Inner-City Dialysis Clinics Perform Well on Quality Metrics

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INTRODUCTION

Recent literature suggests the quality of dialysis care delivered to patients living in poverty is below national standards. However, these studies look at single quality measures rather than a comprehensive suite of metrics.

We compared the DaVita Quality Index (DQI) scores of 63 inner-city dialysis facilities with the 1298 non inner-city facilities via generalized linear models (GLM).

METHODOLOGY

- We conducted a facility-level retrospective database analysis at a large dialysis provider, examining March 2010 DQI scores.

- A facility was classified as inner-city if it was located in a ZIP code with >20% of households living below the poverty level and a population density of >10,000 per square mile (Figure 1). Analysis was limited to facilities with >20 patients.

- We compared the DQI scores of 63 inner-city dialysis facilities with the remaining 1298 non inner-city facilities via generalized linear models (GLMs) and t-tests (inner city versus non-inner city).

- GLMs were constructed with terms for urban status, poverty (Y/N) and the interaction of these terms (urban*poor=1 equivalent to "inner city").

- Demographics represent patient population as of March 2010 (Table 1).

RESULTS

Table 1. Patient Demographics by Facility Classification

	Inner City	Non-Inner City
Facilities	63	1298
Patients (n)	7,530	100,386
Age (yr)	58.9 ± 14.9	60.7 ± 15.2
% Male	55.0%	55.5%
Race and Ethnicity		
% African American	44.1%	36.9%
% Hispanic	37.4%	14.8%
% Asian, Pacific Islander	4.4%	4.1%
% Native American	0.2%	1.5%
% Other	0.0%	0.1%
% Diabetic	42.3%	44.1%
Vintage (yr)	4.2 ± 3.8	4.0 ± 3.7
BMI	27.2 ± 6.6	28.0 ± 7.2

Table 2. DQI Scores by Facility Location

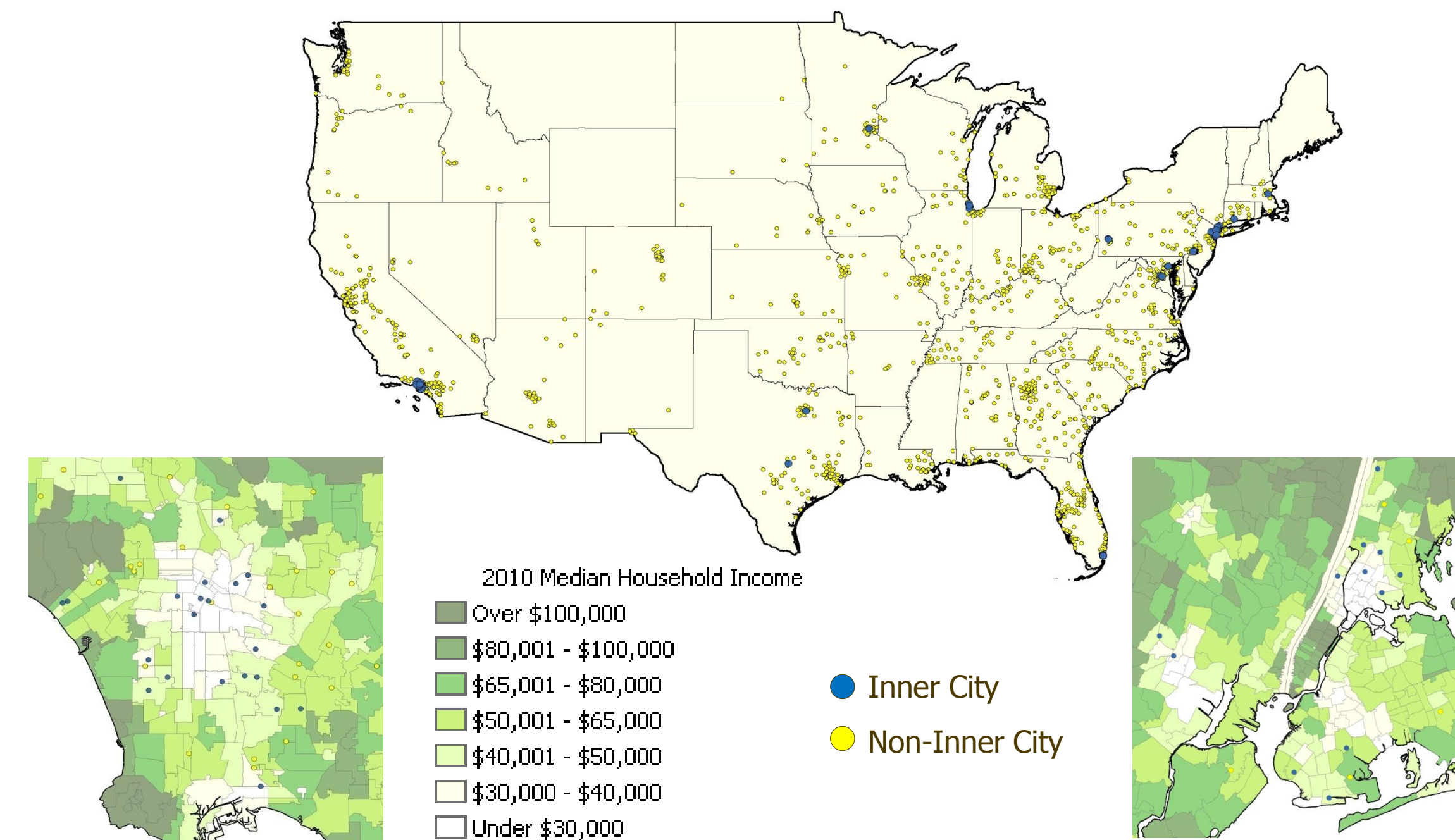| Quality Scale	Inner City	Non-Inner City	p-value
Overall DQI Score	68.37	67.35	0.15
PTH Score	2.29	2.42	0.13
Phosphorus Score	13.23	13.00	0.31
Albumin Score	6.40	5.91	<0.01
Calcium Score	6.01	6.00	0.92
Access Score	8.16	7.66	0.29
HCT Score	4.44	4.45	0.92
KT/V Score	18.84	18.96	0.42
Vaccines Score	9.00	9.02	0.81

Figure 1. DaVita Facilities by Inner City and Non-Inner City
Note: Right and left panels show an overlay of median household income and facility classification in Los Angeles and New York City, respectively.
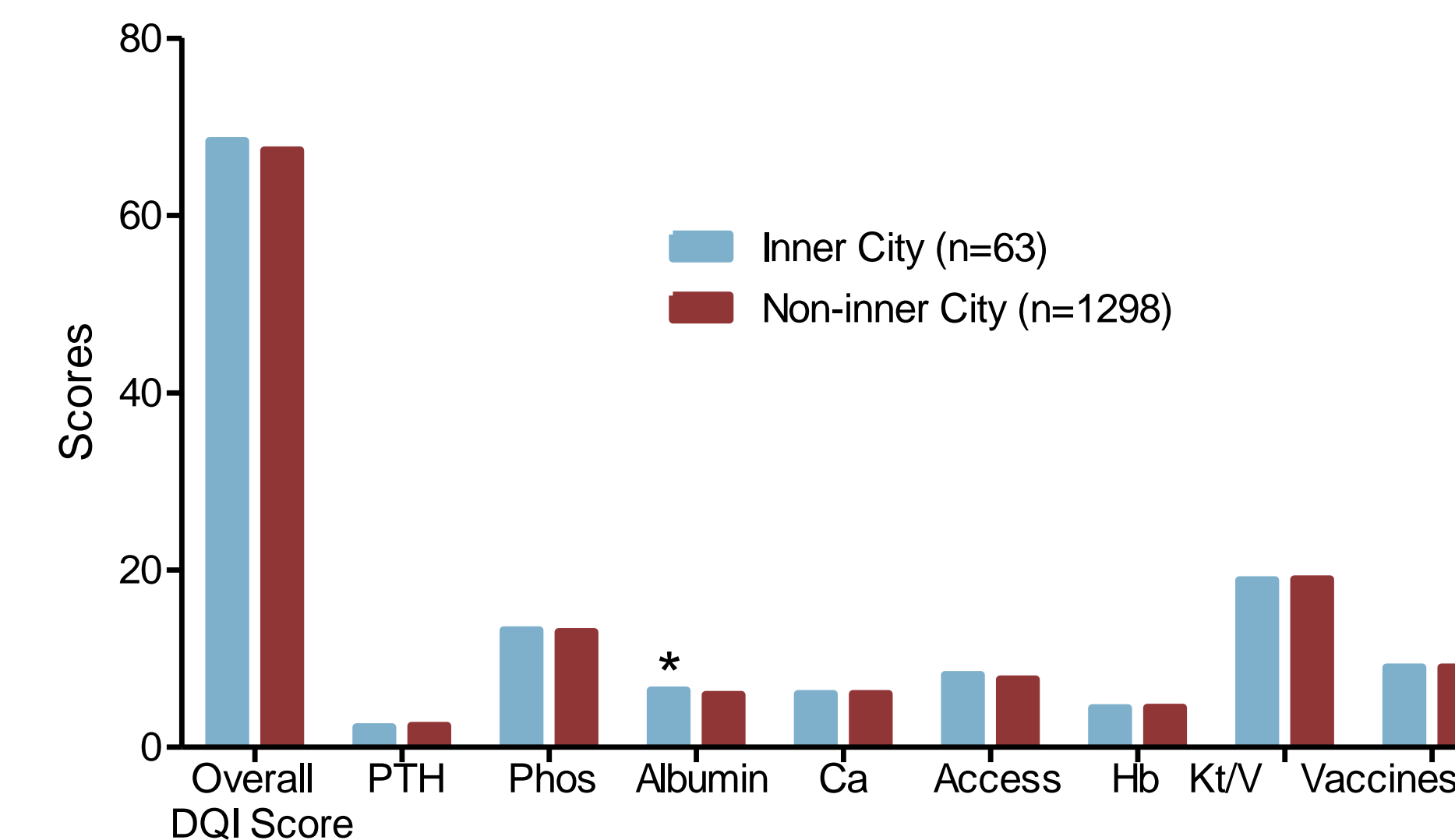

Figure 2. DQI Scores and its Components by Facility Location
Note: p<0.001 for albumin scores. Numbers represent weighed values based on patients achieving KDOQI-based targets and do not represent biomarker values.

SUMMARY of RESULTS

- T-tests showed no differences in overall DQI score (Table 2).
- The only component that differed significantly between groups was serum albumin, which was higher in the inner-city group (Table 2 and Figure 2).
- GLMs showed a higher DQI score for urban centers (69.0 versus 67.4) and lower for poor centers (67.7 versus 68.8) but these results were not significant. No interaction terms were significant.
- Sensitivity analysis including >30% and >40% poverty definitions along with the inclusion of >40% race/ethnic minority populations did not change results.
- These results show no differences in patient outcomes between inner city and non inner city units.

KEY LEARNINGS

✓ DQI score, a weighted composite of multiple clinical performance measures, provides more comprehensive insight into facility performance than single, publicly-reported metrics.

✓ DaVita DQI score permits quantitative comparison of facilities across geographic and socioeconomic strata.

✓ The evidence for no clinical performance deficit in inner city compared to non-inner city facilities DQI score is consistent with two non-exclusive possibilities:

- DQI, a single score encompassing multiple, weighted clinical performance measures, better reflects facility performance than a list of single, isolated measures.

- DQI is a powerful quality management tool in improving and equalizing facility-specific performance across geographic and socioeconomic strata.