

# Acute Rejection in ANZ 1997-2002

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*On behalf of*  
**ANZDATA**

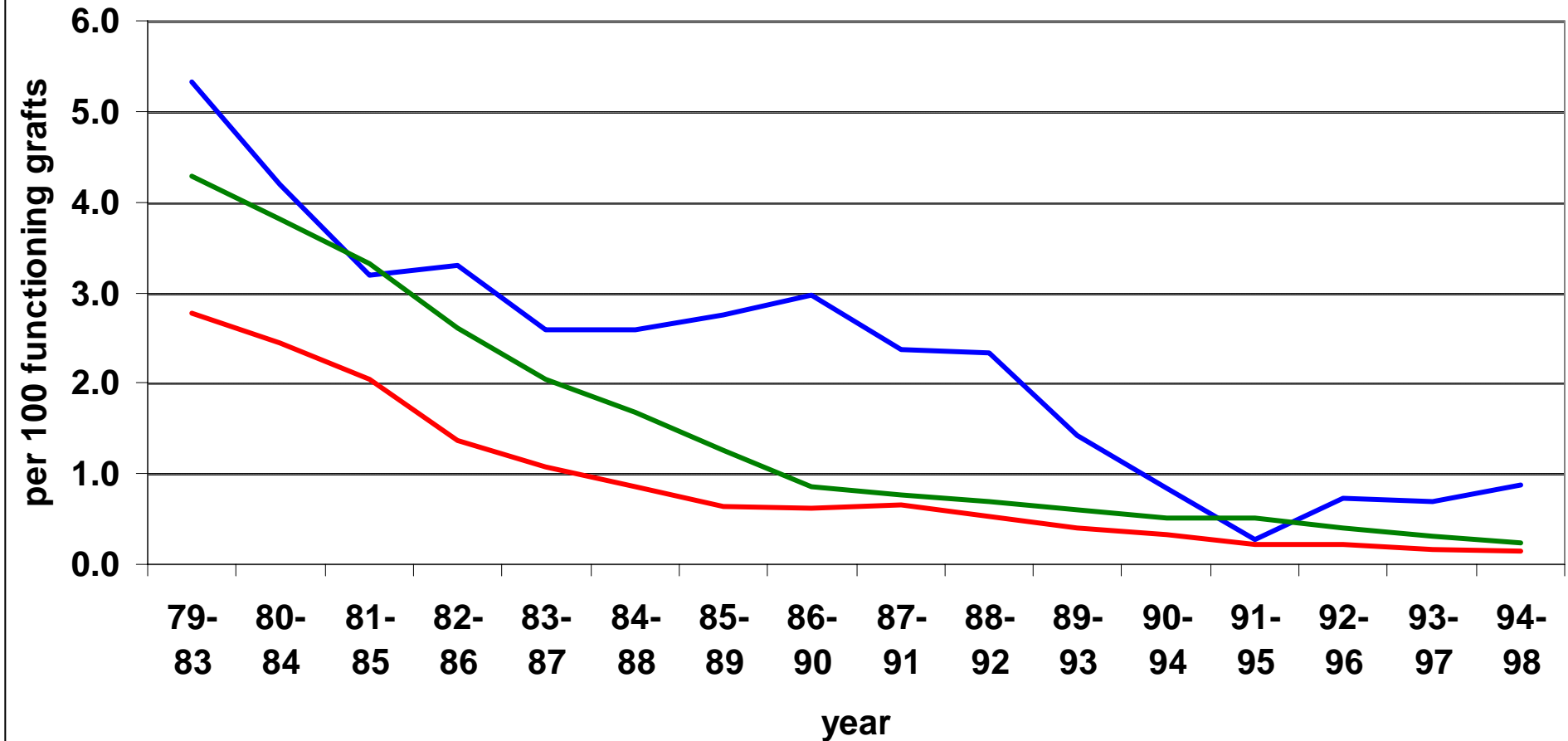
**TSANZ 2003**

# Acute rejection as a cause of graft loss

— 0-14 years

— 15-54 years

— 55+ years



# What's the problem with acute rejection?

## *Not a problem:*

1. Progressively less common
2. >90% treatable
3. If entirely reversible, no impact on graft survival
4. Of lesser importance in long-term outcomes

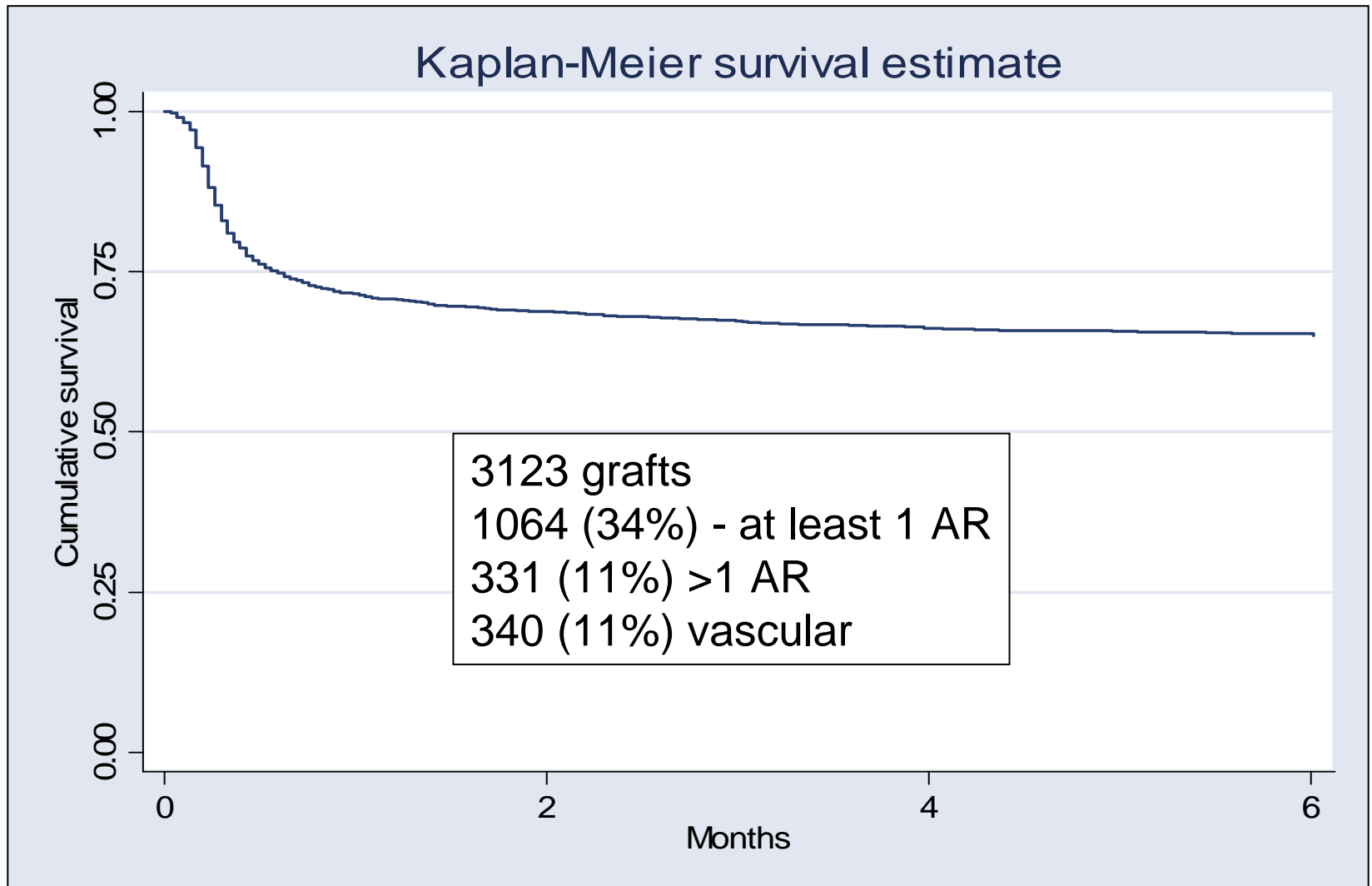
## *Really, it is still a problem:*

1. 10-40% of recipients
2. Occasional cause of graft loss
3. Risk factor for 'chronic allograft nephropathy'
4. Costs money
5. Correlates with cancer [Walker et al, Transplantation 1998](#)

## Acute Rejection, ANZ, 1997-2002

	<b>Australia</b>	<b>New Zealand</b>	<b>Total</b>
grafts	2550	551	<b>3123</b>
AR	863 (34%)	200 (36%)	<b>1064 (34%)</b>
Recurrent	265 (10%)	66 (12%)	331 (11%)
BPAR	90%	70% (90% 2000-)	86%
Of BPAR:			
Vascular	38%	32%	37%

# Rejection-free survival, ANZ, 1997-2002



## Year of transplant – probable reduction 2001-2

Year	Australia	NZ	total
1997	153 (39%)	49 (54%)	202 (42%)
1998	179 (35%)	41 (39%)	220 (35%)
1999	179 (39%)	41 (37%)	221 (39%)
2000	195 (37%)	32 (30%)	227 (36%)
<b>2001/March 30th 2002</b>	<b>157 (24%)</b>	<b>37 (27%)</b>	<b>194 (24%)</b>

## Gender – males experience more AR

Donor	Gender	N	N (%)	OR (95%CI)	p
Cadaveric	Male	1281	444 (35%)	-	-
	Female	760	230 (30%)	0.82 (0.67, 0.99)	0.041
Live	Male	627	251 (40%)	-	-
	Female	447	139 (31%)	0.67 (0.52, 0.87)	0.003

## Age – 25-45 experience more AR

Donor	Age at Tx	N	AR (%)	OR	p
Cadaveric	0-14	39	9 (23%)	0.85 (0.39, 1.83)	0.674
	15-24	105	33 (31%)	1.29 (0.82, 2.04)	0.264
	<b>25-34</b>	<b>335</b>	<b>142 (42%)</b>	<b>2.08 (1.56, 2.77)</b>	<b>&lt;0.001</b>
	<b>35-44</b>	<b>472</b>	<b>178 (38%)</b>	<b>1.71 (1.31, 2.23)</b>	<b>&lt;0.001</b>
	45-54	539	168 (31%)	1.28 (0.98, 1.67)	0.066
	<b>&gt;=55</b>	<b>551</b>	<b>144 (26%)</b>	<b>-</b>	<b>-</b>
Live	0-14	84	20 (24%)	0.53 (0.30, 0.94)	<b>0.029</b>
	15-24	154	48 (31%)	0.77 (0.50, 1.18)	0.237
	25-34	235	95 (40%)	1.14 (0.79, 1.65)	0.478
	<b>35-44</b>	<b>245</b>	<b>92 (38%)</b>	<b>-</b>	<b>-</b>
	45-54	210	81 (39%)	1.06 (0.72, 1.54)	0.781
	>=55	146	54 (37%)	1.00 (0.66, 1.53)	0.994

## Peak PRA significant in cadaver graft recipients

Donor source	Peak PRA	N	AR (%)	Odds Ratio	p
Cadaver	0-9	1162	368 (32%)	-	-
	10-19	245	63 (26%)	0.75 (0.55, 1.02)	0.067
	<b>20-49</b>	<b>272</b>	<b>103 (38%)</b>	<b>1.31 (0.99, 1.73)</b>	<b>0.05</b>
	<b>&gt;=50</b>	<b>347</b>	<b>136 (39%)</b>	<b>1.39 (1.08, 1.78)</b>	<b>0.009</b>
Live	0-9	784	278 (36%)	-	-
	10-19	74	34 (46%)	1.55 (0.96, 2.50)	0.075
	20-49	93	33 (36%)	1.00 (0.64, 1.57)	0.996
	>=50	84	32 (38%)	1.12 (0.70, 1.78)	0.632

## More AR seen in Living Unrelated Donor transplants

AR	Donor	N	AR (%)	OR	p
Any	Cadaveric	2041	674 (33%)	-	-
	LR	723	242 (34%)	1.02 (0.85, 1.22)	0.826
	<b>LUR</b>	<b>351</b>	<b>148 (42%)</b>	<b>1.47 (1.17, 1.86)</b>	<b>0.001</b>
Cellular	Cadaveric	1945	515 (27%)	-	-
	LR	695	201 (29%)	1.12 (0.92, 1.36)	0.245
	LUR	328	116 (35%)	1.51 (1.18, 1.93)	<b>0.001</b>
Vascular	Cadaveric	1945	215 (11%)	-	-
	LR	695	76 (11%)	0.97 (0.74, 1.28)	0.844
	LUR	328	49 (15%)	1.39 (0.99, 1.94)	0.053

Donor	HLA M/M	N	AR (%)	OR	P
<b>Cadaver</b>	0	107	26 (24%)	0.86 (0.53, 1.40)	0.547
	1	295	80 (27%)	0.99 (0.72, 1.39)	0.991
	2	464	126 (27%)	-	-
	<b>3</b>	<b>438</b>	<b>147 (34%)</b>	<b>1.36 (1.02, 1.80)</b>	<b>0.037</b>
	<b>4</b>	<b>336</b>	<b>133 (40%)</b>	<b>1.76 (0.30, 2.37)</b>	<b>&lt;0.001</b>
	<b>5</b>	<b>283</b>	<b>108 (38%)</b>	<b>1.66 (1.21, 2.27)</b>	<b>0.002</b>
	<b>6</b>	<b>115</b>	<b>54 (47%)</b>	<b>2.37 (1.56, 3.61)</b>	<b>&lt;0.001</b>
<b>Live</b>	0	132	14 (11%)	0.18 (0.10, 0.33)	<b>&lt;0.001</b>
	1	93	31 (33%)	0.76 (0.48, 1.27)	0.326
	2	225	81 (36%)	0.88 (0.62, 1.25)	0.484
	3	347	135 (39%)	-	-
	4	148	70 (47%)	1.41 (0.96, 2.08)	0.083
	5	95	40 (42%)	1.14 (0.72, 1.81)	0.572
	<b>6</b>	<b>30</b>	<b>19 (63%)</b>	<b>2.71 (1.25, 5.88)</b>	<b>0.011</b>

## Other factors affecting AR in ANZ 1997-2002

**Ethnicity** – less AR in:

**Asians** (OR 0.51 LD, 0.69 cadaver)

**BMI** - <20 less AR

**Drugs** – **Steroid avoidance** associated with more AR

32% vs 48%, OR 2.0  $p < 0.001$ .

- all others equal!

Graft Number – trend to more AR for subsequent grafts

Duration on dialysis – no effect

Delayed graft function – pending.

## Acute Rejection in ANZ 1997-2002

1. 34% incidence of AR – higher than current trials
2. 90% biopsy proven
3. Up to one-third will have >1 episode
4. Up to one-third have a vascular component
5. Incidence of AR declining over time
6. Hypothesis: size matters  
female gender, Asian, BMI<20 associated with less AR
7. Immunology still matters  
Sensitization (peak PRA) and HLA mis-match are associated with AR
8. Multivariable model required, particularly re drug effect
9. ANZDATA will provide real-world information