



2010 CARECHEX RESEARCH STUDY:

IS THERE A CORRELATION BETWEEN A STATE'S QUALITY OF CARE AND PATIENT SATISFACTION?

Significance & Purpose

In most industries, conventional wisdom assumes a relationship exists between the quality of a product or service and overall customer satisfaction. However, little or no research has been performed within the healthcare industry to assess whether patient satisfaction is associated with the actual quality of hospital care. Clearly, few industries face the challenge of delivering the range of complex services to a diverse customer base as the healthcare industry. The purpose of this study, then, is to determine if a state's quality of hospital care ranking is generally correlated with the patient population's satisfaction with hospital care. This type of study is particularly important given the national agenda to improve the technical quality of hospital care with seeming little emphasis on improving the patient's actual satisfaction with their healthcare experience.

The data sources and methods utilized for the study are provided in the next section.

Data Sources & Methods

The study relied on The Delta Group's National Quality Rating Database (NQRD) which includes virtually all general, acute, non-federal U.S. hospitals. The database incorporates the most recent three (3) years of federal fiscal year data (October through September) which runs approximately two (2) years behind the current calendar year. The NQRD includes information from the following publicly available datasets:

- Hospital Quality Alliance (HQA) Hospital Compare All Payer Database which provides *core process of care measures* for:
 - Acute Myocardial Infarction (AMI)
 - Heart Failure (HF)
 - Pneumonia (PN)
 - Surgical Care Improvement Project (SCIP)
- Center for Medicare and Medicaid Studies (CMS) Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Database which provides *patient satisfaction measures* on:
 - Overall Hospital Rating
 - Doctor Communication
 - Nurse Communication
 - Staff Responsiveness
 - Medication Explanation
 - Pain Control
 - Hospital Environment (Quietness & Cleanliness)
 - Post-Discharge Information
- CMS Medicare Provider Assessment and Review (MedPAR) File which provides the following *outcome measures*:
 - Actual Mortality Rate
 - Actual Complications Rate
 - Actual Patient Safety Indicator (PSI) Rate
 - Actual Inpatient Quality Indicator (IQI) Mortality Rate

Data Sources & Methods (cont.)

Relying on data from the CMS MedPAR file, The Delta Group applied five (5) separate regression models to account for differences in patient clinical and demographic characteristics across states and metropolitan areas which resulted in the addition of the following NQRD value-added data elements:

- Expected Mortality Rate
- Expected Complications Rate
- Expected PSI Rate
- Expected IQI Mortality Rate
- Risk-Adjusted Mortality Index™
- Risk-Adjusted Complications Index™
- Risk-Adjusted PSI Index™
- Risk-Adjusted IQI Mortality Index™

Lastly, the NQRD provides percentiles of performance for each quality measure using a z-value for determining the measure's level of statistical significance and then calculating a standard score (z-score) to convert all data to a standard normal distribution. For analysis purposes, a composite percentile score across all quality measures was calculated for each state across all relevant medical conditions and surgical procedures to identify each state's overall quality score and attendant ranking. This overall quality ranking was then compared to each state's patient satisfaction ranking.

Test Statistic

Spearman's correlation coefficient was used to determine if a statistically significant positive relationship exists across states between their rank order on quality of care and their rank order on patient satisfaction (one-tailed test); where a perfectly positive correlation would equal 1.00.

Findings*

A correlation coefficient of .21 indicated no statistically significant positive relationship exists across states between their rank order on quality of care and their rank order on patient satisfaction using a confidence interval of 95% (-0.02 to 1.00); where $p = .07$.

*Refer to Appendix A (p. 3) for each state's respective ranking on quality of care and patient satisfaction and Appendix B (p. 4) for analysis of correlation.

Observations

Of the 50 states and the District of Columbia, only four (4) achieved the same ranking for overall quality of care and patient satisfaction—D.C. (which ranked last on both), Georgia, Iowa, and Nevada. While a few states had similar rankings for quality of care and patient satisfaction (e.g. Wisconsin ranked 7th on quality of care and 6th on patient satisfaction), the vast majority experienced substantial variation in rankings (e.g., Ohio ranked 1st on quality of care and 34th on patient satisfaction).

Conclusion

A state's overall quality of care ranking is generally a poor proxy for patient satisfaction with hospital care. This conclusion underscores the need for hospitals to engage in regular patient satisfaction surveys rather than assume patients are satisfied with their medical care simply because the hospital meets a particular standard of clinical quality.

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Appendix A.
2010 CareChex Quality of Care & Patient Satisfaction Rank by State

OVERALL HOSPITAL CARE		
State	Quality of Care Rank	Patient Satisfaction Rank
Alabama	21	4
Alaska	46	38
Arizona	15	43
Arkansas	41	24
California	43	48
Colorado	18	27
Connecticut	5	37
Delaware	3	41
District of Columbia	51	51
Florida	8	49
Georgia	31	31
Hawaii	49	47
Idaho	28	21
Illinois	11	39
Indiana	6	16
Iowa	10	10
Kansas	32	18
Kentucky	20	17
Louisiana	36	5
Maine	23	2
Maryland	24	44
Massachusetts	4	20
Michigan	2	25
Minnesota	13	12
Mississippi	44	14
Missouri	27	28
Montana	38	29
Nebraska	22	9
Nevada	50	50
New Hampshire	29	3
New Jersey	39	46
New Mexico	48	42
New York	47	45
North Carolina	14	8
North Dakota	9	36
Ohio	1	34
Oklahoma	33	11
Oregon	34	30
Pennsylvania	12	40
Rhode Island	37	26
South Carolina	25	13
South Dakota	17	7
Tennessee	35	23
Texas	16	19
Utah	40	22
Vermont	30	1
Virginia	26	35
Washington	19	33
West Virginia	42	32
Wisconsin	7	6
Wyoming	45	15

Appendix B.
Quality of Care & Patient Satisfaction Statistical Correlation Across States

Spearman's Correlation Coefficient = .21 (CI = 95%; p = .07)

