



The ANZDATA Registry

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ANZDATA Registry

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Structure

- ◆ What is ANZDATA?
- ◆ Current incidence & prevalence
- ◆ Outcomes
 - Dialysis
 - Iron and erythropoietic agents
 - Transplantation
 - Diltiazem and transplant outcome



ANZDATA Registry

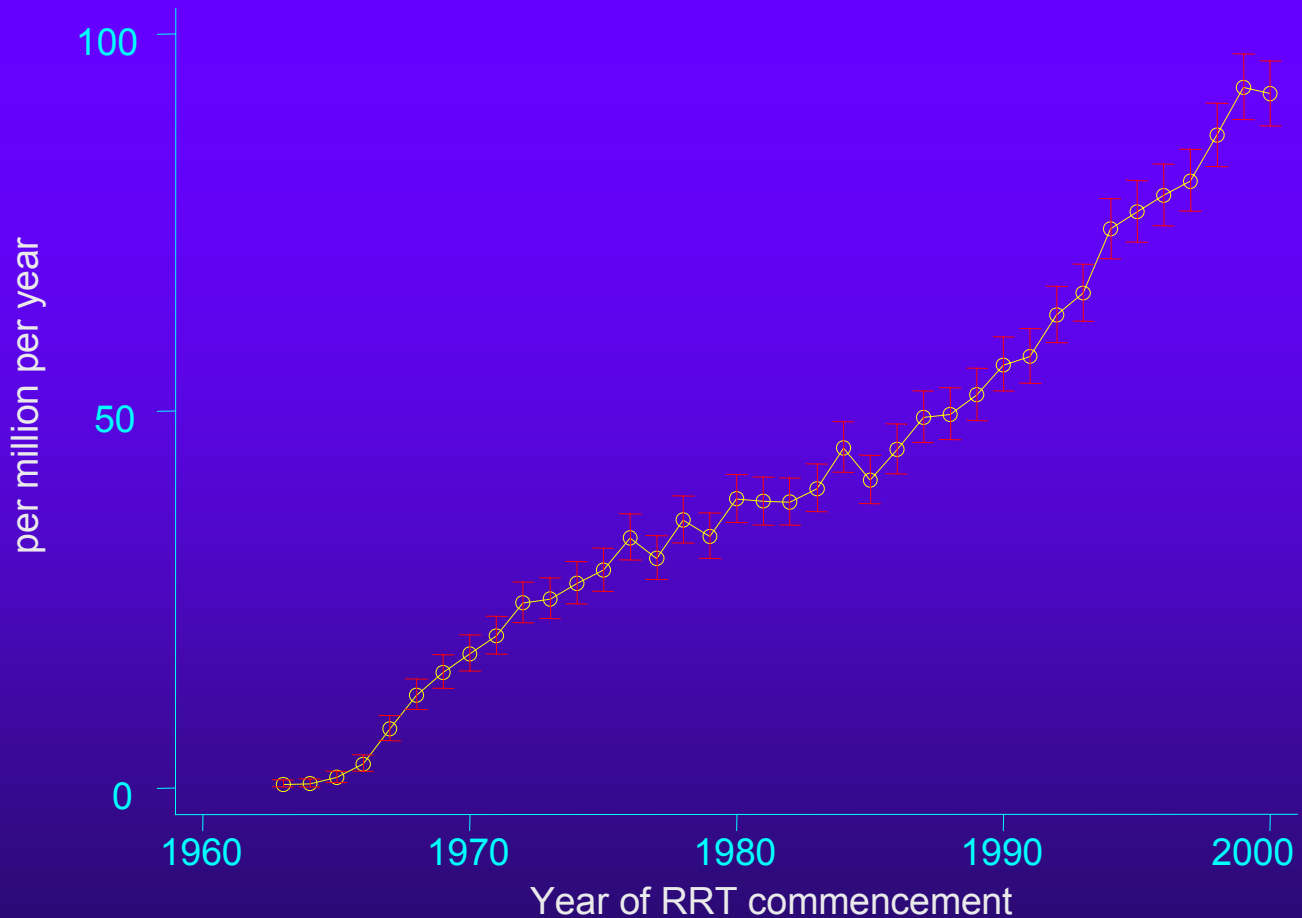
- ◆ Covers all patients who have received chronic renal replacement therapy in Australia & New Zealand
 - Coverage extends back to 1963
- ◆ Data derived from a 6 monthly survey of renal units, with individual reports on all patients
 - Also links with Tissue typing, ANZ Organ Donation Registry



What do we do with the data?

- ◆ Collects data about renal replacement therapy (RRT)
- ◆ Output
 - Individual centre reports
 - Quality assurance
 - Annual report, Interim summary
 - National incidence and prevalence figures
 - Provides data to individuals and hospitals
 - At a variety of levels, for a variety of reasons
 - Special subject reports
 - Is a good platform for conducting observational studies about current issues in Australasian nephrology

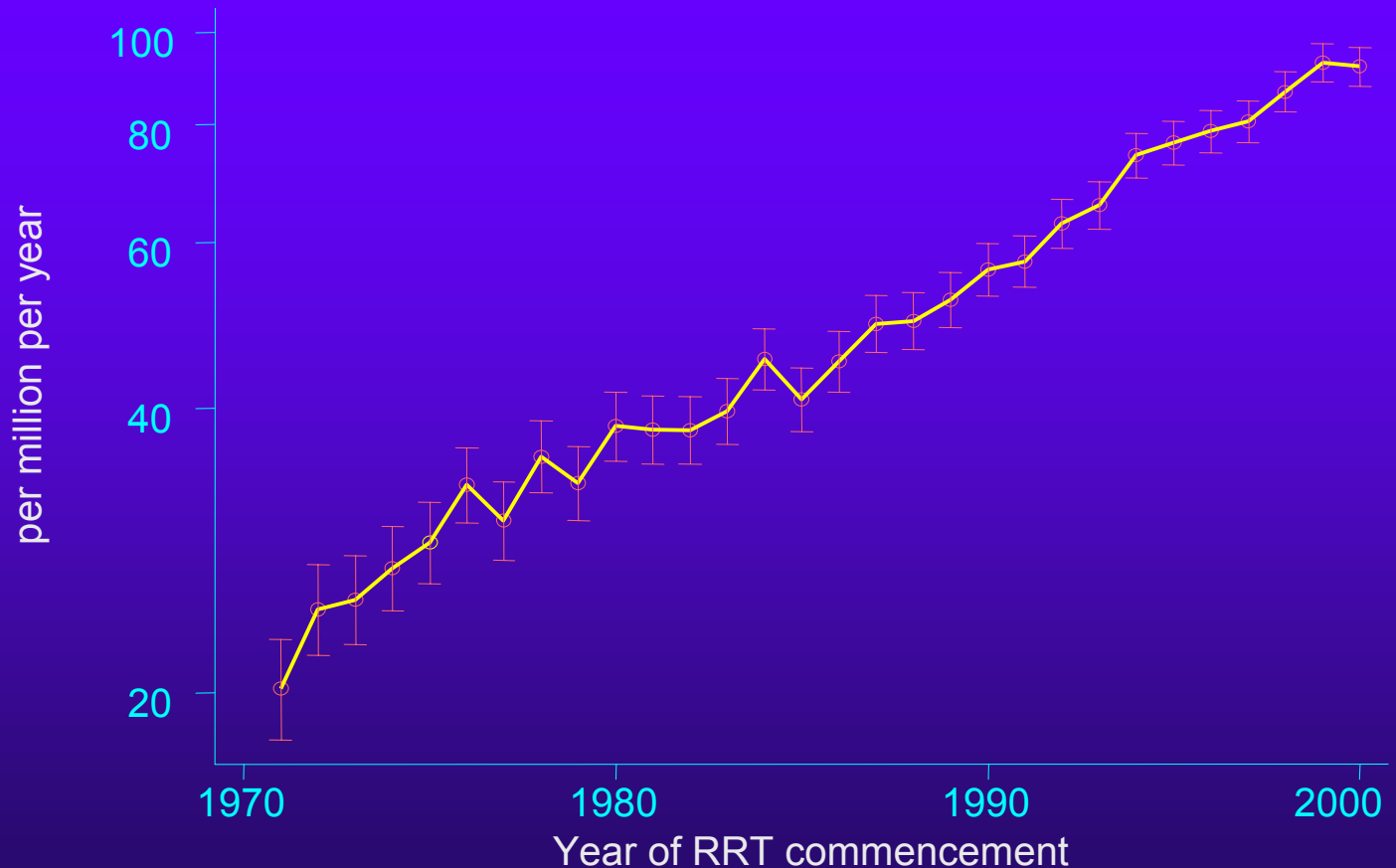
Trends in ESRD incidence



New RRT rate (Australia) by year



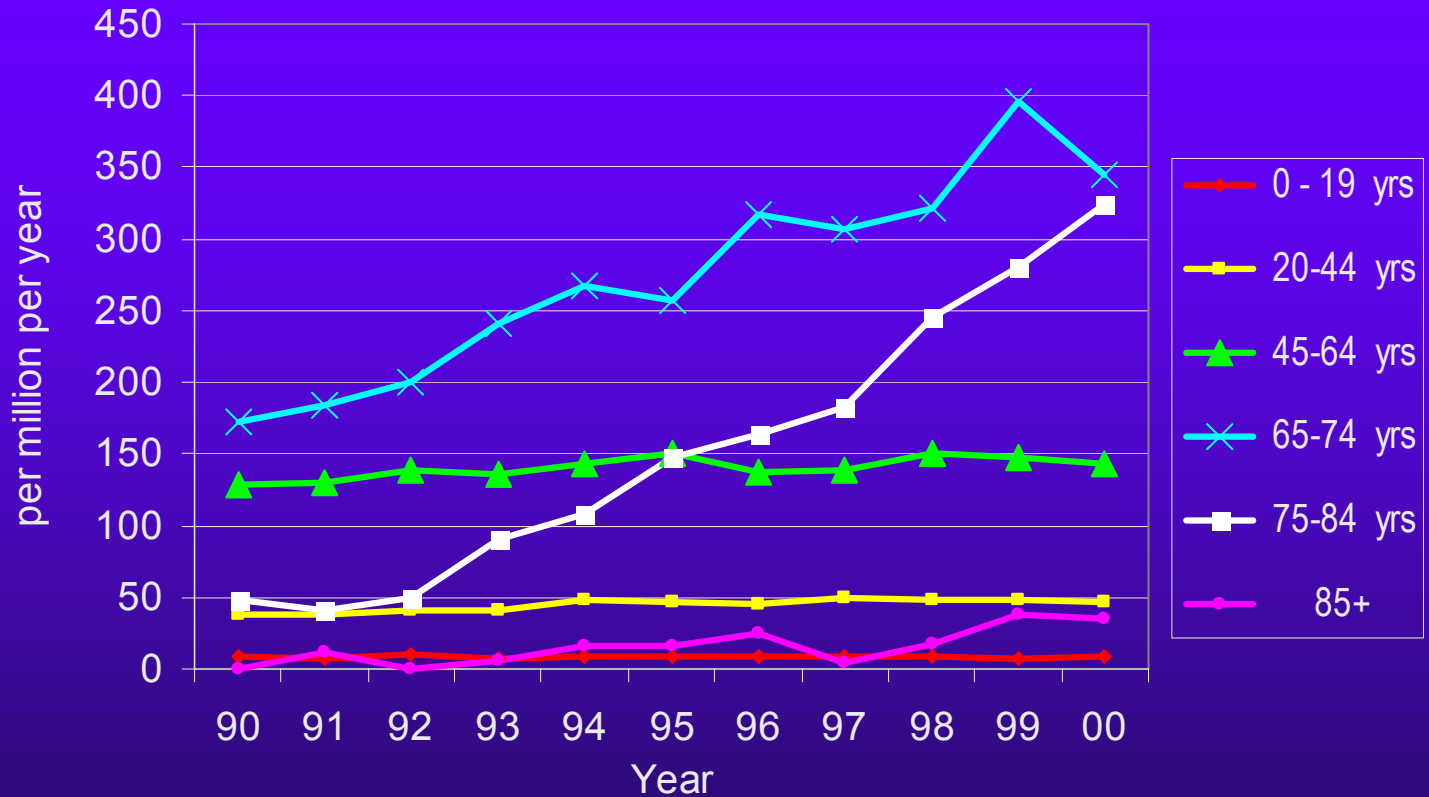
Trends in ESRD incidence 2



New RRT rate (Australia) by year, log scale. Rate of increase 100% per year



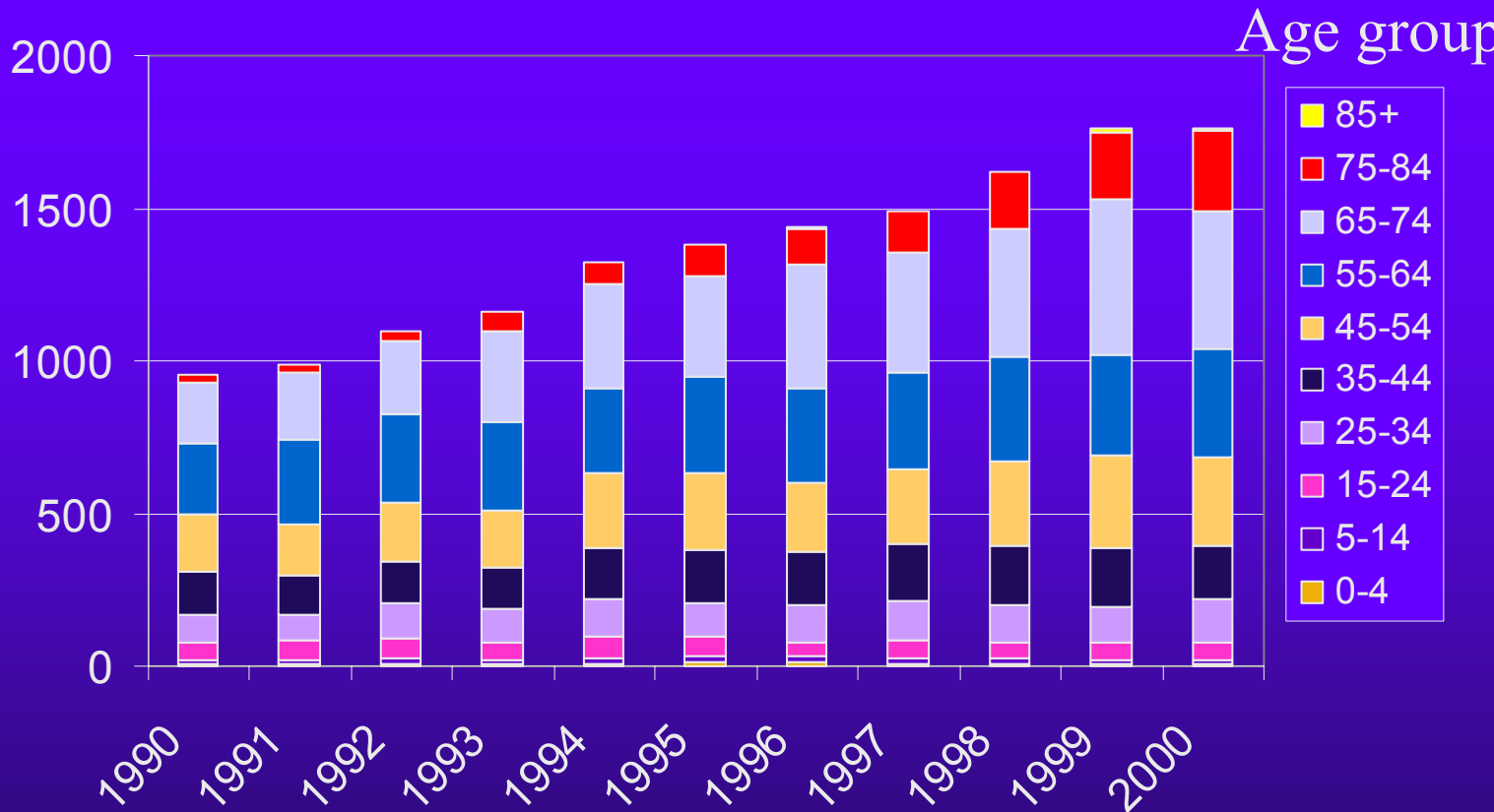
Acceptance of New Patients by Age



New RRT rate (Australia) by age group 1990-2000

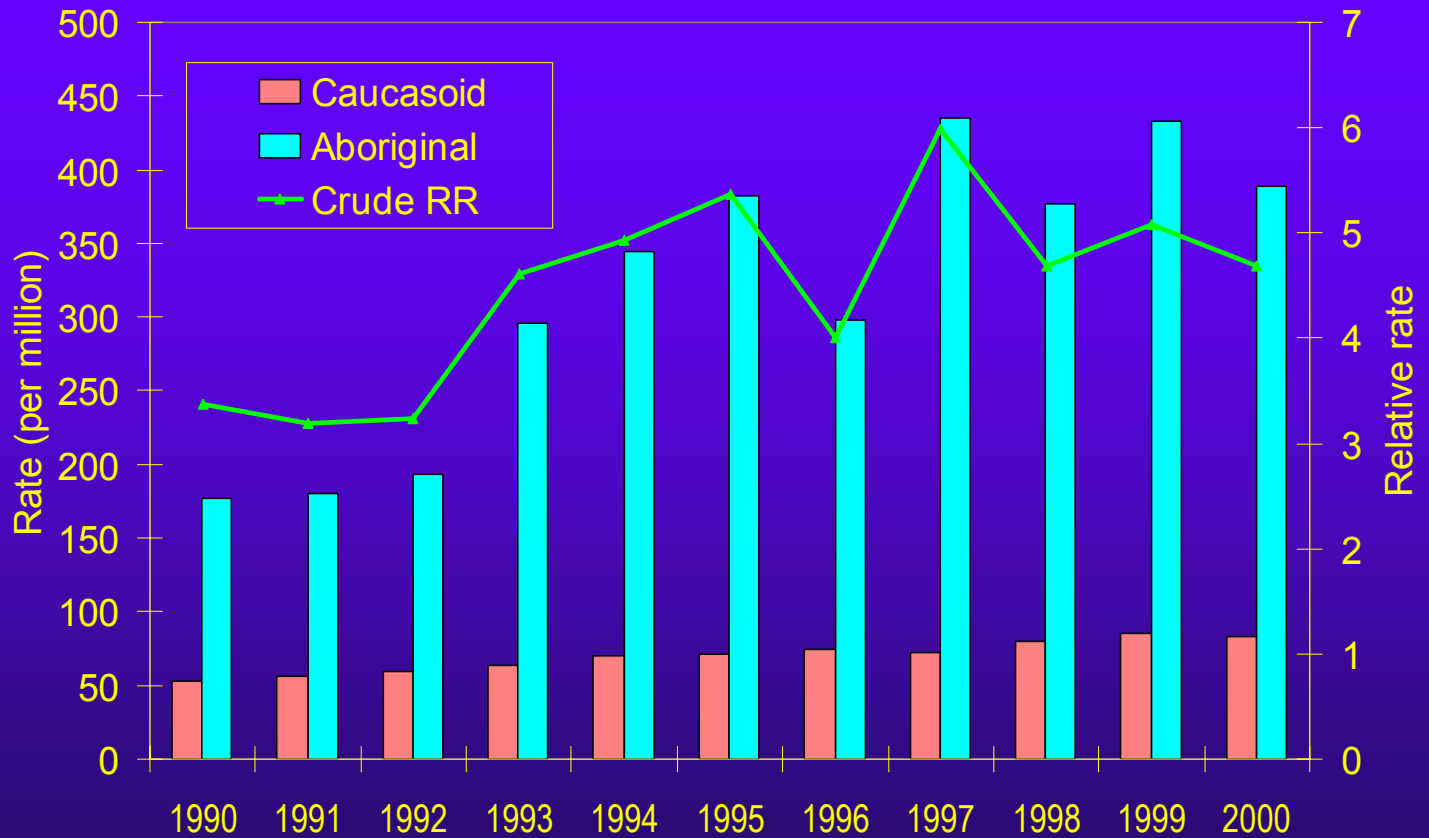


Numbers rather than rates



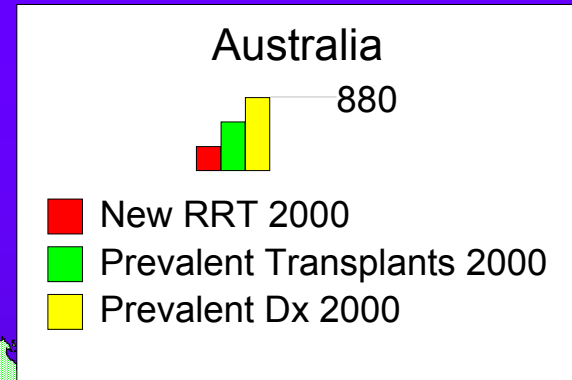
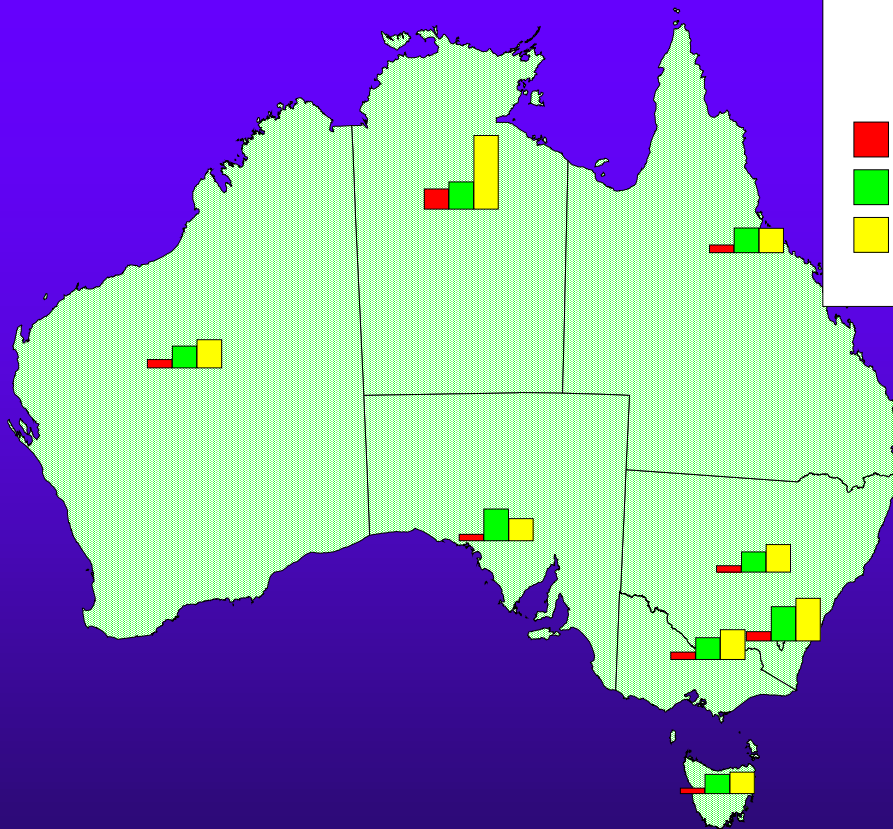
New RRT patients (Australia) 1990-2000

Australia- new RRT patients



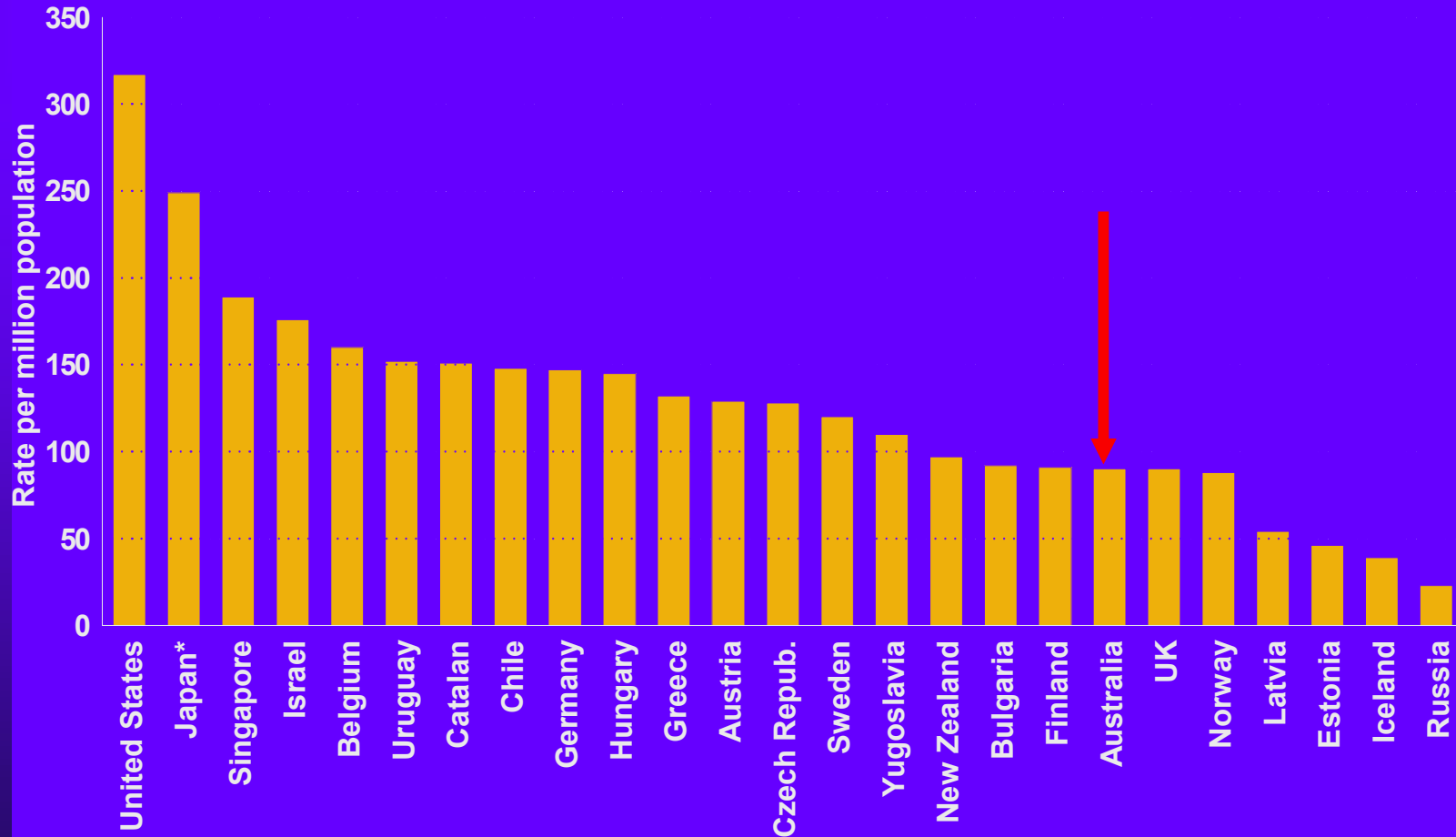
New ESRD rate (Australia) by racial origin 1990-2000

Regional variation



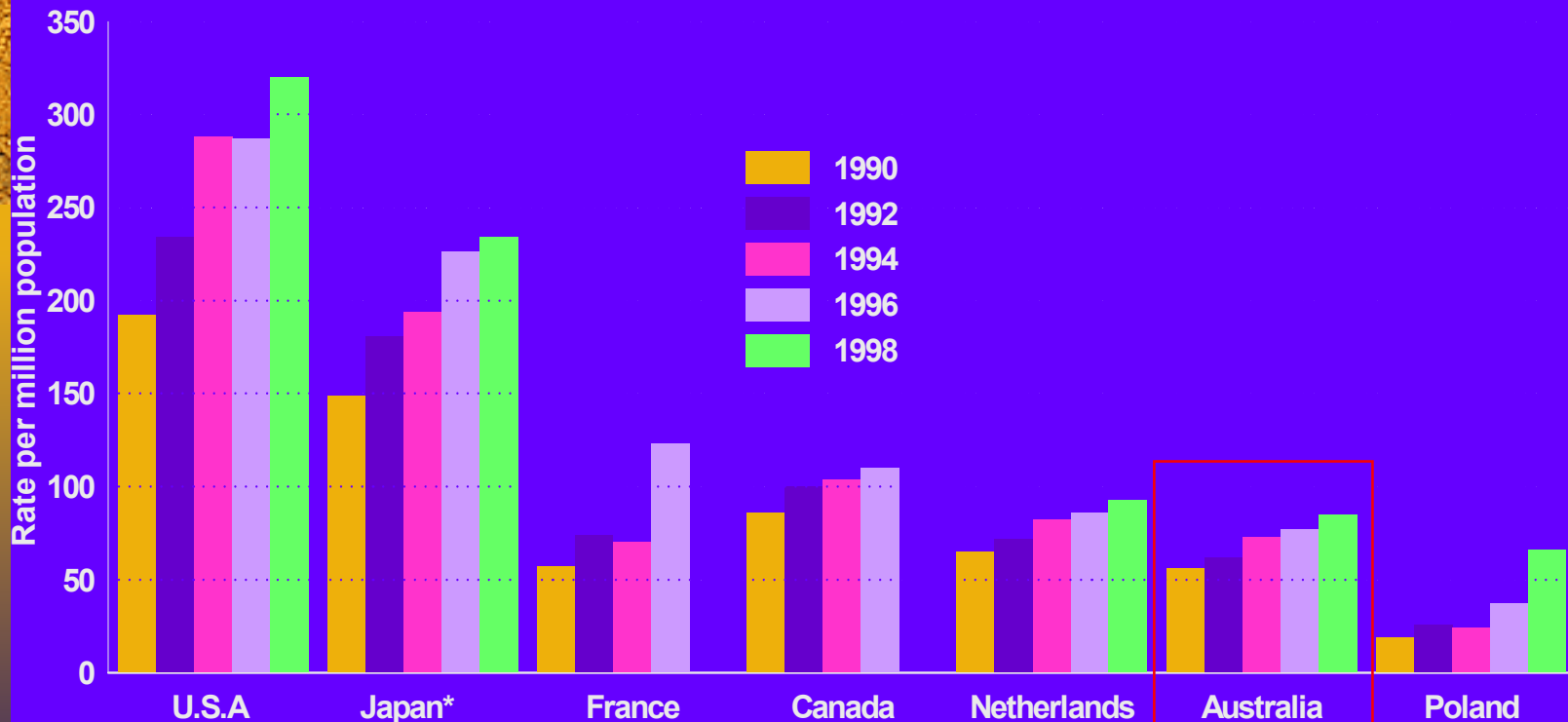
Incidence and prevalence rates of RRT in Australia in 2000 by state

Around the globe



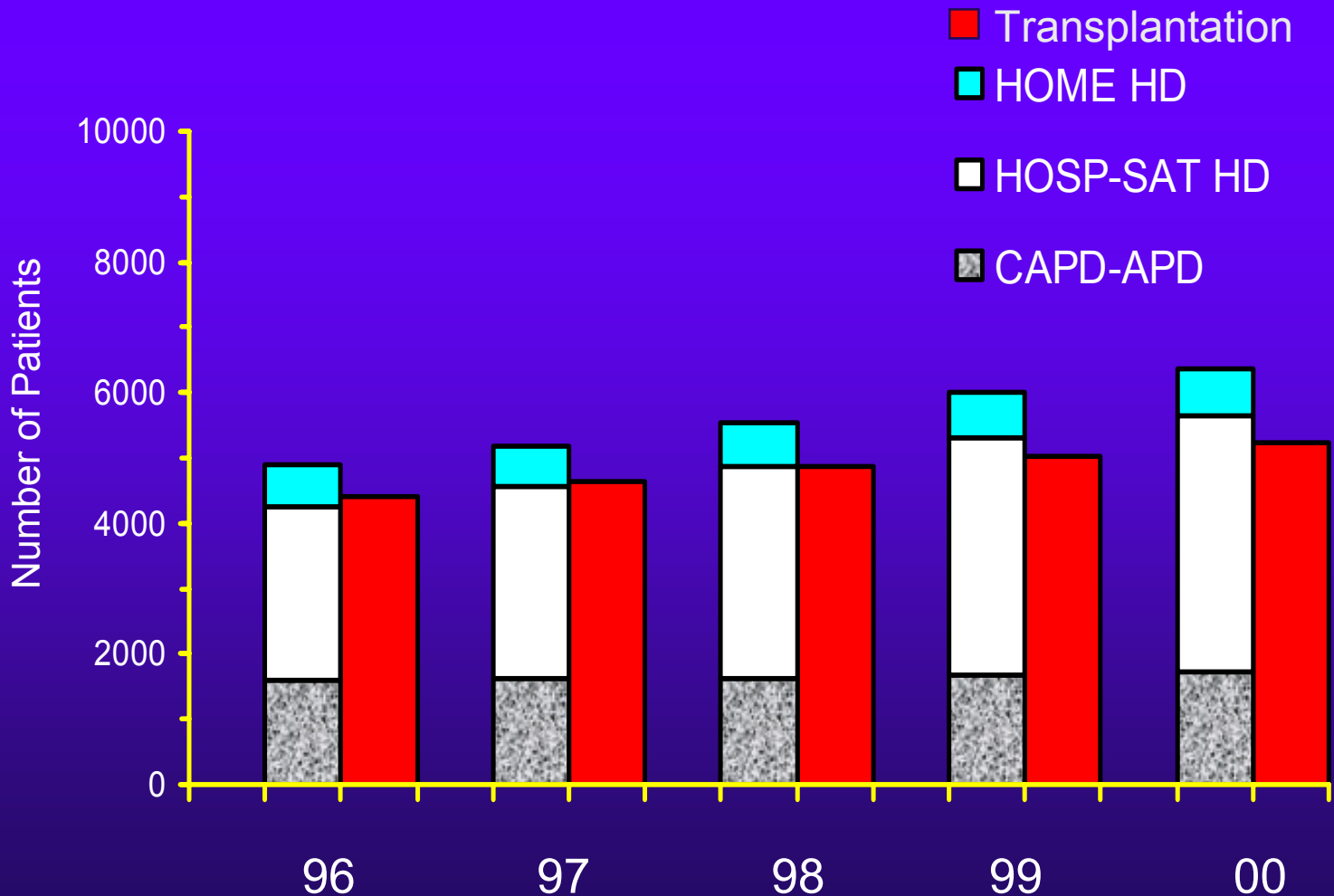
Worldwide RRT incidence, 1999. USRDS 2001 ADR.

Trends in worldwide incident rates



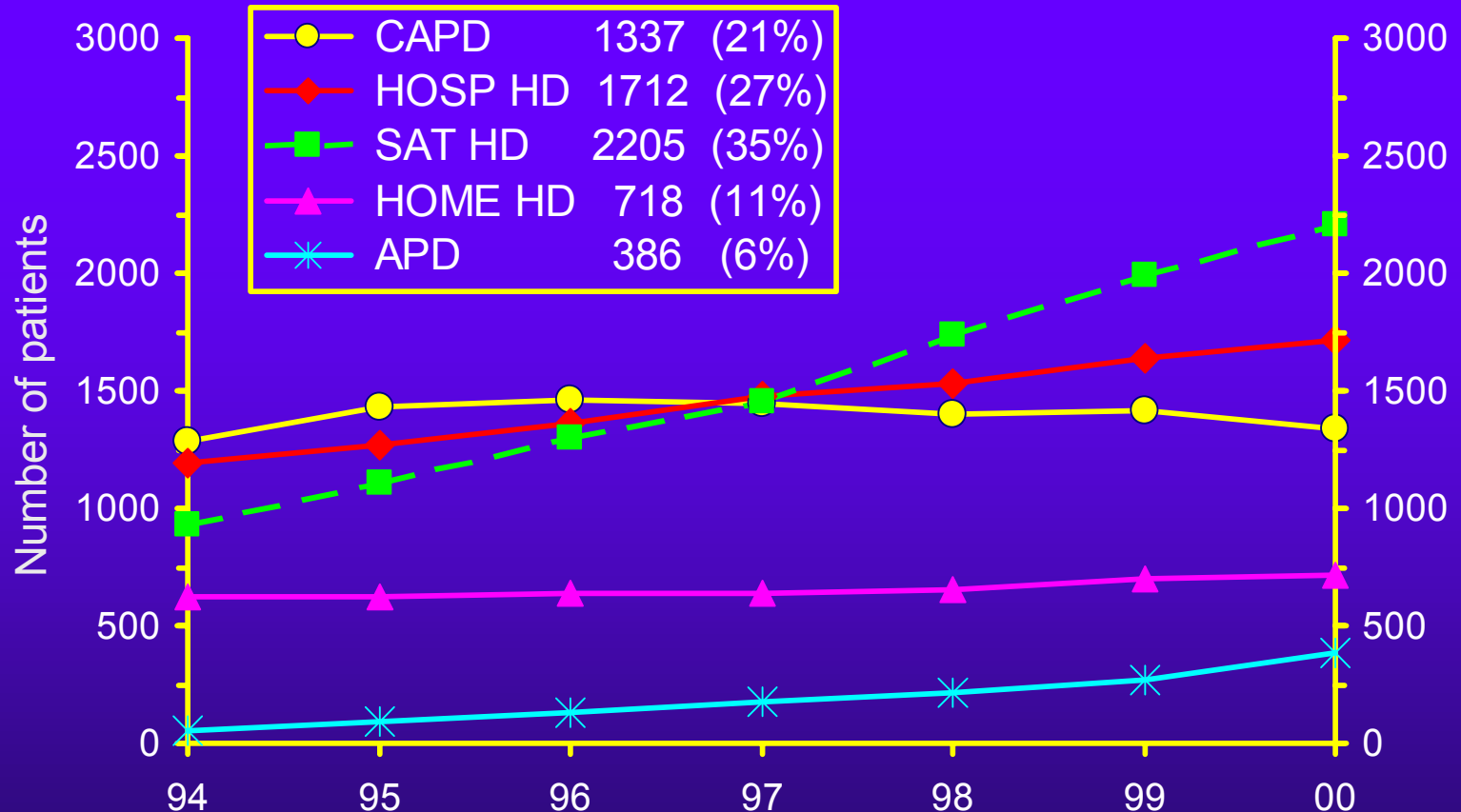
Worldwide RRT incidence, 1999. USRDS 2001 ADR.

Prevalent patients receiving RRT, Australia 1996 - 2000



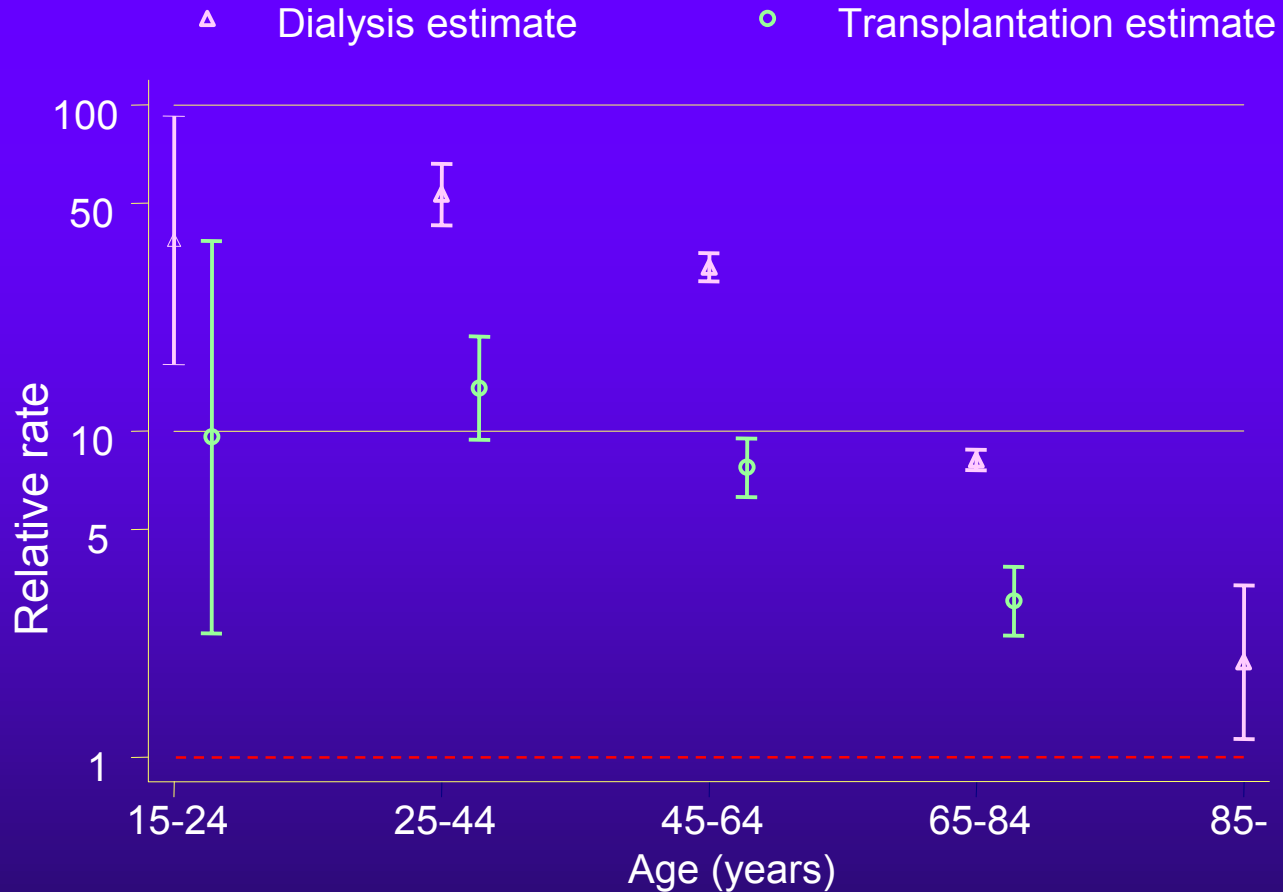
Number of patients receiving RRT Australia 1996 – 2000, by mode of dialysis

Method and Location of Dialysis



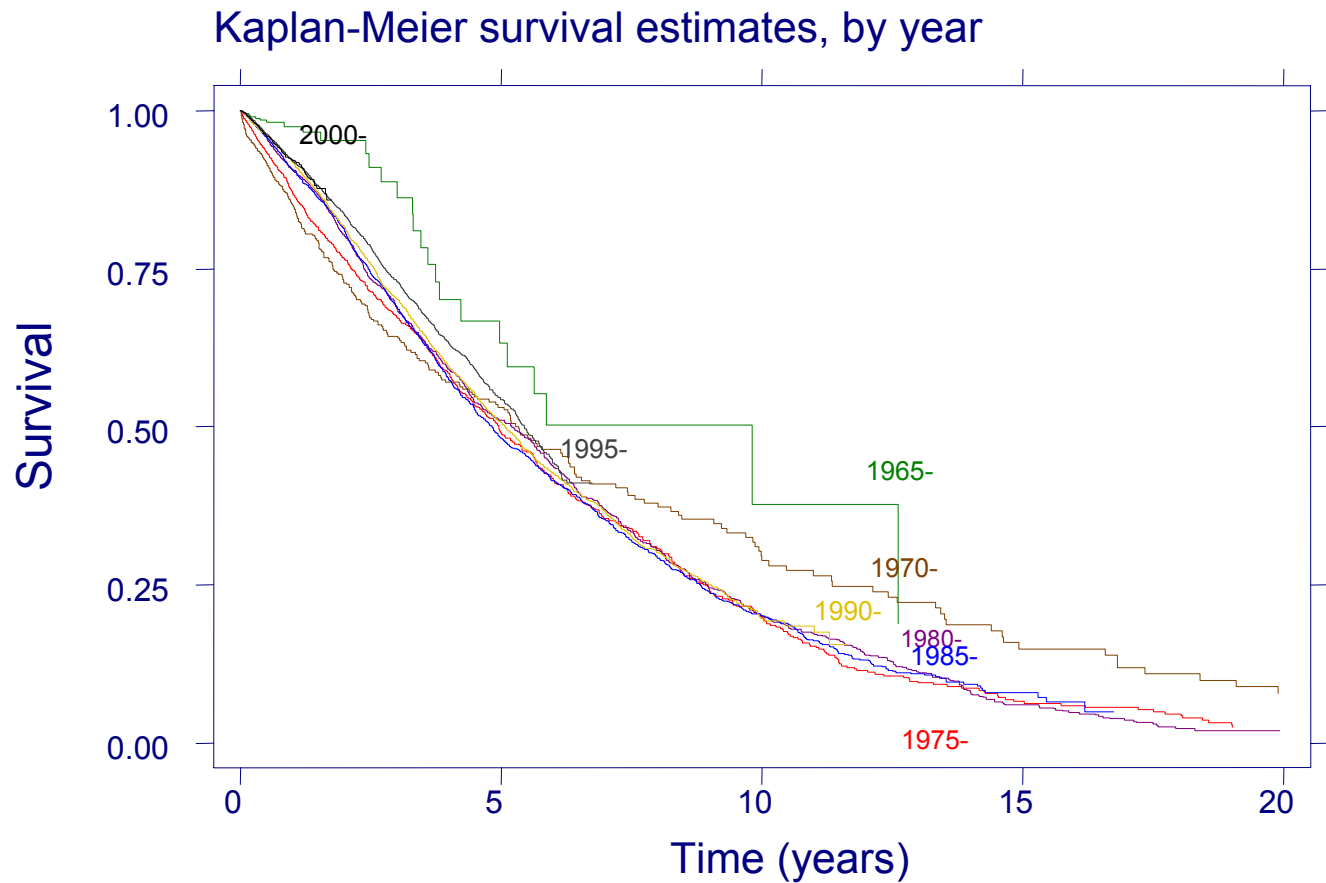
Methods and location of patients receiving dialysis treatment in Australia

Renal disease is lethal



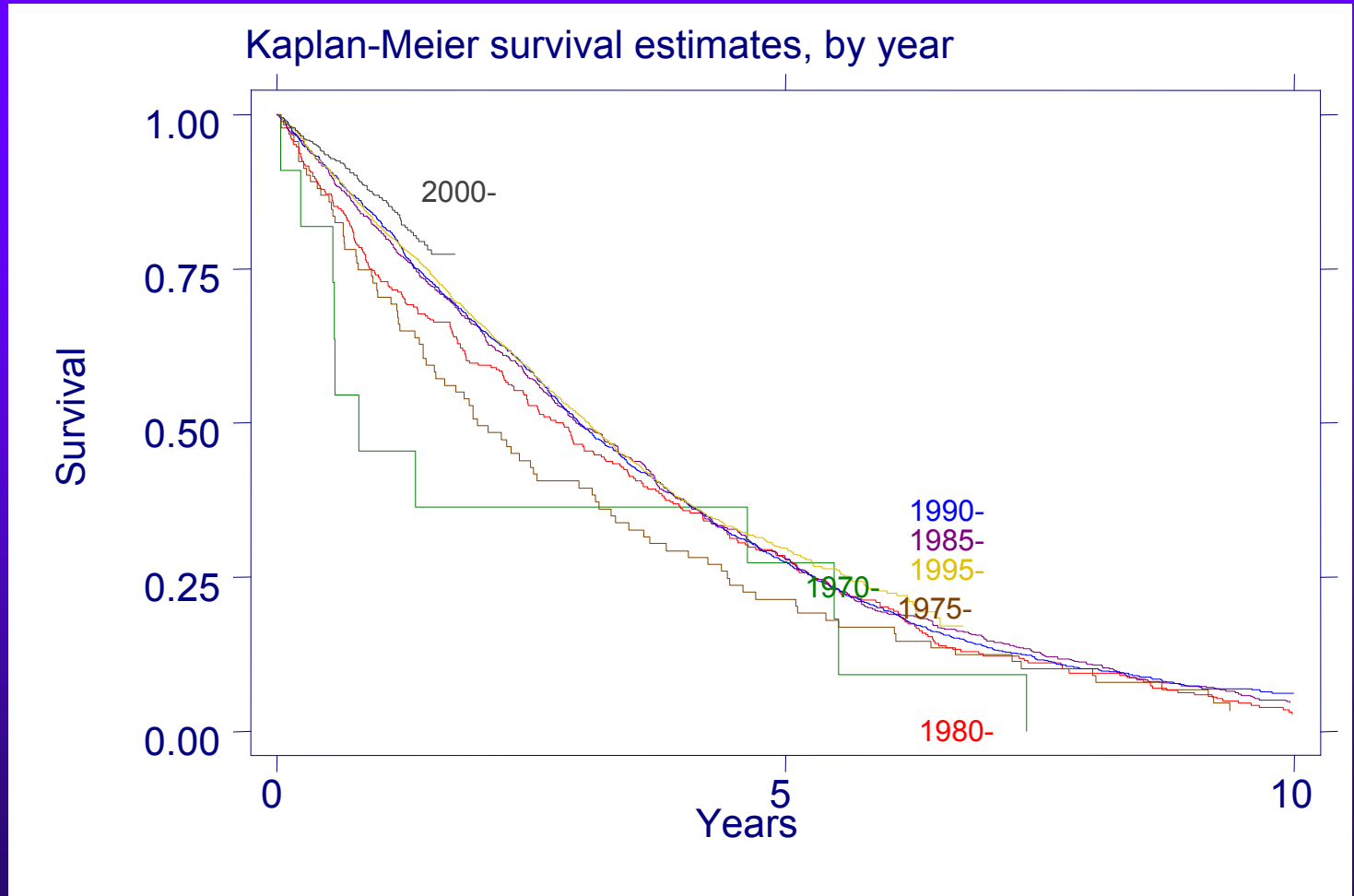
Death rates for 2000 for ANZ ESRD patients, compared to Australian population

Survival on dialysis



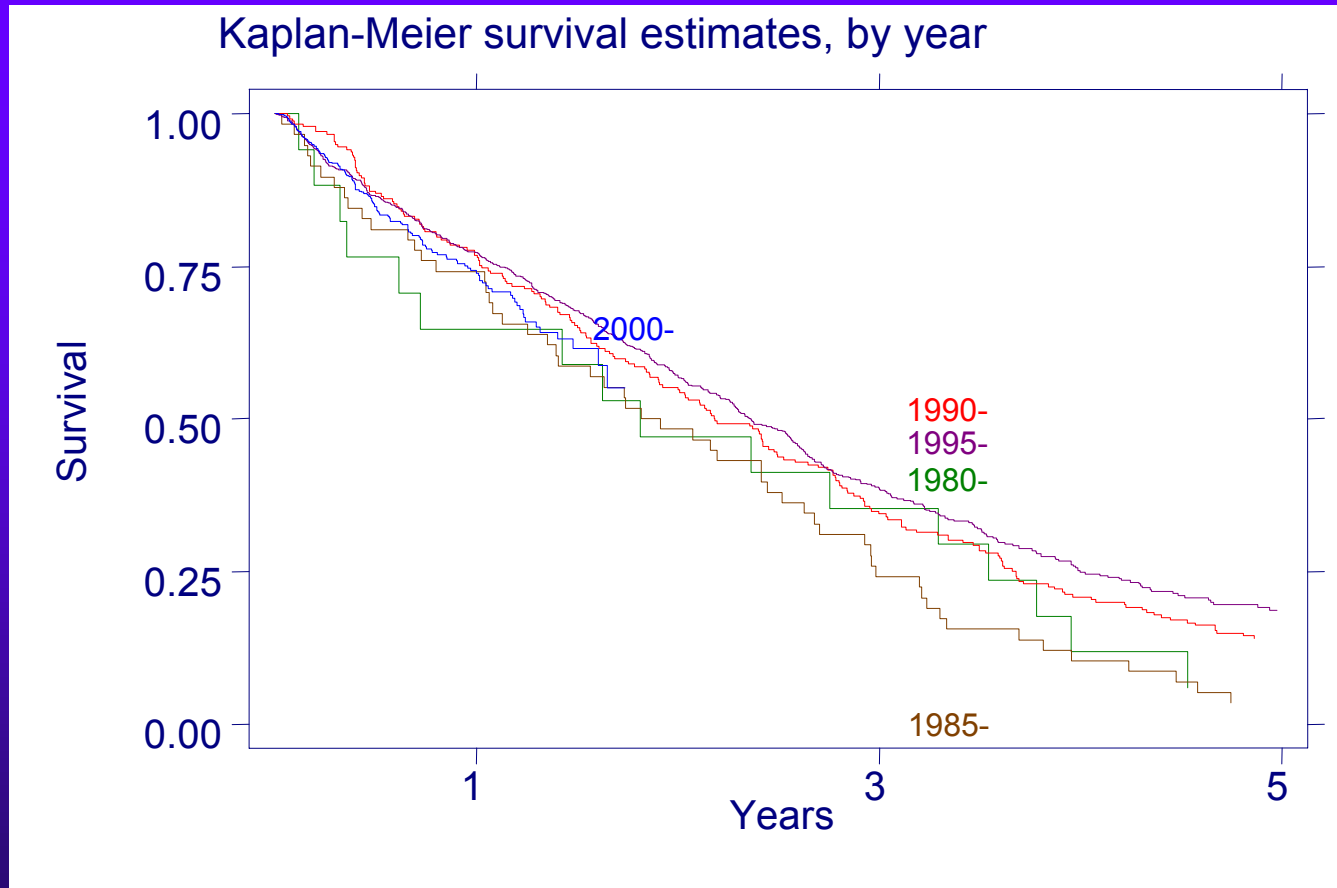
Survival on dialysis, 15-64 years old, at onset of RRT

Older cohort



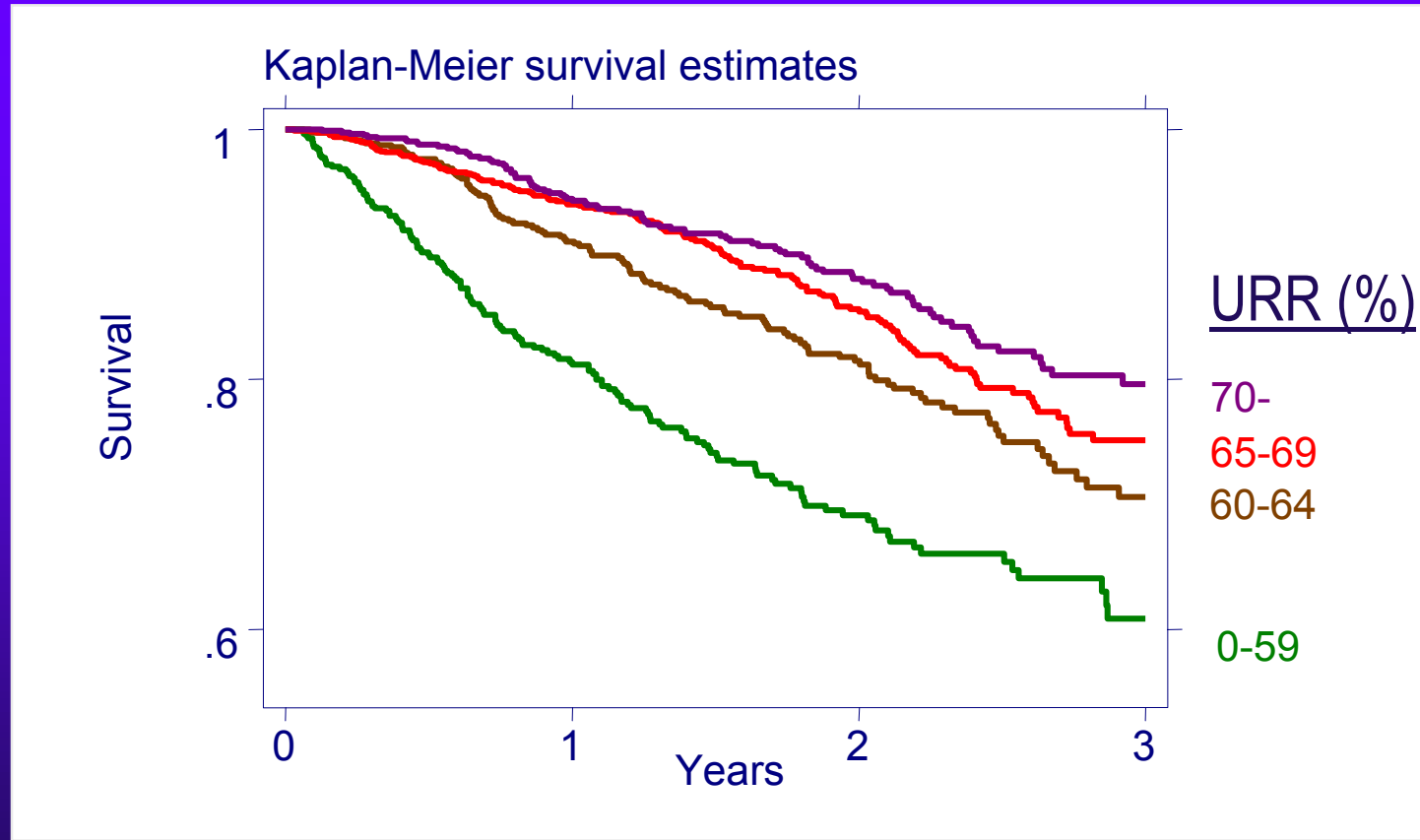
Survival on dialysis, 65-74 years old, at onset of RRT

And still older...



Survival on dialysis, 75+ years old, at onset

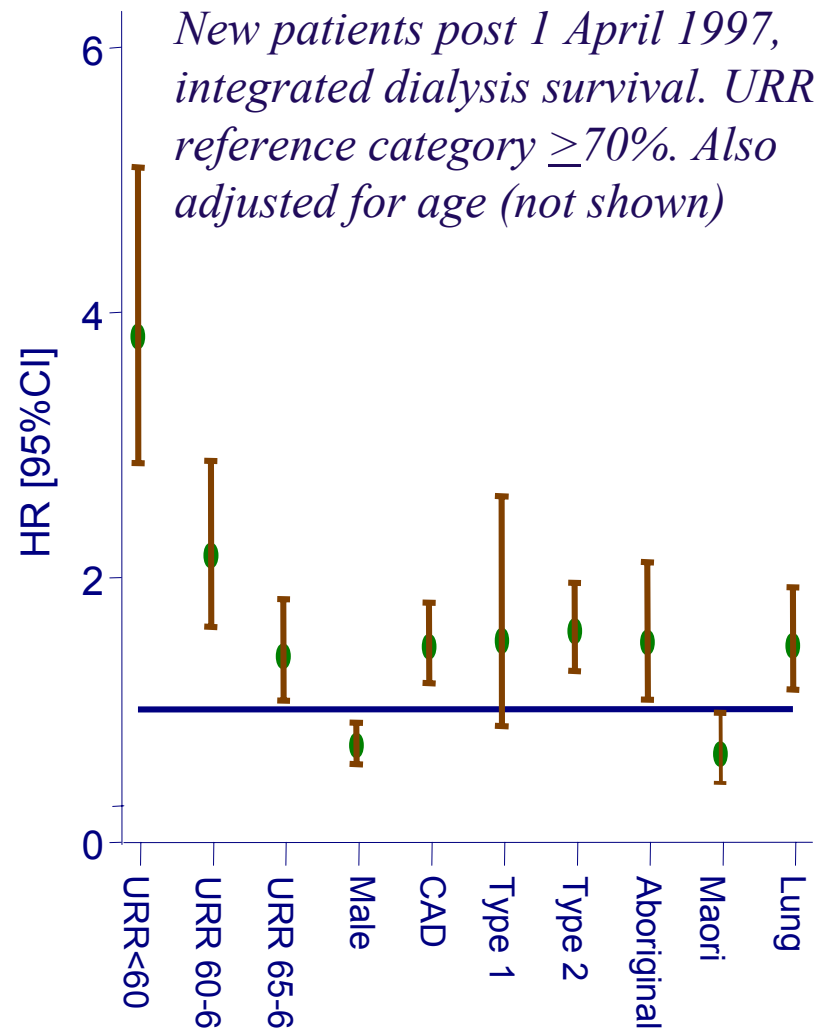
What about adequacy?



Survival for new patient post 01 April 1997, by URR category, censored at graft. All categories differ significantly from >70%, $p < 0.001$

URR & survival

- ◆ After adjustment for age, sex, CAD, lung disease, smoking, weight, race, diabetes, there remains an association with URR



Erythropoietic agents, iron and haemoglobin





Background

- ◆ Continuing debate about iron and erythropoietic agent use
- ◆ ANZDATA has recently begun collecting information in this area
 - Whether patient receives an erythropoietic agent or not
 - Most recent HB
 - Transferrin saturation
 - Ferritin concentration
 - Dialysis parameters



Who get the drug?

◆ Australia

- Subsidised through S100 mechanisms for outpatients
- “For anaemia associated with renal failure requiring transfusion”

◆ New Zealand

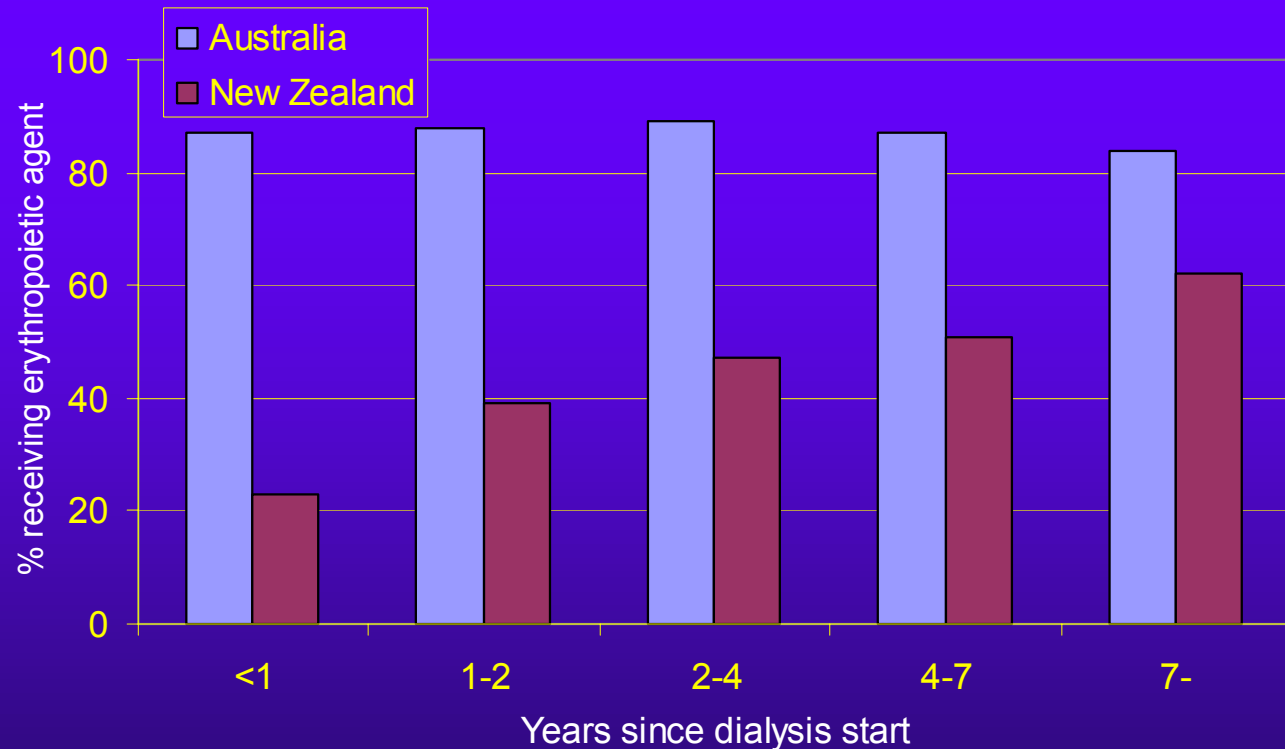
- Patients with ESRD treated with dialysis for 3 months and have demonstrated a haemoglobin <70 g/l over a period of 4 months (or <90 g/l in the presence of cardiac disease).
- Not currently being evaluated for LD TX or expected to receive LD Tx in 3/12
- Requires application to authority



This analysis

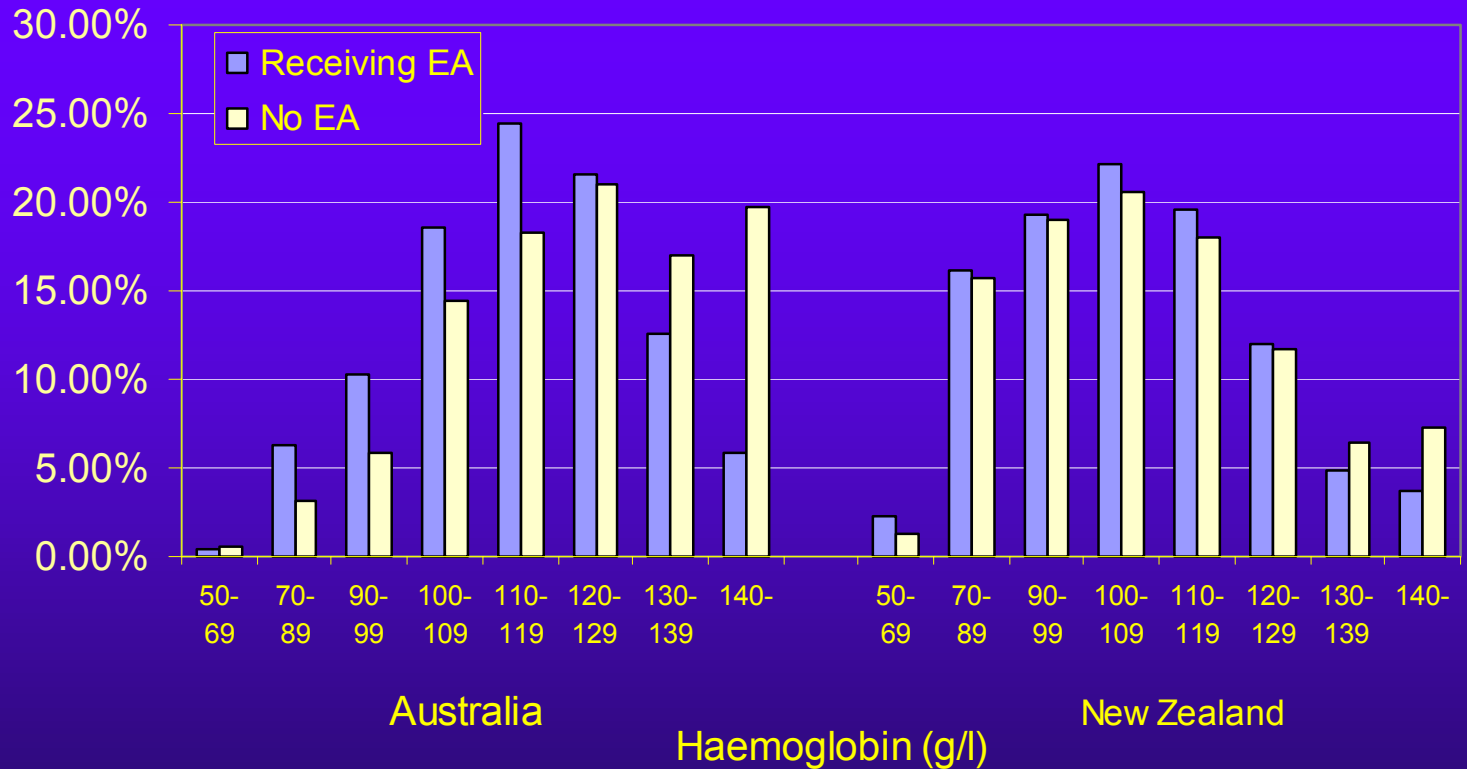
- ◆ Includes all who were on dialysis in March 2001 for ≥ 12 months
- ◆ Stratifies people by country because of different criteria
- ◆ Examines the associations between various indices

Proportion using EA's



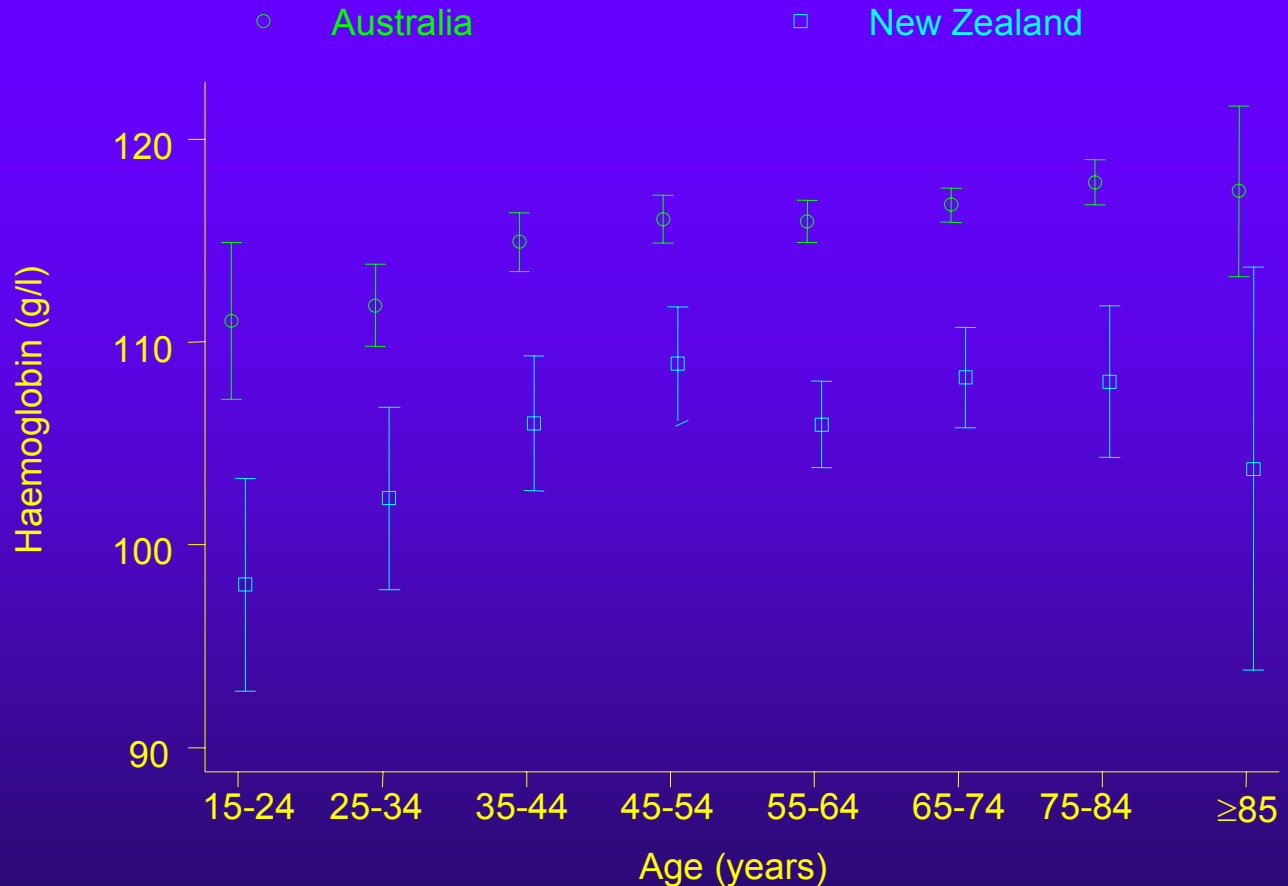
Proportion of dialysis patients receiving erythropoietic agents by time since onset of ESRD.

Trans-Tasman differences



Haemoglobin of prevalent dialysis patients, 2001, by country and EA use

Trans-Tasman differences 2



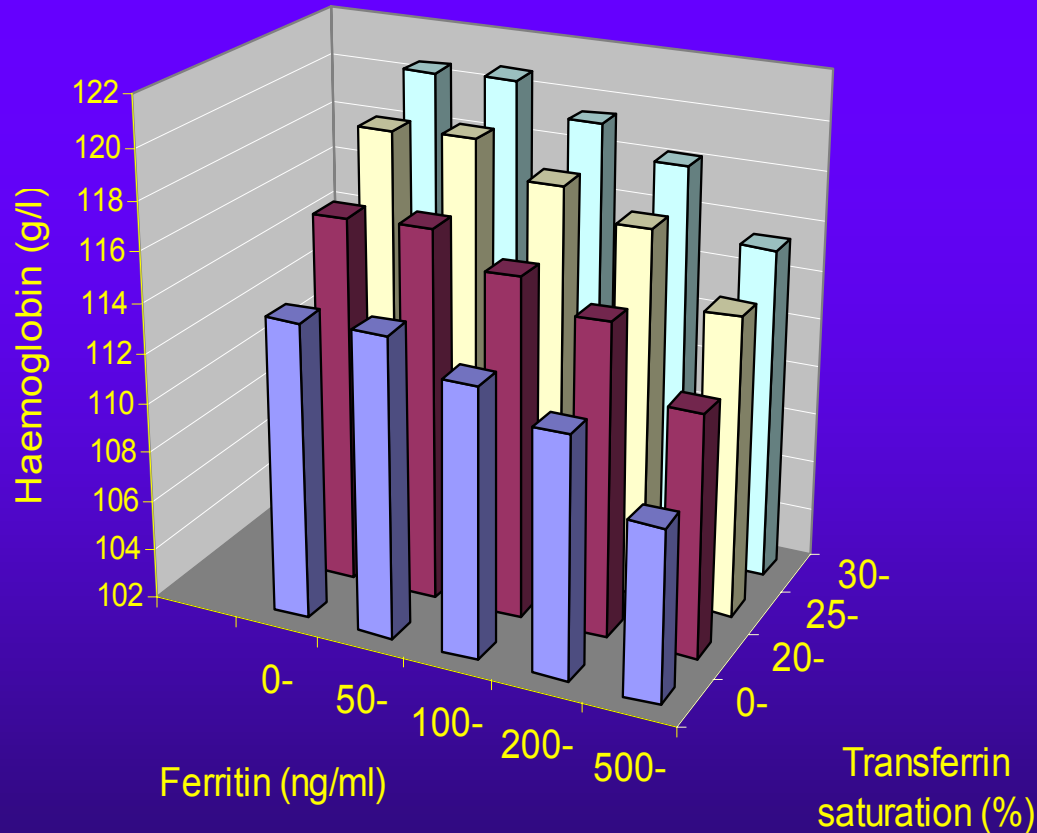
Haemoglobin of prevalent dialysis patients, 2001, by country and age



Transferrin and ferritin

- ◆ Transferrin saturation <20% reported in 30% of EA recipients
- ◆ Ferritin <100 ng/ml in 13%, <200 ng/ml in 28%
- ◆ Poor agreement between transferrin saturation <20% and ferritin <200 ng/ml
 - 65% agreement, 59% by chance, kappa=0.15

Hb, Ferritin and TF sat



Mean haemoglobin concentrations by transferrin saturation and ferritin concentration, adjusted to age 65-74, Australia and to 50% male. Derived from linear regression with Haemoglobin concentration as dependent variable. Transferrin saturation and ferritin categories are independently related to haemoglobin concentration ($p < 0.001$ for each)

What is going on here?

- ◆ Difference not accounted for by adjustment for age, dialysis dose
- ◆ Is it a result of treatment?
- ◆ Does it reflect the role of inflammation?
- ◆ What is the better measure for iron requirement in EA use?



Kidney Transplantation



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There's something I've
been wishing I could do



ever since the day
I BLEW OFF my hand
with a FIRECRACKER.



Now, with my new
HAND TRANSPLANT



I finally CAN!

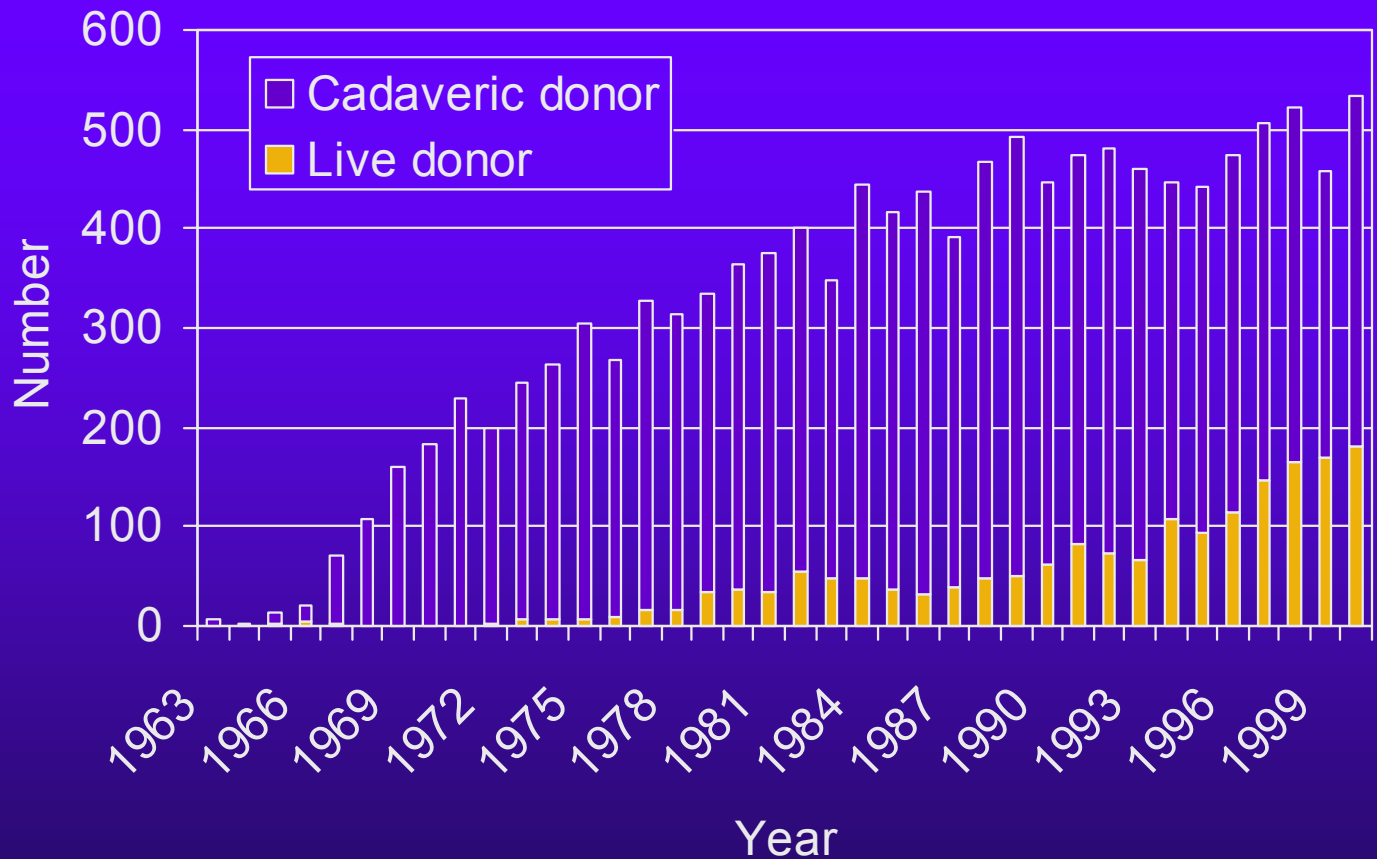


DUH.





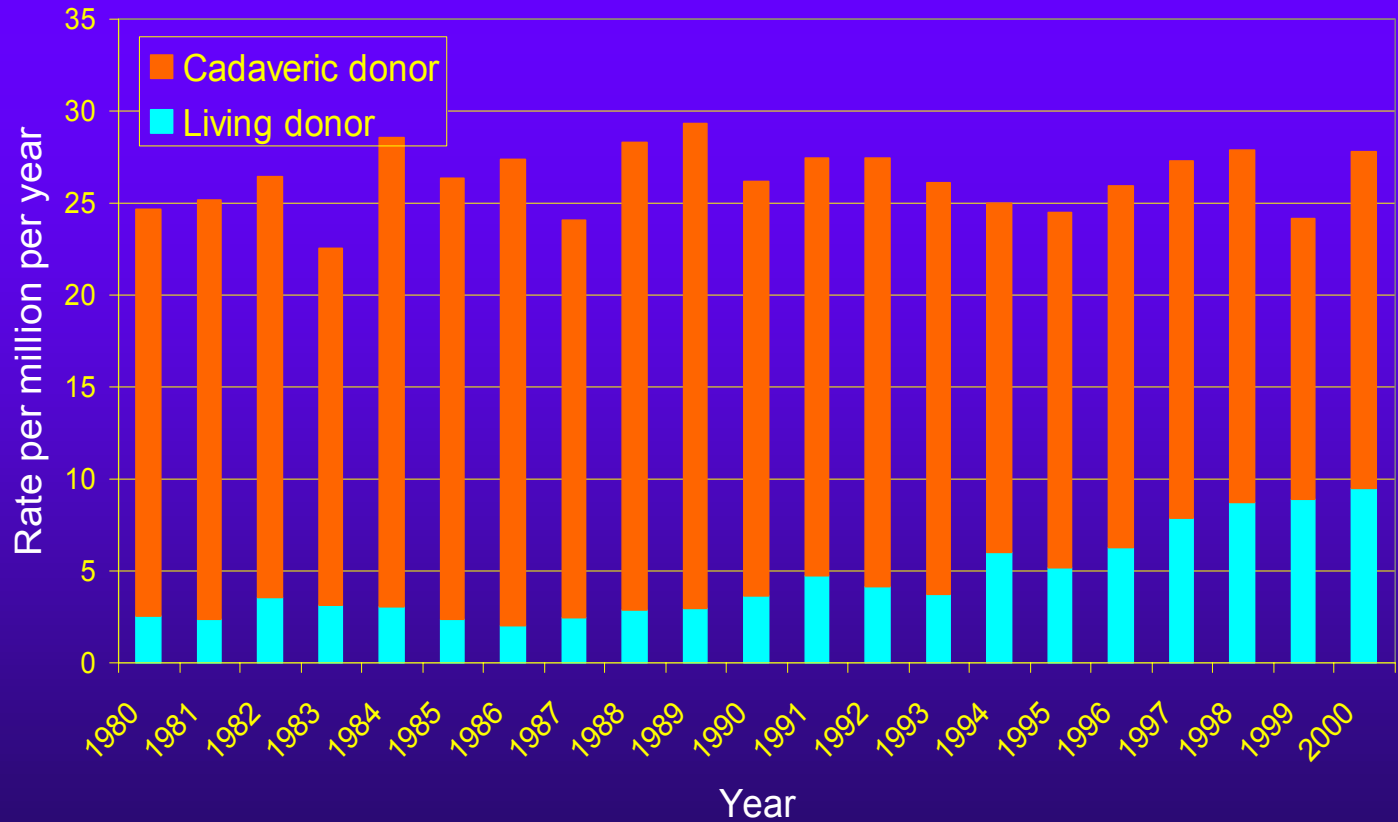
Number of grafts



Number of transplants performed per year, Australia

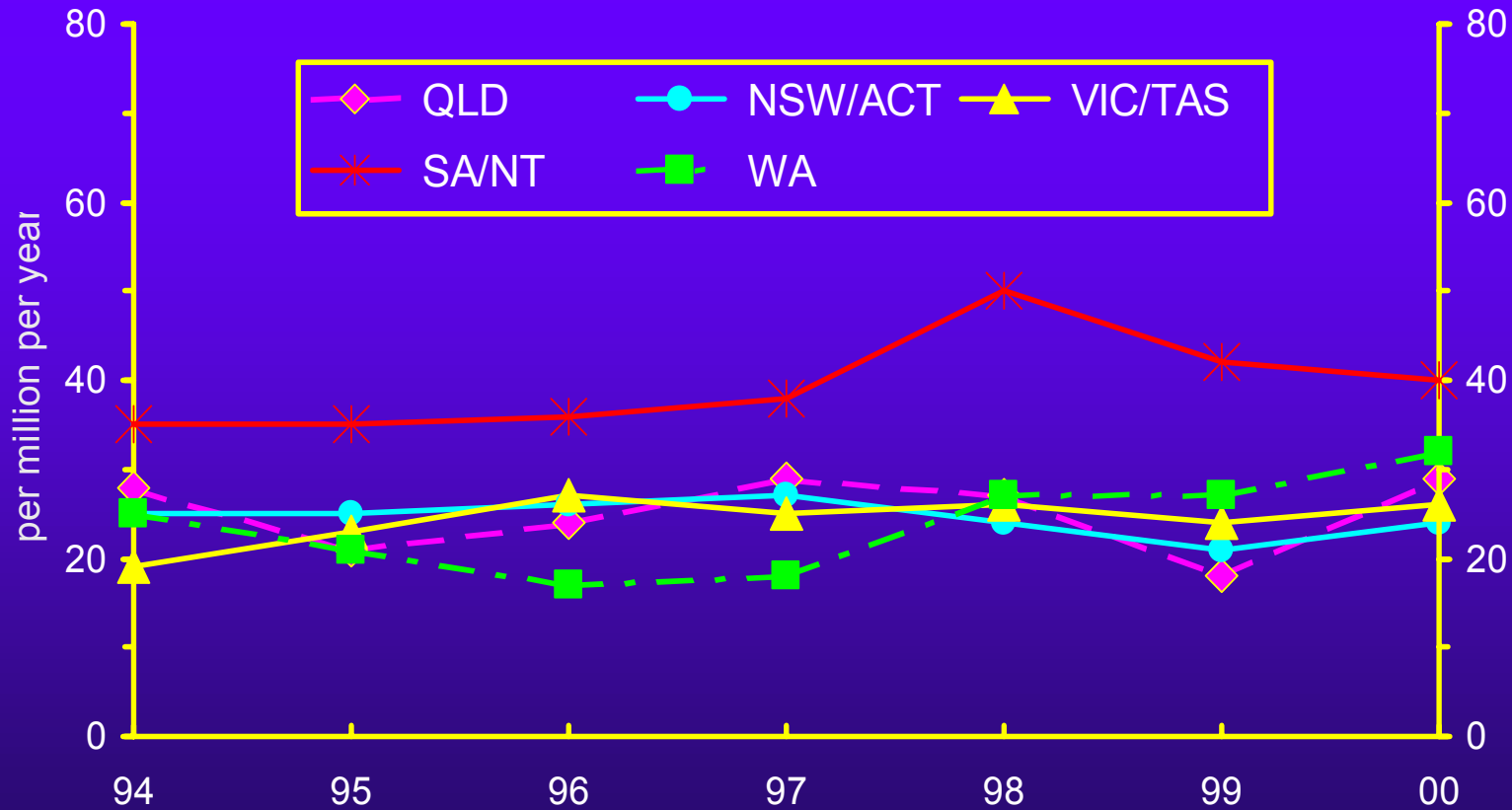


Rate of transplantation



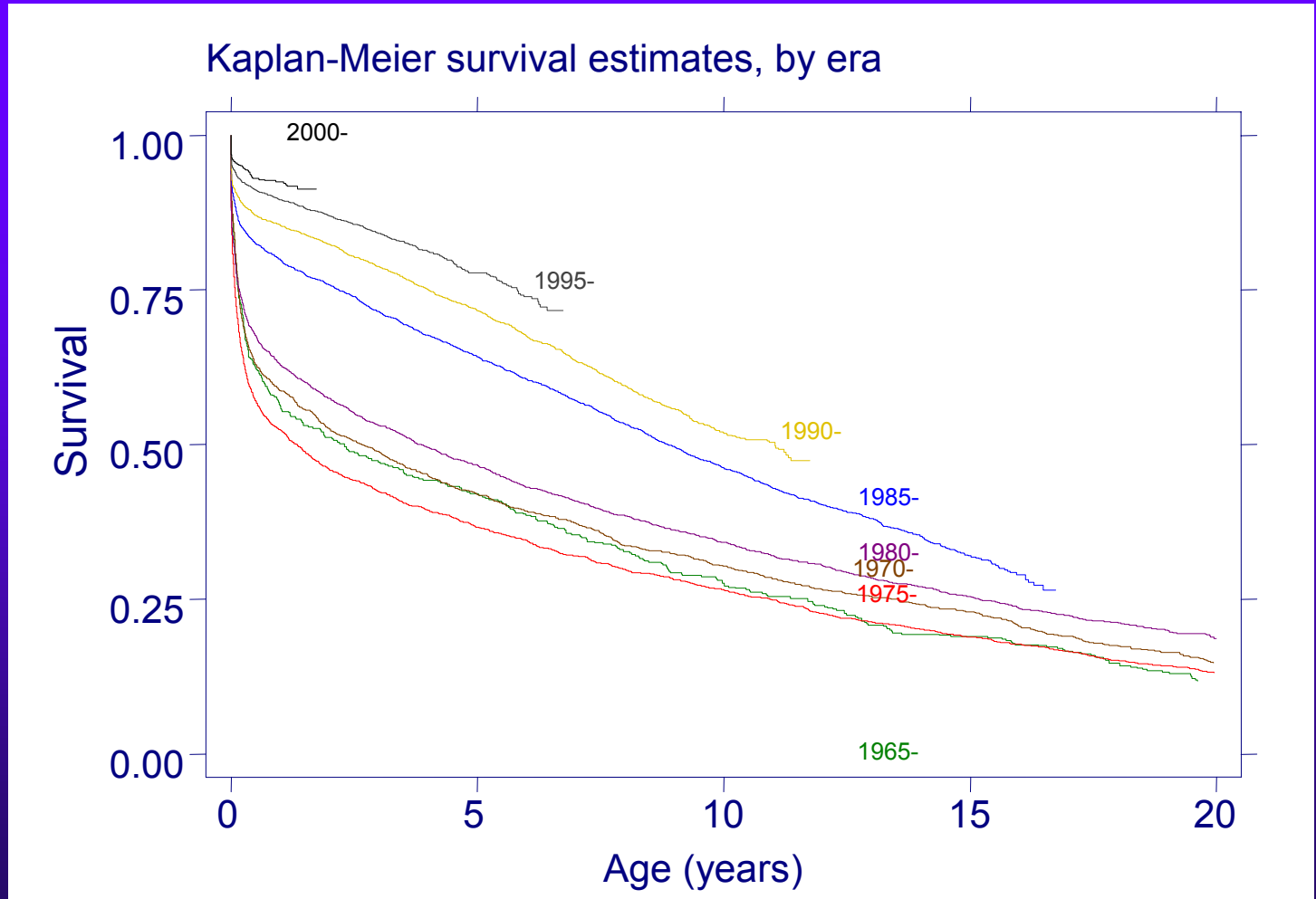
Rate of transplants performed per year, Australia

Transplant Operations 1994 - 2000



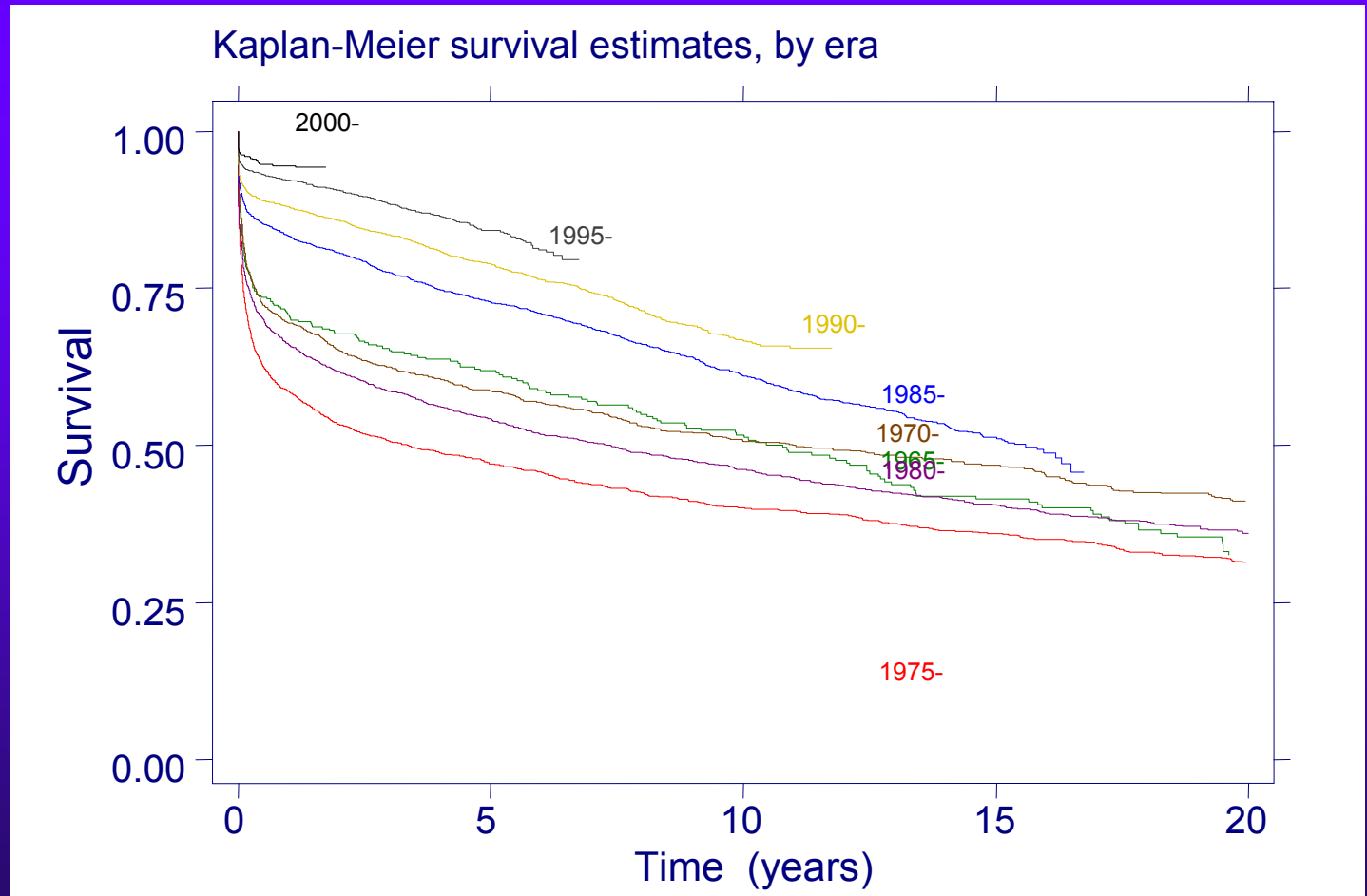
Rate of transplant operations per million population, by transplant regions Australia

Graft survival



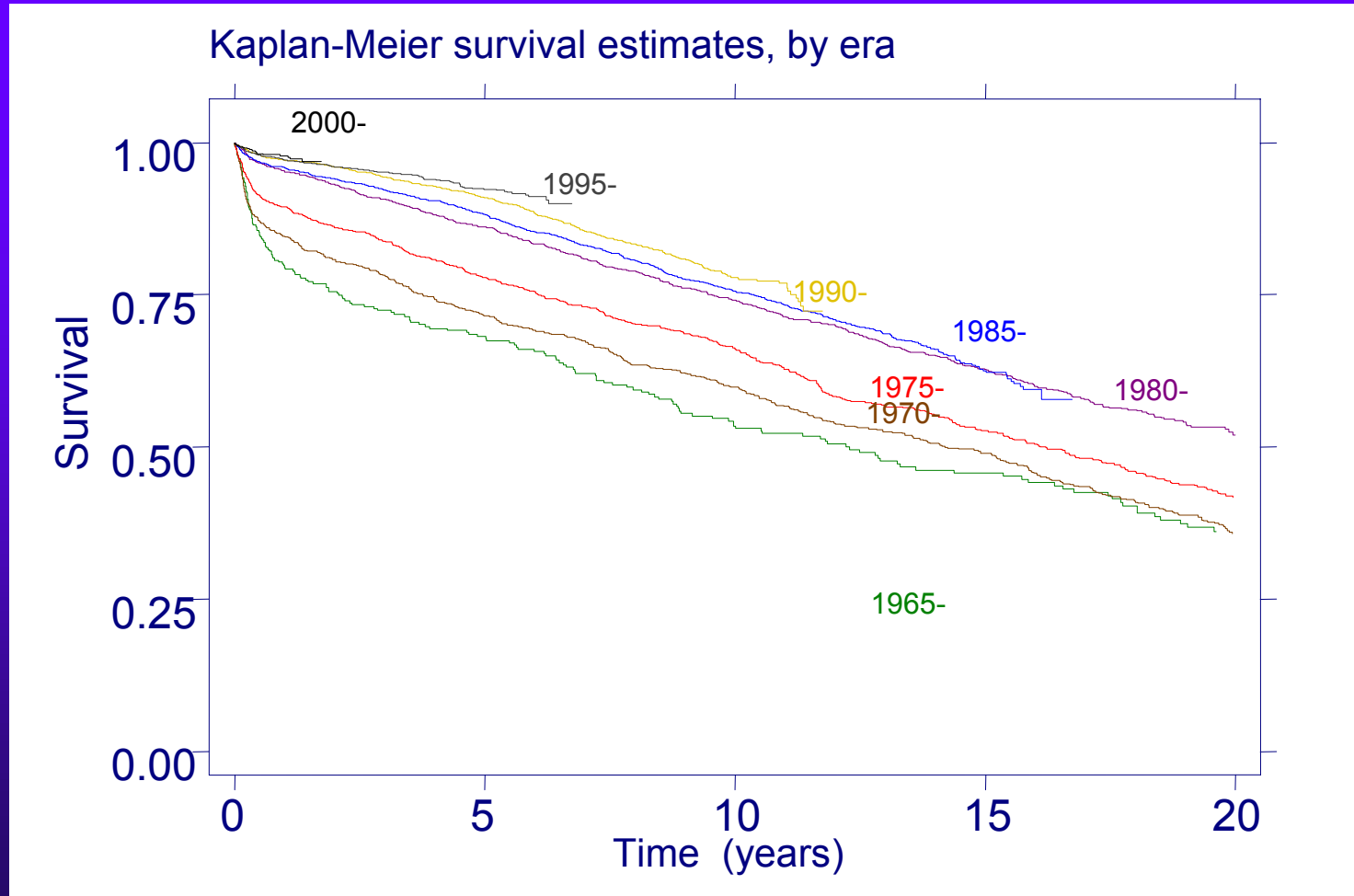
Graft survival by year of transplantation, Australia & NZ

Death censored graft survival



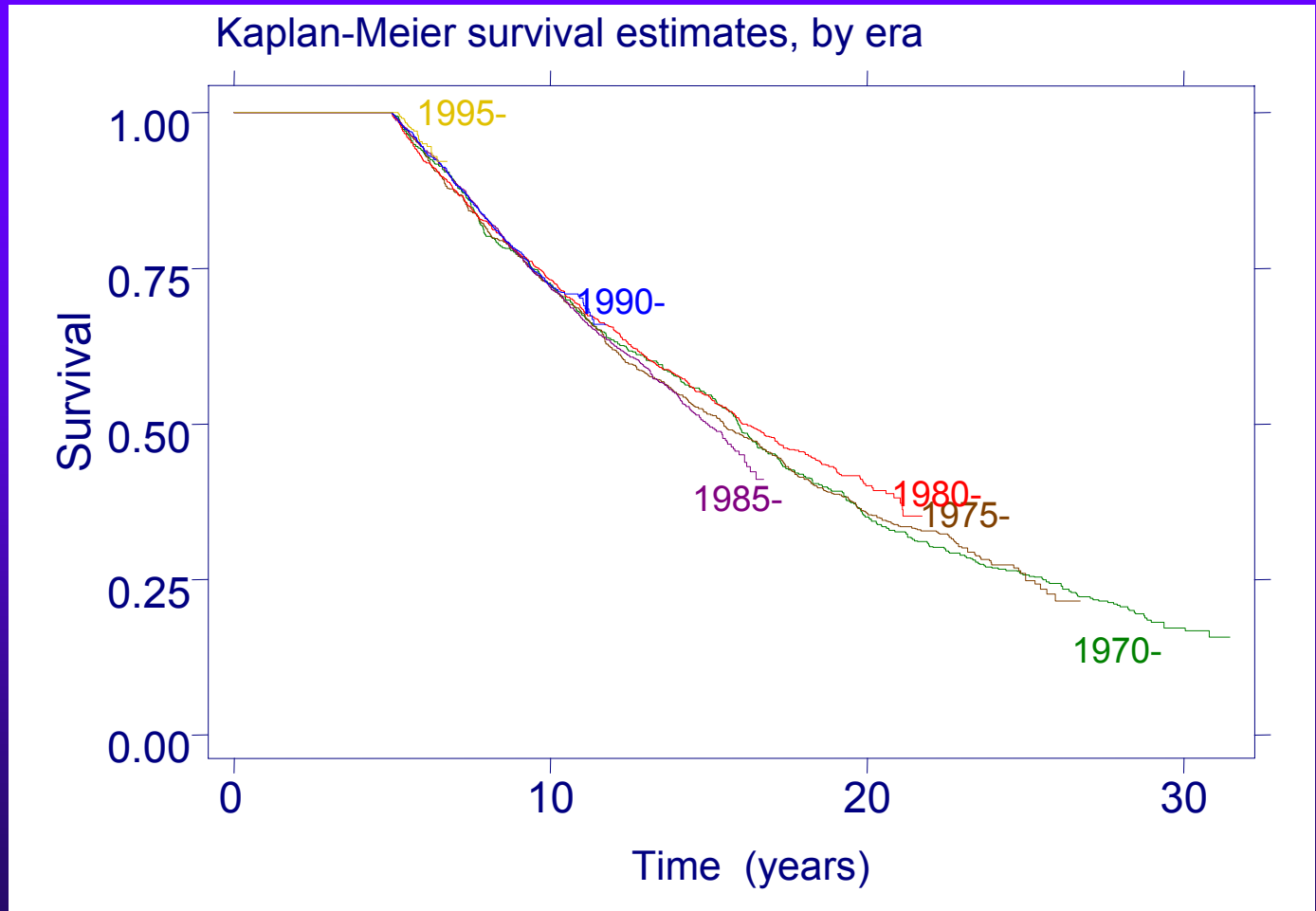
Death censored graft survival, by year of graft, Australia & NZ

Deaths with transplant function



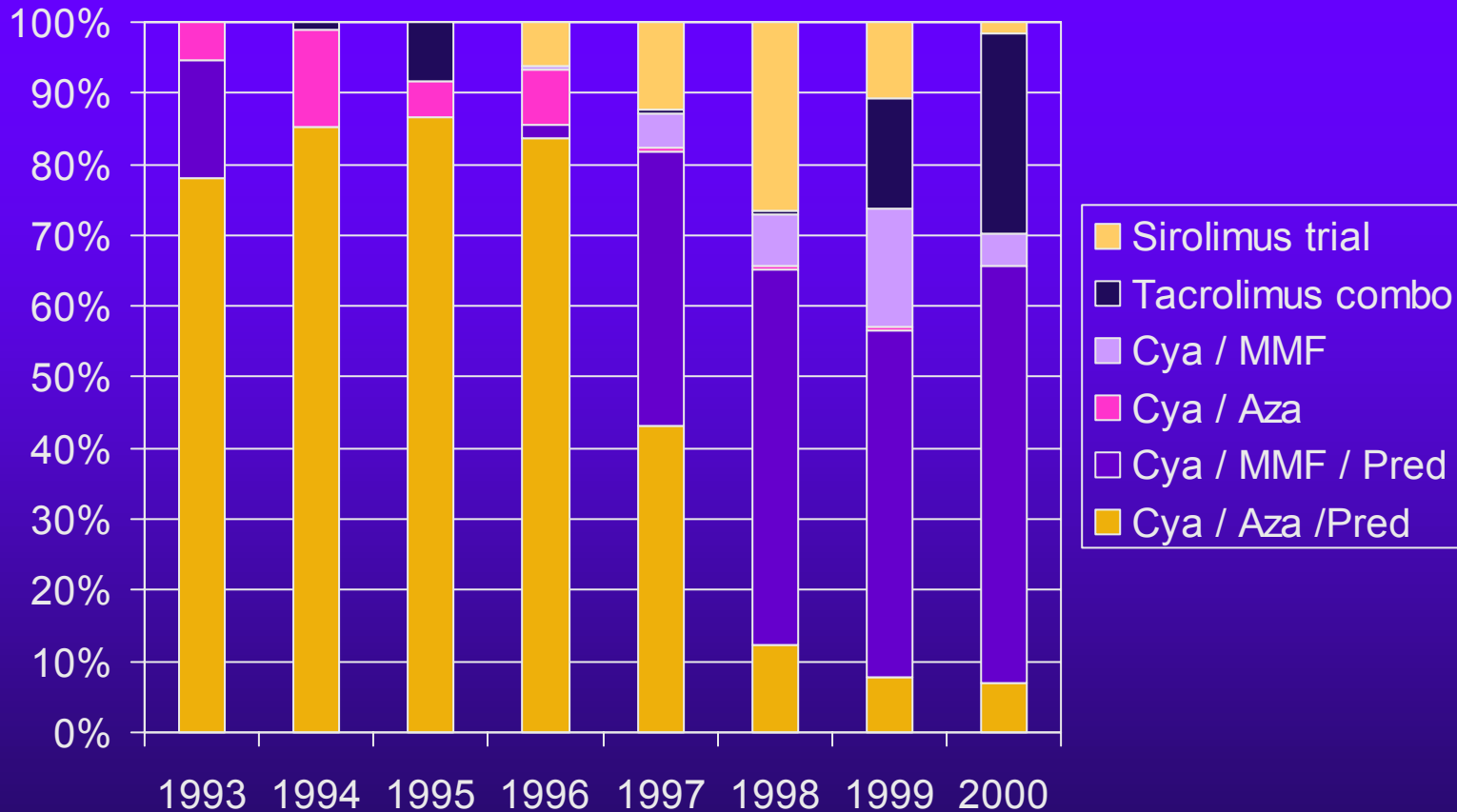
Death with functioning graft, by year of graft, Australia & NZ

Long term survival



Combined graft survival of those who survive 5 years

Trends in immunosuppression



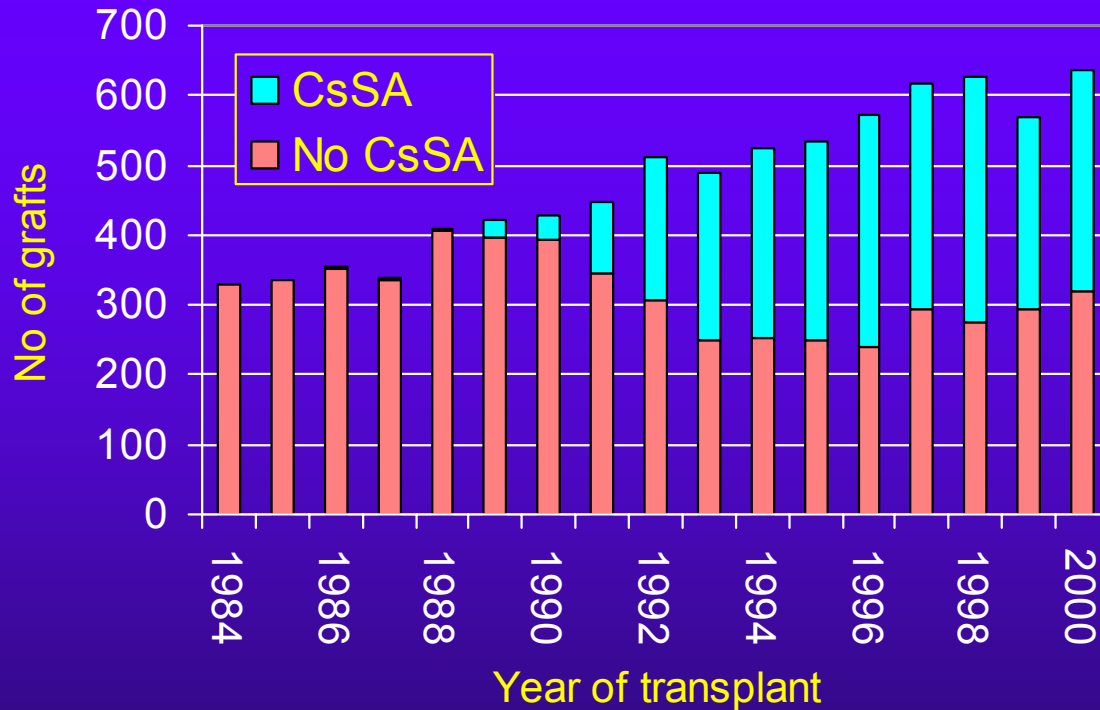
Immunosuppressive drugs at initial treatment for primary cadaver grafts, 1993-2000



Diltiazem in renal transplantation

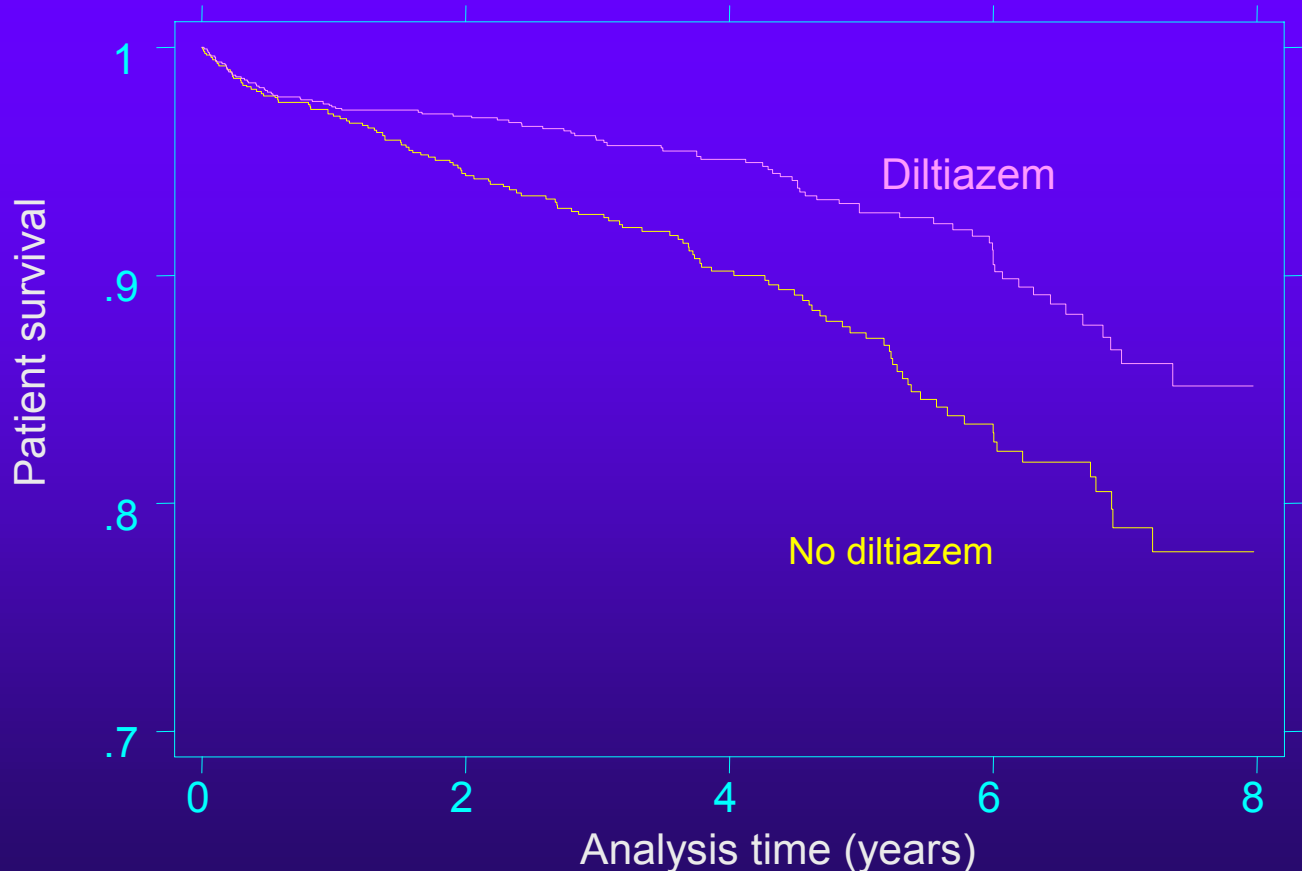
- ◆ Original role as cyclosporin sparing agent
- ◆ Routinely used in some units, but not all
- ◆ Over 1993-2000
 - 2293 grafts with Diltiazem + CsA
 - 1578 Grafts with CsA but not diltiazem

Cyclosporin sparing agent use



Proportion of grafts receiving cyclosporin sparing agent (CsSA) by year, Australia and New Zealand

Diltiazem and transplantation



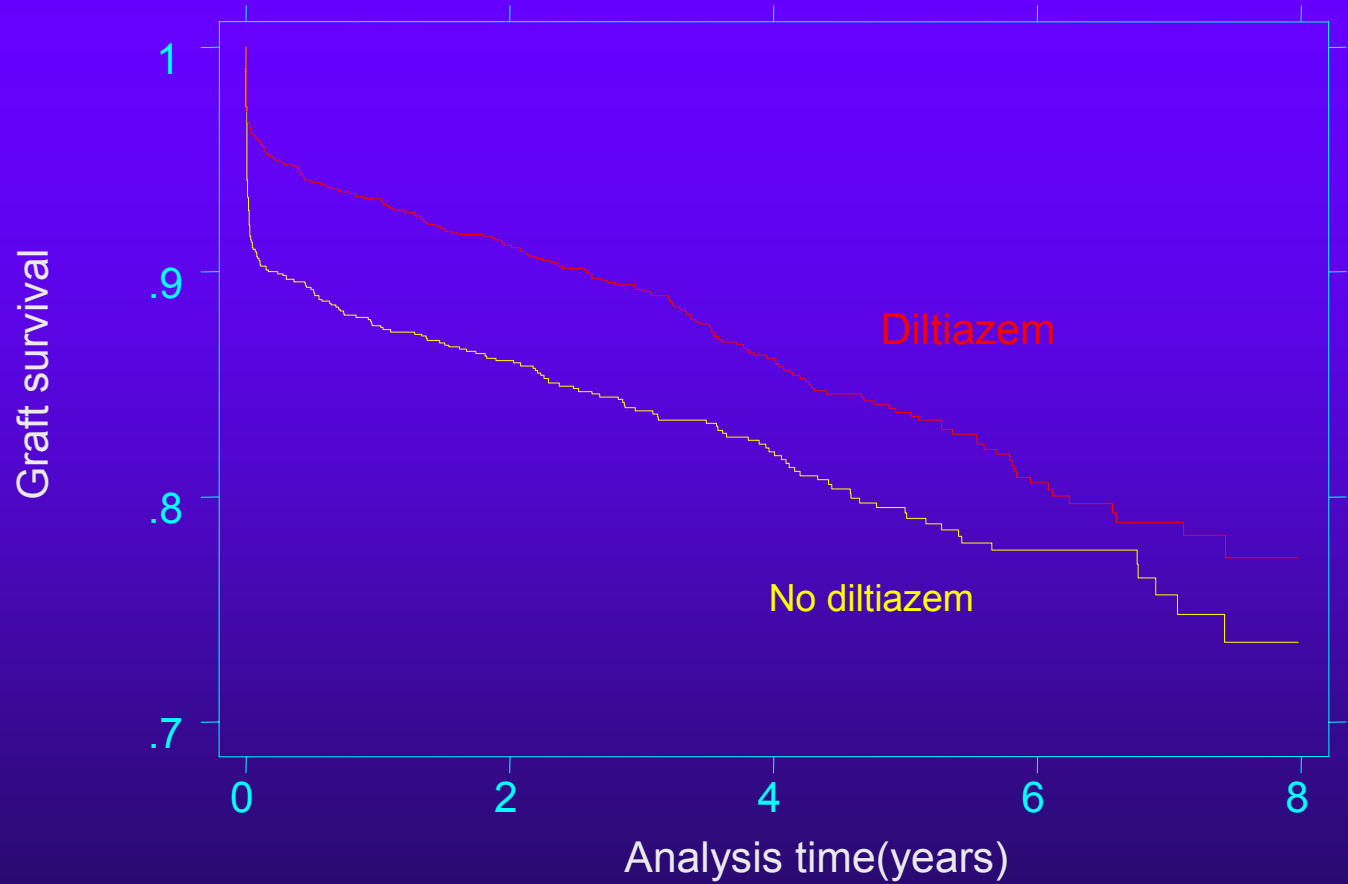
Patient mortality (censored for graft failure) for CD recipients Rx with cyclosporin in Australasia, 1993-2001



Diltiazem and patient outcome

- ◆ After adjustment for age, gender, co-morbidities etc, HR for death >1 year post cadaveric transplant in those receiving diltiazem was 0.56 [0.40-0.79], $p < 0.001$

Diltiazem and transplantation



Graft survival (censored for patient death) for CD recipients Rx with cyclosporin n Australasia, 1993-2001



Diltiazem and graft outcome

- ◆ Diltiazem associated with lower rates of graft loss (censored for patient death) in the first 30 days after transplant
 - Adjusted HR 0.63 [0.44-0.92]
 - No effect after this time
- ◆ Recipients of diltiazem also enjoyed less DGF (OR 0.63 [0.44-0.92], $p=0.02$)
- ◆ No difference in rejection rates



Conclusions

- ◆ Diltiazem use with cyclosporin after kidney transplantation is associated with
 - better patient mortality
 - Improved early graft outcomes
 - Is this association causative?



Acknowledgements

- ◆ Stephen McDonald's salary is supported by a grant from AMGEN to the ANZDATA Registry
- ◆ ANZDATA receives ongoing funding from the Australian and New Zealand governments and the Australian Kidney Foundation, and also receives donations from a number of pharmaceutical and dialysis companies



The end

Want to know more?

www.anzdata.org.au

