

# Higher Scores on a Weighted, Facility-specific Performance Measure Predict Mortality and Hospitalization in Hemodialysis Patients

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## INTRODUCTION

The DaVita Quality Index (DQI) is an aggregate, facility-specific score calculated from prevalent patient outcomes for seven weighted intermediate outcomes (albumin, phosphorus, calcium, parathyroid hormone, hemoglobin, Kt/V, vascular access type) consistent with national guidelines and recommendations. Facility-based analyses arising from the Dialysis Outcomes and Practice Patterns Study (DOPPS) support the hypothesis that hospitalization and mortality rates should be lowest among patients in facilities with the highest levels of facility performance on key clinical indicators.<sup>1</sup>

**Objective:** To evaluate the relationship between facility DQI and within-facility patient mortality and hospitalization.

Reference: Mendelssohn DC *et al.*: *Nephrol Dial Transplant* 23:3227-3233, 2008.

## METHODOLOGY

- Retrospective observational study
- Identified prevalent patients by facility and DQI scores for each DaVita facility in each month of 2008
- Used a repeated measures mixed model to test predictive strength of DQI and seven facility-averaged, patient-related covariates (Charlson co-morbidity index, dialysis treatment time, vintage, BMI, % male, % diabetic, % African American, and age) on the facility outcome variables mean mortality rate, mean hospitalization rate, and mean hospital days.

## RESULTS

Figure 1. Change in Rate with a 10% Increase in DQI Rating of Covariate

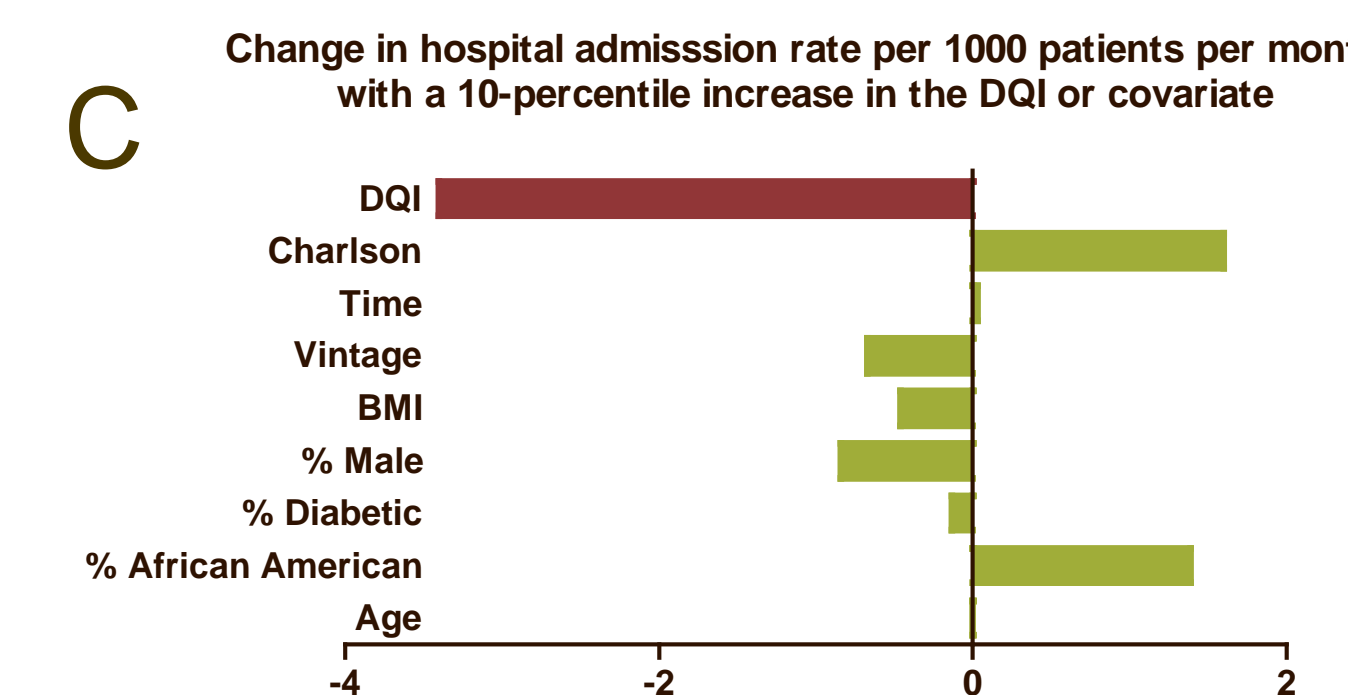
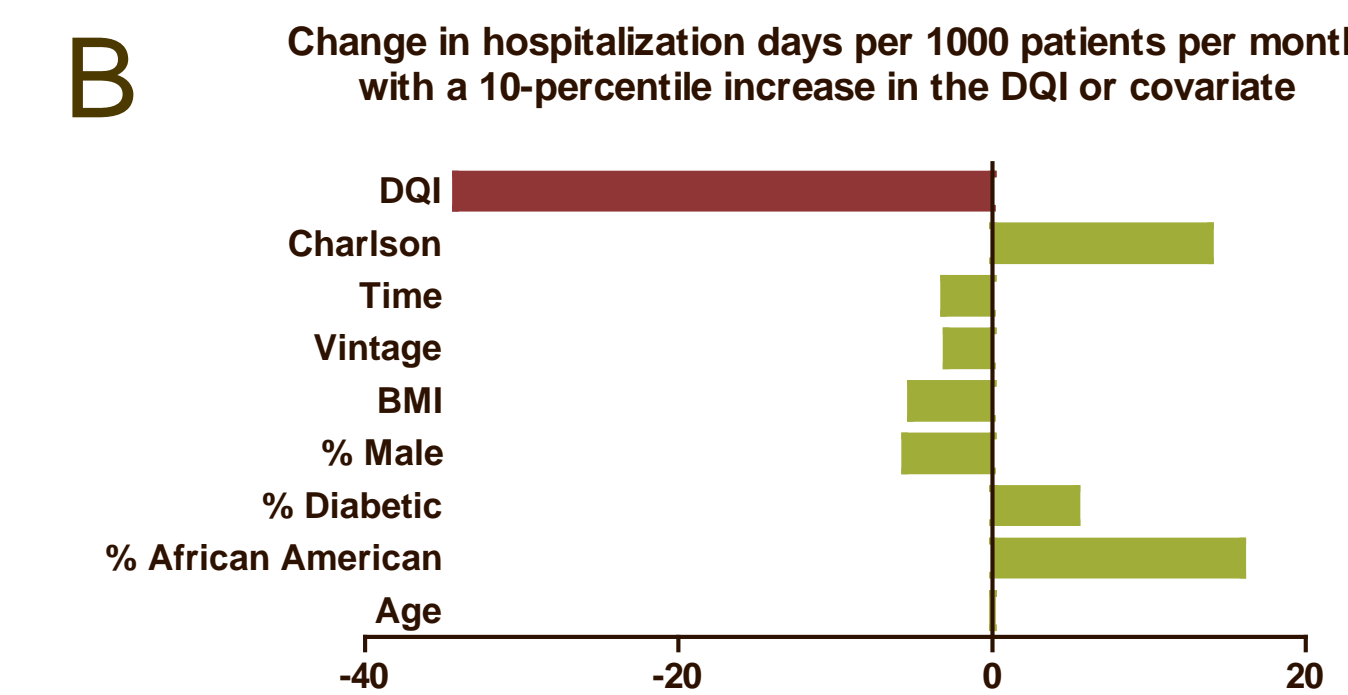
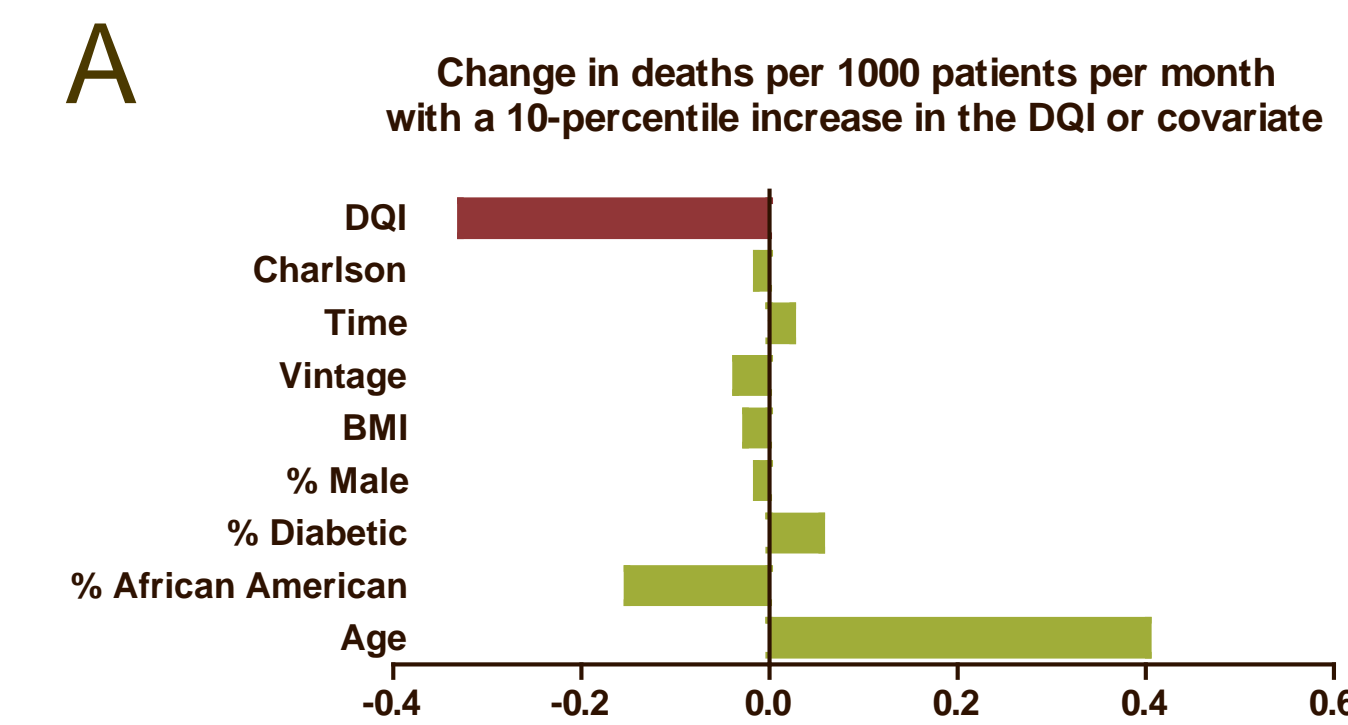
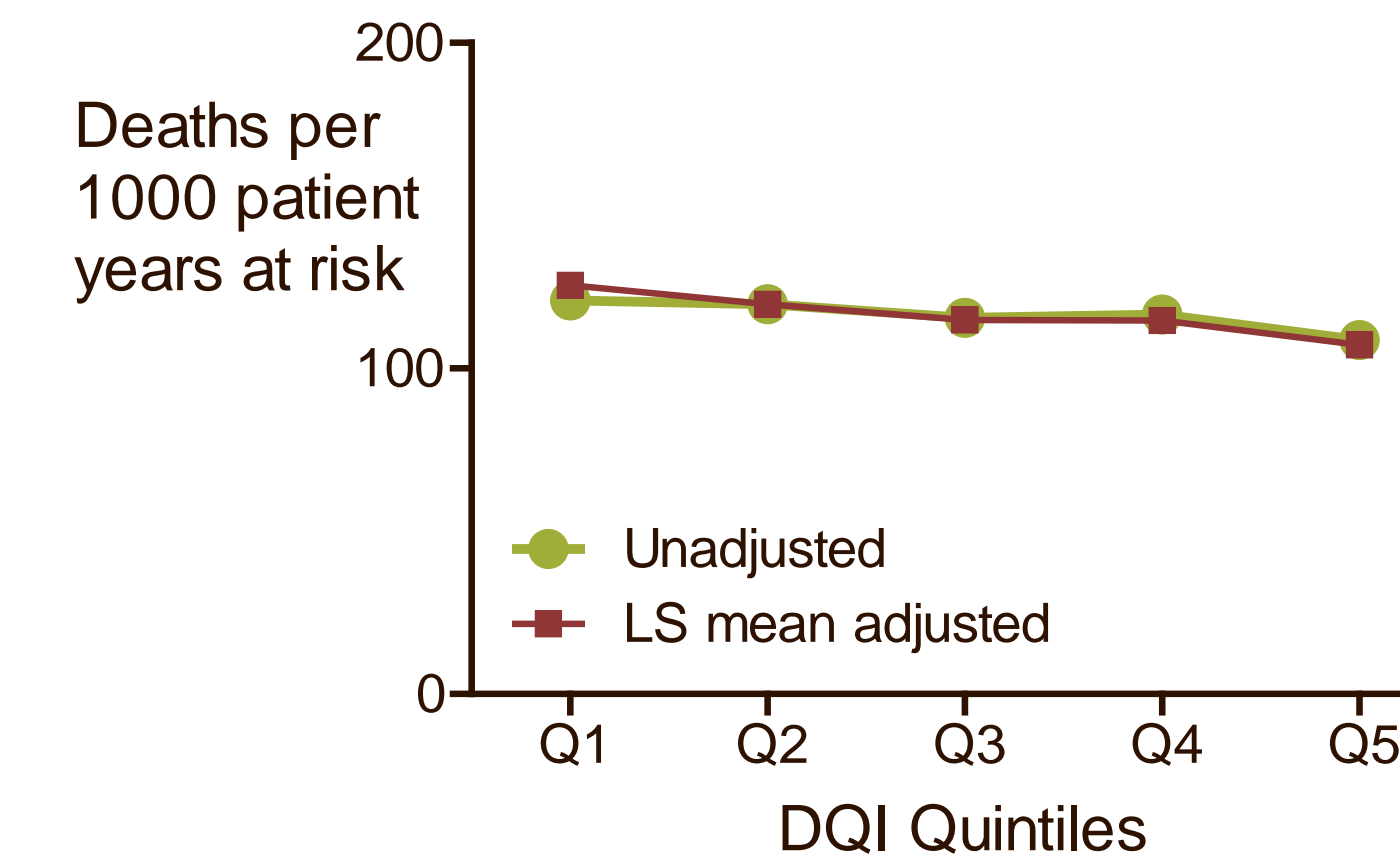


Figure 2. Risk-Based Mortality Rate by DQI Quintile



- Facility DQI score was a strong predictor of lower mean facility mortality, hospitalization rate and hospitalization days (Figure 1;  $p < 0.05$ ).
- Based on these results, raising Q1 facilities to Q3 facilities would lead to approximately 813 fewer deaths per year (Figure 2).
- Compared to facilities with a DQI score 10-percentile below the median, facilities with a median DQI score evidenced:
  - 4.4 fewer deaths,
  - 40.4 fewer hospitalizations, and
  - 420.1 fewer hospital days per 1000 patient years.

## CONCLUSIONS

- Predictive value was greater for DQI than any covariate except age, with which it was co-equal for mortality.
- DQI, by aggregating and weighting performance on multiple outcomes into a single composite score, provides physicians and care teams a powerful tool to track and compare facility quality of care.

## KEY LEARNINGS

- ✓ The DQI score provides all members of the care team, whether clinical or operational, a simple, easy to understand, quantitative assessment of overall success in improving patient outcomes.
- ✓ Although the components of DQI are each surrogate measures, facility DQI scores are directly linked to reduced risk of mortality and hospitalizations for patients.

We thank the patients who participated in this study and DaVita Clinical Research® (DCR) for support in preparing this poster. DCR is committed to advancing the knowledge and practice of kidney care.

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