

Impact of Proximity MELD/PELD Points on Liver Redistricting Scenarios

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Disclosures

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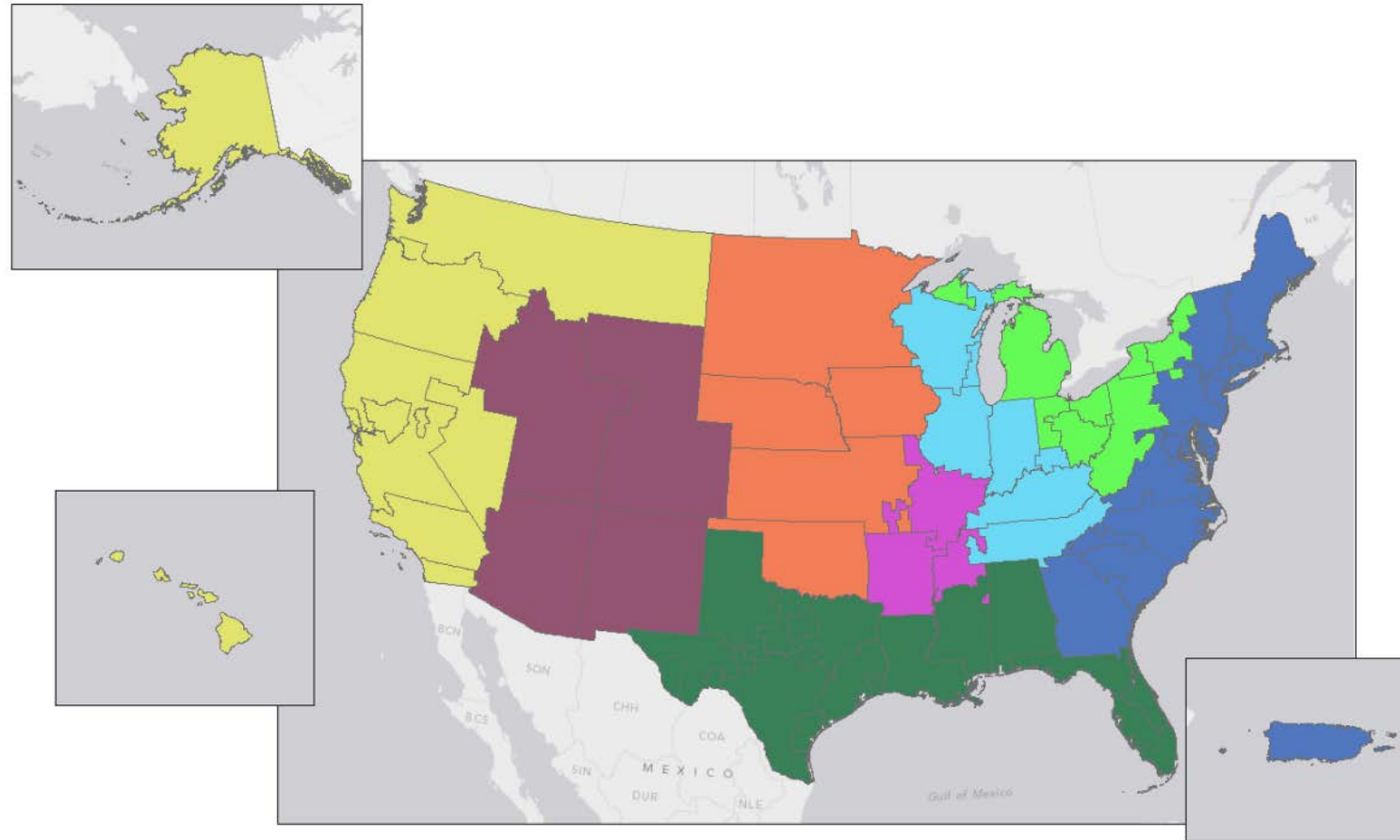
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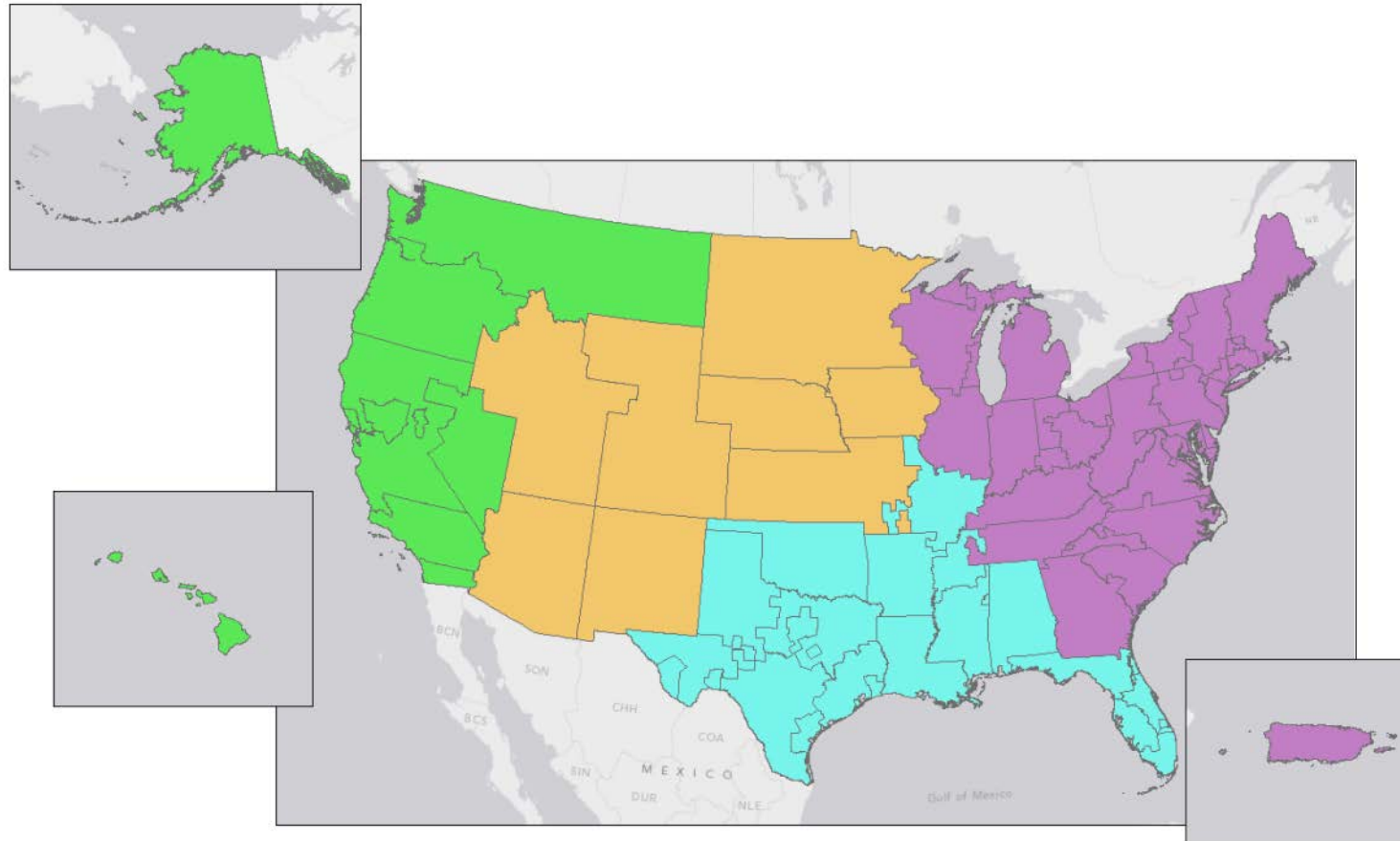
Redistricting to reduce geographic disparity in access to liver offers

- The OPTN Liver and Intestinal Organ Transplantation Committee is charged with reducing geographic disparity in liver offers, and is considering redistricting as a solution.
- We used mathematical optimization to design new sharing districts that minimize the *number of misdirected organs*, compared with a theoretical ideal in which all livers go to the person with the highest MELD anywhere in the country.
 - Redistricting is gerrymandering to reduce variation in access to liver transplant.

Optimal 8 District Map



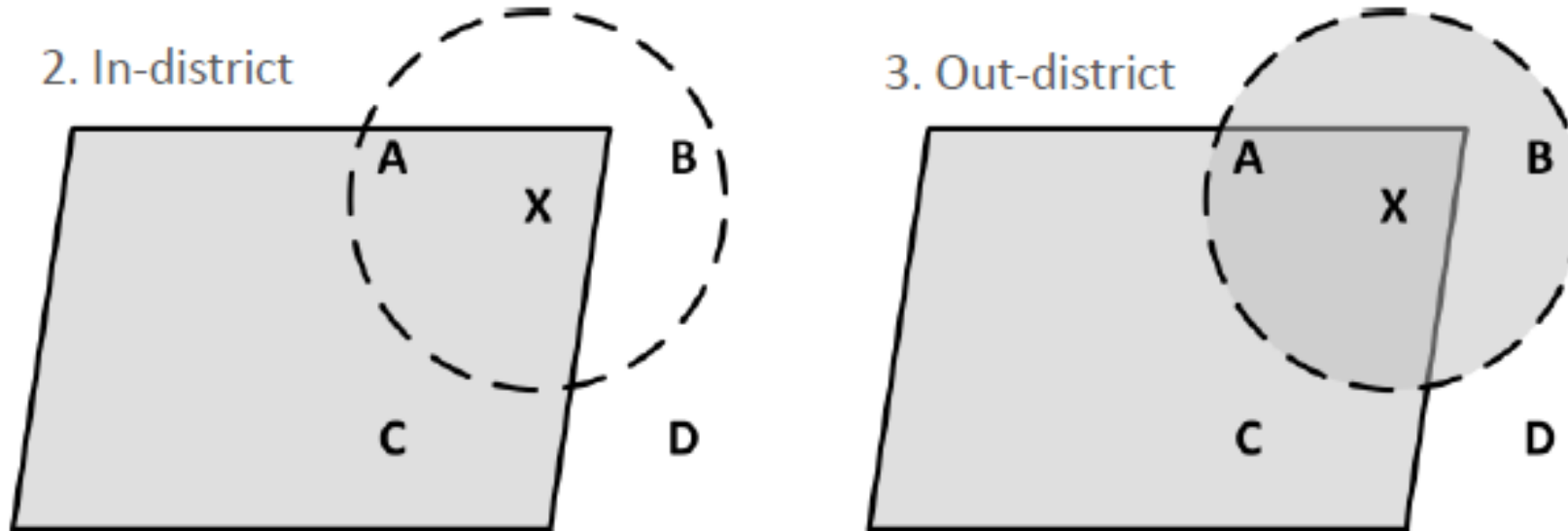
Optimal 4 District Map



Reducing organ transport with proximity points

- Candidates within 150 or 250 miles of the donor hospital receive a MELD bonus of 3 or 5 points.
- In-circle: only candidates in the district are considered at first tier of allocation.
- Out-circle: candidates outside the district but within the 150- or 250-mile circle are considered at first tier of allocation.
 - Allows organs to leak out of designed districts.

Reducing organ transport with proximity points



Candidates A and B get 3 or 5 proximity points + MELD.

In-district: Allocation order is A+C, then B+D.

Out-district: Allocation order is A+B+C, then D.

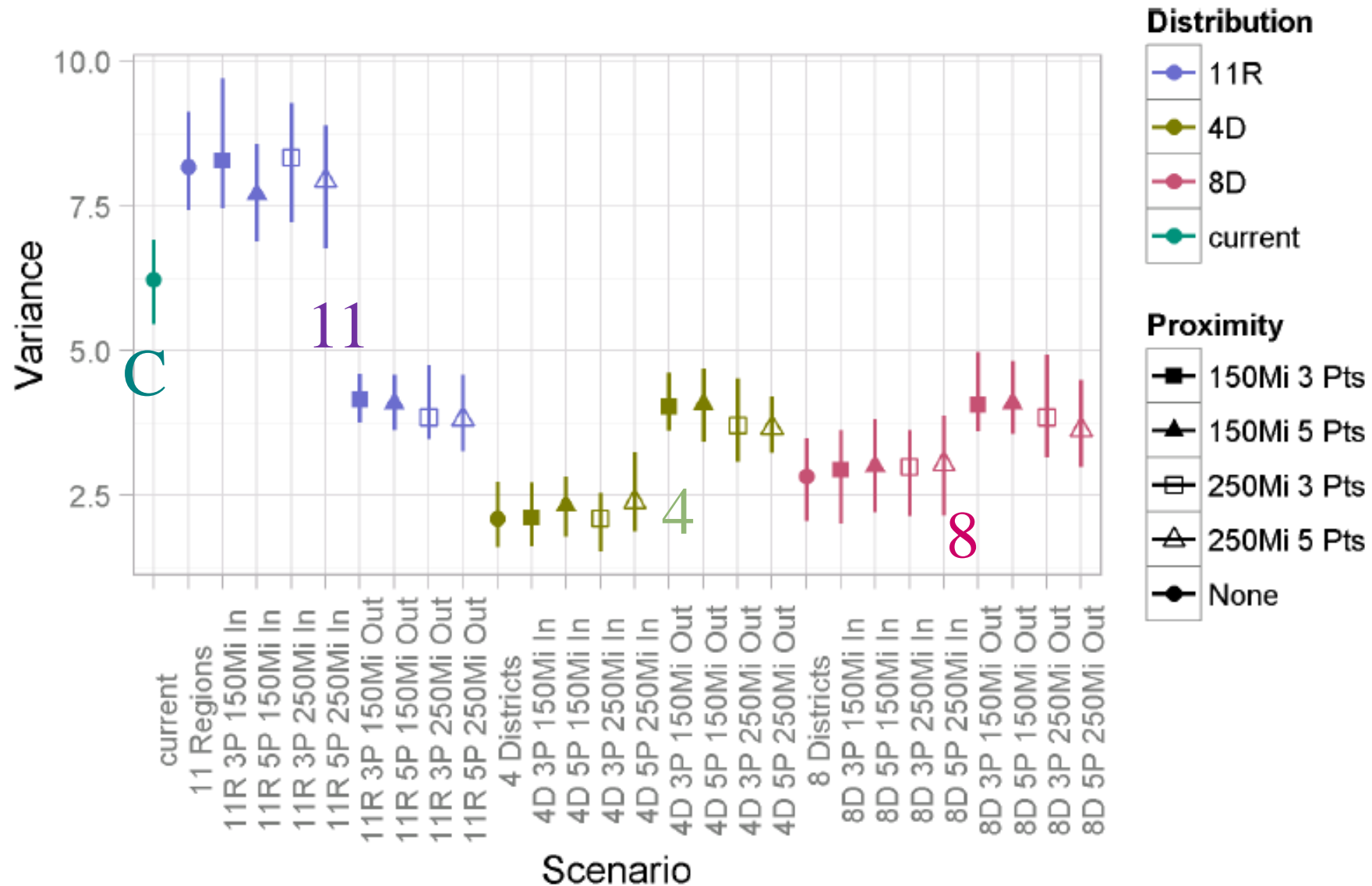
Redistricting plus proximity points

- Adding 3 or 5 MELD proximity points for candidates within either 150 or 250 miles *in-district* reduces organ transport without increasing disparity

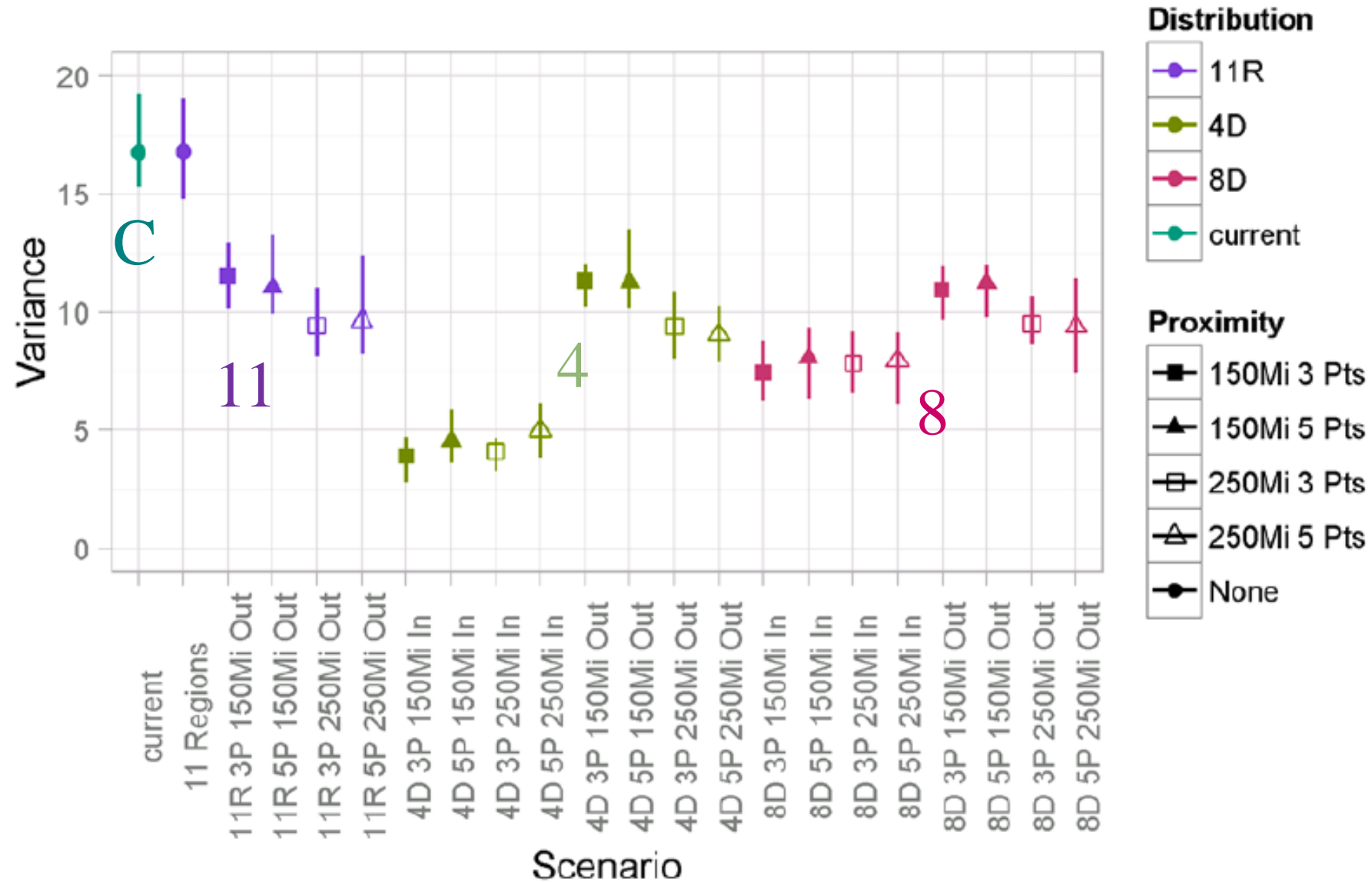
	11 regions	8 district	4 district
No points	200	240	400
3 pts/150 mi	180	200	300
5 pts/150 mi	150	180	220

SRTR, Final Analysis: Supply/Demand ratios, Proximity Points. Feb 2015

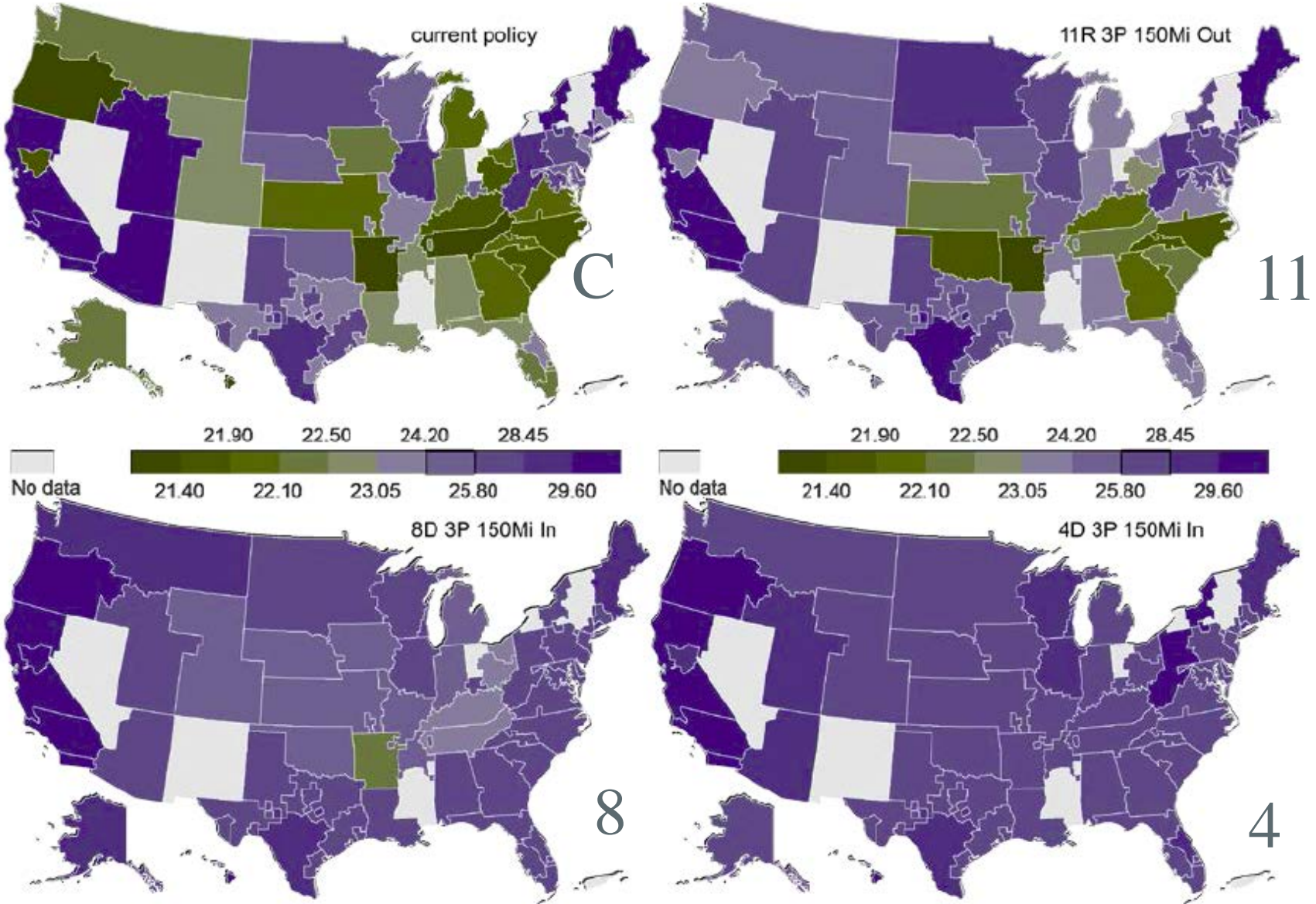
Variance, median tx allocation MELD/PELD



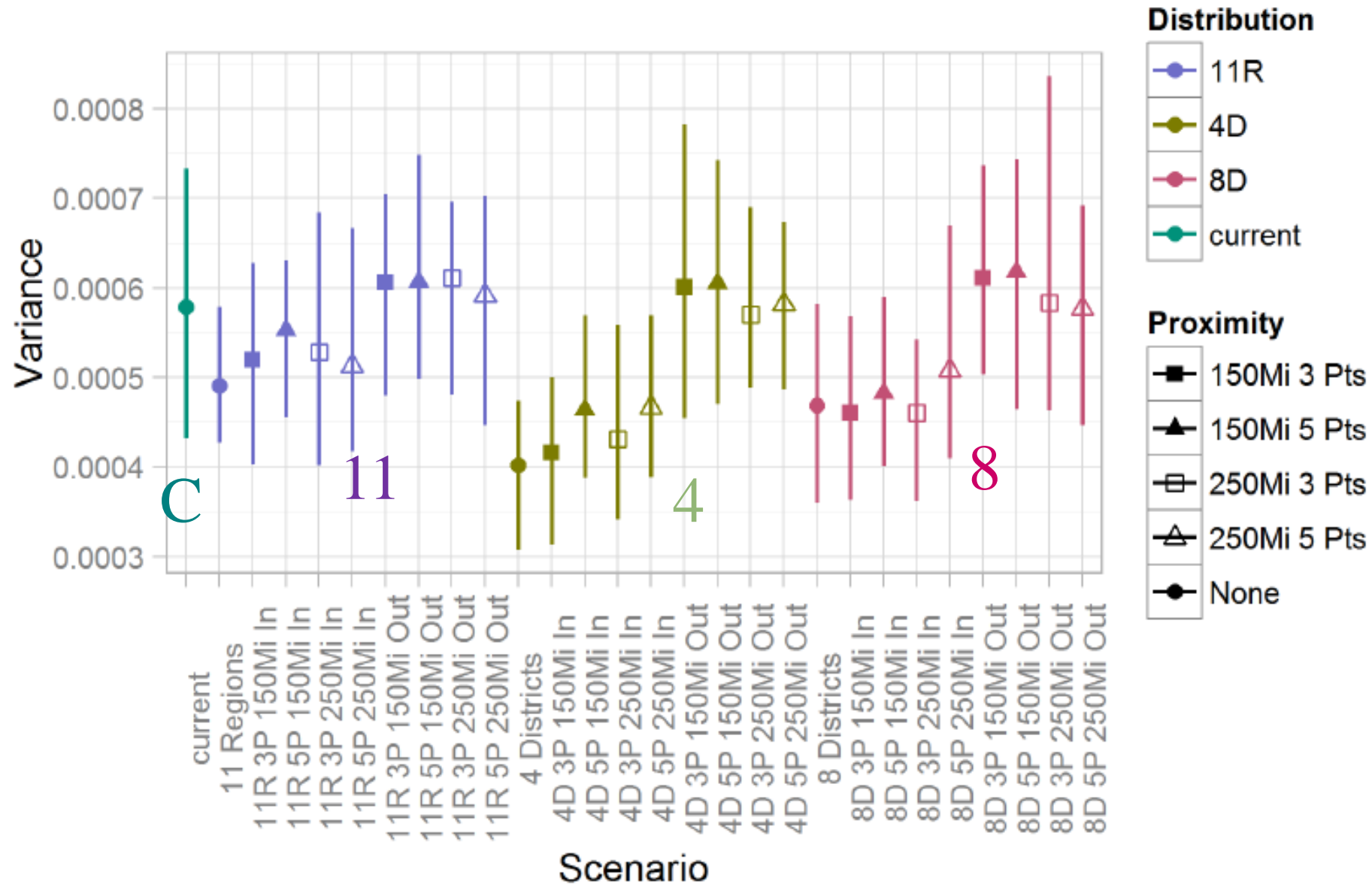
Variance, median tx lab MELD (No Exc)



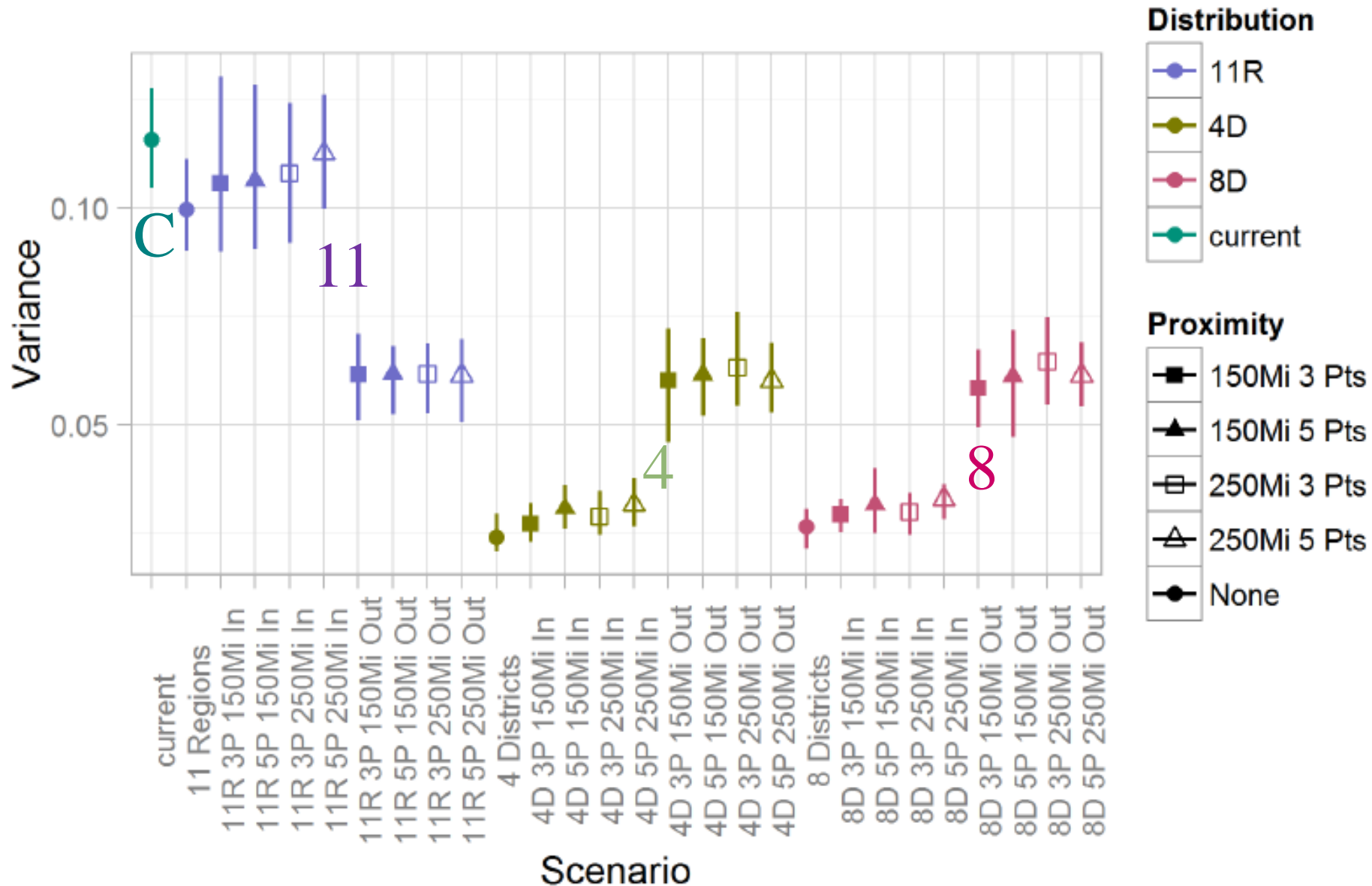
Median allocation MELD/PELD (no HCC)



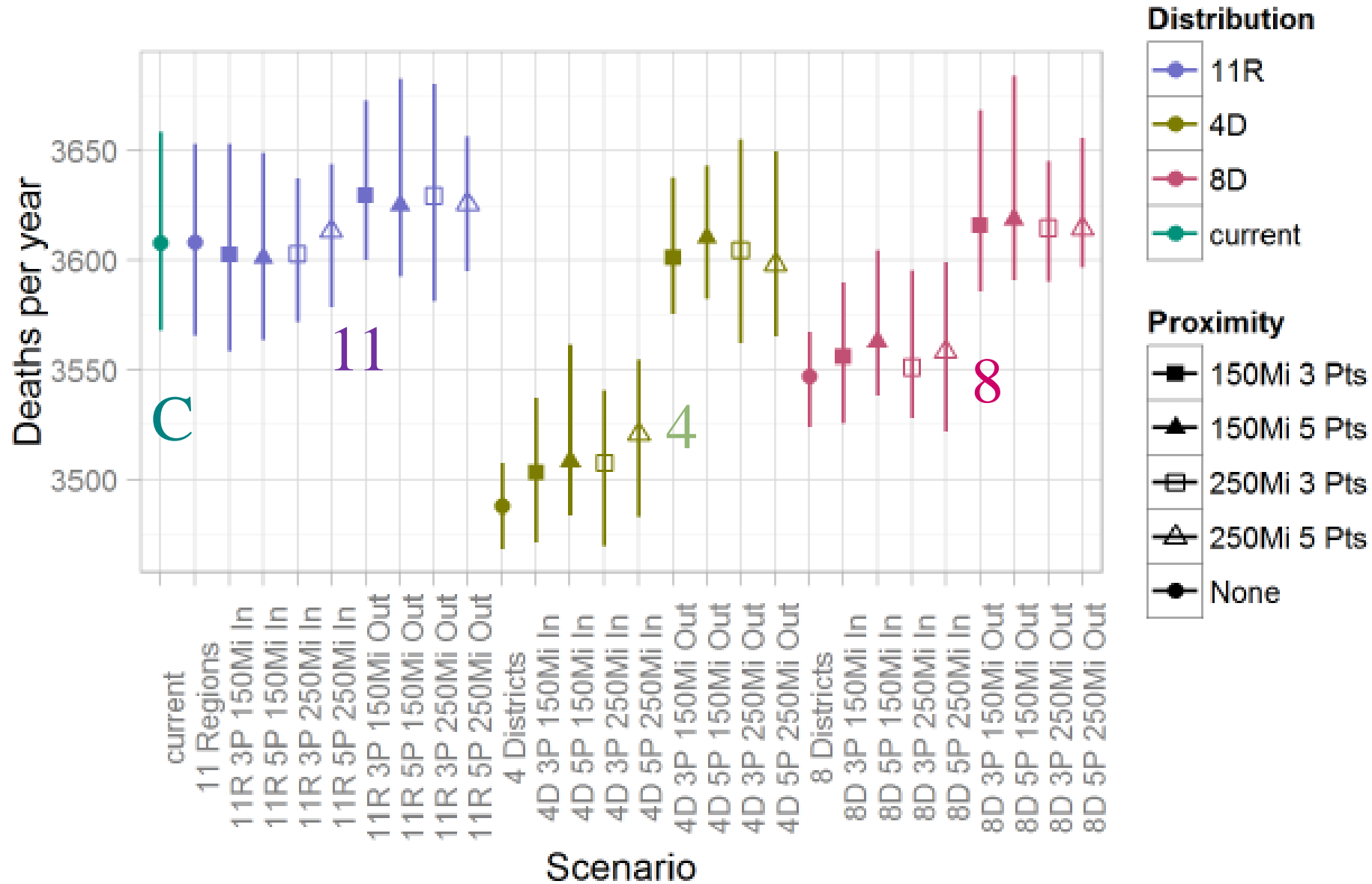
Variance in waitlist mortality rates



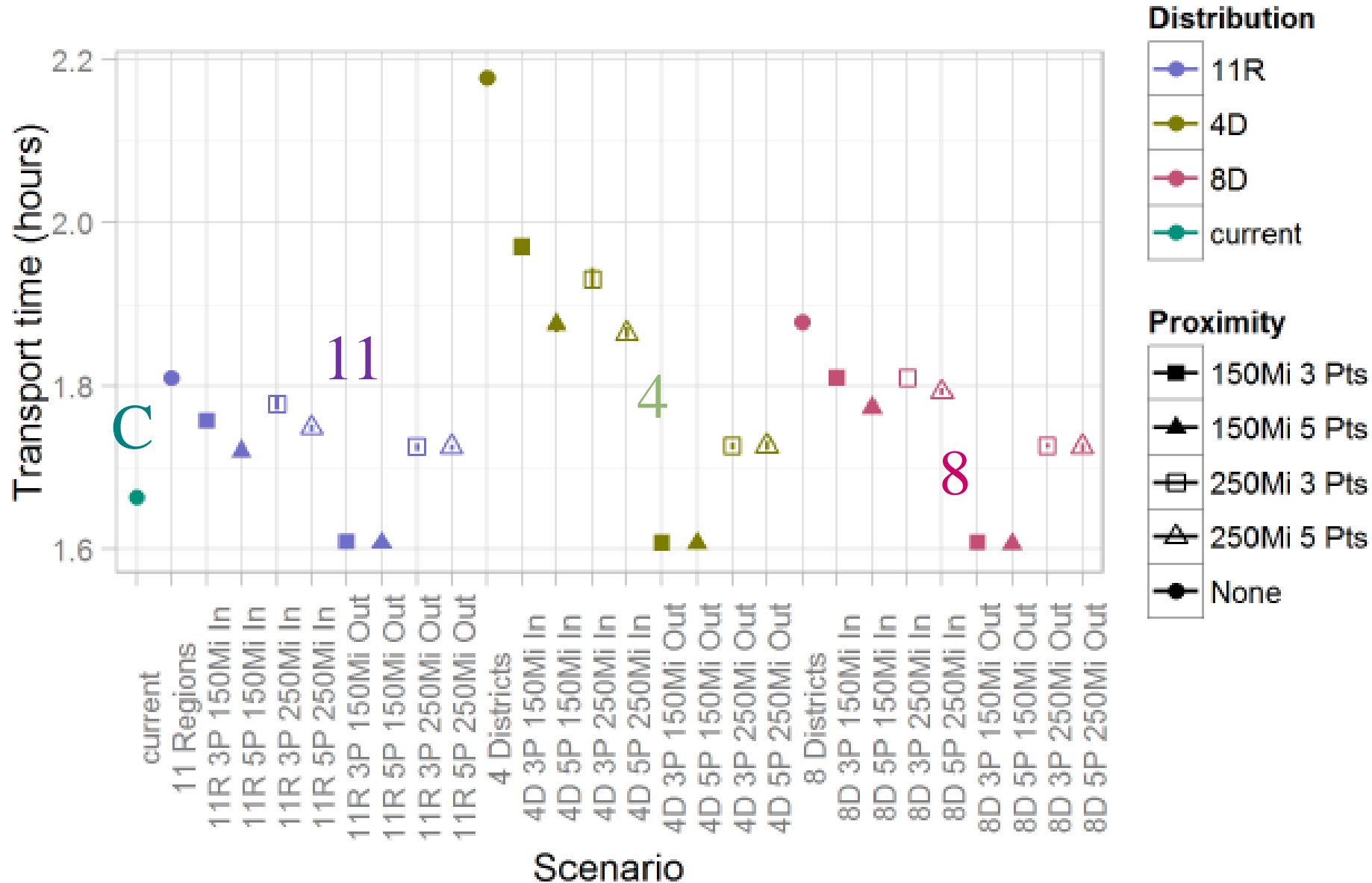
Variance in transplant rates



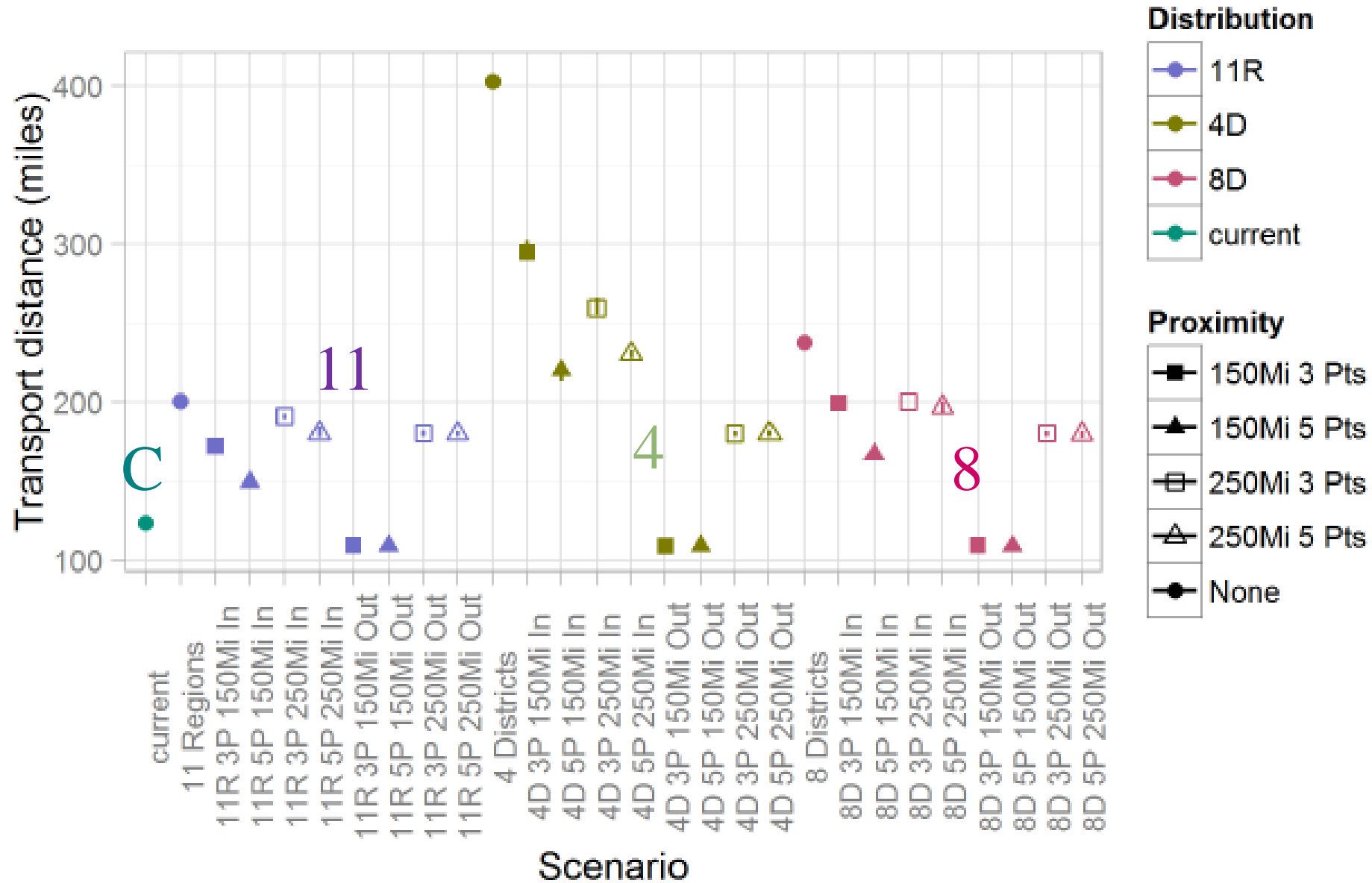
Overall deaths per year



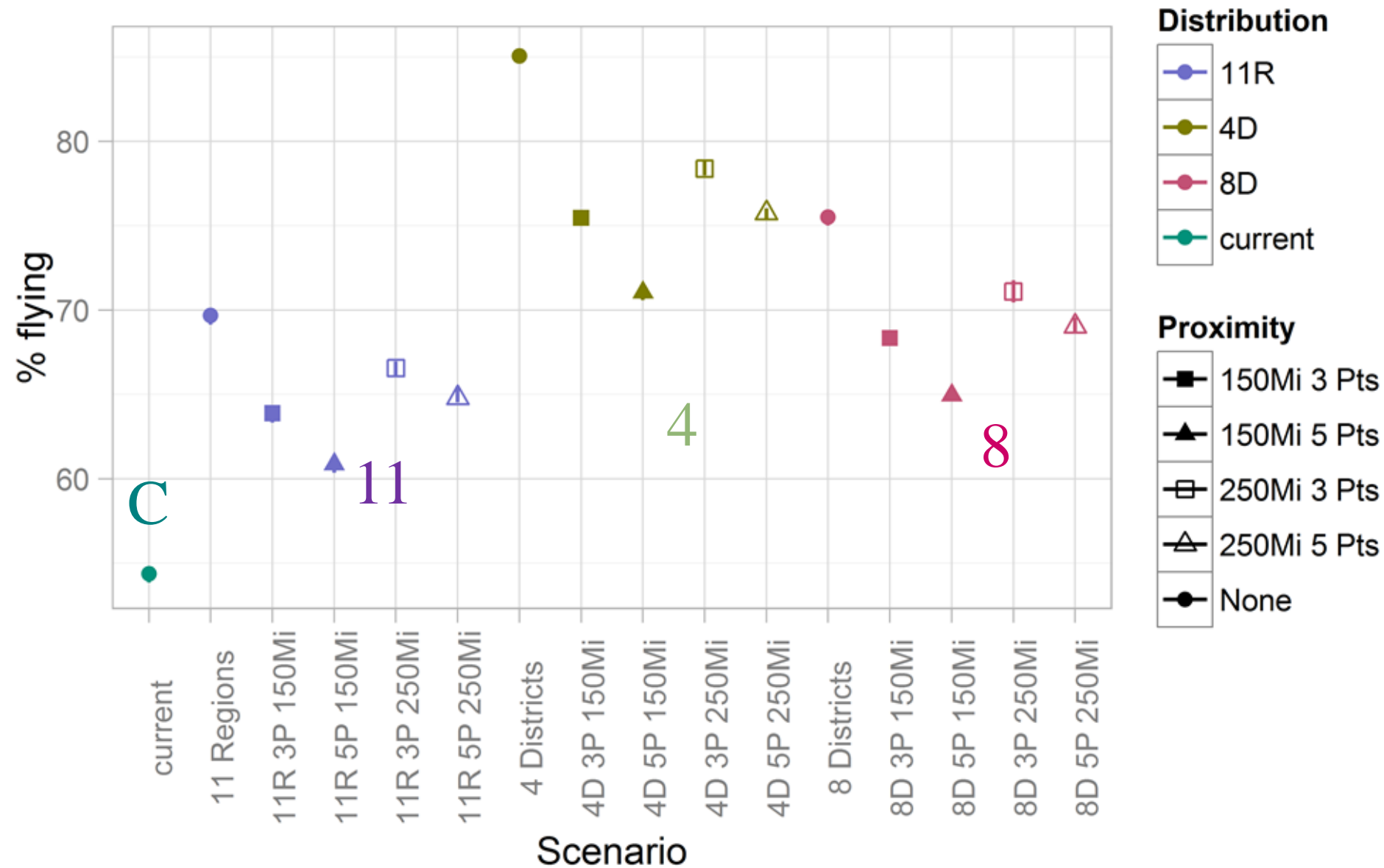
Median transport times (hours)



Median transport distances (miles)



Percentage of livers flown



Conclusion

- Proximity points, in conjunction with optimized redistricting, reduce the burden of transporting livers and preserve the redistricting benefit of making liver allocation more geographically equitable.