

Impact of Voluntary Accreditation on Deficiency Citations in U.S. Nursing Homes

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Purpose of the Study: This study examines the association between nursing home accreditation and deficiency citations. **Design and Methods:** Data originated from a web-based search of The Joint Commission (TJC) accreditation and On-line Survey Certification of Automated Records from 2002 to 2010. Deficiency citations were divided into 4 categories: resident behavior and facility practices, quality of life, quality of care, and the most severe citations. Data were analyzed through negative binomial regression, where the number of residents at risk for each measure was the exposure level for that measure. **Results:** TJC-accredited nursing homes had fewer deficiency citations in all 4 deficiency categories examined. Comparing citations in the year of accreditation with the first year after accreditation, 3 of the 4 deficiency categories were significant. In comparing deficiency citations after 8 years of accreditation, all 4 categories of deficiencies were significant. In all cases, accreditation was associated with fewer deficiency citations. **Implications:** Our results indicate that TJC-accredited nursing homes improve their quality immediately after accreditation and continue to maintain these improvements over

the long-term. These findings support the need for further discussion and facilitation of voluntary accreditation in nursing homes.

Key Words: Quality, Long-term care, The Joint Commission

In this research, we examine the association between deficiency citations and accreditation by The Joint Commission (TJC) in nursing homes. Quality of care in U.S. nursing homes continues to be a cause for concern. Allegations of poor treatment are regularly exposed through the media, and federal investigations have consistently noted ongoing quality problems (Winzelberg, 2003). In 2007, nearly 18% of nursing homes were cited for serious deficiencies that place residents at risk for severe injury or death (General Accounting Office, 2008). Such shortfalls have been partly attributed to inadequate assessments for potentially dangerous conditions at critical points in resident care (Scott-Cawiezell & Vogelsmeier, 2006).

Voluntary accreditation is the primary mechanism for promoting quality in U.S. hospitals and has been proposed as an additional means of improving quality in nursing homes (Griffin, 1987). TJC is by far the dominant accrediting body of health care organizations in the United States (Griffith, Knutzen, & Alexander, 2002). However, very little is known about nursing homes that are accredited by this body. TJC is a private, not-for-profit organization that accredits health care organizations and programs, including more than 4,000 hospitals, 5,000 home care organizations, and over 1,000 long-term care facilities (TJC, 2011a).

Traditional approaches to improving quality in nursing homes have centered around regulation, inspection, and accountability through public reporting (Werner & Konetzka, 2010). Nursing homes must comply with the requirements of federal regulations in order to receive payment under the Medicare and Medicaid programs. Federal and state surveyors conduct on-site inspections of nursing homes to assess compliance with these standards for quality. Deficiency citations are issued when a facility does not meet a standard for certification and regulatory sanctions can be issued if these citations are severe. Sanctions may include a directed plan of correction, civil money penalties, or suspension of the licence to operate (Kapp, 2003).

Beyond the traditional approaches, accreditation is largely viewed as a means of publicly demonstrating an organizational commitment to quality and accountability (Nicklin & Dickson, 2009). There have been a number of benefits associated with accreditation across different sectors, such as healthcare, education, social service, and public service. Some of these benefits include stimulating continuous quality improvement, improving performance and service quality, promoting capacity building and organizational learning, and facilitating greater uniformity of practice within industries (Mays, 2004; Nicklin & Dickson, 2009). The accreditation process is believed to enhance community confidence and provide a structure for organizing business and care processes (TJC, 2010b). However, accreditation programs have also been criticized for being too bureaucratic and lacking consistency among different assessors (Greenfield & Braithwaite, 2008). Recent reviews examining the broad scale benefits of accreditation remain largely inconclusive (Greenfield & Braithwaite, 2008; Mays, 2004; Nicklin & Dickson, 2009).

In general, there is a need for more research regarding the impacts of accreditation on quality

in nonhospital settings, such as nursing homes. Nursing homes currently seek accreditation on a voluntary basis in addition to government-mandated inspections (Winzelberg, 2003). In 2004, it was estimated that approximately 15.2% of U.S. nursing homes were accredited by independent accreditation organizations (National Center for Health Statistics, 2004). Compared with facilities in the south, those in Northeastern states are more likely to pursue accreditation (National Center for Health Statistics, 2004). Nursing homes accredited by TJC are more likely to be found in urban areas and also tend to be larger. Although they do not appear to have more nursing staff per resident, these TJC-accredited nursing homes tend to have more permanent employees and fewer contract staff (Kern, 2002).

Little is known about how effective accreditation bodies are at improving quality in nursing homes, as there has been very little research on this topic. Two studies by Lau and colleagues noted that TJC-accredited nursing homes had fewer inappropriate medication prescriptions (Lau, Kasper, Potter, & Lyles, 2004; Lau, Kasper, Potter, Lyles, & Bennett, 2005). A 2002 study by LTQ Inc. found that TJC-accredited nursing homes had fewer care-related deficiency citations, fewer life safety code deficiency citations, and fewer deficiency citations involving immediate jeopardy to residents (Kern, 2002; TJC, 2010a). However, this study was cross sectional in nature and thus unable to determine whether the reduced citations were related to a greater likelihood of higher quality facilities having pursued accreditation. Similarly, a more current analysis of accreditation's impact on nursing homes is warranted, as survey methods and standards continue to evolve (Menachemi, Chukmaitov, Brown, Saunders, & Brooks, 2008; Wachter, 2004). The present study seeks to determine whether the likelihood of receiving deficiency citations changes following nursing home TJC accreditation. Separate analyses were undertaken to determine whether any changes in the likelihood of receiving citations are maintained over time.

Methods

Data

Data used in this investigation primarily originated from a web-based search of TJC accreditation in nursing homes and the On-line Survey Certification of Automated Records (OSCAR).

Accreditation status was identified from the web search, and characteristics of the nursing homes, including deficiency citations, came from the OSCAR.

Web Search

A list of nursing homes that are currently TJC accredited was produced through a web search of the TJC quality check website (<http://www.qualitycheck.org/>) in July 2010. Accreditation status during the period of interest (2002–2010) was compiled and coded separately by year. Identifying information for all facilities was checked against a complete list of U.S. nursing homes. All entries that were confirmed to be other types of long-term care facilities (e.g., Veteran's Affairs medical centers, children's convalescent centers) were excluded. A total of 874 TJC-accredited nursing homes were identified.

OSCAR Data

Analysis of deficiency citations through the OSCAR database can serve as an indicator to measure quality of care (as determined by the regulatory authorities). OSCAR is a data source maintained by the Centers for Medicare and Medicaid Services (CMS) in cooperation with state long-term care surveying agencies. It is comprised of data collected by surveyors during the nursing home inspection process and is the most comprehensive source of facility level information on the operations, resident census, and regulatory compliance of nursing homes in the U.S. deficiency citations received during the inspection process can be accessed through the OSCAR. These data include almost all nursing homes in the United States, consisting of about 17,000 facilities. Other studies comprehensively list the data elements and provide extensive detail regarding how and why this information is collected (General Accounting Office, 1999; Kash, Hawes, & Phillips, 2007).

Facility characteristics (i.e., bed size, ownership, chain membership, occupancy, Medicaid occupancy, and number of residents with limitations in activities of daily living [ADLs]) were identified from the OSCAR. These characteristics are considered to be accurate and reliable (Kash et al., 2007). Medicaid reimbursement levels came from primary data collected by the authors. This followed a process previously used by others, and extensive details regarding this methodology are provided by Grabowski, Feng, Intrator, and Mor (2004).

Model Specification

Variables included in the analyses were derived from previous research in this area that has examined nursing home quality. Staffing characteristics are often regarded as highly influential when examining quality (Castle & Ferguson, 2010); thus, several staffing characteristic variables are included. Low staffing levels (i.e., registered nurses [RNs], licensed practical nurses [LPNs], and nurse aides [NAs]) are known predictors of poor quality and deficiency citations in nursing homes (Castle, 2008; Castle & Engberg, 2007; Kim, Kovner, Harrington, Greene, & Mezey, 2009). We use both full-time and part-time staffing levels of these caregivers. The professional staff mix (i.e., ratio of RNs to other caregivers) is examined (Kim et al., 2009). Also, we include contract staff, as some work has shown the use of these staff may influence quality of care (Bourbonniere et al., 2007; Castle, 2008). Similarly, physician extenders (e.g., nurse practitioners and physician assistants) and staffing levels of medical directors and top management are included as potentially influential staffing characteristics when examining nursing home quality (Castle & Ferguson, 2010).

Smaller nursing homes tend to be of better quality as these facilities often place a greater emphasis on quality of communication and specific expectations of staff members (Lucas et al., 2007). For-profit ownership tends to be a predictor of deficiency citations, as these homes can differ from nonprofit facilities with respect to political influences and differing priorities given to efficiency and social equity (Amirkhanyan, Kim, & Lambright, 2008; Castle, 2000).

Medicaid reimbursement rate, Medicaid occupancy, and chain membership are factors that can influence quality in nursing homes through affecting financial resources. State Medicaid reimbursement can greatly influence the resources available to improve quality, as Medicaid accounts for an average of 50% of all nursing home revenues (Grabowski, 2001). The influence of the Medicaid reimbursement rate is compounded by the Medicaid resident occupancy (i.e., number of residents living in the nursing home paid for by the Medicaid program). Thus, the impact of Medicaid reimbursement rates is likely greater in facilities with a higher Medicaid occupancy (Castle, Wagner, Ferguson, & Handler, 2011). It has been proposed that chain members can achieve greater economies of scale by which the purchasing of equipment and supplies may become

less expensive (Castle, 2000). Therefore, there is an expected negative association between chain membership and receipt of deficiency citations. Lastly, greater market competition has been associated with better nursing home quality, as this may exert pressure on homes to practice more competitive strategies, including improving quality (Starkey, Weech-Maldonado, & Mor, 2005).

Based on the potential benefits of accreditation described in the literature and taking all covariates described above into account, we hypothesize that TJC-accredited nursing homes will experience a reduced likelihood of receiving deficiency citations.

The four categories of deficiency citations used as dependent variables are listed and defined in Table 1. Several deficiency citations (often called F-tags) were combined to represent resident behavior and facility practices deficiency citations, quality of life deficiency citations, quality of care deficiency citations, and J, K, L deficiency citations. These groupings were not based on any empirical estimation but follow an approach previously used by the Office of the Inspector General. The resident behavior and facility practices category involves a nursing home's legal responsibility to respect residents' dignity and their right to participate in social, religious, and community activities. The quality of life category includes requirements for facilities to provide medically related social services and a clean, safe, and comfortable environment. The quality of care category spans a broader range of deficiency citations, including requirements for treatments/services to maintain range of motion and prevent pressure sores, urinary tract infections, and significant medical errors. Lastly, the J, K, L deficiency citations category contains deficiencies of the greatest scope and severity that are felt to be either pervasive among residents in the facility and/or represent substantial potential for harm. All deficiency citations are categorized by surveyors into 12 categories of scope and severity labelled "A" through "L," with A having the least severity and scope (CMS, 2011).

Statistical Methods

Descriptive statistics (*Ms* and *SDs*) for the deficiency citations and for the staffing, facility, and market variables (*Ms*, *SDs*, and percents) of interest are presented. To examine the staffing, facility,

and market variables associated with receiving the deficiency citation of interest, multivariate analyses were used. Thus, multicollinearity and collinearity levels among the variables using the variance inflation factor (VIF) test were first measured (SAS Institute, 1999).

Several analyses were used to examine the association of TJC accreditation and deficiency citations. First, the cross-sectional association of TJC accreditation and deficiency citations is examined using the 2010 data. One limitation of this approach is that better nursing homes may become accredited. Thus, in the second analysis, we examine the difference scores in the deficiency citations using information 1 year before accreditation and 1 year postaccreditation. This analysis gives some information on the impact of accreditation. In the third analysis, we examine the difference scores in the deficiency citations using information in the first year of accreditation and 1 year later. This analysis gives some information on the impact of accreditation in the first year. In the fourth analysis, we examine the difference scores in the deficiency citations using information across time (from 2002 to 2010), wherein the scores for each year of accreditation are compared with subsequent scores 1 year later. This analysis gives some information on the impact of accreditation over time.

The deficiency citations of interest are counts of specific negative events per nursing home. For many facilities, these counts were skewed with low or zero values. Negative binomial regression is based on a generalization of the Poisson distribution that can account for the skewed nature of data (i.e., data overdispersion). This allows for more unmeasured heterogeneity among the observations in the sample, which can be manifested when several observations have low or zero events (Gardner, Mulvey, & Shaw, 1995).

Given that larger nursing homes have more residents for whom the negative outcomes could occur, the negative binomial regression used the number of residents at risk for each measure as the exposure level for that measure. The coefficients are reported in incident-rate ratio form. An incident-rate ratio is similar to an odds ratio; that is, estimates greater than one represent a positive association between the explanatory variable and the outcome. In our case, high values of the deficiency citations are indicators of poor quality, and thus, coefficients less than one are representative of better quality. The deficiency citations J, K, and L

Table 1. Descriptive Characteristics of Nursing Homes and Markets

Variable	Definition	TJC nursing home sample (N = 874)		All nursing homes in 2010 OSCAR (N = 15,393)	
		M or %	SD	M or %	SD
Deficiency citations ^a					
Resident behavior and facility practices deficiency citations	Deficiency citations representing the sum of 9 different deficiency citations (F-tags are 240, 241, 242, 243, 244, 245, 246, 247, 248) ^b	16.2% ^c	—	26.9%	—
Quality of life deficiency citations	Deficiency citations representing the sum of 10 different deficiency citations (F-tags are: 249, 250, 251, 252, 253, 254, 255, 256, 257, 258) ^b	11.4% ^c	—	29.3%	—
Quality of care deficiency citations	Deficiency citations representing the sum of 25 different deficiency citations (F-tags are 309 through 353) ^b	42.3% ^c	—	68.1%	—
J, K, or L deficiency citations	Any deficiency citation at J, K, or L level ^b	1.1% ^c	—	2.5%	—
Facility characteristics ^a					
Organizational size	Number of beds	131 ^c	82	115	63
Ownership	For-profit	65% ^c	—	72%	—
Chain membership	Member of a nursing home chain	54%	—	56%	—
Occupancy	Average daily occupancy rate	89% ^c	11	84%	10
Medicaid occupancy	Average daily percent of Medicaid residents	59% ^c	21	65%	20
Resident case-mix	The average score for three ADLs (eating, toileting, and transferring). Constructed by giving a score of 1 for low assistance, 2 for moderate assistance, and 3 for high need for assistance summed for each ADL.	1.8	0.9	1.9	0.9
RN full-time staff	FTE RNs per 100 residents (including only full-time workers, excluding part-time and contract staff)	7.8 ^c	9.3	4.6	5.3
RN part-time staff	FTE RNs per 100 residents (including only full-time workers, excluding part-time and contract staff)	1.7 ^c	2.3	2.3	2.6
RN contract staff	FTE contract RNs per 100 residents	1.3 ^c	2.9	3.7	2.6
LPN full-time staff	FTE LPNs per 100 residents (including only full-time workers, excluding part-time and contract staff)	7.9 ^c	2.3	5.0	3.9
LPN part-time staff	FTE LPNs per 100 residents (including part-time workers, excluding full-time and contract staff)	3.6 ^c	4.3	2.1	3.1
LPN contract staff	FTE contract LPNs per 100 residents	3.0 ^c	3.9	5.9	2.4
NA full-time staff	FTE NAs per 100 residents (including only full-time workers, excluding part-time and contract staff)	24.3 ^c	7.7	16.1	7.2
NA part-time staff	FTE NAs per 100 residents (including part-time workers, excluding full-time and contract staff)	6.5 ^c	6.2	9.5	8.1
NA contract staff	FTE contract NAs per 100 residents	4.5 ^c	3.6	5.1	3.1
Professional staff mix	Ratio of RNs to NAs plus LPNs (i.e., RN/(NA + LPNs))	0.25	0.5	0.23	0.4
Top management staffing	FTE top management (including nursing home administrator and director of nursing) per 100 residents	7.1 ^c	6.7	5.2	8.8
Medical director staffing	FTE medical directors per 100 residents	5.0 ^c	2.3	3.1	4.2
Physician extender staffing	FTE physician extenders per 100 residents	6.4 ^c	3.5	3.0	2.5
Market characteristics:					
Competition ^a	Herfindahl index. The sum of each facility's squared percentage share of beds in the county for all facilities in the county (0–1). Higher values indicate a less competitive market.	0.23	0.3	0.21	0.2
Medicaid reimbursement ^d	The average reimbursement rate for Medicaid residents in the state (\$).	122.7	23.6	133.6	27.5

Notes: Figures from 2010 are shown. ADL = activities of daily living; FTE = full time-equivalent; LPN = licensed practical nurse; NA = nurse aide; OSCAR = Online Survey Certification and Reporting; RN = registered nurse.

^aVariables were taken from OSCAR data.

^bWithin-state rankings (percentiles) used for analyses. Variation in the use of nursing home deficiency citations is known to occur from state to state. Using the percentile distribution of deficiency citations within each state gives a more consistent comparison of deficiency citations across states.

^cStatistically significant at $p = .05$ level or better.

^dVariables were from primary data collection.

occurred infrequently; therefore, a binary variable was created for these, and analyses were conducted using multivariate logistic regression.

The potential for correlation of outcomes within markets exists with the data structure, which can bias the *SEs* of the estimates. Thus, the Huber–White sandwich estimator, clustered by market (i.e., the county), was used for all the multivariate analyses (Zeger & Liang, 1992).

Results

The sample consisted of 874 TJC-accredited nursing homes compared with 15,393 nonaccredited nursing homes. Accredited facilities did significantly differ ($p \leq .05$) from national averages for facility characteristics reported in OSCAR data. Most notably, TJC-accredited nursing homes had fewer deficiency citations in all four categories examined (i.e., resident behavior and facility practices deficiency citations, quality of life deficiency citations, quality of care deficiency citations, and J, K, or L deficiency citations). This is shown in Table 1.

Based on the commonly used threshold value of 0.8, the variables showed no problems of collinearity and no VIF score exceeded 2.5. Thus, all of the variables were used in the multivariate analyses. In the multivariate analyses, shown in Table 2, resident behavior and facility practices deficiency citations, quality of life deficiency citations, quality of care deficiency citations, and J, K, or L deficiency citations were examined.

In the cross-sectional analyses, all of the deficiency citations were negatively associated with TJC accreditation status. In all cases, TJC-accredited nursing homes were associated with fewer deficiency citations. For example, TJC-accredited nursing homes were associated with fewer quality of care deficiency citations (adjusted odds ratio [AOR] = 0.97; $p \leq .05$). Thus, it would appear that better quality nursing homes (with respect to deficiency citations) become TJC accredited (see Table 2).

Comparing deficiency citations 1 year prior to TJC accreditation with the year of accreditation, two of the four categories of deficiency citations were significant. In these two cases, TJC-accredited nursing homes were associated with fewer deficiency citations. For example, TJC-accredited nursing homes were associated with fewer quality of care deficiency citations postaccreditation as compared with preaccreditation (AOR = 0.89; $p \leq .05$). Thus, it would appear that TJC-accredited nursing

Table 2. Multivariate Results Comparing Nursing Homes Receiving Deficiency Citations

	Resident behavior and facility practices deficiency citations (incident-rate ratios [95% CI]) ^a	Quality of life deficiency citations (incident-rate ratios [95% CI]) ^a	Quality of care deficiency citations (incident-rate ratios [95% CI]) ^a	J, K, or L deficiency citations (AOR [95% CI]) ^b
TJC accreditation (cross-sectional) ^c	0.81*** (0.75–0.94)	0.86** (0.81–0.99)	0.97* (0.88–0.98)	0.89*** (0.81–0.98)
TJC accreditation (comparing 1 year prior to accreditation and year of accreditation) ^d	0.89 (0.78–1.02)	0.94 (0.91–1.08)	0.89* (0.76–0.98)	0.90** (0.88–0.98)
TJC accreditation (comparing year of accreditation with first year after) ^d	0.88** (0.82–0.93)	0.94 (0.85–1.01)	0.83** (0.79–0.95)	0.82** (0.80–0.96)
TJC accreditation (comparing deficiency citations over time) ^d	0.95** (0.91–0.98)	0.92* (0.79–1.00)	0.92*** (0.86–0.94)	0.84*** (0.81–0.97)

Notes: Models include as controls: RN staffing (full-time, part time, and contract), LPN staffing (full-time, part time, and contract), NA staffing (full-time, part time, and contract), staff mix, top management staffing, medical director staffing, physician extender staffing, organizational size, ownership, chain membership, occupancy, Medicaid occupancy, resident case-mix, competition, Medicaid reimbursement (listed in Table 1). ADL = activities of daily living; AOR = adjusted odds ratio; CI = confidence interval; FTE = full-time equivalent; LPNs = licensed practical nurses; RNs = registered nurses; TJC = The Joint Commission.

^aNegative binomial regression was used for these analyses, the incident-rate ratios are interpreted similar to odds ratios (OR; in these cases, values less than one represent better quality).
^bMultivariate logistic regression was used for these analyses. Results for all analyses are reported using the Huber–White sandwich estimator. Robust *SEs*, clustered by county, are given in parentheses.

^cAnalyses use 2010 data and compare 874 TJC-accredited nursing homes with 15,393 nonaccredited nursing homes.

^dAnalyses use $N = 874$ TJC-accredited nursing homes.

*Statistically significant at $p = .05$ level or better. **Statistically significant at $p = .01$ level or better. ***Statistically significant at $p = .001$ level or better.

homes improve their quality immediately after accreditation (see Table 2).

Comparing deficiency citations in the year of TJC accreditation with the first year after accreditation, three of the four categories of deficiency citations were significant. In these three cases, TJC-accredited nursing homes were associated with fewer deficiency citations. For example, TJC-accredited nursing homes were associated with fewer quality of care deficiency citations in the year of TJC accreditation compared with the first year after accreditation ($AOR = 0.89$; $p \leq .05$). Thus, it would appear that TJC-accredited nursing homes continue to improve their quality during the first year of full accreditation.

Comparing deficiency citations over time after TJC accreditation, all four categories of deficiency citations were significant. In all cases, TJC-accredited nursing homes were associated with fewer deficiency citations. For example, TJC-accredited nursing homes were associated with fewer quality of care deficiency citations the longer they are accredited ($AOR = 0.92$; $p \leq .001$). Thus, it would appear that TJC-accredited nursing homes continue to improve their quality the longer they are accredited (see Table 2).

Discussion

Our findings demonstrate that better quality nursing homes participate in voluntary TJC accreditation, improve their quality immediately after accreditation, and continue to maintain these improvements (as measured by receiving deficiency citations) the longer they are accredited. This is the first published study, to our knowledge, to examine the long-term impacts of voluntary accreditation on nursing home care. Our results are somewhat consistent with some of the hospital accreditation literature; although we note that findings in this area vary in that the impact of hospital accreditation appears to vary depending on the quality measures studied (Chen, Rathore, Radford, & Krumholz, 2003; Landon et al., 2006; Lutfiyya, Sikka, Mehta, & Lipsky, 2009; Miller et al., 2005).

The ability of TJC-accredited nursing homes to sustain improvements in quality over the long-term may relate to TJC's emphasis on continuous performance improvement as a core function of their accreditation program. Through accreditation, nursing homes are encouraged to compare their present performance to past performance

and seek out potential means of improving their systems and processes (TJC, 2010b). Indeed, it has been suggested that the process of preparing for accreditation and sustaining the level of standards compliance required for accreditation can create a quality-oriented culture within a facility (Kern, 2002).

The ability of accredited nursing homes to reduce their risk of receiving deficiency citations in a broad range of different areas may be attributable to TJC's requirement for care management systems to be interdisciplinary in nature. Nursing homes are required to develop defined and comprehensive resident assessment processes including physical, functional, psychosocial, and nutritional domains. TJC accreditation standards cover requirements in diverse areas, such as respect for a resident's personal values, encouragement of resident and family participation in care decisions, and development of organizational policies surrounding ethical issues, such as decisions to provide or withhold nutrition or hydration (Robinson, 1996).

Our findings with respect to differences in operational characteristics between accredited and nonaccredited nursing homes are consistent with previous literature. Similar to our results, previous studies in both hospital and nursing home settings have found that accredited facilities tend to be larger (Kern, 2002; Ross et al., 2008). It is possible that larger facilities may be more financially capable of pursuing accreditation as they are able to achieve some economies of scale in caring for residents (Harrington, Swan, & Carrillo, 2007). Similarly, our findings that accredited nursing homes tend to have lower Medicaid resident occupancy but higher overall occupancy rates suggest that accredited facilities have a more financially favorable mix of residents. It has been speculated that Medicaid reimbursement rates in some states may be below the costs of providing care, and private-pay residents provide a more lucrative source of revenue (Grabowski, 2001; Grabowski et al., 2004). The fees associated with a 3-year TJC accreditation range from \$6,100–\$9,700 for a nursing home with an average daily census of 100 (TJC, 2011d). Higher revenues from greater private-pay occupancy may increase the amount of financial resources available to devote to accreditation.

Our results indicate that TJC-accredited nursing homes are less likely to be for-profit facilities than their nonaccredited counterparts. This is consistent with the organizational literature in that for-profit facilities are believed to be more motivated

to cut costs than to implement quality improvement innovations (Amirkhanyan et al., 2008; Eggleston & Zeckhauser, 2002). In contrast, not-for-profit and public facilities are thought to prioritize personal aspects of care and reinvest revenues back into their facilities (Amirkhanyan et al., 2008; Harrington, Zimmerman, Karon, Robinson, & Beutel, 2000), which may include pursuit of accreditation.

Lastly, we found no difference in the overall nurse staffing levels between TJC-accredited and nonaccredited facilities, consistent with a previous study of accredited nursing homes (Kern, 2002). This indicates that the observed quality differences between TJC-accredited and nonaccredited nursing homes are not mediated by higher nurse staffing levels. However, it may be influenced by the staffing arrangements used. TJC-accredited nursing homes, in general, had higher levels of full-time staff and lower levels of contract staff compared with nonaccredited facilities. Although aggregate nurse staffing levels may not be higher in TJC-accredited nursing homes, we speculate that the use of more full-time staff may play an important role for nurses and nurse managers in the accreditation process. Pressure ulcers and falls are two nursing sensitive care measures that have been included in the 2011 Joint Commission Patient Safety Goals (TJC, 2010d, 2011c).

One recent Canadian study found that nurse managers and directors of quality departments were most directly involved with the accreditation process, whereas physician participation was characterized as either weak or nonexistent (Pomey et al., 2010). We identified higher staffing levels in TJC-accredited nursing homes of medical directors, physician extenders, and top management compared with nonaccredited facilities. This may be one indication of the importance of these staff in TJC accreditation.

These findings regarding weak physician involvement are potentially concerning. Physician involvement was not examined in our study but may have implications for accreditation if similar findings exist in the United States. Physician leadership and involvement are critically important to the success of patient safety improvement and the accreditation process (TJC, 2011e). In 2005, TJC developed the Physician Engagement Advisory Group to expand physician participation in accreditation, quality of care, and patient safety initiatives (TJC, 2011b). TJC (2011e) has recently made enhancing physician engagement through this advisory body one of its top strategic priorities.

As nursing homes are providers of both social and medical care, involvement of nonmedical staff, such as social workers and nutritionists, in the accreditation process is also important. Indeed, measuring outcomes should not be limited to a single factor or dimension, as outcomes in older adults are frequently affected by the complex multidimensionality of their physical, psychological, and social challenges (Berkman, 2011). Social/living quality improvement interventions in the nursing home have recently involved the development of innovative nursing home environments that emphasize resident choice and are structurally arranged to seem more “home-like.” These process changes have demonstrated improvements in resident quality of life measures (Molony, Evans, Jeon, Rabig & Straka, 2011).

Suggestions for Further Research

The greatest barrier to widespread adoption of accreditation in U.S. nursing homes may be a lack of financial resources or incentives. The U.S. nursing home industry is known to be financially stretched, thus many homes may experience difficulties absorbing the costs associated with accreditation (Galloro, 2000). However, other jurisdictions have been able to stimulate nursing home accreditation through provision of financial incentives. In Canada, for example, the Ontario Ministry of Health and Long-Term Care (the government’s monitoring body for inspections) provides nursing homes that are voluntarily accredited beyond the traditional inspection financial support (Ontario Ministry of Health, 2011). Indeed, environmental factors such as culture, incentives, and regulations have been found to greatly affect the success or failure of accreditation programs (Al Tehewy, Salem, Habil, & El Okda, 2009). It has also been suggested that the costs associated with accreditation may pay for themselves in the form of decreased liability costs and increased marketing effects (Nicklin & Dickson, 2009). Further research regarding the impacts of such incentives on encouraging nursing homes to pursue voluntarily accreditation is needed.

If TJC accreditation proves unaffordable for most nursing homes, other less costly options could be made available. Further research on alternative approaches to voluntary accreditation that are less resource and financially intensive than TJC is needed. Such emerging examples could include the American Nurses Credentialing Center Pathway to Excellence Program (American Nurses

Credentialing Center, 2011), Advancing Excellence in Nursing Homes Campaign (2011), and Nurses Improving Care of Health System Elders (NYU College of Nursing, 2011). Alternatively, one recent study demonstrated that engaging nursing home residents to take part in improvement initiatives generates creative resident-led reforms (Shura, Siders, & Dannefer, 2011).

Limitations

Despite our strong findings, there are a few limitations to this study worth mentioning. First, nursing homes could be engaged in other recent initiatives that we did not include as part of our model building strategy, such as participation in a culture change initiative (Pioneer Network, 2011), which could have affected the findings.

In addition, we were only able to include a limited number of control variables in our analysis—there may have been other variables affecting deficiency citations that we were unable to control for. For example, staffing levels appeared influential in our analyses; but, given the data available, other important staffing characteristics (such as turnover) could not be examined.

Conclusion

Examining the impact of accreditation is important, as many resources are expended in preparation for surveys. The benefits associated with the accreditation process must be empirically determined to enable government policy makers and nursing home administrators to make informed decisions. Furthermore, such analyses can inform accrediting bodies and facilitate their refinement of standards and survey techniques. Different approaches, beyond traditional regulation and inspection are needed. Although not a new approach, voluntary accreditation has so far received limited attention in the United States as a way to improve nursing home quality. This study provides evidence that further discussion is needed on how best to support nursing homes in the voluntary accreditation process.

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