

Response to Renz and Diaz “The impact of adult-to-adult living donor liver transplantation on transplant center outcomes reporting”

Dear Editor,

Renz and Diaz¹ raise concern that program evaluations in the program-specific reports (PSRs) discourage living donor liver transplants. The question of whether performing living donor liver transplants tends to improve or worsen programs' 1-year graft failure evaluations in the PSRs can be investigated mathematically or empirically. The mathematical answer is simple. In the PSRs released publicly in January and July 2017, the living donor liver models for graft survival are calibrated so the sum of all expected graft failures nationwide equals the nationwide total observed graft failures. Programs with more graft failures than expected are balanced by programs with fewer graft failures than expected, precluding overall bias against performing living donor liver transplants.

Despite an overall bias being mathematically impossible, it may be useful to investigate whether any apparent patterns occur in the program evaluations. To measure whether a program's 1-year graft failure evaluation is better or worse due to performing living donor liver transplants, we compare the program's overall hazard ratio, which is based on both living and deceased donor transplants, to its deceased-donor-only hazard ratio. If the overall hazard ratio was lower than the deceased-donor-only hazard ratio, then performing living donor transplants improved the evaluation. If the overall hazard ratio was higher than the deceased-donor-only hazard ratio, then performing living donor transplants worsened the evaluation.

In the January and July 2017 PSRs, 41 and 44 programs, respectively, performed at least one living donor liver transplant with an adult recipient. In the January 2017 PSRs, overall hazard ratios for 24 of 41 (58.5%) programs were lower than deceased-donor-only hazard ratios. In the July 2017 PSRs, overall hazard ratios for 32 of 44 (72.7%) programs were lower than deceased-donor-only hazard ratios. Thus, in most cases, the overall evaluation of liver programs that performed living donor transplants improved.

Limiting the analysis to programs that performed at least 10 living donor liver transplants, overall hazard ratios were better than deceased-donor-only hazard ratios for nine of 19 (47.3%) and 11 of 18 (61.1%) programs in January and July, respectively. Limiting the analysis to programs that performed at least 20 living donor transplants, overall hazard ratios were better than deceased-donor-only hazard ratios for eight of 15 (53.3%) and eight of 13 (61.5%) programs in January and July, respectively. Programs that perform more living donor liver transplants do not appear to be penalized.

Overall Kaplan-Meier survival probabilities for programs that performed living donor transplants were often lower than survival probabilities for deceased donor transplants. This is not surprising, as graft survival rates are lower, on average, for living donor than for deceased donor liver transplant recipients. As the Kaplan-Meier survival probabilities are purely descriptive, and are used by neither the SRTR tier algorithm² nor the OPTN's Membership and Professional Standards Committee to identify programs for review,³ this demonstrates no bias against living donor transplants.

CONFLICT OF INTEREST

None.

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2. Wey A, Salkowski N, Kasiske BL, Israni AK, Snyder JJ. A five-tier system for improving the categorization of transplant program performance. *Health Serv Res.* 2017; <https://doi.org/10.1111/1475-6773.12726> [Epub ahead of print].
3. OPTN Bylaws. Available at: https://optn.transplant.hrsa.gov/media/1201/optn_bylaws.pdf. Accessed November 1, 2017.