



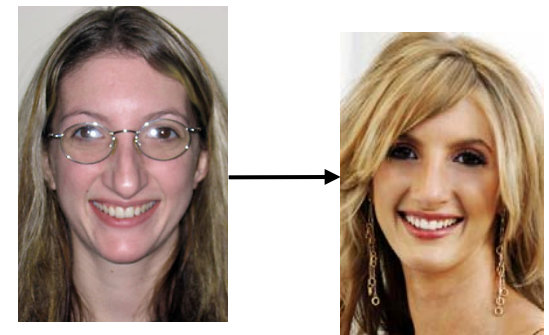
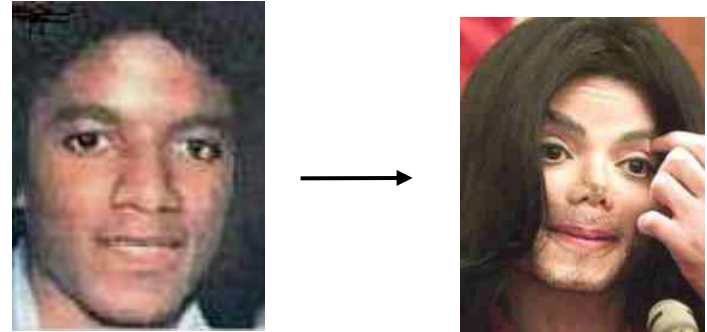
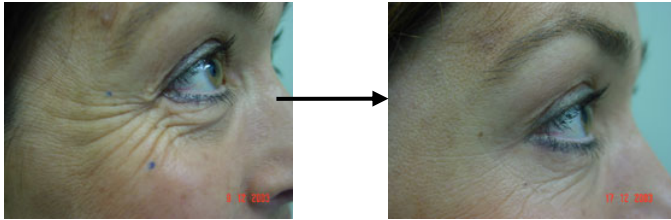
Extreme makeovers

Stephen McDonald
ANZDATA Registry



Recent trends in practice

- Plastic surgery for all!





Extreme medicine *nephrology* **ever**

The “cutting edge” of renal replacement therapy...

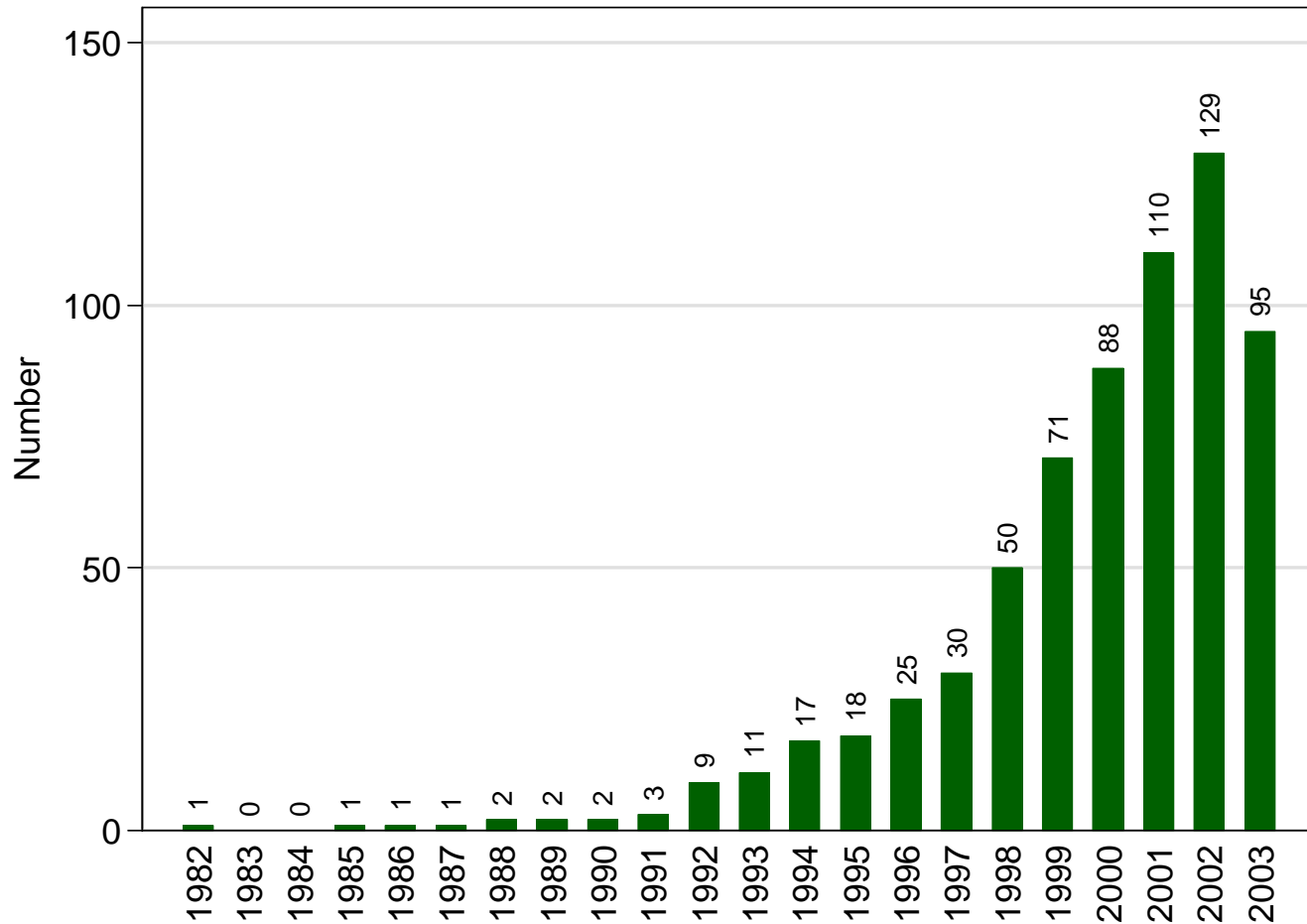


Recent trends in practice 2

- Are we now providing RRT for all?
 - Dialysis among the very old
 - 80+ years at time of RRT start
 - Transplants among older recipients
 - 65+ years at time of transplant
 - RRT among the very young
 - <1 year at RRT start



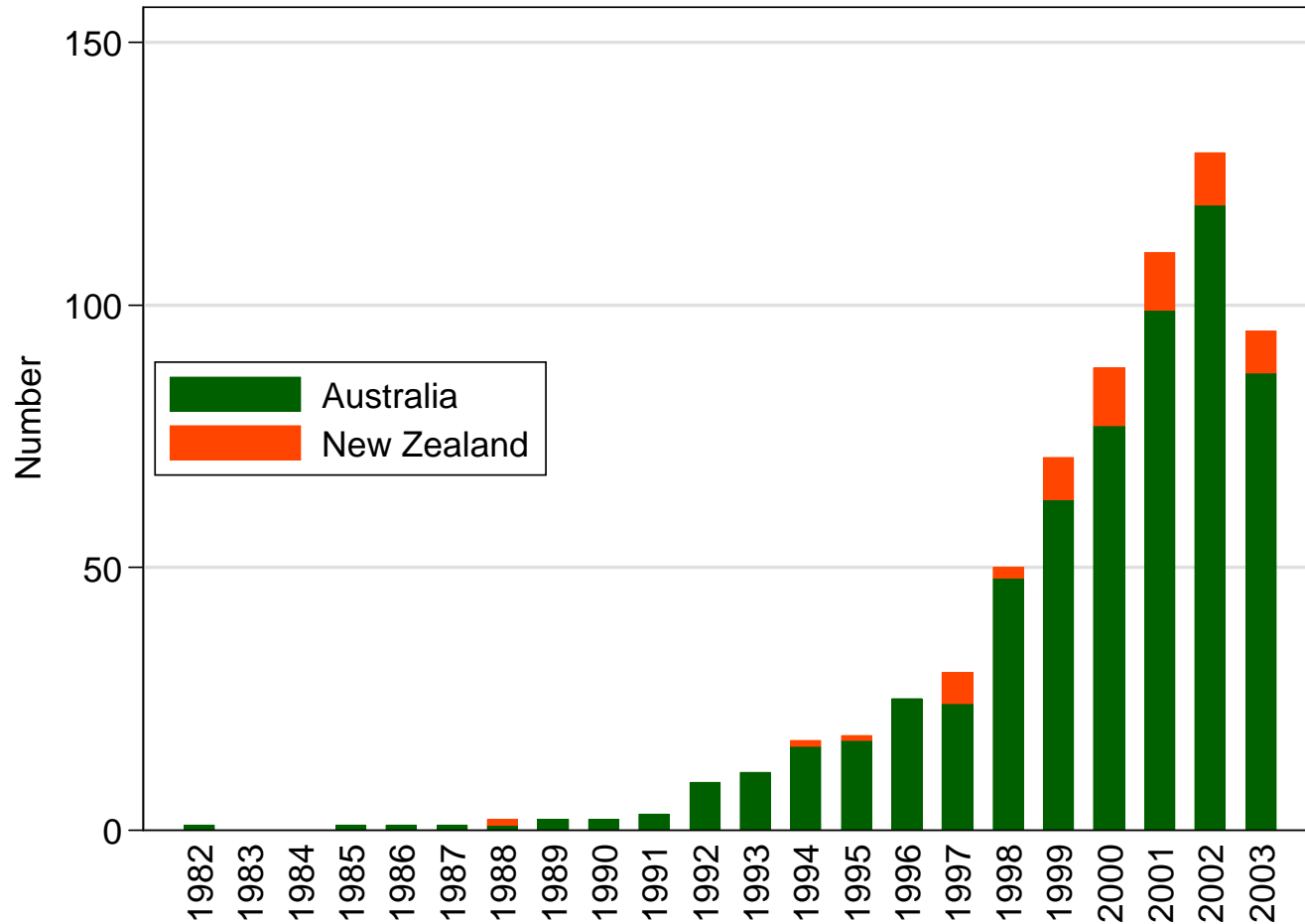
1. The very old



*Number of people starting RRT 80+ years, Australia + New Zealand
9 Months data shown for 2003*



Australia vs New Zealand



*Number of people starting RRT 80+ years, Australia + New Zealand.
9 months data for 2003. 2002 Australia rate new RRT 189 [157-226] pmpy*



Selection bias

- The prevalence of some comorbidities is lower among the “very old” group

Odds ratio [95% CI]

- | | |
|-------------------|---------------------------|
| • Diabetes | 0.44 [0.36-0.55], p<0.001 |
| • Periph Vasc Dis | 0.79 [0.66-0.94], p=0.006 |
| • Lung disease | 0.76 [0.61-0.94], p=0.01 |
| • Smoking | 0.33 [0.19-0.55], p<0.001 |

But not

- | | |
|---------------------------|------------------|
| • Coronary artery disease | 1.0 [0.84-1.18] |
| • Cerebrovascular disease | 0.89 [0.73-1.08] |

OR are compared to 65-79 year old new RRT 1991-present



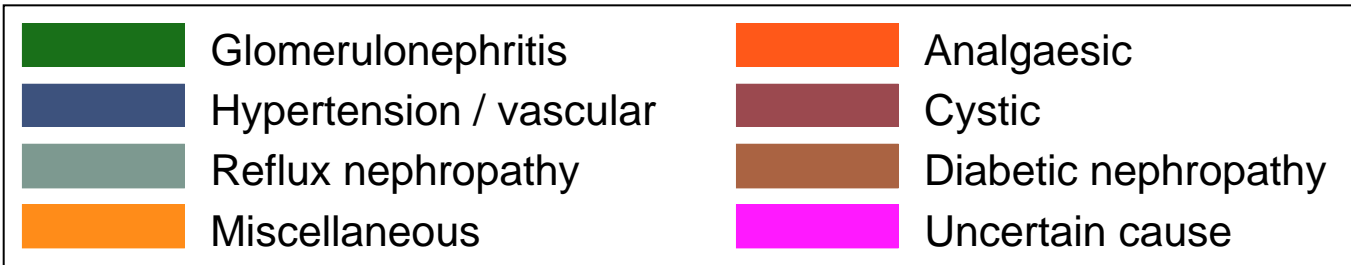
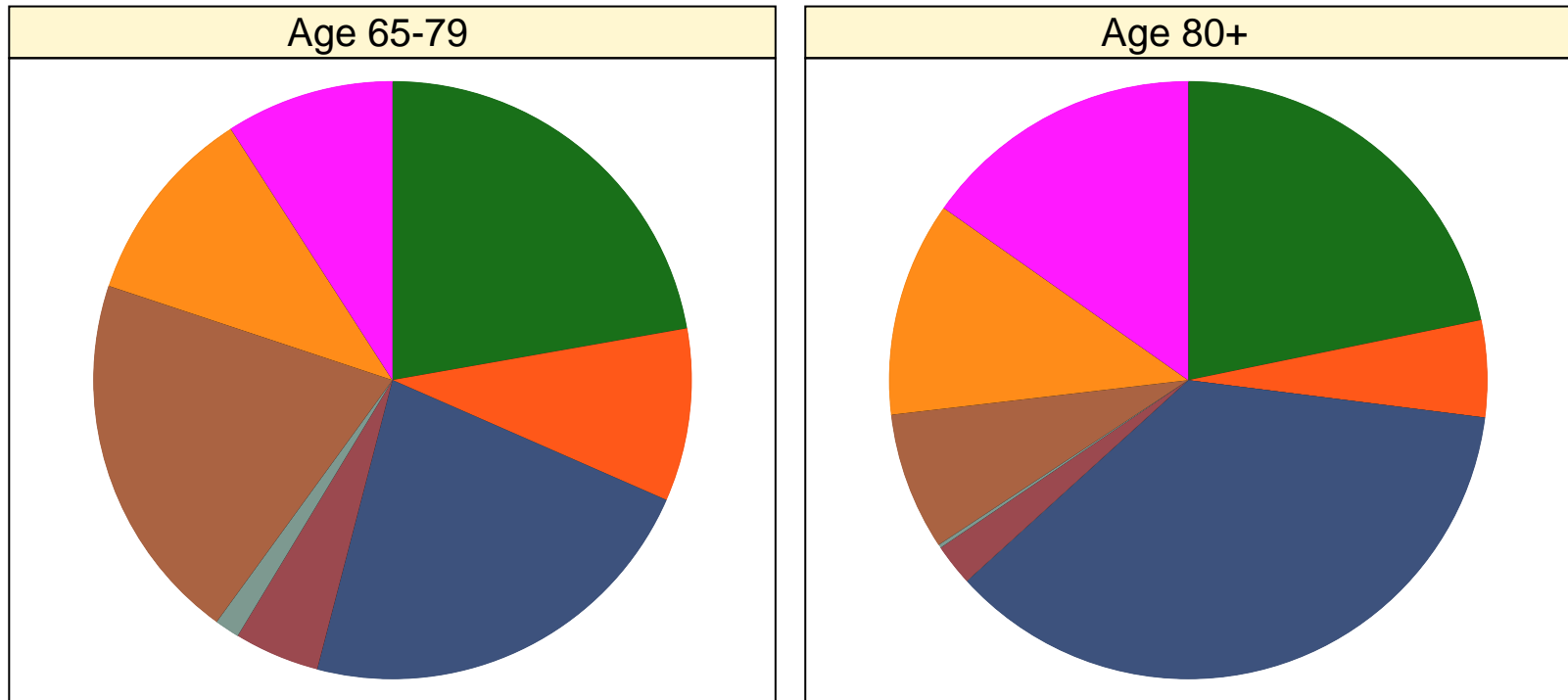
Other bias

- Late referral rates are *higher* among the 80+ group (cf 65-79 y.o.)
 - 31% vs 23%, OR 1.48 [1.23-1.78], $p < 0.001$
 - What does this indicate?
 - Referral bias
 - Selection bias





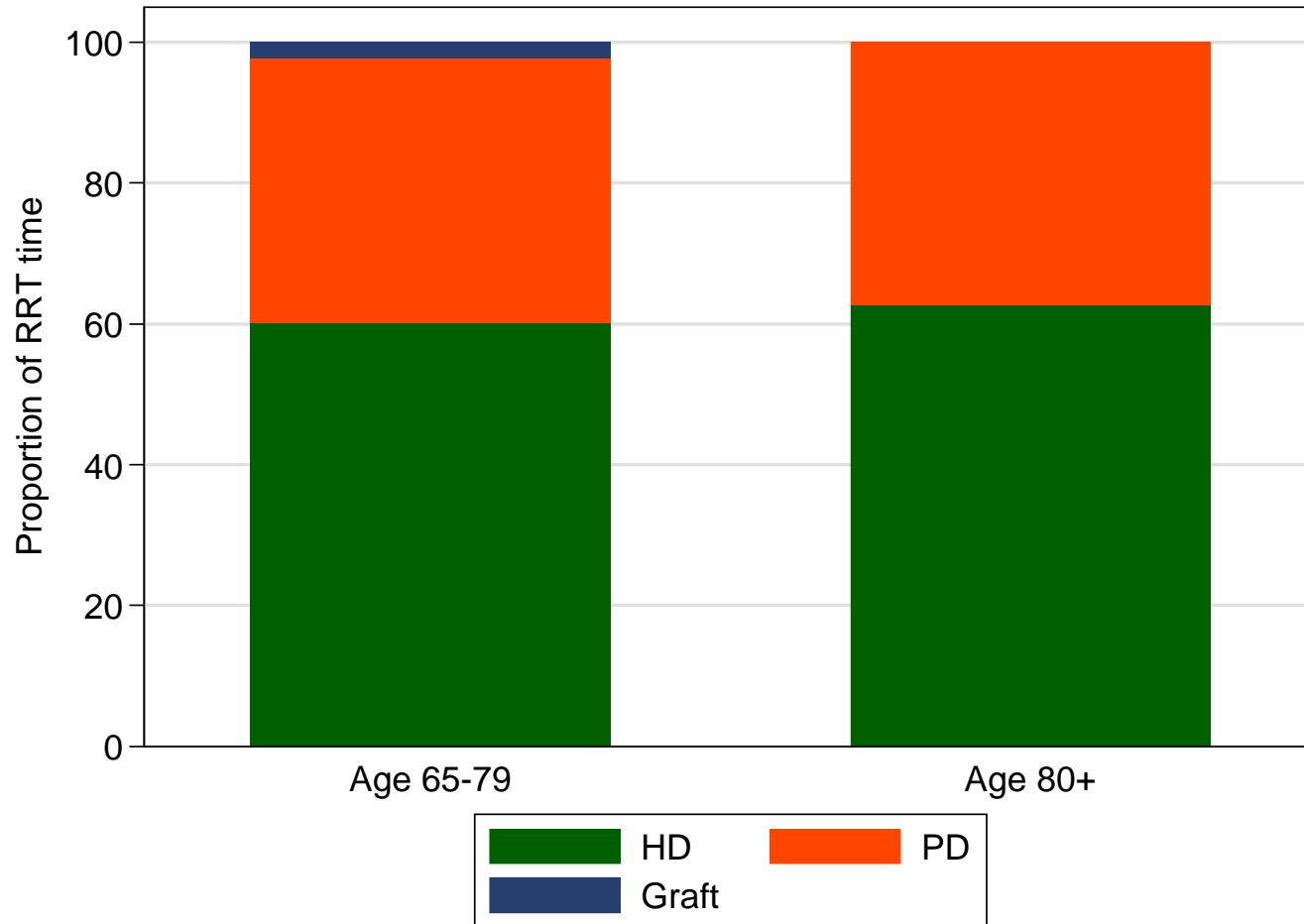
Primary renal disease



Primary renal disease by age, new RRT 1991-2003. $P < 0.001$ for differences



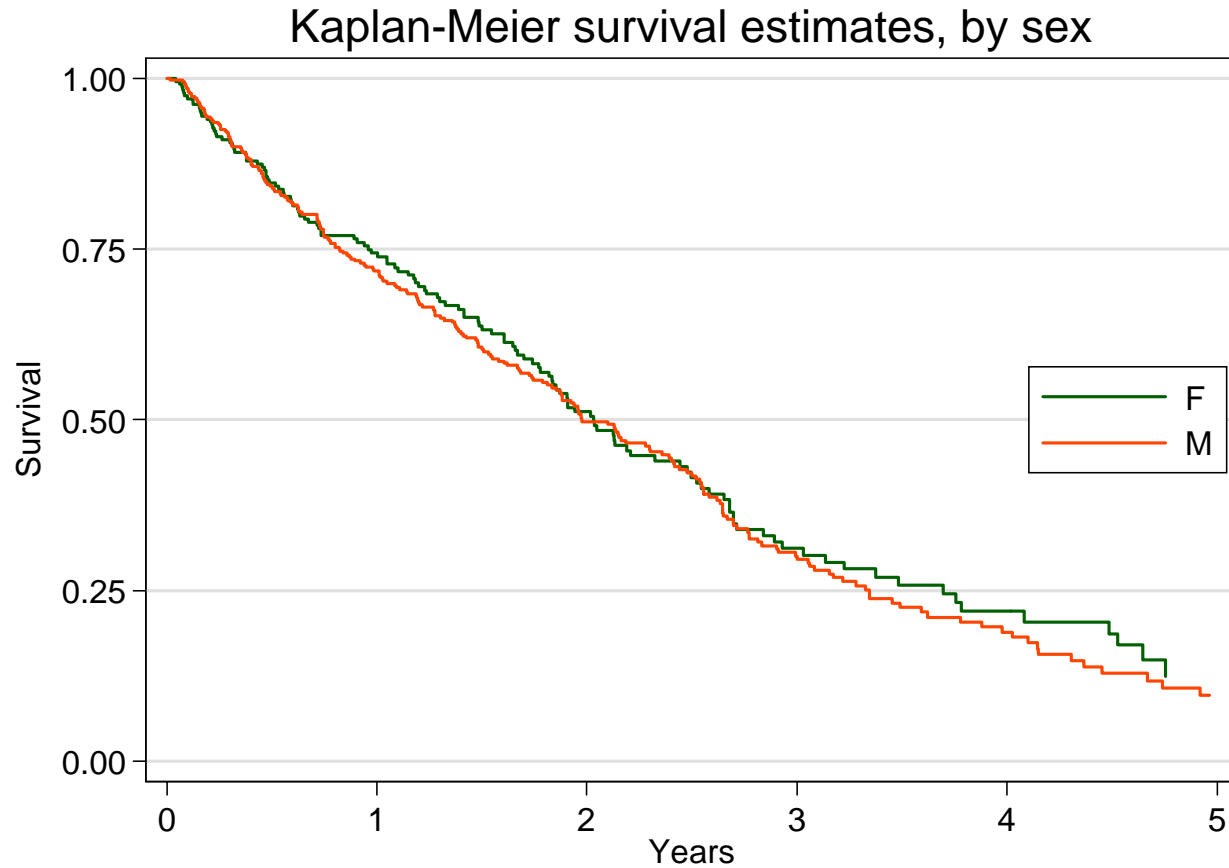
Treatment of the very elderly



People ≥ 65 at RRT start, 1991-present, proportion of person-time by RRT modality



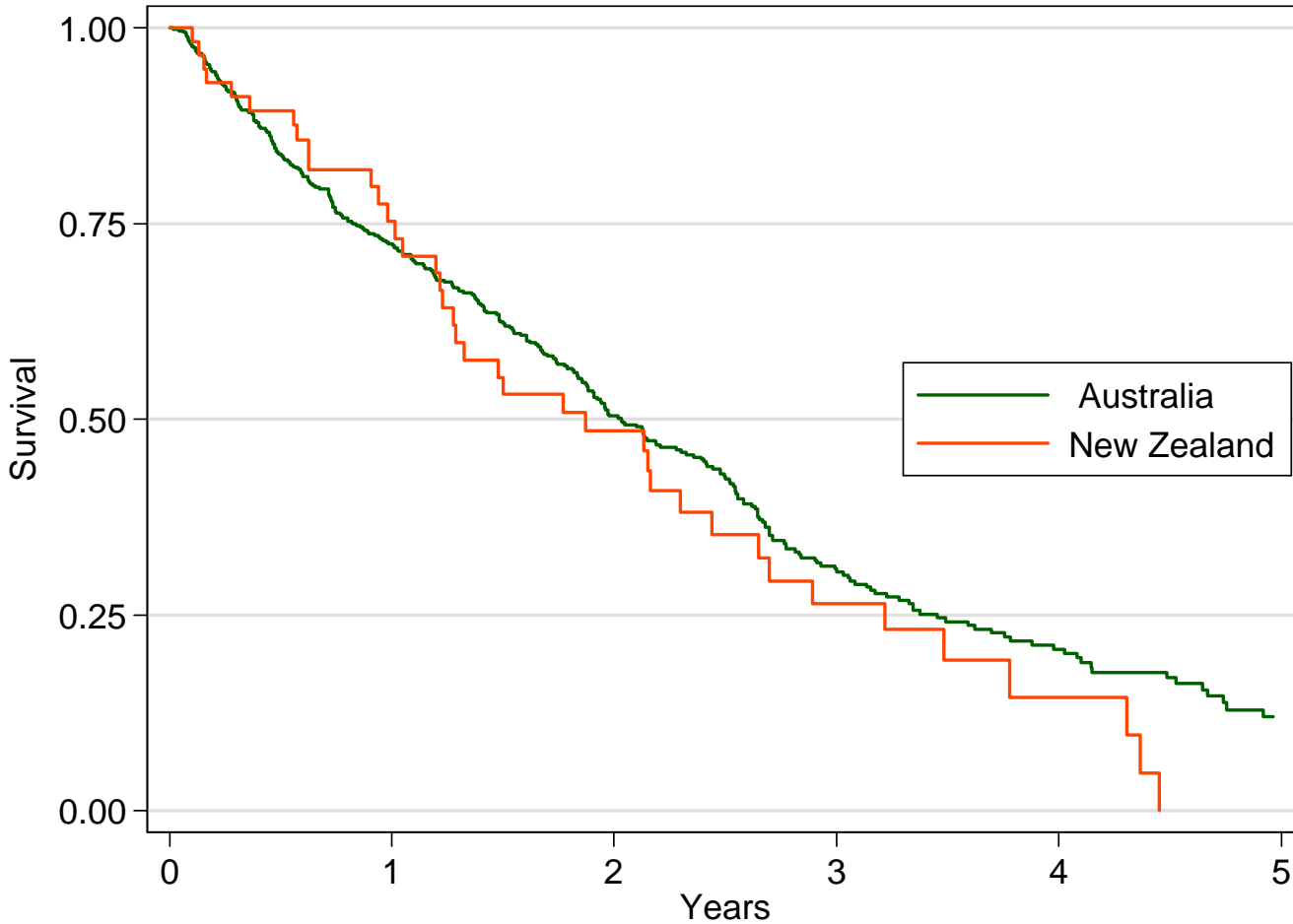
Sex and survival



Survival of 80+ year olds by gender, Australia & NZ



Survival by country



No difference by country in survival among 80+ year olds at RRT start

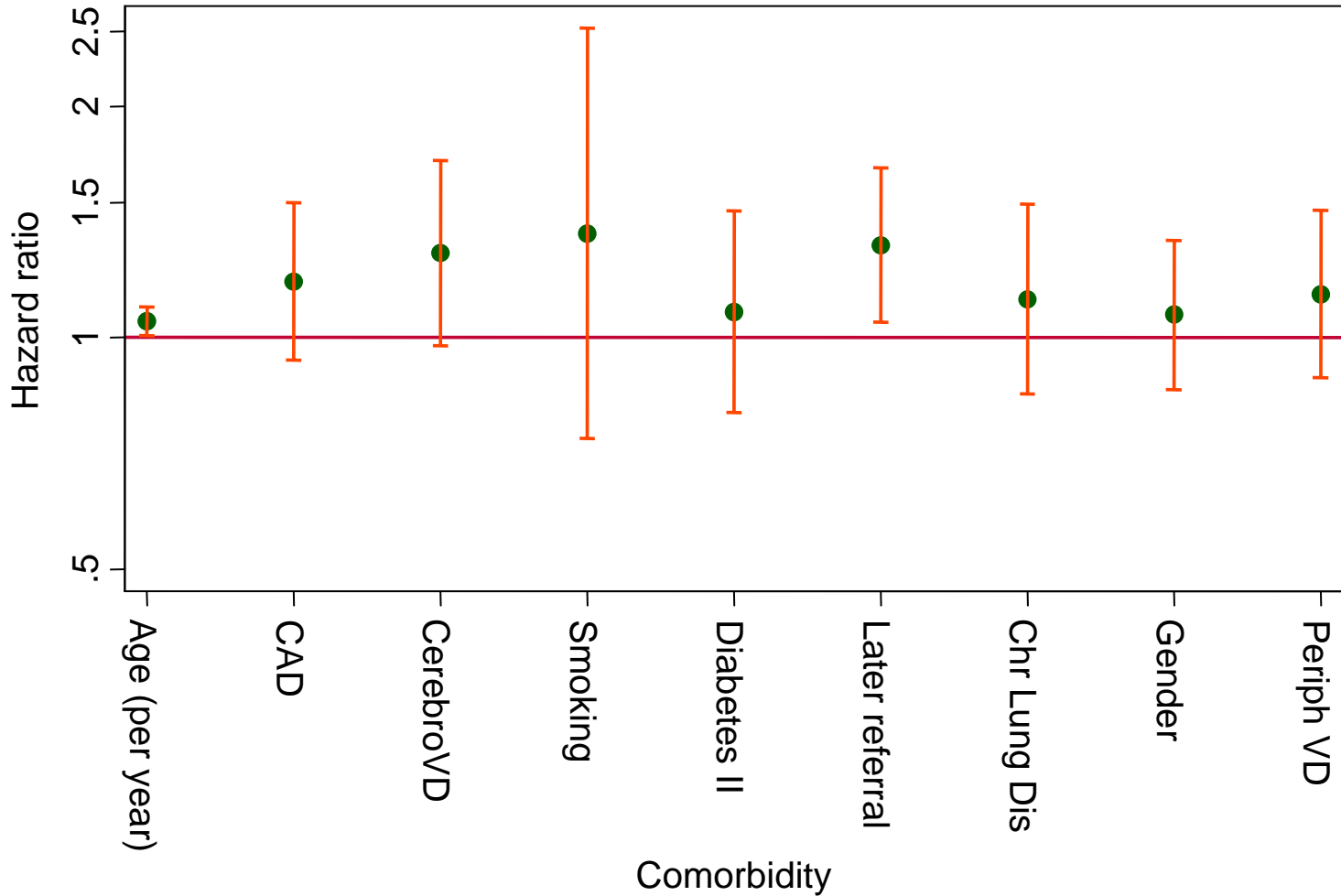


Survival – the figures

- K-M Survival
 - 1 yr 72.8% [95% CI 69.0-76.2]
 - 2 yr 50.3% [95% CI 45.8-54.6]%
 - 3 yr 30.4% [95% CI 26.0-35.0]%
 - 5 yr 10.6% [95% CI 6.8-15.4]%
- Mortality rate
 - 37.0 [95% CI 33.5-40.9] per 100 per year
 - SMR 5.0 [95% CI 4.5-5.5] times general population
 - Indirectly standardised for age/gender among 80+



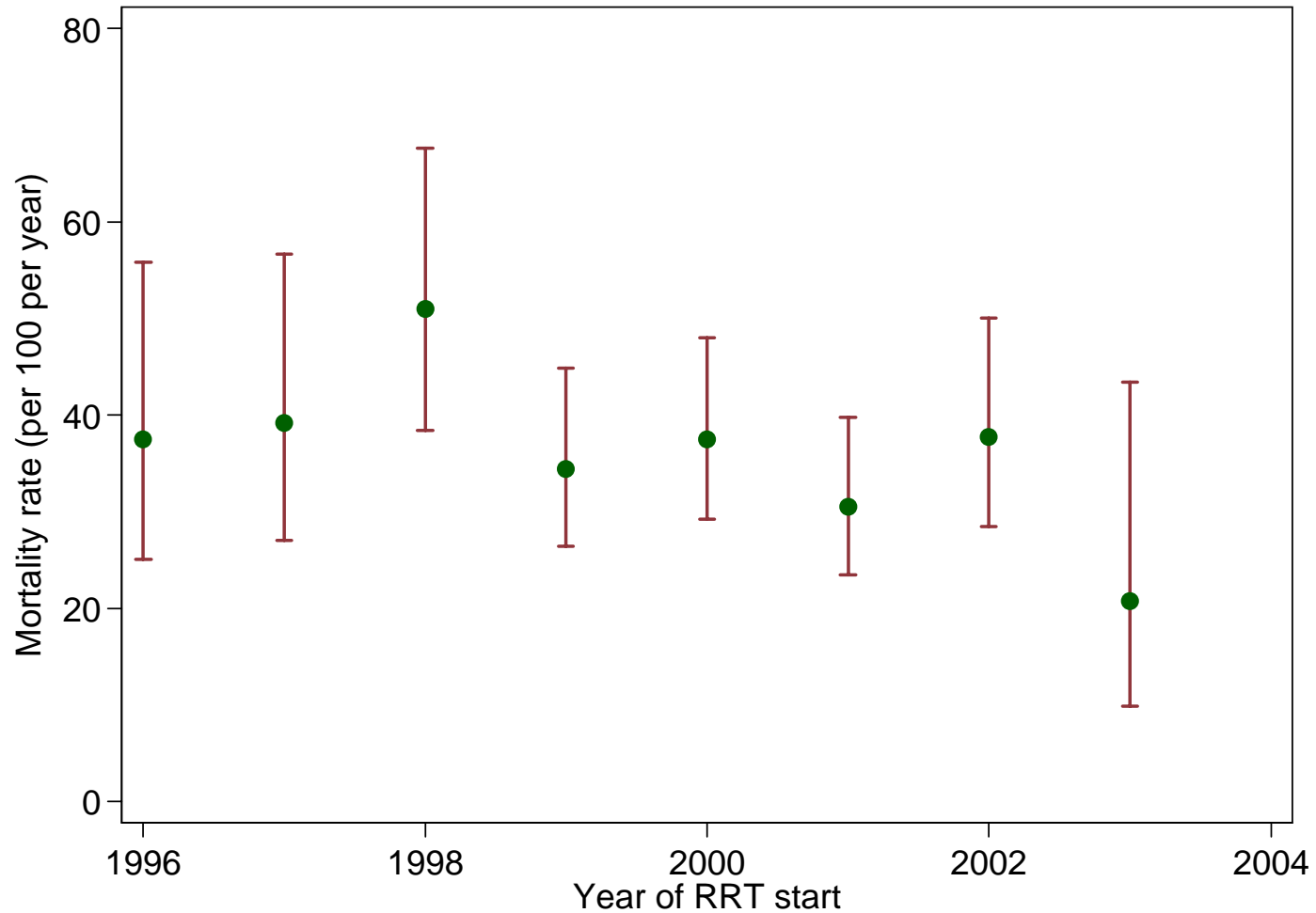
Impact of comorbidity



Multivariate model: hazard ratios for death, RRT aged ≥ 80 at start, 1991-2003



Survival trends



Mortality rate by vintage, 80+ years at RRT start

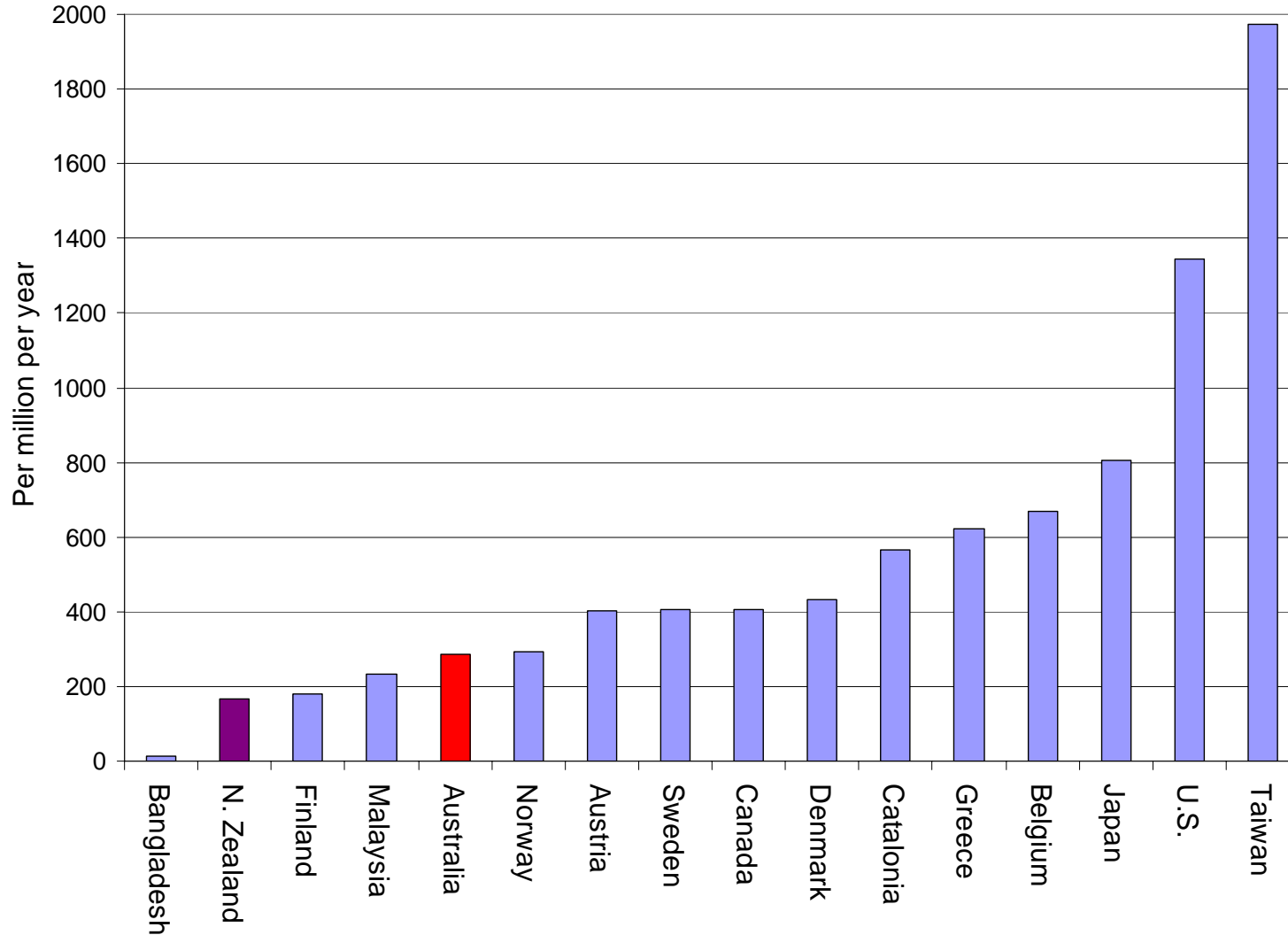


What do others do?

- New RRT rates 2001 (per mill per year)
 - Australia 99 cases, rate 166 [135-203]
 - New Zealand 11 cases, rate 98 [49-176]
 - United States 11623 cases, rate 1234 [1212-1257]!



More comparisons



Rates of new RRT among 75+ years by various countries



2. Older transplants

BIG BOSS incorporated by Glenn Lumsden



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"Before we make this crucial presentation, guys, I just want to make one thing clear: there's no "I" in "teamwork" ... but there's a REALLY big "U" in failure."

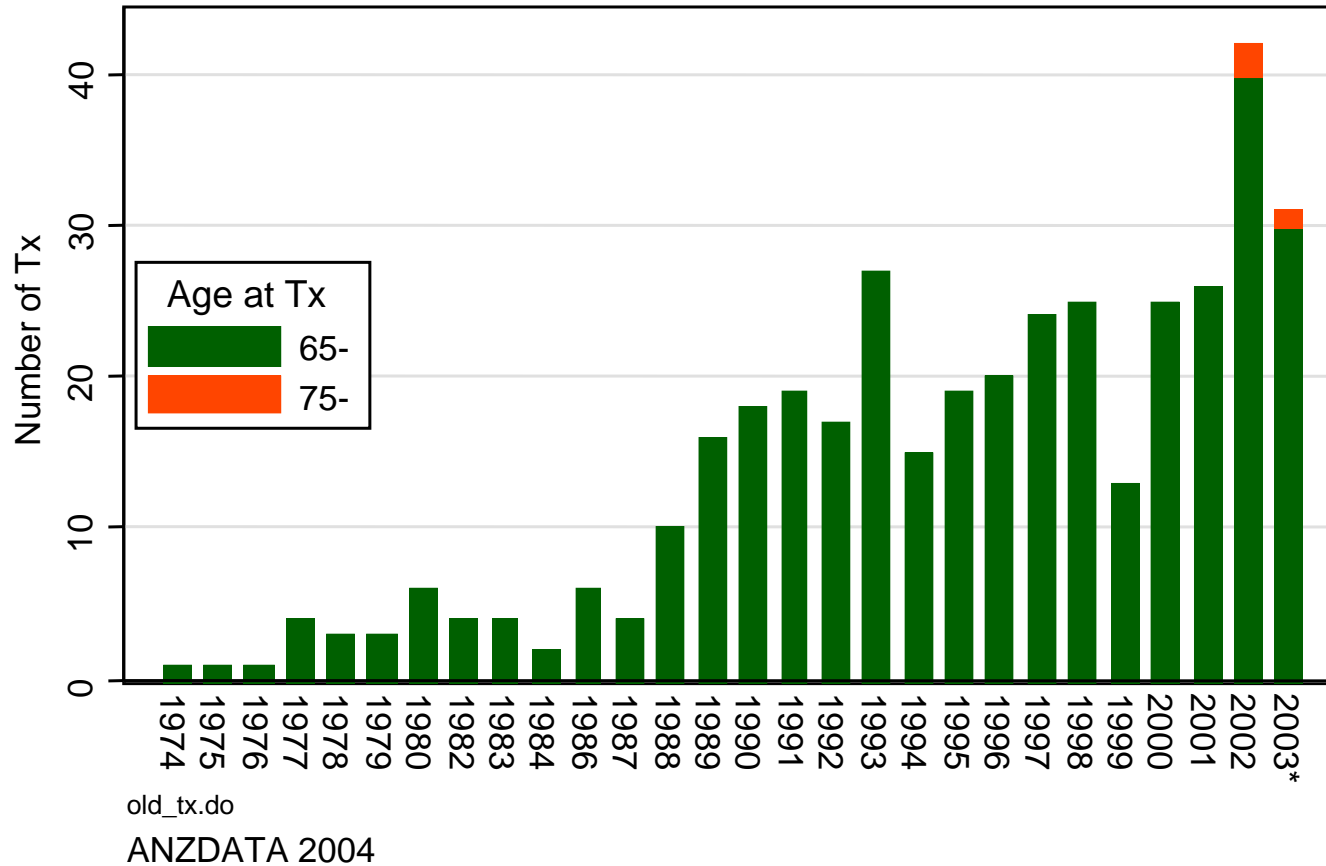


Old transplants

- The number of transplants performed to older recipients (≥ 65 years) has jumped dramatically in the past 15 years



Numbers of older Tx

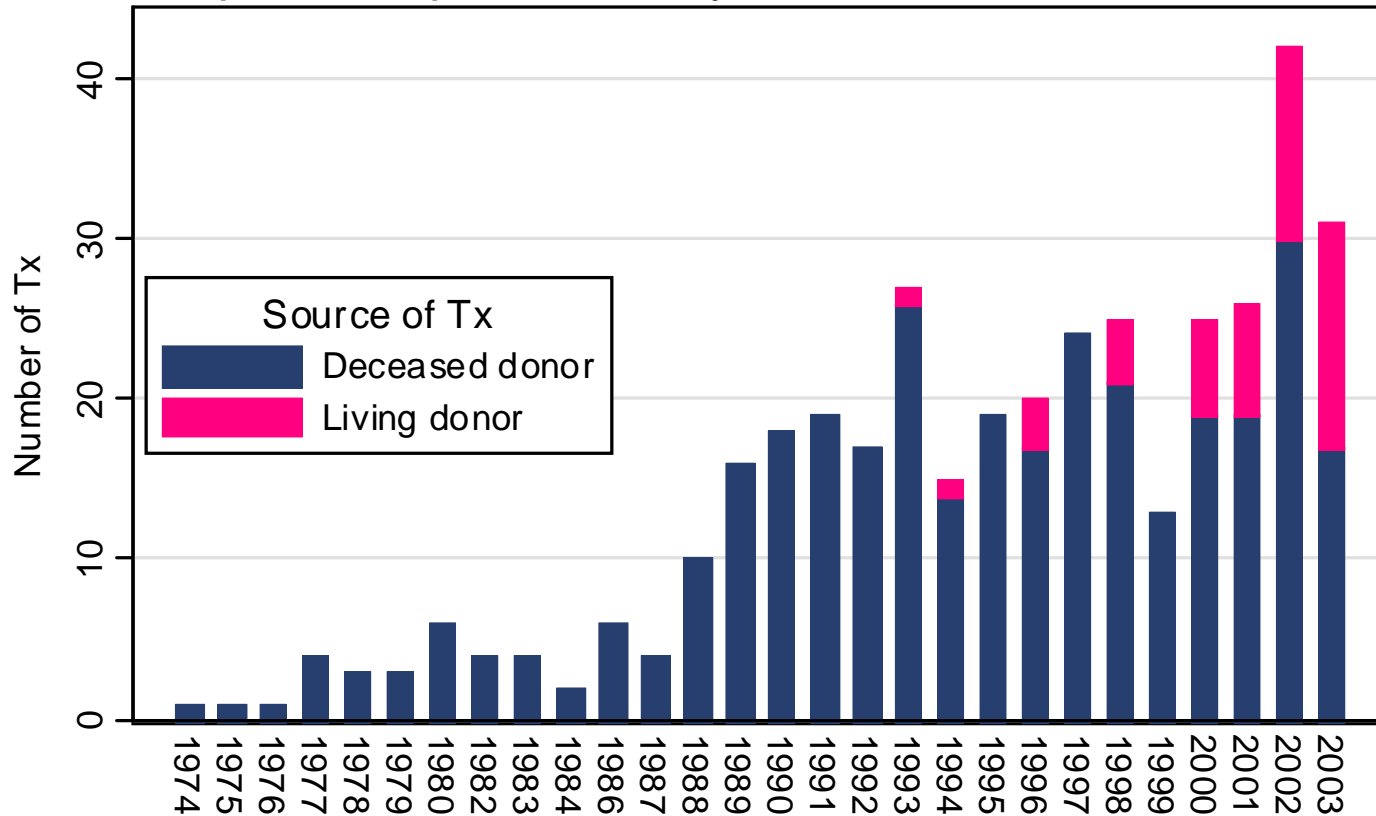


Number of older transplant recipients, Australia & New Zealand. Only 9 months data shown for 2003



Source of Tx

Transplant recipients ≥ 65 years, Australia & New Zealand



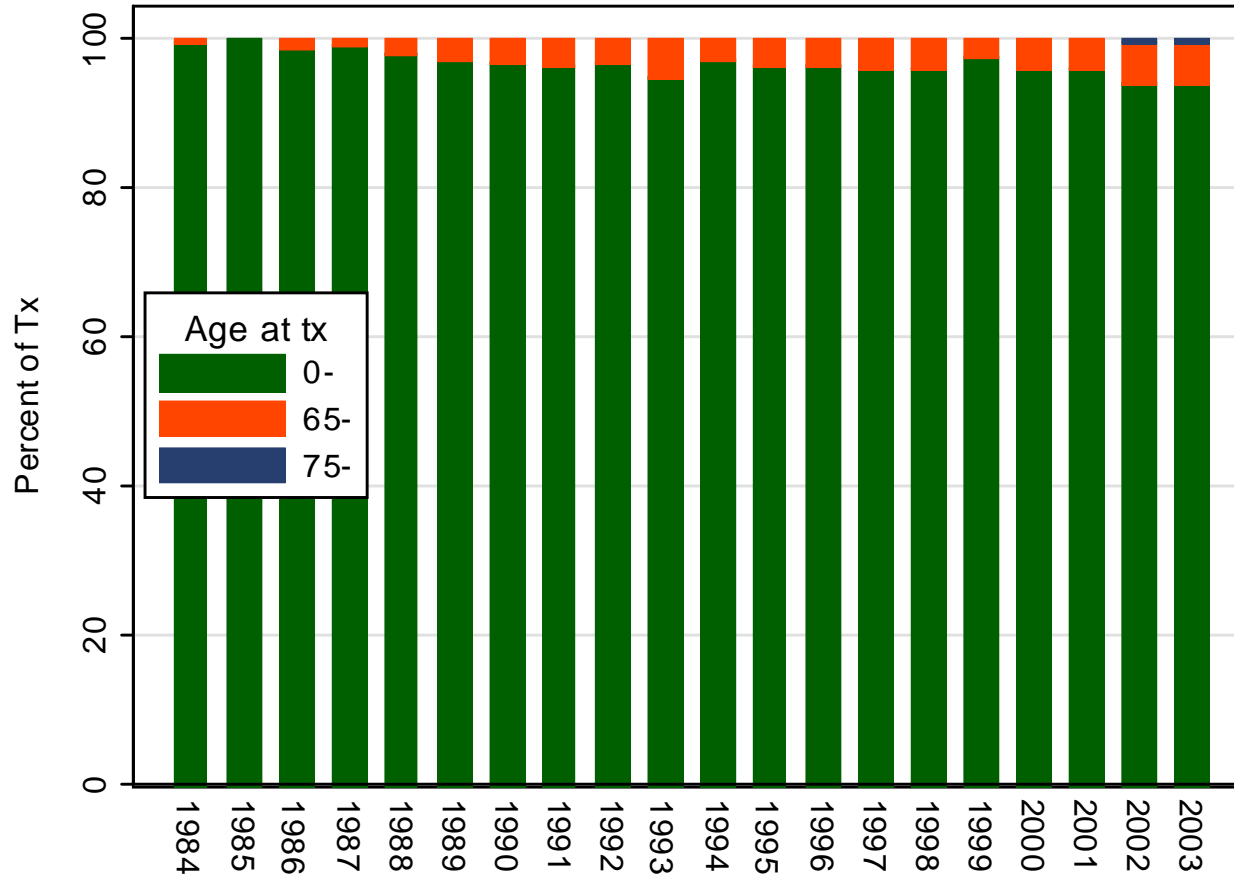
old_tx.do

ANZDATA 2004

Number of older transplant recipients, Australia & New Zealand. Only 9 months data shown for 2003



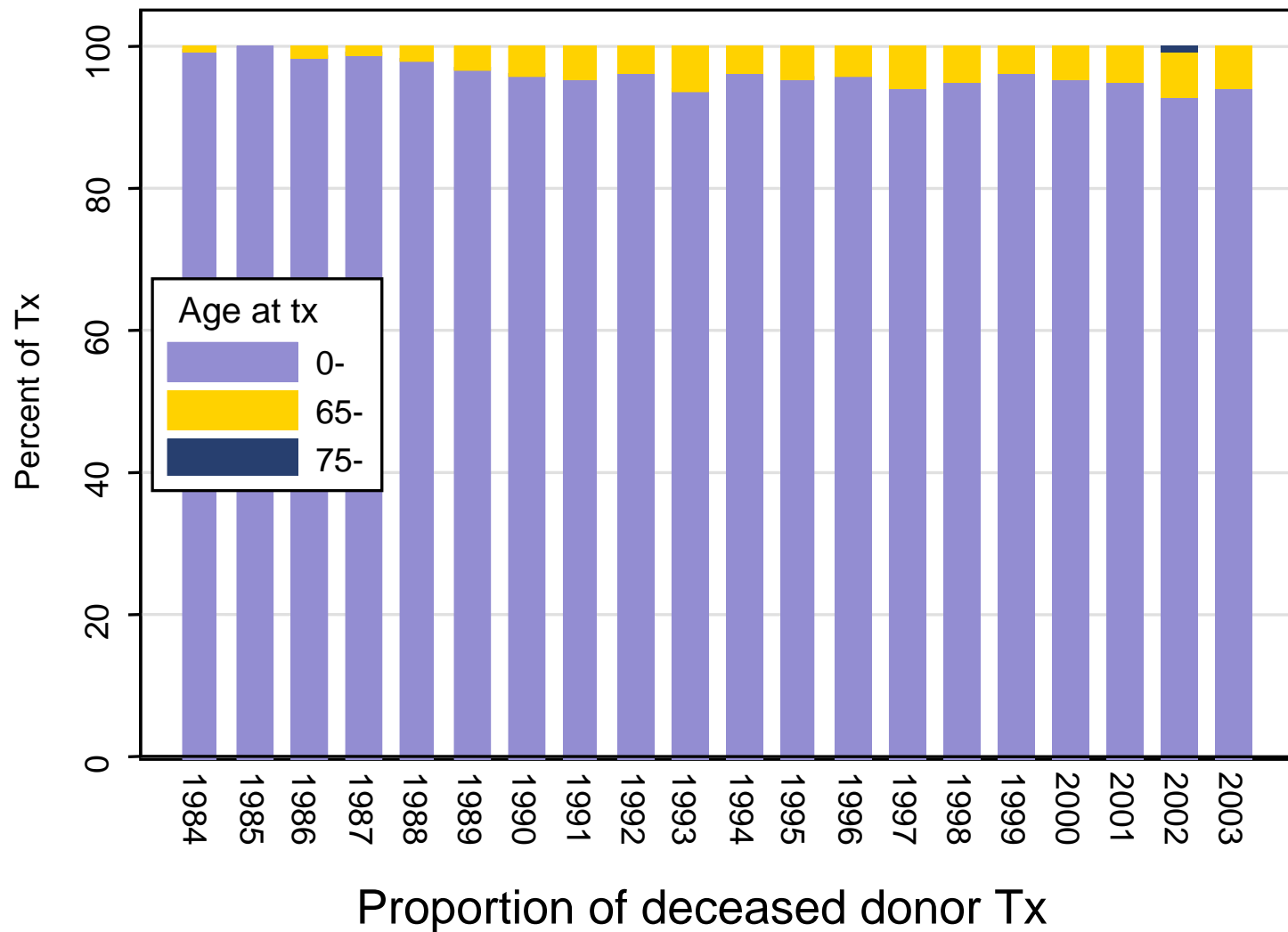
Proportion of all Tx



All transplants, Australia and New Zealand, by age at time of Tx



Proportion of DD





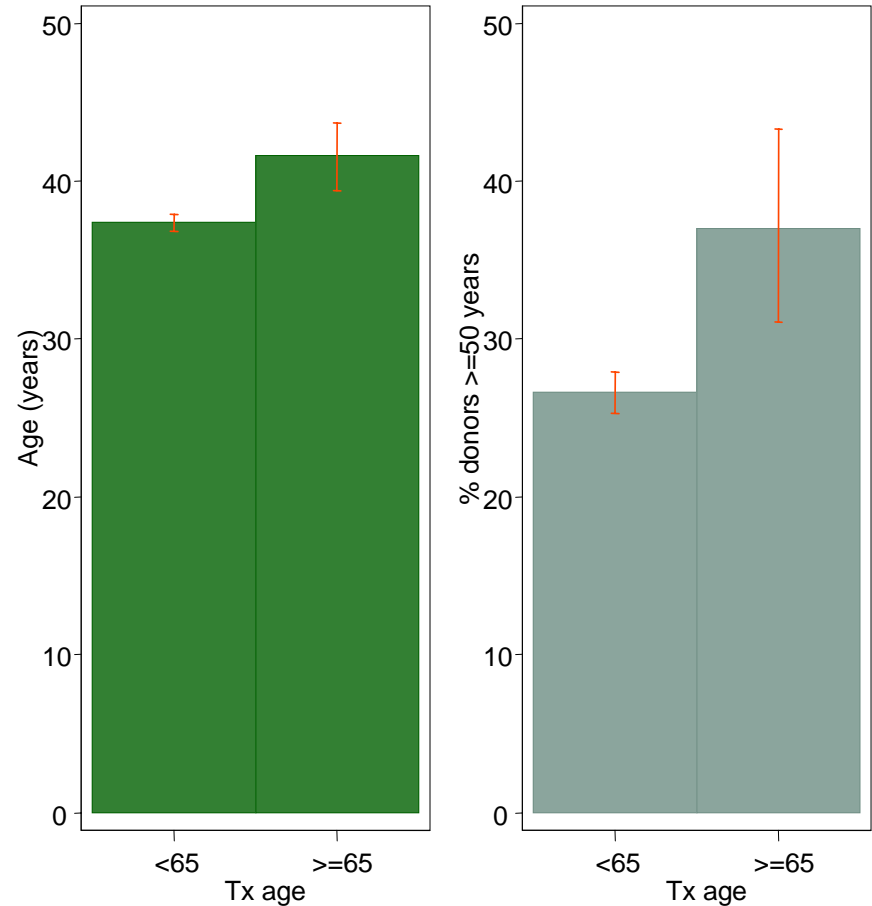
Is it due to the wait?

- Among DD1 recipients ≥ 65
 - Median age at RRT start 64.6 [interquartile range 63.2-66.4] years
 - Median waiting time 2.6 [IQR 1.4-3.9] years after RRT start



Differences with age

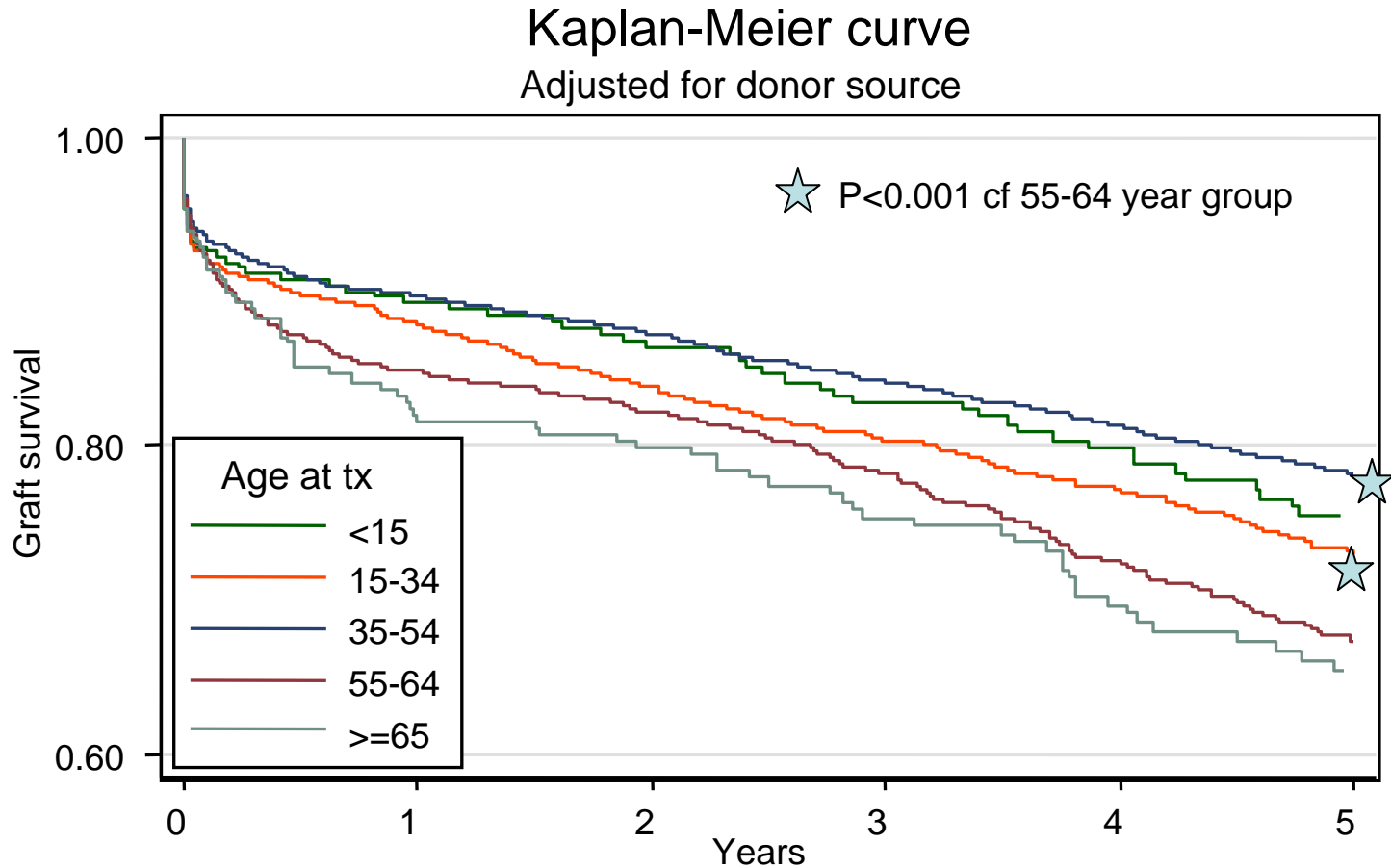
- Older CD recipients receive kidneys from older donors
- No difference in HLA mismatches, donor sex



Donor age among cadaveric donors, 1991-2003, adjusted for year of Tx



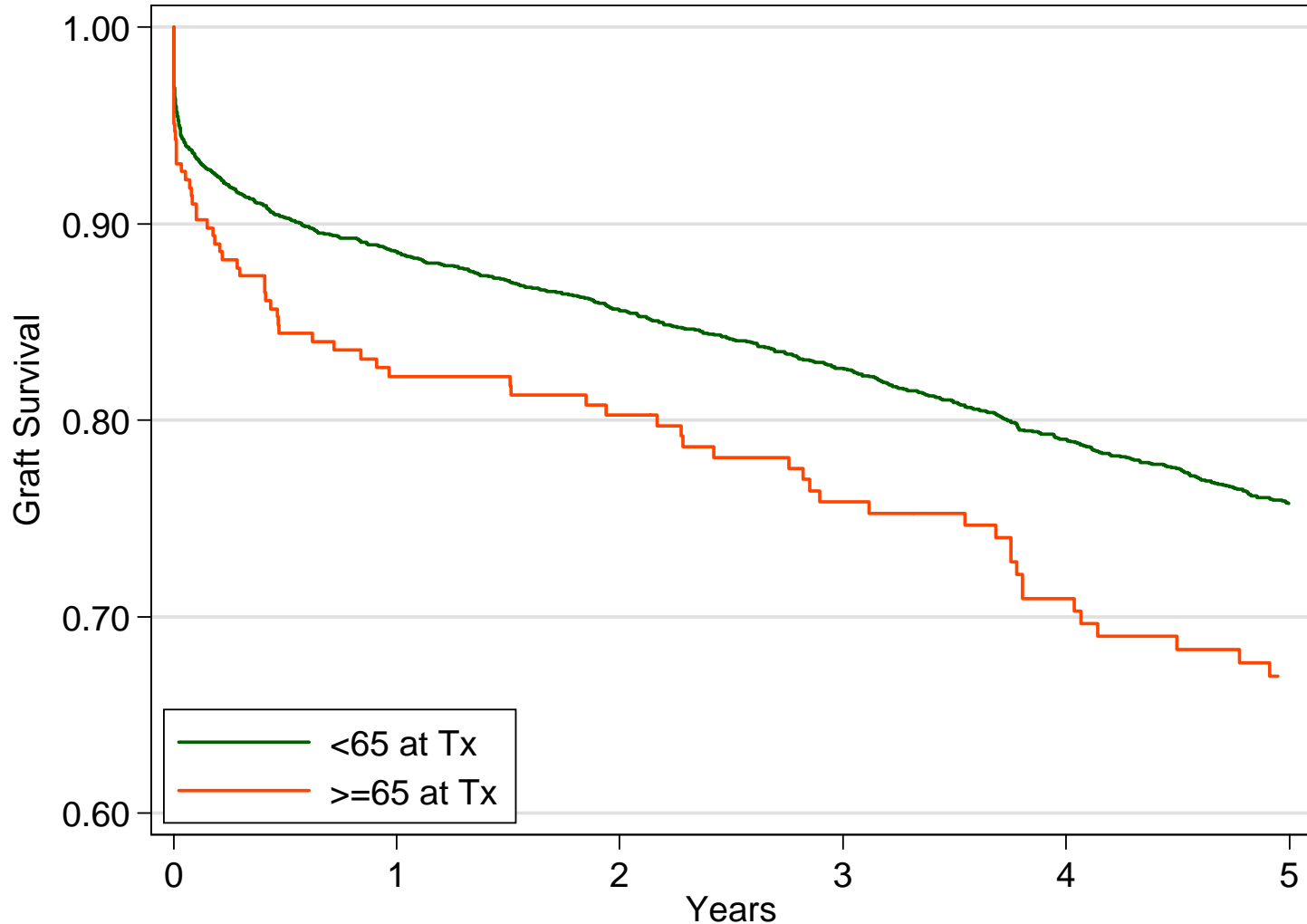
Graft outcomes



ANZDATA, all grafts in Australia & NZ post 1/1/91



DD1 outcomes by age



Kaplan-Meier survival estimates of graft failure, DD1 grafts 1991-2003, Australia & New Zealand



Graft & patient survival

- Survivals among 65+ year olds Tx:

	<u>Graft</u>	<u>Patient</u>
1yr	83 [78-87]%	90 [86-93]%
5yr	68 [61-73]%	72 [66-78]%

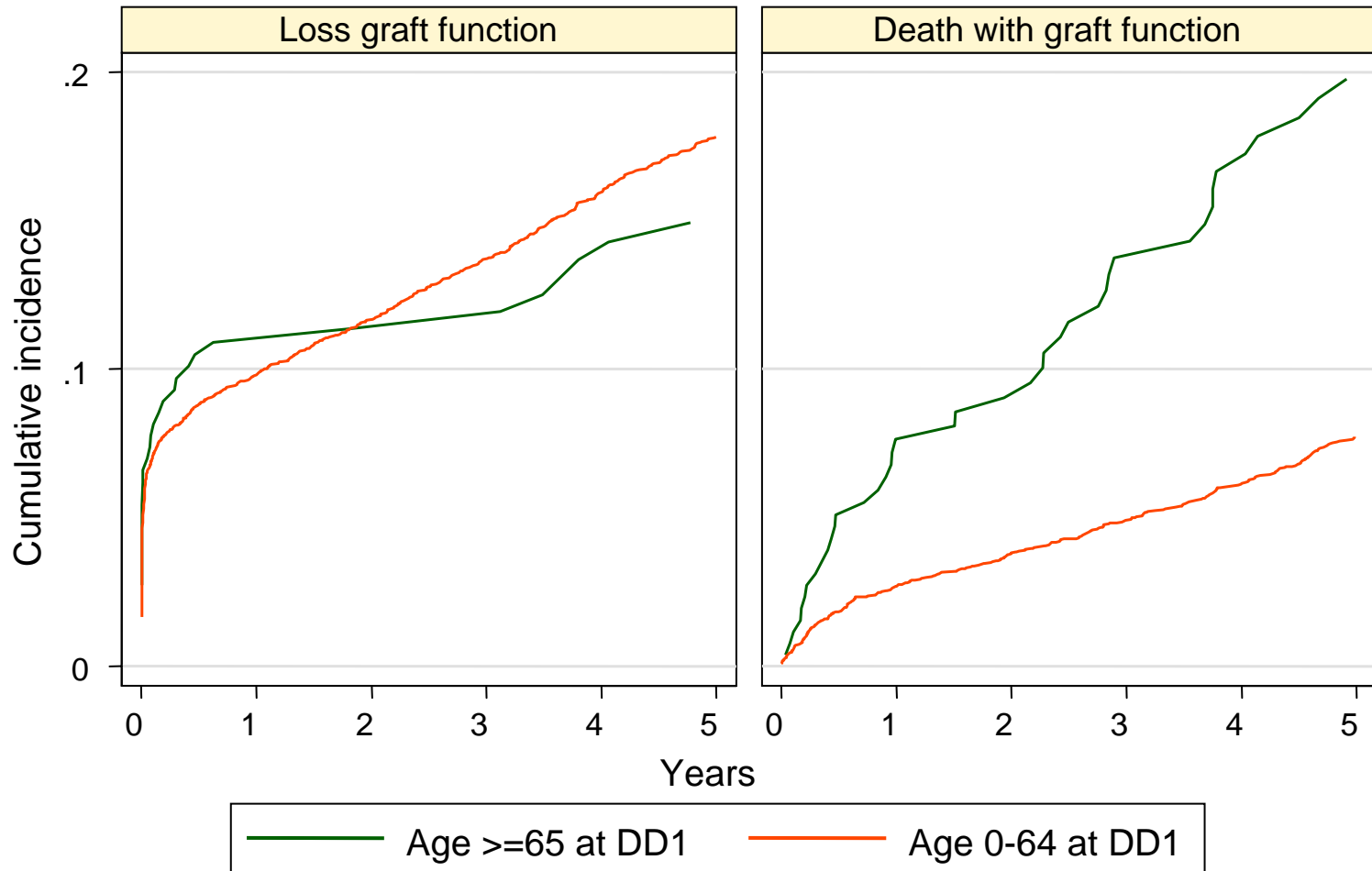
- DD1 only:

	<u>Graft</u>	<u>Patient</u>
1yr	81 [76-86]%	88 [84-92]%
5yr	65 [58-71]%	71 [64-76]%

Survival among renal transplant recipients 1991-2003



Are these organs effectively utilised?

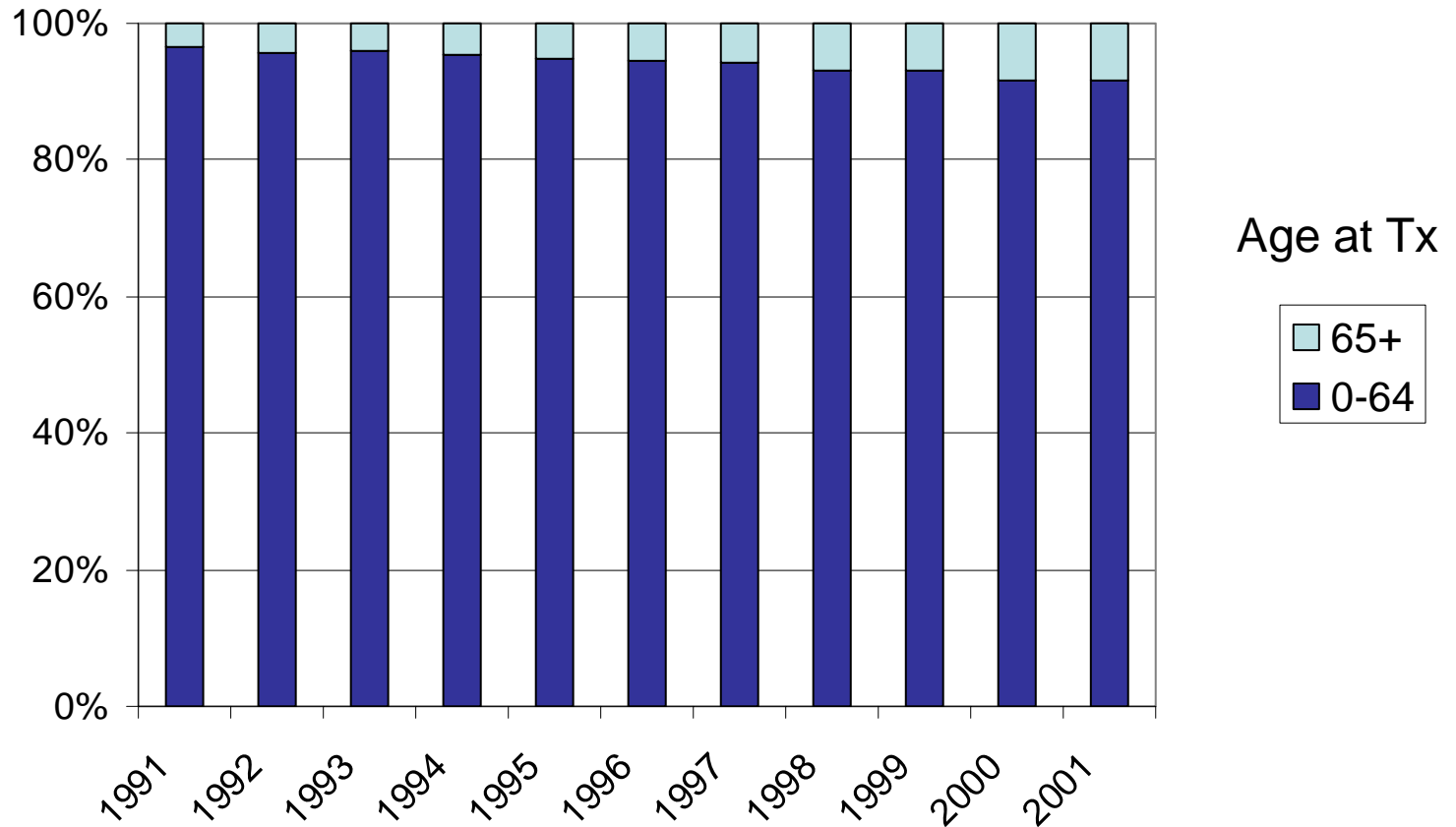


old_tx.do

Cumulative incidence of graft failure endpoints, DD1 grafts, Australia and New Zealand, competing risks analysis



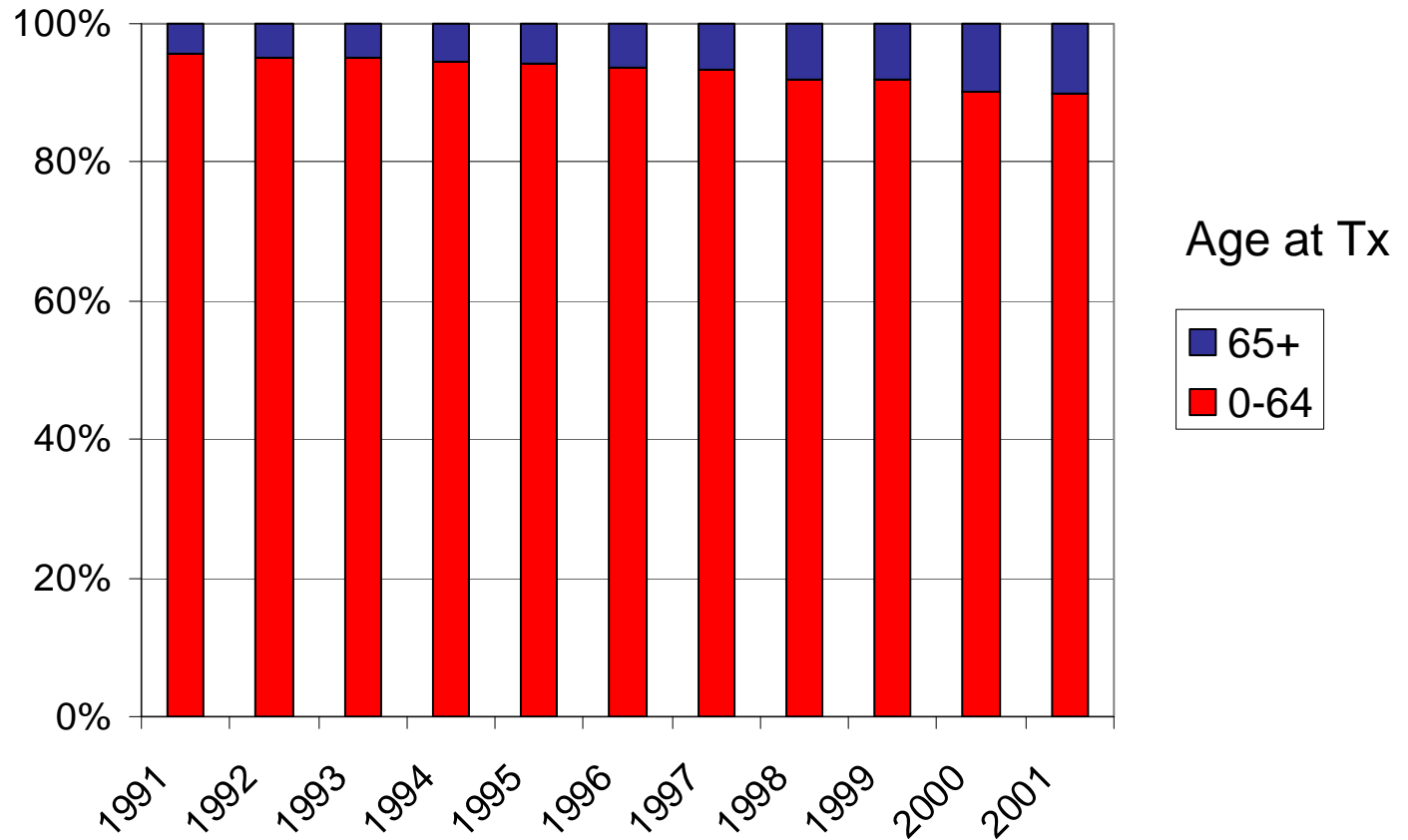
What do others do?



USRDS reported renal transplants, 1991-2001



What do others do?



Cadaveric donor renal transplants, by year, USRDS



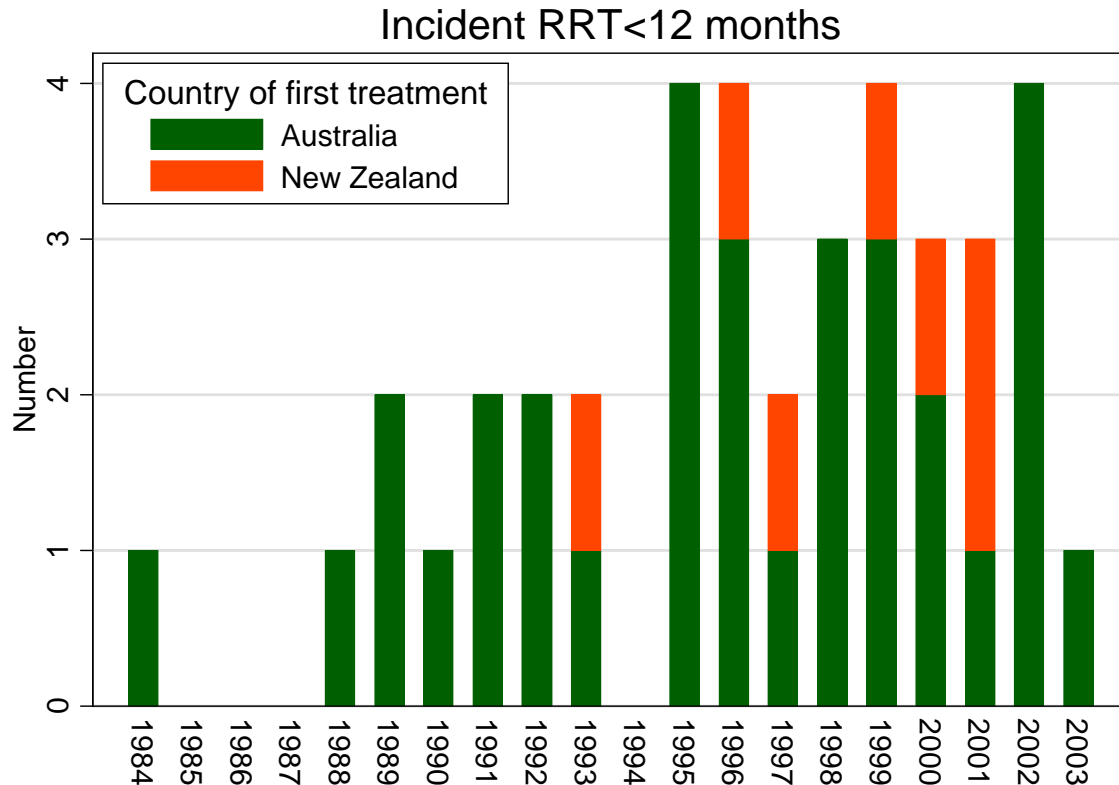
3. The very young





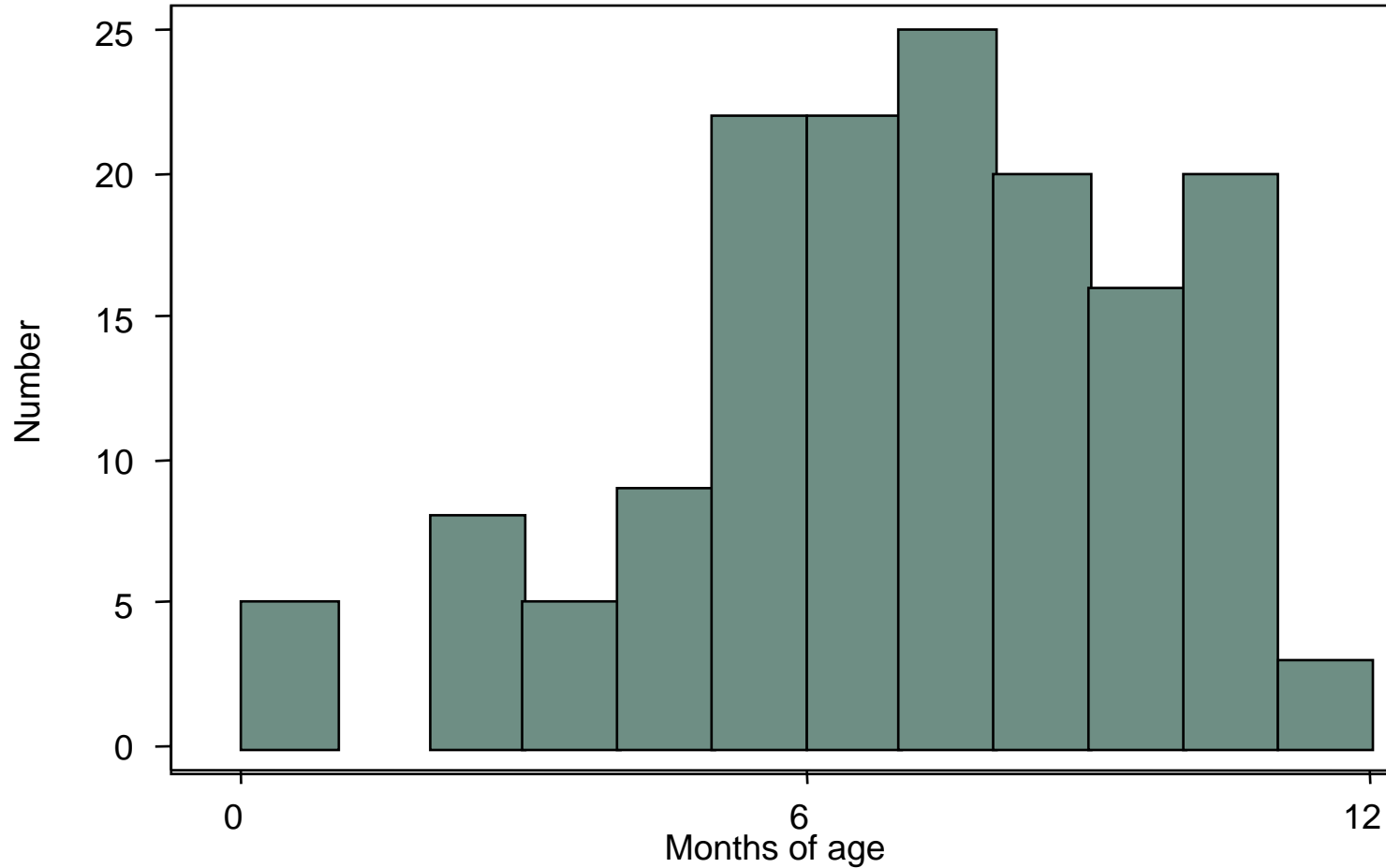
Infants

- First infant <12 months at RRT start reported in 1984
 - Since then, 39 infants reported to ANZDATA





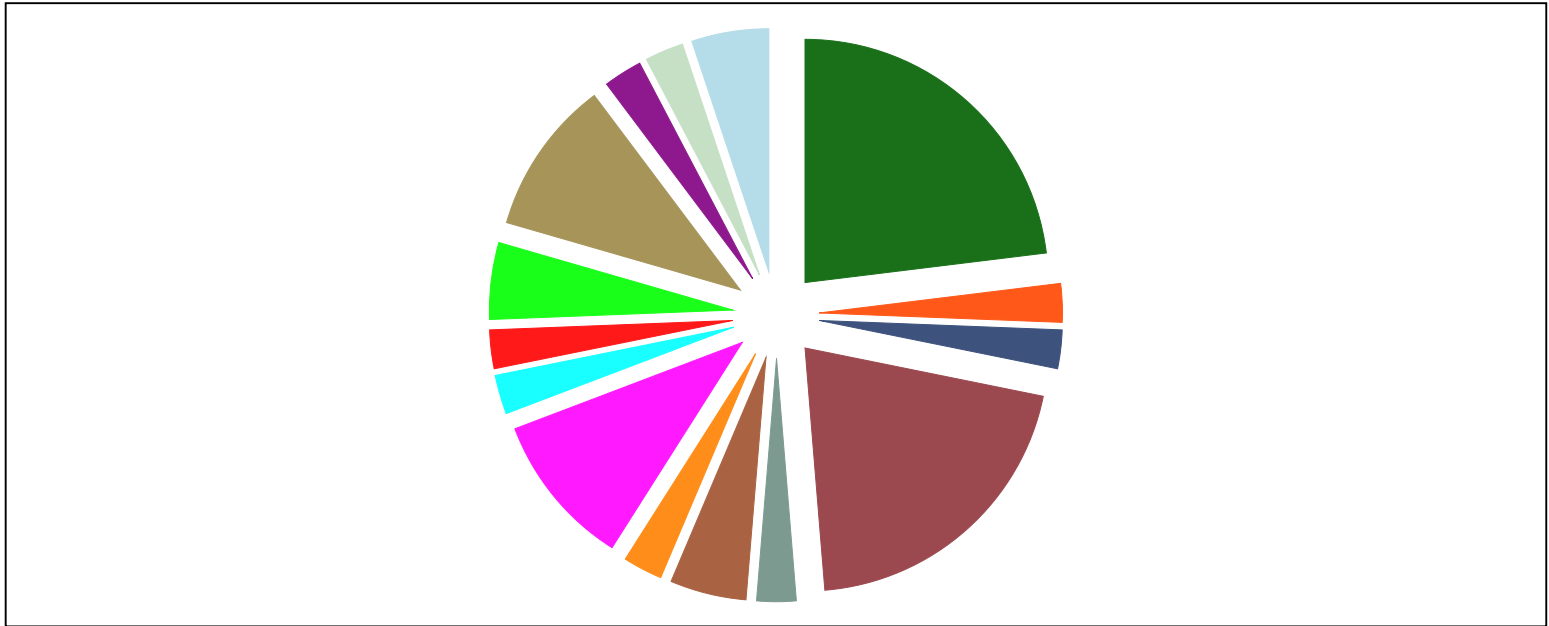
Age at commencement


















Starting age of infants < 12 months, Australia + New Zealand



Causes of ESRD



	Cong. renal dysplasia		Cong. tubulo interstitial nephritis
	Congenital finnish nephrosis		Congenital nephrotic syndrome
	Cortical necrosis		Denys-Drash syndrome
	Diffuse mesangiosclerosis		HUS
	Interstitial nephritis		Juvenile PCK
	Medullary cystic disease		Posterior urethral valves
	Prune belly syndrome		Reflux nephropathy
	Uncertain		

Causes of ESRD among infants <12 months at RRT start

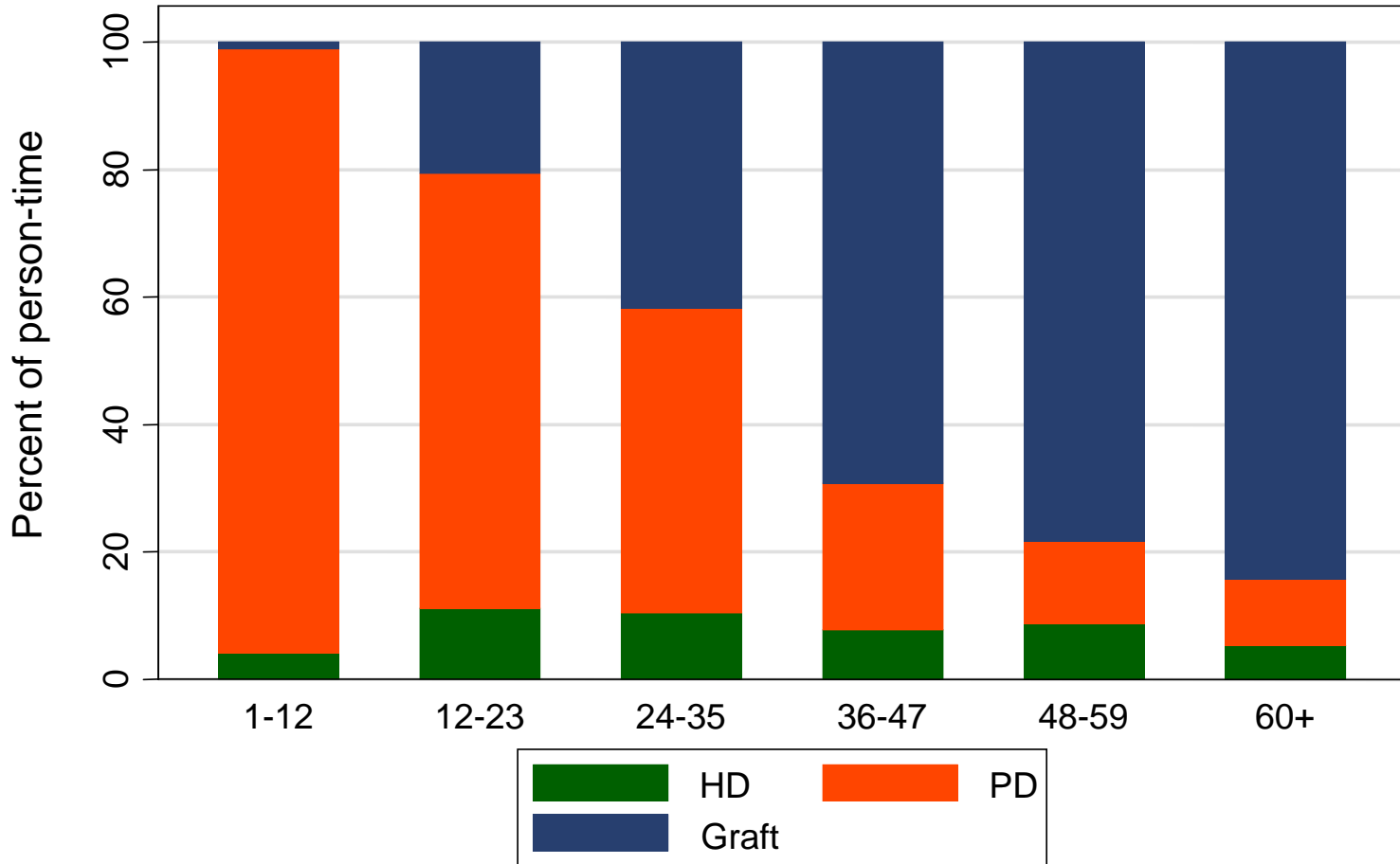


Infant RRT

- 35/39 initially treated with PD
- 27 infants received a transplant
 - 8 DD, 19 LD (4 mother, 8 father)
 - Time to tx: median 18.4 [IQR 13.2-23.9] months
 - Age at tx: median 25.2 [IQR 20.6-33.0] months
- 14 deaths
 - 8 among infants who never received a graft



RRT modalities



babies.do

Person-time by RRT modality, all ANZDATA <12 months at RRT start

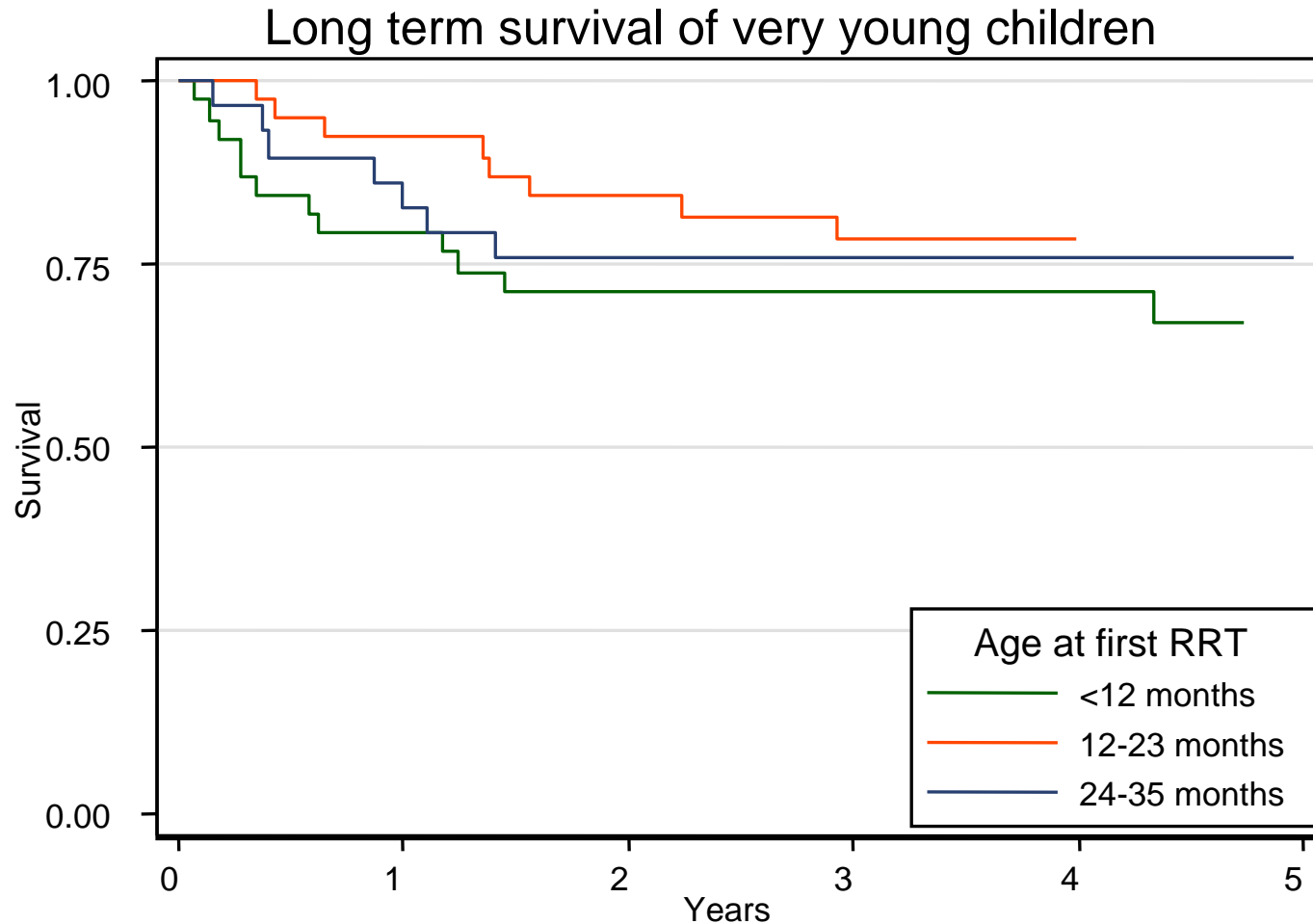


Outcomes

- Survival [95% CI] of infants at...
 - 1 year 79 [95% CI 63-89]% (n=29)
 - 2 year 71 [95% CI 54-83]% (n=25)
 - 5 year 67 [95% CI 49-80]% (n=15)
 - 10 year 57 [95% CI 37-73]% (n=5)



Age-based comparisons



Integrated RRT survival, by age at RRT start, Australia & New Zealand



Discussion points

- There has been substantial expansion in the age range of patients we treat
 - At both ends of the spectrum!
- Is this justified by the outcomes?
- Are units consistent in their approaches
 - Does the have equity implications?



Is this good practice?





Are we getting better?

- Poor results might be acceptable if we are on a “learning curve”
 - Quality of life?
 - an important factor, but not measured in ANZDATA
 - Opportunity costs
 - Immediate relevance for transplantation
 - More remote meaning for dialysis services



Transplant issues

- National resource, but differences in selection criteria

BIG BOSS Incorporated by Glenn Lumsden



"...and so with the simple removal of this 'QUALITY' thingy here, we can EASILY afford our extraordinary performance bonuses"



What are patient's expectations?

- Who creates them?
- Is there hard data on community expectations in Australia or NZ?
 - If not, should we find out what they are?





Want to know more?

www.anzdata.org.au

Requests@anzdata.org.au

Thanks to all contributors!