



The New Kidney Allocation Policy: Implications for Your Patients and Your Practice

Clinical Practice Today CME

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Learning Objectives

Upon completion, participants should be able to:

- Explain the rationale and objectives for the new kidney allocation scheme
- Understand how the revised kidney allocation policy addresses outcome objectives including maximizing transplant outcomes and reducing waiting times for historically disadvantaged patient populations
- Anticipate the practical impact of the new kidney allocation scheme on patients and referring clinicians
- Discuss transplant centers' preparations for the new allocation system



Case 1: Old vs. New Scheme

A 24-year-old man is declared brain dead following an MVA, previously was in perfect health

- 74-year-old man, **blood group B in NC**, DM and CAD s/p CABG, 3 years listing and HD, DR matched, PRA = 10% **(5 points)**
- 30-year-old woman, **blood group AB in CA**, IgA, 3 years listing and HD, PRA = 79%, 4 antigen match (2A, 1B, 1DR); listed elsewhere **(4 points)**
- 50-year-old man, **blood group O in NY**, PKD, 4 years listing, PRA = 0%, 4 antigen match (2A, 2B, 0DR) **(4 points)**



Kidney Waiting List: How One Would Get Priority Points in 2013

Time

- Longest wait = 1 point (fractions of a point given for each candidate in order)
- 1 year = 1 point

Match

- Sharing a single HLA-DR mismatch with the donor = 1 point
- Sharing a zero HLA-DR mismatch with the donor = 2 points

Sensitization

PRA \geq 80% = 4 points

Good Samaritan

- Prior kidney donation = 4 points



ABO Frequency and Median Wait Time for Kidney Transplantation in the US

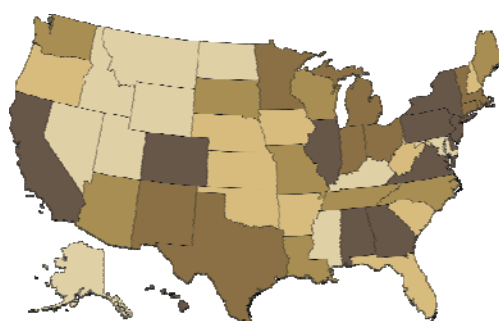
ABO Frequency ¹	O	A	B	AB
US Black	49%	27%	20%	4%
US White	45%	40%	11%	4%

Median Wait Times ²	*1,851 days (5.1 years)	1,207 (3.3)	1,935 (5.3)	853 (2.3)
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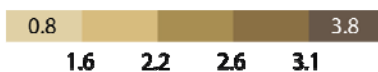
¹Racial & Ethnic Distribution of ABO Blood Types. www.bloodbook.com/world-abo.html;
²OPTN. <http://optn.transplant.hrsa.gov/latestData/step2.asp>.



Unadjusted Median Wait Times (Years) for Adults Transplanted in 2011, by State of Transplant Center

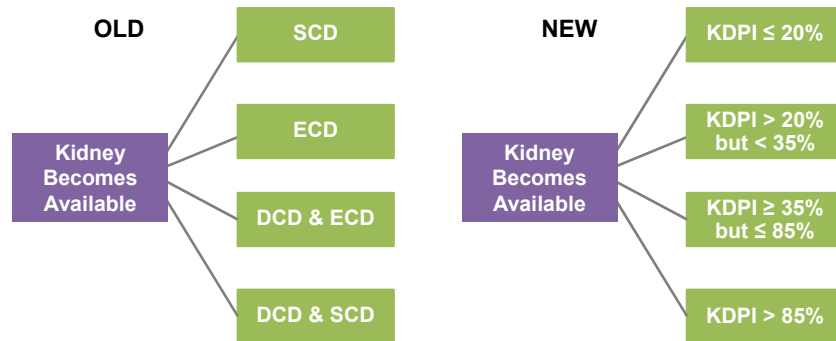


Patients age 18 years and older receiving a first-time, deceased-donor, kidney-only transplant in 2011



US Renal Data System, Chapter 7. Transplantation. www.usrds.org/2013/view/v2_07.aspx.

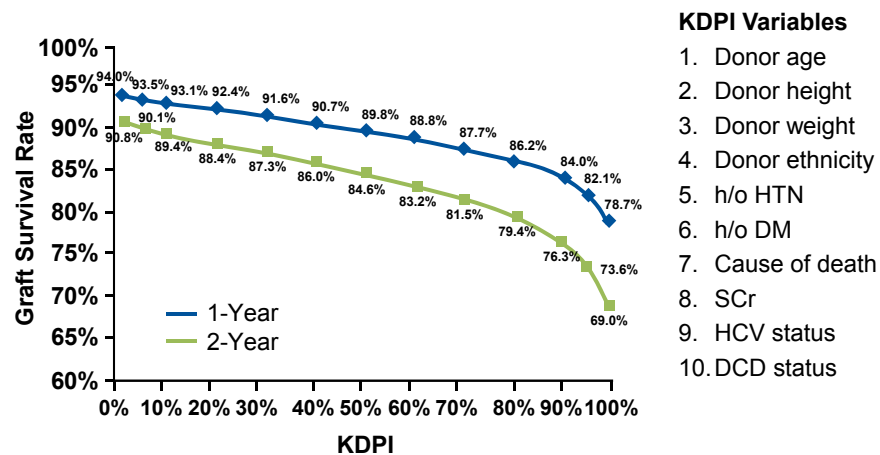
Old vs. New Scheme



All allocation sequences based on KDPI

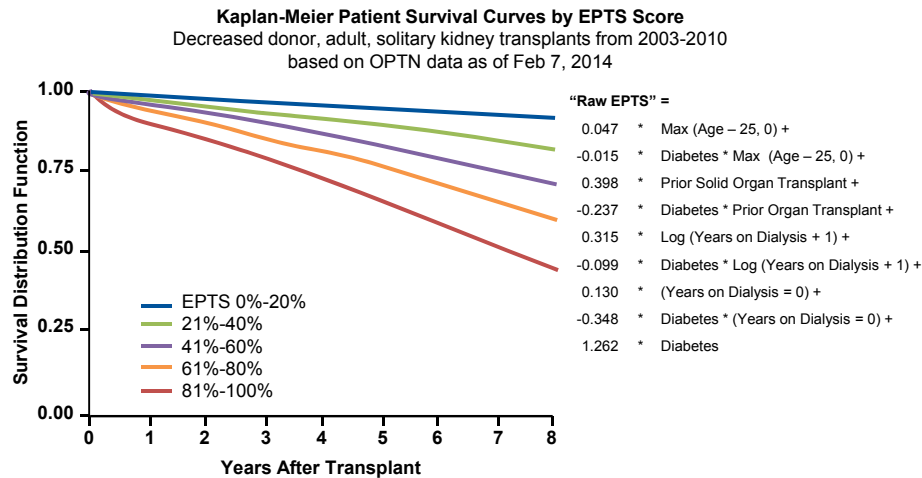
Friedewald JJ, et al. *Surg Clin North Am.* 2013;93:1395-406;
OPTN. Proposal to Substantially Revise The National Kidney Allocation System.
http://optn.transplant.hrsa.gov/PublicComment/pubcommentPropSub_311.pdf.

Estimated Graft Survival Rates by KDPI



Friedewald JJ, et al. *Surg Clin North Am.* 2013;93:1395-406.

Patient Survival Curves by EPTS



OPTN. http://optn.transplant.hrsa.gov/ContentDocuments/Guide_to_Calculating_Interpreting_EPTS.pdf.

Old vs. New: Case 1 (continued)

24-year-old man, brain dead following an MVA, previously in perfect health (0.63, 6%)

74-year-old man DM and CAD s/p CABG 3 years listing and HD PRA = 10%, DR matched	5 points	98% 5 points
30-year-old woman IgA 3 years listing and HD PRA = 79%, 4 antigen match (2A, 1B, 1DR) Listed elsewhere	4 points	5% ~6 points
55-year-old man PKD 4 years listing PRA = 0%, 4 antigen match (2A, 2B, 0DR)	4 points	23% 4 points



Proposed Point Changes: When Does Wait Time Begin?

Current Policy:

- Time begins at listing (eligible for listing with eGFR < 20 mL/min, including on RRT)

New Scheme:

- Time begins at listing with eGFR < 20 mL/min or with initiation of dialysis (if listed after start of RRT)

Preemptive listing still advantageous for 0 ABO mismatch offers and ability to accrue

Friedewald JJ, et al. *Surg Clin North Am.* 2013;93:1395-406;
Israni AK, et al. *J Am Soc Nephrol.* 2014. [Epub ahead of print].



Weighing the Risk vs. Benefit of KDPI > 85%

Do Not Use Kidney

- Risk
 - Death on dialysis
- Benefit
 - Hope for better kidney

Use Kidney

- Risk
 - Early graft failure
 - Early mortality
- Benefit
 - Improved survival

Friedewald JJ, et al. *Surg Clin North Am.* 2013;93:1395-406;
Israni AK, et al. *J Am Soc Nephrol.* 2014. [Epub ahead of print].



Projected Life-Years Remaining for Patients on Wait List vs. With Transplant

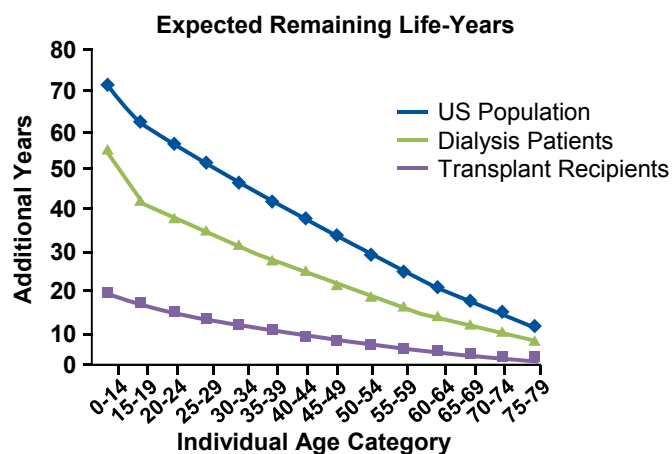
Outcomes among recipients of first deceased-donor transplant, for dialysis patients placed on the wait list 1991-1997

Age Range	DM Status	Projected Life-Years Without Transplant (n = 46,164)	Projected Life-Years With Transplant (n = 23,275)
20-39	-	20	31
	+	8	25
40-59	-	12	19
	+	8	22
60-74	-	7	12
	+	5	8

Wolfe RA, et al. *N Engl J Med.* 1999;341:1725-30.



Projected Life-Years Remaining for Patients on Wait List vs. With Transplant



OPTN. http://optn.transplant.hrsa.gov/ContentDocuments/KDPI_Guide_Clinicians.pdf.



KDPI Selection (New) vs. ECD (Old)

- Patients **with high morbidity/mortality** on dialysis:
 - Elderly, DM
- Patients with expected **long duration on dialysis**:
 - OPOs with long wait times, highly sensitized, long time already on dialysis
- **Caution:**
 - High peri-operative mortality, high BMI, highly sensitized, retransplant, frailty

OPTN. http://optn.transplant.hrsa.gov/ContentDocuments/Guide_to_Calculating_Interpreting_KDPI.pdf.

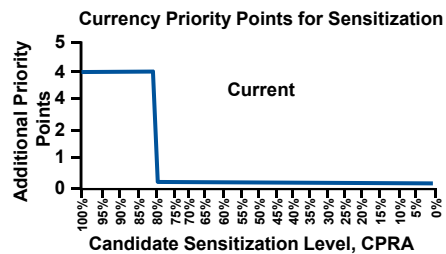


Pre-Transplant Wait Times by Blood Type and PRA, Listed 2003-2004

Median Wait Time Days (Years)	O	A	B	AB	PRA 0%- 9%	PRA 10%- 79%	PRA > 80%
Nationwide	1,851 (5.1)	1,207 (3.3)	1,935 (5.3)	853 (2.3)	1,381 (3.8)	1,884 (5.2)	NR
Region 11 VA, NC, SC, KY, TN	1,795 (4.9)	1,027 (2.8)	1,758 (4.8)	754 (2.1)	1,476 (4.0)	2,005 (5.5)	2,581 (7.1)

OPTN. 2014 Data. <http://optn.transplant.hrsa.gov/latestData/rptStrat.asp>.

New Policy: Sensitization Points



If candidate's CPRA score is... then candidate receives...

CPRA, %	Points
0-19	0
20-29	0.08
30-39	0.21
40-49	0.34
50-59	0.48
60-69	0.81
70-74	1.09
75-79	1.58
80-84	2.46
85-89	4.05
90-94	6.71
95	10.82
96	12.17
97	17.3
98	24.4
99	50.09
100	202.1

Current Policy

PRA > 80% = 4 points
PRA < 80% = 0 points

New Policy

Sliding Scale = Improve Access, Outcomes?!

OPTN. Proposal to Substantially Revise The National Kidney Allocation System.
http://optn.transplant.hrsa.gov/PublicComment/pubcommentPropSub_311.pdf.

New Policy: ABO Compatibility

Historic ABO Compatibility

Recipient/Donor	O	A	B	AB
O	✓			
A	✓	✓		
B	✓		✓	
AB	✓	✓	✓	✓

Allocation Within ABO¹

Recipient/Donor	O	A	B	AB
O	✓			
A		✓		
B			✓	
AB				✓

Allocation in New System²

Recipient/Donor	O	A ₁	A ₂	B	A ₁ B	A ₂ B
O	✓					
A	✓	✓	✓			
B				✓	✓	✓
AB					✓	✓

¹OPTN Policies. http://optn.transplant.hrsa.gov/ContentDocuments/OPTN_Policies.pdf#nameddest=Policy_08;

²Friedewald JJ, et al. *Surg Clin North Am*. 2013;93:1395-406.



Graft Survival of B Recipients: A₂ or A₂B Donor Kidneys Compared With B or O Kidneys

Examination of A₂/A₂B donors to B recipients between Jan 1994 and Dec 2000 (n = 41) performed at a single Midwestern OPO vs. O/B to B (n = 80)

ABO Combination	DWFG ^a Censored	Graft Survival (Years)					P Value
		1	2	3	4	5	
A ₂ /A ₂ B → B (n = 41)	Yes	91% (28) ^b	91% (20)	85% (14)	85% (5)	85% (4)	0.48
B, O → B (n = 80)	Yes	91% (60)	86% (50)	84% (37)	80% (23)	80% (16)	0.55
A ₂ /A ₂ B → B (n = 41)	No	84% (28)	77% (20)	72% (14)	72% (5)	72% (4)	0.78
B, O → B (n = 80)	No	84% (60)	77% (50)	73% (37)	68% (23)	64% (16)	0.75

95.1% (39/41) of the B patients transplanted with A₂ kidneys consistently had low anti-A titers (≤ 4)

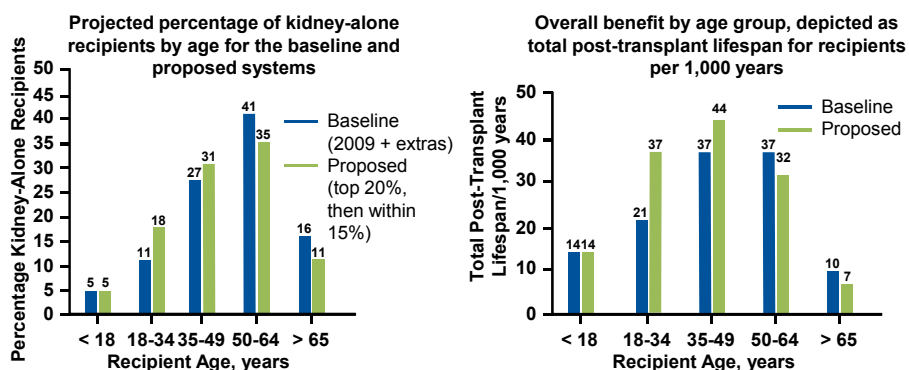
^aPatient died with a functioning graft.

^bThe number in parentheses at each time-point represents the number of patients at risk through the end of each respective year.

Nelson PW, et al. *Am J Transplant.* 2002;2:94-9.



Changes Expected in the New System



- > 8,000 additional life-years annually
- Slight increase in transplants to AA, blood group B, high PRA
- Changes in age distribution

OPTN. Proposal to Substantially Revise The National Kidney Allocation System.
http://optn.transplant.hrsa.gov/PublicComment/pubcommentPropSub_311.pdf;
 OPTN. Concepts for Kidney Allocation.
<http://optn.transplant.hrsa.gov/SharedContentDocuments/KidneyConceptDocument.pdf>.



Preparations for the New Allocation System

For Physicians:

Educate Patients

- Not much will change
- Living donation remains the best option
- Early referral and early listing remain advantageous
- Patients with B-blood type and low-A₂ titers should consider A₂ organs
- Patients with high mortality rates on dialysis (either on dialysis or near starting dialysis) should consider organs with KDPI > 85%

For Transplant Center:

Educate Patients and Prepare Infrastructure

- Double check dialysis start dates and EPTS variables
- Educate and consent patients for KDPI organs > 85%
- Educate and consent patients with B-blood type for A₂ organs
- Review HLA data for all highly sensitized patients

Friedewald JJ, et al. *Surg Clin North Am.* 2013;93:1395-406; Israni AK, et al. *J Am Soc Nephrol.* 2014. [Epub ahead of print]; OPTN. Proposal to Substantially Revise The National Kidney Allocation System. http://optn.transplant.hrsa.gov/PublicComment/pubcommentPropSub_311.pdf.



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