Appendix B

Simulation Modeling Results

Final Analyses for Data Requests from the OPTN Kidney Transplantation Committee Meeting of August 24, 2009

**Prepared by Robert Wolfe, PhD; Alan Leichtman, MD;
Keith McCullough, MS; and Ann Rodgers, BS
of the Scientific Registry of Transplant Recipients
(Arbor Research/University of Michigan)**

Data Request Routing Information and Analysis Timeline:
OPTN Kidney Committee meeting date: August 24, 2009
OPTN Kidney Committee request made: October 5, 2009
Analysis plan submitted: October 19, 2009
Draft Analysis submitted to Committee: January 21, 2010
Final Analysis submitted to Committee: January 21, 2010
Next Committee Date: February 1, 2010

Table of Contents

Background and Request

Background

After considering the feedback received during the Kidney Forum on January 26, 2009, the Kidney Transplantation Committee voted to examine allocation policy alternatives. Six alternative allocation systems were examined during the August meeting, and after further discussion via the Sharepoint site as well as with Ken Andreoni, chair of the kidney committee, a combination of two of these approaches has been suggested as a path forward. Several of the elements of the data request require further clarification before they can be completed; these are noted in the data request itself.

Data Requested

Introduction: The committee met in person on August 24th and reviewed results from simulation runs 34-40. Extensive discussion ensued about the impact of various allocation algorithms on the age distribution, balancing equity and utility, and the notion that policies that reduce access to seniors would likely result in substantial behavior changes, where many transplant programs would become more willing to accept organs from higher DPI donors for their candidates of similar estimated survival time and/or similar age. The details of the simulation runs that would help address these issues were discussed in subsequent conference calls involving the committee chair, HRSA, the SRTR, and UNOS.

High Priority – Near Term

Task 1: Organ Utilization by DRI/DPI

Background: Use of DRI/DPI in kidney allocation, as well as kidney acceptance practices, has the potential to increase organ utilization by more accurately quantifying the risk associated with each organ. Current acceptance practices rely heavily on judgment and the imprecise ECD/SCD dichotomy, and may be resulting in underutilization of organs that have good potential to function in nearly all candidates. The purpose of this request is to quantify the number of non-utilized kidneys by DRI/DPI, to assess how many kidneys across the DPI spectrum are actually not being used and represent potential opportunities for increasing organ availability with the introduction of better risk assessment tools, and better education of transplant professionals and candidates on the potential good function of various DPI kidneys based on actual outcomes. Non-utilized, higher DRI/DPI kidneys may represent opportunities for increasing organ availability under various possible allocation algorithms currently being evaluated. Results may also provide insight into a potentially expanded donor pool (e.g., organs procured but never transplanted) to incorporate into behavior change options described in Task 2b for subsequent KPSAM modeling.

Request: Show distribution of DRI and DPI for the following categories of kidneys – national and for a sampling of DSA's:

- Transplanted
- Discarded (recovered but not transplanted)

(Background Data for Simulation Modeling: Responsibility of Arbor Research as SRTR Contractor)

Task 2a: Analyze patterns of kidney acceptance and utilization, including pre-match screening based on ECD/SCD status, to identify those OPOs that have acceptance/utilization/screening patterns that would be more likely under a system that limits access to organs based on donor/candidate age correlation. A summary statistic indicating overall procurement aggressiveness may be useful. If needed, a subcommittee call will be held to review these interim results. ***(Inferential Data Request: Responsibility of Arbor Research as SRTR Contractor)***

Task 2b: Create 2 or 3 well-defined options (hypotheses) for incorporating into future KPSAM runs the anticipated changes in institutions' willingness to accept and transplant a broader selection of kidneys into older candidates. Options should be based on empirical data analysis/modeling (Tasks 1, 2a), and be well-defined with assumptions clearly enumerated. ***(Inferential Data Request: Responsibility of Arbor Research as SRTR Contractor)***

Task 2c: Use these 2-3 scenarios to assess sensitivity of KPSAM results to provide a rough assessment of whether the impact of adjusting this component of the model is negligible, moderate, or large. Sensitivity should be gauged with respect to standard KPSAM outputs (life years gained, number of transplants, distribution by age, etc). *Note: The purpose of an up-front sensitivity analysis is to potentially preclude the need for Task 4, should the results reveal only a negligible impact of behavior changes. Arbor Research to determine whether having a separate Task 2c makes sense, or if it would be more efficient to simply evaluate sensitivity from the full KPSAM runs as described in Tasks 3-4.* ***(Simulation Modeling: Responsibility of Arbor Research as SRTR Contractor)***

Task 3: KPSAM* Run #41 – Allocate kidneys from the top 20% of DPI donors to candidates with the top 20% post transplant survival. For other kidneys, allocate to candidates within +/- 15 years of donor age. If kidneys are not accepted locally within 15 years, they stay local and are offered first to all other local candidates before going Regionally (within 15 years, then everyone), then Nationally (same). Assume no behavior changes in terms of acceptance/utilization/screening. ***(Simulation Modeling: Responsibility of Arbor Research as SRTR Contractor)***

~~~~~~

Results of Tasks 1, 2a, 2b, 2c, 3 to be reviewed via teleconference (Date/Time: week of November 16) by a small Kidney subcommittee, including chair and a few selected committee members. Behavior change options to be reviewed for reasonableness and validity. HRSA and OPTN contractor also will participate.

~~~~~~

High Priority – Mid Term

Task 4: KPSAM* Runs #42, 43 – Run # 41 with behavior change modifications for organ acceptance/utilization. Use options identified and reviewed in Task 2b to incorporate behavior changes in terms of acceptance/utilization/screening. Run KPSAM using two different behavior change options: one considered a "small or moderate" change, the other considered a "substantial or large" change. Purpose of running both ways, as well as Run #41, is to quantify sensitivity to the new assumptions. ***(Simulation Modeling: Responsibility of Arbor Research as SRTR Contractor)***

~~~~~~

Teleconference or in-person meeting (TBD) of small Kidney subcommittee to review Task 3 results – in particular HLA x Ethnicity cross-tabulation output – and determine whether Task 5 should be done, and if so, provide inputs (e.g,. number of negative points for HLA mismatches).

~~~~~~

Task 5: KPSAM* Run #44 – Allocate kidneys from the top 20% of DPI donors to candidates with the top 20% post transplant survival. For other kidneys, allocate to candidates within +/- 15 years of donor age. Run KPSAM using the behavior change from Task 2b considered most likely or most reasonable from evaluation of previous results (Tasks 1-3). Incorporate negative points for 5 or 6 HLA mismatch (committee needs to decide how many points to deduct). ***(Simulation Modeling: Responsibility of Arbor Research as SRTR Contractor)***

~~~~~~

Full Committee meeting (Date/Time: To be scheduled week of January 4). Review results from Tasks 1, 3 & 4**.

*(**if inputs provided in advance)*

~~~~~~

KPSAM Output to Include with Each Run*:**

a) Standard output as presented for prior KPSAM runs:
   - Survival benefits due to transplant
   - Transplant recipient percentages, counts, and average years of benefit by number of mismatched antigens, ethnicity, ABO, age, diagnosis, peak PRA, shared-payback/nonpayback.
   - For transplant recipient counts and percentages by recipient age, show National as well as Example DSAs with short, medium, and long wait-times.

b) Age-matching reports
   - In addition to donor/recipient age correlation, to more clearly illustrate the impact of each proposed allocation algorithm on how often recipients receive a kidney from a "donor like themselves," tabulate the percentage of kidneys by donor age group for each recipient age group.

- A graphical depiction (e.g., bar graph) showing donor age group percentages by recipient age group.
- For comparing impact on age-matching of new runs relative to baseline, create age-matching reports for the baseline (Run #36).
- If possible, for comparing age-matching for new runs relative to the proposal that most heavily emphasized utility, create age-matching reports for a previous KPSAM run that used LYFT (e.g., one of the runs in #18a-f, or other more appropriate run, as determined by SRTR contractor).

c) Transplant recipient percentages, counts, and average years by HLA ABDR Mismatches (0,1,2,3,4,5,6) x Ethnicity cross-tabulation.

Longer Term

Survival Calculator

Develop a calculator to estimate survival if a candidate receives a living donor organ, a deceased donor organ from donors with defined DPIs (e.g., 10%, 30%, 50%, 70%, 90%), and if the candidate remains on dialysis. The results need to be DSA and Blood Group specific. Depending on the results for living donors, we may need to separate into two categories (e.g., living donors >=50 years old, living donors <50 years old).

Additional Outputs with Future KPSAM Runs of High Interest (Specific Runs TBD)

- Number of recipients who received transplants for each category over how many years you looked at the data (instead of just the median survival years). So for example, for the 60 to 69 yo recipient age group, how many received a DPI kidney of 0 to 19, how many a kidney of 20 to 39, etc., and how many reached actual outcomes (graft loss, death) versus estimations *(further clarification needed as to whether this is a KPSAM output, inferential modeling, descriptive data request, or other)*
- How much time between graft failure and death for all candidates? The committee is trying to identify how many patients have graft failure as a distinct event from death. The question from the community is if an older candidate receives a higher DPI organ (lesser quality), then do they die at a higher rate from complications of graft failure or slow graft function. *(further clarification needed)*
- Number of offers made in addition to transplants by age group. *(further clarification needed)*
- Actual outcomes for recipient survival by recipient age and donor DPI (median patient survival by recipient age) *(further clarification needed as to whether this is a KPSAM output, inferential modeling, descriptive data request, or other)*

Non-KPSAM Requests

The SRTR is developing an advisory calculator under the direction of HRSA as an on-going project. A proposal describing the goals and approach for this project has been presented to HRSA, and work is on-going.

KPSAM Modeling Requests

Analyses Supporting Simulated Change in Behavior

In all prior simulations of kidney allocation, behavior was assumed to remain the same before and after the simulated policy change. This enabled the SRTR to use prior data on patient listing practices and acceptance/placement patterns in the simulation of new allocation policy. The results from these simulations were always presented with the caveat that listing and acceptance/placement behavior were assumed to remain the same.

For the current data request, the Kidney Committee has identified specific changes in acceptance and listing behavior that they would like to see simulated. Note that ***KPSAM does not and cannot predict how behavior may change due to an allocation policy.*** The changes being simulated are those suggested by the Kidney Committee as reasonable results of a change in allocation policy, based on their clinical experience.

The two changes that were discussed, but ultimately not used included:

a) Changes to the acceptance/placement models: Instead of kidney acceptance and placement being based on logistic models using national match run data and donor and recipient characteristics, these models will be based on data limited to OPOs that tend to have higher usage of higher-DPI kidneys. The current plan is to use the top 50% of OPOs in terms of older donor usage and then perhaps the top 25% of the OPOs. This should result in acceptance/placement patterns that, while still modeled after empirical data on kidney acceptance and placement, result in an increased use of high DPI donors among OPOs who tend to use fewer such donors.
b) Changes to listing behavior: The percentage of candidates over the age of 60 who are on the ECD list ranges from 0% to 99% in different OPOs. Increasing acceptance of high DPI kidneys from OPOs that put few (if any) candidates on the ECD list will not necessarily result in increased high-DPI donor usage in these OPOs. Candidates in these OPOs who are not on the ECD list will be placed on the ECD list semi-randomly, using a logistic model based on data from the OPOs that place candidates on the ECD list more frequently. This model will have patient age as a predictor, as younger candidates tend to be listed for ECD kidneys much less frequently in all OPOs than older candidates. As these data are investigated, other variables may be added to this model.

The data identifying OPOs with higher usage of older donors were reviewed by the committee chair as an intermediate step, and the decision was made to attempt a simplified acceptance pattern of automatic acceptance within 15 years of the age of the donor for all non-sensitized candidates. These runs (41 b-d) were not included in the current report because the simplification of the acceptance patterns introduced issues that still need review.

KPSAM uses all kidneys removed for transplant as inputs, and uses the results of the acceptance/placement models to determine which ones are transplanted and which ones are discarded. These models are calibrated to produce numbers of discards similar to those produced in actual allocation when current national allocation policy is simulated; large changes to allocation policy can result in more or fewer discards as different kidneys are offered to different candidates. When a more marginal kidney is transplanted, KPSAM assigns outcomes to this transplant appropriate for the characteristics of the kidney and the recipient, based on historical data with similar transplants.

One of the simplifications to the changes in the acceptance/placement models is that it assumes that all kidneys removed for transplant but discarded are equivalent once donor race, creatinine, etc. are accounted for.

Additional KPSAM Outputs Requested

Note that many of the outputs requested require further clarification, as is noted within the data request. The analysis plans for the items identified as requiring further clarification will be worked out as the clarification is obtained.

Requested Simulation Runs (past and current)[1]

This table is a comprehensive list of all simulations performed to date. Rows that are new requests are shaded in grey and indicate "YES" in the 'New' column.

The rules used in each run may be cumulative, incorporating rule changes made in prior runs, or may branch out, incorporating aspects that are not included in later runs. Either way, the base run is specified in the appropriate column; e.g. changing wait time to ESRD time in run 31 keeps all of the other allocation rules specified in run 30.

Abbreviations:
DY = Dialysis Years
DPI = Donor Profile Index (higher values = riskier organ) rescaled to 0-1 according to percentile among organs transplanted during the year nationally.
PL = Patient lifespan with transplant (calculated assuming average SCD donor)
GL = Graft lifespan with transplant (calculated assuming average SCD donor)

System	Run #	Description	New?	Base Run
Current	1	Current national allocation system as baseline		
	2	No interleave – separate allocation for adult & pediatric candidates		1

[1] Numbering is based on all runs completed for the kidney committee, rather than re-starting the numbering with this data request. This will help prevent confusion when referencing runs across data requests.

System	Run #	Description	New?	Base Run
SCD-LYFT	3	LYFT in place of kidney points for adult candidates of SCD organs; KP Priority		2
	4	No paybacks; KP Priority		3
	5	No 0MM sharing; KP Priority		4
	6[2]	Eliminate 0MM priority locally for adult candidates of SCD organs; KP Priority		5
	7[3]	No KP Priority – KP and KI candidates compete by LYFT for adult candidates		6
	8	A_2 -> B; KP Priority		7
	9	0MM sharing for PRA 80%+ adult candidates; KP Priority		8
	11	National allocation, no geographic boundaries; KP Priority		9
	15	LYFT (No HLA A, B); KP Priority.		9
	16	LYFT (No HLA A, B; with PKD, DM); KP Priority.		9
	16a	LYFT (No HLA A, B; with PKD, DM); KI follows PA.		9
	17	LYFT (No HLA A, B; with DM only); KP Priority.		16
SCD- LYFT modified by ESRD years	10	LYFT + X*(DY) (X=1,2) (Note: This run superceded by run 12a-12d)		9
	12[4]a	LYFT + 0.1*(DY)		9
	12b	LYFT + 0.2*(DY)		9
	12c	LYFT + 0.5*(DY)		9
	12d	LYFT + 1*(DY)		9
	24	LYFT + 0.5*(DY) (LYFT with no HLA A,B; with PKD, DM; KI follows PA)		16a
SCD-LYFT modified by waitlist time	13a	LYFT – x*Waitlist lifetime. X=0.2		9

[2] Run 6 was not explicitly requested; however, the SRTR believes this change to the allocation system is desired by the Kidney Committee prior to the requested runs.

[3] Run 7 was not explicitly requested; however, the SRTR believes this change to the allocation system is desired by the Kidney Committee prior to the requested runs.

[4] Note runs 12a-12d use a "fixed" LYFT score based on the information known at the time of listing. All other runs allow LYFT to vary with time.

System	Run #	Description	New?	Base Run
SCD-LYFT modified by PRA	14a	LYFT + 0.01*PRA		9
All Donors-LYFT modified by ESRD time and continuous DPI	18a	LYFT * (1-DPI) + DY * DPI. KP Priority.		17
	18b	LYFT * (1-DPI^2) + DY * DPI^2. KP Priority.		17
	18c	LYFT * (1-DPI) + DY * DPI + PRA*4. KI follows PA.		16a
	18d	LYFT * (1-DPI^2) + DY * DPI^2 + PRA*4. KI follows PA.		16a
	18e	LYFT * (1-DPI^3) + DY * DPI^3 + PRA*4. KI follows PA.		16a
	18f	Same as 18c, but with corrected PRA and ECD code		16a
All donors - LYFT modified by continuous DPI and Lifetime Matching	19	LYFT * (1-DPI) + DY * DPI+ PRA*4 + Lifetime matching (PL – GL) (not yet completed and not named in current data request)		18c
All donors - Discrete Categories	21	LYFT quintiles, DPI quintiles, rank by DY within matching quintiles, allocate to nearest quintile, KP Priority.		17
	21a	LYFT quintiles, DPI quintiles, rank by DY within matching quintiles, allocate to nearest quintile, KI follows PA (redo 21)		16
	21b	Post-transplant lifetime (PL) quintiles, DPI quintiles, rank by DY within matching quintiles, allocate to nearest quintile, KI follows PA		16
	21c	21b + Allow patients with >80% PRA to receive kidneys from 1 quintile above and all quintiles of DPI below[5]		21b
	21d	21c + Absolute trump for 0ABDR HLA mismatch in quintile #1, 1 point for 1 DR mismatch, 2 points for 2 DR mismatches[6]		21c

5 Per discussion with Peter Stock on July 12, 2007. For 21c, a kidney in DPI quintile 3 would be allocated according to the following sequence:

Local (or PRA 80+ 0MM) quintile 3 candidates and local PRA 80+ candidates in quintile 1 - 4

Local (or PRA 80+ 0MM) quintile 4 candidates

Local (or PRA 80+ 0MM) quintile 2 candidates

Local (or PRA 80+ 0MM) quintile 5 candidates

Local (or PRA 80+ 0MM) quintile 1 candidates (includes local PRA 80+ candidates in quintile 5)

regional (same quintile order)

national (same quintile order)

6 Per discussion with Peter Stock on July 12, 2007—exclude Run 21d

System	Run #	Description	New?	Base Run
	21e	Instead of quintiles of DPI and post-transplant lifetime, use deciles		21c
All donors - Age Matching	22	Continuous age matching, KP priority		17
	22a	Continuous age matching, KI follows PA		16a
All donors - Waiting Time	23	Current points system, with A_2 -> B, no paybacks, 0MM share only for PRA 80%+ (not completed, not listed in current data request)		1
Variations on 18f	25	LYFT * (1-DPI) + DY * DPI + PRA*8 (instead of 4).		18f
	26	Same as 18c, but PRA 80+ adults are put on regional lists for all kidneys.		18f
	27	Calculate LYFT without HLA DR and 0 ABDR factors for patients with PRA < 80. Calculate LYFT without HLA DR (but with 0 ABDR) if PRA 80+.		18f
	28	LYFT*0.8*(1-DPI) + DY*(0.8*DPI + 0.2) + PRA*4		18f
3-year run, Current system	29	Old Current rules, using 3-year span		1
	30	New Current rules, (no 0MM sharing for PRA 0-20), using 3-year span		29
	31	ESRD Time instead of wait time		30
	32	<35 donors to <35 recipients (Not completed – deferred to next data request)		30 or 31
	33	Low 20% (by DPI) kidneys to candidates under 20% age threshold (Not completed – deferred to next data request)		30 or 31
Updated input files to 2008 data (1-year runs)	34	Old current rules (e.g. 0mm sharing for all PRA), updated KPSAM data (input files, unacceptable antigens, acceptance models, etc.))	Yes	1
	35	Current rules (0MM sharing for PRA 20%+)	Yes	34
	36	Current rules + ESRD years + A2->B + kidney-follows pancreas locally	Yes	35
	37	Allocate kidneys from the top 20% of DPI donors to candidates with the top 20% post transplant survival.	Yes	36

System	Run #	Description	New?	Base Run
	38	Allocate kidneys from donors less than the age of 35 to candidates less than the age of 35 (pediatric candidates according to current rules). This run was specifically requested by the ASTS during the January 2009 public forum.	Yes	36
	39	Allocate kidneys to candidates who are within 10 years of the donor's age. Rank order candidates according to points.	Yes	36
	40	Restrict kidneys from the top 20% of donors from going to the shortest lived 20% of candidates. This run was specifically mentioned during the March 2009 Board of Directors meeting.	Yes	36
	41	Combine 37 (top 20% to top 20%) and 39b (within 15, among lower 80% of donors).	Yes	37, 39b
	42	Possible runs based on variations in acceptance patterns to determine sensitivity of results to these changes. May not be deemed necessary.	Yes	35
	43	Combine run 41 and 42 to determine effects of changes in acceptance on run 41	Yes	41, 42
	44	Run 43 based on variation in acceptance decided upon by committee, along with negative points for 5 or 6 MM decided upon by committee. May not be deemed necessary.	Yes	43

Study Population

2008 kidney candidates and donors are used in KPSAM; models for calculating lifespan are based on candidates and recipients from 1987 – 2007. Analyses of patterns of kidney use will be based on recent data (no earlier than 2005).

Analytical Approach

KPSAM Run Descriptions

A more complete description of details of modeling that were necessary to implement the committee's proposed allocation rules are included for each run.

Run 1: Replicates the current national allocation system on the 2003 cohort of candidates and available organs. This allows a validation of KPSAM's ability to replicate both the

current allocation rules and the outcomes resulting from these rules. This run assumes that all kidney and pancreas allocation follow a national set of rules without local variances or errors.

a. Extra-renal multi-organ transplants are allocated apart from the kidney allocation system and neither the donors nor the recipients are included in the simulation.

Run 2: Changes the rules used in run 1 by separating any categories of candidates in which one group is ranked according to wait time or points while the other will be ranked according to LYFT. Mostly, this involves separating pediatric and adult candidates. This run explores one solution to some of the problems introduced by keeping pediatric allocation the same while changing the basis for adult allocation, and by keeping PA allocation the same while changing the basis for KP allocation. It also provides a reference for comparison with subsequent, more extensive rule changes.

a. Pediatric kidney-alone and KP candidates are placed ahead of adult candidates for SCD organs from donors < 35 in all geography*sensitization*mismatch categories
b. Pediatric candidates will not be offered organs from donors > 35
c. Highest-ranking, sensitized category for kidney allocation on the local list is eliminated (since "highest-ranking" is defined as "having more points than the pediatric candidate with the most points")
d. The very few pediatric KP candidates are included in the simulations as kidney-alone candidates. This issue has little effect on KPSAM but will need to be decided by the committee.
e. KP candidates are ranked ahead of pancreas-alone candidates in local allocation
f. The current priority for pancreas-alone candidates over KP candidates among regional >0MM and national >0MM has been kept

Run 3: Keep the separated system used in run 2, but substitute LYFT for points (for SCD organs for adult kidney-alone candidates) and for waiting time (for adult KP candidates) in order to determine the impact of this change on patient populations. As stated in the July 2006 meeting, this change leaves the priority given to KP candidates in place.

Run 4: Elimination of paybacks.

a. In the current rules, for 0-MM sharing, the highly- and medium-sensitized candidates who are ABO identical go first, then low-sensitized go unless they are from OPOs that have exceeded their payback debt threshold. Then come the highly- and medium-sensitized candidates who are ABO compatible. The low-sensitized candidates who are from OPOs that have exceeded their payback debt thresholds, whether they are compatible or identical, come last for 0-MM allocation. So, when paybacks are eliminated, KPSAM could either put all of the ABO identical low-sensitized candidates ahead of local ABO

compatibles, or it could lump all low-sensitized candidates at the very end of all 0-MM allocation. We have chosen to rank candidates as follows, as it preserves O kidneys for O candidates and B kidneys for B candidates.

- 0-MM, ABO Identical
  - High
  - Medium
  - Low
- 0-MM, ABO Compatible
  - High
  - Medium
  - Low

Run 5: Elimination of sharing for zero mismatch SCD kidneys and KP (adults only)
Local 0MM priority is kept, even for adult candidates.

Run 6: Eliminate 0MM priority locally (adult candidates of SCD organs – includes KI and KP).

a. Use >0MM ABO Chart. There were separate ABO charts for 0MM and >0MM according to the current rules. When the local 0MM priority was eliminated from the allocation rules, there was no more reason to keep the separate ABO charts. We used the >0MM chart for all KI and KP.
b. Pediatric candidates who were 0MM (local, regional, national) then local non-0MM pediatric candidates trumped all adults for donors < 35. This included 0MM and non0MM adults locally.
c. All pediatric rules were kept the same (as in the no interleave run). Local pediatric 0MM were still allocated ahead of local pediatric non-0MM.
d. There were relatively few ECD donors with both KI and PA available. For these donors, the 0MM local priority was kept (for KP, KI, and PA candidates). The current rules do not have separate 0MM sharing for KP candidates, so there was 0MM sharing for PA candidates for ECD donors, but not KP or KI candidates, among candidates willing to accept ECD organs.

Run 7: No KP priority – Adult KP and KI candidates compete using LYFT for SCD organs

a. Currently, national rules allow local discretion with regards to the majority of decisions about KP v. KI priority; each OPO is allowed to make their own decision. For these runs, OPOs were divided based on past performance into those who used more or fewer pancreata in simultaneous kidney-pancreas transplants. Those who used > 60% of their pancreata in 2003-2006 in kidney-pancreas transplants were considered “kidney-pancreas first”, while the remaining OPOs were considered “pancreas first”. This threshold results in total proportions of pancreas and kidney-pancreas transplants similar to those that actually occurred in 2003.
b. PA follows KI. KP and KI were ranked together for an SCD KP donor, while PA candidates were listed in a category behind both KP and KI.

c. Note that this reverses the current rules for >0MM national and regional KP and PA. Under the altered system being simulated in run 7, KP regionally has priority over PA and KP nationally has priority over PA. Put another way, the priority for KI and KP over PA occurs locally, then regionally, then nationally; i.e., for one of the SCD KP donors, local KI and KP candidates will be first, then local pancreas (sensitized, then 0MM, then other as in the current system for PA), then regional KI and KP, then regional pancreas, etc.
d. We left the priority for 0MM local pediatrics over >0MM local pediatrics, and for ECD local 0MM.
e. For the relatively few ECD donors with both a KI and a PA available, the priority was kept for KP and PA candidates willing to accept ECD organs.

Run 8: Incorporation of the A2/A2B into B allocation algorithm.

a. Per committee discussion, we assumed 20% of White, Hispanic and Black Donors with A or AB blood type are actually A_2 or A_2B, and 0% of Asians and other races (including mixed race and missing race) with A or AB were assigned A_2 or A_2B. This was done randomly. Note that this means that 0% of Asians and other races (including mixed race and missing race) will be assigned A2 or A2B.[7]
b. Per committee discussion, we assumed that 70% of blood group B and AB candidates had low anti-A titer. This was done randomly, using the assigned probabilities to determine for each candidate their specific anti-A titer category. It was also assumed that outcomes of B candidates receiving A organs were identical to those of all other ABO-identical transplants, and that AB (low anti-A2 titer) receiving B organs also had identical outcomes to other ABO-identical transplants.
c. We allowed both A and B candidates to receive offers from these donors
d. This rule applied to both ECD and SCD donors
e. This rule applied to adult and pediatric recipients
f. This rule did not apply to kidney-pancreas candidates
g. Kidney-pancreas candidates were treated as kidney-alone candidates if they were willing to accept kidney-alone, if the donor had no pancreas.
h. The resulting blood type/compatibility chart was as follows:

KI		Candidate					
		O	A1 / A2	B (antiA2)	B (low A2 titer)	A1B / A2B (antiA2)	A1B / A2B (low A2 titer)
Donor	O	1	X	X	X	X	X
	A1	X	1	X	X	1	1

[7] While the resulting proportion of candidates will be close to the assigned probability, it may vary by a small proportion just as the sample of candidates on the list for a given year may have some small variations in the proportions of A blood types and anti-A titer categories. The percentages used are close to those reported in Nelson et al., American Journal of Transplantation 2002; 2: 94-99. Table 1 shows that 23% (10%/44%) of White, 30% (8%/19%) of Black, and 0% of Asian A patients are actually A2. On page 96, Nelson et al. state that "The incidence of blood group B patients who have a consistent (at least 1 year) history of low anti-A titers is 77% in white patients (54/70) and 69% in black patients (23/35)."

	A2	X	1	X	1	1	1
	B	X	X	1	1	X	X
	A1B	X	X	X	X	1	1
	A2B	X	X	X	1	1	1

Numbers indicate order of offering for each donor blood type (since there is no more identical/compatible priority after the elimination of 0MM priority, this is 1 in all cases where the transplant is allowed). For example, O donor organs were offered only to O recipients, but A2B organs were offered to B (low A2 titer) and AB candidates, and neither group was set above the other. An "X" indicates that these organs were not allowed to be offered to these recipients. The above table applied to 0MM and to non-0MM organs, pediatric and adult candidates.

For KP candidates of KP organs, the above chart did not apply. Instead, among both 0MM and non-0MM organs (see note b under run 6), the following chart was used:

KP		Candidate					
		O	A1 / A2	B (antiA2)	B (low A2 titer)	A1B / A2B (antiA2)	A1B / A2B (low A2 titer)
Donor	O	1	X	X	X	X	X
	A1	X	1	X	X	1	1
	A2	X	1	X	X	1	1
	B	X	X	1	1	X	X
	A1B	X	X	X	X	1	1
	A2B	X	X	X	X	1	1

SPK B candidates were not offered an A2 or A2B organ no matter what the donor had (KP or KI alone).

Run 9: 0MM Sharing for PRA 80+ adult candidates for SCD organs (based on run 8)

a. This was done for adult, not pediatric candidates, per committee discussion.
b. 0MM pediatric nonlocal PRA 80+ candidates was ranked with local pediatric 0MM candidates ahead of 0MM adult nonlocal PRA 80+ candidates, per Mark Stegall e-mail.
c. Relative ranking of 0MM pediatric local (any PRA) and nonlocal (PRA 80+) candidates was decided by waiting time, per Mark Stegall e-mail.
d. This was done for KP candidates if donor has KP available, per committee discussion.
e. 0MM adult nonlocal PRA 80+ candidates was ranked with local 0MM adult (any PRA) candidates, with ranking determined by LYFT, per Mark Stegall e-mail.
f. This run includes the A2-B rule changes, per Mark Stegall e-mail. This run can be also completed without the A2-B rule changes, if the committee desires.
g. For SCD KI and KP donors, allocation went according to:
   1) Current Pediatric rules (categories, ranked by wait time) if donor < 35.

2) Adult local candidates (any PRA, 0 and non-0 MM) + adult 0MM shared 80+ PRA candidates (ranked by LYFT).

h. This sharing is not done for PA-only candidates.
i. This run has been completed with KP priority over KI in all DSAs (9k) and with mixed rules by DSA for KP v. PA priority (9, incorporating changes made in run 7). This run has not been re-done with KI following PA, but run 16a replicates the rules in run 9 with KI following PA but with a modified LYFT calculation.

Runs 10 (multiple): Inclusion of ESRD years (years since first ever ESRD treatment as noted by CMS; e.g. dialysis, prior transplant) as a modifier in the form:

LYFT + X * ESRD years

Note that this run was superceded by run 12 based on OPTN Kidney committee review of initial results from the run with X = 1 that eliminated half of the additional transplant benefit due to the LYFT modifications and runs 4-9 (excluding run 7). The remainder of these runs (X = 2, 10, etc.) will not be completed and instead the runs specified in run 12 were be done.

a. Used a single set of national rules for these runs, rather than attempting to take into account the within-OPO and blood-type variation in waiting time's effects on the average ESRD years and subsequently the effect of X * ESRD years relative to LYFT, per Mark Stegall e-mail.
b. Did not remove ESRD years prior to these runs; per discussion mentioned in Mark Stegall e-mail.
c. Foreign national candidates may not have ESRD data in CMS; thus their ESRD years may be artificially zero. While the actual allocation system will need to account for this, these small numbers of patients are unlikely to affect the results and thus KPSAM will be run despite this problem.
d. Runs are planned to be made with X = 1, 2, and further changes as the committee desires. These runs have not been completed yet. See boxplots illustrating the distribution of these scores titled "Distribution of LYFT + 1*ESRD Years by Age and Diabetes Status" and "Distribution of LYFT + 2*ESRD Years by Age and Diabetes Status" later in this document.

Run 11: National allocation, no geographic boundaries. (based on run 9)

a. The purpose of this run is not to allocate a proposed national allocation system. It is to determine if some of the results in terms of demographic distribution of kidney recipients in the earlier runs can be attributed to geographic differences. Post-transplant survival has not been re-estimated to take into account the massive change in the practice of shipping kidneys across long distances and thus the graft survival estimates and patient survival estimates cannot be presumed to be at all realistic. On the other hand, in the acceptance models candidates are still less likely to accept kidneys coming from outside their DSA; this seems a reasonable assumption under these circumstances.
b. Pediatric candidates retain priority; however, this is now national, not just local. In order to mirror the current local priorities, the national allocation system now gives 0 ABDR HLA MM pediatric candidates the highest priority, then sensitized pediatric candidates, then the rest of pediatric candidates.

c. Run 9 gave sensitized candidates with 0 ABDR HLA MM national access; since all candidates now have national access, sensitized adult candidates receive no advantage in this run.
d. ECD is now national as well. Since candidates for ECD organs retained the 0MM priority (removed from the candidates for SCD organs in runs 5 and 6), nationally 0MM candidates for ECD organs are ranked first among adults and the blood-type rules apply (e.g. O organs go to identical, then B, then compatible, etc.).
e. SPK was ranked in run 9 with sensitized first, (since 0MM priority was removed in runs 5 and 6). With national allocation, this would put all sensitized candidates at the top of the list, greatly increasing the chances of an organ being discarded. Thus the order for national allocation of organs among donors with a kidney and a pancreas is: 0 ABDR HLA MM for pancreas candidates (since this priority was not removed for pancreas candidates in runs 5 and 6), then SPK candidates, then the remaining pancreas candidates.
f. Pancreas candidates were ranked in run 9 with sensitized first, then 0MM, then other candidates. For the reasons outlined in part e. above, pancreases that are not with kidneys will be allocated to 0MM candidates, and then the remaining candidates.

Run 12 a-d (multiple runs) (based on run 9)

a. The LYFT calculation has been modified so that age at offer and years with ESRD at offer are replaced by the age and years with ESRD at listing. These numbers do not progress as the candidates wait on the list. This is in keeping with the committee's stated desire to have candidates progress on the list; if age or years with ESRD were allowed to increase, candidates would tend to have lower LYFT scores as they waited on the list.
b. Preemptive candidate status is still a factor, and this factor can be updated to "non-preemptive" while the candidate is on the list. This will tend to make preemptive candidates whose ESRD actually progresses to dialysis rank much higher as this happens.
c. In the allocation method, LYFT will be replaced by LYFT + X * ESRD years, with X = 0.1, 0.2, 0.5, and 1.0 for runs a-d respectively.
d. This run will not include changes made to the allocation system in runs 10-11.

Run 13a (possible multiple runs) (based on run 9)

a. In the allocation method, LYFT will be replaced by LYFT – X * Waitlist lifespan in years, in order to increase priority for candidates with short expected lifespans. X = 0.2 is the only run completed.
b. This run will not include changes made to the allocation system in runs 10-12.

Run 14a (possible multiple runs) (based on run 9)

a. In the allocation method, LYFT will be replaced by LYFT + X * PRA in percentage points, in order to increase priority for candidates with short expected lifespans. X = 0.01 is the only run completed in this sequence, but see run 18 where X = 0.04.
b. This run will not include changes made to the allocation system in runs 10-13.

At this point we revised and updated the acceptance model used in all KPSAM runs to use only data after the rule change regarding B and DR points was made in 2003 so as to reflect current practices. Selected runs from among 1-14 have been re-done in response to this data request as a consequence of the altered acceptance model.

Run 15 No HLA A+B (based on run 9)

a. Remove HLA A & B mismatch from LYFT calculation.
b. KP did not have priority over KI nationwide (per run 7).

Run 16 Dgn PKD + DM (based on run 15)

a. Remove all diagnoses except polycystic (PKD) and diabetes (DM) from LYFT calculation.
b. KP did not have priority over KI nationwide (per run 7).

Run 16a Dgn PKD + DM with KI follows PA

a. This run uses the kidney-follows-pancreas rule. Since KP are not allocated using kidney rules, KP candidates and donors are excluded from all quintiles calculations. Since pediatric candidates are allocated kidneys using a separate system, they are not used to calculate quintiles. KP and PA candidates are ranked together according to dialysis years.

Run 17 Dgn DM only (based on run 16)

a. Remove all diagnoses except DM from LYFT calculation.
b. KP did not have priority over KI nationwide (per run 7).

Run 18 (a-b) Continuous DPI (based on run 17)

a. Examine distributions of Donor Profile Index (DPI) for all ECD/SCD/SPK organs (NOTE: due to a programming error, ECD kidneys were excluded from the definitions in this run. This was corrected in run 18f) removed for transplant including those not transplanted, and rank donors by DPI, assigning them their percentile. Use the average of all recipient and donor/recipient interaction (e.g. HLA) terms for DRI.
c. Allocate organs by a function of LYFT, ESRD years, and DPI, where organs with higher DPI will be allocated primarily due to ESRD years and kidneys with low DPI will be allocated primarily due to LYFT. This will ensure that kidneys with good expected outcomes (DPI %ile close to zero) will go to high LYFT candidates.
d. Donors with missing data (approx 2% had missing creatinine, weight, or height data) were given the mean value for that variable. This is not intended to be realistic or a recommendation for allocation.
e. Run 18a allocates kidneys by LYFT * (1 - DPI %ile) + ESRD years * (DPI %ile)
f. Run 18b allocates kidneys using the DPI squared; i.e. by LYFT * (1 – DPI %ile^2) + ESRD years * (DPI %ile^2)
g. KP did not have priority over KI (per run 7).

Run 18 (c-f) Continuous DPI (based on run 16a)

b. This set of runs uses the kidney-follows-pancreas rule. KP and PA candidates are ranked together according to wait time, not dialysis years. KP has absolute priority over KI candidates (including pediatric).
c. Run 18c uses continuous DPI. Run 18d uses DPI^2. Run 18e uses DPI^3.
d. Add 4* PRA/100 to candidates' total allocation scores. NOTE: This was not actually done through a programming error. 18f corrects this, and adds the correct bonus for high PRA candidates.
e. LYFT score for patients can progress over time (unlike in runs 12, 24).
f. Candidates who indicated that they did not want to be offered ECD organs were not offered ECD organs in these runs, even though for all other purposes among adult kidney candidates the ECD/SCD distinction was replaced by DPI.
g. Run 18f is the same as 18c, but corrects the 4 * PRA/100 error, as well as extending the 18f rule from SCD only to ECD kidneys, weighting DY in ECD kidney allocation by 85-100% (as appropriate) instead of 100%.

Run 19 PRA*4 pts (based on one of run 18 c-e)

a. Add factor for post-transplant lifespan minus graft lifespan in order to match the candidates with the longest lifespans with the best quality kidneys, after LYFT selects best candidates for organs. Experiment with different weightings of this factor.
b. This run will be based on the committee's decision as to which of runs 18 c-e represents the best trade-off.
c. This run has not yet been completed.

Run 20 Discounting (based on run 18)

a. Get new LYFT approximation using discounting (3% per year, per WHO guidelines).
b. This run has not yet been completed.

Run 21 Quintiles (based on run 17)

a. Create categories of candidates using the quintiles of LYFT scores among recipients (distribution of candidates will not be equal, but that's expected). Use an average organ for these LYFT scores.
b. Get quintiles of donors by DRI, and allocate each donor only to candidates in the same quintile as that donor; e.g. donors in the highest DRI quintile would be allocated to the lowest quintile of LYFT.
c. This will result in candidate health/donor quality matching by category, but will not change number of transplants to each group of candidates except for acceptance-induced changes.

Run 21a-e Quintiles (based on run 16a)

a. 21a matches quintiles of LYFT to quintiles of DPI. 21b matches quintiles of post-transplant lifespan to quintiles of DPI. 21c allows candidates with PRA 80+ to

receive transplants from 1 category higher than their current category or all lower quintiles. 21e matches deciles of post-transplant lifespan to deciles of DPI (based on 21c).

b. This set of quintiles runs uses the kidney-follows-pancreas rule. Since KP are not allocated using kidney rules, KP candidates and donors are excluded from all quintiles calculations. Since pediatric candidates are allocated kidneys using a separate system, they are not used to calculate quintiles. KP and PA candidates are ranked together according to wait time, not dialysis years. KP has absolute priority over KI candidates (including pediatric).
c. Quintiles of kidney recipients (during the same year as the KPSAM run) are calculated using only the candidate data and excluding the donor and donor/recipient factors' contribution to the score, and the results are applied to all candidates. For 21a, these quintiles are of LYFT. For 21 b-e, these quintiles are of post-transplant survival.
d. Per Peter Stock (7/12/2003), run 21d should not be performed without more discussion.
e. Get quintiles of donors by DPI (ignoring candidate factors), and allocate each donor only to candidates in the same quintile as that donor; e.g. donors in the highest DPI quintile would be allocated to the lowest quintile of LYFT.
f. This will result in candidate health/donor quality matching by category, but will not change number of transplants to each group of candidates except for acceptance-induced changes.
g. A candidate's quintile will not change over time; if a candidate is assigned a low quintile because they are preemptive at listing, they do not move to a higher quintile when they go on dialysis. Similarly, candidate age at listing is used and increasing candidate age will not move a candidate to a lower quintile.
h. Sort order within each quintile is dialysis years (i.e. time since most recent initiation of dialysis). Note that this means that preemptive candidates will be last on the list until they start dialysis. These candidates will not then shift quintiles, but they can begin accumulating dialysis time.
i. If an entire quintile is exhausted (e.g. blood type AB in a small OPO), then organs are offered to candidates in the next lowest (in terms of LYFT or post-transplant survival) category, then next highest, and so on, alternating between lower and higher quintiles until the offer limit is reached and the organ is discarded.
j. KP donors were not included in the DPI quintile definitions because the KP is allocated according to a different system; however, since most of these donors have another kidney, perhaps this should be re-thought.
k. Candidates who indicated that they did not want to be offered ECD organs were not offered ECD organs in these runs, even though for all other purposes among adult kidney candidates the ECD/SCD distinction was replaced by DPI quintiles or deciles.

Run 22 Continuous age matching (based on run 17)

a. Age-matching without categories (i.e. allocate by continuous score = absolute value of (candidate age - donor age)).

b. Donor organs < 35 still go to pediatric candidates first (by geography, i.e. local pediatric, local adult, regional pediatric, regional adult, etc.). Donor organs > 35 are ranked simply by geography (local, regional, national) for adults.
c. All candidates are ranked by this score if the donor has the appropriate organs; including pancreas, kidney-pancreas, and kidney.
d. The current version did not include A_2-B.
e. Candidates who indicated that they did not want to be offered ECD organs were not offered ECD organs in these runs, even though for all other purposes among adult kidney candidates the ECD/SCD distinction was erased.

Run 22a Continuous age matching

a. This run uses the kidney-follows-pancreas rule. KP and PA candidates are ranked together according to wait time, not dialysis years. KP has absolute priority over KI candidates (including pediatric).

Run 23 Wait-time + changes (based on run 1)

a. Use rules for current system, with waiting time (not ESRD time) as the primary allocation factor, removing 0MM sharing and priority, removing paybacks, mixing SPK and KI, allowing sharing (but not priority) for PRA 80%+ 0MM, and adding A_2-B.
b. This may show that without LYFT, these changes do not save any additional life years, since they do not necessarily re-distribute organs to candidates with better benefit. Base this change on the run using the current system, not on any of the above runs.
c. This run has not yet been completed.

Run 24 LYFT + 0.5 Dialysis Years for SCD (based on run 9)

a. This set of runs uses the kidney-follows-pancreas rule. KP and PA candidates are ranked together according to wait time, not dialysis years. KP has absolute priority over KI candidates (including pediatric).
b. The LYFT calculation has been modified so that age at offer and years with ESRD at offer are replaced by the age and years with ESRD at listing. These numbers do not progress as the candidates wait on the list. This is in keeping with the committee's stated desire to have candidates progress on the list; if age or years with ESRD were allowed to increase, candidates would tend to have lower LYFT scores as they waited on the list.
c. Preemptive candidate status is still a factor, and this factor can be updated to "non-preemptive" while the candidate is on the list. This will tend to make preemptive candidates whose ESRD actually progresses to dialysis rank much higher as this happens.
d. In the allocation method, LYFT will be replaced by LYFT + 0.5 * ESRD years.
e. Remove HLA A & B mismatch from LYFT calculation, and remove all diagnoses except polycystic (PKD) and diabetes (DM) from LYFT calculation (i.e. use 16a run LYFT calculation, except LYFT cannot progress).

Run 25 LYFT * (1-DPI) + DY * DPI + PRA*8 (instead of 4).

a. This will simply modify run 18c.

Run 26 Same as 18c, but PRA 80+ adults are put on regional lists for all kidneys.

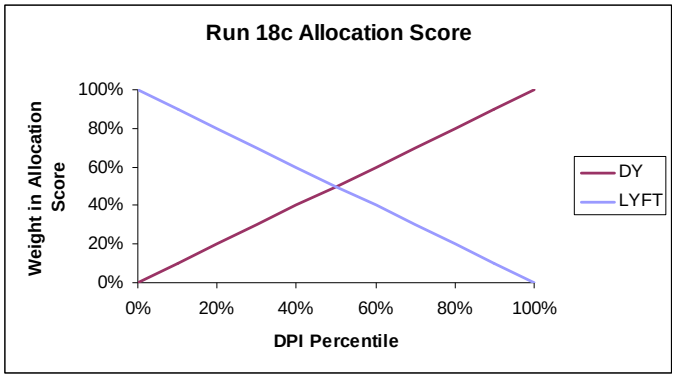
a. Per instructions during the phone conference, the false negative rate for highly sensitized (PRA 80+) candidates should be held at 50%. This rate is based roughly on actual attempts to implement the virtual crossmatch system. Kidneys that are offered to these sensitized candidates will not necessarily stay in these candidates' DSA, if they were shared. Kidneys that are turned down (due to a false negative result or any other reason) will be next offered to the next candidate in the original DSA. This could result in a single organ being shipped back and forth to multiple DSAs before final placement. A model to adequately account for this additional ischemia time's effects on graft survival, kidney acceptance, and recipient survival has not yet been developed, and results from this run will not account for these factors.
b. The effect of the false negative rate has been modeled by lowering the odds of acceptance for these candidates (adult, non-local[8], PRA 80+, non-0 ABDR HLA MM) by a factor of 2 (see item b).
c. These rules apply to kidneys offered to kidney and kidney-pancreas candidates, but not to KP allocation, since KP allocation is through the pancreas system.

Run 27 Calculate LYFT without HLA DR and 0 ABDR factors for patients with PRA < 80. Calculate LYFT without HLA DR (but with 0 ABDR) if PRA 80+.

a. Two separate estimation equations will be used, depending on whether the candidate is currently sensitized or not. Both equations will be based on the entire population in order to produce stable estimates of all the parameters in all the LYFT models, instead of producing a separate table for PRA 80+ and one for PRA <80.

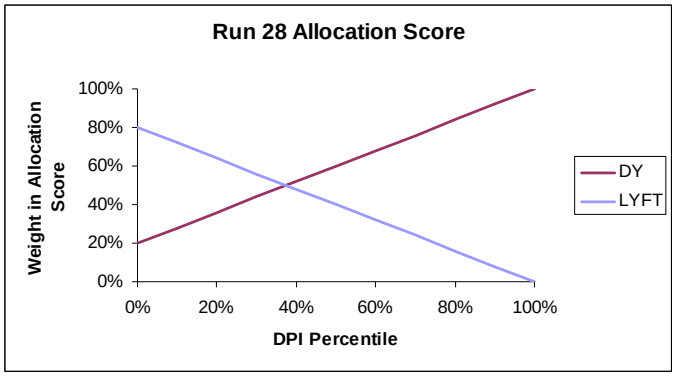
Run 28 LYFT*0.8*(1-DPI) + DY*(0.8*DPI + 0.2) + PRA * 4

a. The data request stated that the best organs will be allocated with LYFT given 80% weight and dialysis years given 20% weight. In other words, instead of allocation weights looking like the following graphic:



[8] Non-local includes national candidates in this case. These candidates will only get allocated non-0 ABDR HLA MM kidneys if they are turned down by all local and regional candidates and if the limit of 200 offers has not yet been met.

Allocation score weights will instead start at 80% and 20%, and move smoothly out to the 0% and 100% as shown in the following figure:



The formula for this is LYFT*0.8*(1-DPI) + DY*(0.8*DPI + 0.2) + PRA * 4

Run 29: Old current (Historical reference)

a. 3-year run
b. Used updated acceptance model

Run 30: New current (2009 reference)

a. Based on run 29
b. Eliminate 0 HLA MM sharing for PRA < 20
c. 0 HLA MM local candidates with PRA < 20 have priority over other local candidates
d. 3-year run
e. Used updated acceptance model

Run 31: ESRD time instead of wait time

a. Note: actual ESRD time will be used in place of the current system for calculating wait time points (which is to rank candidates in and OPO/ABO with the same integer part of wait time and assign each ascending fractions, each separated by the inverse of the number of candidates in that category).
b. Based on run 30.
c. The category of non-0MM sensitized adults with more points than any other local candidate (including pediatric) will be decided solely on ESRD time. In other words, KPSAM will not compare ESRD years for adults to wait time years for pediatric candidates.
d. ESRD time will replace the waiting time feature of ECD and SCD allocation. The fact that DR points and HLA points are not applied to ECD allocation will be retained in this run.
e. 3-year run.

f. Uses new acceptance model based on DonorNet data
g. SPK priority is kept the same as in the current system, despite the fact that the Pancreas Committee is working on approaches to give SPK candidates higher priority.
h. This run is being replaced – see run 36 below.

Run 32: <35 donors to <35 recipients *(Not completed – deferred to next data request, after unacceptable antigen issue is fixed))*

Run 33: Low 20% (by DPI) kidneys to candidates under 20% age threshold *(Not completed – deferred to next data request)*

Run 34: Old current rules (e.g. 0MM sharing for all PRA)
a. Incorporates update to 0MM pancreas-alone allocation: 0MM comes first only if sensitized, not overall.
b. Updated input files (2008 patient and donor data), including unacceptable antigen information (applies to all future runs).
c. Updated acceptance model (applies to all future runs). Note that there was an erroneous constant applied to the acceptance of SPK v. kidney-alone transplants. While this did not affect distributions of recipients within the SPK or the kidney-alone group, the total number of transplants was influenced towards kidney-alone. This will be corrected in the next KPSAM runs.
d. 1-year run, 2008 data

Run 35: New current rules (e.g. 0MM sharing only for PRA 20+)
a. Based on run 34
b. Eliminate 0 HLA MM sharing for PRA < 20
c. 0 HLA MM local candidates with PRA < 20 have priority over other local candidates
d. 1-year run, 2008 data

Run 36: Current rules + ESRD years + A2->B + kidney-follows pancreas locally
a. Based on run 35 (2009 current rules)
b. A2->B, based on a random assignation of low anti-A titers to B candidates, per OPTN Kidney Committee.
c. ESRD years starts with earlier of most recent initiation of dialysis or GFR < 20 on waitlist (i.e. activation date).
d. Fractional kidney points are handled as under the current rules, then ESRD time (including fractional years) is added onto this fraction (if patient was on dialysis prior to listing).
e. Kidney-pancreas candidates have priority in same DSA only. Note that variances and ALUs are not included in KPSAM, so some SPK transplants that would have been considered "local" in actual allocation would be ruled "non-local" by KPSAM.
f. Paybacks are eliminated, and all payback debts and credits are eliminated for the run.

g. The category of non-0MM sensitized adults with more points than any other local candidate (including pediatric) will be eliminated. ESRD years will be used for both adult and pediatric candidates, but the pediatric candidates will have priority locally.
h. Pediatric candidates can receive organs from candidates >35 (as per current rules), but do not receive priority unless 0 HLA MM.
i. Pediatric candidates can receive ECD kidneys only if 0MM; otherwise they are not allowed to receive an ECD kidney. As under the current system, pediatric candidates receive priority for ECD kidneys if they are 0MM.
j. ESRD time will replace the waiting time feature of ECD and SCD allocation. The fact that DR points and PRA points are not applied to ECD allocation (see policy 3.5.12) will be retained in this run.
k. 1-year run, 2008 data
l. Run 36c is updated in the January, 2010 data request.
m. Clarify top 20% to top 20%: top 20% donor has top 20% candidates, bottom 80% donor has all candidates (within 15 years).

Run 37: Allocate kidneys from the top 20% of DPI donors to candidates with the top 20% post transplant survival.

a. Based on run 36
b. Identify top 20% donors using donor-only DPI (i.e. not ABDR mismatch or other donor/recipient interaction factors)
c. Identify top 20% threshold of donors in a cohort that does not include 0MM, donors going to pediatric candidates, and multi-organ donors (which are not included in KPSAM anyways). All remaining donors with kidneys removed for transplant during the 3 years prior to the run will be used to determine this threshold. This threshold will not change during the run. This threshold will be determined nationally, not by blood type and DSA.
d. Pancreas donors were automatically placed in the top 20%, despite the fact that KP donors were excluded from consideration when creating the top 20% threshold. This allows top 20% candidates priority for these donors if the pancreas is, in fact, not used.
e. The top 20% candidate category (Group A) will be defined at the local level based on blood type (in cases where the sample size is too small to define the category (e.g., for blood group AB locally), regional data may be used to determine the category – this will be decided upon review of the sample sizes). 3 years of data will be used to set these thresholds as well. Group A candidates will be determined based on the characteristics of active candidates. The 20% threshold will not change over time during the run.
f. Pediatric candidates will automatically be coded as being in the top 20% category. This is because the 0MM sensitized local allocation category has pediatric and adult candidates – if this category is separated into top 20% and bottom 80%, this is the only way the sensitized local 0MM pediatric

candidates can continue to be mixed with the top 20% sensitized local 0MM adult candidates.

g. Post-transplant survival will be calculated based on candidate age, prior transplant, diabetes, and ESRD years. The 20% category will be determined based on these factors and then candidates will be rank-ordered within those categories based on allocation points (i.e., ESRD time, DR points, etc.). This value will be set at listing for each candidate using the same average kidney as was used to set the thresholds and will not change throughout the run.
h. 0MM rules as specified in plan Beta as identified by Ken Andreoni. Group A as defined above.
i. 1-year run, 2008 data
j. Run 37b is updated in the January, 2010 data request.
k. A candidate in the top 20% receives priority for a donor in the top 20%. When a donor in the bottom 80% becomes available, all candidates (including those in the top 20%) are eligible to receive that kidney, ranked according to current kidney allocation policy.

Run 38: Allocate kidneys from donors less than the age of 35 to candidates less than the age of 35.

a. Based on run 36
b. Use current candidate age (changes within run)
c. 0MM rules as specified in plan Beta as identified by Ken Andreoni. Group A = candidates < 35 if donor is < 35.
d. Note that this places sensitized candidates <35 (group A) ahead of pediatric candidates in some of the 0MM categories.
e. 1-year run, 2008 data

Run 39a: Allocate kidneys to candidates who are within 10 years of the donor's age. Rank order candidates according to points.

a. Based on run 36
b. Use current candidate age (changes within run)
c. 0MM rules as specified in plan Beta as identified by Ken Andreoni. Group A = candidates within 10 years of donor's age.
d. ECD allocation is not separate except for the candidate ECD/no ECD preference. All donors > 35 are allocated first to candidates within 10 years, with 0MM handled as specified in the revised data request
e. 1-year run, 2008 data

Run 39b: Allocate kidneys to candidates who are within 15 years of the donor's age. Rank order candidates according to points.

a. Based on run 36
b. Use current candidate age (changes within run)
c. 0MM rules as specified in plan Beta as identified by Ken Andreoni. Group A = candidates within 15 years of donor's age.

d. ECD allocation is not separate except for the candidate ECD/no ECD preference. All donors > 35 are allocated first to candidates within 15 years, with 0MM handled as specified in the revised data request
e. 1-year run, 2008 data
f. Run 39bb is updated in the January, 2010 data request.

Run 40: Restrict kidneys from the top 20% of donors from going to the shortest lived 20% of candidates.

a. Based on run 36
b. Define percentiles, thresholds, etc. using same rules as in run 37
c. 0MM rules as specified in plan Beta as identified by Ken Andreoni. Group A = top 80% of candidates if donor is in top 20%.
d. 1-year run, 2008 data
e. Run 40b is updated in the January, 2010 data request.
f. A candidate in the top 80% receives priority for a donor in the top 20%. When a donor in the bottom 80% becomes available, all candidates (including those in the top 80%) are eligible to receive that kidney, ranked according to current kidney allocation policy.

Run 41 (a,b,c): Combine 37 (top 20% to top 20%) and 39b (within 15, among lower 80% of donors). 41a uses acceptance model based on current acceptance practices, while 41b forces acceptance of bottom-83% DPI kidney within 15 years of candidate age.

a. Runs 41b, 41c, and 41d are not true KPSAM runs, as they do not use the empirical acceptance model and instead substitute hypothetical acceptance patterns not currently found in allocation as a sensitivity analysis. Not all the issues with this acceptance model have been worked out, and so these results have been omitted from the current report.
b. Based on runs 37, 39b
c. ECD distinction is removed, as acceptance model will be radically modified
d. Run once with normal acceptance model, then again with candidates accepting all organs within 15 years (excluding 17% of highest DPI kidneys plus a few kidneys identified as non-transplantable per Ken Andreoni. Note that currently 19% of kidneys removed for transplant are discarded).
e. In order to avoid decreases in SPK transplants due to increased kidney-alone transplants, the SPK offers received a boost in the acceptance models if the donor was within 15 years of the candidate age (the rest of the model was left identical). This was included in 41b and, because it seemed to over-inflate SPK numbers, removed from 41c. This is a hypothetical construct, and very different from the empirically-based acceptance model that is the basis for all other KPSAM runs.
f. Pancreas-pancreas allocation remained unchanged.
g. Kidney-to-SPK candidate acceptance remained unchanged.

h. Run 41b was found to unrealistically inflate allocation to highly sensitized (PRA 80+) candidates, so a new acceptance model was chosen: empirically-based for PRA 80+, and accept all within 15 years for PRA <80. This was the basis for run 41c.
i. 41d used empirically based acceptance for candidates outside of 15 years, instead of forcing turn-downs.
j. A candidate in the top 20% receives priority for a donor in the top 20%. When a donor in the bottom 80% becomes available, all candidates (including those in the top 20%) are eligible to receive that kidney, with priority given to those within 15 years, and then they are ranked according to current kidney allocation policy.

Run 42 (a,b,?): Possible runs based on variations in acceptance patterns to determine sensitivity of results to the changes in listing and acceptance/placement behavior.
Outdated: New allocation model forces acceptance of bottom-83% DPI kidney within 15 years of candidate age.

a. These runs replaced by runs 41b-d.

Run 43: Combine run 41 and 42 to determine effects of changes in acceptance on run 41
Outdated: New allocation model forces acceptance of bottom-83% DPI kidney within 15 years of candidate age.

a. These runs replaced by runs 41b-d.

Run 44: Negative points for 5 or 6 MM (not yet decided upon by committee).

a. May not be deemed necessary.
b. Based on whichever run the Kidney Committee decides upon.

Results

Notes:

Runs 35, 36, 37, 39b, and 40, all of which were presented at the prior kidney committee meeting, have been updated and revised. The changes for runs 35 (current 2009 rules) and 39b (within 15 years) were negligible. Runs 37 (top 20% to top 20%) and 40 (top 20% to top 80%) each now show less of a shift in recipient age (compared to run 35) than was shown in the August meeting. For example, instead of showing an increase (compared to run 35's results) of 1,436 kidney-alone transplants allocated to recipients under age 50, with corresponding decrease for recipients over 50, run 37 now shows an increase of 705 kidneys to recipients under 50. Run 40's transplants to recipients under 50 was reported as increasing by 610; now they're reported as increasing by 248.

Run 36 (current 2009 rules plus A2-B, no paybacks, dialysis time in addition to wait time, and kidney follows pancreas) was reported as resulting in a 1.0% decrease in transplanted kidneys; the updated results show a 1.6% increase in transplanted kidneys. This results in an increased reported benefit of transplantation under run 36 than was previously reported, although total numbers of transplanted kidneys calculated under simulation of necessity only account for transplantation of kidneys according to the national allocation rules; expedited transplantation due to donor urgency or other methods to avoid wasting kidneys that cannot be allocated according to the national allocation policy in time are not incorporated into KPSAM. Because of these efforts to transplant kidneys outside of national allocation rules when necessary, reported changes in the total numbers of transplants under KPSAM may not occur in actual allocation.

OPO Thresholds

For runs 37, 40, and 41, thresholds of post-transplant survival were chosen by OPO and ABO during the 3-year period before the 2008 run. The smallest sample size was 8 (NMOP, AB), and 95% of the OPO/ABO groups had sample sizes above 25. The 20th and 80th percentiles of post-transplant survival averaged 11.8 years and 25.8 years. 90% of the OPO/ABO groups had 20th percentile thresholds between 10.8 and 13.2, and 90% of the OPO/ABO groups had 80th percentile thresholds between 23.3 and 28.4 years. The min-max range for the 20th percentile was 9.6-15.2, and for the 80th percentile was 16.9-30.6. Few OPOs were outside of the 90% range for both the 20th and 80th percentiles, and the largest sample size among such was 48 (CAGS AB, 20th %ile = 9.6, 80th %ile = 22.3). The thresholds used were as follows.

OPO	*ABO*	*N*	*20th %ile*	*80th %ile*	*OPO*	*ABO*	*N*	*20th %ile*	*80th %ile*	*OPO*	*ABO*	*N*	*20th %ile*	*80th %ile*
ALOB	A	1351	12.6	26.4	KYDA	AB	32	14.8	29.7	OHLB	B	379	12.0	24.4
ALOB	AB	155	12.6	26.0	KYDA	B	110	11.6	27.7	OHLB	O	1085	12.2	26.3
ALOB	B	862	12.2	26.6	KYDA	O	449	12.0	26.9	OHLC	A	235	10.9	22.7
ALOB	O	2370	12.8	27.5	LAOP	A	713	12.0	25.3	OHLC	AB	30	10.4	16.9
AROR	A	185	12.5	27.9	LAOP	AB	89	12.6	26.0	OHLC	B	94	10.1	26.3
AROR	AB	17	13.2	28.5	LAOP	B	458	12.2	28.6	OHLC	O	346	11.0	23.4
AROR	B	93	11.4	25.1	LAOP	O	1295	12.2	28.1	OHLP	A	349	11.7	25.6
AROR	O	307	12.9	27.4	MAOB	A	1411	11.6	24.8	OHLP	AB	42	12.2	25.8
AZOB	A	720	11.7	25.0	MAOB	AB	180	11.5	26.6	OHLP	B	128	11.0	23.5
AZOB	AB	59	11.5	22.6	MAOB	B	698	11.6	25.5	OHLP	O	516	11.7	24.5

OPO	*ABO*	*N*	*20th %ile*	*80th %ile*	*OPO*	*ABO*	*N*	*20th %ile*	*80th %ile*	*OPO*	*ABO*	*N*	*20th %ile*	*80th %ile*
AZOB	B	248	10.9	23.6	MAOB	O	2253	11.9	26.4	OHOV	A	242	11.8	24.2
AZOB	O	1275	11.2	25.1	MDPC	A	943	11.5	25.0	OHOV	AB	19	14.1	24.0
CADN	A	4152	11.5	24.9	MDPC	AB	99	10.5	24.8	OHOV	B	89	11.6	26.6
CADN	AB	508	11.2	23.9	MDPC	B	492	11.4	24.2	OHOV	O	287	11.5	26.4
CADN	B	2227	11.3	24.9	MDPC	O	1569	11.3	25.1	OKOP	A	289	11.1	25.9
CADN	O	6737	11.5	25.4	MIOP	A	1682	11.8	24.6	OKOP	AB	19	11.4	23.2
CAGS	A	504	11.4	26.1	MIOP	AB	214	12.0	26.0	OKOP	B	125	10.9	28.4
CAGS	AB	48	9.6	22.3	MIOP	B	810	12.0	26.2	OKOP	O	408	11.6	25.5
CAGS	B	276	10.9	24.6	MIOP	O	2524	12.0	26.5	ORUO	A	307	11.5	22.8
CAGS	O	911	11.5	25.8	MNOP	A	1225	11.5	25.2	ORUO	AB	24	12.0	28.1
CAOP	A	3394	11.7	26.9	MNOP	AB	121	11.0	23.4	ORUO	B	115	11.3	24.9
CAOP	AB	404	11.7	25.2	MNOP	B	410	12.4	25.6	ORUO	O	437	11.4	25.0
CAOP	B	1595	11.5	26.5	MNOP	O	1582	11.8	25.3	PADV	A	2628	11.4	24.2
CAOP	O	5858	11.5	27.3	MOMA	A	639	12.6	26.9	PADV	AB	272	11.2	24.9
CASD	A	603	11.6	27.3	MOMA	AB	57	13.0	24.6	PADV	B	1298	11.5	24.1
CASD	AB	57	10.8	22.7	MOMA	B	267	13.2	26.6	PADV	O	3812	11.5	25.0
CASD	B	293	11.3	25.0	MOMA	O	901	13.3	26.6	PATF	A	802	10.8	23.9
CASD	O	1037	11.7	27.0	MSOP	A	108	14.3	27.5	PATF	AB	74	10.8	24.6
CORS	A	656	11.8	25.4	MSOP	AB	18	11.5	25.8	PATF	B	318	10.8	24.3
CORS	AB	66	11.9	23.5	MSOP	B	86	13.0	28.7	PATF	O	1051	11.1	24.2
CORS	B	238	11.8	27.7	MSOP	O	239	13.2	29.4	PRLL	A	284	11.3	25.7
CORS	O	1007	11.9	27.1	MWOB	A	496	11.8	26.7	PRLL	AB	15	12.2	26.1
CTOP	A	179	12.1	25.8	MWOB	AB	53	11.7	23.7	PRLL	B	83	10.9	24.9
CTOP	AB	17	11.1	23.7	MWOB	B	184	11.3	26.6	PRLL	O	462	11.7	26.8
CTOP	B	96	13.0	28.1	MWOB	O	707	11.4	26.8	SCOP	A	361	12.1	26.8
CTOP	O	292	13.1	26.7	NCCM	A	218	12.9	28.3	SCOP	AB	40	12.4	26.1
DCTC	A	895	12.6	27.1	NCCM	AB	26	13.4	30.5	SCOP	B	253	12.0	28.3
DCTC	AB	105	12.3	27.6	NCCM	B	131	14.2	27.9	SCOP	O	653	12.0	27.3
DCTC	B	544	12.5	27.1	NCCM	O	367	13.8	27.3	TNDS	A	808	12.0	26.4
DCTC	O	1634	12.4	27.2	NCNC	A	1047	12.1	27.2	TNDS	AB	83	11.6	24.5
FLFH	A	272	11.3	25.5	NCNC	AB	119	11.5	26.4	TNDS	B	351	11.5	25.2
FLFH	AB	33	12.4	27.1	NCNC	B	526	12.0	27.7	TNDS	O	1284	12.0	25.5
FLFH	B	167	12.1	26.0	NCNC	O	1778	12.1	26.6	TNMS	A	206	12.5	28.3
FLFH	O	539	12.2	26.1	NEOR	A	212	11.3	23.9	TNMS	AB	25	13.7	25.4
FLMP	A	514	10.8	25.6	NEOR	AB	12	15.2	26.1	TNMS	B	132	13.1	26.9
FLMP	AB	66	11.9	23.7	NEOR	B	70	10.7	24.1	TNMS	O	356	12.5	26.8
FLMP	B	288	10.8	25.0	NEOR	O	274	11.5	25.2	TXGC	A	1169	12.1	26.4
FLMP	O	820	11.1	26.6	NJTO	A	1509	10.9	25.0	TXGC	AB	110	11.2	24.0
FLUF	A	683	11.0	23.7	NJTO	AB	228	11.1	23.2	TXGC	B	538	13.0	27.5
FLUF	AB	79	11.8	26.1	NJTO	B	912	11.5	25.3	TXGC	O	2108	12.5	26.9
FLUF	B	357	11.4	25.6	NJTO	O	2483	11.4	25.6	TXSA	A	1284	10.9	23.3
FLUF	O	1131	11.3	26.0	NMOP	A	182	11.4	24.6	TXSA	AB	89	11.1	25.7
FLWC	A	464	10.9	25.2	NMOP	AB	8	11.2	25.0	TXSA	B	486	11.0	23.9
FLWC	AB	49	11.2	23.2	NMOP	B	35	12.8	25.1	TXSA	O	2567	10.9	23.4
FLWC	B	198	11.3	25.3	NMOP	O	356	11.3	25.5	TXSB	A	1042	12.4	26.2
FLWC	O	729	11.3	24.3	NVLV	A	155	12.3	28.7	TXSB	AB	94	11.9	25.5
GALL	A	974	11.8	27.2	NVLV	AB	29	11.7	25.2	TXSB	B	548	12.6	27.5
GALL	AB	102	11.7	28.3	NVLV	B	93	12.5	26.1	TXSB	O	1954	12.7	27.7
GALL	B	545	11.9	27.2	NVLV	O	283	12.0	26.6	UTOP	A	135	11.5	27.1
GALL	O	1637	11.9	26.2	NYAP	A	250	12.7	25.2	UTOP	AB	11	10.0	23.2

OPO	*ABO*	*N*	*20th %ile*	*80th %ile*	*OPO*	*ABO*	*N*	*20th %ile*	*80th %ile*	*OPO*	*ABO*	*N*	*20th %ile*	*80th %ile*
HIOP	A	207	11.4	26.2	NYAP	AB	32	14.3	30.6	UTOP	B	53	11.4	28.4
HIOP	AB	32	10.5	27.2	NYAP	B	80	12.6	23.7	UTOP	O	239	12.2	29.2
HIOP	B	159	10.8	27.2	NYAP	O	291	13.3	26.2	VATB	A	1037	11.9	25.2
HIOP	O	268	11.1	25.2	NYFL	A	272	12.4	26.9	VATB	AB	113	12.0	25.2
IAOP	A	265	11.5	22.4	NYFL	AB	25	11.1	24.8	VATB	B	551	11.8	25.5
IAOP	AB	20	13.3	24.0	NYFL	B	114	11.7	25.5	VATB	O	1679	12.1	25.7
IAOP	B	115	11.4	24.6	NYFL	O	385	12.1	26.6	WALC	A	760	12.0	26.1
IAOP	O	386	11.7	23.9	NYRT	A	2737	11.2	25.2	WALC	AB	79	11.1	24.1
ILIP	A	2059	12.0	26.0	NYRT	AB	389	11.4	24.2	WALC	B	295	12.7	27.4
ILIP	AB	254	11.3	25.6	NYRT	B	1724	11.2	25.0	WALC	O	1069	12.1	26.9
ILIP	B	1070	12.2	26.3	NYRT	O	4720	11.5	25.9	WISE	A	429	12.3	25.2
ILIP	O	3297	12.1	26.9	NYWN	A	281	12.4	26.1	WISE	AB	59	12.8	27.7
INOP	A	549	11.4	24.3	NYWN	AB	30	11.9	30.2	WISE	B	232	11.8	25.3
INOP	AB	61	12.5	26.4	NYWN	B	122	10.9	24.8	WISE	O	650	12.1	26.2
INOP	B	200	12.3	26.1	NYWN	O	419	11.5	25.3	WIUW	A	519	12.1	25.5
INOP	O	755	11.7	25.9	OHLB	A	742	12.2	25.7	WIUW	AB	54	11.6	28.8
KYDA	A	298	11.4	26.3	OHLB	AB	89	11.8	27.4	WIUW	B	260	12.4	26.5
										WIUW	O	816	12.2	26.4

Example OPOs

The OPOs used for example tables included OPOs with waiting times near the 25th, 50th and 75th percentile among OPOs (Table 7 of the OPO-Specific Reports, available at http://www.ustransplant.org/csr/current/csrDefault.aspx). These were: Mississippi Organ Recovery Agency (MSOP, 23.5 months median waiting time), Wisconsin Donor Network (WISE, 30.6 months median waiting time), and Gift of Hope Organ & Tissue Donor Network (ILIP, 48.1 months median waiting time). These three were also chosen because they do not appear to have variances or alternative allocation units.

Survival Benefits Due to Transplant by Run

Years	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37: Top 20% to top 20%	Run 39b: Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Number of candidates (on waitlist at start or joining during run)	80,549	80,549	80,549	80,549	80,549	80,549
Number of transplant recipients	10802	10974	10840	10788	10898	10930
Total lifespan after transplant	126155	125463	133542	139508	127542	140686
Total graft years of life	92808	92199	94036	95910	92708	97045
Total extra years	54512	54197	56521	58965	55058	59309
Change in lifespan after transplant	691	(ref)	8,079	14,044	2,079	15,223
Change in graft years of life	610	(ref)	1,837	3,711	509	4,847
Change in extra years	314	(ref)	2,323	4,767	861	5,112
Lifespan benefit per transplant	5.0	4.9	5.2	5.5	5.1	5.4

SD Between Runs	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Number of transplant recipients	28	37	44	34	15	61
Total lifespan after transplant	252	753	148	106	334	508
Total graft years of life	227	483	291	177	94	403
Total transplant benefit	147	482	21	91	117	328

Each run was performed 3 times, and results are presented as the mean (first table above) and standard deviation (second table) between runs. With only three iterations per simulation, the estimate of the standard deviation is poor; accounting for this, the confidence interval for the number of transplants for run 41a (10930), for example, is +/- 65, ranging from 10865 to 10995. Significance testing between runs should account for this and for multiple comparisons. For example, run 35 has significantly fewer transplants than runs 36 and 40, run 36 has significantly more transplants than runs 37 and 39b, and run 39b has significantly fewer transplants than 40 and 41a; however, after a Bonferroni correction for multiple comparisons, none of these differences are statistically significant. See also notes on page 29 for a discussion of simulated v. actual shifts in total numbers of kidneys transplanted, and why the simulated shifts may not appear after an actual policy change.

Only the first transplant involving a kidney during the year of the run was used in the years of life calculations. Waitlist survival during the run was calculated using events generated by KPSAM (e.g. death, transplant, etc.), and this survival time was ended at death, transplant, or the end of the run. Years of life after transplant (both patient survival and graft survival) was calculated under different allocation systems using linear regression models that give close approximations to the actual survival models used to calculate elements of LYFT. The linear regression model approximation was used to speed processing time. Relistings were not included as waitlist years of life, as this time would overlap the calculated post-transplant survival time.

Waitlist survival after the run was also calculated using a linear regression that approximated the survival calculations used for the waitlist survival element of LYFT. This projection assumes no further transplants or retransplants for this population occur after the end of the KPSAM run. This projection was calculated for every candidate who was still alive at the end of the run and had not yet received a transplant involving a kidney, whether they were on the waitlist or had been removed. The projection will be refined in future iterations to better model survival for removed and inactive candidates. This shows the projected effects of differences in transplant allocation during the first year of allocation.

All results in this report are based on recipients during the course of the run, not transplants. If a candidate received a transplant, it failed, and they received another transplant all during the course of the run, that candidate was counted as a single recipient. If a candidate who had received a transplant prior to the start of the run had a transplant during the run, then that latter transplant was included in these counts.

Transplants – Demographic Distribution

Separate tables are presented for each type of transplant: ECD kidney-alone, SCD kidney-alone, and kidney-pancreas transplants. Results are averages of 3 iterations each of the 1-year KPSAM runs. Percentages add to 100% for each factor separated by a blank line except HLA MM, where percentages add to 100% for each of HLA A, B, and DR.

Transplant Percentages Total Kidney Alone

Total KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	49.6 (0.1)	50.3 (0.4)	50.4 (0.6)	50.6 (0.3)	50 (0.4)	50.6 (0.3)
1 A MM	37.4 (0.1)	37.2 (0.4)	37.7 (0.6)	38.2 (0.8)	37.4 (0.3)	38.2 (0.4)
0 A MM	13 (0.1)	12.4 (0.2)	11.9 (0.4)	11.2 (0.2)	12.6 (0.2)	11.2 (0.3)
2 B MM	65.5 (0.5)	66 (0.9)	66.9 (0.2)	67 (0.6)	66.5 (0.6)	67.1 (0.3)
1 B MM	25.5 (0.5)	25.4 (0.8)	25.1 (0.2)	25.8 (0.6)	24.9 (0.8)	25.7 (0.4)
0 B MM	9 (0.2)	8.6 (0.3)	8 (0.1)	7.3 (0)	8.6 (0.2)	7.2 (0.1)
2 DR MM	36.8 (0.7)	38.1 (0.4)	39.5 (0.1)	39.6 (0.3)	38.4 (0.6)	39.6 (0.4)
1 DR MM	45.9 (0.1)	46 (0.2)	45.2 (0.4)	46.1 (0.5)	45.7 (0.9)	46.2 (0.4)
0 DR MM	17.3 (0.4)	15.9 (0.4)	15.2 (0.1)	14.3 (0.3)	15.9 (0.5)	14.3 (0.1)
0 ABDR MM	6.7 (0.1)	6.5 (0.2)	5.7 (0.1)	5 (0.1)	6.4 (0.2)	4.8 (0.2)
Rec. African American	33.9 (0.2)	36.7 (0.7)	36.3 (0.4)	36.4 (0.4)	36.3 (0.2)	36.8 (0.3)
Rec. Hispanic	14.7 (0.1)	15.3 (0.3)	15.1 (0.3)	15.8 (0.3)	15.2 (0.3)	15.3 (0.5)
Rec. Caucasian	44.5 (0.1)	41.1 (0.3)	41 (0.5)	40.5 (0.4)	41.3 (0.6)	40.6 (0.5)
Rec. Other/Missing	6.9 (0.1)	6.9 (0.1)	7.6 (0.1)	7.2 (0.1)	7.3 (0.3)	7.3 (0.1)
Rec. ABO = A	36 (0.3)	33.1 (0.2)	33.1 (0.3)	33.1 (0.1)	33.4 (0.3)	32.9 (0.3)
Rec. ABO = AB	4.7 (0.2)	5 (0.2)	4.9 (0.1)	5.1 (0.1)	4.8 (0.1)	5 (0.2)
Rec. ABO = B	12.5 (0)	15.3 (0.2)	15 (0)	15.1 (0.3)	15.1 (0.1)	15.1 (0.2)
Rec. ABO = O	46.8 (0.3)	46.7 (0.2)	47 (0.2)	46.7 (0.3)	46.7 (0.2)	47 (0.4)
Rec. < 18	5 (0.1)	5 (0.1)	5.3 (0.1)	5.4 (0.2)	5.1 (0.1)	5.1 (0.1)
Rec. 18-34	11.6 (0.3)	11.2 (0.1)	16.2 (0.3)	20.1 (0.1)	12.2 (0.1)	18.4 (0.3)
Rec. 35-49	26.7 (0.1)	27 (0.5)	28.1 (0.6)	29.7 (0.4)	27.6 (0.1)	31 (0.1)
Rec. 50-64	40.9 (0.2)	40.8 (0.4)	36.3 (0.5)	34.8 (0.6)	40.5 (0.2)	34.5 (0.2)
Rec. 65+	15.8 (0.3)	16.1 (0.4)	14.1 (0.2)	10 (0.2)	14.6 (0.2)	11 (0.3)

Total KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular	21.7 (0.3)	21 (0.3)	23.2 (0.3)	24 (0.2)	21.1 (0.3)	24 (0.5)
Rec. Dgn.: HTN	20.1 (0.5)	22 (0.5)	22.3 (0.3)	21.4 (0.3)	22.7 (0.4)	22.4 (0.4)
Rec. Dgn.: Polycystic	7.3 (0.2)	6.2 (0.1)	6.2 (0.2)	6.3 (0.2)	6.7 (0.2)	6.4 (0.1)
Rec. Dgn.: Renovascular	0.2 (0)	0.2 (0.1)	0.2 (0)	0.2 (0)	0.2 (0)	0.2 (0)
Rec. Dgn.: Oth/Missing	19.7 (0.1)	19.2 (0.1)	20.5 (0.2)	21.1 (0.3)	20.2 (0.2)	20.7 (0.4)
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50	6.5 (0.1)	6.3 (0.1)	5.5 (0.2)	7.7 (0.4)	6.5 (0.2)	6.7 (0.2)
Rec. Dgn.: DM (KI) 50+	24.5 (0)	25 (0.2)	22.2 (0.1)	19.3 (0.6)	22.6 (0.3)	19.7 (0.2)
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)						
Rec. Peak PRA Missing	1.2 (0.1)	1.3 (0)	1.4 (0.1)	1.3 (0.1)	1.3 (0.1)	1.2 (0.1)
Rec. Peak PRA <10	57 (0.4)	57.4 (0.4)	59 (0.2)	60.5 (0.5)	57.8 (0.2)	61.2 (0.5)
Rec. Peak PRA 10-80	23.2 (0.6)	24.7 (0.3)	24.7 (0.1)	24.1 (0.2)	25 (0.2)	24.3 (0.2)
Rec. Peak PRA 80+	18.7 (0.3)	16.6 (0.4)	14.9 (0.1)	14.1 (0.2)	15.9 (0.1)	13.2 (0.4)
Shared - payback	3.4 (0.1)					
Shared - nonpayback	15.8 (0.2)	15.8 (0.3)	15.3 (0.4)	14.3 (0.2)	15.4 (0.2)	14.8 (0.1)
Total # of transplants	9957	10231	10119	10051	10161	10203
Don/Rec. age correlation	0.277	0.279	0.397	0.519	0.321	0.499

Transplant Percentages ECD Kidney

ECD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	51.8 (1.1)	52.9 (1)	51.6 (1.7)	51.4 (2.1)	51.2 (3.1)	52 (1.9)
1 A MM	37.9 (1.5)	38.3 (0.2)	38.9 (2.5)	39.5 (1)	38.5 (1.3)	38.3 (0.6)
0 A MM	10.4 (0.2)	8.8 (0.5)	9.5 (1.2)	9.1 (0.6)	10.3 (0.2)	9.7 (0.5)
2 B MM	67.4 (1.4)	67.3 (0.2)	68.4 (1.8)	67.9 (2.5)	67.1 (2.8)	67.6 (1.5)
1 B MM	26.4 (0.3)	27.5 (1)	26.1 (0.6)	26.6 (0.9)	27.1 (0.8)	26.7 (0.8)
0 B MM	6.2 (0.2)	5.2 (0.3)	5.5 (0.7)	5.5 (0.4)	5.8 (0.1)	5.7 (0.5)
2 DR MM	44.2 (1.6)	42.5 (0.3)	44.4 (0.5)	41.5 (1.4)	43.8 (1.9)	40.9 (1.1)
1 DR MM	43.6 (1.7)	45.7 (0.8)	43.8 (1.5)	46.1 (2.4)	43.8 (1.2)	46.7 (1.1)
0 DR MM	12.2 (0.2)	11.8 (0.2)	11.8 (0.8)	12.4 (1)	12.3 (0.4)	12.4 (0.8)
0 ABDR MM	3.6 (0.3)	2.7 (0.1)	3 (0.6)	2.5 (0.3)	3.2 (0.2)	2.9 (0.3)
Rec. African American	33.5 (0.2)	34.4 (1.3)	35.3 (1.1)	35.2 (1.7)	35.3 (1.3)	34.4 (1)
Rec. Hispanic	14.5 (0.7)	14.4 (0.5)	13.5 (0.7)	14.8 (0.2)	14.9 (0.9)	13.4 (1)
Rec. Caucasian	44.9 (1.1)	43.8 (0.7)	42.9 (2.1)	42.5 (0.7)	42.1 (1.4)	44.6 (1.6)
Rec. Other/Missing	7.1 (0.7)	7.3 (0.1)	8.3 (0.9)	7.5 (0.2)	7.7 (0.4)	7.6 (0.7)
Rec. ABO = A	31.7 (0.8)	30 (0.9)	29.4 (0.8)	28.9 (1.5)	29.7 (1.1)	29.5 (0.7)
Rec. ABO = AB	3.5 (0.1)	3.8 (0.3)	3.4 (0.5)	3.9 (0.2)	3.7 (0.3)	3.8 (0.8)
Rec. ABO = B	10 (0.4)	12.1 (0.7)	12 (0.1)	12.1 (0.9)	11.7 (1.1)	12.2 (0.7)
Rec. ABO = O	54.8 (1.2)	54.2 (1.2)	55.2 (1.3)	55.1 (2.2)	55 (2.1)	54.5 (1.6)
Rec. < 18	0.1 (0)					
Rec. 18-34	2 (0.4)	2.5 (0.3)	1.8 (0.2)	0.9 (0.3)	2.5 (0.3)	1.1 (0.2)
Rec. 35-49	14.6 (0.6)	14.7 (0.6)	14.6 (1.4)	10.9 (0.6)	14.1 (1.4)	10.8 (0.2)
Rec. 50-64	51.4 (2.1)	50.3 (1.7)	52.1 (2.3)	55.4 (1.5)	50.4 (2.9)	53.7 (1.9)
Rec. 65+	32.1 (0.8)	32.5 (1.6)	31.4 (0.5)	32.7 (1.5)	33 (1)	34.4 (0.9)

ECD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular	12.4 (1)	12.5 (1.1)	12.2 (1)	12 (0.8)	12.4 (1)	11.3 (1.2)
Rec. Dgn.: HTN	20.7 (1.1)	21.6 (0.7)	21.6 (0.2)	21.7 (0.8)	22.6 (1.2)	22.6 (0.5)
Rec. Dgn.: Polycystic	7.5 (0.4)	6.9 (0.7)	6.9 (1)	8 (0.7)	6.5 (0.7)	6.9 (0.3)
Rec. Dgn.: Renovascular	0.2 (0)	0.3 (0.2)	0.2 (0.1)	0.2 (0.1)	0.3 (0.1)	0.3 (0)
Rec. Dgn.: Oth/Missing	14.1 (0.6)	13.5 (0.7)	13.4 (1.4)	13 (0.8)	14.1 (2.1)	13.4 (1.6)
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50	4.2 (0.1)	4.1 (0.3)	4 (0.2)	2.7 (0.2)	4.1 (0.5)	3.4 (0.3)
Rec. Dgn.: DM (KI) 50+	41 (0.8)	41 (1.2)	41.7 (1)	42.4 (2.3)	40.1 (2.8)	42.1 (0.7)
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)						
Rec. Peak PRA Missing	1.6 (0.2)	1.3 (0.3)	1.4 (0.1)	1.7 (0.2)	1.5 (0.5)	1.3 (0.2)
Rec. Peak PRA <10	66.6 (0.9)	66.6 (1.1)	64.7 (1)	66.3 (2.5)	64.6 (2)	65.4 (2.2)
Rec. Peak PRA 10-80	24.2 (1.7)	23.8 (1.3)	25.6 (1.5)	23.5 (0.7)	25.5 (1.1)	24.4 (1.3)
Rec. Peak PRA 80+	7.7 (0.4)	8.3 (0.5)	8.3 (0.3)	8.5 (0.4)	8.4 (0.7)	8.8 (0.8)
Shared - payback	2.9 (0.2)					
Shared - nonpayback	19.1 (1.2)	19.1 (0.8)	18.7 (0.8)	17.5 (1.7)	19.1 (0.3)	18.3 (0.6)
Total # of transplants	1652	1737	1675	1529	1661	1733
Don/Rec. age correlation	0.027	0.040	0.005	0.232	0.034	0.218

Transplant Percentages SCD Kidney

SCD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	49.1 (0.4)	49.8 (0.6)	50.1 (0.4)	50.4 (0.7)	49.8 (0.1)	50.3 (0.5)
1 A MM	37.4 (0.3)	37 (0.5)	37.5 (0.3)	38 (1)	37.1 (0.4)	38.2 (0.4)
0 A MM	13.5 (0.2)	13.2 (0.2)	12.4 (0.2)	11.6 (0.2)	13.1 (0.2)	11.5 (0.3)
2 B MM	65.1 (0.4)	65.8 (1.1)	66.6 (0.3)	66.8 (0.9)	66.3 (1.1)	67.1 (0.4)
1 B MM	25.3 (0.6)	25 (0.8)	24.9 (0.2)	25.6 (0.7)	24.5 (0.8)	25.5 (0.3)
0 B MM	9.6 (0.2)	9.3 (0.4)	8.5 (0)	7.6 (0.1)	9.1 (0.2)	7.5 (0.1)
2 DR MM	35.3 (1)	37.2 (0.6)	38.6 (0.2)	39.2 (0.1)	37.4 (0.7)	39.3 (0.3)
1 DR MM	46.4 (0.5)	46 (0.2)	45.5 (0.5)	46.1 (0.2)	46 (1.3)	46.1 (0.5)
0 DR MM	18.3 (0.5)	16.8 (0.6)	15.9 (0.2)	14.6 (0.5)	16.6 (0.6)	14.7 (0.3)
0 ABDR MM	7.3 (0.1)	7.3 (0.3)	6.3 (0)	5.4 (0.1)	7 (0.2)	5.2 (0.1)
Rec. African American	33.9 (0.2)	37.2 (0.8)	36.5 (0.4)	36.6 (0.3)	36.5 (0.5)	37.2 (0.2)
Rec. Hispanic	14.7 (0.1)	15.5 (0.4)	15.4 (0.3)	16 (0.3)	15.3 (0.5)	15.7 (0.4)
Rec. Caucasian	44.4 (0.3)	40.6 (0.4)	40.7 (0.7)	40.2 (0.5)	41.1 (0.7)	39.8 (0.4)
Rec. Other/Missing	6.9 (0)	6.8 (0.2)	7.4 (0.3)	7.2 (0.2)	7.2 (0.3)	7.2 (0.1)
Rec. ABO = A	36.9 (0.5)	33.7 (0.2)	33.8 (0.3)	33.8 (0.3)	34.1 (0.5)	33.6 (0.3)
Rec. ABO = AB	5 (0.2)	5.2 (0.1)	5.2 (0.1)	5.3 (0.1)	5 (0.1)	5.2 (0.1)
Rec. ABO = B	13 (0.1)	15.9 (0.1)	15.6 (0)	15.7 (0.2)	15.8 (0.2)	15.6 (0.1)
Rec. ABO = O	45.2 (0.2)	45.1 (0.3)	45.4 (0.4)	45.2 (0.1)	45.1 (0.2)	45.5 (0.4)
Rec. < 18	6 (0.1)	6 (0.1)	6.3 (0.1)	6.4 (0.3)	6.1 (0.1)	6.2 (0.1)
Rec. 18-34	13.5 (0.3)	13 (0.1)	19.1 (0.4)	23.6 (0.2)	14.1 (0.2)	21.9 (0.4)
Rec. 35-49	29.1 (0.2)	29.5 (0.6)	30.8 (0.4)	33 (0.6)	30.3 (0.3)	35.2 (0.1)
Rec. 50-64	38.8 (0.3)	38.9 (0.3)	33.2 (0.5)	31 (0.4)	38.6 (0.7)	30.5 (0.4)
Rec. 65+	12.5 (0.2)	12.7 (0.2)	10.6 (0.2)	5.9 (0.2)	11 (0.1)	6.2 (0.3)

SCD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular	23.6 (0.1)	22.7 (0.3)	25.3 (0.4)	26.2 (0.3)	22.8 (0.4)	26.6 (0.4)
Rec. Dgn.: HTN	20 (0.4)	22.1 (0.5)	22.4 (0.4)	21.3 (0.2)	22.7 (0.3)	22.3 (0.5)
Rec. Dgn.: Polycystic	7.3 (0.2)	6.1 (0.2)	6 (0.3)	6 (0.2)	6.7 (0.4)	6.3 (0.2)
Rec. Dgn.: Renovascular	0.2 (0)	0.2 (0)	0.2 (0)	0.2 (0)	0.2 (0)	0.2 (0)
Rec. Dgn.: Oth/Missing	20.8 (0.2)	20.4 (0.2)	21.9 (0.1)	22.6 (0.5)	21.3 (0.4)	22.2 (0.2)
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50	6.9 (0.2)	6.8 (0.1)	5.8 (0.2)	8.6 (0.4)	7 (0.3)	7.3 (0.2)
Rec. Dgn.: DM (KI) 50+	21.2 (0.2)	21.7 (0.4)	18.4 (0.1)	15.1 (0.3)	19.2 (0.3)	15.1 (0.1)
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)						
Rec. Peak PRA Missing	1.1 (0.1)	1.3 (0.1)	1.4 (0.1)	1.3 (0.2)	1.3 (0.1)	1.2 (0)
Rec. Peak PRA <10	55.1 (0.7)	55.5 (0.3)	57.9 (0.1)	59.4 (0.3)	56.5 (0.5)	60.4 (0.9)
Rec. Peak PRA 10-80	23 (0.4)	24.9 (0.3)	24.5 (0.2)	24.2 (0.2)	24.9 (0.1)	24.3 (0.5)
Rec. Peak PRA 80+	20.8 (0.3)	18.3 (0.4)	16.2 (0.1)	15.1 (0.2)	17.3 (0.2)	14.1 (0.3)
Shared - payback	3.5 (0.2)					
Shared - nonpayback	15.2 (0.4)	15.1 (0.3)	14.6 (0.3)	13.8 (0.1)	14.6 (0.2)	14.1 (0.1)
Total # of transplants	8305	8494	8444	8522	8500	8470
Don/Rec. age correlation	0.162	0.164	0.292	0.392	0.211	0.348

Transplant Percentages Simultaneous Kidney-Pancreas

SPK	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	47.8 (2.1)	46.4 (4.3)	47.7 (1.4)	47.6 (0.1)	46.7 (2.1)	44.9 (0.6)
1 A MM	43.2 (1.6)	42.7 (3.4)	40.5 (2.7)	41.8 (1.1)	43 (1.3)	43.9 (4)
0 A MM	9 (0.8)	11 (1.1)	11.8 (1)	10.5 (0.9)	10.4 (0.4)	11.1 (0.1)
2 B MM	69.9 (0.7)	69 (1.8)	68.5 (3.9)	71.1 (1.2)	68.8 (0.9)	68.1 (1.6)
1 B MM	26.7 (0.8)	25.8 (1.1)	26.5 (0.8)	23.9 (1.2)	26.5 (0.5)	26.9 (2.6)
0 B MM	3.5 (0.6)	5.2 (0.9)	5 (0.3)	5 (0.5)	4.7 (0.6)	5 (0.6)
2 DR MM	49 (1)	51.8 (2.3)	49.1 (2.8)	49.2 (0.6)	49.5 (1.8)	49.1 (3.2)
1 DR MM	43.5 (0.9)	39.2 (1.9)	42.2 (2.2)	42.4 (0.9)	41.6 (2.9)	41.4 (1.2)
0 DR MM	7.6 (0.1)	9.1 (1.2)	8.7 (0.7)	8.4 (1)	9 (1.2)	9.4 (0.6)
0 ABDR MM	1.5 (0.2)	3.4 (0.3)	3.1 (0.1)	3 (0.3)	3.3 (0.9)	3.6 (0.2)
Rec. African American	18.1 (0.5)	16 (0.6)	17.1 (1.1)	17.1 (0.6)	16.4 (0.7)	17.3 (2.1)
Rec. Hispanic	12.4 (0.3)	12.9 (0.8)	12.4 (1.2)	12.1 (0.8)	13.3 (0.9)	12.6 (0.9)
Rec. Caucasian	67.1 (0.4)	68.5 (2)	67.9 (2.3)	67.6 (1)	67.7 (1.4)	67.3 (2.8)
Rec. Other/Missing	2.4 (0.5)	2.7 (0.5)	2.5 (0.2)	3.2 (0.2)	2.7 (0.4)	2.8 (0.6)
Rec. ABO = A	33.3 (0.9)	34.3 (1.4)	33.6 (1.4)	33.2 (2)	33.3 (1)	32.7 (0.8)
Rec. ABO = AB	3.8 (0.1)	2.7 (0.5)	2.6 (0.2)	2.6 (0.1)	2.4 (0.1)	3 (0.2)
Rec. ABO = B	7.7 (0.4)	7.9 (0.1)	7.7 (0.6)	8.1 (0.5)	7.6 (0.5)	7.9 (1)
Rec. ABO = O	55.3 (0.7)	55.1 (0.6)	56 (2)	56 (1.3)	56.7 (0.7)	56.4 (3.2)
Rec. < 18						
Rec. 18-34	22.4 (0.2)	21.5 (0.5)	21.1 (1.2)	20.4 (0.6)	21.3 (0.3)	20.7 (3.2)
Rec. 35-49	57.2 (0.6)	57.8 (2.1)	59.1 (3.1)	57.7 (1.5)	58 (1.6)	58.4 (1.1)
Rec. 50-64	20.1 (0.8)	20.4 (1.8)	19.4 (1.7)	21.6 (2)	20.4 (1)	20.5 (1.2)
Rec. 65+	0.4 (0.2)	0.3 (0.2)	0.3 (0.1)	0.3 (0.1)	0.3 (0.1)	0.3 (0.1)

SPK	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular						
Rec. Dgn.: HTN						
Rec. Dgn.: Polycystic						
Rec. Dgn.: Renovascular						
Rec. Dgn.: Oth/Missing						
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50						
Rec. Dgn.: DM (KI) 50+						
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)	100 (0.2)	100 (1.5)	100 (3.2)	100 (0.8)	100 (1)	100 (4.5)
Rec. Peak PRA Missing	1 (0.2)	0.8 (0.7)	0.6 (0.1)	1.1 (0.1)	0.8 (0.4)	1.1 (0.2)
Rec. Peak PRA <10	73.2 (0.8)	72.9 (2.7)	72 (1.7)	70.7 (0.7)	73.5 (0.1)	73.6 (2.4)
Rec. Peak PRA 10-80	17.8 (0.7)	17.4 (1.2)	18.4 (1.8)	18.2 (1.4)	17.7 (0.8)	17.3 (1.5)
Rec. Peak PRA 80+	8 (0.4)	9 (1.1)	9 (0.5)	10 (0.8)	8.1 (0.7)	8 (0.8)
Shared - payback						
Shared - nonpayback	12.3 (1.9)	1.8 (0.3)	2.1 (0.5)	1.4 (0.2)	1.7 (0.5)	2.1 (0.1)
Total # of transplants	845	743	721	737	737	727
Don/Rec. age correlation	0.015	-0.003	0.031	0.015	0.004	0.012

Transplant Counts Total Kidney Alone

Total KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	4935 (14)	5147 (42)	5097 (66)	5081 (29)	5082 (41)	5162 (29)
1 A MM	3729 (9)	3810 (38)	3816 (61)	3839 (84)	3796 (31)	3900 (44)
0 A MM	1294 (14)	1273 (24)	1206 (36)	1130 (25)	1283 (18)	1141 (35)
2 B MM	6519 (47)	6756 (91)	6773 (25)	6729 (65)	6754 (64)	6850 (29)
1 B MM	2539 (46)	2598 (85)	2541 (21)	2591 (65)	2535 (80)	2619 (42)
0 B MM	900 (17)	876 (30)	805 (13)	730 (3)	872 (17)	734 (15)
2 DR MM	3663 (68)	3897 (42)	4001 (15)	3979 (27)	3904 (66)	4036 (43)
1 DR MM	4570 (12)	4702 (23)	4577 (44)	4636 (46)	4639 (93)	4711 (40)
0 DR MM	1724 (39)	1631 (44)	1542 (11)	1436 (31)	1618 (53)	1456 (14)
0 ABDR MM	664 (14)	669 (26)	582 (10)	499 (7)	651 (16)	492 (17)
Rec. African American	3372 (16)	3754 (67)	3677 (45)	3660 (41)	3686 (18)	3750 (27)
Rec. Hispanic	1464 (14)	1563 (26)	1524 (35)	1592 (31)	1546 (32)	1565 (54)
Rec. Caucasian	4430 (12)	4206 (32)	4152 (46)	4074 (36)	4192 (63)	4144 (53)
Rec. Other/Missing	691 (14)	706 (11)	766 (10)	724 (13)	737 (30)	745 (10)
Rec. ABO = A	3586 (29)	3384 (19)	3344 (27)	3323 (14)	3389 (35)	3358 (34)
Rec. ABO = AB	473 (19)	509 (16)	498 (8)	512 (6)	484 (14)	510 (19)
Rec. ABO = B	1242 (4)	1563 (17)	1521 (3)	1522 (31)	1538 (10)	1536 (21)
Rec. ABO = O	4657 (28)	4774 (20)	4756 (19)	4693 (28)	4750 (23)	4800 (36)
Rec. < 18	500 (7)	508 (9)	534 (10)	546 (23)	518 (10)	524 (11)
Rec. 18-34	1158 (30)	1147 (13)	1644 (33)	2024 (12)	1239 (8)	1873 (28)
Rec. 35-49	2658 (12)	2758 (50)	2843 (58)	2982 (43)	2807 (10)	3168 (9)
Rec. 50-64	4071 (17)	4174 (38)	3675 (54)	3493 (61)	4117 (25)	3516 (16)
Rec. 65+	1571 (29)	1643 (39)	1423 (22)	1006 (19)	1481 (16)	1122 (27)

Total KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular	2164 (27)	2149 (28)	2345 (28)	2416 (20)	2145 (27)	2447 (52)
Rec. Dgn.: HTN	1998 (47)	2251 (50)	2255 (30)	2148 (27)	2305 (38)	2281 (45)
Rec. Dgn.: Polycystic	728 (23)	638 (7)	624 (20)	635 (24)	679 (23)	653 (15)
Rec. Dgn.: Renovascular	20 (2)	24 (6)	19 (2)	19 (3)	23 (2)	21 (1)
Rec. Dgn.: Oth/Missing	1961 (8)	1964 (6)	2070 (16)	2122 (30)	2049 (15)	2114 (36)
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50	647 (15)	648 (10)	558 (17)	776 (40)	665 (21)	681 (24)
Rec. Dgn.: DM (KI) 50+	2439 (2)	2557 (16)	2248 (12)	1935 (62)	2294 (30)	2006 (17)
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)						
Rec. Peak PRA Missing	117 (7)	129 (3)	137 (9)	134 (14)	131 (7)	125 (6)
Rec. Peak PRA <10	5674 (40)	5875 (41)	5973 (18)	6079 (46)	5877 (24)	6247 (56)
Rec. Peak PRA 10-80	2309 (57)	2529 (35)	2502 (14)	2420 (24)	2543 (16)	2482 (24)
Rec. Peak PRA 80+	1858 (27)	1697 (39)	1507 (12)	1418 (19)	1611 (15)	1348 (36)
Shared - payback	342 (9)					
Shared - nonpayback	1577 (22)	1613 (35)	1550 (41)	1442 (25)	1562 (16)	1513 (11)
Total # of transplants	9958	10230	10119	10050	10161	10203

Transplant Counts ECD Kidney

ECD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	855 (19)	918 (18)	865 (29)	786 (32)	850 (51)	901 (33)
1 A MM	626 (25)	665 (4)	652 (41)	603 (15)	640 (22)	664 (10)
0 A MM	171 (4)	153 (9)	159 (21)	139 (9)	171 (3)	168 (9)
2 B MM	1114 (24)	1168 (3)	1146 (30)	1038 (39)	1115 (47)	1171 (27)
1 B MM	436 (5)	478 (18)	438 (10)	406 (14)	450 (13)	463 (14)
0 B MM	102 (4)	90 (5)	91 (12)	84 (6)	96 (2)	99 (9)
2 DR MM	730 (27)	738 (6)	744 (9)	634 (21)	728 (32)	709 (19)
1 DR MM	720 (28)	793 (15)	734 (25)	705 (37)	728 (21)	809 (18)
0 DR MM	202 (3)	206 (4)	197 (13)	189 (15)	205 (6)	215 (14)
0 ABDR MM	59 (6)	47 (2)	50 (9)	38 (4)	54 (3)	50 (5)
Rec. African American	554 (3)	598 (23)	592 (18)	539 (26)	586 (22)	597 (17)
Rec. Hispanic	240 (11)	251 (8)	227 (11)	226 (3)	248 (15)	232 (18)
Rec. Caucasian	741 (18)	762 (13)	718 (35)	650 (11)	699 (23)	773 (28)
Rec. Other/Missing	117 (11)	127 (3)	139 (15)	115 (3)	129 (7)	132 (12)
Rec. ABO = A	524 (13)	521 (15)	492 (14)	442 (23)	493 (18)	512 (13)
Rec. ABO = AB	58 (2)	66 (5)	58 (8)	60 (3)	61 (6)	66 (13)
Rec. ABO = B	165 (6)	209 (13)	201 (2)	185 (14)	194 (18)	211 (13)
Rec. ABO = O	905 (19)	941 (20)	924 (22)	842 (34)	913 (34)	944 (27)
Rec. < 18	1 (0)					
Rec. 18-34	33 (7)	43 (6)	30 (3)	13 (4)	41 (6)	19 (4)
Rec. 35-49	241 (10)	255 (10)	245 (24)	167 (9)	235 (23)	187 (3)
Rec. 50-64	848 (34)	873 (30)	873 (38)	848 (24)	837 (49)	930 (32)
Rec. 65+	530 (14)	565 (29)	527 (8)	501 (23)	548 (16)	596 (15)

ECD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular	205 (17)	217 (19)	205 (17)	184 (12)	205 (16)	195 (22)
Rec. Dgn.: HTN	341 (19)	376 (13)	362 (3)	331 (12)	375 (20)	392 (9)
Rec. Dgn.: Polycystic	124 (6)	119 (13)	116 (17)	123 (11)	108 (12)	120 (4)
Rec. Dgn.: Renovascular	3 (1)	5 (3)	3 (2)	3 (2)	5 (2)	5 (1)
Rec. Dgn.: Oth/Missing	233 (10)	235 (12)	224 (23)	199 (12)	235 (34)	232 (28)
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50	70 (2)	72 (5)	67 (3)	41 (3)	67 (8)	59 (5)
Rec. Dgn.: DM (KI) 50+	677 (13)	712 (21)	698 (17)	648 (34)	666 (47)	730 (12)
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)						
Rec. Peak PRA Missing	26 (3)	22 (5)	23 (2)	26 (3)	24 (8)	23 (3)
Rec. Peak PRA <10	1100 (15)	1157 (20)	1084 (16)	1014 (38)	1073 (34)	1134 (38)
Rec. Peak PRA 10-80	399 (28)	413 (23)	429 (26)	360 (10)	424 (18)	424 (23)
Rec. Peak PRA 80+	127 (7)	145 (8)	139 (5)	130 (6)	139 (11)	152 (13)
Shared - payback	48 (4)					
Shared - nonpayback	316 (19)	332 (13)	313 (13)	268 (26)	318 (6)	317 (10)
Total # of transplants	1652	1737	1675	1529	1661	1733

Transplant Counts SCD Kidney

SCD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	4080 (32)	4229 (49)	4233 (37)	4295 (61)	4232 (10)	4260 (46)
1 A MM	3102 (28)	3145 (40)	3164 (21)	3235 (84)	3156 (31)	3236 (34)
0 A MM	1123 (17)	1120 (19)	1047 (17)	991 (20)	1112 (17)	974 (26)
2 B MM	5405 (37)	5587 (91)	5627 (24)	5691 (73)	5639 (91)	5679 (31)
1 B MM	2102 (50)	2120 (67)	2103 (13)	2185 (58)	2085 (71)	2156 (28)
0 B MM	798 (15)	786 (32)	714 (2)	645 (5)	777 (18)	635 (9)
2 DR MM	2933 (84)	3159 (47)	3256 (14)	3344 (8)	3176 (60)	3327 (29)
1 DR MM	3850 (37)	3909 (16)	3843 (43)	3930 (19)	3910 (110)	3902 (44)
0 DR MM	1522 (41)	1426 (48)	1344 (16)	1247 (39)	1414 (48)	1242 (27)
0 ABDR MM	605 (9)	622 (27)	532 (1)	462 (6)	597 (16)	442 (12)
Rec. African American	2818 (14)	3157 (69)	3086 (32)	3121 (23)	3101 (40)	3153 (20)
Rec. Hispanic	1224 (8)	1313 (31)	1298 (26)	1367 (29)	1298 (42)	1333 (37)
Rec. Caucasian	3689 (29)	3445 (34)	3434 (60)	3425 (46)	3493 (57)	3371 (32)
Rec. Other/Missing	574 (4)	580 (13)	627 (23)	609 (15)	609 (29)	613 (8)
Rec. ABO = A	3062 (40)	2863 (18)	2852 (21)	2881 (22)	2896 (42)	2846 (25)
Rec. ABO = AB	415 (18)	443 (11)	441 (12)	453 (9)	423 (11)	444 (11)
Rec. ABO = B	1077 (10)	1354 (4)	1319 (3)	1338 (18)	1345 (15)	1324 (10)
Rec. ABO = O	3752 (16)	3833 (21)	3832 (35)	3851 (10)	3837 (19)	3856 (30)
Rec. < 18	499 (7)	508 (9)	534 (10)	546 (23)	518 (10)	524 (10)
Rec. 18-34	1125 (28)	1103 (13)	1614 (34)	2011 (16)	1198 (13)	1854 (31)
Rec. 35-49	2417 (21)	2502 (55)	2598 (35)	2814 (52)	2572 (28)	2980 (11)
Rec. 50-64	3223 (29)	3301 (29)	2801 (42)	2646 (37)	3280 (59)	2586 (36)
Rec. 65+	1041 (16)	1078 (20)	896 (16)	505 (20)	933 (10)	526 (27)

SCD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular	1959 (10)	1931 (29)	2140 (36)	2232 (30)	1940 (33)	2252 (32)
Rec. Dgn.: HTN	1657 (31)	1875 (47)	1893 (33)	1816 (15)	1930 (30)	1889 (41)
Rec. Dgn.: Polycystic	604 (18)	519 (14)	508 (25)	512 (14)	571 (34)	533 (16)
Rec. Dgn.: Renovascular	18 (2)	19 (3)	16 (4)	16 (1)	19 (3)	16 (1)
Rec. Dgn.: Oth/Missing	1728 (16)	1729 (17)	1845 (8)	1924 (42)	1814 (38)	1882 (19)
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50	577 (13)	576 (5)	491 (18)	734 (38)	598 (25)	622 (19)
Rec. Dgn.: DM (KI) 50+	1763 (15)	1845 (33)	1550 (11)	1287 (29)	1629 (29)	1276 (10)
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)						
Rec. Peak PRA Missing	91 (10)	107 (8)	115 (11)	108 (14)	106 (10)	102 (3)
Rec. Peak PRA <10	4574 (55)	4718 (28)	4889 (5)	5065 (28)	4804 (41)	5113 (74)
Rec. Peak PRA 10-80	1910 (30)	2116 (27)	2073 (13)	2060 (15)	2118 (5)	2059 (46)
Rec. Peak PRA 80+	1731 (21)	1553 (33)	1367 (11)	1288 (14)	1472 (19)	1196 (25)
Shared - payback	294 (13)					
Shared - nonpayback	1261 (34)	1281 (23)	1237 (27)	1174 (5)	1244 (17)	1196 (4)
Total # of transplants	8305	8494	8444	8522	8500	8470

Transplant Counts Simultaneous Kidney-Pancreas

SPK	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	404 (18)	345 (32)	344 (10)	351 (1)	344 (16)	326 (5)
1 A MM	365 (13)	317 (25)	292 (20)	308 (8)	317 (10)	319 (29)
0 A MM	76 (6)	82 (8)	85 (7)	77 (7)	76 (3)	81 (1)
2 B MM	590 (6)	513 (14)	494 (28)	524 (9)	507 (7)	495 (12)
1 B MM	225 (6)	192 (9)	191 (6)	176 (9)	196 (4)	195 (19)
0 B MM	30 (5)	39 (6)	36 (2)	37 (4)	35 (4)	36 (4)
2 DR MM	414 (9)	385 (17)	354 (20)	362 (5)	365 (14)	357 (24)
1 DR MM	367 (7)	291 (14)	304 (16)	313 (7)	306 (22)	301 (8)
0 DR MM	64 (1)	67 (9)	63 (5)	62 (8)	66 (9)	68 (5)
0 ABDR MM	12 (2)	25 (3)	23 (1)	22 (2)	25 (7)	26 (2)
Rec. African American	153 (4)	119 (5)	123 (8)	126 (4)	121 (6)	126 (16)
Rec. Hispanic	105 (3)	96 (6)	90 (8)	89 (6)	98 (6)	91 (7)
Rec. Caucasian	567 (3)	509 (15)	490 (17)	498 (8)	499 (11)	489 (20)
Rec. Other/Missing	21 (4)	20 (4)	18 (2)	24 (2)	20 (3)	20 (4)
Rec. ABO = A	281 (7)	255 (11)	242 (10)	245 (15)	245 (8)	238 (6)
Rec. ABO = AB	32 (1)	20 (4)	19 (2)	19 (1)	18 (1)	22 (2)
Rec. ABO = B	65 (3)	59 (1)	56 (5)	59 (4)	56 (4)	57 (7)
Rec. ABO = O	467 (6)	410 (5)	404 (14)	413 (10)	418 (5)	410 (23)
Rec. < 18						
Rec. 18-34	189 (2)	160 (4)	152 (9)	150 (4)	157 (2)	150 (24)
Rec. 35-49	483 (5)	430 (16)	426 (23)	425 (11)	427 (12)	425 (8)
Rec. 50-64	170 (6)	151 (14)	140 (13)	159 (15)	150 (7)	149 (9)
Rec. 65+	3 (2)	2 (2)	2 (1)	2 (1)	2 (1)	2 (1)

SPK	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular						
Rec. Dgn.: HTN						
Rec. Dgn.: Polycystic						
Rec. Dgn.: Renovascular						
Rec. Dgn.: Oth/Missing						
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50						
Rec. Dgn.: DM (KI) 50+						
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)	845 (2)	743 (11)	721 (23)	737 (6)	737 (8)	727 (33)
Rec. Peak PRA Missing	9 (2)	6 (5)	4 (1)	8 (1)	6 (3)	8 (2)
Rec. Peak PRA <10	619 (7)	541 (20)	519 (12)	521 (5)	542 (1)	535 (17)
Rec. Peak PRA 10-80	150 (6)	129 (9)	132 (13)	134 (10)	130 (6)	126 (11)
Rec. Peak PRA 80+	68 (3)	67 (9)	65 (4)	73 (6)	60 (5)	58 (6)
Shared - payback						
Shared - nonpayback	104 (16)	13 (2)	15 (4)	10 (2)	13 (4)	15 (1)
Total # of transplants	845	743	721	737	737	727

Average Years of Benefit Total Kidney Alone

Total KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	4.7 (0)	4.8 (0)	5.1 (0)	5.4 (0)	5 (0)	5.3 (0)
1 A MM	4.7 (0)	4.9 (0)	5.2 (0)	5.4 (0)	5 (0)	5.4 (0)
0 A MM	4.8 (0)	5 (0.1)	5.3 (0.1)	5.7 (0)	5.1 (0.1)	5.6 (0.1)
2 B MM	4.7 (0)	4.8 (0)	5.1 (0)	5.4 (0.1)	5 (0)	5.4 (0)
1 B MM	4.7 (0)	4.9 (0)	5.2 (0)	5.5 (0)	5 (0)	5.4 (0.1)
0 B MM	4.8 (0.1)	4.9 (0)	5.3 (0)	5.7 (0)	5.1 (0.1)	5.6 (0)
2 DR MM	4.6 (0)	4.8 (0)	5.1 (0)	5.4 (0)	4.9 (0.1)	5.3 (0)
1 DR MM	4.8 (0)	4.9 (0)	5.2 (0)	5.5 (0)	5 (0)	5.4 (0)
0 DR MM	4.8 (0)	5 (0.1)	5.2 (0)	5.5 (0)	5.1 (0)	5.5 (0)
0 ABDR MM	4.9 (0.1)	5 (0.1)	5.3 (0)	5.8 (0.1)	5.2 (0)	5.8 (0.1)
Rec. African American	4.7 (0.1)	4.8 (0)	5.1 (0)	5.3 (0)	4.9 (0)	5.3 (0)
Rec. Hispanic	5.2 (0)	5.3 (0.1)	5.6 (0.1)	6 (0.1)	5.4 (0.1)	5.9 (0.1)
Rec. Caucasian	4.6 (0)	4.8 (0)	5.1 (0)	5.4 (0)	4.9 (0)	5.3 (0)
Rec. Other/Missing	4.5 (0)	4.7 (0.1)	5 (0.1)	5.3 (0)	4.7 (0)	5.3 (0.1)
Rec. ABO = A	4.7 (0)	4.8 (0)	5.1 (0)	5.4 (0)	5 (0)	5.3 (0)
Rec. ABO = AB	4.8 (0.1)	4.8 (0)	5.2 (0)	5.3 (0)	5.1 (0)	5.3 (0.1)
Rec. ABO = B	4.7 (0)	4.9 (0.1)	5.1 (0)	5.4 (0)	5 (0)	5.3 (0.1)
Rec. ABO = O	4.7 (0)	4.9 (0)	5.2 (0)	5.5 (0)	5 (0)	5.5 (0)
Rec. < 18	12.1 (0)	12.3 (0)	12.3 (0)	12.3 (0)	12.3 (0)	12.3 (0)
Rec. 18-34	7 (0)	7.1 (0)	7.2 (0)	7.2 (0)	7.1 (0)	7.2 (0)
Rec. 35-49	5.7 (0)	5.9 (0)	6.1 (0)	6 (0)	5.9 (0)	6.1 (0)
Rec. 50-64	3.6 (0)	3.8 (0)	3.7 (0)	3.8 (0)	3.8 (0)	3.8 (0)
Rec. 65+	1.9 (0)	2.1 (0)	2 (0)	2.2 (0)	2.1 (0)	2.2 (0.1)

Total KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular	5.9 (0)	6.1 (0)	6.4 (0.1)	6.5 (0)	6.1 (0.1)	6.5 (0)
Rec. Dgn.: HTN	4.5 (0.1)	4.7 (0)	5 (0)	5.1 (0)	4.8 (0)	5.1 (0)
Rec. Dgn.: Polycystic	4.7 (0)	4.7 (0.1)	5 (0.1)	5.1 (0.1)	4.8 (0.1)	5.1 (0)
Rec. Dgn.: Renovascular	4.8 (0.2)	5 (0.2)	4.9 (0.4)	5.3 (0.1)	5 (0.4)	5.2 (0.5)
Rec. Dgn.: Oth/Missing	6.5 (0.1)	6.7 (0.1)	7 (0)	7.2 (0.1)	6.8 (0.1)	7.1 (0.1)
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50	4.8 (0)	4.9 (0)	4.9 (0.1)	5.2 (0)	4.9 (0)	5 (0)
Rec. Dgn.: DM (KI) 50+	2.4 (0)	2.6 (0)	2.5 (0)	2.7 (0)	2.6 (0)	2.7 (0)
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)						
Rec. Peak PRA Missing	5.7 (0.2)	6.1 (0.2)	6.3 (0.1)	6.2 (0.1)	6 (0.1)	6.3 (0.3)
Rec. Peak PRA <10	4.8 (0)	4.9 (0)	5.3 (0)	5.5 (0.1)	5.1 (0)	5.5 (0)
Rec. Peak PRA 10-80	4.5 (0.1)	4.7 (0.1)	4.9 (0)	5.2 (0)	4.7 (0)	5.2 (0)
Rec. Peak PRA 80+	4.6 (0.1)	4.9 (0)	5.1 (0)	5.4 (0.1)	5 (0.1)	5.3 (0)
Shared - payback	4.7 (0.2)					
Shared - nonpayback	4.6 (0)	4.7 (0)	4.9 (0.1)	5.2 (0)	4.8 (0)	5.2 (0.1)
Average benefit	4.7	4.9	5.2	5.4	5.0	5.4
Average wait time	2.3	2.3	2.3	2.1	2.3	2.1
Average age	49.9	50.1	47.9	45.8	49.4	46.4

Average Years of Benefit ECD Kidney

ECD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	2.9 (0.1)	3.1 (0)	3.1 (0)	3.1 (0)	3.1 (0.1)	3 (0.1)
1 A MM	2.9 (0.1)	3.1 (0.1)	3.1 (0)	3 (0.1)	3.1 (0)	3 (0)
0 A MM	3.1 (0.1)	3.3 (0.2)	3.2 (0)	3.1 (0.3)	3.2 (0.2)	3.2 (0.1)
2 B MM	2.9 (0.1)	3.1 (0.1)	3.1 (0)	3.1 (0.1)	3.1 (0.1)	3 (0)
1 B MM	3 (0.1)	3.1 (0.1)	3.1 (0)	3.1 (0)	3.2 (0)	3.1 (0)
0 B MM	3 (0.1)	3.1 (0.1)	3.2 (0)	3 (0.1)	3 (0.2)	3.3 (0.1)
2 DR MM	2.8 (0)	3.1 (0.1)	3.1 (0.1)	3 (0.1)	3 (0)	2.9 (0.1)
1 DR MM	2.9 (0.1)	3.1 (0.1)	3.1 (0)	3.1 (0)	3.2 (0.1)	3.1 (0)
0 DR MM	3 (0.2)	3.1 (0.1)	3 (0.1)	3 (0.2)	3.2 (0.1)	3.1 (0.1)
0 ABDR MM	3.2 (0.1)	3.3 (0.3)	3.2 (0.1)	3.2 (0.2)	2.8 (0.2)	3.2 (0.1)
Rec. African American	3 (0.1)	3.2 (0.1)	3.2 (0.1)	3 (0.1)	3.2 (0.2)	3 (0.1)
Rec. Hispanic	2.8 (0)	3 (0.1)	3 (0.1)	3 (0)	3 (0.1)	2.9 (0)
Rec. Caucasian	2.9 (0)	3.1 (0.1)	3.1 (0)	3.1 (0.1)	3.1 (0)	3.1 (0)
Rec. Other/Missing	2.6 (0.1)	2.9 (0)	2.9 (0)	3 (0.1)	3 (0.2)	2.9 (0.2)
Rec. ABO = A	2.9 (0.1)	3.1 (0.1)	3.1 (0.1)	3.1 (0.1)	3.1 (0.2)	3 (0.1)
Rec. ABO = AB	3 (0.3)	3 (0.1)	3.2 (0.1)	3.1 (0.2)	3.2 (0.2)	3.2 (0.2)
Rec. ABO = B	2.9 (0.1)	3.1 (0)	3.1 (0)	3 (0.1)	3.1 (0.2)	3 (0.1)
Rec. ABO = O	2.9 (0)	3.1 (0.1)	3.1 (0)	3 (0.1)	3.1 (0)	3 (0)
Rec. < 18	11.6 (0.5)					
Rec. 18-34	6.3 (0.1)	6.4 (0)	6.6 (0.1)	6.3 (0.3)	6.3 (0.1)	6.2 (0.2)
Rec. 35-49	5 (0)	5.1 (0.1)	5.1 (0.1)	5.2 (0.1)	5.1 (0.1)	5 (0)
Rec. 50-64	3 (0.1)	3.2 (0)	3.2 (0)	3.2 (0.1)	3.3 (0)	3.3 (0)
Rec. 65+	1.5 (0)	1.8 (0)	1.7 (0)	1.9 (0.1)	1.8 (0.1)	1.9 (0.1)

ECD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular	4.1 (0)	4.2 (0.1)	4.2 (0.1)	4.1 (0.1)	4.2 (0)	4 (0)
Rec. Dgn.: HTN	3.2 (0.1)	3.4 (0.2)	3.4 (0)	3.3 (0.1)	3.4 (0.1)	3.3 (0)
Rec. Dgn.: Polycystic	3.5 (0.1)	3.6 (0.2)	3.6 (0.1)	3.7 (0.1)	3.5 (0.1)	3.6 (0.1)
Rec. Dgn.: Renovascular	4 (0.7)	3.7 (0.6)	3.7 (0.8)	4.3 (0.6)	3.5 (0.4)	3.5 (0.4)
Rec. Dgn.: Oth/Missing	3.6 (0.1)	4 (0.1)	3.9 (0.2)	3.8 (0.1)	4 (0.2)	3.8 (0.1)
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50	4.1 (0.2)	4.1 (0.1)	4.2 (0.1)	4.1 (0.2)	4.2 (0.1)	4.2 (0.1)
Rec. Dgn.: DM (KI) 50+	1.9 (0)	2.1 (0.1)	2.1 (0)	2.2 (0.1)	2.1 (0.1)	2.1 (0)
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)						
Rec. Peak PRA Missing	3.1 (0.1)	3.2 (0.3)	3 (0.3)	3.2 (0.4)	3 (0.1)	3.1 (0.4)
Rec. Peak PRA <10	2.9 (0)	3.1 (0)	3.2 (0)	3.1 (0.1)	3.2 (0)	3 (0)
Rec. Peak PRA 10-80	2.8 (0.1)	3 (0.1)	2.9 (0)	3 (0)	3 (0.1)	3 (0.1)
Rec. Peak PRA 80+	2.8 (0.1)	3.1 (0.2)	3.1 (0.3)	2.9 (0.2)	2.9 (0.1)	2.8 (0.1)
Shared - payback	3.2 (0.3)					
Shared - nonpayback	2.7 (0.1)	2.9 (0)	2.8 (0.1)	2.6 (0.2)	2.8 (0.2)	2.6 (0.1)
Average benefit	2.9	3.1	3.1	3.0	3.1	3.0
Average wait time	2.2	2.1	2.1	2.0	2.1	1.9
Average age	59.6	59.6	59.6	60.5	59.6	60.6

Average Years of Benefit SCD Kidney

SCD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	5.1 (0.1)	5.2 (0)	5.6 (0)	5.8 (0)	5.3 (0)	5.8 (0)
1 A MM	5.1 (0)	5.3 (0)	5.6 (0)	5.9 (0)	5.4 (0.1)	5.9 (0)
0 A MM	5.1 (0)	5.2 (0.1)	5.6 (0)	6 (0.1)	5.4 (0.1)	6 (0.1)
2 B MM	5.1 (0)	5.2 (0.1)	5.6 (0)	5.8 (0)	5.3 (0)	5.8 (0)
1 B MM	5.1 (0)	5.3 (0)	5.6 (0)	5.9 (0)	5.4 (0)	5.9 (0.1)
0 B MM	5 (0.1)	5.1 (0)	5.5 (0)	6 (0.1)	5.4 (0.1)	6 (0.1)
2 DR MM	5.1 (0)	5.2 (0)	5.5 (0)	5.8 (0)	5.3 (0.1)	5.8 (0)
1 DR MM	5.1 (0)	5.3 (0)	5.6 (0)	5.9 (0)	5.4 (0.1)	5.9 (0)
0 DR MM	5.1 (0)	5.2 (0.1)	5.5 (0.1)	5.9 (0)	5.4 (0)	5.9 (0)
0 ABDR MM	5.1 (0.1)	5.2 (0.1)	5.5 (0)	6.1 (0.1)	5.4 (0)	6.1 (0.1)
Rec. African American	5 (0.1)	5.1 (0)	5.5 (0.1)	5.7 (0)	5.2 (0)	5.7 (0)
Rec. Hispanic	5.6 (0)	5.8 (0)	6.1 (0.1)	6.4 (0.1)	5.9 (0.1)	6.4 (0.1)
Rec. Caucasian	5 (0)	5.1 (0)	5.5 (0)	5.8 (0)	5.3 (0)	5.8 (0)
Rec. Other/Missing	4.8 (0)	5.1 (0.1)	5.4 (0.1)	5.7 (0.1)	5.1 (0)	5.8 (0.1)
Rec. ABO = A	5 (0)	5.1 (0)	5.5 (0)	5.7 (0.1)	5.3 (0.1)	5.8 (0)
Rec. ABO = AB	5.1 (0.1)	5 (0)	5.5 (0)	5.6 (0.1)	5.3 (0)	5.6 (0.1)
Rec. ABO = B	5 (0.1)	5.1 (0.1)	5.4 (0)	5.7 (0)	5.2 (0)	5.7 (0.1)
Rec. ABO = O	5.2 (0)	5.3 (0)	5.7 (0)	6 (0)	5.5 (0)	6.1 (0)
Rec. < 18	12.1 (0)	12.3 (0)	12.3 (0)	12.3 (0)	12.3 (0)	12.3 (0)
Rec. 18-34	7 (0)	7.2 (0)	7.2 (0)	7.2 (0)	7.2 (0)	7.2 (0)
Rec. 35-49	5.8 (0)	5.9 (0)	6.1 (0)	6 (0)	6 (0)	6.1 (0)
Rec. 50-64	3.8 (0)	3.9 (0)	3.9 (0)	4 (0)	4 (0)	4 (0)
Rec. 65+	2.1 (0)	2.3 (0)	2.2 (0)	2.5 (0)	2.3 (0)	2.5 (0)

SCD KI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular	6.1 (0)	6.3 (0)	6.6 (0)	6.7 (0)	6.4 (0.1)	6.7 (0)
Rec. Dgn.: HTN	4.8 (0)	5 (0)	5.2 (0)	5.5 (0)	5 (0)	5.5 (0)
Rec. Dgn.: Polycystic	4.9 (0)	5 (0.1)	5.3 (0.1)	5.4 (0.1)	5 (0)	5.4 (0)
Rec. Dgn.: Renovascular	4.9 (0.3)	5.3 (0.2)	5.1 (0.3)	5.4 (0.2)	5.4 (0.6)	5.6 (0.7)
Rec. Dgn.: Oth/Missing	6.9 (0.1)	7.1 (0.1)	7.3 (0.1)	7.5 (0.1)	7.1 (0)	7.6 (0)
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50	4.8 (0)	5 (0)	5 (0.1)	5.3 (0)	5 (0.1)	5.1 (0)
Rec. Dgn.: DM (KI) 50+	2.6 (0)	2.7 (0)	2.7 (0)	3 (0)	2.8 (0)	3 (0)
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)						
Rec. Peak PRA Missing	6.4 (0.2)	6.7 (0.1)	6.9 (0.2)	7 (0.3)	6.7 (0.3)	7.1 (0.3)
Rec. Peak PRA <10	5.3 (0)	5.4 (0)	5.7 (0)	6 (0)	5.5 (0)	6 (0)
Rec. Peak PRA 10-80	4.8 (0.1)	5 (0.1)	5.3 (0.1)	5.6 (0)	5.1 (0)	5.6 (0.1)
Rec. Peak PRA 80+	4.8 (0)	5.1 (0)	5.3 (0)	5.6 (0.1)	5.2 (0.1)	5.7 (0.1)
Shared - payback	4.9 (0.2)					
Shared - nonpayback	5 (0)	5.1 (0)	5.5 (0.1)	5.8 (0.1)	5.3 (0)	5.9 (0.1)
Average benefit	5.1	5.2	5.6	5.9	5.4	5.9
Average wait time	2.4	2.4	2.3	2.1	2.4	2.1
Average age	48.0	48.2	45.6	43.1	47.4	43.5

Average Years of Benefit Simultaneous Kidney/Pancreas

SPK	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
2 A MM	5.7 (0.2)	6.1 (0.2)	6 (0.2)	5.8 (0.3)	6 (0.1)	6.1 (0.3)
1 A MM	5.5 (0.2)	6 (0.2)	6 (0.3)	5.8 (0.1)	5.9 (0.1)	5.8 (0.1)
0 A MM	5.4 (0.1)	5.4 (0.4)	5.9 (0.2)	5.8 (0.6)	5.9 (0.1)	5.7 (0.3)
2 B MM	5.6 (0.1)	6 (0)	6.1 (0.2)	5.8 (0.1)	5.8 (0.1)	6 (0.1)
1 B MM	5.6 (0.2)	6.1 (0.1)	5.8 (0.1)	5.8 (0.1)	6.2 (0.3)	5.9 (0.1)
0 B MM	5.1 (0.2)	5.6 (0.6)	5.9 (0.2)	5.3 (0.1)	6.3 (0)	5.1 (0.8)
2 DR MM	5.7 (0.1)	6 (0.2)	5.9 (0.3)	5.8 (0.1)	5.8 (0)	5.8 (0.2)
1 DR MM	5.6 (0.2)	5.9 (0.2)	6.1 (0)	6 (0.2)	6.1 (0)	6.1 (0.1)
0 DR MM	5.5 (0.6)	5.8 (0.3)	6.1 (0.4)	5.4 (0.2)	5.8 (0.2)	5.6 (0.5)
0 ABDR MM	4.1 (1.3)	5.4 (1.1)	6 (0.3)	5.3 (0.3)	5.9 (0.8)	4.9 (0.7)
Rec. African American	6.5 (0.1)	7 (0.3)	6.7 (0.2)	6.8 (0.3)	6.9 (0.3)	6.9 (0.1)
Rec. Hispanic	6 (0.4)	6.3 (0.2)	6.6 (0.2)	6.4 (0.4)	6.3 (0.1)	6.8 (0.4)
Rec. Caucasian	5.3 (0.1)	5.7 (0.1)	5.7 (0.2)	5.5 (0.1)	5.7 (0.1)	5.5 (0.1)
Rec. Other/Missing	4.8 (0.3)	5.3 (1)	5.5 (0.4)	5.3 (0.5)	5.4 (0.7)	4.7 (0.3)
Rec. ABO = A	5.4 (0.1)	6 (0.1)	6 (0.2)	5.6 (0.1)	5.9 (0.1)	5.9 (0.3)
Rec. ABO = AB	6.3 (0.3)	6.6 (0.3)	6.4 (0.5)	6.1 (0.5)	6.3 (0.3)	6.1 (0.9)
Rec. ABO = B	5.4 (0.1)	5.7 (0.3)	5.9 (0.5)	6 (0.6)	6.2 (0.1)	5.8 (0.2)
Rec. ABO = O	5.7 (0)	6 (0.1)	6 (0.1)	5.9 (0.1)	6 (0.1)	5.9 (0.2)
Rec. < 18						
Rec. 18-34	9.8 (0)	10 (0.1)	10.1 (0)	10.1 (0)	10.1 (0.1)	10 (0.1)
Rec. 35-49	5.6 (0.1)	6 (0)	6 (0)	6 (0.1)	6 (0)	6 (0)
Rec. 50-64	1.1 (0.1)	1.6 (0.1)	1.6 (0.1)	1.5 (0)	1.5 (0.2)	1.5 (0.1)
Rec. 65+	-2.3 (0.9)	-2.3 (0.9)	-1.9 (1)	-2.2 (0.6)	-3 (0.4)	-2.1 (0.5)

SPK	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
Rec. Dgn.: Glomerular						
Rec. Dgn.: HTN						
Rec. Dgn.: Polycystic						
Rec. Dgn.: Renovascular						
Rec. Dgn.: Oth/Missing						
Rec. Dgn.: DM (KI)						
Rec. Dgn.: DM (KI) <50						
Rec. Dgn.: DM (KI) 50+						
Rec. Dgn.: DM (PA)						
Rec. Dgn.: DM (KP)	5.6 (0)	6 (0.1)	6 (0.2)	5.8 (0.1)	6 (0)	5.9 (0.1)
Rec. Peak PRA Missing	5.1 (1.3)	6.8 (0.8)	5.4 (1.4)	5.5 (0.3)	6.1 (1.7)	6 (1)
Rec. Peak PRA <10	6 (0)	6.3 (0.1)	6.4 (0.2)	6.2 (0.2)	6.3 (0)	6.3 (0.2)
Rec. Peak PRA 10-80	5 (0.1)	5.3 (0.2)	5.2 (0.1)	5.3 (0.3)	5.3 (0.2)	5.1 (0.2)
Rec. Peak PRA 80+	3.6 (0.1)	4.6 (0.2)	4.2 (0.3)	4.3 (0.2)	4.4 (0.3)	4.4 (0.1)
Shared - payback						
Shared - nonpayback	5.4 (0.2)	5.7 (1.3)	6.1 (0.7)	6 (0.2)	6.9 (0.8)	5.3 (0.9)
Average benefit	5.6	6.0	6.0	5.8	6.0	5.9
Average wait time	1.2	1.3	1.3	1.3	1.3	1.3
Average age	42.4	42.4	42.3	42.7	42.4	42.5

Transplants by Region for Each Run

Numbers shown are percentages of transplants within each region (each column adds to 100%) of kidney transplants (ECD + SCD, but not SPK) that occurred within each run.

Region	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
1	2.9	3.2	3.1	3.0	3.1	3.1
2	14.3	14.4	14.1	13.9	14.2	14.3
3	15.5	15.3	15.4	15.4	15.5	15.3
4	9.3	9.2	9.3	9.2	9.3	9.3
5	15.2	15.5	15.7	15.6	15.4	15.5
6	3.2	3.0	3.0	3.0	3.0	3.0
7	6.7	7.0	7.2	7.1	7.1	7.0
8	7.0	6.4	6.6	6.7	6.6	6.6
9	4.7	5.1	5.0	5.2	5.2	5.1
10	9.8	9.8	9.6	9.7	9.8	9.6
11	11.6	11.1	11.2	11.2	11.0	11.3

Donor and Recipient Age by Run and by Example DSAs

Recipient Age	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
MSOP						
0-17	1	2	1	1	2	2
18-34	14	11	14	16	15	15
35-49	20	21	16	16	16	15
50-64	15	14	16	10	13	16
65+	8	4	5	5	4	4
WISE						
0-17	2	2	2	2	2	1
18-34	6	6	8	6	7	8
35-49	18	24	22	27	20	27
50-64	33	37	38	36	37	34
65+	7	11	10	7	10	9
ILIP						
0-17	23	27	28	32	28	28
18-34	37	41	54	66	47	67
35-49	72	97	91	92	89	96
50-64	139	146	132	138	141	132
65+	58	51	53	37	49	39
National						
0-17	500	508	534	546	518	524
18-34	1158	1147	1644	2024	1239	1873
35-49	2658	2758	2843	2982	2807	3168
50-64	4071	4174	3675	3493	4117	3516
65+	1571	1643	1423	1006	1481	1122

The OPOs used for example tables included OPOs with waiting times near the 25th, 50th and 75th percentile among OPOs (Table 7 of the OPO-Specific Reports, available at http://www.ustransplant.org/csr/current/csrDefault.aspx). These were: Mississippi Organ Recovery Agency (MSOP, 23.5 months median waiting time), Wisconsin Donor Network (WISE, 30.6 months median waiting time), and Gift of Hope Organ & Tissue Donor Network (ILIP, 48.1 months median waiting time).

Donor Age	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
MSOP						
0-17	10	10	10	10	8	8
18-34	20	18	16	17	19	20
35-49	20	17	19	15	17	16
50-64	7	7	7	6	5	8
65+	0	0	0	1	0	1
WISE						
0-17	4	4	4	5	3	5
18-34	18	23	25	24	23	22
35-49	18	22	21	24	21	23
50-64	23	26	26	23	26	28
65+	2	4	4	2	3	2
ILIP						
0-17	33	39	37	41	39	34
18-34	84	93	90	87	88	89
35-49	71	78	72	81	73	80
50-64	101	105	114	119	110	114
65+	41	46	45	37	45	43
National						
0-17	1103	1123	1114	1167	1130	1134
18-34	2970	3055	3020	3084	3064	3025
35-49	2985	3050	3046	3069	3042	3032
50-64	2370	2443	2389	2284	2377	2456
65+	529	559	550	446	547	556

DPI by example DSAs

Counts of transplants according to DPI decile (DPI ranges defined among all organs removed for transplant) among kidney-alone transplants.

DPI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
MSOP						
0-9	8	10	7	9	9	7
10-19	9	5	6	4	5	7
20-29	6	8	7	6	8	7
30-39	9	10	11	9	10	10
40-49	11	8	7	7	7	8
50-59	2	2	2	1	1	2
60-69	5	5	5	5	4	4
70-79	5	3	6	5	3	4
80-89	2	2	2	1	2	2
90-100	0	0	0	1	0	0
WISE						
0-9	9	11	12	11	10	8
10-19	2	2	2	3	2	3
20-29	3	3	6	5	4	4
30-39	7	12	8	11	9	12
40-49	11	10	10	11	13	11
50-59	6	11	12	11	10	12
60-69	17	18	19	17	17	18
70-79	5	4	3	3	5	4
80-89	3	4	4	3	2	3
90-100	3	4	4	3	4	4

DPI	Run 35: current 2009 rules	Run 36: current 2009 rules + extras	Run 37 Top 20% to top 20%	Run 39b Age match within 15 years	Run 40: Top 20% to top 80%	Run 41a: Top 20%, then within 15
ILIP						
0-9	21	23	23	20	22	23
10-19	34	35	35	36	36	34
20-29	31	39	35	36	32	36
30-39	28	31	31	28	31	30
40-49	25	34	32	37	31	37
50-59	38	36	36	40	36	39
60-69	31	35	35	37	34	32
70-79	44	37	42	44	43	42
80-89	38	48	45	49	47	44
90-100	39	45	44	39	43	45
National						
0-9	1058	1094	1073	1087	1095	1074
10-19	1085	1110	1098	1119	1126	1094
20-29	1117	1145	1151	1152	1141	1151
30-39	1118	1152	1152	1182	1160	1143
40-49	1174	1191	1184	1212	1199	1204
50-59	1117	1142	1137	1139	1126	1151
60-69	1040	1066	1062	1065	1060	1065
70-79	846	874	850	851	857	875
80-89	765	804	774	706	762	795
90-100	638	652	636	539	635	650

Conclusion/Caveats

The runs as shown present predicted changes in outcomes due to a change in the national allocation system. These predicted changes are based on the assumption that everyone involved in the transplant process followed the rules with no independent decisions except those based on baseline waitlist characteristics. Sequential waitlist data is limited for kidney candidates (PRA and active/inactive status), and does not provide much information on patient health. KPSAM cannot incorporate physician judgment based on patient health information that is not available to KPSAM. Comparisons between systems of allocation rules are based on all other aspects (patient and organ characteristics, physician behavior, etc.) being equal, except where (as noted) the acceptance models are deliberately changed to evaluate hypothetical possibilities.