TRANSPLANT CENTRE VARIATION IN LIVING KIDNEY DONATION: A BINIATIONAL ANALYSIS

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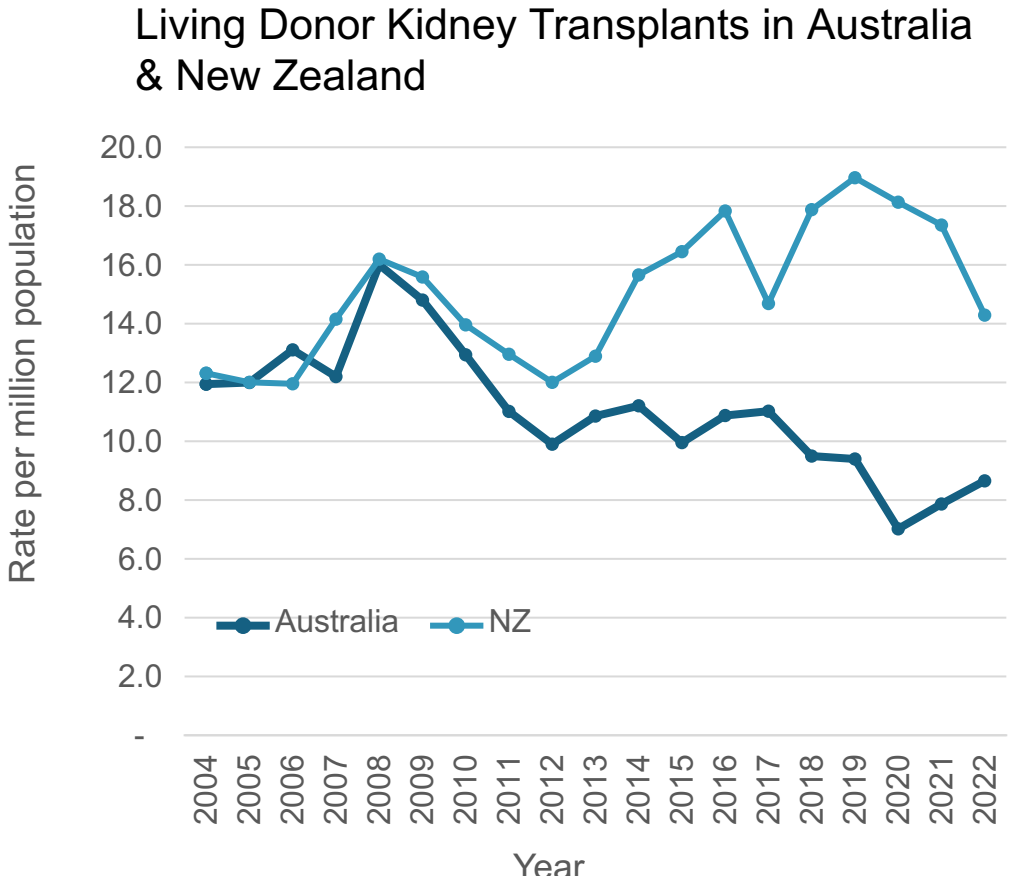
Living donor kidney transplants are the **optimal treatment modality** for patients with kidney failure

Improved graft survival & overall **patient survival**

Concerns raised about **declines** in **living donor transplantation**

Decline in living donor transplants

- Australian Donation rate 7.0 pmp
- Lower than comparable jurisdictions
- Reduced patient access to this key treatment modality



The purpose of this study was to **compare access** to **living donor kidney transplantation** among patients with incident kidney failure in Australia & New Zealand by **transplant referral region.**

This was a retrospective cohort study

Data — ANZDATA - Australia & New Zealand Dialysis & Transplant Registry

Population — Incident patients commencing kidney replacement therapy (2002-2022)

Exposure — Patient's Transplant Referral Region

Outcome — Living Donor Kidney Transplantation within 12 months of commencing kidney replacement therapy (KRT)

We compared cumulative incidence of LDKT across 21 transplant referral regions

To compare differences in LDKT between transplant referral regions, we used **cumulative incidence analysis** for the event of **living donor kidney transplantation within 12 month**s of commencing KRT

Number of Transplant Referral Regions by State/Territory/Country	
Location	**Transplant Referral Regions**
New South Wales	6
Australian Capital Territory	1
Victoria	5
Tasmania	1
Queensland	1
South Australia	1
Northern Territory	1
Western Australia	2
New Zealand	3

Methods

Adjustment for demographic and clinical characteristics of referral region

Standardised living donor transplant ratio

- Observed living donor transplants / expected living donor transplants
- Expected transplant calculated using multi-variable Poisson model with random effect for transplant referral region
- Provides assessment of variation from an average Australian/New Zealand region

False discovery rates used to account for multiple comparisons

Included variables in multi-variable Poisson regression model

Age

Gender

Primary Kidney Disease

Vascular Disease

Lung Disease

Diabetes Comorbidity

Malignancy

Body Mass Index

Smoking Status

Primary Transplant Centre

Late Referral

Socio-economic Status

Era

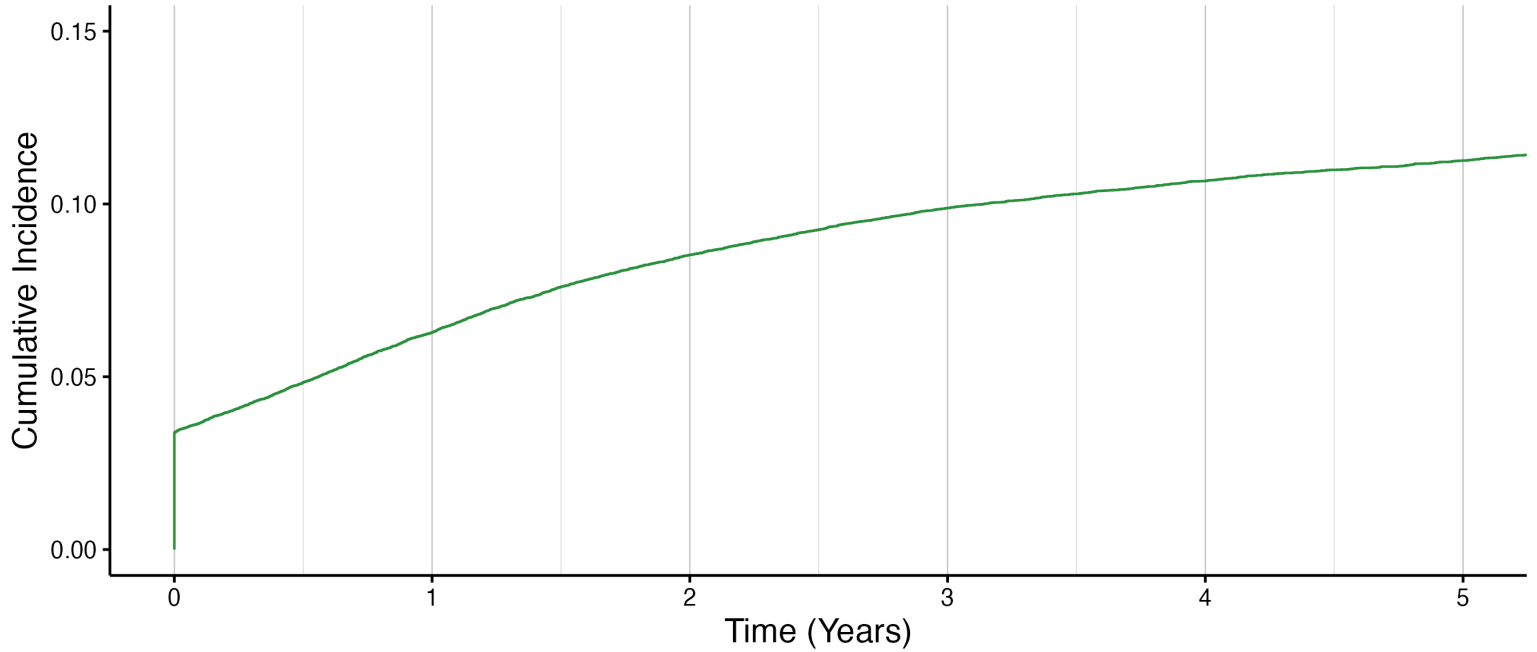
Cohort summary

Demographic & Clinical Characteristics At KRT Start	
	n (%)
Total Patients	54,371
Age (Median, IQR)	59 years (48, 67)
Gender (Female)	21,354 (39.3)
Primary Kidney Disease - Diabetic kidney disease	21,710 (39.9)

At 1 year 6% had received a LDKT, increasing to 12 % at 5 years

Cumulative incidence living donor transplantation

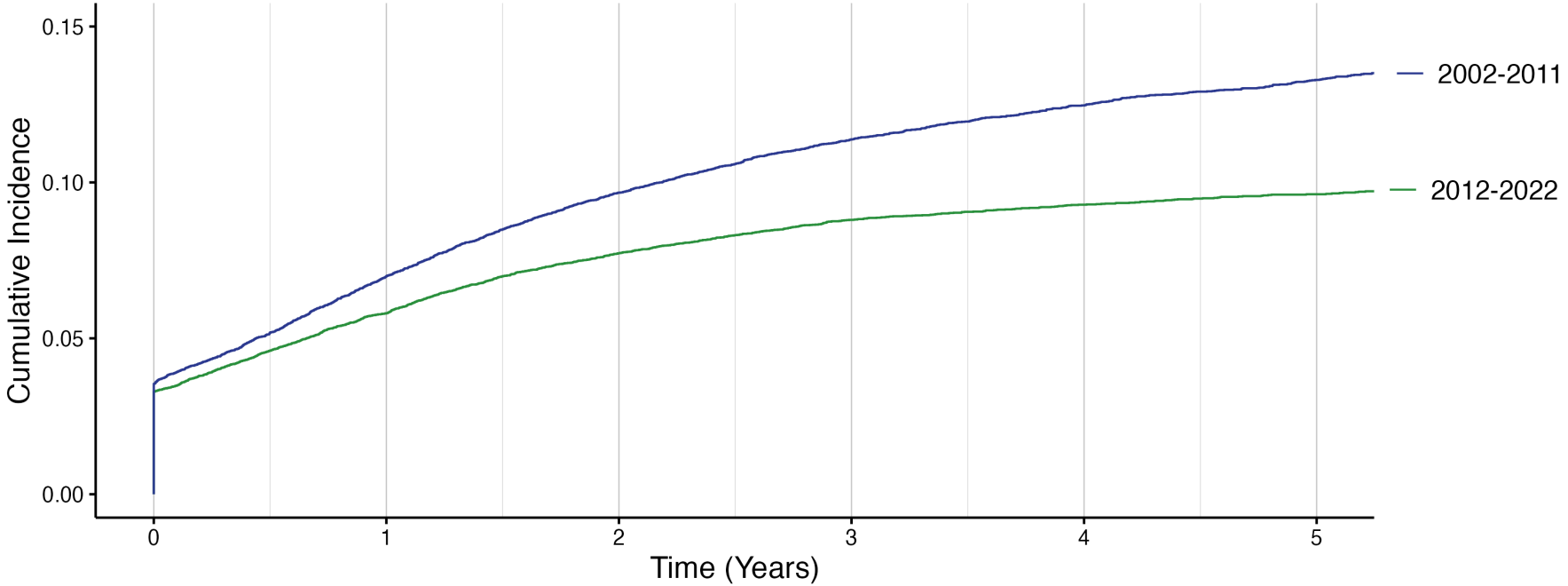
for incident adult kidney replacement therapy patients in Australia & New Zealand 2002-2022



LDKT rates have fallen over time, with the biggest impact in LDKT >12 months

Cumulative incidence living donor transplantation

for incident adult kidney replacement therapy patients in Australia & New Zealand

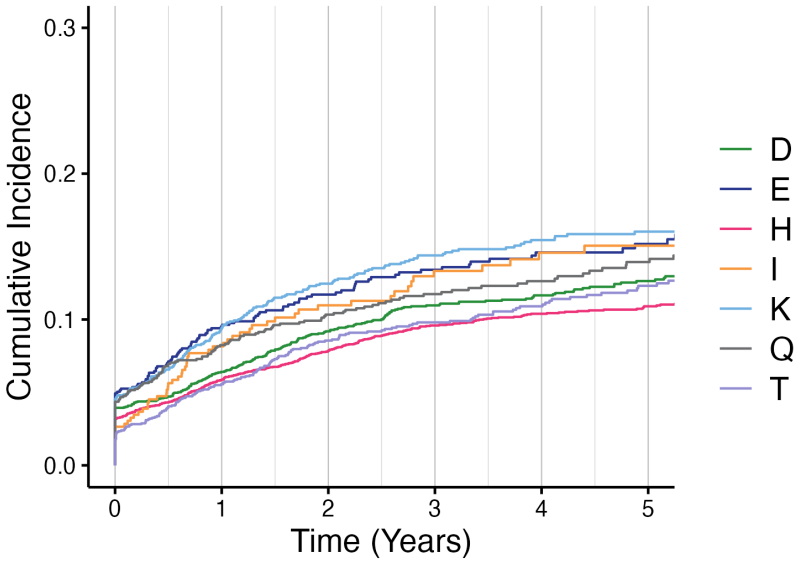


After adjusting for underlying demographics large centre level variation remains in each state

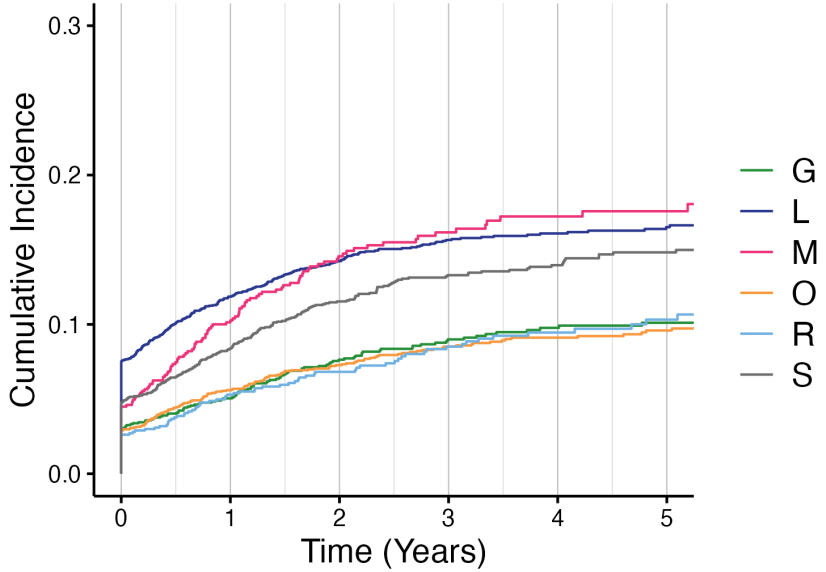
Cumulative incidence living donor transplantation

for incident adult kidney replacement therapy patients in Australia & New Zealand

a) New South Wales & ACT



b) Victoria & Tasmania

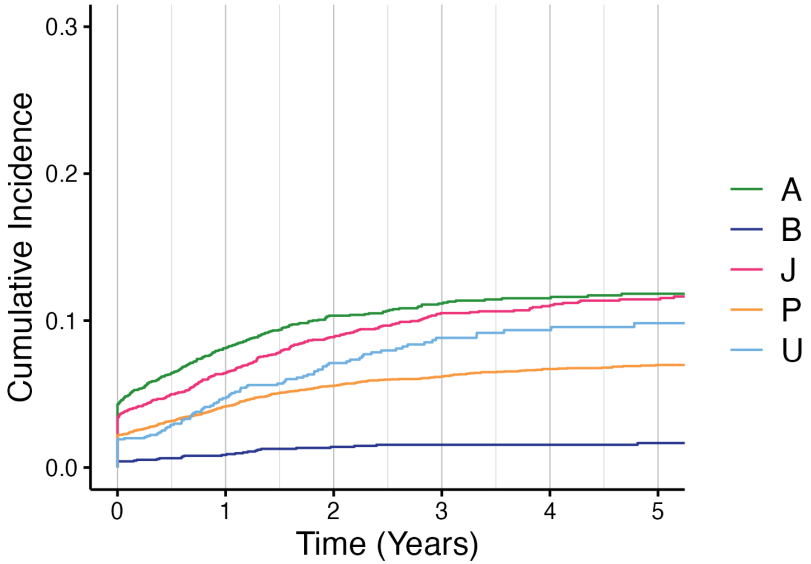


After adjusting for underlying demographics large centre level variation remains

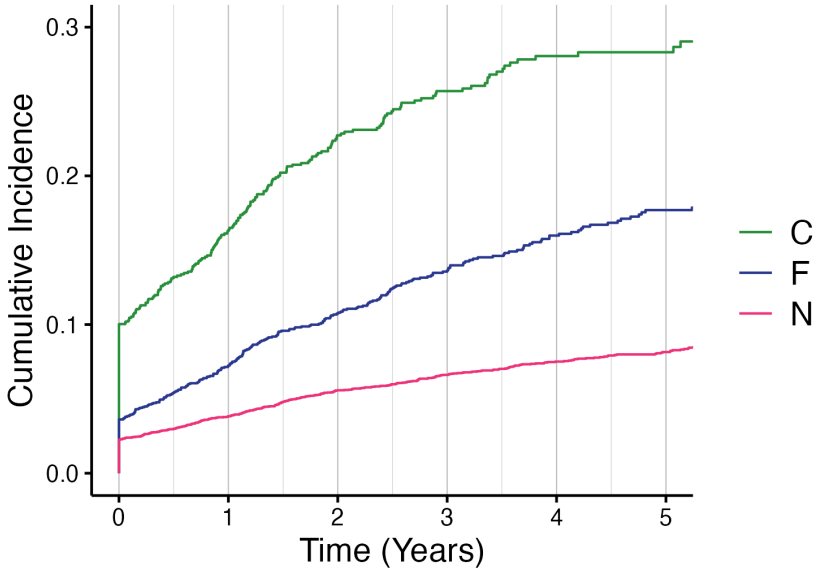
Cumulative incidence living donor transplantation

for incident adult kidney replacement therapy patients in Australia & New Zealand

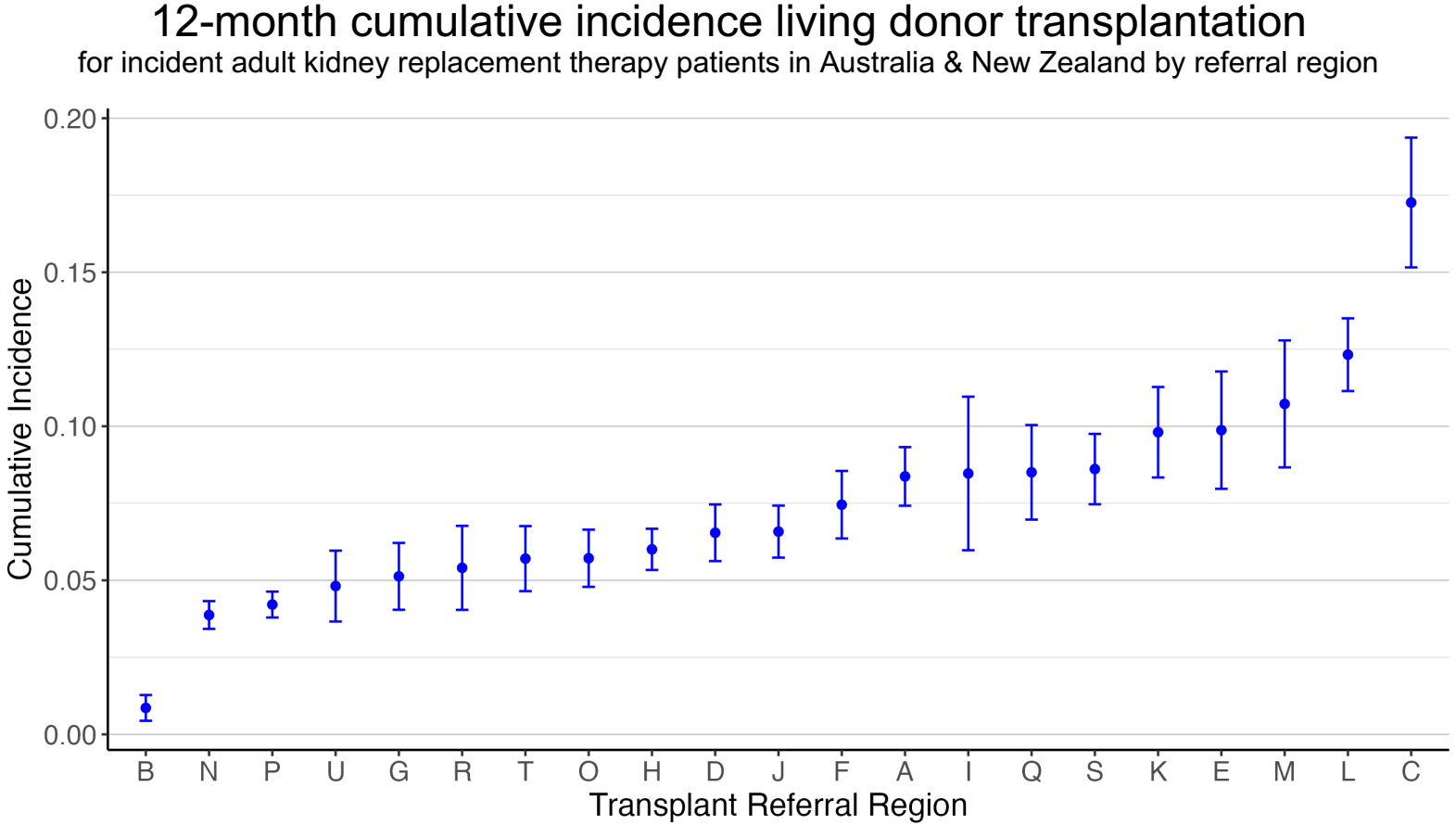
c) QLD, NT, WA & SA



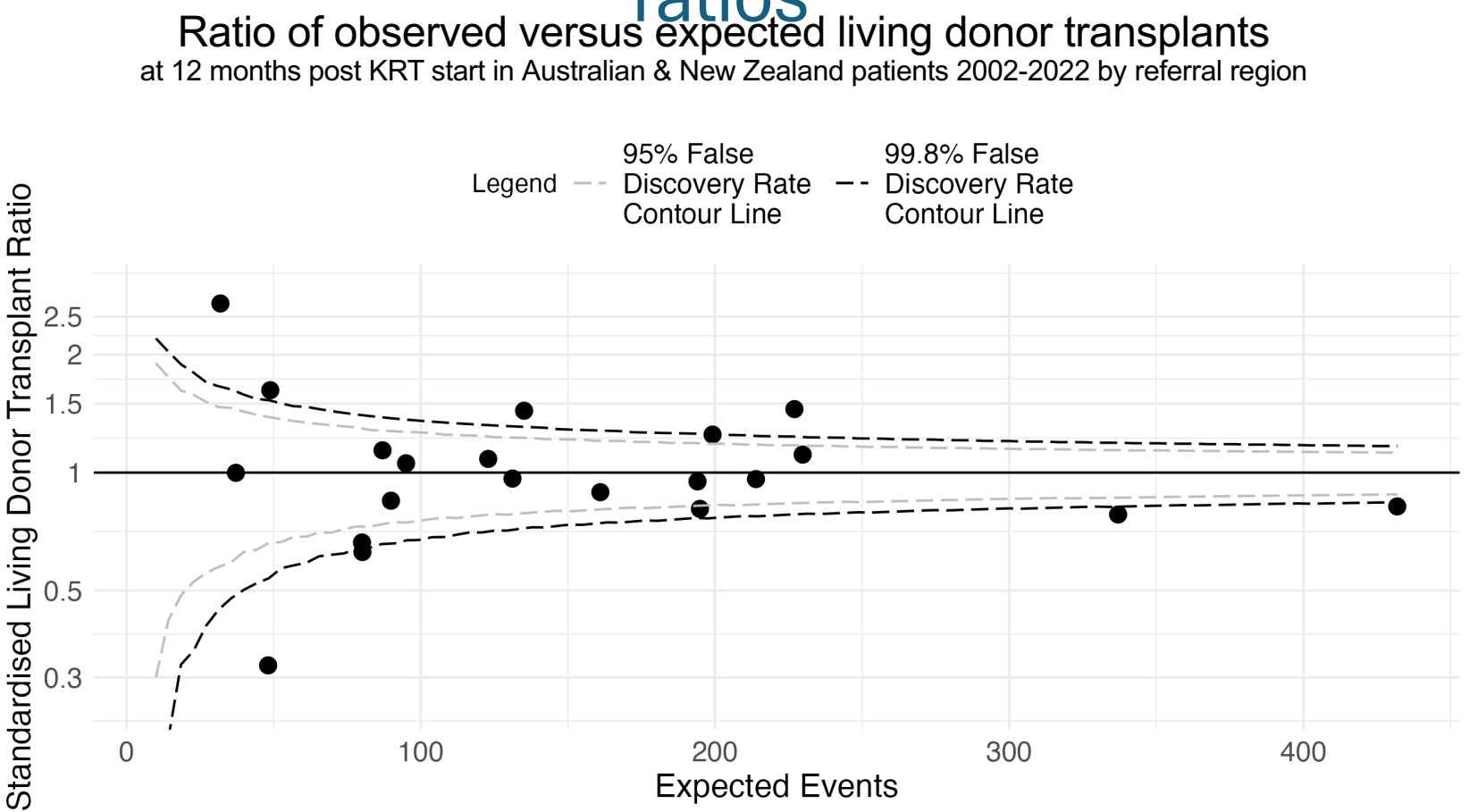
d) NZ



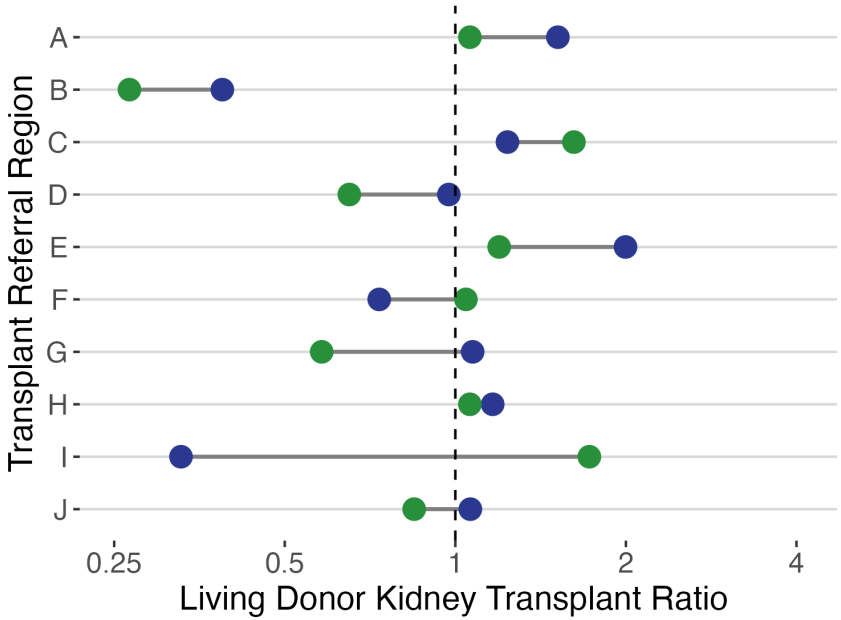
Significant variation exists across Australia and New Zealand

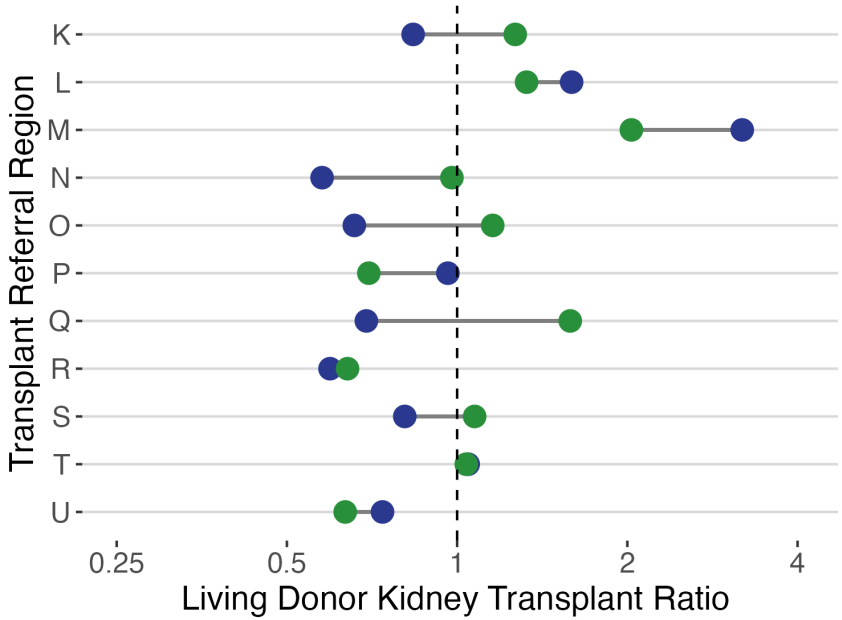


8 centres fell outside their expected LDKT ratios



7 centres improved their LDKT ratio, 11 had a worse ratio, & 3 ~unchanged.





KRT Era 2002_2011 2012_2022

System factors influence access to living donor kidney transplantation

1.Late referral status

2. Primary dialysis unit affiliated with transplant centre

Conclusions

- **Access** to living donor kidney transplantation in Australia is **lower** than comparable countries
- **Access** to living donor kidney transplantation **differs** across transplant referral regions
- 20% of regions perform **above** expected levels of living donor transplants, while another 20% perform below expectations
- Identifying factors contributing to higher and lower performance may help guide targeted strategies to **increase access** and **improve equity** in living donor kidney transplantation

Acknowledgements

The rest of the project team

- Dr Lachlan McMichael (First author and performed all analysis)
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- Dr Nick Cross
- A/Prof Philip Clayton