

Access to Kidney Transplantation

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Background

- One of the most important tasks is to evaluate and refer ESRD patients for a kidney transplant.
- Our policy to ensure all patients are considered
- Concern that some patients are not being referred
 - Ageism

Added Benefit of Transplantation

	Without transplant Expected life years	Transplant at any time during follow-up ^e	
		Expected life years	Benefit
All patients	7.9 (7.5,8.2)	17.7 (16.7,18.7)	9.8
Age			
0–19	12.0 (9.2,14.7)	29.2 (23.8,34.6)	17.2
20–39	9.5 (8.8,10.1)	24.3 (22.4,26.1)	14.8
40–59	7.6 (7.3,8.0)	17.0 (16.0,18.0)	9.4
60–64	6.5 (6.1,6.9)	12.7 (11.7,13.7)	6.2
65–69	5.8 (5.4,6.2)	11.1 (10.1,12.1)	5.3
≥70	4.5 (4.0,4.9)	8.2 (7.1,9.2)	3.7

Kidney International (2005) **68**, 2345–2351

Evidence of Ageism

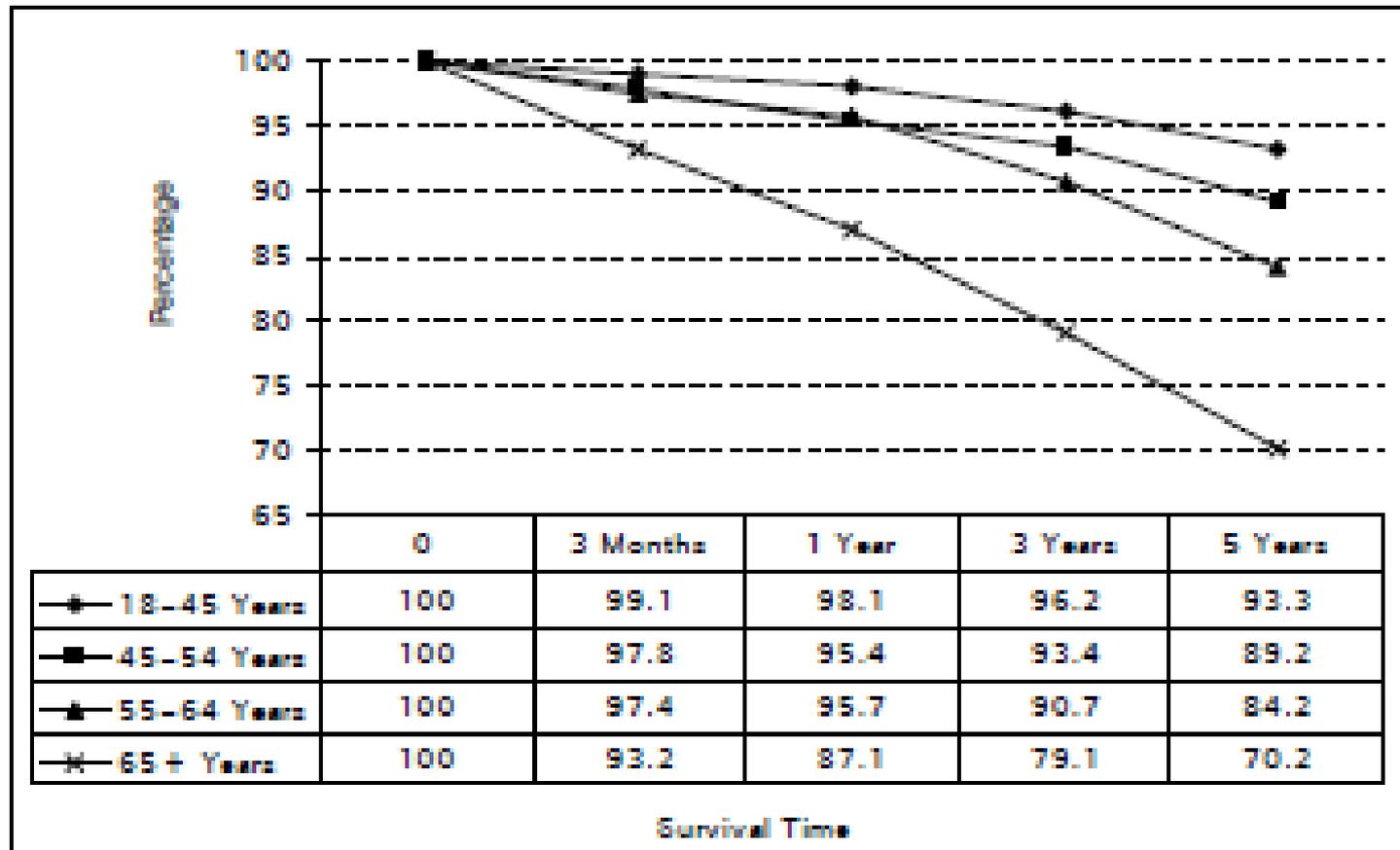
- Scotland
 - 4523 starting ESRD therapy between 1989-1999
- 38.4% were wait listed
 - 81% (362/446) age 18-35 listed
 - 10% (170/1720) age 65+ listed
- Of Those Wait Listed
 - 65+ wait listed patients were less likely to be transplanted (OR 0.45)

International 'Age' Eligibility Criteria

- Exclude age >65 (Malaysia)
- Exclude life expectancy <5 yrs (US and European)
- Exclude if patient survival <80% at 5 years (AUSNZ)

Historic Canadian Transplant Outcomes

Figure 21 Unadjusted Three-Month and One-, Three- and Five-Year Patient Survival for Adult Kidney Transplant Recipients, First Graft, Deceased Donor, by Age at Transplant, Canada, 1998 to 2000, (Followed to 2005)



Canadian Guideline

- Exclude if not likely to survive wait time (Canadian)
 - Median Wait Time 3.6 years (Range 2.3- 6 yrs)

Central Nova Scotia Experience

Objectives

- Examine transplant referral and listing in incident ESRD patients
- Determine the proportion of patients with contraindications
- Determine the proportion not referred without contraindications
- Examine survival in patients not felt to be candidates.
 - ‘Are they unlikely to survive the wait time’

Population

- Retrospective, adult (>age 18)
- Incident ESRD patients from 1/2006 to 12/2009
 - Nephrology database
 - Included patients with failed transplant.
- Classified by referral and eligibility status using Canadian Consensus Guidelines
 - Candidates (referred and no contraindication)
 - Contraindication
 - Neither- (not referred and no contraindication)

Methods

- Referral for transplantation
 - Based on MOTP database
- Candidates
 - Based on wait list decision
 - Consensus of RP, MA and BK

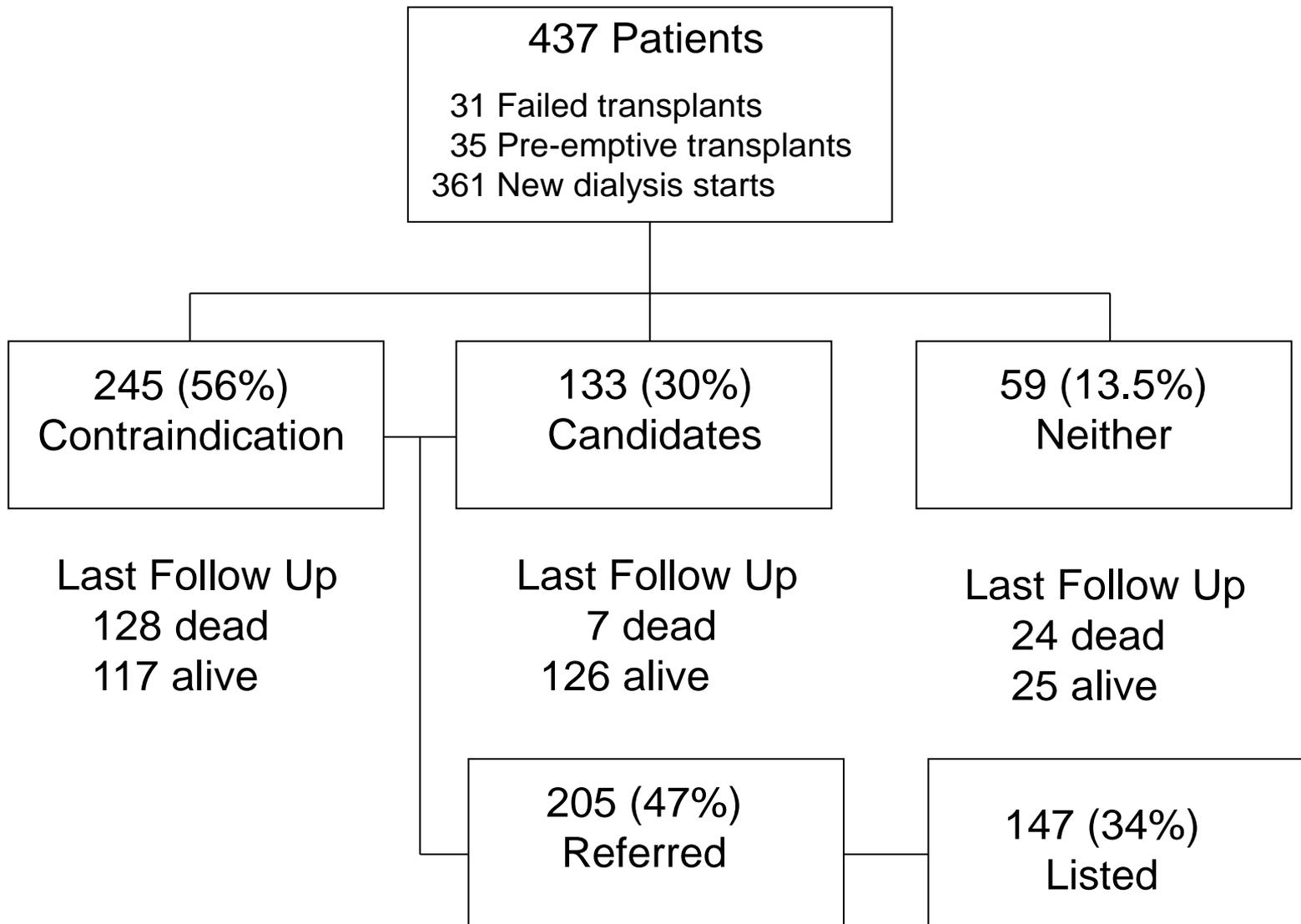
Eligible Based on CST Guidelines and Local Practice

Most expert opinion based

- Active Infection
- Recent stroke/MI
- Active Cancer
- Advanced or Active lung disease
- Active peripheral vascular disease
- Non-adherence/Substance abuse
- *Obesity BMI >40 kg/m²*

Patient Survival

- Patients with pre-emptive transplants were excluded from survival analysis
- Survival was censored at last follow up and at transplantation.



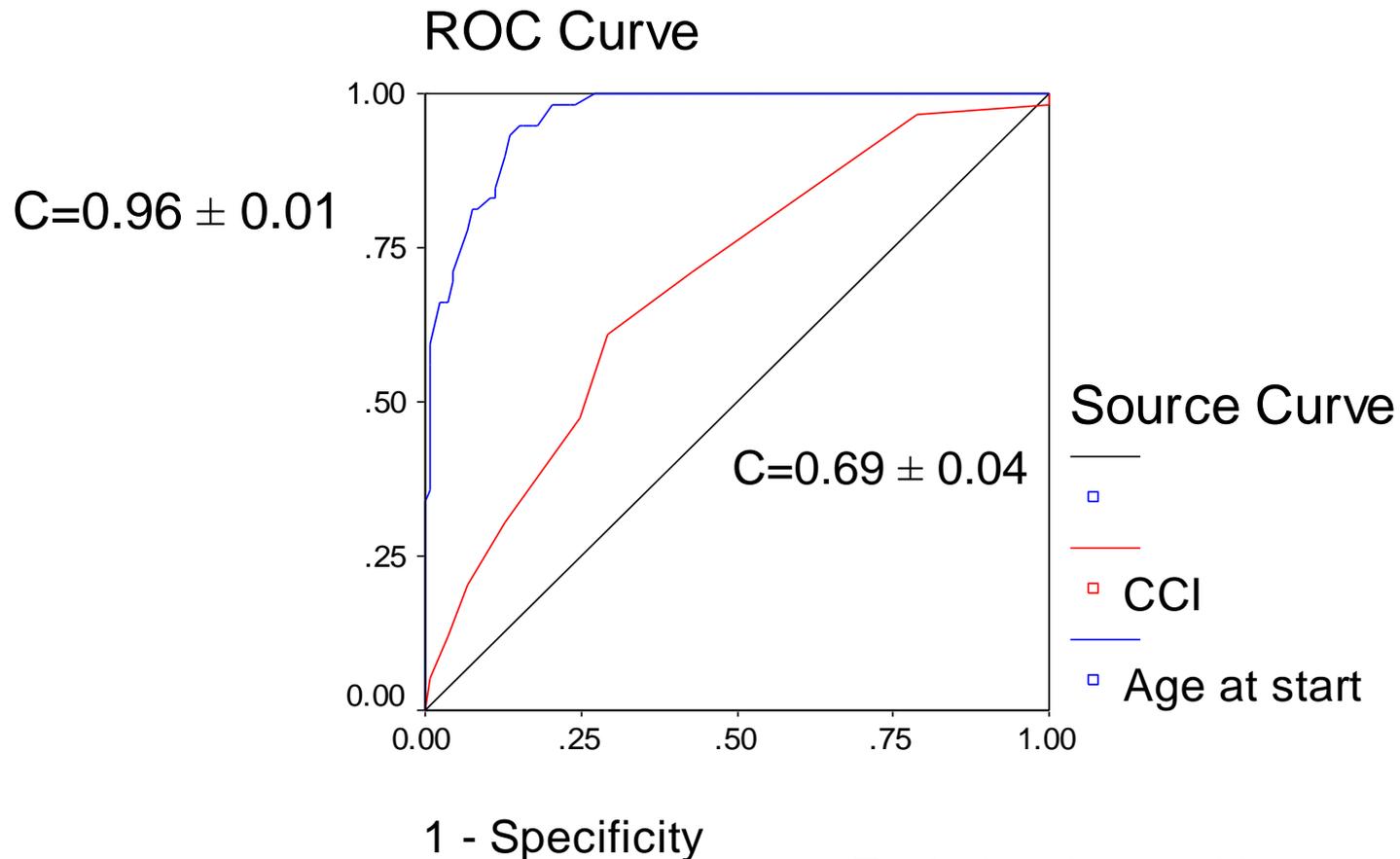
Baseline Demographics

	Candidates N=133	Neither N=59	Contraindication N=245	Prob
Age years	50 ± 14	76 ± 7	65 ± 14	<0.001
Sex male	72 (54%)	30 (50.4%)	147 (60%)	0.325
ESRD				
DM	28 (21%)	15 (25%)	78 (32%)	0.311
PCKD	28 (21%)	2 (3.4%)	11 (4.5%)	<0.001
GN	30 (23%)	4 (6.8%)	22 (9%)	0.001
CCI	3.0 ± 2.0	4.4 ± 2.3	5.5 ± 2.7	<0.001

CCI = Charlson Co-morbidity Index

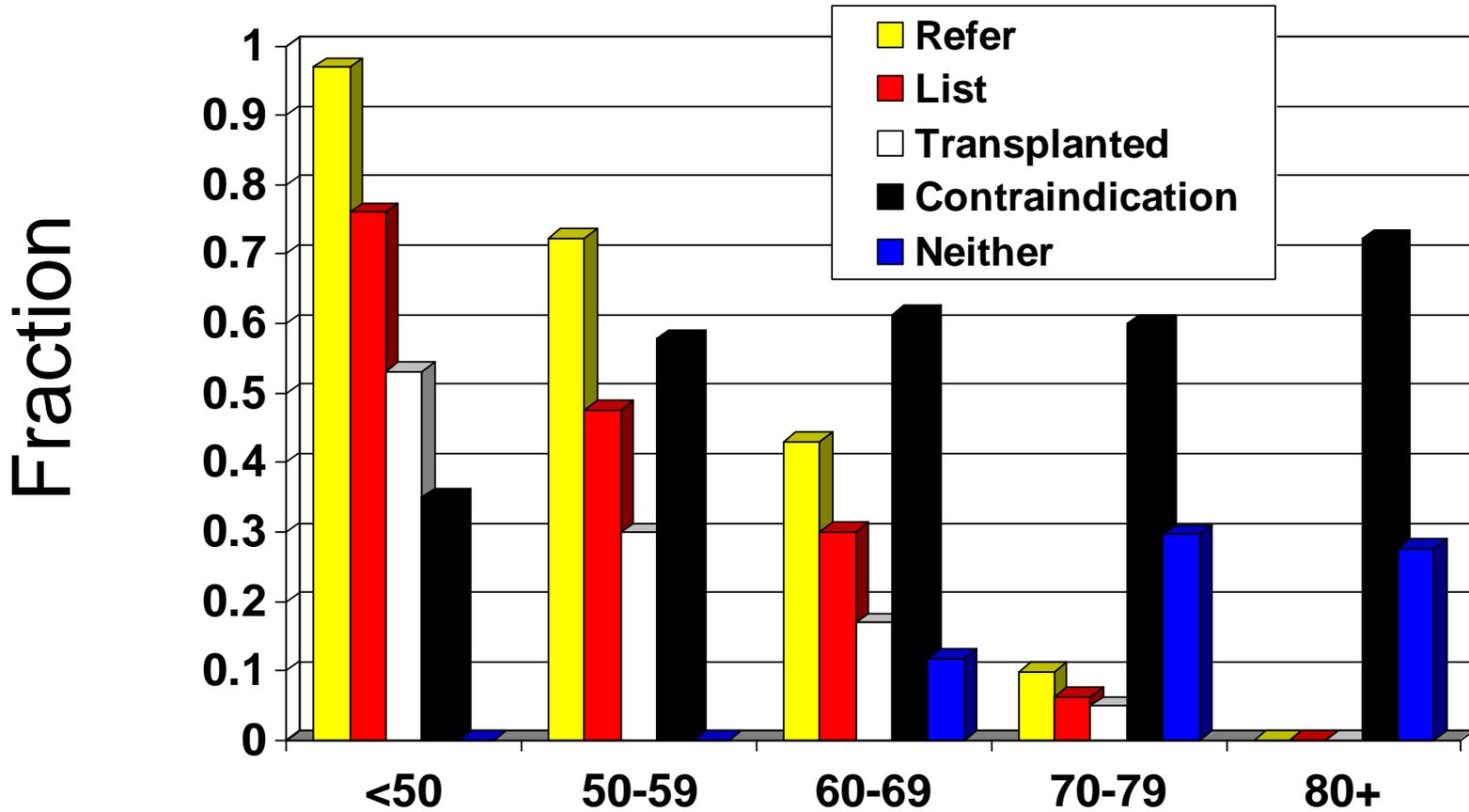
Concordance

Neither versus Candidate

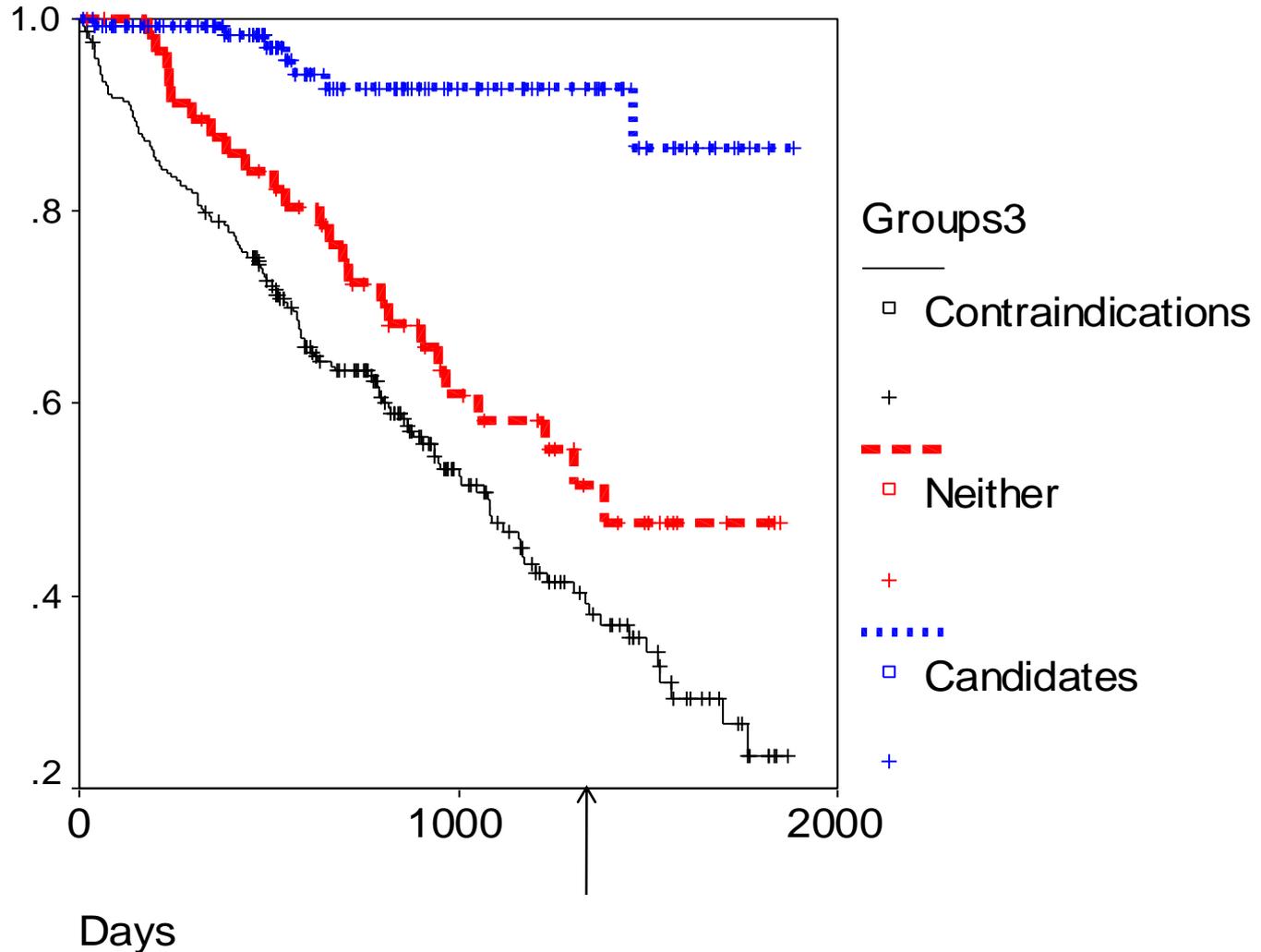


Excludes those with contraindications

Patient Disposition

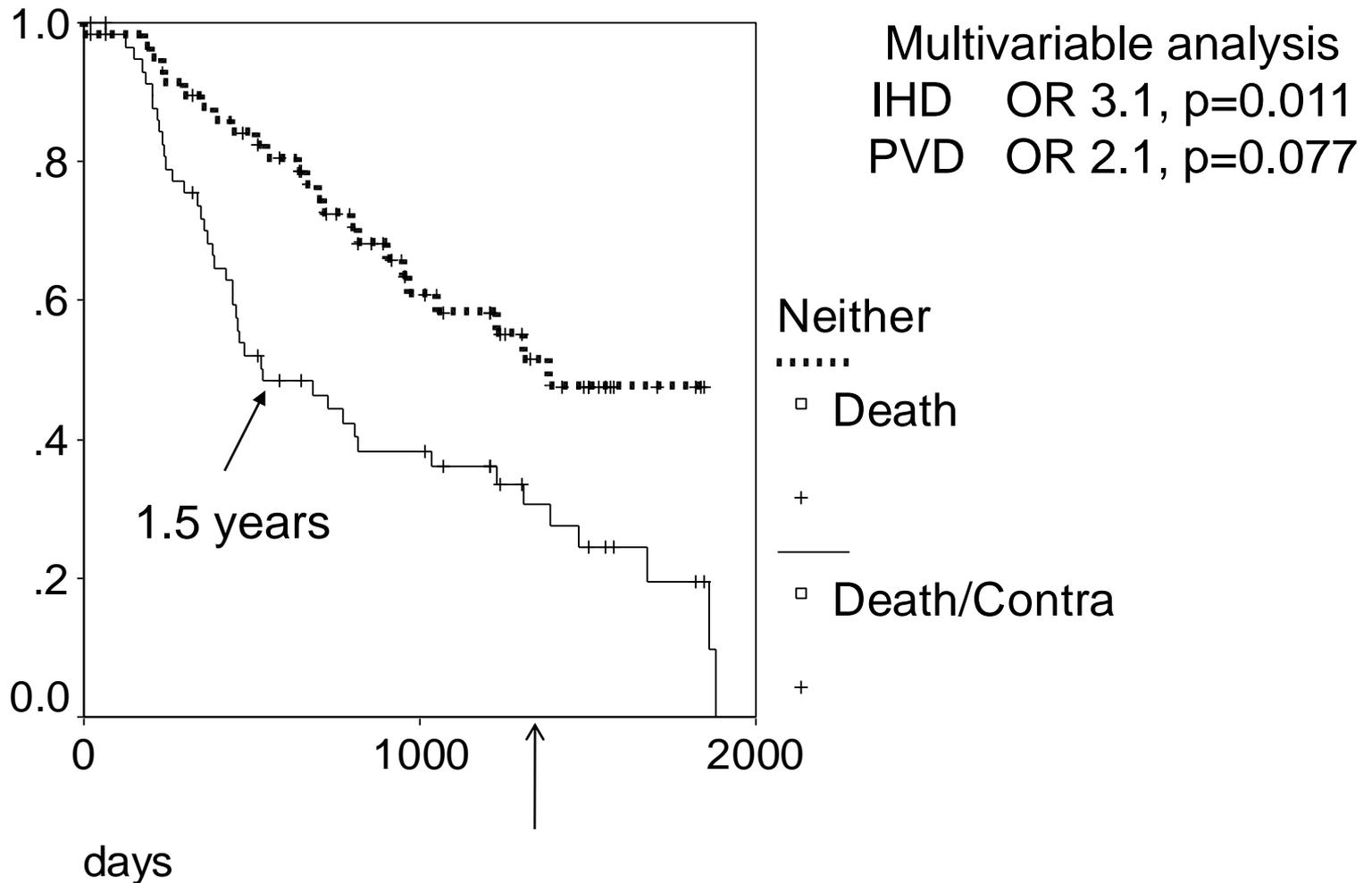


Patient Survival by Cohort



Neither Cohort

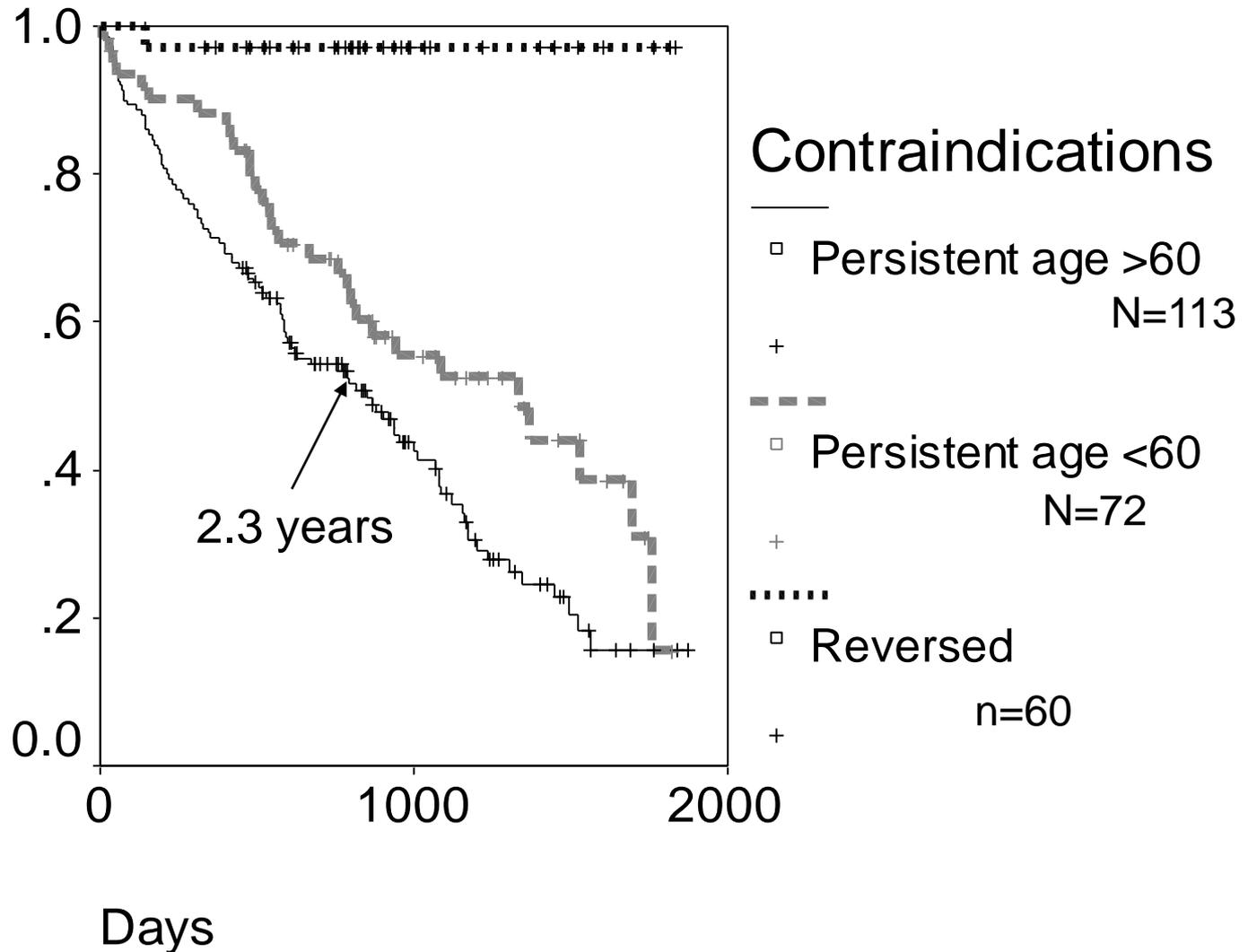
Time to Death or Death/Contraindication



Later Contraindication

- 45 Contraindication
 - 15 Vascular (peripheral, cerebral or coronary artery disease)
 - 9 Death first
 - 6 Cancer
 - 5 Pulmonary disease
 - 4 Dementia
 - 6 Other
- Survivors
 - 14 Survived without contraindication.

Contraindication Cohort



What's Hidden

- 6 patients with initial contraindications that reversed at a later date have never been referred.
 - All were age >59.
- 14 patients had no contraindications, were referred and were never listed.
 - Of these 8 were age >65.
 - Reasons for not listing were varied (failure to complete work up, later refused, death, later contraindication and lost to follow).
- Of these 20 patients only 4 have died.

Gender Bias

- Referral Time (median IQR)
 - Male -71 (-609, 9)
 - Female -142 (-326, 82)
 - (-) implies referral pre-ESRD
- Logistic Regression (ref male)
 - Referral OR 0.99 (95% CI 0.7-1.4)
 - Listed OR 1.2 (95% CI 0.8-1.8)
 - Transplanted OR 1.02 (95% CI 0.7-1.6)

Conclusions

- 47% referred and 34% listed for transplantation
- 56% had contraindications to transplantation initially.
 - High co-morbidity, age and mortality
 - 2.3 year mean survival
- 13.5% Neither referred nor Contraindication
 - Much older and significant co-morbidity
 - 1.5 year time to death or contraindication

Conclusions

- Canadian Guidelines
 - Allow clear separation of most patients in high and low risk groups
- Clinicians identify a high risk cohort with no absolute contraindications
 - “Ageism”
- Although not perfect the current referral and decision process seems reasonable
 - <5% that are ‘missed’
 - Hard to identify
 - Constant vigilance

Further Discussion

The Elderly Question

The Balancing Act

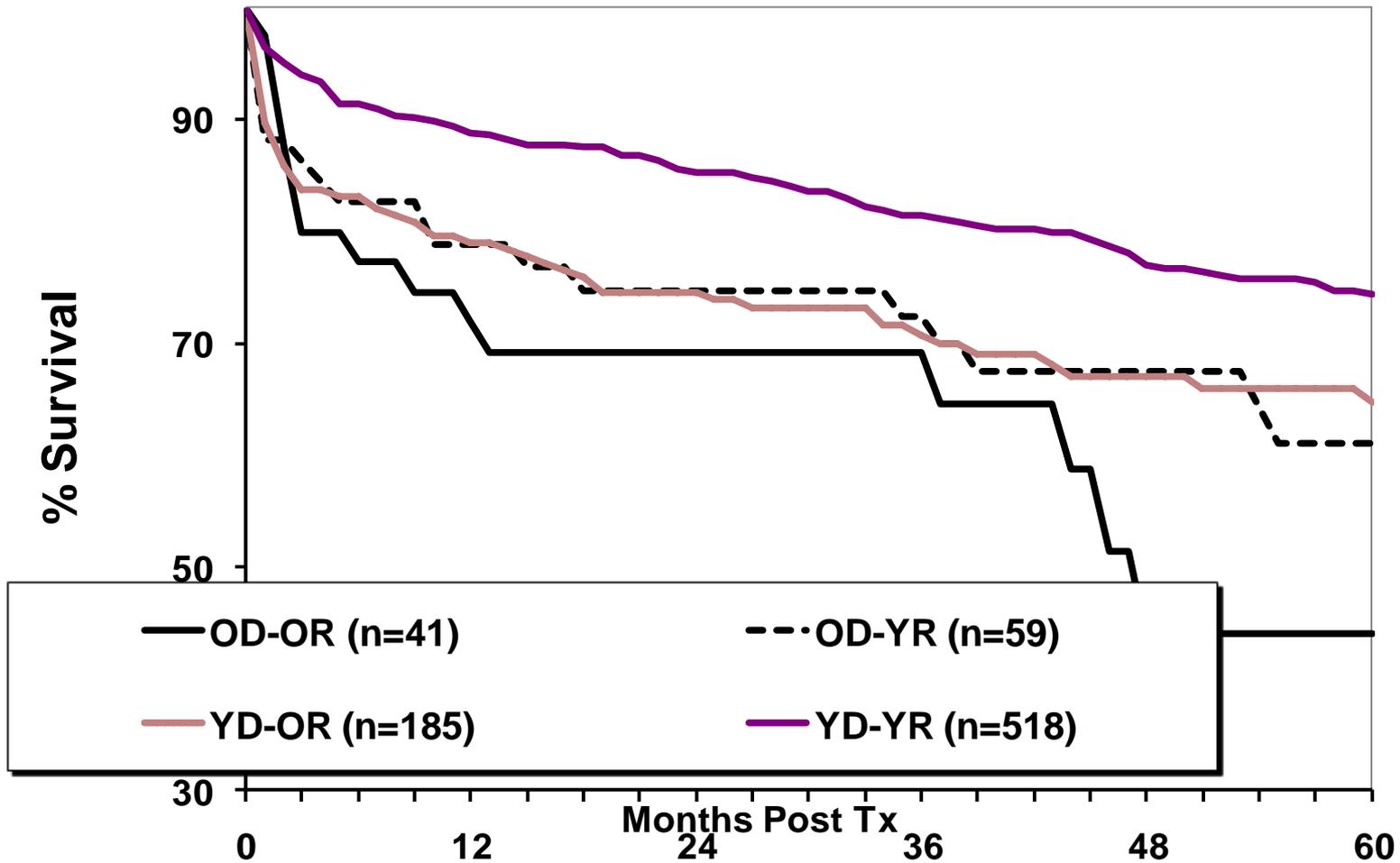


Balancing Act-US

- Number of elderly (65+) transplanted has doubled over last decade years
 - 640 to 1200
- Accepting older kidney donors (ECD)
 - 1100 to 1600
- About 50% of elderly will die on the list within 5 yrs
 - Higher the older, higher PRA, Blood group O

Deceased Donor Graft Survival

O=Old->55 yr, Y=Young, D=Donor, R=Recipient



Expanded criteria donor dilemma

- Optimize quality-adjusted life years (QALY) in kidney transplantation.
 - Assume ECD donor kidney has a 2 fold higher rate of graft loss
 - 20 yo recipient has equivalent QALYS
 - ECD now compared to wait 3.7 years for a standard donor kidney
 - 55 yo recipient has equivalent QALYS
 - ECD now compared to 1 year for a standard donor kidney

Balance

- Good to have older patients on the list
- Transplant them preferentially with ECD before they die
- Let the younger recipients wait for a better kidney
- Flooding list with marginal patients may make things worse unless large increase in ECD organs
- Ongoing evaluation of allocation

Expanded criteria donor dilemma

- Optimize quality-adjusted life years (QALY) in kidney transplantation.
 - USRDS database using a sample of 35,030 recipients
- The average patient could wait 3.2 years longer for a standard donor than an ECD and expect equivalent QALYs.
 - Age under 30 could wait 4.0 years;
 - Age over 60 could wait 11 months.

Smartmatch

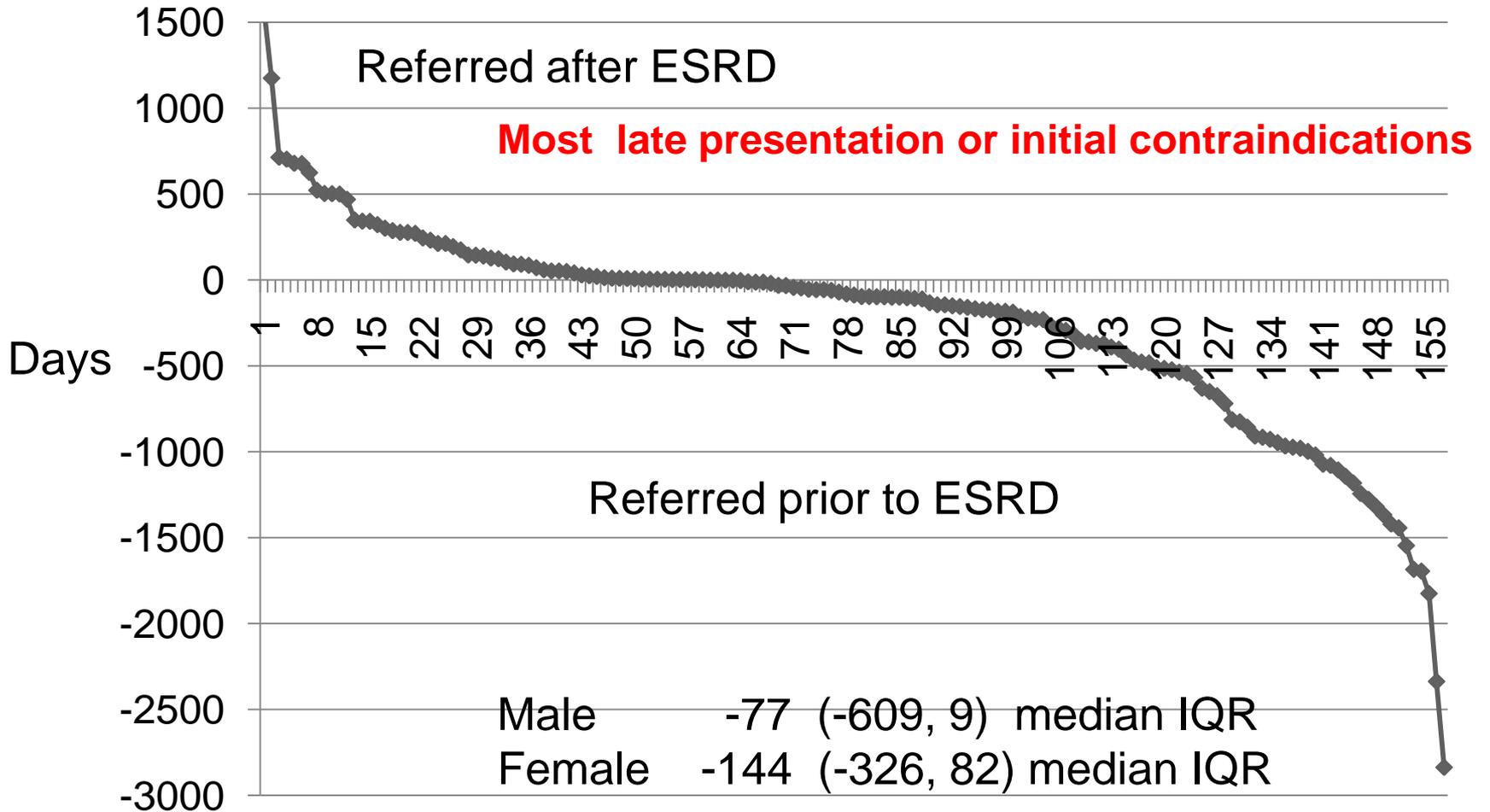
Do we benefit or harm?

- Age matching of organs
 - >60 donors to >60 recipients or those with DM
age >40
- Listing vs. transplanted

Evidence of Ageism

- US registry analysis
 - Eligibility was retrospectively inferred by examining Medicare claims
 - 128,850 65+ patients
 - 42.8% excellent and good potential candidates
 - 5.1% were wait-listed or referred for a live donor transplant.

Time from Referral to ESRD Start



Access to the List

- Requires Referral from Nephrologist to Wait List
 - Ideally Pre ESRD (within a year)
 - Those not referred should have reason documented on 'Problem List' at dialysis start
- Referred are Discussed at Weekly Wait List Committee
 - Use CST (CMAJ 2005) guidelines for eligibility
 - Those deemed Candidates are activated at dialysis start or an eGFR $<11 \text{ ml/min}1.73\text{m}^2$