Estimated glomerular filtration rate (eGFR) is the primary diagnostic test used to assess renal function in primary clinical care. However, a minimal clinically meaningful difference (MCMD) has not been established.

- **MCM**D is defined as the smallest difference in an outcome which is beneficial and which would mandate, in the absence of troublesome side effects and excessive cost, a change in patient management.

- KDIGO Guidelines state that a decline in eGFR of > 5 mL/min/1.73m² per year indicates "rapid progression" of CKD, a meaningful event that requires clinical intervention; this served as an initial hypothesis for our analysis.

- There is clearly a need to define an MCMD for eGFR in patients undergoing renal transplantation to better evaluate new medical interventions.

### Study Design

**Data source**: Organ Procurement and Transplantation Network (OPTN) registry database

**Study population**: Adults (> 18 years of age); received deceased donor kidney 01/01/2013 to 12/31/2018 with at least 12 months survival post-transplant; last follow-up date was 12/14/2019. Multi-organ and prior transplants were excluded.

**Analysis**: Cox proportional hazards regression

**Primary outcome**: Death-censored graft failure starting 12-month post-transplantation.

**Predictors**: Recipient, donor, and transplantation characteristics, 12-month eGFR (CKD-EPI), as shown in Table 1.

**Analytic approach**: 12-month eGFR was stratified by bands of 5, 7 or 10 mL/min/1.73m². Sequential regression models compared each band to the adjacent higher eGFR band. Results of regression models were adjusted for each eGFR band. That is, HRs reflect incremental death-censored graft failure risk for the lower eGFR band. Finally, a weighted mean HR was calculated using the OPTN sub-population represented by each eGFR band.

### Results

54,785 renal transplant recipients were included; 2419 had a graft failure after 12 months (2.8%). Table 1 lists sample characteristics, which are also predictors in regression models. Table 2 reports eGFR bands for the analyses and proportions in eGFR bands. Figure 1A shows HRs for 5 mL/min/1.73m² 12-month eGFR bands versus next highest eGFR band as reference. Incremental risk is highest (HR=1.23 to 2.77) in eGFR bands below 60 mL/min/1.73m². Weighted mean HR across all 5 mL/min/1.73m² bands was 1.19; for patients with DGF it was 1.10. Figures 1B and 1C show the eGFR bands with improved death-censored graft survival. Higher 12-month eGFR is strongly associated with improved death-censored graft survival.

### Conclusion

These results support 5 mL/min/1.73m² as the MCMD for 12-month eGFR in kidney transplantation. Higher 12-month eGFR is strongly associated with improved death-censored graft survival.

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