

# Longitudinal Assessment of Random Variability in ICH-CAHPS Scores

Dena E. Cohen, PhD; Steven M. Brunelli, MD, MSCE; Francesca Tentori, MD, MS

DaVita Clinical Research, Minneapolis, MN, USA

# Disclosures

- DEC, SMB, and FT are employees of DaVita Clinical Research
  - SMB's spouse is an employee of AstraZeneca

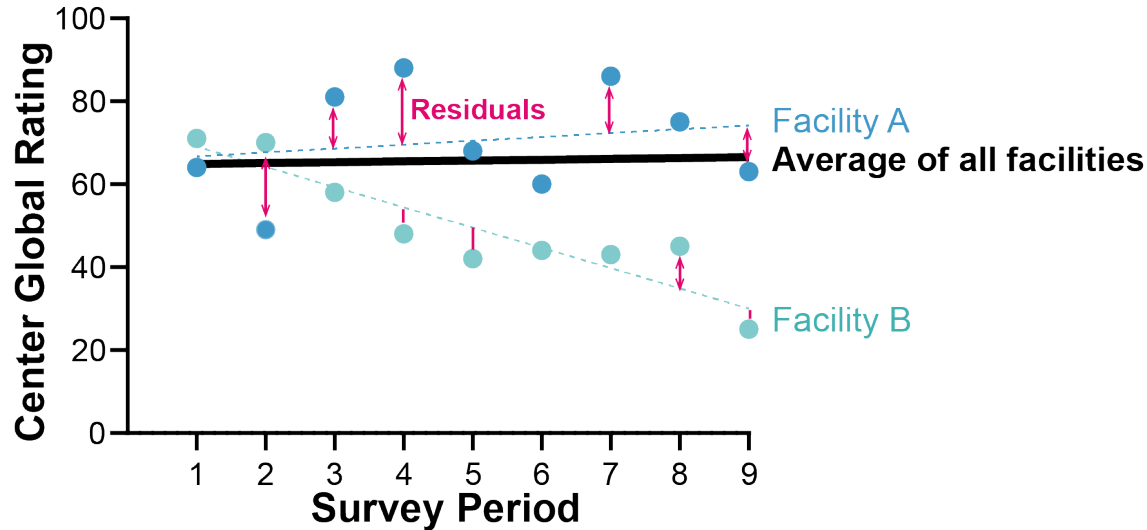
# Background

- The Centers for Medicare & Medicaid Services mandates use of the In-Center Hemodialysis Consumer Assessment of Healthcare Providers and Systems (ICH-CAHPS) survey to assess dialysis patients' experience of care.
- Survey responses, collected twice annually and reported at the facility level, are intended to evaluate facility performance over time and to compare across facilities at a given time.
- In order to be useful for these purposes, the random variability in ICH-CAHPS scores must be relatively low.

# Approach

- ICH-CAHPS scores were analyzed among 2735 facilities managed by a large dialysis organization that had scores available during at least one survey period (spring or fall) between 2014 – 2018.
- This analysis focused on the Center Global Rating score, which asks patients “Using any number from 0 to 10, where 0 is the worst dialysis center possible and 10 is the best dialysis center possible, what number would you use to rate this dialysis center?”
  - A facility’s score is expressed as the proportion of survey respondents who select a value of 9 or 10.
- The association between Center Global Rating score and survey period was assessed using a mixed model with random slopes and intercepts for each facility.
  - Mean squared residuals were calculated for each facility and categorized on the basis of the number of survey responses received by the facility during the fall 2018 survey period.
- Facilities with scores available in all 9 survey periods analyzed (N = 1074) were assigned to quintiles based on their Center Global Rating score, and movement across quintiles was assessed longitudinally.

# Average CAHPS scores are stable over time; Individual facilities display variability



- During the study period, the average score among all facilities changed very little.
- Individual facilities displayed a great deal of variation in scores over the same timeframe.
- The difference between the observed score for a facility at a given time point and the best-fit line for its score over time is termed the “residual.”
  - This is a measure of the amount of random variation in scores.

# Influence of Number of Completed Surveys on the Magnitude of the Residuals

Number of Responses (Fall 2018)	Average Residual *
11-12	9.2
13-16	8.7
17-20	8.6
21-26	8.1
27+	6.9

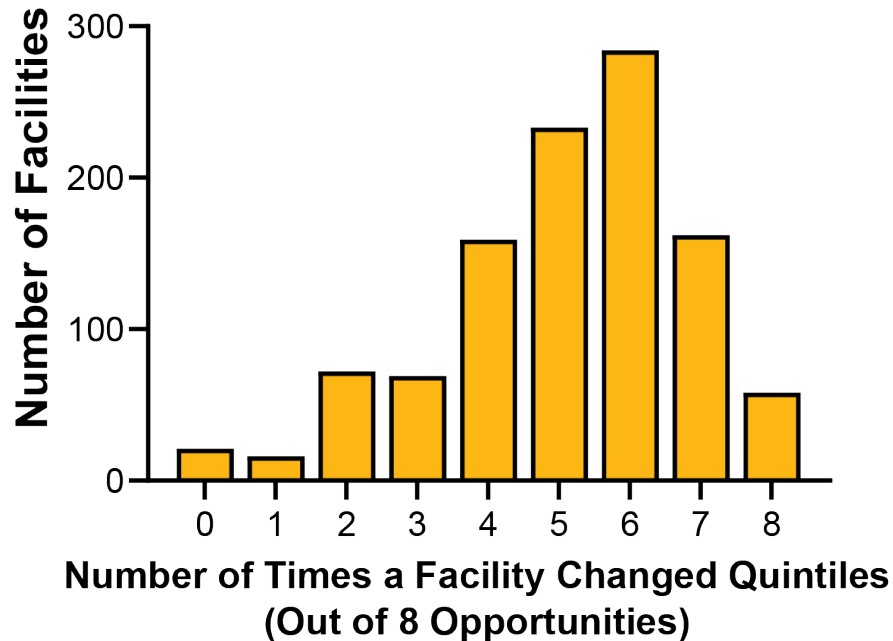
- Among the facilities analyzed, Center Global Rating scores were relatively stable over the study period, with an initial mean score of 64.9 that increased 0.2 points per subsequent survey period.
- Facilities with smaller numbers of completed surveys have greater variability in scores over time (Table).

\*Represents the square root of the mean squared residuals for each category; smaller values represent less variability.

Values derived from a mixed model of Center global rating vs survey period.

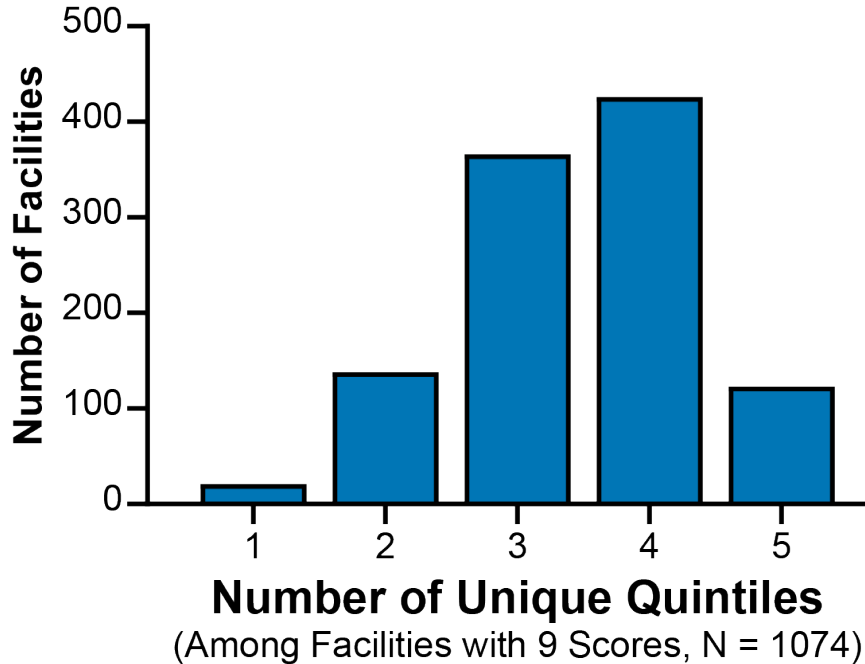
Similar results were obtained when the number of responses was based on the value for fall 2014.

# Facilities Change Quintile Rank Frequently



- For each survey period, facilities (N = 1074) were categorized by quintile of Center Global Rating score.
- The graph shows the number of times in which the score changed quintiles between consecutive survey periods (maximum 8).
- Facilities most commonly changed rank 6 times.
- 69% of facilities changed quintiles 5 times or more.
- Only 2% of facilities remained in the same quintile across all 9 survey periods.

# Number of Quintiles Occupied, 2014 - 2018



- For the study period, we examined the cumulative number of quintiles that each facility occupied over the 9 survey periods (maximum: 5).
- Facilities most commonly occupied a total of 4 different quintiles.
- 85% of facilities occupied at least 3 quintiles.



# Conclusions

- ICH-CAHPS scores are highly variable within facilities over time.
  - Scores are more variable in facilities with a smaller number of survey responses vs. those with a larger number of responses.
- The variability diminishes the utility of ICH-CAHPS scores as a tool to evaluate trends in patient experience over time, or to compare experience in facilities at a given time.
- Improvements to ICH-CAHPS, or development of alternative measures of patient experience, are needed to enable accurate assessment of facility performance and to inform patient care.