Final Analysis

Data request from the OPTN Liver and Intestinal Organ Transplantation Committee: Supply/Demand Ratios, Proximity Points, and Additional Financial Analyses

Meeting: February 2, 2015 (committee leadership meeting)

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Update

This report has been updated as of June 21, 2015. The previous version of this report included 5 year rates for some figures and tables rather than 1 year rates as labeled. These figures and tables have been updated to correctly display 1 year rates. The updated displays are: Figure G88 - Figure G93, Table G23 (Overall mortality rates per year by population subgroup); Figure G100 - Figure G105, Table G25 (Pretransplant mortality rates per year by population subgroup); Figure G112 - Figure G117, Table G27 (Posttransplant mortality rates per year by population subgroup); and Table H37 (Transplant rate per year by population subgroup).

Background

The Ad Hoc Subcommittee on Metrics of Disparity and Optimization of Distribution was tasked with reexamining and further defining the parameters used to assess the impacts of redistricting. The subcommittee has been exploring additional disparity metrics beyond the variance in the median MELD/PELD score at transplant. The subcommittee has also discussed the use of "proximity circles" around the donor hospital. Waitlisted candidates who fall within these proximity circles would be assigned additional MELD/PELD points for prioritization for those 'local' donors. This would reduce the total number of livers "crossing in the air" for patients with similar risks of death and the associated transportation costs.

Program goal or committee annual work item addressed

This addresses the OPTN Key Goal: Increase access to transplants.

Data Request 1.1: Analysis of Supply/Demand Ratios

Committee Request

The committee asks that SRTR provide an analysis of supply/demand ratios nationwide and by DSA for the current map, 4-district, and 8-district maps. The committee is requesting 3 supply metrics and 2 demand metrics:

1. Supply: Actual liver donors, eligible donors for purposes of transplant (as defined by OPTN and reported by OPOs), and total deaths.
2. Demand: Total waitlisted patients, total waitlisted patients with MELD > 15.

4- and 8-District Maps

The conceptualized 4- and 8-district scenarios are shown below for reference (Figure 1 and Figure 2). The concept of these scenarios has been discussed in previous publication by the OPTN/UNOS Liver and Intestinal Organ Transplantation Committee (Redesigning Liver Distribution to Reduce Variation in Access to Liver Transplantation, June 16, 2014).

Figure 1. Conceptualized Optimal 4 District Map

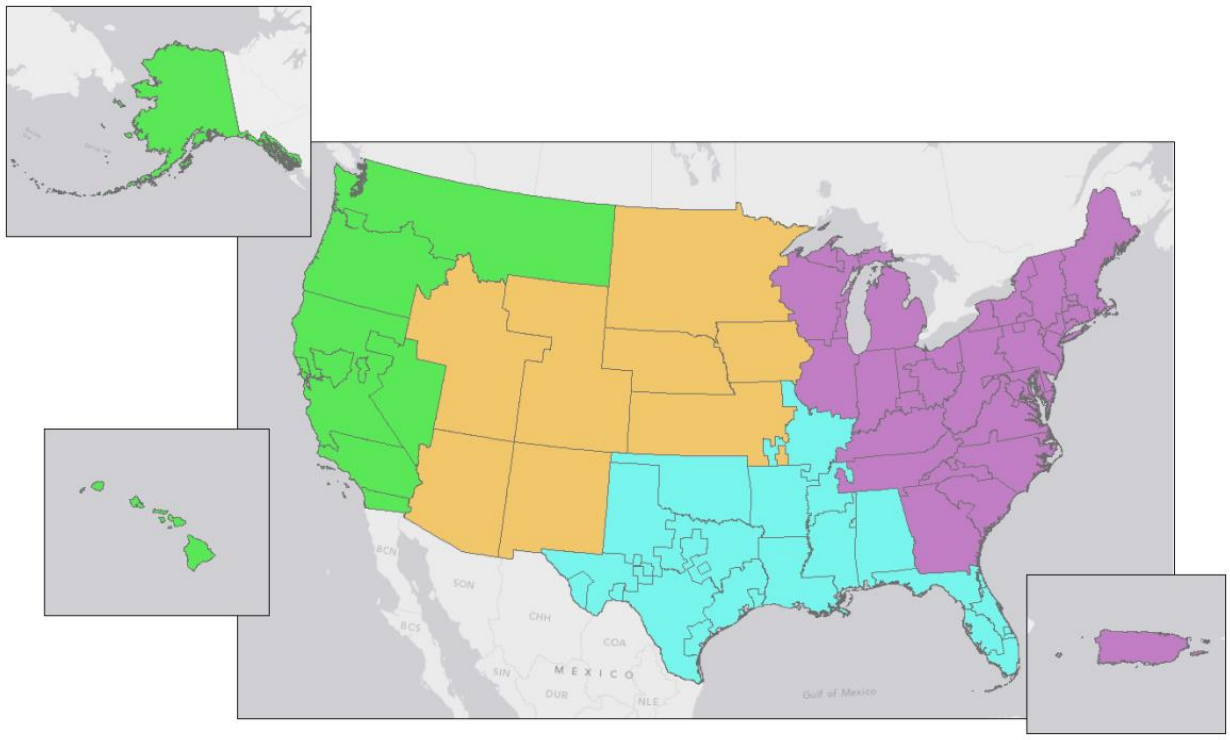

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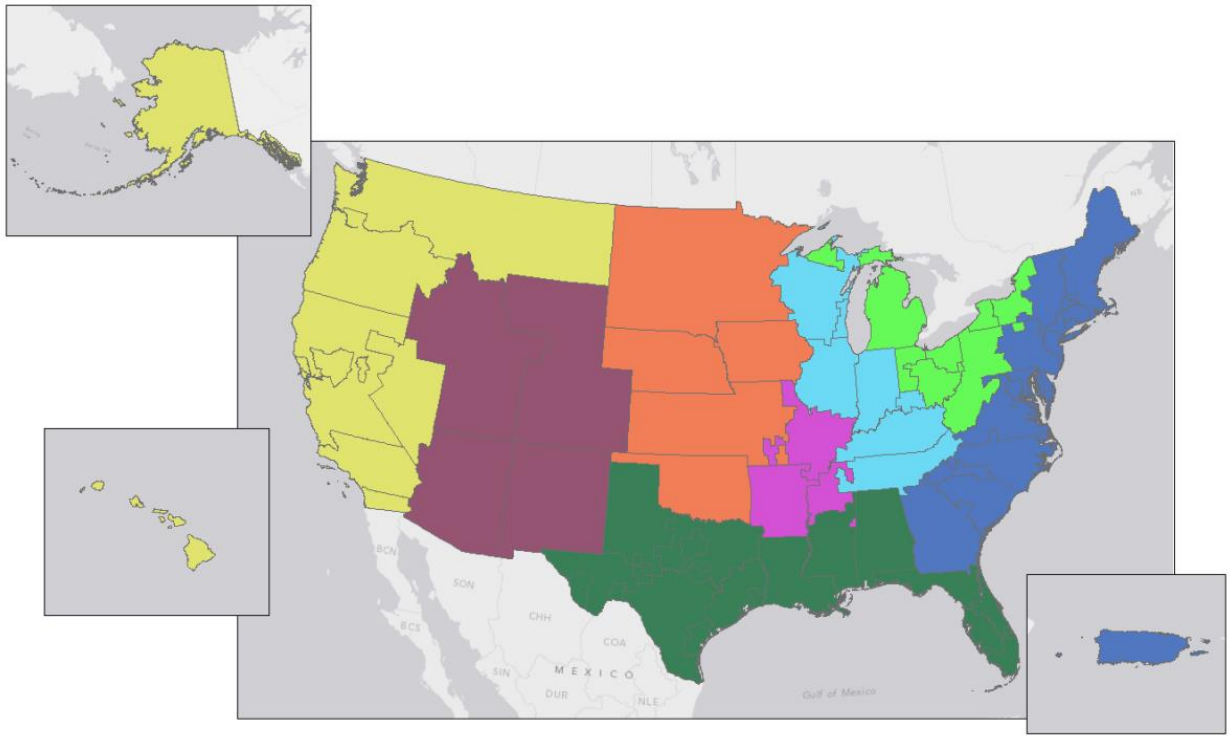
Figure 2. Conceptualized Optimal 8 District Map



Study Population

We examined US population data as available in calendar year 2013 from US Census Bureau and OPTN datasets (most recent available data from the US Census Bureau). The population for supply metrics included 2,571,164 total deaths, 6893 eligible donors, and 6225 actual liver donors nationwide. The population for demand metrics included 25,200 waitlisted candidates and 16,747 waitlisted candidates with allocation MELD/PELD > 15 nationwide. The population of waitlisted candidates included all active waitlisted candidates in 2013 including children, adults, and candidates listed at all allocation MELD/PELD scores and at status 1A and status 1B. Fifty-two DSAs had active liver transplant programs during 2013.

Analytic Approach

Using this population, we described supply/demand metrics for 2013. First, we calculated supply/demand metrics for the full US and by DSA (shown in Table A8). Second, we calculated supply/demand information by the current, 11 regions, by 4 district areas, and by 8 district areas (shown in Table A9 - Table A11).

Of note, supply/demand ratios will not vary depending on organ allocation or distribution policies. Supply metrics are based on deaths in an area and demand metrics are based on waitlisted candidates in an area, and modeling of allocation/distribution will not affect these metrics. The information on variance in supply/demand ratios requested as part of data request 1.2 is instead provided in response to data request 1.1, because these are descriptive statistics not based on modeling or allocation/distribution policy.

We describe the following supply/demand metrics:

1. Actual liver donors
    a. Actual liver donors/total waitlisted patients

   b. Actual liver donors/total waitlisted patients with MELD/PELD > 15
2. Eligible deaths
   a. Eligible deaths/total waitlisted patients
   b. Eligible deaths/total waitlisted patients with MELD/PELD > 15
3. Total deaths
   a. Total deaths/total waitlisted patients
   b. Total deaths/total waitlisted patients with MELD/PELD > 15
4. Variation
   a. Variation in eligible deaths/total waitlisted patients with MELD/PELD > 15 across DSAs
   b. Variation in total deaths/total waitlisted patients with MELD/PELD > 15 across DSAs

Specifications for these variables include:

- Actual liver donors: defined as deceased liver donors, including donors whose livers were recovered for transplant but not transplanted. Sourced from OPTN data.
- Eligible deaths: defined as deceased individuals meeting eligibility criteria, i.e., their donor referral classification is "Eligible." Sourced from OPTN data.
- Total deaths: defined as total deaths in a geographic region. Sourced from US Census Bureau data, not OPTN data.

Results and Discussion

In the United States in 2013 there were 0.25 actual liver donors per 1 waitlisted candidate, 0.27 eligible donors per 1 waitlisted candidate, and 102.03 deaths per 1 waitlisted candidate. For waitlisted candidates with an allocation MELD/PELD > 15 nationwide, there were 0.37 actual liver donors per 1 candidate, 0.41 eligible donors per 1 candidate, and 153.53 deaths per 1 candidate (Appendix A, Table A8).

To determine the similarities between metrics, we measured the correlation between supply metrics, demand metrics, and supply/demand ratios. Table 1 shows the association for different combinations of metrics. Overall, these metrics are highly correlated with one another.

Table 1: Supply/Demand Metric Correlations

Metric Type	Metric 1	Metric 2	R^{2*}
Supply	Eligible deaths	Actual deceased donors	0.97
Supply	Total deaths	Actual deceased donors	0.80
Supply	Eligible deaths	Total deaths	0.82
Demand	Total waitlisted candidates	Waitlisted candidates with MELD/PELD > 15	0.98
Supply/demand ratio	Eligible deaths/waitlisted candidates > 15	Actual donors/waitlisted candidates > 15	0.99
Supply/demand ratio	Total deaths/waitlisted candidates > 15	Actual donors/waitlisted candidates > 15	0.90
Supply/demand ratio	Eligible deaths/waitlisted candidates > 15	Total deaths/waitlisted candidates > 15	0.88

*R^2 is the coefficient of determination. This number estimates how well data fit a statistical model. R^2 ranges from 0 to 1, where 0 indicates no correlation between the elements in the model, and 1 indicates complete correlation.

Full details of metrics and ratios are reported in Appendix A: Supply/Demand Information, including supply/demand information in the US and by DSA, by the current 11 regions, and by the conceptualized 8 districts and 4 districts. Given the high correlation between metrics shown in Table 1, we focus on describing two metrics in the following sections: eligible deaths/waitlisted candidates with MELD/PELD > 15 and total deaths/waitlisted

candidates with MELD/PELD > 15. Information on additional supply/demand metrics is also available in Appendix A: Supply/Demand Information.

Variation in Supply/Demand Ratios

Table 2 shows the ranges (minimum to maximum) of supply/demand ratios for the 52 DSAs with active liver transplant programs, 11 current regions, 8 conceptualized districts, and 4 conceptualized districts. Table 2 also displays the national ratios for comparison. Across the 52 DSAs, the ratio of eligible deaths to waitlisted candidates with MELD/PELD > 15 ranged from 0.16 to 4.08 deaths per candidate. The range was from 0.24 to 0.62 deaths per candidate across the 11 regions, narrowed to 0.37 to 0.51 deaths per candidate across the conceptualized 8 districts, and narrowed further to 0.37 to 0.43 deaths per candidate across the conceptualized 4 districts.

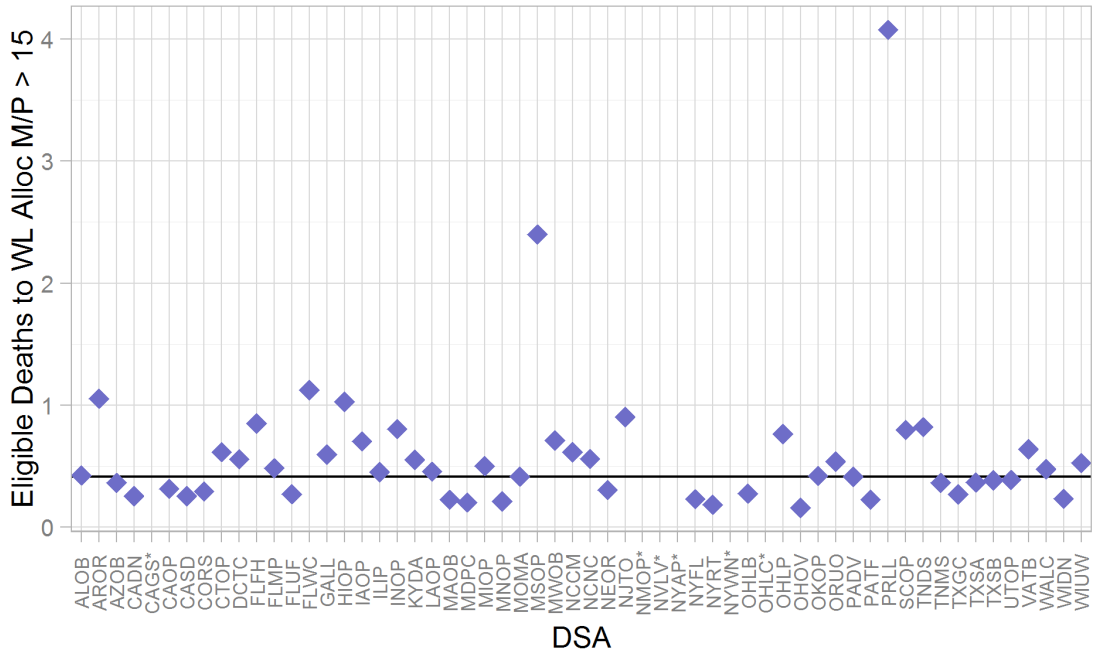
Table 2. Range of Supply/Demand Ratios within Geographic Groupings

Grouping	Range of Actual to Waitlisted	Range of Eligible to Waitlisted	Range of Deaths to Waitlisted	Range of Actual to Waitlisted M15	Range of Eligible to Waitlisted M15	Range of Deaths to Waitlisted M15
US	0.25	0.27	102.03	0.37	0.41	153.53
52 DSAs	0.09-2.46	0.10-2.86	41.57-838.82	0.16-3.50	0.16-4.08	68.22-1160.12
11 Regions	0.13-0.45	0.14-0.48	60.76-179.53	0.21-0.56	0.24-0.62	103.84-238.63
8 Districts	0.21-0.35	0.22-0.37	77.42-130.72	0.32-0.45	0.37-0.51	128.38-193.37
4 Districts	0.22-0.26	0.24-0.28	86.93-113.13	0.32-0.39	0.37-0.43	128.38-171.29

Range shows minimum of all values-maximum of all values. Null and n/a values excluded.

Looking at the supply and demand ratio information in a different format, Figure 4 through Figure 6 show the ratios of eligible deaths to total waitlisted candidates with allocation MELD/PELD > 15 by DSA, 11 regions, 8 districts, and 4 districts. Figure 7 through Figure 10 show these groupings for the ratio of total deaths to total waitlisted candidates with MELD/PELD > 15. The line across the graph shows the national ratio for each measure. These figures indicate that the spread of supply/demand ratios is smaller under the designed 4 and 8 districts than under the current 11 regions.

Figure 3. Ratio of eligible deaths/waitlisted candidates with allocation MELD/PELD > 15, 2013, by 58 DSAs*



*Only 52 DSAs had active liver transplant programs in 2013. All 58 DSAs are shown in Figure 3 for reference, but those with a star by their names show no data since they did not have an active liver transplant program. Note that the liver transplant centers in two DSAs (MSOP and PRLL) were newly active during the study period and so had very small waiting lists; this leads to high supply/demand ratios for these DSAs.

Figure 4. Ratio of eligible deaths/waitlisted candidates with allocation MELD/PELD > 15, 2013, by 11 regions.

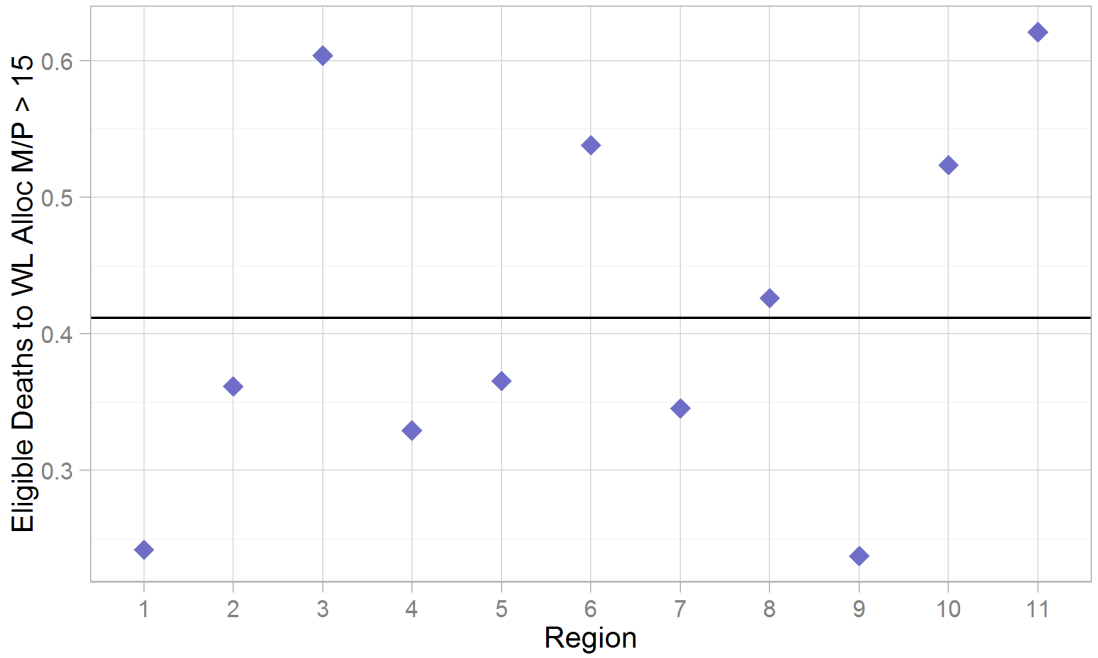


Figure 5. Ratio of eligible deaths/waitlisted candidates with allocation MELD/PELD > 15, 2013, by 8 districts.

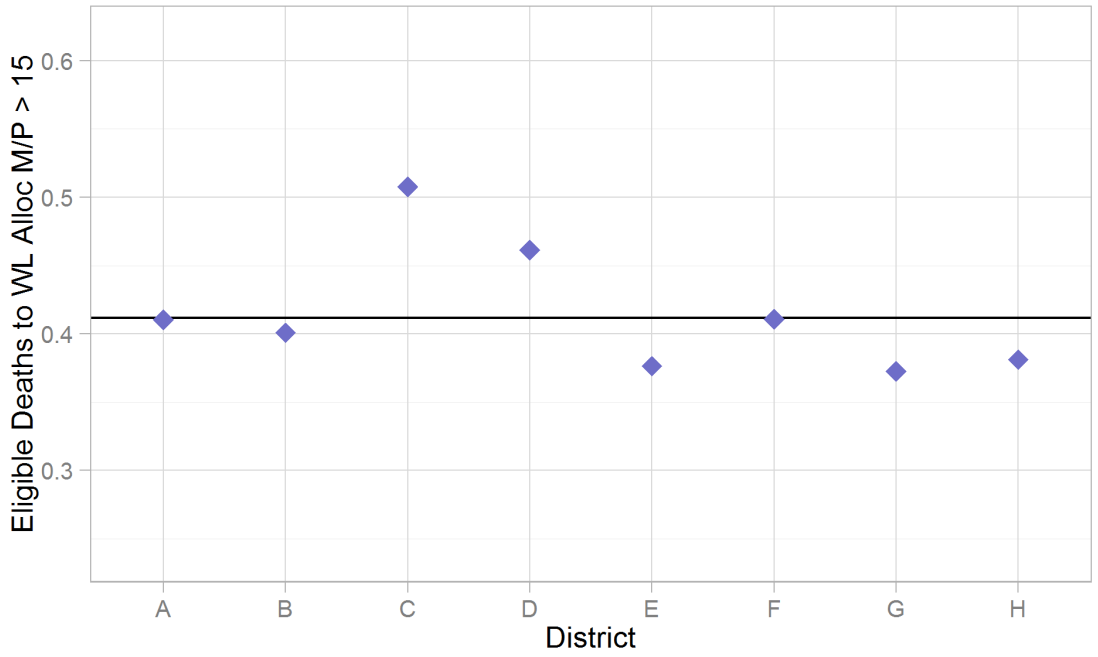


Figure 6. Ratio of eligible deaths/waitlisted candidates with allocation MELD/PELD > 15, 2013, by 4 districts.

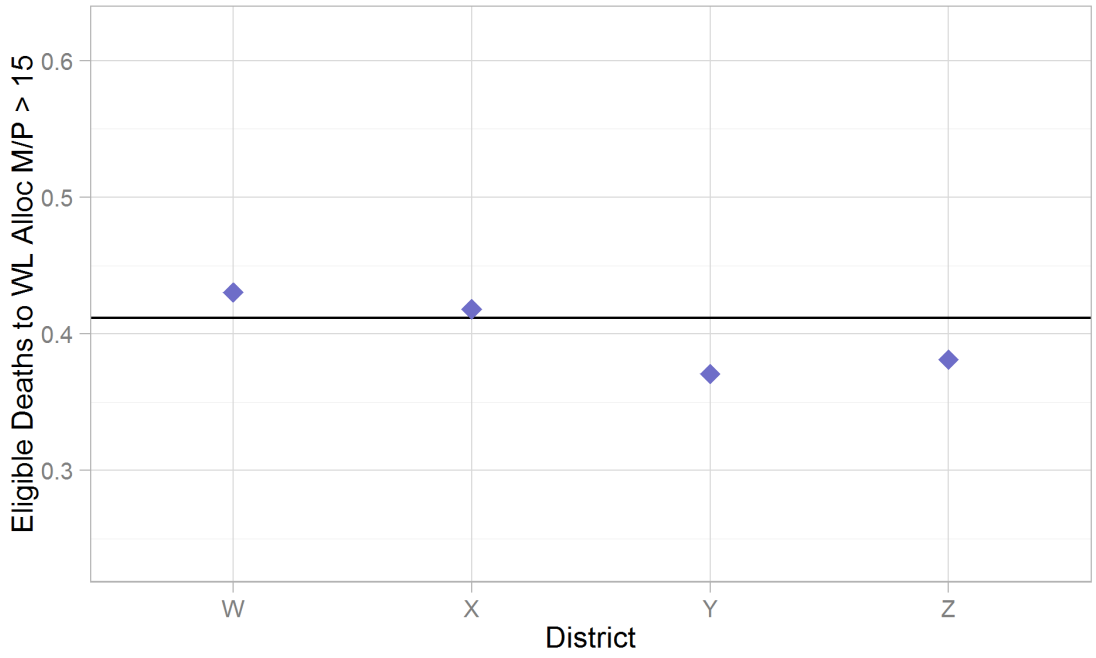
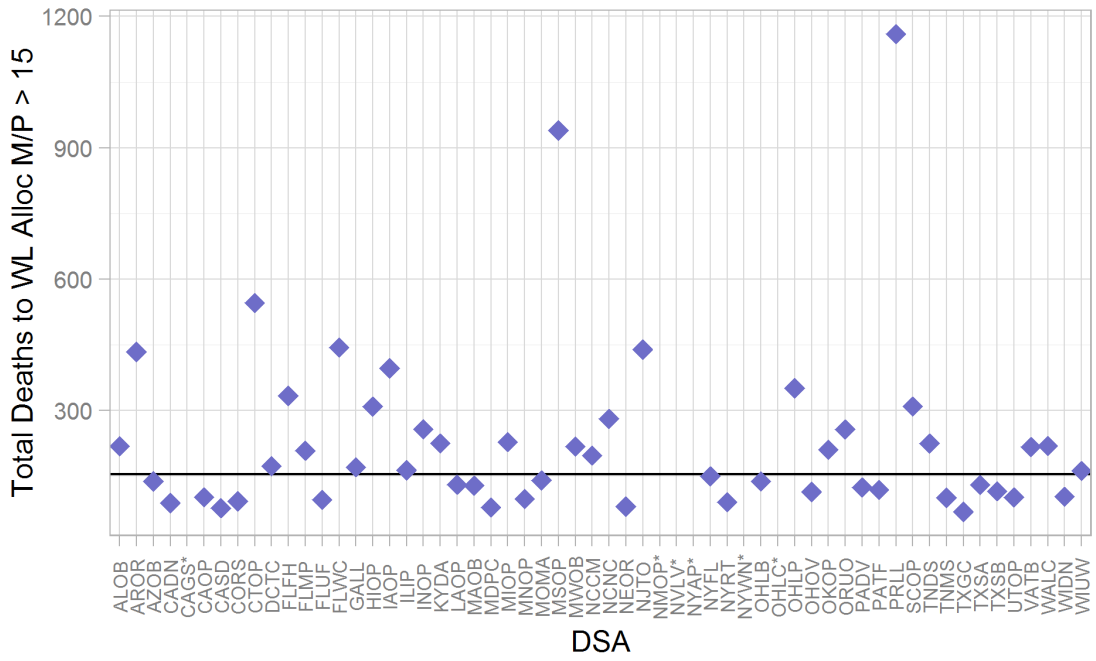


Figure 7. Ratio of total deaths to waitlisted candidates with allocation MELD/PELD > 15, 2013, by 58 DSAs*



*Only 52 DSAs had active liver transplant programs in 2013. All 58 DSAs are shown in Figure 7 for reference, but those with a star by their names show no data since they did not have an active liver transplant program. Note that

the liver transplant centers in two DSAs (MSOP and PRLL) were newly active during the study period and so had very small waiting lists; this leads to high supply/demand ratios for these DSAs.

Figure 8. Ratio of total deaths/waitlisted candidates with allocation MELD/PELD > 15, 2013, by 11 regions.

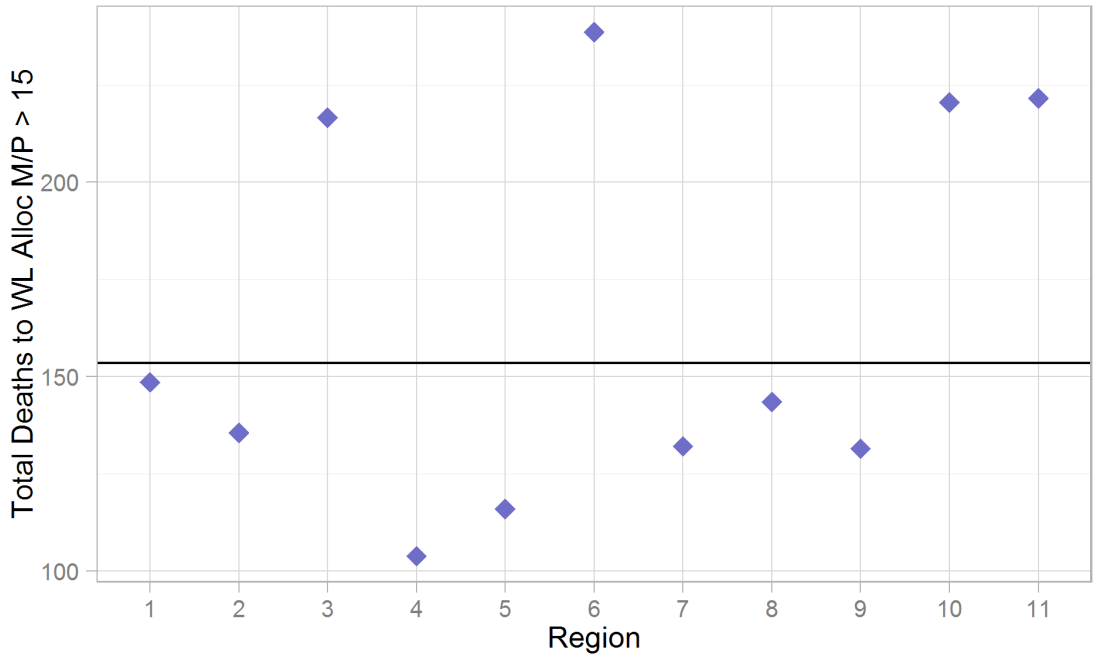


Figure 9. Ratio of total deaths/waitlisted candidates with allocation MELD/PELD > 15, 2013, by 8 districts.

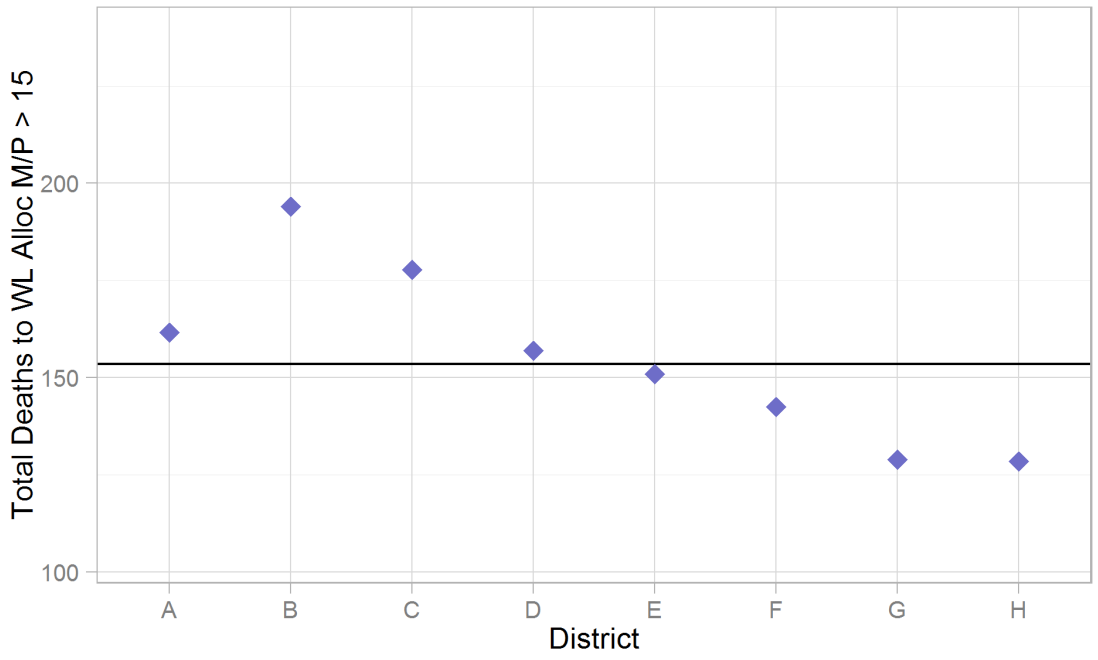
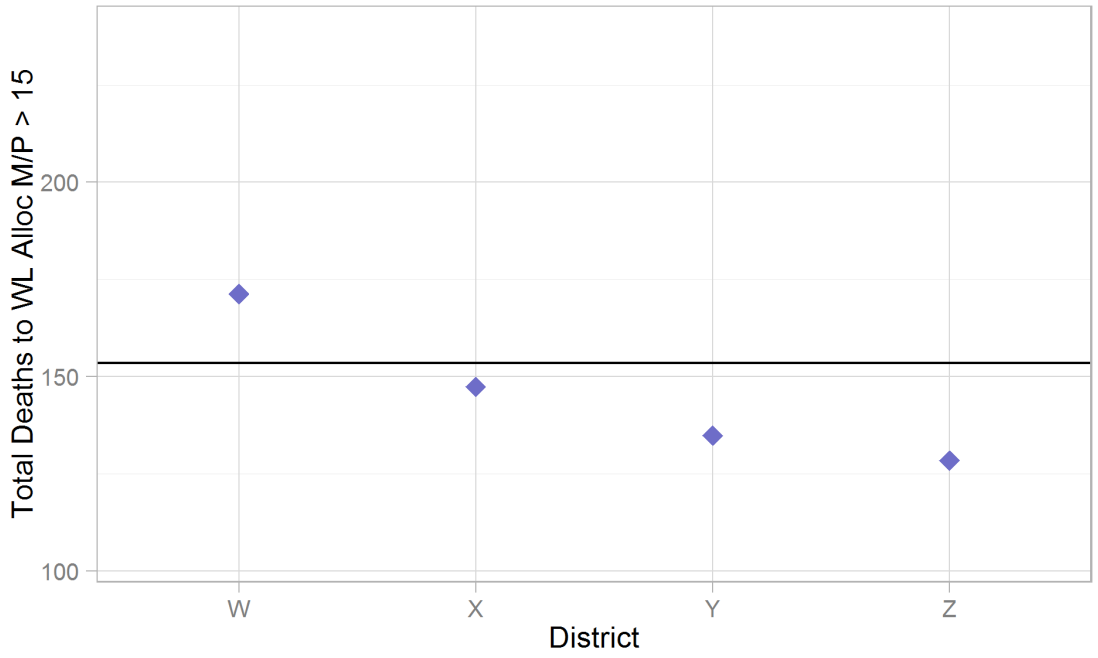


Figure 10. Ratio of total deaths/waitlisted candidates with allocation MELD/PELD > 15, 2013, by 4 districts.



Supply/Demand Ratio Maps

In the figures below, we display the same data as above in maps to communicate the geographic distribution of supply and demand. To create each map, the DSAs were ranked from low to high in order of the given supply/demand metric, and then divided into 10 equal-sized groups using the R package classInt. Colors were assigned to each group, creating a visual scale of the supply/demand ratio. Red tones represent areas with lower supply to demand, and blue tones represent areas with higher supply to demand. The more intense the color, the closer the area is to one of the extremes. In each map key, the value with a bolded border around it includes the national ratio.

The maps summarize each of the supply/demand metrics across the DSAs, the current 11 regions, and the conceptualized 4- and 8-district maps. The color for each region or district represents the supply/demand ratio in that area. The effect of changing the geographic distribution boundaries can be visualized by comparing the relative color spreads between maps with different boundaries.

Eligible Deaths/Waitlisted Candidates with MELD/PELD > 15

Figure 11 through Figure 14 show the geographic distribution of the ratio of eligible deaths to waitlisted candidates with MELD/PELD > 15. In the current 11 regions (Figure 12), the highest supply/demand ratios were observed in the mid-Atlantic region and the lowest in the northeast. In the conceptualized 8-district (Figure 13) and 4-district (Figure 14) maps, the spread of supply/demand ratios narrowed, visible as a more limited color palette across the districts. This effect was most pronounced in the 4-district map.

Figure 11. Ratio of eligible deaths/waitlisted candidates with allocation MELD/PELD > 15, by DSAs.

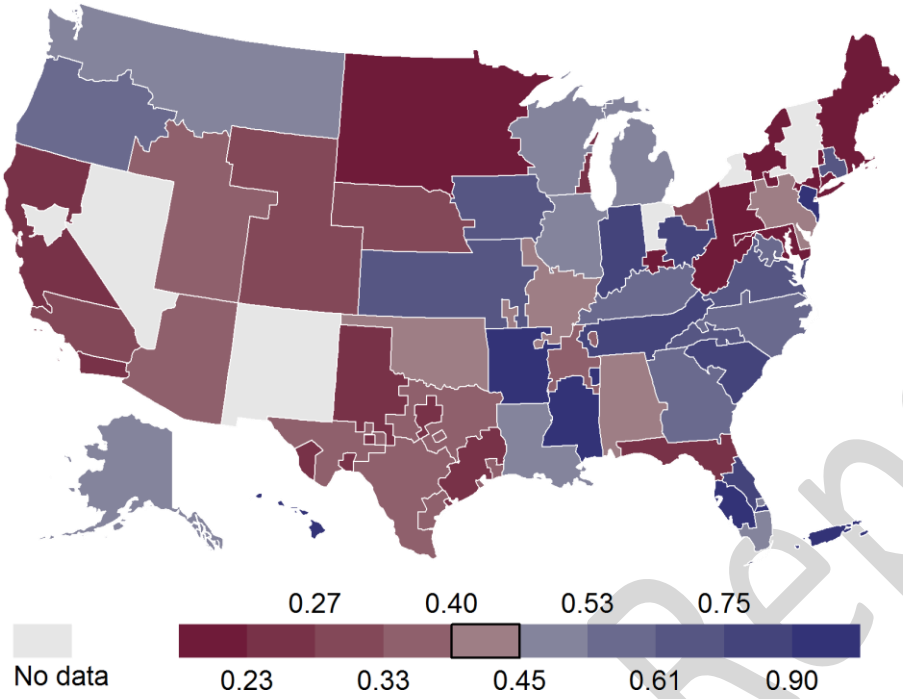


Figure 12. Ratio of eligible deaths/waitlisted candidates with allocation MELD/PELD > 15, by 11 regions.

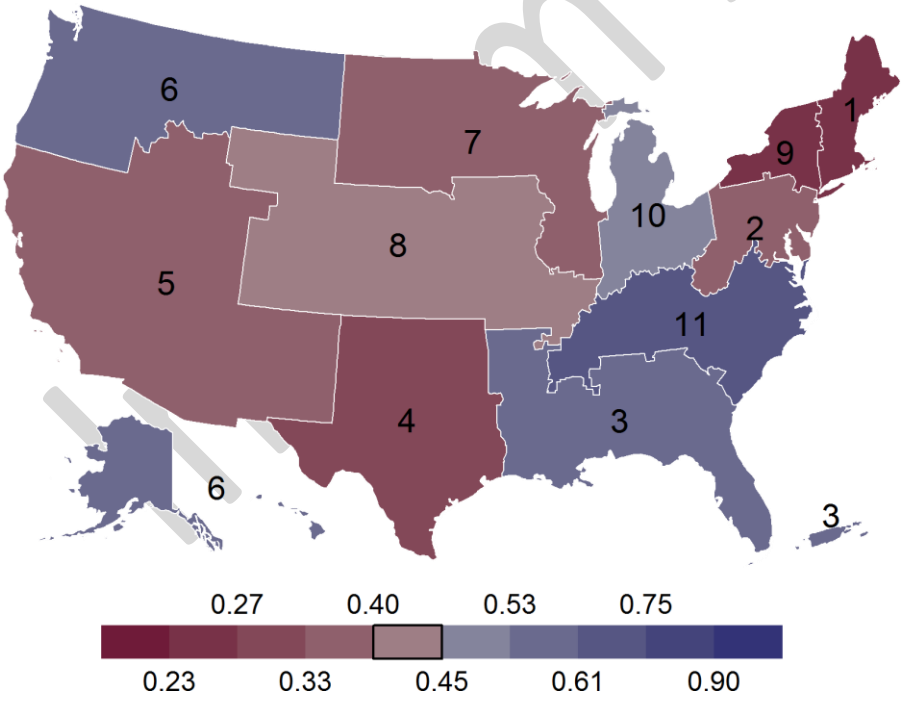


Figure 13. Ratio of eligible deaths/waitlisted candidates with allocation MELD/PELD > 15, by 8 districts.

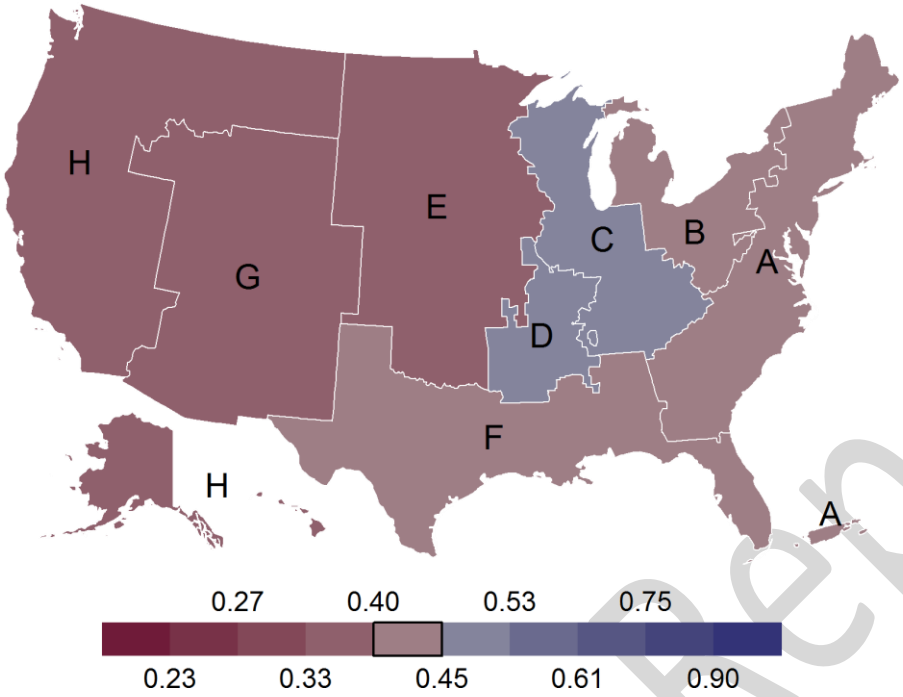
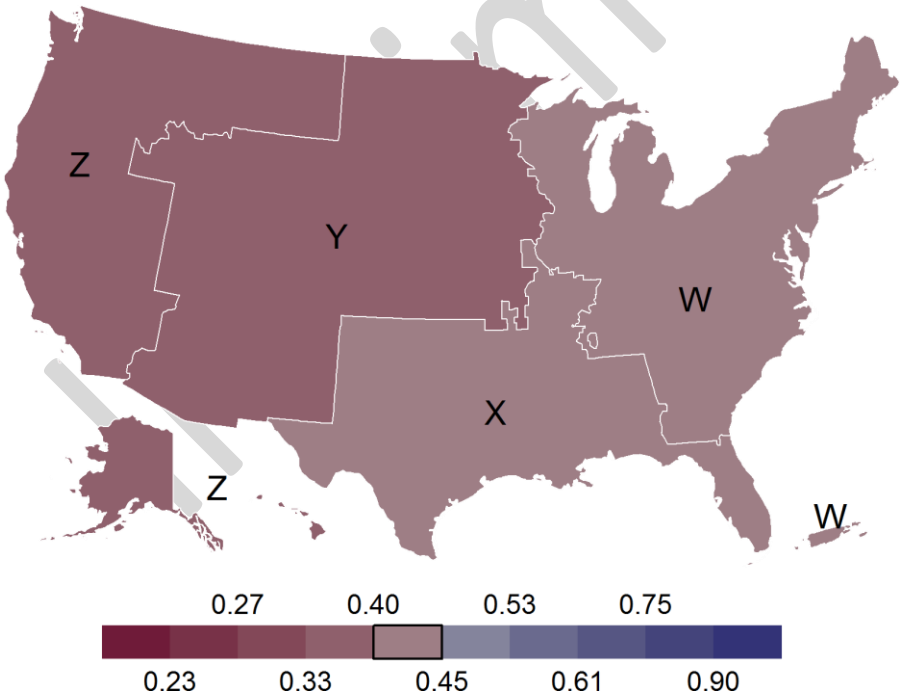


Figure 14. Ratio of eligible deaths/waitlisted candidates with allocation MELD/PELD > 15, by 4 districts.



Ratio of Total Deaths/Waitlisted Candidates with MELD/PELD > 15

The geographic distribution of total deaths in the current 11 regions (Figure 16) was slightly different from the distribution of eligible deaths, giving the northwestern region the highest ratio of total deaths to waitlisted candidates with MELD/PELD > 15. The lowest ratios were in the southwestern and Texas/Oklahoma regions.

Despite these minor differences, the same pattern of a more limited color palette across the districts was observed in the 8-district (Figure 17) and 4-district (Figure 18) maps.

Figure 15. Ratio of total deaths/waitlisted candidates with allocation MELD/PELD > 15, by DSAs.

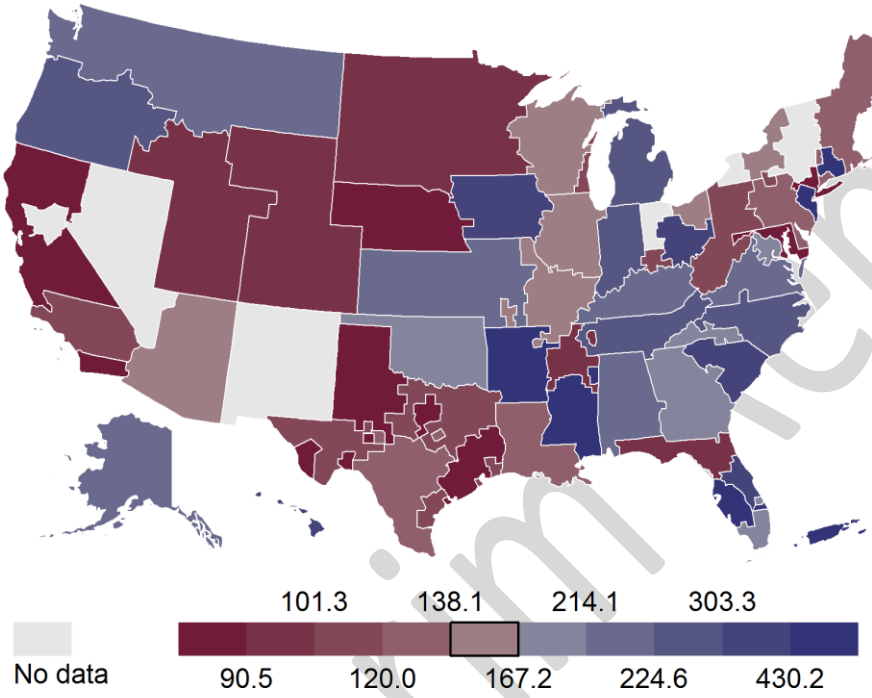


Figure 16. Ratio of total deaths/waitlisted candidates with allocation MELD/PELD > 15, by 11 regions.

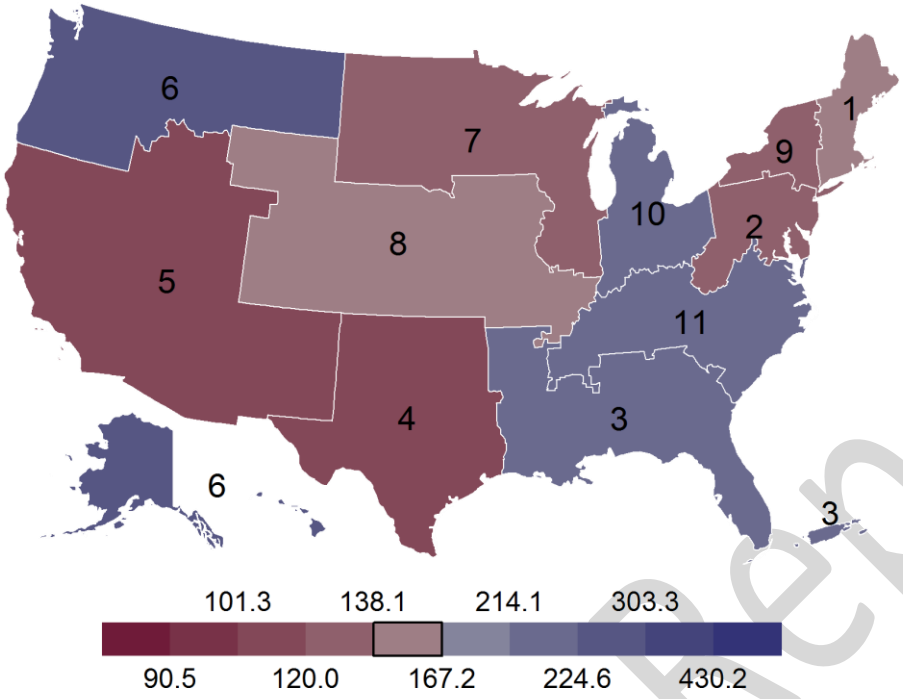


Figure 17. Ratio of total deaths/waitlisted candidates with allocation MELD/PELD > 15, by 8 districts.

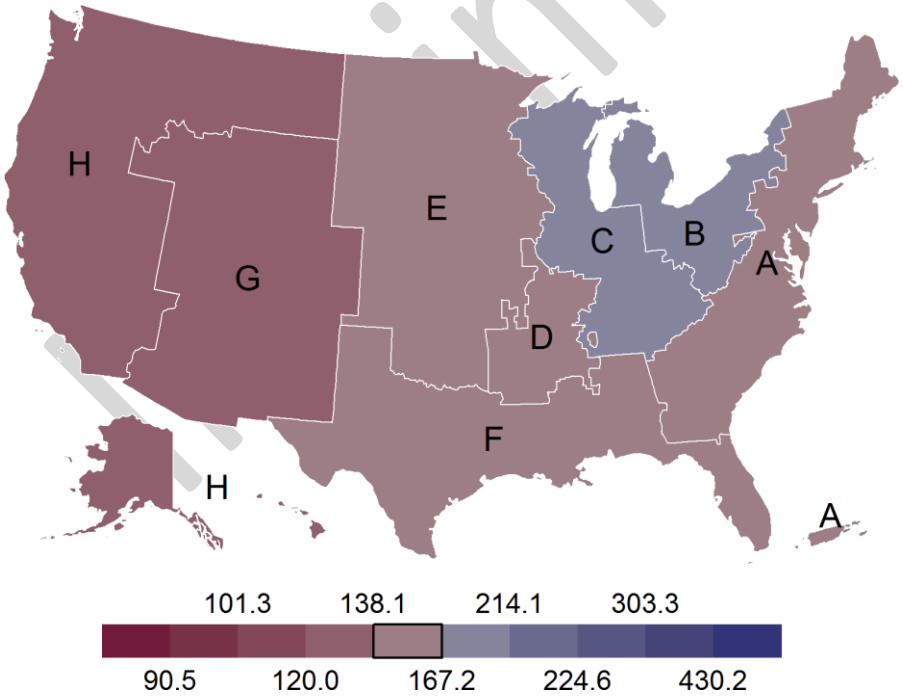
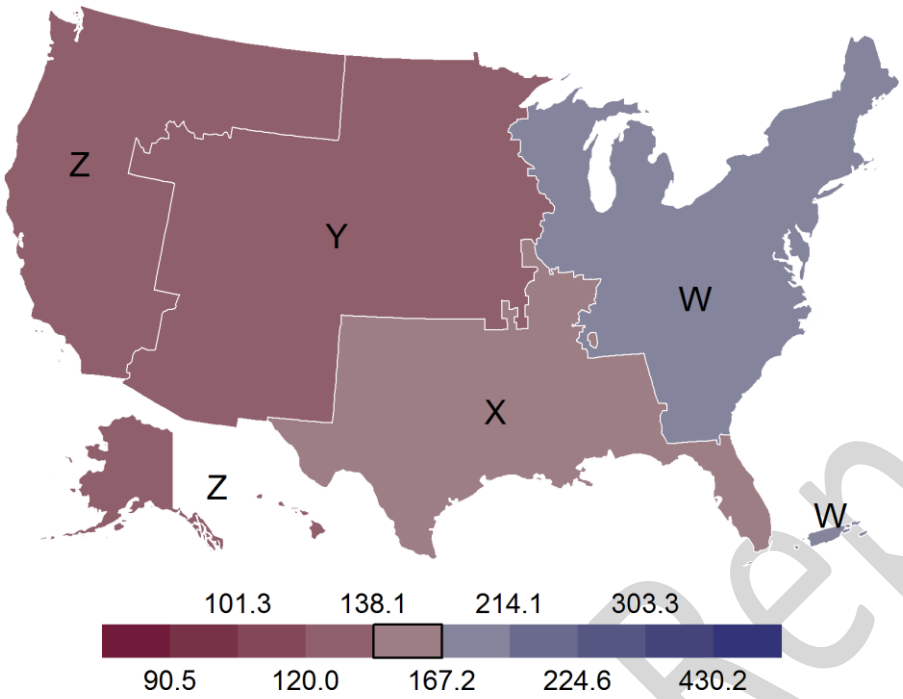


Figure 18. Ratio of total deaths/waitlisted candidates with allocation MELD/PELD > 15, by 4 districts.



Summary

In summary, the analysis of supply/demand ratios indicated that liver transplant supply and demand vary widely across the country. The ratio of eligible deaths to waitlisted candidates with MELD/PELD > 15 ranged from 0.16 to 4.08 across the 52 DSAs with active liver transplant programs. Given this wide variation, grouping DSAs so that supply and demand are balanced across districts is challenging.

In the current 11 districts, the ratios of eligible deaths to waitlisted patients with MELD/PELD > 15 ranged from 0.24 to 0.62; in other words, the ratio in the highest-ratio region was nearly 3 times the ratio in the lowest-ratio region. The conceptualized 8-district map reduced this range to 0.37 to 0.51, bringing the lowest-ratio district within a factor of 1.5 of the highest-ratio district. The conceptualized 4-district map reduced this range still further, to 0.37 to 0.43.

We also examined a range of supply/demand metrics following questions from committee members on patterns in other metrics. These include actual donors/waitlisted candidates with allocation MELD/PELD > 15, eligible donors/waitlisted candidates with lab MELD/PELD > 15, and eligible donors/waitlisted candidates with allocation MELD/PELD > 24, shown in Appendix A: Supply/Demand Information. Similar patterns showing a decreasing range of ratios as district size increases are also shown for these metrics.

Data Request 1.2: Modeling of Proximity Points

Committee Request

LSAM analysis of proximity points within circles surrounding donor hospitals. The request consists of 30 separate modeling scenarios, to be compared against the current system (including Share 35, but without consideration of the MELD-Na, Cap HCC, or HCC policies):

Table 3. Committee Requested Modeling Scenarios.

Run #	# of Districts	# of Points	Radius
1	Current/baseline	None	None
2	4	None	None
3	8	None	None
4	Current/baseline	3	150
5	Current/baseline	3	250
6	Current/baseline	5	150
7	Current/baseline	5	250
8	4	3	150
9	4	3	250
10	4	5	150
11	4	5	250
12	8	3	150
13	8	3	250
14	8	5	150
15	8	5	250

Each of the above scenarios should be run 2 ways:

Method 1: Candidates inside the proximity circle but outside the district boundary will receive proximity points but will be outside the district for the purposes of the distribution sequence. If the offer goes nationally, those extra points would apply.

Method 2: Candidates inside the proximity circle but outside the district boundary will receive proximity points and will be included in the district waiting list for the purposes of the distribution sequence.

For both methods, MELD should be capped at 40.

Metrics: Provide, at a minimum, the following disparity and summative metrics:

A. Disparity metrics by DSA/district:
   1. Variance of Median MELD at transplant
   2. Variance in waitlist mortality (pretransplant mortality)
   3. Variance in transplant rates
   4. Variance in supply/demand ratio
   5. Variance in the overall mortality rates once candidates reach a MELD of 20

B. Summative metrics:
   1. Waitlist and removal deaths prevented (pretransplant deaths prevented)
   2. Total pre- and posttransplant deaths prevented
   3. Overall waitlist mortality (pretransplant mortality)

4. Waitlist mortality for the US for MELD/PELD 35+, 29-34, 15-28, < 15
5. MELD score at transplant by DSA (as a table with 58 DSA codes as columns)

C. Transport metrics:
1. Local transplants (within a DSA)
2. Regional transplants (within a district)
3. Median transport time (hours)
4. Median transport distance (miles)
5. % of organs flying – compare the % flying in the systems with and without proximity points

D. Cost metrics: Estimated average transportation cost per transplant

Study Population

This analysis was based on actual patient data for transplant candidates listed on the liver waiting lists as of December 31, 2006, and candidates added to those waiting lists and organs donated between January 1, 2007, and December 31, 2011. We used donor and candidate generator software to combine these actual patient data into independent donor and candidate populations used in each of the multiple LSAM iterations involved in simulating each allocation scenario. Fifty-one DSAs had active liver transplant programs during the sampled time period (2007-2011). Characteristics of the candidate and donor cohorts are provided in Appendix C: LSAM Cohort Demographics.

Analytic Approach

To assess the impact of proximity points within circles surrounding donor hospitals, we simulated multiple allocation scenarios with LSAM and compared the results. Each simulation was repeated 10 times to provide an estimate of variability. Each of the 10 iterations for each scenario used independent sets of organ and waitlist arrivals and distinct random number seeds. Each scenario simulated 5 years of transplants.

In all, 28 simulations were conducted as part of this analysis. The scenarios, summarized in Table 4, were designed to investigate the use of proximity points together with optimized geographic allocation districts and broader sharing. Three different implementation parameters for proximity points were modeled:

- Proximity circle radii of 150 or 250 miles from the donor hospital
- Awarding 3 or 5 additional MELD points to candidates within the proximity circle
- Including candidates outside of the donor's district but inside the proximity circle in the first level of regional sharing ("out-district") or limiting the first level of sharing to candidates within the district ("in-district") (Proximity points were awarded to all candidates in the proximity circle in both cases.)

These 3 proximity point parameters were combined with 3 different geographic distribution systems: optimized 4- and 8-district maps and the current 11 regions. The various distribution systems and proximity circles combined to create 24 scenarios (runs 4-27 in Table 4). We also simulated 3 baseline scenarios applying the committee's proposed allocation order but no proximity circles (runs 1-3). Finally, we performed a simulation of the current allocation policy with the current 11 regions and Share 35/Share 15 allocation ordering (run 28). MELD/PELD scores were capped at 40 for all simulations. The full details of allocation ordering used for each run are provided in Appendix B: Allocation Ordering for Simulations.

Current Allocation compared with 11-region broader sharing allocation

The analysis includes two different types of allocation using the current 11 regions. The request asked that 11-region broader sharing allocation policy (with and without proximity points and circles) be modeled in addition to the 4- and 8-district broader sharing. This 11-district broader sharing (runs 1 and 4-11 in Table 4) uses the

committee's proposed allocation algorithm (shown in Appendix B: Allocation Ordering for Simulations). Compared to the current allocation system, this algorithm removes local allocation.

In addition to these 11-region broader sharing scenarios, the analysis also contains one comparison scenario designed to represent the current policy (run 28 in Table 4). This scenario uses the current 11 regions but implements the current allocation ordering (including Share 35/Share 15 allocation ordering but without consideration of the MELD-NA, Cap HCC, or HCC policies, as directed in the data request).

Table 4. Liver Simulated Allocation Model Simulated Scenarios

Run Number	Distribution	Number of Points	Radius	Candidate Designation
1	11 Regions	None	None	None
2	4 Districts	None	None	None
3	8 Districts	None	None	None
4	11 Regions	3	150	In district
5	11 Regions	3	150	Out of district
6	11 Regions	3	250	In district
7	11 Regions	3	250	Out of district
8	11 Regions	5	150	In district
9	11 Regions	5	150	Out of district
10	11 Regions	5	250	In district
11	11 Regions	5	250	Out of district
12	4 Districts	3	150	In district
13	4 Districts	3	150	Out of district
14	4 Districts	3	250	In district
15	4 Districts	3	250	Out of district
16	4 Districts	5	150	In district
17	4 Districts	5	150	Out of district
18	4 Districts	5	250	In district
19	4 Districts	5	250	Out of district
20	8 Districts	3	150	In district
21	8 Districts	3	150	Out of district
22	8 Districts	3	250	In district
23	8 Districts	3	250	Out of district
24	8 Districts	5	150	In district
25	8 Districts	5	150	Out of district
26	8 Districts	5	250	In district
27	8 Districts	5	250	Out of district
28	Current system	None	None	None

In-district and Out-district designations

The request specified two types of allocation for proximity circle scenarios, which differ based on how candidates are designated for district-wide allocation when the proximity circle extends outside the boundaries of the district. The two ways of handling this are illustrated in Figure 19.

Figure 19. Example candidate designations for in-district and out-district scenarios

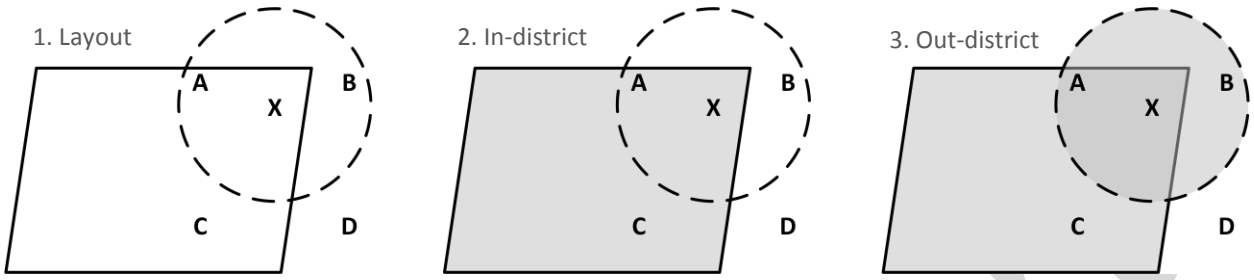


Figure 19-1 shows the basic situation. The example district is represented by the solid rectangle, with a donor center in the corner of the district represented by the X. For this donor center, the proximity circle (dashed circle) centered on the donor extends outside of the district. This creates four different situations for the transplant centers labeled A-D: center A is inside the circle and inside the district, center B is inside the circle but outside the district, center C is outside the circle but inside the district, and center D is outside both the circle and the district.

Candidates listed at centers A and B will all receive proximity points added to their allocation MELD/PELD, regardless of the proximity circle candidate designation in effect. However, these candidates are grouped differently in the allocation order in the in-district and out-district designations, and this can effect if and when they receive offers for the donation at center X.

The ordering specified by the request allocates organs to candidates first on a district-wide basis, then on a nation-wide basis. In the in-district scenarios, illustrated in Figure 19-2, candidates listed at transplant center B are not included in the district-wide grouping. Therefore, the organ at donor center X will first be offered to candidates at centers A and C, with candidates at center A having the advantage conferred by proximity MELD/PELD points. (Within these broad groups, candidates are further grouped by age and status according to the complete allocation order listed in Appendix B: Allocation Ordering for Simulations). If the organ is not accepted during this district-wide allocation round, candidates listed at center B will then receive offers together with candidates at center D (and all other nationwide centers). Candidates at center B will still have the advantage conferred by proximity MELD/PELD points for this allocation round.

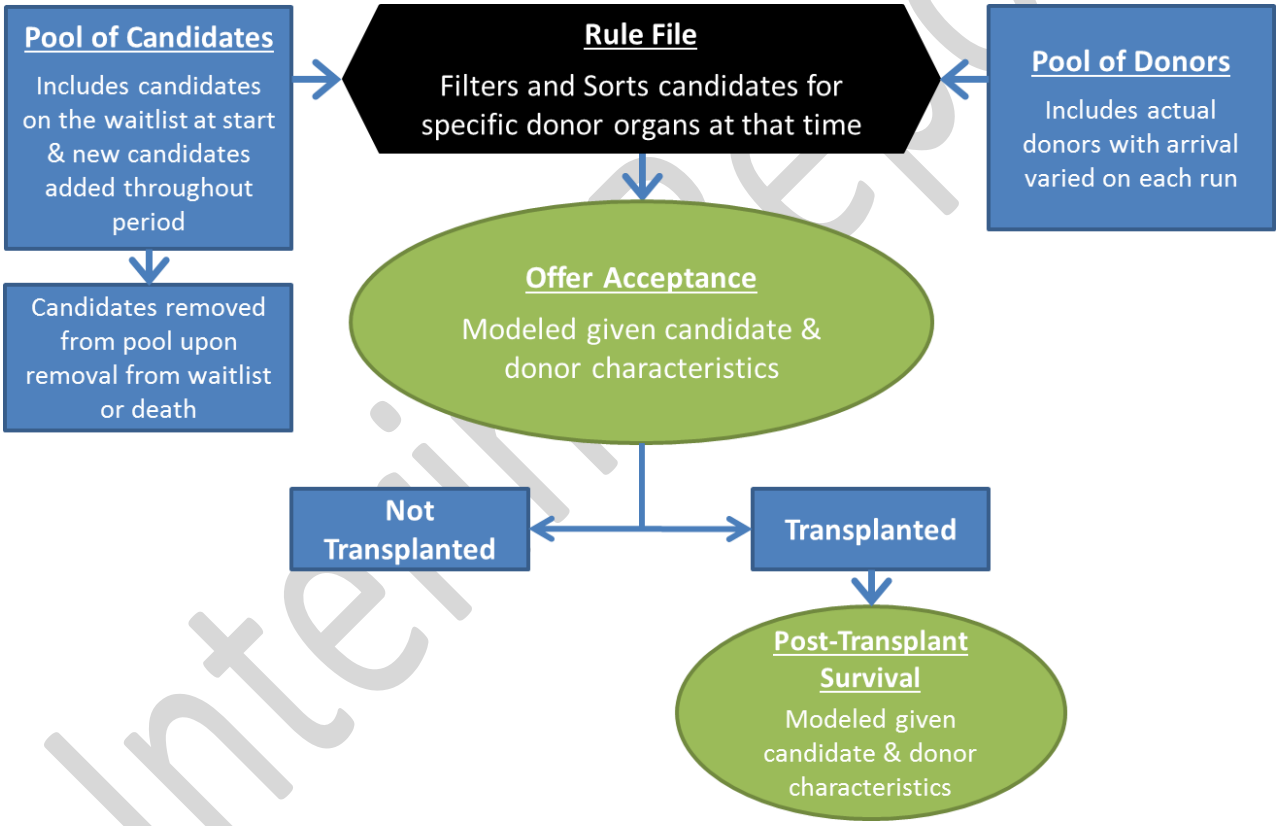
In the out-district scenarios, illustrated in Figure 19-3, candidates listed at center B are grouped together with the other candidates within the district for district-wide allocation. This means that the first level of allocation includes candidates from centers A, B, and C together, with candidates at center A and B having the advantage conferred by the proximity points. If the organ is not accepted during this district-wide allocation round, it will then be offered to candidates listed at center D (and all other national candidates). Candidates listed at center B will not receive a second set of offers, since they are considered part of the district and have already turned down the offered organ.

Liver Simulated Allocation Model (LSAM) description and implications for interpretation of data

The Liver Simulated Allocation Model (LSAM) is a discrete-event simulation of the liver allocation system. LSAM simulates the allocation of donated livers to waitlist candidates by drawing on historical patient data including candidate listing, candidate status changes, and organ donations (Figure 20).

Figure 20 shows a simple diagram of how LSAM works. For each donor, candidates are selected and sorted according to the allocation rule file. The organ is offered to candidates in turn with each acceptance decision predicted based on historical models. For candidates transplanted in the simulation, graft survival is predicted with a second historical model.

Figure 20. LSAM diagram.



While the policies governing liver allocation are clearly established, there is still some random variation associated with the process: for instance, when and where a liver becomes available, whether an offered organ is accepted by a given candidate, and how long a liver graft survives posttransplant. These events are fixed when reviewing historical data, but are unlikely to repeat themselves in exactly the same ways in the future. In order to help separate the effects of allocation changes from simple variation over time, LSAM uses several statistical modeling techniques:

- Each allocation scenario is simulated 10 times, with an independent set of candidates and donors for each iteration.

- Graft survival time for each simulated transplant is predicted based on a historical model of candidate and donor characteristics.
- Each simulated organ offer is accepted or declined based on a model of historical acceptance behavior, also taking into account candidate and donor characteristics.

These modeling elements introduce variation, presented as a range of results across the 10 iterations for each modeled scenario. Comparing the range of variation within a scenario to the variation between scenarios can help distinguish differences due to random variation from those due to a change in allocation rules.

The modeling used in LSAM has limitations. Predictions are most reliable on a national level, because the statistical models are based on average national behavior and outcomes. LSAM cannot predict outcomes on a center-by-center basis, because the individual variations in practice and procedure are not represented in the models.

Predictions are based on historical listing and offer acceptance behavior. If the rules of a simulated scenario are likely to result in changes to listing or acceptance behavior, then this should be factored in when evaluating the results.

The limitations of the offer acceptance model have specific implications for this analysis, particularly in overall transplant counts. All of the redistricting scenarios implement full regional sharing, with many more offers made to candidates outside of the donor's DSA. The offer acceptance model currently assumes that candidates are less likely to accept regional offers, because under current policy those organs have been of lower quality on average. This drives 100-200 fewer predicted transplants per year (2%-3% of the total) in most of the redistricted scenarios (Figure H118). However, with full regional sharing organs offered to candidates outside the donor's DSA will no longer be of lower quality on average. If overall acceptance rates remain at previous levels, then more patients will undergo transplantation than predicted. This in turn will further improve waitlist mortality and reduce pretransplant costs.

Outcome Metrics

Estimated outcomes for the simulation models include A) disparity, B) summative, C) transport, and D) cost metrics.

A. Disparity Metrics

The committee requested that disparity metrics be provided by DSA/district. Estimates of variance are highly influenced by the number of allocation units used. It can be misleading to compare variance estimates calculated using different numbers of districts (for example, variance by 4 districts versus variance by 8 districts). To avoid misinterpretation, we calculated disparity metrics across DSAs within the simulated scenarios, not by region/district. Presenting variances across a standard number of units (58 DSAs) for each of the 28 scenarios allows for accurate comparison between scenarios.

Disparity metrics include:

- Variance of median allocation MELD/PELD at transplant across DSAs
- Variance in pretransplant mortality rates across DSAs
- Variance in transplant rates across DSAs
- Variance in overall mortality rates for candidates with MELD/PELD of ≥ 20 across DSAs

B. Summative metrics

We calculated the following metrics for each of the 28 scenarios:

- Pretransplant deaths prevented (including waitlist and removal deaths)
- Posttransplant deaths prevented
- Overall mortality counts and rates
- Waitlist mortality counts and rates stratified by MELD/PELD ≥ 35 (including status 1A and 1B), 29-34, 15-28, < 15
- MELD/PELD score at transplant by DSA (as requested by the committee, we provided a table with the DSAs as columns for each of the 28 scenarios: Table I44)

C. Transport metrics

We calculated the following metrics for each of the 28 scenarios:

- Percentage of transplants that are local (within DSA)
- Percentage of transplants that are regional (within district)
- Median transport time (hours)
- Median transport distance (miles)
- Percentage of organs flying

D. Cost metrics

Cost metrics including estimated average transportation cost per transplant are reported. Of note, SRTR does not have access to the transport cost models used to estimate cost metrics. These models were developed by Sommer Gentry, PhD, SRTR Senior Staff member. Dr. Gentry provided analysis of cost

metrics for this data request. SRTR does not have detailed data files on these cost metrics in house, so replicating or modifying these results in the future may be difficult.

Further specifications of methods used to estimate metrics are provided in Appendix D: Calculation of Metrics.

Results and Discussion

Results for the simulated scenarios are reported primarily in the form of plots, with each plot displaying the values for a given metric across the 28 scenarios tested (for example, Figure 21 shows the values found for variance in median MELD/PELD at transplant in each simulated scenario). Each scenario was simulated 10 times, and the plot displays the range of this variability as a vertical line extending from the minimum value to the maximum value found for that metric. A point along that line marks the mean value of the metric across the 10 iterations for each of the scenarios.

The sheer number of data points makes the plots challenging to read, so all plots are laid out in a consistent fashion. The scenarios in each plot are listed in the same order along the horizontal axis, and are grouped according to the scenario parameters. The first scenario in each plot is the simulation of current policy (including Share 35 and Share 15, but without consideration of the MELD-Na, Cap HCC, or HCC policies), given as a point of comparison. Next are simulations with broader sharing in the current 11 regions, then in 4 districts, and finally in 8 districts. The scenario data are colored according to the distribution system.

Within each distribution group, the first data point is the simulation without proximity circles. Next are the 4 in-district scenarios, where the first level of sharing includes only candidates within the region or district, then the out-district scenarios, where all candidates within the proximity circle are included with region- or district-wide candidates in the first level of sharing.

The last scenario parameters are the size of the proximity circles and the number of proximity points awarded to candidates within those circles. The data points within the in- and out-district groups for each distribution system are ordered as follows: 3 points 150 miles, 5 points 150 miles, 3 points 250 miles, and 5 points 250 miles. Scenarios with 3 proximity points are represented by squares and scenarios with 5 proximity points by triangles; scenarios with 150-mile circles are represented by filled in markers and scenarios with 250-miles by empty markers.

In addition to the summary plots discussed in this section, full tabular results for all metrics are given in Appendix E: Simulation Metrics Tables. Results for pertinent metrics by population subgroup (pediatric, female, and race/ethnicity) are provided in Appendix G. Subgroup Analyses.

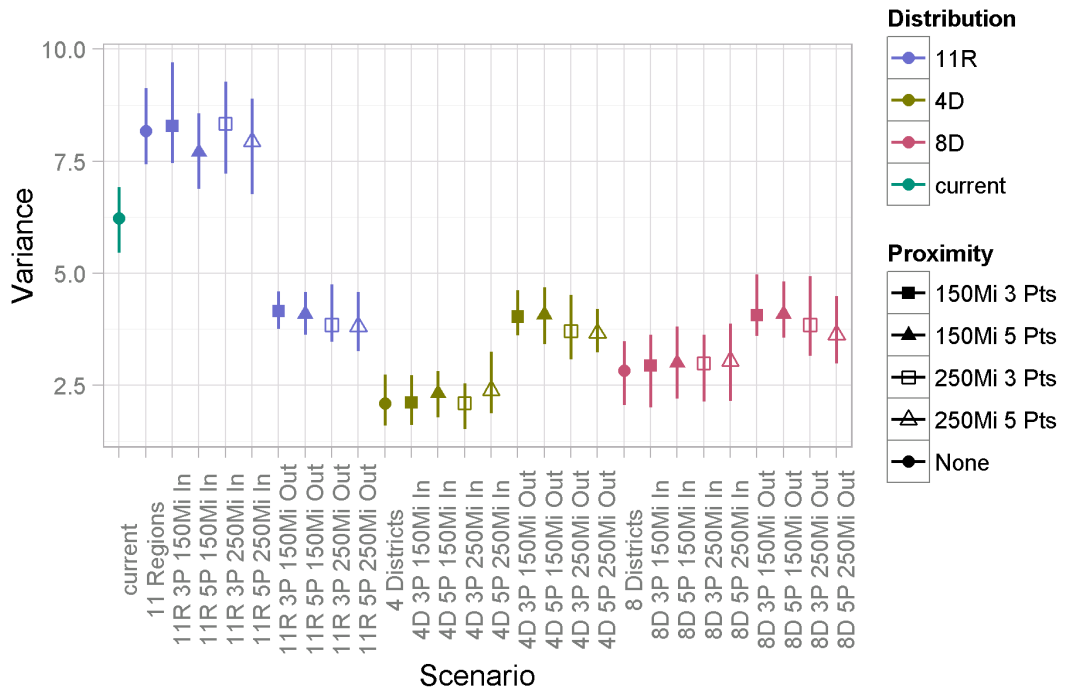
Disparity Metrics

SRTR estimated disparity metrics for the various simulation scenarios by calculating the variance across DSAs of 4 key quantities: median allocation MELD/PELD at transplant, median pretransplant mortality rate, median transplant rate, and overall mortality for candidates who reach MELD/PELD ≥ 20.

Variance is a measure of how widely a metric is spread across DSAs. For example, for median MELD/PELD at transplant, a scenario with a lower variance indicates that median MELD at transplant is more similar across DSAs within that scenario. A scenario with a higher variance indicates that median MELD at transplant is more disparate across DSAs within that scenario.

The variance in median MELD/PELD at transplant across DSAs varied over a wide range across the 28 simulated scenarios (Figure 21). The number of distribution units and the in-district/out-district distinction appeared to be the 2 controlling factors; the size of proximity circles and the number of points had less effect on the observed variance.

Figure 21. Variance in median MELD/PELD at transplant.

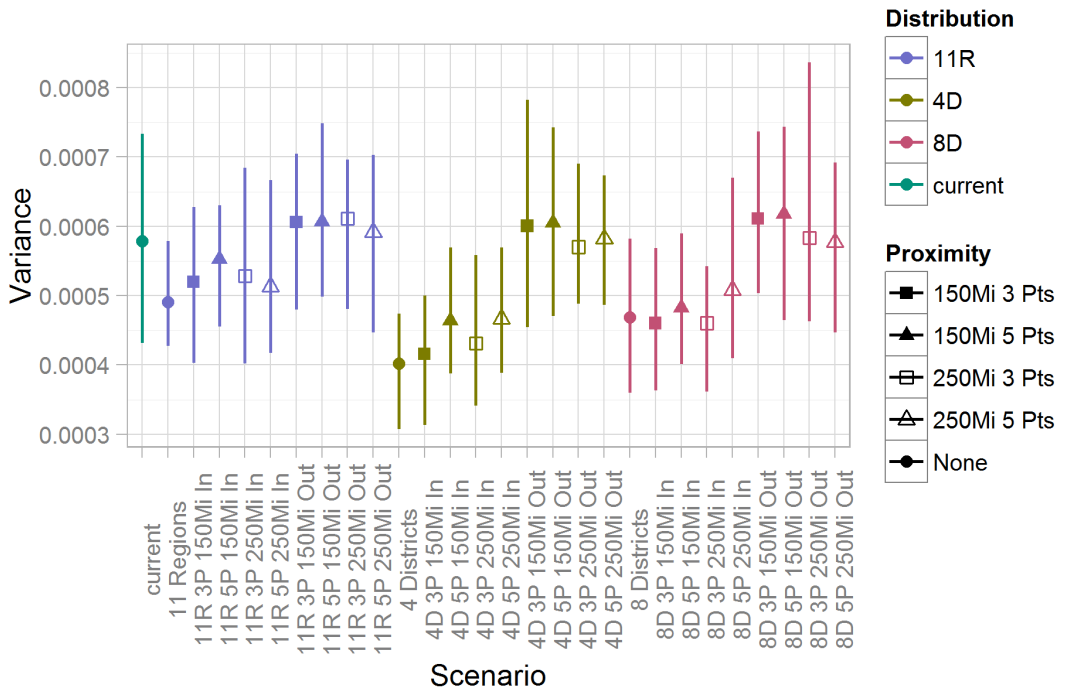


Compared with the simulation of current policy, broader sharing to candidates within the existing 11 regions was estimated to increase the variance in median MELD/PELD at transplant. This is similar to the effect observed after implementation of Share35, when variance in median MELD/PELD at transplant increased with broader sharing. The variance decreased when out-of-district candidates were included in the first level of allocation, perhaps due to sharing across region boundaries.

Scenarios with 4 and 8 districts showed considerably lower variance in median MELD/PELD at transplant than current policy or 11-region in-district sharing, with 4 districts showing a possible slight advantage over 8 at minimizing this metric. Adding proximity circles with in-district sharing had little impact on variance in median MELD, but including out-district candidates increased the variance.

Figure 22 shows lower variance in pretransplant mortality rates across DSAs overall than the variance in median MELD/PELD at transplant.

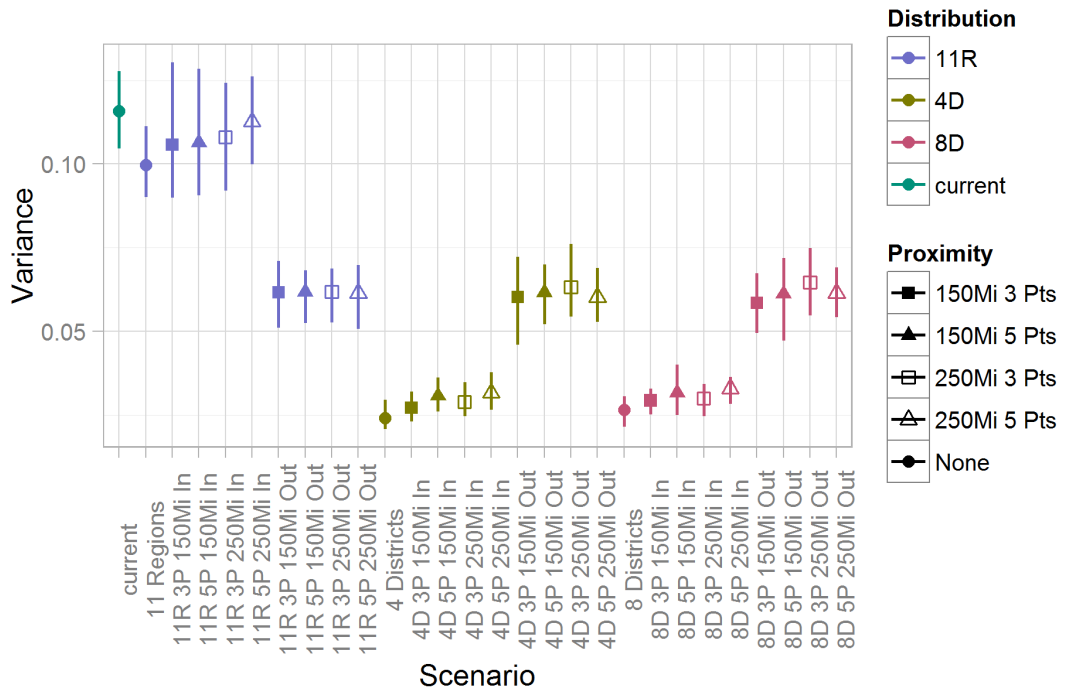
Figure 22. Variance in pretransplant mortality rates.



Compared with the simulation of the current system, the 4-district scenarios with full sharing and in-district proximity circles showed the largest reduction in mortality rate variance. The 8-district scenarios also showed a likely decrease for full sharing and in-district proximity circles, although there was considerable overlap between the range of values observed for these scenarios and the range for the current system simulation. The scenarios with out-district proximity circles were systematically higher in pretransplant mortality rate variance than the in-district scenarios, with essentially full overlap of the current system simulation in most cases.

The variance in transplant rates across DSAs (Figure 23) showed a pattern similar to the variance in median MELD/PELD at transplant. Again, the controlling factors appeared to be the number of distribution units and the in-district/out-district proximity circle implementation, with proximity circle size and point numbers showing less impact.

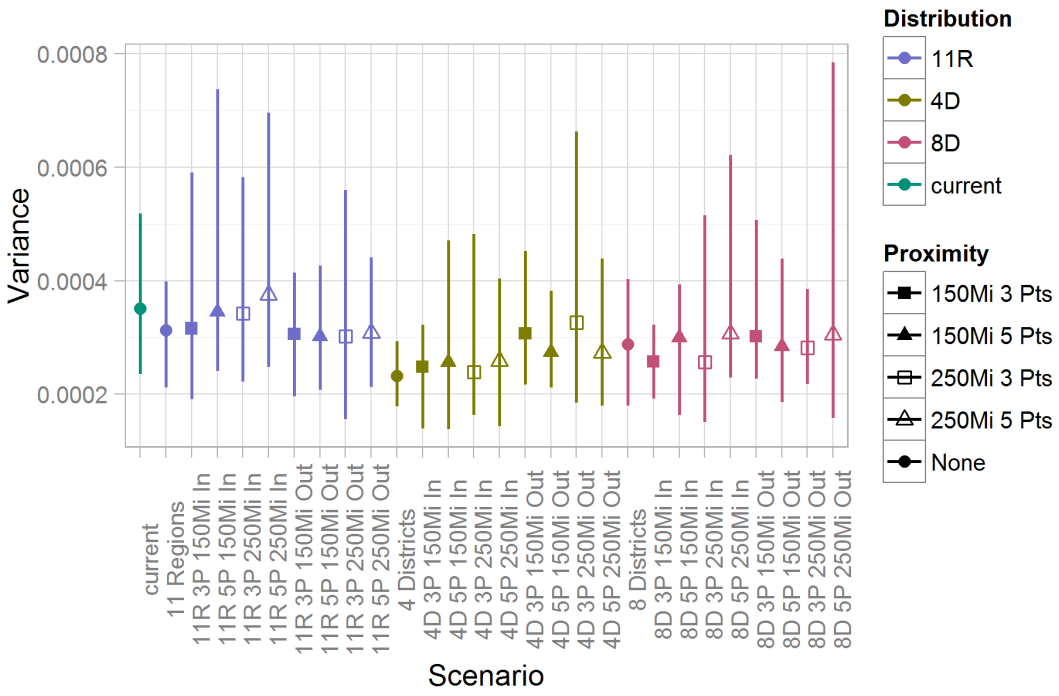
Figure 23. Variance in transplant rates.



As with median MELD/PELD at transplant, the 4-district and 8-district scenarios showed the lowest variance in transplant rates, less than half the variance observed in the current system or in the 11-region in-district scenarios. Scenarios with out-district sharing showed higher variance in transplant rates than scenarios with no circles or with only in-district sharing, in the 4- and 8-district groups.

Figure 24 shows the final disparity metric, variance in overall mortality rates for candidates who reached MELD/PELD ≥ 20. This metric shows little discrimination between the scenarios.

Figure 24. Variance in overall mortality rates (pre- and posttransplant) once candidates reach a MELD/PELD of 20



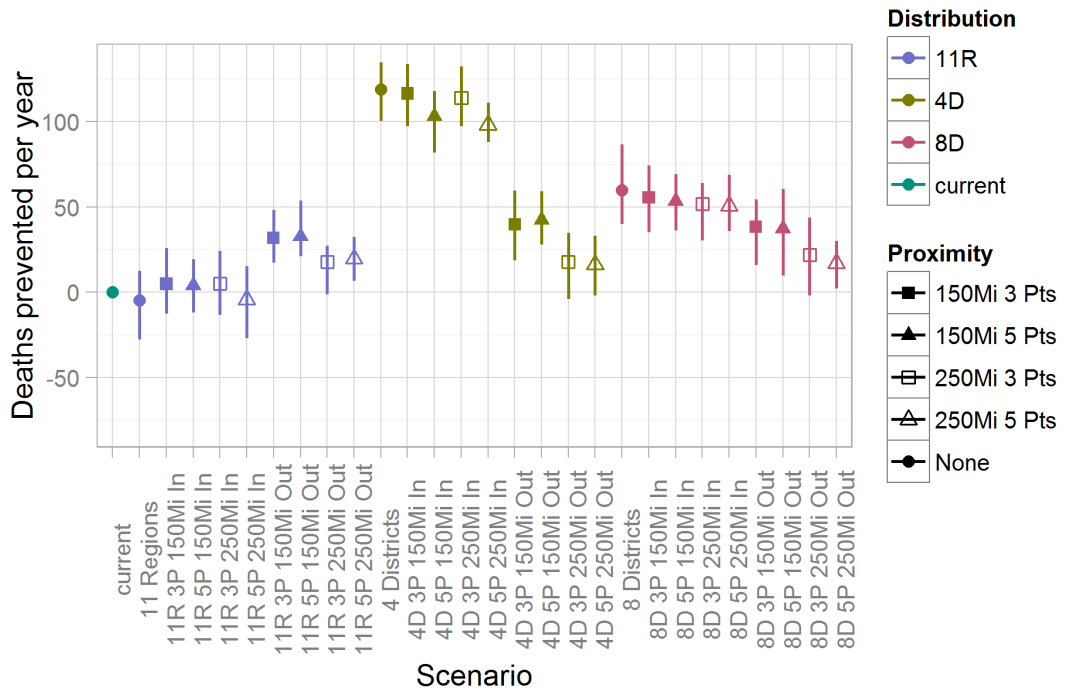
The variability between iterations was larger than the difference between scenarios in almost every case for this metric, suggesting little difference between the scenarios for the variance in overall mortality rates among these candidates.

Summative Metrics

SRTR estimated several summative metrics for the 28 scenarios tested. These included the number of deaths prevented compared with current policy, both pre- and posttransplant. We also estimated counts and rates for overall mortality, and for the number of waitlist deaths in each of several MELD/PELD categories. As requested, we also provided a table of MELD/PELD scores at transplant by DSA, shown in Appendix I. DSA level data.

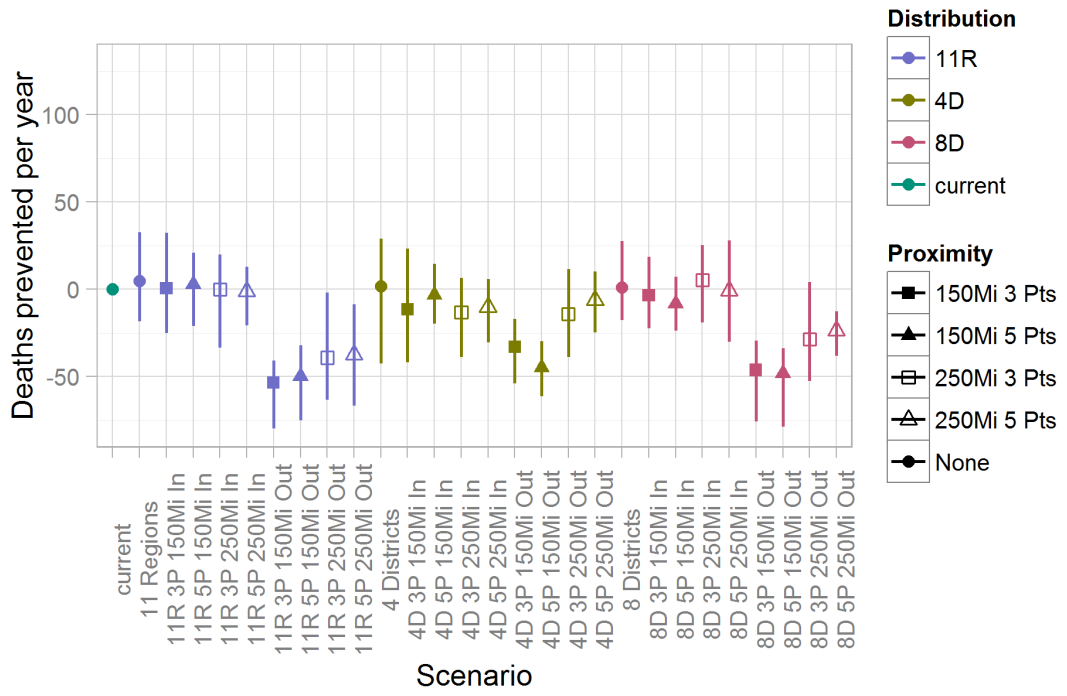
The estimated number of pretransplant deaths prevented per year varied across the scenarios from approximately 0 to just over 100 (Figure 25). The 4-district scenarios without out-of-district sharing showed the highest number of prevented deaths, but including patients outside of the district in the first level of sharing reduced the benefit by more than half. The 8-district scenarios prevented roughly 50 estimated deaths per year for the in-district scenarios, and somewhat less for the out-district scenarios. For the current 11 regions, only the out-district scenarios projected any decrease in pretransplant mortality.

Figure 25. Pretransplant deaths prevented per year



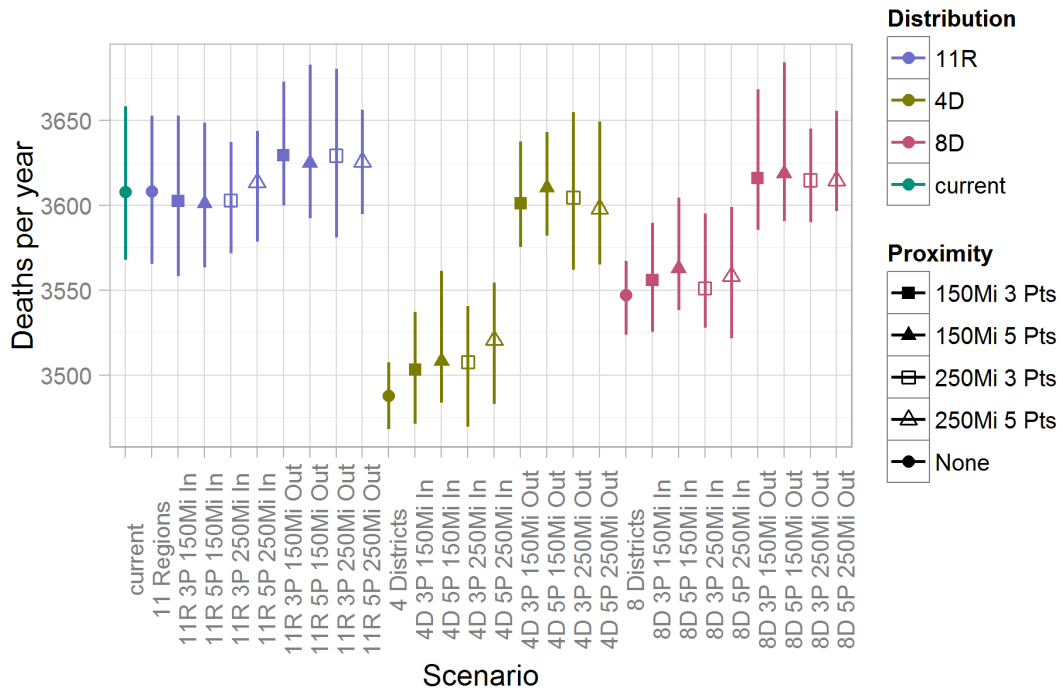
No scenarios projected a decrease in posttransplant deaths (Figure 26). The scenarios without proximity circles were essentially neutral, and in most cases the in-district proximity circle scenarios also were near zero. The out-district scenarios did not perform as well, particularly those with the smaller 150-mile circles.

Figure 26. Posttransplant deaths prevented per year



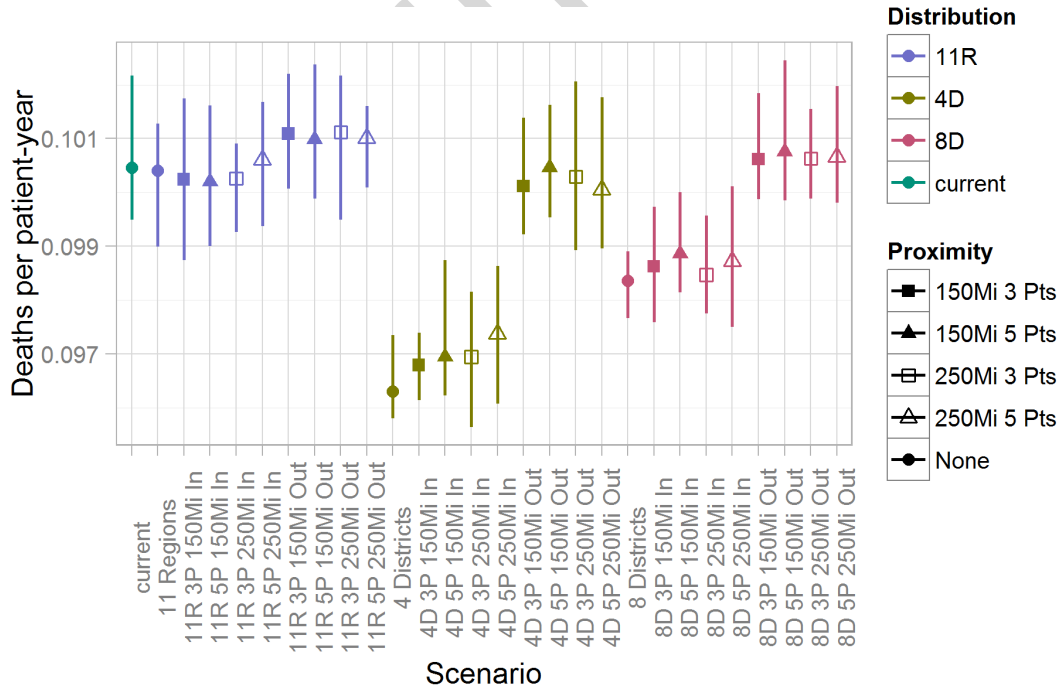
The projected overall annual mortality counts varied over a range of about 100, from mean values of approximately 3500 deaths per year in the best-performing 4-district scenarios to over 3600 deaths per year in the out-district scenarios (Figure 27). This follows naturally from the previous two metrics, in which the in-district 4- and 8-district scenarios were projected to be essentially neutral in posttransplant mortality while preventing 50-100 pretransplant deaths per year.

Figure 27. Overall mortality counts per year



Overall mortality rates followed a very similar pattern (Figure 28). The 4-district in-district scenarios showed a decrease in overall mortality, and the 8-district in-district scenarios showed a similar but smaller effect.

Figure 28. Overall mortality rates (deaths per patient-year)



The following plots (Figure 29-Figure 32) show waitlist mortality counts in each of 4 MELD/PELD categories: ≥ 35, 29-34, 15-28, and < 15. For ease of comparison, all 4 plots are displayed with the same vertical scale. Note that the ≥ 35 group includes status 1A and 1B candidates. Note also that while other pretransplant mortality metrics in this report include postremoval deaths, these MELD/PELD strata plots include only deaths while on the waitlist.

Figure 29. Annual waitlist mortality counts for MELD/PELD ≥ 35

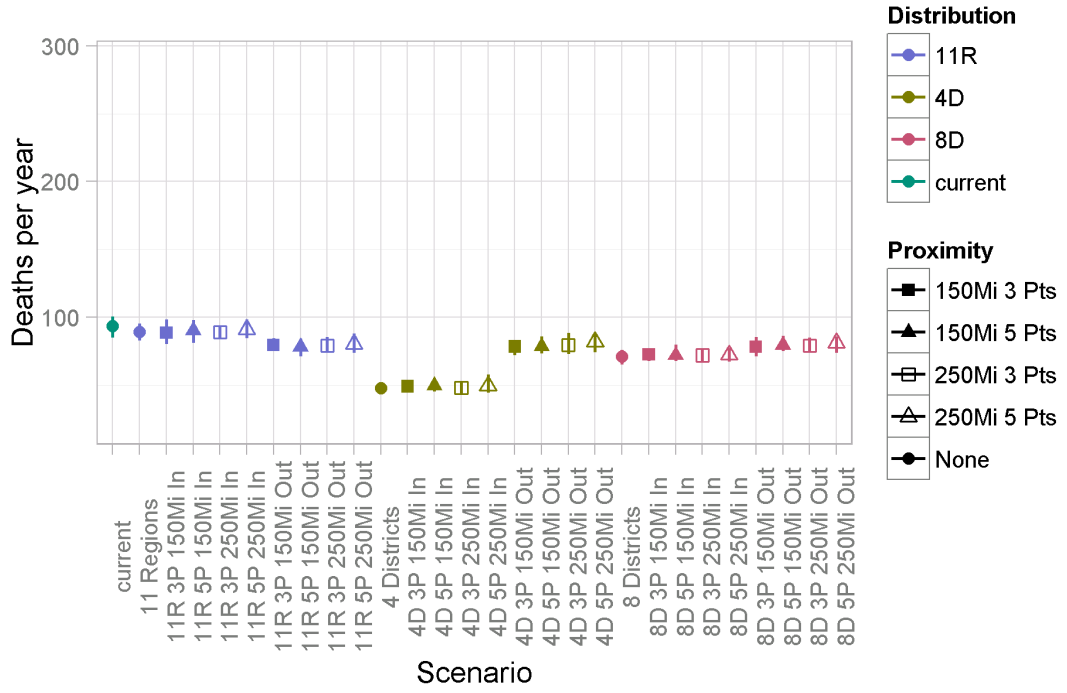


Figure 29 shows that for candidates with MELD/PELD ≥ 35, the 4-district in-district scenarios showed the lowest numbers of annual deaths on the waiting list, just over half the deaths projected by the simulation of the current system. Smaller reductions in the numbers of deaths were projected for the 8-district scenarios, and for the out-district 11-region and 4-district scenarios; the 11-region in-district scenarios were essentially neutral.

Figure 30. Annual waitlist mortality counts for MELD/PELD 29-34

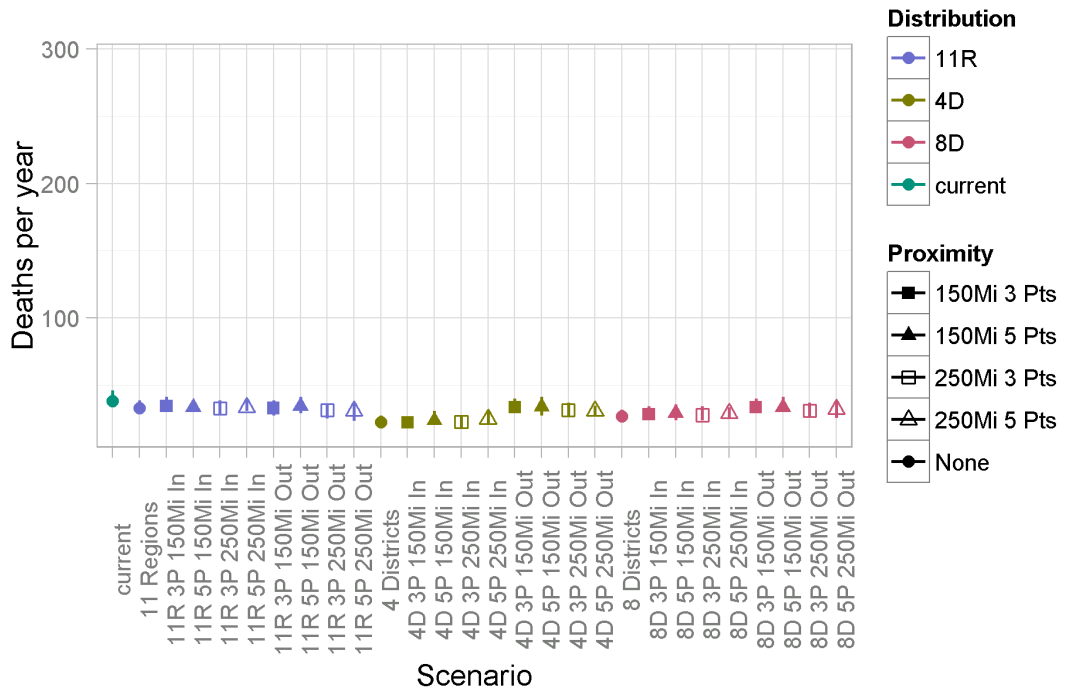


Figure 30 shows that the absolute number of projected annual deaths for candidates with MELD/PELD 29-34 was much smaller, and the apparent reduction in deaths across the scenarios was correspondingly small.

Figure 31. Annual waitlist mortality counts for MELD/PELD 15-28

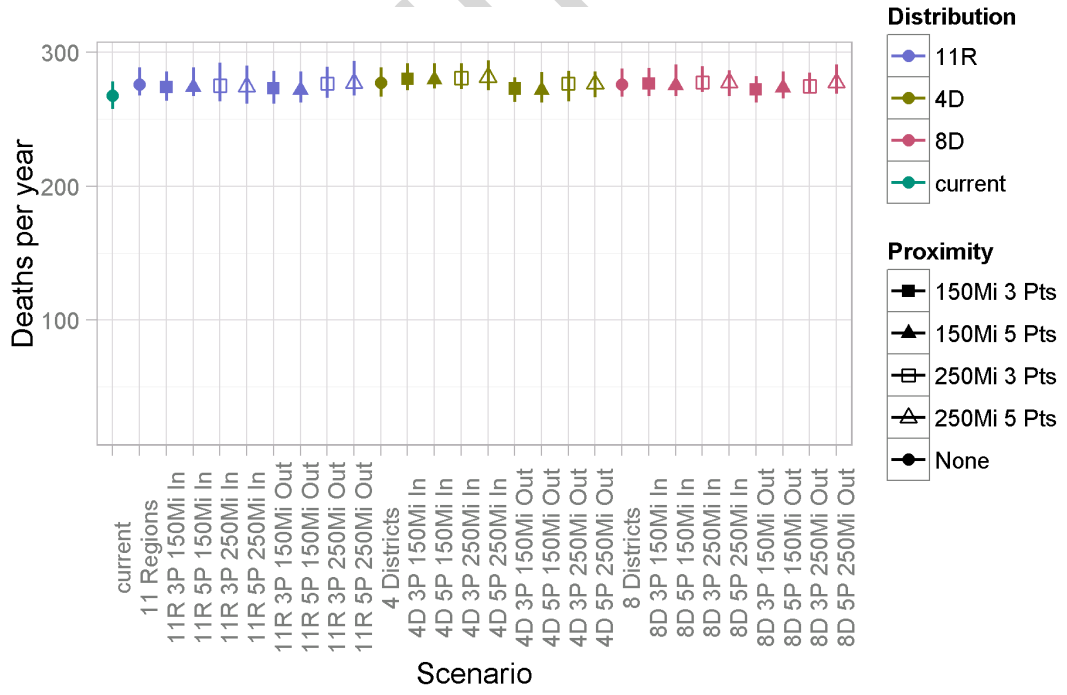


Figure 31 shows that while the absolute number of projected deaths for candidates with MELD/PELD 15-28 was much larger than in other MELD/PELD groups at nearly 300 per year, the simulations predicted very little relative change. The scenarios that showed the largest reduction in MELD/PELD ≥ 35 waitlist deaths would likely show slight increases in deaths in this MELD/PELD category.

Figure 32. Annual waitlist mortality counts for MELD/PELD < 15

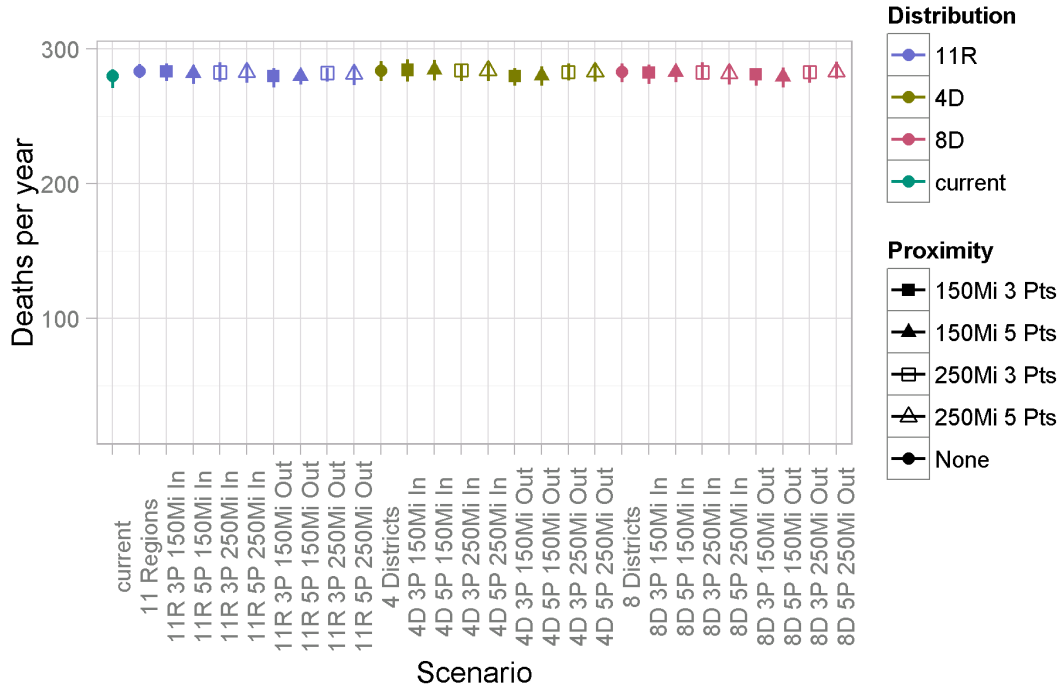


Figure 32 shows very little difference on the projected numbers of deaths of candidates with MELD/PELD < 15 between scenarios.

Overall, the largest projected change in waitlist mortality counts by MELD/PELD category was in the MELD/PELD ≥ 35 group, in which the 4-district in-district scenarios were projected to reduce waitlist deaths by nearly 50 annually. The changes predicted for other scenarios and in other MELD/PELD groupings were negligible.

The following plots (Figure 33-Figure 36) show waitlist mortality rates for candidates in the same 4 MELD/PELD categories: ≥ 35, 29-34, 15-28, and < 15. These rates take into account both the mortality counts, as discussed above, and the amount of time spent in each MELD/PELD category by candidates on the waiting list.

Figure 33. Waitlist mortality rates for MELD/PELD ≥ 35.

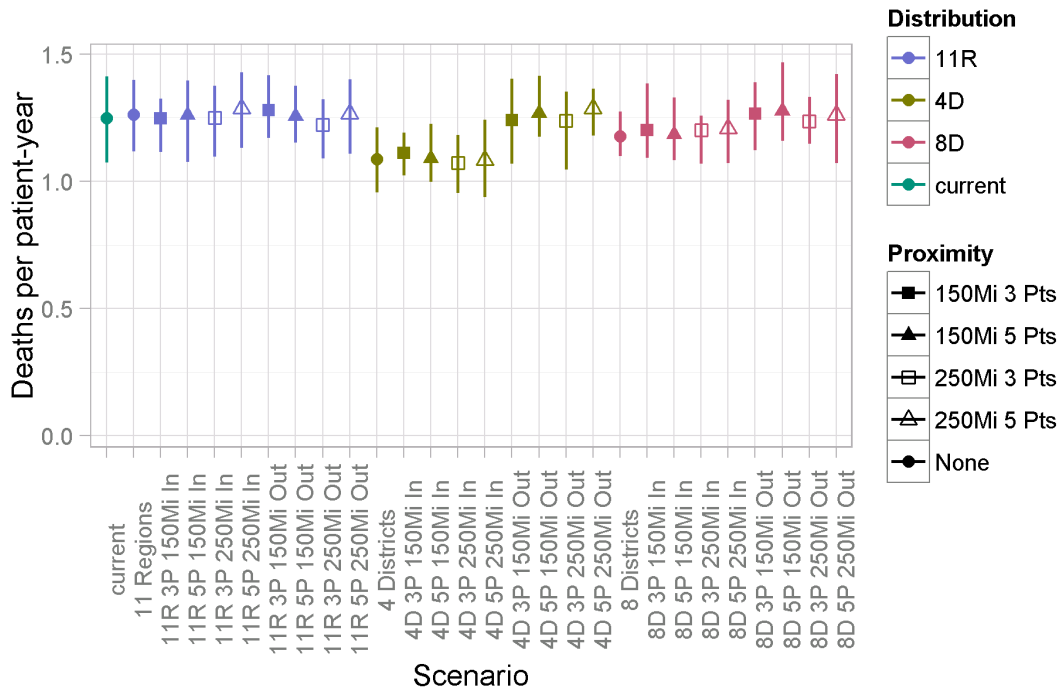


Figure 33 shows only a slight variation in the mortality rate for candidates with MELD/PELD ≥ 35. As with the mortality counts, the 4-district in-district scenarios were projected to produce the lowest mortality rates for this group, although there was significant overlap with the current policy simulation. The other scenarios showed little separation from the current policy simulation.

Figure 34. Waitlist mortality rates for MELD/PELD 29-34.

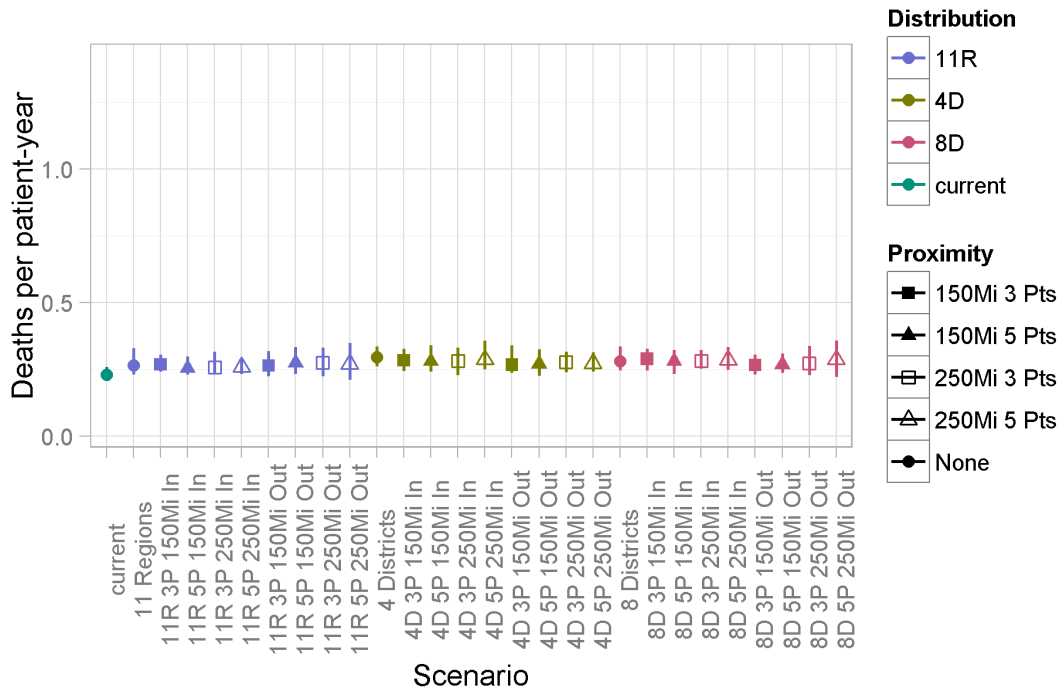


Figure 34 shows very little estimated difference in waitlist mortality rates between scenarios for candidates with MELD/PELD 29-34.

Figure 35. Waitlist mortality rates for MELD/PELD 15-28.

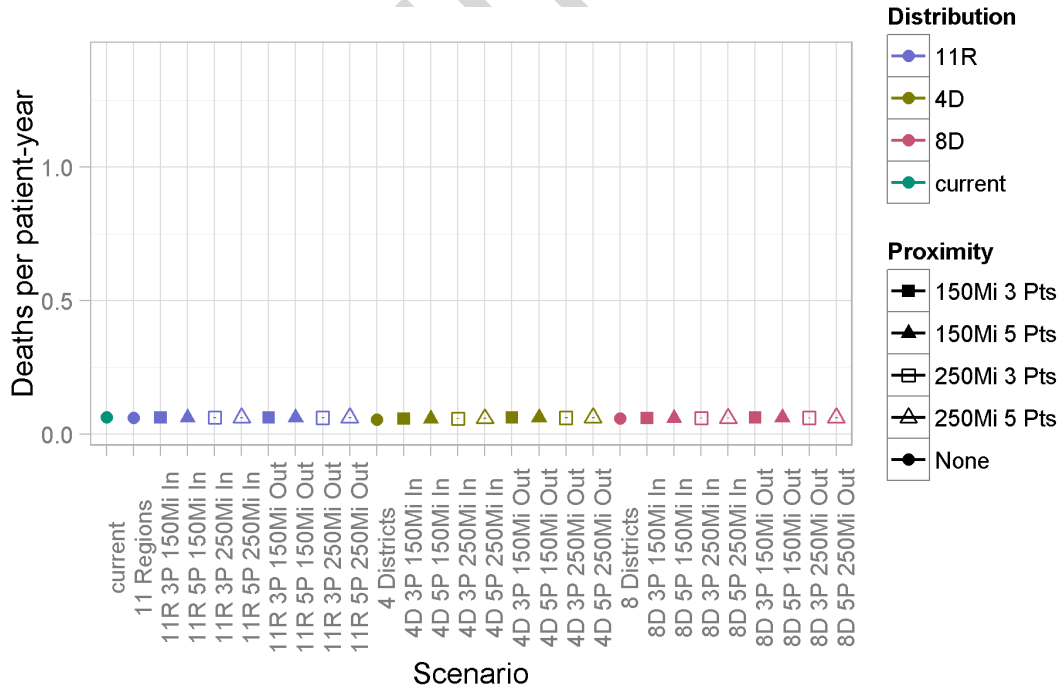


Figure 35 shows quite low projected waitlist mortality rates for candidates with MELD/PELD 15-28, and no appreciable difference between the scenarios.

Figure 36. Waitlist mortality rates for MELD < 15.

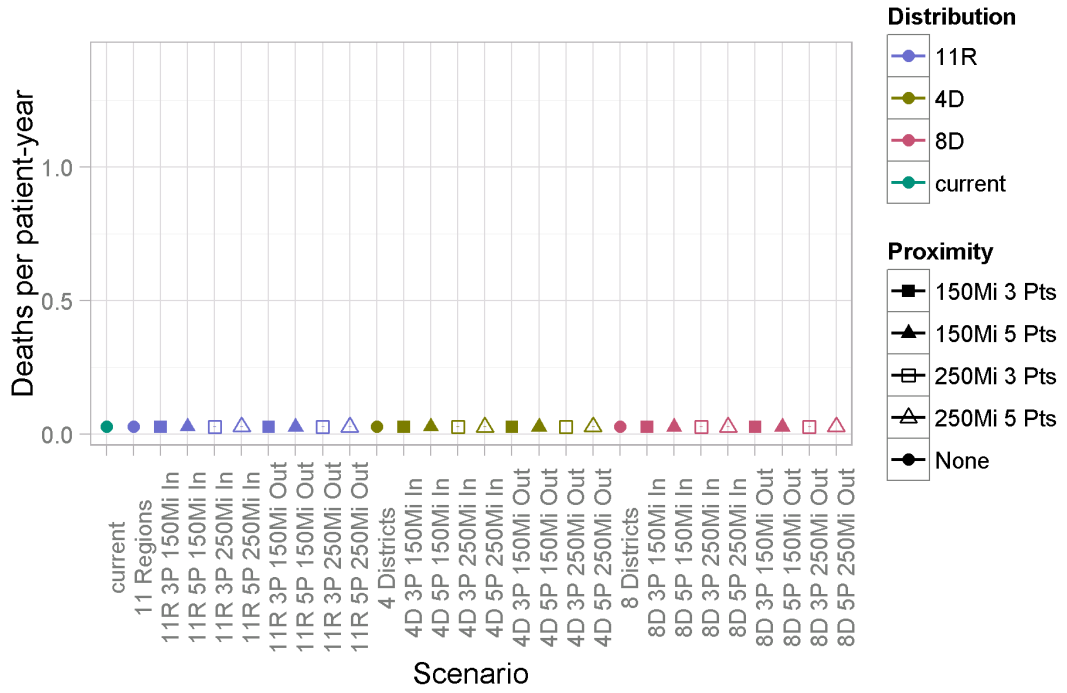


Figure 36 shows that, similar to waitlist mortality for candidates with MELD 15-28, projected waitlist mortality for candidate with MELD < 15 was low across all scenarios, with no appreciable differences observed between them.

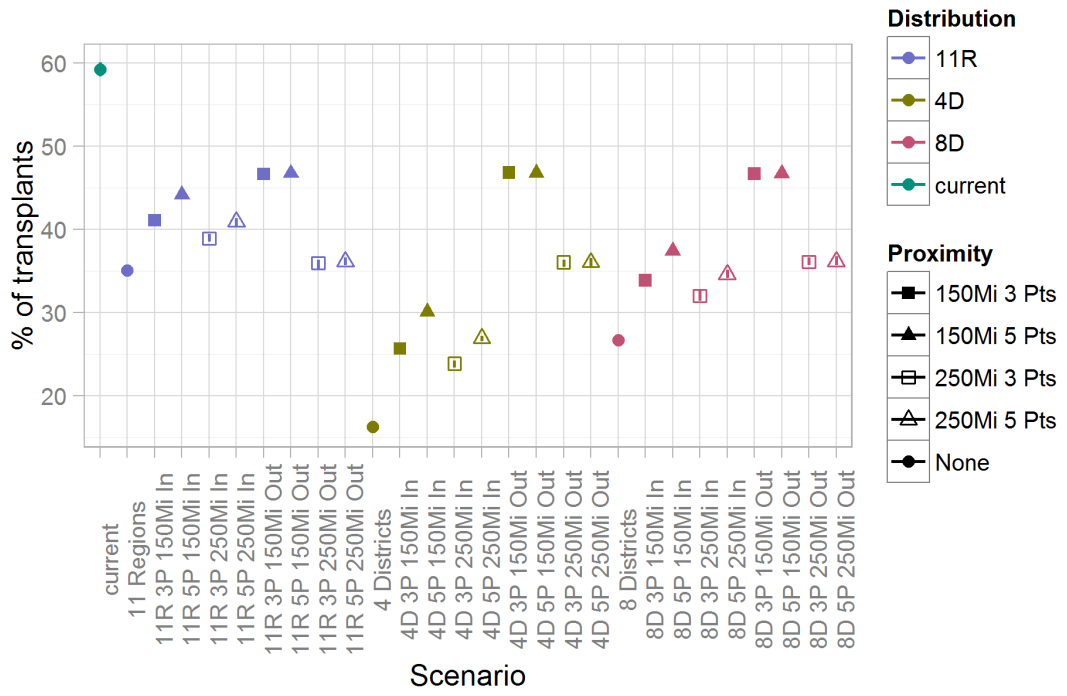
Overall, the main projected impact on waitlist mortality rates by MELD category was in the MELD ≥ 35 group, where the 4-district in-district scenarios slightly reduced waitlist mortality. No other appreciable differences were found between the scenarios.

Transport Metrics

SRTR estimated 5 metrics associated with organ transport for the 28 simulated scenarios: the percentage of transplants performed locally (within the donor's DSA), the percentage of transplants performed regionally (within the donor's district or region), the median transport time, the median transport distance, and the percentage of organs that were flown to the transplant center.

The percentage of organs transplanted locally varied widely across the various scenarios (Figure 37). The parameters with the most impact on this metric were number of distribution units and whether or not proximity circles were used.

Figure 37. Percentage of transplants performed locally (within the DSA)

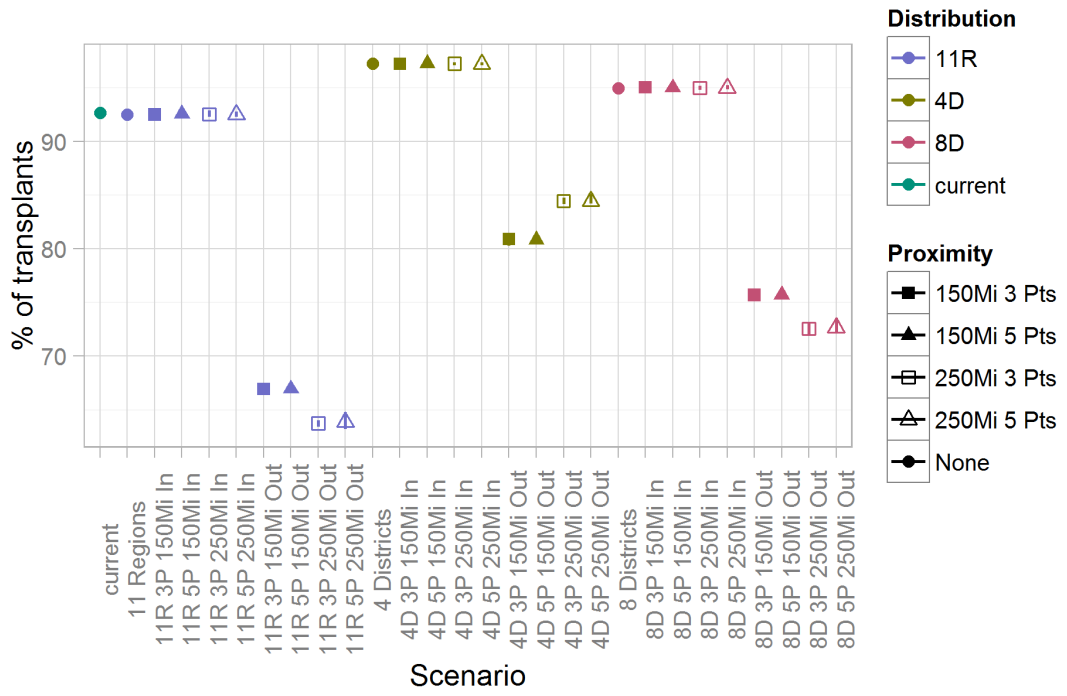


The simulation of current policy showed the highest projected local transplant fraction, at 59% (Figure 37). All other scenarios projected less than 50% of organs being transplanted within the local DSA. The 4-district scenario without proximity circles showed the lowest local fraction, at 16%. Adding proximity circles with in-district sharing increased this to between 25% (3 proximity points) and 30% (5 proximity points).

Including out-of-district candidates in the 150-mile sharing level increased the local percentage to 47%, a result that held constant regardless of the number of proximity points or the number of distribution units. In the out-district scenarios, increasing the circle size from 150 to 250 miles significantly decreased the local fraction to under 40%, likely due to more out-of-DSA candidates included in the larger circles. This effect was also observed in the in-district scenarios, but was much less pronounced.

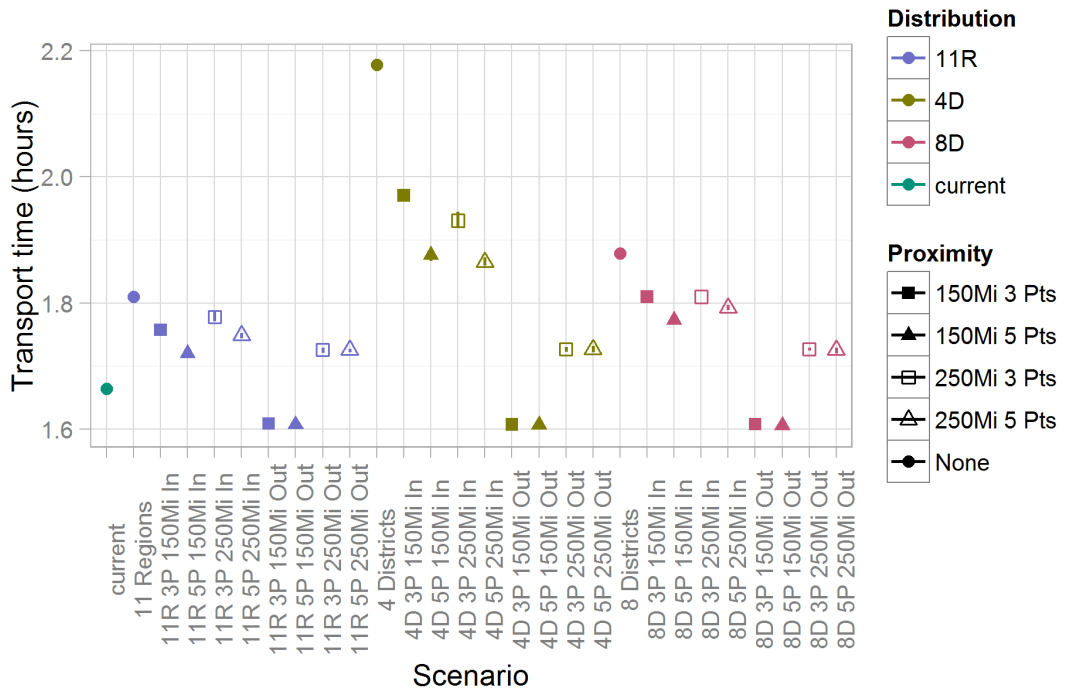
The projected percentage of transplants performed within the donor's region or district (Figure 38) also varied between scenarios, though not as much as the local percentage. The in-district scenarios and the simulation of current policy all projected more than 90% of transplants being performed regionally, while projections in the out-district scenarios were somewhat lower. The 4-district in-district scenarios showed the highest percentages of regional transplants, and the 11-district out-district scenarios the lowest.

Figure 38. Percentage of transplants performed regionally (within the district or region)



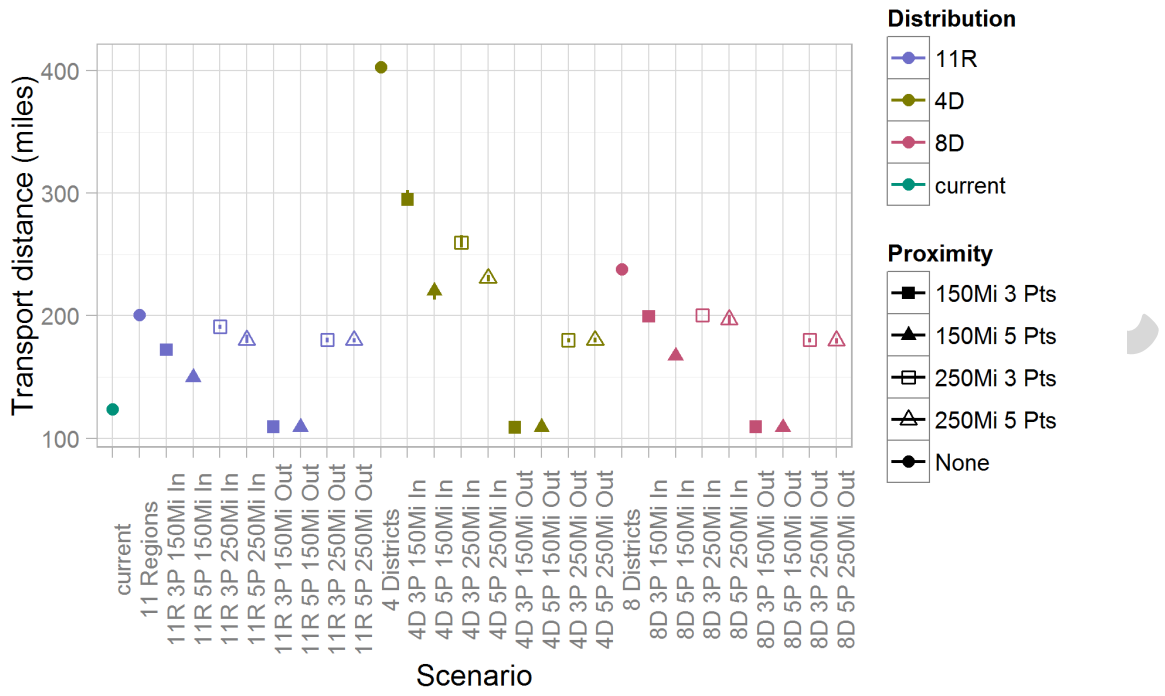
The median transport time varied from a low of 1.6 hours to a high of 2.2 hours across the 28 scenarios (Figure 39). The 4-district scenario with no proximity circles showed the highest projected median transport time, but adding proximity circles brought the time under 2 hours. The 4-district scenario without circles showed a median time of just under 1.9 hours, and adding proximity circles reduced the time to 1.8 hours. The out-district scenarios with 150-mile circles showed the lowest projected median transport time of 1.6 hours, lower even than the estimate for the current system. This result remained constant regardless of the number of distribution units and the number of proximity points.

Figure 39. Median transport time (hours)



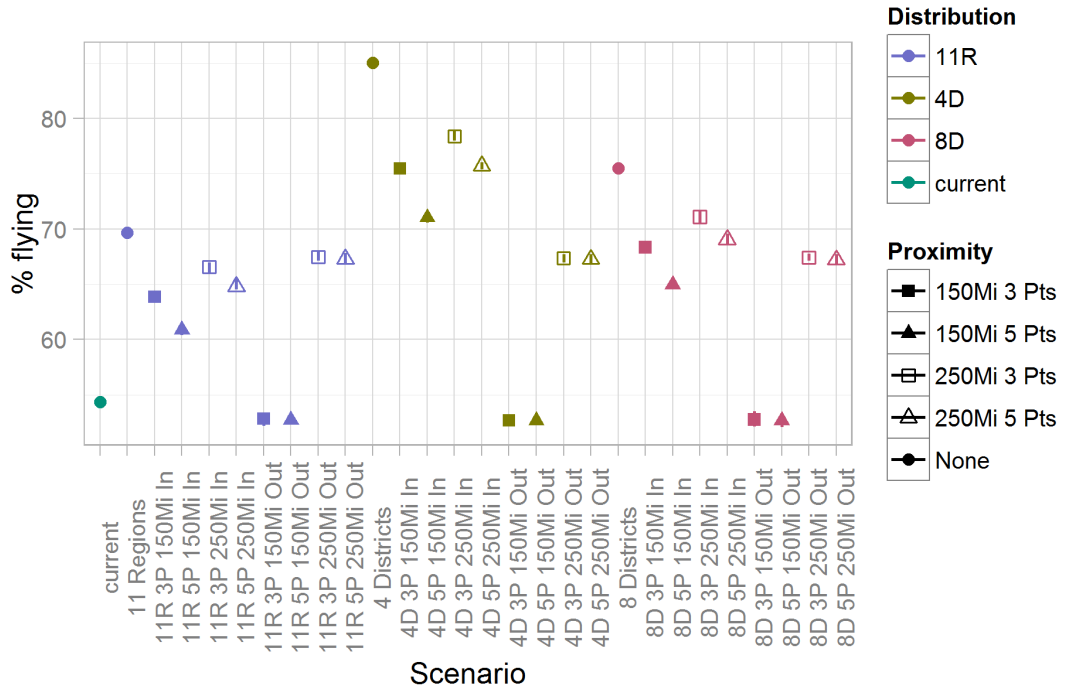
The median transport distance varied from 100 to 400 nautical miles (Figure 40) with a pattern very similar to the pattern for transport time. The 4-district scenario without proximity circles showed the highest projected median transport distance, which was reduced significantly by adding proximity circles. The 150-mile out-district scenarios showed the lowest median transport distance estimates regardless of proximity points and distribution units.

Figure 40. Median transport distance (miles)



The percentage of organs transported by flying also varied widely across the scenarios (Figure 41). The pattern was similar to the pattern for transport time and transport distance: the 4-district scenario without proximity circles showed the highest projected flight fraction at nearly 85%, and the 8-district scenario without circles showed just over 75% flying. Adding proximity circles reduced the flight fraction in all cases; 150-mile-circles showed a larger reduction than 250-mile circles and 5 points reduced the flight fraction more than 3 points. The out-district scenarios showed the lowest flight percentage, under 55%.

Figure 41. Percentage of organs flying (transported by fixed-wing aircraft or helicopter).



Transport Cost Metrics

Cost metrics for the various scenarios were estimated using cost models developed by Sommer Gentry, PhD. Complete explanations of the methodology and detailed results for costs in each segment of the transplant care system are provided under Data Request 2 below. For comparison purposes, the cost of transport is also discussed here.

Transportation costs per transplant varied from $8400 to $14,700 (Figure 42). All of the simulated scenarios projected increased transport costs compared with the simulation of current policy; the highest estimated costs were for the 4-district system without proximity circles. Adding proximity circles reduced the transport cost by more than $1000 per patient in both the 4- and 8-district scenarios. Including out-of-district patients in the first sharing level further reduced the projected costs; 150-mile out-district circles showed projected costs of approximately $9400 per patient across all scenarios.

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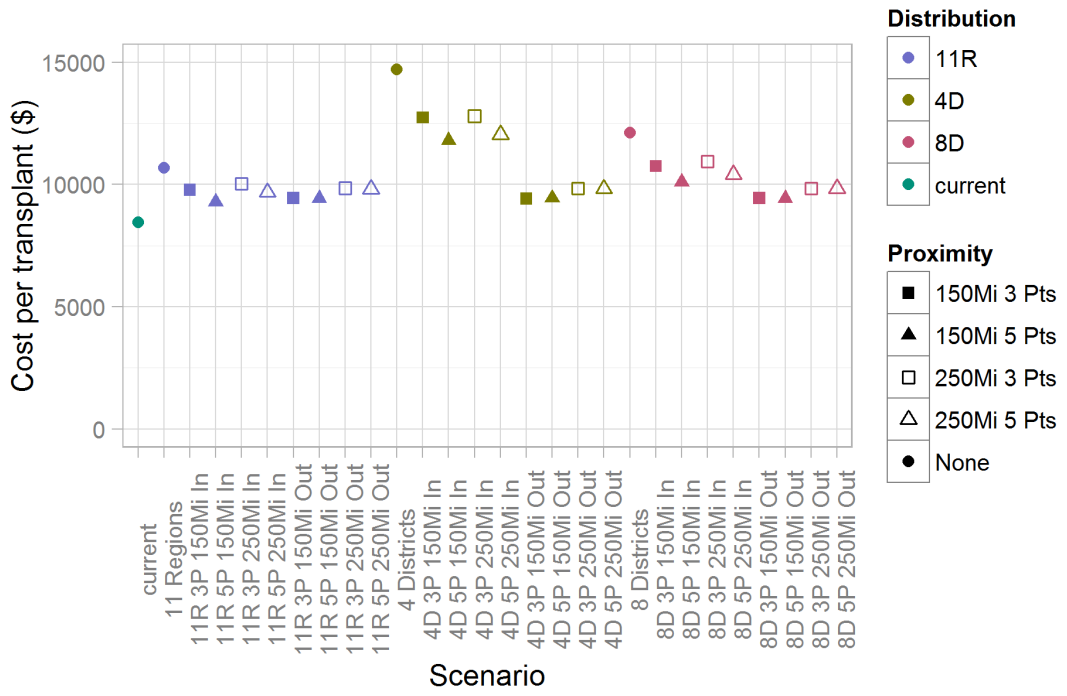
Figure 42. Transport cost per transplant.



Summary

Across the wide range of scenarios and metrics studied, a few overall trends stood out:

- The primary parameters of importance were the number of distribution units (11 regions or 4 or 8 districts) and the sharing configuration for proximity circles (in-district or out-district). The choice of these parameters had the largest effects on most of the metrics when variation between scenarios was observed.

- In scenarios with proximity circles, the out-district candidate designation (including candidates outside of the donor's district or region in the first level of sharing) had a very strong effect on many metrics. In several metrics, this effect was so strong that it appeared to dominate even the choice of number distribution units (such as in overall mortality rates, Figure 28, and percentage of organs flying, Figure 41). This suggests that out-district proximity circles affect allocation not by mediating organ sharing across districts but by overriding it. In other words, out-district proximity circles behave less like the regional allocation system requested by the committee and more like concentric circle allocation.

- Performance of proximity circles with in-district sharing was similar in the disparity and summative metrics to the previously studied 4- and 8-district non-circle scenarios. However, adding proximity circles increased the local transplant percentage while decreasing the transport times, distances, and flying percentages across 4- and 8-district scenarios. Modeled transport costs were also reduced by the addition of proximity circles.

- Very little variation in mortality rates was observed across any of the scenarios. The one exception was within the highest-MELD group (candidates with MELD ≥ 35 plus statuses 1A and 1B), where waitlist mortality decreased slightly in the 4- and 8-district in-district scenarios; this led to a reduction in overall

mortality of about 100 deaths per year in the 4-district scenarios and about 50 deaths per year in the 8-district scenarios.

11-Region Summary

Variance in median MELD at transplant was increased for full sharing and in-district proximity circles in the current 11 regions compared with the simulation of current policy. Variance in transplant rates remained essentially the same. Variance in MELD at transplant and transplant rates decreased for out-district circles, but not as much as in the 4- and 8-district in-district scenarios.

Mortality metrics were broadly similar to the simulation of current policy across all 11-district scenarios.

Eleven-district broader sharing scenarios showed the smallest increase in median transport time, flying percentage, and transport cost compared with the current policy simulation.

4-District Summary

Four-district in-district scenarios showed the largest projected reduction in variance in median MELD at transplant, with variance reduced by more than 2 times. Variance in pretransplant mortality and transplant rates was also lowest in these scenarios. The out-district scenarios also showed reductions in these metrics, but of a smaller magnitude.

Approximately 100 pretransplant deaths were projected to be prevented in the 4-district in-district scenarios, while posttransplant deaths were the same or slightly higher compared with the current policy simulation.

The 4-district non-circle scenario showed the highest transport burden, with a median transport time of 2.2 hours and a median transport distance of 400 miles. Nearly 85% of organs were transported by flying. Adding proximity circles reduced this burden; 150-mile in-district circles brought the median transport time to under 2 hours, the median transport distance to under 300 miles, and the flying percentage to 75.5%. Transport cost followed a similar pattern.

8-District Summary

The metrics for 8-district scenarios fell between the 11-region and 4-district results in most cases. Variance in median MELD at transplant was decreased by a factor of 2 for in-district scenarios compared with the current policy simulation, though not quite as low as in the 4-district in-district scenarios. Variance in transplant rates was very similar to the 4-district scenarios.

Approximately 50 pretransplant deaths were projected to be prevented in the 8-district in-district scenarios, with posttransplant deaths even with or slightly higher than in the current scenario.

Transport burden was projected to be higher than in the current policy simulation but considerably lower than in the 4-district scenarios, with a median transport time of under 2 hours, a median transport distance of 238 miles, and 75.5% of organs flying in the scenario without proximity circles. Adding the in-district 150-mile proximity circle reduced median travel distance below 200 miles and flying percentage below 70%. Transport costs varied in a similar way.

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Data Request 2: Additional Financial Analyses

Committee Request

The committee requests that the SRTR prepare an analysis of the financial impact of each of the potential models described above. This analysis should incorporate transplant center expenditures and an assessment of the costs related to the transplant episode, one year post-transplant costs and transportation costs.

The SRTR will utilize the University HealthSystem Consortium (UHC) data to assess the cost of the liver transplant episode as this is the largest and most representative dataset available. These data can be linked to an OPTN STAR file data set that the researchers have already received from UNOS for the analysis.

The SRTR is then asked to develop multivariate linear models to assess the relationship between donor and recipient characteristics and cost of care during the transplant episode and during first post-transplant year. Once these models are developed, they should be combined with LSAM models to estimate the incremental cost of implementing a redistricting system.

Study population

The initial populations of waitlisted candidates and incident candidates through the 5 years of simulation were identical between scenarios and based on resampling actual liver transplant candidates listed between 2006 and 2011. LSAM simulations were repeated over 10 iterations for each scenario and the average cost over the iterations was reported.

Analytic approach

Multivariate linear regression models were developed for total cost during the transplant episode and during the first year posttransplant, drawn from UHC data. Control variables included standard liver transplant risk factors and patient characteristics drawn from OPTN data. These regression models were combined with LSAM models to estimate the expected economic effects of implementing a liver allocation redistricting system.

Please note that for Data Request 2, SRTR does not have approved access to the UHC data. Mark Schnitzler, PhD, of Saint Louis University was the primary investigator and holds the data for this data request in his current role as an SRTR Senior Staff member. Analysis was conducted by Dr. Schnitzler and Dr. Gentry. SRTR does not have detailed data files on these cost metrics in house, so replicating or modifying these results in the future may be difficult.

Data Sources

Medicare Payments: A novel database was created by linking clinical and demographic information from OPTN with Medicare billing claims for liver transplant candidates and recipients between 2002 and 2008. The OPTN registry includes records of all solid organ transplant candidates and recipients in the United States, including complete waitlist and follow-up information about waitlist status changes, recertification on the waiting list, historical lab values, and specific clinical outcomes. Medicare billing claims provided payment information for patients with Medicare fee-for-service primary or secondary insurance. To merge the two databases, beneficiary identifiers from Medicare files (n = 10,528) were linked to OPTN records using Social Security number, gender, and date of birth.

We combined payments for all services from Medicare Parts A and B: inpatient, outpatient, home health, and hospice files. Payments for all four services were summed and aggregated based on number of months each candidate spent on the waiting list (pretransplant) and number of years (first 3 years only) after transplant for liver transplant recipients (posttransplant). Pretransplant costs included daily estimates of spending adjusted for MELD score and other patient characteristics, for the duration of the patient's listing. In the posttransplant models, cost

per patient was estimated for 2 time periods: early (3 days before transplant to 1 year) and late (year 1 to year 3). The costs were censored at the time of retransplant to capture the cost associated with the first transplant. Medicare payments were minimally adjusted for wage/price differences by region, which conforms with standard diagnosis related groups and the evaluation/management code-based fee schedule. In addition, we did not include organ acquisition cost under the Medicare claims, because these are paid via the institutional cost report.

UHC Cost Accounting Data: A second data set was created by merging UHC cost accounting data with OPTN data for liver transplants (*n* = 36,939) performed between 2002 and 2013. Because no unique identifiers were available for this data set, the transplant records were linked using date of transplant, age, and gender. The UHC data include patient-level cost data from administrative billing claims submissions, adjusted to costs using the transplant hospital's Medicare cost-to-charge ratio and adjusted for geographic differential in wages. Unfortunately, accurate estimates of pre- and posttransplant care expenditures cannot be determined from UHC data.

Cost model regression analysis

Multivariable linear regression was used to estimate monthly (for pretransplant models) or total person-level spending (posttransplant models). For the model predicting average monthly spending on the waiting list, we clustered multivariable linear models on patient identifier. For both waitlist and transplant models, we applied MELD spline terms to adjust for the non-linear relationship between MELD and cost, with spline knots at biologic MELD of 20 and 25.

The models were adjusted for recipient and donor factors relevant to waitlist and transplant analysis. Recipient factors included recipient age, race, gender, blood group, diagnosis category, HCC exception status, diabetes, cerebrovascular disease, working for income, and daily biologic MELD or biologic MELD at transplant. Donor factors included donor age, race, gender, blood group, cause of death, and donation after circulatory death. We estimated Medicare spending for the late (years 2 and 3) posttransplant period. Costs were adjusted for inflation from the median year (2006) of the Medicare claims to 2013 based on consumer price index inflation reported by the Bureau of Labor Statistics ($1 in 2006 was worth $1.16 in 2013).

We completed a separate multivariate regression model for using the UHC cost data assessing the cost of the transplant episode using identical donor and recipient factors. The estimates were adjusted to 2013 dollars using the CPI for health care from the median year (2008). Data management and analysis were performed using SAS 9.3 software (SAS Institute, Cart, NC) and R 3.0 (R Foundation for Statistical Computing, Vienna, Austria).

Transportation Costs: For each transplant, transport mode of the recovery team to the donor hospital and back to the transplant center was predicted using a transport model that assigns cost and mode of transportation based on estimated travel times (Gentry, *Liver Transplantation,* 20; 1237-1243, 2014). The predicted mode of transportation was by ground if driving time was less than 2 hours (or 1.5 hours in OPOs that use helicopters); by helicopter in OPOs that use helicopters where driving would take 1.5 hours or more and the distance was 100 miles or less; and by air from the nearest airport for longer distances. Round-trip cost was estimated to be $1108 per team by ground transportation, $4742 per team by helicopter (Lynch, *American Journal of Transplantation*, 9:10; 2416-2423, 2009), and distance-dependent for flights. Flight cost estimates were based on 94 transports for liver transplant in the Living Legacy Foundation OPO in 2013. Round trip cost for flights was estimated to be $7767 + $8.40 × round trip miles. This cost includes the cost for aircraft charter, fuel, aircraft crew, and airport fees.

Pretransplant Cost in LSAM: Over the 5-year simulation, candidates began accruing pretransplant care costs from the beginning of the simulation, or from the date they listed after the simulation started. The pretransplant period ended when the candidate underwent transplant or was removed from the list without undergoing transplant. The cost of pretransplant care was estimated based on the number of days the candidate spent on the waiting list at MELD scores ranging from 6 to 40. Pretransplant monthly cost estimates were interpolated from the cost regression models to a daily cost figure that was applied according to each candidate's daily MELD. Total cost of

pretransplant care was summed over the 5-year simulation. Patient pretransplant care costs per month were calculated by dividing total pretransplant cost by cumulative months waiting in the simulation. This was averaged over all patients for the reported pretransplant cost per patient-month.

Transplant and 1-Year Follow-Up Cost in LSAM: Over the 5-year simulation, candidates who underwent transplant accrued the total cost of the procedure plus 1-year of follow-up care regardless of survival to 1-year posttransplant. This reflects the fact that a large fraction of the cost was incurred at the transplant event. Total transplant and 1-year cost was summed over the 5-year simulation. Transplant and 1-year cost per patient was calculated by dividing the total transplant and 1-year cost by the number of patients who underwent transplant.

Posttransplant Cost in LSAM: Transplant recipients began accruing late posttransplant care expenditures from 1 year posttransplant until the date of death, date of relisting, or the end of the 5-year simulation. For recipients who survived beyond 3 years posttransplant in the simulation, we assumed that the annual cost of care beyond 3 years was equivalent to the annual cost of care in years 2 and 3 posttransplant. Total posttransplant cost was summed over the 5-year simulation. Posttransplant care cost per month was calculated by dividing the cost of care after 1 year posttransplant by the number of months survived after 1 year posttransplant. This was averaged over transplant recipients who survive to 1 year posttransplant for the reported posttransplant cost per patient-month.

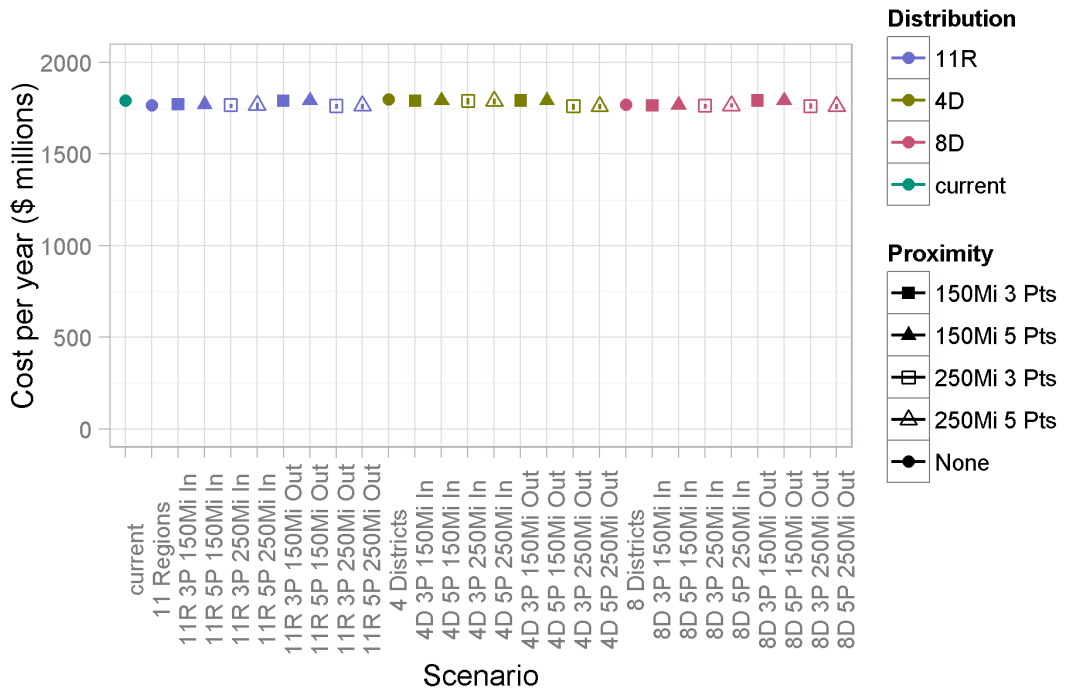
Results and Discussion

As described above, 4 main components of transplant costs were modeled: pretransplant care, organ transportation, transplant, and posttransplant care. A summary analysis of these costs appears in Table 5. The sections below present the overall costs across the 28 simulated scenarios and discuss each component in more detail. Per-patient cost analyses are shown in Appendix F: Per-Patient Cost estimates.

Overall Cost

The projected differences in overall cost for transport and patient care among the 28 scenarios tested were small. Total costs ranged from $1.76 billion to $1.8 billion per year, amounting to only about a 2% difference between the most expensive and least expensive options (Figure 43).

Figure 43. Overall cost



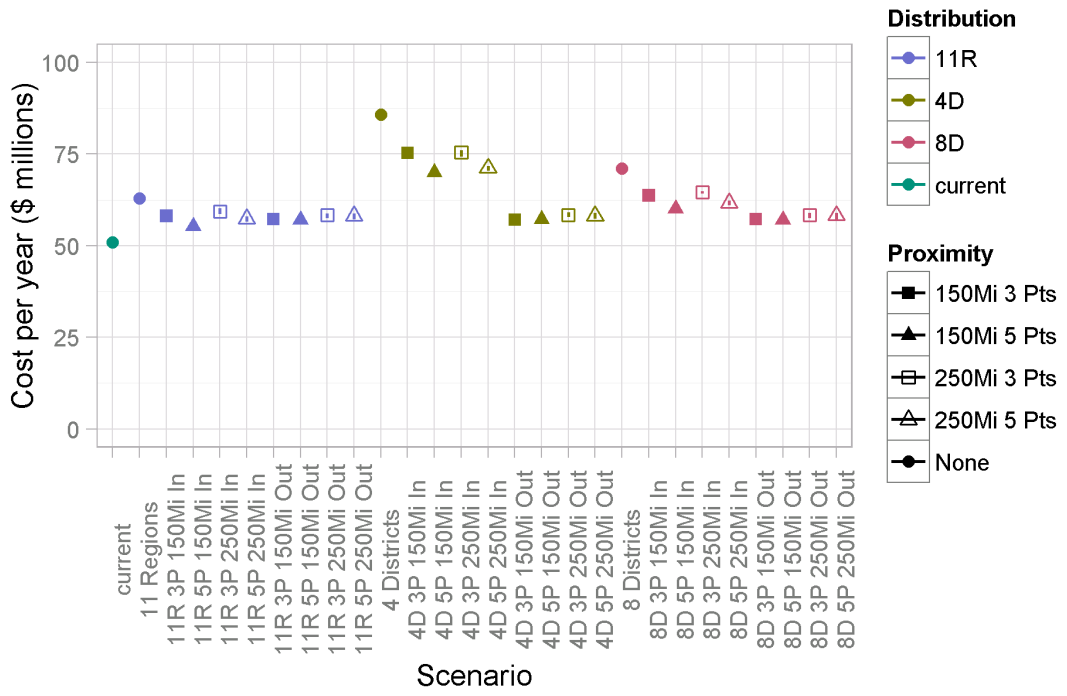
Within this narrow range, the 4-district scenario without proximity circles showed the highest overall cost, about $10 million per year more than the simulation of current policy. Adding proximity circles erased this difference. Eight-district scenarios and 250-mile proximity circles further reduced overall cost.

It is important to note that the variation in total cost is biased by our limited ability to model acceptance behavior changes from redistricting. LSAM assumes that longer distances between donor and recipient in the historical data leads to higher discard rates. This effect may be decreased following redistricting. Lower discard rates would produce lower cost estimates after redistricting.

Transport Cost

The annual transport costs varied widely with the burden of expected organ travel, from $51 million to $86 million (Figure 44). Using any proximity circles reduced the transport costs by $11 million from the worst case scenario, so that the worst case with sharing threshold showed annual transport costs of $75 million. The highest transport costs were in 4-district scenarios compared with 8 districts or 11 regions, and in scenarios without proximity circles.

Figure 44. Transport cost per year.

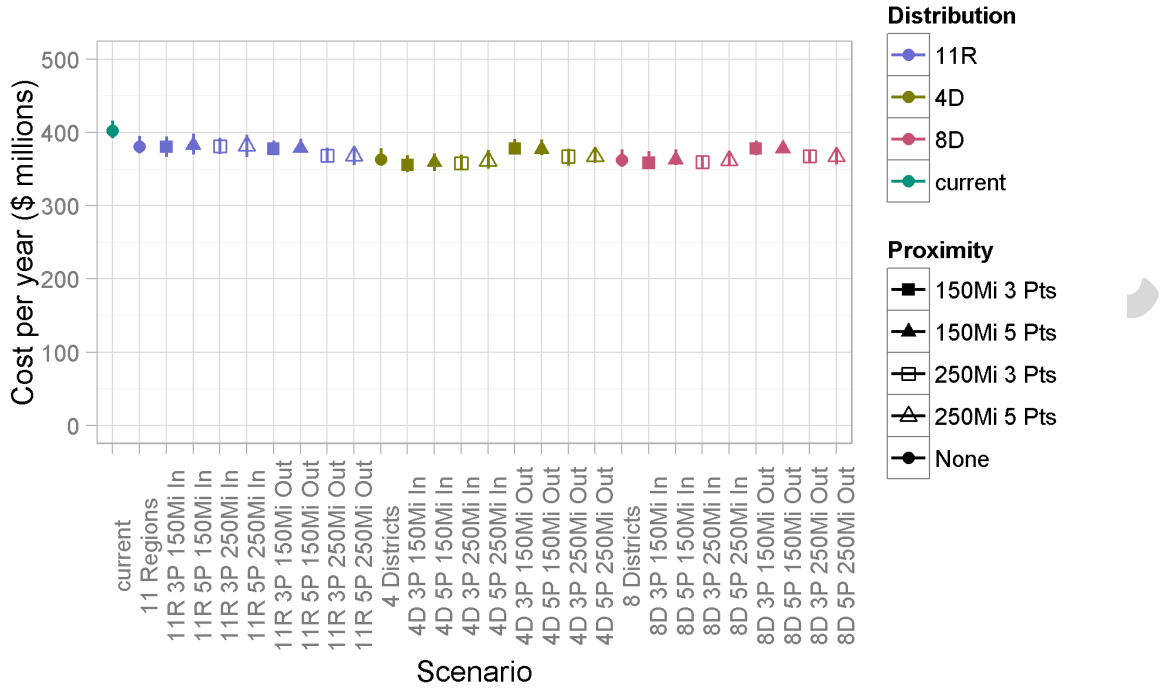


A more detailed view of the organ transport cost model appears in Table 6. Transport costs increased as a higher proportion of organs were transported by flying. Transport costs were higher in scenarios in which fewer threshold points were given and threshold points were given only for in-district candidates. Transport costs for organs were a small portion of total transplant costs: about 3% of the cost of transplant care was predicted to be for organ transport.

Pretransplant Cost

The cost of pretransplant care was generally lower for broader sharing scenarios (Figure 45), so that higher transport costs were offset by lower pretransplant care costs. For example, the lowest annual pretransplant care cost total was $356 million for the scenario of 4 sharing districts with a 3-point, 150-mile threshold for candidates in each district, and this scenario showed very high transport costs of $75 million per year.

Figure 45. Pretransplant cost per year

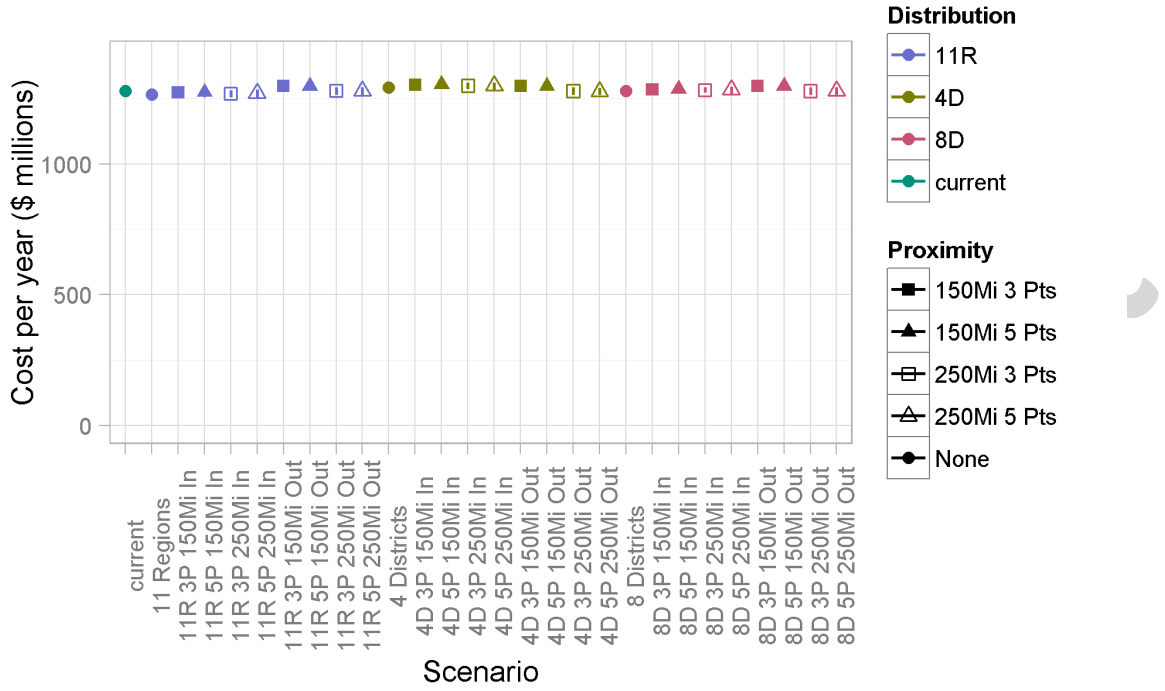


A detailed analysis of the pretransplant cost modeling appears in Table 7. Figure 45 shows that pretransplant care costs were lower for broader sharing scenarios, because with broader sharing fewer patient-months are spent waiting at MELD ≥ 30.

Transplant Cost

The total actual transplant costs varied by about 3% from worst case of $6519 million to the best case of $6328 million (Figure 46). Transplant costs were generally slightly higher for broader sharing scenarios.

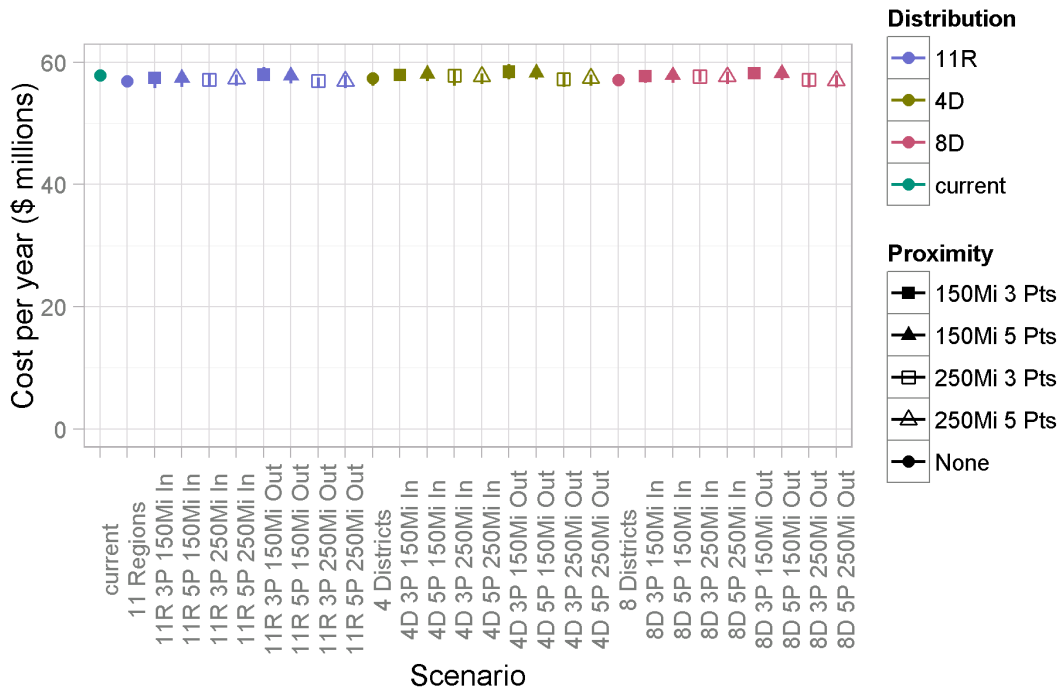
Figure 46. Transplant cost per year



Posttransplant Cost

Total posttransplant costs showed a similar pattern as transplant cost per year. Figure 47shows that there was little variation between scenarios in posttransplant cost.

Figure 47. Posttransplant cost per year



Cost Summary

Overall, the projected differences in the total system costs among the 28 scenarios were small. There was only about a 2% difference between the most expensive and least expensive scenarios when combining pretransplant, transplant episode, posttransplant and transportation costs.

Pretransplant costs were somewhat lower for broader sharing scenarios due to earlier transplantation of the highest-MELD patients, who have the highest cost of pretransplant care per patient-month. This effect was present with broader sharing in the current 11 regions but was more profound in the conceptualized 4- and 8-district scenarios.

Transport costs were higher in 4- and 8-district scenarios due to increased flight percentage, but made up just 3% of the total estimated system cost. Costs of the transplant episode and first year of followup care were also somewhat higher in these scenarios. Posttransplant costs showed essentially no variation across the scenarios.

Adding proximity circles reduced transport costs but had little effect on the other cost segments.

Table 5. Summary Cost Analysis

	Pretransplant cost per year ($MM)	Transplant cost per year ($MM)	Posttransplant cost per year ($MM)	Total care cost per year ($MM)	Transport cost per year ($MM)	Overall cost per year ($MM)
current	402.4 (392.1-415.7)	1279.5 (1263.4-1291.8)	57.9 (56.9-58.6)	1739.8 (1721.1-1748.8)	50.9 (50-51.6)	1790.6 (1771.9-1799.8)
11 Regions	381.1 (371.5-395.2)	1265.5 (1249.5-1275.9)	56.9 (56.1-57.7)	1703.6 (1689-1716.2)	62.9 (62.1-63.8)	1766.4 (1751.8-1779.7)
4 Districts	363.2 (356.8-378.3)	1293 (1276.7-1304.2)	57.4 (56.2-58.2)	1713.5 (1700-1728.8)	85.8 (84.8-86.7)	1799.3 (1785.6-1814.7)
8 Districts	362.1 (353.2-377.2)	1278.5 (1264.8-1290.6)	57.1 (56.2-58)	1697.8 (1679.5-1712.5)	71 (70.2-71.4)	1768.8 (1750.5-1783.8)
11R 3P 150Mi In	380.4 (366.7-394.3)	1273.8 (1256.7-1286.5)	57.4 (55.8-58.4)	1711.7 (1692.5-1721.4)	58.1 (57.5-59)	1769.7 (1750.6-1779.6)
11R 3P 150Mi Out	377.6 (369.4-389.1)	1298.1 (1285.6-1311.1)	58 (56.9-59.2)	1733.7 (1715.1-1745.1)	57.2 (56.8-57.7)	1790.9 (1772-1802.8)
11R 3P 250Mi In	381.2 (370.5-392.7)	1268.9 (1253.4-1281.3)	57.1 (56.1-58.1)	1707.3 (1692.2-1714.7)	59.3 (58.5-60.1)	1766.5 (1751.7-1774)
11R 3P 250Mi Out	368.3 (360.8-378.8)	1279.3 (1262.5-1292.3)	57 (55.9-57.5)	1704.6 (1687.8-1715.4)	58.3 (57.5-58.8)	1762.9 (1746.1-1773.5)
11R 5P 150Mi In	382.6 (369.5-398.2)	1274 (1255.1-1286.7)	57.4 (56-58.1)	1714 (1694.2-1725.5)	55.2 (54.7-55.9)	1769.3 (1749.6-1780.4)
11R 5P 150Mi Out	378.2 (371.7-390.8)	1298.1 (1280.6-1310.9)	57.8 (56.5-58.6)	1734.2 (1721.9-1740.6)	57.1 (56.1-57.7)	1791.3 (1779.1-1798.3)
11R 5P 250Mi In	382.2 (366.6-397)	1269.8 (1253.5-1283)	57.4 (56.2-57.9)	1709.4 (1685.1-1719.9)	57.4 (56.5-57.9)	1766.7 (1742.4-1777.5)
11R 5P 250Mi Out	368.2 (355.4-379.5)	1279.5 (1262.6-1292.6)	56.9 (55.8-57.8)	1704.6 (1686-1715.1)	58.2 (57.2-58.7)	1762.8 (1744.3-1773.8)
4D 3P 150Mi In	355.5 (345.5-369)	1302.3 (1285.3-1313.6)	57.9 (57-58.9)	1715.7 (1699.3-1727)	75.3 (74.5-75.8)	1790.9 (1774.3-1802.5)
4D 3P 150Mi Out	378.1 (371.8-391.5)	1297.9 (1284.2-1312.5)	58.4 (57.2-59.7)	1734.5 (1723-1743.8)	57 (55.9-57.9)	1791.5 (1780.1-1801.5)
4D 3P 250Mi In	357.9 (350.2-369.6)	1299 (1286-1310.4)	57.8 (56.2-58.7)	1714.7 (1695.5-1727.7)	75.4 (74.3-76.1)	1790.1 (1770.4-1803.8)

	Pretransplant cost per year ($MM)	Transplant cost per year ($MM)	Posttransplant cost per year ($MM)	Total care cost per year ($MM)	Transport cost per year ($MM)	Overall cost per year ($MM)
4D 3P 250Mi Out	367.1 (354.8-377.8)	1278.6 (1263.5-1291.9)	57.3 (56-58.2)	1703 (1682.8-1714.1)	58.3 (57.7-59.1)	1761.3 (1741.2-1772.3)
4D 5P 150Mi In	359.1 (347.4-371.2)	1303.9 (1289.2-1318.5)	58.1 (56.9-59.1)	1721.1 (1702.5-1733.5)	70 (69.4-70.7)	1791.1 (1772.1-1803.9)
4D 5P 150Mi Out	377.1 (369-390.3)	1298.3 (1281.6-1312.8)	58.3 (57.2-58.9)	1733.7 (1718.7-1741.3)	57.2 (56.5-57.9)	1790.9 (1775.6-1798.5)
4D 5P 250Mi In	361.1 (350-375.8)	1298.9 (1283.5-1310.9)	57.7 (56.4-58.1)	1717.7 (1699.6-1730.8)	71.2 (70.4-71.6)	1788.9 (1770.6-1802.3)
4D 5P 250Mi Out	367.2 (358.7-379.8)	1277.4 (1262.9-1288.9)	57.4 (56.2-58)	1702 (1687.1-1712.2)	58.2 (57.4-58.9)	1760.2 (1745.2-1771.1)
8D 3P 150Mi In	358.5 (351-374.6)	1284.6 (1269.4-1298.8)	57.7 (56.6-58.3)	1700.8 (1684.6-1714.6)	63.7 (63.2-64.2)	1764.5 (1748.2-1778.1)
8D 3P 150Mi Out	377.7 (368.7-389.2)	1298.3 (1285.8-1310)	58.2 (57.2-58.9)	1734.3 (1717.4-1743.8)	57.2 (56.3-58.3)	1791.4 (1775-1800.8)
8D 3P 250Mi In	359.8 (351.8-368.9)	1282.9 (1272.9-1292.2)	57.7 (56.8-58.8)	1700.3 (1683.1-1708.4)	64.6 (64.2-64.9)	1764.9 (1747.9-1772.7)
8D 3P 250Mi Out	367.4 (360.2-376.6)	1278.8 (1263.3-1291.8)	57.2 (55.9-58.1)	1703.3 (1689.5-1715.9)	58.3 (57.5-58.9)	1761.6 (1747.7-1774.8)
8D 5P 150Mi In	362.8 (355.1-376.7)	1287 (1269.9-1299.7)	57.9 (56.6-58.6)	1707.7 (1689.2-1720.1)	60.1 (59.6-60.3)	1767.7 (1749-1780.4)
8D 5P 150Mi Out	378 (371.7-388.2)	1297.8 (1284.2-1311.2)	58.2 (57.1-58.8)	1734 (1720.7-1741.7)	57.1 (56.5-57.6)	1791.1 (1777.9-1799.3)
8D 5P 250Mi In	362 (356-372.6)	1283.4 (1268.3-1294.6)	57.7 (56.4-58.4)	1703.1 (1691.7-1712.2)	61.6 (61-62.3)	1764.7 (1753.2-1774.2)
8D 5P 250Mi Out	367 (356.4-377.9)	1278.7 (1263.6-1291.5)	57 (55.9-57.9)	1702.8 (1686.6-1712.7)	58.2 (57-58.9)	1761 (1744.4-1771.2)

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Table 6. Transport Cost Analysis

	Transport cost per year ($MM)	Transport cost per transplant ($)	Drive (%)	Fly (%)	Transplant cost per year ($MM)	Overall cost per year ($MM)
current	50.9 (50-51.6)	8444.2 (8258-8609)	49	51	1279.5 (1263.4-1291.8)	1790.6 (1771.9-1799.8)
11 Regions	62.9 (62.1-63.8)	10677.1 (10550-10834)	32	68	1265.5 (1249.5-1275.9)	1766.4 (1751.8-1779.7)
4 Districts	85.8 (84.8-86.7)	14705.7 (14657-14771)	16	84	1293 (1276.7-1304.2)	1799.3 (1785.6-1814.7)
8 Districts	71 (70.2-71.4)	12108.1 (12014-12203)	26	74	1278.5 (1264.8-1290.6)	1768.8 (1750.5-1783.8)
11R 3P 150Mi In	58.1 (57.5-59)	9786.6 (9666-9916)	39	61	1273.8 (1256.7-1286.5)	1769.7 (1750.6-1779.6)
11R 3P 150Mi Out	57.2 (56.8-57.7)	9449.1 (9354-9607)	52	48	1298.1 (1285.6-1311.1)	1790.9 (1772-1802.8)
11R 3P 250Mi In	59.3 (58.5-60.1)	10032.6 (9852-10139)	36	64	1268.9 (1253.4-1281.3)	1766.5 (1751.7-1774)
11R 3P 250Mi Out	58.3 (57.5-58.8)	9851.1 (9733-9965)	35	65	1279.3 (1262.5-1292.3)	1762.9 (1746.1-1773.5)
11R 5P 150Mi In	55.2 (54.7-55.9)	9292.3 (9223-9375)	42	58	1274 (1255.1-1286.7)	1769.3 (1749.6-1780.4)
11R 5P 150Mi Out	57.1 (56.1-57.7)	9436.2 (9320-9593)	52	48	1298.1 (1280.6-1310.9)	1791.3 (1779.1-1798.3)
11R 5P 250Mi In	57.4 (56.5-57.9)	9687.2 (9588-9839)	38	62	1269.8 (1253.5-1283)	1766.7 (1742.4-1777.5)
11R 5P 250Mi Out	58.2 (57.2-58.7)	9822.1 (9706-9952)	35	65	1279.5 (1262.6-1292.6)	1762.8 (1744.3-1773.8)
4D 3P 150Mi In	75.3 (74.5-75.8)	12740.1 (12683-12821)	26	74	1302.3 (1285.3-1313.6)	1790.9 (1774.3-1802.5)
4D 3P 150Mi Out	57 (55.9-57.9)	9420.6 (9304-9538)	52	48	1297.9 (1284.2-1312.5)	1791.5 (1780.1-1801.5)
4D 3P 250Mi In	75.4 (74.3-76.1)	12801.4 (12705-12952)	23	77	1299 (1286-1310.4)	1790.1 (1770.4-1803.8)
4D 3P 250Mi Out	58.3 (57.7-59.1)	9844.7 (9741-9943)	35	65	1278.6 (1263.5-1291.9)	1761.3 (1741.2-1772.3)
4D 5P 150Mi In	70 (69.4-70.7)	11805.6 (11714-11878)	31	69	1303.9 (1289.2-1318.5)	1791.1 (1772.1-1803.9)
4D 5P 150Mi Out	57.2 (56.5-57.9)	9447.6 (9345-9594)	52	48	1298.3 (1281.6-1312.8)	1790.9 (1775.6-1798.5)
4D 5P 250Mi In	71.2 (70.4-71.6)	12052 (11996-12141)	26	74	1298.9 (1283.5-1310.9)	1788.9 (1770.6-1802.3)
4D 5P 250Mi Out	58.2 (57.4-58.9)	9831.4 (9694-9946)	36	64	1277.4 (1262.9-1288.9)	1760.2 (1745.2-1771.1)
8D 3P 150Mi In	63.7 (63.2-64.2)	10758.9 (10684-10822)	34	66	1284.6 (1269.4-1298.8)	1764.5 (1748.2-1778.1)
8D 3P 150Mi Out	57.2 (56.3-58.3)	9446.2 (9316-9616)	52	48	1298.3 (1285.8-1310)	1791.4 (1775-1800.8)
8D 3P 250Mi In	64.6 (64.2-64.9)	10941.8 (10799-11046)	31	69	1282.9 (1272.9-1292.2)	1764.9 (1747.9-1772.7)

	Transport cost per year ($MM)	Transport cost per transplant ($)	Drive (%)	Fly (%)	Transplant cost per year ($MM)	Overall cost per year ($MM)
8D 3P 250Mi Out	58.3 (57.5-58.9)	9846.8 (9757-9944)	35	65	1278.8 (1263.3-1291.8)	1761.6 (1747.7-1774.8)
8D 5P 150Mi In	60.1 (59.6-60.3)	10113.9 (10012-10227)	38	62	1287 (1269.9-1299.7)	1767.7 (1749-1780.4)
8D 5P 150Mi Out	57.1 (56.5-57.6)	9430.8 (9332-9547)	52	48	1297.8 (1284.2-1311.2)	1791.1 (1777.9-1799.3)
8D 5P 250Mi In	61.6 (61-62.3)	10417.4 (10315-10545)	34	66	1283.4 (1268.3-1294.6)	1764.7 (1753.2-1774.2)
8D 5P 250Mi Out	58.2 (57-58.9)	9835 (9695-9972)	36	64	1278.7 (1263.6-1291.5)	1761 (1744.4-1771.2)

Table 7. Pretransplant Cost Analysis

	Patient-months MELD 6-19	Patient-months MELD 20-29	Patient-months MELD 30-40	Pretransplant cost per year ($MM)	Pretransplant cost per patient-month ($)
current	746047	120183	10368	402.4 (392.1-415.7)	5946.7 (5894-5985)
11 Regions	768272	117674	8358	381.1 (371.5-395.2)	5911.4 (5860-5950)
4 Districts	789210	130866	5016	363.2 (356.8-378.3)	5817.2 (5774-5849)
8 Districts	781910	119735	6834	362.1 (353.2-377.2)	5856 (5816-5887)
11R 3P 150Mi In	765006	116492	8510	380.4 (366.7-394.3)	5908.3 (5860-5944)
11R 3P 150Mi Out	773875	117800	8198	377.6 (369.4-389.1)	5874.7 (5796-5943)
11R 3P 250Mi In	766818	117268	8469	381.2 (370.5-392.7)	5909.1 (5859-5933)
11R 3P 250Mi Out	778221	116194	7881	368.3 (360.8-378.8)	5878.7 (5833-5910)
11R 5P 150Mi In	762622	116765	8707	382.6 (369.5-398.2)	5916.9 (5865-5955)
11R 5P 150Mi Out	772546	117863	8236	378.2 (371.7-390.8)	5875.9 (5831-5906)
11R 5P 250Mi In	763974	117550	8620	382.2 (366.6-397)	5915.5 (5861-5951)
11R 5P 250Mi Out	777827	116248	7829	368.2 (355.4-379.5)	5880 (5825-5924)
4D 3P 150Mi In	788141	121975	5238	355.5 (345.5-369)	5839.1 (5782-5866)
4D 3P 150Mi Out	772650	117859	8275	378.1 (371.8-391.5)	5874.9 (5812-5936)
4D 3P 250Mi In	787993	122935	5321	357.9 (350.2-369.6)	5847.6 (5802-5883)
4D 3P 250Mi Out	780180	115682	7855	367.1 (354.8-377.8)	5869.6 (5802-5934)
4D 5P 150Mi In	784200	120668	5470	359.1 (347.4-371.2)	5855.2 (5791-5895)
4D 5P 150Mi Out	769819	117571	8244	377.1 (369-390.3)	5884.6 (5811-5923)
4D 5P 250Mi In	785274	121851	5542	361.1 (350-375.8)	5860.7 (5810-5891)
4D 5P 250Mi Out	779759	116064	7769	367.2 (358.7-379.8)	5878.3 (5837-5915)
8D 3P 150Mi In	778046	115697	6934	358.5 (351-374.6)	5860.1 (5815-5908)
8D 3P 150Mi Out	773530	117930	8236	377.7 (368.7-389.2)	5873.5 (5807-5914)
8D 3P 250Mi In	779101	116255	6955	359.8 (351.8-368.9)	5866 (5801-5904)
8D 3P 250Mi Out	779352	116067	7817	367.4 (360.2-376.6)	5874.4 (5828-5924)
8D 5P	774083	115905	7171	362.8 (355.1-376.7)	5876.4 (5824-5915)

	Patient-months MELD 6-19	Patient-months MELD 20-29	Patient-months MELD 30-40	Pretransplant cost per year ($MM)	Pretransplant cost per patient-month ($)
150Mi In					
8D 5P 150Mi Out	774285	117782	8220	378 (371.7-388.2)	5871.6 (5800-5912)
8D 5P 250Mi In	776304	116239	7053	362 (356-372.6)	5875.1 (5815-5904)
8D 5P 250Mi Out	778738	115837	7774	367 (356.4-377.9)	5878.5 (5834-5918)

Appendix A: Supply/Demand Information

Table A8. 2013 Supply/Demand Information for US and by DSA (Using allocation MELD/PELD)

DSA	Actual donors	Eligible donors	Total deaths	Total WL pts	Total WL pts M15	Actual to WL	Eligible to WL	Deaths to WL	Actual to WL M15	Eligible to WL M15	Deaths to WL M15
US	6225	6893	2571164	25200	16747	0.25	0.27	102.03	0.37	0.41	153.53
ALOB	88	95	48942	273	224	0.32	0.35	179.28	0.39	0.42	218.49
AROR	57	59	24303	63	56	0.90	0.94	385.76	1.02	1.05	433.98
AZOB	129	132	50274	605	364	0.21	0.22	83.10	0.35	0.36	138.12
CADN	236	262	91250	1489	1032	0.16	0.18	61.28	0.23	0.25	88.42
CAGS	58	69	19185	0	0	n/a	n/a	n/a	n/a	n/a	n/a
CAOP	304	380	123104	1943	1215	0.16	0.20	63.36	0.25	0.31	101.32
CASD	63	71	21616	373	281	0.17	0.19	57.95	0.22	0.25	76.93
CORS	121	117	37085	713	400	0.17	0.16	52.01	0.30	0.29	92.71
CTOP	24	24	21283	44	39	0.55	0.55	483.71	0.62	0.62	545.72
DCTC	84	94	29182	263	169	0.32	0.36	110.96	0.50	0.56	172.67
FLFH	73	84	33031	129	99	0.57	0.65	256.05	0.74	0.85	333.65
FLMP	110	128	55170	390	265	0.28	0.33	141.46	0.42	0.48	208.19
FLUF	107	103	36686	418	382	0.26	0.25	87.77	0.28	0.27	96.04
FLWC	143	145	57234	159	129	0.90	0.91	359.96	1.11	1.12	443.67
GALL	239	259	74248	544	435	0.44	0.48	136.49	0.55	0.60	170.69
HIOP	29	38	11433	58	37	0.50	0.66	197.12	0.78	1.03	309.00
IAOP	47	47	26560	89	67	0.53	0.53	298.43	0.70	0.70	396.42
ILIP	213	263	95593	828	584	0.26	0.32	115.45	0.36	0.45	163.69
INOP	120	155	49680	232	193	0.52	0.67	214.14	0.62	0.80	257.41
KYDA	95	106	43085	311	192	0.31	0.34	138.54	0.49	0.55	224.40
LAOP	141	146	42002	440	322	0.32	0.33	95.46	0.44	0.45	130.44
MAOB	155	169	97103	1148	758	0.14	0.15	84.58	0.20	0.22	128.10
MDPC	84	87	33691	798	430	0.11	0.11	42.22	0.20	0.20	78.35
MIOP	184	191	87233	614	382	0.30	0.31	142.07	0.48	0.50	228.36
MNOP	111	113	52408	751	535	0.15	0.15	69.78	0.21	0.21	97.96
MOMA	131	132	44763	445	319	0.29	0.30	100.59	0.41	0.41	140.32
MSOP	59	60	23487	28	25	2.11	2.14	838.82	2.36	2.40	939.48
MWOB	156	155	47432	308	218	0.51	0.50	154.00	0.72	0.71	217.58
NCCM	59	67	21524	162	109	0.36	0.41	132.86	0.54	0.61	197.47
NCNC	109	122	61202	289	218	0.38	0.42	211.77	0.50	0.56	280.74
NEOR	58	57	15174	278	188	0.21	0.21	54.58	0.31	0.30	80.71
NJTO	96	111	53999	294	123	0.33	0.38	183.67	0.78	0.90	439.02
NMOP	27	33	16472	0	0	n/a	n/a	n/a	n/a	n/a	n/a
NVLV	90	106	16152	0	0	n/a	n/a	n/a	n/a	n/a	n/a

NYAP	35	41	24596	0	0	n/a	n/a	n/a	n/a	n/a	n/a
NYFL	26	31	20368	170	136	0.15	0.18	119.81	0.19	0.23	149.76
NYRT	169	191	93762	1780	1039	0.09	0.11	52.68	0.16	0.18	90.24
NYWN	14	16	15747	0	0	n/a	n/a	n/a	n/a	n/a	n/a
OHLB	87	86	43234	449	313	0.19	0.19	96.29	0.28	0.27	138.13
OHLC	44	74	22446	0	0	n/a	n/a	n/a	n/a	n/a	n/a
OHLP	58	64	29482	129	84	0.45	0.50	228.54	0.69	0.76	350.98
OHOV	29	26	18933	265	166	0.11	0.10	71.45	0.17	0.16	114.05
OKOP	63	74	37225	322	177	0.20	0.23	115.61	0.36	0.42	210.31
ORUO	72	87	41581	229	162	0.31	0.38	181.58	0.44	0.54	256.67
PADV	346	349	105014	1284	846	0.27	0.27	81.79	0.41	0.41	124.13
PATF	126	122	64102	800	542	0.16	0.15	80.13	0.23	0.23	118.27
PRLL	91	106	30163	37	26	2.46	2.86	815.22	3.50	4.08	1160.12
SCOP	94	106	41081	157	133	0.60	0.68	261.66	0.71	0.80	308.88
TNDS	195	195	53460	288	238	0.68	0.68	185.63	0.82	0.82	224.62
TNMS	62	66	18320	202	182	0.31	0.33	90.69	0.34	0.36	100.66
TXGC	199	255	65146	1567	955	0.13	0.16	41.57	0.21	0.27	68.22
TXSA	103	116	41056	463	317	0.22	0.25	88.67	0.32	0.37	129.51
TXSB	190	226	68084	1129	588	0.17	0.20	60.31	0.32	0.38	115.79
UTOP	63	75	19648	277	194	0.23	0.27	70.93	0.32	0.39	101.28
VATB	112	137	46563	342	215	0.33	0.40	136.15	0.52	0.64	216.57
WALC	118	135	62244	355	284	0.33	0.38	175.34	0.42	0.48	219.17
WIDN	36	43	19015	238	185	0.15	0.18	79.90	0.19	0.23	102.78
WIUW	93	92	28308	238	175	0.39	0.39	118.94	0.53	0.53	161.76

Source: 2013 US Census Bureau and OPTN data

Table A9. 2013 Supply/Demand by Current 11 Regions (using allocation MELD/PELD)

Region	Actual donors	Eligible donors	Total deaths	Total WL pts	Total WL pts M15	Actual to WL	Eligible to WL	Deaths to WL	Actual to WL M15	Eligible to WL M15	Deaths to WL M15
US	6225	6893	2571164	25200	16747	0.25	0.27	102.03	0.37	0.41	153.53
1	179	193	118386	1192	797	0.15	0.16	99.32	0.22	0.24	148.54
2	736	763	285988	3439	2110	0.21	0.22	83.16	0.35	0.36	135.54
3	1108	1185	425266	2481	1963	0.45	0.48	171.41	0.56	0.60	216.64
4	555	671	211511	3481	2037	0.16	0.19	60.76	0.27	0.33	103.84
5	970	1128	357701	4687	3086	0.21	0.24	76.32	0.31	0.37	115.91
6	219	260	115258	642	483	0.34	0.40	179.53	0.45	0.54	238.63
7	453	511	195324	2055	1479	0.22	0.25	95.05	0.31	0.35	132.07
8	513	508	171014	1833	1192	0.28	0.28	93.30	0.43	0.43	143.47
9	244	279	154473	1950	1175	0.13	0.14	79.22	0.21	0.24	131.47
10	522	596	251008	1689	1138	0.31	0.35	148.61	0.46	0.52	220.57
11	726	799	285235	1751	1287	0.41	0.46	162.90	0.56	0.62	221.63

Table A10. 2013 Supply/Demand by Conceptualized 8 Districts (using allocation MELD/PELD)

District	Actual donors	Eligible donors	Total deaths	Total WL pts	Total WL pts M15	Actual to WL	Eligible to WL	Deaths to WL	Actual to WL M15	Eligible to WL M15	Deaths to WL M15
US	6225	6893	2571164	25200	16747	0.25	0.27	102.03	0.37	0.41	153.53
A	1697	1863	733411	7142	4540	0.24	0.26	102.69	0.37	0.41	161.54
B	539	584	282612	2162	1457	0.25	0.27	130.72	0.37	0.4	193.97
C	781	880	308074	2400	1733	0.33	0.37	128.36	0.45	0.51	177.77
D	250	257	87386	710	557	0.35	0.36	123.08	0.45	0.46	156.89
E	435	446	178799	1748	1185	0.25	0.26	102.29	0.37	0.38	150.89
F	1213	1358	470838	4996	3306	0.24	0.27	94.24	0.37	0.41	142.42
G	340	357	123479	1595	958	0.21	0.22	77.42	0.35	0.37	128.89
H	970	1148	386565	4447	3011	0.22	0.26	86.93	0.32	0.38	128.38

Table A11. 2013 Supply/Demand by Conceptualized 4 Districts (using allocation MELD/PELD)

District	Actual donors	Eligible donors	Total deaths	Total WL pts	Total WL pts M15	Actual to WL	Eligible to WL	Deaths to WL	Actual to WL M15	Eligible to WL M15	Deaths to WL M15
US	6225	6893	2571164	25200	16747	0.25	0.27	102.03	0.37	0.41	153.53
W	3017	3327	1324097	11704	7730	0.26	0.28	113.13	0.39	0.43	171.29
X	1526	1689	595449	6028	4040	0.25	0.28	98.78	0.38	0.42	147.39
Y	712	729	265053	3021	1966	0.24	0.24	87.74	0.36	0.37	134.82
Z	970	1148	386565	4447	3011	0.22	0.26	86.93	0.32	0.38	128.38

Figure A48. Ratio of actual donors to waitlisted candidates with allocation MELD/PELD > 15, by DSA

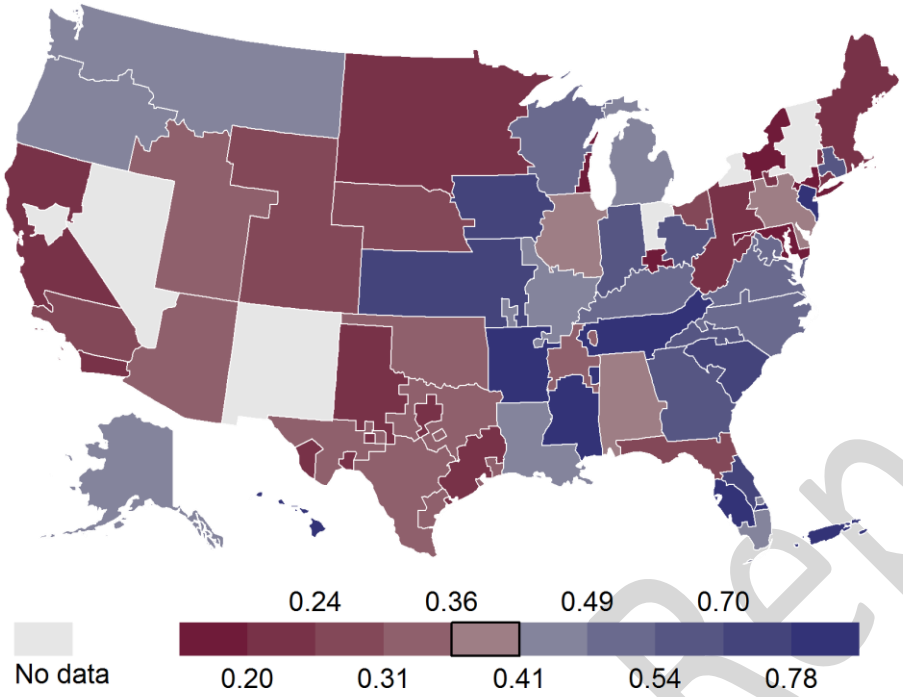


Figure A49. Ratio of actual donors to waitlisted candidates with allocation MELD/PELD > 15, by 11 regions

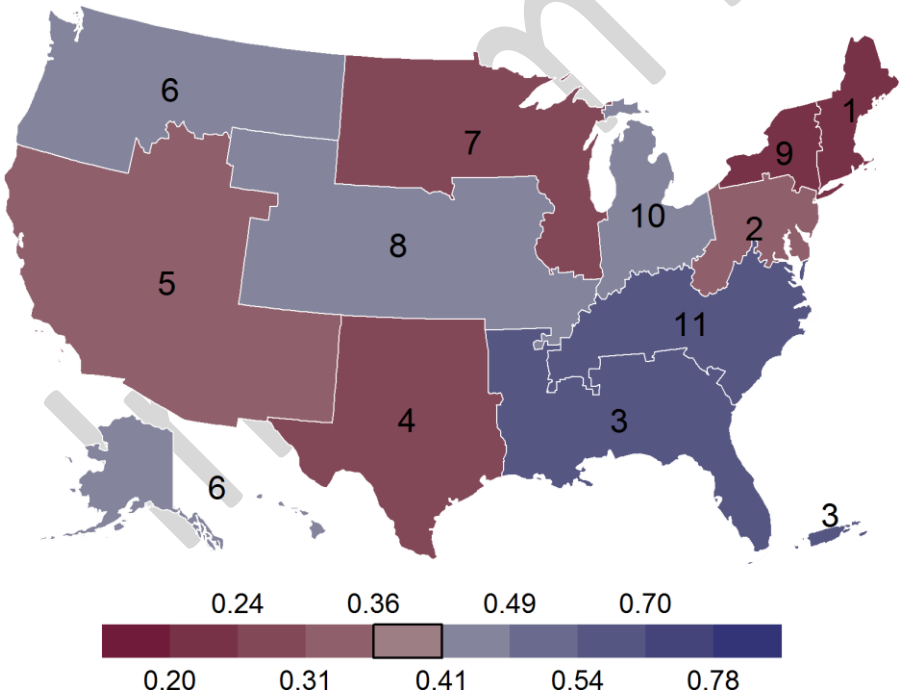


Figure A50. Ratio of actual donors to waitlisted candidates with allocation MELD/PELD > 15, by 8 districts

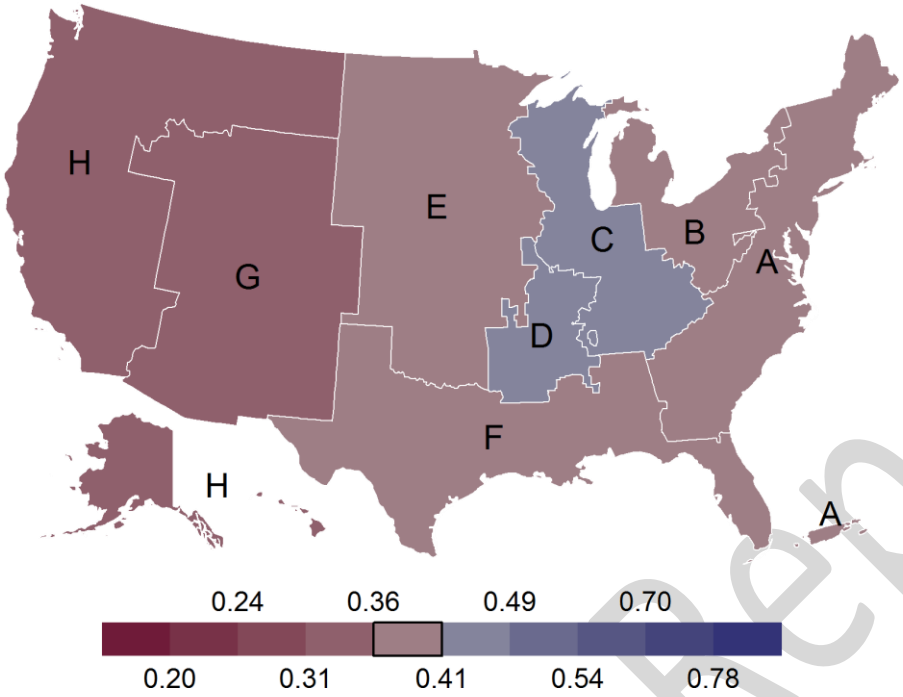


Figure A51. Ratio of actual donors to waitlisted candidates with allocation MELD/PELD > 15, by 4 districts

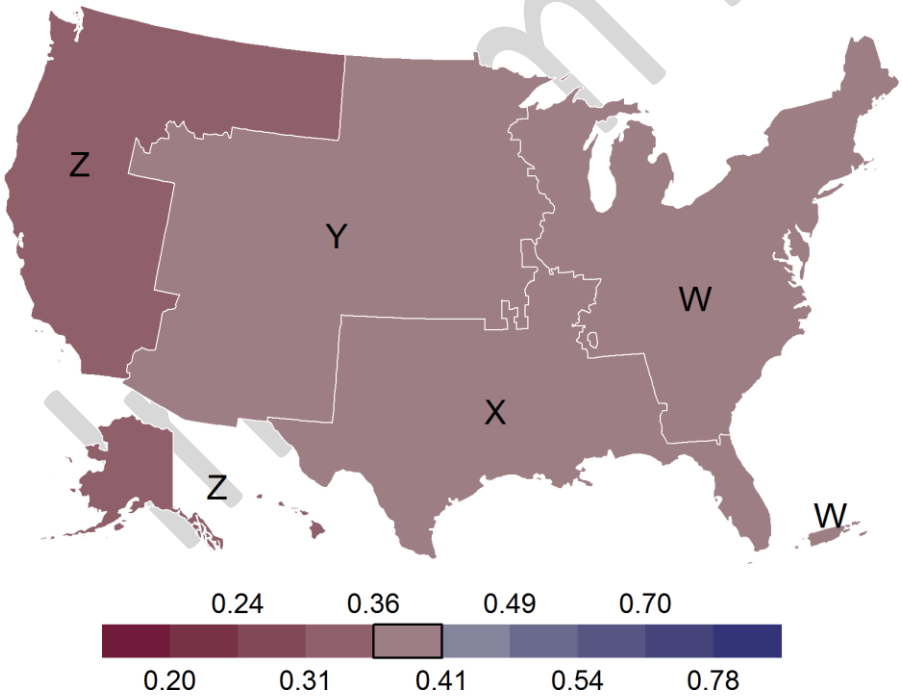


Figure A52. Ratio of eligible donors to waitlisted candidates with lab MELD/PELD > 15, by DSA

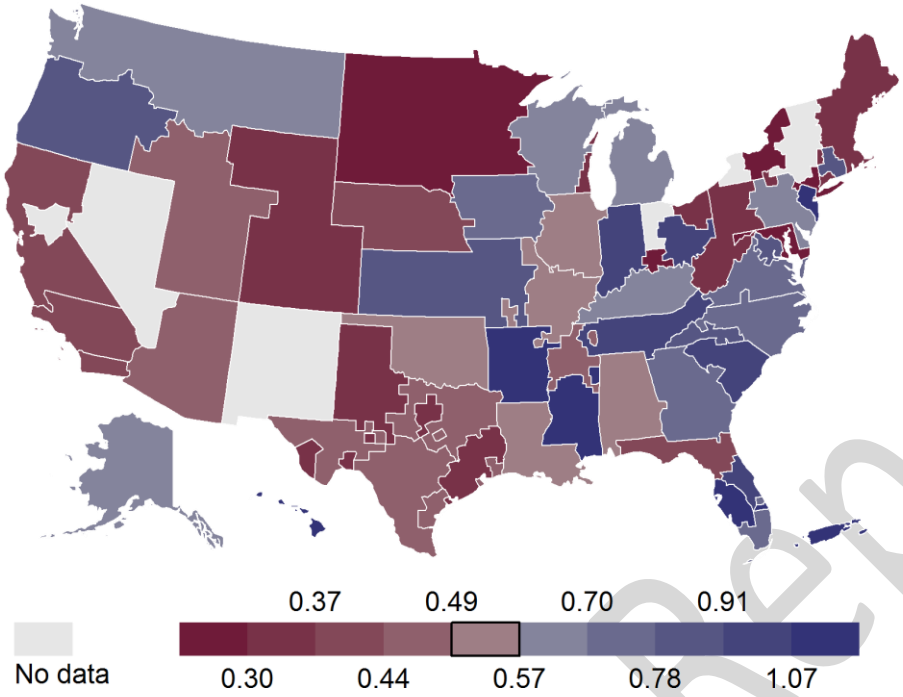


Figure A53. Ratio of eligible donors to waitlisted candidates with lab MELD/PELD > 15, by 11 regions

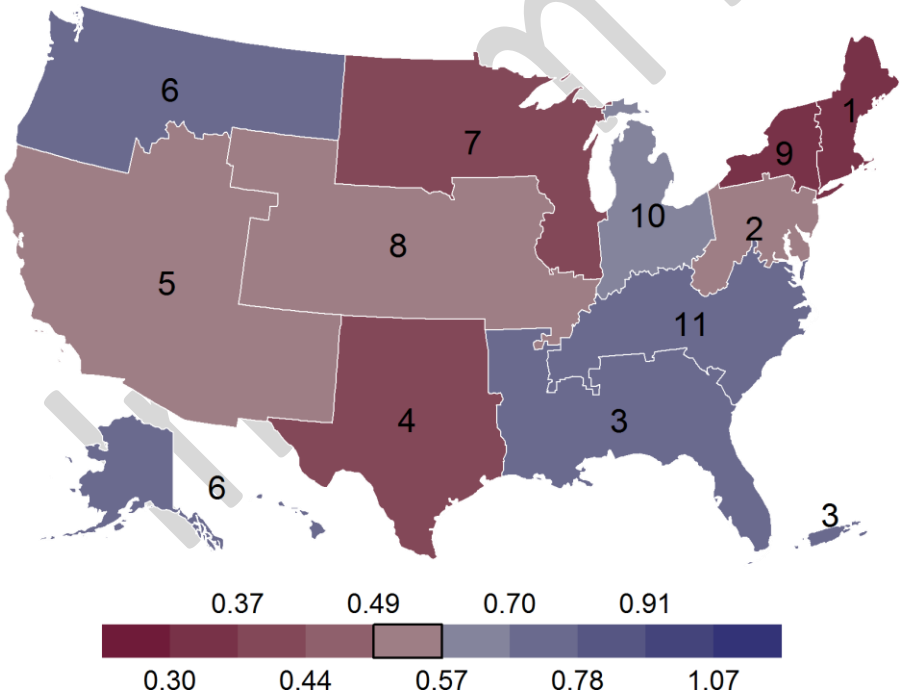


Figure A54. Ratio of eligible donors to waitlisted candidates with lab MELD/PELD > 15, by 8 districts

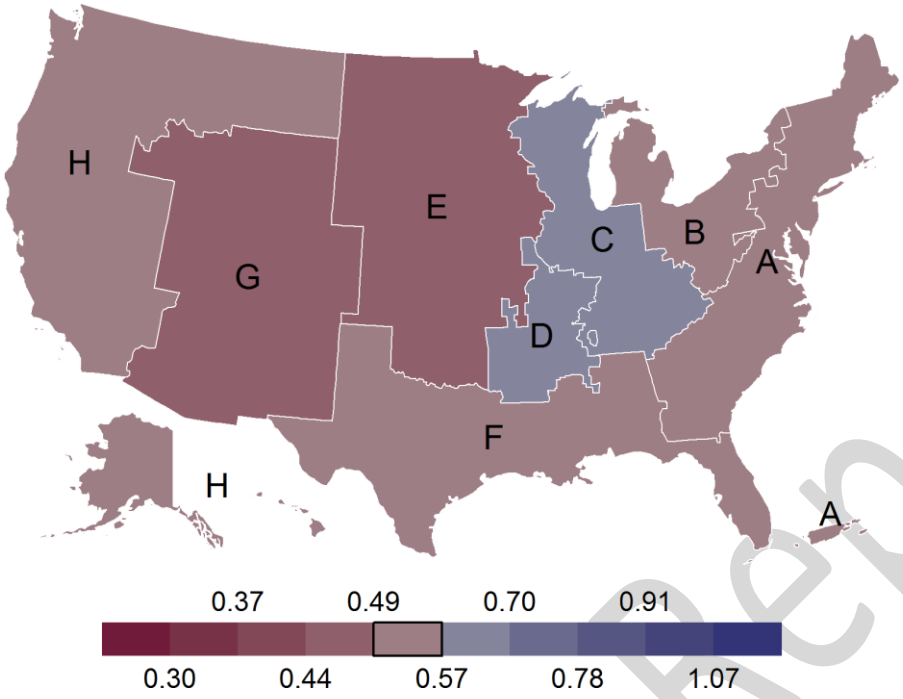


Figure A55. Ratio of eligible donors to waitlisted candidates with lab MELD/PELD > 15, by 4 districts

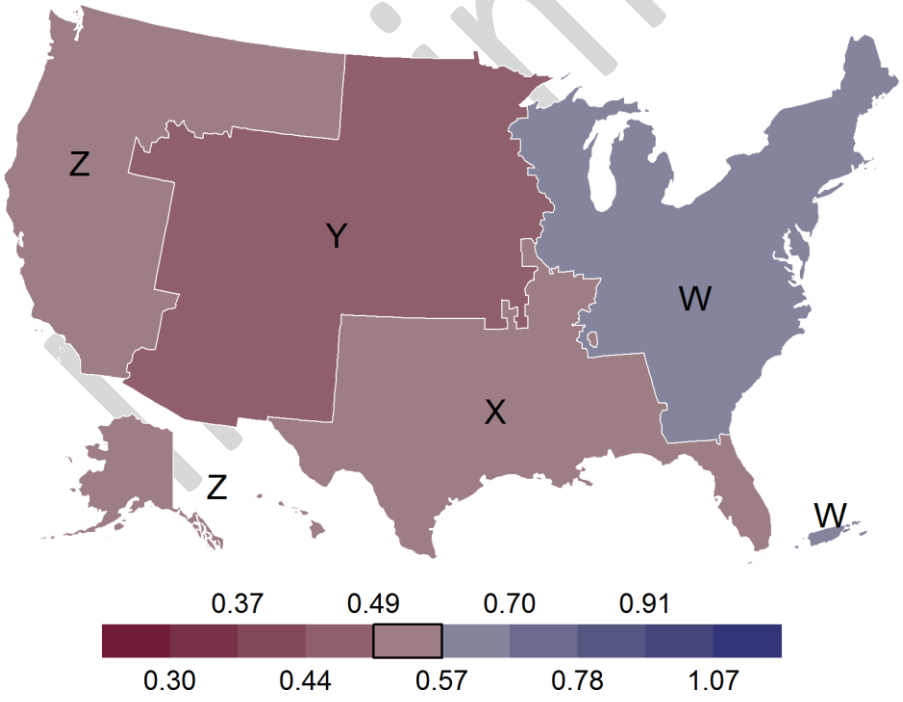


Figure A56. Ratio of eligible donors to waitlisted candidates with allocation MELD/PELD > 24, by DSA

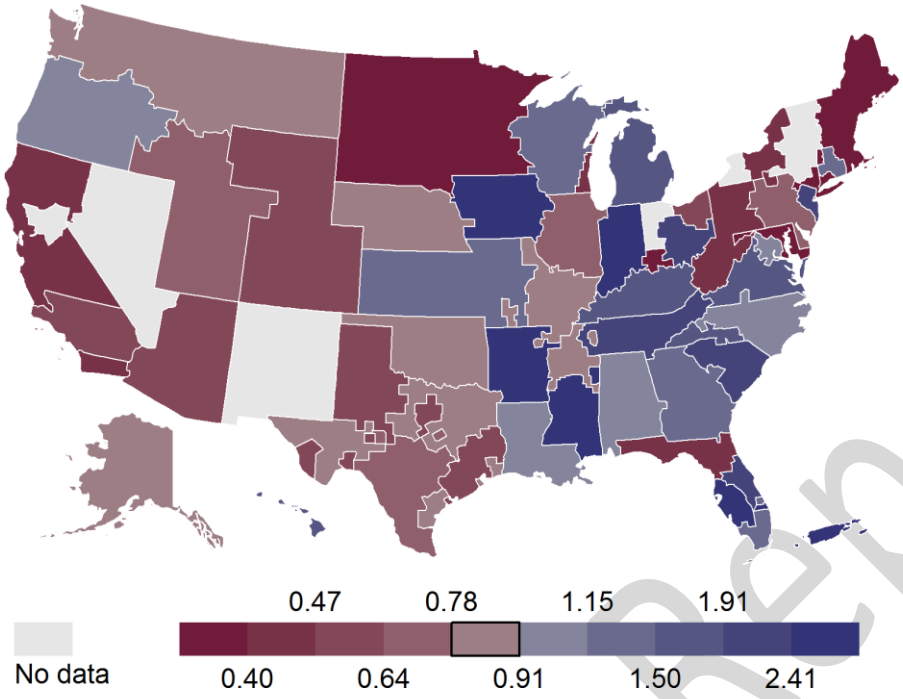


Figure A57. Ratio of eligible donors to waitlisted candidates with allocation MELD/PELD > 24, by 11 regions

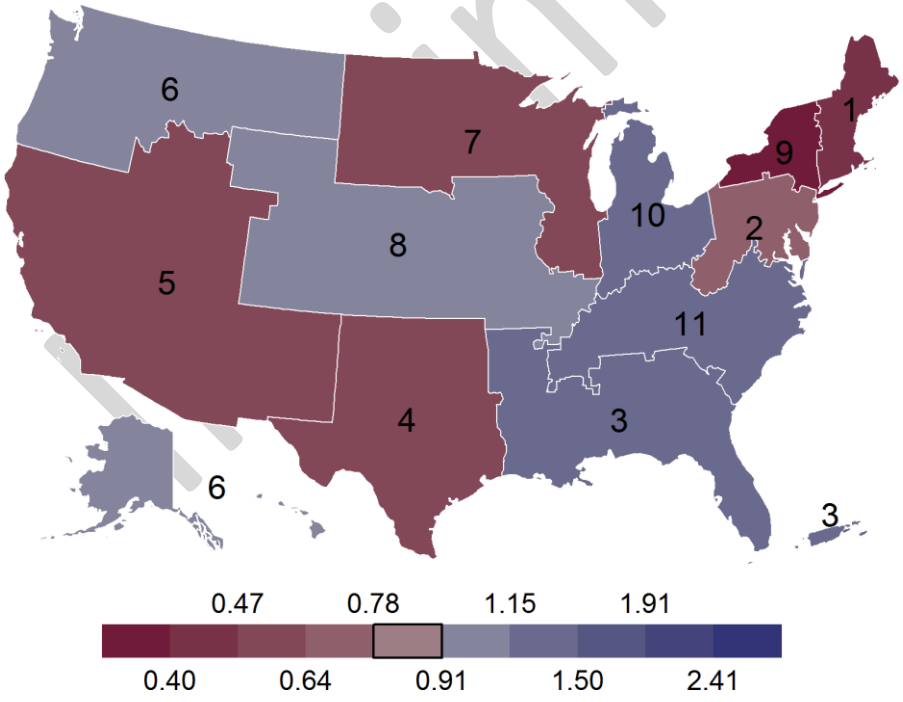


Figure A58. Ratio of eligible donors to waitlisted candidates with allocation MELD/PELD > 24, by 8 districts

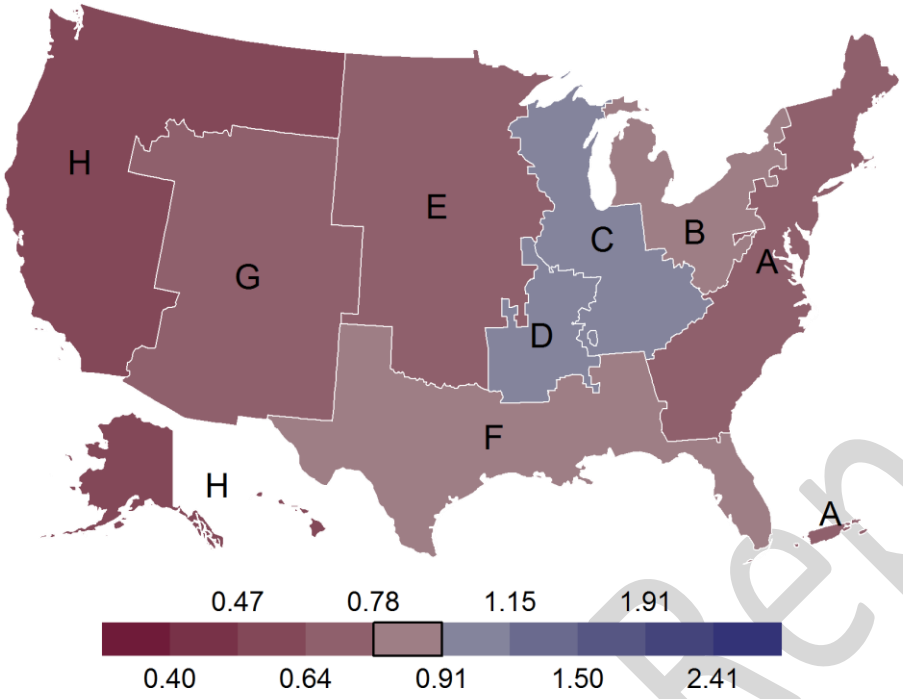
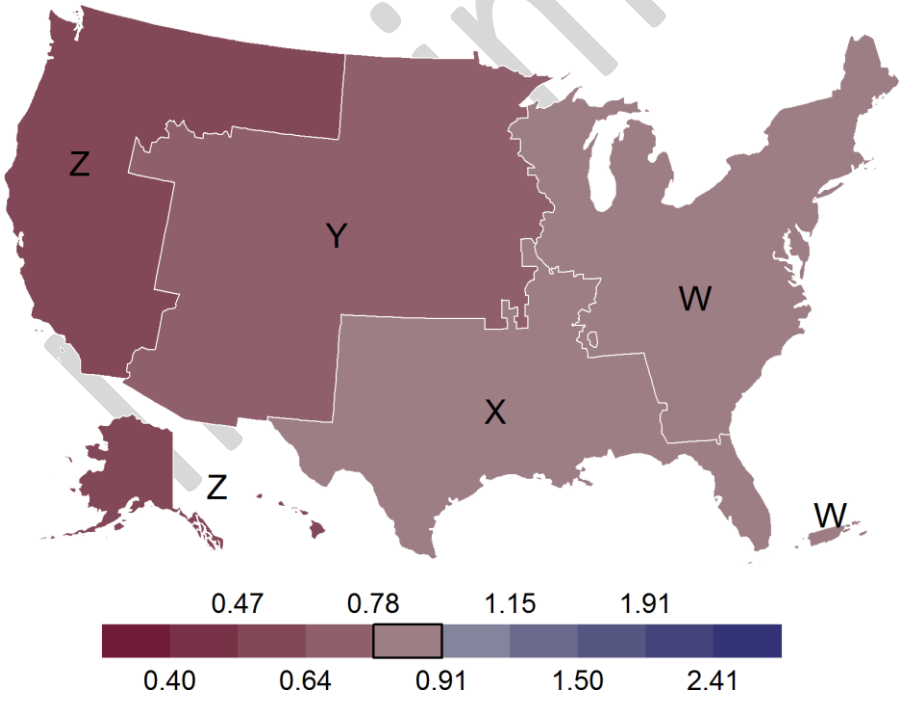


Figure A59. Ratio of eligible donors to waitlisted candidates with allocation MELD/PELD > 24, by 4 districts



Appendix B: Allocation Ordering for Simulations

The following allocation orderings were used for all simulations except the current policy scenario (run #28).

Adult donors:

1. District status 1A
2. District status 1B
3. District MELD ≥ 15
4. National status 1A
5. National status 1B
6. National M/P ≥ 15
7. District M/P < 15
8. National M/P < 15

Child donors (age 0-10):

1. District pediatric status 1A
2. National pediatric status 1A (0-11)
3. District adult status 1A
4. District pediatric status 1B
5. District any PELD
6. District MELD >=15, age 12 to 17
7. District MELD >= 15 , age 18+
8. District MELD < 15, age 12 to 17
9. District MELD < 15, age 18+
10. National status 1A, age 12-17
11. National status 1A, age 18+
12. National status 1B, age 0-17
13. National PELD
14. National MELD, age 12-17
15. National MELD, age 18+

Adolescent donors (age 11-17):

1. District pediatric status 1A
2. District adult status 1A
3. District pediatric status 1B

4. District any PELD
5. District MELD >= 15, age 12-17
6. District MELD >= 15, age 18+
7. District MELD < 15, age 12-17
8. District - MELD < 15, age 18+
9. National pediatric status 1A
10. National adult status 1A
11. National pediatric status 1B
12. National any PELD
13. National any MELD, age 12-17
14. National any MELD, age 18+

Appendix C: LSAM Cohort Demographics

Table C12. Waitlisted candidates at start of LSAM cohort, December 31, 2006

Characteristic	Level	All Candidates	Active Candidates
Total	Total	14583	12282
Age	<1	65 (0.4%)	58 (0.5%)
	1-5 Years	209 (1.4%)	135 (1.1%)
	6-11 Years	85 (0.6%)	43 (0.4%)
	12-17 Years	128 (0.9%)	93 (0.8%)
	18-34 Years	674 (4.6%)	483 (3.9%)
	35-49 Years	3046 (20.9%)	2572 (20.9%)
	50-64 Years	8732 (59.9%)	7524 (61.3%)
	65+ Years	1644 (11.3%)	1374 (11.2%)
Gender	Female	5813 (39.9%)	4834 (39.4%)
	Male	8770 (60.1%)	7448 (60.6%)
Race/Ethnicity	White	10500 (72%)	8900 (72.5%)
	African American	990 (6.8%)	770 (6.3%)
	Hispanic/Latino	2293 (15.7%)	1958 (15.9%)
	Asian	662 (4.5%)	549 (4.5%)
	Other	138 (0.9%)	105 (0.9%)
Diagnosis	Acute Hepatic Necrosis	549 (3.8%)	429 (3.5%)
	Biliary Atresia	196 (1.3%)	127 (1%)
	Cholestatic Liver Disease/Cirrhosis	1507 (10.3%)	1308 (10.6%)
	Malignant Neoplasms	267 (1.8%)	238 (1.9%)
	Metabolic Diseases	212 (1.5%)	169 (1.4%)
	Non-Cholestatic Cirrhosis	10582 (72.6%)	9050 (73.7%)
	Other	1264 (8.7%)	959 (7.8%)
	Unknown	6 (0%)	2 (0%)

Table C13. New waitlist arrivals in LSAM cohort for January 1, 2007 – December 31, 2011

Characteristic	Level	2007	2008	2009	2010	2011
Total	Total	251 (235-273) 2.1%	256 (231-279) 2.2%	247 (223-258) 2.1%	244 (223-281) 2.1%	256 (235-290) 2.2%
Age	<1	207 (181-236) 1.8%	195 (177-207) 1.7%	202 (191-236) 1.7%	200 (177-222) 1.7%	201 (183-218) 1.7%
	1-5 Years	104 (83-124) 0.9%	100 (76-113) 0.9%	103 (85-116) 0.9%	103 (89-123) 0.9%	101 (81-115) 0.9%
	6-11 Years	143 (129-173) 1.2%	146 (135-168) 1.2%	136 (113-153) 1.2%	143 (129-156) 1.2%	145 (134-160) 1.2%
	12-17 Years	625 (587-652) 5.3%	631 (592-665) 5.4%	640 (601-685) 5.4%	636 (594-681) 5.4%	627 (599-640) 5.3%
	18-34 Years	2238 (2173-2325) 19.2%	2244 (2177-2309) 19.1%	2256 (2149-2369) 19.2%	2291 (2212-2388) 19.4%	2258 (2185-2329) 19.2%
	35-49 Years	6827 (6663-7013) 58.4%	6902 (6741-7024) 58.8%	6920 (6813-7043) 58.7%	6915 (6834-7058) 58.6%	6871 (6697-7001) 58.6%
	50-64 Years	1289 (1241-1340) 11%	1270 (1191-1346) 10.8%	1275 (1202-1316) 10.8%	1276 (1212-1309) 10.8%	1271 (1226-1322) 10.8%
	65+ Years	251 (235-273) 2.1%	256 (231-279) 2.2%	247 (223-258) 2.1%	244 (223-281) 2.1%	256 (235-290) 2.2%
Gender	Female	4360 (4277-4435) 37.3%	4397 (4257-4538) 37.4%	4378 (4266-4499) 37.2%	4401 (4359-4473) 37.3%	4353 (4222-4441) 37.1%
	Male	7325 (7217-7491) 62.7%	7347 (7210-7483) 62.6%	7401 (7275-7534) 62.8%	7406 (7291-7501) 62.7%	7378 (7269-7509) 62.9%
Race/ Ethnicity	White	8170 (8007-8433) 69.9%	8214 (8070-8306) 69.9%	8221 (8042-8375) 69.8%	8270 (8180-8408) 70%	8182 (8054-8293) 69.8%
	African American	1067 (1041-1119) 9.1%	1061 (1027-1094) 9%	1060 (972-1128) 9%	1047 (1001-1079) 8.9%	1059 (1029-1079) 9%
	Hispanic/ Latino	1774 (1692-1849) 15.2%	1796 (1739-1849) 15.3%	1808 (1751-1859) 15.3%	1792 (1746-1847) 15.2%	1811 (1753-1889) 15.4%
	Asian	543 (491-591) 4.6%	534 (509-577) 4.5%	551 (514-571) 4.7%	554 (527-589) 4.7%	536 (508-556) 4.6%
	Other	131 (114-155) 1.1%	139 (128-151) 1.2%	140 (114-163) 1.2%	143 (124-153) 1.2%	141 (129-161) 1.2%
Diagnosis	Acute Hepatic Necrosis	564 (503-588) 4.8%	558 (528-597) 4.8%	559 (534-577) 4.7%	556 (517-578) 4.7%	554 (529-595) 4.7%
	Biliary Atresia	249 (219-265) 2.1%	249 (226-270) 2.1%	242 (230-255) 2.1%	242 (228-262) 2%	245 (217-264) 2.1%
	Cholestatic Liver Disease/ Cirrhosis	953 (885-1060) 8.2%	954 (912-1002) 8.1%	960 (926-1002) 8.1%	957 (931-1016) 8.1%	947 (883-983) 8.1%

Characteristic	Level	2007	2008	2009	2010	2011
	Malignant Neoplasms	940 (897-971) 8%	926 (870-992) 7.9%	944 (876-986) 8%	954 (911-1008) 8.1%	956 (911-996) 8.1%
	Metabolic Diseases	250 (224-284) 2.1%	253 (229-270) 2.2%	252 (223-275) 2.1%	254 (241-265) 2.1%	244 (218-262) 2.1%
	Non-Cholestatic Cirrhosis	7754 (7552-7930) 66.4%	7829 (7775-7896) 66.7%	7840 (7699-7973) 66.6%	7859 (7730-7970) 66.6%	7798 (7689-7950) 66.5%
	Other	972 (944-1010) 8.3%	975 (914-1031) 8.3%	980 (924-1025) 8.3%	983 (912-1022) 8.3%	985 (951-1020) 8.4%
	Unknown	1 (0-4) 0%	1 (0-2) 0%	2 (0-3) 0%	2 (0-4) 0%	1 (0-3) 0%
MELD / PELD	Status 1A	324 (298-349) 2.8%	326 (306-352) 2.8%	331 (307-359) 2.8%	329 (303-346) 2.8%	329 (314-343) 2.8%
	Status 1B	14 (4-21) 0.1%	14 (9-19) 0.1%	12 (6-17) 0.1%	12 (6-18) 0.1%	14 (10-17) 0.1%
	MELD > 40	23 (15-31) 0.2%	26 (19-34) 0.2%	23 (15-34) 0.2%	26 (18-30) 0.2%	26 (20-32) 0.2%
	MELD 35-40	492 (449-529) 4.2%	483 (459-528) 4.1%	483 (449-514) 4.1%	478 (435-507) 4%	482 (451-514) 4.1%
	MELD 30-34	426 (381-475) 3.6%	425 (407-444) 3.6%	417 (392-446) 3.5%	421 (355-461) 3.6%	423 (390-456) 3.6%
	MELD 25-29	597 (565-628) 5.1%	598 (565-629) 5.1%	586 (551-623) 5%	598 (558-640) 5.1%	587 (547-626) 5%
	MELD 20-24	1969 (1897-2046) 16.8%	1979 (1908-2029) 16.9%	1974 (1911-2069) 16.8%	1985 (1936-2032) 16.8%	1975 (1885-2021) 16.8%
	MELD 15-19	2197 (2126-2299) 18.8%	2217 (2146-2283) 18.9%	2245 (2194-2291) 19.1%	2246 (2173-2302) 19%	2214 (2135-2287) 18.9%
	MELD 0-14	4894 (4751-4986) 41.9%	4920 (4839-4985) 41.9%	4943 (4785-5089) 42%	4941 (4901-4991) 41.9%	4922 (4804-4994) 42%
	MELD < 0	69 (56-86) 0.6%	67 (59-75) 0.6%	68 (61-88) 0.6%	67 (58-78) 0.6%	61 (40-82) 0.5%
	Status 7	681 (630-742) 5.8%	690 (660-768) 5.9%	697 (667-735) 5.9%	704 (668-751) 6%	697 (671-751) 5.9%
Region	Region 1	524 (503-575) 4.5%	535 (498-605) 4.6%	532 (507-557) 4.5%	529 (489-557) 4.5%	529 (492-559) 4.5%
	Region 2	1503 (1446-1579) 12.9%	1509 (1458-1538) 12.9%	1538 (1482-1578) 13.1%	1534 (1505-1590) 13%	1514 (1463-1559) 12.9%
	Region 3	1274 (1225-1333) 10.9%	1265 (1177-1331) 10.8%	1255 (1211-1302) 10.7%	1268 (1191-1326) 10.7%	1244 (1209-1300) 10.6%
	Region 4	1438 (1390-1484) 12.3%	1440 (1357-1515) 12.3%	1448 (1388-1507) 12.3%	1465 (1417-1499) 12.4%	1455 (1416-1495) 12.4%
	Region 5	2278 (2226-2341) 19.5%	2256 (2194-2295) 19.2%	2268 (2155-2323) 19.3%	2278 (2219-2362) 19.3%	2269 (2208-2374) 19.3%

Characteristic	Level	2007	2008	2009	2010	2011
	Region 6	280 (253-308) 2.4%	286 (268-308) 2.4%	287 (265-327) 2.4%	284 (245-310) 2.4%	285 (269-307) 2.4%
	Region 7	979 (896-1032) 8.4%	983 (951-1029) 8.4%	1003 (944-1058) 8.5%	998 (958-1064) 8.5%	987 (955-1027) 8.4%
	Region 8	728 (702-776) 6.2%	747 (720-764) 6.4%	741 (703-791) 6.3%	747 (699-790) 6.3%	734 (689-776) 6.3%
	Region 9	951 (920-1000) 8.1%	960 (932-990) 8.2%	964 (911-1000) 8.2%	966 (893-1010) 8.2%	965 (929-1004) 8.2%
	Region 10	809 (760-879) 6.9%	835 (759-896) 7.1%	826 (780-883) 7%	814 (771-858) 6.9%	813 (762-854) 6.9%
	Region 11	921 (870-964) 7.9%	928 (880-998) 7.9%	917 (843-956) 7.8%	923 (878-955) 7.8%	935 (871-978) 8%

Table C14. Donor arrivals in LSAM cohort for January 1, 2007 – December 31, 2011

Characteristic	Level	2007	2008	2009	2010	2011
Total	Total	95 (84-112) 1.4%	94 (79-112) 1.4%	92 (76-107) 1.4%	98 (86-113) 1.5%	88 (82-95) 1.3%
Age	<1	168 (154-185) 2.5%	162 (151-175) 2.4%	169 (145-200) 2.5%	166 (158-190) 2.5%	160 (144-187) 2.4%
	1-5 Years	120 (99-138) 1.8%	130 (113-142) 1.9%	131 (112-149) 2%	125 (103-140) 1.9%	121 (112-136) 1.8%
	6-11 Years	424 (364-462) 6.3%	416 (384-442) 6.2%	413 (385-429) 6.2%	408 (368-452) 6.1%	415 (376-446) 6.2%
	12-17 Years	1922 (1826-1993) 28.5%	1928 (1880-1992) 28.8%	1899 (1799-1999) 28.5%	1934 (1863-1987) 28.8%	1910 (1865-1981) 28.6%
	18-34 Years	1709 (1664-1742) 25.4%	1702 (1642-1741) 25.4%	1691 (1608-1765) 25.4%	1699 (1617-1809) 25.3%	1705 (1650-1769) 25.5%
	35-49 Years	1702 (1585-1785) 25.3%	1682 (1590-1756) 25.1%	1692 (1608-1763) 25.4%	1678 (1619-1749) 25%	1698 (1623-1804) 25.4%
	50-64 Years	593 (573-628) 8.8%	583 (542-613) 8.7%	583 (554-599) 8.7%	597 (570-614) 8.9%	584 (562-606) 8.7%
	65+ Years	95 (84-112) 1.4%	94 (79-112) 1.4%	92 (76-107) 1.4%	98 (86-113) 1.5%	88 (82-95) 1.3%
Gender	Female	2712 (2595-2818) 40.3%	2718 (2601-2811) 40.6%	2698 (2596-2810) 40.5%	2702 (2611-2778) 40.3%	2725 (2611-2847) 40.8%
	Male	4021 (3916-4139) 59.7%	3978 (3895-4101) 59.4%	3972 (3817-4092) 59.5%	4002 (3829-4124) 59.7%	3955 (3881-4020) 59.2%
Race/ Ethnicity	White	4443 (4336-4516) 66%	4398 (4251-4515) 65.7%	4398 (4286-4547) 65.9%	4428 (4274-4531) 66%	4394 (4290-4490) 65.8%
	African American	1165 (1116-1228) 17.3%	1194 (1157-1227) 17.8%	1174 (1108-1262) 17.6%	1167 (1076-1201) 17.4%	1166 (1107-1196) 17.5%
	Hispanic/ Latino	908 (861-966) 13.5%	902 (871-941) 13.5%	891 (867-929) 13.4%	900 (851-946) 13.4%	913 (868-957) 13.7%
	Asian	162 (136-180) 2.4%	153 (133-178) 2.3%	155 (130-179) 2.3%	161 (145-183) 2.4%	154 (135-171) 2.3%
	Other	55 (37-65) 0.8%	50 (40-57) 0.7%	52 (43-63) 0.8%	49 (44-59) 0.7%	53 (50-58) 0.8%

Appendix D: Calculation of Metrics

Metrics were calculated using the following methods:

Counts (e.g., pretransplant deaths prevented, percentage of transplants that are local):

Counts were aggregated over the course of the 5-year LSAM run. To calculate the number of events per year, the counts were therefore divided by 5.

Waitlist mortality counts stratified by MELD/PELD ≥ 35 (including status 1A and 1B), 29-34, 15-28, and < 15: Each status update for a candidate on the waiting list was grouped into one of the following categories: MELD/PELD ≥ 35 (including status 1A and 1B), 29-34, 15-28, < 15, and inactive. If a death occurred, it was added to the death count for the status category the candidate was in at the time of death. Note that mortality counts for the inactive group were not shown. Relistings were not included in these calculations.

Rates

Waitlist mortality rates were calculated as below. Time on waiting list began at the latest of arrival date or December 31, 2006, and ended at the earliest of transplant, removal, death, or December 31, 2011.

$$Waitlist\ mortality\ rate = \frac{\sum deaths}{\sum Time\ on\ waiting\ list}$$

Waitlist mortality rates stratified by MELD/PELD of 35+ (including status 1A and 1B), 29-34, 15-28, < 15 were calculated as below.

$$Waitlist\ mortality\ rate\ for\ 35{+}{=} \frac{\sum deaths}{\sum Time\ on\ waiting\ list\ at\ MELD/PELD\ 35 + or\ status\ 1A\ or\ 1B}$$

$$Waitlist\ mortality\ rate\ for\ 29-34 = \frac{\sum deaths}{\sum Time\ on\ waiting\ list\ at\ MELD/PELD\ 29-34}$$

$$Waitlist\ mortality\ rate\ for\ 15-28 = \frac{\sum deaths}{\sum Time\ on\ waiting\ list\ at\ MELD/PELD\ 15-28}$$

$$Waitlist\ mortality\ rate\ for < 15 = \frac{\sum deaths}{\sum Time\ on\ waiting\ list\ at\ MELD/PELD\ < 15}$$

Transplant rates were calculated as below. Time on waiting list began at the latest of arrival date or December 31, 2006, and ended at the earliest of transplant, removal, death, or December 31, 2011.

$$Transplant\ rate = \frac{\sum transplants}{\sum Time\ on\ waiting\ list}$$

Overall mortality rates were calculated as below. Time on the waiting list or posttransplant began at the latest of arrival date or December 31, 2006, and ended at the earliest of death, relisting, or December 31, 2011.

$$Overall\ mortality\ rate = \frac{\sum deaths}{\sum Time\ on\ waiting\ list\ or\ posttransplant}$$

Overall mortality rates for candidates with MELD/PELD of 20+ were calculated as below. Time on the waiting list or posttransplant began at the latest of arrival date or December 31, 2006, and ended at the earliest of death, relisting, or December 31, 2011. Candidates were included if their MELD/PELD was ≥ 20 at some point while on the waiting list.

$$Overall\ mortality\ rate = \frac{\sum deaths}{\sum Time\ on\ waiting\ list\ or\ posttransplant}$$

Variance metrics

The variance metrics were calculated across DSAs, meaning the metrics were first calculated within each DSA. Then the variance in the metric was calculated. For example, median MELD/PELD at transplant was first calculated within each DSA. Then the variance of the median MELD/PELDs was calculated.

Appendix E: Simulation Metrics Tables

Table E15. Disparity Metrics

	Variance in median MELD at transplant	Variance in pretransplant mortality rates	Variance in transplant rates	Variance in mortality rates after MELD 20
Current	6.2 (5.5-6.9)	0.00058 (0.00043-0.00073)	0.116 (0.105-0.128)	0.00035 (0.00024-0.00052)
11 Regions	8.2 (7.4-9.1)	0.00049 (0.00043-0.00058)	0.1 (0.09-0.111)	0.00031 (0.00021-0.0004)
11R 3P 150Mi In	8.3 (7.5-9.7)	0.00052 (0.0004-0.00063)	0.106 (0.09-0.13)	0.00032 (0.00019-0.00059)
11R 3P 250Mi In	8.3 (7.2-9.3)	0.00053 (0.0004-0.00068)	0.108 (0.092-0.124)	0.00034 (0.00022-0.00058)
11R 5P 150Mi In	7.7 (6.9-8.6)	0.00055 (0.00046-0.00063)	0.107 (0.091-0.128)	0.00034 (0.00024-0.00074)
11R 5P 250Mi In	7.9 (6.8-8.9)	0.00051 (0.00042-0.00067)	0.113 (0.1-0.126)	0.00038 (0.00025-0.0007)
11R 3P 150Mi Out	4.2 (3.8-4.6)	0.00061 (0.00048-0.0007)	0.062 (0.051-0.071)	0.00031 (0.0002-0.00041)
11R 3P 250Mi Out	3.8 (3.5-4.7)	0.00061 (0.00048-0.0007)	0.062 (0.053-0.069)	0.0003 (0.00016-0.00056)
11R 5P 150Mi Out	4.1 (3.6-4.6)	0.00061 (0.0005-0.00075)	0.062 (0.052-0.068)	0.0003 (0.00021-0.00043)
11R 5P 250Mi Out	3.8 (3.3-4.6)	0.00059 (0.00045-0.0007)	0.061 (0.051-0.07)	0.00031 (0.00021-0.00044)
4 Districts	2.1 (1.6-2.7)	0.0004 (0.00031-0.00047)	0.024 (0.021-0.029)	0.00023 (0.00018-0.00029)
4D 3P 150Mi In	2.1 (1.6-2.7)	0.00042 (0.00031-0.0005)	0.027 (0.023-0.032)	0.00025 (0.00014-0.00032)
4D 3P 250Mi In	2.1 (1.5-2.5)	0.00043 (0.00034-0.00056)	0.029 (0.025-0.035)	0.00024 (0.00016-0.00048)
4D 5P 150Mi In	2.3 (1.8-2.8)	0.00046 (0.00039-0.00057)	0.031 (0.026-0.036)	0.00026 (0.00014-0.00047)
4D 5P 250Mi In	2.4 (1.9-3.2)	0.00047 (0.00039-0.00057)	0.032 (0.027-0.038)	0.00026 (0.00014-0.0004)
4D 3P 150Mi Out	4 (3.6-4.6)	0.0006 (0.00045-0.00078)	0.06 (0.046-0.072)	0.00031 (0.00022-0.00045)
4D 3P 250Mi Out	3.7 (3.1-4.5)	0.00057 (0.00049-0.00069)	0.063 (0.054-0.076)	0.00033 (0.00019-0.00066)
4D 5P 150Mi Out	4.1 (3.4-4.7)	0.00061 (0.00047-0.00074)	0.062 (0.052-0.07)	0.00027 (0.00021-0.00038)
4D 5P 250Mi Out	3.7 (3.2-4.2)	0.00058 (0.00049-0.00067)	0.06 (0.053-0.069)	0.00027 (0.00018-0.00044)
8 Districts	2.8 (2.1-3.5)	0.00047 (0.00036-0.00058)	0.027 (0.021-0.031)	0.00029 (0.00018-0.0004)
8D 3P 150Mi In	2.9 (2-3.6)	0.00046 (0.00036-0.00057)	0.029 (0.025-0.033)	0.00026 (0.00019-0.00032)
8D 3P 250Mi In	3 (2.1-3.6)	0.00046 (0.00036-0.00054)	0.03 (0.025-0.034)	0.00026 (0.00015-0.00051)
8D 5P 150Mi In	3 (2.2-3.8)	0.00048 (0.0004-0.00059)	0.032 (0.025-0.04)	0.0003 (0.00016-0.00039)
8D 5P 250Mi In	3 (2.1-3.9)	0.00051 (0.00041-0.00067)	0.033 (0.028-0.036)	0.00031 (0.00023-0.00062)
8D 3P 150Mi Out	4.1 (3.6-5)	0.00061 (0.0005-0.00074)	0.059 (0.049-0.067)	0.0003 (0.00023-0.00051)
8D 3P 250Mi Out	3.8 (3.2-4.9)	0.00058 (0.00046-0.00084)	0.065 (0.055-0.075)	0.00028 (0.00022-0.00039)
8D 5P 150Mi Out	4.1 (3.6-4.8)	0.00062 (0.00046-0.00074)	0.061 (0.047-0.072)	0.00028 (0.00019-0.00044)
8D 5P 250Mi Out	3.6 (3-4.5)	0.00058 (0.00045-0.00069)	0.061 (0.054-0.069)	0.0003 (0.00016-0.00078)

Table E16. Summative Metrics

	Pretransplant deaths per year prevented	Posttransplant deaths per year prevented	Overall deaths per year	Overall death rates per patient-year
11 Regions	-4.8 (-27.8-12.6)	4.7 (-18.4-32.6)	3608.1 (3567.8-3658.4)	0.1 (0.1-0.1)
11R 3P 150Mi In	4.9 (-12.4-26)	0.6 (-25.2-32.4)	3608.2 (3565.6-3652.8)	0.1 (0.1-0.1)
11R 3P 150Mi Out	31.9 (17.2-48.2)	-53.3 (-79.8--40.8)	3602.6 (3558.4-3652.8)	0.1 (0.1-0.1)
11R 3P 250Mi In	5.1 (-13.2-24)	-0.1 (-33.4-20)	3603.1 (3571.8-3637.2)	0.1 (0.1-0.1)
11R 3P 250Mi Out	17.9 (-1.2-27.2)	-39.2 (-63.4--1.8)	3601.1 (3563.4-3648.8)	0.1 (0.1-0.1)
11R 5P 150Mi In	4.1 (-12-19.2)	2.9 (-21.2-21)	3613.5 (3578.6-3644)	0.1 (0.1-0.1)
11R 5P 150Mi Out	32.7 (21-53.6)	-49.7 (-75--32.2)	3629.5 (3600-3672.8)	0.1 (0.1-0.1)
11R 5P 250Mi In	-4.3 (-26.8-15.2)	-1.1 (-20.8-13)	3629.4 (3581.2-3680.4)	0.1 (0.1-0.1)
11R 5P 250Mi Out	19.6 (6.8-32.2)	-37.3 (-66.6--8.8)	3625.1 (3592.4-3682.8)	0.1 (0.1-0.1)
4 Districts	118.8 (100.4-134.6)	1.6 (-42.6-29)	3625.8 (3595-3656.4)	0.1 (0.1-0.1)
4D 3P 150Mi In	116.4 (97.2-133.6)	-11.5 (-41.8-23.4)	3487.8 (3468.2-3507.4)	0.1 (0.1-0.1)
4D 3P 150Mi Out	39.7 (18.8-59.6)	-33 (-54--17)	3503.2 (3471.2-3537.2)	0.1 (0.1-0.1)
4D 3P 250Mi In	113.7 (97-132)	-13.3 (-38.8-6.6)	3507.7 (3469.4-3540.6)	0.1 (0.1-0.1)
4D 3P 250Mi Out	17.7 (-4-34.8)	-14.2 (-38.8-11.4)	3508.2 (3483.8-3561.4)	0.1 (0.1-0.1)
4D 5P 150Mi In	103.1 (81.6-117.8)	-3.2 (-19.6-14.4)	3520.6 (3482.8-3554.4)	0.1 (0.1-0.1)
4D 5P 150Mi Out	42.4 (27.8-59.2)	-44.9 (-61.2--29.8)	3601.3 (3575.6-3637.6)	0.1 (0.1-0.1)
4D 5P 250Mi In	97.9 (88-111)	-10.3 (-30.4-5.8)	3604.6 (3562.2-3654.8)	0.1 (0.1-0.1)
4D 5P 250Mi Out	16.2 (-1.8-33)	-6.3 (-24.6-10.2)	3610.6 (3582.2-3643.2)	0.1 (0.1-0.1)
8 Districts	59.8 (39.8-86.6)	1.2 (-17.8-27.6)	3598.2 (3565-3649.4)	0.1 (0.1-0.1)
8D 3P 150Mi In	55.4 (35-74.2)	-3.3 (-22.4-18.4)	3547 (3523.6-3567.2)	0.1 (0.1-0.1)
8D 3P 150Mi Out	38.3 (15.8-54.4)	-46.3 (-75.6--29.4)	3556 (3525.4-3589.6)	0.1 (0.1-0.1)
8D 3P 250Mi In	51.6 (30.2-63.8)	5.4 (-19-25.4)	3551.1 (3528-3595.2)	0.1 (0.1-0.1)
8D 3P 250Mi Out	21.9 (-1.8-43.6)	-28.7 (-52.6-4.2)	3562.9 (3538.2-3604.4)	0.1 (0.1-0.1)
8D 5P 150Mi In	53.5 (36.2-69.2)	-8.3 (-23.6-7)	3558.2 (3521.8-3599)	0.1 (0.1-0.1)
8D 5P 150Mi Out	37.3 (9.8-60.4)	-48.1 (-78.8--33.8)	3616.1 (3585.4-3668.6)	0.1 (0.1-0.1)
8D 5P 250Mi In	50.6 (35.8-68.8)	-0.7 (-30-27.8)	3614.9 (3590-3645.2)	0.1 (0.1-0.1)
8D 5P 250Mi Out	17.1 (2.2-30)	-23.7 (-38.2--12.8)	3618.9 (3590.8-3684.4)	0.1 (0.1-0.1)
Current	0 (0-0)	0 (0-0)	3614.7 (3596.6-3655.6)	0.1 (0.1-0.1)

Table E17. Mortality Counts by MELD Category

	≥35	29-34	15-28	<15
Current	93.8 (85-100.4)	38.6 (34.6-46.4)	267.8 (257.4-278)	279.7 (270.8-284.8)
11 Regions	89.4 (83-95.2)	33.1 (29.8-38.8)	275.9 (267.6-288.6)	283.3 (278.2-288.6)
11R 3P 150Mi In	88.7 (80.4-98.4)	34.8 (31.6-41.2)	274.1 (263.8-285.6)	283.3 (276.2-289)
11R 3P 250Mi In	89 (84.6-94.2)	32.9 (28.2-38.8)	275.1 (263.4-292)	282.5 (275.4-290)
11R 5P 150Mi In	90.3 (81-98)	33.8 (30.6-38.2)	273.8 (267-288.6)	281.8 (274-287.6)
11R 5P 250Mi In	91.1 (84.6-98.2)	33.9 (31-40)	274.5 (261.4-290)	282.8 (274.8-289.2)
11R 3P 150Mi Out	79.7 (75-84.4)	33.1 (27.6-38.6)	273.1 (261.4-286)	279.7 (271.4-285.8)
11R 3P 250Mi Out	79.2 (74-85.6)	31.5 (25.4-36.8)	276.7 (266-289)	282.1 (275.6-285.8)
11R 5P 150Mi Out	78.3 (71.4-84.2)	34.6 (29-41.4)	271.9 (262.4-285.6)	279.6 (273.2-285)
11R 5P 250Mi Out	80.5 (73.6-88)	31 (23.4-37.2)	277.1 (267.8-293.6)	281.5 (273-288.4)
4 Districts	48.1 (44.4-52)	22.6 (19-27.6)	277.3 (266.6-288.6)	284.1 (276-291)
4D 3P 150Mi In	49.2 (45.8-52)	22.6 (18.4-25.6)	280 (271.6-291.6)	284.3 (275.6-292.2)
4D 3P 250Mi In	48.2 (43.2-52.2)	22.8 (17.6-26.6)	280.7 (272.6-291.6)	284 (276.2-289)
4D 5P 150Mi In	49.7 (45.2-54.2)	23.9 (20.6-30.8)	279.6 (273-291.6)	284.6 (276.6-291.6)
4D 5P 250Mi In	49.6 (44.6-58)	25.1 (20.6-30.4)	281.5 (271.6-294)	284.1 (276.2-289)
4D 3P 150Mi Out	78.5 (72.2-82.6)	33.6 (30.2-40)	272.9 (263-281.4)	279.6 (272.6-285.6)
4D 3P 250Mi Out	79.6 (72.8-88.6)	31.7 (27.4-37.2)	276.5 (263.2-286.2)	282.8 (276.6-289.2)
4D 5P 150Mi Out	78.8 (73.4-86)	34.1 (27.6-41.2)	271.7 (262.4-285)	280.1 (272.4-287)
4D 5P 250Mi Out	82 (74.2-88.2)	31.2 (26.8-34.8)	276.3 (266.2-285.8)	282.9 (275.6-289)
8 Districts	71.1 (65.2-76)	27.1 (23.4-32)	276.1 (266.6-287.8)	282.8 (275-289.2)
8D 3P 150Mi In	72.6 (67.6-77.2)	28.6 (24.2-34.6)	276.5 (267-288.2)	282.4 (273.8-288)
8D 3P 250Mi In	72.1 (67.4-76)	27.9 (24-34.6)	277.6 (270.2-289.4)	282.5 (276.8-289.8)
8D 5P 150Mi In	72 (67.6-79.8)	29.5 (23.8-35.6)	275.3 (267-290.8)	282.6 (275.2-288.4)
8D 5P 250Mi In	72.5 (67.2-77.4)	29.5 (25-33.6)	277.3 (267.2-286.4)	281.7 (273.2-287.4)
8D 3P 150Mi Out	78.2 (71.4-85.4)	33.6 (29.2-40.2)	272.1 (262.6-282.2)	280.9 (272.4-285.8)
8D 3P 250Mi Out	79.1 (74.4-85.2)	31.2 (26.6-37)	274.7 (268.8-284.8)	282.7 (274.8-287.6)
8D 5P 150Mi Out	79.7 (75-86.4)	33.8 (30.6-41.2)	273.6 (265.4-285.4)	279.1 (271.4-286)
8D 5P 250Mi Out	81.3 (73.8-86)	32.4 (25.6-37.8)	277.2 (269-291)	282.9 (277.8-290.2)

Table E18. Waitlist Mortality Rates by MELD Category

	35+	29-34	15-28	<15
Current	1.249 (1.073-1.412)	0.23 (0.211-0.258)	0.063 (0.06-0.065)	0.028 (0.027-0.028)
11 Regions	1.261 (1.118-1.398)	0.265 (0.229-0.329)	0.061 (0.06-0.064)	0.028 (0.027-0.028)
11R 3P 150Mi In	1.247 (1.115-1.324)	0.269 (0.241-0.304)	0.062 (0.06-0.064)	0.028 (0.027-0.028)
11R 3P 250Mi In	1.249 (1.096-1.374)	0.257 (0.234-0.315)	0.062 (0.059-0.064)	0.028 (0.027-0.028)
11R 5P 150Mi In	1.262 (1.075-1.397)	0.254 (0.23-0.297)	0.062 (0.061-0.063)	0.028 (0.027-0.028)
11R 5P 250Mi In	1.286 (1.132-1.428)	0.259 (0.232-0.294)	0.062 (0.059-0.064)	0.028 (0.027-0.028)
11R 3P 150Mi Out	1.279 (1.17-1.418)	0.264 (0.224-0.318)	0.062 (0.06-0.063)	0.027 (0.027-0.028)
11R 3P 250Mi Out	1.222 (1.09-1.323)	0.275 (0.224-0.331)	0.061 (0.059-0.063)	0.027 (0.027-0.028)
11R 5P 150Mi Out	1.256 (1.153-1.374)	0.274 (0.232-0.332)	0.062 (0.06-0.063)	0.027 (0.027-0.028)
11R 5P 250Mi Out	1.265 (1.108-1.401)	0.271 (0.21-0.348)	0.061 (0.059-0.063)	0.027 (0.027-0.028)
4 Districts	1.088 (0.955-1.211)	0.295 (0.26-0.334)	0.055 (0.054-0.057)	0.027 (0.027-0.028)
4D 3P 150Mi In	1.112 (1.022-1.19)	0.284 (0.244-0.327)	0.057 (0.056-0.059)	0.027 (0.027-0.028)
4D 3P 250Mi In	1.072 (0.954-1.183)	0.282 (0.228-0.332)	0.057 (0.056-0.06)	0.027 (0.027-0.028)
4D 5P 150Mi In	1.091 (0.997-1.225)	0.28 (0.241-0.339)	0.058 (0.057-0.06)	0.028 (0.027-0.028)
4D 5P 250Mi In	1.083 (0.938-1.242)	0.287 (0.25-0.356)	0.058 (0.057-0.061)	0.027 (0.027-0.028)
4D 3P 150Mi Out	1.24 (1.07-1.403)	0.267 (0.237-0.34)	0.062 (0.06-0.064)	0.027 (0.027-0.028)
4D 3P 250Mi Out	1.238 (1.047-1.352)	0.277 (0.239-0.316)	0.061 (0.058-0.063)	0.027 (0.027-0.028)
4D 5P 150Mi Out	1.267 (1.176-1.414)	0.271 (0.225-0.324)	0.062 (0.06-0.063)	0.027 (0.027-0.028)
4D 5P 250Mi Out	1.287 (1.178-1.363)	0.273 (0.24-0.314)	0.061 (0.059-0.064)	0.027 (0.027-0.028)
8 Districts	1.178 (1.099-1.274)	0.28 (0.244-0.336)	0.058 (0.057-0.06)	0.027 (0.027-0.028)
8D 3P 150Mi In	1.202 (1.092-1.383)	0.289 (0.246-0.327)	0.06 (0.058-0.061)	0.027 (0.027-0.028)
8D 3P 250Mi In	1.201 (1.069-1.259)	0.281 (0.252-0.321)	0.06 (0.058-0.061)	0.027 (0.027-0.028)
8D 5P 150Mi In	1.185 (1.083-1.328)	0.282 (0.231-0.321)	0.06 (0.059-0.063)	0.027 (0.027-0.028)
8D 5P 250Mi In	1.208 (1.071-1.321)	0.285 (0.248-0.333)	0.06 (0.058-0.062)	0.027 (0.027-0.028)
8D 3P 150Mi Out	1.267 (1.122-1.389)	0.266 (0.23-0.304)	0.062 (0.06-0.064)	0.028 (0.027-0.028)
8D 3P 250Mi Out	1.236 (1.148-1.333)	0.272 (0.228-0.337)	0.061 (0.06-0.062)	0.027 (0.027-0.028)
8D 5P 150Mi Out	1.276 (1.16-1.468)	0.268 (0.237-0.308)	0.062 (0.061-0.064)	0.027 (0.027-0.028)
8D 5P 250Mi Out	1.261 (1.071-1.42)	0.287 (0.221-0.358)	0.061 (0.06-0.063)	0.027 (0.027-0.028)

Table E19. Transport Metrics

	% local	% regional	Median transport time (hours)	Median transport distance (miles)	% flying
Current	59.2 (58.3-60.1)	92.7 (92.4-93.1)	1.7 (1.7-1.7)	123.7 (121.4-127)	54.4 (53.8-54.8)
11 Regions	35.1 (34.6-35.7)	92.5 (92.2-92.8)	1.8 (1.8-1.8)	200.5 (200.5-200.5)	69.7 (69.1-70)
11R 3P 150Mi In	41.1 (40.5-41.7)	92.5 (92.3-92.7)	1.8 (1.8-1.8)	172.3 (169.1-173.4)	63.9 (63.3-64.3)
11R 3P 250Mi In	38.9 (38.5-39.4)	92.5 (92.3-92.9)	1.8 (1.8-1.8)	191.1 (189.1-192.5)	66.6 (66.1-67)
11R 5P 150Mi In	44.2 (43.9-44.4)	92.6 (92.3-92.9)	1.7 (1.7-1.7)	149.7 (146.4-151.8)	60.9 (60.4-61.2)
11R 5P 250Mi In	40.9 (40.4-41.3)	92.5 (92.3-92.8)	1.7 (1.7-1.8)	180.5 (178-184.5)	64.8 (64.5-65.5)
11R 3P 150Mi Out	46.7 (46.3-47.1)	66.9 (66.4-67.2)	1.6 (1.6-1.6)	109.4 (108.1-111.6)	52.8 (52.2-53.3)
11R 3P 250Mi Out	35.9 (35.1-36.3)	63.7 (63.4-64)	1.7 (1.7-1.7)	180.4 (178.5-182.1)	67.5 (67.1-67.9)
11R 5P 150Mi Out	46.7 (46.4-47.1)	66.9 (66.7-67.5)	1.6 (1.6-1.6)	109.1 (108.4-110.5)	52.7 (52.3-53.1)
11R 5P 250Mi Out	36.2 (35.7-36.6)	63.8 (63.2-64.8)	1.7 (1.7-1.7)	180.1 (178.3-181.8)	67.3 (66.8-67.8)
4 Districts	16.3 (16-16.5)	97.3 (97.2-97.3)	2.2 (2.2-2.2)	402.7 (400.1-406.8)	85.1 (84.8-85.3)
4D 3P 150Mi In	25.6 (25.3-25.9)	97.2 (97.1-97.3)	2 (2-2)	294.9 (291.7-302.6)	75.5 (75.1-75.7)
4D 3P 250Mi In	23.9 (23.4-24.2)	97.3 (97.1-97.4)	1.9 (1.9-1.9)	259.9 (255.5-265.9)	78.4 (78-78.8)
4D 5P 150Mi In	30.1 (29.8-30.4)	97.3 (97.2-97.4)	1.9 (1.9-1.9)	220.2 (213.1-226)	71 (70.6-71.3)
4D 5P 250Mi In	26.9 (26.5-27.2)	97.2 (97.1-97.4)	1.9 (1.9-1.9)	230.7 (227.9-233.3)	75.7 (75.4-76)
4D 3P 150Mi Out	46.8 (46.4-47.2)	80.9 (80.3-81.4)	1.6 (1.6-1.6)	109 (107.7-110.5)	52.7 (52.3-53.1)
4D 3P 250Mi Out	36 (35.5-36.3)	84.4 (84.1-84.8)	1.7 (1.7-1.7)	180.1 (178.5-181.4)	67.4 (67-67.7)
4D 5P 150Mi Out	46.8 (46.4-47.1)	80.8 (80.4-81.1)	1.6 (1.6-1.6)	109 (107.8-110.2)	52.7 (52.3-53)
4D 5P 250Mi Out	36 (35.4-36.5)	84.4 (84.2-85.1)	1.7 (1.7-1.7)	180.1 (178.3-181.8)	67.3 (66.9-67.7)
8 Districts	26.7 (26.4-26.9)	95 (94.7-95.2)	1.9 (1.9-1.9)	238 (236.8-241.1)	75.5 (75-75.7)
8D 3P 150Mi In	33.9 (33.3-34.2)	95 (94.9-95.3)	1.8 (1.8-1.8)	199.6 (195-200.5)	68.3 (68.1-68.7)
8D 3P 250Mi In	32 (31.4-32.6)	95 (94.8-95.2)	1.8 (1.8-1.8)	200.5 (200.5-200.5)	71.1 (70.5-71.8)
8D 5P 150Mi In	37.4 (37.1-37.6)	95 (94.8-95.2)	1.8 (1.8-1.8)	167.2 (164.9-169.8)	65 (64.7-65.3)
8D 5P 250Mi In	34.6 (34.1-35.1)	95 (94.8-95.3)	1.8 (1.8-1.8)	196.9 (193.1-200.5)	69 (68.7-69.6)
8D 3P 150Mi Out	46.7 (46-47)	75.7 (75.1-76.3)	1.6 (1.6-1.6)	109.4 (107.7-111.4)	52.8 (52.1-53.5)
8D 3P 250Mi Out	36.1 (35.7-36.6)	72.5 (72-73.1)	1.7 (1.7-1.7)	180.3 (178.1-181.6)	67.4 (67.1-67.7)
8D 5P 150Mi Out	46.7 (46.3-47)	75.7 (75.3-76.2)	1.6 (1.6-1.6)	108.9 (107.7-110.1)	52.7 (52.1-53)
8D 5P 250Mi Out	36.2 (35.7-36.7)	72.6 (72.1-73.5)	1.7 (1.7-1.7)	179.8 (177.3-181.8)	67.2 (66.7-67.7)

Appendix F: Per-Patient Cost estimates

Figure F60. Pretransplant cost per patient-month

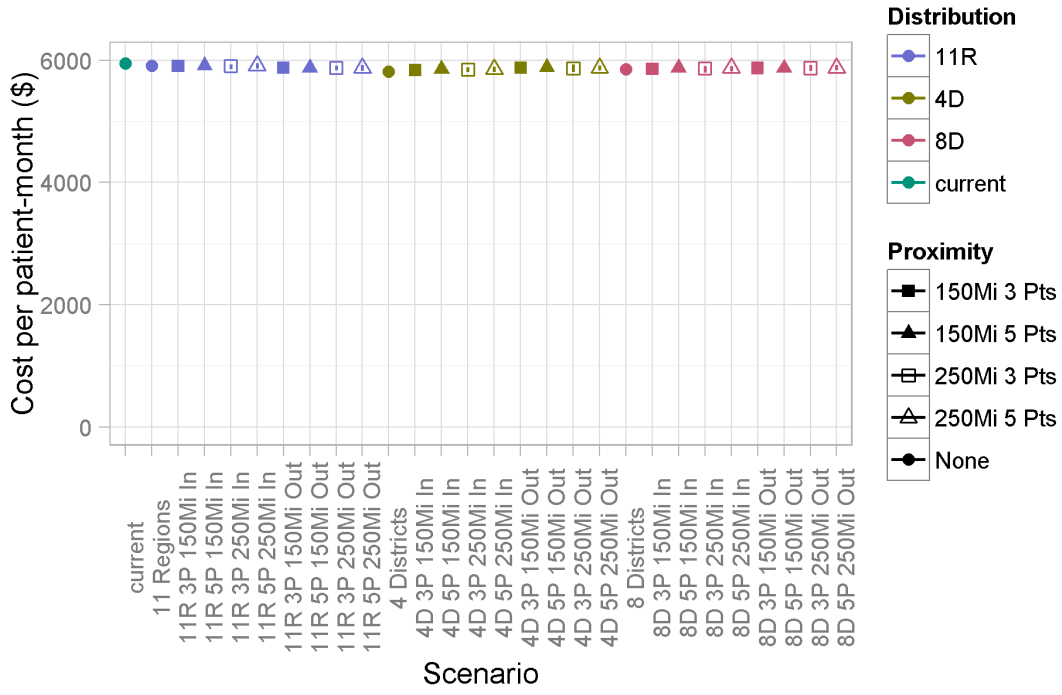


Figure F61. Transplant cost per patient

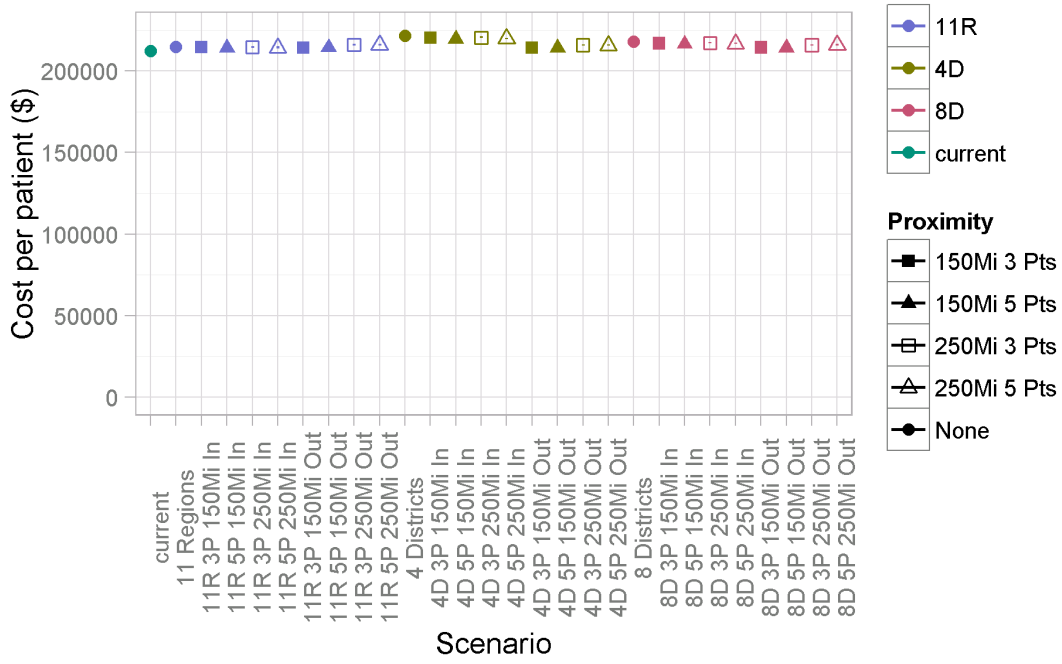


Figure F62. Posttransplant cost per patient-month

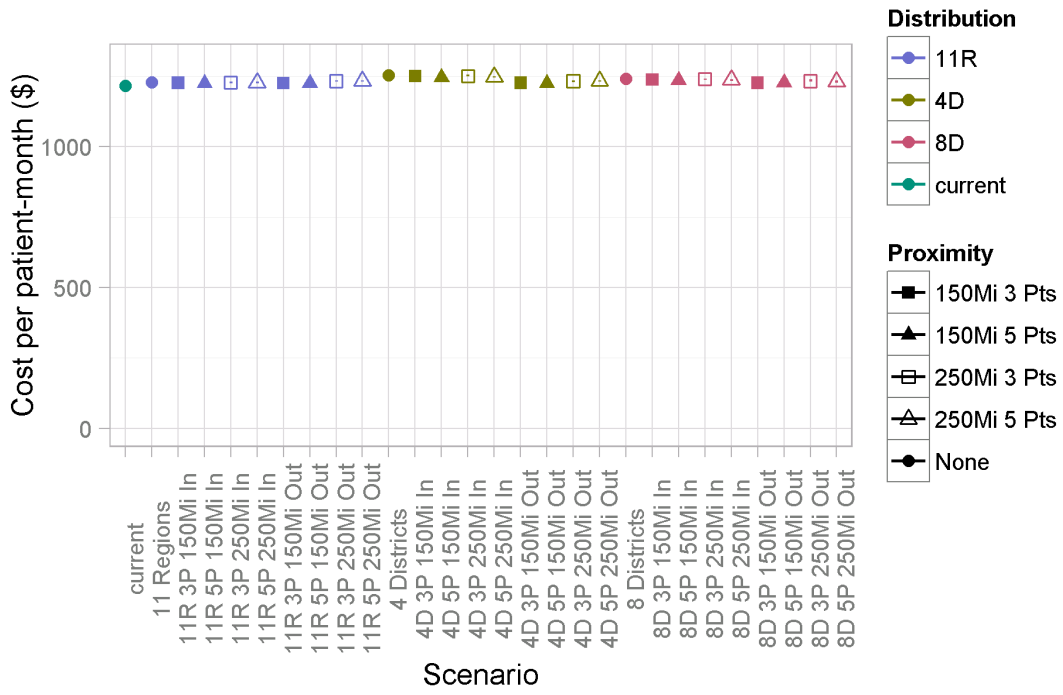
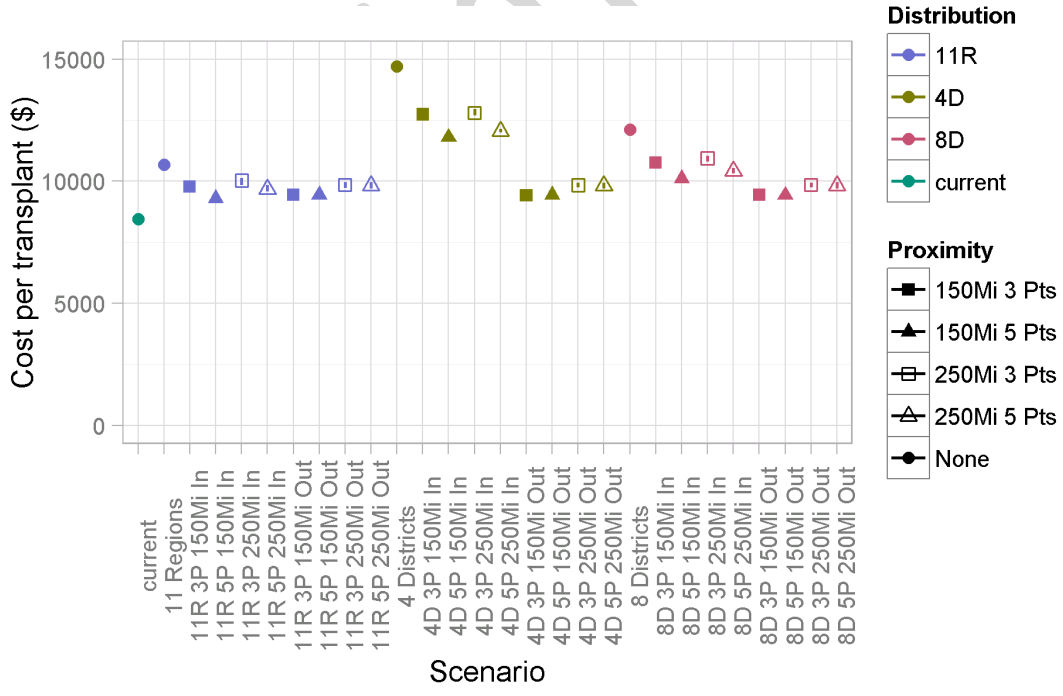


Figure F63. Transport cost per transplant



Appendix G. Subgroup Analyses

Disparity Metrics

Variance in median MELD/PELD at transplant

Figure G64. Variance in median MELD/PELD at transplant for pediatric recipients

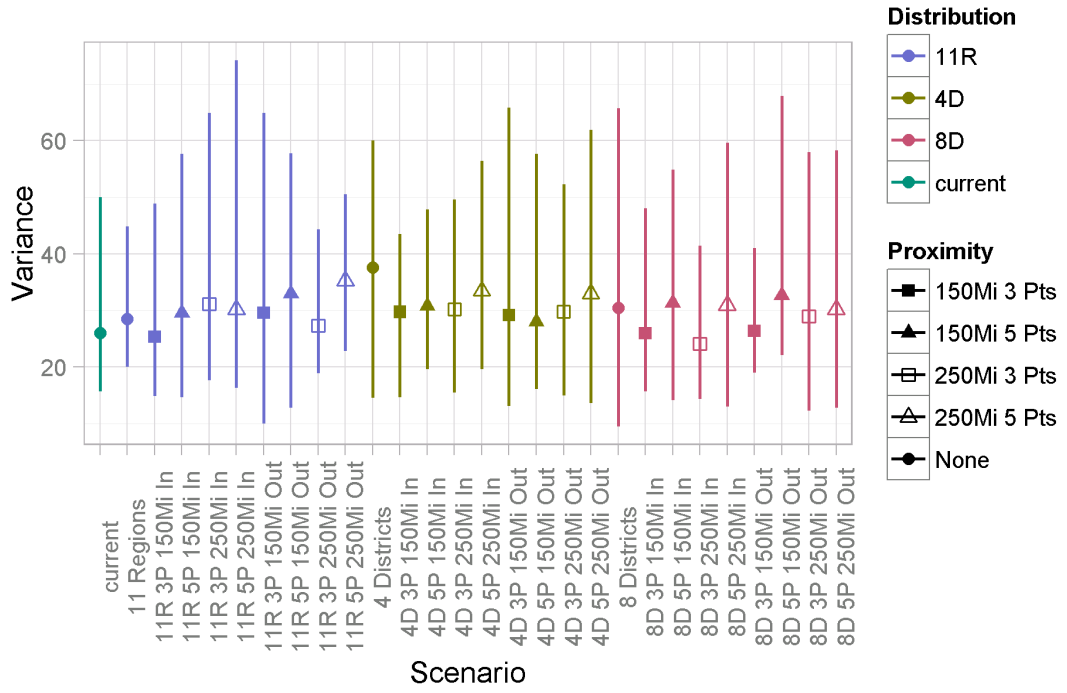


Figure G65. Variance in median MELD/PELD at transplant for female recipients

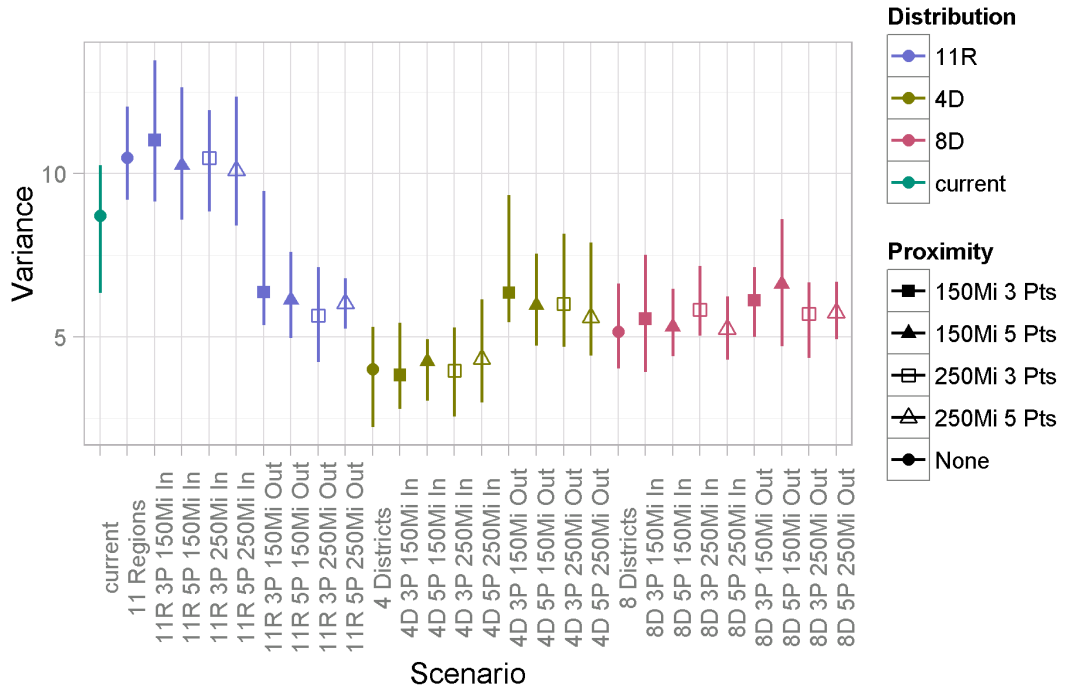


Figure G66. Variance in median MELD/PELD at transplant for Caucasian recipients

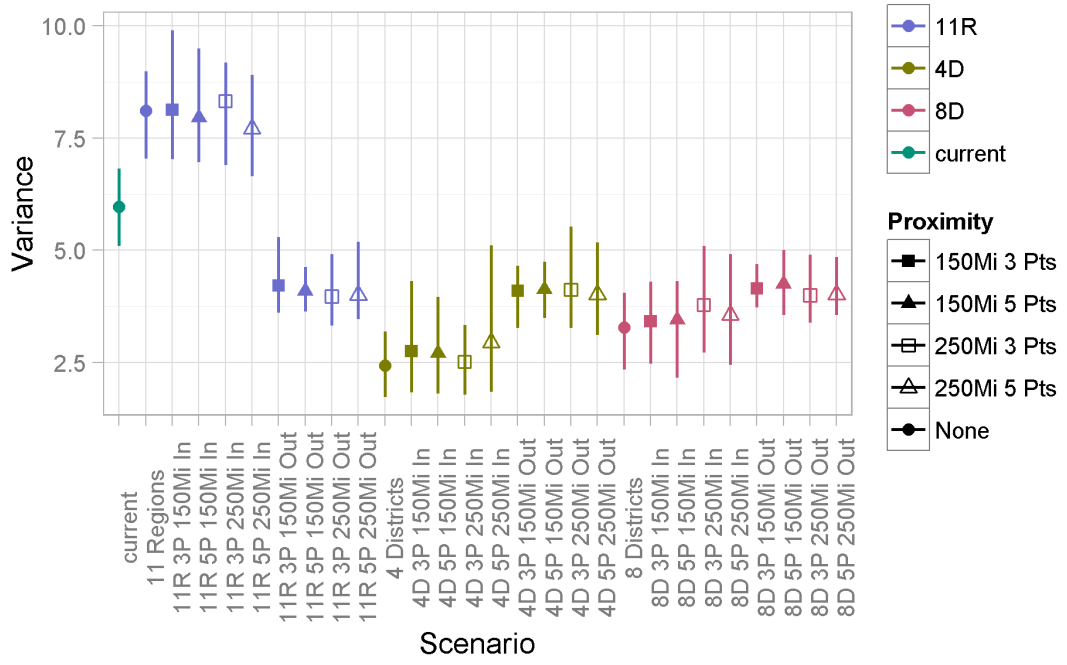


Figure G67. Variance in median MELD/PELD at transplant for African-American recipients

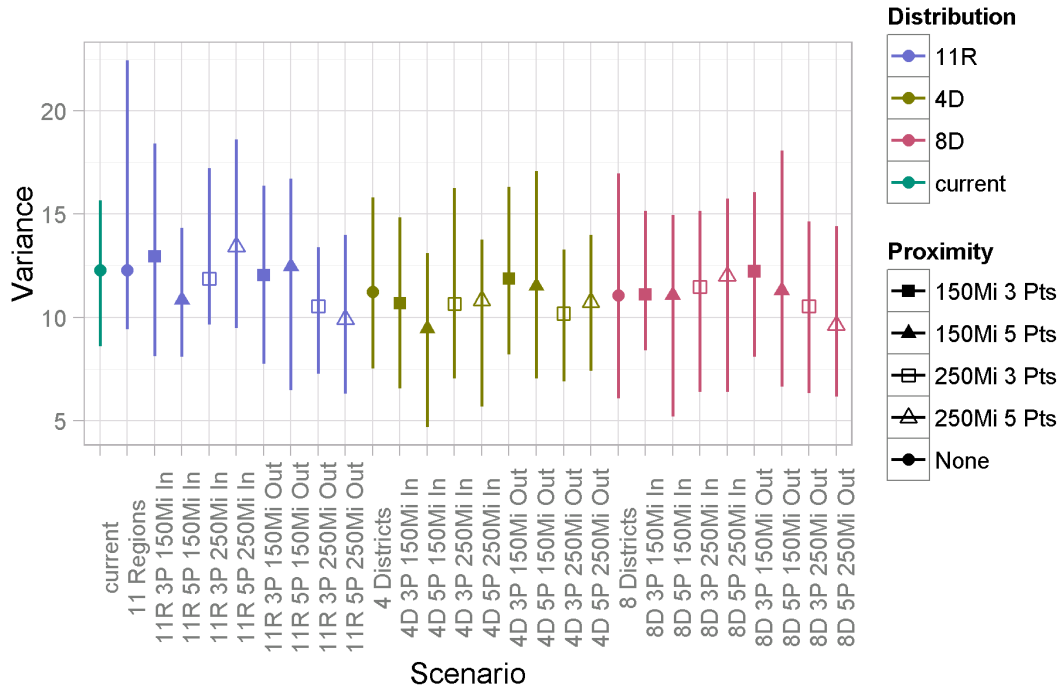


Figure G68. Variance in median MELD/PELD at transplant for Hispanic recipients

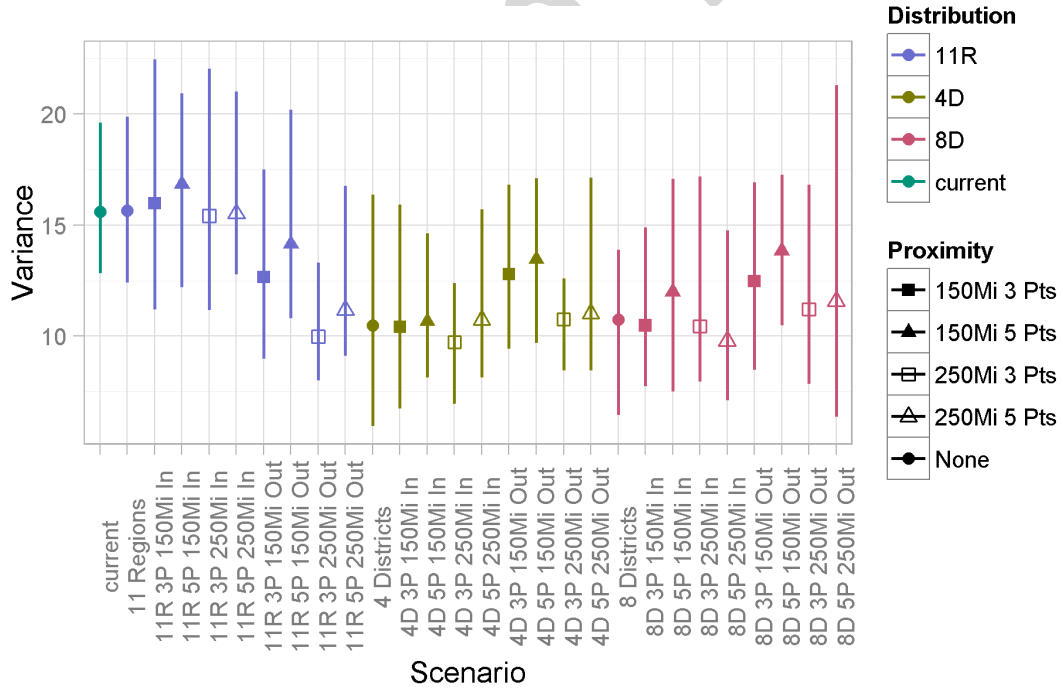
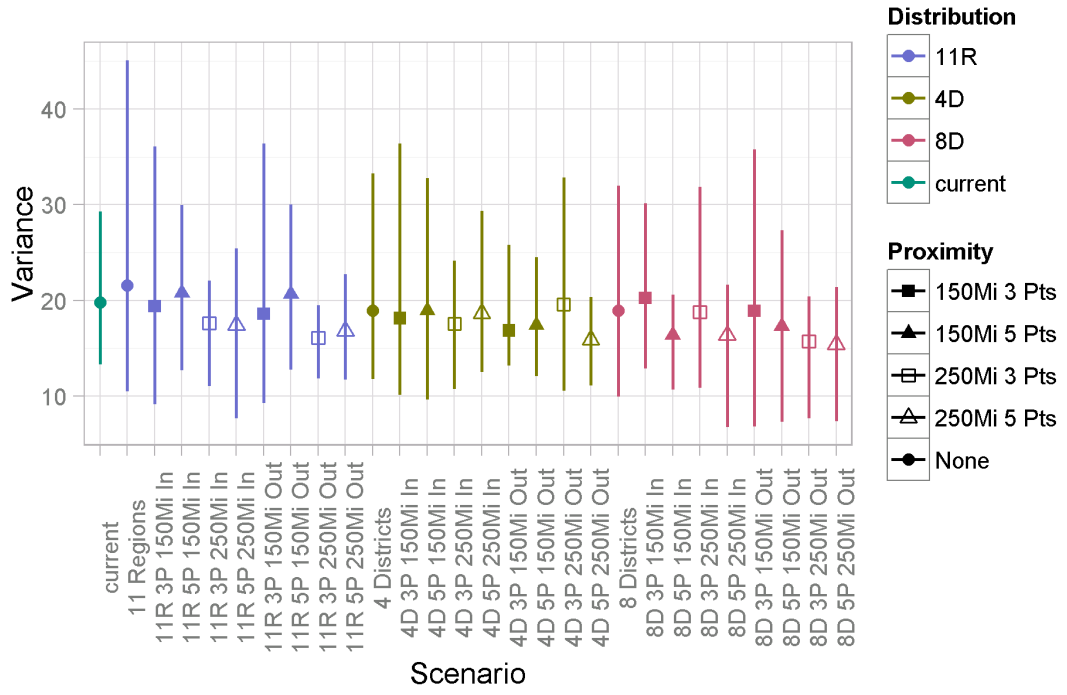


Figure G69. Variance in median MELD/PELD at transplant for Asian recipients



Summative Metrics

Pretransplant (waitlist and removal deaths) prevented

Figure G70. Pretransplant deaths prevented for pediatric candidates

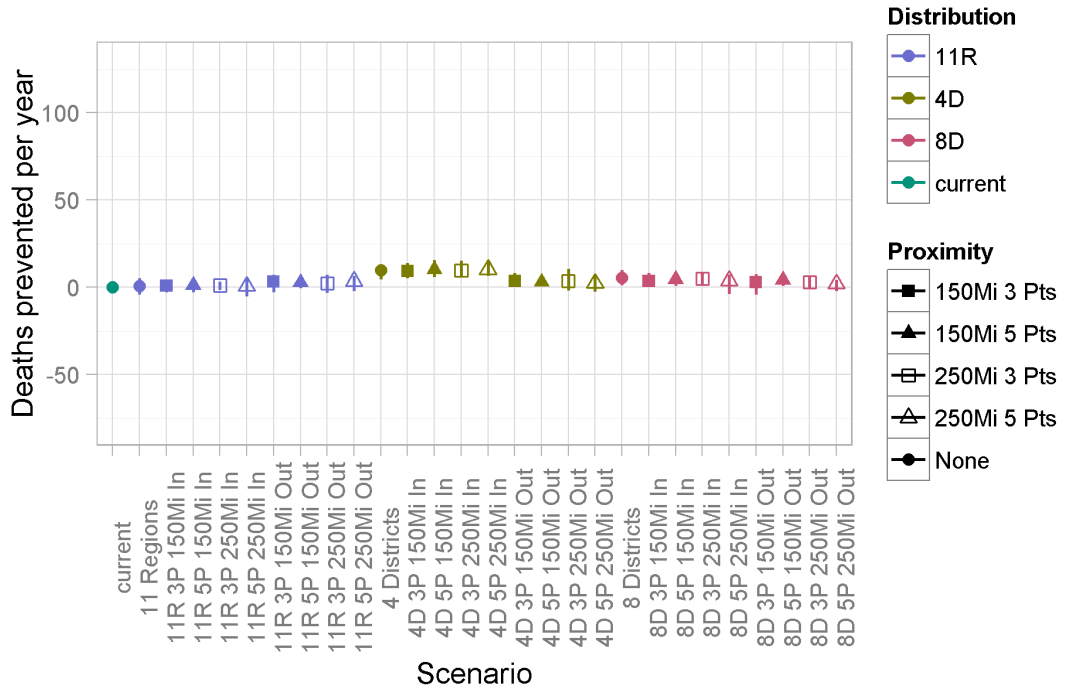


Figure G71. Pretransplant deaths prevented for female candidates

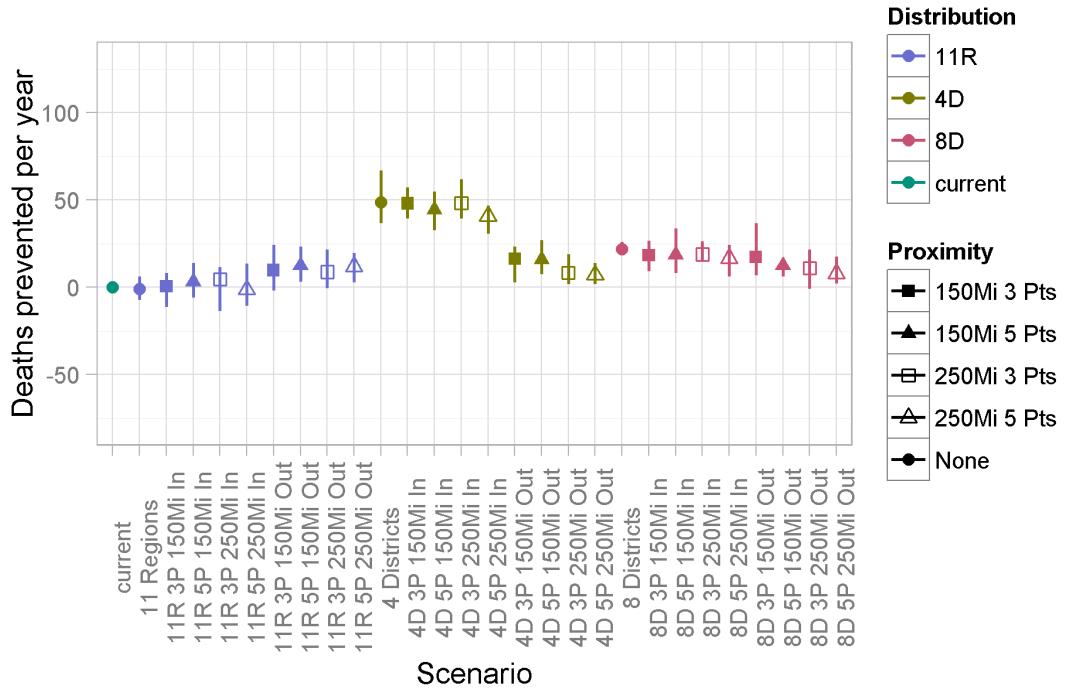


Figure G72. Pretransplant deaths prevented for Caucasian candidates

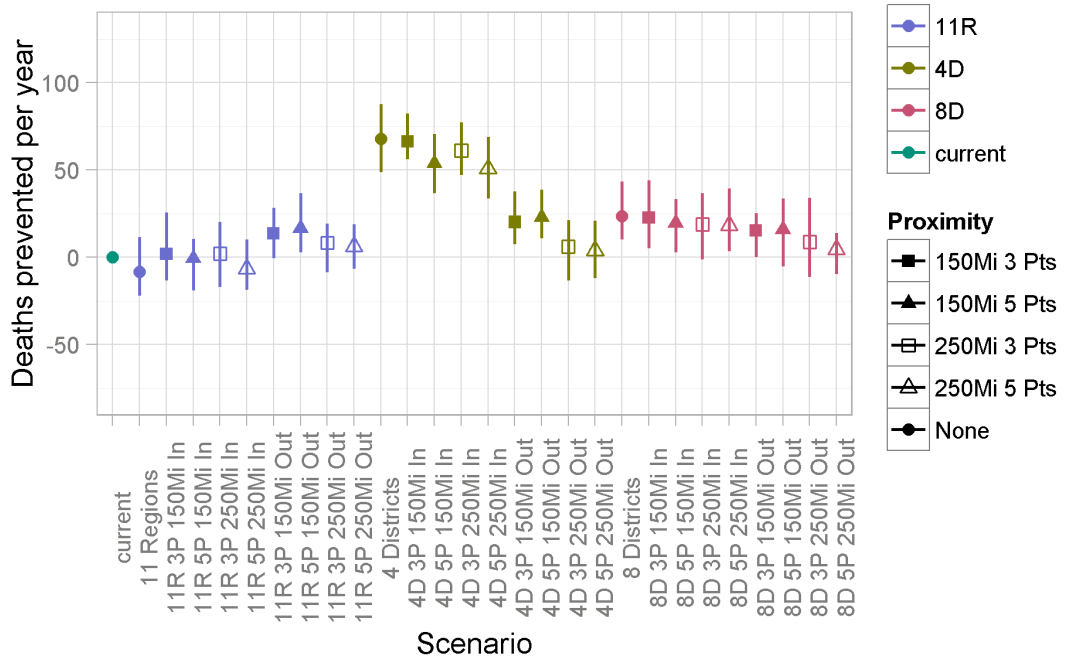


Figure G73. Pretransplant deaths prevented for African American candidates

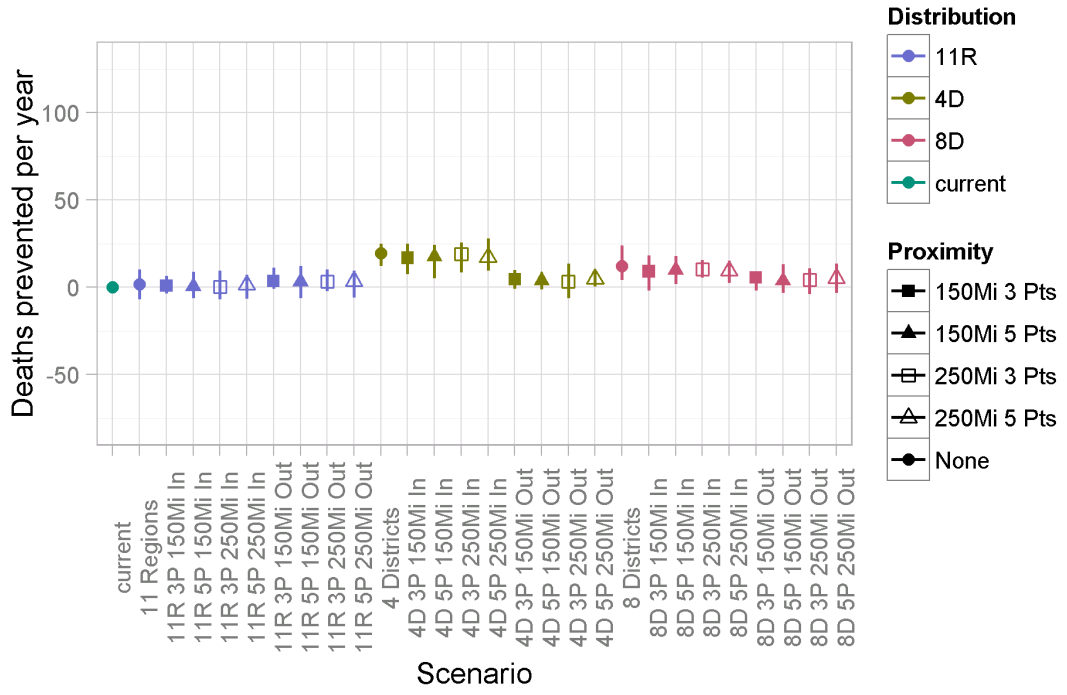


Figure G74. Pretransplant deaths prevented for Hispanic candidates

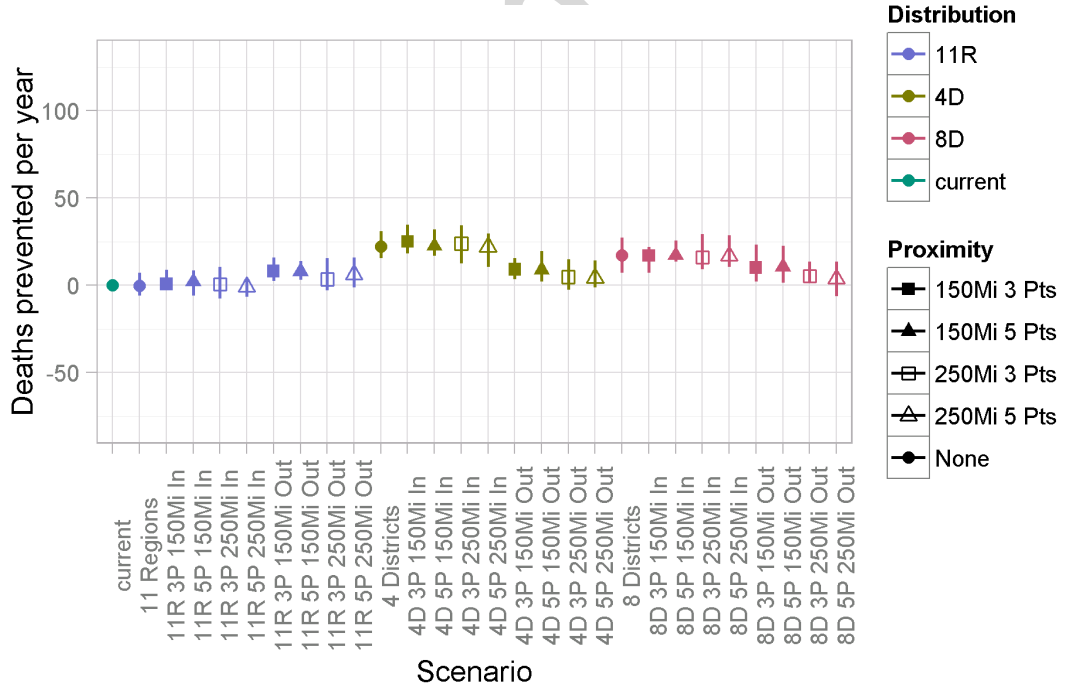


Figure G75. Pretransplant deaths prevented for Asian candidates

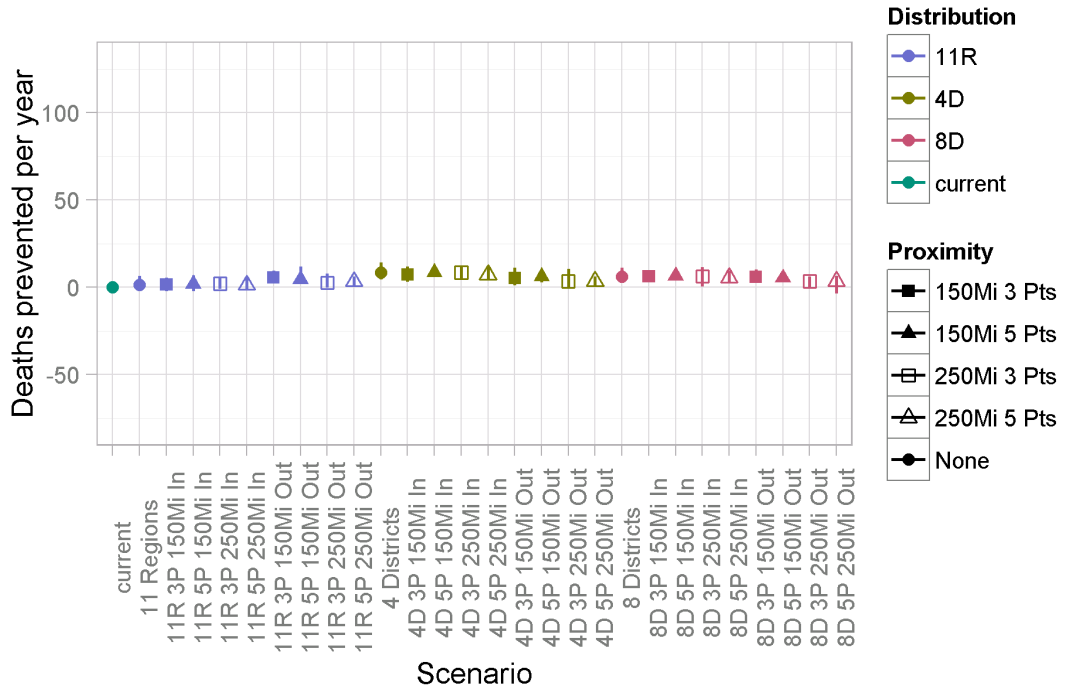


Table G20. Pretransplant deaths prevented by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
11 Regions	-4.8 (-27.8-12.6)	0.7 (-4.4-5)	-0.8 (-7.2-6)	-8.2 (-22.2-11.4)	1.7 (-6.8-10)	-0.2 (-5.8-7)	1.6 (-2-6.4)
11R 3P 150Mi In	4.9 (-12.4-26)	0.8 (-2.8-4.4)	0.7 (-11.2-8)	1.9 (-13.2-25.6)	0.9 (-3.6-6.6)	0.7 (-3-8.8)	1.7 (-2.2-5.4)
11R 3P 150Mi Out	31.9 (17.2-48.2)	3.4 (-2.8-7.2)	9.8 (-2-24.4)	13.7 (-0.6-28.4)	3.5 (-0.8-11)	8.2 (2.4-16)	5.7 (2.8-9.4)
11R 3P 250Mi In	5.1 (-13.2-24)	1.1 (-1.6-3.2)	4.7 (-13.8-11.4)	2.1 (-17-20.2)	0.3 (-6.8-9.6)	0.5 (-7.8-10.4)	2.1 (-0.8-6.2)
11R 3P 250Mi Out	17.9 (-1.2-27.2)	2.4 (-3.2-7.2)	8.8 (-0.6-21.6)	8.3 (-8.8-19.2)	3.4 (-2.2-10.2)	3.5 (-3-15.4)	2.6 (-0.4-7.8)
11R 5P 150Mi In	4.1 (-12-19.2)	1.1 (-3-4.8)	3.1 (-6-13.8)	-0.6 (-19.2-10.6)	0.4 (-6.2-8.8)	2.1 (-5.8-8.4)	1.9 (-2.2-6.8)
11R 5P 150Mi Out	32.7 (21-53.6)	2.7 (-0.6-7)	12.5 (3-23.2)	16.7 (2.6-36.6)	3.1 (-6.4-12)	7.8 (3.2-13.8)	4.5 (1.8-11.8)
11R 5P 250Mi In	-4.3 (-26.8-15.2)	0.7 (-5.2-4.8)	-1.3 (-10.8-13.6)	-6.4 (-18.6-10.2)	1.4 (-6.6-7.2)	-0.8 (-6.6-4.4)	1.4 (-2-5.8)
11R 5P 250Mi Out	19.6 (6.8-32.2)	3.6 (-2.4-6.6)	12 (2.8-19.6)	6.2 (-6.6-19)	3.6 (-6-9.4)	6.4 (-1.4-15.8)	3.4 (0.6-6.2)
4 Districts	118.8 (100.4-134.6)	9.7 (4.4-12.6)	48.6 (36.8-66.8)	67.8 (48.6-87.6)	19.5 (12.2-25)	22.3 (15.4-31)	8.5 (4.4-14.2)
4D 3P	116.4 (97.2-	9.2 (5.2-14)	48.1 (39.2-	66.3 (56-	16.8 (7.6-	25.1 (18.2-	7.3 (3.2-

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
150Mi In	133.6)		57.2)	82.4)	25)	34.8)	11.8)
4D 3P 150Mi Out	39.7 (18.8-59.6)	3.6 (1-8)	16.2 (2.6-23.2)	20.2 (7.6-37.8)	4.6 (-0.8-9.8)	9.2 (3.4-15.4)	5.2 (1.2-11)
4D 3P 250Mi In	113.7 (97-132)	9.7 (5.8-15.2)	48.2 (39.4-61.8)	61.1 (47.2-77.2)	18.9 (8.6-25.6)	23.9 (12.4-34.2)	8.5 (4.8-12.6)
4D 3P 250Mi Out	17.7 (-4-34.8)	3.6 (-2-10.6)	8.4 (1.6-19)	6.2 (-13.2-21.2)	3.3 (-6.4-13.6)	4.8 (-2.6-14.8)	3.4 (0.2-10.4)
4D 5P 150Mi In	103.1 (81.6-117.8)	10.3 (5.8-15.6)	44.5 (32.6-54.8)	53.8 (36.8-70.6)	17.6 (5.2-24.2)	22.5 (16.8-32)	8.5 (6.4-12.8)
4D 5P 150Mi Out	42.4 (27.8-59.2)	3.1 (0.6-6.8)	16.1 (7.6-27)	23 (10.8-38.6)	4 (-1.2-8.4)	8.8 (2.2-19.6)	6.3 (2.6-10.6)
4D 5P 250Mi In	97.9 (88-111)	10.4 (6.6-14.6)	40.7 (30.6-46.6)	50.7 (33.6-68.8)	17.2 (9.6-27.8)	22.1 (10.4-29.6)	7.3 (4.2-11.4)
4D 5P 250Mi Out	16.2 (-1.8-33)	2.4 (-2.6-6.4)	7.1 (1.6-13.8)	4 (-12-21)	4.9 (0.4-9.4)	4.2 (-1.4-14.2)	3.6 (1-6.2)
8 Districts	59.8 (39.8-86.6)	5.3 (1-9.8)	21.8 (18.8-26)	23.5 (10.2-43.4)	12 (4-24)	17.3 (7-27.4)	6.2 (2.8-11)
8D 3P 150Mi In	55.4 (35-74.2)	3.5 (0.6-8.2)	18.4 (9-26.6)	22.7 (5-44)	9.1 (-1.8-18.2)	17 (7-22)	6.3 (3.8-9.8)
8D 3P 150Mi Out	38.3 (15.8-54.4)	3 (-4.4-7.6)	17.5 (6.8-36.6)	15.4 (0-25.4)	5.7 (-1.8-8.6)	10.2 (2.2-23.2)	5.9 (4-10)
8D 3P 250Mi In	51.6 (30.2-63.8)	4.9 (0.8-8.4)	18.9 (14.4-26.4)	18.9 (-1.4-36.6)	10.3 (5.4-15.6)	16 (9-29.4)	6.4 (0.4-11.4)
8D 3P 250Mi Out	21.9 (-1.8-43.6)	3 (-1.4-6.8)	11.1 (-1-21.4)	8.8 (-11.4-34)	4.4 (-3.8-10.8)	5.4 (1-13.4)	3.4 (-0.8-6.2)
8D 5P 150Mi In	53.5 (36.2-69.2)	4.5 (0.8-7.8)	18.8 (8.2-33.6)	19.6 (2.6-33.2)	10 (1.8-17.8)	17.2 (13.4-25.6)	6.5 (4-10.4)
8D 5P 150Mi Out	37.3 (9.8-60.4)	4.1 (0.6-7.6)	12.5 (6.2-17)	16.1 (-5.2-33.6)	3.8 (-3.2-13.2)	10.7 (1.4-22.6)	5.4 (3-8.6)
8D 5P 250Mi In	50.6 (35.8-68.8)	4 (-3.8-7.2)	16.8 (6.2-24.4)	18.2 (3.6-39.4)	9.5 (2.4-15.2)	16.8 (10.6-28.6)	5.7 (2.2-9.6)
8D 5P 250Mi Out	17.1 (2.2-30)	2 (-2.4-4)	8 (2.2-17.4)	4.7 (-9.6-14)	5.2 (-3.2-13.6)	3.7 (-6.2-13.4)	3.5 (-3.6-6.6)
current	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)

Posttransplant deaths prevented

Figure G76. Posttransplant deaths prevented for pediatric recipients

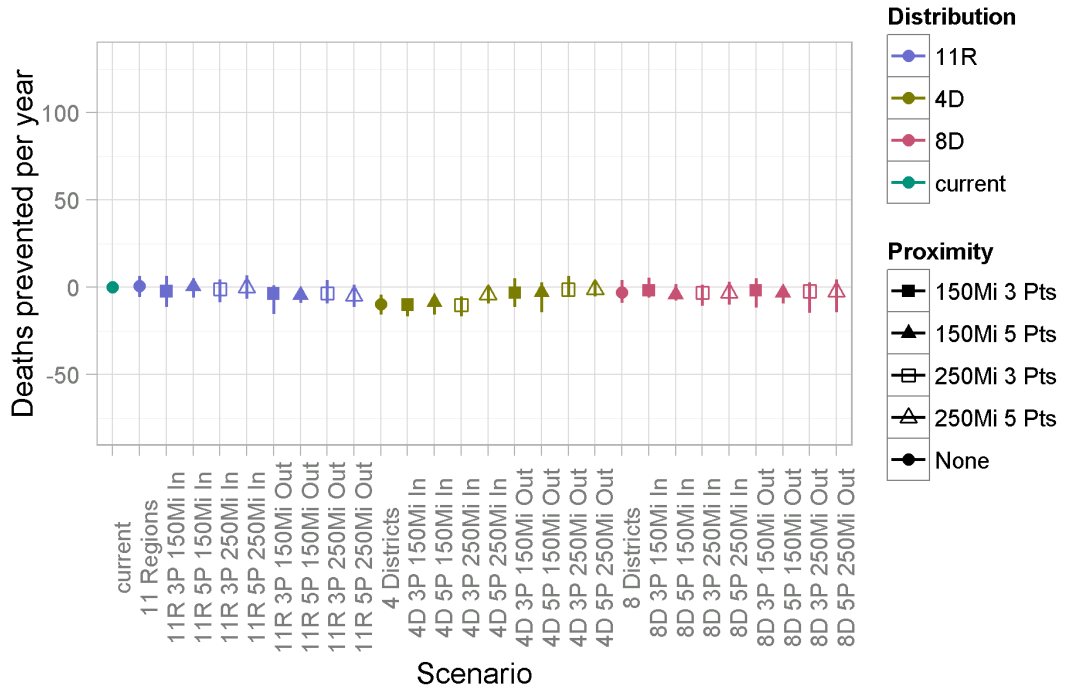


Figure G77. Posttransplant deaths prevented for female recipients

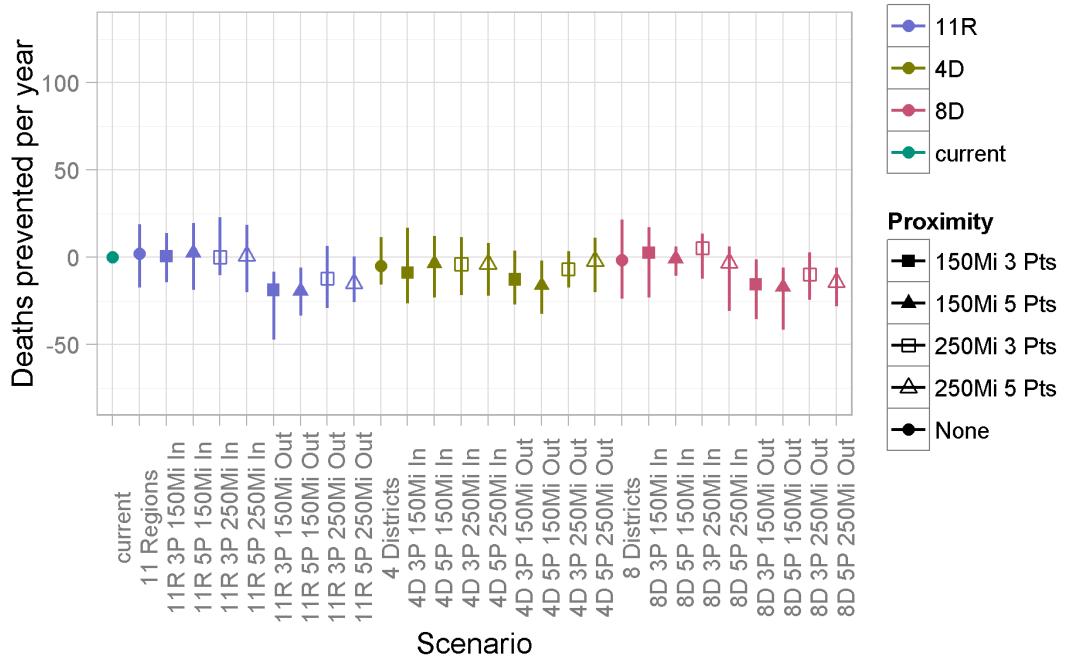


Figure G78. Posttransplant deaths prevented for Caucasian recipients

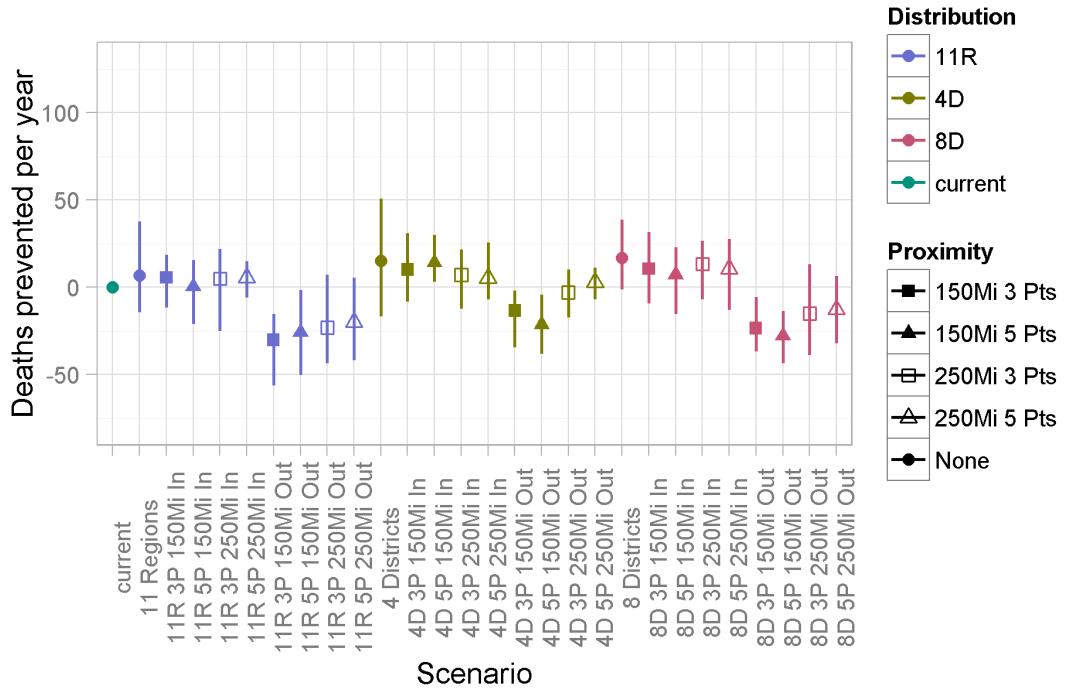


Figure G79. Posttransplant deaths prevented for African American recipients

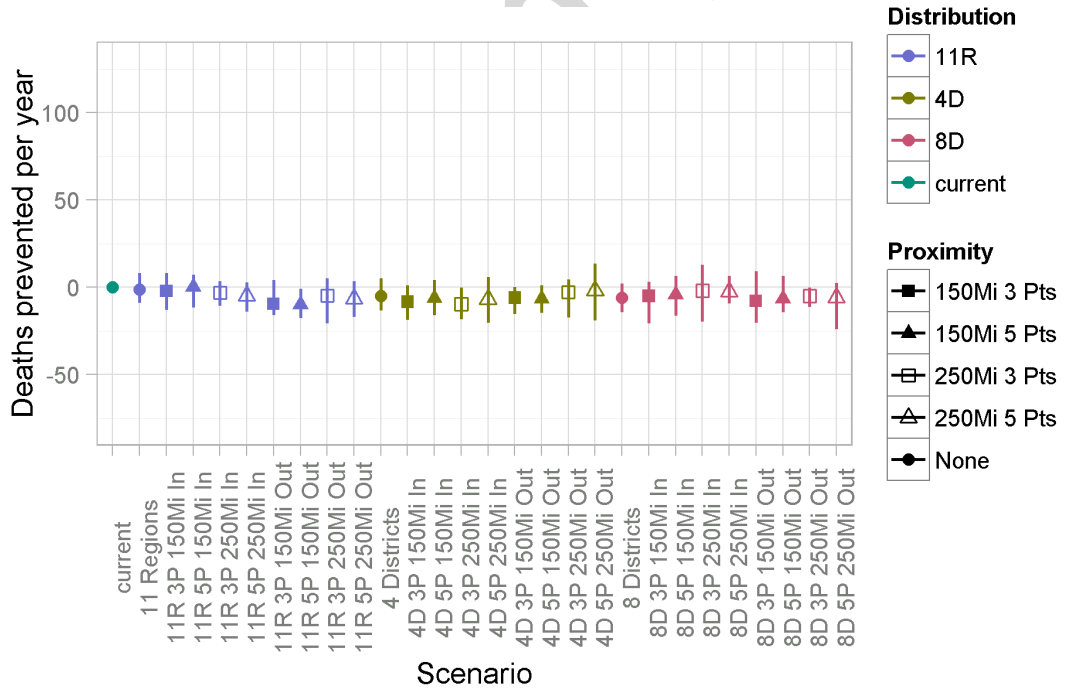


Figure G80. Posttransplant deaths prevented per year for Hispanic recipients

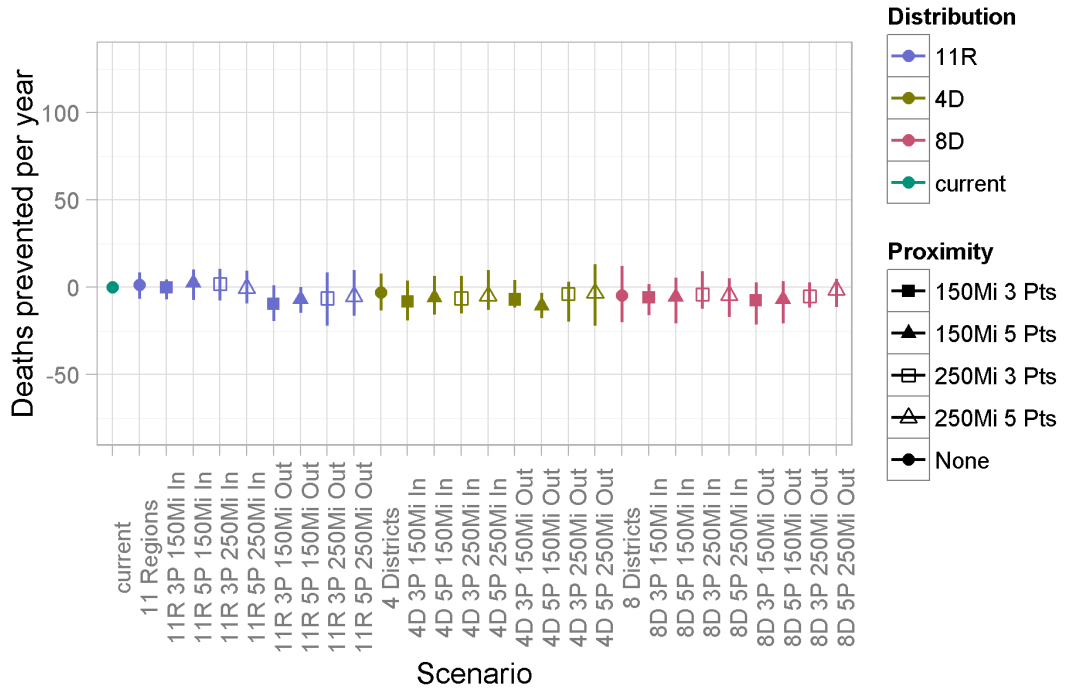


Figure G81. Posttransplant deaths prevented for Asian recipients

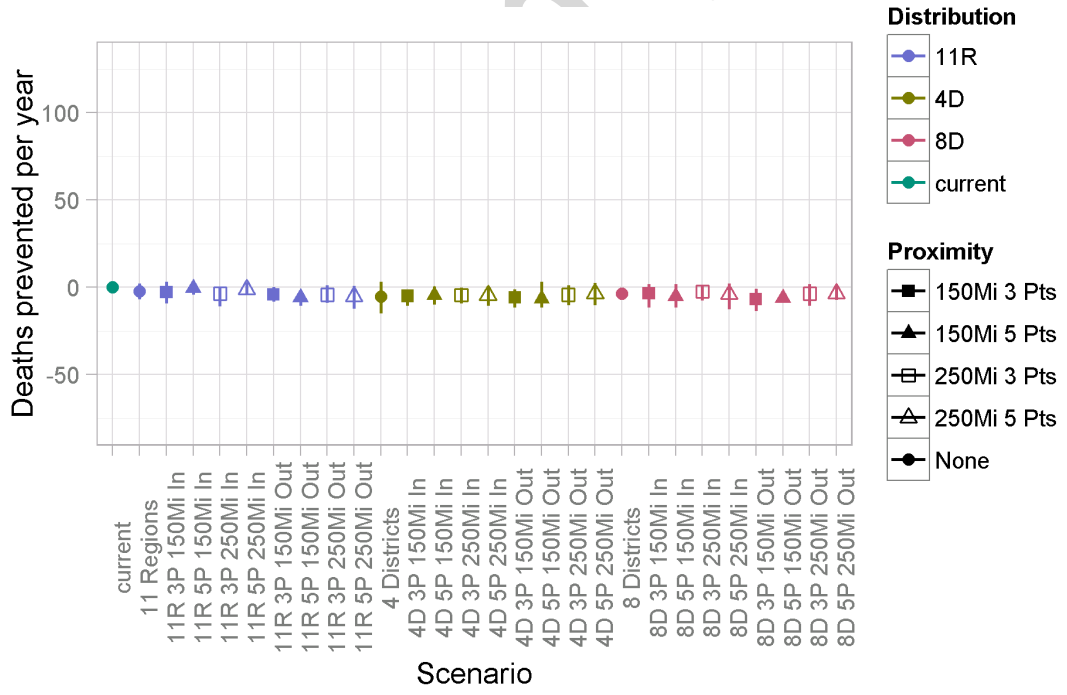


Table G21. Posttransplant deaths prevented by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
11 Regions	4.7 (-18.4-32.6)	0.9 (-5.6-6.4)	2.1 (-17.2-18.8)	6.7 (-14.4-37.6)	-1.1 (-9-8.2)	1.4 (-6.6-8.6)	-2.1 (-6.8-2.2)
11R 3P 150Mi In	0.6 (-25.2-32.4)	-2.3 (-11.4-6.6)	0.6 (-14.4-14)	5.7 (-11.8-18.6)	-2 (-13-8)	-0.1 (-7-4.4)	-2.7 (-9.2-3.2)
11R 3P 150Mi Out	-53.3 (-79.8--40.8)	-3.6 (-15.4-1.2)	-18.7 (-47.2--8.2)	-30.1 (-56.2--15.4)	-9.4 (-16-4)	-9.5 (-19.4-1)	-4 (-8.2-0.2)
11R 3P 250Mi In	-0.1 (-33.4-20)	-1 (-8.6-4.4)	0.1 (-10.2-23)	4.8 (-25-21.8)	-3.2 (-10.6-3.4)	1.9 (-7.6-10.6)	-3.6 (-11-0.4)
11R 3P 250Mi Out	-39.2 (-63.4--1.8)	-3.5 (-9.2-4)	-12.1 (-29-6.6)	-23.1 (-43.4-7.2)	-4.7 (-20.6-5)	-6.3 (-22.2-8.4)	-4.2 (-9-1)
11R 5P 150Mi In	2.9 (-21.2-21)	0.4 (-6-5.2)	2.7 (-18.8-19.6)	0.4 (-21-15.6)	0.2 (-11.8-7.2)	2.6 (-7.2-10.2)	-0.6 (-4.4-3)
11R 5P 150Mi Out	-49.7 (-75--32.2)	-4.5 (-9--0.2)	-19.3 (-33.6--6)	-25.8 (-50.4--1.6)	-9.9 (-17.6--0.8)	-6.9 (-14.8-0)	-5.9 (-10.6--1.8)
11R 5P 250Mi In	-1.1 (-20.8-13)	0 (-6.6-6.8)	0.8 (-20.2-18.6)	5.5 (-6-15)	-4.7 (-14-2.8)	-0.5 (-9.2-9.6)	-1 (-4.6-2.6)
11R 5P 250Mi Out	-37.3 (-66.6--8.8)	-4.9 (-11.2-1.4)	-15 (-25.6-0.4)	-20 (-42-5.6)	-6.6 (-17-3.6)	-5.1 (-16.4-9.8)	-5.1 (-12.2-0.6)
4 Districts	1.6 (-42.6-29)	-9.7 (-15.6--4.2)	-4.8 (-15.6-11.4)	15.2 (-16.8-50.8)	-4.9 (-13.4-5)	-3 (-13.2-7.8)	-5.1 (-15-3)
4D 3P 150Mi In	-11.5 (-41.8-23.4)	-9.9 (-16.6--6.4)	-8.9 (-26.4-16.8)	10.1 (-8.4-31)	-8.3 (-18.6-1)	-8.1 (-19.2-3.8)	-4.9 (-10.8--2)
4D 3P 150Mi Out	-33 (-54--17)	-3 (-11.2-5)	-12.7 (-27.2-3.8)	-13.4 (-34.4--1.8)	-5.9 (-15.2-0.2)	-7 (-11.6-4)	-5.8 (-11.8--1.4)
4D 3P 250Mi In	-13.3 (-38.8-6.6)	-10.2 (-16.6--5.4)	-3.9 (-21.8-11.6)	7.1 (-12.2-21.4)	-9.7 (-18.4--0.4)	-6.3 (-15-6.6)	-4.5 (-9.2--0.2)
4D 3P 250Mi Out	-14.2 (-38.8-11.4)	-1.2 (-5-6.6)	-6.7 (-17.4-3.6)	-3 (-17.2-10)	-2.8 (-17.2-4.6)	-3.8 (-19.8-3)	-4.3 (-10.2-1)
4D 5P 150Mi In	-3.2 (-19.6-14.4)	-8.5 (-15.6--5)	-3.5 (-23-12.2)	14.1 (3-29.8)	-6.3 (-16-4)	-5.8 (-15.8-6.6)	-4.4 (-10-0.4)
4D 5P 150Mi Out	-44.9 (-61.2--29.8)	-2.8 (-14.4-2.6)	-16.1 (-32.4--1.8)	-21.2 (-38.2--4.2)	-6.4 (-14.8-1)	-10.5 (-17.8--3.2)	-6.4 (-11.8-3.2)
4D 5P 250Mi In	-10.3 (-30.4-5.8)	-4.2 (-9.2-0.4)	-3.9 (-22.2-8.2)	5.4 (-6.8-25.6)	-6.8 (-20.4-5.8)	-5 (-13-9.8)	-4.5 (-10.8-0.2)
4D 5P 250Mi Out	-6.3 (-24.6-10.2)	-1.2 (-5.2-3.8)	-2.2 (-20.2-11)	2.8 (-7-11.2)	-1.9 (-19.2-13.6)	-3.3 (-22.2-13.2)	-3.5 (-10.2-2.4)
8 Districts	1.2 (-17.8-27.6)	-3.1 (-9-4)	-1.6 (-23.8-21.6)	16.7 (-1.2-38.6)	-6.1 (-14.2-2.2)	-4.7 (-20-12)	-3.8 (-6.4--1.8)
8D 3P 150Mi In	-3.3 (-22.4-18.4)	-1.8 (-6-5.4)	2.6 (-23.2-17.2)	10.6 (-9.4-31.6)	-5 (-20.8-3)	-5.8 (-16-1.6)	-3.5 (-11.6-1.8)
8D 3P 150Mi Out	-46.3 (-75.6--29.4)	-1.8 (-11.8-5.2)	-15.4 (-35.4--1.4)	-23.4 (-36.8--5.6)	-7.7 (-20.4-9)	-7.5 (-21.4-2.8)	-6.7 (-13.6--1)
8D 3P 250Mi In	5.4 (-19-25.4)	-3 (-10.6-1.4)	5.2 (-12.2-13.4)	13.3 (-7-26.6)	-1.9 (-19.6-12.8)	-4.1 (-12.4-9)	-2.5 (-7.6-0.8)

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
8D 3P 250Mi Out	-28.7 (-52.6-4.2)	-2.3 (-14.6-2.8)	-9.8 (-24.4-2.8)	-15 (-38.8-13.2)	-5 (-11.2--0.4)	-5.2 (-11.8-2.8)	-3.6 (-10.8-1.6)
8D 5P 150Mi In	-8.3 (-23.6-7)	-4 (-7.6-1.6)	-0.8 (-10.8-6.2)	7.3 (-15.4-23)	-4 (-16.4-6.4)	-5.5 (-20.8-5.6)	-5.1 (-11.8-1.8)
8D 5P 150Mi Out	-48.1 (-78.8--33.8)	-3.2 (-9.2-0.6)	-17.1 (-41.6--6)	-27.8 (-43.4--13.8)	-6.6 (-14.4-6.4)	-6.8 (-20.6-3.6)	-6.3 (-9--1.8)
8D 5P 250Mi In	-0.7 (-30-27.8)	-3.2 (-10-3)	-3.2 (-30.8-6.2)	10.6 (-13-27.6)	-2.5 (-9.2-6.6)	-4.4 (-17-5)	-4 (-12.8-2.2)
8D 5P 250Mi Out	-23.7 (-38.2--12.8)	-2.5 (-14.2-4.4)	-14.3 (-28--5.8)	-12.7 (-32-6.4)	-5.8 (-24.2-2.4)	-1.4 (-11.2-4.8)	-3.6 (-7.4-0.6)
current	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)

Overall mortality counts per year

Figure G82. Overall mortality counts per year for pediatric patients

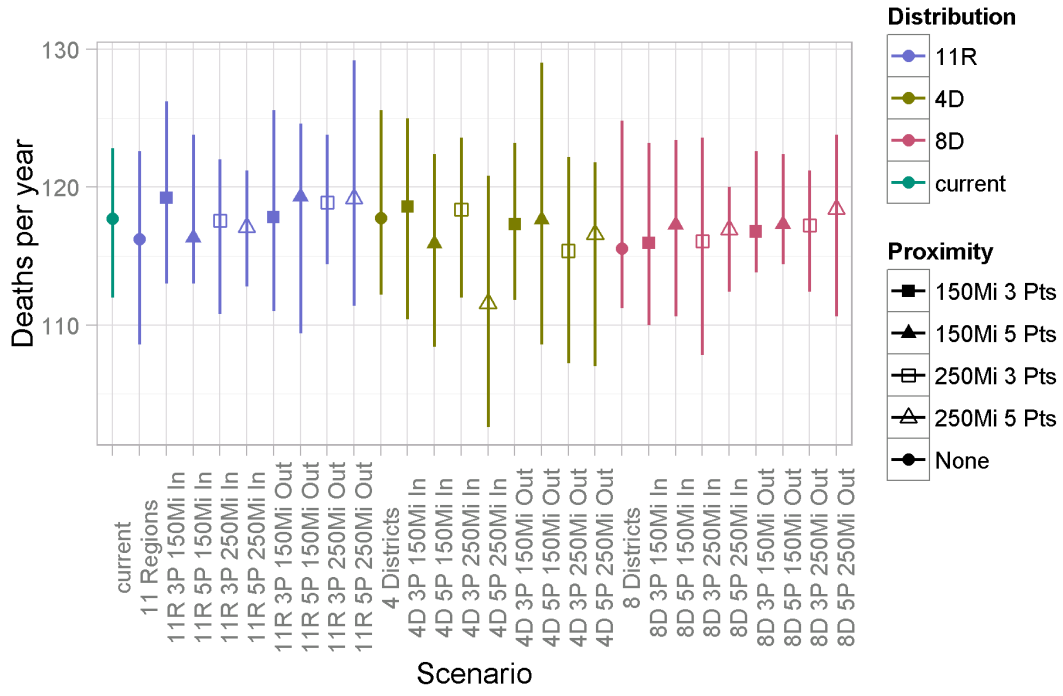


Figure G83. Overall mortality counts per year for female patients

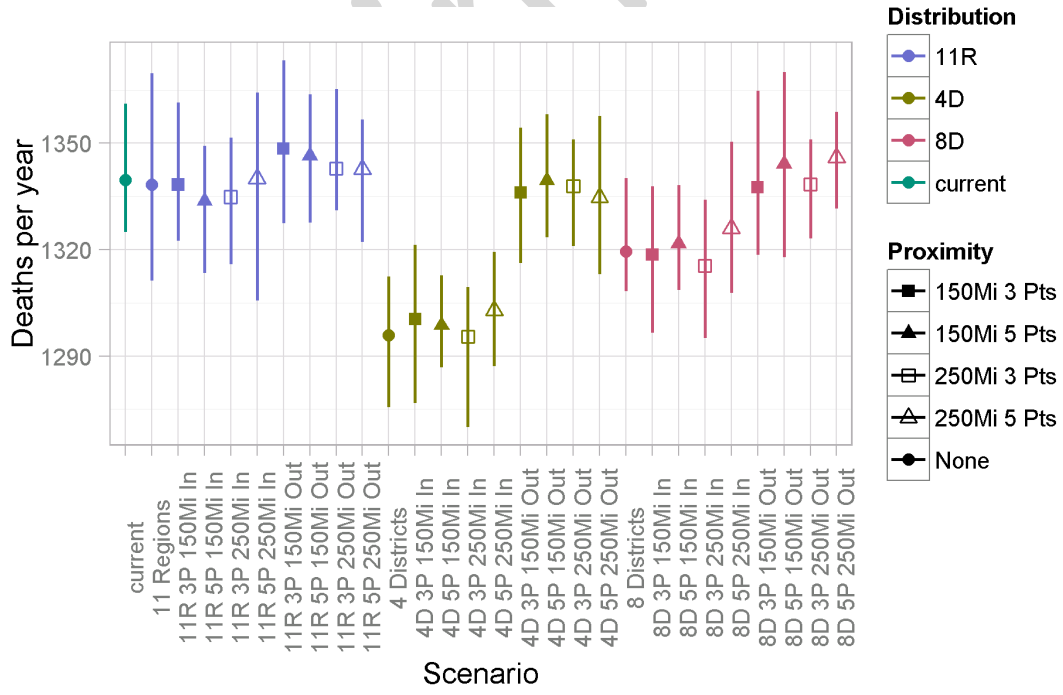


Figure G84. Overall mortality counts per year for Caucasian patients

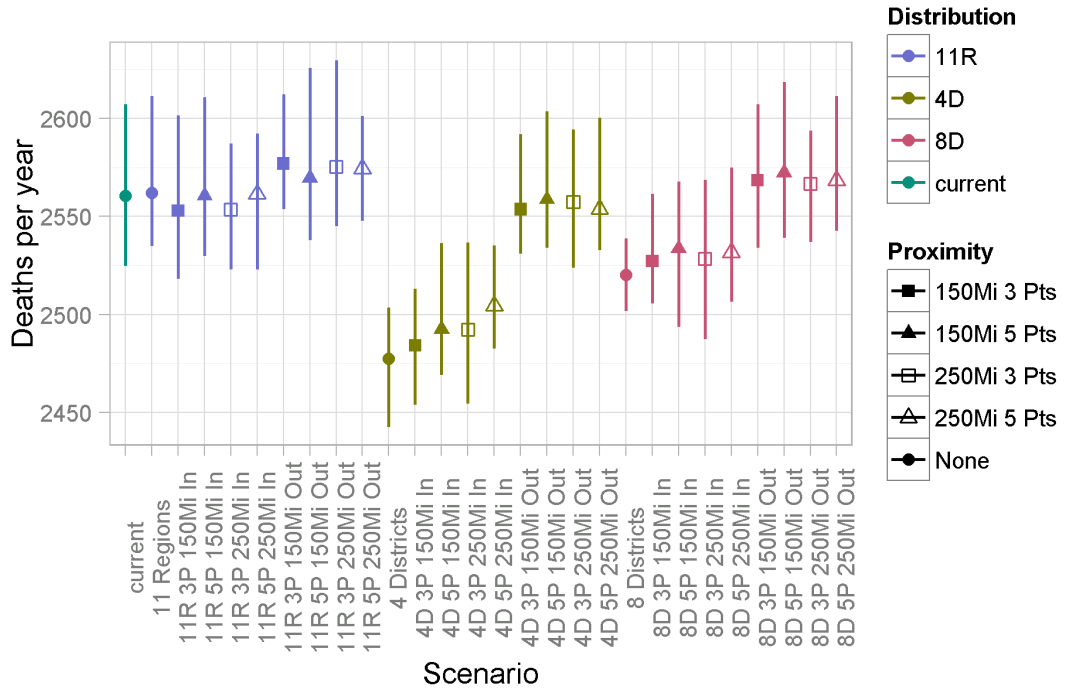


Figure G85. Overall mortality counts per year for African American patients

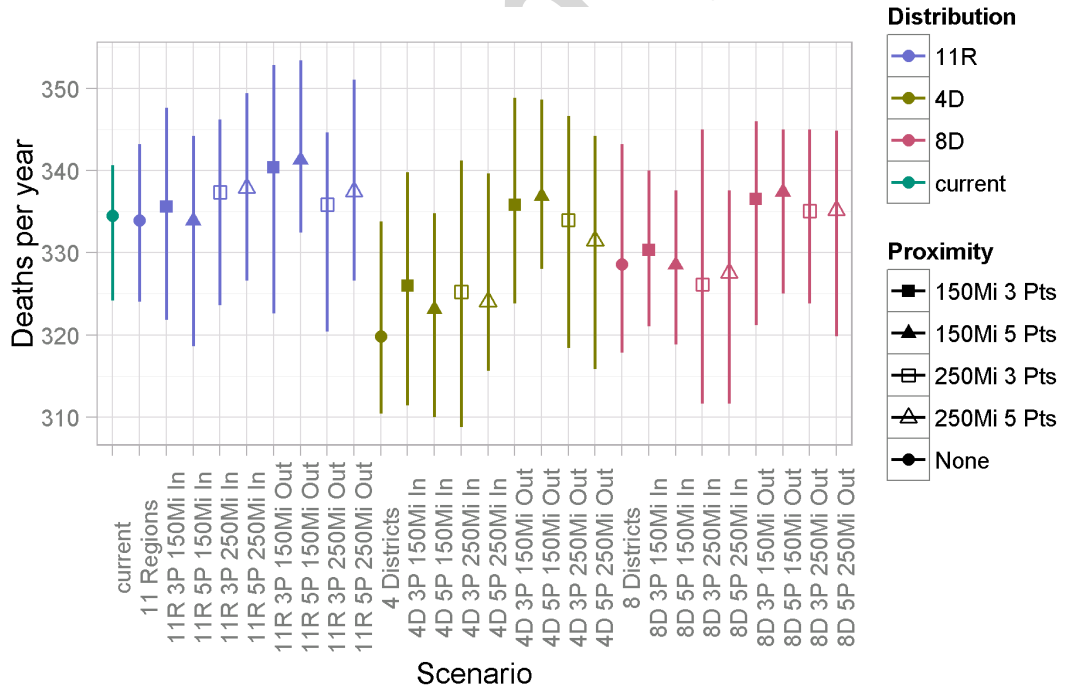


Figure G86. Overall mortality counts per year for Hispanic patients

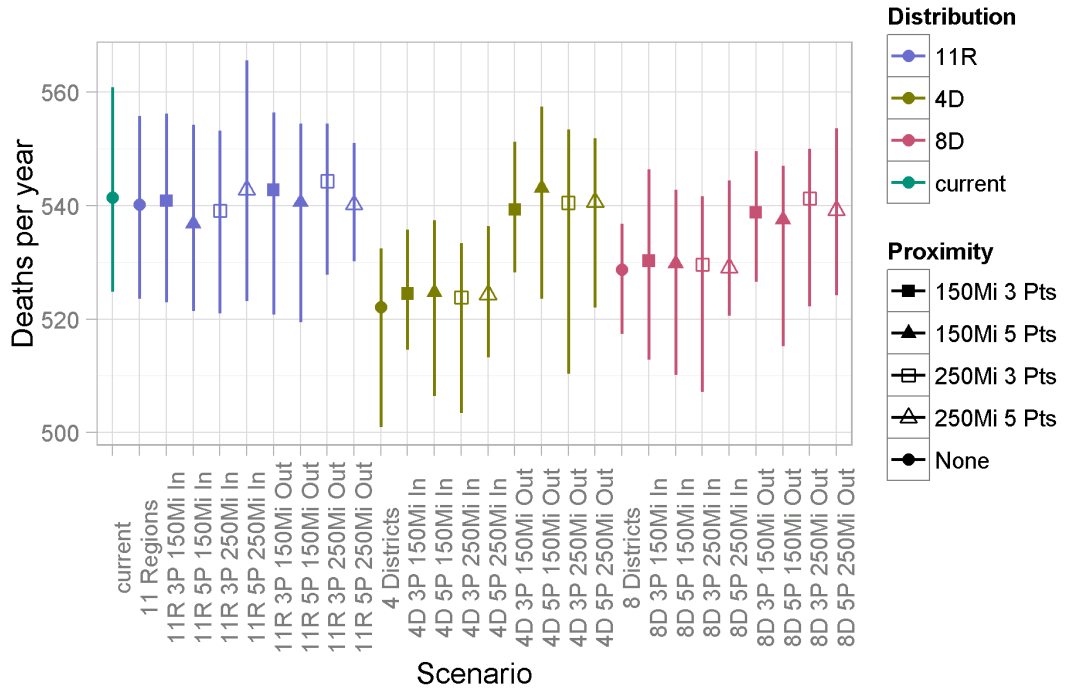


Figure G87. Overall mortality counts per year for Asian patients

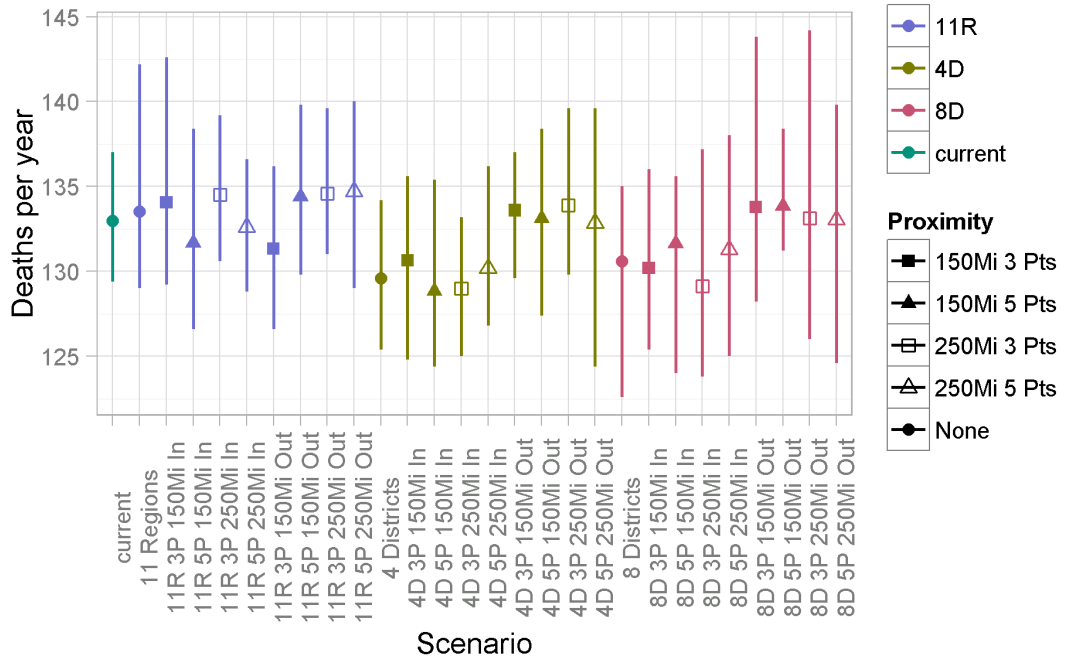


Table G22. Overall mortality counts per year by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	3608.1 (3567.8-3658.4)	117.7 (112-122.8)	1339.6 (1325-1361.2)	2560.5 (2524.6-2607.2)	334.5 (324.2-340.6)	541.5 (524.8-560.8)	133 (129.4-137)
11 Regions	3608.2 (3565.6-3652.8)	116.2 (108.6-122.6)	1338.3 (1311.2-1369.8)	2561.9 (2534.8-2611.4)	333.9 (324-343.2)	540.2 (523.6-555.8)	133.5 (129-142.2)
11R 3P 150Mi In	3602.6 (3558.4-3652.8)	119.2 (113-126.2)	1338.4 (1322.4-1361.4)	2552.9 (2518-2601.4)	335.6 (321.8-347.6)	540.9 (523-556.2)	134.1 (129.2-142.6)
11R 3P 250Mi In	3603.1 (3571.8-3637.2)	117.6 (110.8-122)	1334.9 (1315.8-1351.6)	2553.5 (2522.8-2587)	337.4 (323.6-346.2)	539.1 (521-553.2)	134.5 (130.6-139.2)
11R 5P 150Mi In	3601.1 (3563.4-3648.8)	116.3 (113-123.8)	1333.8 (1313.4-1349.2)	2560.7 (2529.8-2610.6)	333.9 (318.6-344.2)	536.8 (521.4-554.2)	131.7 (126.6-138.4)
11R 5P 250Mi In	3613.5 (3578.6-3644)	117.1 (112.8-121.2)	1340.1 (1305.6-1364.2)	2561.4 (2523-2592.2)	337.9 (326.6-349.4)	542.8 (523.2-565.6)	132.6 (128.8-136.6)
11R 3P 150Mi Out	3629.5 (3600-3672.8)	117.8 (111-125.6)	1348.5 (1327.4-1373.4)	2576.9 (2553.6-2612.2)	340.4 (322.6-352.8)	542.8 (520.8-556.4)	131.3 (126.6-136.2)
11R 3P 250Mi Out	3629.4 (3581.2-3680.4)	118.9 (114.4-123.8)	1342.9 (1331-1365.2)	2575.3 (2545-2629.6)	335.9 (320.4-344.6)	544.3 (527.8-554.4)	134.6 (131-139.6)
11R 5P 150Mi Out	3625.1 (3592.4-3682.8)	119.3 (109.4-124.6)	1346.5 (1327.6-1363.8)	2569.6 (2537.8-2625.6)	341.3 (332.4-353.4)	540.6 (519.4-554.4)	134.4 (129.8-139.8)
11R 5P 250Mi Out	3625.8 (3595-3656.4)	119.2 (111.4-129.2)	1342.6 (1322.2-1356.6)	2574.3 (2547.8-2601.2)	337.5 (326.6-351)	540.2 (530.2-551)	134.7 (129-140)
4 Districts	3487.8 (3468.2-3507.4)	117.7 (112.2-125.6)	1295.9 (1275.6-1312.4)	2477.5 (2442.6-2503.4)	319.8 (310.4-333.8)	522.1 (501-532.4)	129.6 (125.4-134.2)
4D 3P 150Mi In	3503.2 (3471.2-3537.2)	118.6 (110.4-125)	1300.5 (1276.8-1321.4)	2484.1 (2453.8-2513)	326 (311.4-339.8)	524.5 (514.6-535.8)	130.7 (124.8-135.6)
4D 3P 250Mi In	3507.7 (3469.4-3540.6)	118.4 (112-123.6)	1295.4 (1270-1309.4)	2492.2 (2454.4-2536.6)	325.2 (308.8-341.2)	523.8 (503.4-533.4)	129 (125-133.2)
4D 5P 150Mi In	3508.2 (3483.8-3561.4)	115.9 (108.4-122.4)	1298.7 (1286.8-1312.8)	2492.6 (2469-2536.4)	323.1 (310-334.8)	524.7 (506.4-537.4)	128.9 (124.4-135.4)
4D 5P 250Mi In	3520.6 (3482.8-3554.4)	111.6 (102.6-120.8)	1302.9 (1287.2-1319.4)	2504.5 (2482.6-2535.2)	324.1 (315.6-339.6)	524.4 (513.2-536.4)	130.2 (126.8-136.2)
4D 3P 150Mi Out	3601.3 (3575.6-	117.3 (111.8-	1336.1 (1316.2-	2553.7 (2531-2592)	335.8 (323.8-	539.3 (528.2-	133.6 (129.6-

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
	3637.6)	123.2)	1354.4)		348.8)	551.2)	137)
4D 3P 250Mi Out	3604.6 (3562.2-3654.8)	115.4 (107.2-122.2)	1337.9 (1321-1351)	2557.3 (2523.8-2594.4)	334 (318.4-346.6)	540.5 (510.4-553.4)	133.9 (129.8-139.6)
4D 5P 150Mi Out	3610.6 (3582.2-3643.2)	117.7 (108.6-129)	1339.6 (1323.4-1358.2)	2558.7 (2534-2603.4)	336.9 (328-348.6)	543.1 (523.6-557.4)	133.1 (127.4-138.4)
4D 5P 250Mi Out	3598.2 (3565-3649.4)	116.6 (107-121.8)	1334.8 (1313-1357.6)	2553.6 (2532.8-2600.4)	331.5 (315.8-344.2)	540.6 (522-551.8)	132.9 (124.4-139.6)
8 Districts	3547 (3523.6-3567.2)	115.5 (111.2-124.8)	1319.5 (1308.2-1340.2)	2520.2 (2501.6-2538.6)	328.6 (317.8-343.2)	528.8 (517.4-536.8)	130.6 (122.6-135)
8D 3P 150Mi In	3556 (3525.4-3589.6)	115.9 (110-123.2)	1318.6 (1296.6-1337.8)	2527.2 (2505.4-2561.4)	330.3 (321-340)	530.3 (512.8-546.4)	130.2 (125.4-136)
8D 3P 250Mi In	3551.1 (3528-3595.2)	116.1 (107.8-123.6)	1315.5 (1295-1334)	2528.3 (2487.4-2568.6)	326.1 (311.6-345)	529.6 (507.2-541.6)	129.1 (123.8-137.2)
8D 5P 150Mi In	3562.9 (3538.2-3604.4)	117.3 (110.6-123.4)	1321.7 (1308.6-1338.2)	2533.6 (2493.6-2567.8)	328.5 (318.8-337.6)	529.8 (510.2-542.8)	131.6 (124-135.6)
8D 5P 250Mi In	3558.2 (3521.8-3599)	116.9 (112.4-120)	1326 (1307.8-1350.4)	2531.7 (2506.4-2574.8)	327.6 (311.6-337.6)	529.1 (520.6-544.4)	131.3 (125-138)
8D 3P 150Mi Out	3616.1 (3585.4-3668.6)	116.8 (113.8-122.6)	1337.6 (1318.6-1364.8)	2568.5 (2533.8-2607)	336.5 (321.2-346)	538.8 (526.6-549.6)	133.8 (128.2-143.8)
8D 3P 250Mi Out	3614.9 (3590-3645.2)	117.2 (112.4-121.2)	1338.4 (1323.2-1351)	2566.7 (2537-2593.8)	335.1 (323.8-345)	541.2 (522.2-550)	133.1 (126-144.2)
8D 5P 150Mi Out	3618.9 (3590.8-3684.4)	117.3 (114.4-122.4)	1344.2 (1317.8-1370)	2572.2 (2539-2618.6)	337.4 (325-345)	537.6 (515.2-547)	133.8 (131.2-138.4)
8D 5P 250Mi Out	3614.7 (3596.6-3655.6)	118.4 (110.6-123.8)	1346 (1331.6-1358.8)	2568.5 (2542.6-2611.4)	335.2 (319.8-344.8)	539.2 (524.2-553.6)	133 (124.6-139.8)

Overall mortality rates per patient-year

Figure G88. Overall mortality rate per patient year for pediatric patients

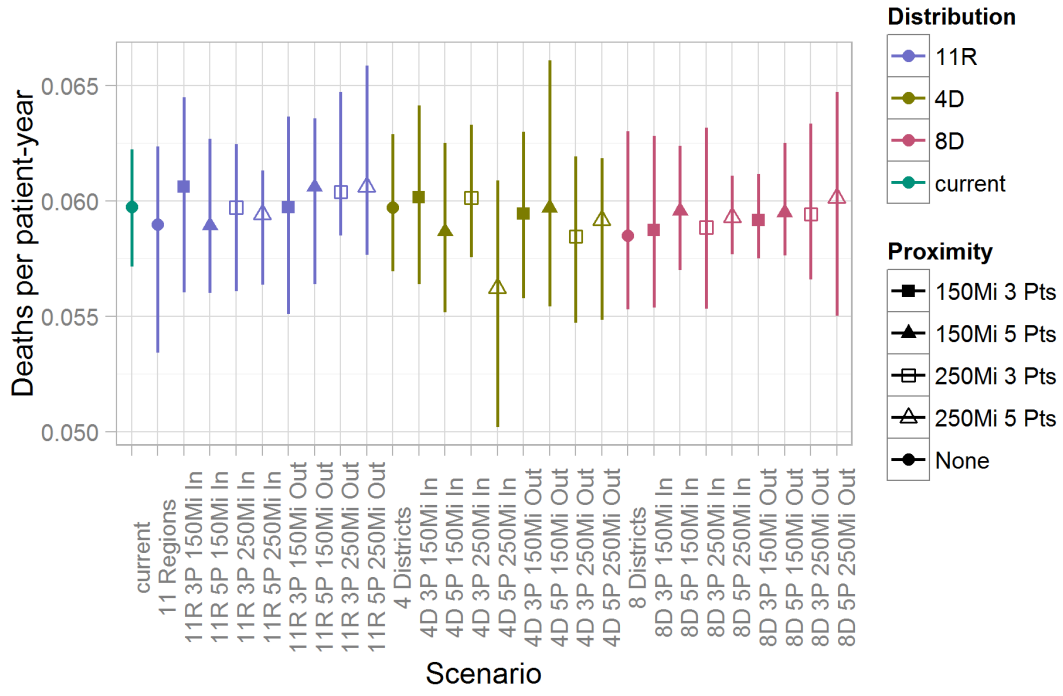


Figure G89. Overall mortality rate per patient year for female patients

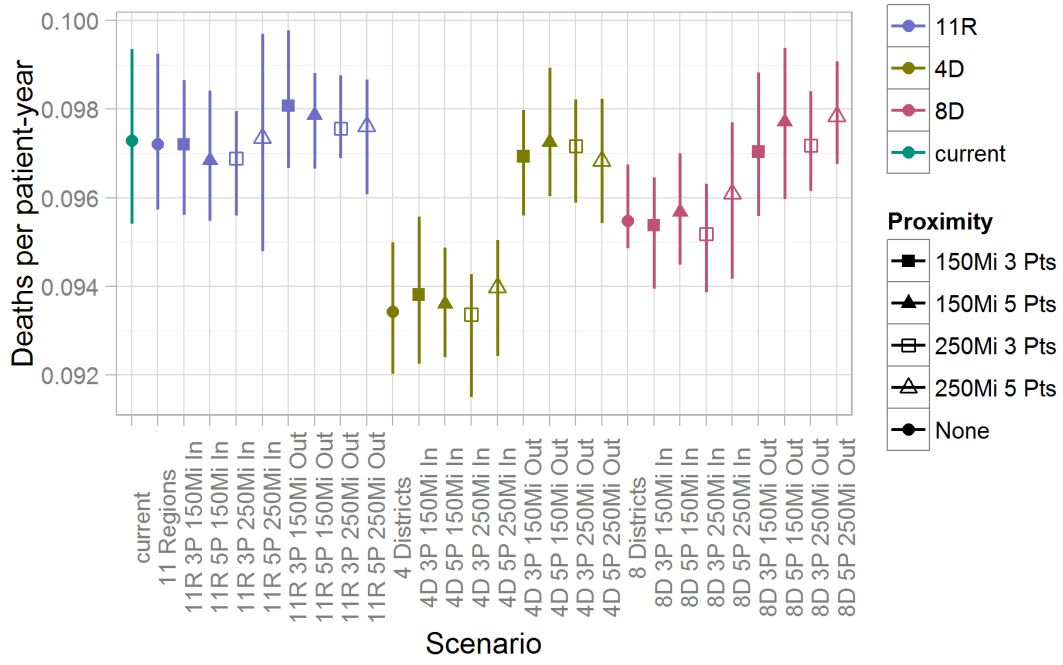


Figure G90. Overall mortality rate per patient year for Caucasian patients

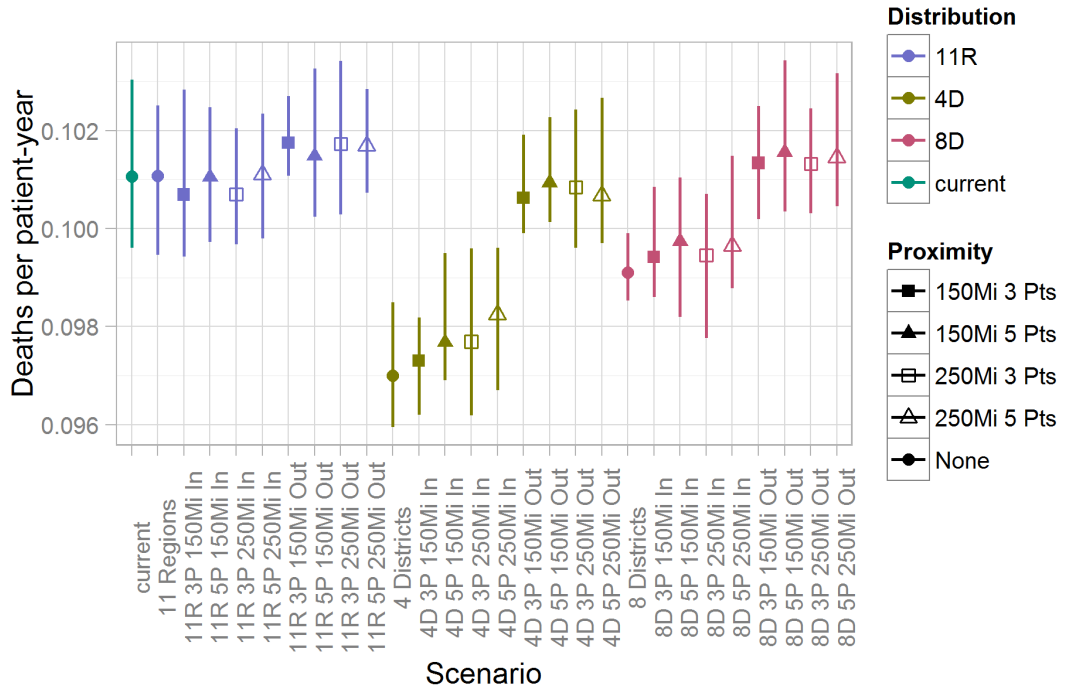


Figure G91. Overall mortality rate per patient year for African American patients

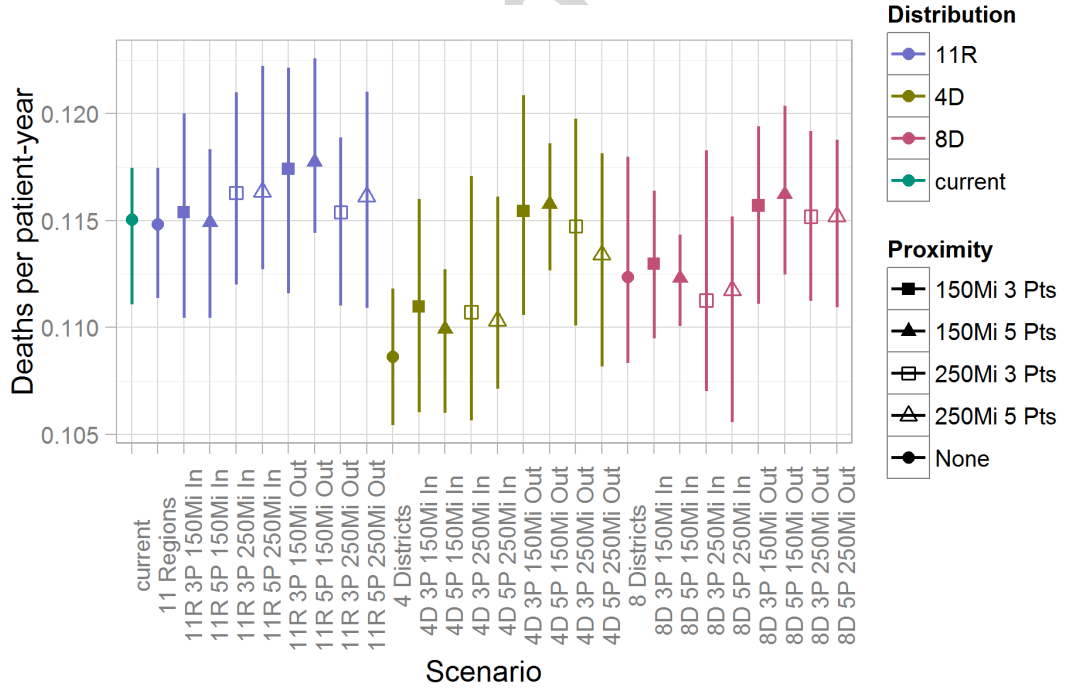


Figure G92. Overall mortality rates per patient year for Hispanic patients

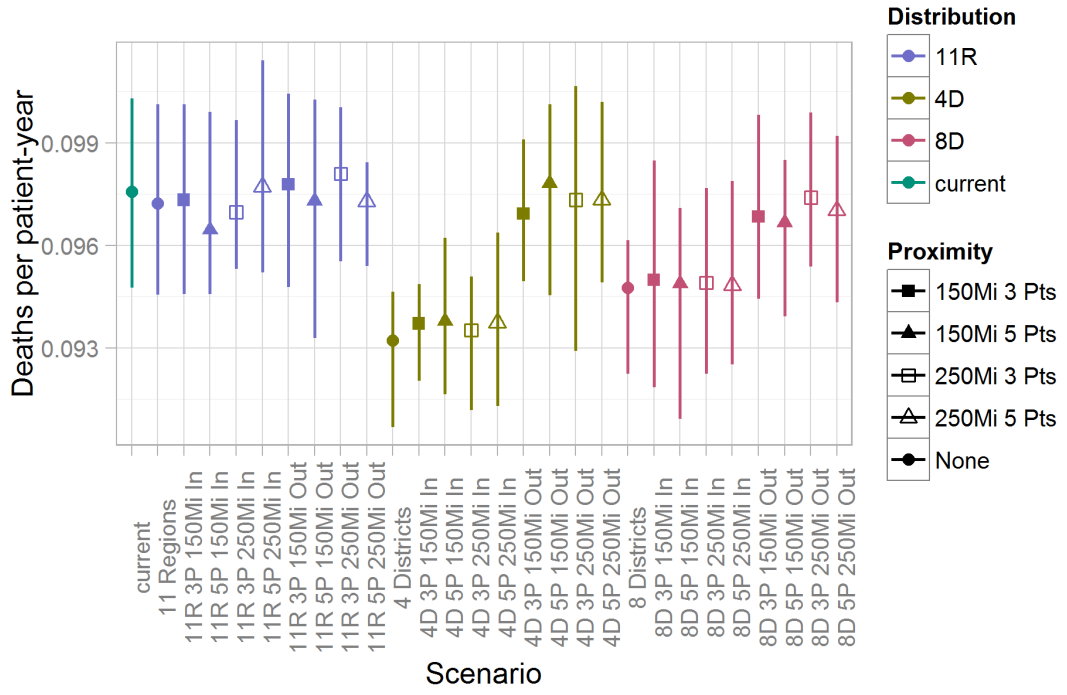


Figure G93. Overall mortality rates per patient year for Asian patients

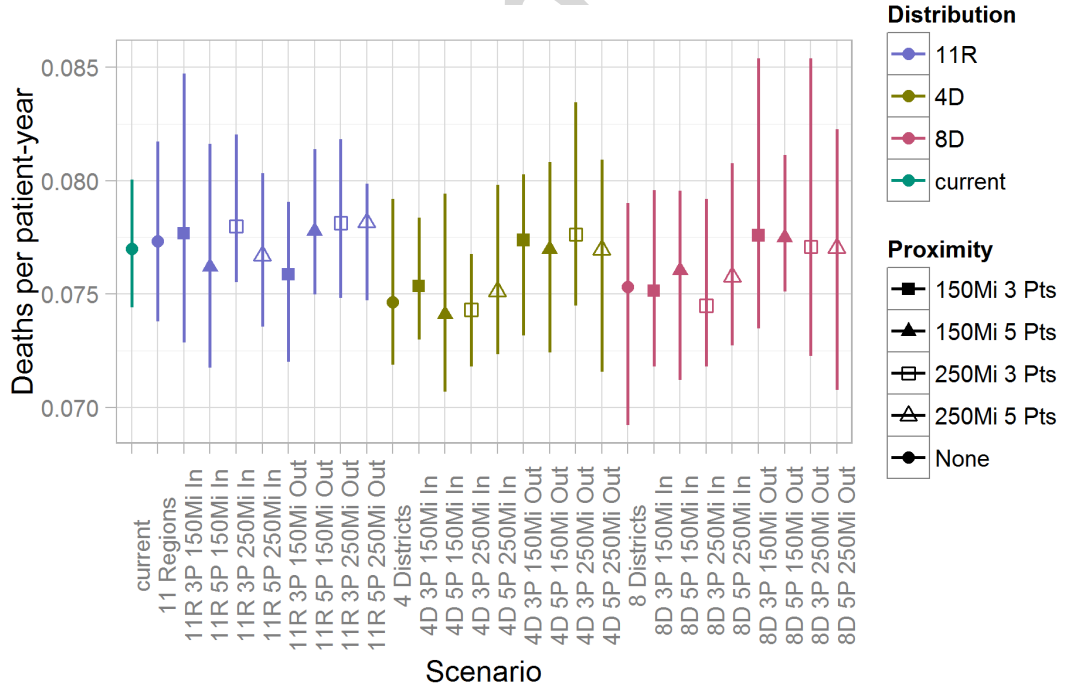


Table G23. Overall mortality rates per patient year by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	0.1005 (0.0995-0.1022)	0.0597 (0.0572-0.0622)	0.0973 (0.0954-0.0993)	0.1011 (0.0996-0.103)	0.115 (0.1111-0.1175)	0.0976 (0.0948-0.1003)	0.077 (0.0744-0.08)
11 Regions	0.1004 (0.099-0.1013)	0.059 (0.0534-0.0624)	0.0972 (0.0957-0.0992)	0.1011 (0.0995-0.1025)	0.1148 (0.1114-0.1175)	0.0972 (0.0946-0.1001)	0.0773 (0.0738-0.0817)
11R 3P 150Mi In	0.1002 (0.0987-0.1018)	0.0606 (0.056-0.0645)	0.0972 (0.0956-0.0987)	0.1007 (0.0994-0.1028)	0.1154 (0.1104-0.12)	0.0973 (0.0946-0.1001)	0.0777 (0.0729-0.0847)
11R 3P 250Mi In	0.1003 (0.0993-0.1009)	0.0597 (0.0561-0.0624)	0.0969 (0.0956-0.0979)	0.1007 (0.0997-0.102)	0.1163 (0.112-0.121)	0.097 (0.0953-0.0997)	0.078 (0.0755-0.082)
11R 5P 150Mi In	0.1002 (0.099-0.1016)	0.0589 (0.056-0.0627)	0.0968 (0.0955-0.0984)	0.101 (0.0997-0.1025)	0.1149 (0.1105-0.1184)	0.0965 (0.0946-0.0999)	0.0762 (0.0718-0.0816)
11R 5P 250Mi In	0.1006 (0.0994-0.1017)	0.0594 (0.0564-0.0613)	0.0974 (0.0948-0.0997)	0.1011 (0.0998-0.1023)	0.1163 (0.1127-0.1222)	0.0977 (0.0952-0.1014)	0.0767 (0.0736-0.0803)
11R 3P 150Mi Out	0.1011 (0.1001-0.1022)	0.0597 (0.0551-0.0636)	0.0981 (0.0967-0.0998)	0.1017 (0.1011-0.1027)	0.1174 (0.1116-0.1221)	0.0978 (0.0948-0.1004)	0.0759 (0.072-0.079)
11R 3P 250Mi Out	0.1011 (0.0995-0.1022)	0.0604 (0.0585-0.0647)	0.0976 (0.0969-0.0988)	0.1017 (0.1003-0.1034)	0.1154 (0.111-0.1189)	0.0981 (0.0955-0.1)	0.0781 (0.0748-0.0818)
11R 5P 150Mi Out	0.101 (0.0999-0.1024)	0.0606 (0.0564-0.0636)	0.0979 (0.0967-0.0988)	0.1015 (0.1002-0.1033)	0.1177 (0.1144-0.1226)	0.0973 (0.0933-0.1003)	0.0778 (0.075-0.0814)
11R 5P 250Mi Out	0.101 (0.1001-0.1016)	0.0606 (0.0577-0.0659)	0.0976 (0.0961-0.0987)	0.1017 (0.1007-0.1028)	0.1161 (0.1109-0.121)	0.0973 (0.0954-0.0984)	0.0782 (0.0747-0.0799)
4 Districts	0.0963 (0.0958-0.0974)	0.0597 (0.0569-0.0629)	0.0934 (0.092-0.095)	0.097 (0.096-0.0985)	0.1086 (0.1054-0.1118)	0.0932 (0.0907-0.0946)	0.0746 (0.0719-0.0792)
4D 3P 150Mi In	0.0968 (0.0961-0.0974)	0.0602 (0.0564-0.0641)	0.0938 (0.0923-0.0956)	0.0973 (0.0962-0.0982)	0.111 (0.1061-0.116)	0.0937 (0.092-0.0949)	0.0754 (0.073-0.0784)
4D 3P 250Mi In	0.0969 (0.0956-0.0982)	0.0601 (0.0575-0.0633)	0.0934 (0.0915-0.0943)	0.0977 (0.0962-0.0996)	0.1107 (0.1057-0.1171)	0.0935 (0.0912-0.0951)	0.0743 (0.0718-0.0768)
4D 5P 150Mi In	0.0969 (0.0962-0.0987)	0.0587 (0.0552-0.0625)	0.0936 (0.0924-0.0949)	0.0977 (0.0969-0.0995)	0.1099 (0.106-0.1127)	0.0938 (0.0916-0.0962)	0.0741 (0.0707-0.0794)

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
4D 5P 250Mi In	0.0974 (0.0961-0.0986)	0.0562 (0.0502-0.0609)	0.094 (0.0924-0.095)	0.0982 (0.0967-0.0996)	0.1103 (0.1071-0.1161)	0.0937 (0.0913-0.0964)	0.0751 (0.0724-0.0798)
4D 3P 150Mi Out	0.1001 (0.0992-0.1014)	0.0594 (0.0558-0.063)	0.0969 (0.0956-0.098)	0.1006 (0.0999-0.1019)	0.1155 (0.1106-0.1209)	0.0969 (0.0949-0.0991)	0.0774 (0.0732-0.0803)
4D 3P 250Mi Out	0.1003 (0.0989-0.1021)	0.0585 (0.0547-0.0619)	0.0972 (0.0959-0.0982)	0.1008 (0.0996-0.1024)	0.1147 (0.1101-0.1198)	0.0973 (0.0929-0.1007)	0.0776 (0.0745-0.0835)
4D 5P 150Mi Out	0.1005 (0.0995-0.1016)	0.0597 (0.0554-0.0661)	0.0973 (0.096-0.0989)	0.1009 (0.1001-0.1023)	0.1158 (0.1127-0.1186)	0.0978 (0.0945-0.1001)	0.077 (0.0724-0.0808)
4D 5P 250Mi Out	0.1 (0.099-0.1018)	0.0592 (0.0548-0.0618)	0.0968 (0.0954-0.0982)	0.1007 (0.0997-0.1027)	0.1134 (0.1082-0.1182)	0.0973 (0.0949-0.1002)	0.0769 (0.0716-0.0809)
8 Districts	0.0984 (0.0977-0.0989)	0.0585 (0.0553-0.063)	0.0955 (0.0949-0.0968)	0.0991 (0.0985-0.0999)	0.1124 (0.1083-0.118)	0.0948 (0.0922-0.0961)	0.0753 (0.0692-0.079)
8D 3P 150Mi In	0.0986 (0.0976-0.0997)	0.0587 (0.0554-0.0628)	0.0954 (0.0939-0.0965)	0.0994 (0.0986-0.1008)	0.113 (0.1095-0.1164)	0.095 (0.0918-0.0985)	0.0752 (0.0718-0.0796)
8D 3P 250Mi In	0.0985 (0.0977-0.0996)	0.0589 (0.0553-0.0632)	0.0952 (0.0939-0.0963)	0.0995 (0.0978-0.1007)	0.1113 (0.107-0.1183)	0.0949 (0.0922-0.0977)	0.0745 (0.0718-0.0792)
8D 5P 150Mi In	0.0989 (0.0981-0.1)	0.0596 (0.057-0.0624)	0.0957 (0.0945-0.097)	0.0997 (0.0982-0.101)	0.1123 (0.1101-0.1143)	0.0949 (0.0909-0.0971)	0.076 (0.0712-0.0796)
8D 5P 250Mi In	0.0987 (0.0975-0.1001)	0.0593 (0.0577-0.0611)	0.0961 (0.0942-0.0977)	0.0996 (0.0988-0.1015)	0.1118 (0.1056-0.1152)	0.0948 (0.0925-0.0979)	0.0758 (0.0728-0.0808)
8D 3P 150Mi Out	0.1006 (0.0999-0.1018)	0.0592 (0.0575-0.0612)	0.097 (0.0956-0.0988)	0.1013 (0.1002-0.1025)	0.1157 (0.1111-0.1194)	0.0968 (0.0944-0.0998)	0.0776 (0.0735-0.0854)
8D 3P 250Mi Out	0.1006 (0.0999-0.1015)	0.0594 (0.0566-0.0633)	0.0972 (0.0962-0.0984)	0.1013 (0.1003-0.1024)	0.1152 (0.1112-0.1192)	0.0974 (0.0954-0.0999)	0.0771 (0.0723-0.0854)
8D 5P 150Mi Out	0.1008 (0.0999-0.1025)	0.0595 (0.0576-0.0625)	0.0977 (0.096-0.0994)	0.1016 (0.1003-0.1034)	0.1162 (0.1125-0.1204)	0.0967 (0.0939-0.0985)	0.0775 (0.0751-0.0811)
8D 5P 250Mi Out	0.1007 (0.0998-0.102)	0.0601 (0.055-0.0647)	0.0978 (0.0968-0.0991)	0.1014 (0.1005-0.1032)	0.1152 (0.1109-0.1188)	0.097 (0.0943-0.0992)	0.077 (0.0708-0.0822)

Pretransplant mortality counts per year

Figure G94. Annual pretransplant mortality counts for pediatric candidates

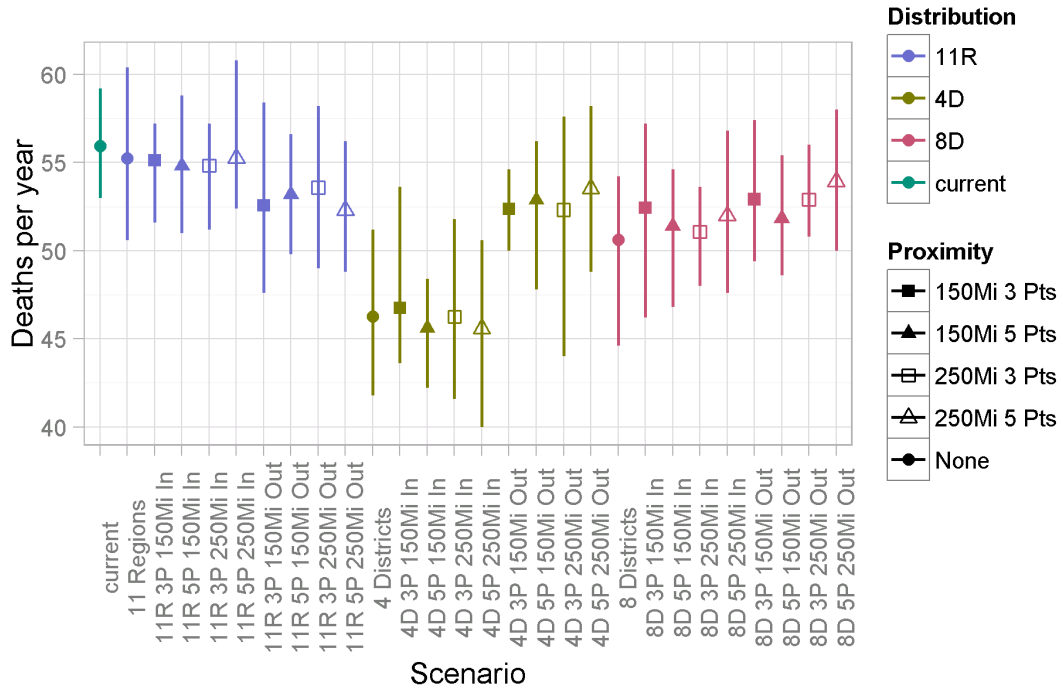


Figure G95. Annual pretransplant mortality counts for female candidates

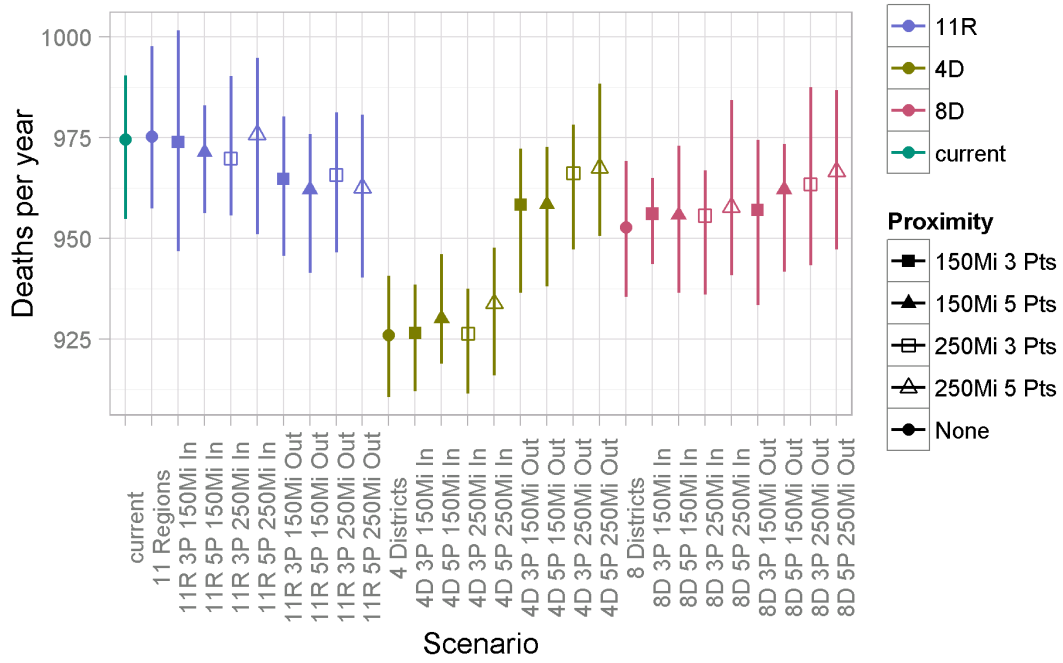


Figure G96. Annual pretransplant mortality counts for Caucasian candidates

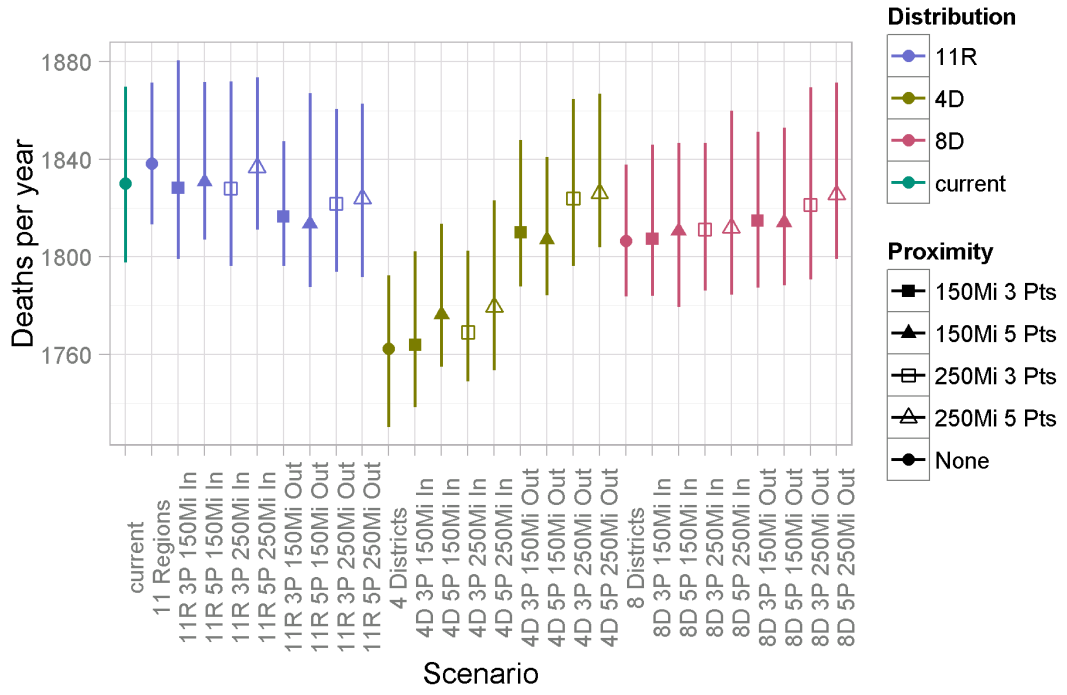


Figure G97. Annual pretransplant mortality counts for African American candidates

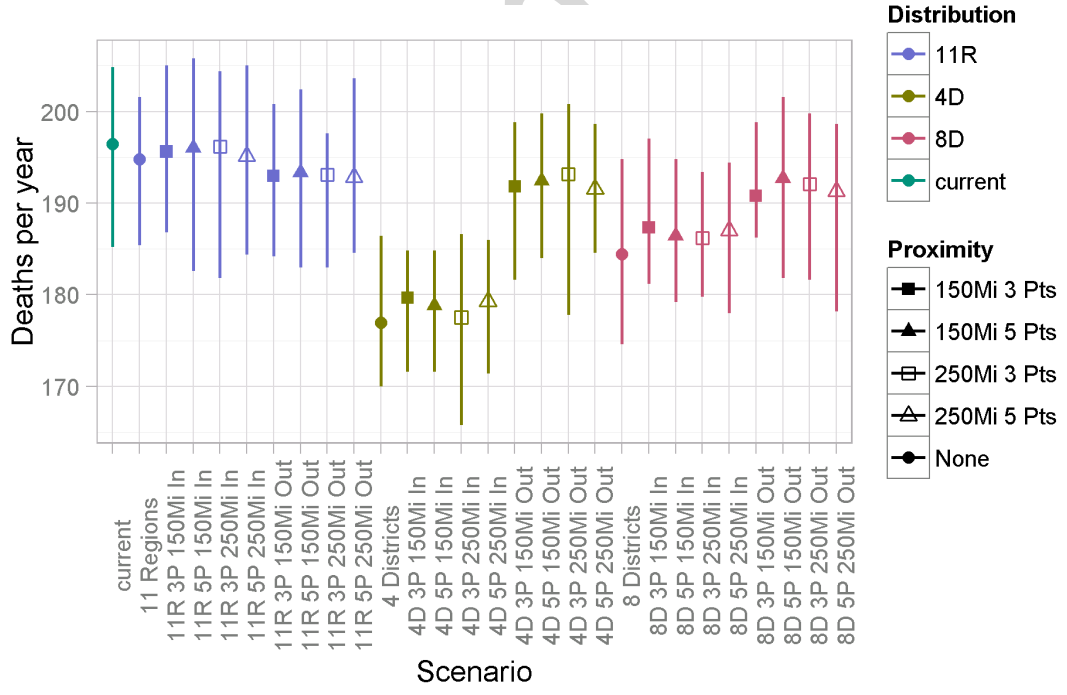


Figure G98. Annual pretransplant mortality counts for Hispanic candidates

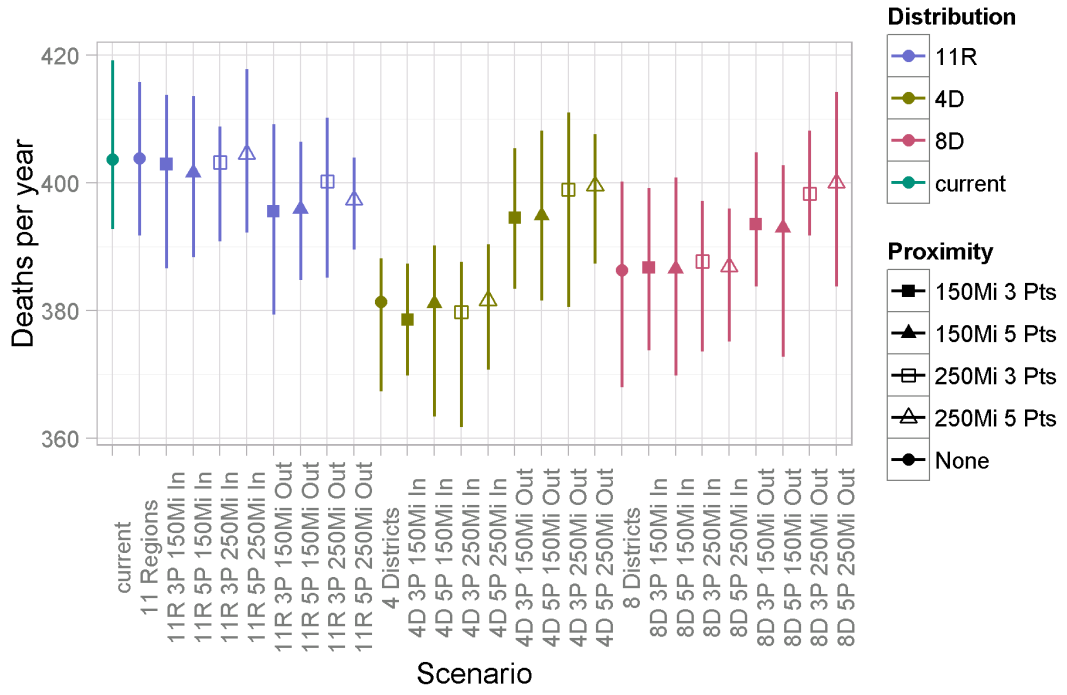


Figure G99. Annual pretransplant mortality counts for Asian candidates

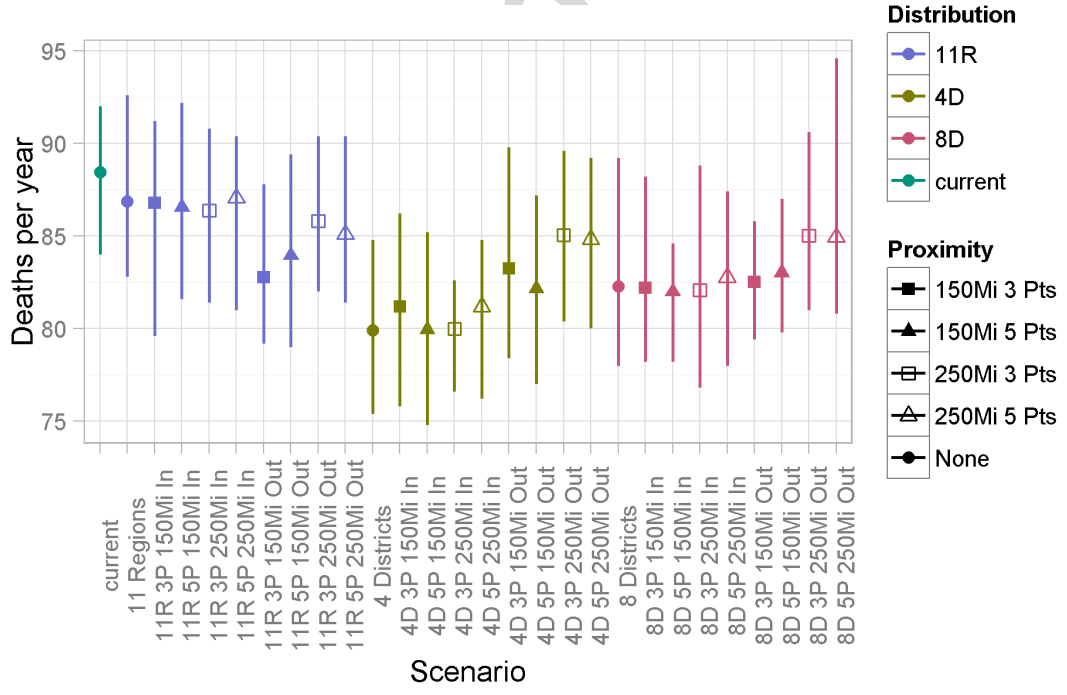


Table G24. Annual pretransplant mortality counts by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	2546.6 (2501.4-2595.2)	55.9 (53-59.2)	974.5 (954.8-990.4)	1830.2 (1797.6-1869.8)	196.5 (185.2-204.8)	403.7 (392.8-419.2)	88.5 (84-92)
11 Regions	2551.4 (2521-2584.8)	55.2 (50.6-60.4)	975.3 (957.4-997.6)	1838.3 (1813.2-1871.4)	194.8 (185.4-201.6)	403.9 (391.8-415.8)	86.9 (82.8-92.6)
11R 3P 150Mi In	2541.7 (2501.2-2596.6)	55.1 (51.6-57.2)	973.8 (946.8-1001.6)	1828.2 (1799-1880.6)	195.6 (186.8-205)	403 (386.6-413.8)	86.8 (79.6-91.2)
11R 3P 250Mi In	2541.5 (2514.6-2583)	54.8 (51.2-57.2)	969.8 (955.6-990.2)	1828.1 (1796.2-1871.8)	196.2 (181.8-204.4)	403.2 (390.8-408.8)	86.4 (81.4-90.8)
11R 5P 150Mi In	2542.5 (2507.2-2592.6)	54.8 (51-58.8)	971.4 (956.2-983)	1830.8 (1807-1871.6)	196 (182.6-205.8)	401.6 (388.4-413.6)	86.6 (81.6-92.2)
11R 5P 250Mi In	2550.9 (2514.4-2580)	55.3 (52.4-60.8)	975.8 (951-994.8)	1836.6 (1811-1873.6)	195.1 (184.4-205)	404.5 (392.2-417.8)	87.1 (81-90.4)
11R 3P 150Mi Out	2514.7 (2477.6-2555)	52.6 (47.6-58.4)	964.7 (945.6-980.2)	1816.5 (1796.2-1847.4)	193 (184.2-200.8)	395.5 (379.4-409.2)	82.8 (79.2-87.8)
11R 3P 250Mi Out	2528.7 (2487.8-2568.4)	53.6 (49-58.2)	965.7 (946.4-981.2)	1821.9 (1793.8-1860.6)	193.1 (183-197.6)	400.2 (385.2-410.2)	85.8 (82-90.4)
11R 5P 150Mi Out	2513.9 (2480.2-2566)	53.2 (49.8-56.6)	962.1 (941.4-975.8)	1813.5 (1787.6-1867)	193.4 (183-202.4)	395.9 (384.8-406.4)	84 (79-89.4)
11R 5P 250Mi Out	2526.9 (2489.8-2564.4)	52.3 (48.8-56.2)	962.5 (940.2-980.6)	1824 (1791.6-1862.8)	192.8 (184.6-203.6)	397.3 (389.6-404)	85.1 (81.4-90.4)
4 Districts	2427.8 (2400.8-2460.6)	46.3 (41.8-51.2)	925.9 (910.6-940.6)	1762.3 (1730.2-1792.4)	176.9 (170-186.4)	381.4 (367.4-388.2)	79.9 (75.4-84.8)
4D 3P 150Mi In	2430.2 (2404.2-2466.6)	46.7 (43.6-53.6)	926.4 (912-938.4)	1763.9 (1738.4-1802.2)	179.7 (171.6-184.8)	378.6 (369.8-387.4)	81.2 (75.8-86.2)
4D 3P 250Mi In	2432.9 (2398.8-2463.2)	46.3 (41.6-51.8)	926.4 (911.4-937.4)	1769 (1748.8-1802.4)	177.5 (165.8-186.6)	379.8 (361.8-387.6)	80 (76.6-82.6)
4D 5P 150Mi In	2443.4 (2419.8-2478.6)	45.6 (42.2-48.4)	930.1 (918.8-946)	1776.4 (1754.8-1813.6)	178.8 (171.6-184.8)	381.2 (363.4-390.2)	80 (74.8-85.2)
4D 5P 250Mi In	2448.7 (2408.4-2497)	45.6 (40-50.6)	933.8 (916-947.6)	1779.5 (1753.4-1823.2)	179.3 (171.4-186)	381.6 (370.8-390.4)	81.2 (76.2-84.8)
4D 3P 150Mi Out	2506.8 (2465.2-	52.4 (50-54.6)	958.3 (936.4-	1810 (1787.8-1847.8)	191.8 (181.6-	394.5 (383.4-	83.3 (78.4-

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
	2553.4)		972.2)		198.8)	405.4)	89.8)
4D 3P 250Mi Out	2528.8 (2486-2575.6)	52.3 (44-57.6)	966.1 (947.2-978.2)	1824 (1796.2-1864.6)	193.2 (177.8-200.8)	398.9 (380.6-411)	85.1 (80.4-89.6)
4D 5P 150Mi Out	2504.2 (2473.2-2547)	52.9 (47.8-56.2)	958.4 (938-972.6)	1807.2 (1784.2-1840.8)	192.5 (184-199.8)	394.9 (381.6-408.2)	82.2 (77-87.2)
4D 5P 250Mi Out	2530.4 (2485.6-2574.6)	53.5 (48.8-58.2)	967.5 (950.6-988.4)	1826.2 (1803.8-1866.8)	191.6 (184.6-198.6)	399.5 (387.4-407.6)	84.8 (80-89.2)
8 Districts	2486.7 (2453.6-2509.8)	50.6 (44.6-54.2)	952.7 (935.4-969.2)	1806.6 (1783.6-1837.8)	184.4 (174.6-194.8)	386.4 (368-400.2)	82.3 (78-89.2)
8D 3P 150Mi In	2491.1 (2466.4-2531.4)	52.4 (46.2-57.2)	956.1 (943.6-965)	1807.4 (1784-1846)	187.3 (181.2-197)	386.7 (373.8-399.2)	82.2 (78.2-88.2)
8D 3P 250Mi In	2495 (2468.2-2531.4)	51.1 (48-53.6)	955.6 (936-966.8)	1811.3 (1786.2-1846.6)	186.2 (179.8-193.4)	387.7 (373.6-397.2)	82.1 (76.8-88.8)
8D 5P 150Mi In	2493.1 (2464-2527.6)	51.4 (46.8-54.6)	955.8 (936.4-973)	1810.6 (1779.4-1846.6)	186.4 (179.2-194.8)	386.5 (369.8-400.8)	82 (78.2-84.6)
8D 5P 250Mi In	2496 (2464.6-2549.8)	52 (47.6-56.8)	957.8 (940.8-984.2)	1812 (1784.4-1860)	187 (178-194.4)	386.9 (375.2-396)	82.8 (78-87.4)
8D 3P 150Mi Out	2508.3 (2484.2-2555.6)	52.9 (49.4-57.4)	957.1 (933.4-974.4)	1814.7 (1787.4-1851.2)	190.8 (186.2-198.8)	393.5 (383.8-404.8)	82.5 (79.4-85.8)
8D 3P 250Mi Out	2524.7 (2497.4-2580)	52.9 (50.8-56)	963.4 (943.2-987.4)	1821.4 (1790.6-1869.4)	192.1 (181.6-199.8)	398.3 (391.8-408.2)	85 (81-90.6)
8D 5P 150Mi Out	2509.2 (2467.4-2547.4)	51.8 (48.6-55.4)	962.1 (941.6-973.4)	1814.1 (1788.2-1853)	192.7 (181.8-201.6)	393 (372.8-402.8)	83 (79.8-87)
8D 5P 250Mi Out	2529.4 (2499.2-2579.2)	53.9 (50-58)	966.6 (947.2-986.8)	1825.5 (1799.2-1871.4)	191.3 (178.2-198.6)	400 (383.8-414.2)	84.9 (80.8-94.6)

Pretransplant mortality rates per patient year

Figure G100. Pretransplant mortality rates for pediatric candidates

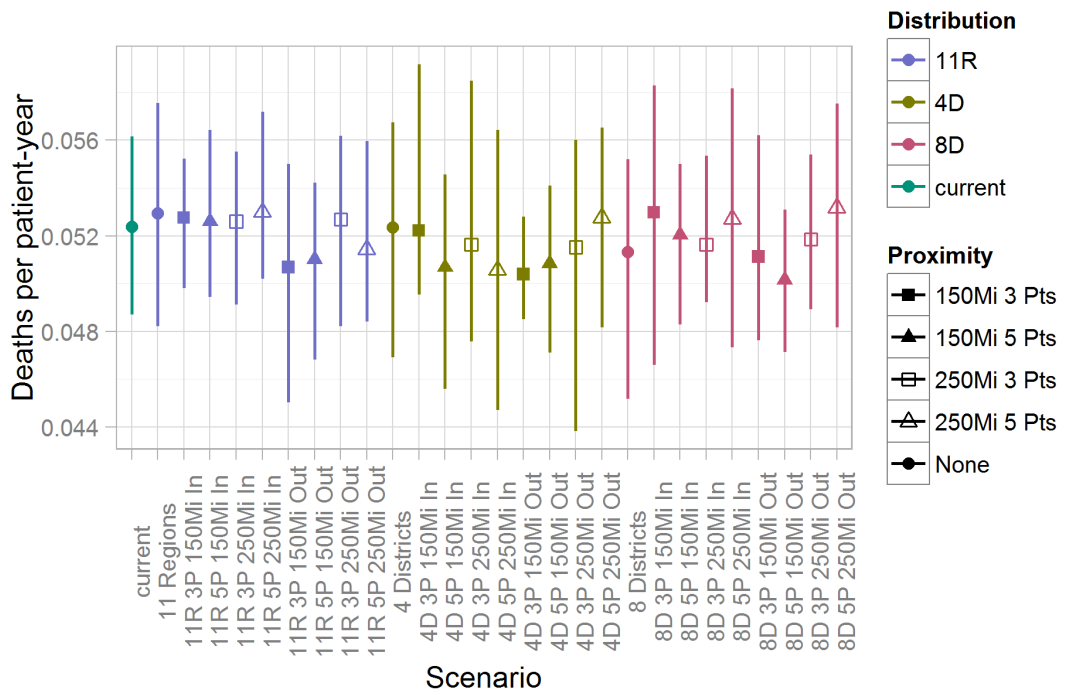


Figure G101. Pretransplant mortality rates for female candidates

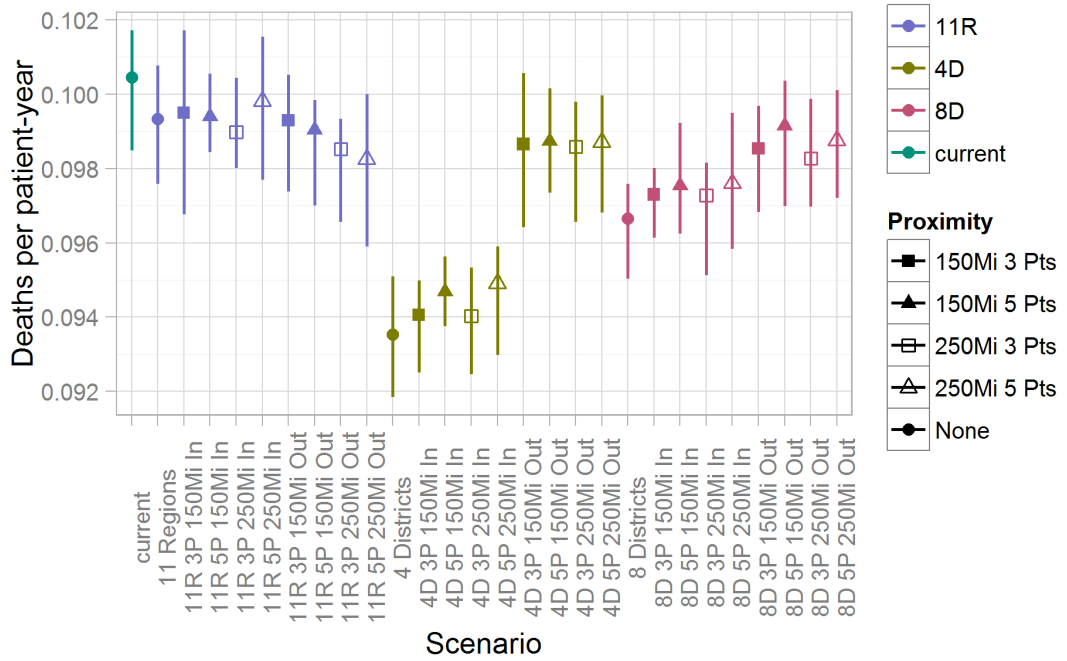


Figure G102. Pretransplant mortality rates for Caucasian candidates

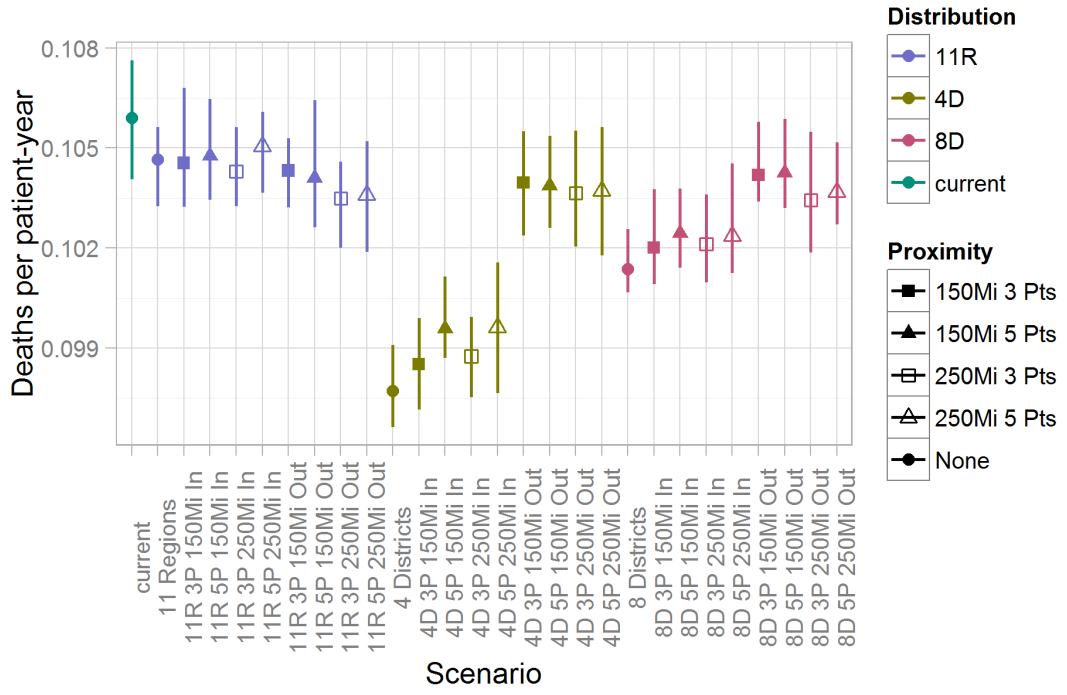


Figure G103. Pretransplant mortality rates for African American candidates

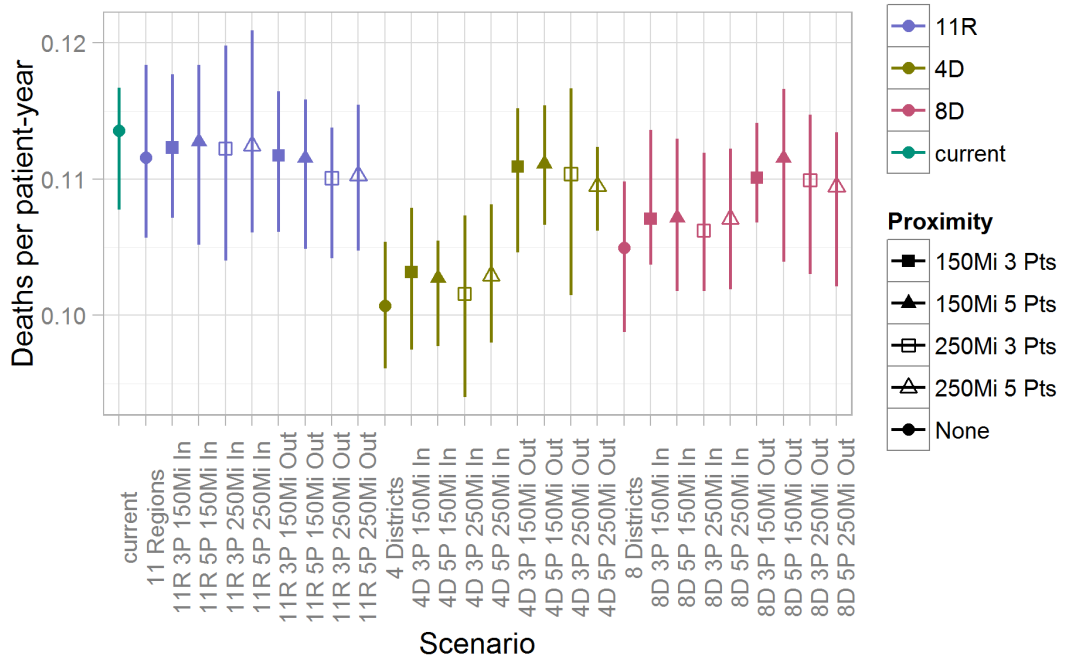


Figure G104. Pretransplant mortality rates for Hispanic candidates

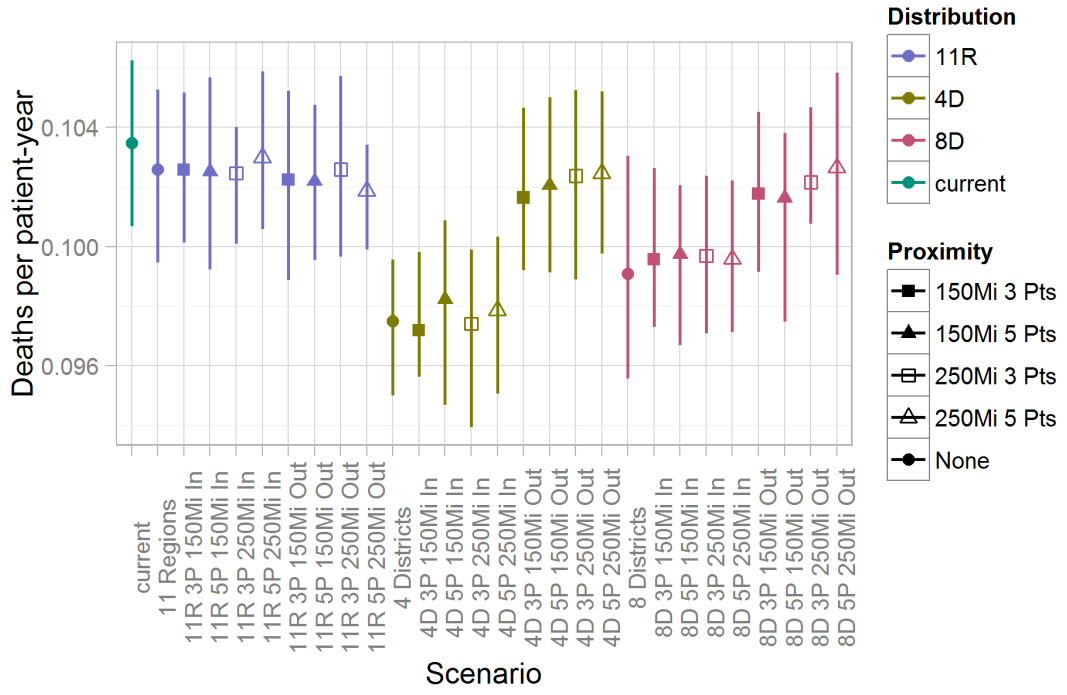


Figure G105. Pretransplant mortality rates for Asian candidates

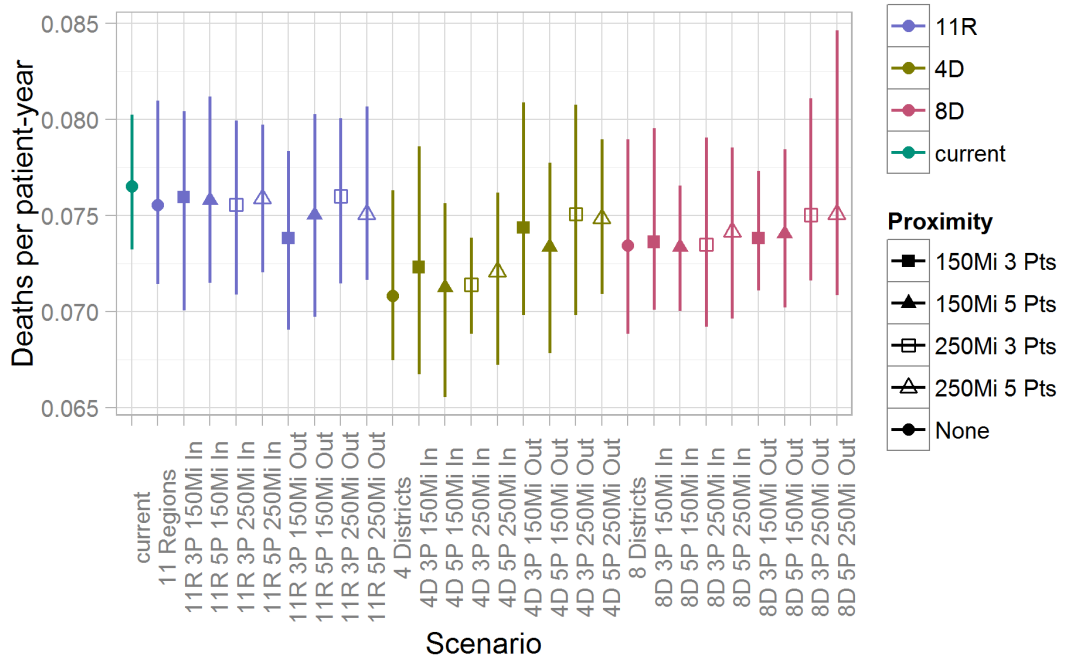


Table G25. Pretransplant mortality rates per patient year by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	0.1047 (0.1027-0.1063)	0.0524 (0.0487-0.0561)	0.1004 (0.0985-0.1017)	0.1059 (0.1041-0.1076)	0.1136 (0.1078-0.1167)	0.1035 (0.1007-0.1063)	0.0765 (0.0732-0.0802)
11 Regions	0.1035 (0.102-0.1044)	0.0529 (0.0482-0.0576)	0.0993 (0.0976-0.1008)	0.1047 (0.1032-0.1056)	0.1116 (0.1057-0.1184)	0.1026 (0.0995-0.1053)	0.0756 (0.0714-0.081)
11R 3P 150Mi In	0.1035 (0.1018-0.1052)	0.0528 (0.0498-0.0552)	0.0995 (0.0968-0.1017)	0.1045 (0.1032-0.1068)	0.1123 (0.1071-0.1177)	0.1026 (0.1001-0.1052)	0.076 (0.0701-0.0804)
11R 3P 250Mi In	0.1032 (0.1021-0.1041)	0.0526 (0.0491-0.0555)	0.099 (0.098-0.1004)	0.1043 (0.1032-0.1056)	0.1123 (0.104-0.1198)	0.1025 (0.1001-0.104)	0.0756 (0.0709-0.08)
11R 5P 150Mi In	0.1036 (0.102-0.1052)	0.0526 (0.0494-0.0564)	0.0994 (0.0984-0.1006)	0.1048 (0.1034-0.1065)	0.1128 (0.1052-0.1184)	0.1025 (0.0992-0.1057)	0.0758 (0.0715-0.0812)
11R 5P 250Mi In	0.1039 (0.1024-0.1046)	0.053 (0.0502-0.0572)	0.0998 (0.0977-0.1015)	0.105 (0.1037-0.1061)	0.1125 (0.1061-0.1209)	0.103 (0.1006-0.1059)	0.0759 (0.0721-0.0797)
11R 3P 150Mi Out	0.1031 (0.1015-0.1043)	0.0507 (0.045-0.055)	0.0993 (0.0974-0.1005)	0.1043 (0.1032-0.1053)	0.1117 (0.1061-0.1165)	0.1022 (0.0989-0.1052)	0.0738 (0.0691-0.0784)
11R 3P 250Mi Out	0.1026 (0.1009-0.1036)	0.0527 (0.0482-0.0562)	0.0985 (0.0966-0.0993)	0.1035 (0.102-0.1046)	0.1101 (0.1042-0.1138)	0.1026 (0.0997-0.1057)	0.076 (0.0715-0.0801)
11R 5P 150Mi Out	0.103 (0.1017-0.1046)	0.051 (0.0468-0.0542)	0.099 (0.097-0.0998)	0.1041 (0.1026-0.1064)	0.1115 (0.1049-0.1158)	0.1022 (0.0995-0.1048)	0.075 (0.0697-0.0803)
11R 5P 250Mi Out	0.1025 (0.101-0.1035)	0.0514 (0.0484-0.056)	0.0983 (0.0959-0.1)	0.1036 (0.1019-0.1052)	0.1103 (0.1047-0.1155)	0.1019 (0.0999-0.1034)	0.0751 (0.0717-0.0807)
4 Districts	0.0967 (0.0956-0.0978)	0.0524 (0.0469-0.0567)	0.0935 (0.0919-0.0951)	0.0977 (0.0966-0.0991)	0.1007 (0.0961-0.1054)	0.0975 (0.095-0.0996)	0.0708 (0.0675-0.0763)
4D 3P 150Mi In	0.0975 (0.0963-0.0984)	0.0522 (0.0495-0.0592)	0.0941 (0.0925-0.095)	0.0985 (0.0972-0.0999)	0.1032 (0.0975-0.1079)	0.0972 (0.0956-0.0998)	0.0723 (0.0667-0.0786)
4D 3P 250Mi In	0.0975 (0.0961-0.0982)	0.0516 (0.0476-0.0585)	0.094 (0.0925-0.0953)	0.0988 (0.0975-0.0999)	0.1016 (0.094-0.1073)	0.0974 (0.0939-0.0999)	0.0714 (0.0688-0.0739)
4D 5P 150Mi In	0.0983 (0.0973-0.0993)	0.0507 (0.0456-0.0546)	0.0947 (0.0937-0.0956)	0.0996 (0.0987-0.1011)	0.1027 (0.0977-0.1055)	0.0982 (0.0947-0.1009)	0.0713 (0.0656-0.0757)
4D 5P 250Mi In	0.0984 (0.0965-0.1)	0.0506 (0.0447-0.0564)	0.0949 (0.093-0.0959)	0.0996 (0.0977-0.1016)	0.1029 (0.098-0.1081)	0.0979 (0.0951-0.1003)	0.0721 (0.0672-0.0762)
4D 3P 150Mi	0.1027 (0.1011-	0.0504 (0.0485-	0.0987 (0.0964-	0.104 (0.1024-	0.1109 (0.1046-	0.1016 (0.0992-	0.0744 (0.0698-

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
Out	0.1042)	0.0528)	0.1006)	0.1055)	0.1152)	0.1047)	0.0809)
4D 3P 250Mi Out	0.1026 (0.1007-0.1042)	0.0515 (0.0438-0.056)	0.0986 (0.0966-0.0998)	0.1036 (0.102-0.1055)	0.1104 (0.1015-0.1166)	0.1024 (0.0989-0.1052)	0.0751 (0.0698-0.0808)
4D 5P 150Mi Out	0.1027 (0.1011-0.1041)	0.0509 (0.0471-0.0541)	0.0987 (0.0973-0.1002)	0.1039 (0.1026-0.1054)	0.1111 (0.1066-0.1154)	0.1021 (0.0991-0.105)	0.0734 (0.0678-0.0778)
4D 5P 250Mi Out	0.1026 (0.1005-0.1041)	0.0528 (0.0482-0.0565)	0.0987 (0.0968-0.1)	0.1037 (0.1018-0.1056)	0.1095 (0.1062-0.1123)	0.1025 (0.0998-0.1052)	0.0749 (0.0709-0.079)
8 Districts	0.1 (0.0988-0.1008)	0.0513 (0.0452-0.0552)	0.0966 (0.095-0.0976)	0.1014 (0.1007-0.1026)	0.105 (0.0988-0.1098)	0.0991 (0.0956-0.103)	0.0734 (0.0688-0.079)
8D 3P 150Mi In	0.1007 (0.0996-0.102)	0.053 (0.0466-0.0583)	0.0973 (0.0961-0.098)	0.102 (0.1009-0.1038)	0.1071 (0.1037-0.1136)	0.0996 (0.0973-0.1026)	0.0736 (0.0701-0.0795)
8D 3P 250Mi In	0.1008 (0.0996-0.1019)	0.0516 (0.0492-0.0554)	0.0973 (0.0951-0.0981)	0.1021 (0.101-0.1036)	0.1062 (0.1018-0.1119)	0.0997 (0.0971-0.1024)	0.0735 (0.0692-0.0791)
8D 5P 150Mi In	0.1011 (0.0999-0.1019)	0.0521 (0.0483-0.055)	0.0975 (0.0962-0.0992)	0.1025 (0.1014-0.1038)	0.1072 (0.1018-0.113)	0.0997 (0.0967-0.1021)	0.0734 (0.07-0.0766)
8D 5P 250Mi In	0.101 (0.0996-0.1027)	0.0527 (0.0473-0.0582)	0.0976 (0.0958-0.0995)	0.1024 (0.1013-0.1045)	0.1071 (0.1019-0.1122)	0.0996 (0.0971-0.1022)	0.0742 (0.0696-0.0786)
8D 3P 150Mi Out	0.1028 (0.1019-0.1043)	0.0511 (0.0476-0.0562)	0.0985 (0.0968-0.0997)	0.1042 (0.1034-0.1058)	0.1101 (0.1068-0.1141)	0.1018 (0.0991-0.1045)	0.0738 (0.0711-0.0773)
8D 3P 250Mi Out	0.1024 (0.1015-0.1041)	0.0519 (0.0489-0.0554)	0.0983 (0.097-0.0999)	0.1034 (0.1019-0.1055)	0.1099 (0.103-0.1147)	0.1022 (0.1008-0.1047)	0.075 (0.0716-0.0811)
8D 5P 150Mi Out	0.1029 (0.1013-0.1039)	0.0502 (0.0471-0.0531)	0.0991 (0.097-0.1004)	0.1043 (0.1032-0.1059)	0.1115 (0.1039-0.1166)	0.1016 (0.0975-0.1038)	0.0741 (0.0702-0.0785)
8D 5P 250Mi Out	0.1026 (0.1013-0.1039)	0.0532 (0.0482-0.0575)	0.0988 (0.0972-0.1001)	0.1037 (0.1027-0.1052)	0.1095 (0.1021-0.1134)	0.1026 (0.099-0.1058)	0.0751 (0.0709-0.0847)

Posttransplant mortality counts per year

Figure G106. Annual posttransplant mortality counts for pediatric recipients

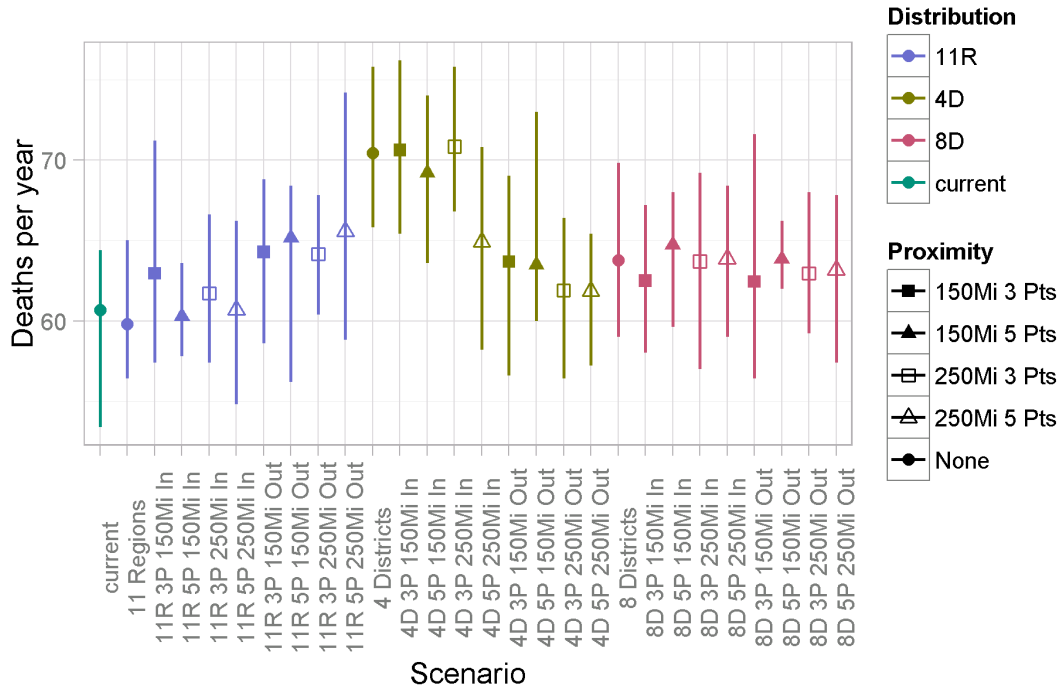


Figure G107. Annual posttransplant mortality counts for female recipients

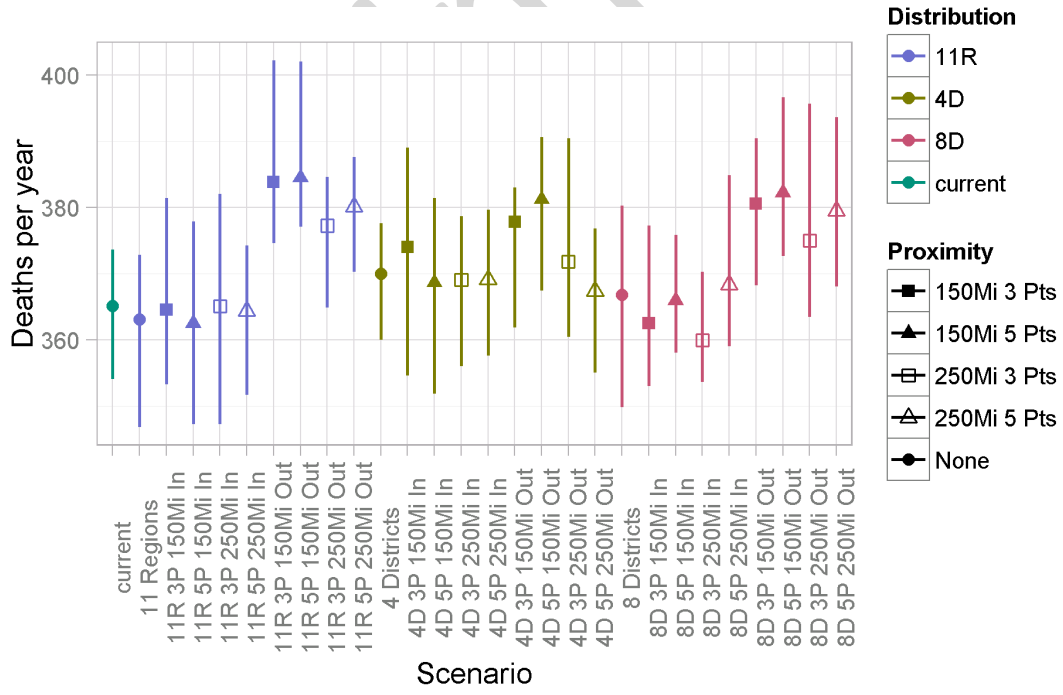


Figure G108. Annual posttransplant mortality counts for Caucasian recipients

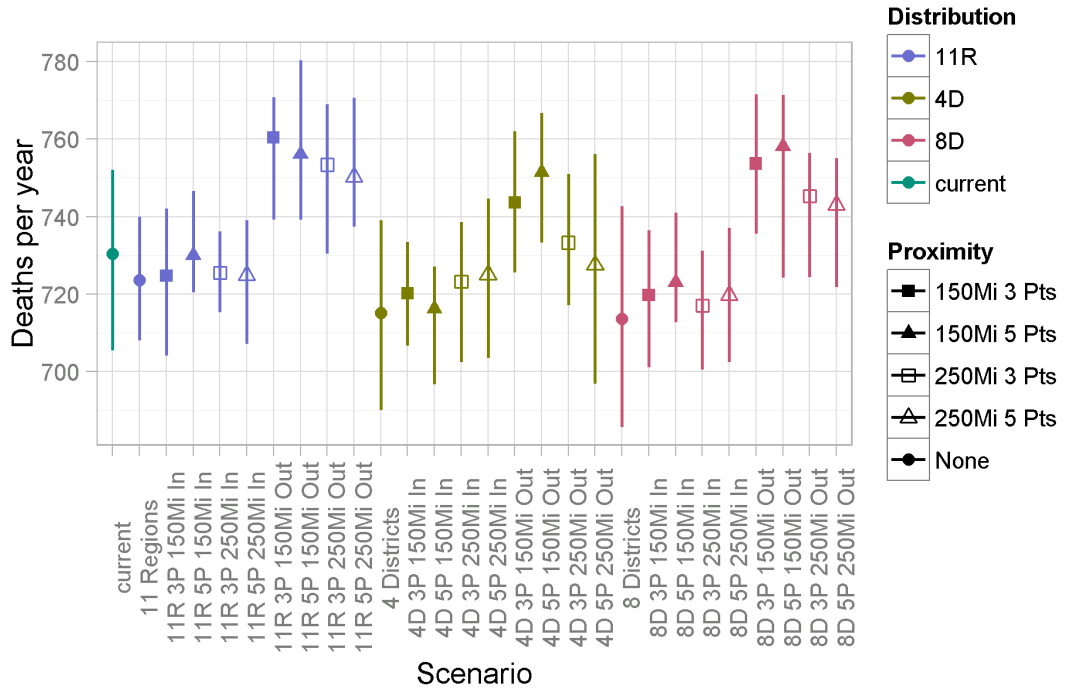


Figure G109. Annual posttransplant mortality counts for African American recipients

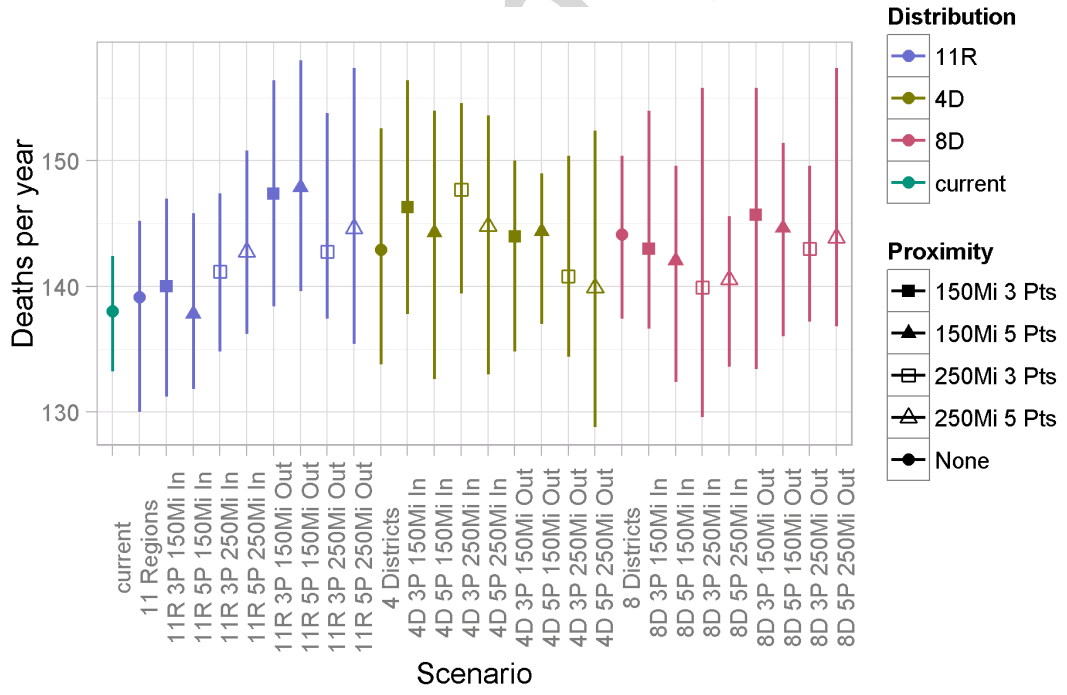


Figure G110. Annual posttransplant mortality counts for Hispanic recipients

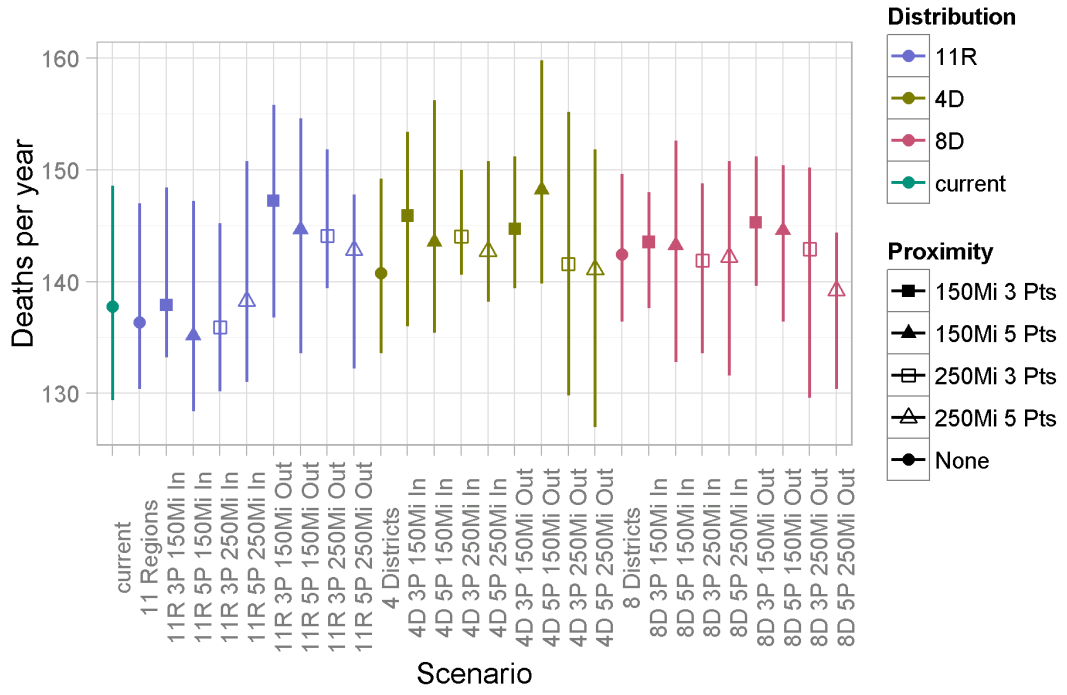


Figure G111. Annual posttransplant mortality counts for Asian recipients

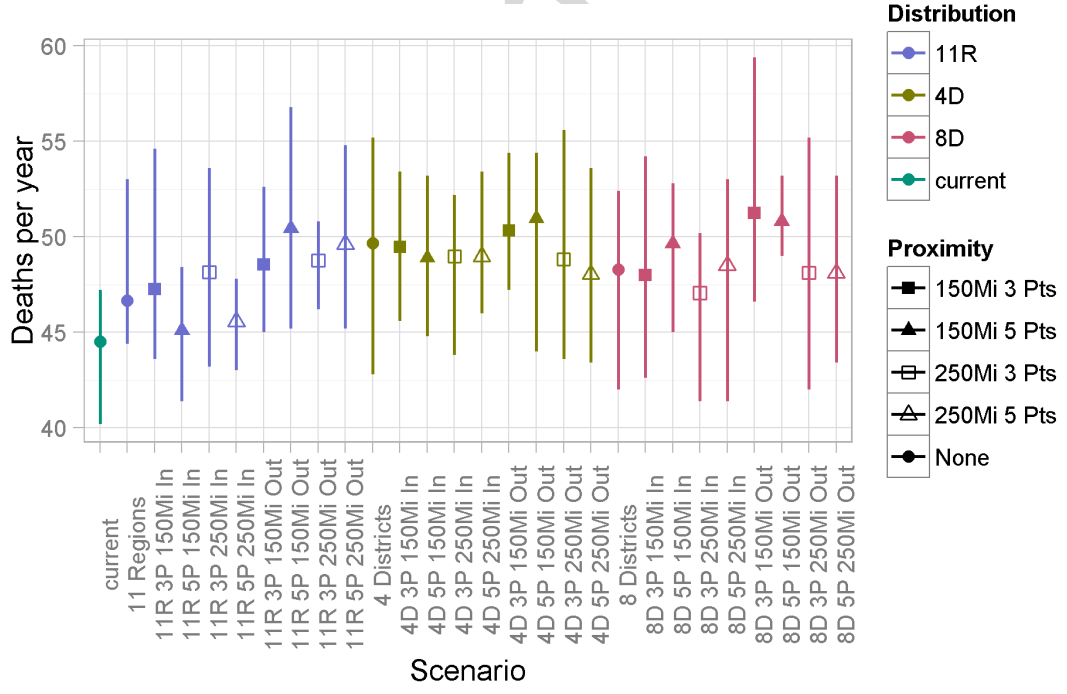


Table G26. Annual posttransplant mortality counts by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	1061.5 (1028.2-1081.2)	60.7 (53.4-64.4)	365.1 (354-373.6)	730.3 (705.4-752)	138 (133.2-142.4)	137.8 (129.4-148.6)	44.5 (40.2-47.2)
11 Regions	1056.8 (1025-1082.8)	59.8 (56.4-65)	363 (346.8-372.8)	723.6 (708-740)	139.2 (130-145.2)	136.3 (130.4-147)	46.7 (44.4-53)
11R 3P 150Mi In	1060.9 (1033.6-1077.4)	63 (57.4-71.2)	364.5 (353.2-381.4)	724.7 (704-742)	140 (131.2-147)	137.9 (133.2-148.4)	47.3 (43.6-54.6)
11R 3P 250Mi In	1061.6 (1050-1077)	61.7 (57.4-66.6)	365 (347.2-382)	725.5 (715.2-736.2)	141.2 (134.8-147.4)	135.9 (130.2-145.2)	48.1 (43.2-53.6)
11R 5P 150Mi In	1058.6 (1045-1076.2)	60.3 (57.8-63.6)	362.5 (347.2-377.8)	729.9 (720.4-746.6)	137.8 (131.8-145.8)	135.2 (128.4-147.2)	45.1 (41.4-48.4)
11R 5P 250Mi In	1062.6 (1042.4-1079.4)	60.7 (54.8-66.2)	364.3 (351.6-374.2)	724.8 (707-739)	142.7 (136.2-150.8)	138.3 (131-150.8)	45.6 (43-47.8)
11R 3P 150Mi Out	1114.9 (1097-1133.8)	64.3 (58.6-68.8)	383.8 (374.6-402.2)	760.5 (739.2-770.8)	147.4 (138.4-156.4)	147.2 (136.8-155.8)	48.6 (45-52.6)
11R 3P 250Mi Out	1100.7 (1065-1117.6)	64.2 (60.4-67.8)	377.2 (364.8-384.6)	753.4 (730.4-769)	142.8 (137.4-153.8)	144.1 (139.4-151.8)	48.8 (46.2-50.8)
11R 5P 150Mi Out	1111.2 (1082.4-1152)	65.2 (56.2-68.4)	384.5 (377-402)	756.1 (739.2-780.4)	147.9 (139.6-158)	144.7 (133.6-154.6)	50.4 (45.2-56.8)
11R 5P 250Mi Out	1098.8 (1075.4-1122.4)	65.6 (58.8-74.2)	380.1 (370.2-387.6)	750.3 (737.4-770.6)	144.6 (135.4-157.4)	142.8 (132.2-147.8)	49.6 (45.2-54.8)
4 Districts	1059.9 (1036.8-1073.8)	70.4 (65.8-75.8)	369.9 (360-377.6)	715.1 (690-739)	142.9 (133.8-152.6)	140.8 (133.6-149.2)	49.7 (42.8-55.2)
4D 3P 150Mi In	1073 (1039.8-1087.4)	70.6 (65.4-76.2)	374 (354.6-389)	720.2 (706.6-733.4)	146.3 (137.8-156.4)	145.9 (136-153.4)	49.5 (45.6-53.4)
4D 3P 250Mi In	1074.8 (1053.4-1094.2)	70.8 (66.8-75.8)	369.1 (356-378.6)	723.2 (702.4-738.6)	147.7 (139.4-154.6)	144 (140.6-150)	49 (43.8-52.2)
4D 5P 150Mi In	1064.7 (1036-1084.6)	69.2 (63.6-74)	368.6 (351.8-381.4)	716.2 (696.6-727)	144.3 (132.6-154)	143.6 (135.4-156.2)	48.9 (44.8-53.2)
4D 5P 250Mi In	1071.9 (1039.4-1100.2)	64.9 (58.2-70.8)	369.1 (357.6-379.6)	725 (703.4-744.6)	144.8 (133-153.6)	142.7 (138.2-150.8)	49 (46-53.4)
4D 3P 150Mi Out	1094.5 (1066.8-	63.7 (56.6-69)	377.8 (361.8-383)	743.7 (725.6-762)	144 (134.8-150)	144.7 (139.4-	50.3 (47.2-

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
	1112.2)					151.2)	54.4)
4D 3P 250Mi Out	1075.8 (1050.6-1097)	61.9 (56.4-66.4)	371.8 (360.4-390.4)	733.3 (717-751)	140.8 (134.4-150.4)	141.6 (129.8-155.2)	48.8 (43.6-55.6)
4D 5P 150Mi Out	1106.4 (1083.8-1127.8)	63.5 (60-73)	381.2 (367.4-390.6)	751.5 (733.2-766.8)	144.4 (137-149)	148.2 (139.8-159.8)	51 (44-54.4)
4D 5P 250Mi Out	1067.8 (1039.2-1085.6)	61.8 (57.2-65.4)	367.3 (355-376.8)	727.5 (696.8-756.2)	139.9 (128.8-152.4)	141.1 (127-151.8)	48 (43.4-53.6)
8 Districts	1060.3 (1034-1095)	63.8 (59-69.8)	366.8 (349.8-380.2)	713.6 (685.6-742.6)	144.1 (137.4-150.4)	142.4 (136.4-149.6)	48.3 (42-52.4)
8D 3P 150Mi In	1064.9 (1050.6-1078.6)	62.5 (58-67.2)	362.5 (353-377.2)	719.7 (701-736.4)	143 (136.6-154)	143.5 (137.6-148)	48 (42.6-54.2)
8D 3P 250Mi In	1056.2 (1047.2-1069.6)	63.7 (57-69.2)	359.9 (353.6-370.2)	717 (700.4-731.2)	139.9 (129.6-155.8)	141.9 (133.6-148.8)	47.1 (41.4-50.2)
8D 5P 150Mi In	1069.8 (1051.8-1088)	64.7 (59.6-68)	365.9 (358-375.8)	723 (712.6-741)	142.1 (132.4-149.6)	143.3 (132.8-152.6)	49.6 (45-52.8)
8D 5P 250Mi In	1062.2 (1044.8-1077.8)	63.9 (59-68.4)	368.3 (359-384.8)	719.7 (702.4-737)	140.5 (133.6-145.6)	142.2 (131.6-150.8)	48.5 (41.4-53)
8D 3P 150Mi Out	1107.8 (1093.8-1133.8)	62.4 (56.4-71.6)	380.5 (368.2-390.4)	753.7 (735.6-771.6)	145.7 (133.4-155.8)	145.3 (139.6-151.2)	51.3 (46.6-59.4)
8D 3P 250Mi Out	1090.2 (1059-1106.4)	63 (59.2-68)	375 (363.4-395.6)	745.4 (724.4-756.4)	143 (137.2-149.6)	142.9 (129.6-150.2)	48.1 (42-55.2)
8D 5P 150Mi Out	1109.6 (1077.6-1137)	63.8 (62-66.2)	382.2 (372.6-396.6)	758.1 (724.2-771.4)	144.6 (136-151.4)	144.6 (136.4-150.4)	50.8 (49-53.2)
8D 5P 250Mi Out	1085.3 (1060.8-1101.4)	63.2 (57.4-67.8)	379.5 (368-393.6)	743 (721.8-755)	143.9 (136.8-157.4)	139.2 (130.4-144.4)	48.1 (43.4-53.2)

Posttransplant mortality rates per patient year

Figure G112. Posttransplant mortality rates for pediatric recipients

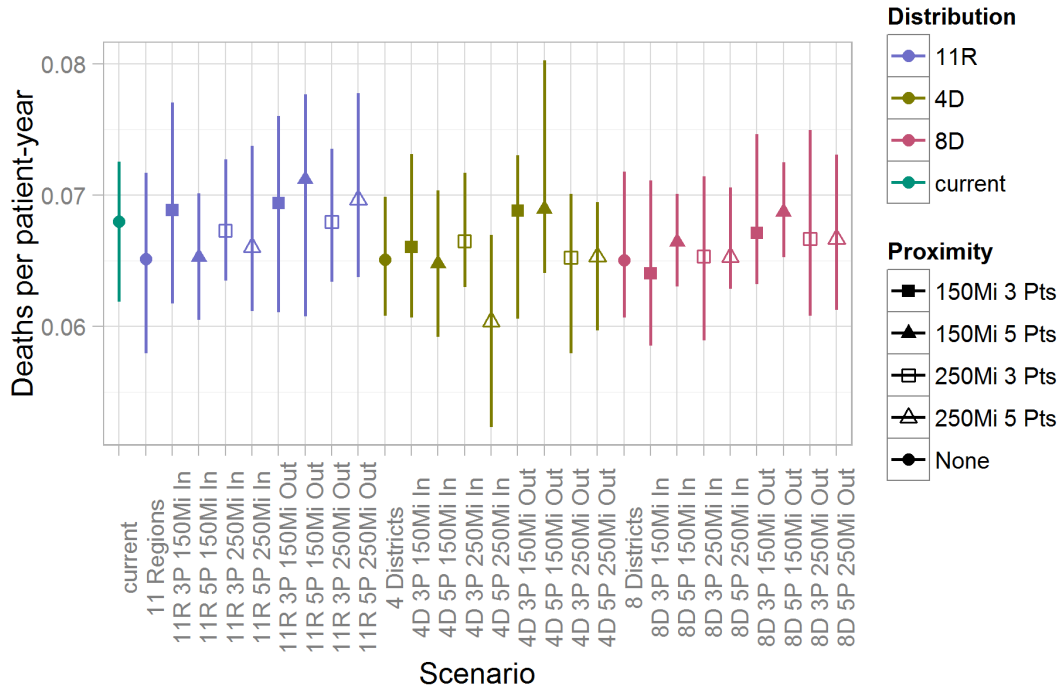


Figure G113. Posttransplant mortality rates for female recipients

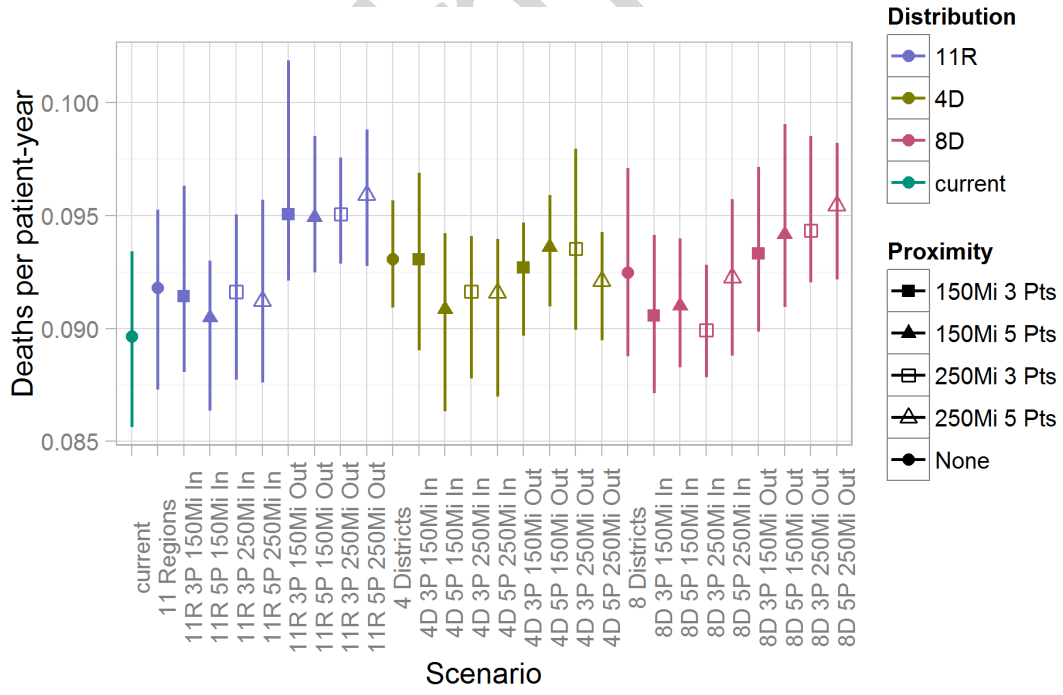


Figure G114. Posttransplant mortality rate for Caucasian recipients

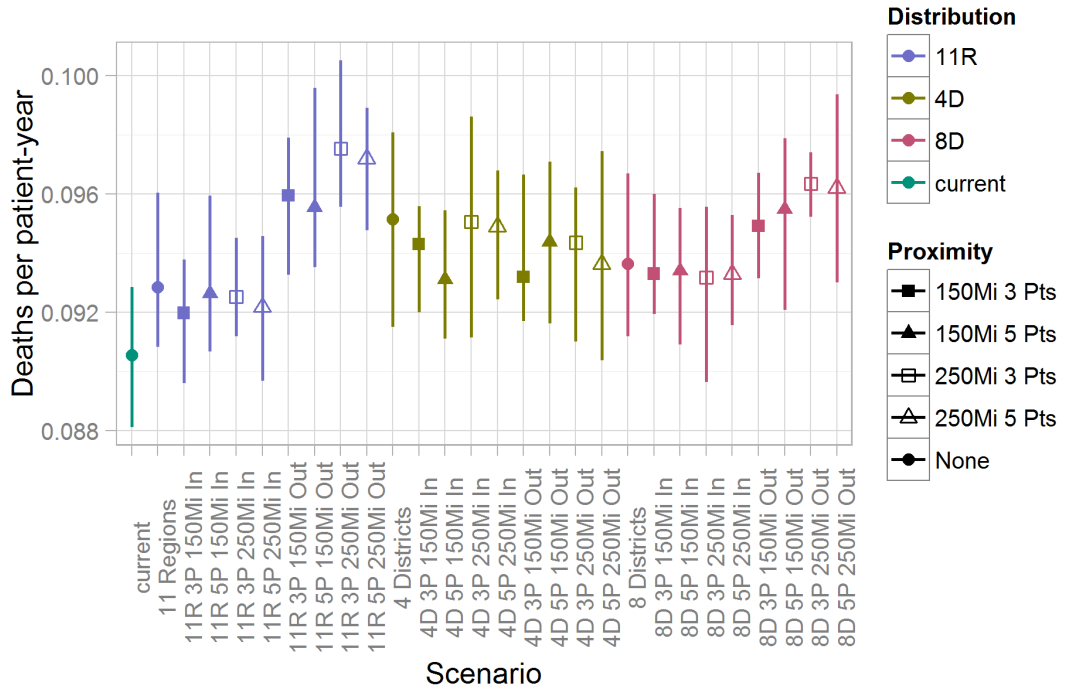


Figure G115. Posttransplant mortality rates for African American recipients

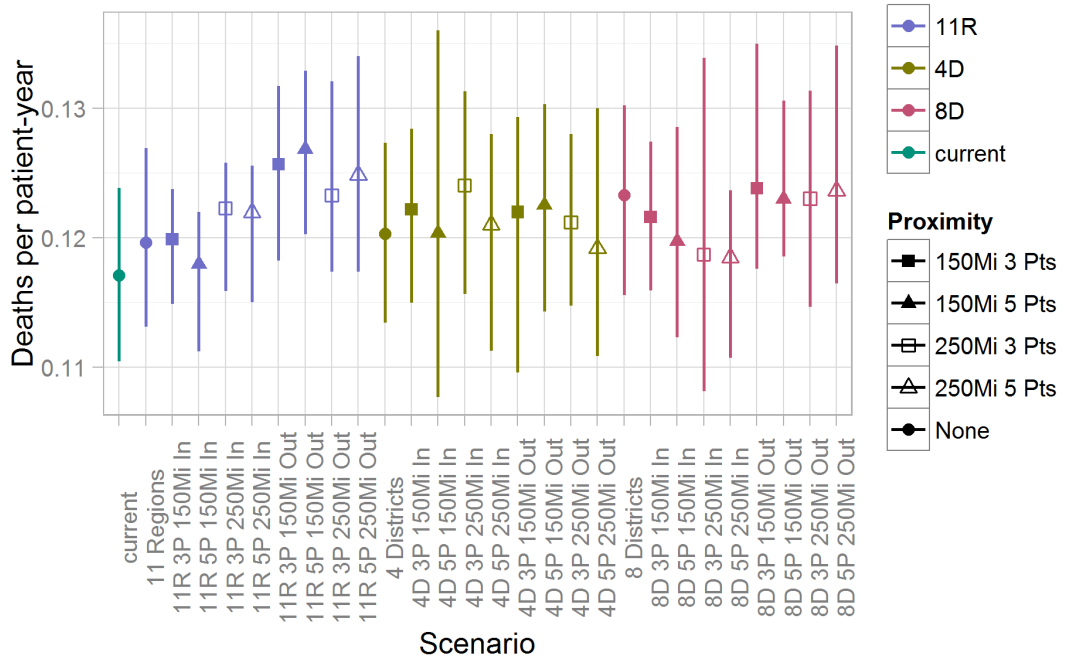


Figure G116. Posttransplant mortality rates for Hispanic recipients

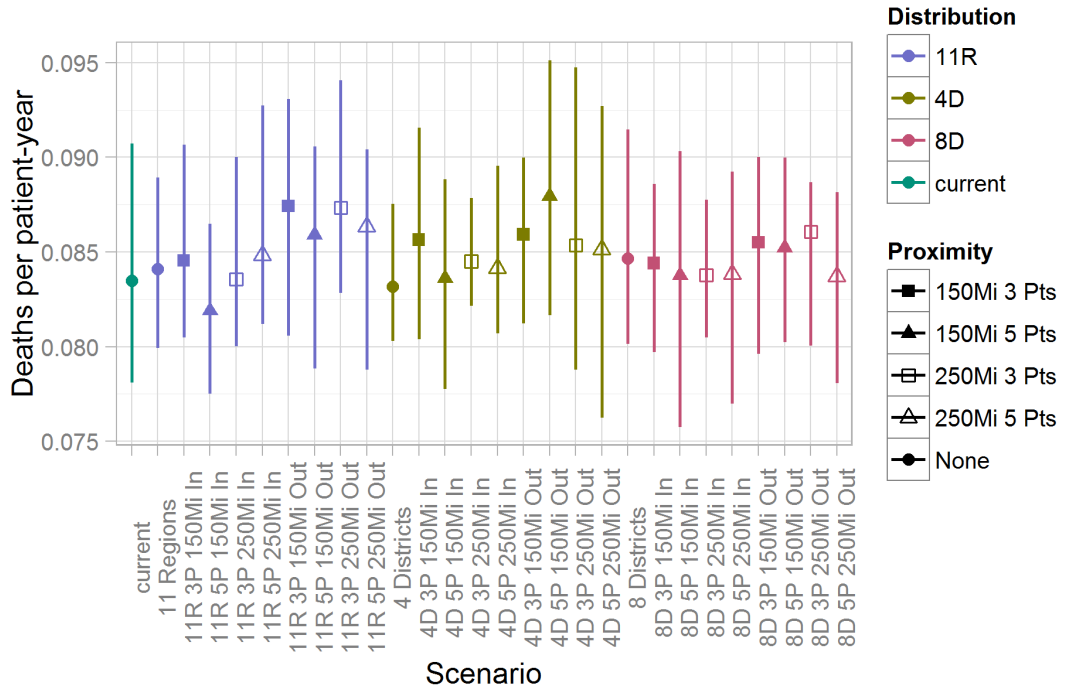


Figure G117. Posttransplant mortality rates for Asian recipients

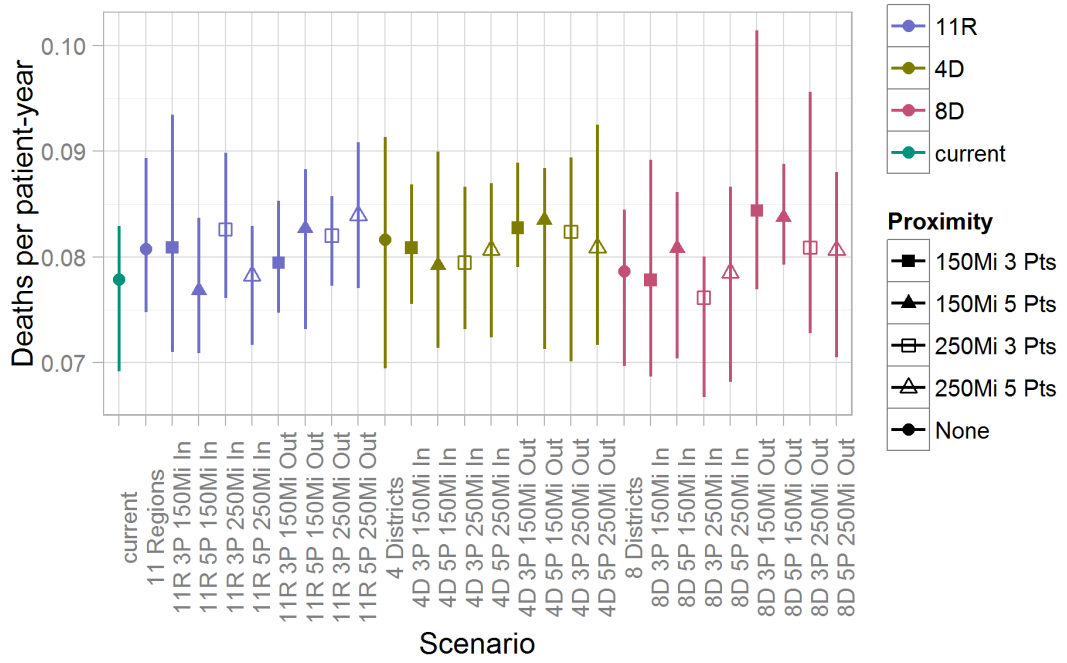


Table G27. Posttransplant mortality rates per patient year by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	0.0915 (0.0892-0.0932)	0.068 (0.0619-0.0726)	0.0897 (0.0856-0.0934)	0.0905 (0.0881-0.0928)	0.1171 (0.1104-0.1238)	0.0835 (0.0781-0.0907)	0.0779 (0.0692-0.0829)
11 Regions	0.0936 (0.0911-0.0962)	0.0651 (0.058-0.0717)	0.0918 (0.0873-0.0952)	0.0929 (0.0908-0.096)	0.1196 (0.1131-0.1269)	0.0841 (0.0799-0.0889)	0.0807 (0.0748-0.0893)
11R 3P 150Mi In	0.0931 (0.091-0.094)	0.0689 (0.0617-0.0771)	0.0914 (0.0881-0.0963)	0.092 (0.0896-0.0938)	0.1199 (0.1148-0.1237)	0.0846 (0.0805-0.0907)	0.0809 (0.071-0.0934)
11R 3P 250Mi In	0.0936 (0.0928-0.0948)	0.0673 (0.0635-0.0728)	0.0916 (0.0877-0.095)	0.0925 (0.0912-0.0945)	0.1223 (0.1159-0.1258)	0.0836 (0.08-0.09)	0.0826 (0.0761-0.0899)
11R 5P 150Mi In	0.0927 (0.0912-0.0953)	0.0653 (0.0605-0.0701)	0.0905 (0.0864-0.093)	0.0926 (0.0907-0.0959)	0.1179 (0.1112-0.122)	0.0819 (0.0775-0.0865)	0.0768 (0.0709-0.0837)
11R 5P 250Mi In	0.0934 (0.0924-0.0951)	0.0661 (0.0612-0.0738)	0.0912 (0.0876-0.0957)	0.0922 (0.0897-0.0946)	0.122 (0.115-0.1255)	0.0848 (0.0812-0.0927)	0.0782 (0.0717-0.0829)
11R 3P 150Mi Out	0.0967 (0.0947-0.099)	0.0694 (0.0611-0.076)	0.095 (0.0921-0.1019)	0.0959 (0.0933-0.0979)	0.1256 (0.1182-0.1317)	0.0874 (0.0806-0.0931)	0.0795 (0.0747-0.0853)
11R 3P 250Mi Out	0.0977 (0.0963-0.0996)	0.068 (0.0634-0.0735)	0.0951 (0.0929-0.0976)	0.0975 (0.0956-0.1005)	0.1233 (0.1174-0.132)	0.0873 (0.0828-0.094)	0.082 (0.0773-0.0857)
11R 5P 150Mi Out	0.0966 (0.0946-0.0996)	0.0712 (0.0608-0.0777)	0.0949 (0.0925-0.0985)	0.0956 (0.0935-0.0996)	0.1268 (0.1203-0.1329)	0.0859 (0.0789-0.0906)	0.0827 (0.0732-0.0883)
11R 5P 250Mi Out	0.0976 (0.0953-0.0989)	0.0697 (0.0638-0.0778)	0.0959 (0.0928-0.0988)	0.0972 (0.0948-0.0989)	0.1248 (0.1174-0.134)	0.0864 (0.0788-0.0904)	0.0839 (0.077-0.0909)
4 Districts	0.0952 (0.0929-0.0975)	0.0651 (0.0608-0.0699)	0.0931 (0.0909-0.0957)	0.0951 (0.0915-0.0981)	0.1203 (0.1134-0.1273)	0.0832 (0.0803-0.0875)	0.0816 (0.0694-0.0914)
4D 3P 150Mi In	0.0951 (0.0934-0.0967)	0.0661 (0.0607-0.0731)	0.0931 (0.089-0.0969)	0.0943 (0.092-0.0956)	0.1222 (0.115-0.1284)	0.0856 (0.0804-0.0916)	0.0809 (0.0756-0.0869)
4D 3P 250Mi In	0.0955 (0.0935-0.0979)	0.0665 (0.063-0.0717)	0.0916 (0.0878-0.0941)	0.0951 (0.0912-0.0986)	0.124 (0.1156-0.1313)	0.0845 (0.0821-0.0879)	0.0795 (0.0732-0.0866)
4D 5P 150Mi In	0.0937 (0.0912-0.0972)	0.0648 (0.0592-0.0704)	0.0908 (0.0863-0.0942)	0.0931 (0.0911-0.0955)	0.1203 (0.1077-0.136)	0.0836 (0.0778-0.0888)	0.0792 (0.0714-0.09)
4D 5P 250Mi In	0.0951 (0.0925-0.0974)	0.0604 (0.0523-0.067)	0.0916 (0.087-0.094)	0.0949 (0.0924-0.0968)	0.121 (0.1113-0.128)	0.0841 (0.0807-0.0896)	0.0807 (0.0724-0.087)
4D 3P 150Mi	0.0944 (0.0927-	0.0688 (0.0606-	0.0927 (0.0897-	0.0932 (0.0917-	0.122 (0.1096-	0.0859 (0.0812-	0.0828 (0.079-

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
Out	0.0969)	0.073)	0.0947)	0.0967)	0.1293)	0.09)	0.0889)
4D 3P 250Mi Out	0.095 (0.0918-0.0979)	0.0653 (0.058-0.0701)	0.0935 (0.0899-0.098)	0.0944 (0.091-0.0962)	0.1212 (0.1147-0.128)	0.0853 (0.0788-0.0948)	0.0824 (0.0701-0.0894)
4D 5P 150Mi Out	0.0956 (0.0937-0.0967)	0.0689 (0.0641-0.0803)	0.0936 (0.091-0.0959)	0.0944 (0.0916-0.0971)	0.1225 (0.1143-0.1303)	0.088 (0.0817-0.0951)	0.0835 (0.0713-0.0884)
4D 5P 250Mi Out	0.0943 (0.0924-0.0964)	0.0653 (0.0597-0.0695)	0.0921 (0.0895-0.0943)	0.0936 (0.0904-0.0974)	0.1192 (0.1108-0.13)	0.0851 (0.0762-0.0927)	0.0809 (0.0717-0.0925)
8 Districts	0.0945 (0.0932-0.0974)	0.065 (0.0607-0.0718)	0.0925 (0.0888-0.0971)	0.0936 (0.0912-0.0967)	0.1233 (0.1155-0.1302)	0.0847 (0.0801-0.0915)	0.0787 (0.0697-0.0845)
8D 3P 150Mi In	0.0939 (0.0927-0.0955)	0.0641 (0.0586-0.0711)	0.0906 (0.0871-0.0941)	0.0933 (0.0919-0.096)	0.1216 (0.1159-0.1274)	0.0844 (0.0797-0.0886)	0.0778 (0.0687-0.0892)
8D 3P 250Mi In	0.0933 (0.0921-0.0953)	0.0654 (0.0589-0.0714)	0.0899 (0.0878-0.0928)	0.0932 (0.0896-0.0956)	0.1187 (0.1081-0.1339)	0.0838 (0.0805-0.0878)	0.0762 (0.0668-0.0801)
8D 5P 150Mi In	0.0939 (0.0925-0.0957)	0.0665 (0.063-0.0701)	0.091 (0.0883-0.094)	0.0934 (0.0909-0.0955)	0.1197 (0.1123-0.1285)	0.0838 (0.0758-0.0903)	0.0808 (0.0704-0.0861)
8D 5P 250Mi In	0.0936 (0.092-0.0949)	0.0653 (0.0629-0.0706)	0.0923 (0.0888-0.0957)	0.0933 (0.0916-0.0953)	0.1185 (0.1107-0.1237)	0.0838 (0.077-0.0892)	0.0785 (0.0682-0.0866)
8D 3P 150Mi Out	0.0958 (0.0947-0.0989)	0.0671 (0.0632-0.0747)	0.0933 (0.0899-0.0972)	0.0949 (0.0932-0.0967)	0.1238 (0.1176-0.1349)	0.0855 (0.0796-0.09)	0.0844 (0.0769-0.1015)
8D 3P 250Mi Out	0.0966 (0.0956-0.0974)	0.0667 (0.0608-0.075)	0.0943 (0.092-0.0985)	0.0964 (0.0952-0.0974)	0.123 (0.1147-0.1314)	0.0861 (0.08-0.0887)	0.0809 (0.0728-0.0956)
8D 5P 150Mi Out	0.096 (0.0941-0.0994)	0.0687 (0.0653-0.0725)	0.0942 (0.0909-0.099)	0.0955 (0.0921-0.0979)	0.123 (0.1185-0.1306)	0.0852 (0.0802-0.09)	0.0837 (0.0793-0.0888)
8D 5P 250Mi Out	0.0962 (0.0933-0.0981)	0.0667 (0.0613-0.0731)	0.0954 (0.0922-0.0982)	0.0962 (0.093-0.0994)	0.1236 (0.1165-0.1348)	0.0837 (0.0781-0.0882)	0.0806 (0.0705-0.088)

Transport Metrics

Median transport time

Table G28. Median transport time by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	1.7 (1.7-1.7)	2 (2-2)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.7 (1.6-1.7)	1.7 (1.6-1.7)
11 Regions	1.8 (1.8-1.8)	2 (2-2.1)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)
11R 3P 150Mi In	1.8 (1.8-1.8)	2 (1.9-2)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.7-1.8)	1.8 (1.8-1.8)	1.7 (1.7-1.8)
11R 3P 250Mi In	1.8 (1.8-1.8)	2 (2-2)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.7 (1.7-1.8)
11R 5P 150Mi In	1.7 (1.7-1.7)	2 (2-2)	1.7 (1.7-1.8)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.7 (1.7-1.7)
11R 5P 250Mi In	1.7 (1.7-1.8)	2 (1.9-2)	1.8 (1.8-1.8)	1.8 (1.7-1.8)	1.8 (1.7-1.8)	1.7 (1.7-1.8)	1.7 (1.7-1.7)
11R 3P 150Mi Out	1.6 (1.6-1.6)	2.2 (2.1-2.3)	1.6 (1.6-1.7)	1.6 (1.6-1.6)	1.7 (1.6-1.7)	1.6 (1.6-1.6)	1.6 (1.6-1.7)
11R 3P 250Mi Out	1.7 (1.7-1.7)	1.9 (1.9-1.9)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.8 (1.7-1.8)	1.7 (1.7-1.7)	1.7 (1.7-1.7)
11R 5P 150Mi Out	1.6 (1.6-1.6)	2.2 (2.2-2.3)	1.6 (1.6-1.6)	1.6 (1.6-1.6)	1.6 (1.6-1.7)	1.6 (1.5-1.6)	1.6 (1.6-1.7)
11R 5P 250Mi Out	1.7 (1.7-1.7)	1.9 (1.9-1.9)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.8 (1.7-1.8)	1.7 (1.7-1.7)	1.7 (1.7-1.7)
4 Districts	2.2 (2.2-2.2)	2.3 (2.3-2.3)	2.2 (2.2-2.2)	2.2 (2.2-2.2)	2.2 (2.2-2.2)	2.1 (2.1-2.2)	2.1 (2.1-2.1)
4D 3P 150Mi In	2 (2-2)	2.3 (2.3-2.3)	2 (2-2)	2 (2-2)	2 (2-2)	1.9 (1.9-2)	1.9 (1.8-1.9)
4D 3P 250Mi In	1.9 (1.9-1.9)	2.3 (2.3-2.3)	2 (1.9-2)	1.9 (1.9-1.9)	2 (1.9-2)	1.9 (1.9-1.9)	1.9 (1.8-1.9)
4D 5P 150Mi In	1.9 (1.9-1.9)	2.3 (2.3-2.3)	1.9 (1.9-1.9)	1.9 (1.9-1.9)	1.9 (1.9-2)	1.8 (1.8-1.9)	1.8 (1.8-1.8)
4D 5P 250Mi In	1.9 (1.9-1.9)	2.3 (2.3-2.3)	1.9 (1.9-1.9)	1.9 (1.9-1.9)	1.9 (1.9-1.9)	1.8 (1.8-1.8)	1.8 (1.8-1.8)
4D 3P 150Mi Out	1.6 (1.6-1.6)	2.2 (2.1-2.3)	1.6 (1.6-1.6)	1.6 (1.6-1.6)	1.6 (1.6-1.7)	1.6 (1.6-1.6)	1.6 (1.6-1.7)
4D 3P 250Mi Out	1.7 (1.7-1.7)	1.9 (1.9-1.9)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.8 (1.7-1.8)	1.7 (1.7-1.7)	1.7 (1.7-1.7)
4D 5P 150Mi Out	1.6 (1.6-1.6)	2.2 (2.2-2.3)	1.6 (1.6-1.6)	1.6 (1.6-1.6)	1.6 (1.6-1.7)	1.6 (1.6-1.6)	1.6 (1.6-1.6)
4D 5P 250Mi Out	1.7 (1.7-1.7)	1.9 (1.9-1.9)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.8 (1.7-1.8)	1.7 (1.7-1.7)	1.7 (1.7-1.7)
8 Districts	1.9 (1.9-1.9)	2.1 (2-2.1)	1.9 (1.9-1.9)	1.9 (1.9-1.9)	1.9 (1.9-1.9)	1.9 (1.9-1.9)	1.9 (1.9-1.9)
8D 3P 150Mi In	1.8 (1.8-1.8)	2.1 (2-2.2)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)
8D 3P 250Mi In	1.8 (1.8-	2.1 (2-2.1)	1.8 (1.8-	1.8 (1.8-	1.8 (1.8-1.8)	1.8 (1.8-	1.8 (1.8-

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
	1.8)		1.8)	1.8)		1.8)	1.8)
8D 5P 150Mi In	1.8 (1.8-1.8)	2.1 (2-2.1)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.7-1.8)
8D 5P 250Mi In	1.8 (1.8-1.8)	2.1 (2-2.1)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.8-1.8)	1.8 (1.7-1.8)
8D 3P 150Mi Out	1.6 (1.6-1.6)	2.2 (2.1-2.3)	1.6 (1.6-1.7)	1.6 (1.6-1.6)	1.7 (1.6-1.7)	1.6 (1.6-1.6)	1.6 (1.6-1.7)
8D 3P 250Mi Out	1.7 (1.7-1.7)	1.9 (1.9-1.9)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.8 (1.7-1.8)	1.7 (1.7-1.7)	1.7 (1.7-1.7)
8D 5P 150Mi Out	1.6 (1.6-1.6)	2.2 (2.1-2.3)	1.6 (1.6-1.6)	1.6 (1.6-1.6)	1.7 (1.6-1.7)	1.6 (1.6-1.6)	1.6 (1.6-1.7)
8D 5P 250Mi Out	1.7 (1.7-1.7)	1.9 (1.9-1.9)	1.7 (1.7-1.7)	1.7 (1.7-1.7)	1.8 (1.7-1.8)	1.7 (1.7-1.7)	1.7 (1.6-1.7)

Median transport distance

Table G29. Median transport distance by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	123.7 (121.4-127)	298.6 (286.3-312.7)	136.2 (131.3-140.9)	123.7 (121.3-127.6)	129.5 (126.4-133.4)	116.9 (110.1-123.2)	122.5 (97.1-143)
11 Regions	200.5 (200.5-200.5)	309.8 (289.7-344.2)	200.9 (200.5-202.5)	200.5 (200.5-200.5)	197.8 (192.3-200.5)	202 (200.5-208.2)	200.5 (200.5-200.5)
11R 3P 150Mi In	172.3 (169.1-173.4)	309.4 (286-328.1)	184.8 (181.6-187.4)	171.6 (168.3-173.9)	168.6 (154.3-175.4)	181.8 (172.6-188.1)	158.3 (141.3-181.2)
11R 3P 250Mi In	191.1 (189.1-192.5)	302.2 (296.6-312.7)	195.9 (193.2-199.4)	191.2 (189.2-192.4)	184.6 (176.3-192.1)	193.3 (186-200.5)	181.7 (163.2-200.5)
11R 5P 150Mi In	149.7 (146.4-151.8)	303.1 (289-316.9)	164.1 (163.2-166.5)	151.1 (147.5-154)	149.9 (143-154.4)	143.8 (137.8-153.6)	136.5 (122.8-149)
11R 5P 250Mi In	180.5 (178-184.5)	295.9 (276.2-310.1)	188.3 (184.4-192)	181 (179-184.4)	180 (173.9-184.8)	178.9 (173.1-184.5)	155.3 (138.7-174.5)
11R 3P 150Mi Out	109.4 (108.1-111.6)	435.4 (360.1-472.1)	117.3 (114.2-121.1)	111.1 (108.6-113)	119.9 (115.5-127.3)	96.6 (94.6-98.1)	100.8 (96-105.3)
11R 3P 250Mi Out	180.4 (178.5-182.1)	237.6 (233.3-250.8)	183.6 (181.9-187.1)	184 (181.8-187.4)	189.3 (186-192.1)	145.3 (139-151.1)	147.9 (138.4-167.2)
11R 5P 150Mi Out	109.1 (108.4-110.5)	435 (410.3-476.5)	117.2 (115.2-121.1)	110.6 (108.5-111.6)	118.7 (115.4-121.7)	96.8 (94.3-99.8)	101.7 (96-111)
11R 5P	180.1	235.4	184.1 (182-	183.1 (181.9-	189.6	147 (140.3-	150.8

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
250Mi Out	(178.3-181.8)	(230.5-238.7)	187.4)	185.1)	(184.8-193.2)	156.6)	(124.9-173.9)
4 Districts	402.7 (400.1-406.8)	452.3 (441.1-466.3)	406.2 (401.3-412.8)	408.9 (405.7-414.6)	405.7 (392.5-411.4)	382.2 (366.6-389.5)	362.5 (349.5-381.9)
4D 3P 150Mi In	294.9 (291.7-302.6)	450.2 (423.3-473.6)	318.5 (309.9-324.8)	297.9 (294-304.1)	315.9 (300.9-326.9)	263.6 (249.5-286.2)	226.3 (200.5-260.3)
4D 3P 250Mi In	259.9 (255.5-265.9)	445.8 (428-464.5)	279 (270-288.2)	261.5 (256.8-268.2)	277.8 (269.7-293.6)	240.3 (233.8-251.1)	232.8 (216.7-254.1)
4D 5P 150Mi In	220.2 (213.1-226)	449 (433.5-463)	252 (244-261.9)	221.4 (214.5-226.6)	256.7 (232.4-278)	201 (200.5-205.1)	199.4 (193.8-200.5)
4D 5P 250Mi In	230.7 (227.9-233.3)	442.9 (428.9-463.1)	244 (241.2-250.4)	232.2 (228.9-234.2)	246.5 (240.9-255.6)	210.6 (203.5-219.8)	203.6 (200.5-221)
4D 3P 150Mi Out	109 (107.7-110.5)	420.2 (373-469.5)	116.8 (115-120.2)	110.5 (108.1-113.3)	118.5 (115.2-125)	95.8 (93.7-98.8)	103.1 (98.8-107.7)
4D 3P 250Mi Out	180.1 (178.5-181.4)	235.7 (230.6-243.6)	183.8 (181.5-186.3)	183.3 (182-185.2)	188.5 (180.4-193.7)	145 (140.3-156.2)	146.6 (139.1-156.3)
4D 5P 150Mi Out	109 (107.8-110.2)	431.5 (397.2-476.5)	116.7 (115.2-118.3)	110.7 (109.2-113.2)	118.9 (116.2-126.4)	96.3 (92.3-100)	100.4 (95.2-107.6)
4D 5P 250Mi Out	180.1 (178.3-181.8)	235.7 (230.6-245)	183.9 (181.7-186)	183.9 (181.9-186.1)	188.5 (183.6-190.7)	145.1 (137.7-153)	147.2 (136-158.5)
8 Districts	238 (236.8-241.1)	347.5 (328.6-369)	242.5 (238.6-244.5)	235.5 (233.4-238)	236.1 (228.9-241.3)	250.1 (241.6-265.4)	249.3 (235.4-278.9)
8D 3P 150Mi In	199.6 (195-200.5)	347.5 (317.1-369.6)	200.5 (200.5-200.5)	193.9 (192.8-196.6)	199 (186.5-200.5)	200.5 (200.5-200.5)	198.1 (176.3-200.5)
8D 3P 250Mi In	200.5 (200.5-200.5)	345.6 (334.9-359.2)	203.4 (200.5-208.1)	200.5 (200.5-200.5)	203.7 (200.5-206.9)	200.5 (200.5-200.5)	201.4 (200.5-205.3)
8D 5P 150Mi In	167.2 (164.9-169.8)	349 (326.1-365.3)	182 (176.7-189)	165.5 (164.2-167.4)	176.2 (170.6-186.7)	171 (161.5-182)	168.9 (147.4-188.8)
8D 5P 250Mi In	196.9 (193.1-200.5)	336.5 (319.5-349.7)	200.5 (200.5-200.5)	194 (191.5-197.9)	200.6 (200.5-201.3)	198 (193.5-200.5)	189.5 (172.5-200.5)
8D 3P 150Mi Out	109.4 (107.7-111.4)	430.1 (389.4-473.8)	117.6 (114.6-121.4)	110.7 (108.7-112.8)	120.4 (117.6-124)	95.8 (92.5-100.8)	103 (96.6-116.7)
8D 3P	180.3	237.4	185 (180.9-	183.5 (181.4-	190.1	144.7	149.9

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
250Mi Out	(178.1-181.6)	(231.6-240.7)	188.1)	186)	(187.8-192)	(134.4-160.5)	(137-163.2)
8D 5P 150Mi Out	108.9 (107.7-110.1)	422.3 (378.5-494.1)	116.3 (113.9-118.2)	110.4 (108.8-111.6)	119.9 (115.4-122.6)	95.8 (91.7-99.5)	101.8 (96.8-108.6)
8D 5P 250Mi Out	179.8 (177.3-181.8)	236.9 (229.2-247.4)	184.3 (181.9-187)	183.7 (180.4-186.7)	188.1 (183.7-191)	141.9 (134.1-148.8)	148 (123.5-163.2)

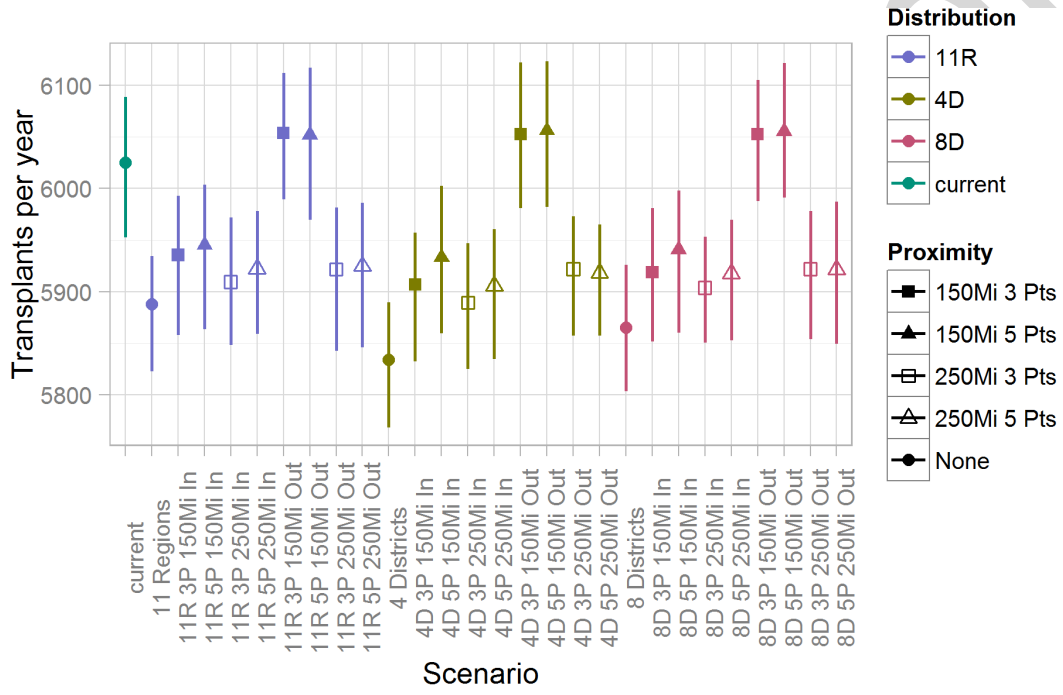
Appendix H: Additional Metrics

Transplant Counts

At the request of OPTN Liver and Intestinal Organ Committee members, simulated transplant counts for each of the 28 scenarios are provided in the section below. It is important to note that the number of simulated transplants is not directly comparable between different numbers of regions/districts. Larger districts are expected to have higher transplant counts since there is a larger population included in the district. Transplant rates, which are a more directly comparable metric, are also provided below this section.

Overall Transplant Counts

Figure H118. Transplant counts per year in each simulation



The limitations of the offer acceptance model have specific implications for this analysis, particularly in overall transplant counts. All of the redistricting scenarios implement full regional sharing, with many more offers made to candidates outside of the donor's DSA. The offer acceptance model currently assumes that candidates are less likely to accept regional offers, because under current policy those organs have been of lower quality on average. This drives 100-200 fewer predicted transplants per year (2%-3% of the total) in most of the redistricted scenarios (Figure H118). However, with full regional sharing organs offered to candidates outside the donor's DSA will no longer be of lower quality on average. If overall acceptance rates remain at previous levels, then more patients will undergo transplantation than predicted. This in turn will further improve pretransplant mortality and reduce pretransplant costs.

Table H30. Transplant counts per year by scenario and current 11 regions

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	current
1	211 (206-216)	212 (209-217)	243 (236-253)	211 (208-215)	238 (229-246)	211 (209-214)	243 (236-249)	211 (205-216)	238 (227-247)	211 (207-217)
2	760 (740-776)	766 (748-784)	792 (776-817)	758 (739-781)	772 (754-799)	767 (741-791)	792 (771-818)	761 (740-778)	773 (754-799)	788 (774-804)
3	925 (914-933)	933 (915-946)	845 (826-865)	931 (916-944)	842 (823-854)	937 (922-950)	846 (819-867)	936 (924-949)	843 (830-860)	949 (931-970)
4	539 (522-558)	544 (521-564)	582 (561-593)	541 (521-561)	595 (581-607)	546 (529-563)	580 (561-591)	540 (524-556)	595 (582-611)	559 (537-573)
5	917 (899-938)	925 (910-944)	1012 (1002-1039)	923 (912-937)	958 (940-976)	928 (916-953)	1011 (999-1029)	926 (911-941)	961 (943-984)	936 (918-963)
6	169 (164-174)	169 (162-175)	138 (134-140)	169 (163-173)	143 (139-151)	169 (165-172)	137 (132-148)	170 (165-173)	143 (138-147)	171 (166-174)
7	483 (467-504)	487 (469-508)	570 (545-586)	487 (474-506)	578 (561-597)	488 (470-510)	572 (555-591)	484 (465-499)	579 (561-592)	496 (478-517)
8	429 (411-446)	431 (414-449)	405 (392-417)	431 (413-450)	414 (394-430)	433 (414-452)	403 (385-420)	433 (419-448)	415 (395-429)	438 (421-453)
9	344 (339-356)	349 (341-359)	439 (424-459)	346 (338-354)	420 (406-436)	348 (342-357)	437 (421-463)	346 (340-356)	420 (406-435)	347 (337-356)
10	513 (498-526)	517 (499-533)	482 (465-502)	514 (499-525)	433 (421-450)	516 (498-528)	484 (468-499)	514 (496-528)	433 (424-443)	521 (507-532)
11	598 (594-607)	602 (590-614)	546 (537-558)	599 (587-609)	528 (508-534)	602 (592-610)	547 (534-556)	600 (592-607)	526 (517-537)	609 (599-614)

Table H31. Transplant counts per year by scenario and conceptualized 8 districts

	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out
A	1651 (1628-1674)	1667 (1642-1690)	1678 (1659-1700)	1660 (1636-1679)	1606 (1589-1625)	1675 (1649-1692)	1681 (1656-1698)	1668 (1651-1685)	1608 (1586-1627)
B	610 (595-623)	613 (595-621)	626 (616-638)	611 (600-627)	582 (565-599)	617 (603-629)	626 (614-637)	612 (595-627)	581 (570-590)
C	700 (685-720)	703 (689-718)	723 (710-738)	702 (693-724)	692 (670-713)	704 (692-722)	725 (698-743)	705 (696-716)	692 (673-705)
D	203 (194-215)	204 (195-217)	217 (207-231)	204 (194-219)	240 (228-259)	204 (196-216)	217 (202-236)	203 (194-214)	240 (224-259)
E	404 (387-418)	409 (391-424)	409 (385-429)	409 (390-426)	421 (403-433)	409 (394-420)	409 (390-419)	409 (395-420)	422 (405-433)
F	1121 (1102-1145)	1135 (1111-1157)	1144 (1127-1170)	1133 (1113-1157)	1172 (1153-1198)	1140 (1112-1160)	1143 (1117-1166)	1133 (1112-1153)	1169 (1151-1193)
G	290 (276-302)	292 (281-306)	298 (287-310)	293 (281-304)	293 (282-304)	295 (282-310)	297 (290-306)	293 (284-308)	293 (287-303)
H	886 (872-900)	896 (882-913)	957 (938-979)	892 (882-903)	918 (903-938)	897 (886-915)	957 (946-977)	896 (879-910)	916 (903-935)

Table H32. Transplant counts per year by scenario and conceptualized 4 districts

	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out
W	2944 (2928-2967)	2983 (2956-3007)	3027 (2991-3061)	2971 (2953-2996)	2882 (2847-2916)	2995 (2975-3023)	3028 (2997-3052)	2973 (2952-3004)	2883 (2842-2911)
X	1388 (1358-1423)	1407 (1383-1436)	1438 (1407-1466)	1403 (1376-1435)	1475 (1430-1511)	1413 (1378-1449)	1435 (1397-1463)	1411 (1380-1448)	1473 (1435-1495)
Y	632 (615-644)	638 (618-652)	631 (607-644)	637 (616-651)	648 (636-658)	641 (619-656)	633 (614-648)	640 (619-657)	648 (629-661)
Z	870 (854-883)	879 (869-896)	957 (941-981)	878 (864-888)	918 (899-935)	883 (869-901)	960 (948-983)	882 (867-902)	914 (902-929)

Transplant Counts by population subgroup

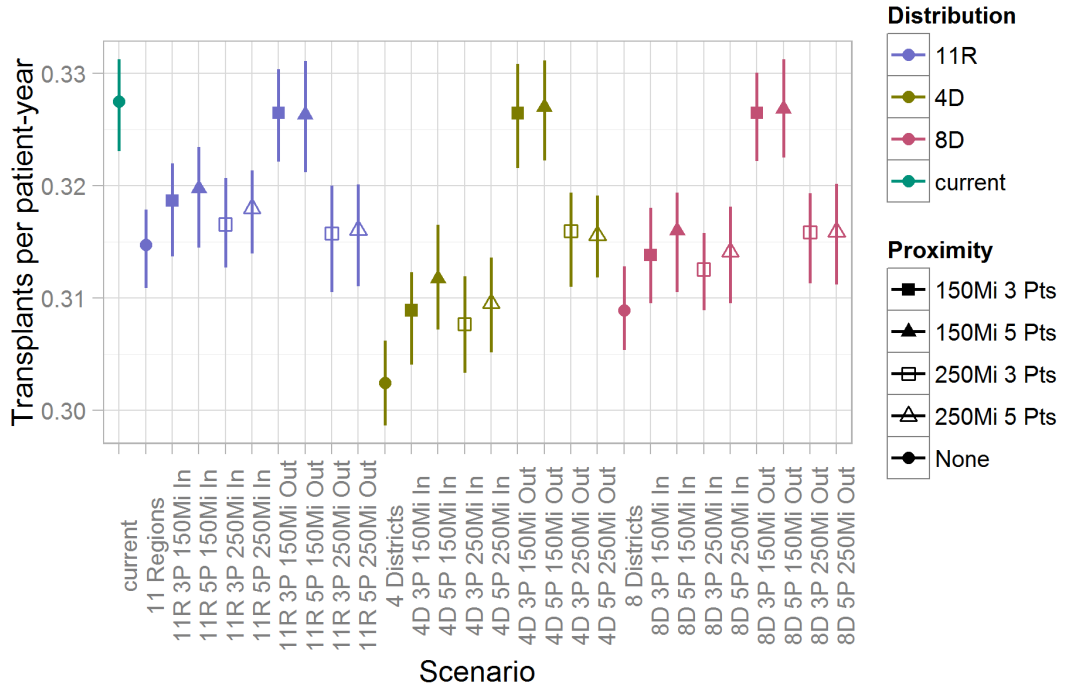
Table H33. Transplant counts by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	6025.4 (5952.4-6088.6)	446 (432.8-460.4)	2104 (2077.6-2129.2)	4177.1 (4129.4-4215.4)	652.3 (634.6-673.2)	840.7 (815.6-860.2)	286.7 (279.4-294.2)
11 Regions	5887.9 (5822.8-5934.6)	456.5 (438.2-476)	2056 (2024-2076.8)	4060.6 (4014.6-4100.2)	643.9 (623.6-664.2)	824.8 (787.6-856.2)	290.5 (285.4-303.8)
11R 3P 150Mi In	5935.7 (5857.8-5992.8)	457.3 (440.4-470.8)	2072.6 (2038-2093)	4092.9 (4048.6-4129.8)	648.1 (631.2-673.4)	831.8 (806.2-850.8)	293.6 (284.6-300.4)
11R 3P 250Mi In	5909.5 (5848.4-5972.2)	456.8 (442-475.4)	2071 (2028.2-2106.6)	4075.9 (4035.4-4117.6)	643.5 (630.8-661)	828.9 (806.6-845.6)	292 (285.8-306.4)
11R 5P 150Mi In	5945.6 (5863.4-6003.4)	456.6 (444-472.2)	2078.8 (2042.2-2101.4)	4098.9 (4045.6-4141.6)	648 (634.6-662)	836.8 (812-860.2)	293 (286.2-307.4)
11R 5P 250Mi In	5922.4 (5859-5978.4)	456 (441.8-465.6)	2071.3 (2028-2106.4)	4087.1 (4053.2-4121)	645.8 (628.6-669)	830.1 (799-858.6)	290.6 (282.4-302.8)
11R 3P 150Mi Out	6053.6 (5989.4-6112.2)	459.1 (442.6-471.6)	2117 (2093.2-2153.2)	4151.5 (4118.4-4192.4)	657.8 (645.2-681.6)	865.5 (842-900.2)	307.2 (299-322.4)
11R 3P 250Mi Out	5921.8 (5842.4-5981.8)	468.7 (456-480)	2075.3 (2047.4-2098)	4057 (4010-4108.8)	647.6 (630.8-670.4)	847 (827.2-867.6)	300 (293-313.2)
11R 5P 150Mi Out	6052.2 (5969.4-6116.8)	455.4 (442-471.6)	2123.2 (2086.8-2149)	4154.2 (4102.2-4206.4)	657.4 (633.2-676.8)	861.2 (831.6-882)	307.9 (299.4-322.6)
11R 5P 250Mi Out	5924.8 (5846-5986.2)	468.6 (457.6-486.6)	2080.8 (2049-2109.8)	4055.8 (4009.4-4099.4)	649.7 (633.6-668.4)	849.4 (827-872.6)	299.1 (289.4-314.2)
4 Districts	5834.4 (5768.6-5890)	528.4 (514.6-539.6)	2076.2 (2055.4-2107.2)	3934.1 (3897-3976.2)	661 (644.6-686)	864.9 (841.2-878.8)	305.5 (296.8-320.4)
4D 3P 150Mi In	5907.1 (5832.6-5957)	524.2 (508.2-539)	2098.3 (2073.8-2126.8)	3992 (3945.2-4033)	665.8 (652-677.2)	872.2 (850.4-887.8)	308.1 (299.6-323.8)
4D 3P 250Mi In	5889.4 (5825-5947)	524.8 (508.4-542.6)	2090.8 (2071.2-2111.8)	3979.7 (3934.4-4022.4)	665.2 (648-682)	867.7 (849.6-887.2)	307.5 (299.6-317)
4D 5P 150Mi In	5933.3 (5859.6-6002.4)	523.3 (506-539)	2105.2 (2082.6-2126)	4013.5 (3965.6-4061.8)	668.3 (654.6-689.2)	874.9 (854.2-910)	307.2 (299.8-319)
4D 5P 250Mi In	5905.9 (5835-5960.4)	521 (505-534.4)	2094.3 (2059.4-2119.2)	4000.8 (3959-4041)	663.6 (649-679.4)	866.1 (847.8-887)	306 (302.2-318.4)
4D 3P 150Mi Out	6052.9 (5981.2-6122)	456.9 (442.2-470.4)	2125.1 (2092.6-2157.4)	4155.6 (4119-4203.6)	656.9 (642.8-668.8)	862.8 (837.6-882.4)	306.4 (296.8-321.6)
4D 3P 250Mi Out	5922.1 (5857.2-5973.2)	468.7 (456-481.2)	2074.2 (2050-2102.4)	4058.9 (4011.2-4101.8)	647 (628.4-663)	846.6 (828.2-867.4)	299.1 (290-313.6)
4D 5P 150Mi Out	6056.3 (5982.2-6123.4)	456.9 (438.4-467)	2120.2 (2094.2-2152.2)	4157.8 (4120.2-4192.4)	656.3 (639.8-668.6)	864.9 (833.8-884.4)	307 (296.2-319.4)
4D 5P 250Mi Out	5918.1 (5857.6-5965.4)	466.2 (453.4-484.4)	2072.9 (2037.6-2105.4)	4053.7 (4016.4-4089)	650.7 (631-664.4)	844.3 (819.4-860.8)	299.2 (289.6-310)
8 Districts	5865.1 (5803.8-5926.2)	482.6 (470.6-497.2)	2062.1 (2028.2-2085.6)	3973.5 (3927.2-4016.4)	655 (639.4-676.6)	861 (844.6-881.8)	306 (290.4-321.2)
8D 3P 150Mi In	5919.1 (5851.8-5980.8)	480.5 (464.2-492)	2077.5 (2045.2-2103.2)	4018.7 (3980.8-4052.8)	655.3 (630.8-678)	866.8 (845-893.6)	309 (300.6-321.8)
8D 3P 250Mi In	5903.8 (5850.6-5953.4)	481.9 (467.8-496.8)	2075.9 (2050.8-2095.2)	4013.6 (3987.2-4042.2)	652.9 (634.8-675)	861.6 (843.2-884)	307 (296-319)
8D 5P 150Mi In	5941 (5860.4-5997.8)	479.8 (465-492.8)	2082.8 (2052.2-2104)	4036.6 (3981.6-4073.8)	655.4 (642.8-668.4)	868.9 (847-896)	309.6 (303.6-322.4)
8D 5P 250Mi In	5917.6 (5852.6-5969.4)	481.4 (465.2-493.4)	2075.8 (2052.6-2103)	4019.9 (3989.2-4056.4)	655.4 (640-673.2)	865.2 (841-882.2)	307.6 (300.4-316.2)
8D 3P 150Mi Out	6052.7 (5987.8-6105.4)	458.7 (438.6-472)	2123 (2086.6-2164)	4149.5 (4110.2-4201)	657.6 (642-681)	867.5 (842.8-895.4)	306.9 (299.2-321.2)
8D 3P 250Mi Out	5922 (5853.8-5978)	466.9 (456.6-481.6)	2076.9 (2041.4-2113.6)	4056.9 (4013.2-4101)	647.8 (631.2-675.8)	847.5 (823.2-875.8)	300.5 (291.4-309.2)
8D 5P 150Mi Out	6055.5 (5991.2-6121.4)	459 (442.4-472)	2117.5 (2084.2-2143.6)	4154.6 (4107-4196.2)	658.6 (640.2-680)	864.4 (831.2-885.6)	306.6 (296-318.8)
8D 5P 250Mi Out	5921.5 (5849.4-5987.2)	469.6 (456.6-483.8)	2080.6 (2063.8-2111.8)	4056.3 (4016.6-4090)	650.1 (631.4-668.8)	846.6 (828.2-865)	298.8 (292.4-312.2)

Transplant Rates

Overall Transplant Rates

Figure H119. Transplant rates per patient-year in each simulation



Note that the limitations of the LSAM offer acceptance model have specific implications for this analysis, particularly in terms of overall transplant counts and rates. All of the redistricting scenarios implement full regional sharing, with many more offers made to candidates outside of the donor's DSA. The offer acceptance model currently assumes that candidates are less likely to accept regional offers, because under current policy those organs have been of lower quality on average. This drives 100-200 fewer predicted transplants per year (2%-3% of the total) in most of the redistricted scenarios (Figure H118). However, with full regional sharing organs offered to candidates outside the donor's DSA will no longer be of lower quality on average. If overall acceptance rates remain at previous levels, then more patients will undergo transplantation than predicted. This in turn will further improve pretransplant mortality and reduce pretransplant costs.

Table H34. Transplant rates per patient-year by scenario and current 11 regions

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	current
1	0.24 (0.23-0.26)	0.24 (0.23-0.26)	0.29 (0.28-0.3)	0.24 (0.23-0.26)	0.28 (0.27-0.29)	0.24 (0.23-0.25)	0.29 (0.28-0.3)	0.24 (0.23-0.26)	0.28 (0.27-0.29)	0.24 (0.23-0.26)
2	0.32 (0.3-0.33)	0.32 (0.31-0.33)	0.33 (0.32-0.34)	0.31 (0.3-0.33)	0.32 (0.31-0.33)	0.32 (0.3-0.33)	0.33 (0.32-0.35)	0.32 (0.3-0.33)	0.32 (0.31-0.33)	0.34 (0.32-0.35)
3	0.83 (0.79-0.87)	0.85 (0.8-0.89)	0.69 (0.65-0.72)	0.84 (0.81-0.88)	0.69 (0.67-0.72)	0.85 (0.8-0.92)	0.69 (0.66-0.73)	0.86 (0.81-0.91)	0.69 (0.65-0.73)	0.89 (0.85-0.95)
4	0.22 (0.21-0.23)	0.22 (0.21-0.23)	0.24 (0.23-0.25)	0.22 (0.21-0.23)	0.25 (0.24-0.25)	0.22 (0.21-0.23)	0.24 (0.23-0.24)	0.22 (0.21-0.22)	0.25 (0.24-0.26)	0.23 (0.22-0.24)

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	current
5	0.21 (0.2-0.21)	0.21 (0.21-0.21)	0.24 (0.23-0.24)	0.21 (0.2-0.21)	0.22 (0.22-0.23)	0.21 (0.21-0.22)	0.24 (0.23-0.24)	0.21 (0.2-0.22)	0.22 (0.22-0.23)	0.21 (0.21-0.22)
6	0.4 (0.37-0.43)	0.4 (0.37-0.42)	0.29 (0.27-0.3)	0.4 (0.37-0.41)	0.31 (0.29-0.32)	0.4 (0.38-0.41)	0.28 (0.27-0.31)	0.4 (0.37-0.42)	0.3 (0.28-0.31)	0.41 (0.39-0.43)
7	0.3 (0.29-0.31)	0.3 (0.29-0.32)	0.38 (0.36-0.39)	0.3 (0.29-0.32)	0.39 (0.38-0.41)	0.31 (0.29-0.32)	0.38 (0.37-0.4)	0.3 (0.29-0.31)	0.39 (0.37-0.4)	0.31 (0.3-0.33)
8	0.39 (0.36-0.41)	0.39 (0.37-0.41)	0.35 (0.34-0.37)	0.39 (0.37-0.41)	0.37 (0.34-0.39)	0.4 (0.37-0.42)	0.35 (0.34-0.37)	0.4 (0.37-0.42)	0.37 (0.34-0.38)	0.4 (0.38-0.43)
9	0.17 (0.16-0.17)	0.17 (0.16-0.18)	0.22 (0.22-0.24)	0.17 (0.16-0.17)	0.21 (0.2-0.22)	0.17 (0.16-0.17)	0.22 (0.22-0.24)	0.17 (0.16-0.17)	0.21 (0.2-0.22)	0.17 (0.16-0.17)
10	0.54 (0.51-0.58)	0.55 (0.52-0.58)	0.48 (0.45-0.5)	0.54 (0.51-0.57)	0.4 (0.39-0.42)	0.55 (0.51-0.58)	0.48 (0.45-0.51)	0.54 (0.51-0.58)	0.4 (0.38-0.41)	0.56 (0.53-0.59)
11	0.49 (0.48-0.51)	0.5 (0.48-0.52)	0.42 (0.41-0.43)	0.49 (0.48-0.51)	0.4 (0.38-0.4)	0.5 (0.49-0.51)	0.42 (0.41-0.43)	0.5 (0.49-0.51)	0.4 (0.39-0.4)	0.51 (0.5-0.53)

Table H35. Transplant rates per patient-year by scenario and conceptualized 8 districts

	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out
A	0.3 (0.3-0.31)	0.31 (0.3-0.32)	0.32 (0.31-0.33)	0.31 (0.3-0.31)	0.3 (0.29-0.31)	0.31 (0.31-0.32)	0.32 (0.31-0.32)	0.31 (0.3-0.32)	0.3 (0.29-0.3)
B	0.35 (0.34-0.36)	0.35 (0.34-0.36)	0.36 (0.35-0.37)	0.35 (0.34-0.35)	0.32 (0.31-0.33)	0.36 (0.34-0.37)	0.36 (0.35-0.38)	0.35 (0.34-0.36)	0.32 (0.31-0.34)
C	0.47 (0.44-0.49)	0.47 (0.45-0.49)	0.5 (0.48-0.51)	0.47 (0.45-0.5)	0.45 (0.44-0.48)	0.47 (0.45-0.5)	0.5 (0.48-0.52)	0.47 (0.46-0.5)	0.45 (0.44-0.47)
D	0.5 (0.47-0.55)	0.5 (0.48-0.55)	0.55 (0.52-0.58)	0.51 (0.46-0.56)	0.67 (0.64-0.7)	0.5 (0.46-0.53)	0.55 (0.52-0.59)	0.5 (0.46-0.57)	0.67 (0.63-0.72)
E	0.35 (0.33-0.36)	0.35 (0.34-0.37)	0.35 (0.33-0.37)	0.35 (0.33-0.37)	0.37 (0.35-0.38)	0.35 (0.34-0.37)	0.35 (0.33-0.36)	0.35 (0.34-0.37)	0.37 (0.35-0.38)
F	0.34 (0.33-0.35)	0.35 (0.34-0.36)	0.36 (0.35-0.37)	0.35 (0.34-0.36)	0.37 (0.36-0.38)	0.35 (0.34-0.36)	0.36 (0.35-0.37)	0.35 (0.34-0.36)	0.37 (0.37-0.39)
G	0.26 (0.24-0.28)	0.26 (0.25-0.28)	0.27 (0.25-0.28)	0.26 (0.25-0.28)	0.26 (0.25-0.28)	0.26 (0.25-0.28)	0.27 (0.25-0.28)	0.26 (0.25-0.28)	0.26 (0.25-0.28)
H	0.2 (0.2-0.21)	0.21 (0.2-0.21)	0.23 (0.22-0.23)	0.21 (0.2-0.21)	0.22 (0.21-0.22)	0.21 (0.2-0.21)	0.23 (0.22-0.23)	0.21 (0.2-0.21)	0.22 (0.21-0.22)

Table H36. Transplant rates per patient-year by scenario and conceptualized 4 districts

	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out
W	0.33 (0.33-0.34)	0.34 (0.33-0.35)	0.36 (0.35-0.36)	0.34 (0.33-0.34)	0.33 (0.32-0.33)	0.34 (0.34-0.35)	0.36 (0.35-0.36)	0.34 (0.33-0.34)	0.33 (0.32-0.33)
X	0.35 (0.34-0.37)	0.36 (0.35-0.37)	0.38 (0.37-0.39)	0.36 (0.35-0.37)	0.4 (0.38-0.41)	0.37 (0.36-0.38)	0.38 (0.37-0.39)	0.36 (0.36-0.38)	0.4 (0.39-0.41)
Y	0.3 (0.29-0.31)	0.31 (0.29-0.31)	0.3 (0.29-0.32)	0.31 (0.3-0.32)	0.32 (0.31-0.32)	0.31 (0.3-0.32)	0.3 (0.29-0.32)	0.31 (0.3-0.32)	0.32 (0.31-0.33)
Z	0.2 (0.19-0.2)	0.2 (0.2-0.21)	0.23 (0.22-0.23)	0.2 (0.2-0.21)	0.22 (0.21-0.22)	0.2 (0.2-0.21)	0.23 (0.22-0.23)	0.2 (0.2-0.21)	0.22 (0.21-0.22)

Transplant Rates by population subgroup

Table H37. Transplant rates per patient year by population subgroup

	Total	Pediatric	Female	Caucasian	African-American	Hispanic	Asian
current	0.327 (0.323-0.331)	0.67 (0.647-0.696)	0.289 (0.286-0.294)	0.321 (0.316-0.325)	0.516 (0.506-0.532)	0.275 (0.267-0.283)	0.338 (0.326-0.351)
11 Regions	0.315 (0.311-0.318)	0.708 (0.683-0.758)	0.279 (0.274-0.282)	0.306 (0.3-0.31)	0.502 (0.487-0.519)	0.267 (0.254-0.278)	0.344 (0.336-0.354)
11R 3P 150Mi In	0.319 (0.314-0.322)	0.708 (0.667-0.746)	0.282 (0.277-0.285)	0.31 (0.304-0.314)	0.506 (0.487-0.525)	0.27 (0.262-0.275)	0.349 (0.34-0.361)
11R 3P 250Mi In	0.317 (0.313-0.321)	0.706 (0.661-0.762)	0.281 (0.276-0.288)	0.308 (0.301-0.311)	0.502 (0.487-0.514)	0.268 (0.261-0.272)	0.348 (0.334-0.357)
11R 5P 150Mi In	0.32 (0.314-0.323)	0.709 (0.677-0.749)	0.283 (0.279-0.289)	0.31 (0.304-0.315)	0.508 (0.495-0.518)	0.272 (0.264-0.281)	0.35 (0.334-0.361)
11R 5P 250Mi In	0.318 (0.314-0.321)	0.702 (0.669-0.733)	0.282 (0.276-0.288)	0.309 (0.304-0.314)	0.507 (0.494-0.527)	0.269 (0.258-0.278)	0.345 (0.332-0.359)
11R 3P 150Mi Out	0.327 (0.322-0.33)	0.703 (0.688-0.72)	0.289 (0.284-0.296)	0.315 (0.31-0.321)	0.515 (0.499-0.534)	0.285 (0.277-0.296)	0.372 (0.359-0.384)
11R 3P 250Mi Out	0.316 (0.311-0.32)	0.738 (0.698-0.776)	0.281 (0.275-0.285)	0.304 (0.299-0.306)	0.499 (0.477-0.514)	0.276 (0.27-0.283)	0.361 (0.35-0.367)
11R 5P 150Mi Out	0.326 (0.321-0.331)	0.697 (0.671-0.731)	0.29 (0.282-0.295)	0.315 (0.309-0.32)	0.514 (0.488-0.529)	0.283 (0.272-0.292)	0.374 (0.354-0.387)
11R 5P 250Mi Out	0.316 (0.311-0.32)	0.741 (0.708-0.782)	0.282 (0.278-0.286)	0.304 (0.298-0.307)	0.502 (0.484-0.519)	0.277 (0.27-0.286)	0.359 (0.34-0.37)
4 Districts	0.302 (0.299-0.306)	0.965 (0.935-1.008)	0.275 (0.271-0.28)	0.284 (0.28-0.288)	0.501 (0.482-0.519)	0.279 (0.274-0.286)	0.365 (0.345-0.375)
4D 3P 150Mi In	0.309 (0.304-0.312)	0.946 (0.908-1.001)	0.28 (0.274-0.284)	0.291 (0.286-0.296)	0.509 (0.493-0.525)	0.283 (0.277-0.29)	0.372 (0.35-0.386)
4D 3P 250Mi In	0.308 (0.303-0.312)	0.948 (0.906-0.985)	0.279 (0.276-0.283)	0.29 (0.286-0.295)	0.508 (0.486-0.521)	0.282 (0.277-0.287)	0.37 (0.362-0.383)
4D 5P 150Mi In	0.312 (0.307-0.317)	0.941 (0.903-0.965)	0.282 (0.279-0.287)	0.294 (0.29-0.298)	0.513 (0.49-0.532)	0.285 (0.281-0.297)	0.371 (0.354-0.383)
4D 5P 250Mi In	0.31 (0.305-0.314)	0.935 (0.891-0.985)	0.28 (0.275-0.285)	0.293 (0.289-0.297)	0.508 (0.49-0.527)	0.281 (0.276-0.288)	0.367 (0.354-0.377)
4D 3P 150Mi Out	0.326 (0.322-0.331)	0.7 (0.655-0.737)	0.29 (0.285-0.296)	0.315 (0.309-0.319)	0.514 (0.497-0.529)	0.283 (0.275-0.289)	0.372 (0.351-0.382)
4D 3P 250Mi Out	0.316 (0.311-0.319)	0.742 (0.711-0.777)	0.281 (0.276-0.286)	0.304 (0.297-0.308)	0.5 (0.483-0.513)	0.277 (0.271-0.284)	0.359 (0.346-0.368)
4D 5P 150Mi Out	0.327 (0.322-0.331)	0.7 (0.662-0.73)	0.29 (0.285-0.295)	0.316 (0.311-0.32)	0.513 (0.502-0.527)	0.284 (0.273-0.291)	0.372 (0.361-0.381)
4D 5P 250Mi Out	0.316 (0.312-0.319)	0.735 (0.689-0.793)	0.28 (0.273-0.284)	0.303 (0.298-0.308)	0.502 (0.487-0.517)	0.276 (0.267-0.284)	0.358 (0.345-0.372)
8 Districts	0.309 (0.305-0.313)	0.789 (0.747-0.811)	0.276 (0.272-0.282)	0.293 (0.288-0.297)	0.501 (0.483-0.516)	0.28 (0.275-0.287)	0.369 (0.343-0.38)
8D 3P 150Mi In	0.314 (0.31-0.318)	0.786 (0.743-0.819)	0.28 (0.275-0.284)	0.298 (0.293-0.303)	0.505 (0.49-0.523)	0.283 (0.277-0.292)	0.375 (0.362-0.385)
8D 3P 250Mi In	0.313 (0.309-0.316)	0.788 (0.755-0.835)	0.279 (0.275-0.283)	0.297 (0.293-0.302)	0.501 (0.482-0.521)	0.281 (0.276-0.287)	0.373 (0.36-0.386)
8D 5P 150Mi In	0.316 (0.311-0.319)	0.786 (0.745-0.826)	0.281 (0.278-0.286)	0.3 (0.295-0.305)	0.508 (0.492-0.525)	0.285 (0.276-0.293)	0.376 (0.366-0.391)
8D 5P 250Mi In	0.314 (0.31-0.318)	0.789 (0.752-0.834)	0.28 (0.276-0.285)	0.299 (0.293-0.304)	0.506 (0.486-0.519)	0.283 (0.274-0.291)	0.374 (0.362-0.389)
8D 3P 150Mi Out	0.327 (0.322-0.33)	0.707 (0.687-0.749)	0.29 (0.283-0.296)	0.314 (0.311-0.318)	0.515 (0.495-0.534)	0.285 (0.277-0.295)	0.373 (0.363-0.384)
8D 3P 250Mi Out	0.316 (0.311-0.319)	0.732 (0.702-0.783)	0.281 (0.274-0.288)	0.304 (0.299-0.309)	0.501 (0.483-0.527)	0.277 (0.27-0.287)	0.36 (0.343-0.373)
8D 5P 150Mi Out	0.327 (0.323-0.331)	0.706 (0.66-0.74)	0.289 (0.284-0.294)	0.315 (0.31-0.32)	0.516 (0.494-0.533)	0.284 (0.273-0.291)	0.371 (0.353-0.383)
8D 5P 250Mi Out	0.316 (0.311-0.32)	0.741 (0.705-0.786)	0.282 (0.278-0.288)	0.304 (0.299-0.308)	0.502 (0.479-0.516)	0.277 (0.273-0.282)	0.359 (0.343-0.379)

Pretransplant Mortality

Overall Pretransplant Mortality Counts

Figure H120. Pretransplant deaths per year by scenario

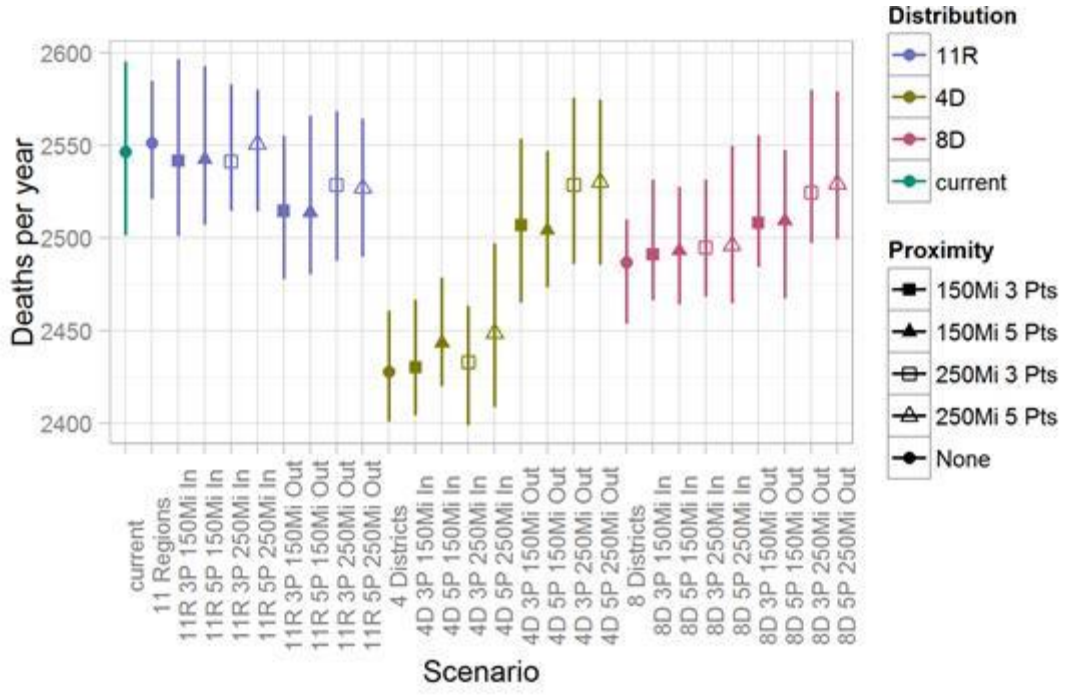


Table H38. Pretransplant deaths per year by scenario and current 11 regions

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	current
1	85 (77-90)	84 (75-89)	76 (68-83)	84 (74-89)	77 (68-81)	84 (76-92)	76 (68-80)	84 (75-89)	76 (69-84)	84 (77-89)
2	192 (181-200)	192 (176-199)	186 (171-199)	191 (175-198)	185 (167-192)	191 (174-199)	186 (172-193)	191 (182-198)	185 (172-190)	193 (176-198)
3	108 (101-114)	107 (99-114)	124 (116-135)	107 (102-117)	124 (117-132)	107 (102-112)	124 (119-132)	108 (103-113)	124 (115-130)	109 (103-117)
4	196 (186-204)	197 (187-206)	194 (183-203)	196 (183-205)	189 (176-197)	197 (182-208)	194 (183-204)	196 (179-206)	190 (179-199)	195 (183-200)
5	309 (303-315)	307 (298-313)	302 (295-309)	306 (295-314)	313 (306-321)	308 (300-314)	301 (294-310)	309 (301-319)	311 (307-322)	307 (299-313)
6	31 (28-33)	31 (27-36)	32 (28-36)	31 (27-35)	33 (28-37)	31 (27-34)	32 (27-37)	31 (27-33)	32 (30-36)	31 (28-36)
7	127 (120-132)	127 (122-132)	114 (109-121)	127 (115-133)	112 (105-118)	127 (117-132)	114 (107-121)	126 (121-135)	111 (107-119)	128 (119-132)
8	97 (92-102)	97 (90-102)	101 (97-104)	97 (90-101)	100 (95-105)	97 (93-101)	101 (97-105)	98 (90-103)	99 (89-105)	96 (90-100)
9	172 (163-182)	173 (167-184)	155 (149-164)	172 (163-183)	155 (147-162)	172 (162-183)	154 (148-162)	173 (166-181)	155 (150-161)	174 (164-181)
10	96 (89-104)	95 (87-106)	99 (94-106)	95 (91-100)	102 (98-110)	94 (89-101)	99 (90-106)	97 (93-103)	102 (99-108)	95 (89-103)
11	111 (105-122)	111 (105-119)	122 (116-136)	110 (105-122)	120 (112-131)	111 (107-124)	120 (109-130)	110 (102-118)	121 (110-135)	110 (104-118)

Table H39. Pretransplant deaths per year by scenario and conceptualized 8 districts

	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out
A	420 (410-429)	422 (411-438)	435 (426-449)	422 (405-436)	440 (429-455)	424 (412-434)	435 (423-446)	424 (416-446)	443 (433-458)
B	150 (142-158)	150 (145-158)	148 (142-157)	151 (147-157)	149 (143-155)	151 (142-162)	150 (145-156)	150 (144-157)	150 (144-160)
C	130 (118-139)	129 (117-135)	128 (122-132)	130 (120-138)	129 (121-138)	128 (120-137)	128 (118-139)	128 (117-136)	128 (122-135)
D	41 (36-44)	41 (37-44)	38 (36-41)	41 (35-46)	35 (32-40)	41 (38-44)	38 (35-42)	42 (36-45)	35 (32-37)
E	102 (96-108)	104 (98-108)	101 (93-108)	102 (95-108)	100 (94-103)	102 (95-109)	102 (96-110)	101 (96-108)	101 (94-106)
F	262 (245-269)	264 (250-273)	280 (270-292)	264 (253-273)	272 (264-280)	265 (252-274)	280 (269-289)	265 (250-275)	272 (265-277)
G	78 (75-81)	78 (74-82)	75 (72-81)	78 (72-85)	78 (72-85)	78 (75-83)	76 (72-81)	78 (73-83)	79 (74-83)
H	297 (290-304)	295 (287-306)	293 (287-302)	296 (289-305)	299 (292-306)	295 (288-303)	293 (286-301)	297 (285-306)	301 (292-314)

Table H40. Pretransplant deaths per year by scenario and conceptualized 4 districts

	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out
W	664 (648-678)	668 (644-684)	709 (699-725)	670 (656-687)	717 (701-738)	672 (655-692)	710 (692-724)	675 (656-690)	717 (702-736)
X	313 (304-320)	311 (303-317)	335 (325-345)	313 (302-325)	327 (316-336)	314 (304-323)	336 (326-345)	314 (300-322)	327 (316-338)
Y	157 (150-165)	157 (149-168)	161 (155-170)	156 (147-163)	161 (152-166)	157 (151-167)	160 (149-166)	158 (153-167)	163 (157-170)
Z	299 (290-309)	298 (291-305)	292 (286-299)	297 (288-306)	301 (294-310)	300 (295-307)	290 (282-302)	300 (296-311)	302 (295-310)

Overall Pretransplant Mortality Rates

Figure H121. Pretransplant deaths per patient-year by scenario

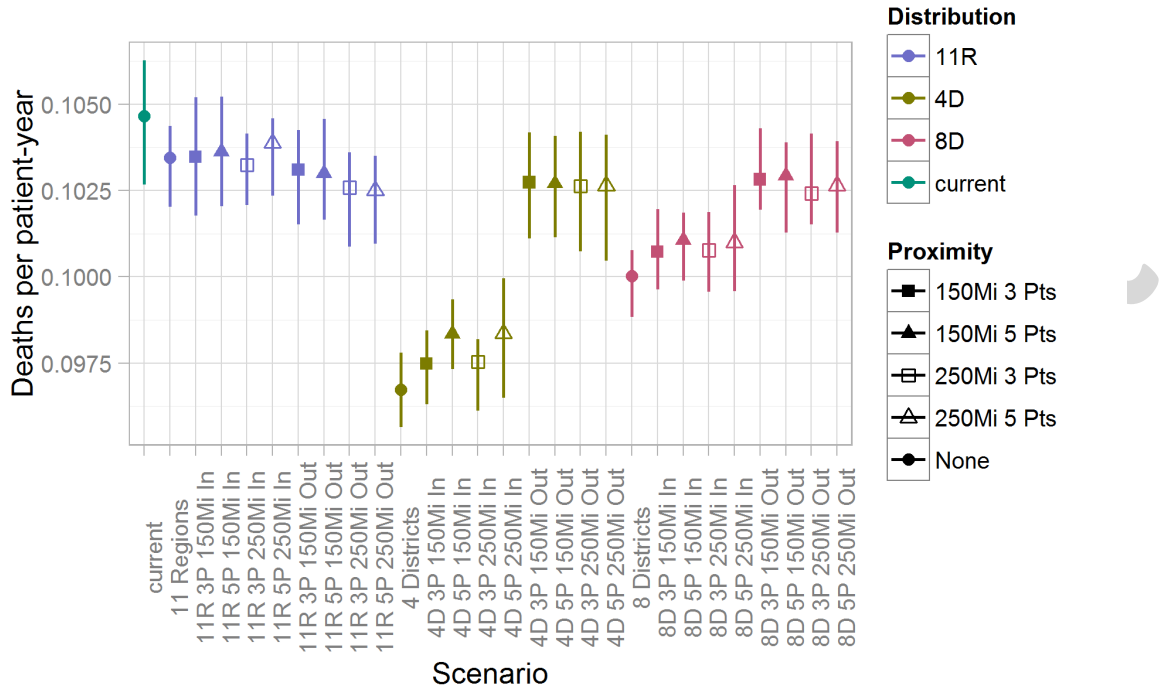


Table H41. Pretransplant deaths per patient-year by scenario and current 11 regions

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	current
1	0.097 (0.086-0.105)	0.097 (0.084-0.104)	0.09 (0.079-0.1)	0.097 (0.084-0.107)	0.089 (0.078-0.096)	0.096 (0.086-0.107)	0.089 (0.078-0.097)	0.097 (0.083-0.104)	0.089 (0.079-0.099)	0.097 (0.086-0.106)
2	0.08 (0.076-0.082)	0.08 (0.074-0.083)	0.078 (0.072-0.083)	0.079 (0.073-0.083)	0.076 (0.07-0.079)	0.08 (0.074-0.083)	0.078 (0.073-0.082)	0.08 (0.076-0.083)	0.076 (0.071-0.079)	0.082 (0.076-0.085)
3	0.097 (0.089-0.104)	0.097 (0.09-0.105)	0.102 (0.096-0.114)	0.097 (0.091-0.11)	0.101 (0.095-0.11)	0.098 (0.09-0.107)	0.101 (0.096-0.109)	0.099 (0.094-0.108)	0.102 (0.095-0.111)	0.103 (0.098-0.114)
4	0.079 (0.074-0.082)	0.079 (0.074-0.082)	0.08 (0.075-0.084)	0.079 (0.072-0.082)	0.078 (0.073-0.081)	0.079 (0.073-0.083)	0.08 (0.075-0.084)	0.079 (0.071-0.083)	0.079 (0.073-0.083)	0.08 (0.073-0.082)
5	0.07 (0.068-0.072)	0.07 (0.068-0.071)	0.07 (0.069-0.072)	0.069 (0.067-0.07)	0.072 (0.071-0.074)	0.07 (0.069-0.071)	0.07 (0.069-0.071)	0.07 (0.069-0.072)	0.072 (0.07-0.073)	0.07 (0.068-0.071)
6	0.072 (0.067-0.08)	0.073 (0.064-0.086)	0.066 (0.059-0.078)	0.072 (0.062-0.083)	0.07 (0.058-0.081)	0.073 (0.064-0.083)	0.067 (0.055-0.078)	0.073 (0.062-0.08)	0.069 (0.062-0.079)	0.074 (0.065-0.088)
7	0.079 (0.074-0.082)	0.079 (0.076-0.082)	0.076 (0.072-0.081)	0.079 (0.073-0.083)	0.075 (0.07-0.08)	0.079 (0.075-0.083)	0.077 (0.072-0.081)	0.079 (0.077-0.083)	0.074 (0.071-0.08)	0.081 (0.077-0.084)
8	0.088 (0.081-0.092)	0.088 (0.082-0.094)	0.089 (0.085-0.091)	0.088 (0.082-0.091)	0.089 (0.084-0.095)	0.089 (0.086-0.093)	0.089 (0.085-0.093)	0.089 (0.083-0.095)	0.088 (0.079-0.094)	0.089 (0.083-0.096)
9	0.083	0.084	0.079	0.083	0.078	0.083	0.079	0.084	0.078	0.084

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	current
	(0.08-0.087)	(0.081-0.089)	(0.076-0.084)	(0.08-0.088)	(0.075-0.081)	(0.08-0.089)	(0.076-0.083)	(0.082-0.087)	(0.074-0.081)	(0.082-0.088)
10	0.101 (0.095-0.106)	0.1 (0.091-0.108)	0.098 (0.093-0.103)	0.1 (0.094-0.102)	0.093 (0.09-0.1)	0.1 (0.094-0.106)	0.098 (0.089-0.103)	0.101 (0.094-0.105)	0.094 (0.091-0.097)	0.102 (0.096-0.109)
11	0.091 (0.086-0.1)	0.091 (0.086-0.098)	0.094 (0.089-0.105)	0.091 (0.084-0.1)	0.09 (0.084-0.097)	0.092 (0.088-0.102)	0.093 (0.084-0.099)	0.091 (0.083-0.096)	0.091 (0.084-0.101)	0.092 (0.088-0.099)

Table H42. Pretransplant deaths per patient-year by scenario and conceptualized 8 districts

	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out
A	0.077 (0.076-0.079)	0.078 (0.076-0.082)	0.082 (0.08-0.085)	0.078 (0.075-0.081)	0.081 (0.079-0.084)	0.079 (0.076-0.081)	0.082 (0.081-0.085)	0.079 (0.077-0.083)	0.082 (0.079-0.084)
B	0.085 (0.082-0.091)	0.086 (0.083-0.088)	0.086 (0.082-0.089)	0.086 (0.084-0.091)	0.082 (0.08-0.085)	0.087 (0.082-0.09)	0.087 (0.084-0.091)	0.086 (0.083-0.09)	0.083 (0.08-0.086)
C	0.087 (0.081-0.09)	0.086 (0.082-0.09)	0.088 (0.084-0.092)	0.088 (0.083-0.091)	0.085 (0.08-0.088)	0.086 (0.081-0.091)	0.088 (0.082-0.093)	0.087 (0.081-0.089)	0.084 (0.08-0.086)
D	0.101 (0.093-0.111)	0.102 (0.096-0.111)	0.096 (0.089-0.103)	0.102 (0.091-0.117)	0.098 (0.088-0.109)	0.101 (0.093-0.109)	0.097 (0.09-0.108)	0.104 (0.094-0.113)	0.097 (0.09-0.106)
E	0.088 (0.083-0.093)	0.09 (0.086-0.095)	0.088 (0.081-0.092)	0.088 (0.082-0.095)	0.088 (0.083-0.091)	0.088 (0.083-0.093)	0.088 (0.084-0.093)	0.088 (0.082-0.094)	0.088 (0.083-0.093)
F	0.08 (0.076-0.082)	0.082 (0.078-0.084)	0.088 (0.085-0.09)	0.081 (0.078-0.083)	0.087 (0.084-0.09)	0.082 (0.079-0.084)	0.088 (0.085-0.091)	0.082 (0.078-0.085)	0.087 (0.085-0.09)
G	0.069 (0.066-0.073)	0.07 (0.065-0.074)	0.067 (0.063-0.073)	0.069 (0.065-0.075)	0.07 (0.065-0.076)	0.07 (0.066-0.075)	0.068 (0.064-0.072)	0.07 (0.063-0.075)	0.071 (0.066-0.076)
H	0.068 (0.067-0.07)	0.068 (0.066-0.071)	0.069 (0.068-0.071)	0.069 (0.067-0.071)	0.071 (0.069-0.073)	0.068 (0.067-0.07)	0.069 (0.067-0.071)	0.069 (0.066-0.071)	0.071 (0.069-0.073)

Table H43. Pretransplant deaths per patient-year by scenario and conceptualized 4 districts

	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out
W	0.075 (0.074-0.076)	0.076 (0.074-0.077)	0.084 (0.083-0.085)	0.076 (0.074-0.077)	0.082 (0.08-0.084)	0.077 (0.076-0.078)	0.084 (0.082-0.085)	0.077 (0.075-0.078)	0.082 (0.08-0.083)
X	0.08 (0.077-0.082)	0.08 (0.078-0.081)	0.089 (0.086-0.092)	0.08 (0.077-0.082)	0.088 (0.085-0.091)	0.081 (0.079-0.083)	0.089 (0.087-0.092)	0.081 (0.077-0.083)	0.088 (0.085-0.091)
Y	0.075 (0.072-0.079)	0.075 (0.071-0.081)	0.078 (0.074-0.082)	0.075 (0.07-0.08)	0.079 (0.075-0.081)	0.075 (0.073-0.08)	0.077 (0.072-0.081)	0.076 (0.073-0.081)	0.08 (0.076-0.085)
Z	0.069 (0.066-0.071)	0.069 (0.067-0.071)	0.069 (0.068-0.071)	0.068 (0.067-0.071)	0.071 (0.069-0.073)	0.069 (0.068-0.071)	0.069 (0.067-0.072)	0.069 (0.068-0.072)	0.071 (0.069-0.073)

Appendix I. DSA level data

Table I44. Median allocation MELD/PELD at transplant by scenario and DSA

	11 Region	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	Current
ALOB	22.8 (22-23)	22.5 (22-23)	22.9 (22-23)	22.4 (22-23)	22.8 (22-23)	22.7 (22-23)	23 (23-23)	22.2 (22-23)	22.6 (22-23)	26.1 (26-27)	26 (25-27)	23.1 (23-24)	25.7 (25-27)	22.8 (22-23)	25.7 (25-27)	23.1 (23-24)	25 (25-25)	22.6 (22-23)	25.6 (25-26)	25.6 (25-26)	23 (22-24)	25.35 (25-26)	22.6 (22-23)	25.3 (25-26)	23 (23-23)	24.9 (24-25)	22.6 (22-23)	22.1 (22-23)
AROR	22.3 (22-23)	22.2 (22-23.5)	22 (22-22)	22.2 (22-23)	22.15 (22-23)	22.3 (22-23)	22 (22-22)	22.15 (22-23.5)	22.2 (22-23)	25.75 (25-27.5)	25.35 (24-27)	21.95 (21.5-22)	25.6 (24-28)	22.3 (22-24)	25.15 (24-27)	21.9 (21-22)	24.85 (24-27.5)	22.2 (22-23)	22.9 (22-24)	22.6 (22-24)	21.9 (21-22)	22.6 (22-24)	22.5 (22-24)	22.5 (22-24)	21.95 (20.5-23)	22.45 (22-24.5)	22.45 (22-24)	21.9 (21-22)
AZOB	29.5 (29-30)	29.2 (29-30)	25.9 (25-27)	29.3 (29-30)	25.8 (25-27)	28.8 (28-29)	25.9 (25-27)	28.9 (28-29)	25.9 (25-27)	26.3 (25-27)	25.95 (25-27)	26 (25-28)	27 (26-28)	25.8 (25-27)	26.2 (25-28)	26.3 (25-28)	26.6 (25-28)	25.6 (25-27)	26.4 (25-28)	25.7 (25-27)	25.9 (25-27)	26 (25-27)	25.5 (25-27)	25.9 (25-28)	26.4 (25-28)	25.8 (25-27)	25.8 (25-27)	28 (28-28)
CADN	29 (29-29)	29 (29-29)	28.3 (28-29)	29 (29-29)	28.5 (28-29)	28.9 (28-29)	28.3 (28-29)	29 (29-29)	28.7 (28-29)	29 (29-29)	28.9 (28-29)	28.1 (28-29)	29 (29-29)	28.5 (28-29)	29 (29-29)	28.2 (28-29)	29 (29-29)	28.6 (28-29)	29 (29-29)	28.8 (28-29)	28.3 (28-29)	29 (29-29)	28.5 (28-29)	28.9 (28-29)	28.1 (28-29)	28.8 (28-29)	28.7 (28-29)	29 (29-29)
CAGS	29.2 (28-30)	28.65 (27-31)	22.85 (21-25)	29.2 (27-32)	26.85 (24-29)	27.65 (25-31)	23.3 (22-25.5)	28.15 (26-32)	26.85 (24-29)	28.85 (26.5-30.5)	28.55 (25-31)	23.05 (22-25)	28.05 (27-29)	26.65 (24.5-29)	28.05 (25-31)	23.95 (22-26)	28.25 (26-32)	25.95 (24-28.5)	28.35 (26-30)	28.5 (26-30)	23.55 (21-26)	29.1 (26-31)	26.35 (23-29.5)	27 (25-29)	24.15 (22-26)	28.2 (26.5-31)	26.75 (24-30.5)	22 (21-23)
CAOP	30.5 (30-31)	30.1 (29-31)	28.9 (28-30)	30.2 (30-31)	29 (28-30)	29.9 (29-31)	28.8 (28-29)	29.9 (29-31)	29.1 (28-30)	30.15 (29.5-31)	30 (29-31)	28.9 (28-30)	29.8 (29-31)	29.1 (28-30)	29.9 (29-31)	28.8 (28-30)	29.7 (29-31)	29.2 (29-30)	30.2 (30-31)	29.6 (29-31)	28.8 (28-30)	29.5 (29-30)	29.2 (28-30)	29.5 (29-31)	28.95 (28-30)	29.2 (29-30)	28.9 (28-30)	30.1 (29-31)
CASD	29.6 (29-31)	29.6 (29-31)	28.5 (28-30)	29.4 (29-31)	28.6 (28-30)	29.45 (29-31)	28.65 (28-30.5)	29.4 (28-31)	28.4 (27-30)	29.5 (29-31)	29.1 (28-30)	28.6 (28-30)	29.4 (29-31)	28.7 (28-30)	29.4 (29-31)	28.4 (28-29)	29.4 (29-31)	28.55 (28-30)	29.1 (29-30)	29.2 (28-30)	28.5 (28-30)	29 (29-29)	28.7 (28-30)	29.2 (29-30)	28.6 (28-30)	29.2 (29-30)	28.5 (28-29)	27.6 (27-28)
CORS	23.35 (23-24)	23.2 (22-24)	25 (25-25)	23.8 (23-24)	25.1 (24-27)	23.1 (22-24)	25.1 (25-26)	23.9 (23-25)	24.9 (24-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	24.9 (24-25)	25 (25-25)	25.1 (25-26)	25 (25-25)	25 (25-25)	24.9 (24-25)	24.9 (24-25)	25.1 (25-26)	24.9 (24-25)	24.9 (24-25)	24.9 (24-25)	25.2 (25-26)	24.9 (24-25)	25 (25-25)	22.9 (22-24)
CTOP	25.25 (23.5-27)	25.2 (24-27)	25.4 (25-26)	25.55 (24-27.5)	26.4 (25-27)	25.35 (24-26.5)	25.1 (25-26)	25.2 (23-27)	26.15 (25-27)	25.2 (25-26)	25.7 (25-27)	25.7 (25-27)	25.75 (25-27)	26.2 (25-27.5)	25.3 (25-26)	25.65 (25-27)	25.9 (25-27)	26.15 (25-27)	25.3 (25-26)	25.25 (25-26.5)	25.3 (25-26)	25.35 (25-27)	26.45 (25-28)	25.3 (25-26)	25.7 (25-27)	25.35 (25-26.5)	26.05 (25-27)	23.4 (22-25)
DCTC	25.4 (25-27)	25.35 (25-26.5)	25.1 (25-26)	25.4 (25-27)	25.2 (25-26)	25.2 (25-27)	25.25 (25-26)	25.2 (25-27)	25.1 (25-26)	25.45 (25-27)	25.4 (25-26)	25 (25-25)	25.45 (25-26)	25.2 (25-26)	25.8 (25-27)	25.2 (25-26)	25.7 (25-27)	25 (25-25)	25.35 (25-26)	25.3 (25-26)	25.2 (25-26.5)	25.3 (25-27)	25 (25-25)	25.35 (25-26)	25.1 (25-26)	25.3 (25-27)	25 (25-25)	25.2 (25-27)
FLFH	24.1 (24-25)	23.8 (23-25)	24.65 (24-25)	23.75 (23-24.5)	24.7 (24-25)	23.6 (23-24)	24.25 (23-25)	24.1 (24-25)	24.7 (23-26)	27.7 (26.5-28)	27.05 (26-28)	24.7 (24-25)	27.2 (26-29)	24.9 (24-27)	26.2 (25-27)	24.5 (24-25)	26.9 (25-28)	24.75 (24-25.5)	26.9 (25-28)	26.45 (25.5-27)	24.7 (24-25)	27.15 (26-28)	24.5 (24-25)	25.75 (25-27.5)	24.75 (24-25)	26.35 (25-27.5)	24.9 (24-26)	23.3 (22-24)
FLMP	22 (22-22)	22 (22-22)	23 (22-24)	22 (22-22)	23 (23-23)	22 (22-22)	23 (22-24)	22.1 (22-23)	23.1 (23-24)	25.5 (25-27)	25.25 (25-27)	23.05 (22-24)	25.1 (25-26)	23 (22-24)	24.9 (24-25)	23 (22-24)	24.8 (24-25)	22.9 (22-23)	25.15 (24-26)	25 (25-25)	23 (22-24)	24.9 (24-25)	22.9 (22-23)	24.7 (24-25)	23.1 (23-24)	24.75 (24-25)	23 (23-23)	22 (22-22)
FLUF	22.15 (22-23)	22.3 (22-23)	23.3 (23-24)	22.1 (22-23)	23.1 (23-24)	22.2 (22-23)	23.5 (23-24)	22.1 (22-23)	22.9 (22-23)	25.1 (25-26)	25 (25-25)	23.3 (23-24)	25 (25-25)	23.1 (23-24)	25 (25-25)	23.2 (23-24)	25 (25-25)	23.3 (23-24)	25 (25-25)	25 (25-25)	23.5 (23-24)	25 (25-25)	23 (23-23)	25 (25-25)	23.2 (23-24)	25 (25-25)	23.15 (22.5-24)	22.5 (22-23)
FLWC	23.25 (23-24)	22.9 (22-24)	23.9 (23-25)	23 (23-23)	24.3 (23-25)	22.8 (22-23)	23.7 (23-24)	23 (22-24)	24.35 (23-25)	26.85 (26-27)	26.1 (25-27)	23.7 (23-25)	26.4 (25-27)	24.2 (24-25)	25.5 (25-27)	23.65 (22-24.5)	25.7 (25-27)	24.35 (23.5-25)	26.85 (26-28)	25.9 (25-27)	23.7 (23-25)	25.85 (25-27)	24.45 (24-25)	25.3 (25-26)	23.65 (23-25)	25.8 (25-27)	24.2 (23-25)	22 (22-22)
GALL	22.4 (22-23)	22.1 (22-23)	22 (22-22)	22.2 (22-23)	22.25 (22-23)	22.1 (22-23)	22 (22-22)	22.3 (22-23)	22.15 (22-23)	26.3 (26-27)	25.95 (25-27)	22 (22-22)	25.6 (25-26)	22.1 (22-23)	25.1 (25-26)	22 (22-22)	25 (25-25)	22.2 (22-23)	26 (25-27)	25.2 (25-26)	22 (22-22)	25.1 (25-26)	22 (22-22)	25 (25-25)	22 (22-22)	24.6 (24-25)	22 (22-22)	22 (22-22)
HIOP	22.6 (22-25)	22.6 (22-24.5)	24 (22-28.5)	22.5 (22-25)	22.8 (22-25)	22.25 (22-23.5)	23.9 (22-25)	22.35 (22-23.5)	22.55 (22-23.5)	27.95 (25-31)	27.8 (25-31)	23.1 (22-25)	28.2 (25-31.5)	23.1 (22-25)	28.1 (25-31)	23.85 (22-28)	28.25 (25-33)	23.2 (22-25)	28.05 (25-30)	28 (26-31.5)	23 (22-25)	27.55 (25-31)	22.7 (22-25)	28.1 (25-33)	22.75 (22-25)	28.4 (25-33)	22.7 (22-25)	22.1 (22-23)
IAOP	23.4 (23-24)	23.3 (22-24)	24.1 (23-25)	23.3 (22-24)	23.7 (23-24)	23.35 (22-24)	24.1 (23-25)	22.7 (22-24)	23.4 (23-24)	25.1 (25-26)	25.35 (25-26)	24.6 (24-25)	24.8 (24-25)	23.7 (23-25)	25.4 (25-27)	23.9 (23-25)	24.6 (24-25)	23.85 (23-25)	24.15 (23.5-25)	24.2 (23-25)	23.85 (22-25)	23.75 (23-25)	23.55 (23-24.5)	24.4 (24-25)	24.15 (23-25)	23.85 (23-25)	23.7 (23-24)	22.2 (22-24)
ILIP	28 (27-29)	27.7 (27-28)	25 (25-25)	27.85 (27-28.5)	25.4 (25-26)	27.6 (27-28)	25 (25-25)	27.9 (27-29)	25.3 (25-26)	26.6 (26-27)	27 (26-28)	25 (25-25)	26.7 (26-27)	25.2 (25-26)	26.7 (25-28)	24.9 (24-25)	26.5 (25-27)	25.1 (25-26)	24.9 (24-25)	24.8 (24-25)	25 (25-25)	24.8 (24-25)	25.2 (25-26)	24.8 (24-25)	25 (25-25)	25 (25-25)	25.1 (25-26)	27.2 (26-28)
INOP	22.75 (22-23)	22.6 (22-23)	23.7 (23-25)	22.7 (22-23)	24.9 (24-25)	22.4 (22-23)	23.7 (23-25)	23 (22-24)	24.9 (24-25)	26.7 (26-27)	26.5 (26-27)	23.7 (23-24)	26.05 (25-27)	24.8 (24-25)	26 (25-27)	23.6 (23-24)	25.5 (25-26)	24.9 (24-25)	24.3 (23-25)	24.1 (23-25)	23.7 (23-24)	24.2 (23-25)	24.95 (24.5-25)	24 (23-25)	23.5 (23-24)	24 (23-25)	24.9 (24-25)	22 (22-22)
KYDA	22 (22-22)	22 (22-22)	22 (22-22)	22 (22-22)	22.95 (22-24)	22 (22-22)	22 (22-22)	22 (22-22)	23 (23-23)	25.6 (25-26)	25.3 (25-26)	22 (22-22)	25.2 (25-26)	23 (23-23)	25.1 (25-26)	22 (22-22)	24.9 (24-25)	22.9 (22-23)	22.9 (22-23)	22.6 (22-23)	22 (22-22)	22.9 (22-23)	23 (23-23)	22.3 (22-23)	22 (22-22)	22.6 (22-23)	23 (22-24)	22 (22-22)
LAOP	22.8 (22-	22.5 (22-	22.5 (22-	22.5 (22-	23.7 (23-	22.8 (22-	22.7 (22-	22.4 (22-	23.7 (23-	26.1 (25-	25.6 (25-	22.7 (22-	25.85 (25-	23.7 (23-	25.1 (25-	22.8 (22-	25.4 (25-	23.7 (23-	25.7 (25-	25.2 (25-	22.8 (22-	25.55 (25-	23.9 (23-	25.1 (25-	22.8 (22-	25.2 (25-	23.6 (23-	22.1 (22-

	11 Region	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	Current
	23)	23)	23)	23)	24)	23)	24)	23)	24)	27)	27)	23)	27)	24)	26)	23)	26)	24)	26)	26)	23)	27)	24)	26)	23)	26)	24)	23)
MAOB	28 (28-28)	27.8 (27-28)	28 (28-28)	27.9 (27-28)	28 (28-28)	28 (27-29)	28 (28-28)	28.1 (28-29)	28 (28-28)	25.9 (25-27)	27 (26-28)	27.8 (27-28)	27.1 (27-28)	28 (28-28)	27.7 (27-28)	27.9 (27-28)	27.9 (27-28)	28 (28-28)	25.9 (25-26)	26.7 (26-27)	27.9 (27-28)	26.8 (26-27)	28 (28-28)	27.3 (27-28)	27.9 (27-28)	26.7 (26-27)	28 (28-28)	28 (28-28)
MDPC	25.3 (25-26)	25.1 (25-26)	25.45 (25-27)	25.2 (25-26)	25.7 (25-27)	25.2 (25-26)	25.3 (25-26)	25.2 (25-26)	25.5 (25-27)	26.1 (26-27)	26 (25-27)	25.2 (25-26)	26.5 (26-27)	25.8 (25-27)	26 (25-27)	25.2 (25-26)	26.4 (25-27)	25.5 (25-27)	25.85 (25-27)	25.5 (25-27)	25.1 (25-26)	25.5 (25-27)	25.65 (25-27)	25.4 (25-26)	25.2 (25-26)	25.5 (25-27)	25.6 (25-27)	24.7 (24-25)
MIOP	22.1 (22-23)	22 (22-22)	23 (22-24)	22.1 (22-23)	25 (25-25)	22 (22-22)	23 (22-24)	22.1 (22-23)	25 (25-25)	26 (26-26)	25.4 (25-26)	23 (22-24)	25.2 (25-26)	25 (25-25)	25.1 (25-26)	23 (23-23)	25 (25-25)	24.9 (24-25)	24.1 (24-25)	23.8 (23-24)	23 (22-24)	23.9 (23-24)	24.9 (24-25)	23.5 (23-24)	22.8 (22-23)	24 (23-25)	25 (25-25)	22 (22-22)
MNOP	27.6 (27-28)	27.9 (27-28)	27.8 (27-28)	27.4 (27-28)	25 (25-25)	28 (28-28)	27.7 (27-28)	27.4 (27-28)	25 (25-25)	25.7 (25-27)	26.3 (25-27)	27.7 (27-28)	26.1 (25-27)	25 (25-25)	26.3 (25-27)	27.7 (27-28)	26.1 (25-27)	25.1 (25-26)	25 (25-25)	25 (25-25)	27.6 (27-28)	25 (25-25)	25 (25-25)	25 (25-25)	27.6 (27-28)	25.1 (25-26)	25 (25-25)	27.7 (27-28)
MOMA	24.1 (23-25)	24.1 (23-25)	24.5 (23-25)	23.7 (23-24)	24 (23-25)	23.9 (23-24)	24.55 (24-25)	23.3 (23-24)	24 (23-25)	25.1 (25-26)	25.3 (25-26)	24.55 (24-25)	25.3 (25-26)	23.8 (23-25)	25.1 (25-26)	24.4 (24-25)	25 (25-25)	24.1 (23-25)	24.4 (24-25)	24.7 (24-25)	24.7 (24-25)	24.6 (24-25)	24.05 (23-25)	24.3 (23-25)	24.3 (24-25)	24.7 (23-25)	24.1 (24-25)	23.05 (22.5-24)
MWOB	24.25 (23.5-25)	23.5 (23-25)	22.1 (22-23)	23.3 (23-24)	23.3 (23-24)	22.9 (22-23)	22.1 (22-23)	23 (22-24)	23.2 (23-24)	25.5 (25-26)	25.2 (25-26)	22.2 (22-23)	25 (25-25)	23.45 (23-24)	24.7 (24-25)	22.1 (22-23)	24.65 (24-25)	23.15 (22.5-24)	24.9 (24-25)	24 (23-25)	22.1 (22-23)	23.9 (23-25)	23.3 (23-24)	24.1 (24-25)	22.1 (22-23)	23.8 (23-24)	23.6 (23-24)	22 (22-22)
NCCM	22 (22-22)	22 (22-22)	22 (22-22)	22 (22-22)	22.4 (22-23)	22 (22-22)	21.9 (21-22)	22 (22-22)	22.8 (22-23)	26.25 (26-27)	25.5 (25-26)	22 (22-22)	25.65 (25-26.5)	22.5 (22-23)	25.25 (25-26)	22 (22-22)	25 (25-25)	22.5 (22-23)	25.9 (25-27)	25.35 (25-26.5)	22 (22-22)	25.15 (24-26)	22.6 (22-23)	24.5 (23-25)	22 (22-22)	24.4 (23-25)	22.7 (22-23)	22 (22-22)
NCNC	22 (22-22)	22 (22-22)	22 (22-22)	22 (22-22)	23 (22-24)	22 (22-22)	22 (22-22)	22 (22-22)	23.2 (22-24)	25.45 (25-26)	25.2 (25-26)	22 (22-22)	25.3 (25-26)	22.8 (22-24)	25.1 (25-26)	22 (22-22)	25 (25-25)	23 (22-24)	25.2 (25-26)	25.1 (25-26)	22 (22-22)	25 (25-25)	22.8 (22-24)	24.65 (24-25)	22 (22-22)	25 (25-25)	23.2 (22-24)	22 (22-22)
NEOR	24.25 (23-25)	24.5 (24-25)	23.7 (23-24)	24.6 (24-25)	24.3 (24-25)	24.2 (24-25)	23.8 (23-24)	24.1 (23-25)	24.4 (24-25)	26.15 (25-27)	25.8 (25-27)	23.9 (23-25)	25.7 (25-27)	24.5 (23-25)	25.5 (25-27)	23.95 (23-24.5)	25.1 (24-26)	24.5 (24-25)	24.9 (24-25)	24.55 (24-25.5)	23.95 (23-25)	24.9 (24-25)	24.3 (24-25)	24.6 (24-25)	23.65 (23-24)	24.6 (24-25)	24.5 (24-25)	24.7 (24-25)
NJTO	25.2 (25-26)	25.15 (25-26)	26 (25-27)	25.2 (25-26)	27.1 (26-28)	25.2 (25-26)	26.35 (25-27)	25.4 (25-27)	27.25 (27-28)	25.85 (25-26.5)	26 (25-27)	26.05 (25-27)	26.3 (25-27)	27.1 (26-28)	26.1 (25-27)	26.2 (25-27)	26.6 (26-27)	27.35 (27-28)	25.75 (25-27)	25.35 (25-26)	26.05 (25-27)	25.7 (25-27)	27.1 (26-28)	25.4 (25-26)	25.6 (25-27)	26.1 (25-27)	26.9 (25-28)	22.7 (22-24)
NYFL	29.45 (29-31)	29.9 (29-31)	26.15 (25-28.5)	29.2 (28-31)	28.2 (28-29)	28.8 (28-29)	26.6 (25-27)	28.9 (28-30)	28.1 (28-29)	27 (26-28)	28.2 (28-29)	26.75 (25-28)	27.7 (27-28)	28.2 (28-29)	28.6 (28-30)	26.6 (25-28)	27.9 (27-29)	28 (27-29)	25.2 (25-26)	26.9 (26-28)	26.7 (25-28)	26.65 (26-27)	28.2 (27-29)	27.1 (26-28)	26.2 (25-27.5)	26.75 (25-27.5)	28.1 (27-29)	28.3 (28-29)
NYRT	27.7 (27-28)	27.5 (27-28)	25.3 (25-27)	27.6 (27-28)	26.75 (26-27)	27.6 (27-28)	25.4 (25-26)	27.5 (27-28)	26.7 (26-27)	25 (25-25)	25 (25-25)	25.4 (25-27)	25.1 (25-26)	26.7 (26-27)	25 (25-25)	25.3 (25-26)	25.3 (25-26)	26.9 (26-28)	25 (25-25)	25 (25-25)	25.1 (25-26)	25 (25-25)	27 (27-27)	25 (25-25)	25.1 (25-26)	25 (25-25)	26.9 (26-27)	27.5 (27-28)
OHLB	22 (22-22)	22 (22-22)	22.9 (22-23)	22 (22-22)	25 (25-25)	22 (22-22)	22.9 (22-23)	22.1 (22-23)	24.9 (24-25)	25.1 (25-26)	25 (25-25)	22.8 (22-23)	25.1 (25-26)	24.9 (24-25)	25 (25-25)	22.5 (22-23)	25 (25-25)	25 (25-25)	23.5 (23-24)	23.1 (23-24)	22.7 (22-23)	23.3 (23-24)	25 (25-25)	22.8 (22-23)	22.6 (22-23)	23.1 (23-24)	24.8 (24-25)	22 (22-22)
OHLP	22.5 (22-24)	22 (22-22)	22.25 (22-23)	22.3 (22-23)	24.6 (23-26)	22 (22-22)	22.6 (22-24)	22.2 (22-23)	24.7 (23-26)	26.4 (25-27)	25.55 (24-27)	22.25 (22-23)	26.2 (25-28)	24.6 (22-26)	25.1 (23-26)	22.2 (22-23)	25.6 (25-27)	24.8 (23-27)	24.05 (22-26.5)	23.6 (22-25)	22.1 (22-23)	23.7 (22-25)	24.5 (23-25)	23.5 (23-24)	22.25 (22-23)	23.8 (22-25)	24.9 (24-26)	22 (22-22)
OHOV	23.6 (23-25)	23.8 (22-25)	24.6 (23-26)	23.55 (22-25)	25.3 (24-27)	23.85 (22.5-25)	24.4 (23-26)	23.6 (22-25)	24.8 (23-26)	26.85 (25-28.5)	27.1 (25-29)	24.9 (24-26)	26.3 (25-28)	25.3 (24-27)	27 (25-29)	24.4 (23-27)	26.2 (25-28)	25.4 (24-27)	24.95 (24-26)	25.25 (24-26.5)	24.6 (23-26)	24.8 (24-25)	25.3 (24-27)	25.45 (24-27)	24.3 (23-25)	24.7 (23-26)	25.15 (24.5-26)	24.05 (22-25)
OKOP	25.5 (25-27)	25.3 (25-26)	22 (22-22)	25.7 (25-28)	23.75 (23-25)	25.4 (25-27)	22 (22-22)	25.6 (25-27)	23.8 (23-25)	25.1 (25-26)	25.25 (25-26)	22 (22-22)	25.3 (25-26)	23.9 (23-25)	25.1 (25-26)	22 (22-22)	25.1 (25-26)	23.8 (23-25)	24.3 (23-25)	23.7 (23-25)	22 (22-22)	24.1 (22-25)	23.5 (22-24)	23.35 (22-25)	22.05 (22-22.5)	23.75 (22-25)	23.8 (23-25)	24.1 (23-25)
ORUO	22 (22-22)	22 (22-22)	24.05 (22-25)	22 (22-22)	23.3 (22-25)	22 (22-22)	23.95 (22-25)	22 (22-22)	23.45 (22-25)	29.4 (28-31)	28.65 (28-29.5)	24.05 (23-25)	28.8 (28-31)	23.05 (22-24)	28.15 (27-29)	24.2 (23-25)	27.9 (27-29)	23.6 (22-25)	28.95 (28-30.5)	28.5 (28-30)	24.1 (22-25)	28.6 (28-29)	23.35 (22-24)	27.6 (27-28)	23.9 (22-25)	27.9 (27-29)	23.5 (22-25)	21.9 (21-22)
PADV	25.1 (25-26)	25 (25-25)	25.4 (25-26)	25 (25-25)	27.1 (27-28)	25 (25-25)	25.5 (25-26)	25.05 (25-25.5)	27 (26-28)	25.1 (25-26)	25.2 (25-26)	25.5 (25-26)	25.8 (25-26)	27 (27-27)	25.2 (25-26)	25.3 (25-26)	26 (26-26)	26.9 (26-27)	25 (25-25)	25.1 (25-26)	25.5 (25-26)	25.1 (25-26)	27 (27-27)	25 (25-25)	25.65 (25-26)	25.5 (25-26)	27 (27-27)	25 (25-25)
PATF	28.25 (27-29)	28.5 (28-29)	27.1 (26-28)	28.1 (27-29)	28.1 (27-29)	28.4 (28-29)	27.1 (27-28)	28.15 (27-29)	28.1 (28-29)	28.1 (28-29)	28.1 (28-29)	26.85 (26-28)	27.95 (27.5-28)	27.9 (27-29)	28.1 (28-29)	26.8 (25-28)	28.1 (28-29)	28 (27-29)	25.55 (25-27)	25.9 (25-27)	26.8 (26-28)	25.4 (25-26)	28.1 (28-29)	25.7 (25-27)	26.8 (25.5-27.5)	25.8 (25-27)	28 (27-29)	26.6 (25-28)
SCOP	22.1 (22-23)	22 (22-22)	22.1 (22-23)	22.1 (22-23)	22.45 (22-23)	22.1 (22-23)	22.2 (22-23)	22 (22-22)	22.3 (22-23)	26.2 (25-27)	25.9 (25-27)	22.2 (22-23)	25.3 (25-26)	22.6 (22-23)	25.3 (25-26)	22.1 (22-23)	24.6 (24-25)	22.3 (22-23)	25.4 (25-26)	25.3 (25-26)	22.1 (22-23)	25 (24-26)	22.4 (22-23)	25.1 (25-26)	22.2 (22-23)	24.1 (23-25)	22.5 (22-23)	22 (22-22)
TNDS	22 (22-22)	22 (22-22)	22 (22-22)	22.1 (22-23)	22.7 (22-23)	22 (22-22)	22 (22-22)	22 (22-22)	22.7 (22-23)	25.95 (25.5-26)	25.9 (25-26)	22 (22-22)	25.8 (25-26)	23 (22-24)	25.2 (25-26)	22 (22-22)	25 (25-25)	23 (23-23)	23.95 (23-25)	23.5 (23-24)	22 (22-22)	23.55 (23-24)	22.8 (22-23)	23.3 (22-25)	22 (22-22)	23.2 (22-24)	22.9 (22-23)	22 (22-22)
TNMS	22.1 (22-23)	22 (22-22)	23.55 (23-24)	22.1 (22-23)	22.8 (22-23)	22.1 (22-23)	23.5 (23-24)	22.3 (22-23)	22.55 (22-23)	25.2 (25-26)	25.3 (25-26)	23.6 (22-25)	25.1 (25-26)	22.8 (22-24)	25.3 (25-26)	23.7 (23-24)	24.9 (24-25)	22.9 (22-24)	24.1 (23-25)	24 (23-25)	23.35 (22-25)	23.7 (23-25)	22.85 (22-24)	23.8 (23-24)	23.5 (22-24)	24 (23-25)	22.7 (22-23)	22.1 (22-23)
TXGC	25.2 (25-26)	25.2 (25-26)	25 (25-25)	25.3 (25-26)	25 (25-25)	25.1 (25-26)	25 (25-25)	25.4 (25-26)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)
TXSA	27.85 (27-	27.9 (27-	27.9 (27-	27.85 (27-	27 (26-28)	28 (28-28)	28.1 (28-	27.6 (26-	27.1 (26-	26.2 (26-	27.2 (27-	28.2 (28-	27.1 (26-	26.7 (26-	27.8 (27-	28 (27-29)	27.45 (27-	26.8 (26-	26.4 (26-	27 (26-28)	28 (27-29)	27.05 (26-	26.9 (26-	27.6 (27-	28.1 (28-	27.2 (26-	26.8 (26-	27.25 (26-

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	11 Region	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	Current
	28)	28)	28)	28)			29)	28)	28)	27)	28)	29)	28)	28)	28)		28)	28)	27)			28)	27)	28)	29)	28)	27)	28)
TXSB	25.2 (25-26)	25.05 (25-25.5)	24.8 (24-25)	25.3 (25-26)	25 (25-25)	25.1 (25-26)	24.55 (24-25)	25.3 (25-26)	25 (25-25)	25.1 (25-26)	25 (25-25)	24.6 (24-25)	25 (25-25)	25 (25-25)	25 (25-25)	24.5 (24-25)	25 (25-25)	25 (25-25)	25 (25-25)	25 (25-25)	24.8 (24-25)	25 (25-25)	25 (25-25)	25 (25-25)	24.7 (24-25)	25 (25-25)	25 (25-25)	24.1 (24-25)
UTOP	31 (30-32)	31.3 (30-32)	26.75 (26-27)	31.6 (30-32)	25.2 (24-26)	31 (30-32)	26.4 (25-28)	31.1 (30-32)	25.2 (25-26)	27.65 (27-28)	27.6 (26-29)	26.15 (25-27)	27.8 (27-29)	25.3 (25-27)	27.5 (27-28)	26 (25-28)	27.7 (26-29)	25.4 (24-27)	27.25 (25-28)	27.2 (26-28)	26.45 (25-28)	27.1 (26-28)	25.15 (24-26)	26.95 (26-28)	26.35 (25-28)	27 (25-28)	25.1 (25-26)	28.05 (26-30)
VATB	22 (22-22)	22 (22-22)	23.4 (23-24)	22 (22-22)	24.9 (24-25)	22 (22-22)	23.4 (23-24)	22 (22-22)	24.9 (24-25)	26.3 (26-27)	26.1 (26-27)	23.6 (23-24)	25.9 (25-26)	24.8 (24-25)	25.6 (25-26)	23.2 (23-24)	25.6 (25-26)	24.9 (24-25)	25.7 (25-26)	25.5 (25-26)	23.7 (23-24)	25.3 (25-26)	24.6 (24-25)	25 (25-25)	23.4 (23-24)	25 (25-25)	25 (25-25)	22 (22-22)
WALC	22.55 (22-24)	22.2 (22-23)	25 (25-25)	22.45 (22-23.5)	24.5 (24-25)	22.55 (22-24)	25.1 (25-26)	22.4 (22-24)	24.4 (24-25)	27.8 (27-28)	27.6 (27-28)	25 (25-25)	27.8 (27-29)	24.6 (24-25)	27.5 (27-28)	25 (25-25)	26.8 (25-28)	24.7 (24-25)	27.9 (27-29)	27.8 (27-28)	25 (25-25)	27.4 (27-28)	24.5 (24-25)	27.1 (26-28)	25 (25-25)	27.15 (26.5-28)	24.6 (24-25)	22 (22-22)
WIDN	27.8 (27-29)	27.5 (26-29)	24.9 (24-25)	27.95 (27-28.5)	26.3 (25-27)	27.6 (27-29)	25.1 (25-26)	27.45 (25-29)	26.3 (25-27)	27.35 (27-28)	27.7 (27-28)	25 (25-25)	27.3 (27-28)	26.45 (26-27)	27.2 (27-28)	25.1 (25-26)	27.5 (27-28)	25.75 (25-27)	25 (25-25)	25 (25-25)	25.1 (24-26)	25 (24-26)	26.2 (25-27.5)	25.25 (25-26)	25.2 (25-27)	25 (25-25)	26.05 (25-27)	25.4 (24-27)
WIUW	28.4 (28-29)	27.9 (27-29)	24.75 (24-26)	28.25 (27-29)	26.7 (25-28)	27.4 (26-29)	24.8 (24-25)	28.3 (27-30)	26.5 (26-27)	27.7 (27-28.5)	28 (28-28)	24.9 (24-26)	28.05 (28-28.5)	26.1 (25-27)	27.4 (26-28)	24.85 (23.5-26)	27.8 (27-28)	26.35 (25-27)	25 (24-26)	24.85 (24-26)	24.8 (23-26)	24.8 (24-25)	25.95 (25-27)	24.8 (23-26)	24.8 (24-25)	25 (24-26)	26.5 (25-28)	24.35 (23-25)

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At the request of OPTN Liver and Intestinal Organ Committee members, simulated transplant counts for each of the 28 scenarios by DSA are provided in the section below. It is important to note that the number of simulated transplants is not directly comparable between different numbers of regions/districts. Larger districts are expected to have higher transplant counts since there is a larger population included in the district. Transplant rates, which are a more directly comparable metric, are also provided below this section.

Table I45. Transplant counts per year by scenario and DSA

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	current
ALOB	96 (87-102)	97 (88-104)	87 (78-95)	98 (90-103)	94 (88-97)	98 (89-104)	88 (76-93)	98 (89-103)	95 (87-99)	74 (66-83)	75 (70-82)	88 (78-94)	77 (67-84)	94 (85-99)	76 (67-83)	88 (78-94)	78 (70-88)	94 (82-98)	75 (69-80)	76 (67-85)	88 (78-95)	77 (69-84)	94 (87-98)	77 (69-81)	89 (81-95)	79 (72-82)	95 (87-99)	98 (86-103)
AROR	20 (17-23)	20 (17-24)	19 (15-22)	20 (17-24)	18 (15-22)	20 (18-23)	19 (16-23)	20 (16-23)	19 (16-22)	14 (12-17)	15 (13-17)	19 (16-21)	14 (13-17)	18 (16-21)	15 (13-18)	19 (16-21)	15 (12-18)	18 (15-22)	15 (13-18)	16 (14-18)	19 (16-23)	16 (13-17)	18 (16-21)	16 (14-17)	19 (16-22)	15 (12-18)	18 (16-22)	21 (18-26)
AZOB	107 (102-112)	107 (100-111)	132 (128-138)	107 (104-114)	128 (124-132)	108 (105-112)	132 (127-135)	109 (106-113)	129 (123-134)	132 (127-137)	133 (126-139)	132 (127-136)	131 (128-136)	127 (123-134)	134 (129-139)	132 (127-138)	131 (125-136)	129 (122-135)	125 (118-131)	127 (120-133)	133 (127-136)	127 (121-137)	128 (125-134)	128 (124-136)	132 (126-138)	125 (119-131)	129 (124-132)	116 (111-121)
CADN	319 (309-330)	321 (310-333)	333 (319-343)	321 (309-333)	312 (306-317)	320 (309-331)	335 (326-352)	317 (308-326)	312 (306-320)	324 (314-334)	323 (312-338)	333 (321-341)	322 (312-334)	313 (305-321)	321 (314-333)	335 (326-342)	318 (306-335)	310 (303-316)	331 (325-338)	330 (323-341)	334 (324-342)	327 (318-336)	314 (302-326)	327 (317-340)	333 (327-343)	324 (316-331)	313 (304-319)	311 (301-322)
CAGS	6 (4-8)	6 (4-9)	10 (8-11)	6 (4-8)	6 (5-8)	6 (5-9)	9 (7-12)	6 (3-8)	7 (5-9)	6 (5-8)	6 (5-7)	9 (7-11)	6 (4-8)	7 (5-8)	6 (5-7)	9 (8-11)	6 (4-8)	7 (4-8)	6 (5-7)	6 (5-8)	9 (8-11)	6 (4-8)	7 (4-8)	7 (5-9)	9 (8-12)	6 (5-8)	7 (5-9)	9 (6-11)
CAOP	371 (358-380)	377 (368-384)	406 (395-422)	376 (365-388)	388 (372-401)	378 (369-390)	405 (391-415)	379 (366-392)	388 (371-396)	372 (362-381)	379 (367-394)	407 (393-426)	380 (368-393)	388 (375-401)	382 (373-390)	408 (396-426)	384 (367-397)	388 (377-401)	378 (363-398)	385 (367-396)	406 (397-422)	384 (370-401)	389 (379-399)	387 (379-397)	407 (394-414)	389 (381-396)	387 (374-402)	371 (364-379)
CASD	63 (54-71)	65 (61-72)	70 (62-80)	64 (56-72)	67 (61-75)	65 (58-75)	69 (64-80)	66 (60-76)	67 (58-78)	64 (60-74)	66 (60-75)	69 (62-78)	65 (59-73)	67 (61-79)	66 (58-74)	70 (62-80)	65 (58-74)	67 (62-73)	64 (58-73)	67 (62-76)	71 (67-81)	67 (64-75)	66 (62-74)	66 (59-75)	70 (66-80)	66 (58-73)	67 (63-78)	71 (65-78)
CORS	131 (121-140)	130 (123-140)	105 (100-111)	126 (119-138)	106 (96-112)	128 (119-140)	105 (98-113)	124 (118-136)	105 (97-116)	113 (107-117)	112 (104-121)	105 (99-110)	112 (107-118)	106 (100-113)	112 (107-118)	105 (100-111)	110 (105-115)	106 (99-113)	109 (101-116)	109 (101-117)	104 (98-111)	109 (103-115)	106 (100-110)	109 (104-115)	104 (100-109)	110 (105-117)	106 (98-112)	130 (121-140)
CTOP	11 (9-14)	11 (9-13)	14 (12-16)	12 (9-14)	13 (11-15)	11 (9-13)	13 (12-15)	11 (9-13)	12 (10-14)	16 (13-18)	15 (13-17)	14 (12-16)	15 (14-19)	13 (11-14)	15 (13-17)	14 (11-16)	15 (12-16)	13 (11-16)	16 (12-18)	15 (13-18)	14 (12-16)	15 (12-17)	13 (11-15)	15 (13-17)	14 (12-15)	15 (13-18)	13 (11-15)	12 (10-15)
DCTC	86 (79-93)	87 (82-92)	92 (86-100)	86 (81-91)	93 (89-99)	87 (80-93)	92 (82-101)	87 (80-95)	94 (91-99)	98 (91-104)	100 (94-107)	92 (84-100)	99 (93-105)	93 (88-99)	98 (92-108)	92 (86-101)	99 (91-107)	95 (89-100)	95 (90-101)	96 (88-104)	93 (81-98)	96 (90-106)	94 (88-103)	96 (86-102)	92 (87-97)	95 (88-103)	94 (85-100)	85 (77-93)
FLFH	41 (38-44)	42 (38-46)	38 (35-42)	42 (38-47)	37 (34-40)	42 (38-46)	39 (35-43)	42 (37-47)	37 (34-41)	34 (30-36)	34 (30-38)	37 (34-42)	34 (30-39)	38 (33-40)	35 (32-39)	39 (35-41)	34 (31-39)	37 (32-41)	34 (30-37)	34 (31-39)	38 (33-41)	34 (31-38)	38 (33-42)	35 (32-39)	38 (34-41)	35 (33-37)	37 (34-42)	42 (37-46)
FLMP	163 (158-171)	163 (158-168)	138 (130-144)	165 (160-171)	141 (130-145)	164 (157-170)	138 (129-146)	164 (160-170)	140 (135-148)	122 (113-130)	126 (120-134)	138 (130-146)	126 (121-132)	141 (133-148)	128 (124-134)	138 (131-145)	130 (123-138)	140 (131-146)	123 (117-132)	125 (119-131)	138 (131-143)	126 (121-134)	141 (136-147)	129 (125-135)	137 (133-142)	130 (123-137)	140 (129-147)	167 (161-173)
FLUF	189 (180-198)	191 (183-198)	162 (157-170)	190 (180-201)	170 (163-177)	190 (183-197)	163 (157-170)	190 (182-197)	170 (166-174)	146 (144-152)	149 (143-155)	164 (160-168)	146 (143-155)	170 (161-175)	150 (146-162)	161 (156-166)	149 (144-157)	169 (162-178)	147 (142-158)	150 (144-162)	162 (158-168)	148 (138-154)	170 (166-179)	150 (144-160)	162 (155-168)	148 (143-155)	170 (163-176)	182 (176-188)
FLWC	81 (73-86)	82 (74-88)	73 (65-77)	81 (74-87)	70 (60-78)	83 (73-86)	73 (64-80)	81 (72-87)	70 (63-73)	61 (56-66)	63 (58-71)	74 (67-79)	63 (54-70)	70 (64-74)	66 (58-73)	73 (66-77)	63 (58-70)	70 (62-76)	61 (56-69)	64 (58-71)	74 (65-77)	64 (58-71)	70 (62-76)	65 (56-72)	74 (64-78)	64 (57-70)	70 (61-73)	86 (73-90)
GALL	181 (175-185)	185 (175-192)	189 (181-203)	182 (173-191)	182 (173-190)	188 (181-196)	189 (182-201)	186 (174-195)	184 (174-196)	140 (134-149)	147 (138-154)	189 (182-197)	149 (142-159)	183 (179-191)	151 (143-158)	189 (183-196)	153 (147-162)	183 (178-193)	137 (129-149)	143 (138-153)	189 (182-200)	146 (139-159)	181 (175-189)	149 (140-160)	190 (183-196)	154 (143-163)	184 (177-191)	198 (193-204)
HIOP	12 (11-14)	12 (10-14)	10 (9-12)	12 (10-14)	10 (8-12)	12 (10-14)	10 (9-13)	12 (10-14)	10 (8-12)	8 (6-10)	8 (7-9)	11 (8-12)	7 (6-9)	10 (8-12)	8 (6-10)	11 (9-13)	7 (6-9)	10 (9-12)	8 (7-10)	8 (6-10)	10 (8-11)	8 (5-10)	10 (9-12)	7 (6-9)	10 (9-12)	8 (6-10)	10 (9-12)	12 (9-14)
IAOP	28 (23-31)	27 (23-29)	24 (21-27)	28 (25-31)	29 (25-33)	27 (22-31)	24 (21-28)	29 (25-32)	29 (25-32)	24 (21-26)	23 (20-26)	24 (20-27)	24 (20-29)	29 (24-32)	24 (21-25)	24 (21-29)	25 (22-29)	29 (25-31)	25 (20-28)	25 (22-28)	25 (22-29)	26 (24-30)	29 (25-33)	24 (22-28)	24 (22-27)	26 (23-28)	28 (24-32)	29 (26-33)
ILIP	229 (218-244)	234 (228-246)	290 (280-298)	229 (221-244)	281 (274-295)	238 (229-252)	292 (281-301)	229 (220-238)	281 (272-294)	283 (269-293)	286 (272-302)	291 (286-303)	284 (275-294)	281 (273-290)	288 (275-299)	291 (284-303)	287 (276-296)	282 (274-292)	290 (277-306)	292 (280-300)	290 (282-302)	290 (282-303)	282 (270-293)	291 (283-304)	290 (282-301)	290 (281-303)	281 (270-291)	235 (229-248)
INOP	99 (95-105)	100 (94-110)	94 (88-108)	99 (94-104)	89 (82-97)	100 (96-109)	96 (91-103)	99 (93-106)	89 (82-95)	80 (73-86)	84 (77-90)	94 (85-104)	85 (79-90)	88 (83-95)	85 (78-91)	95 (88-103)	87 (79-97)	88 (79-98)	90 (87-94)	91 (84-99)	95 (88-103)	90 (84-98)	89 (81-95)	90 (82-98)	95 (88-103)	91 (85-98)	88 (80-95)	104 (99-110)
KYDA	80 (74-85)	81 (76-	76 (71-	81 (78-	68 (65-	81 (77-	77 (72-	80 (75-	66 (64-	52 (48-58)	55 (51-	75 (71-	55 (52-	66 (60-	57 (53-	76 (71-	58 (55-	67 (62-	63 (60-66)	64 (58-	75 (69-	65 (61-	66 (62-	66 (63-	76 (71-	66 (61-	67 (63-	81 (76-85)

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	current
		85)	83)	86)	73)	87)	83)	87)	70)		58)	81)	59)	70)	62)	82)	61)	72)		69)	82)	71)	70)	69)	80)	70)	73)	
LAOP	153 (142-	153 (143-	138 (131-	153 (144-	129 (120-	152 (144-	137 (129-	154 (142-	129 (120-	117 (104-	122 (115-	139 (132-	119 (109-	127 (116-	124 (116-	137 (131-	121 (112-	128 (119-	118 (104-	123 (112-	138 (133-	121 (109-	128 (125-	125 (116-	137 (128-	123 (116-	127 (119-	155 (147-
	162)	162)	144)	167)	137)	160)	144)	167)	135)	128)	131)	144)	126)	136)	134)	143)	130)	137)	131)	130)	143)	132)	133)	134)	146)	134)	137)	164)
MAOB	200 (194-	201 (198-	229 (222-	200 (197-	225 (214-	200 (196-	230 (223-	200 (196-	226 (217-	272 (259-	269 (261-	230 (224-	265 (254-	226 (218-	263 (251-	229 (222-	259 (248-	225 (216-	264 (252-	258 (247-	232 (223-	259 (251-	225 (216-	257 (244-	232 (224-	257 (247-	226 (220-	199 (193-
	206)	207)	241)	205)	234)	204)	235)	204)	234)	284)	276)	239)	274)	241)	272)	236)	274)	234)	272)	272)	242)	270)	236)	270)	242)	266)	234)	205)
MDPC	94 (87-	96 (90-	101 (94-	95 (89-	99 (92-	97 (92-	100 (91-	95 (90-	102 (97-	106 (99-	108 (102-	101 (95-	108 (99-	102 (95-	109 (100-	100 (92-	107 (97-	101 (96-	104 (98-	105 (97-	101 (97-	103 (97-	101 (93-	106 (100-	102 (95-	105 (95-	101 (93-	94 (88-
	101)	100)	107)	100)	106)	100)	109)	101)	106)	112)	115)	107)	116)	108)	118)	105)	116)	105)	113)	111)	108)	110)	109)	117)	107)	115)	108)	102)
MIOP	184 (172-	184 (174-	172 (163-	182 (173-	151 (145-	187 (175-	171 (167-	181 (171-	150 (142-	148 (142-	154 (147-	171 (160-	153 (148-	152 (147-	156 (153-	170 (163-	156 (147-	152 (142-	156 (149-	160 (156-	170 (163-	158 (153-	152 (141-	164 (157-	171 (165-	160 (152-	151 (143-	194 (183-
	196)	194)	179)	192)	158)	196)	184)	191)	160)	153)	164)	178)	157)	161)	162)	179)	169)	157)	164)	169)	180)	167)	156)	174)	178)	170)	159)	206)
MNOP	160 (153-	155 (145-	158 (144-	162 (156-	183 (176-	151 (143-	159 (151-	160 (156-	184 (177-	177 (169-	177 (171-	158 (150-	179 (168-	182 (177-	176 (164-	159 (150-	178 (164-	182 (174-	185 (171-	183 (171-	160 (149-	184 (174-	183 (173-	182 (170-	160 (152-	181 (173-	183 (176-	152 (143-
	170)	164)	165)	172)	189)	160)	167)	170)	193)	182)	182)	165)	190)	185)	183)	166)	187)	189)	194)	192)	166)	195)	190)	190)	167)	188)	189)	160)
MOMA	127 (117-	128 (118-	124 (116-	130 (121-	136 (128-	130 (118-	123 (117-	132 (124-	136 (124-	122 (113-	121 (115-	124 (116-	120 (109-	135 (127-	120 (113-	125 (117-	120 (110-	135 (121-	118 (113-	118 (109-	123 (114-	117 (109-	136 (127-	118 (112-	124 (115-	116 (111-	135 (127-	132 (125-
	138)	137)	136)	140)	149)	140)	141)	145)	147)	133)	134)	133)	135)	149)	135)	141)	133)	146)	130)	130)	135)	127)	150)	130)	141)	129)	149)	147)
MWOB	63 (57-	65 (59-	70 (62-	66 (60-	66 (60-	67 (60-	70 (63-	67 (62-	66 (60-	55 (48-	58 (50-	70 (63-	57 (51-	67 (61-	59 (54-	71 (64-	60 (54-	66 (59-	58 (52-	61 (54-	70 (65-	61 (55-	66 (58-	62 (54-	70 (61-	62 (57-	67 (61-	74 (65-
	72)	75)	78)	75)	73)	74)	79)	75)	78)	62)	65)	79)	66)	76)	66)	81)	69)	75)	64)	67)	78)	70)	76)	70)	81)	73)	75)	83)
NCCM	53 (47-	54 (46-	54 (49-	53 (48-	49 (44-	54 (47-	54 (48-	54 (48-	48 (42-	40 (36-	42 (38-	54 (47-	42 (37-	48 (43-	43 (37-	53 (48-	44 (38-	48 (42-	39 (35-	41 (36-	55 (49-	42 (34-	49 (44-	42 (36-	54 (48-	44 (38-	48 (44-	52 (47-
	58)	59)	59)	58)	56)	58)	58)	60)	53)	45)	45)	60)	47)	54)	47)	58)	49)	53)	43)	46)	59)	46)	55)	46)	60)	48)	52)	56)
NCNC	100 (93-	102 (95-	100 (92-	102 (95-	89 (82-	105 (95-	101 (93-	102 (93-	88 (78-	74 (69-	79 (74-	101 (95-	77 (70-	88 (81-	81 (73-	100 (92-	81 (74-	89 (79-	74 (67-	76 (68-	101 (92-	77 (70-	88 (79-	80 (75-	101 (95-	79 (72-	88 (80-	105 (95-
	109)	109)	110)	110)	98)	113)	108)	111)	97)	78)	87)	112)	84)	94)	91)	107)	89)	98)	81)	86)	110)	83)	96)	85)	111)	88)	95)	115)
NEOR	80 (74-	82 (75-	82 (77-	81 (76-	77 (71-	80 (72-	82 (75-	82 (78-	78 (74-	73 (67-	75 (71-	82 (78-	74 (66-	79 (74-	75 (70-	82 (75-	76 (70-	77 (71-	76 (70-	76 (69-	81 (77-	76 (71-	78 (73-	77 (73-	82 (76-	78 (75-	78 (74-	73 (67-
	87)	87)	89)	88)	83)	85)	88)	86)	84)	78)	81)	87)	80)	83)	81)	88)	83)	83)	81)	81)	85)	82)	85)	82)	86)	81)	82)	79)
NJTO	50 (44-	51 (46-	50 (43-	50 (45-	46 (39-	51 (45-	49 (43-	49 (45-	46 (41-	54 (48-	56 (50-	50 (43-	54 (49-	47 (40-	55 (51-	50 (43-	53 (48-	46 (40-	53 (48-	54 (48-	49 (44-	52 (46-	46 (41-	54 (48-	50 (43-	53 (49-	46 (43-	61 (56-
	60)	58)	57)	61)	52)	60)	57)	60)	52)	61)	62)	58)	58)	51)	60)	59)	61)	53)	61)	62)	59)	63)	52)	62)	58)	61)	53)	70)
NYFL	50 (46-	49 (47-	68 (61-	50 (46-	70 (67-	49 (47-	68 (63-	51 (47-	70 (67-	81 (75-	77 (73-	69 (63-	81 (76-	69 (63-	75 (70-	67 (63-	78 (73-	70 (66-	74 (70-	70 (65-	69 (66-	72 (66-	69 (65-	69 (65-	67 (61-	70 (66-	69 (65-	52 (49-
	52)	52)	73)	54)	73)	52)	74)	56)	73)	86)	83)	74)	87)	75)	81)	75)	84)	74)	81)	76)	73)	77)	77)	76)	73)	76)	72)	57)
NYRT	295 (287-	300 (291-	371 (361-	295 (288-	350 (336-	299 (292-	369 (357-	295 (286-	349 (336-	414 (400-	411 (399-	368 (354-	404 (390-	349 (337-	407 (387-	369 (354-	398 (386-	351 (339-	401 (387-	404 (392-	369 (355-	396 (388-	351 (338-	400 (387-	369 (357-	394 (381-	350 (338-	295 (287-
	305)	309)	386)	303)	363)	307)	388)	303)	364)	425)	423)	381)	415)	364)	423)	384)	414)	365)	415)	420)	385)	408)	365)	414)	380)	408)	365)	305)
OHLB	150 (145-	152 (144-	137 (133-	151 (146-	118 (113-	148 (144-	137 (131-	151 (148-	119 (111-	118 (113-	124 (118-	138 (131-	120 (111-	119 (115-	125 (121-	137 (131-	120 (115-	119 (112-	129 (122-	131 (127-	137 (134-	130 (125-	118 (115-	132 (128-	138 (131-	130 (123-	118 (114-	144 (140-
	154)	160)	143)	158)	122)	156)	141)	156)	128)	124)	131)	147)	123)	122)	130)	146)	126)	124)	135)	139)	142)	138)	125)	138)	145)	137)	125)	150)
OHLP	24 (18-	25 (21-	24 (21-	24 (21-	20 (17-	24 (20-	24 (19-	24 (21-	19 (15-	18 (15-	19 (16-	23 (18-	19 (16-	20 (16-	19 (16-	24 (21-	19 (13-	20 (15-	19 (17-	20 (18-	24 (21-	19 (16-	19 (16-	20 (16-	24 (19-	20 (18-	20 (16-	25 (23-
	26)	26)	27)	28)	23)	27)	26)	26)	22)	21)	22)	25)	22)	21)	23)	28)	22)	23)	21)	23)	26)	21)	23)	23)	28)	21)	23)	27)
OHOV	57 (51-	57 (50-	55 (49-	58 (52-	56 (50-	56 (51-	56 (49-	58 (54-	56 (50-	56 (51-	55 (50-	55 (50-	57 (52-	56 (51-	56 (49-	55 (53-	57 (50-	56 (49-	54 (47-	53 (48-	55 (48-	55 (48-	56 (52-	53 (47-	56 (50-	55 (51-	56 (50-	53 (48-
	62)	64)	61)	65)	60)	62)	63)	63)	61)	60)	62)	63)	65)	61)	63)	59)	64)	65)	61)	59)	60)	59)	61)	57)	61)	62)	63)	59)
OKOP	52 (44-	52 (47-	74 (64-	52 (45-	67 (62-	53 (49-	73 (65-	51 (45-	65 (57-	61 (55-	61 (56-	74 (67-	61 (57-	66 (63-	60 (54-	74 (69-	61 (58-	65 (59-	61 (59-	64 (61-	73 (68-	62 (55-	65 (60-	64 (59-	73 (67-	62 (59-	65 (62-	56 (53-
	55)	57)	80)	56)	70)	56)	79)	54)	73)	66)	64)	77)	67)	72)	64)	79)	66)	70)	65)	68)	77)	65)	68)	69)	77)	64)	68)	60)
ORUO	57 (53-	57 (54-	47 (45-	57 (55-	47 (42-	57 (54-	46 (43-	56 (51-	46 (43-	32 (23-	32 (28-	47 (45-	32 (28-	47 (43-	34 (30-	48 (45-	33 (31-	46 (43-	32 (26-	33 (28-	48 (45-	33 (28-	48 (43-	34 (30-	47 (44-	33 (31-	47 (44-	59 (54-
	59)	61)	48)	60)	51)	59)	49)	60)	48)	35)	35)	50)	35)	51)	40)	51)	36)	49)	36)	36)	50)	35)	52)	37)	52)	38)	49)	63)
PADV	316 (299-	324 (306-	324 (308-	316 (290-	311 (292-	324 (309-	324 (302-	318 (302-	308 (292-	350 (335-	352 (339-	321 (302-	347 (329-	309 (293-	350 (336-	323 (304-	342 (328-	306 (285-	340 (327-	344 (322-	322 (302-	340 (325-	308 (285-	343 (332-	323 (304-	335 (317-	310 (293-	327 (310-
	331)	338)	341)	327)	329)	345)	343)	331)	326)	364)	369)	338)	361)	324)	369)	337)	356)	322)	356)	366)	336)	356)	322)	359)	347)	347)	323)	340)
PATF	213 (207-	209 (200-	226 (217-	211 (200-	223 (212-	208 (196-	227 (220-	212 (205-	222 (208-	234 (224-	235 (218-	228 (221-	234 (225-	223 (211-	236 (221-	228 (219-	234 (225-	222 (210-	232 (223-	230 (222-	226 (215-	231 (218-	223 (214-	231 (220-	226 (215-	233 (220-	223 (209-	222 (213-
	219)	213)	233)	219)	238)	215)	237)	221)	230)	245)	242)	237)	245)	231)	248)	237)	242)	229)	238)	237)	236)	238)	236)	235)	234)	241)	233)	228)
SCOP	60 (57-	59 (56-	55 (51-	60 (55-	57 (51-	58 (56-	56 (52-	60 (55-	56 (53-	45 (41-	47 (43-	55 (51-	49 (44-	57 (52-	48 (44-	56 (51-	50 (46-	56 (51-	45 (40-	47 (42-	55 (51-	49 (44-	57 (52-	47 (43-	55 (52-	50 (45-	56 (50-	62 (59-
	62)	63)	58)	64)	62)	60)	59)	64)	64)	53)	57)	60)	56)	62)	52)	60)	55)	59)	49)	53)	58)	53)	63)	53)	59)	57)	61)	68)
TNDS	92 (84-	95 (89-	88 (80-	93 (86-	84 (80-	94 (87-	87 (82-	93 (88-	85 (79-	67 (61-	68 (61-	88 (84-	69 (65-	85 (80-	70 (66-	87 (84-	72 (67-	86 (79-	78 (71-	79 (74-	87 (80-	78 (72-	85 (80-	79 (74-	86 (81-	80 (77-	86 (84-	100 (96-
	96)	99)	93)	98)	88)	98)	92)	99)	89)	72)	73)	93)	75)	91)	77)	89)	77)	91)	82)	86)	91)	86)	92)	83)	95)	87)	91)	104)
TNMS	96 (91-	94 (87-	74 (67-	92 (88-	86 (83-	93 (88-	75 (73-	91 (85-	87 (81-	71 (65-	72 (67-	75 (72-	74 (68-	87 (82-	71 (67-	75 (72-	75 (70-	86 (80-	69 (65-	69 (65-	75 (70-	72 (69-	86 (83-	70 (66-	74 (70-	71 (70-	87 (81-	91 (84-
	101)	100)	79)	100)	90)	99)	80)	95)	90)	79)	78)	81)	81)	91)	76)	87)	79)	91)	72)	72)	79)	75)	90)	73)	79)	74)	94)	96)
TXGC	226	229	235	227	248	228	234	226	247	264	264	233	266	246	266	233	264	247	264	262	234	264	247	260	234	259	248	222

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	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	current
	(209-234)	(217-238)	(222-243)	(221-235)	(241-255)	(216-239)	(228-244)	(219-238)	(229-255)	(258-274)	(251-274)	(226-242)	(257-275)	(236-257)	(254-274)	(226-243)	(258-274)	(239-251)	(251-272)	(253-271)	(225-241)	(252-275)	(237-254)	(252-268)	(222-241)	(249-267)	(234-253)	(214-230)
TXSA	107 (101-117)	103 (97-109)	98 (93-105)	105 (97-110)	111 (102-120)	103 (97-112)	98 (91-106)	106 (100-114)	111 (103-122)	125 (117-137)	122 (115-138)	99 (92-103)	122 (115-133)	111 (105-119)	119 (114-132)	99 (91-104)	122 (114-134)	112 (104-125)	123 (118-133)	119 (111-133)	99 (95-105)	121 (115-131)	112 (106-119)	118 (112-129)	98 (92-104)	120 (112-130)	112 (105-125)	102 (92-107)
TXSB	155 (147-165)	159 (143-174)	175 (165-185)	157 (144-170)	169 (158-182)	162 (150-173)	174 (164-184)	157 (148-165)	171 (162-179)	178 (169-187)	181 (172-190)	175 (165-181)	181 (173-189)	171 (161-180)	181 (171-191)	174 (166-181)	178 (172-187)	171 (159-181)	177 (167-187)	181 (171-193)	174 (162-185)	178 (167-186)	172 (164-183)	181 (171-188)	176 (166-182)	176 (165-186)	171 (163-182)	179 (173-187)
UTOP	51 (49-54)	50 (46-52)	61 (56-65)	49 (44-53)	58 (54-63)	51 (47-54)	61 (56-64)	50 (44-54)	59 (54-63)	60 (55-63)	61 (57-67)	60 (56-62)	60 (56-64)	59 (55-63)	61 (57-65)	61 (57-66)	60 (57-64)	59 (54-64)	57 (54-61)	57 (52-62)	61 (56-65)	57 (54-60)	59 (56-63)	57 (53-63)	61 (57-64)	58 (54-62)	58 (54-64)	57 (54-62)
VATB	118 (114-122)	118 (111-125)	99 (93-105)	118 (112-123)	94 (88-101)	118 (113-125)	98 (94-103)	119 (114-125)	95 (89-103)	84 (76-91)	86 (80-95)	99 (92-104)	87 (79-93)	94 (87-101)	87 (79-93)	99 (94-104)	88 (83-93)	94 (85-99)	83 (77-93)	85 (78-90)	99 (94-102)	85 (78-90)	95 (88-102)	86 (81-91)	99 (89-104)	87 (77-95)	93 (84-96)	118 (113-124)
WALC	100 (96-105)	100 (96-106)	80 (78-83)	100 (96-106)	86 (82-91)	100 (96-104)	80 (76-88)	101 (98-107)	86 (80-92)	65 (58-69)	65 (58-69)	80 (75-84)	66 (61-71)	86 (81-92)	67 (64-72)	80 (78-85)	68 (63-73)	86 (83-90)	66 (60-72)	67 (61-73)	79 (75-84)	68 (64-73)	85 (80-88)	68 (64-72)	81 (77-86)	69 (63-74)	86 (81-91)	100 (96-105)
WIDN	43 (37-48)	44 (41-48)	55 (51-60)	43 (39-46)	51 (47-55)	44 (41-48)	54 (50-60)	43 (40-46)	51 (46-57)	52 (48-57)	53 (49-57)	55 (51-60)	53 (49-58)	51 (47-55)	55 (49-60)	54 (50-60)	54 (49-59)	51 (46-56)	56 (52-61)	56 (52-61)	54 (50-59)	55 (49-60)	51 (45-56)	55 (49-60)	54 (50-58)	54 (51-58)	51 (48-57)	46 (43-51)
WIUW	52 (46-59)	54 (49-60)	67 (61-74)	53 (49-58)	63 (55-70)	54 (50-60)	66 (60-74)	52 (47-59)	63 (56-72)	63 (54-68)	64 (56-73)	67 (62-74)	64 (56-71)	63 (54-70)	66 (61-73)	69 (64-78)	65 (57-72)	62 (57-72)	69 (63-74)	69 (64-75)	67 (63-75)	69 (65-75)	63 (58-71)	69 (66-74)	68 (59-76)	68 (61-73)	63 (55-67)	62 (56-68)

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Table I46. Transplant rates per patient-year by scenario and DSA

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	current
ALOB	1.06 (1-1.15)	1.09 (0.98-1.26)	0.84 (0.77-0.89)	1.11 (1.01-1.26)	1.01 (0.93-1.1)	1.08 (1-1.23)	0.84 (0.78-0.91)	1.13 (1.08-1.27)	1.03 (0.95-1.17)	0.58 (0.49-0.69)	0.6 (0.53-0.69)	0.85 (0.78-0.96)	0.62 (0.59-0.7)	1.01 (0.93-1.13)	0.61 (0.56-0.7)	0.85 (0.78-0.94)	0.66 (0.58-0.82)	1.01 (0.94-1.12)	0.59 (0.55-0.66)	0.61 (0.56-0.73)	0.85 (0.77-0.93)	0.62 (0.57-0.73)	1.01 (0.91-1.13)	0.62 (0.56-0.69)	0.86 (0.77-0.95)	0.67 (0.62-0.73)	1.03 (0.95-1.13)	1.11 (1.01-1.23)
AROR	0.61 (0.53-0.67)	0.61 (0.51-0.69)	0.56 (0.47-0.7)	0.6 (0.53-0.67)	0.51 (0.41-0.56)	0.62 (0.56-0.7)	0.53 (0.47-0.59)	0.61 (0.49-0.72)	0.55 (0.49-0.62)	0.34 (0.29-0.38)	0.35 (0.31-0.42)	0.57 (0.5-0.64)	0.35 (0.28-0.41)	0.5 (0.41-0.61)	0.37 (0.32-0.43)	0.54 (0.46-0.66)	0.36 (0.31-0.41)	0.53 (0.46-0.61)	0.39 (0.31-0.53)	0.43 (0.34-0.52)	0.56 (0.51-0.62)	0.4 (0.33-0.45)	0.51 (0.44-0.58)	0.41 (0.34-0.52)	0.53 (0.47-0.62)	0.39 (0.33-0.44)	0.53 (0.46-0.67)	0.7 (0.57-0.79)
AZOB	0.23 (0.22-0.25)	0.23 (0.21-0.26)	0.31 (0.3-0.34)	0.23 (0.21-0.25)	0.3 (0.28-0.33)	0.24 (0.22-0.26)	0.31 (0.29-0.35)	0.24 (0.22-0.27)	0.3 (0.28-0.33)	0.31 (0.29-0.33)	0.31 (0.3-0.33)	0.31 (0.29-0.35)	0.31 (0.29-0.33)	0.3 (0.29-0.32)	0.32 (0.3-0.34)	0.31 (0.29-0.36)	0.31 (0.29-0.33)	0.3 (0.28-0.36)	0.29 (0.27-0.32)	0.3 (0.27-0.32)	0.31 (0.29-0.34)	0.3 (0.28-0.32)	0.3 (0.29-0.33)	0.3 (0.28-0.33)	0.31 (0.29-0.34)	0.29 (0.27-0.32)	0.3 (0.28-0.34)	0.26 (0.24-0.29)
CADN	0.17 (0.16-0.18)	0.17 (0.16-0.18)	0.18 (0.17-0.19)	0.17 (0.16-0.18)	0.17 (0.16-0.17)	0.17 (0.16-0.18)	0.18 (0.17-0.19)	0.17 (0.16-0.17)	0.17 (0.16-0.17)	0.17 (0.17-0.18)	0.17 (0.17-0.18)	0.18 (0.17-0.18)	0.17 (0.17-0.18)	0.17 (0.16-0.17)	0.17 (0.17-0.18)	0.18 (0.17-0.19)	0.17 (0.16-0.18)	0.16 (0.16-0.17)	0.18 (0.17-0.18)	0.18 (0.17-0.18)	0.18 (0.18-0.19)	0.17 (0.17-0.18)	0.17 (0.16-0.17)	0.17 (0.17-0.18)	0.18 (0.17-0.18)	0.17 (0.17-0.18)	0.17 (0.16-0.17)	0.16 (0.16-0.17)
CAGS	0.23 (0.17-0.34)	0.27 (0.2-0.38)	0.49 (0.38-0.59)	0.25 (0.19-0.37)	0.27 (0.22-0.33)	0.27 (0.22-0.37)	0.42 (0.31-0.49)	0.23 (0.15-0.33)	0.32 (0.25-0.39)	0.26 (0.17-0.32)	0.25 (0.2-0.33)	0.48 (0.37-0.64)	0.26 (0.2-0.34)	0.31 (0.26-0.41)	0.27 (0.23-0.36)	0.46 (0.37-0.54)	0.28 (0.17-0.37)	0.3 (0.22-0.38)	0.25 (0.19-0.33)	0.28 (0.21-0.37)	0.47 (0.43-0.52)	0.26 (0.18-0.37)	0.29 (0.19-0.39)	0.3 (0.19-0.46)	0.47 (0.36-0.55)	0.27 (0.21-0.37)	0.29 (0.23-0.36)	0.46 (0.37-0.68)
CAOP	0.24 (0.23-0.25)	0.25 (0.24-0.25)	0.27 (0.26-0.28)	0.24 (0.24-0.25)	0.26 (0.24-0.26)	0.25 (0.24-0.25)	0.27 (0.26-0.28)	0.25 (0.23-0.26)	0.26 (0.24-0.26)	0.24 (0.24-0.25)	0.25 (0.24-0.26)	0.27 (0.26-0.28)	0.25 (0.24-0.26)	0.26 (0.24-0.27)	0.25 (0.24-0.26)	0.27 (0.26-0.29)	0.25 (0.24-0.26)	0.26 (0.24-0.27)	0.25 (0.24-0.26)	0.25 (0.25-0.26)	0.27 (0.26-0.28)	0.25 (0.24-0.27)	0.26 (0.25-0.27)	0.25 (0.24-0.26)	0.27 (0.26-0.28)	0.26 (0.25-0.26)	0.26 (0.24-0.27)	0.24 (0.23-0.25)
CASD	0.17 (0.15-0.19)	0.18 (0.17-0.19)	0.2 (0.18-0.22)	0.18 (0.16-0.19)	0.19 (0.18-0.2)	0.18 (0.16-0.2)	0.2 (0.18-0.22)	0.18 (0.17-0.21)	0.19 (0.17-0.22)	0.18 (0.16-0.2)	0.18 (0.17-0.2)	0.2 (0.18-0.22)	0.18 (0.17-0.2)	0.19 (0.18-0.22)	0.18 (0.17-0.2)	0.2 (0.18-0.22)	0.18 (0.17-0.2)	0.19 (0.18-0.2)	0.18 (0.16-0.2)	0.19 (0.18-0.21)	0.2 (0.19-0.22)	0.19 (0.17-0.2)	0.19 (0.17-0.2)	0.18 (0.17-0.2)	0.2 (0.18-0.22)	0.18 (0.17-0.2)	0.19 (0.18-0.21)	0.2 (0.18-0.22)
CORS	0.25 (0.23-0.27)	0.25 (0.23-0.26)	0.18 (0.18-0.2)	0.24 (0.22-0.25)	0.19 (0.16-0.21)	0.24 (0.23-0.26)	0.18 (0.17-0.2)	0.23 (0.22-0.25)	0.19 (0.16-0.2)	0.2 (0.2-0.21)	0.2 (0.18-0.21)	0.18 (0.17-0.19)	0.2 (0.19-0.21)	0.19 (0.17-0.21)	0.2 (0.19-0.21)	0.19 (0.17-0.2)	0.2 (0.19-0.21)	0.19 (0.17-0.21)	0.19 (0.17-0.22)	0.19 (0.18-0.22)	0.18 (0.16-0.2)	0.19 (0.18-0.21)	0.19 (0.17-0.2)	0.2 (0.18-0.21)	0.18 (0.17-0.2)	0.2 (0.18-0.22)	0.19 (0.17-0.21)	0.25 (0.23-0.28)
CTOP	0.24 (0.18-0.29)	0.24 (0.19-0.29)	0.31 (0.29-0.34)	0.25 (0.19-0.35)	0.28 (0.25-0.37)	0.23 (0.18-0.3)	0.3 (0.27-0.35)	0.24 (0.19-0.3)	0.27 (0.23-0.3)	0.37 (0.31-0.43)	0.36 (0.32-0.39)	0.32 (0.29-0.37)	0.36 (0.34-0.43)	0.29 (0.26-0.32)	0.36 (0.31-0.42)	0.31 (0.25-0.4)	0.34 (0.28-0.43)	0.28 (0.23-0.33)	0.36 (0.29-0.41)	0.36 (0.32-0.41)	0.31 (0.27-0.39)	0.36 (0.3-0.44)	0.28 (0.24-0.32)	0.36 (0.31-0.4)	0.31 (0.27-0.37)	0.35 (0.32-0.4)	0.28 (0.24-0.32)	0.27 (0.22-0.37)
DCTC	0.38 (0.35-0.41)	0.38 (0.35-0.42)	0.41 (0.38-0.46)	0.38 (0.35-0.41)	0.42 (0.39-0.44)	0.38 (0.35-0.41)	0.41 (0.37-0.46)	0.38 (0.35-0.42)	0.43 (0.4-0.45)	0.45 (0.41-0.48)	0.46 (0.43-0.49)	0.41 (0.37-0.45)	0.46 (0.42-0.49)	0.42 (0.39-0.45)	0.45 (0.42-0.5)	0.41 (0.38-0.44)	0.45 (0.43-0.5)	0.43 (0.39-0.45)	0.43 (0.39-0.45)	0.43 (0.39-0.47)	0.42 (0.36-0.45)	0.44 (0.42-0.49)	0.42 (0.38-0.46)	0.44 (0.39-0.48)	0.41 (0.38-0.44)	0.43 (0.39-0.47)	0.42 (0.38-0.47)	0.37 (0.34-0.4)
FLFH	1.62 (1.41-1.79)	1.71 (1.49-2.07)	1.32 (1.1-1.56)	1.75 (1.5-1.98)	1.24 (1.09-1.43)	1.74 (1.5-2.08)	1.32 (1.21-1.48)	1.77 (1.46-1.91)	1.21 (1.01-1.47)	0.85 (0.69-0.99)	0.92 (0.76-1.09)	1.29 (1.01-1.49)	0.92 (0.82-1.12)	1.27 (1.1-1.55)	1.01 (0.9-1.2)	1.3 (1.06-1.59)	0.95 (0.81-1.15)	1.22 (1.09-1.46)	0.87 (0.75-1.03)	0.95 (0.76-1.12)	1.25 (1.08-1.49)	0.91 (0.82-1.01)	1.3 (1.1-1.51)	1.01 (0.73-1.31)	1.31 (1.05-1.48)	0.96 (0.76-1.1)	1.23 (1.09-1.46)	1.79 (1.57-2.05)
FLMP	0.65 (0.59-0.71)	0.65 (0.6-0.69)	0.47 (0.41-0.52)	0.66 (0.61-0.68)	0.49 (0.47-0.55)	0.66 (0.62-0.69)	0.47 (0.43-0.51)	0.66 (0.6-0.69)	0.49 (0.45-0.54)	0.38 (0.36-0.4)	0.4 (0.38-0.43)	0.47 (0.43-0.53)	0.4 (0.38-0.42)	0.5 (0.45-0.53)	0.41 (0.37-0.45)	0.47 (0.42-0.55)	0.42 (0.4-0.46)	0.49 (0.47-0.52)	0.38 (0.36-0.42)	0.4 (0.38-0.43)	0.47 (0.42-0.52)	0.4 (0.37-0.43)	0.5 (0.44-0.53)	0.41 (0.39-0.44)	0.47 (0.43-0.51)	0.42 (0.39-0.45)	0.49 (0.44-0.53)	0.68 (0.63-0.71)
FLUF	1.05 (0.96-1.15)	1.08 (0.96-1.16)	0.74 (0.64-0.79)	1.07 (0.98-1.13)	0.82 (0.72-0.91)	1.05 (0.91-1.2)	0.74 (0.65-0.82)	1.07 (0.93-1.22)	0.81 (0.71-0.87)	0.58 (0.53-0.62)	0.61 (0.56-0.67)	0.75 (0.65-0.81)	0.59 (0.52-0.65)	0.82 (0.73-0.92)	0.62 (0.56-0.67)	0.74 (0.68-0.77)	0.61 (0.56-0.66)	0.82 (0.69-0.87)	0.59 (0.52-0.64)	0.62 (0.54-0.68)	0.73 (0.65-0.83)	0.6 (0.54-0.65)	0.82 (0.71-0.91)	0.62 (0.57-0.68)	0.74 (0.65-0.82)	0.61 (0.55-0.65)	0.82 (0.76-0.91)	0.96 (0.9-1.05)
FLWC	0.83 (0.73-0.91)	0.85 (0.71-0.96)	0.69 (0.57-0.78)	0.83 (0.72-0.9)	0.63 (0.58-0.69)	0.87 (0.73-0.95)	0.68 (0.59-0.75)	0.85 (0.71-0.95)	0.63 (0.59-0.68)	0.47 (0.42-0.52)	0.51 (0.46-0.56)	0.69 (0.66-0.73)	0.5 (0.42-0.55)	0.64 (0.57-0.69)	0.54 (0.48-0.61)	0.69 (0.64-0.75)	0.51 (0.46-0.56)	0.63 (0.57-0.67)	0.47 (0.43-0.51)	0.52 (0.46-0.55)	0.7 (0.64-0.74)	0.51 (0.47-0.57)	0.64 (0.6-0.67)	0.54 (0.49-0.58)	0.7 (0.65-0.78)	0.52 (0.44-0.56)	0.63 (0.57-0.69)	0.97 (0.86-1.09)
GALL	0.7 (0.67-0.75)	0.73 (0.67-0.77)	0.78 (0.71-0.86)	0.71 (0.67-0.77)	0.72 (0.68-0.77)	0.75 (0.7-0.81)	0.78 (0.7-0.85)	0.74 (0.68-0.79)	0.73 (0.67-0.78)	0.42 (0.41-0.44)	0.46 (0.43-0.48)	0.78 (0.73-0.84)	0.47 (0.45-0.5)	0.72 (0.67-0.76)	0.49 (0.46-0.51)	0.78 (0.74-0.84)	0.5 (0.48-0.52)	0.72 (0.69-0.77)	0.42 (0.4-0.45)	0.45 (0.42-0.48)	0.79 (0.73-0.86)	0.46 (0.43-0.51)	0.71 (0.67-0.74)	0.48 (0.46-0.51)	0.78 (0.74-0.83)	0.51 (0.47-0.53)	0.72 (0.69-0.77)	0.85 (0.81-0.94)
HIOP	0.25 (0.22-0.28)	0.25 (0.2-0.28)	0.2 (0.17-0.23)	0.25 (0.2-0.3)	0.19 (0.15-0.23)	0.25 (0.21-0.3)	0.2 (0.16-0.24)	0.25 (0.21-0.3)	0.2 (0.16-0.21)	0.14 (0.11-0.17)	0.14 (0.11-0.17)	0.21 (0.16-0.27)	0.13 (0.11-0.17)	0.19 (0.16-0.25)	0.14 (0.11-0.17)	0.21 (0.17-0.25)	0.13 (0.1-0.16)	0.2 (0.18-0.24)	0.15 (0.11-0.18)	0.14 (0.11-0.16)	0.2 (0.14-0.24)	0.14 (0.09-0.17)	0.2 (0.17-0.22)	0.13 (0.1-0.17)	0.21 (0.17-0.26)	0.14 (0.1-0.16)	0.2 (0.14-0.26)	0.24 (0.17-0.31)
IAOP	0.38 (0.31-0.42)	0.36 (0.31-0.41)	0.3 (0.25-0.36)	0.38 (0.34-0.44)	0.41 (0.35-0.46)	0.37 (0.29-0.41)	0.3 (0.26-0.35)	0.39 (0.35-0.43)	0.4 (0.35-0.44)	0.3 (0.27-0.34)	0.29 (0.25-0.34)	0.31 (0.26-0.37)	0.31 (0.26-0.36)	0.4 (0.33-0.44)	0.29 (0.25-0.34)	0.31 (0.27-0.35)	0.32 (0.29-0.37)	0.4 (0.37-0.43)	0.33 (0.26-0.36)	0.32 (0.28-0.36)	0.32 (0.27-0.36)	0.34 (0.3-0.38)	0.4 (0.35-0.45)	0.32 (0.28-0.38)	0.31 (0.25-0.35)	0.34 (0.3-0.37)	0.39 (0.32-0.46)	0.41 (0.39-0.43)
ILIP	0.33 (0.31-0.35)	0.34 (0.33-0.35)	0.46 (0.45-0.48)	0.33 (0.31-0.34)	0.43 (0.41-0.45)	0.34 (0.33-0.36)	0.47 (0.44-0.48)	0.33 (0.32-0.33)	0.44 (0.41-0.46)	0.43 (0.4-0.45)	0.43 (0.41-0.46)	0.46 (0.44-0.47)	0.43 (0.41-0.45)	0.44 (0.41-0.45)	0.44 (0.42-0.47)	0.46 (0.44-0.48)	0.44 (0.42-0.46)	0.43 (0.41-0.45)	0.46 (0.42-0.49)	0.47 (0.45-0.49)	0.46 (0.45-0.47)	0.46 (0.42-0.48)	0.44 (0.41-0.46)	0.47 (0.44-0.49)	0.46 (0.44-0.48)	0.47 (0.43-0.48)	0.44 (0.41-0.45)	0.34 (0.33-0.35)
INOP	0.77 (0.73-0.83)	0.79 (0.74-0.87)	0.69 (0.62-0.76)	0.78 (0.71-0.83)	0.6 (0.56-0.64)	0.8 (0.72-0.9)	0.71 (0.62-0.77)	0.78 (0.69-0.86)	0.6 (0.57-0.63)	0.48 (0.45-0.52)	0.52 (0.48-0.58)	0.69 (0.61-0.75)	0.53 (0.51-0.56)	0.6 (0.56-0.66)	0.54 (0.51-0.56)	0.71 (0.64-0.76)	0.56 (0.52-0.59)	0.6 (0.55-0.65)	0.63 (0.58-0.67)	0.65 (0.58-0.69)	0.7 (0.63-0.75)	0.64 (0.58-0.71)	0.6 (0.55-0.64)	0.64 (0.59-0.68)	0.7 (0.64-0.73)	0.65 (0.59-0.72)	0.6 (0.57-0.64)	0.88 (0.81-0.97)
KYDA	0.46 (0.42-0.51)	0.46 (0.41-0.52)	0.42 (0.38-0.45)	0.47 (0.43-0.52)	0.35 (0.32-0.37)	0.46 (0.41-0.51)	0.43 (0.38-0.45)	0.46 (0.41-0.48)	0.34 (0.32-0.36)	0.23 (0.21-0.25)	0.25 (0.23-0.28)	0.42 (0.37-0.46)	0.25 (0.23-0.27)	0.34 (0.29-0.36)	0.27 (0.24-0.3)	0.43 (0.38-0.48)	0.27 (0.25-0.29)	0.34 (0.31-0.37)	0.32 (0.29-0.35)	0.32 (0.28-0.36)	0.41 (0.38-0.45)	0.33 (0.31-0.38)	0.33 (0.31-0.37)	0.33 (0.31-0.36)	0.42 (0.37-0.45)	0.33 (0.3-0.37)	0.34 (0.31-0.36)	0.47 (0.43-0.51)
LAOP	0.87 (0.81-0.92)	0.88 (0.81-0.92)	0.72 (0.67-0.76)	0.88 (0.81-0.97)	0.63 (0.57-0.67)	0.87 (0.8-0.95)	0.71 (0.67-0.76)	0.89 (0.82-1)	0.64 (0.58-0.68)	0.51 (0.46-0.56)	0.55 (0.48-0.59)	0.72 (0.64-0.76)	0.52 (0.47-0.56)	0.62 (0.57-0.66)	0.56 (0.52-0.61)	0.71 (0.66-0.77)	0.55 (0.49-0.58)	0.63 (0.56-0.68)	0.52 (0.46-0.56)	0.56 (0.5-0.6)	0.71 (0.66-0.75)	0.55 (0.49-0.59)	0.63 (0.59-0.67)	0.58 (0.53-0.61)	0.7 (0.63-0.76)	0.56 (0.51-0.61)	0.63 (0.57-0.66)	0.93 (0.85-0.96)
MAOB	0.24 (0.23-0.26)	0.24 (0.23-0.26)	0.29 (0.27-0.3)	0.24 (0.23-0.26)	0.28 (0.27-0.29)	0.24 (0.23-0.25)	0.29 (0.28-0.3)	0.24 (0.23-0.26)	0.28 (0.27-0.29)	0.35 (0.34-0.37)	0.35 (0.33-0.36)	0.29 (0.28-0.3)	0.34 (0.32-0.35)	0.28 (0.27-0.3)	0.34 (0.32-0.35)	0.29 (0.28-0.31)	0.33 (0.32-0.34)	0.28 (0.26-0.29)	0.34 (0.33-0.36)	0.33 (0.32-0.35)	0.29 (0.27-0.3)	0.33 (0.32-0.34)	0.28 (0.26-0.29)	0.33 (0.31-0.35)	0.29 (0.28-0.3)	0.33 (0.31-0.34)	0.28 (0.26-0.29)	0.24 (0.23-0.26)
MDPC	0.19	0.19	0.21	0.19	0.2	0.2	0.21	0.19	0.21	0.22	0.22	0.21	0.22	0.21	0.23	0.21	0.22	0.21	0.21	0.22	0.21	0.21	0.21	0.22	0.21	0.21	0.21	0.19

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	current
	(0.18-0.21)	(0.18-0.21)	(0.19-0.23)	(0.18-0.21)	(0.18-0.22)	(0.19-0.21)	(0.18-0.23)	(0.18-0.21)	(0.2-0.22)	(0.2-0.24)	(0.21-0.25)	(0.19-0.23)	(0.2-0.25)	(0.19-0.22)	(0.2-0.25)	(0.19-0.22)	(0.2-0.25)	(0.2-0.22)	(0.2-0.24)	(0.2-0.23)	(0.19-0.23)	(0.19-0.23)	(0.19-0.23)	(0.21-0.25)	(0.19-0.23)	(0.19-0.24)	(0.19-0.23)	(0.17-0.22)
MIOP	0.48 (0.45-0.51)	0.48 (0.45-0.51)	0.42 (0.38-0.45)	0.47 (0.45-0.49)	0.34 (0.32-0.37)	0.49 (0.47-0.52)	0.42 (0.39-0.44)	0.47 (0.44-0.49)	0.34 (0.32-0.36)	0.32 (0.29-0.35)	0.34 (0.32-0.37)	0.42 (0.4-0.45)	0.34 (0.31-0.36)	0.35 (0.33-0.38)	0.35 (0.33-0.37)	0.42 (0.39-0.45)	0.35 (0.32-0.38)	0.35 (0.32-0.36)	0.36 (0.34-0.38)	0.38 (0.36-0.39)	0.42 (0.39-0.44)	0.37 (0.35-0.39)	0.35 (0.32-0.37)	0.4 (0.37-0.42)	0.42 (0.4-0.45)	0.38 (0.35-0.4)	0.34 (0.32-0.37)	0.53 (0.49-0.56)
MNOP	0.26 (0.25-0.28)	0.25 (0.23-0.27)	0.26 (0.23-0.28)	0.27 (0.25-0.29)	0.32 (0.3-0.34)	0.25 (0.23-0.26)	0.26 (0.24-0.28)	0.27 (0.25-0.28)	0.32 (0.3-0.34)	0.3 (0.29-0.31)	0.3 (0.29-0.32)	0.26 (0.24-0.28)	0.31 (0.29-0.33)	0.32 (0.31-0.33)	0.3 (0.28-0.32)	0.26 (0.24-0.28)	0.31 (0.28-0.32)	0.32 (0.3-0.33)	0.33 (0.3-0.35)	0.32 (0.3-0.35)	0.26 (0.24-0.28)	0.32 (0.3-0.34)	0.32 (0.3-0.34)	0.32 (0.3-0.33)	0.26 (0.24-0.29)	0.32 (0.3-0.33)	0.32 (0.3-0.33)	0.25 (0.23-0.27)
MOMA	0.6 (0.54-0.63)	0.61 (0.58-0.64)	0.57 (0.54-0.61)	0.63 (0.58-0.67)	0.67 (0.62-0.72)	0.62 (0.55-0.69)	0.57 (0.53-0.63)	0.65 (0.59-0.7)	0.68 (0.62-0.7)	0.54 (0.5-0.6)	0.54 (0.5-0.59)	0.56 (0.53-0.61)	0.52 (0.47-0.58)	0.67 (0.61-0.71)	0.53 (0.48-0.58)	0.57 (0.53-0.63)	0.53 (0.48-0.57)	0.67 (0.57-0.7)	0.54 (0.5-0.59)	0.54 (0.48-0.59)	0.56 (0.52-0.6)	0.53 (0.48-0.58)	0.67 (0.62-0.71)	0.54 (0.49-0.59)	0.57 (0.52-0.65)	0.53 (0.48-0.58)	0.67 (0.62-0.73)	0.65 (0.62-0.71)
MWOB	0.61 (0.51-0.67)	0.66 (0.57-0.71)	0.79 (0.67-0.9)	0.68 (0.62-0.75)	0.69 (0.64-0.75)	0.7 (0.63-0.78)	0.77 (0.72-0.83)	0.7 (0.61-0.78)	0.7 (0.62-0.75)	0.48 (0.43-0.53)	0.53 (0.46-0.6)	0.77 (0.69-0.84)	0.53 (0.45-0.6)	0.7 (0.64-0.78)	0.56 (0.5-0.64)	0.79 (0.67-0.92)	0.57 (0.52-0.64)	0.69 (0.65-0.73)	0.53 (0.44-0.59)	0.59 (0.5-0.68)	0.8 (0.67-0.92)	0.59 (0.52-0.67)	0.69 (0.6-0.8)	0.61 (0.54-0.67)	0.78 (0.68-0.84)	0.61 (0.53-0.69)	0.7 (0.63-0.81)	0.87 (0.77-0.96)
NCCM	0.8 (0.67-0.9)	0.86 (0.73-0.98)	0.89 (0.8-1.01)	0.83 (0.73-0.93)	0.71 (0.61-0.87)	0.87 (0.79-0.98)	0.87 (0.81-0.93)	0.86 (0.8-0.97)	0.69 (0.6-0.77)	0.45 (0.38-0.52)	0.49 (0.43-0.57)	0.87 (0.75-1.06)	0.5 (0.43-0.58)	0.69 (0.6-0.78)	0.53 (0.45-0.59)	0.86 (0.77-0.99)	0.54 (0.43-0.63)	0.69 (0.62-0.8)	0.44 (0.38-0.52)	0.49 (0.41-0.58)	0.89 (0.79-0.99)	0.5 (0.41-0.57)	0.69 (0.6-0.79)	0.51 (0.44-0.57)	0.88 (0.78-1.04)	0.55 (0.46-0.63)	0.68 (0.6-0.75)	0.78 (0.72-0.84)
NCNC	0.25 (0.23-0.26)	0.25 (0.24-0.27)	0.25 (0.22-0.26)	0.25 (0.23-0.27)	0.21 (0.19-0.23)	0.26 (0.24-0.28)	0.25 (0.23-0.26)	0.25 (0.24-0.27)	0.21 (0.18-0.22)	0.16 (0.15-0.17)	0.18 (0.16-0.19)	0.25 (0.23-0.27)	0.17 (0.16-0.18)	0.21 (0.19-0.23)	0.18 (0.17-0.2)	0.24 (0.22-0.26)	0.18 (0.17-0.19)	0.21 (0.19-0.22)	0.16 (0.15-0.17)	0.17 (0.16-0.19)	0.25 (0.22-0.26)	0.17 (0.16-0.18)	0.2 (0.18-0.22)	0.18 (0.17-0.19)	0.25 (0.23-0.27)	0.18 (0.16-0.19)	0.21 (0.19-0.23)	0.26 (0.24-0.28)
NEOR	0.43 (0.38-0.49)	0.44 (0.38-0.48)	0.44 (0.39-0.48)	0.43 (0.39-0.49)	0.4 (0.37-0.44)	0.43 (0.39-0.48)	0.44 (0.39-0.5)	0.44 (0.39-0.48)	0.41 (0.37-0.46)	0.36 (0.33-0.4)	0.38 (0.35-0.42)	0.45 (0.4-0.49)	0.38 (0.35-0.41)	0.42 (0.38-0.46)	0.38 (0.35-0.43)	0.44 (0.38-0.48)	0.39 (0.35-0.44)	0.41 (0.35-0.46)	0.39 (0.36-0.42)	0.4 (0.36-0.43)	0.44 (0.4-0.46)	0.4 (0.37-0.44)	0.41 (0.37-0.46)	0.4 (0.36-0.44)	0.44 (0.39-0.47)	0.41 (0.38-0.44)	0.41 (0.38-0.45)	0.37 (0.33-0.41)
NJTO	0.19 (0.16-0.22)	0.19 (0.17-0.21)	0.19 (0.16-0.21)	0.19 (0.16-0.22)	0.17 (0.14-0.19)	0.19 (0.16-0.22)	0.18 (0.16-0.2)	0.19 (0.17-0.22)	0.17 (0.15-0.2)	0.2 (0.18-0.22)	0.21 (0.19-0.25)	0.19 (0.16-0.21)	0.2 (0.18-0.23)	0.17 (0.14-0.19)	0.21 (0.19-0.23)	0.19 (0.16-0.21)	0.2 (0.17-0.22)	0.17 (0.14-0.2)	0.2 (0.18-0.22)	0.21 (0.18-0.23)	0.18 (0.16-0.22)	0.2 (0.17-0.23)	0.17 (0.15-0.19)	0.21 (0.18-0.23)	0.19 (0.16-0.21)	0.2 (0.18-0.23)	0.17 (0.15-0.18)	0.25 (0.23-0.28)
NYFL	0.11 (0.1-0.11)	0.11 (0.1-0.11)	0.16 (0.13-0.17)	0.11 (0.1-0.12)	0.16 (0.15-0.17)	0.11 (0.1-0.11)	0.16 (0.14-0.17)	0.11 (0.1-0.12)	0.16 (0.15-0.17)	0.19 (0.17-0.2)	0.18 (0.16-0.19)	0.16 (0.14-0.17)	0.19 (0.17-0.2)	0.16 (0.14-0.17)	0.17 (0.16-0.18)	0.15 (0.15-0.17)	0.18 (0.16-0.19)	0.16 (0.15-0.17)	0.17 (0.16-0.19)	0.16 (0.14-0.18)	0.16 (0.15-0.17)	0.16 (0.15-0.18)	0.16 (0.15-0.17)	0.16 (0.14-0.18)	0.15 (0.14-0.17)	0.16 (0.15-0.18)	0.16 (0.15-0.17)	0.11 (0.11-0.13)
NYRT	0.18 (0.18-0.19)	0.19 (0.18-0.2)	0.24 (0.24-0.25)	0.18 (0.18-0.19)	0.23 (0.22-0.24)	0.19 (0.18-0.19)	0.24 (0.23-0.26)	0.18 (0.18-0.19)	0.22 (0.22-0.23)	0.28 (0.27-0.29)	0.28 (0.27-0.29)	0.24 (0.23-0.25)	0.27 (0.26-0.28)	0.23 (0.22-0.24)	0.27 (0.26-0.29)	0.24 (0.24-0.25)	0.26 (0.26-0.28)	0.23 (0.22-0.24)	0.27 (0.26-0.28)	0.27 (0.26-0.29)	0.24 (0.23-0.26)	0.26 (0.25-0.27)	0.23 (0.22-0.24)	0.27 (0.26-0.28)	0.24 (0.23-0.25)	0.26 (0.26-0.28)	0.23 (0.22-0.24)	0.18 (0.18-0.19)
OHLB	0.51 (0.46-0.56)	0.52 (0.48-0.58)	0.43 (0.41-0.45)	0.52 (0.48-0.57)	0.34 (0.33-0.37)	0.5 (0.46-0.55)	0.43 (0.4-0.46)	0.52 (0.48-0.58)	0.34 (0.31-0.4)	0.33 (0.31-0.37)	0.36 (0.32-0.39)	0.44 (0.4-0.48)	0.34 (0.32-0.37)	0.34 (0.33-0.37)	0.36 (0.34-0.39)	0.44 (0.41-0.48)	0.34 (0.32-0.39)	0.34 (0.32-0.39)	0.39 (0.37-0.41)	0.4 (0.38-0.42)	0.43 (0.4-0.46)	0.4 (0.38-0.42)	0.34 (0.32-0.38)	0.41 (0.38-0.44)	0.44 (0.42-0.47)	0.4 (0.37-0.42)	0.34 (0.31-0.39)	0.48 (0.45-0.53)
OHLP	0.31 (0.25-0.38)	0.33 (0.29-0.36)	0.31 (0.28-0.35)	0.31 (0.28-0.37)	0.24 (0.21-0.27)	0.32 (0.28-0.36)	0.31 (0.26-0.34)	0.32 (0.29-0.36)	0.23 (0.19-0.27)	0.2 (0.18-0.24)	0.23 (0.19-0.27)	0.3 (0.24-0.34)	0.22 (0.19-0.25)	0.24 (0.2-0.25)	0.23 (0.2-0.28)	0.31 (0.28-0.34)	0.22 (0.16-0.26)	0.23 (0.19-0.27)	0.23 (0.21-0.26)	0.25 (0.23-0.28)	0.31 (0.29-0.35)	0.23 (0.2-0.26)	0.23 (0.2-0.26)	0.24 (0.21-0.28)	0.31 (0.26-0.38)	0.24 (0.22-0.25)	0.24 (0.2-0.27)	0.35 (0.31-0.38)
OHOV	0.84 (0.7-0.98)	0.81 (0.71-0.91)	0.76 (0.6-0.83)	0.85 (0.8-0.94)	0.79 (0.69-0.86)	0.82 (0.69-0.92)	0.8 (0.7-0.92)	0.84 (0.77-1.01)	0.79 (0.75-0.83)	0.74 (0.65-0.83)	0.74 (0.68-0.81)	0.78 (0.68-0.84)	0.8 (0.73-0.91)	0.8 (0.74-0.87)	0.75 (0.7-0.84)	0.78 (0.67-0.89)	0.8 (0.74-0.87)	0.79 (0.68-0.92)	0.74 (0.61-0.85)	0.71 (0.59-0.78)	0.77 (0.71-0.84)	0.76 (0.64-0.84)	0.8 (0.73-0.89)	0.72 (0.61-0.79)	0.79 (0.67-0.9)	0.76 (0.68-0.86)	0.78 (0.67-0.87)	0.73 (0.62-0.83)
OKOP	0.22 (0.19-0.24)	0.22 (0.2-0.24)	0.37 (0.32-0.4)	0.22 (0.19-0.24)	0.32 (0.29-0.34)	0.23 (0.2-0.24)	0.36 (0.32-0.4)	0.22 (0.2-0.23)	0.31 (0.27-0.34)	0.27 (0.24-0.29)	0.27 (0.25-0.29)	0.37 (0.33-0.41)	0.27 (0.25-0.29)	0.31 (0.28-0.33)	0.27 (0.24-0.28)	0.37 (0.33-0.39)	0.27 (0.26-0.28)	0.31 (0.27-0.34)	0.28 (0.26-0.3)	0.29 (0.27-0.31)	0.36 (0.33-0.4)	0.28 (0.25-0.31)	0.31 (0.28-0.33)	0.3 (0.28-0.31)	0.36 (0.33-0.41)	0.28 (0.26-0.31)	0.31 (0.29-0.33)	0.25 (0.22-0.27)
ORUO	0.38 (0.34-0.42)	0.39 (0.36-0.41)	0.29 (0.26-0.31)	0.39 (0.36-0.41)	0.29 (0.25-0.32)	0.38 (0.36-0.41)	0.28 (0.26-0.3)	0.38 (0.35-0.43)	0.28 (0.26-0.31)	0.16 (0.11-0.18)	0.17 (0.14-0.19)	0.29 (0.25-0.31)	0.17 (0.13-0.19)	0.29 (0.26-0.31)	0.18 (0.15-0.19)	0.29 (0.28-0.33)	0.17 (0.16-0.2)	0.28 (0.27-0.29)	0.17 (0.13-0.19)	0.17 (0.14-0.19)	0.29 (0.26-0.32)	0.17 (0.14-0.19)	0.29 (0.26-0.32)	0.18 (0.15-0.21)	0.29 (0.27-0.31)	0.18 (0.16-0.21)	0.29 (0.25-0.32)	0.41 (0.38-0.45)
PADV	0.35 (0.33-0.36)	0.36 (0.34-0.37)	0.36 (0.34-0.38)	0.35 (0.32-0.36)	0.33 (0.32-0.35)	0.36 (0.34-0.39)	0.36 (0.33-0.38)	0.35 (0.34-0.37)	0.33 (0.32-0.35)	0.39 (0.38-0.41)	0.4 (0.39-0.42)	0.35 (0.33-0.37)	0.39 (0.37-0.4)	0.33 (0.32-0.35)	0.39 (0.38-0.42)	0.35 (0.34-0.37)	0.38 (0.37-0.39)	0.33 (0.31-0.35)	0.38 (0.37-0.4)	0.39 (0.36-0.41)	0.35 (0.33-0.37)	0.38 (0.37-0.4)	0.33 (0.31-0.35)	0.38 (0.37-0.41)	0.35 (0.34-0.39)	0.37 (0.36-0.39)	0.33 (0.32-0.35)	0.37 (0.35-0.39)
PATF	0.42 (0.39-0.44)	0.4 (0.38-0.42)	0.46 (0.43-0.48)	0.41 (0.38-0.44)	0.44 (0.41-0.47)	0.4 (0.38-0.42)	0.46 (0.44-0.49)	0.41 (0.4-0.44)	0.44 (0.43-0.46)	0.47 (0.45-0.51)	0.47 (0.45-0.51)	0.47 (0.43-0.49)	0.47 (0.44-0.5)	0.44 (0.42-0.47)	0.48 (0.46-0.52)	0.47 (0.43-0.49)	0.47 (0.44-0.51)	0.44 (0.41-0.47)	0.48 (0.46-0.51)	0.48 (0.45-0.51)	0.46 (0.42-0.49)	0.48 (0.46-0.5)	0.44 (0.42-0.47)	0.48 (0.46-0.5)	0.46 (0.42-0.49)	0.48 (0.46-0.51)	0.44 (0.42-0.47)	0.45 (0.41-0.47)
SCOP	1.2 (1.09-1.36)	1.2 (1.05-1.37)	1 (0.9-1.05)	1.22 (1.08-1.38)	1.05 (0.94-1.2)	1.17 (1.08-1.28)	1.01 (0.88-1.12)	1.27 (1.16-1.45)	1.04 (0.91-1.31)	0.58 (0.51-0.73)	0.63 (0.54-0.84)	0.97 (0.87-1.11)	0.68 (0.59-0.86)	1.06 (0.96-1.22)	0.65 (0.59-0.75)	1.02 (0.92-1.2)	0.73 (0.66-0.85)	1.02 (0.91-1.14)	0.61 (0.54-0.72)	0.63 (0.55-0.77)	0.96 (0.9-1.09)	0.7 (0.64-0.86)	1.08 (0.9-1.36)	0.66 (0.6-0.8)	1 (0.92-1.13)	0.76 (0.69-0.91)	1.02 (0.93-1.17)	1.37 (1.25-1.6)
TNDS	0.53 (0.49-0.57)	0.56 (0.52-0.61)	0.49 (0.46-0.53)	0.54 (0.51-0.59)	0.46 (0.43-0.49)	0.55 (0.52-0.58)	0.48 (0.44-0.54)	0.55 (0.52-0.59)	0.47 (0.44-0.49)	0.31 (0.28-0.33)	0.31 (0.28-0.35)	0.49 (0.46-0.54)	0.33 (0.3-0.36)	0.46 (0.42-0.52)	0.33 (0.32-0.38)	0.49 (0.45-0.52)	0.34 (0.32-0.38)	0.47 (0.44-0.49)	0.4 (0.38-0.44)	0.41 (0.38-0.44)	0.48 (0.44-0.52)	0.41 (0.37-0.47)	0.47 (0.43-0.51)	0.41 (0.39-0.45)	0.49 (0.44-0.56)	0.42 (0.4-0.45)	0.47 (0.44-0.49)	0.62 (0.59-0.65)
TNMS	0.9 (0.83-1)	0.85 (0.75-0.91)	0.52 (0.47-0.56)	0.82 (0.73-0.93)	0.71 (0.65-0.76)	0.82 (0.7-0.9)	0.53 (0.5-0.57)	0.79 (0.75-0.84)	0.72 (0.69-0.77)	0.48 (0.44-0.55)	0.49 (0.44-0.53)	0.53 (0.48-0.59)	0.52 (0.48-0.58)	0.71 (0.66-0.78)	0.48 (0.42-0.52)	0.54 (0.47-0.57)	0.53 (0.48-0.57)	0.71 (0.65-0.77)	0.47 (0.44-0.53)	0.48 (0.43-0.52)	0.53 (0.49-0.56)	0.51 (0.46-0.57)	0.71 (0.64-0.77)	0.48 (0.44-0.52)	0.53 (0.5-0.57)	0.5 (0.46-0.58)	0.72 (0.68-0.82)	0.8 (0.75-0.86)
TXGC	0.24 (0.22-0.25)	0.24 (0.23-0.26)	0.25 (0.23-0.26)	0.24 (0.23-0.25)	0.27 (0.26-0.28)	0.24 (0.23-0.25)	0.25 (0.24-0.26)	0.24 (0.23-0.25)	0.27 (0.25-0.29)	0.29 (0.28-0.3)	0.29 (0.28-0.31)	0.25 (0.24-0.26)	0.29 (0.28-0.3)	0.27 (0.26-0.28)	0.29 (0.28-0.31)	0.25 (0.24-0.26)	0.29 (0.28-0.3)	0.27 (0.25-0.28)	0.29 (0.27-0.3)	0.29 (0.27-0.3)	0.25 (0.24-0.26)	0.29 (0.28-0.31)	0.27 (0.25-0.28)	0.29 (0.27-0.3)	0.25 (0.24-0.27)	0.29 (0.27-0.3)	0.27 (0.25-0.28)	0.24 (0.23-0.25)
TXSA	0.23 (0.21-0.24)	0.22 (0.2-0.23)	0.2 (0.19-0.22)	0.22 (0.2-0.23)	0.24 (0.22-0.26)	0.22 (0.2-0.23)	0.2 (0.19-0.23)	0.22 (0.21-0.24)	0.24 (0.22-0.26)	0.28 (0.25-0.3)	0.27 (0.25-0.3)	0.2 (0.18-0.22)	0.27 (0.25-0.29)	0.24 (0.22-0.25)	0.26 (0.24-0.29)	0.21 (0.18-0.22)	0.27 (0.25-0.29)	0.24 (0.22-0.27)	0.27 (0.26-0.29)	0.26 (0.24-0.29)	0.21 (0.19-0.22)	0.26 (0.25-0.28)	0.24 (0.23-0.26)	0.26 (0.24-0.28)	0.2 (0.19-0.22)	0.26 (0.24-0.28)	0.24 (0.22-0.27)	0.21 (0.19-0.23)
TXSB	0.18 (0.17-0.2)	0.19 (0.17-0.21)	0.22 (0.2-0.23)	0.19 (0.17-0.21)	0.21 (0.19-0.23)	0.2 (0.18-0.21)	0.22 (0.2-0.23)	0.19 (0.17-0.2)	0.21 (0.19-0.22)	0.22 (0.2-0.23)	0.22 (0.21-0.24)	0.22 (0.2-0.23)	0.22 (0.21-0.24)	0.21 (0.2-0.21)	0.22 (0.21-0.24)	0.21 (0.2-0.23)	0.22 (0.21-0.23)	0.21 (0.19-0.22)	0.22 (0.2-0.23)	0.22 (0.21-0.24)	0.22 (0.2-0.23)	0.22 (0.2-0.23)	0.21 (0.2-0.23)	0.22 (0.21-0.24)	0.22 (0.2-0.23)	0.21 (0.2-0.23)	0.21 (0.2-0.23)	0.22 (0.22-0.24)

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	current
UTOP	0.35 (0.32-0.37)	0.34 (0.31-0.38)	0.49 (0.4-0.53)	0.33 (0.31-0.37)	0.46 (0.4-0.51)	0.35 (0.31-0.38)	0.49 (0.43-0.53)	0.34 (0.3-0.39)	0.47 (0.41-0.53)	0.46 (0.44-0.5)	0.47 (0.43-0.54)	0.47 (0.43-0.51)	0.46 (0.43-0.49)	0.47 (0.42-0.53)	0.48 (0.41-0.53)	0.49 (0.44-0.56)	0.46 (0.42-0.51)	0.47 (0.42-0.51)	0.43 (0.41-0.47)	0.43 (0.4-0.46)	0.49 (0.43-0.54)	0.43 (0.4-0.47)	0.47 (0.41-0.51)	0.44 (0.4-0.49)	0.49 (0.44-0.53)	0.44 (0.4-0.48)	0.47 (0.39-0.53)	0.43 (0.39-0.48)
VATB	0.49 (0.46-0.52)	0.49 (0.44-0.53)	0.37 (0.34-0.39)	0.49 (0.46-0.55)	0.34 (0.31-0.36)	0.49 (0.46-0.52)	0.36 (0.35-0.39)	0.5 (0.48-0.52)	0.34 (0.31-0.36)	0.28 (0.25-0.29)	0.29 (0.27-0.31)	0.37 (0.34-0.38)	0.29 (0.27-0.32)	0.34 (0.31-0.36)	0.3 (0.27-0.33)	0.37 (0.36-0.4)	0.3 (0.28-0.31)	0.34 (0.31-0.35)	0.28 (0.25-0.3)	0.29 (0.25-0.3)	0.37 (0.34-0.39)	0.29 (0.27-0.3)	0.34 (0.32-0.35)	0.29 (0.28-0.32)	0.37 (0.33-0.39)	0.3 (0.26-0.32)	0.33 (0.3-0.35)	0.5 (0.46-0.54)
WALC	0.44 (0.41-0.48)	0.43 (0.41-0.46)	0.3 (0.28-0.32)	0.43 (0.4-0.47)	0.34 (0.33-0.37)	0.43 (0.41-0.45)	0.3 (0.28-0.35)	0.44 (0.41-0.47)	0.34 (0.32-0.37)	0.22 (0.19-0.24)	0.22 (0.19-0.25)	0.3 (0.29-0.31)	0.23 (0.21-0.25)	0.34 (0.32-0.36)	0.23 (0.21-0.25)	0.3 (0.29-0.33)	0.24 (0.23-0.25)	0.34 (0.33-0.36)	0.23 (0.2-0.24)	0.23 (0.21-0.26)	0.3 (0.28-0.33)	0.24 (0.22-0.26)	0.33 (0.32-0.36)	0.24 (0.22-0.26)	0.3 (0.29-0.33)	0.24 (0.22-0.26)	0.34 (0.31-0.37)	0.44 (0.41-0.47)
WIDN	0.39 (0.3-0.44)	0.4 (0.34-0.43)	0.58 (0.49-0.64)	0.39 (0.33-0.43)	0.51 (0.45-0.6)	0.4 (0.36-0.45)	0.57 (0.5-0.7)	0.38 (0.33-0.41)	0.5 (0.42-0.63)	0.5 (0.45-0.58)	0.52 (0.43-0.59)	0.58 (0.5-0.72)	0.53 (0.47-0.61)	0.5 (0.46-0.58)	0.55 (0.47-0.65)	0.57 (0.46-0.7)	0.54 (0.47-0.63)	0.5 (0.44-0.58)	0.6 (0.52-0.73)	0.6 (0.52-0.73)	0.57 (0.49-0.67)	0.58 (0.49-0.71)	0.5 (0.44-0.61)	0.59 (0.5-0.67)	0.56 (0.48-0.65)	0.58 (0.52-0.68)	0.5 (0.44-0.63)	0.44 (0.39-0.48)
WIUW	0.27 (0.24-0.33)	0.29 (0.26-0.31)	0.4 (0.38-0.43)	0.28 (0.26-0.3)	0.36 (0.34-0.39)	0.3 (0.27-0.32)	0.39 (0.36-0.43)	0.28 (0.25-0.3)	0.36 (0.33-0.4)	0.35 (0.31-0.39)	0.36 (0.33-0.4)	0.4 (0.37-0.43)	0.36 (0.33-0.39)	0.36 (0.32-0.39)	0.38 (0.35-0.41)	0.41 (0.39-0.46)	0.36 (0.34-0.4)	0.36 (0.33-0.4)	0.41 (0.39-0.43)	0.42 (0.39-0.45)	0.4 (0.37-0.43)	0.41 (0.39-0.44)	0.36 (0.33-0.4)	0.42 (0.4-0.45)	0.41 (0.37-0.47)	0.41 (0.38-0.43)	0.36 (0.33-0.38)	0.35 (0.33-0.38)

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Table I47. Pretransplant deaths per year by scenario and DSA

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	current
ALOB	12 (10-14)	13 (10-14)	14 (13-16)	12 (10-14)	14 (12-16)	12 (10-14)	14 (13-15)	12 (11-14)	13 (12-16)	15 (13-17)	15 (13-17)	15 (13-18)	15 (13-17)	14 (12-15)	15 (14-17)	14 (13-16)	15 (14-17)	13 (12-15)	15 (15-17)	15 (14-16)	15 (13-15)	16 (15-18)	13 (11-15)	15 (13-17)	15 (13-16)	15 (13-17)	13 (11-14)	13 (11-15)
AROR	4 (3-4)	3 (2-4)	4 (3-5)	3 (3-4)	4 (3-4)	4 (3-4)	4 (3-6)	3 (3-4)	4 (3-5)	4 (3-5)	4 (3-6)	4 (2-5)	4 (3-5)	4 (3-5)	4 (3-5)	4 (3-4)	4 (3-5)	4 (2-5)	4 (3-5)	4 (4-6)	4 (3-5)	4 (3-5)	4 (3-5)	4 (4-6)	4 (2-5)	4 (3-5)	4 (3-5)	3 (3-4)
AZOB	28 (24-31)	28 (26-33)	26 (23-30)	28 (25-31)	27 (23-30)	28 (25-31)	26 (22-30)	28 (25-32)	27 (22-30)	26 (23-30)	26 (23-30)	26 (21-31)	26 (23-30)	27 (23-30)	26 (23-30)	26 (22-28)	27 (23-30)	27 (24-31)	27 (25-30)	28 (25-31)	25 (23-30)	27 (23-31)	27 (24-32)	27 (25-31)	25 (23-29)	27 (24-31)	27 (23-31)	27 (24-31)
CADN	120 (108-127)	119 (111-124)	120 (110-128)	119 (109-125)	123 (110-129)	120 (113-127)	118 (107-127)	120 (113-128)	122 (111-130)	120 (108-128)	120 (109-126)	118 (108-129)	118 (108-126)	123 (111-130)	120 (110-127)	119 (107-124)	121 (114-127)	123 (114-136)	119 (110-125)	119 (109-125)	118 (109-124)	119 (109-124)	121 (115-129)	119 (108-130)	119 (107-126)	119 (109-127)	123 (110-131)	121 (114-126)
CAGS	3 (2-4)	2 (1-4)	2 (1-3)	2 (1-4)	3 (2-4)	3 (1-4)	2 (1-4)	2 (2-4)	2 (1-3)	2 (1-4)	2 (2-3)	2 (1-4)	3 (1-4)	2 (2-4)	2 (1-4)	2 (1-3)	2 (2-4)	2 (2-4)	2 (1-4)	2 (1-4)	2 (1-3)	2 (2-4)	3 (2-4)	2 (1-4)	2 (1-4)	2 (2-4)	2 (1-4)	2 (1-4)
CAOP	113 (109-121)	112 (107-120)	109 (105-117)	112 (107-118)	114 (109-118)	112 (107-116)	110 (105-119)	112 (107-117)	113 (110-118)	114 (107-119)	113 (107-118)	109 (105-115)	112 (106-118)	112 (108-116)	114 (108-122)	109 (104-117)	112 (106-117)	113 (109-122)	112 (109-120)	111 (105-121)	110 (108-115)	112 (109-119)	112 (106-119)	111 (107-118)	109 (104-116)	111 (107-118)	113 (107-122)	114 (110-126)
CASD	30 (27-32)	30 (26-32)	30 (26-32)	31 (28-33)	31 (29-34)	30 (27-33)	30 (28-34)	30 (28-32)	30 (28-33)	30 (27-32)	30 (27-33)	30 (27-34)	30 (28-32)	31 (27-34)	30 (27-32)	29 (25-33)	31 (28-34)	31 (27-33)	31 (29-33)	30 (27-33)	30 (26-35)	30 (27-34)	31 (28-33)	30 (28-32)	30 (27-32)	31 (27-34)	31 (28-35)	29 (25-30)
CORS	31 (27-34)	31 (28-35)	35 (32-37)	31 (28-34)	35 (32-38)	31 (28-35)	34 (32-38)	32 (29-36)	35 (32-39)	33 (31-35)	33 (30-37)	34 (31-37)	34 (30-38)	35 (33-37)	33 (31-35)	34 (33-36)	35 (33-37)	35 (32-38)	35 (32-38)	35 (33-37)	35 (32-37)	35 (32-37)	35 (32-38)	35 (33-38)	35 (32-37)	35 (32-38)	35 (34-40)	31 (28-33)
CTOP	4 (2-5)	4 (3-5)	3 (2-5)	4 (3-5)	3 (2-4)	4 (3-5)	3 (2-4)	4 (2-5)	3 (2-5)	2 (1-4)	3 (2-4)	3 (2-5)	3 (2-3)	3 (2-4)	3 (2-4)	3 (3-4)	3 (2-4)	3 (2-4)	3 (2-4)	3 (2-4)	3 (2-4)	3 (2-4)	3 (2-4)	3 (1-4)	3 (2-4)	3 (1-4)	3 (2-4)	4 (3-4)
DCTC	17 (15-20)	17 (15-21)	16 (13-20)	17 (15-18)	16 (12-19)	17 (15-22)	16 (12-19)	16 (13-19)	15 (13-17)	14 (12-16)	14 (12-15)	16 (12-19)	14 (12-17)	15 (13-18)	14 (11-17)	16 (12-19)	14 (11-15)	15 (13-18)	15 (12-18)	15 (14-18)	16 (13-18)	14 (12-17)	16 (12-17)	15 (13-18)	16 (14-19)	15 (13-16)	16 (12-19)	18 (15-21)
FLFH	3 (2-4)	3 (2-4)	4 (3-5)	3 (2-4)	4 (3-5)	3 (1-5)	4 (2-5)	3 (2-4)	4 (3-5)	3 (2-5)	3 (2-4)	4 (2-5)	4 (3-5)	4 (3-5)	3 (2-4)	4 (3-5)	3 (2-4)	4 (2-5)	4 (1-5)	3 (2-4)	4 (2-5)	4 (3-4)	4 (3-5)	4 (3-5)	4 (2-4)	4 (3-5)	4 (3-7)	3 (2-4)
FLMP	27 (25-30)	27 (24-31)	30 (28-33)	27 (23-32)	30 (26-33)	27 (24-31)	30 (27-33)	28 (23-33)	31 (25-34)	30 (26-33)	29 (24-31)	30 (28-32)	29 (26-31)	30 (27-33)	29 (27-32)	31 (27-34)	30 (25-34)	30 (27-33)	30 (26-33)	30 (26-32)	30 (27-34)	30 (27-34)	30 (25-33)	30 (26-33)	31 (27-32)	30 (27-33)	30 (27-33)	28 (24-30)
FLUF	14 (11-17)	14 (11-16)	18 (14-22)	14 (12-16)	17 (14-20)	15 (12-17)	19 (16-21)	14 (12-17)	17 (14-20)	17 (12-20)	16 (13-20)	19 (17-22)	17 (15-19)	17 (15-20)	17 (15-21)	19 (16-22)	17 (15-20)	17 (15-20)	17 (15-19)	17 (13-22)	18 (17-20)	16 (14-18)	17 (15-19)	18 (15-20)	19 (16-24)	17 (14-20)	17 (14-19)	17 (14-18)
FLWC	9 (7-11)	10 (7-12)	11 (9-15)	10 (8-13)	12 (9-13)	10 (7-13)	11 (8-15)	10 (8-11)	12 (9-13)	11 (9-13)	11 (9-13)	11 (9-13)	11 (10-14)	12 (9-14)	11 (9-14)	12 (9-14)	11 (9-16)	12 (9-13)	12 (9-15)	11 (9-14)	11 (9-14)	11 (9-15)	12 (9-13)	12 (9-13)	12 (10-13)	11 (9-13)	12 (9-14)	9 (7-12)
GALL	18 (16-22)	17 (14-22)	18 (16-22)	18 (14-21)	18 (13-22)	17 (13-21)	18 (14-23)	18 (16-19)	18 (15-21)	20 (18-25)	21 (18-25)	18 (14-22)	20 (18-26)	17 (15-20)	21 (18-25)	18 (15-21)	20 (16-24)	18 (14-22)	22 (19-25)	21 (19-27)	17 (14-20)	21 (18-26)	18 (14-22)	21 (18-24)	17 (14-20)	20 (18-25)	18 (16-20)	16 (12-19)
HIOP	4 (3-5)	4 (3-6)	4 (3-6)	4 (3-6)	4 (3-7)	4 (3-6)	4 (3-7)	4 (2-5)	4 (3-6)	4 (3-5)	4 (3-5)	4 (3-5)	4 (3-6)	4 (3-7)	4 (3-7)	3 (2-5)	4 (3-6)	4 (3-6)	4 (3-6)	4 (3-6)	4 (3-6)	4 (3-6)	4 (3-6)	4 (3-6)	4 (3-5)	4 (3-6)	4 (3-6)	4 (2-6)
IAOP	8 (8-10)	8 (6-10)	9 (7-10)	9 (7-11)	8 (7-10)	9 (6-10)	9 (7-11)	8 (7-10)	8 (6-9)	9 (7-11)	9 (7-11)	9 (6-11)	9 (7-10)	8 (7-10)	9 (7-11)	9 (7-11)	9 (6-11)	8 (5-10)	9 (7-10)	9 (7-11)	9 (7-11)	9 (7-11)	8 (7-10)	9 (7-11)	9 (7-11)	9 (8-11)	8 (7-10)	8 (7-11)
ILIP	60 (57-62)	59 (56-62)	51 (49-55)	60 (56-64)	51 (48-55)	59 (54-63)	51 (48-52)	60 (57-67)	51 (47-54)	49 (47-56)	49 (46-51)	51 (47-55)	49 (46-50)	51 (47-56)	49 (45-54)	52 (48-55)	50 (46-53)	51 (47-54)	51 (46-56)	51 (47-54)	51 (47-54)	51 (47-56)	51 (48-53)	50 (48-53)	51 (48-57)	51 (47-54)	51 (48-53)	60 (57-65)
INOP	13 (10-17)	13 (10-17)	13 (11-16)	13 (10-15)	13 (12-16)	12 (11-16)	13 (11-17)	13 (11-17)	13 (10-15)	12 (11-15)	13 (11-14)	12 (9-15)	12 (11-15)	13 (11-17)	12 (10-14)	13 (11-15)	12 (10-15)	13 (10-15)	13 (12-15)	13 (11-16)	13 (11-14)	13 (11-18)	12 (10-15)	13 (11-18)	13 (10-16)	13 (12-16)	13 (11-15)	12 (10-15)
KYDA	15 (13-18)	15 (13-18)	16 (14-20)	15 (14-18)	16 (14-18)	15 (13-19)	15 (13-19)	15 (12-17)	17 (13-20)	17 (15-21)	17 (13-21)	15 (12-17)	17 (16-21)	17 (13-21)	17 (14-21)	15 (12-20)	17 (14-22)	16 (13-20)	17 (14-23)	17 (13-22)	16 (14-19)	17 (15-22)	17 (14-21)	17 (14-21)	16 (13-20)	16 (14-20)	16 (14-20)	15 (13-17)
LAOP	20 (17-22)	20 (18-25)	24 (20-28)	20 (16-24)	26 (22-29)	20 (17-24)	24 (20-28)	20 (18-23)	26 (24-30)	23 (19-28)	23 (20-27)	24 (19-26)	24 (20-27)	25 (21-28)	23 (20-27)	24 (21-28)	23 (21-26)	25 (22-28)	23 (21-26)	24 (21-28)	24 (20-29)	24 (22-27)	26 (23-29)	23 (20-29)	24 (20-30)	24 (21-29)	25 (22-29)	20 (17-24)
MAOB	81 (74-85)	80 (72-85)	73 (65-79)	80 (71-84)	73 (66-77)	80 (74-87)	73 (66-76)	81 (72-85)	73 (67-79)	61 (53-65)	62 (55-66)	73 (65-79)	62 (56-67)	73 (64-81)	64 (56-71)	73 (68-76)	65 (57-69)	73 (67-80)	65 (59-71)	66 (60-69)	72 (62-77)	66 (57-69)	73 (65-77)	67 (59-70)	72 (65-76)	66 (58-69)	73 (65-78)	81 (74-85)
MDPC	49 (47-53)	49 (44-54)	47 (45-51)	49 (45-52)	47 (44-53)	49 (46-53)	47 (43-52)	49 (47-51)	46 (43-49)	43 (39-45)	44 (40-46)	47 (43-51)	43 (40-46)	47 (42-50)	44 (41-45)	48 (44-50)	43 (41-46)	47 (41-49)	45 (41-49)	45 (42-48)	47 (44-50)	45 (41-48)	46 (42-49)	45 (42-47)	47 (45-50)	45 (42-48)	46 (44-51)	50 (47-53)
MIOP	46 (42-50)	45 (42-51)	48 (44-52)	46 (43-48)	50 (46-54)	45 (41-48)	48 (44-52)	46 (45-48)	50 (45-54)	47 (44-49)	48 (44-52)	47 (44-51)	47 (46-50)	50 (46-54)	47 (44-51)	48 (43-52)	48 (43-53)	50 (46-53)	51 (48-53)	50 (47-52)	48 (45-51)	50 (47-54)	50 (46-53)	50 (45-53)	48 (44-53)	50 (47-54)	50 (47-54)	43 (39-47)
MNOP	43 (41-49)	44 (40-48)	43 (39-47)	42 (36-49)	40 (36-44)	44 (41-48)	43 (41-48)	43 (39-46)	40 (36-45)	39 (37-42)	40 (37-43)	43 (40-49)	39 (34-43)	40 (37-43)	39 (37-42)	43 (39-47)	39 (36-43)	41 (37-47)	39 (35-43)	40 (37-44)	43 (40-47)	40 (35-45)	40 (36-43)	40 (34-45)	43 (39-48)	40 (35-43)	40 (36-44)	44 (40-48)
MOMA	23 (20-28)	24 (19-26)	24 (20-26)	23 (20-25)	22 (18-25)	24 (21-27)	24 (22-28)	23 (19-25)	22 (17-24)	23 (20-25)	23 (20-25)	24 (21-28)	24 (20-28)	22 (18-24)	23 (20-27)	24 (20-26)	23 (19-27)	22 (19-24)	25 (20-30)	25 (20-29)	24 (20-27)	26 (19-29)	22 (18-25)	25 (21-28)	24 (19-26)	26 (20-31)	22 (19-24)	23 (19-26)

	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	current
MWOB	10 (9-13)	10 (9-13)	9 (7-11)	10 (8-13)	10 (7-12)	10 (8-12)	9 (8-11)	10 (8-13)	10 (8-11)	11 (9-13)	11 (10-14)	10 (7-11)	11 (9-13)	10 (8-12)	11 (9-12)	10 (8-11)	11 (9-12)	10 (8-12)	11 (9-13)	11 (9-14)	9 (7-11)	10 (8-12)	10 (7-12)	11 (9-13)	10 (7-11)	11 (8-12)	10 (8-12)	9 (7-11)
NCCM	5 (5-6)	6 (4-8)	6 (5-7)	6 (5-7)	6 (5-9)	6 (3-7)	6 (5-7)	6 (4-7)	6 (5-8)	7 (5-9)	7 (5-8)	6 (4-8)	7 (5-9)	6 (4-7)	6 (5-8)	6 (4-7)	6 (4-8)	6 (5-8)	7 (5-9)	7 (5-9)	6 (5-7)	7 (6-8)	6 (5-8)	7 (5-8)	6 (4-8)	7 (4-9)	6 (6-7)	6 (5-7)
NCNC	32 (29-35)	31 (28-35)	32 (28-36)	31 (28-35)	33 (29-39)	31 (29-34)	32 (30-37)	32 (29-36)	34 (29-39)	34 (30-39)	34 (30-38)	32 (28-38)	33 (30-39)	33 (30-36)	34 (30-37)	32 (30-36)	34 (31-40)	33 (30-40)	35 (31-39)	35 (32-40)	32 (30-36)	35 (33-38)	33 (30-37)	34 (31-37)	32 (29-37)	34 (31-39)	33 (29-37)	31 (27-34)
NEOR	23 (19-27)	24 (20-26)	24 (22-25)	25 (20-27)	25 (22-27)	24 (22-25)	24 (20-27)	24 (22-27)	25 (20-28)	25 (22-27)	24 (23-26)	24 (20-27)	24 (19-27)	25 (21-28)	24 (20-26)	24 (22-27)	25 (21-26)	25 (22-29)	25 (21-27)	26 (23-29)	24 (19-26)	25 (21-27)	25 (21-27)	24 (19-27)	24 (22-26)	24 (22-25)	25 (20-27)	25 (20-28)
NJTO	17 (15-18)	17 (15-18)	16 (14-19)	17 (15-18)	16 (15-18)	16 (14-18)	16 (14-18)	16 (15-18)	16 (14-18)	15 (13-16)	15 (14-17)	16 (15-19)	15 (13-16)	16 (13-19)	15 (13-16)	16 (14-17)	15 (12-17)	16 (13-19)	15 (14-16)	15 (14-16)	16 (15-17)	16 (14-17)	16 (15-19)	16 (15-18)	16 (15-18)	15 (13-17)	16 (14-19)	16 (14-19)
NYFL	36 (33-40)	36 (34-40)	33 (32-36)	36 (32-38)	30 (27-32)	36 (33-40)	32 (29-35)	36 (33-38)	30 (28-32)	26 (24-29)	26 (23-27)	32 (30-35)	26 (24-28)	30 (27-33)	27 (26-29)	33 (30-36)	27 (25-31)	30 (27-33)	30 (26-34)	31 (27-35)	32 (30-36)	31 (28-34)	30 (28-32)	31 (28-33)	33 (30-36)	31 (28-33)	30 (27-32)	36 (34-39)
NYRT	136 (130-145)	136 (132-148)	122 (117-129)	136 (128-148)	125 (118-131)	136 (128-145)	122 (116-127)	137 (130-144)	125 (121-130)	110 (105-113)	109 (104-115)	121 (115-129)	111 (104-117)	125 (117-132)	110 (105-116)	120 (116-127)	111 (106-117)	124 (117-131)	114 (107-121)	113 (109-119)	121 (112-131)	115 (109-122)	125 (118-132)	114 (108-117)	121 (117-129)	116 (107-124)	126 (121-133)	137 (129-144)
OHLB	23 (21-27)	23 (19-26)	24 (21-26)	23 (21-25)	25 (22-27)	23 (19-26)	24 (21-26)	24 (21-25)	26 (22-28)	24 (20-26)	23 (21-27)	24 (20-27)	24 (21-26)	25 (21-29)	24 (18-26)	24 (21-28)	24 (20-26)	25 (19-29)	25 (21-28)	25 (22-29)	24 (21-26)	25 (22-29)	25 (22-28)	25 (20-29)	24 (20-26)	25 (22-28)	26 (23-29)	25 (21-29)
OHLP	4 (3-5)	4 (2-5)	4 (3-5)	4 (3-5)	4 (3-5)	4 (2-5)	4 (3-5)	4 (3-5)	4 (3-5)	4 (3-5)	4 (3-5)	4 (3-5)	4 (3-6)	4 (4-6)	4 (3-5)	4 (2-5)	4 (3-6)	5 (4-6)	4 (3-6)	4 (3-5)	4 (3-5)	5 (4-6)	4 (4-5)	5 (3-5)	4 (3-5)	5 (3-6)	4 (3-6)	5 (3-6)
OHOV	10 (8-12)	9 (8-11)	10 (8-12)	10 (8-12)	10 (8-13)	10 (9-11)	10 (9-11)	10 (8-12)	9 (8-11)	9 (7-11)	9 (7-11)	9 (8-12)	9 (8-11)	10 (9-12)	9 (7-11)	9 (8-11)	9 (8-11)	9 (7-12)	10 (8-12)	10 (8-12)	10 (9-12)	10 (9-11)	10 (8-12)	10 (9-12)	10 (8-12)	10 (9-12)	10 (8-12)	10 (9-12)
OKOP	19 (17-22)	19 (17-21)	16 (15-18)	19 (18-22)	17 (16-19)	19 (16-22)	17 (15-19)	19 (17-23)	18 (16-19)	17 (16-20)	17 (15-19)	16 (15-18)	17 (15-19)	17 (15-20)	17 (14-20)	17 (16-18)	17 (15-20)	17 (15-19)	18 (15-21)	18 (16-20)	17 (15-18)	18 (16-19)	17 (16-19)	18 (15-20)	17 (15-19)	18 (16-20)	17 (15-19)	18 (17-21)
ORUO	10 (8-13)	10 (8-13)	10 (8-12)	11 (10-12)	11 (9-13)	10 (9-12)	11 (9-12)	10 (8-13)	11 (8-13)	12 (10-13)	11 (10-13)	11 (9-13)	12 (10-14)	11 (9-13)	12 (10-14)	11 (9-12)	12 (10-14)	11 (10-12)	12 (10-14)	11 (10-13)	11 (8-13)	12 (10-14)	11 (10-13)	12 (10-14)	11 (10-13)	12 (10-14)	11 (9-13)	11 (9-12)
PADV	68 (60-75)	66 (55-71)	65 (56-70)	67 (56-71)	68 (57-72)	66 (54-71)	67 (54-72)	67 (60-72)	67 (58-75)	61 (53-66)	60 (51-67)	65 (56-72)	61 (54-65)	66 (56-74)	61 (53-64)	66 (57-70)	62 (53-66)	68 (61-73)	63 (54-68)	63 (55-68)	66 (57-73)	63 (55-68)	67 (56-74)	63 (55-69)	65 (57-71)	64 (56-71)	68 (58-73)	67 (56-75)
PATF	41 (39-45)	43 (39-46)	41 (37-48)	42 (38-47)	39 (34-44)	43 (39-47)	40 (37-44)	43 (40-47)	40 (36-44)	36 (31-39)	37 (33-40)	41 (36-44)	37 (33-41)	40 (35-44)	36 (34-41)	40 (36-45)	36 (32-39)	39 (35-43)	39 (35-43)	40 (35-45)	40 (36-43)	40 (35-43)	40 (36-42)	40 (35-44)	41 (38-44)	40 (35-43)	40 (36-44)	42 (37-46)
SCOP	7 (5-8)	7 (4-9)	9 (7-10)	7 (6-8)	8 (6-9)	7 (6-9)	8 (5-10)	7 (5-8)	8 (5-10)	7 (6-9)	8 (6-11)	8 (6-11)	7 (6-9)	7 (5-10)	8 (7-11)	8 (6-9)	8 (6-10)	7 (6-10)	8 (6-12)	8 (6-11)	8 (6-10)	8 (7-10)	8 (5-10)	9 (7-11)	8 (7-10)	8 (7-11)	7 (6-9)	7 (5-9)
TNDS	16 (15-19)	16 (14-19)	18 (16-20)	17 (14-19)	18 (15-20)	17 (15-19)	18 (16-21)	16 (14-18)	17 (15-19)	19 (16-21)	20 (17-22)	18 (15-21)	19 (16-22)	18 (14-21)	19 (16-22)	18 (15-20)	19 (16-22)	17 (14-20)	19 (16-22)	18 (14-22)	18 (15-20)	19 (16-22)	18 (16-20)	18 (15-21)	18 (15-21)	19 (16-22)	18 (15-20)	16 (13-18)
TNMS	9 (5-12)	9 (6-11)	11 (9-13)	9 (7-10)	10 (7-13)	9 (7-12)	11 (8-13)	9 (7-11)	10 (8-11)	10 (8-12)	10 (8-12)	11 (9-13)	10 (7-11)	10 (8-13)	10 (8-12)	11 (9-13)	9 (7-12)	9 (7-12)	11 (9-15)	12 (10-14)	10 (9-13)	12 (9-14)	10 (8-11)	12 (9-13)	11 (9-13)	12 (9-14)	9 (7-11)	9 (7-11)
TXGC	68 (63-70)	67 (65-70)	66 (63-70)	67 (63-71)	66 (60-70)	68 (62-73)	67 (59-72)	67 (63-71)	66 (63-69)	60 (57-63)	60 (56-64)	67 (63-70)	60 (54-64)	65 (61-70)	60 (57-67)	67 (64-73)	61 (57-65)	66 (60-69)	61 (56-66)	61 (58-65)	67 (64-70)	61 (54-67)	65 (61-70)	61 (59-66)	67 (60-71)	61 (59-65)	65 (61-69)	68 (66-70)
TXSA	56 (51-60)	57 (51-64)	59 (52-64)	56 (50-61)	54 (50-59)	57 (49-62)	59 (53-62)	56 (45-61)	54 (49-60)	50 (43-53)	50 (44-55)	58 (50-62)	50 (43-53)	55 (47-60)	51 (44-55)	58 (52-62)	50 (46-56)	54 (48-59)	50 (41-56)	51 (44-55)	58 (51-62)	51 (45-55)	54 (47-59)	52 (45-57)	58 (51-61)	51 (43-55)	55 (50-61)	57 (50-62)
TXSB	54 (49-58)	54 (48-57)	53 (48-56)	53 (48-57)	52 (47-57)	53 (46-59)	51 (48-56)	54 (47-59)	52 (47-58)	50 (45-55)	50 (44-54)	52 (48-57)	50 (45-54)	52 (47-59)	50 (45-55)	52 (44-57)	50 (46-56)	53 (48-57)	50 (46-55)	51 (47-57)	52 (47-57)	51 (46-56)	52 (47-56)	50 (45-54)	51 (46-57)	51 (45-55)	52 (46-58)	51 (45-57)
UTOP	15 (12-17)	15 (13-17)	14 (12-17)	15 (13-18)	16 (14-20)	16 (13-17)	14 (12-17)	15 (12-18)	16 (14-19)	14 (13-17)	13 (10-15)	15 (13-18)	14 (12-18)	16 (13-18)	14 (12-17)	15 (13-16)	14 (12-17)	16 (14-20)	16 (14-18)	15 (13-18)	15 (13-16)	16 (13-18)	16 (14-18)	15 (14-18)	15 (14-18)	16 (12-18)	16 (14-18)	14 (12-16)
VATB	27 (24-31)	27 (23-29)	30 (28-33)	26 (24-30)	29 (26-32)	27 (23-30)	30 (28-33)	26 (24-29)	29 (26-33)	29 (26-35)	29 (26-32)	30 (27-34)	29 (26-33)	30 (28-34)	30 (26-34)	30 (26-34)	30 (27-34)	30 (26-33)	30 (27-32)	31 (27-35)	31 (28-35)	30 (27-34)	30 (27-34)	31 (27-35)	31 (28-34)	30 (27-33)	30 (28-34)	27 (24-32)
WALC	17 (15-19)	17 (15-20)	17 (14-20)	16 (14-19)	18 (14-20)	17 (15-19)	18 (15-22)	17 (15-19)	17 (15-20)	18 (14-21)	18 (16-20)	17 (15-21)	18 (15-22)	18 (15-21)	18 (15-22)	17 (14-22)	18 (15-21)	18 (15-22)	18 (14-21)	18 (15-20)	18 (15-22)	17 (15-22)	18 (15-20)	18 (14-21)	17 (15-20)	18 (14-21)	17 (14-20)	17 (15-19)
WIDN	11 (9-14)	11 (9-12)	9 (8-11)	11 (10-14)	10 (8-12)	11 (9-14)	10 (8-12)	11 (9-14)	10 (8-11)	9 (7-11)	9 (7-11)	10 (7-13)	9 (6-11)	10 (8-12)	9 (7-11)	10 (8-11)	9 (7-11)	10 (8-12)	9 (7-11)	10 (8-13)	10 (7-12)	10 (7-12)	10 (8-12)	10 (7-11)	10 (8-12)	9 (7-12)	10 (7-12)	11 (10-13)
WIUW	13 (12-15)	13 (11-14)	11 (9-13)	13 (10-16)	11 (8-13)	13 (10-14)	11 (9-13)	12 (11-14)	11 (9-13)	9 (7-12)	9 (7-11)	11 (8-13)	10 (8-11)	10 (7-13)	9 (8-11)	11 (9-12)	10 (8-11)	11 (9-13)	10 (8-11)	10 (8-13)	11 (9-12)	11 (8-14)	11 (9-13)	10 (8-12)	11 (8-12)	10 (8-12)	11 (8-13)	12 (9-15)

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Table I48. Pretransplant mortality rates per patient-year by scenario and DSA

	11 Regions	11R 3P 150Min	11R 3P 150Mout	11R 3P 250Min	11R 3P 250Mout	11R 5P 150Min	11R 5P 150Mout	11R 5P 250Min	11R 5P 250Mout	4 Districts	4D 3P 150Min	4D 3P 150Mout	4D 3P 250Min	4D 3P 250Mout	4D 5P 150Min	4D 5P 150Mout	4D 5P 250Min	4D 5P 250Mout	8 Districts	8D 3P 150Min	8D 3P 150Mout	8D 3P 250Min	8D 3P 250Mout	8D 5P 150Min	8D 5P 150Mout	8D 5P 250Min	8D 5P 250Mout	current
ALOB	0.135 (0.111-0.157)	0.14 (0.12-0.167)	0.139 (0.11-0.163)	0.136 (0.105-0.175)	0.147 (0.123-0.178)	0.134 (0.108-0.162)	0.137 (0.126-0.155)	0.14 (0.124-0.169)	0.142 (0.115-0.172)	0.117 (0.101-0.134)	0.117 (0.09-0.15)	0.146 (0.124-0.165)	0.122 (0.098-0.15)	0.146 (0.127-0.164)	0.12 (0.1-0.138)	0.14 (0.119-0.162)	0.128 (0.106-0.143)	0.144 (0.125-0.169)	0.121 (0.11-0.135)	0.123 (0.108-0.14)	0.141 (0.122-0.16)	0.131 (0.116-0.152)	0.139 (0.119-0.165)	0.123 (0.105-0.143)	0.143 (0.121-0.163)	0.129 (0.106-0.154)	0.138 (0.118-0.155)	0.146 (0.128-0.167)
AROR	0.108 (0.08-0.145)	0.097 (0.056-0.135)	0.112 (0.079-0.154)	0.106 (0.073-0.134)	0.108 (0.071-0.132)	0.107 (0.087-0.129)	0.116 (0.086-0.16)	0.107 (0.068-0.132)	0.111 (0.069-0.134)	0.089 (0.053-0.121)	0.093 (0.056-0.138)	0.109 (0.062-0.147)	0.091 (0.058-0.122)	0.107 (0.072-0.138)	0.087 (0.056-0.135)	0.107 (0.079-0.124)	0.097 (0.064-0.129)	0.11 (0.06-0.15)	0.11 (0.076-0.146)	0.118 (0.075-0.158)	0.107 (0.067-0.15)	0.109 (0.061-0.132)	0.11 (0.074-0.137)	0.112 (0.078-0.151)	0.107 (0.052-0.137)	0.111 (0.064-0.148)	0.111 (0.063-0.157)	0.108 (0.083-0.136)
AZOB	0.059 (0.054-0.065)	0.061 (0.057-0.066)	0.062 (0.056-0.069)	0.06 (0.054-0.064)	0.063 (0.056-0.07)	0.06 (0.055-0.067)	0.062 (0.055-0.067)	0.061 (0.056-0.066)	0.063 (0.055-0.069)	0.061 (0.053-0.068)	0.061 (0.053-0.068)	0.062 (0.052-0.07)	0.06 (0.053-0.067)	0.064 (0.055-0.071)	0.062 (0.056-0.069)	0.06 (0.054-0.066)	0.062 (0.057-0.069)	0.064 (0.058-0.071)	0.063 (0.058-0.067)	0.065 (0.059-0.071)	0.06 (0.055-0.067)	0.064 (0.056-0.07)	0.063 (0.055-0.072)	0.064 (0.059-0.07)	0.06 (0.057-0.065)	0.064 (0.058-0.071)	0.064 (0.057-0.07)	0.061 (0.056-0.067)
CADN	0.064 (0.057-0.068)	0.063 (0.059-0.067)	0.064 (0.059-0.069)	0.063 (0.057-0.066)	0.065 (0.058-0.068)	0.064 (0.059-0.067)	0.064 (0.058-0.068)	0.064 (0.059-0.068)	0.065 (0.059-0.069)	0.064 (0.057-0.068)	0.063 (0.058-0.067)	0.064 (0.058-0.069)	0.063 (0.057-0.068)	0.065 (0.059-0.069)	0.064 (0.058-0.068)	0.064 (0.058-0.067)	0.064 (0.06-0.068)	0.065 (0.06-0.072)	0.063 (0.058-0.067)	0.063 (0.058-0.067)	0.063 (0.058-0.067)	0.063 (0.058-0.066)	0.064 (0.06-0.069)	0.063 (0.057-0.069)	0.064 (0.057-0.068)	0.063 (0.058-0.067)	0.065 (0.058-0.069)	0.064 (0.059-0.067)
CAGS	0.103 (0.069-0.186)	0.1 (0.063-0.161)	0.103 (0.055-0.199)	0.1 (0.062-0.179)	0.113 (0.072-0.177)	0.118 (0.058-0.2)	0.101 (0.057-0.195)	0.105 (0.07-0.19)	0.102 (0.051-0.161)	0.104 (0.056-0.158)	0.102 (0.057-0.146)	0.102 (0.066-0.202)	0.112 (0.07-0.193)	0.11 (0.066-0.186)	0.109 (0.066-0.18)	0.107 (0.057-0.193)	0.102 (0.067-0.166)	0.111 (0.074-0.183)	0.102 (0.068-0.18)	0.101 (0.064-0.159)	0.103 (0.029-0.176)	0.103 (0.057-0.177)	0.118 (0.077-0.179)	0.102 (0.053-0.181)	0.113 (0.057-0.224)	0.109 (0.057-0.192)	0.107 (0.055-0.199)	0.107 (0.046-0.223)
CAOP	0.073 (0.07-0.077)	0.073 (0.069-0.078)	0.073 (0.072-0.078)	0.073 (0.069-0.076)	0.075 (0.072-0.077)	0.073 (0.069-0.076)	0.074 (0.07-0.079)	0.073 (0.069-0.077)	0.075 (0.072-0.077)	0.074 (0.068-0.077)	0.074 (0.068-0.076)	0.073 (0.069-0.076)	0.073 (0.07-0.076)	0.074 (0.071-0.076)	0.074 (0.069-0.079)	0.073 (0.07-0.077)	0.073 (0.068-0.076)	0.075 (0.071-0.079)	0.073 (0.07-0.077)	0.073 (0.069-0.078)	0.073 (0.071-0.076)	0.073 (0.07-0.077)	0.074 (0.071-0.078)	0.073 (0.069-0.076)	0.073 (0.069-0.076)	0.073 (0.07-0.077)	0.075 (0.072-0.079)	0.074 (0.071-0.081)
CASD	0.083 (0.078-0.087)	0.083 (0.078-0.086)	0.084 (0.073-0.089)	0.085 (0.078-0.09)	0.086 (0.08-0.092)	0.083 (0.078-0.091)	0.086 (0.084-0.092)	0.084 (0.079-0.088)	0.086 (0.08-0.09)	0.083 (0.076-0.088)	0.083 (0.077-0.089)	0.086 (0.076-0.092)	0.084 (0.082-0.087)	0.087 (0.079-0.094)	0.084 (0.078-0.088)	0.083 (0.076-0.091)	0.086 (0.078-0.092)	0.086 (0.075-0.091)	0.085 (0.079-0.089)	0.083 (0.075-0.09)	0.086 (0.079-0.095)	0.084 (0.076-0.092)	0.086 (0.081-0.091)	0.084 (0.08-0.089)	0.085 (0.076-0.091)	0.087 (0.078-0.094)	0.086 (0.083-0.094)	0.082 (0.076-0.087)
CORS	0.059 (0.051-0.063)	0.058 (0.053-0.069)	0.061 (0.058-0.065)	0.058 (0.053-0.064)	0.063 (0.058-0.068)	0.059 (0.054-0.068)	0.061 (0.056-0.07)	0.06 (0.053-0.07)	0.063 (0.056-0.071)	0.059 (0.052-0.066)	0.06 (0.052-0.067)	0.061 (0.055-0.067)	0.061 (0.052-0.07)	0.062 (0.06-0.068)	0.06 (0.054-0.066)	0.061 (0.056-0.064)	0.062 (0.056-0.069)	0.063 (0.057-0.071)	0.062 (0.055-0.069)	0.062 (0.057-0.069)	0.061 (0.056-0.069)	0.062 (0.056-0.069)	0.062 (0.056-0.07)	0.062 (0.058-0.07)	0.061 (0.055-0.069)	0.062 (0.057-0.07)	0.063 (0.058-0.074)	0.059 (0.053-0.064)
CTOP	0.083 (0.052-0.103)	0.081 (0.054-0.101)	0.073 (0.044-0.107)	0.08 (0.055-0.102)	0.069 (0.036-0.09)	0.083 (0.065-0.101)	0.07 (0.051-0.089)	0.08 (0.053-0.101)	0.075 (0.044-0.109)	0.057 (0.033-0.085)	0.063 (0.044-0.082)	0.07 (0.037-0.1)	0.06 (0.042-0.077)	0.071 (0.055-0.092)	0.063 (0.044-0.085)	0.071 (0.052-0.091)	0.062 (0.044-0.087)	0.067 (0.039-0.088)	0.067 (0.042-0.091)	0.069 (0.047-0.087)	0.068 (0.043-0.092)	0.07 (0.049-0.088)	0.073 (0.045-0.092)	0.064 (0.028-0.09)	0.068 (0.052-0.093)	0.068 (0.033-0.095)	0.072 (0.048-0.096)	0.078 (0.064-0.096)
DCTC	0.074 (0.065-0.087)	0.075 (0.067-0.089)	0.071 (0.061-0.088)	0.073 (0.065-0.082)	0.07 (0.057-0.081)	0.075 (0.068-0.096)	0.071 (0.053-0.087)	0.072 (0.058-0.085)	0.068 (0.06-0.078)	0.063 (0.054-0.073)	0.065 (0.056-0.069)	0.072 (0.053-0.083)	0.065 (0.054-0.079)	0.069 (0.057-0.08)	0.063 (0.053-0.08)	0.07 (0.056-0.085)	0.063 (0.053-0.069)	0.069 (0.061-0.082)	0.066 (0.052-0.079)	0.068 (0.06-0.081)	0.071 (0.062-0.078)	0.066 (0.055-0.08)	0.069 (0.058-0.078)	0.069 (0.059-0.084)	0.071 (0.062-0.085)	0.068 (0.06-0.074)	0.07 (0.056-0.087)	0.077 (0.065-0.092)
FLFH	0.122 (0.074-0.158)	0.12 (0.067-0.157)	0.128 (0.069-0.151)	0.125 (0.069-0.165)	0.135 (0.105-0.168)	0.125 (0.053-0.165)	0.128 (0.077-0.17)	0.118 (0.085-0.158)	0.127 (0.083-0.178)	0.088 (0.061-0.126)	0.088 (0.046-0.116)	0.124 (0.083-0.16)	0.099 (0.064-0.136)	0.125 (0.092-0.148)	0.095 (0.048-0.125)	0.128 (0.069-0.171)	0.093 (0.06-0.113)	0.132 (0.067-0.19)	0.091 (0.039-0.12)	0.095 (0.063-0.125)	0.127 (0.084-0.154)	0.095 (0.067-0.13)	0.128 (0.091-0.168)	0.1 (0.066-0.122)	0.122 (0.065-0.152)	0.1 (0.064-0.138)	0.131 (0.072-0.218)	0.135 (0.097-0.165)
FLMP	0.108 (0.098-0.119)	0.107 (0.097-0.123)	0.102 (0.095-0.11)	0.107 (0.094-0.123)	0.105 (0.09-0.115)	0.109 (0.095-0.117)	0.102 (0.091-0.111)	0.111 (0.09-0.125)	0.107 (0.091-0.12)	0.093 (0.079-0.104)	0.09 (0.078-0.098)	0.103 (0.095-0.117)	0.093 (0.082-0.101)	0.106 (0.095-0.116)	0.094 (0.086-0.104)	0.105 (0.094-0.116)	0.096 (0.079-0.106)	0.105 (0.094-0.118)	0.092 (0.08-0.1)	0.095 (0.082-0.107)	0.104 (0.095-0.113)	0.095 (0.085-0.102)	0.104 (0.093-0.114)	0.096 (0.084-0.106)	0.105 (0.09-0.12)	0.098 (0.086-0.107)	0.105 (0.092-0.119)	0.112 (0.104-0.126)
FLUF	0.08 (0.061-0.095)	0.08 (0.062-0.091)	0.083 (0.064-0.099)	0.078 (0.07-0.094)	0.082 (0.07-0.09)	0.082 (0.07-0.104)	0.085 (0.077-0.091)	0.08 (0.067-0.095)	0.083 (0.062-0.095)	0.068 (0.051-0.08)	0.067 (0.055-0.083)	0.085 (0.073-0.093)	0.068 (0.061-0.077)	0.083 (0.07-0.093)	0.072 (0.063-0.087)	0.085 (0.076-0.095)	0.067 (0.056-0.081)	0.083 (0.071-0.092)	0.069 (0.055-0.078)	0.07 (0.053-0.083)	0.083 (0.072-0.09)	0.067 (0.056-0.076)	0.083 (0.072-0.096)	0.073 (0.059-0.079)	0.085 (0.075-0.1)	0.071 (0.059-0.081)	0.083 (0.07-0.1)	0.088 (0.078-0.101)
FLWC	0.097 (0.074-0.118)	0.104 (0.075-0.131)	0.107 (0.083-0.133)	0.102 (0.087-0.129)	0.104 (0.085-0.117)	0.103 (0.08-0.126)	0.106 (0.087-0.131)	0.102 (0.086-0.115)	0.106 (0.082-0.126)	0.087 (0.068-0.108)	0.089 (0.076-0.101)	0.108 (0.092-0.125)	0.09 (0.074-0.105)	0.108 (0.085-0.123)	0.095 (0.076-0.117)	0.109 (0.086-0.131)	0.093 (0.075-0.118)	0.105 (0.087-0.12)	0.089 (0.074-0.11)	0.091 (0.073-0.11)	0.106 (0.084-0.117)	0.091 (0.073-0.112)	0.105 (0.088-0.126)	0.096 (0.073-0.117)	0.111 (0.099-0.133)	0.091 (0.072-0.107)	0.106 (0.089-0.124)	0.106 (0.082-0.124)
GALL	0.07 (0.061-0.081)	0.068 (0.055-0.081)	0.075 (0.064-0.088)	0.069 (0.052-0.077)	0.071 (0.053-0.082)	0.067 (0.053-0.077)	0.073 (0.057-0.09)	0.07 (0.064-0.077)	0.073 (0.059-0.083)	0.061 (0.055-0.074)	0.064 (0.056-0.077)	0.073 (0.061-0.085)	0.064 (0.058-0.079)	0.067 (0.056-0.079)	0.067 (0.056-0.077)	0.073 (0.063-0.09)	0.066 (0.054-0.077)	0.072 (0.058-0.083)	0.066 (0.055-0.075)	0.066 (0.06-0.081)	0.07 (0.061-0.081)	0.066 (0.057-0.079)	0.07 (0.057-0.083)	0.066 (0.059-0.076)	0.069 (0.058-0.079)	0.067 (0.059-0.081)	0.069 (0.063-0.076)	0.07 (0.052-0.081)
HIOP	0.078 (0.058-0.119)	0.076 (0.062-0.123)	0.073 (0.051-0.117)	0.078 (0.06-0.121)	0.077 (0.054-0.126)	0.079 (0.058-0.132)	0.074 (0.055-0.127)	0.078 (0.056-0.105)	0.081 (0.06-0.128)	0.07 (0.056-0.09)	0.069 (0.051-0.094)	0.076 (0.058-0.102)	0.072 (0.055-0.105)	0.078 (0.057-0.126)	0.07 (0.052-0.124)	0.067 (0.038-0.098)	0.072 (0.059-0.098)	0.073 (0.051-0.121)	0.069 (0.05-0.095)	0.071 (0.052-0.096)	0.078 (0.056-0.122)	0.073 (0.055-0.114)	0.078 (0.06-0.121)	0.072 (0.052-0.108)	0.072 (0.058-0.104)	0.068 (0.052-0.104)	0.079 (0.064-0.122)	0.08 (0.05-0.118)
IAOP	0.117 (0.097-0.138)	0.113 (0.072-	0.112 (0.082-	0.117 (0.089-	0.111 (0.085-	0.114 (0.087-	0.112 (0.082-	0.111 (0.092-	0.106 (0.083-	0.113 (0.084-0.137)	0.112 (0.098-	0.115 (0.086-	0.111 (0.091-	0.115 (0.102-	0.11 (0.084-	0.116 (0.081-	0.111 (0.073-	0.11 (0.069-	0.118 (0.088-0.138)	0.114 (0.09-0.139)	0.116 (0.088-	0.114 (0.089-	0.114 (0.101-	0.114 (0.082-	0.113 (0.09-0.142)	0.119 (0.096-	0.117 (0.09-0.141)	0.118 (0.09-0.156)

	11 Regions	11R 3P 150Min	11R 3P 150MiOut	11R 3P 250Min	11R 3P 250MiOut	11R 5P 150Min	11R 5P 150MiOut	11R 5P 250Min	11R 5P 250MiOut	4 Districts	4D 3P 150MiIn	4D 3P 150MiOut	4D 3P 250MiIn	4D 3P 250MiOut	4D 5P 150MiIn	4D 5P 150MiOut	4D 5P 250MiIn	4D 5P 250MiOut	8 Districts	8D 3P 150MiIn	8D 3P 150MiOut	8D 3P 250MiIn	8D 3P 250MiOut	8D 5P 150MiIn	8D 5P 150MiOut	8D 5P 250MiIn	8D 5P 250MiOut	current
		0.135)	0.136)	0.149)	0.128)	0.141)	0.137)	0.127)	0.124)		0.129)	0.136)	0.126)	0.134)	0.138)	0.139)	0.137)	0.148)			0.141)	0.138)	0.136)	0.135)		0.151)		
ILIP	0.085 (0.082-0.09)	0.085 (0.081 -0.09)	0.082 (0.079 - 0.085)	0.086 (0.082 - 0.094)	0.079 (0.075 - 0.084)	0.086 (0.079 - 0.093)	0.081 (0.077 - 0.084)	0.086 (0.081 - 0.095)	0.079 (0.072 - 0.085)	0.074 (0.071-0.084)	0.074 (0.07-0.079)	0.08 (0.074 - 0.086)	0.074 (0.071 - 0.078)	0.08 (0.074 - 0.086)	0.075 (0.069 - 0.081)	0.082 (0.077 - 0.086)	0.076 (0.071 - 0.081)	0.078 (0.073 - 0.083)	0.081 (0.076-0.084)	0.082 (0.074 - 0.088)	0.081 (0.075 - 0.086)	0.081 (0.077 - 0.091)	0.079 (0.074 - 0.082)	0.08 (0.077 - 0.085)	0.082 (0.076 -0.09)	0.081 (0.077 - 0.085)	0.079 (0.075 - 0.082)	0.088 (0.083-0.094)
INOP	0.1 (0.085-0.126)	0.105 (0.075 - 0.128)	0.096 (0.081 - 0.113)	0.102 (0.078 - 0.133)	0.09 (0.074 - 0.103)	0.099 (0.082 - 0.121)	0.097 (0.08-0.123)	0.101 (0.085 - 0.125)	0.087 (0.063 - 0.104)	0.075 (0.065-0.09)	0.079 (0.067 -0.09)	0.091 (0.069 - 0.117)	0.077 (0.068 - 0.091)	0.088 (0.071 - 0.112)	0.076 (0.062 - 0.087)	0.094 (0.078 - 0.111)	0.078 (0.06-0.092)	0.085 (0.071 - 0.097)	0.092 (0.079-0.107)	0.09 (0.069 - 0.109)	0.095 (0.078 - 0.107)	0.093 (0.076 - 0.121)	0.084 (0.068 - 0.099)	0.091 (0.074 -0.12)	0.093 (0.072 - 0.113)	0.096 (0.087 - 0.111)	0.088 (0.072 - 0.103)	0.104 (0.084-0.123)
KYDA	0.087 (0.075-0.102)	0.086 (0.076 - 0.102)	0.089 (0.079 - 0.111)	0.084 (0.076 -0.1)	0.083 (0.073 - 0.091)	0.087 (0.078 - 0.108)	0.085 (0.074 - 0.101)	0.084 (0.07-0.096)	0.085 (0.066 -0.1)	0.076 (0.068-0.091)	0.079 (0.063 - 0.098)	0.085 (0.069 - 0.095)	0.078 (0.071 - 0.095)	0.084 (0.066 - 0.106)	0.079 (0.066 - 0.098)	0.086 (0.069 - 0.105)	0.08 (0.068 -0.1)	0.084 (0.069 - 0.101)	0.087 (0.07-0.113)	0.086 (0.068 - 0.108)	0.087 (0.076 -0.1)	0.088 (0.078 - 0.108)	0.086 (0.072 -0.1)	0.085 (0.073 - 0.103)	0.09 (0.076 - 0.106)	0.084 (0.072 - 0.102)	0.083 (0.07-0.101)	0.085 (0.076-0.093)
LAOP	0.112 (0.092-0.128)	0.117 (0.099 - 0.139)	0.126 (0.113 - 0.141)	0.114 (0.097 - 0.137)	0.125 (0.108 -0.14)	0.115 (0.102 - 0.134)	0.125 (0.109 - 0.142)	0.116 (0.103 - 0.134)	0.126 (0.108 - 0.145)	0.101 (0.085-0.123)	0.103 (0.09-0.121)	0.125 (0.108 - 0.141)	0.105 (0.092 - 0.121)	0.125 (0.11-0.133)	0.105 (0.092 - 0.124)	0.125 (0.105 - 0.143)	0.104 (0.092 - 0.121)	0.123 (0.107 - 0.141)	0.103 (0.094-0.114)	0.108 (0.095 - 0.133)	0.125 (0.109 - 0.153)	0.108 (0.098 -0.12)	0.127 (0.109 - 0.145)	0.107 (0.093 - 0.132)	0.125 (0.106 - 0.152)	0.111 (0.095 - 0.133)	0.125 (0.113 -0.14)	0.12 (0.106-0.142)
MAOB	0.098 (0.088-0.106)	0.097 (0.084 - 0.105)	0.091 (0.08-0.101)	0.098 (0.085 - 0.108)	0.09 (0.079 - 0.097)	0.097 (0.087 - 0.108)	0.09 (0.08-0.098)	0.098 (0.085 - 0.105)	0.09 (0.081 - 0.099)	0.079 (0.068-0.087)	0.08 (0.07-0.087)	0.091 (0.08-0.102)	0.08 (0.07-0.089)	0.09 (0.08-0.102)	0.082 (0.071 - 0.094)	0.091 (0.084 - 0.098)	0.082 (0.071 - 0.089)	0.09 (0.08-0.101)	0.084 (0.076-0.094)	0.085 (0.076 - 0.092)	0.091 (0.077 - 0.099)	0.084 (0.071 -0.09)	0.09 (0.079 - 0.096)	0.086 (0.076 - 0.093)	0.09 (0.08-0.097)	0.085 (0.074 - 0.089)	0.09 (0.079 - 0.098)	0.098 (0.087-0.107)
MDPC	0.1 (0.092-0.103)	0.1 (0.091 - 0.109)	0.097 (0.091 - 0.105)	0.099 (0.092 - 0.103)	0.095 (0.09-0.107)	0.099 (0.094 - 0.107)	0.096 (0.089 - 0.105)	0.099 (0.096 - 0.102)	0.093 (0.088 -0.1)	0.087 (0.083-0.091)	0.09 (0.086 - 0.094)	0.095 (0.089 - 0.101)	0.088 (0.083 - 0.094)	0.095 (0.087 -0.1)	0.09 (0.086 - 0.094)	0.097 (0.089 - 0.104)	0.089 (0.083 - 0.097)	0.095 (0.086 -0.1)	0.091 (0.085-0.099)	0.093 (0.088 - 0.102)	0.096 (0.091 - 0.099)	0.093 (0.086 -0.1)	0.094 (0.089 - 0.099)	0.094 (0.089 - 0.098)	0.096 (0.092 -0.1)	0.093 (0.089 -0.1)	0.094 (0.09-0.098)	0.102 (0.096-0.107)
MIOP	0.12 (0.108-0.133)	0.118 (0.109 - 0.129)	0.118 (0.107 - 0.128)	0.118 (0.112 - 0.125)	0.113 (0.098 - 0.119)	0.118 (0.106 - 0.125)	0.118 (0.108 - 0.129)	0.12 (0.112 - 0.128)	0.113 (0.097 - 0.123)	0.102 (0.093-0.109)	0.108 (0.096 - 0.118)	0.117 (0.103 - 0.128)	0.106 (0.096 - 0.116)	0.113 (0.103 - 0.127)	0.108 (0.099 - 0.119)	0.119 (0.103 - 0.131)	0.108 (0.097 - 0.119)	0.113 (0.102 - 0.126)	0.118 (0.11-0.127)	0.119 (0.105 - 0.128)	0.119 (0.107 - 0.129)	0.117 (0.106 -0.13)	0.113 (0.101 - 0.126)	0.12 (0.112 - 0.128)	0.12 (0.106 - 0.132)	0.119 (0.104 - 0.128)	0.114 (0.106 - 0.125)	0.118 (0.11-0.127)
MNOP	0.071 (0.066-0.079)	0.071 (0.066 - 0.077)	0.07 (0.064 - 0.078)	0.07 (0.06-0.082)	0.07 (0.062 - 0.077)	0.071 (0.066 - 0.077)	0.072 (0.066 -0.08)	0.071 (0.066 - 0.077)	0.07 (0.063 - 0.078)	0.067 (0.062-0.071)	0.068 (0.063 - 0.075)	0.071 (0.066 -0.08)	0.067 (0.058 - 0.074)	0.07 (0.063 - 0.075)	0.067 (0.061 - 0.072)	0.071 (0.064 - 0.078)	0.067 (0.062 - 0.072)	0.071 (0.064 - 0.081)	0.069 (0.061-0.076)	0.071 (0.065 - 0.077)	0.07 (0.065 - 0.078)	0.071 (0.062 - 0.077)	0.07 (0.062 - 0.076)	0.07 (0.06-0.079)	0.071 (0.065 - 0.079)	0.069 (0.061 - 0.074)	0.07 (0.063 - 0.078)	0.072 (0.066-0.078)
MOMA	0.11 (0.094-0.127)	0.112 (0.092 - 0.124)	0.112 (0.094 - 0.124)	0.112 (0.096 - 0.127)	0.11 (0.092 - 0.126)	0.113 (0.102 - 0.127)	0.111 (0.101 - 0.132)	0.111 (0.098 - 0.126)	0.108 (0.089 - 0.121)	0.1 (0.086-0.109)	0.101 (0.086 -0.11)	0.111 (0.099 - 0.124)	0.104 (0.088 -0.12)	0.111 (0.093 - 0.121)	0.104 (0.086 - 0.121)	0.11 (0.095 - 0.121)	0.103 (0.085 - 0.116)	0.11 (0.096 - 0.122)	0.114 (0.094-0.134)	0.113 (0.093 - 0.125)	0.11 (0.097 - 0.122)	0.115 (0.09-0.137)	0.107 (0.091 - 0.124)	0.114 (0.096 - 0.126)	0.11 (0.089 - 0.118)	0.118 (0.093 - 0.137)	0.108 (0.093 - 0.118)	0.113 (0.095-0.13)
MWOB	0.102 (0.079-0.12)	0.105 (0.087 - 0.142)	0.107 (0.073 - 0.135)	0.102 (0.07-0.135)	0.103 (0.07-0.131)	0.109 (0.085 - 0.137)	0.104 (0.082 - 0.138)	0.106 (0.09-0.126)	0.102 (0.083 - 0.132)	0.099 (0.076-0.124)	0.102 (0.086 - 0.135)	0.108 (0.077 - 0.131)	0.101 (0.08-0.126)	0.105 (0.084 - 0.134)	0.104 (0.079 - 0.123)	0.109 (0.084 - 0.138)	0.102 (0.082 - 0.126)	0.108 (0.088 - 0.134)	0.105 (0.083-0.13)	0.109 (0.081 - 0.129)	0.107 (0.086 - 0.125)	0.1 (0.082 - 0.119)	0.102 (0.071 - 0.126)	0.106 (0.091 - 0.135)	0.107 (0.074 - 0.124)	0.104 (0.084 - 0.118)	0.106 (0.082 - 0.136)	0.105 (0.082-0.134)
NCCM	0.083 (0.072-0.095)	0.092 (0.059 - 0.128)	0.091 (0.077 - 0.114)	0.092 (0.074 -0.11)	0.093 (0.072 - 0.117)	0.088 (0.05-0.109)	0.097 (0.082 - 0.112)	0.09 (0.072 - 0.118)	0.091 (0.074 - 0.111)	0.074 (0.053-0.094)	0.077 (0.067 - 0.095)	0.104 (0.064 - 0.131)	0.079 (0.063 -0.1)	0.09 (0.063 - 0.107)	0.078 (0.065 - 0.098)	0.097 (0.064 - 0.123)	0.079 (0.057 - 0.099)	0.092 (0.078 - 0.117)	0.079 (0.05-0.102)	0.083 (0.068 - 0.103)	0.099 (0.072 - 0.126)	0.08 (0.066 - 0.097)	0.088 (0.072 - 0.102)	0.086 (0.067 - 0.102)	0.096 (0.077 - 0.114)	0.084 (0.057 - 0.104)	0.092 (0.076 - 0.109)	0.089 (0.079-0.097)
NCNC	0.078 (0.068-0.089)	0.077 (0.068 - 0.089)	0.079 (0.068 - 0.091)	0.077 (0.068 -0.09)	0.077 (0.068 - 0.093)	0.077 (0.071 - 0.088)	0.08 (0.071 - 0.093)	0.079 (0.072 - 0.091)	0.079 (0.067 - 0.094)	0.073 (0.065-0.086)	0.076 (0.066 - 0.087)	0.08 (0.071 - 0.097)	0.075 (0.066 - 0.089)	0.078 (0.069 - 0.086)	0.076 (0.066 - 0.086)	0.079 (0.072 - 0.093)	0.076 (0.068 - 0.091)	0.078 (0.068 - 0.095)	0.077 (0.067-0.087)	0.078 (0.068 -0.09)	0.078 (0.072 - 0.092)	0.077 (0.07-0.087)	0.077 (0.068 - 0.089)	0.076 (0.068 - 0.085)	0.08 (0.072 - 0.096)	0.077 (0.068 - 0.089)	0.078 (0.068 -0.09)	0.078 (0.068-0.089)
NEOR	0.124 (0.103-0.136)	0.128 (0.107 - 0.142)	0.128 (0.117 - 0.144)	0.131 (0.106 - 0.141)	0.13 (0.108 - 0.146)	0.128 (0.116 - 0.135)	0.132 (0.107 - 0.144)	0.133 (0.119 - 0.141)	0.131 (0.107 - 0.149)	0.124 (0.107-0.137)	0.124 (0.11-0.134)	0.128 (0.102 -0.15)	0.122 (0.1-0.134)	0.133 (0.115 - 0.145)	0.123 (0.105 -0.13)	0.127 (0.117 -0.14)	0.127 (0.108 - 0.135)	0.132 (0.111 - 0.147)	0.128 (0.109-0.14)	0.133 (0.114 - 0.144)	0.129 (0.105 - 0.141)	0.129 (0.11-0.143)	0.132 (0.111 - 0.142)	0.127 (0.104 - 0.141)	0.129 (0.109 - 0.148)	0.127 (0.116 - 0.139)	0.131 (0.109 - 0.142)	0.127 (0.1-0.14)
NJTO	0.063 (0.057-0.07)	0.063 (0.056 - 0.069)	0.062 (0.052 - 0.072)	0.063 (0.057 - 0.071)	0.059 (0.052 - 0.068)	0.061 (0.053 - 0.068)	0.061 (0.052 - 0.069)	0.061 (0.055 -0.07)	0.06 (0.053 - 0.067)	0.057 (0.049-0.063)	0.056 (0.052 - 0.062)	0.061 (0.053 - 0.072)	0.056 (0.049 - 0.064)	0.058 (0.047 - 0.066)	0.056 (0.05-0.062)	0.059 (0.054 - 0.066)	0.057 (0.046 - 0.065)	0.06 (0.05-0.072)	0.057 (0.052-0.062)	0.059 (0.054 - 0.064)	0.06 (0.055 - 0.068)	0.059 (0.052 - 0.065)	0.06 (0.053 - 0.069)	0.062 (0.056 -0.07)	0.06 (0.055 - 0.069)	0.058 (0.05-0.066)	0.06 (0.051 -0.07)	0.065 (0.056-0.078)
NYFL	0.079 (0.07-0.087)	0.079 (0.071 - 0.087)	0.076 (0.07-0.083)	0.078 (0.069 - 0.084)	0.067 (0.062 - 0.073)	0.078 (0.071 - 0.089)	0.074 (0.064 -0.08)	0.079 (0.071 - 0.084)	0.069 (0.061 - 0.075)	0.06 (0.055-0.066)	0.06 (0.054 - 0.063)	0.075 (0.066 - 0.081)	0.06 (0.054 - 0.064)	0.069 (0.062 - 0.076)	0.062 (0.058 - 0.067)	0.075 (0.067 - 0.083)	0.062 (0.057 - 0.071)	0.067 (0.061 - 0.074)	0.07 (0.061-0.079)	0.071 (0.062 - 0.081)	0.074 (0.068 - 0.084)	0.072 (0.064 - 0.079)	0.068 (0.063 - 0.074)	0.072 (0.062 - 0.077)	0.075 (0.067 - 0.084)	0.071 (0.064 - 0.077)	0.068 (0.06-0.074)	0.081 (0.072-0.087)
NYRT	0.084 (0.081-0.088)	0.085 (0.081 - 0.091)	0.08 (0.077 - 0.084)	0.085 (0.081 - 0.091)	0.081 (0.077 - 0.084)	0.085 (0.082 -0.09)	0.08 (0.076 - 0.084)	0.085 (0.081 - 0.089)	0.08 (0.076 - 0.084)	0.074 (0.071-0.076)	0.073 (0.07-0.078)	0.079 (0.074 - 0.084)	0.074 (0.07-0.078)	0.08 (0.077 - 0.085)	0.074 (0.071 - 0.077)	0.079 (0.075 - 0.083)	0.074 (0.07-0.078)	0.08 (0.077 - 0.083)	0.076 (0.074-0.081)	0.076 (0.074 -0.08)	0.079 (0.076 - 0.086)	0.077 (0.073 - 0.081)	0.08 (0.077 - 0.085)	0.077 (0.073 - 0.079)	0.08 (0.076 - 0.085)	0.077 (0.074 - 0.082)	0.081 (0.078 - 0.085)	0.085 (0.081-0.089)
OHLB	0.079 (0.07-0.096)	0.078 (0.066 - 0.087)	0.076 (0.066 - 0.083)	0.078 (0.071 - 0.086)	0.072 (0.064 - 0.078)	0.079 (0.065 - 0.091)	0.076 (0.068 - 0.083)	0.08 (0.072 - 0.085)	0.075 (0.062 - 0.082)	0.065 (0.057-0.074)	0.067 (0.06-0.079)	0.076 (0.065 - 0.086)	0.067 (0.06-0.076)	0.074 (0.062 - 0.086)	0.069 (0.054 -0.08)	0.077 (0.066 -0.09)	0.068 (0.058 - 0.076)	0.072 (0.056 - 0.085)	0.076 (0.065-0.088)	0.078 (0.069 -0.09)	0.075 (0.064 - 0.084)	0.078 (0.069 - 0.091)	0.073 (0.063 - 0.084)	0.078 (0.063 - 0.092)	0.077 (0.065 - 0.087)	0.077 (0.069 - 0.089)	0.074 (0.064 - 0.085)	0.082 (0.069-0.1)
OHLP	0.056 (0.042-	0.054 (0.028	0.054 (0.041	0.055 (0.048	0.052 (0.04-	0.053 (0.027	0.053 (0.041	0.054 (0.043	0.052 (0.037	0.05 (0.039-	0.049 (0.036	0.054 (0.037	0.05 (0.039	0.051 (0.043	0.05 (0.04-	0.051 (0.029	0.049 (0.039	0.054 (0.044	0.053 (0.039-	0.052 (0.042	0.054 (0.04-	0.058 (0.044	0.054 (0.042	0.055 (0.036	0.052 (0.04-	0.056 (0.039	0.052 (0.041	0.062 (0.048-

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	11 Regions	11R 3P 150Mi In	11R 3P 150Mi Out	11R 3P 250Mi In	11R 3P 250Mi Out	11R 5P 150Mi In	11R 5P 150Mi Out	11R 5P 250Mi In	11R 5P 250Mi Out	4 Districts	4D 3P 150Mi In	4D 3P 150Mi Out	4D 3P 250Mi In	4D 3P 250Mi Out	4D 5P 150Mi In	4D 5P 150Mi Out	4D 5P 250Mi In	4D 5P 250Mi Out	8 Districts	8D 3P 150Mi In	8D 3P 150Mi Out	8D 3P 250Mi In	8D 3P 250Mi Out	8D 5P 150Mi In	8D 5P 150Mi Out	8D 5P 250Mi In	8D 5P 250Mi Out	current
	0.076)	-0.075)	-0.064)	-0.061)	0.07)	-0.068)	-0.06)	-0.07)	-0.066)	0.061)	-0.061)	-0.07)	-0.068)	-0.069)	0.062)	-0.068)	-0.069)	-0.073)	0.069)	-0.062)	0.065)	-0.076)	-0.07)	-0.066)	0.066)	-0.078)	-0.073)	0.08)
OHOV	0.143 (0.114-0.18)	0.132 (0.11-0.162)	0.137 (0.115--0.165)	0.145 (0.116--0.178)	0.134 (0.115--0.181)	0.142 (0.116--0.173)	0.142 (0.122--0.166)	0.14 (0.117--0.174)	0.131 (0.113--0.154)	0.118 (0.099-0.146)	0.124 (0.089-0.15)	0.132 (0.099--0.178)	0.125 (0.101--0.154)	0.138 (0.115--0.182)	0.125 (0.091--0.155)	0.129 (0.107--0.162)	0.13 (0.098--0.151)	0.132 (0.099--0.177)	0.138 (0.098-0.179)	0.132 (0.109--0.166)	0.14 (0.115--0.174)	0.14 (0.119--0.159)	0.14 (0.118--0.173)	0.137 (0.109--0.168)	0.134 (0.109--0.169)	0.137 (0.121--0.166)	0.138 (0.105--0.175)	0.14 (0.124-0.161)
OKOP	0.081 (0.071-0.094)	0.081 (0.074--0.089)	0.079 (0.072--0.088)	0.08 (0.075--0.092)	0.08 (0.069--0.094)	0.082 (0.069--0.095)	0.083 (0.074--0.094)	0.08 (0.072--0.095)	0.084 (0.077--0.091)	0.074 (0.068-0.086)	0.075 (0.067--0.085)	0.082 (0.07-0.094)	0.074 (0.066--0.084)	0.078 (0.07-0.093)	0.075 (0.064--0.092)	0.083 (0.074--0.092)	0.076 (0.068--0.09)	0.08 (0.071--0.089)	0.083 (0.072-0.096)	0.081 (0.073--0.091)	0.082 (0.074--0.088)	0.081 (0.073--0.091)	0.081 (0.073--0.091)	0.083 (0.07-0.094)	0.083 (0.075--0.097)	0.083 (0.076--0.096)	0.079 (0.069--0.091)	0.081 (0.073-0.091)
ORUO	0.069 (0.06-0.083)	0.07 (0.058--0.087)	0.064 (0.052--0.077)	0.073 (0.067--0.079)	0.068 (0.055--0.082)	0.069 (0.061--0.079)	0.066 (0.054--0.075)	0.07 (0.053--0.084)	0.068 (0.05-0.08)	0.06 (0.053-0.068)	0.06 (0.052--0.067)	0.067 (0.057--0.076)	0.06 (0.053--0.071)	0.066 (0.057--0.076)	0.062 (0.053--0.074)	0.066 (0.054--0.076)	0.061 (0.054--0.073)	0.069 (0.059--0.077)	0.06 (0.053-0.074)	0.059 (0.052--0.069)	0.068 (0.051-0.08)	0.06 (0.055--0.069)	0.069 (0.059--0.082)	0.063 (0.056--0.071)	0.068 (0.059--0.078)	0.062 (0.055--0.071)	0.069 (0.058--0.078)	0.074 (0.064-0.085)
PADV	0.075 (0.068-0.08)	0.073 (0.063--0.078)	0.072 (0.063--0.078)	0.073 (0.063-0.08)	0.073 (0.063--0.078)	0.073 (0.061--0.079)	0.073 (0.061-0.08)	0.074 (0.067--0.078)	0.072 (0.064-0.08)	0.068 (0.06-0.074)	0.067 (0.059--0.075)	0.072 (0.064--0.078)	0.068 (0.061--0.072)	0.071 (0.063--0.079)	0.068 (0.061--0.072)	0.072 (0.065--0.077)	0.068 (0.06-0.073)	0.073 (0.068--0.078)	0.07 (0.062-0.074)	0.071 (0.063--0.076)	0.072 (0.064-0.08)	0.07 (0.063--0.074)	0.072 (0.062--0.078)	0.071 (0.064--0.076)	0.072 (0.065--0.078)	0.071 (0.063--0.079)	0.073 (0.064--0.079)	0.075 (0.064-0.083)
PATF	0.081 (0.076-0.087)	0.083 (0.076--0.089)	0.084 (0.074--0.097)	0.082 (0.075--0.089)	0.077 (0.069--0.083)	0.083 (0.077--0.091)	0.082 (0.075--0.088)	0.084 (0.077--0.095)	0.08 (0.07-0.087)	0.071 (0.066-0.079)	0.074 (0.067--0.082)	0.083 (0.074--0.092)	0.074 (0.067--0.081)	0.079 (0.074--0.087)	0.074 (0.069--0.081)	0.082 (0.073--0.093)	0.072 (0.065--0.078)	0.078 (0.07-0.087)	0.082 (0.071-0.092)	0.082 (0.074--0.093)	0.08 (0.074--0.085)	0.082 (0.074-0.09)	0.079 (0.071--0.086)	0.083 (0.075--0.089)	0.083 (0.077-0.09)	0.082 (0.073-0.09)	0.079 (0.071--0.086)	0.084 (0.077-0.094)
SCOP	0.133 (0.111-0.158)	0.139 (0.093--0.176)	0.154 (0.124--0.184)	0.139 (0.11-0.156)	0.143 (0.119--0.172)	0.144 (0.112--0.185)	0.143 (0.094--0.185)	0.137 (0.108--0.176)	0.14 (0.097--0.179)	0.095 (0.083-0.11)	0.104 (0.072--0.142)	0.137 (0.097--0.178)	0.105 (0.083--0.131)	0.138 (0.098--0.185)	0.114 (0.085--0.154)	0.141 (0.106--0.161)	0.114 (0.087--0.145)	0.135 (0.111--0.169)	0.107 (0.081-0.154)	0.115 (0.094--0.147)	0.147 (0.106--0.181)	0.117 (0.09-0.142)	0.145 (0.112--0.208)	0.12 (0.093--0.141)	0.15 (0.129--0.177)	0.123 (0.102--0.157)	0.134 (0.11-0.171)	0.152 (0.111-0.207)
TNDS	0.095 (0.081-0.111)	0.094 (0.084--0.108)	0.104 (0.088--0.115)	0.098 (0.078-0.11)	0.096 (0.083--0.105)	0.1 (0.086--0.115)	0.1 (0.09-0.114)	0.096 (0.078--0.107)	0.096 (0.086--0.107)	0.088 (0.07-0.096)	0.093 (0.079--0.102)	0.101 (0.083--0.116)	0.092 (0.074--0.106)	0.097 (0.075--0.112)	0.092 (0.072--0.106)	0.1 (0.081--0.116)	0.093 (0.077--0.104)	0.095 (0.078--0.105)	0.098 (0.081-0.117)	0.095 (0.074--0.113)	0.1 (0.078--0.117)	0.096 (0.083--0.113)	0.098 (0.088--0.114)	0.095 (0.078--0.113)	0.101 (0.085--0.117)	0.099 (0.082--0.107)	0.095 (0.082--0.107)	0.1 (0.083-0.116)
TNMS	0.084 (0.051-0.112)	0.079 (0.053--0.103)	0.079 (0.061--0.091)	0.076 (0.059--0.091)	0.082 (0.057--0.099)	0.081 (0.063--0.108)	0.076 (0.059-0.09)	0.079 (0.063--0.097)	0.08 (0.07-0.097)	0.066 (0.051-0.086)	0.066 (0.052--0.086)	0.081 (0.059--0.094)	0.067 (0.049--0.082)	0.08 (0.062--0.109)	0.067 (0.052--0.085)	0.078 (0.061--0.094)	0.067 (0.048--0.084)	0.078 (0.057--0.091)	0.079 (0.06-0.104)	0.081 (0.062--0.093)	0.074 (0.058--0.085)	0.081 (0.062--0.101)	0.08 (0.059--0.097)	0.08 (0.058--0.094)	0.075 (0.058--0.091)	0.081 (0.057--0.102)	0.077 (0.052-0.09)	0.078 (0.059-0.093)
TXGC	0.072 (0.066-0.076)	0.071 (0.069--0.073)	0.072 (0.067--0.075)	0.072 (0.067--0.074)	0.072 (0.065--0.075)	0.072 (0.066--0.076)	0.072 (0.063--0.076)	0.071 (0.067--0.075)	0.072 (0.068--0.074)	0.066 (0.063-0.068)	0.067 (0.062-0.07)	0.071 (0.068--0.076)	0.066 (0.06-0.07)	0.071 (0.066--0.075)	0.067 (0.063--0.072)	0.072 (0.068--0.077)	0.067 (0.062-0.07)	0.072 (0.065--0.075)	0.067 (0.062-0.071)	0.067 (0.064-0.07)	0.073 (0.069--0.076)	0.067 (0.06-0.072)	0.071 (0.066--0.075)	0.068 (0.064--0.072)	0.072 (0.065--0.076)	0.067 (0.064-0.07)	0.07 (0.067--0.074)	0.072 (0.07-0.076)
TXSA	0.119 (0.111-0.126)	0.12 (0.11-0.131)	0.122 (0.111--0.133)	0.119 (0.108--0.127)	0.117 (0.107--0.126)	0.12 (0.105-0.13)	0.121 (0.112--0.128)	0.119 (0.1-0.127)	0.117 (0.107--0.127)	0.109 (0.099-0.117)	0.11 (0.099--0.121)	0.119 (0.107--0.127)	0.109 (0.097--0.116)	0.12 (0.105--0.129)	0.111 (0.097--0.118)	0.12 (0.11-0.126)	0.109 (0.104--0.121)	0.118 (0.104--0.127)	0.111 (0.094-0.121)	0.112 (0.1-0.118)	0.12 (0.108--0.127)	0.111 (0.102--0.118)	0.117 (0.106--0.127)	0.113 (0.101--0.123)	0.119 (0.108--0.127)	0.112 (0.098-0.12)	0.118 (0.11-0.129)	0.12 (0.106-0.128)
TXSB	0.064 (0.059-0.068)	0.064 (0.059--0.068)	0.065 (0.059--0.071)	0.064 (0.055--0.069)	0.064 (0.056--0.069)	0.064 (0.057-0.07)	0.063 (0.059--0.069)	0.064 (0.057-0.07)	0.064 (0.057--0.069)	0.062 (0.056-0.066)	0.062 (0.055--0.066)	0.064 (0.058--0.069)	0.061 (0.056--0.066)	0.064 (0.057--0.071)	0.061 (0.056--0.066)	0.064 (0.056--0.069)	0.062 (0.056--0.067)	0.064 (0.06-0.069)	0.061 (0.055-0.066)	0.063 (0.057--0.068)	0.064 (0.058-0.07)	0.062 (0.057--0.068)	0.063 (0.058--0.068)	0.062 (0.056--0.066)	0.063 (0.057--0.069)	0.062 (0.056--0.067)	0.063 (0.057-0.07)	0.064 (0.057-0.071)
UTOP	0.101 (0.086-0.121)	0.106 (0.091--0.124)	0.114 (0.091--0.138)	0.103 (0.089--0.129)	0.13 (0.106--0.159)	0.107 (0.094--0.125)	0.114 (0.096--0.141)	0.105 (0.092--0.123)	0.128 (0.11-0.156)	0.111 (0.093-0.137)	0.103 (0.077--0.123)	0.121 (0.099--0.147)	0.112 (0.093-0.14)	0.123 (0.11-0.141)	0.11 (0.1-0.138)	0.117 (0.109--0.131)	0.111 (0.097--0.138)	0.131 (0.111--0.165)	0.122 (0.104-0.144)	0.115 (0.094--0.141)	0.117 (0.102--0.132)	0.119 (0.101--0.143)	0.124 (0.114--0.145)	0.119 (0.101--0.145)	0.124 (0.113--0.142)	0.119 (0.089--0.146)	0.129 (0.11-0.142)	0.107 (0.091-0.13)
VATB	0.111 (0.103-0.123)	0.113 (0.099-0.12)	0.112 (0.103--0.122)	0.11 (0.095--0.124)	0.104 (0.092--0.113)	0.113 (0.1-0.122)	0.11 (0.101--0.121)	0.11 (0.098--0.121)	0.105 (0.09-0.117)	0.097 (0.086-0.111)	0.098 (0.088--0.107)	0.112 (0.103--0.125)	0.099 (0.089--0.108)	0.109 (0.099--0.118)	0.101 (0.087--0.111)	0.11 (0.094--0.123)	0.101 (0.093--0.112)	0.107 (0.092--0.117)	0.1 (0.092-0.108)	0.103 (0.091--0.115)	0.115 (0.102--0.128)	0.103 (0.087--0.117)	0.106 (0.094--0.116)	0.104 (0.094--0.117)	0.114 (0.106--0.125)	0.103 (0.094--0.111)	0.108 (0.099--0.116)	0.113 (0.104-0.125)
WALC	0.073 (0.066-0.082)	0.075 (0.064--0.087)	0.066 (0.054--0.079)	0.071 (0.056--0.083)	0.071 (0.055--0.085)	0.074 (0.06-0.083)	0.067 (0.053--0.081)	0.073 (0.061--0.086)	0.068 (0.056--0.079)	0.061 (0.05-0.075)	0.061 (0.052--0.073)	0.066 (0.056--0.081)	0.062 (0.049--0.073)	0.069 (0.059--0.085)	0.064 (0.053--0.081)	0.065 (0.051--0.085)	0.062 (0.051--0.077)	0.07 (0.058--0.089)	0.061 (0.05-0.074)	0.061 (0.051--0.072)	0.067 (0.057--0.083)	0.061 (0.051--0.079)	0.069 (0.055--0.079)	0.062 (0.049--0.077)	0.066 (0.058--0.078)	0.063 (0.048--0.076)	0.069 (0.053--0.083)	0.074 (0.062-0.085)
WIDN	0.1 (0.086-0.12)	0.101 (0.083--0.116)	0.099 (0.081--0.115)	0.102 (0.087--0.125)	0.097 (0.073-0.12)	0.104 (0.085--0.121)	0.1 (0.075--0.117)	0.099 (0.084--0.117)	0.094 (0.075-0.11)	0.085 (0.069-0.104)	0.09 (0.069--0.115)	0.1 (0.079--0.134)	0.085 (0.063--0.105)	0.098 (0.08-0.118)	0.087 (0.071--0.107)	0.104 (0.082-0.12)	0.086 (0.073--0.109)	0.095 (0.074--0.113)	0.099 (0.07-0.118)	0.104 (0.074-0.13)	0.103 (0.08-0.124)	0.103 (0.071--0.124)	0.098 (0.086--0.112)	0.101 (0.087--0.124)	0.102 (0.084--0.121)	0.101 (0.081-0.12)	0.096 (0.079--0.115)	0.107 (0.089-0.12)
WIUW	0.068 (0.062-0.078)	0.07 (0.062--0.079)	0.065 (0.052--0.073)	0.067 (0.057--0.085)	0.062 (0.048--0.075)	0.069 (0.058--0.079)	0.064 (0.053--0.077)	0.066 (0.057--0.075)	0.062 (0.052--0.072)	0.051 (0.04-0.065)	0.051 (0.043--0.062)	0.064 (0.052--0.073)	0.054 (0.046--0.065)	0.059 (0.043--0.074)	0.052 (0.047--0.062)	0.063 (0.054--0.071)	0.055 (0.049--0.064)	0.064 (0.054--0.076)	0.06 (0.049-0.067)	0.063 (0.049--0.077)	0.064 (0.054-0.07)	0.065 (0.053--0.078)	0.063 (0.054--0.075)	0.064 (0.05-0.074)	0.064 (0.052--0.073)	0.058 (0.05-0.071)	0.06 (0.045--0.072)	0.07 (0.055-0.086)

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