not shown

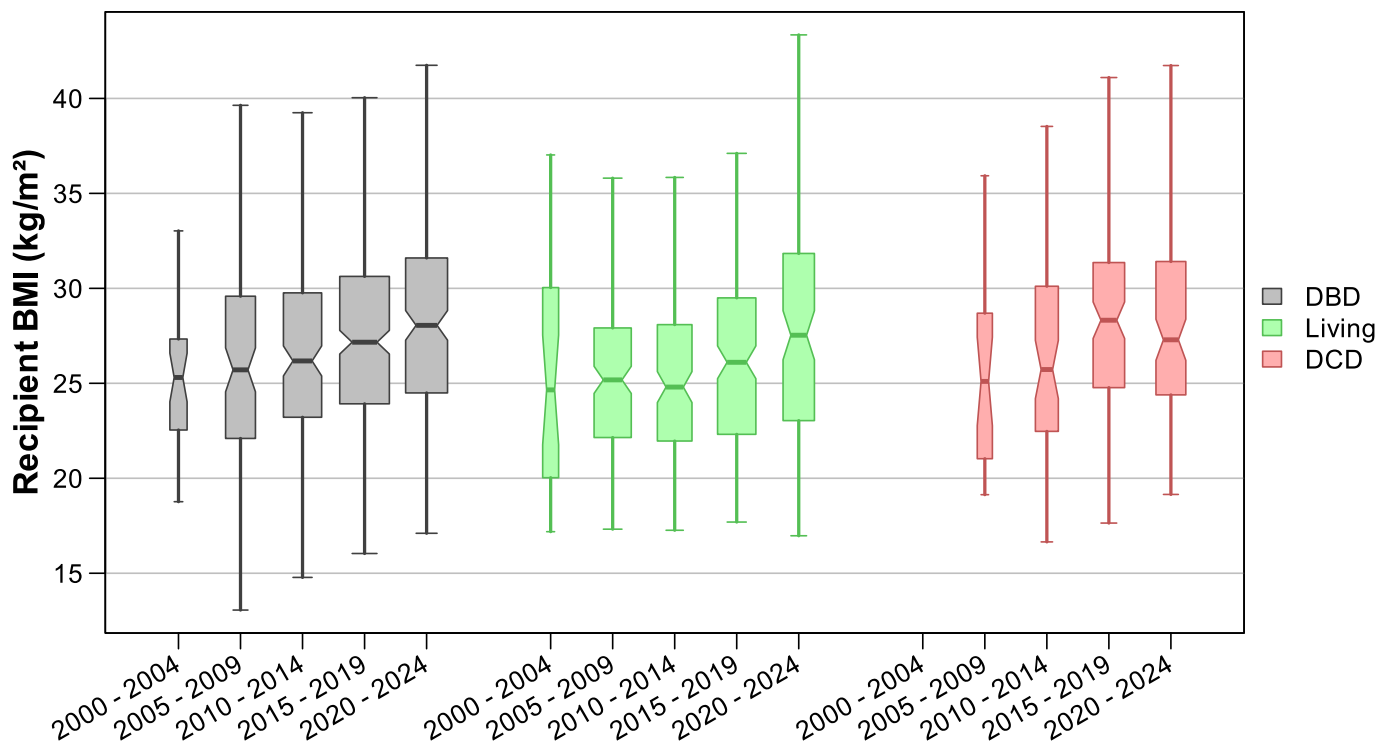
Body Mass Index of Kidney Recipients at RPAH in 2024 (n=99)



Deceased donor n=65. Living donor n=34

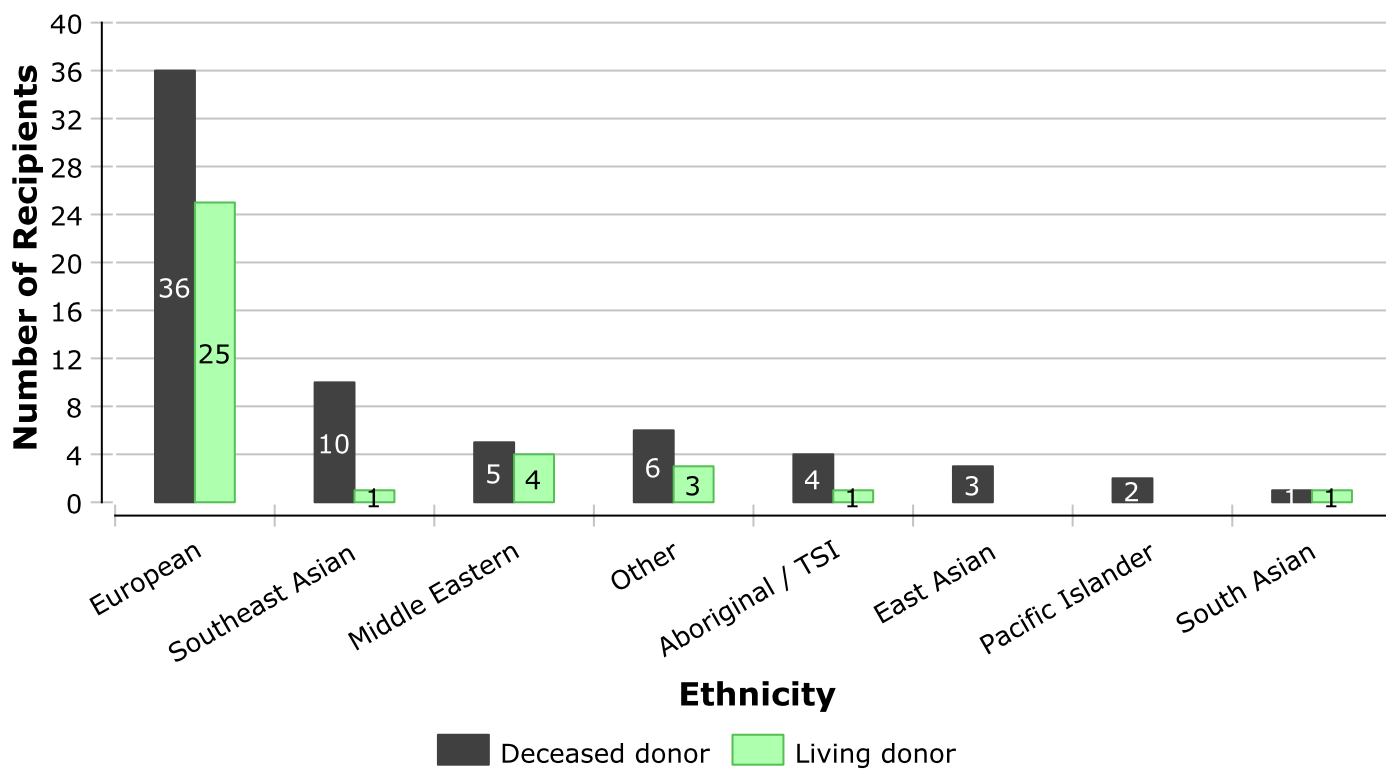
The peak Body Mass Index for recipients of both deceased donors and living donors was 25-30 km/m²

Recipient BMI Trends at RPAH by Donor Source



Median line. Notches ~95% confidence of median. Box interquartile range. Whiskers furthest case < 1.5xIQR from quartile. Outliers not shown

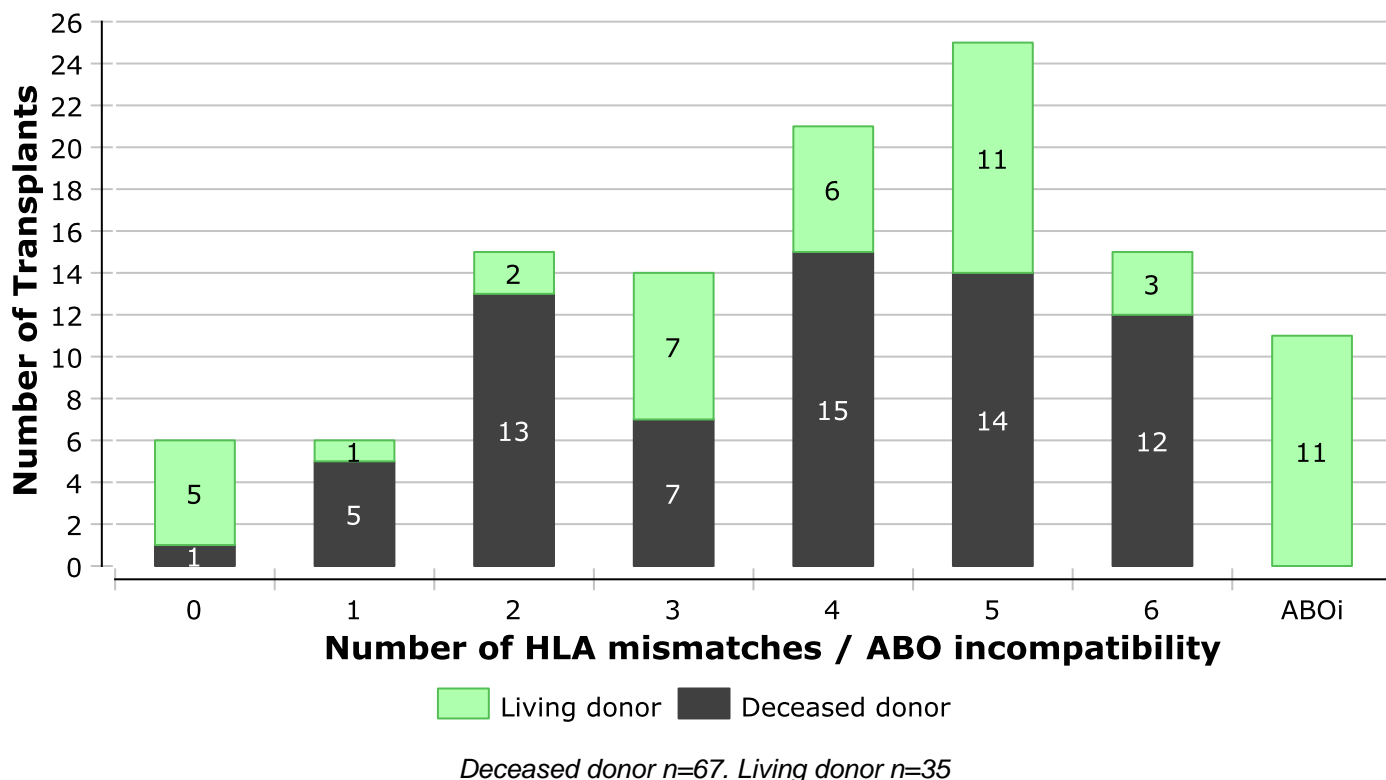
Ethnicity of Kidney Recipients at RPAH in 2024 (n=102)



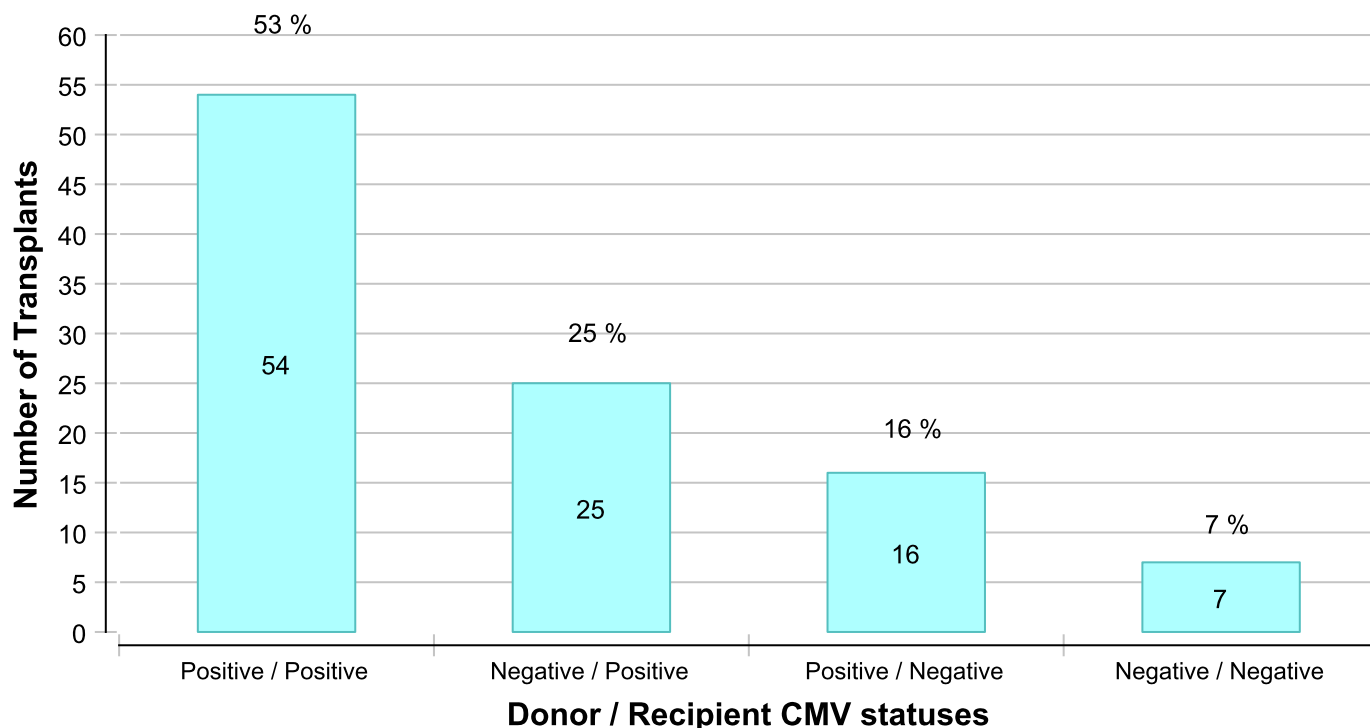
Deceased donor n=67. Living donor n=35. Includes New Caledonia (Pacific Island) recipients. The ethnicity of recipients for both deceased and living donors was predominantly European

Kidney Transplant Characteristics

Kidney Transplantation HLA Mismatches and ABO Incompatible at RPAH in 2024 (n=102)

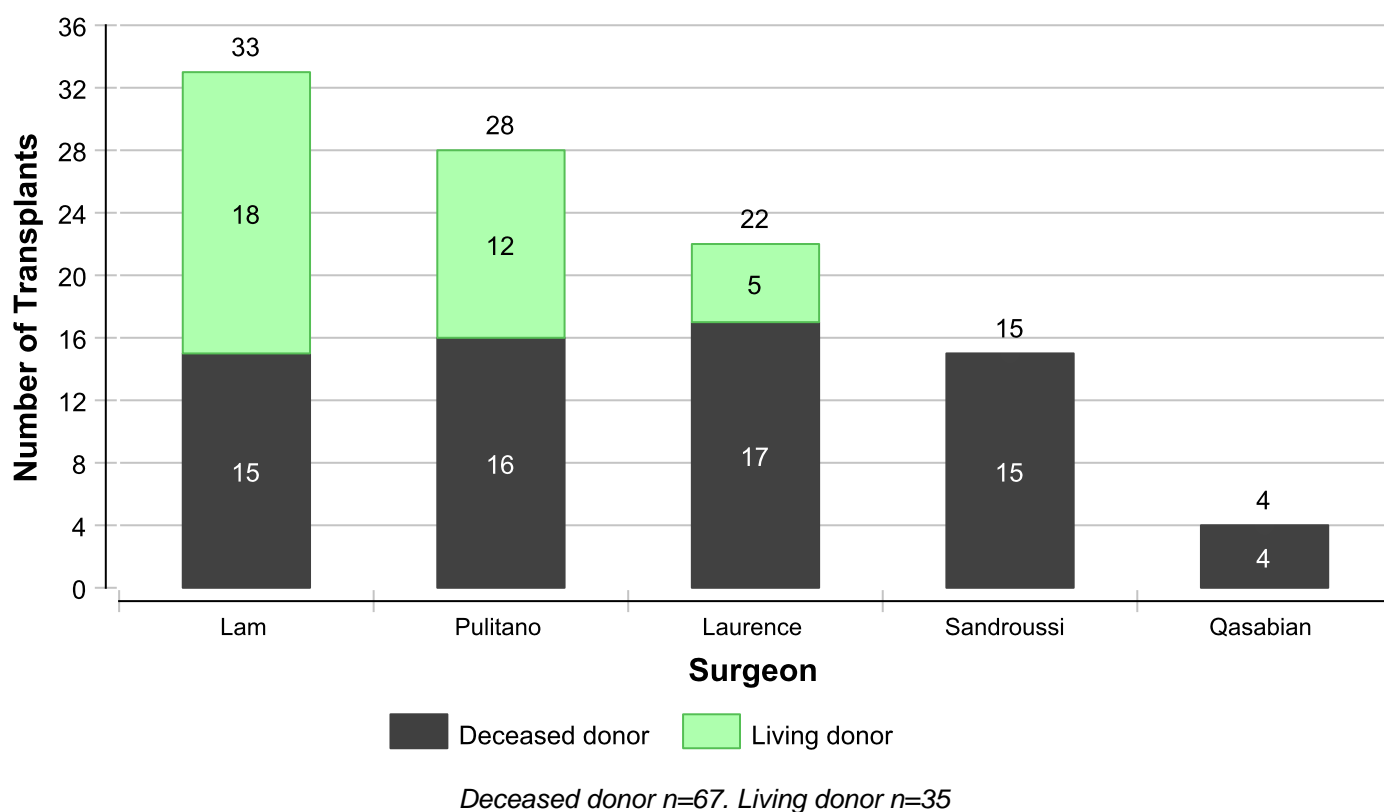


Kidney Transplantation Donor / Recipient CMV Matching at RPAH in 2024 (n=102)

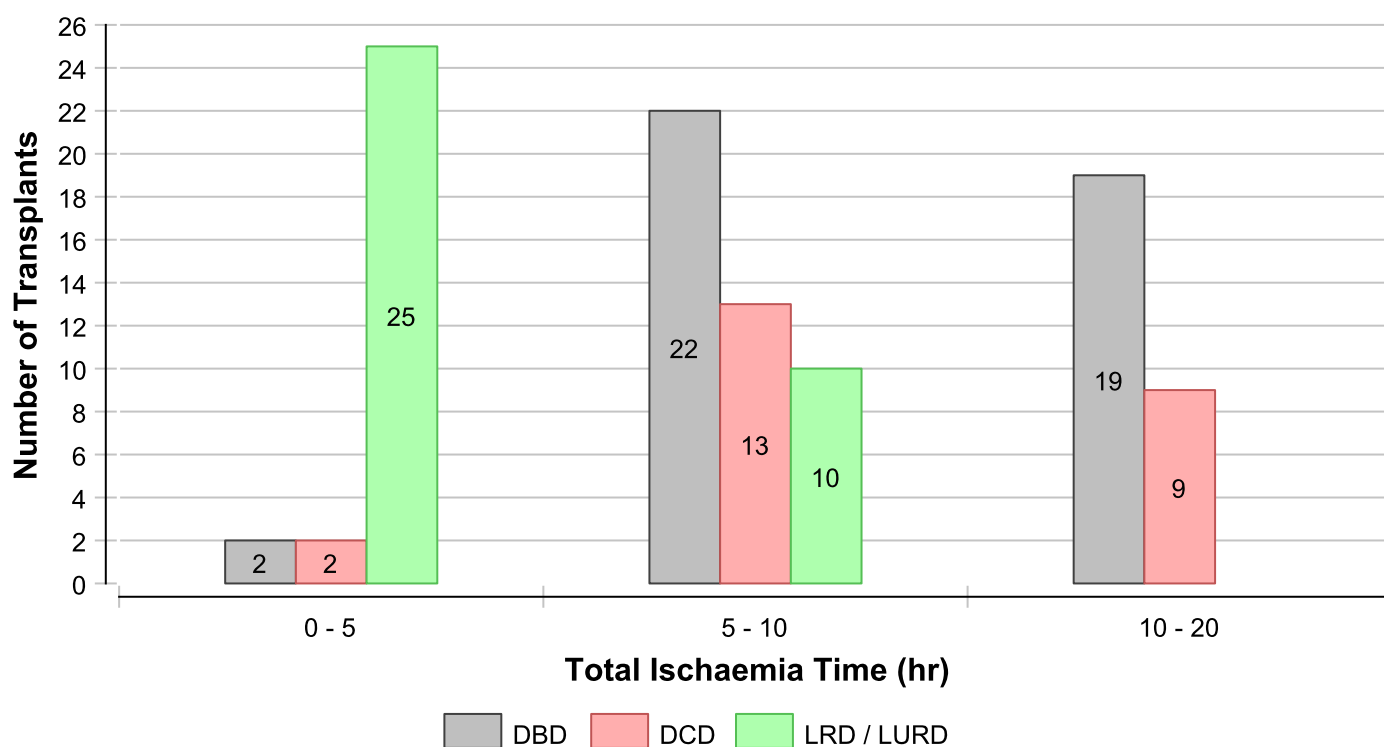


The majority of transplants were for CMV Positive donor and Positive recipient, followed by Negative donor and Positive recipient

Surgeon for Kidney Transplant at RPAH in 2024 (n=102)

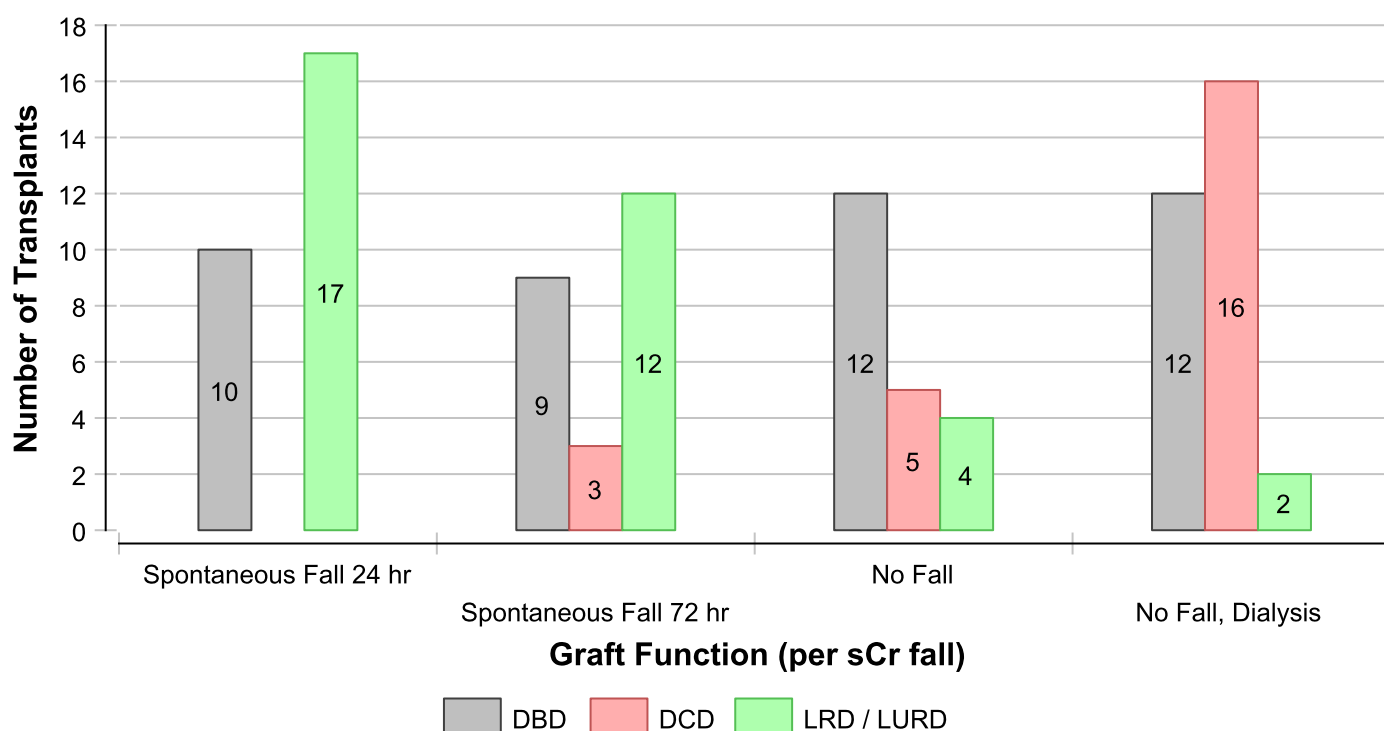


Total Ischaemia Time at RPAH in 2024 (n=102)



DBD median time 9.05 hr, DCD median time 8.78 hr, LRD / LURD median time 4.15 hr (includes PKE)

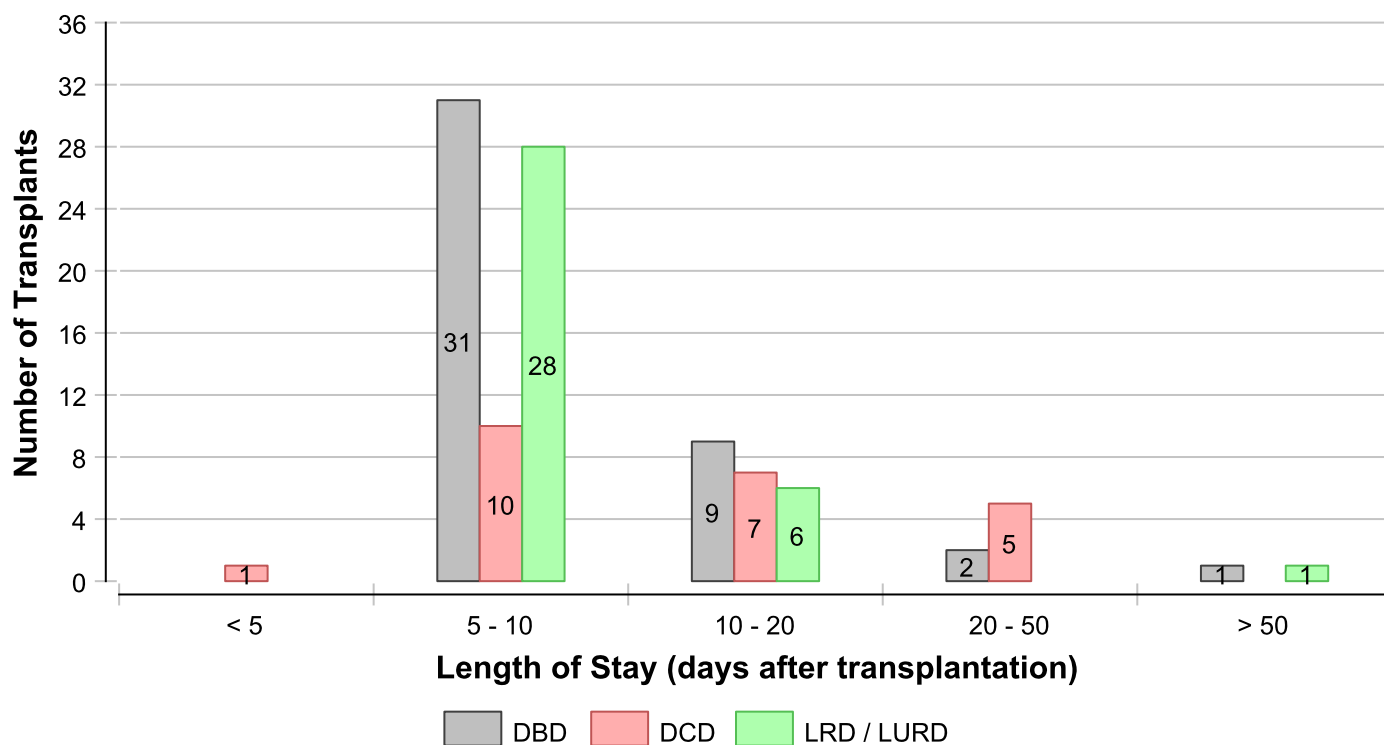
Initial Graft Function at RPAH in 2024 (n=102)



DBD n=43, DCD n=24, LRD / LURD n=35

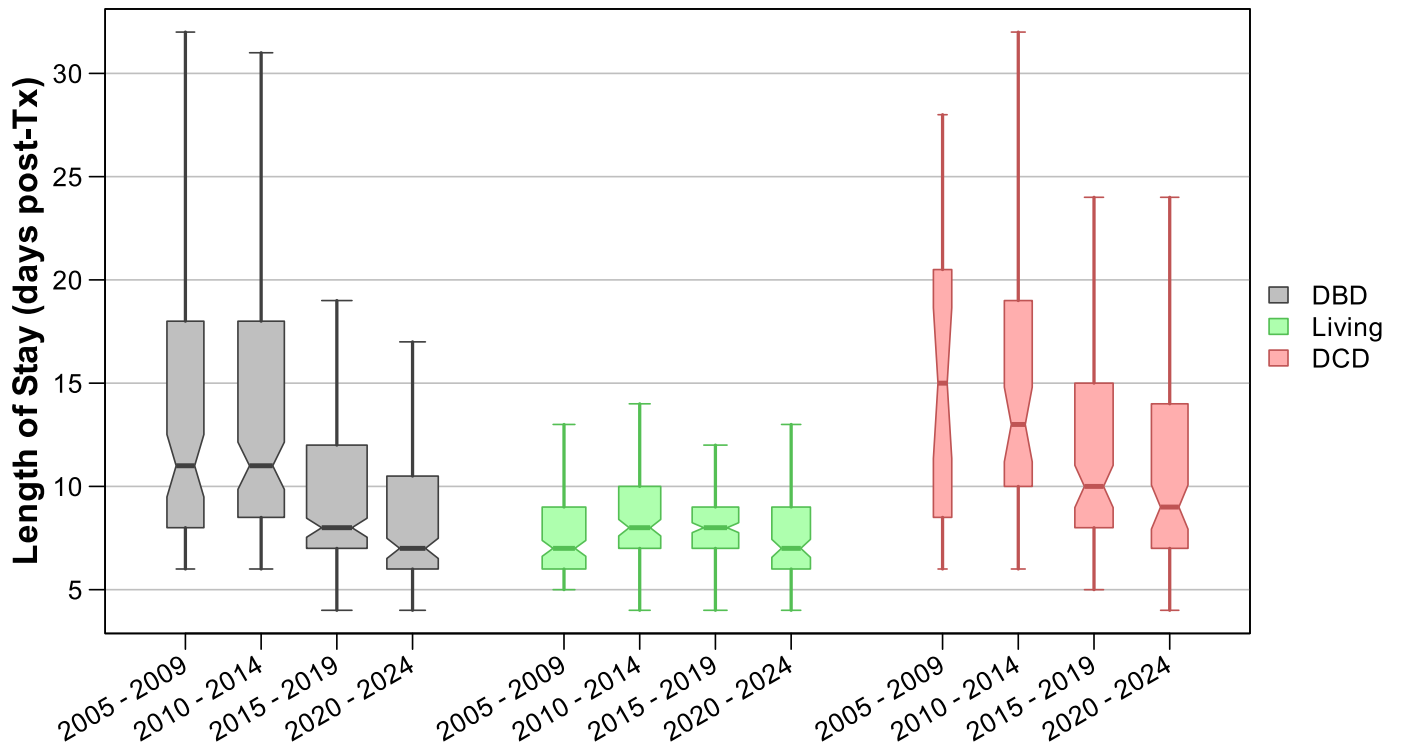
Initial graft function for living donor transplants was predominasntly spontaneous within 24 hr. For DCD donors the majority was No fall requiring dialysis, while for DBD donors it was fairly evenly spread

Transplantation Length of Stay at RPAH in 2024 (n=101)



DBD median 7.00 days, DCD median 10.0 days, LRD / LURD median 7.00 days

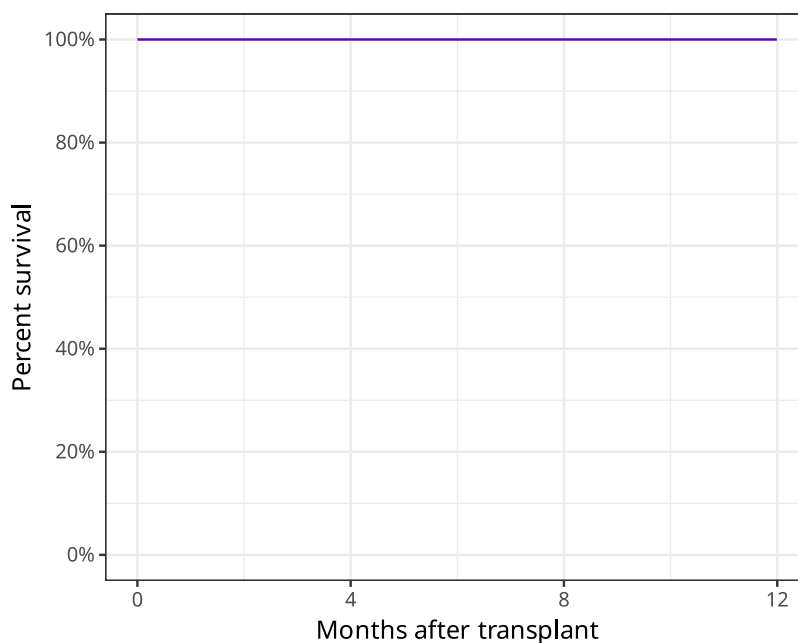
Post Operative Length of Stay Trends at RPAH by Donor Source



Median line. Notches ~95% confidence of median. Box interquartile range. Whiskers furthest case < 1.5xIQR from quartile. Outliers not shown

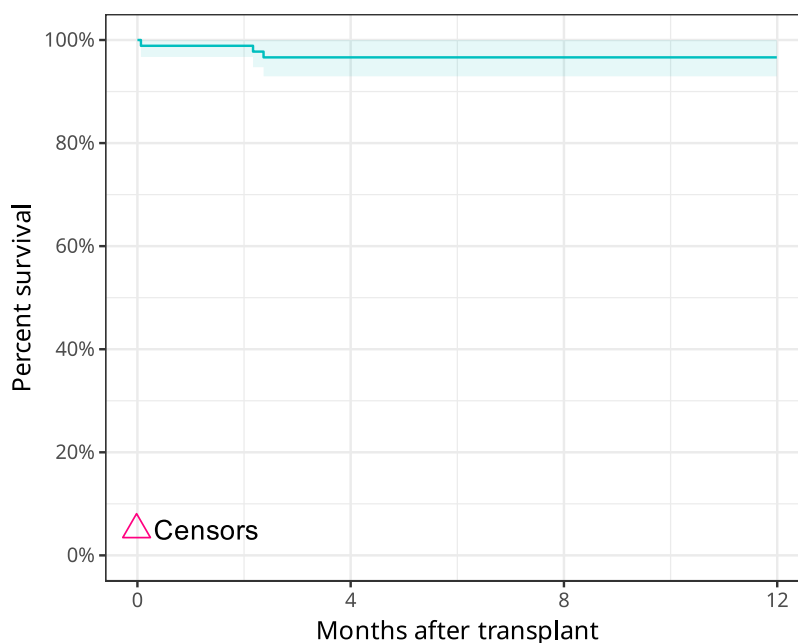
Kidney Graft and Patient Survival

12 Month Patient Survival at RPAH for 2023 Transplants (n=89)



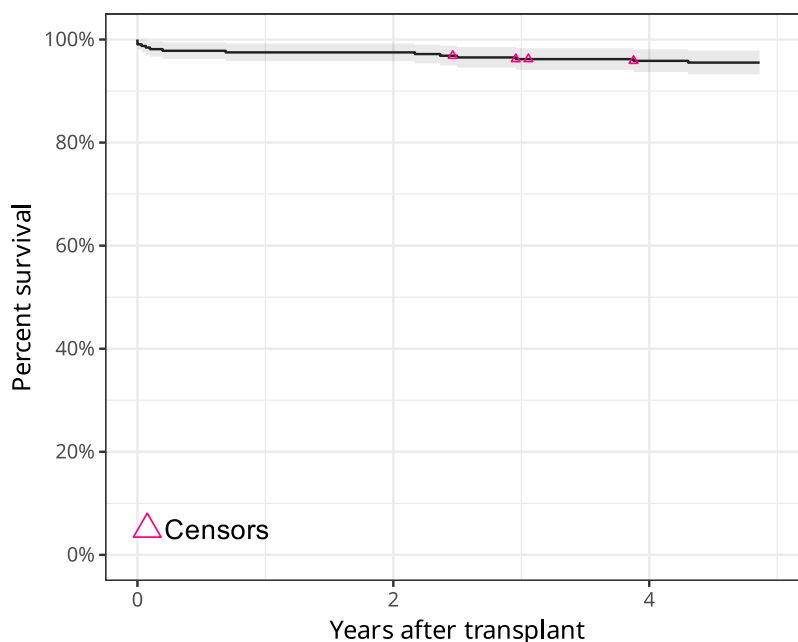
Survival at 12 months = 100 %

12 Month Graft Survival at RPAH for 2023 Transplants (n=89)



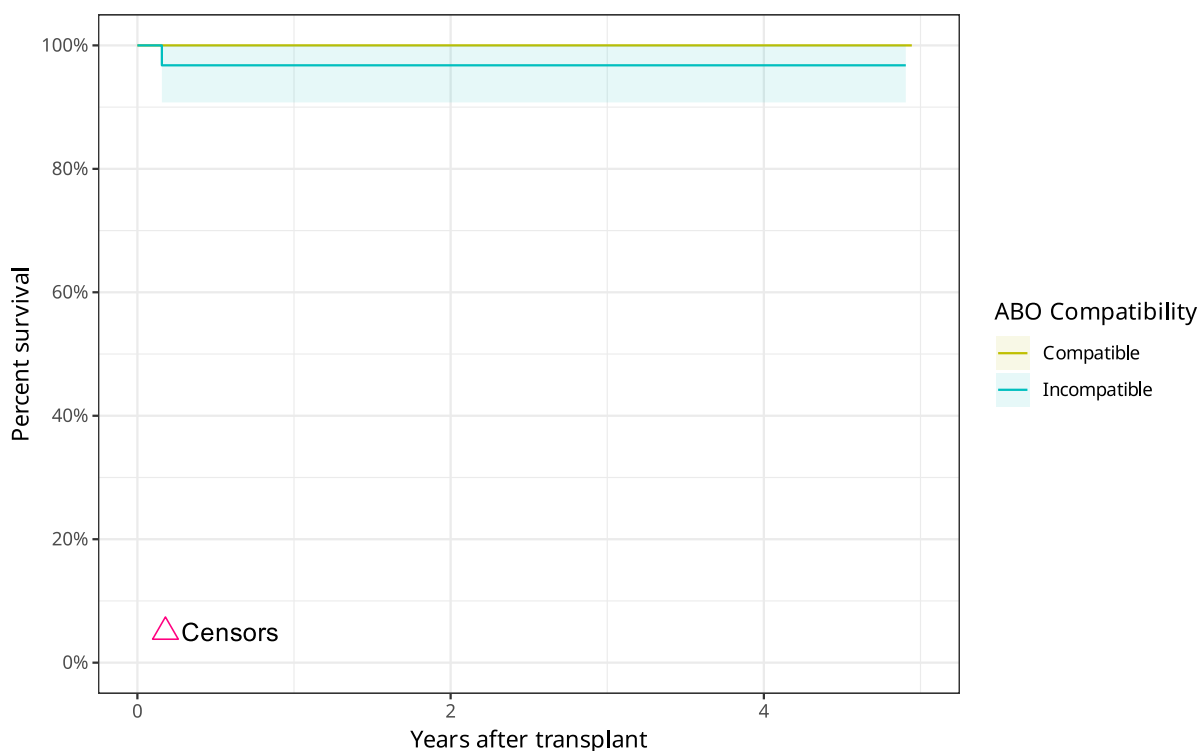
Survival at 12 months = 96.6 %. Death censored Graft survival

5 Year Graft Survival for Deceased Donors for Kidney Transplantation at RPAH from 2020 to 2024 (n=321)



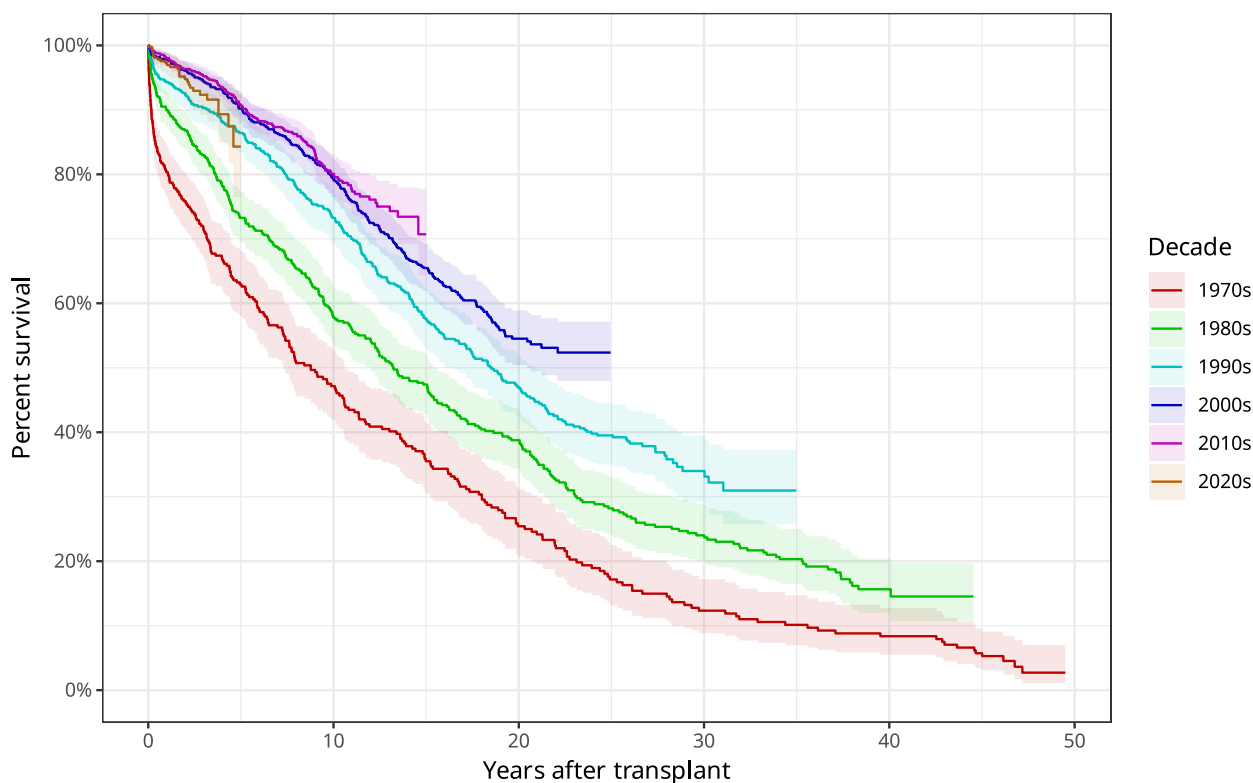
Survival at 5 years = 92.6 %. Death censored Graft survival

5 Year Graft Survival for Living Donors by ABO Compatibility for Kidney Transplantation at RPAH from 2020 to 2024 (n=119)



Compatible = 100 % (n = 85) & Incompatible = 96.8 % (n = 34) survival at 5 yr. Death censored Graft survival

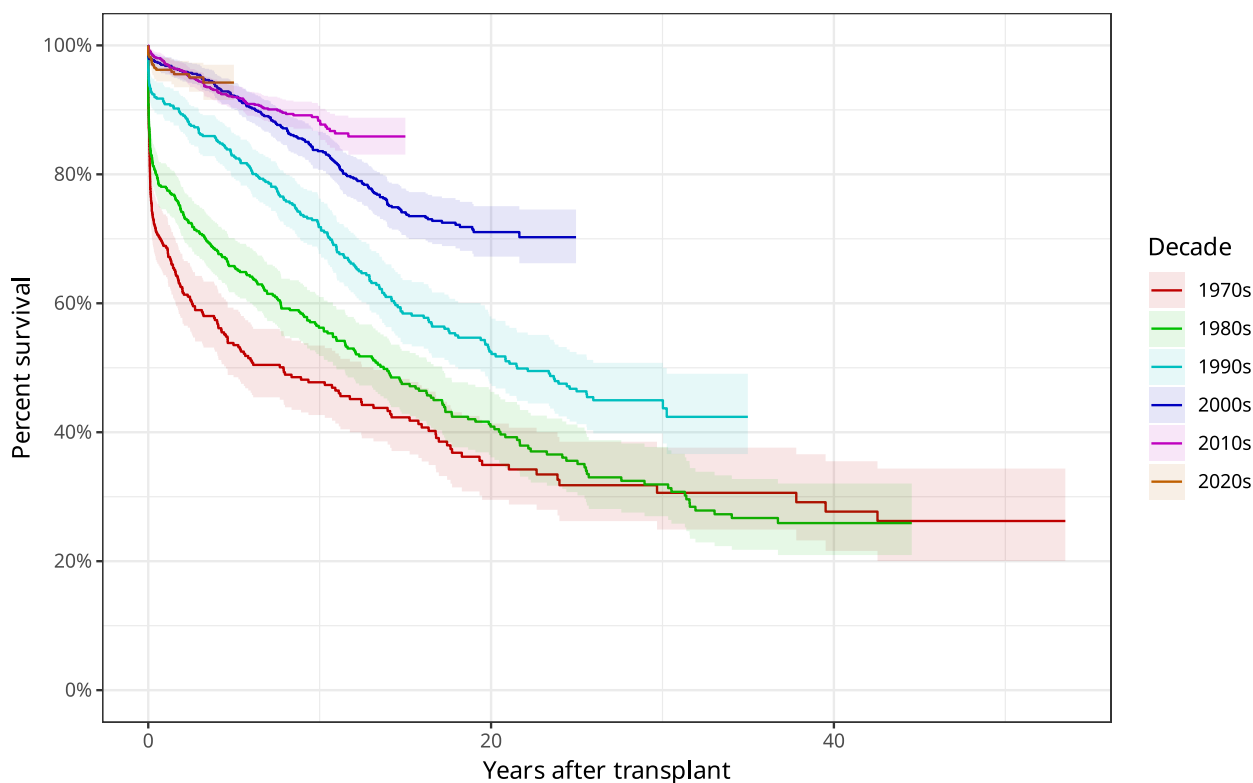
Patient Survival by Decade for Kidney Transplantation at RPAH from 1970 to 2024 (n=3444)



	1970s	1980s	1990s	2000s	2010s
Survival	2.72 %	14.5 %	31.0 %	52.4 %	70.7 %
At	50 yr	45 yr	35 yr	25 yr	15 yr
n	380	527	475	664	958

Improvement in patient survival seen decade on decade

Graft Survival by Decade for Kidney Transplantation at RPAH from 1970 to 2024 (n=3444)



Graft survival, patient death censored (not shown)

	1970s	1980s	1990s	2000s	2010s
Survival	26.2 %	25.9 %	42.4 %	70.3 %	85.9 %
At	54 yr	45 yr	35 yr	25 yr	15 yr
n	380	527	475	664	958

Improvement in graft survival seen decade on decade

Acknowledgements

Data sources

- Renal Transplant Clinical Database. Transplantation Services, Royal Prince Alfred Hospital, Camperdown NSW 2050

Data preparation and transformation

- M.R. Berthold, N. Cebron, F. Dill, T.R. Gabriel, T Kötter, T. Meinl, P. Ohl, C. Sieb, K. Thiel and B. Wiswedel. KNIME: The Konstanz Information Miner. Studies in Classification, Data Analysis, and Knowledge Organization (2007), Springer, ISBN 978-3-540-78239-1
- Eclipse BIRT. Report Design extension of KNIME
- R environment and packages. Scripting Integration of KNIME

Table, Chart and Statistics generation

- Eclipse BIRT: Business Intelligence and Reporting Tools. URL <https://www.eclipse.org/birt>
 - R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>
 - Therneau T. A Package for Survival Analysis in R. R package version 3.1-12, URL <https://CRAN.R-project.org/package=survival>
 - H. Wickham. ggplot2: Elegant Graphics for Data Analysis. Springer-Verlag New York, 2016
 - Masaaki Horikoshi and Yuan Tang. ggfortify: Data Visualization Tools for Statistical Analysis Results. URL <https://CRAN.R-project.org/package=ggfortify>
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