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Infection Control Measure Performance in Long-Term Care Hospitals and Their Relationship to Joint Commission Accreditation

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Background: This study evaluated the relationship between Joint Commission accreditation and health care–associated infections (HAIs) in long-term care hospitals (LTCHs).

Methods: This observational study used Centers for Medicare & Medicaid Services (CMS) LTCH data for the period 2017 to June 2021. The standardized infection ratio (SIR) of three measures used by the Centers for Disease Control and Prevention's National Healthcare Safety Network were used as dependent variables in a random coefficient Poisson regression model (adjusting for CMS region, owner type, and bed size quartile): catheter-associated urinary tract infections (CAUTIs), *Clostridioides difficile* infections (CDIs), and central line–associated bloodstream infections (CLABSIs) for the periods 2017 to 2019 and July 1, 2020, to June 30, 2021. Data from January 1 to June 30, 2020, were excluded due to the COVID-19 pandemic.

Results: The data set included 244 (73.3%) Joint Commission–accredited and 89 (26.7%) non–Joint Commission–accredited LTCHs. Compared to non–Joint Commission–accredited LTCHs, accredited LTCHs had significantly better (lower) SIRs for CLABSI and CAUTI measures, although no differences were observed for CDI SIRs. There were no significant differences in year trends for any of the HAI measures. For each year of the study period, a greater proportion of Joint Commission–accredited LTCHs performed significantly better than the national benchmark for all three measures ($p = 0.04$ for CAUTI, $p = 0.02$ for CDI, $p = 0.01$ for CLABSI).

Conclusion: Although this study was not designed to establish causality, positive associations were observed between Joint Commission accreditation and CLABSI and CAUTI measures, and Joint Commission–accredited LTCHs attained more consistent high performance over the four-year study period for all three measures. Influencing factors may include the focus of Joint Commission standards on infection control and prevention (ICP), including the hierarchical approach to selecting ICP–related standards as inputs into LTCH policy.

Long–term care hospitals (LTCHs) are certified under Medicare regulations as acute care hospitals with an average patient length of stay of 25 or more days. Patients admitted to LTCHs are often transferred from an ICU or critical care unit and have multiple comorbidities and complex care needs.[1] With the extended length of stay, patients in the LTCH setting are subject to prolonged exposure to drug-resistant pathogens and opportunity for transmission and have been shown to have high rates of health care–associated infections (HAIs), including catheter-associated urinary tract infections (CAUTIs), *Clostridioides difficile* infections (CDIs), and central line–associated bloodstream infections (CLABSIs).[2–5] Factors influencing the rate of preventable HAIs include the patient population, standards of care, standardized policies, adherence to prevention precautions, and utilization of evidence-based practices.[6–9]

The Centers for Medicare & Medicaid Services (CMS) established the LTCH Quality Reporting Program (QRP) in 2010, under the Affordable Care Act, with the aim of driving quality improvement through measurement and transparency.[10] Data for the LTCH QRP quality measures (QMs) are collected from three data sources: LTCH Continuity Assessment Record and Evaluation Data Set (LTCH CARE Data Set), the Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN), and Medicare fee-for service claims.[10] NHSN is an HAI repository that provides data to assist health care organizations identify problem areas, measure progress of prevention efforts, and ultimately prevent HAIs.[11] The standardized infection ratio (SIR) is a summary measure used by NHSN for HAI tracking at the national, state, or local level.[12] The SIR allows for comparison to the national benchmark, which CDC established using aggregate data and risk adjustment methodology.[2] Most recently, CDC compared each state's 2022 SIR against three benchmarks to assess progress in HAI prevention: the current 2022 national SIR, the state's SIR from 2021, and the 2015 national baseline. CDC asserts that, together, these three benchmarks provide a thorough assessment of each state's progress in HAI prevention. The technical explanation for

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how states are compared to the rest of the nation is provided elsewhere.[2] For public transparency, QMs are posted on the CMS Care Compare website.[10]

The Joint Commission is an independent, not-for-profit organization that accredits and certifies more than 22,000 health care organizations in the United States, including LTCHs. Accreditation standards focus on important patient and organization systems and processes that support the provision of safe, high-quality care, and many components of the survey process use data derived from QMs to evaluate these systems and processes. To the best of our knowledge, no studies have been conducted on the impact of Joint Commission accreditation on infection control measure performance in LTCHs. This study examined LTCH measure SIRs and year trends associated with Joint Commission accreditation status.

METHODS

Population

Data for the analysis were obtained from two sources. We downloaded four data sets from the CMS LTCH data archive in August 2022 containing LTCH infection rate data for 2017 through June 2021. The last data set included the July 1, 2020, to June 30, 2021, data. Due to the pandemic, CMS allowed voluntary reporting and submission of NHSN HAI measure data through its Extraordinary Circumstances Exceptions Policy; therefore, data from January 1 to June 30, 2020, were excluded.[13] These files included the data used for the dependent variables in the analysis as well as the ownership type, bed size, and CMS region data, which were used as independent variables. Accreditation status at any time from 2017 to 2021 was determined by matching an organization's accreditation history records in The Joint Commission's database using the CMS Certification Number (CCN).

Out of 404 LTCHs submitting data for at least one of the years, 333 had data spanning all four years (82.4%) for at least one of the dependent variables. A total of 244 accredited LTCHs were successfully matched to the four-year LTCH data set. The final data set used in the analysis included 244 (73.3%) Joint Commission–accredited organizations and 89 (26.7%) non–Joint Commission–accredited organizations.

Measures

Three HAI measures (CAUTI, CDI, and CLABSI) for the four annual reporting periods (2017 to 2019 and July 1, 2020, to June 30, 2021) were used as the dependent variables in the analysis. These three measures are each expressed as an SIR, which compares the actual number of HAIs reported to the number that would be predicted, given a standard population (that is, NHSN baseline), adjusting for the risk factors that have been found to be significantly associated with differences in infection incidence. NHSN uses the SIRs to track HAIs.[12] An SIR greater than 1.0 indicates that there were more HAIs observed than would have been predicted for a standard population with the same risk factor incidence as that observed in the facility; conversely, an SIR less than 1.0 indicates that fewer HAIs were observed than predicted.

Statistical Analysis

The main goal of the analysis was to evaluate the impact of Joint Commission accreditation on measure SIRs and year trends after adjusting for other independent variables that are associated with accreditation status. The accreditation differences in SIRs across the four annual reporting periods of the study were examined in a series of random coefficient Poisson regression models to capture the within- and between-LTCH variation in average rates over time and year trends (slopes), after adjusting for the other three covariates in the model. The modeling of random effects parameters assumes that each LTCH has an individual intercept and year slope that deviates from the overall mean and year slope by a random amount, which is normally distributed with mean zero and a variance for the intercept and slope. Three independent variables that were significantly different between Joint Commission–accredited and non–Joint Commission–accredited organizations (bed size, CMS region, and ownership) were included in the analysis, as well as Joint Commission accreditation status and year, as fixed effects. Bed size was evenly divided into quartiles, and the quartile was used in the analysis (quartile [Q]1 < 35, Q2 35–48, Q3 49–69, Q4 > 69). The CMS region variable has 10 categories corresponding to the 10 CMS regions. The LTCH ownership type variable has three categories: for-profit, government, and not-for-profit. The models also included a term for the interaction between accreditation status and year to determine if the year trends are similar for Joint Commission–accredited and non–Joint Commission–accredited facilities. This analysis method weights the data by the predicted number of outcomes and adjusts the predicted values of LTCHs with smaller denominator sizes and extreme measure values to be relatively closer to the overall mean, resulting in more stable predicted values. The random part of the model, which includes three random effects terms (random intercept, random slope, and level-1 overdispersion), is meant to capture the sources of variation in the data. The random intercept captures the interhospital variation in rates, while the random slope captures the interhospital variation in the linear time trends. The overdispersion captures the intrahospital variation in rates over time. The log of the predicted number of infections (the number of infections predicted from the NHSN risk model, contained within the data) is included in the Poisson regression models as an offset.

The significance of the fixed effects was evaluated using F-tests, while the significance of random effects was evaluated via likelihood ratio tests. For each measure model, least

squares mean estimates were used to compare the SIRs by Joint Commission accreditation status after adjusting for the other independent variables included in the model.

The CMS data for the three HAI measures also included a categorical designation indicating that the LTCH was worse than, no different than, or better than the national benchmark as determined from the 95% confidence interval around the risk-adjusted rate. To complement the analysis of the SIRs, two logistic regression models (one using presence in the worse category and one using presence in the better category as the dependent variable) were fit to the data using random effects logistic regression models, with LTCH as the random effect and bed size quartile, CMS region, ownership type, accreditation status, year, and accreditation status by year interaction as the independent variables. The significance of the fixed effects was evaluated using F-tests, while the significance of random effects was evaluated via a likelihood ratio test.

To study the consistency of outstanding performance by Joint Commission–accredited and non–Joint Commission–accredited LTCHs, it was of interest to analyze the number of years over the study period that an LTCH was identified as significantly better than the national standard. For this analysis, a weighted least squares repeated measure categorical data analysis was undertaken to compare the percentage of accredited and nonaccredited facilities that were significantly better than the national benchmark for the three measures, comparing the rates between accredited and nonaccredited facilities.[14] Statistical significance was determined at the 0.05 level. All hospitals in our sample report HAI data to NHSN. Regardless of accreditation status, NHSN has specific reporting protocols, definitions, and criteria for infection surveillance to ensure the reliability and comparability of data on a national level and to minimize the risk of deviations in HAI reporting.[12]

RESULTS

Joint Commission–accredited LTCHs were more likely to be for-profit, located in the Chicago CMS region (19.7% for Joint Commission–accredited vs. 1.1% for non–Joint Commission–accredited LTCHs), while non–Joint Commission–accredited LTCHs were more likely to be located in the Dallas region (23.0% for Joint Commission–accredited vs. 41.6% for non–Joint Commission–accredited LTCHs) ($p < 0.01$ for ownership; $p < 0.01$ for CMS region). Joint Commission–accredited facilities had a larger number of beds ($p = 0.11$ for bed size quartile) compared to non–Joint Commission–accredited facilities (Table 1).

The descriptive statistics for the three HAI measures are given in Table 2. The HAI measures show considerable interhospital variation. The results of the statistical tests for the fixed and random effects in the measure models are shown in Table 3, and the fitted SIRs by Joint Commission accreditation status and year in Figure 1. Joint Commission–accredited hospitals had significantly better (lower) SIRs for the CLABSI and CAUTI measures, but CDI SIRs were not significantly different after adjusting for CMS region, owner type, and bed size quartile. Of the three independent variables, Owner type had significant differences in SIRs for CDI, but not for the other two HAIs. CMS region had significant SIR difference for CDI and CAUTI, but not for CLABSI. Bed size quartile did not show any difference in SIRs for any of the three HAIs. All three HAIs had a significant overall negative year linear trend, indicating a decrease in CDI SIRs over time. There were no significant differences in year trends by accreditation status interaction for any of the HAI measures. The statistical tests of the random effects included in the model indicated significant interhospital variability in SIRs for all three measures, and significant interfacility variation in measure year linear trends.

The results of the statistical tests for the fixed effects in the analysis of the percentage of LTCHs in the better and worse categories for the HAI measures, based on the confidence intervals of the hospital risk-adjusted rates, is given in Table 4. The observed rates of the Joint Commission–accredited and non–Joint Commission–accredited groups that were significantly better than and significantly worse than the national benchmark are shown in Figure 2 for each of the four years of the study. After adjusting for CMS region, owner type, and bed size quartile, the percentage of Joint Commission–accredited LTCHs in the better category was significantly greater than that of non–Joint Commission–Accredited LTCHs for the CLABSI measure ($p < 0.01$) and were not significantly different for CAUTI and CDI. All three HAIs had significant increasing year trends in the better category, but CLABSI showed no significant differences over time. For the percentage of LTCHs in the worse category, Joint Commission–accredited LTCHs had significantly lower rates for CAUTI and CLABSI ($p < 0.01$ for CLABSI and $p = 0.05$ for CAUTI) and were not significantly different for CDI. The year trend for the percentage of LTCHs in the worse category was significantly decreasing for CDI and CAUTI, but flat for CLABSI.

The proportion of Joint Commission–accredited and non–Joint Commission–accredited LTCHs that were significantly better than the national benchmark for 0, 1, 2, 3, and 4 years is given in Table 5 for the three measures, along with the chi-squared p value for the comparison of accredited and nonaccredited LTCH proportions at each number of years. The plot of these values, + one standard error [SE] is given in Figure 3. The rates for 0, 1, 2, and 3 years with significantly better performance than the national benchmark is similar by accreditation status, except for 0 years for the CLABSI measure, where non–Joint Commission–accredited LTCHs had a significantly higher proportion of facilities whose rates were not significantly better than the national benchmark for any of the

Table 1. Accreditation Status by Ownership Type, Bed Size Quartile, and CMS Region

	Joint Commission–Accredited		Non–Joint Commission–Accredited		Chi-Square *p* Value
	n	%	*n*	%	
Ownership					
For-profit	178	73.0	49	55.1	< 0.01
Government	11	4.5	4	4.5	
Not-for-profit	55	22.5	36	40.4	
Bed Size Quantile					
4–34 beds	57	23.4	29	32.6	0.11
35–48 beds	57	23.4	26	29.2	
49–69 beds	64	26.2	16	18.0	
70–760 beds	66	27.0	18	20.2	
CMS Region					
Boston	10	4.1	3	3.4	< 0.01
New York	6	2.5	3	3.4	
Philadelphia	17	7.0	9	10.1	
Atlanta	58	23.8	20	22.5	
Chicago	48	19.7	1	1.1	
Dallas	56	23.0	37	41.6	
Kansas City	10	4.1	7	7.9	
Denver	11	4.5	2	2.2	
San Francisco	23	9.4	7	7.9	
Seattle	5	2.0	0	0	

CMS, Centers for Medicare & Medicaid Services.

Table 2. Measure Descriptive Statistics

Measure (Standardized Infection Ratio)	Percentile						
	5th	25th	50th	75th	95th	Mean	SD
Catheter-associated urinary tract infections	0	0.35	0.74	1.30	2.45	0.92	0.81
Clostridioides difficile infections	0	0.27	0.53	0.83	1.43	0.60	0.47
Central line–associated bloodstream infections	0	0.28	0.66	1.21	2.47	0.86	0.84

SD, standard deviation.

Table 3. Tests of Fixed and Random Effects for Measure Models

	CAUTI		CDI		CLABSI	
	F Stat	*p* Value	F Stat	*p* Value	F Stat	*p* Value
Fixed Effects						
Joint Commission Accreditation	5.5	0.02	0.0	0.98	12.0	< 0.01
Year	4.8	< 0.01	54.3	< 0.01	7.6	< 0.01
Year Joint Commission Accreditation	0.8	0.49	0.9	0.42	0.8	0.49
Owner Type	1.3	0.26	1.0	0.39	1.6	0.19
Bed Size Quartile	2.6	< 0.01	3.3	< 0.01	0.9	0.56
CMS Region	2.9	0.06	12.1	< 0.01	1.6	0.20
Random Effects	**Chi-Square**	***p* Value**	**Chi-Square**	***p* Value**	**Chi-Square**	***p* Value**
Intercept	212.3	< 0.01	163.9	< 0.01	136.5	< 0.01
Slope	31.5	< 0.01	12.5	< 0.01	32.2	< 0.01
Overdispersion	91.6	< 0.01	151.2	< 0.01	151.9	< 0.01

CAUTI, catheter-associated urinary tract infection; CDI, *Clostridioides difficile* infection; CLABSI, central line–associated bloodstream infection; CMS, Centers for Medicare & Medicaid Services.

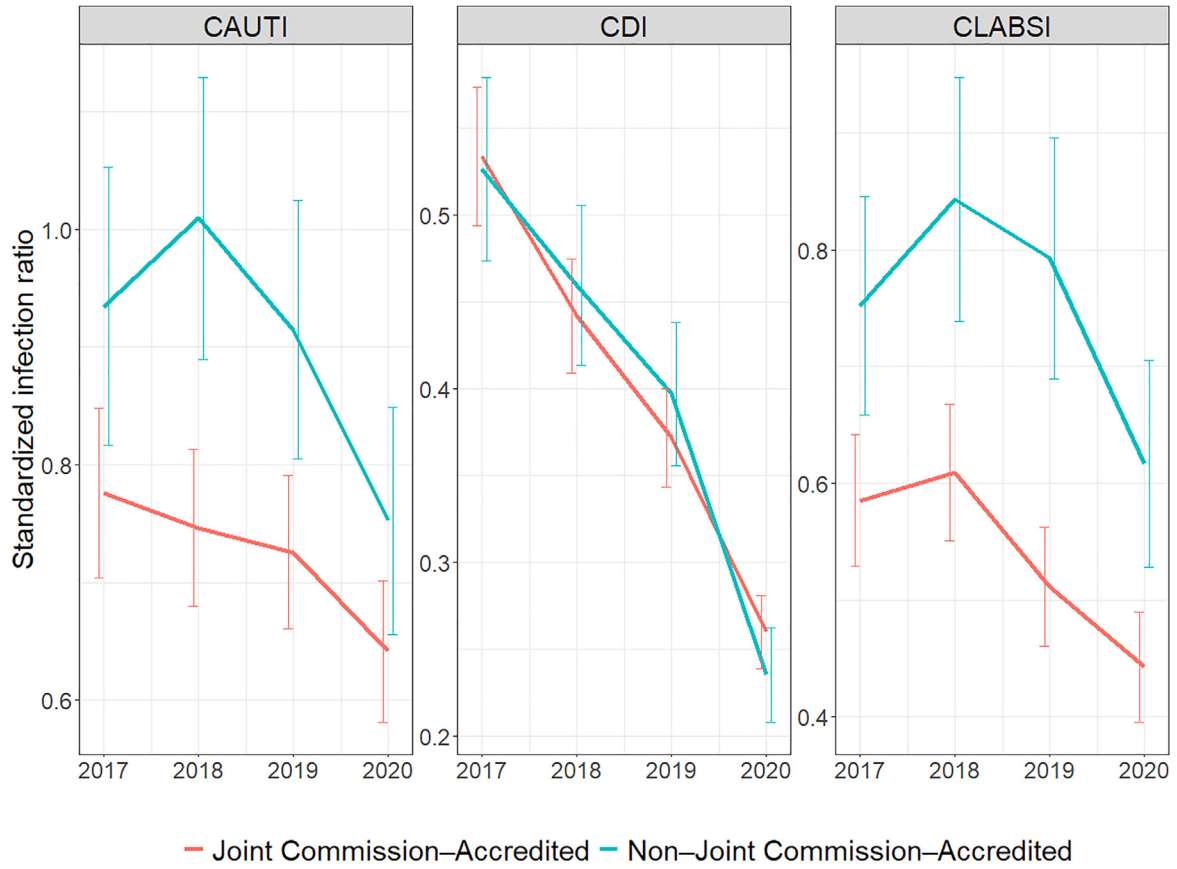


Figure 1: These graphs show fitted measure trends—least squares means by Joint Commission accreditation status for the long-term care hospital health care–associated infection measures. SIR, standardized infection ratio; CAUTI, catheter-associated urinary tract infection; CDI, *Clostridioides difficile* infection; CLABSI, central line—associated bloodstream infection.

four years of the study ($p = 0.03$). However, the proportion of facilities that were significantly better than the national benchmark for each of the four years of the study was significantly greater for Joint Commission–accredited LTCHs compared to non–Joint Commission–accredited LTCHs for each of the three measures ($p = 0.04$ for CAUTI, $p = 0.02$ for CDI, $p = 0.01$ for CLABSI), indicating that a greater proportion of Joint Commission–accredited LTCHs attained consistent performance throughout the study.

DISCUSSION

This study examined the association of Joint Commission accreditation status on SIRs and year trends. Compared to non–Joint Commission–accredited LTCHs, Joint Commission–accredited LTCHs had significantly better (lower) SIRs for the CLABSI and CAUTI measures, but CDI SIRs were not significantly different after adjusting for CMS region, owner type, and bed size quartile. There were no significant differences in year trends by accreditation status interaction for any of the HAI measures. For each of the four years of the study there was a greater proportion of Joint Commission–accredited LTCHs that performed significantly better than the national benchmark for each of the three measures, indicating that a greater proportion of Joint Commission–accredited LTCHs attained consistent performance over the four-year study period.

All LTCHs, regardless of accreditation status, experienced a decrease in HAI rates in 2020. This finding is perplexing given that the COVID-19 pandemic was declared a national public health emergency in January 2020.[15] It is possible that LTCHs bolstered their routine infection control and prevention (ICP) protocols and practices and increased infection prevention (IP) oversight given the heightened attention on COVID-19. This may also have been a period in which pandemic-related factors such as utilization of travel nurses, increased patient caseloads, limited access to personal protective equipment, and less IP oversight had not yet reached a critical state. Although the SIR risk model was modified in 2017 for CAUTI and 2018 for CDI, this would not explain why the percentage better than the national benchmark increased in 2020 alone.

Joint Commission standards require leaders to allocate resources needed for the development of an ICP program; establish an ICP plan based on the organization's geographic

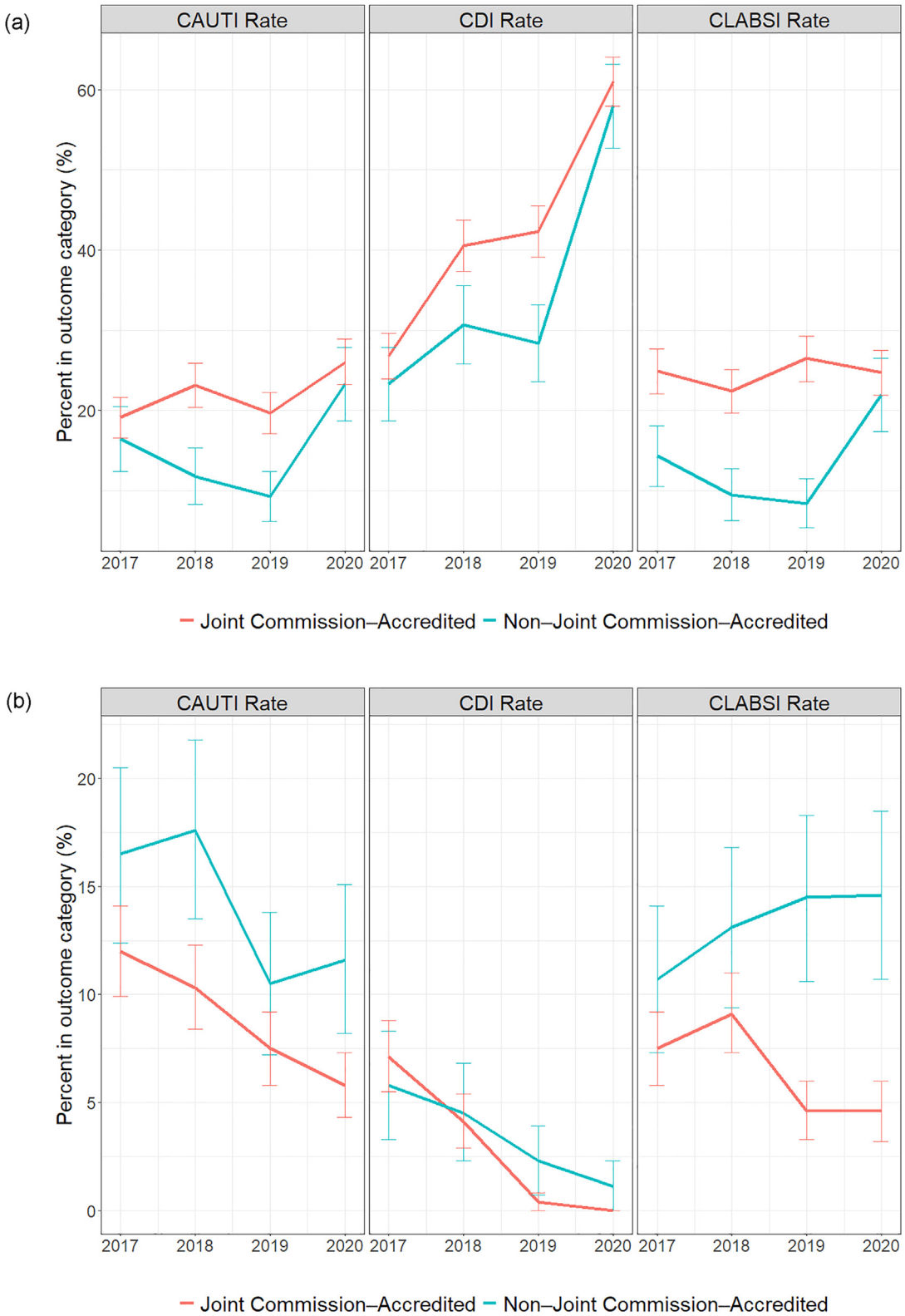


Figure 2: These graphs show the percentage of Joint Commission–accredited and non–Joint Commission–accredited groups that are better (a) and worse (b) than the national benchmark, by year. CAUTI, catheter-associated urinary tract infection; CDI, *Clostridioides difficile* infection; CLABSI, central line–associated bloodstream infection.

Table 4. Tests of Fixed Effects for the Analysis of the Percentage of LTCHs in the Better and Worse Categories

Better than the National Benchmark

Fixed Effects	CAUTI		CDI		CLABSI	
	F Stat	*p* Value	F Stat	*p* Value	F Stat	*p* Value
Joint Commission Accreditation	2.8	0.10	1.7	0.20	7.3	< 0.01
Year	4.8	< 0.01	28.0	< 0.01	2.8	0.04
Year* Joint Commission Accreditation	1.7	0.17	1.1	0.36	2.8	0.04
CMS Region	1.5	0.14	1.6	0.01	0.9	0.56
Owner Type	2.5	0.08	1.7	0.18	0.6	0.57
Bed Size Quartile	9.6	< 0.01	7.8	< 0.01	5.8	< 0.01

Worse than the National Benchmark

Fixed Effects	CAUTI		CDI		CLABSI	
	F Stat	*p* Value	F Stat	*p* Value	F Stat	*p* Value
Joint Commission Accreditation	3.9	0.05	0.0	0.99	10.0	< 0.01
Year	3.3	0.02	4.9	<.01	0.7	0.58
Year* Joint Commission Accreditation	0.3	0.80	1.2	0.31	1.9	0.13
CMS Region	1.1	0.33	*		1.1	0.39
Owner Type	4.5	0.01	*		0.9	0.42
Bed Size Quartile	0.7	0.58	*		2.7	0.04

* Due to the low overall incidence in the worse category, a model could only be fit using Joint Commission accreditation, year, and the interaction.

LTCH, long-term care hospital; CAUTI, catheter-associated urinary tract infection; CDI, *Clostridioides difficile* infection; CLABSI, central line–associated bloodstream infection; CMS, Centers for Medicare & Medicaid Services.

Table 5. Comparison of Non–Joint Commission–Accredited and Joint Commission–Accredited Rates of Being Significantly Better than the National Benchmark, by Measure, Number of Years, and Accreditation Status

Measure	Years Significantly Better	Non–Joint Commission–Accredited		Joint Commission–Accredited		*p* Value of difference
		Observed (%)	SE (%)	Observed (%)	SE (%)	
CAUTI	0	63.1	6.0	56.3	3.3	0.32
CAUTI	1	18.5	4.8	19.5	2.6	0.85
CAUTI	2	10.8	3.8	10.0	2.0	0.85
CAUTI	3	6.2	3.0	8.2	1.8	0.55
CAUTI	4	1.5	1.5	6.1	1.6	0.04
CDI	0	29.9	5.6	24.2	2.8	0.37
CDI	1	26.9	5.4	23.8	2.8	0.62
CDI	2	25.4	5.3	22.5	2.8	0.63
CDI	3	13.4	4.2	17.3	2.5	0.42
CDI	4	4.5	2.5	12.1	2.2	0.02
CLABSI	0	64.1	6.0	49.3	3.3	0.03
CLABSI	1	23.4	5.3	24.0	2.8	0.92
CLABSI	2	7.8	3.4	11.8	2.1	0.32
CLABSI	3	3.1	2.2	7.4	1.7	0.12
CLABSI	4	1.6	1.6	7.4	1.7	0.01

SE, standard error; CAUTI, catheter-associated urinary tract infection; CDI, *Clostridioides difficile* infection; CLABSI, central line–associated bloodstream infection.

location, community, and population served and evaluate the plan's effectiveness; conduct an infection risk assessment prioritized in order of level of probability and potential for harm; and implement evidence-based interventions to prevent HAIs.[16] These and other ICP–related accreditation standards set specific expectations for organizations to improve the quality of care and patient safety. Organizations accredited by The Joint Commission undergo an independent inspection to evaluate compliance and are required to make changes when noncompliance is observed.

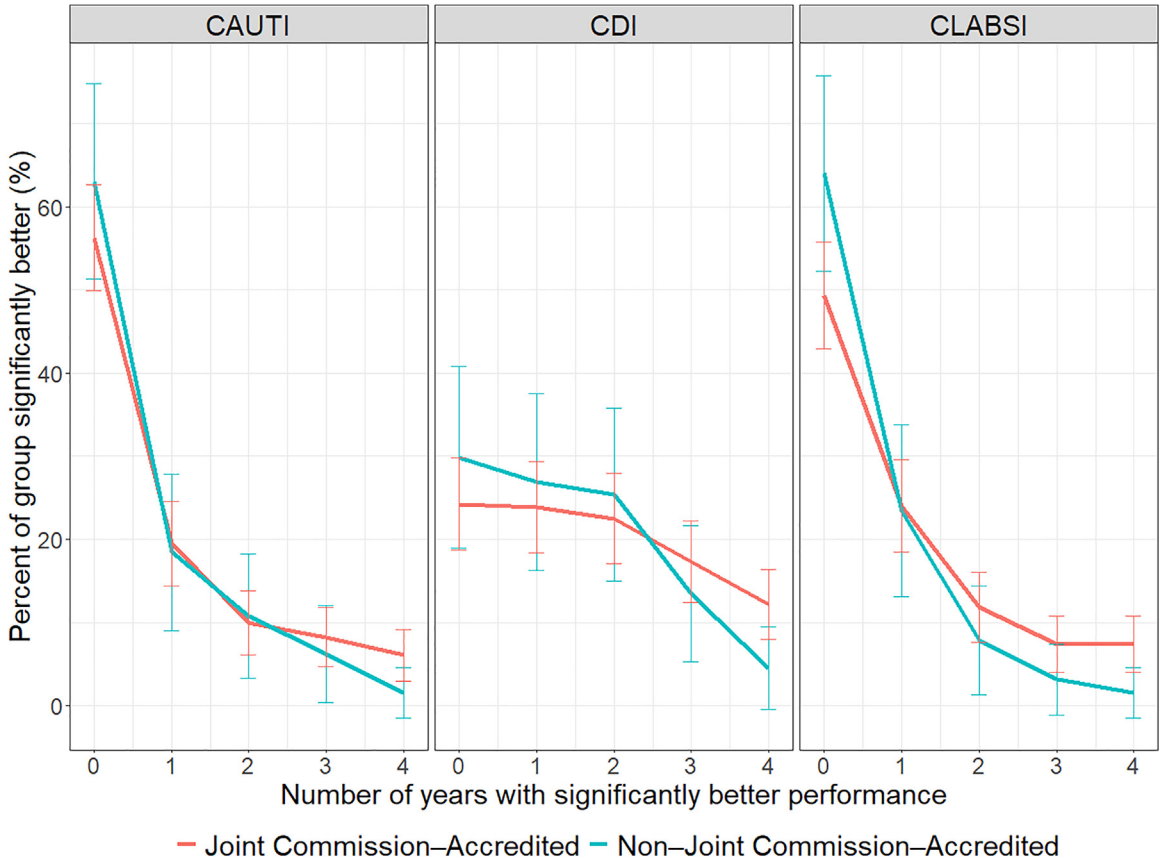


Figure 3: These graphs show the proportion of Joint Commission–accredited and non–Joint Commission–accredited long-term care hospitals that were significantly better than the national benchmark for 0, 1, 2, 3, and 4 years (study period 2017–2020), by measure. CAUTI, catheter-associated urinary tract infection; CDI, *Clostridioides difficile* infection; CLABSI, central line–associated bloodstream infection.

Hand hygiene, properly done, is widely accepted as the easiest and most effective method to prevent HAIs.[17] The Joint Commission established a National Patient Safety Goal (NPSG) on reducing the risk of HAIs through proper hand hygiene.[18] An NPSG is a standard that focuses on a significant problem in health care safety and includes specific actions to prevent them. Joint Commission–accredited organizations must implement a hand hygiene program that complies with the current CDC or World Health Organization guidelines. Organizations must establish a goal for improving hand hygiene compliance, assess compliance, and monitor for improvement over time.[18] Hand hygiene compliance, however, requires continuous vigilance with direct observation. CDC reports that, on average, health care workers clean their hands less than half the times they should.[17] A recent systematic review of 105 studies found the compliance rate for nurses to be 52% and 45% for physicians.[19] Another systematic review of 35 articles reported hand hygiene compliance rates between 60% and 70%, with lower HAI rates achieved with compliance rates of about 60%.[20]

Policies and guidelines are an important part of improving patient safety.[6] The Joint Commission encourages organizations to apply a hierarchical approach to selecting infection control–related standards as inputs into hospital policy. For example, when hospitals are developing medical device disinfection and sterilization policies, the hierarchical inputs would include federal, state, or local rules and regulations; CMS Conditions of Participation (CoPs); manufacturers' instructions for use; evidence-based guidelines and standards; then consensus documents. With this approach, organizations can develop standard operating procedures that help ensure consistency in practice.[21] The Joint Commission survey process incorporates key components of CMS measures to evaluate actual care systems and processes that directly affect the quality and safety of patient care.[22]

Multiple factors may explain the observed relationship between accreditation and the LTCH SIR measures. These factors could include the hierarchical approach and focus of Joint Commission standards on ICP, high-quality care, patient safety, and performance improvement. Multiple studies have established a relationship between CMS quality ratings and accreditation across a broad array of health care settings. Future studies may include other factors that have been associated with HAI rates.[23–27]

Limitations

This study had several limitations. It was not designed to establish causal relationships. For each measure, the findings in this study are limited to LTCHs that submitted data for all four years of the study. Three variables obtained from the limited provider-related CMS data were included as independent variables in the analysis. Other organizational factors, such as urban/rural location and Medicare program enrollment (Medicare only or both Medicare and Medicaid), could have been associated with facility performance and may have had an additional impact on measure rates beyond these three independent variables and Joint Commission accreditation status. With CMS deeming authority, The Joint Commission sets its standards and establishes elements of performance based on the CMS CoPs. Although some accreditation requirements exceed CMS CoPs, it is not possible to attribute study findings to Joint Commission "above and beyond" requirements, CMS CoPs, or both. Finally, any organization accredited for any of the years of the study was considered accredited. This study did not consider whether non–Joint Commission–accredited LTCHs are accredited with another organization or whether they never pursued accreditation, as these data were not available.

CONCLUSION

Although this study was not designed to establish causal relationships between SIR measures and Joint Commission accreditation status, positive associations were observed on the CLABSI and CAUTI measures. It is possible that the focus of Joint Commission standards on ICP, high-quality care, patient safety, and performance improvement and the hierarchical approach to selecting ICP–related standards as inputs into LTCH policy are some of the influencing factors.

Conflicts of Interest. All authors are employees of The Joint Commission. There are no other relevant financial or nonfinancial competing interests to report.

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