

# Impact of Proximity MELD/PELD Points on Liver Redistricting Scenarios

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# Disclosures

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I have no financial relationships to disclose within the past 12 months relevant to my presentation. The ACCME defines 'relevant' financial relationships as financial relationships in any amount occurring within the past 12 months that create a conflict of interest.

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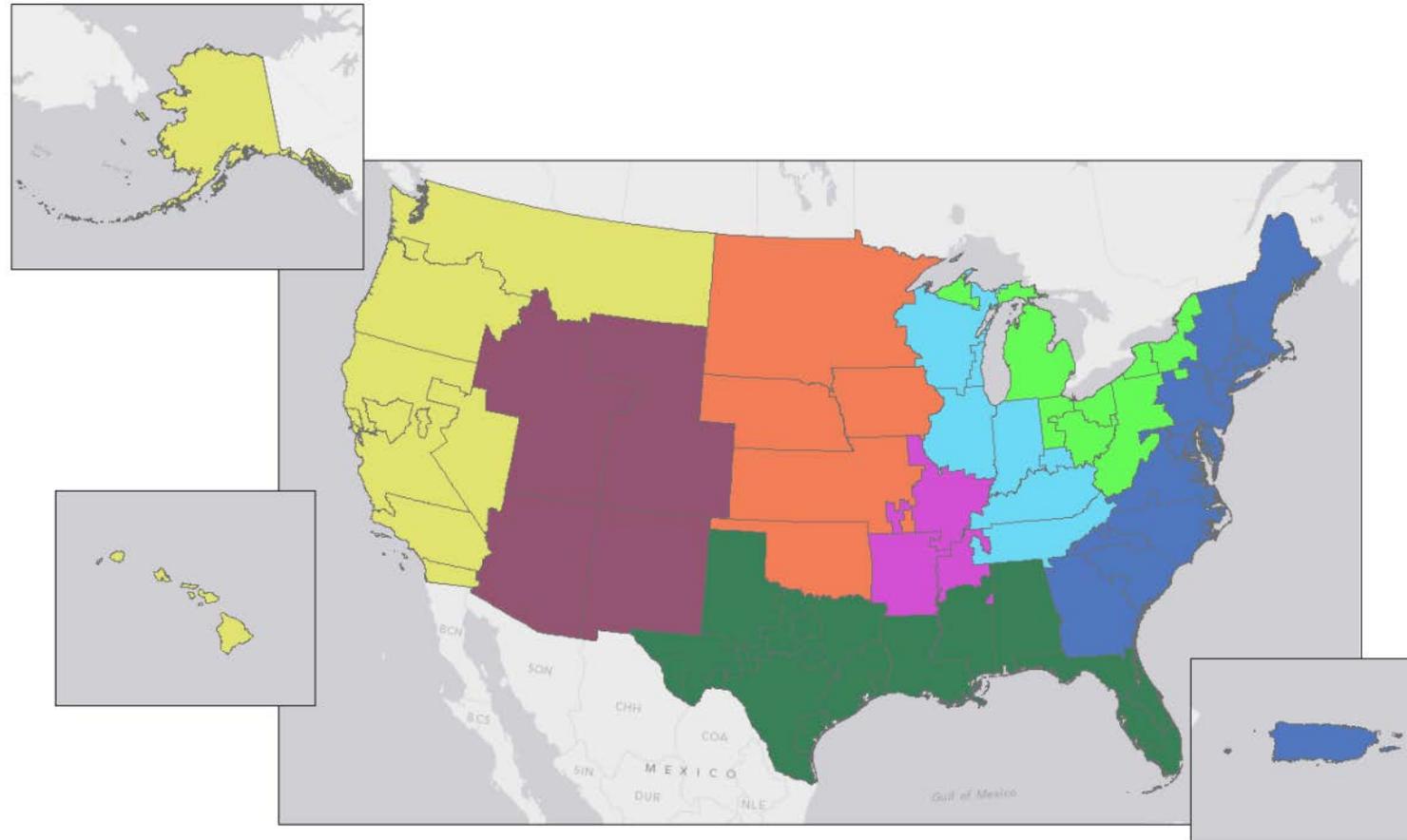
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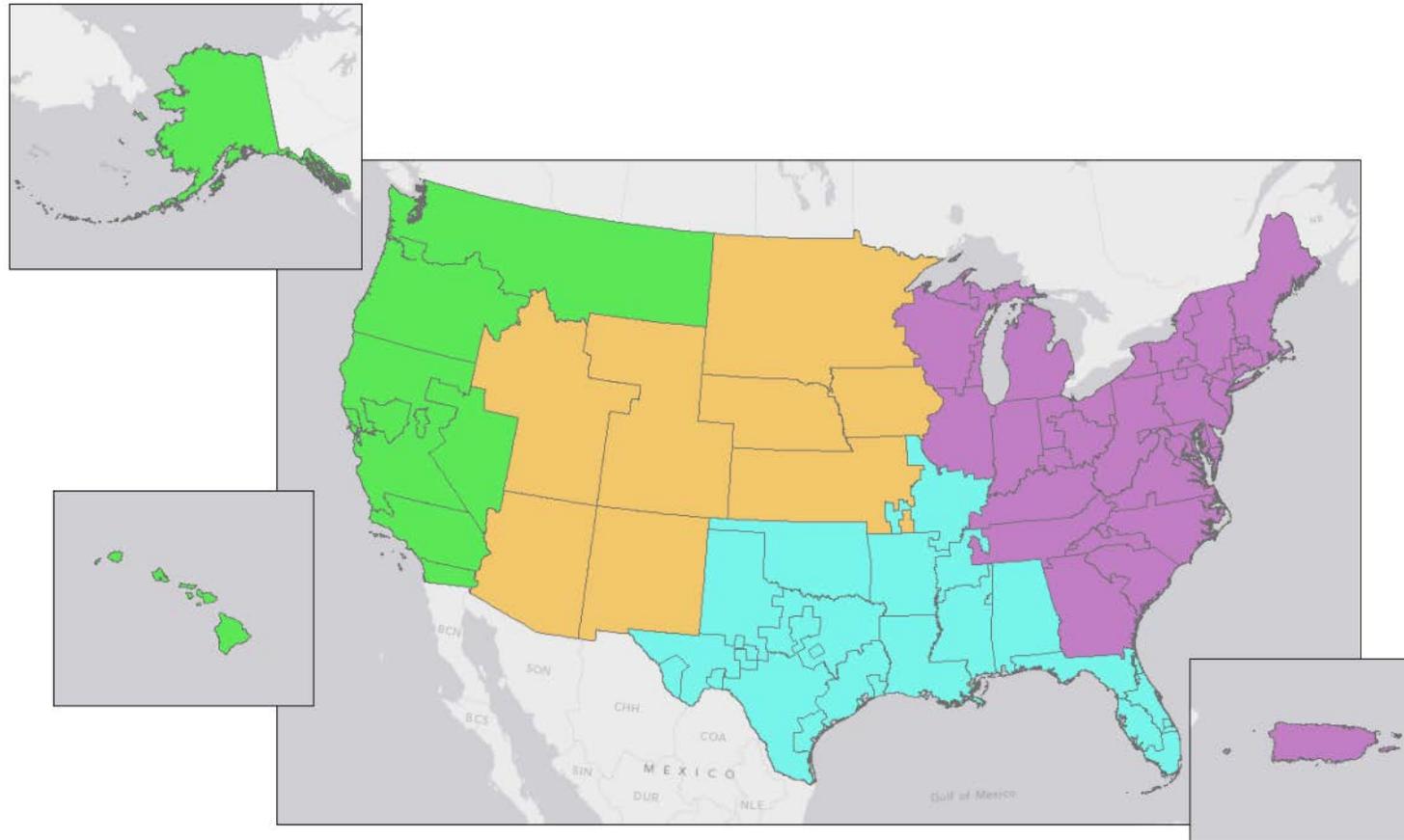
# Redistricting to reduce geographic disparity in access to liver offers

- 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



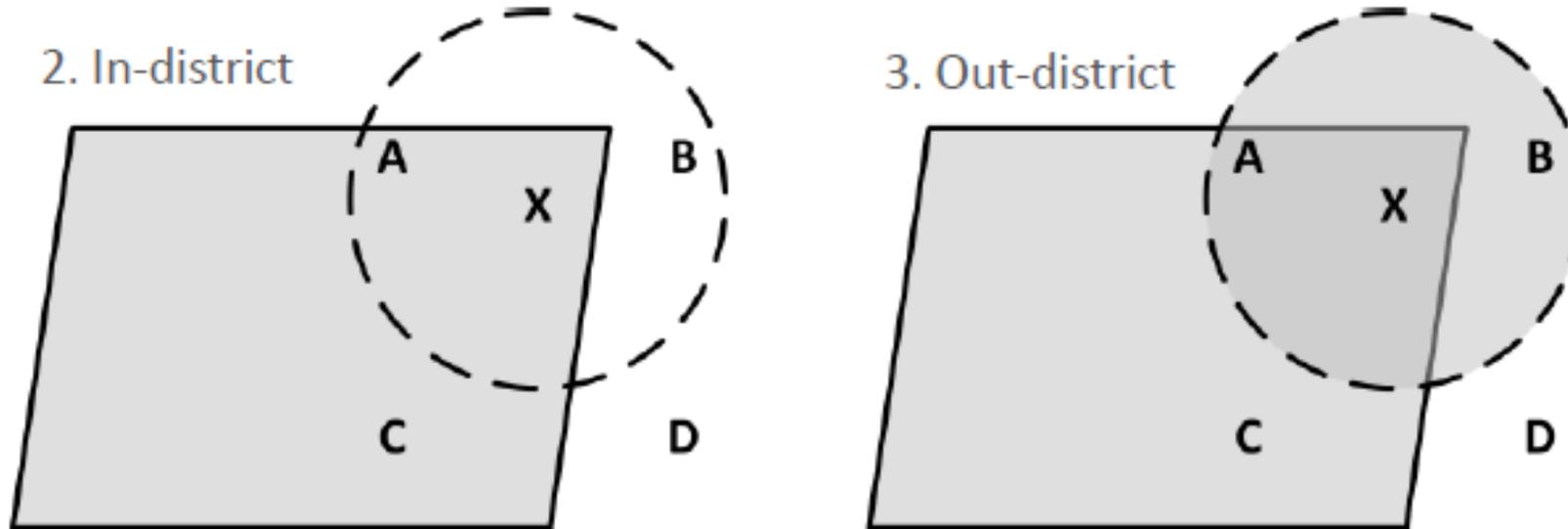
# Optimal 4 District Map



# 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.

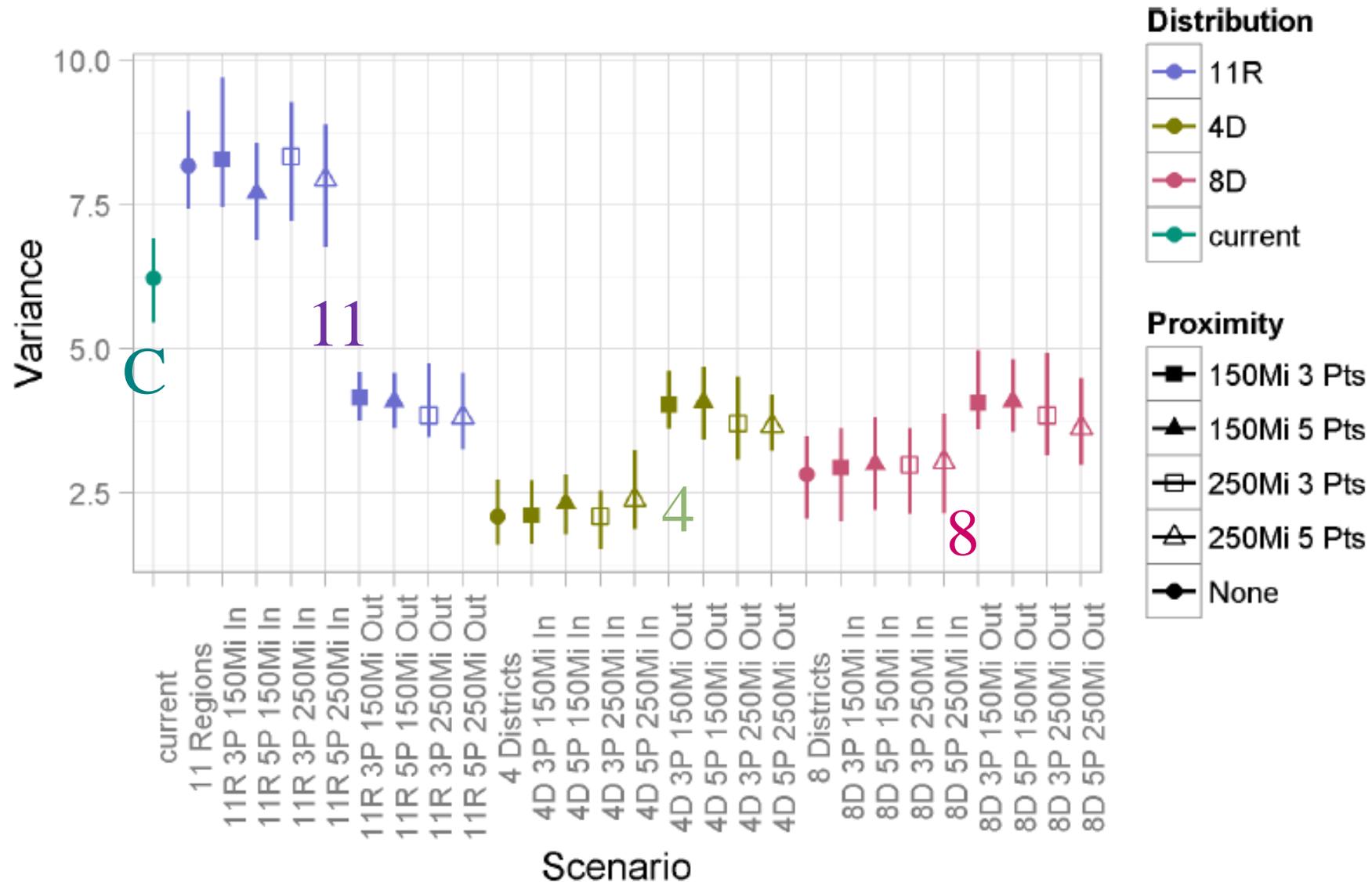
# Redistricting plus proximity points

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

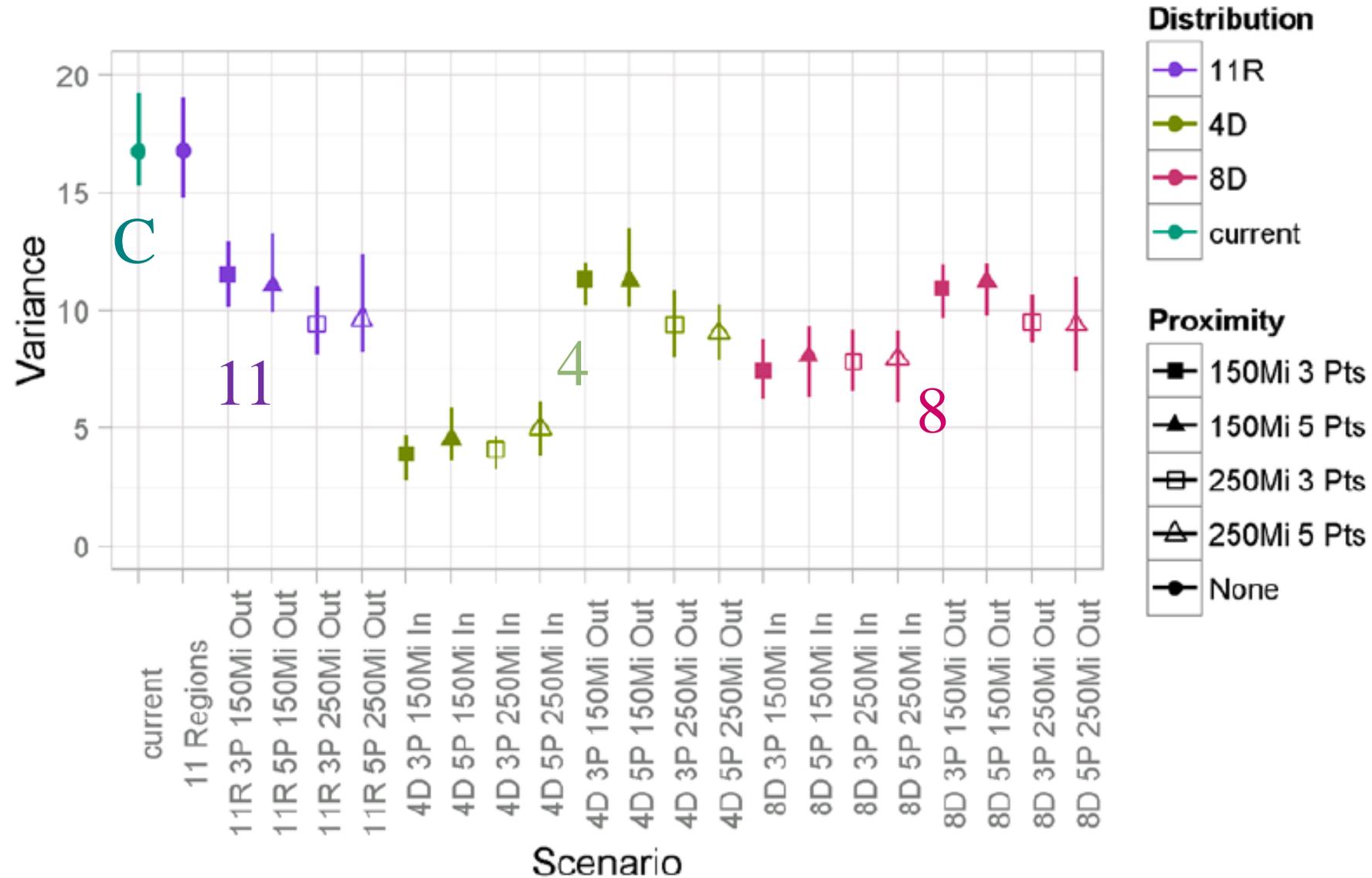
	11 regions	8 district	4 district
No points	200	240	400
3 pts/150 mi	180	200	300
5 pts/150 mi	150	180	220

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

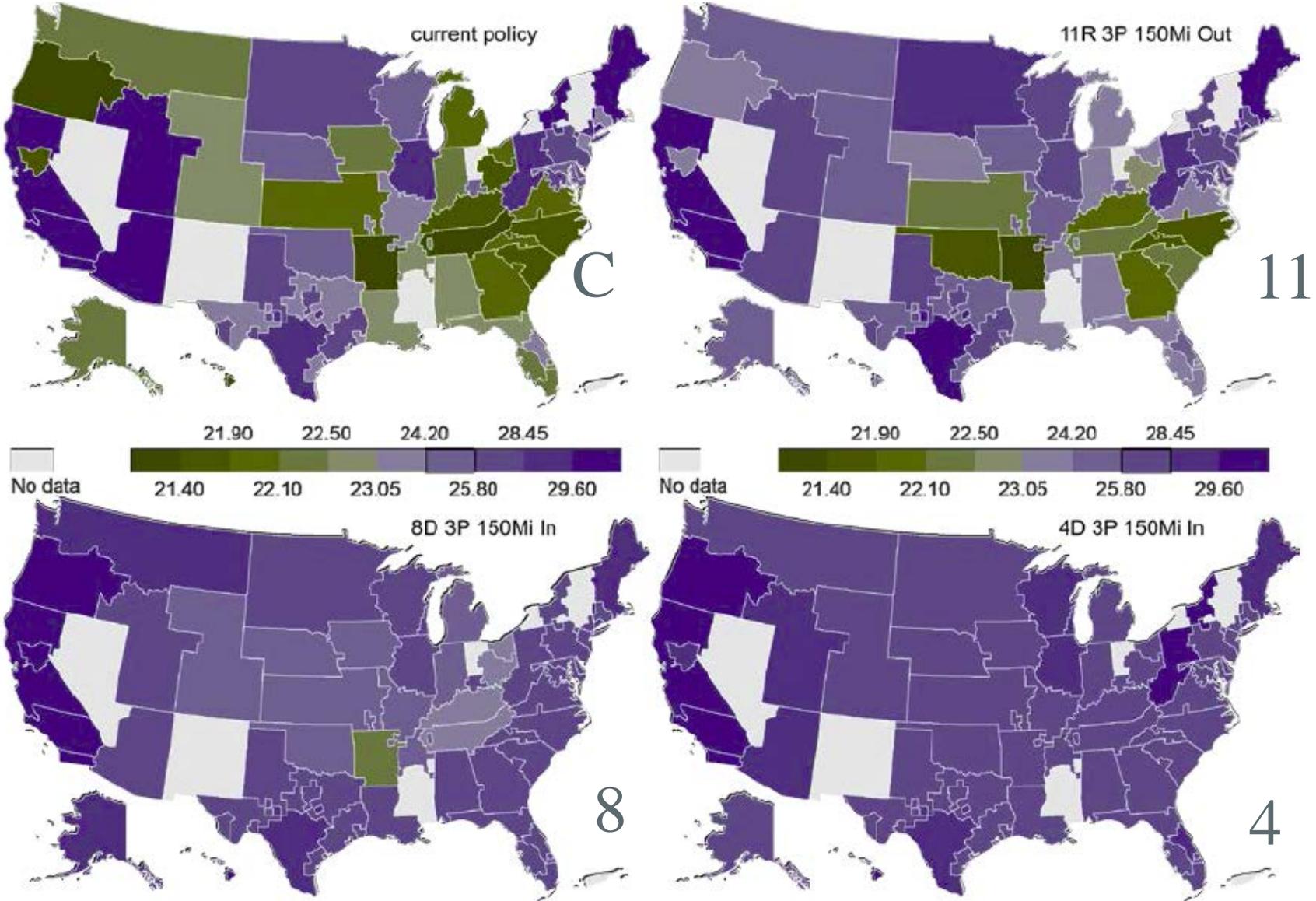
# Variance, median tx allocation MELD/PELD



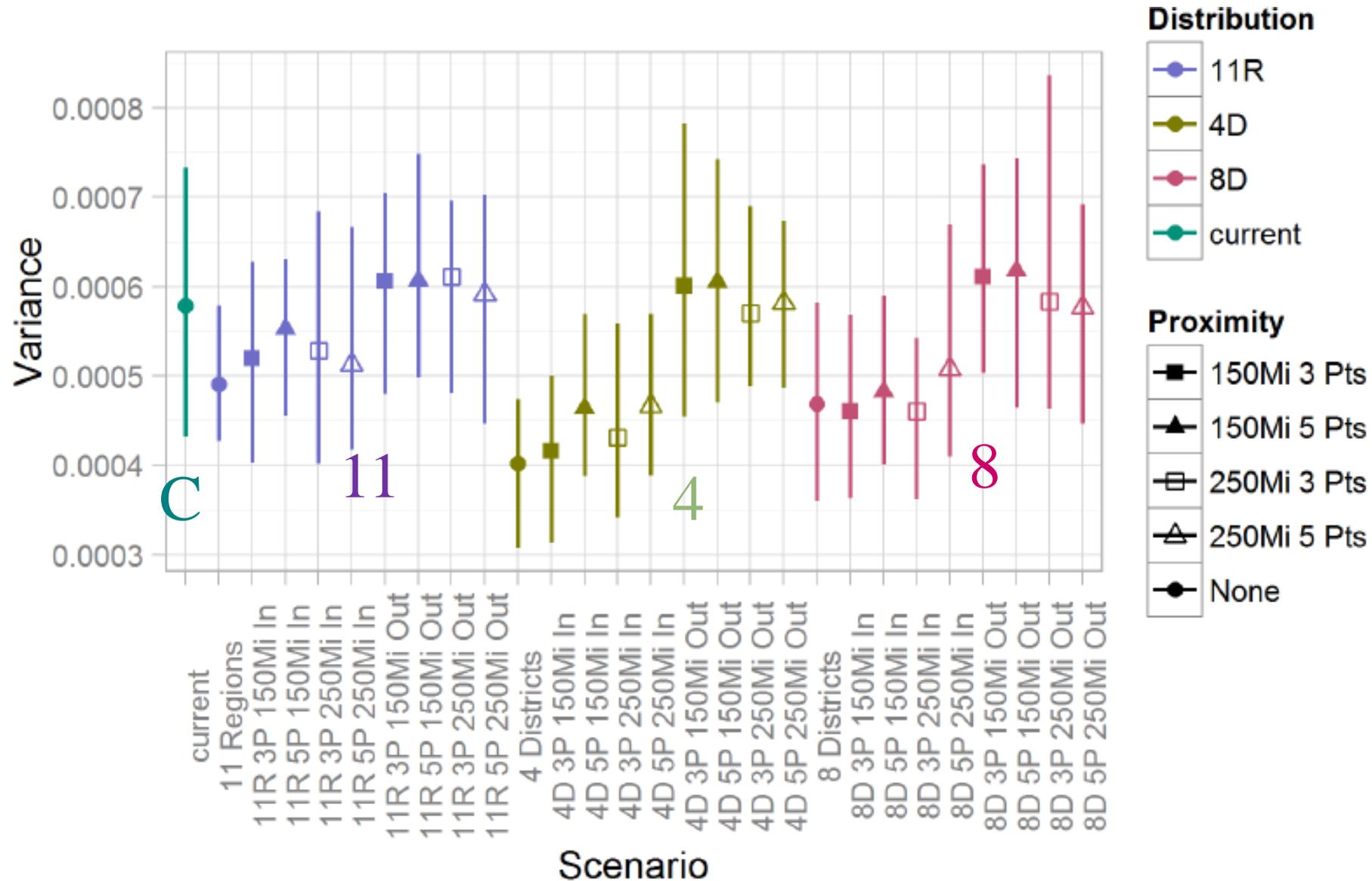
# Variance, median tx lab MELD (No Exc)



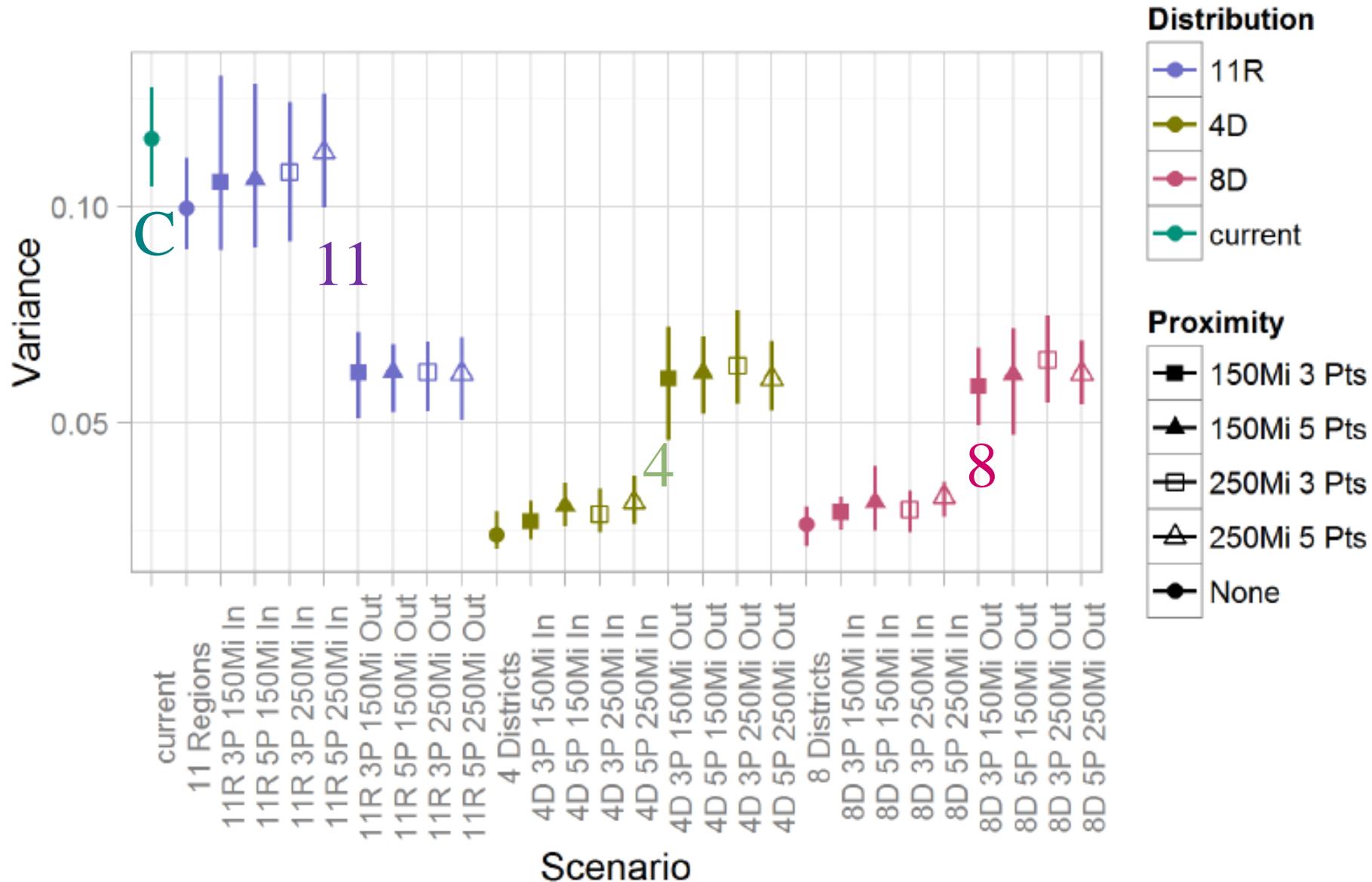
# Median allocation MELD/PELD (no HCC)



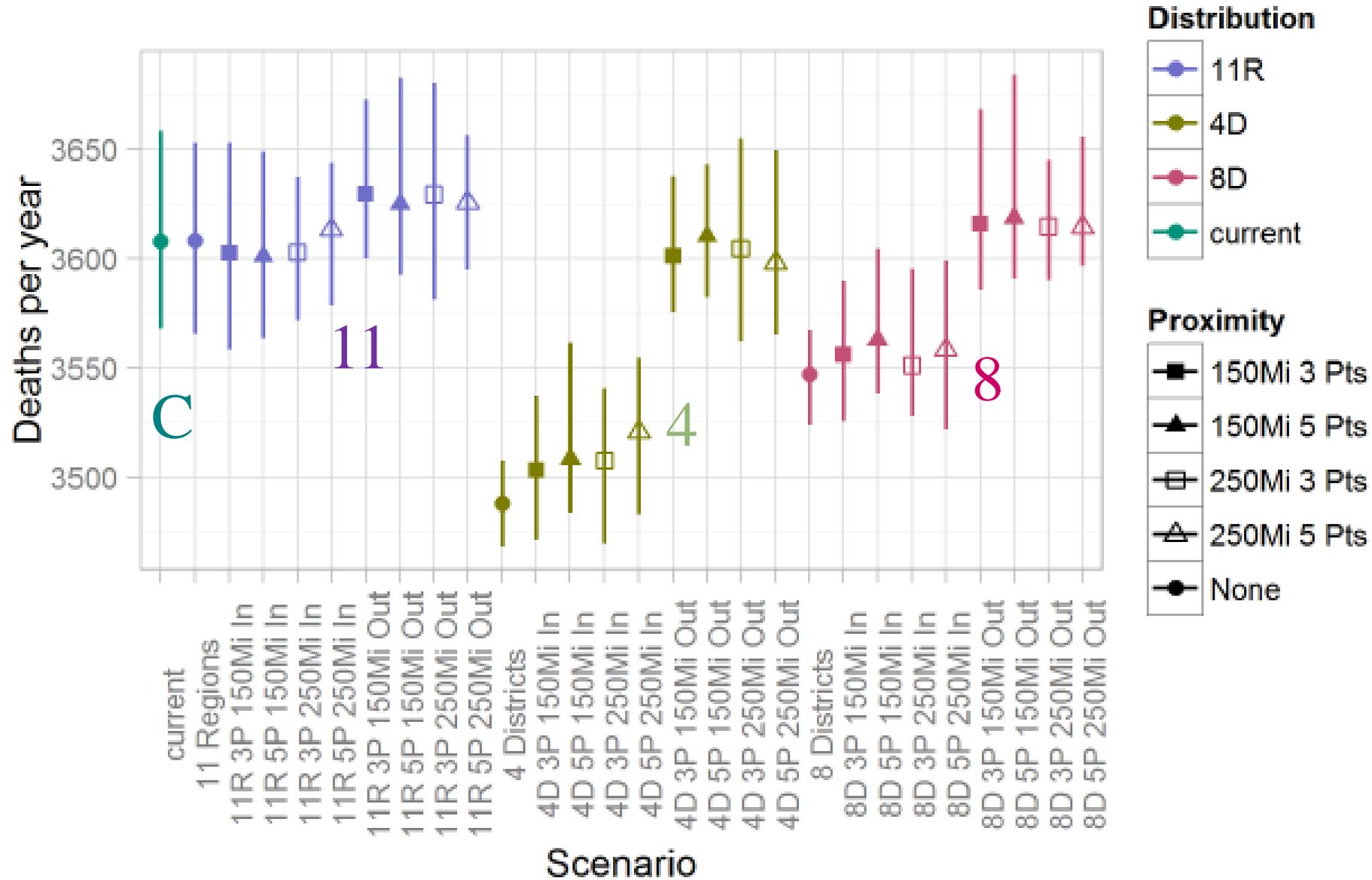
# Variance in waitlist mortality rates



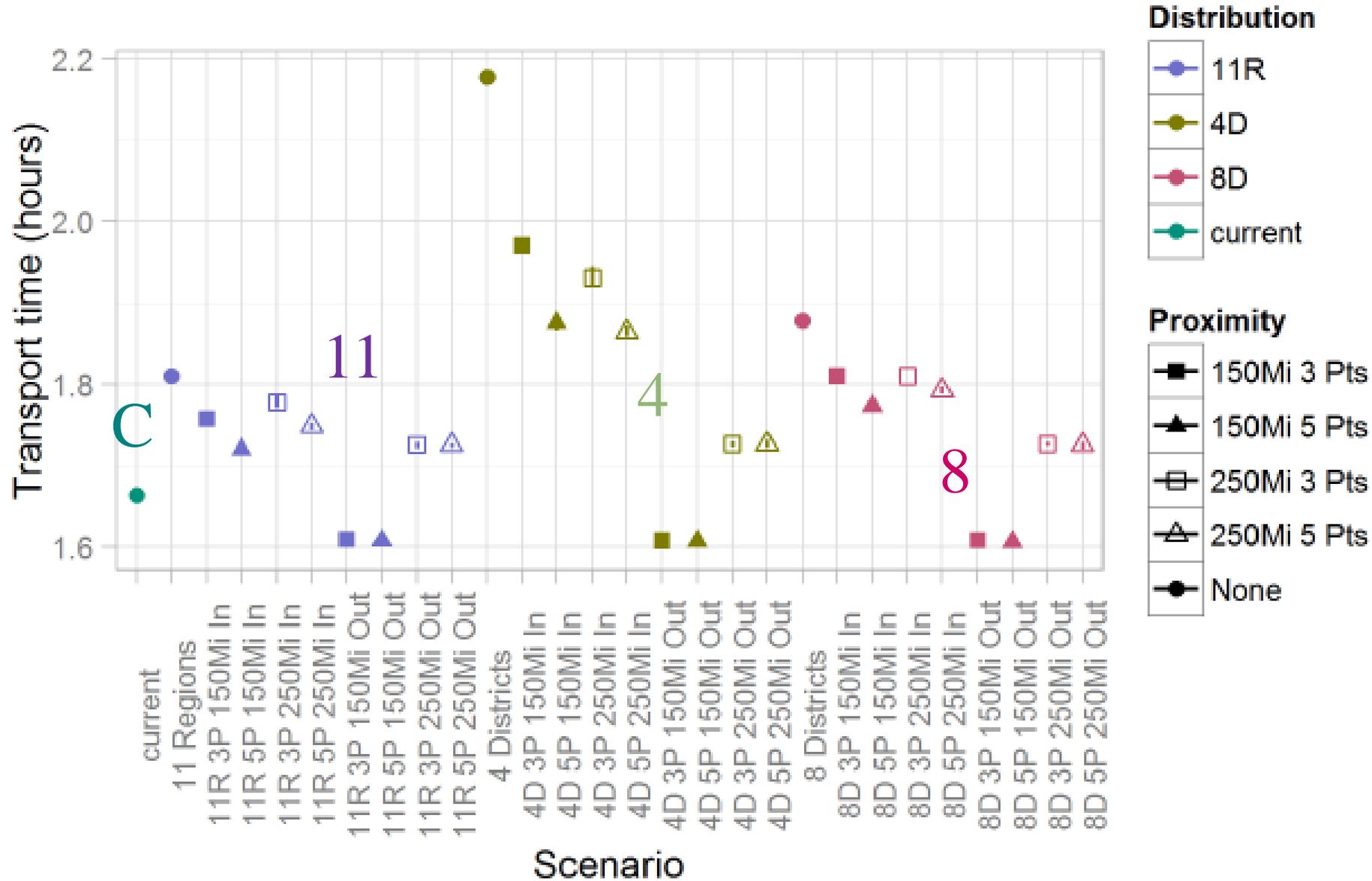
# Variance in transplant rates



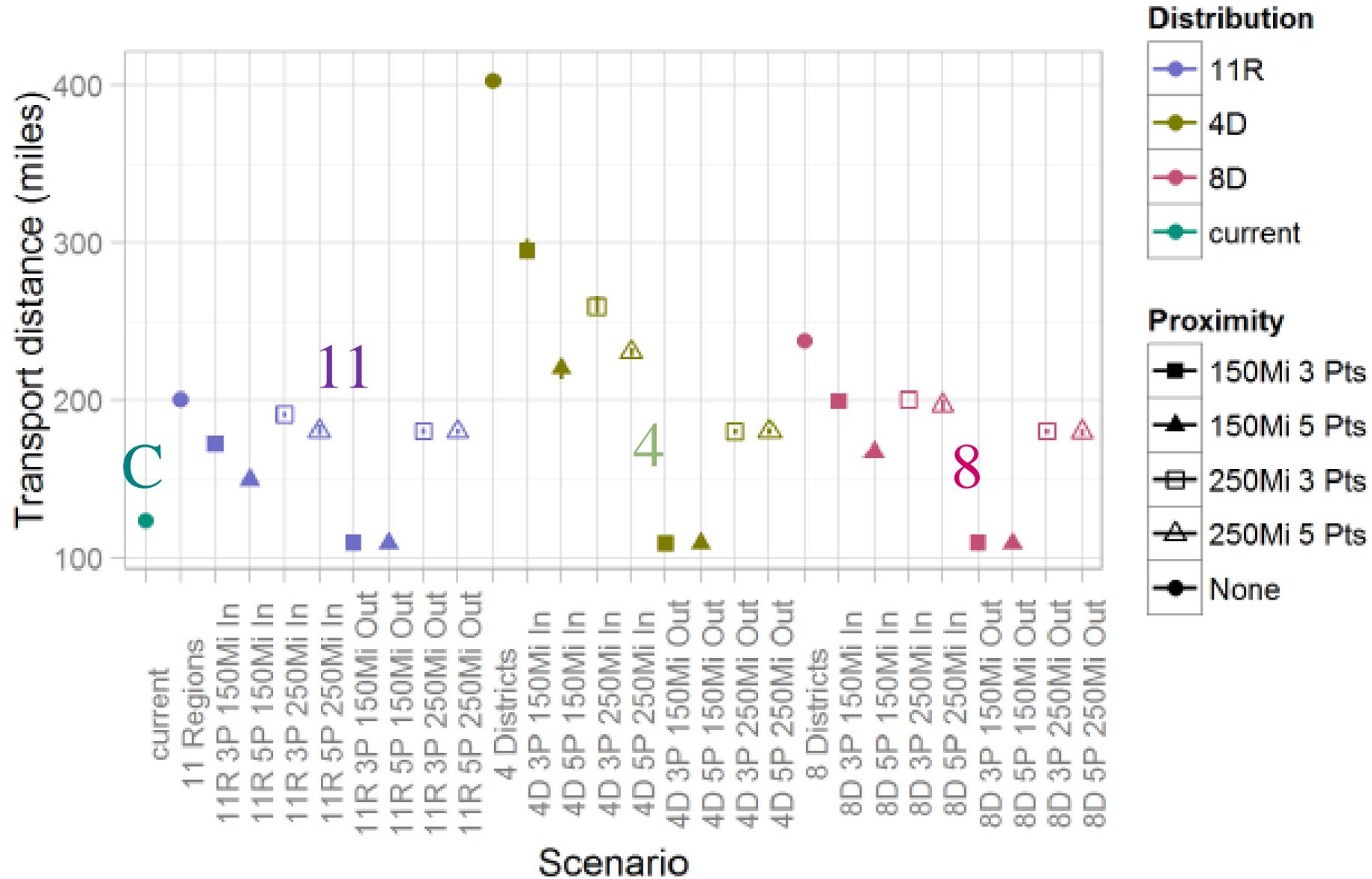
# Overall deaths per year



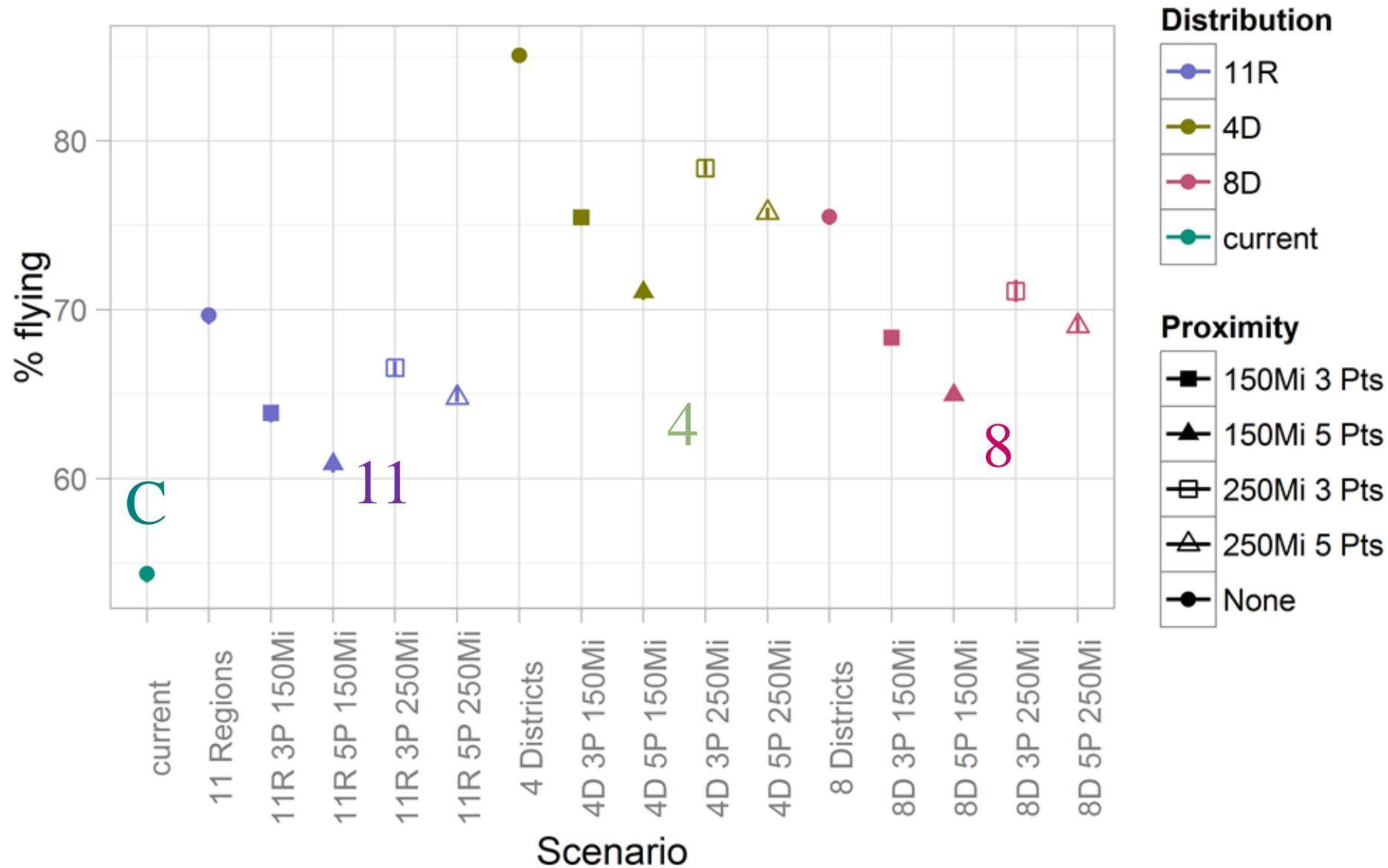
# Median transport times (hours)



# 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.