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Original Study

Comparing Public Quality Ratings for Accredited and Nonaccredited Nursing Homes

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A B S T R A C T

Objectives: Compare quality ratings of accredited and nonaccredited nursing homes using the publicly available Centers for Medicare and Medicaid Services (CMS) Nursing Home Compare data set.

Methods: This cross-sectional study compared the performance of 711 Joint Commission–accredited (TJC-accredited) nursing homes (81 of which also had Post-Acute Care Certification) to 14,926 non–Joint Commission–accredited (non–TJC-accredited) facilities using the Nursing Home Compare data set (as downloaded on April 2015). Measures included the overall Five-Star Quality Rating and its 4 components (health inspection, quality measures, staffing, and RN staffing), the 18 Nursing Home Compare quality measures (5 short-stay measures, 13 long-stay measures), as well as inspection deficiencies, fines, and payment denials. *t* tests were used to assess differences in rates for TJC-accredited nursing homes versus non–TJC-accredited nursing homes for quality measures, ratings, and fine amounts. Analysis of variance models were used to determine differences in rates using Joint Commission accreditation status, nursing home size based on number of beds, and ownership type. An additional model with an interaction term using Joint Commission accreditation status and Joint Commission Post-Acute Care Certification status was used to determine differences in rates for Post-Acute Care Certified nursing homes. Binary variables (eg, deficiency type, fines, and payment denials) were evaluated using a logistic regression model with the same covariates.

Results: After controlling for the influences of facility size and ownership type, TJC-accredited nursing homes had significantly higher star ratings than non–TJC-accredited nursing homes on each of the star rating component subscales ($P < .05$) (but not on the overall star rating), and TJC-accredited nursing homes with Post-Acute Care Certification performed statistically better on the overall star rating, as well as 3 of the 4 subscales ($P < .05$). TJC-accredited nursing homes had statistically fewer deficiencies than non–TJC-accredited nursing homes ($P < .001$), were less likely to have immediate jeopardy or widespread deficiencies ($P < .001$), and had fewer payment denials ($P < .001$) and lower fines ($P < .001$).

Discussion: Despite recent changes made to the CMS NHC star-rating methodology, results confirm previous findings that demonstrate a consistent pattern of superior performance among nursing homes accredited by The Joint Commission when compared to non–TJC-accredited facilities across a broad range of indicators in the Nursing Home Compare data set. It is important to note, however, that a cross-sectional study cannot determine causation, so it is unclear if accreditation assists nursing homes in achieving better care, or if higher-performing nursing homes are more likely to pursue accreditation.

Conclusions: Accreditation status remains a significant predictor of nursing home quality across multiple dimensions, independent of facility size and ownership type.

While studies examining the impact of accreditation and certification can be challenging to conduct,[1] a number of previous studies have demonstrated that nursing homes with Joint Commission accreditation have performed better than nonaccredited facilities, including fewer Centers for Medicare & Medicaid Services (CMS) deficiency citations,[2] medication utilization,[3,4] complaints, substantiated abuse allegations, and physical restraints and contractures.[5]

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However, there have been a number of significant changes since the time of this study. First, in response to the increasing complexity of nursing and rehabilitative care, The Joint Commission redesigned its Nursing Care Center accreditation program in July 2013 to (1) proactively help leaders identify vulnerabilities to safeguard residents, (2) focus on resident-centered standards and requirements, (3) customize accreditation based on the unique services provided through optional certification capabilities, and (4) validate the quality of care and services provided.[6] In addition, a new Post-Acute Care Certification option was launched that requires dedicated, qualified staff; the use and monitoring of clinical practice guidelines; additional training to help staff identify and respond quickly and effectively to early warning signs of a patient's change in condition; communication criteria and processes to facilitate effective transitions in care; and assessment of readmissions.

Second, CMS modified its Nursing Home Compare Five-Star Quality Rating System methodology in February 2015 in response to a number of concerns including the high proportion of nursing homes receiving 4 or 5 stars, and the rating systems' reliance on self-reported staffing levels.[7,8] Two new quality measures were added (newly received antipsychotic medications for short-stay residents and antipsychotic medications for long-stay residents),[9] and the number of points necessary to achieve higher star ratings was increased. We used these updated Nursing Home Compare data to compare Joint Commission–accredited (TJC-accredited) and non–Joint Commission–accredited (non–TJC-accredited) nursing homes on (1) Five-Star Quality Rating and the 4 indices that make up the overall rating (CMS health inspection reports, nationally standardized quality measures, facility staffing, and RN staffing), (2) quality measures for long-stay and short-stay residents, (3) deficiencies identified in CMS health inspection reports, and (4) fines and/or payment denials associated with deficiencies.

Methods

Population

We downloaded data from the CMS Nursing Home Compare website in April 2015, which included records for 15,637 nursing home facilities. We determined the accreditation status of these facilities by matching records in The Joint Commission database using CMS Certification Number (CCN). Of the 897 accredited nursing homes in The Joint Commission database, 711 (79.3%) were successfully matched to the Nursing Home Compare data set. Of matched facilities, 81 (11.4%) had Post-Acute Care Certification in addition to accreditation. Of the TJC-accredited facilities that could not be matched, 31 (3%) had missing or invalid CCN numbers or could not be matched to a single facility (ie, Joint Commission identifier that was linked to multiple CCN numbers or vice versa), and 155 (83%) did not report to CMS (eg, the Veterans Health Administration). These facilities were excluded from the analyses.

Measures

Star ratings

The primary outcomes of interest within the Nursing Home Compare data set included the overall star rating and its 4 subscales. The health inspection rating subscale includes results on both standard surveys and complaint surveys conducted on-site over the previous 3 years. All survey deficiency findings are weighted by scope and severity with the most recent year's survey findings weighted more heavily. Health inspection revisits are also weighted.[9] The second and third subscales are facility staffing and nurse staffing based upon the facility's total staffing hours [combined registered nurse (RN), licensed practical nurse (LPN), and nurse aide] and the nurse (RN) hours per resident day, respectively. Staffing measures are case-mix adjusted based on the distribution of Minimum Data Set (MDS) 3.0 assessments, which are federally mandated clinical assessments required for all residents in Medicare or Medicaid-certified nursing homes.[9] The fourth subscale is based on an aggregation of the MDS quality measures that address resident health status and functioning in multiple areas.[9]

Deficiencies, fines, and payment denials

Deficiencies identified during health inspections are categorized based on scope (isolated, pattern, and widespread) and severity (no

Severity	Scope		
	Isolated	Pattern	Widespread
Immediate jeopardy to resident health or safety	J	K	L
Actual Harm that is not immediate jeopardy	G	H	I
No actual harm with the potential for more than minimal harm that is not immediate jeopardy	D	E	F
No actual harm with a potential for minimal harm	A	B	C

Fig. 1. Centers for Medicare & Medicaid Services deficiency types. Per the Centers for Medicare & Medicaid Services, shading denotes "deficiency scope/severity levels that constitute substandard quality of care if the requirement which is not met is one that falls under the following federal regulations: 42 CFR 483.13 resident behavior and nursing home practices; 42 CFR 483.15 quality of life; 42 CFR 483.25 quality of care".

Table 1
Accreditation Status by Size* and Ownership Type

Variable	TJC-Accredited	Non–TJC-Accredited	Pr > |t|
	% (n)	% (n)	
Facility Size			
Large	14 (97)	6 (847)	<.001
Medium	79 (565)	81 (12,110)	
Small	7 (49)	13 (1,969)	
Ownership type			
For-profit	75 (533)	70 (10,376)	<.001
Not-for-profit	21 (148)	24 (3,612)	
Government	4 (30)	6 (938)	

TJC-accredited, facilities accredited by The Joint Commission; non–TJC-accredited, facilities that are not accredited by The Joint Commission. These facilities may have no accreditation, or they may be accredited by another accrediting body.

*Small facilities were designated as <50 beds, medium facilities as 50–199 beds, and large facilities as those ≥200 beds.

actual harm with potential for minimal harm, no actual harm with potential for more than minimal harm that is not immediate jeopardy, actual harm that is not immediate jeopardy, immediate jeopardy to resident health or safety; Figure 1). By definition, immediate jeopardy refers to a situation in which a nursing home's noncompliance with 1 or more requirements of participation has caused, or is likely to cause, serious injury, harm, impairment, or death to a resident.[10] In addition to analyzing individual deficiency types, we analyzed deficiencies based on severity using 2 groups defined a priori: (1) categories A, B, C, and D (A, B, and C indicate no actual harm with potential for only minimal harm, and D indicates an isolated finding with no actual harm but the potential for more than minimal harm), and (2) categories E–L, which indicate a potential for more than minimal harm associated with a pattern or widespread finding, and/or instances in which actual harm was identified.

The data set also includes the amount of fines issued to facilities, as well as the number of payment denials. Analyses were conducted using these data to compare TJC-accredited and non–TJC-accredited facilities on these dimensions.

Quality measures

The Nursing Home Compare data set includes annual measure rates for 18 quality measures[11] based on data from the MDS. The measures assess a range of resident physical conditions, physical abilities, and clinical status. Five of the measures are collected for short-stay residents (cumulative days in the facility less than or equal to 100 days), and 13 measures for long-stay residents (cumulative days in the facility greater than or equal to 101 days).

Statistical Analysis

For each comparison of measures, ratings, and fine amounts, *t* tests were used to determine differences in rates for TJC-accredited organizations versus non–TJC-accredited organizations. Furthermore, an analysis of variance model was used to determine differences in rates utilizing Joint Commission accreditation status, nursing home size based on number of beds, and ownership group. It is important to note that the quality measure data included only measure rates, as no denominator counts were provided in the data set.

To evaluate those variables that are binary (eg, deficiency type, fines and payment denials), a logistic regression model was used with the same covariates. During the analysis of facility fines, 87 facilities were excluded from the analysis to reduce the influence of extreme outliers (defined as fines that were greater than 3 standard deviations from the mean). These outlier fines ranged from $203,581 to $946,888. Of the 87 outlier facilities, 81 were non–TJC-accredited and 6 were TJC-accredited. After removing the outliers, the average facility fine was $22,498.

To investigate whether facilities that pursued both accreditation and optional Post-Acute Care Certification performed better than those with accreditation alone, we used an additional model with an interaction term using Joint Commission accreditation status and Joint Commission Post-Acute Certification status to determine differences in rates for Post-Acute Care Certified nursing homes.

Results

TJC-accredited nursing homes were larger than non–TJC-accredited nursing homes ($P < .001$; Table 1). There were also small, but statistically significant, differences in the proportions of ownership types ($P < .001$).

After controlling for differences in facility size and ownership type, TJC-accredited nursing homes had statistically higher ratings than non–TJC-accredited nursing homes on each of the 4 component subscales of the Five-Star Rating system but not the overall star rating (Table 2). TJC-accredited nursing homes that also had Post-Acute Care Certification performed statistically better the overall rating and on 3 of the 4 subscales (Quality Measures, Health Inspection, and RN staffing).

Comparisons of deficiency types (Figure 2), fines, and payment denials (Table 3) also revealed a pattern of better performance among TJC-accredited facilities compared with non–TJC-accredited facilities. Non–TJC-accredited facilities were consistently more likely to have deficiencies that were observed as patterns or

Table 2
Five-Star Rating and Components by Accreditation Status

Metric	Accreditation Status	n	Mean	Standard Deviation	Median	*P* Value*
Health inspection	Non–TJC-accredited	14,801	3.14	1.39	3	
	TJC-accredited (no certification)	629	3.34	1.32	4	<.001
	TJC-accredited with certification	81	3.62	1.31	4	<.001
Quality measures	Non–TJC-accredited	14,763	3.30	1.40	3	
	TJC-accredited (no certification)	627	3.49	1.34	4	<.001
	TJC-accredited with Certification	81	4.07	1.02	4	0.001
Staffing	Non–TJC-accredited	14,492	3.20	1.15	3	
	TJC-accredited (no certification)	618	3.45	1.04	4	<.001
	TJC-accredited with certification	80	3.50	1.01	4	0.155
RN staffing	Non–TJC-accredited	14,492	3.38	1.24	3	
	TJC-accredited (no certification)	618	3.88	1.06	4	<.001
	TJC-accredited with certification	80	4.40	0.76	5	<.001
Overall Five-Star Rating	Non–TJC-accredited	14,801	2.82	1.29	3	
	TJC-accredited (no certification)	629	2.85	1.25	3	0.087
	TJC-accredited with certification	81	2.97	1.18	3	0.036

TJC-accredited, facilities accredited by The Joint Commission; non–TJC-accredited, facilities that are not accredited by The Joint Commission. These facilities may have no accreditation, or they may be accredited by another accrediting body.

**P* values shown for comparisons between nonaccredited organizations versus accredited organizations, and nonaccredited organizations versus certified organizations.

Severity	Scope		
	Isolated	Pattern	Widespread
Immediate jeopardy to resident health or safety	J TJC-Accredited: 5.9% Non-TJC-Accredited: 7.9% P = 0.03	K TJC-Accredited: 2.8% Non-TJC-Accredited: 5.1% P = 0.002	L TJC-Accredited: 0.8% Non-TJC-Accredited: 1.9% P = 0.037
Actual Harm that is not immediate jeopardy	G TJC-Accredited: 44.0% Non-TJC-Accredited: 33.6% P<0.001	H TJC-Accredited: 1.8% Non-TJC-Accredited: 2.9% P = 0.076	I TJC-Accredited: 0% Non-TJC-Accredited: 0.1% P<0.001
No actual harm with the potential for more than minimal harm that is not immediate jeopardy	D TJC-Accredited: 96.9% Non-TJC-Accredited: 94.7% P = 0.03	E TJC-Accredited: 79.2% Non-TJC-Accredited: 87.0% P<0.001	F TJC-Accredited: 46.1% Non-TJC-Accredited: 54.3% P<0.001
No actual harm with a potential for minimal harm	A	B TJC-Accredited: 20.4% Non-TJC-Accredited: 30.2% P<0.001	C TJC-Accredited: 23.8% Non-TJC-Accredited: 33.1% P<0.001

Fig. 2. Rate of deficiency types by accreditation status. TJC-accredited, facilities accredited by The Joint Commission; non–TJC-accredited, facilities that are not accredited by The Joint Commission. These facilities may have no accreditation, or they may be accredited by another accrediting body.

widespread issues and/or associated with immediate jeopardy to resident health or safety, whereas TJC-accredited facilities were more likely to have D-level deficiencies (isolated findings with no actual harm) or G-level (isolated findings of actual harm that were not immediate jeopardy). Overall, TJC-accredited facilities had fewer total deficiencies of all types compared to non–TJC-accredited facilities (17.1 vs 20.9 per organization, $P < .001$), but these differences were not statistically significant after adjusting for facility size and ownership type ($P = .080$). When the less severe deficiencies (A-, B-, C-, and D-level) were removed from the analyses, however, TJC-accredited facilities had fewer severe deficiencies (E through L) than non–TJC-accredited nursing homes (5.5 vs 8.0 per organization, $P < .001$), even after adjusting for facility size and ownership type ($P = .005$).

In terms of the financial impact associated with accreditation, after adjusting for the influences of ownership type and facility size, there were no differences between TJC-accredited and non–TJC-accredited nursing homes with respect to whether or not a fine was issued. When fines were issued, however, the size of fines issued to TJC-accredited organizations were significantly lower than fines issued to non–TJC-accredited facilities ($P < .001$). After adjusting for bed size and ownership type, Joint Commission accreditation was associated with fines that were $5480 lower on average than those issued to non–TJC-accredited facilities. TJC-accredited organizations were also significantly less likely to have payment denials (Mandatory Denial of Payment for New Admissions or DPNA[7]) than were non–TJC-accredited facilities ($P < .001$).

Table 3
Fines and Mandatory Denial of Payment for New Admissions (DPNA) by Accreditation Status

Variable	TJC-Accredited Value (n)	Non–TJC-Accredited Value (n)	Pr > |t|
Amount of fines (when issued)	$17,313* (180)	$22,793* (3160)	<.001
Rate of payment denials	0.039 (711)	0.081 (14926)	<.001

TJC-accredited, facilities accredited by The Joint Commission; non–TJC-accredited, Facilities that are not accredited by The Joint Commission. These facilities may have no accreditation, or they may be accredited by another accrediting body.

*Average of values, excluding fine amount value outliers >3 standard deviations from the mean.

After controlling for facility size and ownership type, TJC-accredited nursing homes performed statistically significantly better than non–TJC-accredited nursing homes on 4 of 13 quality measures that focus on long-stay residents who are in the facility for 101 or more days (see Table 4). Residents in TJC-accredited nursing homes needed less help with late-loss activities of daily living (ADL) (self-performance bed mobility, self-performance transfer, self-performance eating, and self-performance toileting); they were less likely to experience moderate to severe pain, less likely to experience a fall resulting in a major injury, and less likely to be prescribed antipsychotic medication. Nonaccredited nursing homes performed statistically better on one of the 13 measures—the percentage of low-risk, long-stay residents who lose control of their bowel or bladder. No differences were observed on 8 measures.

TJC-accredited nursing homes performed statistically better on all 5 of the short-stay measures. Short-stay residents in TJC-accredited nursing homes were less likely to report severe to moderate pain, less likely to acquire new or worsened pressure ulcers, less likely to be prescribed antipsychotic medications, and more likely to receive pneumococcal and influenza vaccinations.

Discussion

Although nursing homes accredited by The Joint Commission performed better on each of the 4 indices that comprise the Five-Star Quality Rating (health inspection reports, quality measures, facility staffing, RN staffing), it was somewhat surprising that these differences were not observed in the overall star ratings, especially because these dimensions have been associated with broader measures of quality in the past.[12,13] This finding may suggest a lack of sensitivity in the overall rating for distinguishing important differences in quality. Superior performance was observed for Post-Acute Care Certified

Table 4
Differences in Quality Measure Performance by Accreditation Status

Item	Mean Percent for Measure (Number of Facilities Reporting for the Measure)		*P* Value
	TJC-Accredited	Non–TJC-Accredited	
Percent of Long-Stay residents			
Whose need for help with daily activities has increased	13.70 (654)	15.69 (14,085)	<.001
Who self-report moderate to severe pain	5.90 (653)	7.66 (14,053)	<.001
High risk with pressure ulcers	5.96 (662)	5.98 (14,008)	0.915
Who lose too much weight	7.10 (666)	7.13 (14,266)	0.854
Low-risk who lose control of their bowel or bladder	51.51 (614)	44.27 (13,150)	<.001
Who have/had a catheter inserted and left in their bladder	3.07 (665)	3.10 (14,248)	0.813
With a urinary tract infection	5.66 (667)	5.72 (14,267)	0.691
Who have depressive symptoms	5.90 (666)	6.08 (14,264)	0.682
Who were physically restrained	1.26 (669)	1.14 (14,283)	0.301
Experiencing 1 or more falls with major injury	2.80 (669)	3.23 (14,284)	<.001
Assessed and appropriately given the seasonal influenza vaccine	93.99 (667)	94.64 (14,265)	0.090
Assessed and appropriately given the pneumococcal vaccine	94.41 (669)	94.08 (14,284)	0.480
Who received an antipsychotic medication	17.58 (668)	19.58 (14,233)	<.001
Percent of short-stay residents			
Who self-report moderate to severe pain	17.13 (689)	18.61 (13,831)	<.001
With pressure ulcers that are new or worsened	0.84 (701)	0.98 (14,325)	0.002
Who were assessed and appropriately given the seasonal influenza vaccine	87.00 (694)	83.96 (13,892)	<.001
Assessed and appropriately given the pneumococcal vaccine	85.06 (700)	82.53 (14,372)	<.001
Who newly received an antipsychotic medication	2.16 (654)	2.43 (13,308)	0.005

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organizations compared with non–TJC-accredited organizations, and they appeared to perform better than TJC-accredited organizations (without certification), as well, although this should be interpreted with some caution, because of the small sample of certified organizations.

The general pattern of findings, which show TJC-accredited organizations outperform non–TJC-accredited facilities, extends the results of previous studies showing that accredited nursing homes have better performance than nonaccredited nursing homes.[2,–5,14] Although this study focused on Joint Commission accreditation, prior work has shown this association to be consistent across nursing home–accrediting bodies.[15]

There are several possible explanations why accredited nursing homes performed better on most outcomes. One is that the standards used for accreditation can be seen as a framework for performance improvement. The standards establish expectations for improvement that can be used to drive changes in behavior. In some cases, those expectations exceed the CMS federal requirements, such as the Joint Commission standard that leaders create and maintain a culture of safety and quality and regularly evaluate safety culture.[16,17] It may also be the case that facilities who receive an additional on-site evaluation (via the accreditation process), are better able to identify opportunities for improvement that are not apparent to individual organizations without the basis for comparison.

A second possible explanation for the findings relates to selection bias. This study is not capable of determining whether or not accreditation helps lower-performing facilities improve quality versus simply identifying higher-performing organizations that seek accreditation. Nursing home leaders who are more focused on quality improvement may choose to pursue accreditation to differentiate the quality of their facilities for the benefit of their residents and families and/or for a competitive edge in the marketplace. Some private insurers recognize accreditation as a commitment to quality and safety and allow nursing homes opportunities for preferential contracting.[18] Nevertheless, the relatively small proportion of facilities that pursue accreditation or certification by any accrediting body (estimated to be 15.2%[15]) suggests that pursuing accreditation to increase market share may not be a major driver. Conversely, organizations with limited financial resources may struggle to improve quality and also cannot afford to pursue accreditation.[2] However, one longitudinal study found that achieving Joint Commission accreditation was associated with a reduction in quality of care deficiency citations from baseline to the year after accreditation, including the most severe deficiencies (J, K, and L citations). Quality of care deficiency citations also continued to decline in the subsequent year.[14] This suggests that the accreditation process may lead to improvements in quality, but it also creates the environment for continued improvement. More research is needed to understand the reasons why nursing homes choose to pursue accreditation and longitudinal assessments of changes in quality during the period before, during, and after the accreditation.[19]

A third possible explanation for our findings is that accredited and nonaccredited facilities differ in other unmeasured confounding factors. For example, accredited facilities may have a better payor mix that allows them to pay for the voluntary accreditation service and the resources needed to improve care. Although we adjusted for ownership and size, we did not adjust for payer mix or other state-level factors such as variability in inspection survey methodology and reimbursement rates that may influence performance on the CMS measures.

Conclusion

Nursing homes that were accredited by The Joint Commission had better performance than non–TJC-accredited nursing homes across a broad range of measures in the Nursing Home Compare data set. This suggests that accreditation generates or identifies value exceeding the level of quality that is achieved through reliance on the basic regulatory inspection process used by the vast majority of nursing homes. Additional research is needed to better understand the factors that contribute to these differences in performance between accredited and nonaccredited nursing homes so that future programs to improve quality and safety can use these levers of success.

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