Cost Implications of New Kidney Allocation Policy

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SRTR
SCIENTIFIC REGISTRY OF TRANSPLANT RECIPIENTS

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The 13th Joint Annual Congress of the American Society of Transplant Surgeons and The American Society of Transplantation

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I have no financial relationships to disclose within the past 12 months relevant to my presentation.

AND

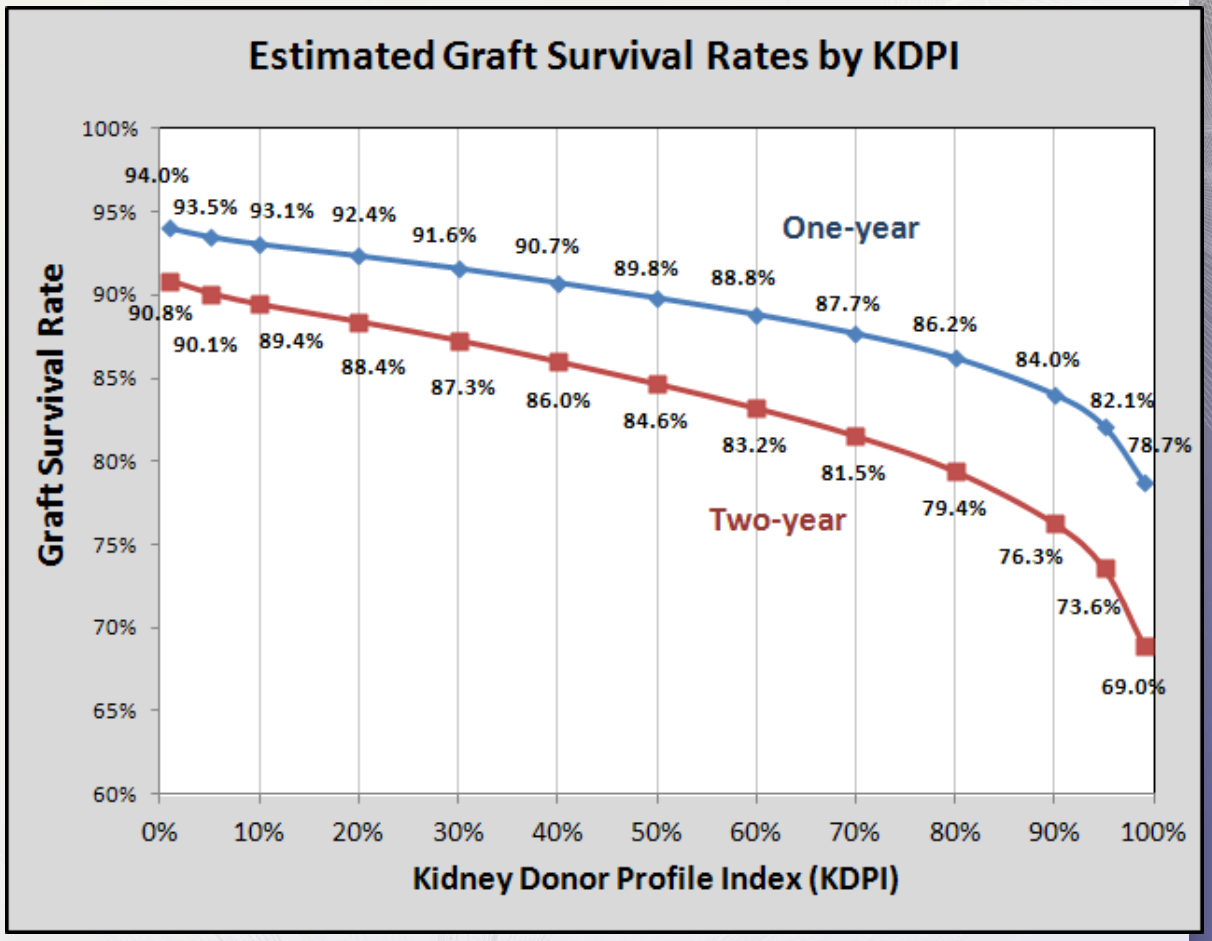
My presentation does not include discussion of off-label or investigational use.

I do not intend to reference unlabeled/unapproved uses of drugs or products in my presentation.

Kidney Donor Profile Index (KDPI)

KDPI Variables

- Donor age
- Height
- Weight
- Ethnicity
- History of Hypertension
- History of Diabetes
- Cause of Death
- Serum Creatinine
- HCV Status
- DCD Status



KDPI values now displayed with all organ offers in DonorNet®

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Major Proposed Changes by Run

Proposed Change	N1	N2	N3	N4
Enhanced definition of waiting time to include pre-listing time since initiation of dialysis		X	X	X
A_2/A_2B donor to B candidates priority		X	X	X
Longevity matching (based on KDPI and EPTS)			X	X
CPRA sliding scale point assignment			X	X
National Priority for CPRA>=98%			X	
Tiered Priority for CPRA>=98%				X
Regional sharing for kidneys with KDPI scores >85%			X	X

N1 represents simulation of the allocation rules as they existed in 2010.

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Economic Analysis Methods

- Markov model based on previous studies
- Outcomes and patient distributions drawn from KPSAM
  - N1 & N4: 80/20
    - Waiting time to Transplant, Death without Transplant, RTD post-transplant, Death post-transplant, Death following RTD
- Cost from linked OPTN & Medicare data
  - Costs specific to 80 & 20
  - Costs for each transition and state

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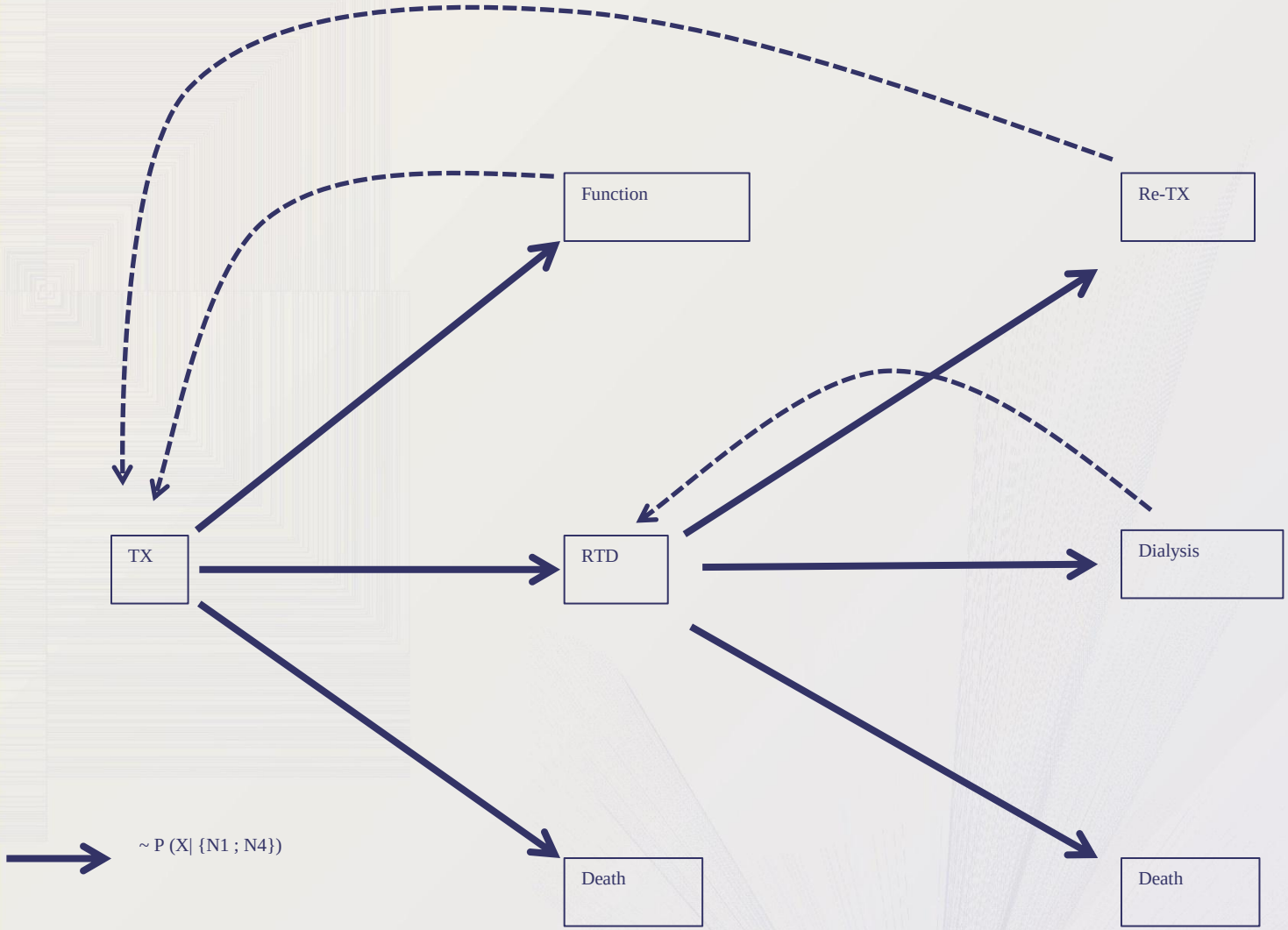
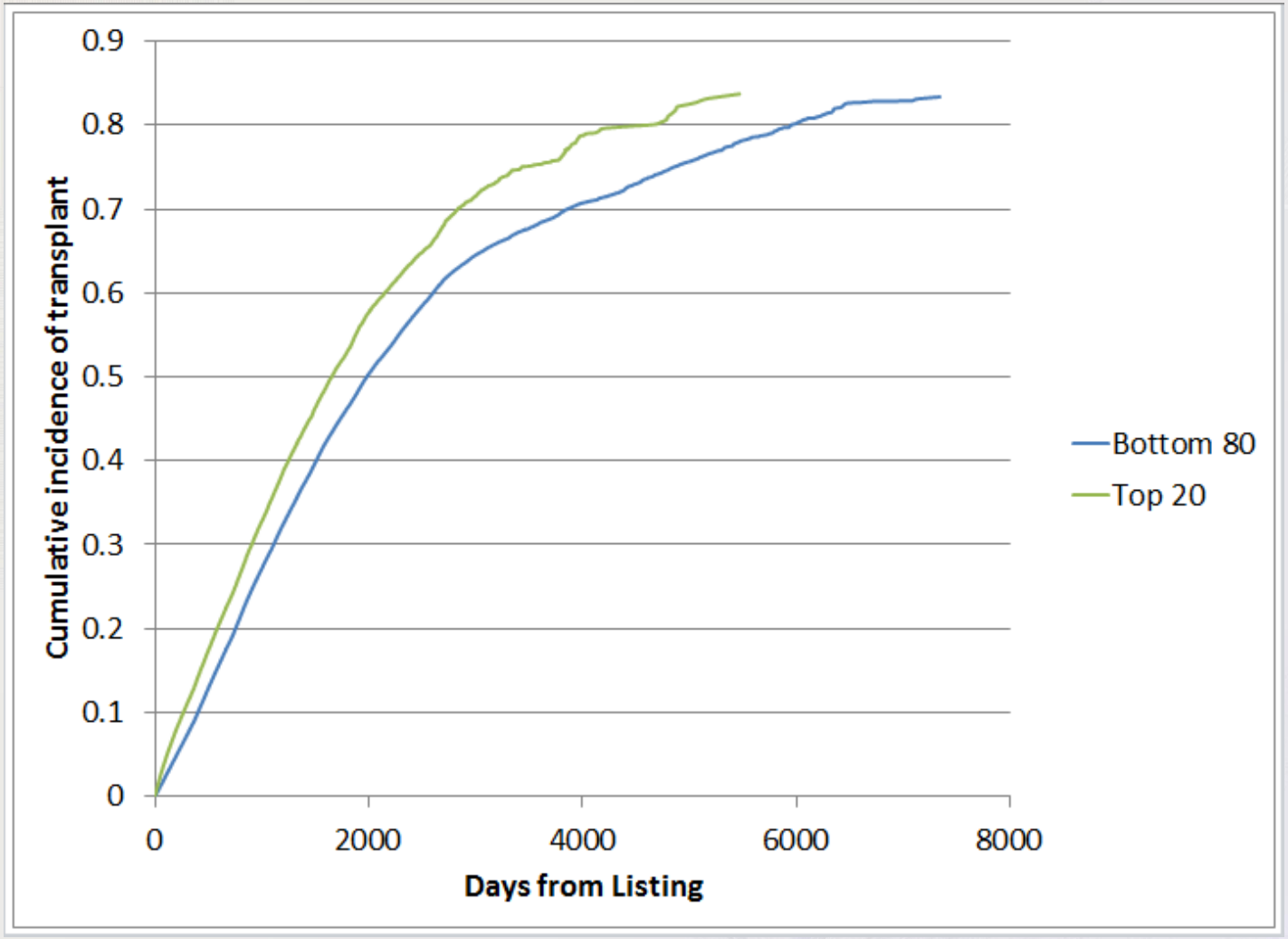
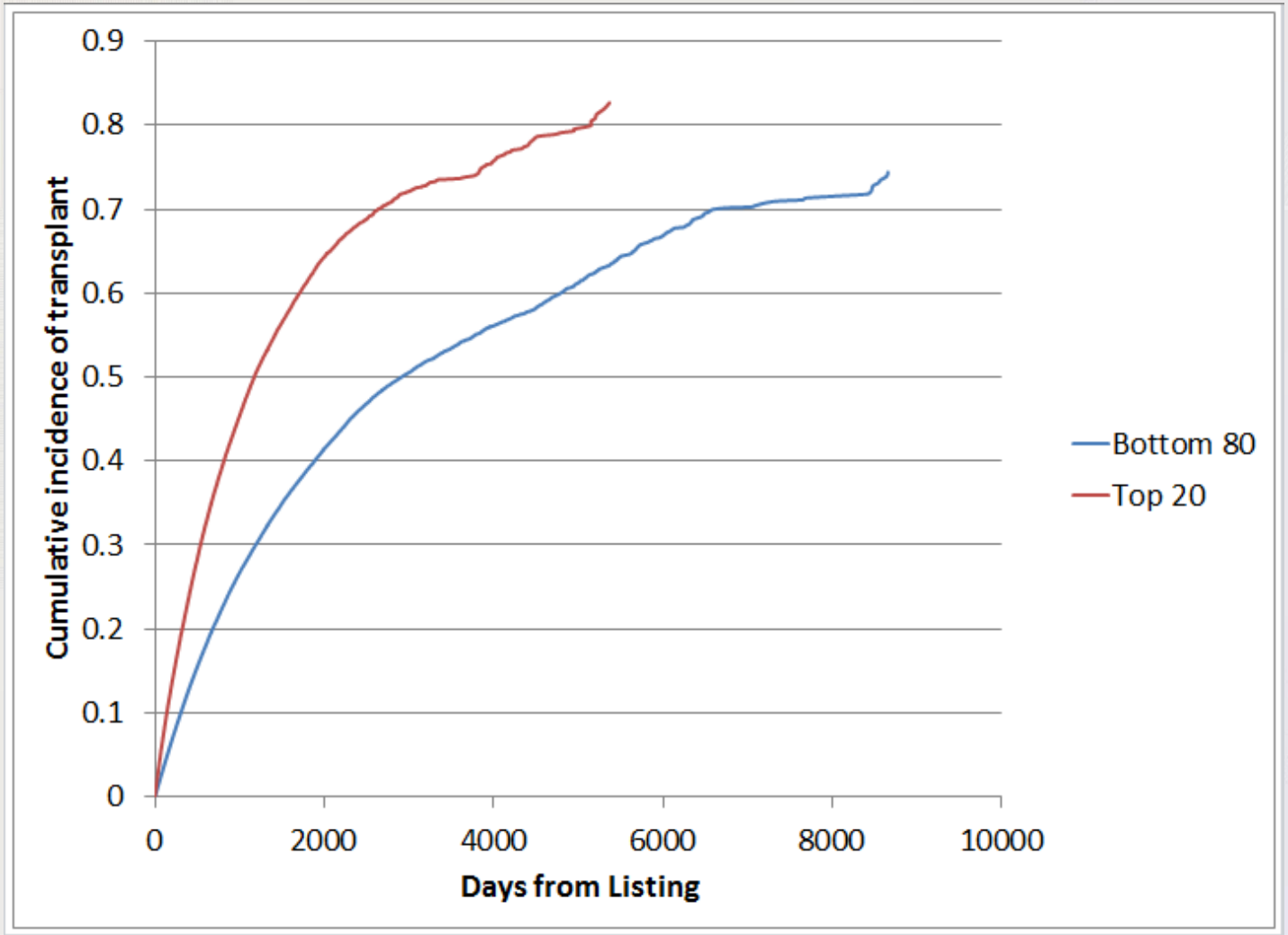

Function
Re-TX
TX
RTD
Dialysis
Death
Death
~ P (X| {N1 ; N4})
~ ({$, QALY}| {N1 ; N4})

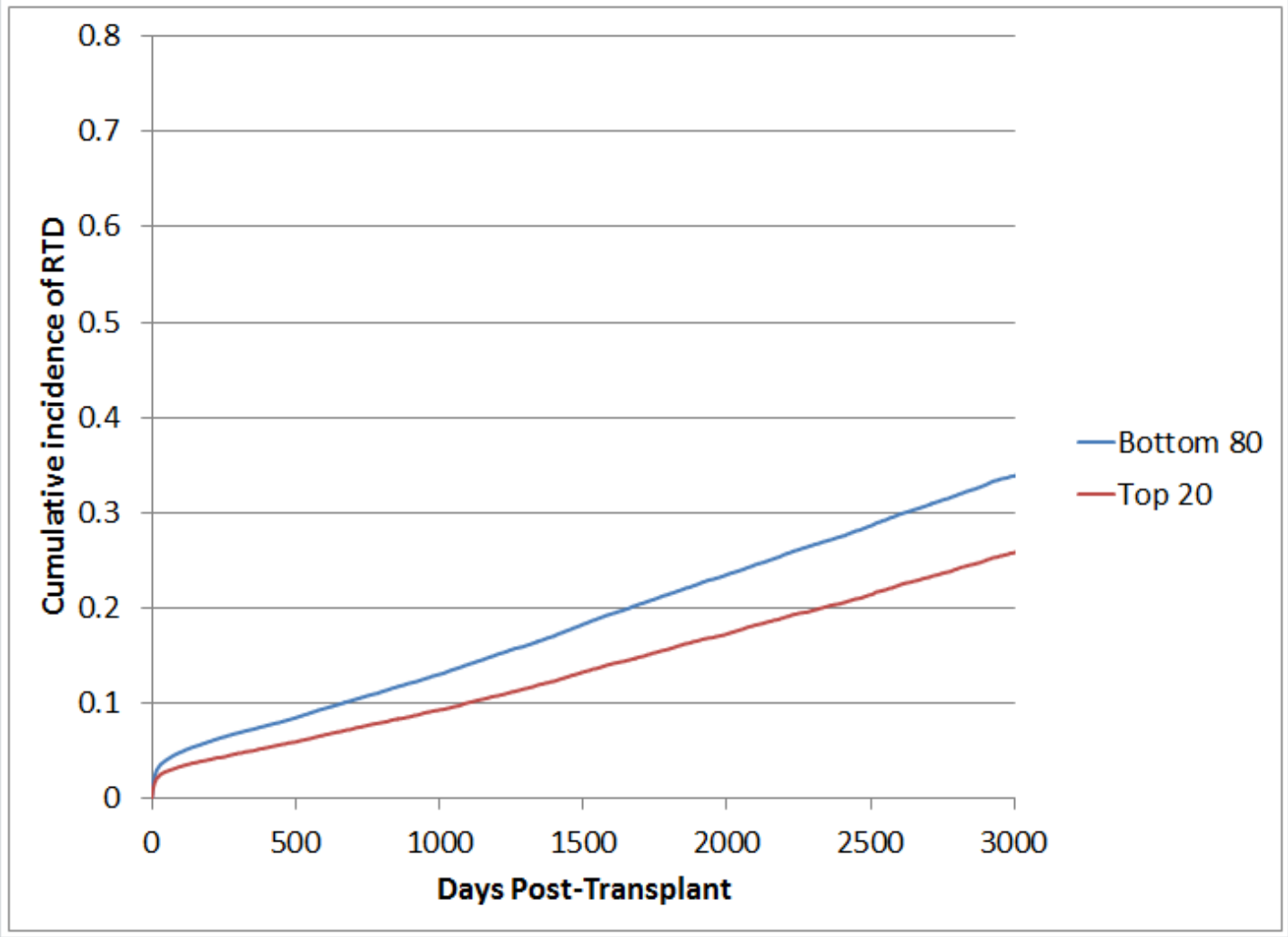
Cumulative TX Incidence: N1



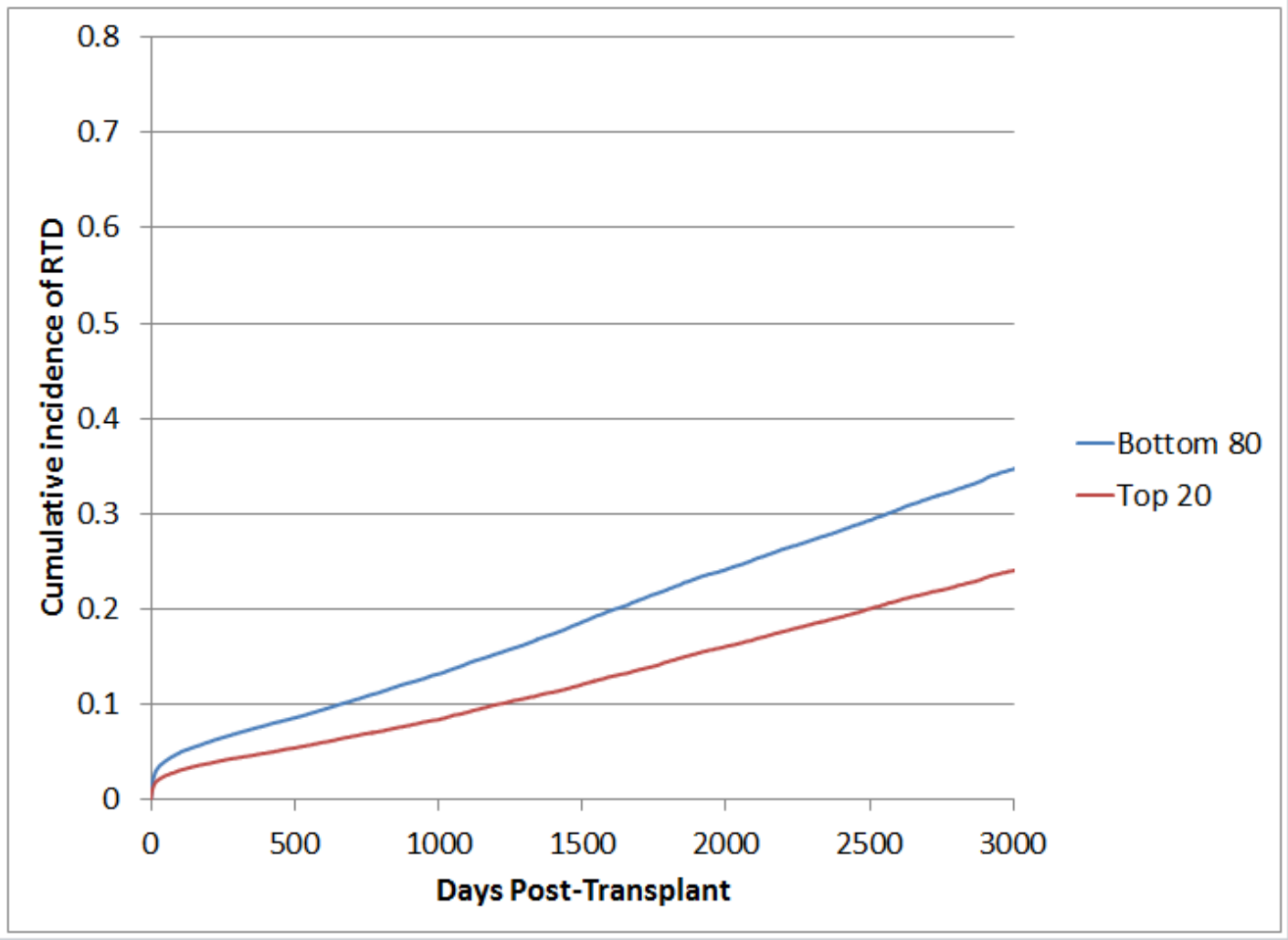
Cumulative TX Incidence: N4



Return to Dialysis Post-transplant: N1



Return to Dialysis Post-transplant: N4



Inside the Markov Model: Waitlist

Years	Delisted	Surviving Delisted	List Alive % of Cohort	List & Delist Death	List and Delist Death This Year	TX	D
0	0%	0%	100%	0%	0%	0%	
1	3%	3%	83%	1%	1%	13%	
2	5%	5%	70%	3%	2%	22%	
3	8%	6%	59%	5%	2%	30%	
4	9%	7%	49%	8%	3%	36%	
5	11%	7%	43%	10%	2%	40%	
6	12%	7%	37%	12%	2%	43%	
7	13%	8%	33%	15%	3%	45%	
8	14%	8%	29%	16%	2%	47%	
9	15%	7%	26%	19%	2%	48%	
10	16%	7%	24%	20%	2%	48%	
11	17%	7%	22%	22%	2%	48%	
12	17%	7%	21%	24%	2%	49%	
13	18%	6%	19%	25%	2%	49%	
14	18%	6%	18%	27%	1%	50%	
15	19%	6%	16%	28%	1%	50%	
16	20%	6%	15%	29%	1%	50%	
17	20%	5%	14%	30%	1%	50%	
18	20%	5%	13%	31%	1%	50%	
19	21%	5%	12%	33%	1%	51%	
20	21%	5%	11%	34%	1%	50.73%	

Inside the Markov Model: Waitlist

Years	Delisted	Surviving Delisted	List Alive % of Cohort	List & Delist Death	List and Delist Death This Year	TX	D
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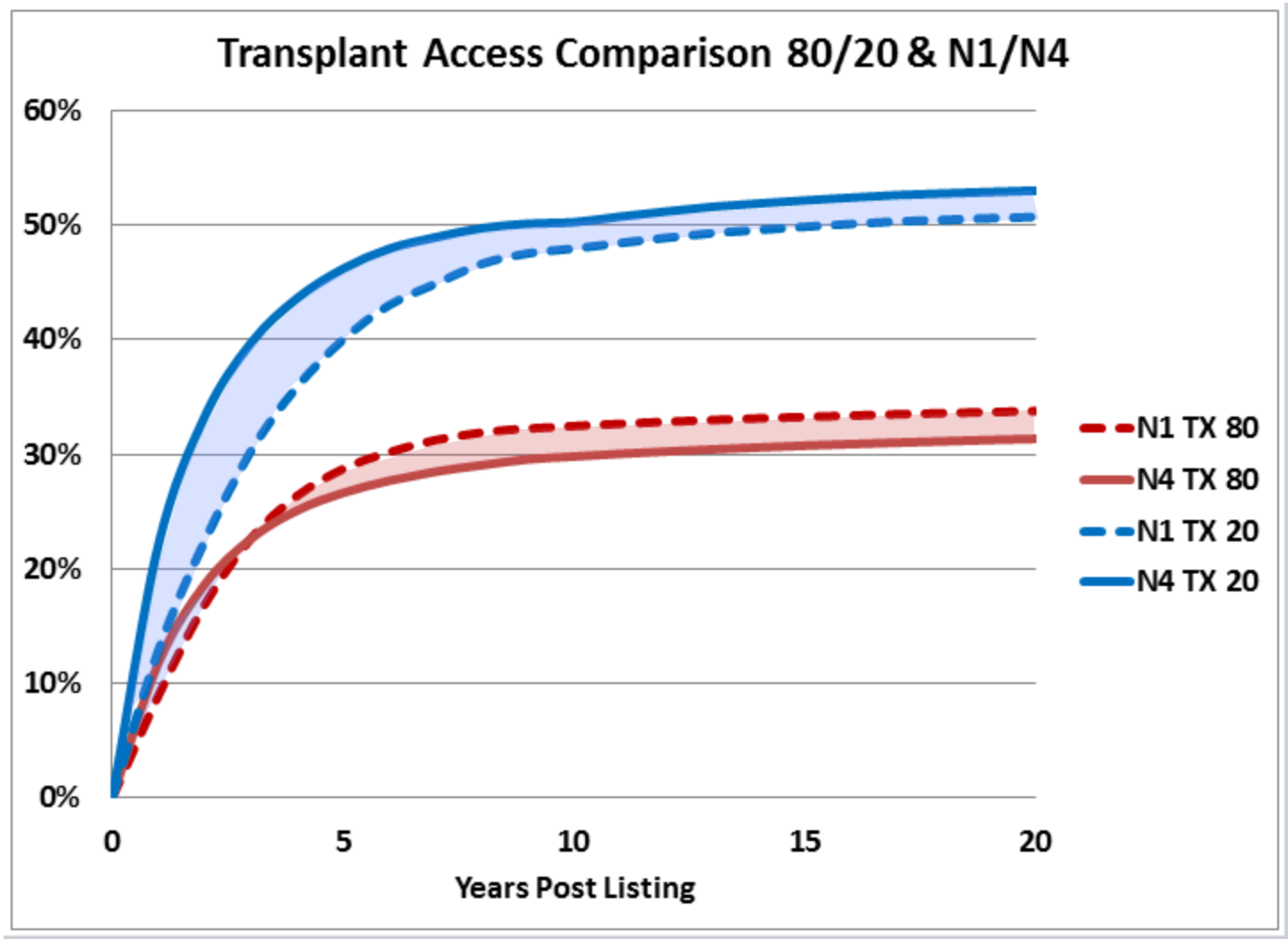
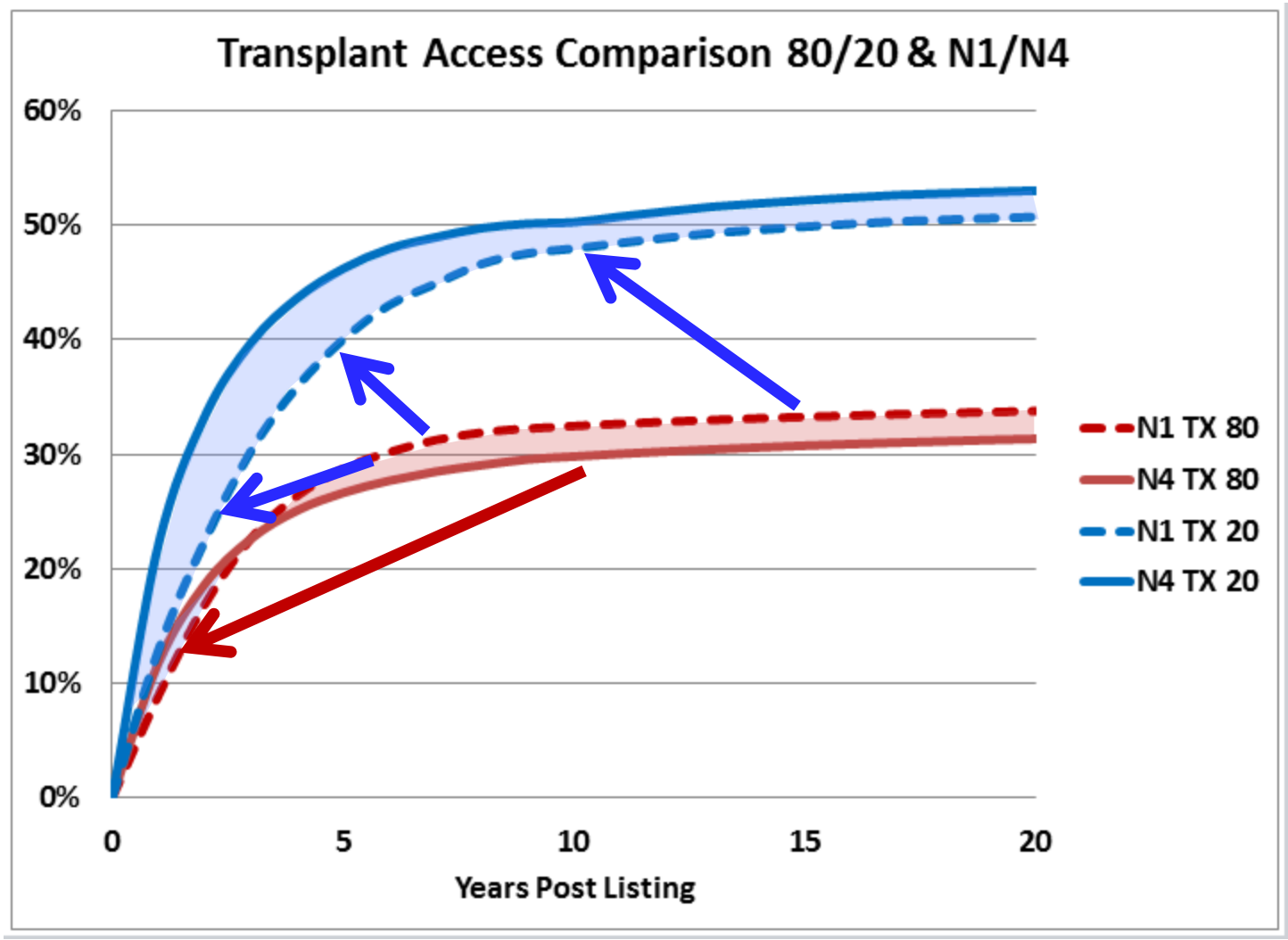
3	8%	6%	59%	5%	2%	30%	
4	9%	7%	49%	8%	3%	36%	
5	11%	7%	43%	10%	2%	40%	
6	12%	7%	37%	12%	2%	43%	
7	13%	8%	33%	15%	3%	45%	
8	14%	8%	29%	16%	2%	47%	
9	15%	7%	26%	19%	2%	48%	
10	16%	7%	24%	20%	2%	48%	
11	17%	7%	22%	22%	2%	48%	
12	17%	7%	21%	24%	2%	49%	
13	18%	6%	19%	25%	2%	49%	
14	18%	6%	18%	27%	1%	50%	
15	19%	6%	16%	28%	1%	50%	
16	20%	6%	15%	29%	1%	50%	
17	20%	5%	14%	30%	1%	50%	
18	20%	5%	13%	31%	1%	50%	
19	21%	5%	12%	33%	1%	51%	
20	21%	5%	11%	34%	1%	50.73%	


Transplant Access Comparison 80/20 & N1/N4
60%
50%
40%
30%
20%
10%
0%
0
5
10
15
20
Years Post Listing
N1 TX 80
N4 TX 80
N1 TX 20
N4 TX 20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60%
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15
20
Years Post Listing
N1 TX 80
N4 TX 80
N1 TX 20
N4 TX 20

Cost-effectiveness N1/N4

	Lifetime Average Discounted Cost	Lifetime Average Discounted QALYs	Cost-effectiveness Ratios $/QALY	Incremental Cost-effectiveness Ratio
N1	$342,799	5.42	$63,775	
N4	$341,035	5.39	$63,271	
Difference	-$1,764	-0.03	-$504	
ICER N1/N4				$60,540

Total Cost Savings

Year 1: $230,000,000

Following Years: $47,000,000

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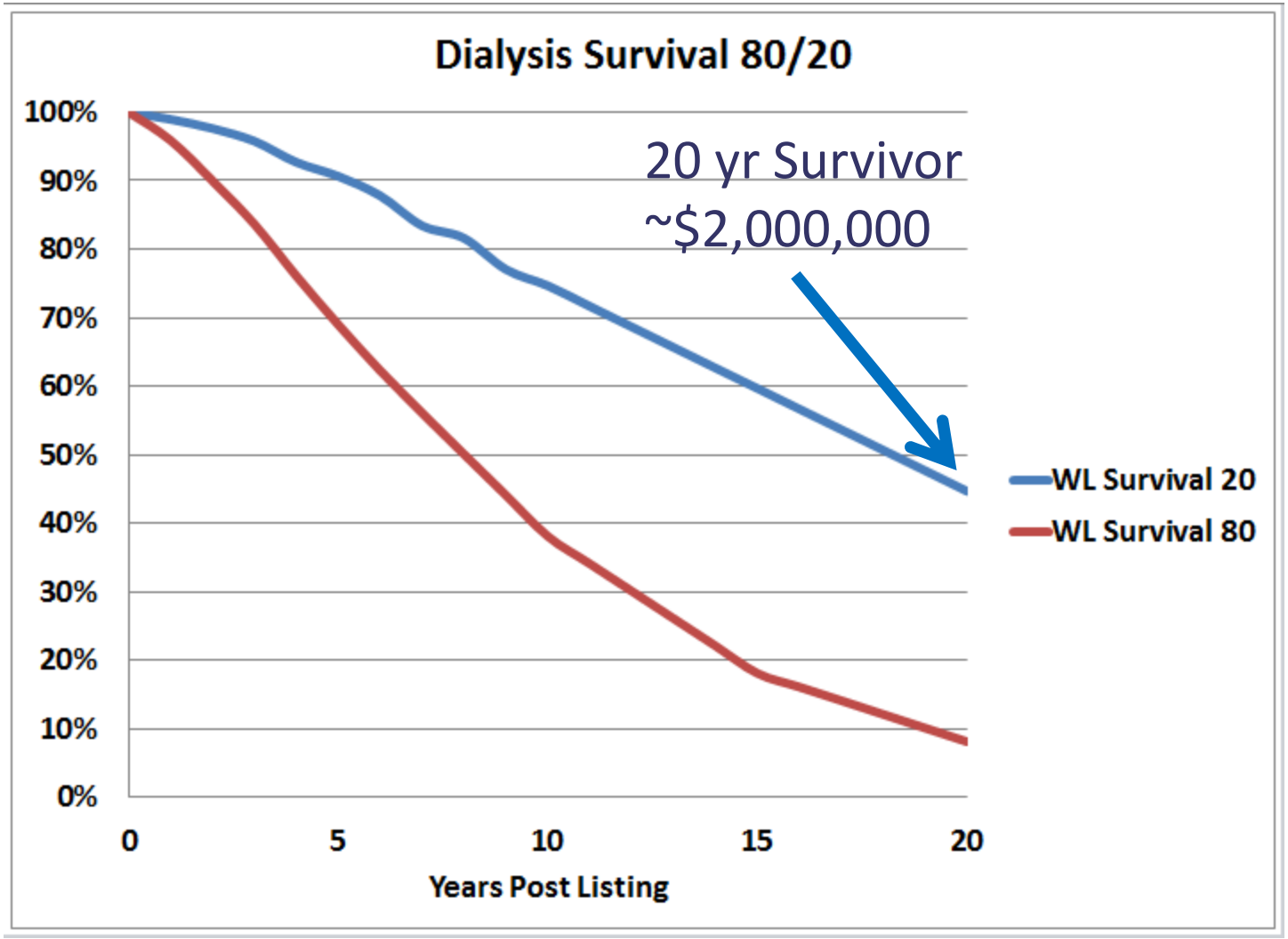
Dialysis Survival 80/20
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
5
10
15
20
Years Post Listing
20 yr Survivor
~$2,000,000
WL Survival 20
WL Survival 80

Conclusions

- N1 -> N4
  - Cost Saving
    - $230,000,000 Year 1
    - $47,000,000 Following Years
  - Slight Outcome Loss
- KPSAM predicts more discards under N4
  - Is this realistic
  - If not: >> Cost Savings with Improved Outcomes
- Outcomes Primarily Accrue to Private Payer Patients
- Cost Savings Primarily Accrues to Medicare

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