

International Accreditation Standards and the Benefits to Hospitals Attracting Medical Tourists: An Exploratory Study

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ABSTRACT

There are several studies showing international hospital accreditation does have some impact on clinical standards and even bed occupancy rates. However, little is known about the impact on attracting more international medical tourists to hospitals that have received this distinction. It was expected, prior to the study, that participating in international accreditation might increase operational expenses and greater amounts of international patients would also boost patient volumes and profitability. However, this research found that the investment in accreditation led to insignificant changes (pre-accreditation versus post-accreditation) in operating profit margins (OPM), net profit margins (NPM), and the debt-to-equity (D/E) ratio. This suggests that international hospital accreditation has little impact on the financial aspects of the hospital's operations. It appears to be more of a signaling strategy than a recipe for growth. However, there may be some other tangible benefits of international accreditation (e.g., better medical/clinical outcomes).

KEYWORDS

Accreditation, Doctor, Health, Health Tourism, Health Travel, Healthcare, Hospital, Medical Tourism, Medical Travel, Medicine, Patients

INTRODUCTION

This exploratory research will examine the impact of international accreditation on hospitals which are attempting to attract foreign patients (often called 'medical tourism'). Unfortunately, there are very few quantitative studies that examine the impact on the business aspects of the accreditation, particularly the branding and customer acquisition. This study will attempt to add to the body of knowledge by analyzing the financial impacts of an international health accreditation on a facility that attracts foreign patients.

The authors analyze two cases to determine if there is any possible impact from these international healthcare accreditation standards. The first is the implementation of American accreditation standards

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in Mexican hospitals since 2009. The second is a review of financial records from publicly-traded hospital systems that undertook Joint Commission International (JCI), the international version of the USA-based American healthcare accreditation body (Joint Commission), both before and after receiving accreditation, for their flagship hospital. A statistical analysis of the financials was used to show if there were any changes or impacts from the accreditation by comparing the pre and post numbers. It was expected that if the accreditation status was truly valued by international medical tourists that the ‘after’ accreditation financial ratios would be improved compared to the before (or pre) accreditation numbers. The objective of this research is to explore the impacts of international accreditation standards, on these facilities, and to determine if it is a growth strategy or more focused on signaling.

BACKGROUND

International accreditation for medical tourism facilities in several countries has grown rapidly for many years, in fact it was reported that it has been growing by about 20% a year [as of late 2017] (“Medical Wellness and Tourism”, 2017). It is often considered important for healthcare institutions that are attempting to attract international patients because it establishes a level of confidence, offers assurance of a specific baseline of quality, and create links with insurance companies (“Medical Wellness and Tourism”, 2017). There are several international accreditation bodies that a hospital can choose from including country-based organizations like: 1) Joint Commission International (also called JCI; part of the Joint Commission which is the accreditation body for the USA health system); 2) Accreditation Canada; 3) Australian Council on Healthcare Standards International; 4) QHA Trent Accreditation (the UK accreditation body); and private organizations like 5) Global Healthcare Accreditation; and 6) TEMOS. In addition, there are ‘non-accreditation’ alternatives like the International Standards Organization (ISO) and Planetree certificates that hospitals can pursue as well. All of these organizations are seeking to enhance the medical tourism market and are responding to the growing hunger for recognition among the many competing countries and facilities (in what has been a lucrative market until the pandemic). The increasing number of alternatives has made the development of the international accreditation business very dynamic. More details about the various accreditation schemes can be found in the Appendix at the end of this paper.

International accreditation is a big investment and the total time for implementation can take from 18 months to two (2) years (Yan, 2015). In addition, the total cost of ownership for this effort is expensive and can cost around USD \$108,000 (Salzman, 2017). The question then is, why do these hospitals spend hundreds of thousands of dollars and almost two years for this status? Salzman (2017), in a non-peer reviewed article, suggests that there are benefits for pursuing this route including a hospital experiencing a 14.3% compound annual growth rate (CAGR) revenue increase in 12 years after receiving accreditation and also an example of a facility saving more than USD \$12 million over four years due to process improvements. These self-report numbers are impressive but the data in the literature paints a mixed picture. It appears to be clear that the preparation a hospital engages in for an accreditation audit does have a positive impact. Devkaran and O’Farrell (2014) found that “the results demonstrate that, although performance falls after the accreditation survey, the tangible impact of accreditation should be appreciated for its capacity to sustain improvements over the accreditation cycle” (p. 8). But is there a long-lasting and impactful change to the facility, particularly in its abilities to attract more international patients?

The impact of international accreditation on medical tourists’ preferences for facilities is still an emerging area of research. It appears that foreign medical tourists are overall more profitable to hospitals than traditional domestic patients (Vequist, 2021). According to Medhekar et al. (2019) medical tourists make their choice of hospital based on JCI accreditation as there is a perceived lower risk of medication and surgical errors, and infections post-surgery. However there is little empirical

evidence to support this claim. In fact, in a question and answer piece, from the Advisory Board about accreditation (Saullet & Director, 2021), the authors were asked if accreditations actually drive referrals to hospitals and stated that:

Long story short: No. That might sound harsh, and of course, there are some exceptions, but for the vast majority of organizations and markets, accreditation is not going to differentiate your service line in the eyes of consumers, referring physicians, or payers. (p. 1)

What are the factors that do seem to impact medical tourists' decisions? The research (Guiry et al., 2013) shows that several specific types of dimensions are preferred by patients in their chosen facilities and destinations including: 1) market innovation by facility/practitioners and the region (Shriedeh & Ghani, 2016); 2) facility/destination branding (Khosravizadeh et al., 2017); 3) expectations of the service performance (Chou et al., 2012); and 4) tourism features in region (Vequist, In Press). Based on the performance of the industry, it appears that many hospital administrators and owners are investing in international accreditation as a growth strategy. This is summarized by Saullet, and Director (2021) who state that:

...when we surveyed our cancer programs in 2018, 93% of respondents held at least one accreditation—and the vast majority held more than one.

And we have heard that there is some value to be found in accreditations when leveraged correctly. Primarily, they can be helpful to secure physician buy-in for specific programmatic or quality improvement projects, make the case to executives for resources, and ensure some level of consistency across a system service line.

Still, in the same survey mentioned above, 8% of cancer programs reported that their organization has not gained any value from participating in an accreditation program. And a recent Advisory Board analysis of advanced stroke accreditation found that, while programs saw an increase in volumes the year prior to advanced accreditation, the growth rate fell back to national average the year after accreditation. This underscores how important it is to be crystal clear about why your organization is pursuing accreditation and make sure it's delivering ROI. And understand that this ROI isn't likely to be a volume play as much as a performance improvement mechanism. (p. 1)

Business signaling can be described as an attempt to leverage information to reduce power advantages or inconsistencies in communication between various stakeholders (Connelly et al., 2011). Management scholars have also applied signaling theory to help explain the influence of information asymmetry in a wide array of research contexts. Examples of signaling in business include CEOs signaling to potential investors in financial statements, firms selecting heterogeneous boards to communicate social values to outside stakeholders, startups emphasizing board or management team characteristics to attract capital, and by human resources departments to aide in the recruitment process (Connelly, 2011). Although these may be helpful in communicating intentions, they do not guarantee that it will lead to financial results such as increased patient volumes and increased revenue. If receiving international accreditation was a 'signaling strategy' then it would probably not result in substantial numbers of addition patients. Logically, if receiving international healthcare accreditation was a growth strategy, more than just a signaling strategy, then it would be expected that the results on the financial ratios of a hospital system would be improved post accreditation.

EVIDENCE OF THE IMPACT OF ACCREDITATION

Examples From the Literature

What are some examples of the benefits to hospitals for achieving an international accreditation? The research gives us a mixed message on the evidence. As of 2015, Brubakk et al. suggested that “our review did not find evidence to support accreditation and certification of hospitals being linked to measurable changes in quality of care as measured by quality metrics and standards” (p. 1). In a later and more extensive summary of over 17,000 studies, Hussein et al. (2021), found 76 empirical studies that met their criteria for examining the impact of international accreditation on a hospital or clinic and summarized that:

These studies were methodologically heterogeneous. Apart from the effect of accreditation on healthcare workers and particularly on job stress, our results indicate a consistent positive effect of hospital accreditation on safety culture, process-related performance measures, efficiency, and the patient length of stay, whereas employee satisfaction, patient satisfaction and experience, and 30-day hospital readmission rate were found to be unrelated to accreditation. (p. 7)

In addition, Shawan (2021), in a study of the King Fahd Hospital of the University in Saudi Arabia, found quantitative results indicating that pursuing accreditation positively impacted the majority of the 12 outcomes measured. These included: 1) the average length of stay; 2) the percentage of hand hygiene compliance; 3) the rate of nosocomial infections; 4) the percentage of radiology reporting outliers; 5) the rate of pressure ulcers; 6) the percentage of the correct identification of patients; 7) the percentage of critical lab reporting; and 8) the bed occupancy rate. This study also found that outcomes which did not improve were: 1) the rate of patients leaving the ER without being seen; 2) the percentage of OR cancellations; and 3) the rate of patient falls. In addition, the qualitative analysis suggested that the stakeholders involved in the accreditation process perceived it positively although the impact on revenues through increased occupancy was not measured.

Another area of impact was suggested by Joseph (2018) who reported that “Patient satisfaction is correlated significantly with physical facilities in the case of accredited hospitals where the patient satisfaction is not correlated... in the case of non-accredited hospitals” (p. 123). This could mean that physical and process enhancements to patient care, due to accreditation, may be perceived by patients as a positive. This was not found in a study of patient satisfaction between JCI accredited and Non-accredited Palestinian Hospitals (Barghouthi & Imam, 2018) found that “there are no statistically significant differences... between the means of patient satisfaction attributed to accreditation status” (p. 6). Although not an accreditation standard, the Planetree Person-centered Care (PCC) framework which is a USA-based certification program (in partnership with the National Academy of Medicine) has been implemented by several international hospitals. According to Guastello and Jay (2019), they found that this ‘patient and family engaged care’ PCC model led to increased patient satisfaction and experience scores in several facilities after implementation. Again, the research provides very mixed support for any benefits of international health accreditation besides improved clinic standards and outcomes.

Impact on Branding

This brings to attention the important question about the role of accreditation in providing brand value to the healthcare system. There is perhaps an underlying wish by hospital administrators and owners that accreditation would bring instant recognition to any medical facility that receives approval. The accreditation process covers every aspect of hospital care from clinical outcomes and safety to sanitation and environmental impact. Hospitals, particularly those in developing markets, pursuing accreditation, appear to be seeking strong outside support for their brand. This could be from a

country's government, another large healthcare system in the same country or even an alliance with a U.S.-based hospital network. So, the contribution to the hospital brand is heavily dependent on associations with other brands. Therefore, it is important to dive into the research on international accreditation and branding by healthcare facilities.

The influence of international healthcare branding on a facility's ability to attract consumers is still not well known. There are hints in the literature to suggest that there may be some impacts on consumer decision making (Guiry & Vequist, 2010). For example, Manaf et al. (2015) suggested that "accreditation, particularly by Joint Commission International, lends credence to the quality of care of destination hospitals" (p. 1017). In an exploratory factorial analysis, Moghadam et al. (2021) found that:

As far as supply factors are concerned, hospital accreditation, geographical distance, and cultural familiarity emerge as important determinants of destination country selection in the literature by patients; moreover, geographically and culturally related issues are often analyzed in conjunction with other factors that affect international medical tourism. (p. 1081)

Henson, Guy and Dotson (2015) conducted a survey of 207 possible medical tourists, in the US, and asked them what issues mattered to them; the two major components that emerged (from a cluster analysis) were: 1) considerations regarding travel/logistics; and 2) medical confidence considerations "of which hospital accreditation and doctor's credentials were the major factors" (p. 12). In addition, among possible medical travelers that were considered more 'Risk Averse' - hospital accreditation and doctor's credentials were the highest rated factor and found to be rated significantly different from people that were more 'Risk Tolerant.' Finally, to address the role of accreditation, discussed earlier, Fong & Goh (2021) in their research on branding and private hospitals found that:

For managers and practitioners of the medical providers, our findings that addressed on the importance of brand equity may provide some understandings to private hospitals on the importance of seeking brand association through quality international accreditations and raising the private hospital brand awareness through community outreach programme. (p. 1202)

Then is JCI recognition imperative for an international hospital's brand reputation? Since accreditation is a temporary recognition and depends on "qualifying" from time to time, it can't be part of the hospital's brand DNA. Minsky and Geva (2020) stressed the main ingredients of brand DNA, specifically when it comes to medical institutions, include: 1) Clarity; 2) Commitment; 3) Governance; 4) Responsiveness; 5) Consistency; 6) Authenticity; 7) Relevance; 8) Differentiation; and 9) Presence. It could be argued that for JCI, certification and accreditation are not a part of a hospital's brand formula. It is only an accompanying temporary element in the brand mix, but not an integral part of the actual brand. The research suggests that association with an accreditor might help with some international patients but its advantage may be in bringing the international hospital up to a 'higher' level of brand equity. It is possible as more hospitals are accredited, that international accreditation will no longer be an exclusive brand of excellence; leading to only decreasing incremental gains in branding.

EXPLORATORY DATA OF THE IMPACT OF ACCREDITATION

Exploratory Data From Mexico's Medical Tourism

Not all international healthcare accreditation efforts are widely communicated to consumers. In fact, one of the largest examples of this activity is not commonly known by many, including many within the US healthcare community, is the use of American standards in other countries. The case the

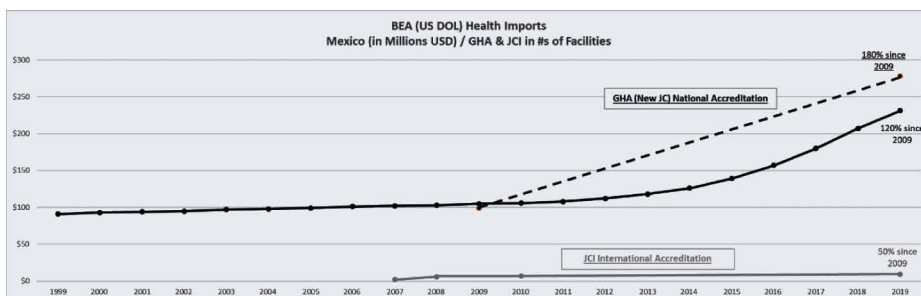
authors will examine is the slow roll-out of American accreditation standards to private and public hospitals in Mexico. This situation was described by Moreno, R. (2014) who stated that:

The General Health Council (GHC) in Mexico is a decentralized organization reporting directly to the president. GHC’s road to creating a national certification program for hospitals has evolved over time... in 2007, GHC established criteria for medical institutions and organizations and, in 2008, created the National Certification System for Medical Care Organizations (Sistema Nacional de Certificación de Establecimientos de Atención Médica (SiNaCEAM). As of 2009, Mexico is the only country to have signed a formal agreement with JCAHO adopting U.S. hospital standards for national hospital certification, the Mexican equivalency to JCAHO accreditation. All private hospitals in Mexico are required to obtain national certification. In addition, once certification is obtained, those hospitals operate with procedures and audit practices comparable to JCAHO standards. (p. 1)

Therefore, Mexico has been a large ‘experimental’ model of whether international accreditation (although quietly) has an impact on the country’s hospital branding. To test whether these efforts had an impact on the flow of American medical tourists to Mexico, the authors brought together three pieces of information: 1) American spending on medical tourism in Mexico; 2) the growth of the national accreditation standard (discussed above); and 3) the change in JCI accredited facilities in the country. In the following figure (Figure 1 below) the trend of medical tourism spending by Americans in Mexico, according to the Bureau of Economic Analysis’ (part of the USA Department of Labor) Survey of Balance of Trade, which is conducted annually, is shown along with the change in both national accreditation (based on Joint Commission standards) and JCI accreditation of Mexican hospitals.

This graphic shows, very distinctly, that revenues from medical tourism from the USA to Mexico continued to increase over the years but the number of JCI international accredited hospitals changed only slightly over the twelve year period. Interestingly, the numbers of Joint Commission- enhanced ‘National’ accredited Mexican facilities increased at a significant rate concurrently to the increasing rate of revenue received by Mexican hospitals. Revenues from American medical tourists grew at approximate a rate of 120% over the period of 2009 to 2019 and GHA accreditations grew at a 180% rate during this period whereas JCI accreditation of facilities only grew at a 50% over those 10 years. Although this finding should probably fall under the ‘correlation is not causation’ heading- the results do suggest that improved quality could be a driver for more medical tourism to a country. It is possible that there is an overall ‘macro-effect’ of international accreditation on the preferences of medical tourists. However, so many other contributing factors could be at play here including possibly the changing USA demographics and regulatory changes in the American healthcare system.

Figure 1. BEA Reported Health Service Imports (Americans Travelling) Revenues (1999-2019) with International Accreditation Trendlines (JC-GHC and JCI)



Exploratory Data From Publicly-Traded Medical Tourism Hospitals

Analysis of Financial Statements

In order to test the hypothesis of whether international accreditation is having a positive impact on attracting foreign medical tourists further- the authors sampled several publically-traded healthcare systems, which had a ‘flagship’ hospital(s) which received the JCI accreditation standard. Because their financials were available for scrutiny (convenience sample), the following financial ratios were analyzed both pre (including the fiscal year in which accreditation was received) and post international accreditation approval (in aggregate). The expectation is that if the accreditation impacts medical tourists’ decision making then the financial ratios would be improved in the post accreditation reporting years.

The ratios were chosen based on the impacts expected of a growth-oriented strategy predicated on investing in international accreditation. It would be expected that if this was more than a signaling action- the healthcare system would receive greater amounts of international patients post-accreditation resulting in increased operating margins, richer profits, and possibly higher debt because of the investment. Therefore the ratios used in this study were:

- OPM- Operating Profit Margin
- NPM- Net Profit Margin
- D/E- Debt to Equity Ratio

The OPM is a standard financial number for both business and specifically healthcare services companies. It measures the amount of profit a hospital makes on every dollar of sales after paying for variable costs of production (for example wages) but before paying interest or tax payments. A higher ratio shows the healthcare system is offering services to patients (its core operations) efficiently and thus is generating more profits. If more international medical tourists were to be attracted to the hospital this number would be expected to increase.

The net margin is a very standard measure found in every publicly-traded company’s financial reports. It shows how much profit is generated, as a percentage of revenue, for the hospital. The NPM measure can help investors and other stakeholders to assess if the healthcare system’s management is generating a sufficient profit from patient services and if costs are being controlled properly. If the accreditation efforts attract more profitable medical tourists and also decrease the customer acquisition costs then the profits would be expected to increase.

The D/E ratio is simply calculated by dividing the healthcare system’s total liabilities by shareholder equity. This ratio is a way in which potential investors and current shareholders can determine what risk is involved in future investments. It is important metric in corporate finance because it measures how the hospital is financing its operations. If accreditation were to increase outstanding debts compared to shareholder equity this investment might not be delivering a solid return-on-investment (ROI).

The companies that were selected for this analysis were gathered as a convenience sample as they were: 1) publicly traded so the financials were available; 2) were known to be receiving ‘medical tourists’ from abroad; and 3) had received JCI accreditation of a ‘flagship’ hospital during one of the years which the financial results were available. The six (6) hospital systems that were analyzed are listed in Table 1.

For these systems, not all the financials were available for all years both pre and post accreditation. Therefore, a standard of no more than five (5) years pre and post accreditation were used based on the convenience sample available. Table 2 summarizes the years of financial numbers that were available both pre and post accreditation approval.

Table 1. Medical Tourism Hospitals That Were Analyzed

Hospital System	Primary Country (Where JCI Was Achieved)	JCI First Accreditation Year
Apollo	India	2005
Bumrungrad	Thailand	2002
Durdans	Sri Lanka	2014
IHH Healthcare	Turkey*	2011*
Mediclinic	Dubai	2010
Raffles	India	2008

* 2011 is used as the JCI date when IHH Holdings acquired Acibadem (Turkey)

Table 2. Financials Available Both Pre and Post Accreditation for the Medical Tourism Hospitals

Hospital System	Pre (and Implementation) Accreditation Years	Post Accreditation Years
Apollo	2005	2003-2007
Bumrungrad	2000-2002	2006-2009
Durdans	2013-2014	2015-2017
IHH Healthcare	2009-2011*	2012-2016
Mediclinic	2006-2010	2011
Raffles	2008	2009-2013
Total # of Years	15	23

* When Acibadem and its JCI accredited hospitals were acquired

The financial measures of the systems were evaluated both before (includes the accreditation approval year) and after accreditation. These numbers can be found for each of the healthcare systems for the years analyzed in Table 3.

The descriptive statistics for the three measures (both pre and post accreditation): 1) OPM; 2) NPM; and 3) D/E are found in Table 4.

In addition the three measures are shown both in pre-accreditation (includes the fiscal accreditation approval year) and the post-accreditation (up to five years following accreditation) in Table 5.

This time series data was analyzed by first showing the ratios graphically both pre and post accreditation. Here is the OPM measure in Figure 2.

Here is the time series data showing the NPM ratio graphically both pre and post accreditation in Figure 3.

Here is the time series data showing the D/E ratio graphically both pre and post accreditation in Figure 4.

In order to check for any possible autocorrelation in the model, the Durbin-Watson test was run on the financials. The Durbin-Watson statistic has a value ranging between 0 to 4 and a value of 2.0 indicates there is no autocorrelation detected in the sample. Values from 0 to less than 2 point to positive autocorrelation and values from 2 to 4 means a negative autocorrelation. Typically if the value is between 1.5 and 2.5 then autocorrelation is likely not a cause for concern. In this case, the model had a value of 2.2 and only had a slight negative autocorrelation (see Table 6). In addition, the authors ran a Kolmogorov–Smirnov as a goodness of fit test to ensure the normality of the distribution and found no significant differences.

Table 3. Before and After International Accreditation Healthcare System Financials

	Pre Accreditation				Accreditation Year				Post Accreditation			
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
BUMHUNGRAO Hospital Public Consol (2000-2017)												
Total Liabilities	3,156,850,002.00	3,211,217,963.00	2,869,345,779.00	3,196,779,780.00	2,960,888,231.00	3,031,729,292.00	2,994,347,187.00	3,116,501,723.00				
Total Equity	196,502,000.00	383,399,833.00	592,080,022.00	1,276,505,213.00	2,060,197,831.00	2,695,788,966.00	3,028,546,659.00	4,240,023,575.00				
Net Income B4 Minority Interest & Extraordinary Items	(134,158,764.00)	195,582,999.00	226,299,181.00	683,075,876.00	879,013,109.00	1,047,067,467.00	1,077,179,203.00	1,603,358,016.00				
Operating Income	868,737,271.00	333,824,448.00	327,047,024.00	803,623,073.00	1,126,535,263.00	1,371,843,011.00	1,619,265,638.00	2,159,147,278.00				
Revenue	2,968,808,633.00	3,069,942,389.00	3,670,148,956.00	4,626,310,715.00	5,809,299,020.00	6,806,775,118.00	7,895,517,650.00	9,413,121,559.00				
Ratios												
Operating Profit Margin %		12.42	10.87	8.91	17.39	19.39	20.15	20.51				22.94
Net Profit Margin %		6.37	6.17	14.78	15.13	15.13	13.64	17.09				
Debt to Equity		16.07	8.38	5.02	2.54	1.44	1.12	0.83				0.72
Notes:												
Apollo (2005-2009)												
Total Liabilities												
Total Equity												
Net Income B4 Minority Interest & Extraordinary Items												
Operating Income												
Revenue												
Ratios												
Operating Profit Margin %												
Net Profit Margin %												
Debt to Equity												
Notes:												
Durians (2013-2017)												
Total Liabilities												
Total Equity												
Net Income B4 Minority Interest & Extraordinary Items												
Operating Income												
Revenue												
Ratios												
Operating Profit Margin %												
Net Profit Margin %												
Debt to Equity												
Notes:												
Medi Clinic (2007-2011)												
Total Liabilities												
Total Equity												
Net Income B4 Minority Interest & Extraordinary Items												
Operating Income												
Revenue												
Ratios												
Operating Profit Margin %												
Net Profit Margin %												
Debt to Equity												
Notes:												
HHHH (2009-2017)												
Total Liabilities												
Total Equity												
Net Income B4 Minority Interest & Extraordinary Items												
Operating Income												
Revenue												
Ratios												
Operating Profit Margin %												
Net Profit Margin %												
Debt to Equity												
Notes: Debt to Equity Ratio given in financials (total liabilities were not), so used the given ratios rather than calculate												
Ruffin (2008-2017)												
Total Liabilities												
Total Equity												
Net Income B4 Minority Interest & Extraordinary Items												
Operating Income												
Revenue												
Ratios												
Operating Profit Margin %												
Net Profit Margin %												
Debt to Equity												
Notes: Debt to Equity Ratio given in financials (total liabilities were not), so used the given ratios rather than calculate												
Average Ratios												
Average Operating Profit Margin %	15.44	18.75	11.80	8.96	12.37	14.33	14.05	14.66	17.95	21.44		
Average Net Profit Margin %	8.87	12.9	9.65	3.13	8.31	9.81	10.19	10.62	12.84	16.03		
Average Debt to Equity	0.86	0.95	6.07	3.94	3.90	1.17	0.56	0.45	0.44	0.34		

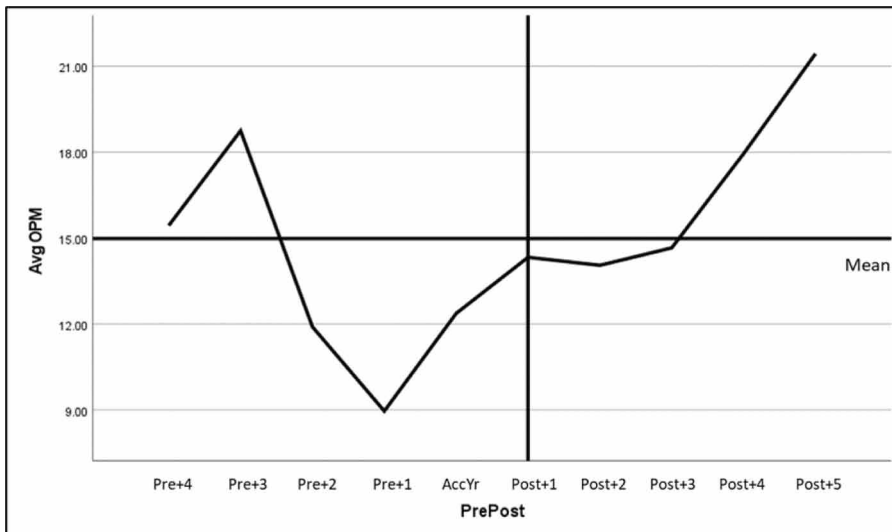
Table 4. Descriptive Statistics of Healthcare System Ratios (Both Pre and Post Accreditation)

Descriptive Statistics							
	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Avg OPM	10	12.48	8.96	21.44	14.9850	3.63479	13.212
Avg NPM	10	12.90	3.13	16.03	10.2350	3.40250	11.577
Avg DTE	10	6.13	.34	6.47	1.7080	1.99048	3.962
Valid N (listwise)	10						

Table 5. Signs Table of Self-Rated Health Before and After Migration

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Avg OPM	13.4840	5	3.73408	1.66993
	PostOPM	16.4860	5	3.18599	1.42482
Pair 2	Avg NPM	8.5720	5	3.52372	1.57586
	PostNPM	11.8980	5	2.59187	1.15912
Pair 3	Avg DTE	2.8240	5	2.38546	1.06681
	PostDTE	.5920	5	.33237	.14864

Figure 2. Time Series of Healthcare System OPM Both Pre and Post Accreditation



Finally, the authors used SPSS performed a two-tailed paired-samples test on the differences in the means pre-accreditation (includes the fiscal year in which the healthcare system received JCI accreditation) and the post-accreditation of the ratios to determine if the differences in these measures were significantly different. This is seen in Table 7.

The results show no significant differences between the pre-accreditation ratios and the post-accreditation measures. (mean differences of 3.00 for OPM, 3.32 for NPM, and 2.23 for D/E respectively). The measure of Debt-to-Equity almost reached significance and was trending in a positive direction (lower D/E ratios mean less risk to investors because the debt load is lower). Research on average D/E ratios for USA publicly-traded healthcare services companies averaged .74 (median) in 2020 so the .59 reported by the sample in post-accreditation years could be possibly just a ‘regression to the mean’ response. The trend-lines on the post-accreditation OPM and NPM ratios looked very positive and it is possible that expanding the dataset to past five years post-accreditation approval might change the statistical findings. Overall, the data support the null hypothesis that accreditation had no significant impact on the financials of these health systems.

Figure 3. Time Series of Healthcare System NPM Both Pre and Post Accreditation

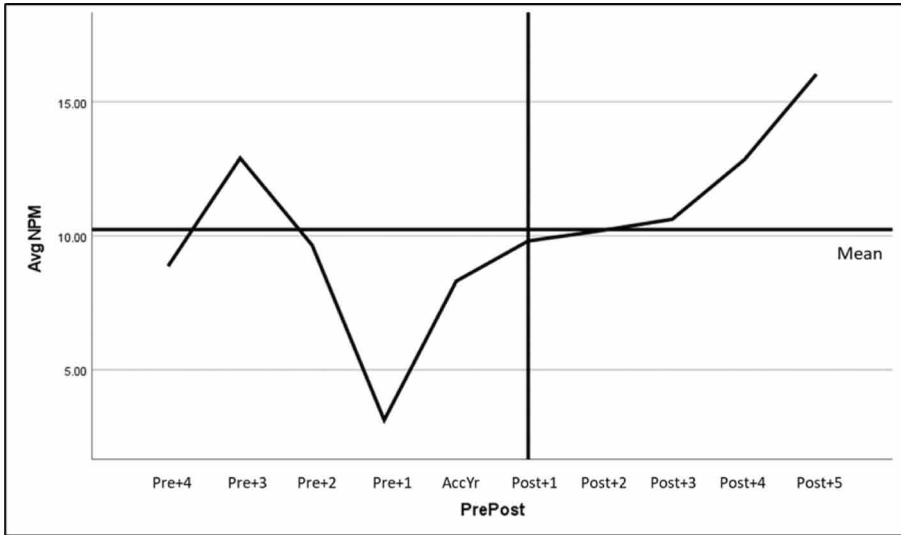
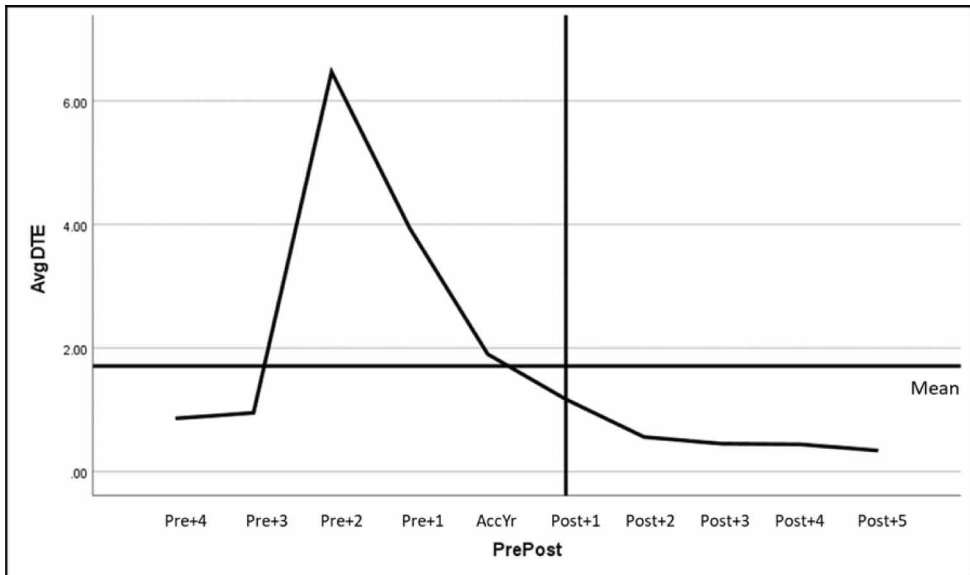


Figure 4. Time Series of Healthcare System D/E Both Pre and Post Accreditation



CONCLUSION

It was expected, prior to the study, that participating in international accreditation would increase overall operational expenses at the facilities and that increased numbers of foreign patients would also boost patient volumes and profitability. But this study found that the investment in accreditation led to no significant changes (pre-accreditation versus post-accreditation) in operating profit margins, net profit margins, and debt to equity ratio at these organizations. The only nearly significant change found was that the debt-over-equity ratio which was trending lower post-accreditation than it was pre-accreditation. Therefore, this study suggests that international

Table 6. Durbin-Watson Test of Autocorrelation

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.778 ^a	.605	.407	.40594	2.205
a. Predictors: (Constant), Avg DTE, Avg NPM, Avg OPM					
b. Dependent Variable: PrePost					

Table 7. Paired Samples Test Pre and Post Accreditation of the Healthcare System Ratios

Paired Samples Test										
		Paired Differences					Significance			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	Avg OPM - PostOPM	-3.00200	6.10255	2.72915	-10.57932	4.57532	-1.100	4	.167	.333
Pair 2	Avg NPM - PostNPM	-3.32600	5.18989	2.32099	-9.77010	3.11810	-1.433	4	.113	.225
Pair 3	Avg DTE - PostDTE	2.23200	2.56238	1.14593	-.94961	5.41361	1.948	4	.062	.123

accreditation has little impact on the positive financial aspects of a hospital’s operations. The previous literature offers that there may be some other tangible benefits of international accreditation (e.g., better medical/clinical outcomes); but it appears to be more about signaling than a successful medical tourism ‘business growth’ strategy.

LIMITATIONS

Because this study was exploratory in nature there are many limitations to the generalizability of its findings. The first and most important is that the data (both the BEA Mexico Import data and the financial reports of the medical tourism facilities) were convenient samples that don’t represent the entire population of medical tourist flows and international hospitals. In addition, the dates from which the data and financial reports were collected, both pre and post accreditation, may have an impact on some of the findings because of geopolitical/regulatory happenings. For the company reports, we analyzed three somewhat subjective measures of the financial health and status of the company. It is possible that other investments made prior to or determine the accreditation process may have had an impact on these ratios that would confound the findings. In several of the cases we provided the hospital(s) receiving the JCI accreditation was one of many hospitals in the system and the impact of one or more hospitals receiving accreditation could have a smaller than expected. Another limitation is that the artificial choice of five years before and after accreditation, based on the convenience sample, may have not allowed the total impact of the international accreditation to emerge. And utilizing financial data, which was focused on revenues, profits, and debt but not other aspects of possible business improvement caused by better standards, may have limited the possible findings. Interestingly, in a comparison of JCI accredited hospitals (in India) to USA hospital standards, Erhun et al. (2020) found that two of major differences between these systems were the: 1) patient volumes (higher in India); and 2) utilization of mid-tier providers (also higher in India).

These operational differences, along with the other limitations discussed in this paper, which might vary widely in the various countries studied, could also be a reason to suggest that more empirical research is needed on this topic.

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APPENDIX

JCI

As of today, JCI, the market-share leader in the world, shows on its website 934 hospitals as achievers of the JCI gold seal accreditation and qualification.

<https://www.jointcommissioninternational.org/about-jci/accredited-organizations/>

GHA

GHA is a relatively newcomer to the accreditation scene in medical travel. As of 2016 GHA is a recognized global authority in accreditation and certification with a specialized focus in workplace safety, health, and well-being as well as specializations in medical and wellness travel. The medical travel part of GHA promises to accredit and certify top hospitals around the globe seeking to enhance the patient experience for medical travelers and improve business performance.

<https://www.globalhealthcareaccreditation.com/>

TEMOS

TEMOS, a German based organization is a very competent and aggressive certification company. During the last 10 years, they have managed to appoint around 15 representatives in four continents and made inroads into some hospitals.

The TEMOS testimonials from their clients in developing countries do not mention these points as the main achievements in the relationship. There is a gap. Most client testimonials focus on improving safety and service excellence, commitment to patients, high expertise, and quality of work, improving internal processes, personal professional development of staff. In the testimonials section of the TEMOS website, not a single hospital mentions that the accreditation process has contributed to the financial bottom line.

<https://www.temos-worldwide.com/>

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