



Australian indigenous transplant outcomes

Stephen McDonald



Outline

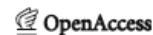
- Australia-wide summary of outcomes of kidney transplants among indigenous recipients
 - Activity
 - Outcomes
 - Intermediate outcomes
 - DGF, rejection
 - Graft survival
 - Patient survival



Fish/pond

- We are a little pond
- Data need to be interpreted and extrapolated carefully

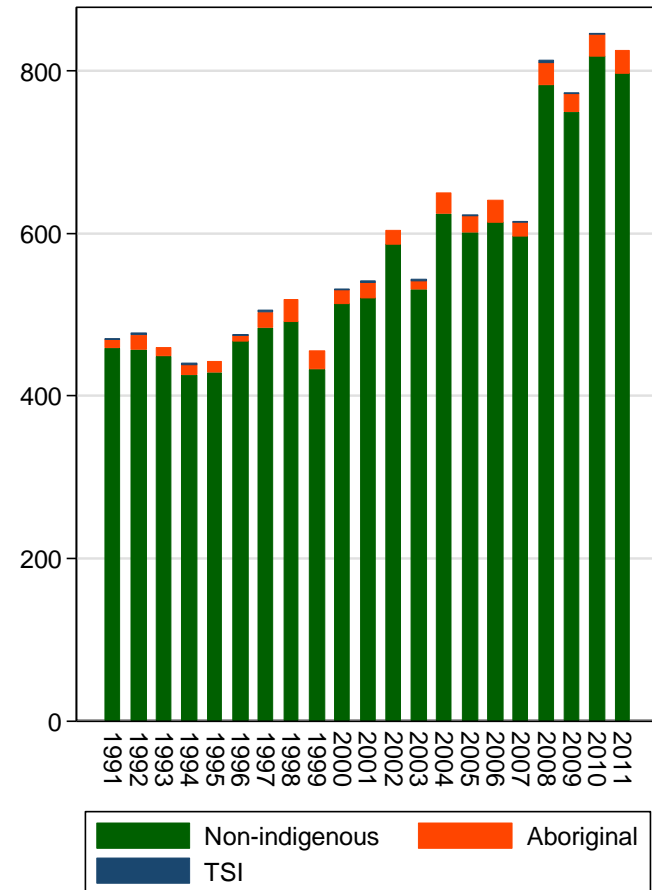
Educ Psychol Rev (2008) 20:319–350
DOI 10.1007/s10648-008-9075-6



COMMENTARY

The Big-fish–little-pond-effect Stands Up to Critical Scrutiny: Implications for Theory, Methodology, and Future Research

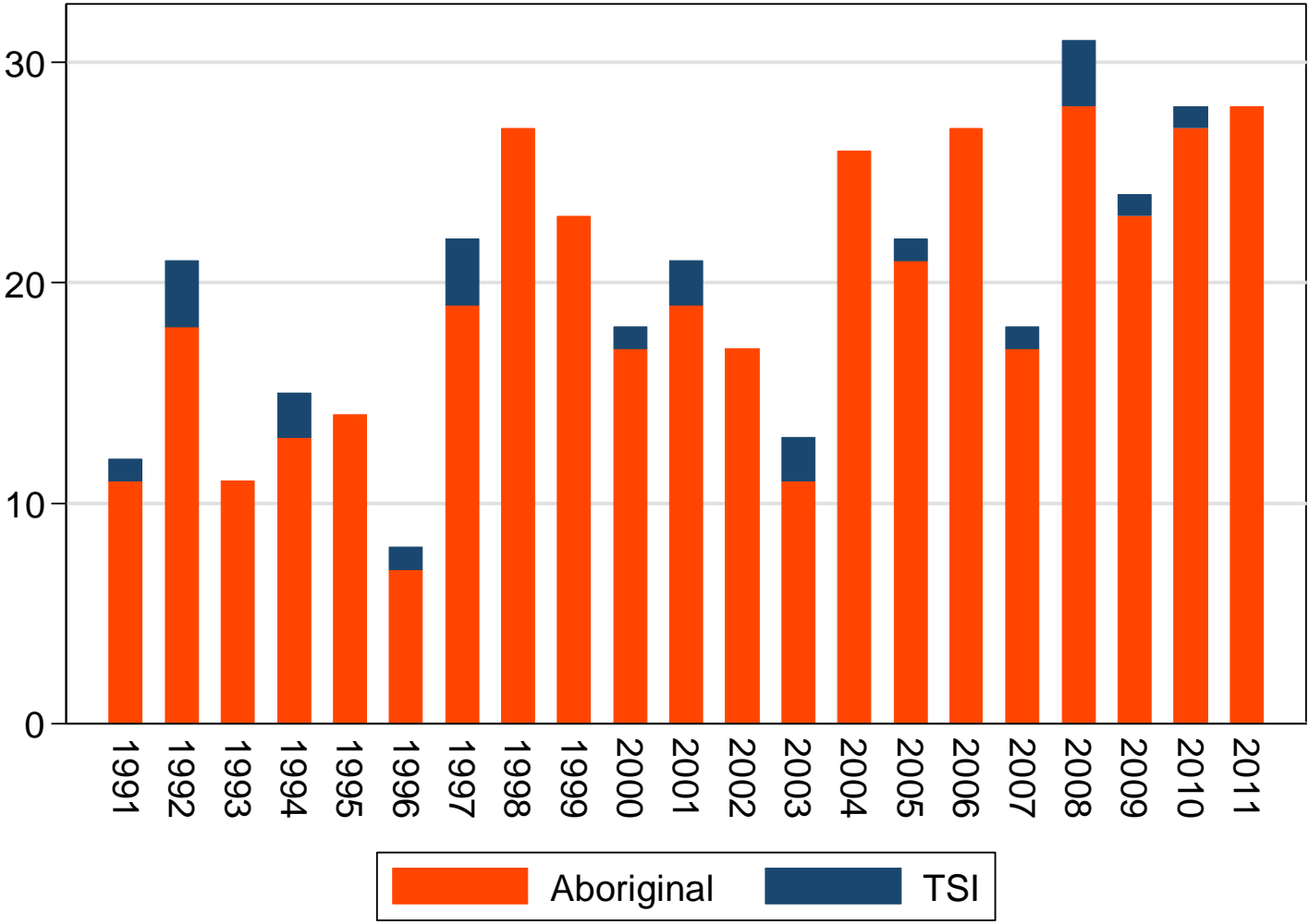
Herbert W. Marsh • Marjorie Seaton •
Ulrich Trautwein • Oliver Lüdtke • K. T. Hau •
Alison J. O'Mara • Rhonda G. Craven



ANZDATA, kidney transplant numbers



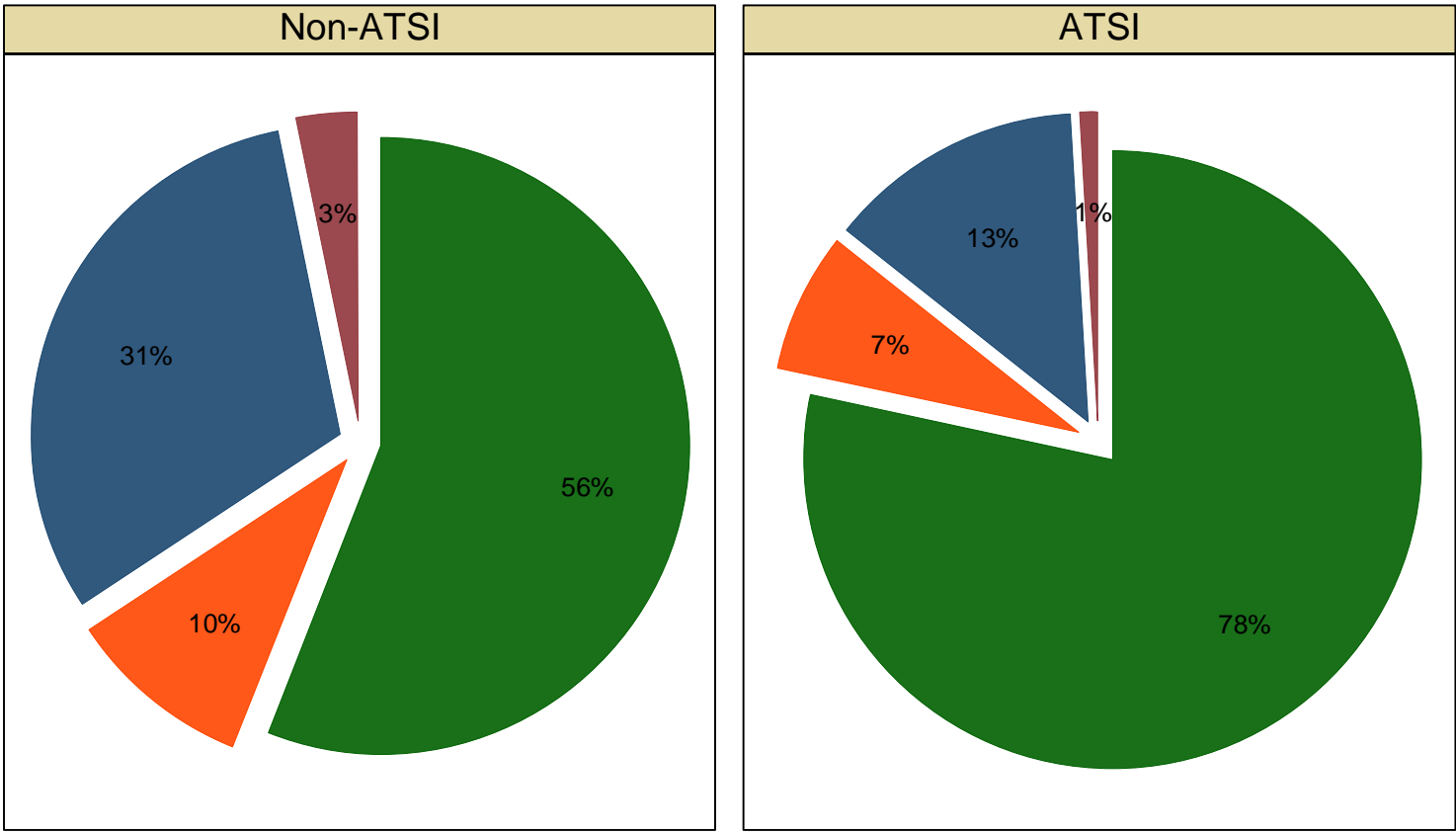
Activity



ANZDATA, indigenous kidney transplant numbers

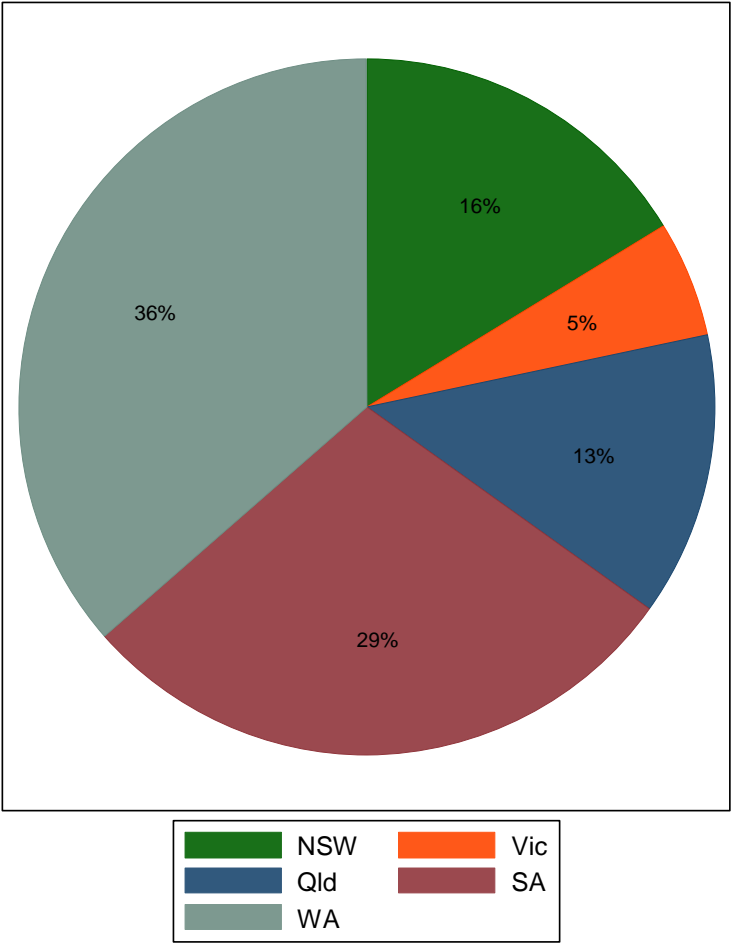


Transplant type

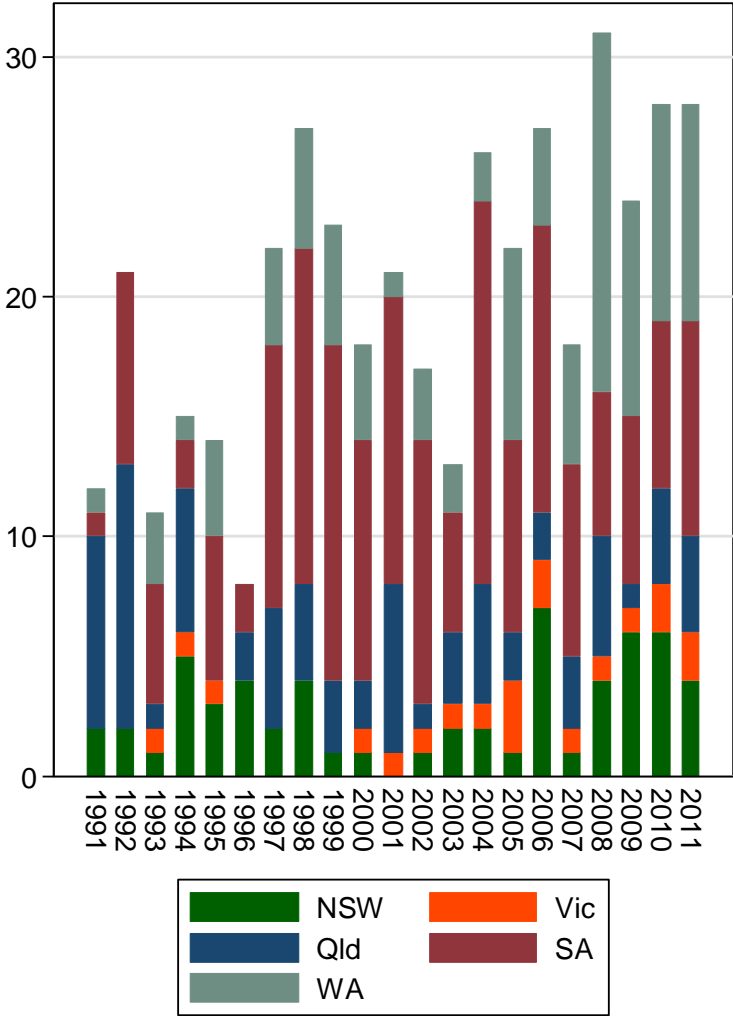




Where are transplants performed?



ANZDATA, Indigenous kidney transplants, Australia, 2007-2011

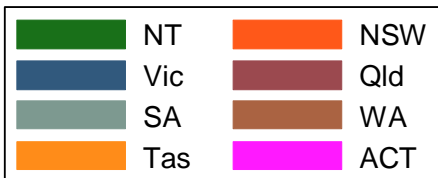
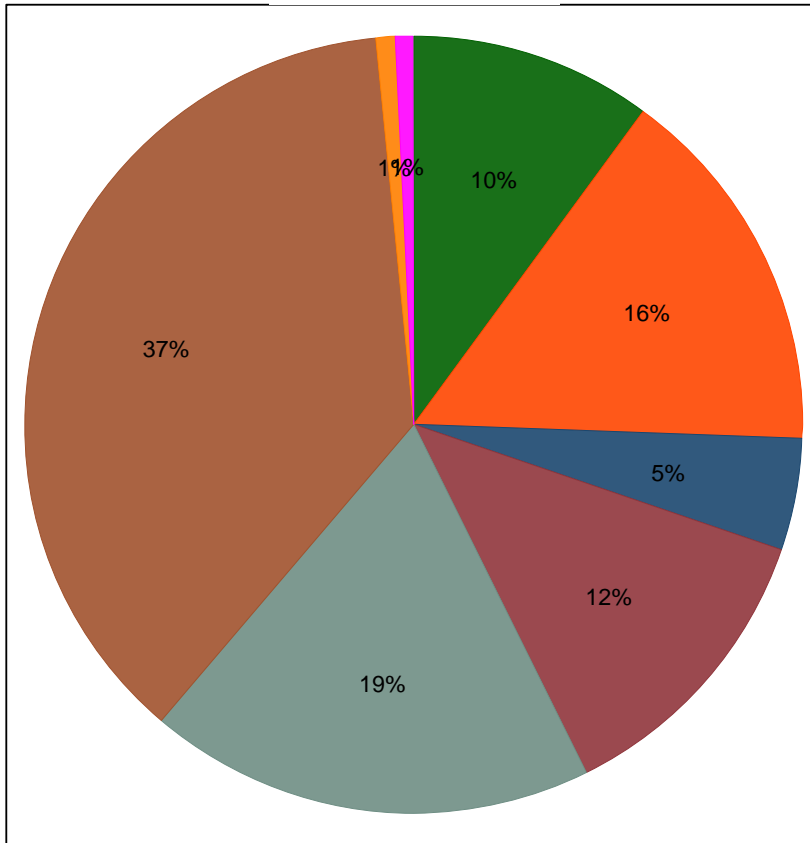


ANZDATA, indigenous kidney transplant numbers



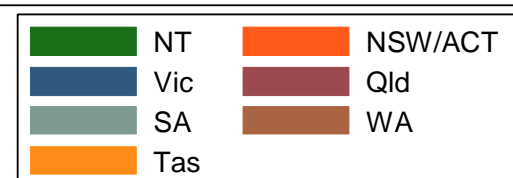
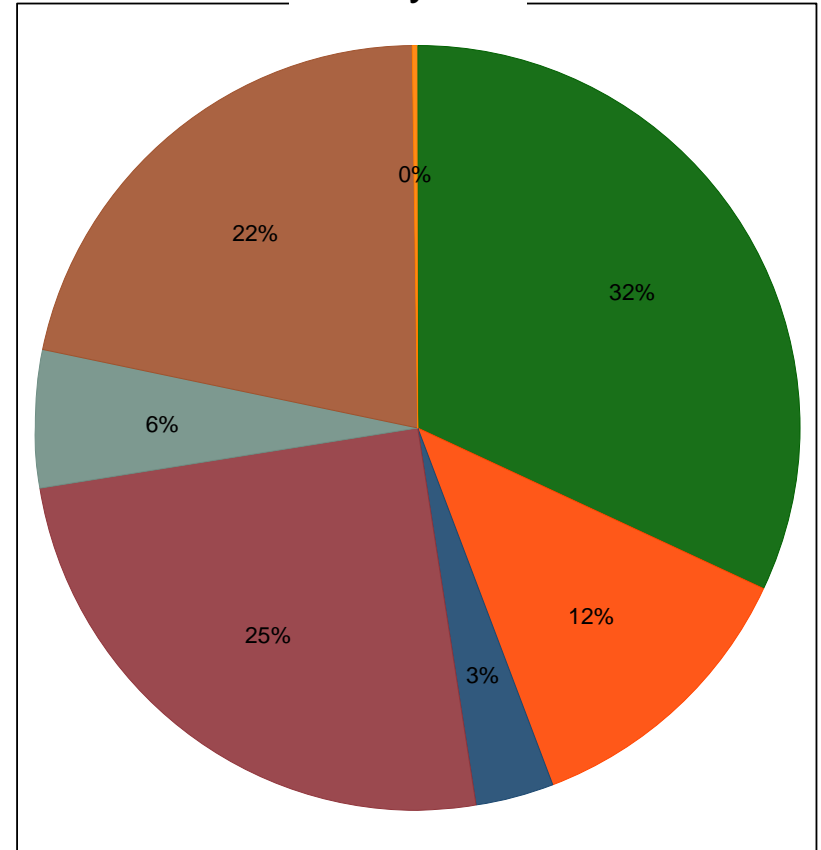
From where do recipients come?

Transplants



ANZDATA, Indigenous kidney transplants, Australia, 2007-2011 by referring state

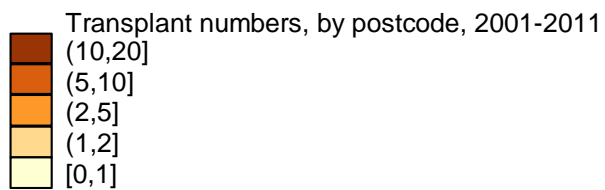
Dialysis



ANZDATA, Indigenous dialysis patients, Australia, 2007-2011

Indigenous transplant recipients 2001-2011

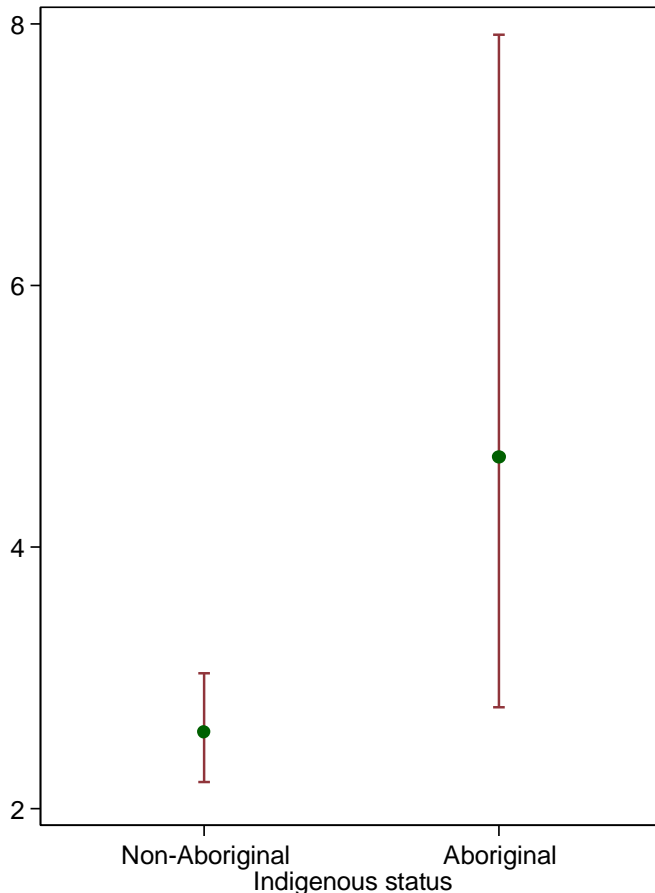
by postcode



ANZDATA, indigenous patients only, based on postcode at first RRT



Waiting list mortality



ANZDATA, mortality among waitlisted patients
Listed 1/4/06-31/12/10; followup to 31/12/11

- Indigenous waitlisted have more
 - Diabetes
 - Vascular comorbidity
 - Lung disease
- Compared with non-indigenous dialysis patients, and adjusted for comorbidity, age, gender etc
 - HR=1.2 [0.78-1.88]



Table 1

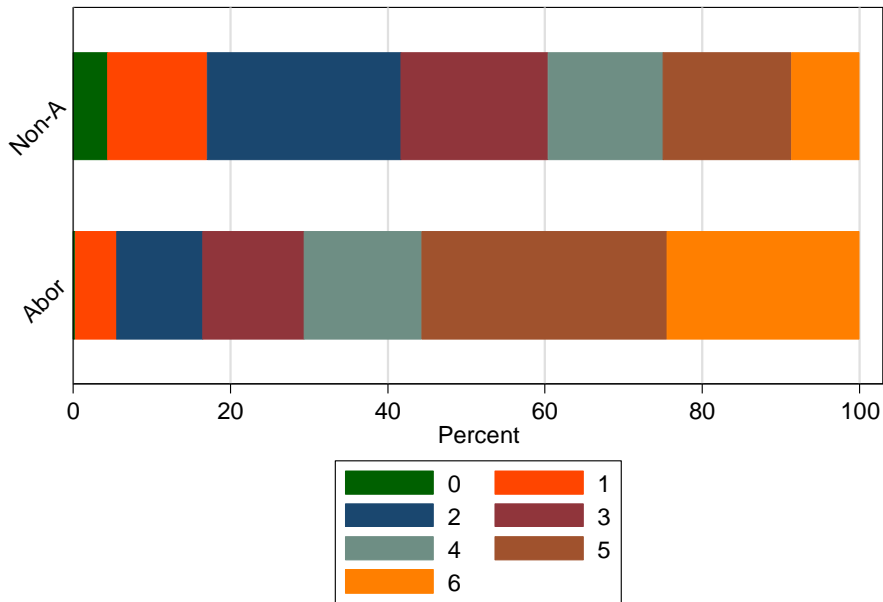
Factor	Aboriginal	Non-Aboriginal
Number	327	6451
Age (Median)	45.4	50.1
Person-years	1365	42356
Median time from RRT start	3.1	2.6
HLA mismatches (median)	5	3

ANZDATA, Cohort of Australian DD1 transplant recipients 1991-2011

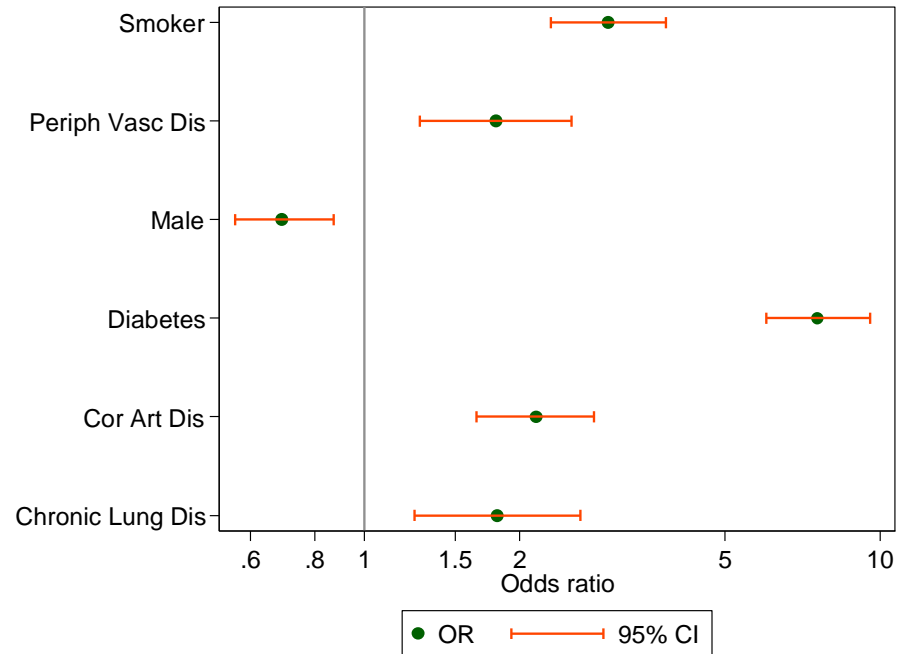


Confounders

HLA mismatches

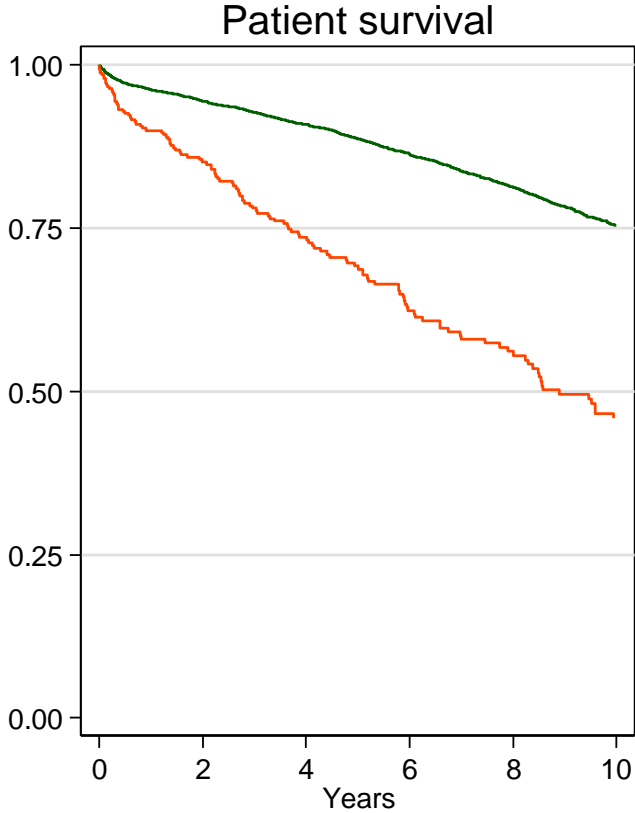
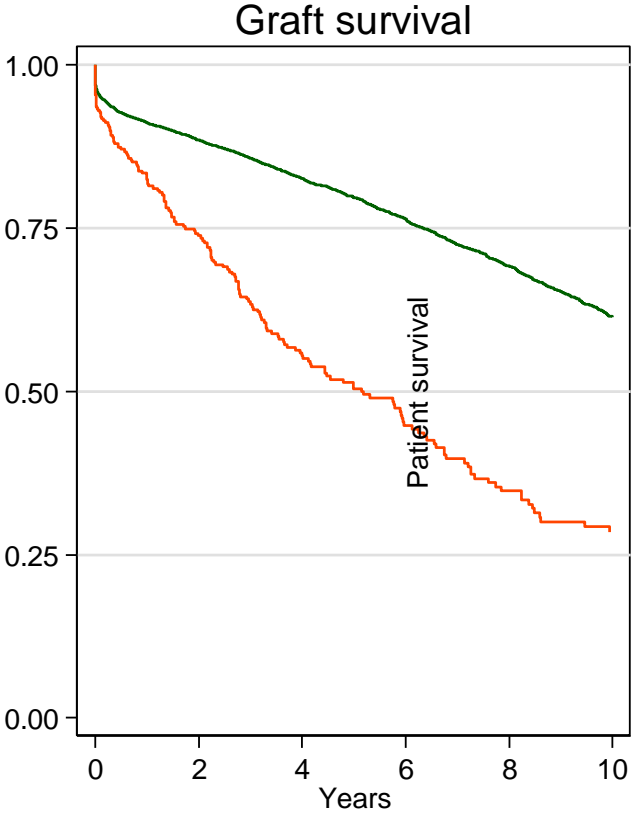


ANZDATA Registry, DD1 transplant Australia 1991-2011





Crude survivals

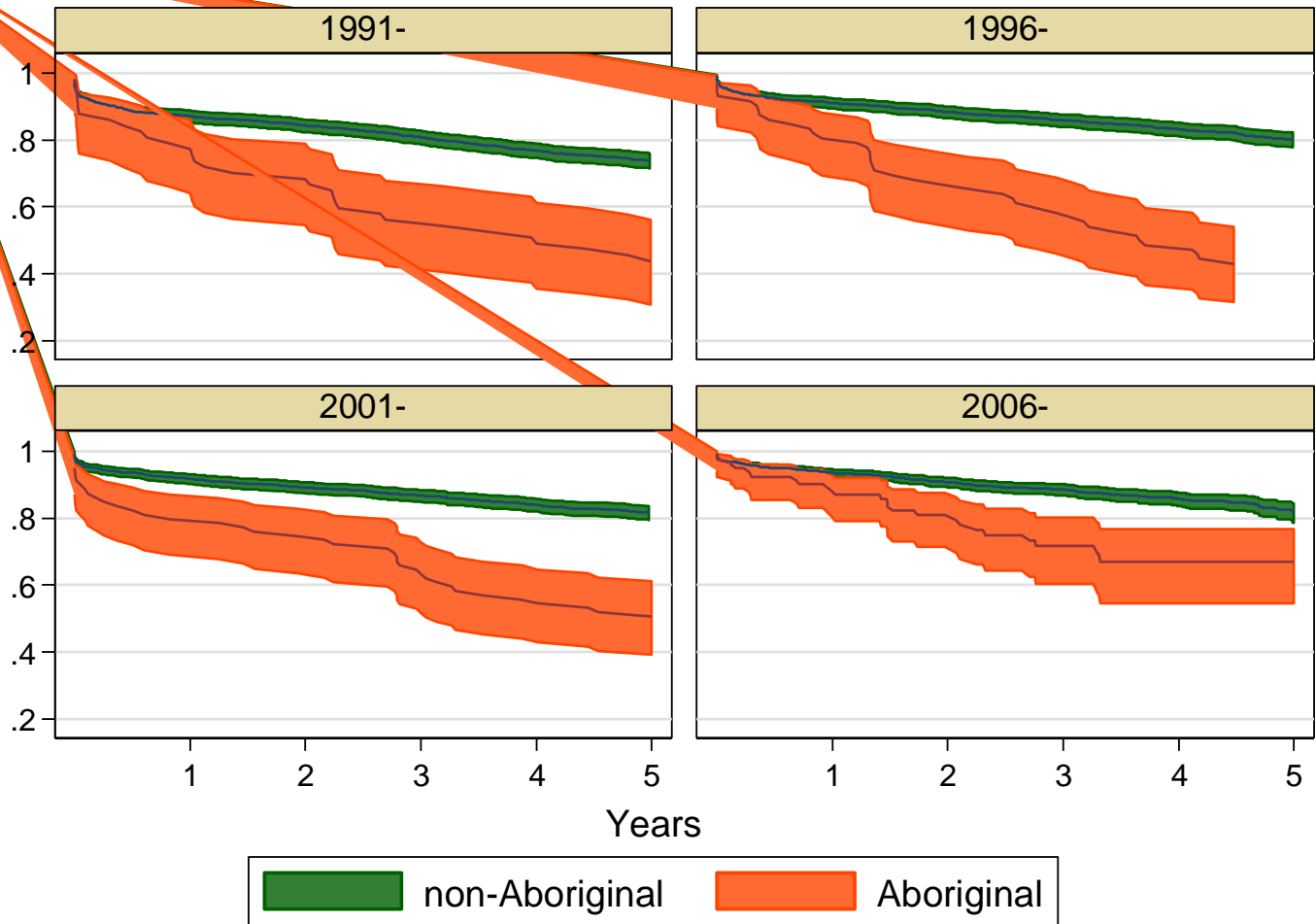


— Non-Aboriginal — Aboriginal

DD1 graft survival, 1991-2011, crude
Australia, by indigenous origin



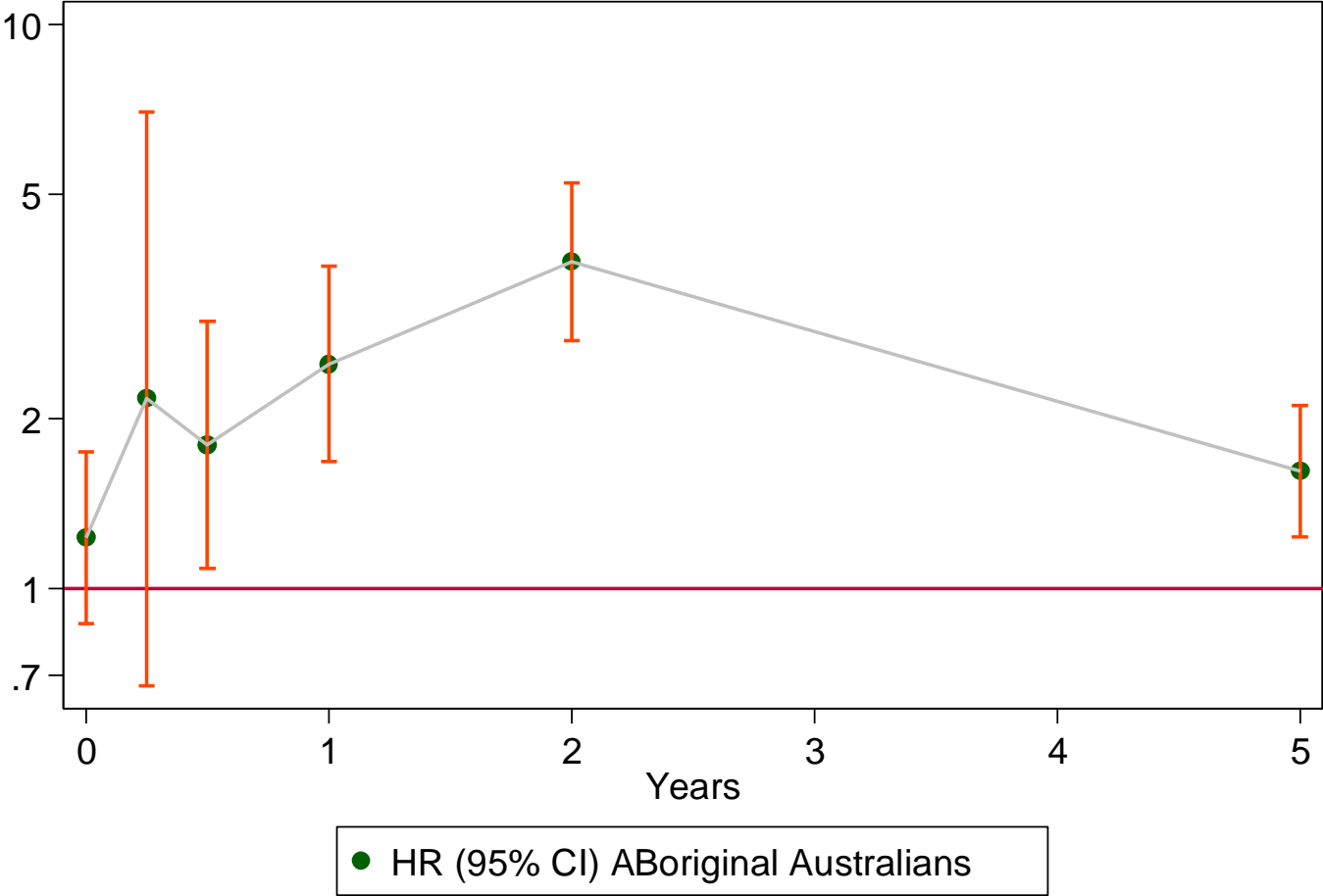
Crude graft survival



DD1 Graft survival



Multivariate adjustment

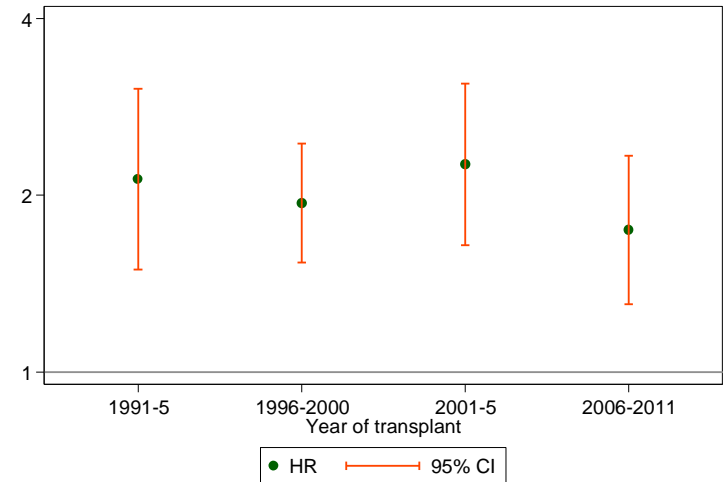


Adjusted Cox model, DD1 transplants
ANZDATA, AUstralia only

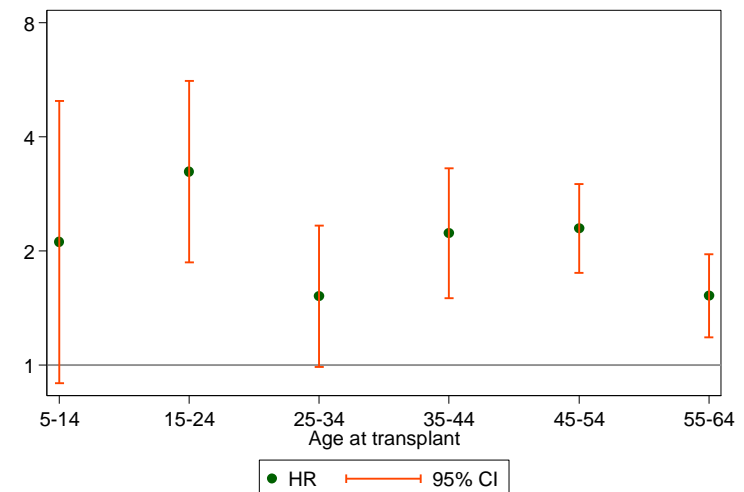


Graft survival - interactions

- No significant interaction of excess risk with
 - Year of transplantation
- Significant interaction with age
 - Quantitative not qualitative



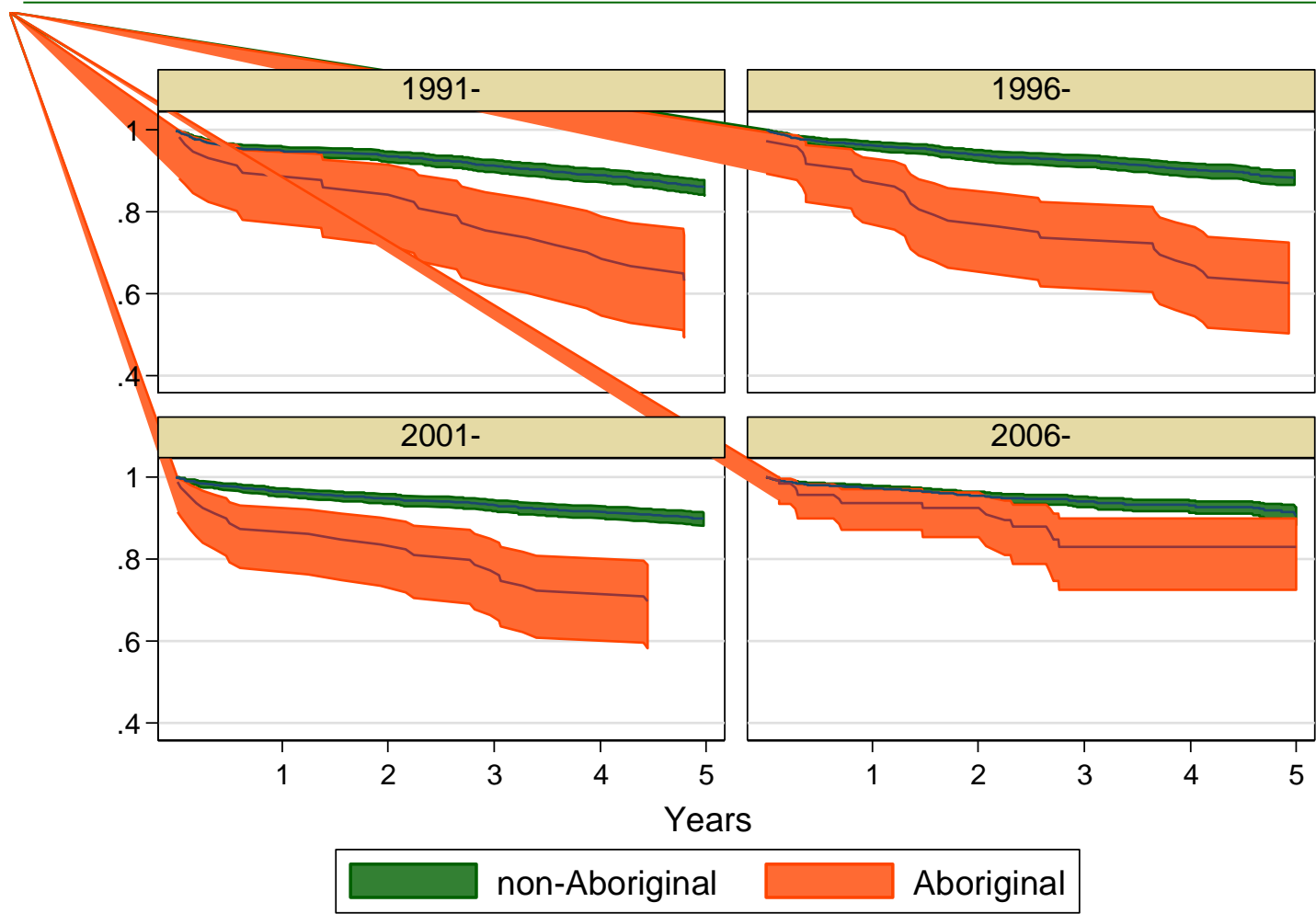
HR of graft loss by age
ANZDATA, Australian DD1 grafts, fully adjusted



HR of graft loss by age
ANZDATA, Australian DD1 grafts, fully adjusted



Patient survival



DD1 patient survival

ANZDATA, Australia, kidney transplants 1991-2011 by year of tx



Patient mortality

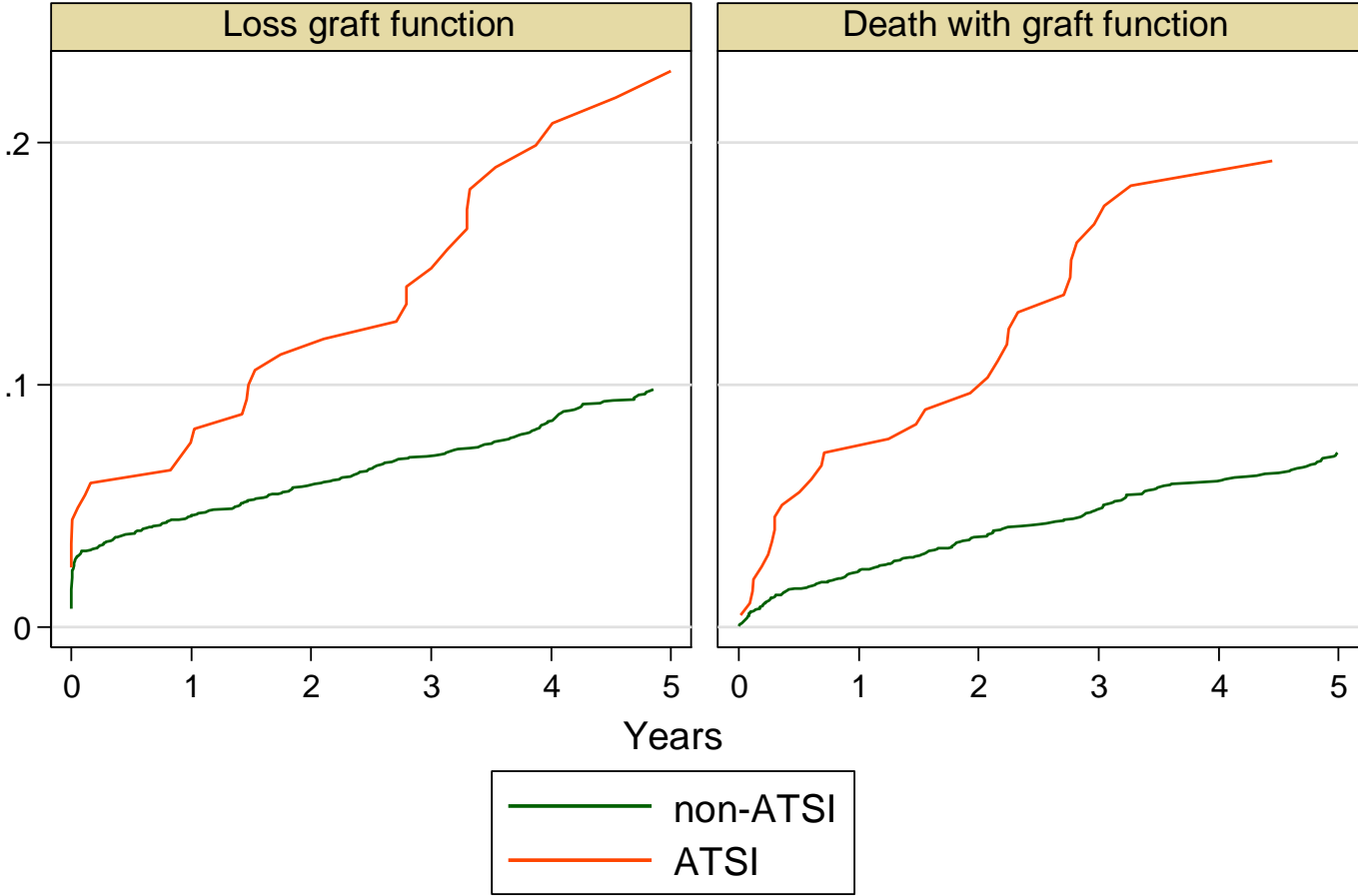
- Adjusted risk of patient mortality
 - HR 2.4 [1.4-3.4]
 - No interaction with year of transplant, diabetes
 - i.e. Relative difference not changing....



Competing risks



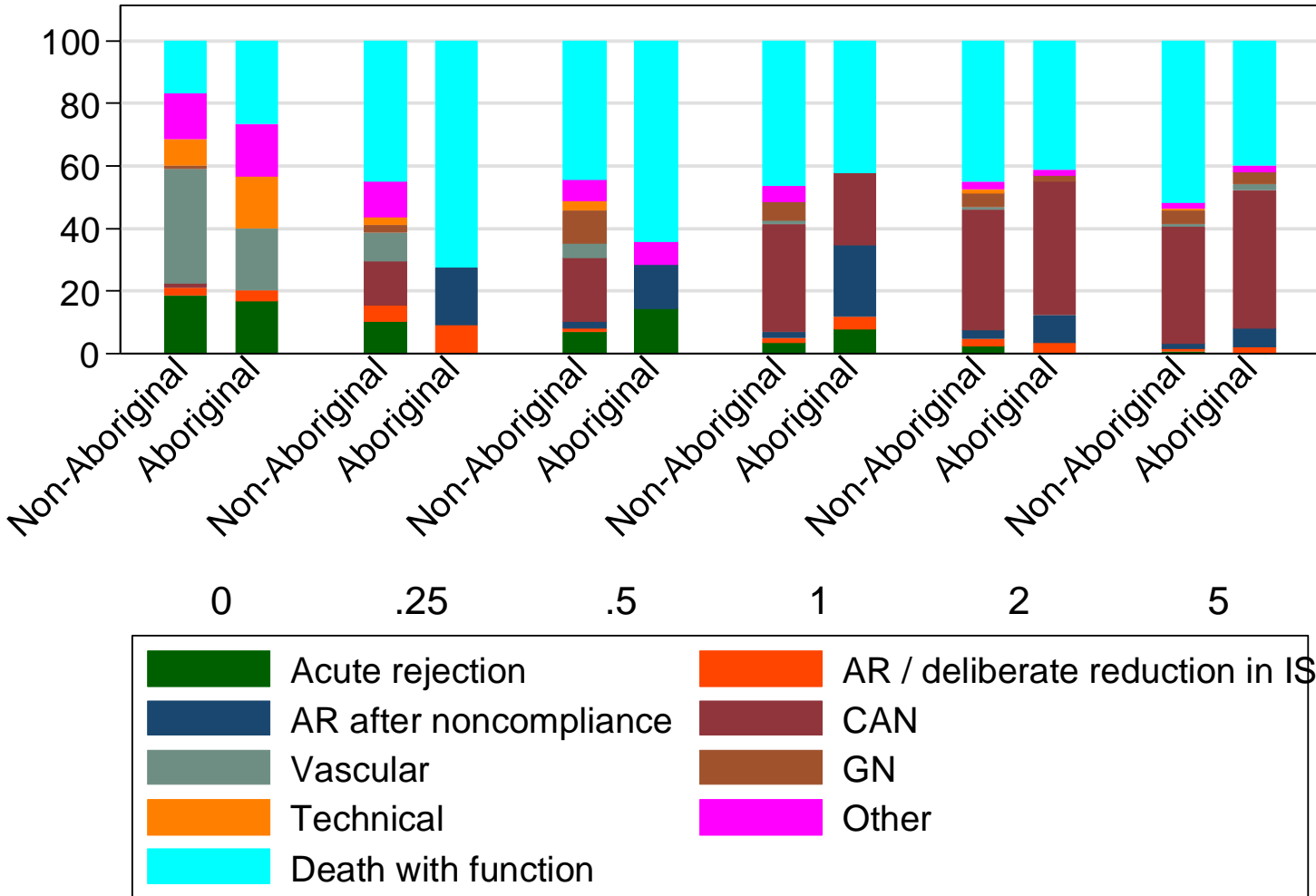
Components of graft survival



ANZDATA, all grafts 1/1/01 to 31/12/11
DD1, cumulative incidence competing risks
ATSI=Aboriginal and Torres Strait Islander



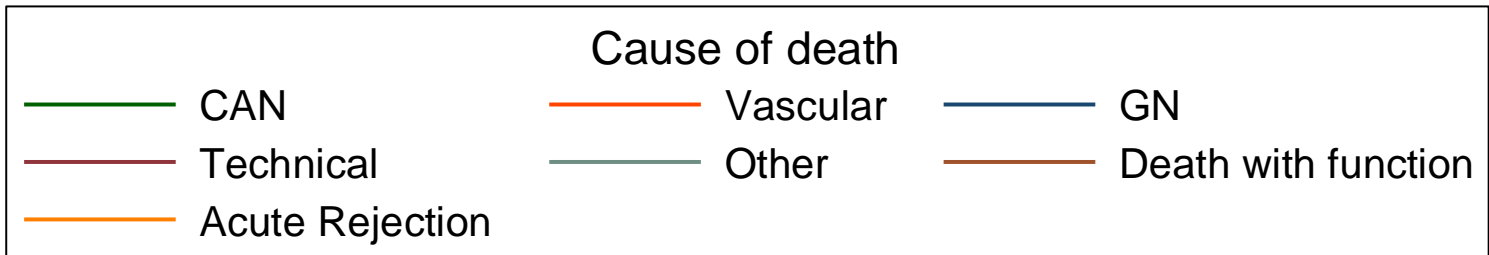
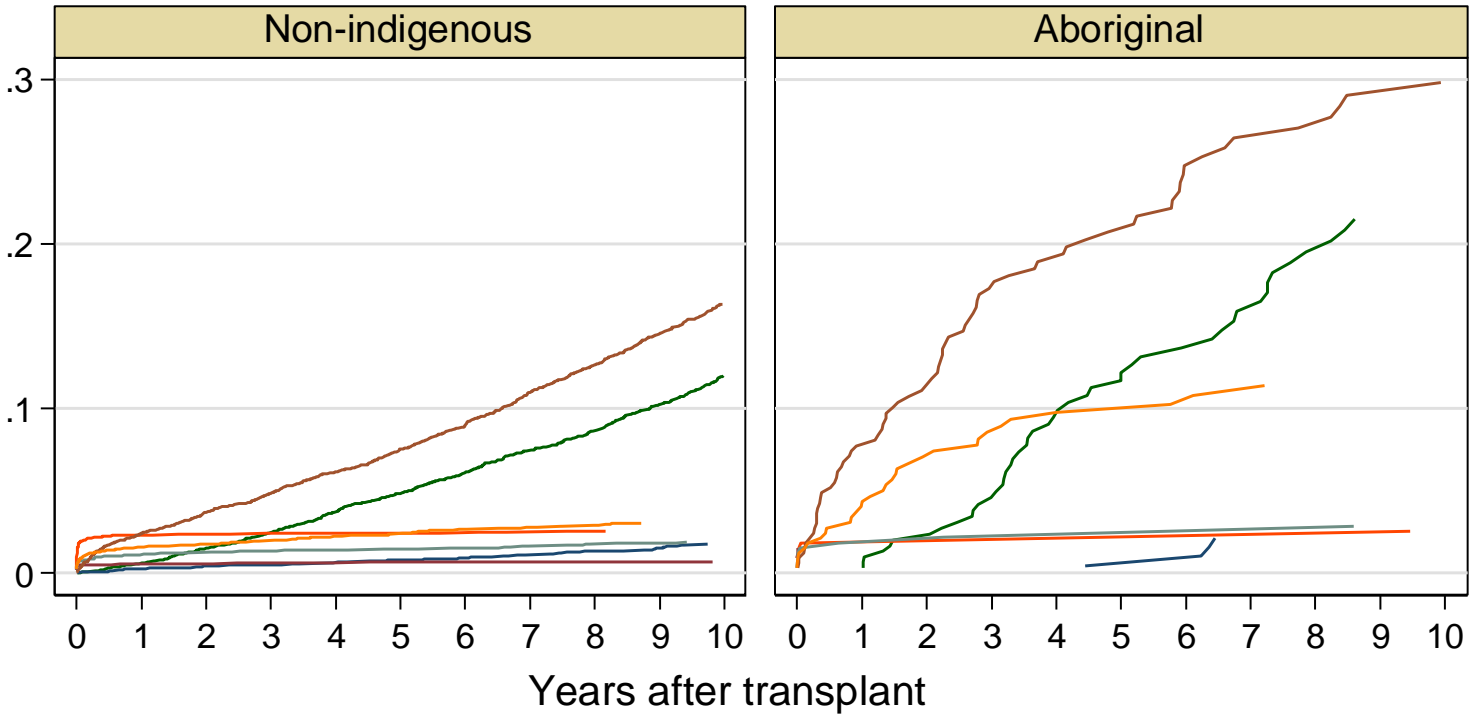
Causes of graft failure



Causes of graft loss, Australian tx, 1991-2011



Causes of graft loss

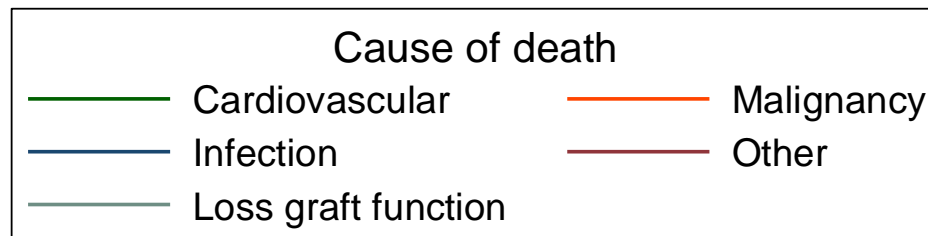
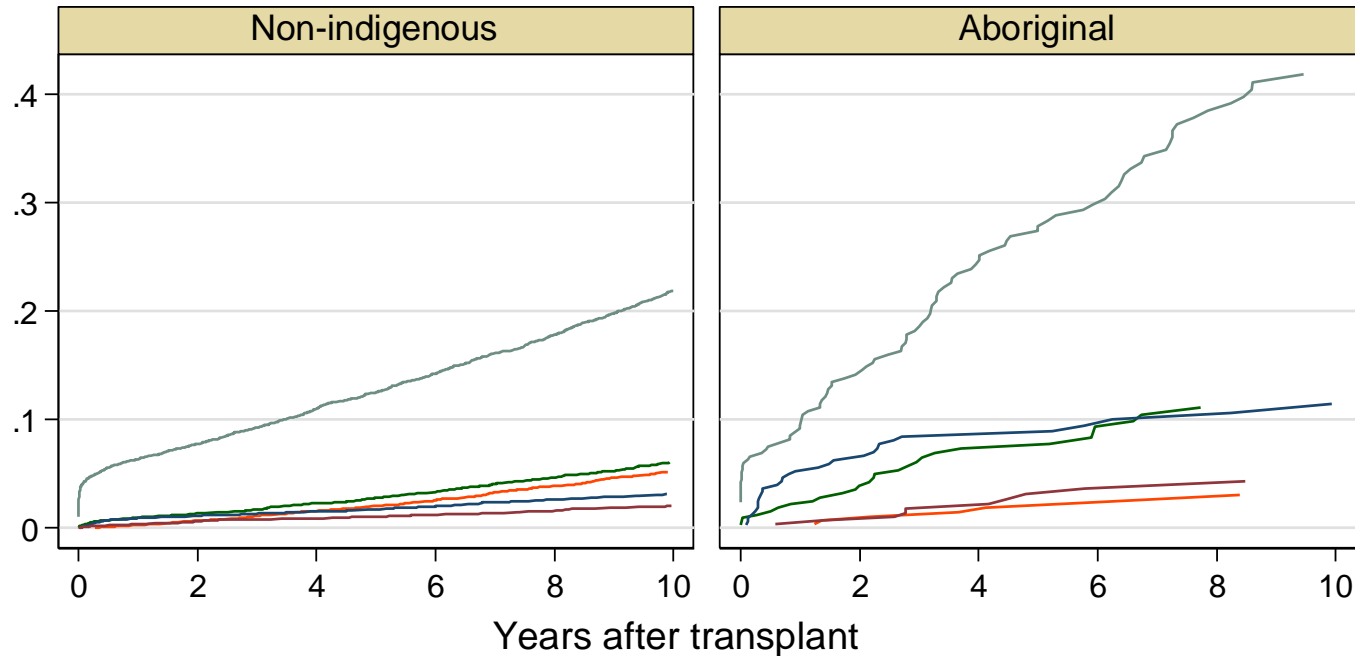


ANZDATA Registry, all grafts 1991-2011

Causes of graft loss, competing risks analysis



Causes of death during graft function

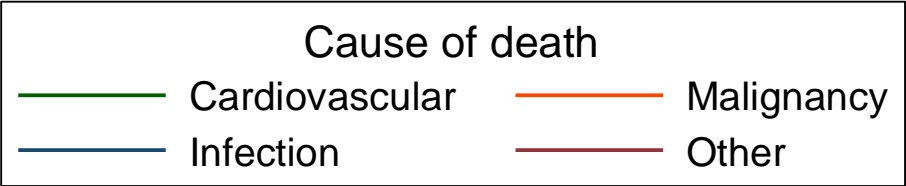
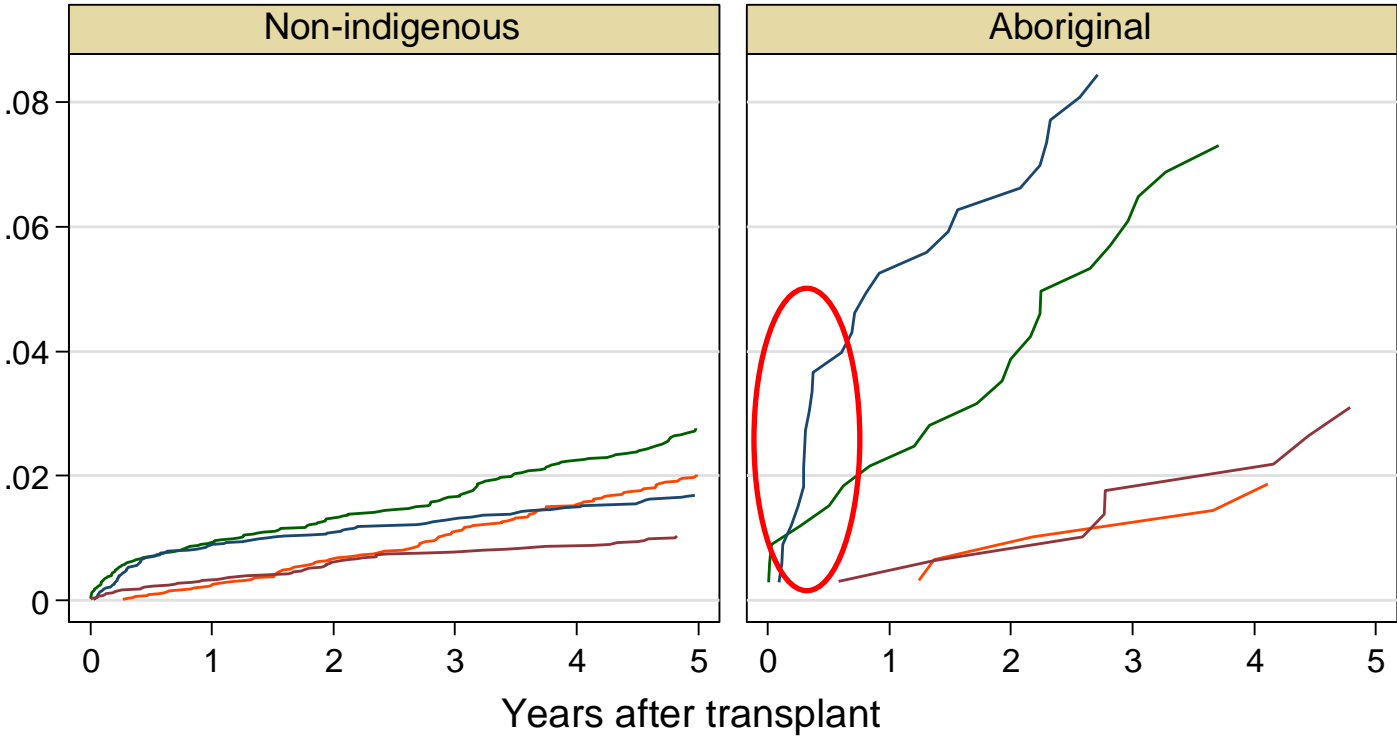


ANZDATA Registry, all grafts 1991-2011

Death with functioning graft, competing risks analysis



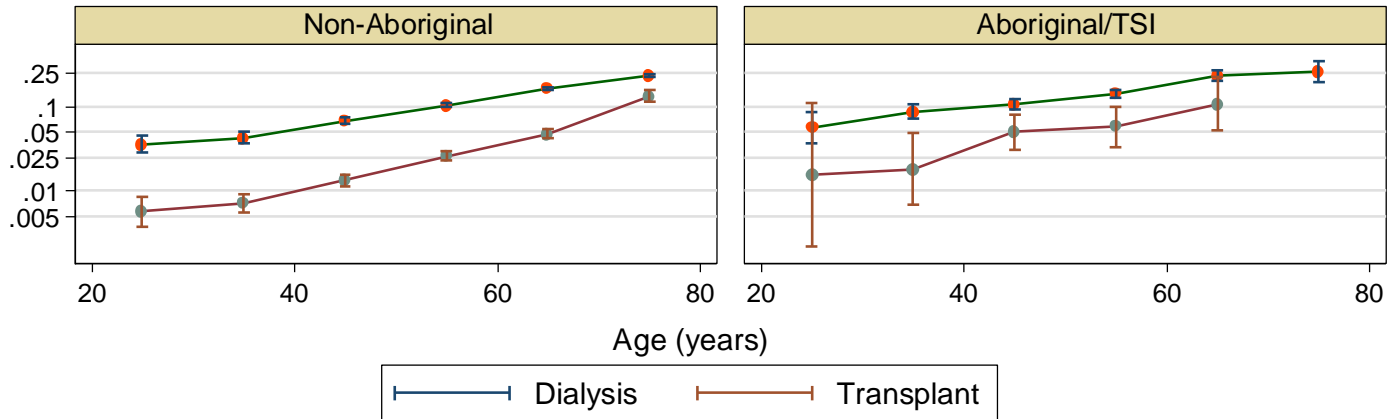
Causes of death



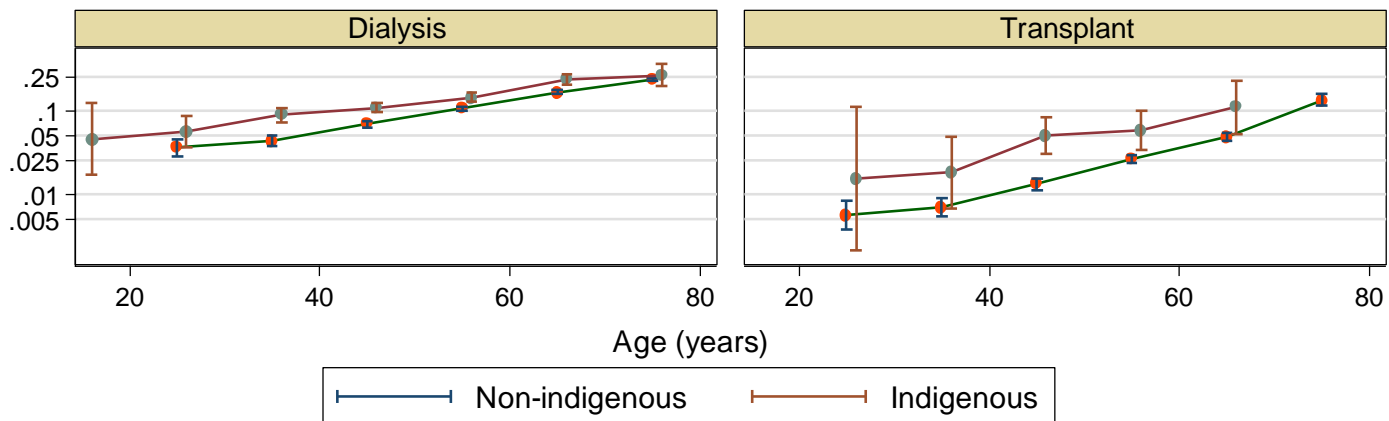
ANZDATA Registry, all grafts 1991-2011
Death with functioning graft, competing risks analysis



Is transplantation of benefit?



Mortality among patients by as-treated modality, 2006-11
ANZDATA, prevalent Australia ESKD patients



Mortality among patients by as-treated modality, 2006-11
ANZDATA, prevalent Australia ESKD patients



Bottom lines

- Activity levels appear low, but progressively rising
- Outcomes substantially poorer than non-indigenous recipients
 - Not accounted for by comorbidities
 - In contrast to dialysis
 - Not improving over time



Discussion

- Causes of graft loss differ
 - More acute rejection
- Causes of death differ
 - More infection, and early
 - More cardiovascular
- Increased rates of acute rejection
 - Infection and noncompliance / fluctuating immunosuppression may be related



Discussion

- Methodological issues
 - Under-adjustment for confounders
 - Possible reporting bias
 - HLA mismatches may not all be equal
 - Differing HLA distribution

Acknowledgements

- ANZDATA Registry
- Renal unit staff and patients

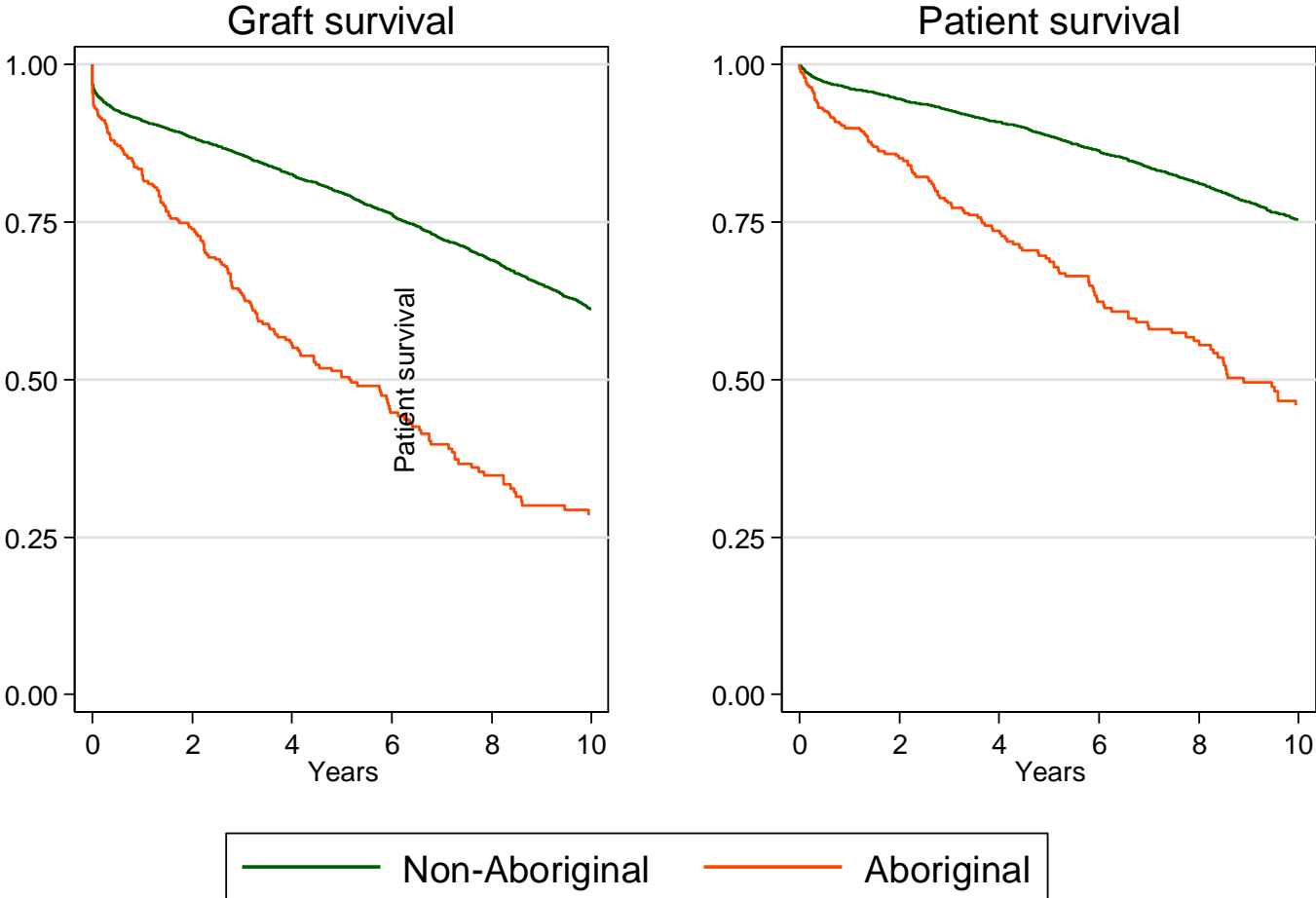


Methodology

- Outcomes from Aboriginal DD1 recipients 1991-2011 from ANZDATA Registry
 - Excluding LD and subsequent grafts
- Kaplan-Meier plots
- Cumulative incidence plots for competing risks
- Cox analysis
 - Graft failure (loss function / death with function)
 - Competing risks for component sub-hazards
 - Patient mortality
 - Adjusted for recipient & donor & transplant factors,



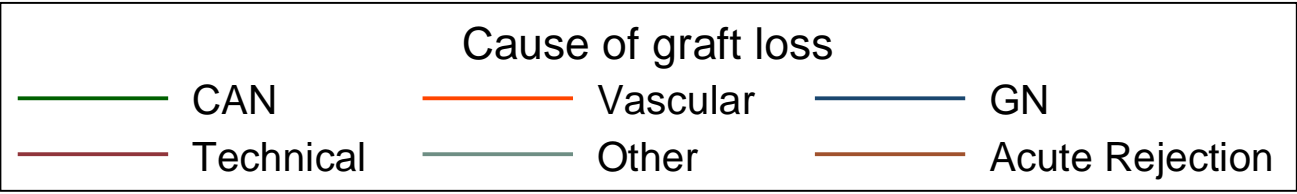
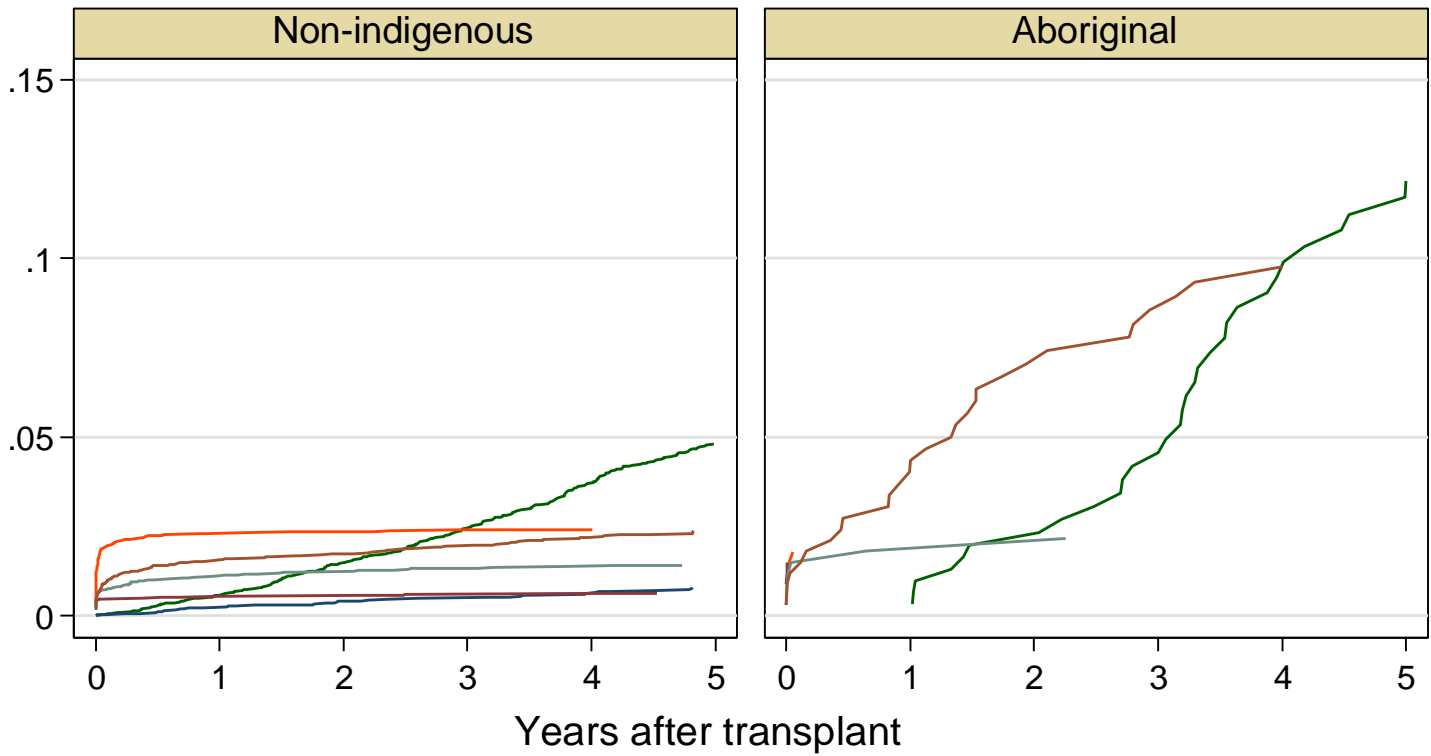
Outcomes



DD1 graft survival, 1991-2011, crude
Australia, by indigenous origin



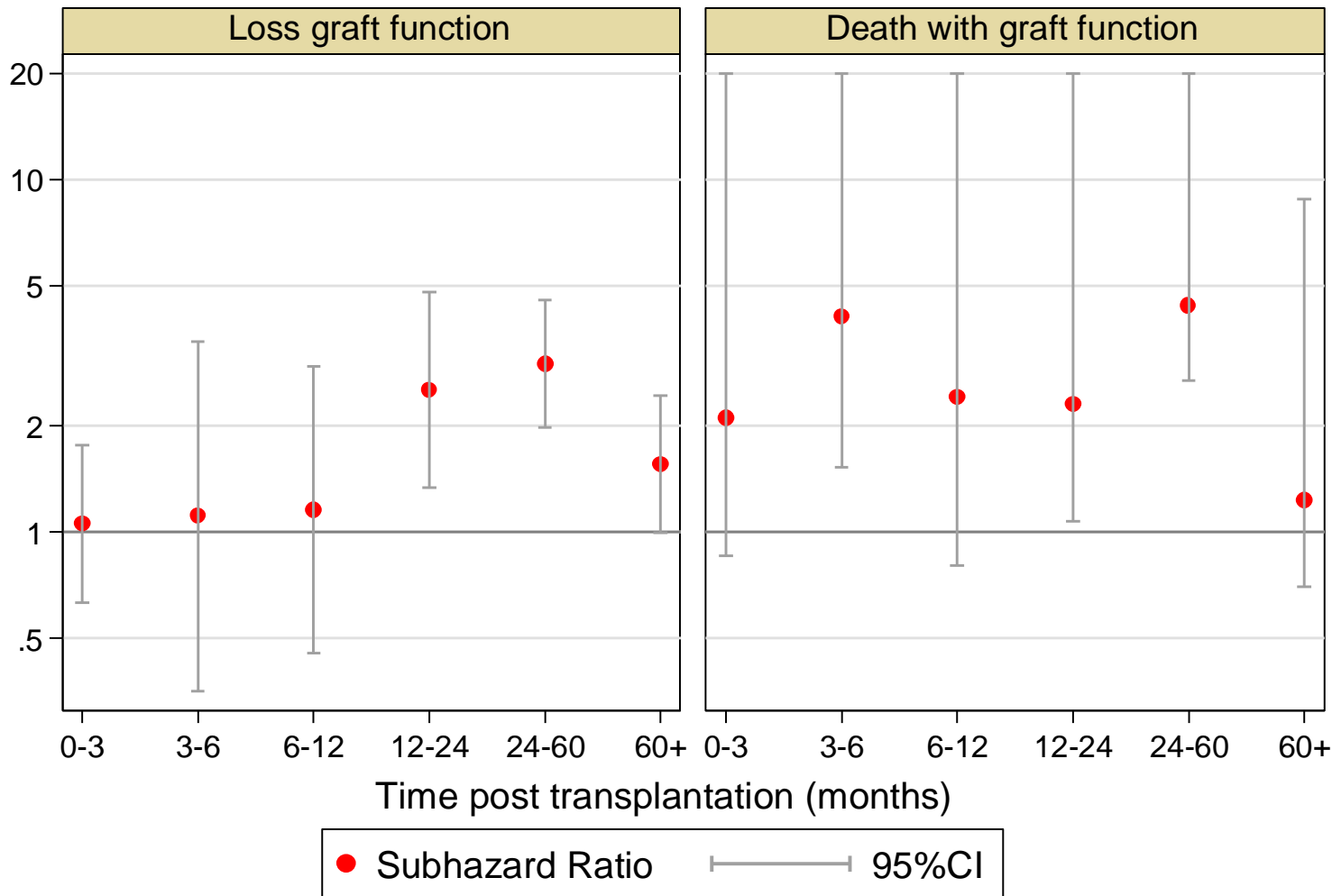
Graft loss – death excluded



ANZDATA Registry, all grafts 1991-2011
Causes of graft loss, competing risks analysis



Time effect



Multivariate competing risk models for components of graft failure
Upper CI truncated at 50