

The Impact of Replacement Hospitals:

Cost Position

Part 2 of 2

“...58% of replacement hospitals studied improved their cost position post-replacement relative to the national average for all community hospitals ...”

- The Impact of Replacement Hospitals: Cost Position Part 1 of 2. □

“Why do some replacement hospitals have lower operating costs than their higher cost peers?”

Why is Cost Position Important?

New economic realities, the increasing transparency around costs, the growing prevalence of value-based purchasing payment methodologies, and payment reform augur greater scrutiny of hospital costs and outcomes by health care purchasers.

These forces require a renewed focus on managing a hospital’s cost position and

improving operating performance. Given these operational imperatives, how can an organization consider a replacement hospital as a strategic option?

This brief is Part 2 of a two part analysis. It provides critical insights into what differentiates replacement hospitals with lower operating costs per adjusted discharge (lower cost) from their peers

with higher operating costs per adjusted discharge (higher cost).

The analyses and findings of this white paper were guided by the quantitative analyses in the 2009 Community Hospital Replacement Study. The study and follow-on research are available at:

www.replacement-hospital.org. □

METHODOLOGY

The 2009 Community Hospital Replacement Study (CHRS) database contains key operating metrics for 72 community hospitals replaced between 2000 and 2007. This brief culls the operating expense data of the 26 community hospitals included in the CHRS with two years of valid post-replacement operating expense data.

Cost position is defined as the costs for an organization to deliver a service or product relative to the costs incurred by its competitors. For hospitals, a useful means of measuring cost position is operating expense per adjusted discharge.

Part 1 of this two-part cost position analysis addresses the cost position of replacement hospitals relative to pre-replacement performance and to the national average for all hospitals. Lower cost replacements are defined as those projects with compound annual growth rates in operating expense per adjusted discharge from year -1 to year 2 or 3 below the median for replacements. Median performance of lower cost replacements (25th%) is compared with median performance of higher cost replacements (75th%) in the charts in this white paper.

Part 2 of this cost position analysis identifies and discusses key drivers of higher cost and lower cost replacement hospital projects. □

Summary of Findings

While there is significant variability in the impact that a replacement has on hospital cost position, 58% of replacement hospitals studied actually improved their cost position post-replacement relative to the national average for all community hospitals¹.

Organizations that replace an outmoded facility and improve their cost position are uniquely well positioned for an era of payment reform and cost scrutiny. These hospitals possess an enhanced competitive position relative to average national performance for community hospitals, a modern and efficient physical plant from which to deliver care, and an attractive platform to recruit and retain clinical staff.

Lower cost replacements did a better job matching investment to market need,

delivering care more efficiently and leveraging the replacement hospital with effective medical staff alignment and business development initiatives. As a result, lower cost replacements required fewer assets to deliver the same amount of care, operated more efficiently, and experienced higher rates of growth in adjusted discharges than their peers with higher operating costs.

Higher cost replacements were able to match the operating margin results of their lower cost peers only as a result of the 21.3% pricing premium they achieved post replacement. In fact, higher cost replacements failed to show any improvement in median staffing efficiency from pre-replacement levels.

Fifty-eight percent (15 of 26) of replacement hospitals improved their cost position from pre-replacement levels relative to the national average for community hospitals.

The ability to improve an organization's cost position while replacing a hospital is the end result of accurately gauging market need, successfully executing medical staff alignment and business development strategies, and designing a facility that captures adjacencies and other staffing and operating efficiencies.

Lower cost replacements were more efficient across nine

¹ Based upon CMI adjusted percentage of U.S. average operating expense per adjusted discharge from year -1 to year 2 or 3

This table compares the median performance of lower and higher cost replacement hospitals across the key drivers of cost position. Lower cost replacements were more efficient across all metrics below while higher cost replacements realized greater revenue per adjusted discharge.

Benchmarking Metric	Lower Cost Replacement Median Values n = 13	Higher Cost Replacements Median Values n = 13
Growth	High Growth	Moderate Growth
CAGR ⁺ in Adjusted Discharges Yr -1 to Yr 2 or 3*	7.2%	4.2%
Pricing	Low Price	High Price
CAGR ⁺ in Op Rev per Adjusted Discharge Yr -1 to Yr 2 or 3*	0.2%	9.5%
Operating Revenue per Adjusted Discharge*	\$5,529	\$6,705
Operating Efficiency	More Efficient	Less Efficient
ALOS (Year 3)	3.20	4.42
CMI Adjusted ALOS (Year 3)	2.63	3.02
FTEs per 100 Adjusted Discharges (Year 3)*	3.99	4.61
Labor Cost per Adjusted Discharge (Year 3)*	\$2,289	\$2,763
Operating Expense per Adjusted Discharge (Year 3)*	\$5,302	\$6,073
Asset Efficiency	More Efficient	Less Efficient
Operating Revenue per Square Foot (Year 3)	\$349	\$324
Capital Expense per Adjusted Discharge (Year 3)*	\$446	\$582
Square Feet per 100 Adjusted Discharges (Year 3)*	1,586	1,849
Square Feet per Adjusted Occupied Bed (Year 3)	2,128	2,437
Adjusted Discharges per Bed (Year 3)	149	126
Profitability	Healthy Margin	Healthy Margin
Operating Margin (Year 3)	6.85%	6.35%

* Adjusted discharges for this metric have been adjusted for case mix index.

⁺ CAGR = compound annual growth rate

Median Year 3 Case Mix Index for Lower Cost Replacements was 1.1906 vs. 1.3139 for Higher Cost Replacements.

Cost Position: Four Strategic Implications

1. Building a replacement hospital does not mean that you have to jeopardize your cost position.

Replacing a hospital can be compatible with maintaining or improving an organization's cost position. While replacement hospital operating expense growth is highly variable, 58% of replacement hospitals studied improved their cost position relative to the national average for all community hospitals.

Understanding and addressing the drivers of cost position can help a replacement hospital retain or enhance the competitiveness of its market position. When replacement hospital cost position is expressed as a percent of the average operating expense per adjusted discharge for community hospitals nationally, replacement hospitals experienced a two percentage point improvement in median cost position from pre-replacement levels.²

Lower cost replacements had median year 3 operating expenses 12.7% lower than higher cost replacements and were able to improve their median cost position relative to the national average by eight percentage points.

² The period analyzed was year -1 to year 2 or 3 based upon the most recent year available.

2. Throughput and volume gains are critical drivers of lower cost replacement hospital performance.

Constructing a replacement hospital does not ensure volume increases. The replacement hospitals studied had highly variable rates of growth in adjusted discharges. But focusing on critical business development strategies beyond bricks and mortar can help to improve the hospital's cost position and the success of the replacement hospital project.

Strategies that enhance hospital market share are important to improving the cost position of a hospital post-replacement. These strategies may include the following components:

- 1) Medical staff development and alignment
- 2) New clinical programs
- 3) Ambulatory site development
- 4) Replacement hospital site selection

Organizations that focus on the bricks and mortar of the replacement project to the exclusion of other critical initiatives are less likely to realize the benefits of increased throughput. Lower cost replacements had significantly greater volume increases than their higher cost peers. These replacement hospitals had compound annual growth rates (CAGR) in adjusted discharges of 7.19% while their higher cost peers had a 4.22% increase.

3. Higher cost replacements rely upon pricing increases to generate operating margin comparable to their lower cost peers.

Higher cost replacements had significantly greater median pricing increases than their lower cost peers. The only factor that allowed higher cost replacements to approximate the operating results of their lower cost peers was a CMI adjusted 21.3% pricing premium per adjusted discharge. However, this price differential may not be sustainable given value-based purchasing initiatives, increasing pricing transparency, and payment reform.

4. Lower cost replacements rely upon efficiency gains to generate positive margins.

The benefits from greater efficiency will endure regardless of the regulatory, payment or economic climate.

The efficiency advantages demonstrated by lower cost replacements fall into two categories: operating efficiency and asset efficiency. Lower cost replacements used 12.7% to 17.2% fewer staff, operating inputs, and length of stay to deliver the same amount of care as higher cost replacements. Lower cost replacements also employed 7.2% to 23.4% fewer assets to generate the same amount of revenue or patient care services as their more expensive peers.

A hospital facility is a platform for delivering care and executing organizational strategy.

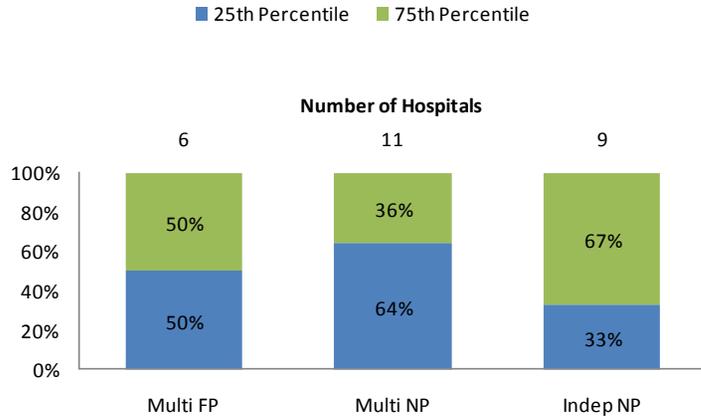
A hospital facility can be a drag on performance or a source of competitive advantage. But replacing a hospital is not a substitute for effectively crafting and executing organizational strategy. The findings of the CHRS and this analysis reveal the importance to replacement hospital performance of several critical disciplines: market need analysis, medical staff development and alignment, new program development, and strategic master facility planning.

Those organizations with lower operating costs post-replacement accurately gauged market need, aligned with the physicians needed to support the investment in a replacement facility, designed facilities that were properly sized and efficient to operate, and captured significant incremental volume via effective business development initiatives.

The ability to execute across these different disciplines of hospital management differentiates top performing replacement

Ownership Status

Chart 1: Breakdown of Replacement Facilities by System Type

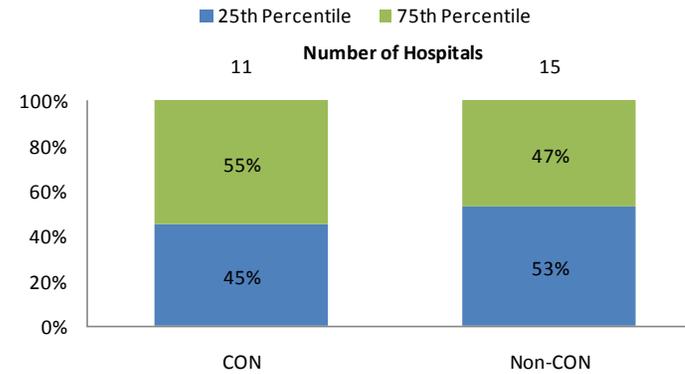


There are three ownership categories represented in the CHRS: multi-hospital for-profit systems, multi-hospital non-profit systems, and independent non-profit hospitals. Lower cost replacement hospitals comprised 64% of the non-profit multi-hospital system replacements studied but only 33% of the independent non-profit replacements.

This outcome may be the result of competition for capital resources within systems, which invites more scrutiny of capital allocation decisions and may result in replacement projects better conceived to attain return on investment targets.

CON Regulatory Status

Chart 2: Breakdown of Replacement Facilities by CON Status



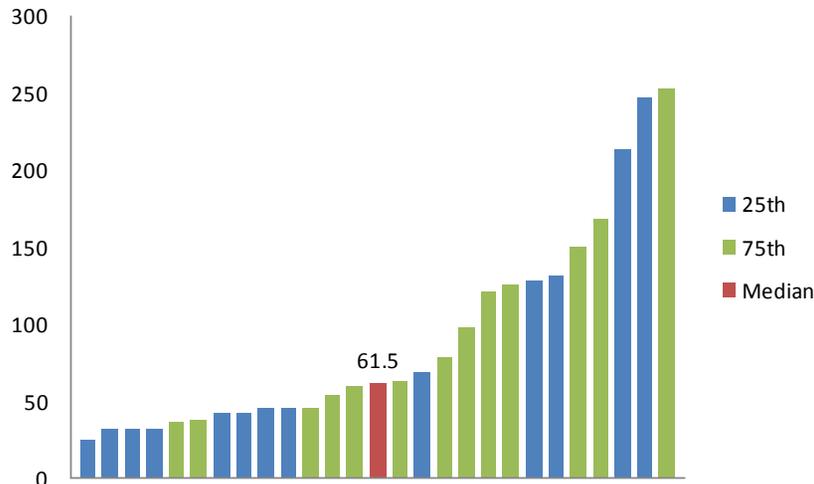
Of the 11 replacement projects subject to CON, 55% were higher cost replacements. For the 15 non-CON replacement projects, 47% were higher cost replacements. A slightly greater proportion of the

Higher cost replacements comprised two-thirds of replacements of independent hospitals and only 36% of non-profit system owned replacements

higher cost replacements studied was in CON states.

Bed Complement

Chart 3: Distribution of Bed Numbers



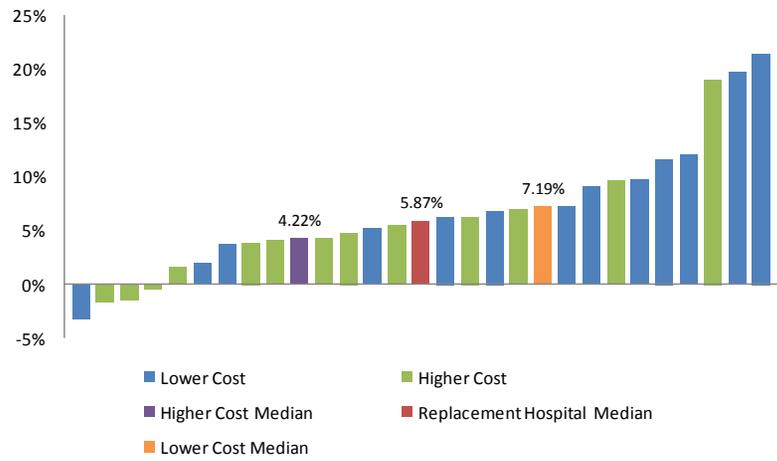
Of the 26 replacement hospitals in this cost position analysis, the median number of beds was 61.5. The median bed complement of lower cost replacement hospitals was 45 vs. a median of 78 beds for higher cost hospitals. Eight of 13 lower cost replacements had bed complements below the median while 8 of 13 higher cost replacements had bed complements above the median.

Volume Growth

The median compound annual growth rate (CAGR) in adjusted discharges in the study period for the 26 hospitals in the cost position analysis was 5.87%. Only four hospitals experienced a decrease in adjusted discharges over this time period. Higher cost replacement hospitals experienced median CAGR in adjusted discharges of 4.22% while the lower cost hospitals experienced median CAGR in adjusted discharges of 7.19%.

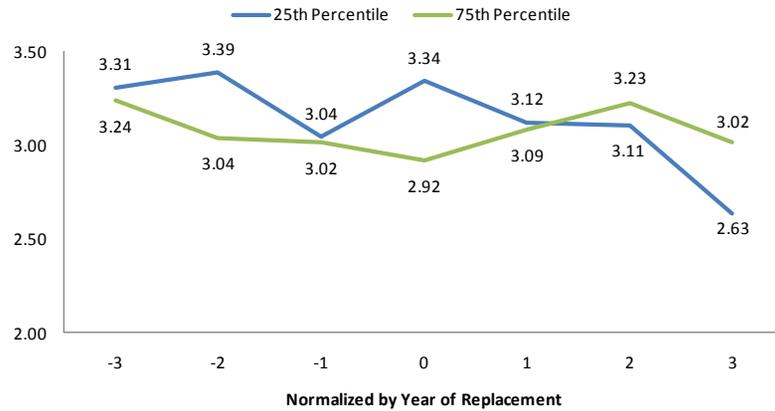
Chart 4: Distribution of CAGR Adjusted Discharges from Year -1 to +2/3 (CMI Adjusted)

Nine of 13 lower cost replacements experienced growth rates in adjusted discharges above the median while 9 of 13 higher cost replacements had growth rates below the median.



Average Length of Stay

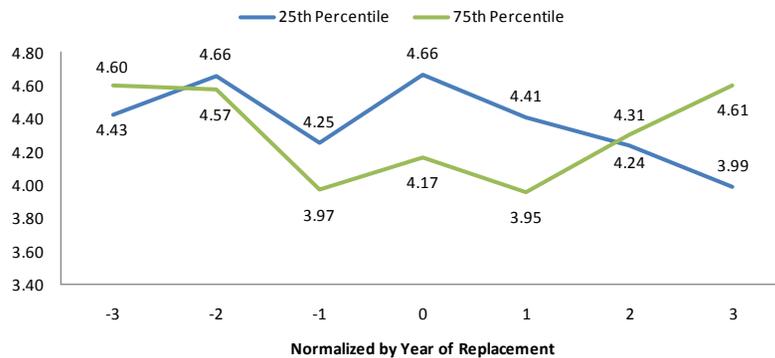
Chart 5: Median CMI Adjusted Average Length of Stay



The lower cost replacement hospitals had a higher median average length of stay (ALOS) in pre-replacement years than their higher cost peers. However, lower cost replacements experienced a larger decrease in median ALOS post-replacement (-0.41 days) from year -1 to year 3 while higher cost replacements experienced no decrease in median ALOS. In year 3, lower cost replacements had median ALOS 12.9% below median ALOS for higher cost replacements.

CMI Adjusted FTEs per 100 Adjusted Discharges

Chart 6: Median CMI Adjusted FTEs per 100 Adjusted Discharges



Lower cost replacement hospitals increased their efficiency as measured by median CMI adjusted FTEs per 100 adjusted discharges, dropping 0.67 FTEs (14.4%) from year 0 to year 3. Higher cost replacements ended year 3 with median FTEs per 100 adjusted discharges of 4.61, the same median staffing ratio as they had in year -3 and 0.64 FTEs higher than in year -1.

The median year 3 performance for higher cost replacements did not show improved staffing efficiency from pre-replacement levels. Median lower cost replacement performance demonstrated significant

Capital expense per adjusted discharge is defined as CMI adjusted interest and depreciation expense per adjusted discharge. Lower cost replacements posted lower median capital expense per adjusted discharge pre-replacement and during replacement (year 0). In years 1 and 2, all replacements posted nearly identical results, however in year 3 median capital expense per adjusted discharge for lower cost replacement performance was 23.4% less than the median for higher cost replacements.

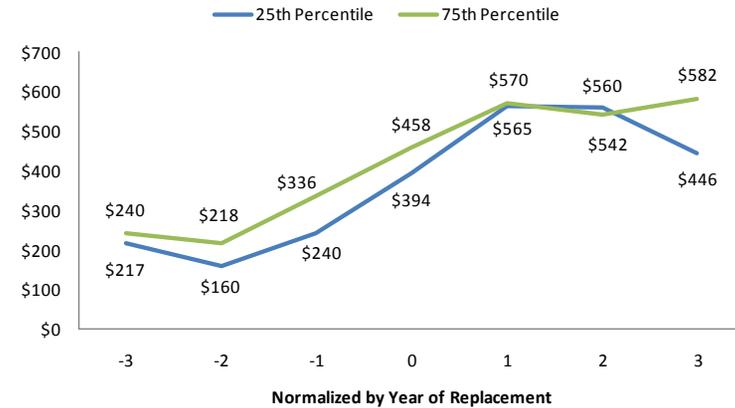
Median capital expense per adjusted discharge decreased by 21% from year 1 to year 3 for lower cost replacements presumably as a result of increased throughput post-

Higher cost replacements had lower median operating expense per adjusted discharge from year -3 to year 1 with operating expenses \$200 to \$500 less than lower cost replacements. Post-replacement, this trend reversed.

From year 1 to year 3, median operating expense per adjusted discharge for lower cost replacement decreased by -1.33% annually while operating expenses at higher cost replacements grew by 11.42% annually.

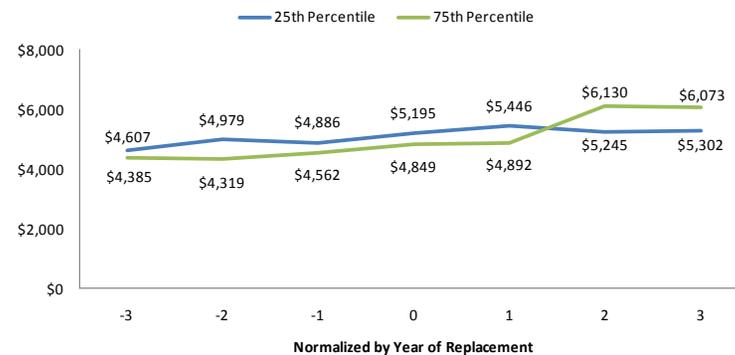
Capital Expense per Adjusted Discharge

Chart 7: Median CMI Adjusted Capital Expense per 100 Adjusted Discharges



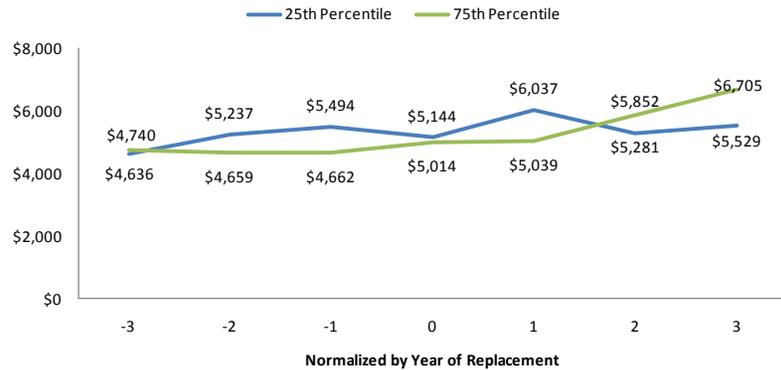
Operating Expense per Adjusted Discharge

Chart 8: Median CMI Adjusted Operating Expense per 100 Adjusted Discharges



Operating Revenue per Adjusted Discharge

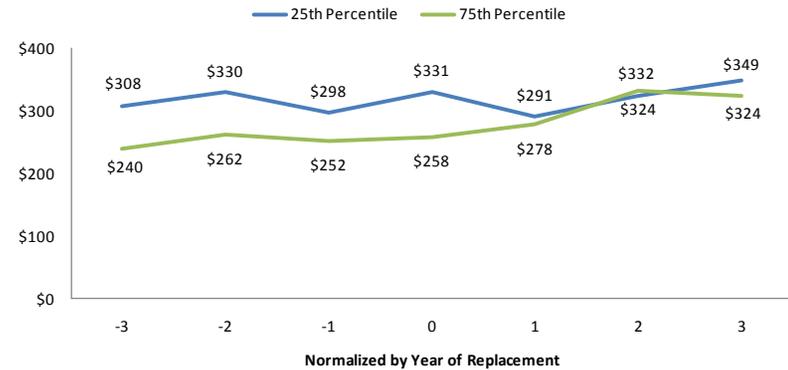
Chart 9: Median CMI Adjusted Operating Revenue per Adjusted Discharge



Higher cost replacements had significantly greater growth in median CMI adjusted revenue per adjusted discharge from year -1 to year 2 or 3 than lower cost replacements (9.5% and 0.2%, respectively). The variance in revenue growth per adjusted discharge was the opposite of the trend in adjusted discharge growth. As previously noted, higher cost replacements had lower median growth in adjusted discharges than lower cost replacements (4.2% and 7.2%, respectively).

Operating Revenue per Square Foot

Chart 10: Operating Revenue per Square Foot



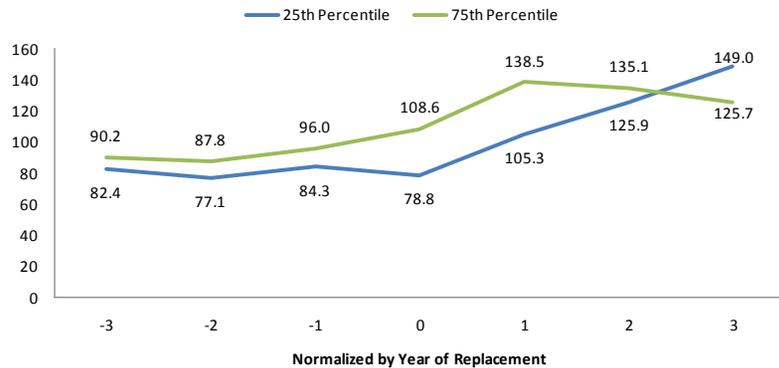
Prior to and during replacement, lower cost replacements had consistently higher median CMI adjusted operating revenue per square foot (OR/SF) than higher cost replacements. In years 1 and 2, median OR/SF for higher and lower cost replacements was very similar. Only in year 3 did lower cost replacements, once again, begin to generate significantly more median OR/SF (by 7.7%) than higher cost replacements.

Key Finding:

The relative CAGR in revenue per adjusted discharge and CAGR in adjusted discharges between higher and lower cost replacements indicate that higher cost replacements were more likely to rely upon per case pricing increases for revenue growth while lower cost

Adjusted Discharges per Bed

Chart 11: Median Adjusted Discharges per Bed



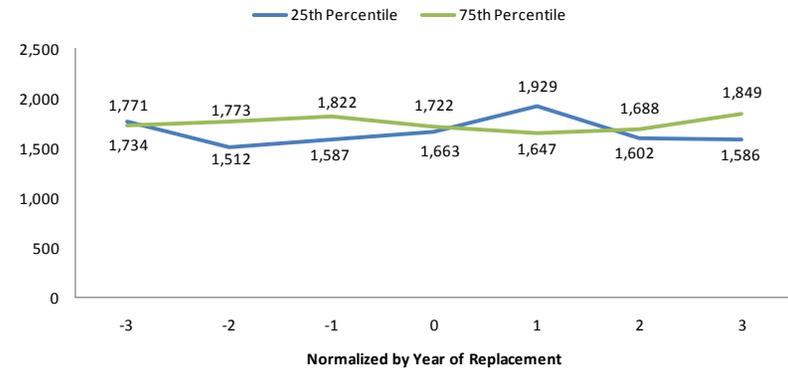
Lower cost replacements consistently lagged behind higher cost replacements until year 3 on this measure of throughput per inpatient bed. The gap in performance was widest during and immediately after replacement (years 0 and 1, respectively). In year 2, median adjusted discharges per bed for higher and lower cost replacements narrowed, prior to lower cost replacements posting median adjusted discharges per bed 18.5% greater than lower cost replacements.

Key Finding:

Lower cost replacement hospitals performed better than their higher cost peers on the asset efficiency metrics above in year 3 post-replacement. Lower cost replacements generated more volume per bed and required fewer square feet per 100 adjusted discharges than their higher cost peers. This may be a function of a facility that accurately gauged market need and/or also an organization

Square Feet per 100 Adjusted Discharges

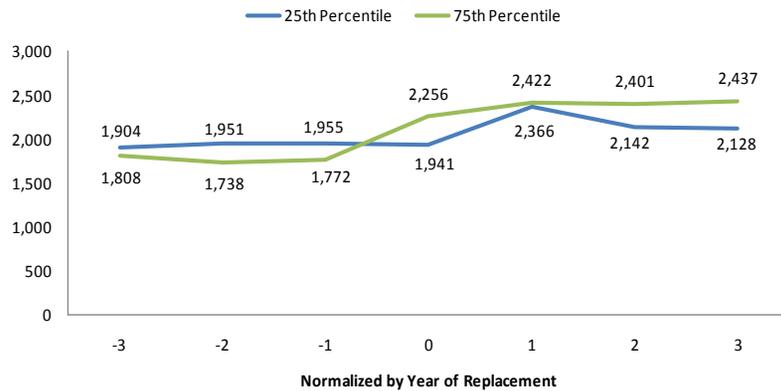
Chart 12: Median Square Feet per 100 CMI Adjusted Discharges



Lower cost replacement hospitals exhibited greater median asset efficiency as measured by square feet per 100 adjusted discharges. With the exception of year 1, lower cost replacements required less median space to generate the same volume of service. By year 3, lower cost replacements required 14% less square feet per 100 adjusted discharges on a median basis than higher cost replacements.

Square Feet per Adjusted Occupied Bed

Chart 13: Median Square Feet per Adjusted Occupied Bed



Technical note:

Square feet per adjusted occupied bed (SF/AOB), like square feet per 100 adjusted discharges, accounts for variances in the amount of outpatient activity at a given hospital. This is a significant advantage given the importance of outpatient services for most hospitals today and the significant variability in the scope and breadth of outpatient services relative to inpatient bed complement from hospital to hospital. Accounting for such variability improves the relevance and accuracy of an asset efficiency benchmark. Looking at square feet per bed alone does not account for variation in outpatient activity from hospital to hospital relative to bed complement.

SF/AOB accounts for variances in average length of stay. This attribute provides SF/AOB with an advantage over metrics such as SF per 100 adjusted discharges and SF per bed for facility and metrics such as operational benchmarking.

Lower cost replacements experienced higher median square feet per adjusted occupied bed (SF/AOB) and were less asset efficient pre-replacement than higher cost replacements. However, during and post-replacement, lower cost projects posted lower median SF/AOB for each year. This finding indicates that median performance for lower cost replacements required fewer assets as measured by SF/AOB than the median higher cost replacement. In year 3, the variance between median higher and lower cost replacement SF/AOB was 14.5% or 309 SF/AOB.

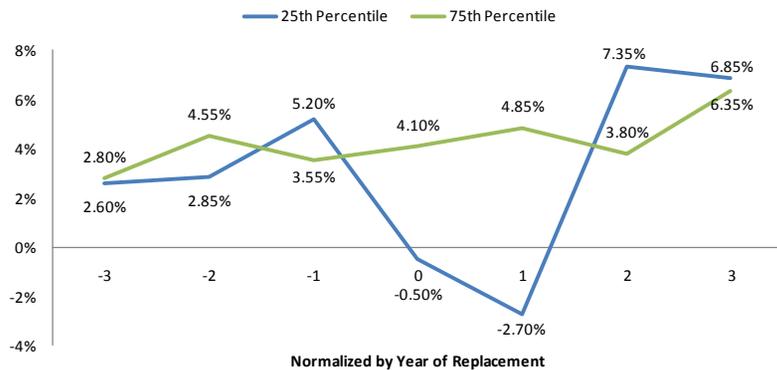
Key Finding:

At \$300 of construction cost per square foot, the above variance in SF/AOB in year 3 represents \$92,700 less in median construction cost per AOB for lower cost replacements. Median annual operating revenue per AOB in year 3 was \$732,555 for lower cost replacements.

The above construction cost savings from greater asset efficiency add an estimated 1% to the cash flow margin of a replacement hospital.*

Operating Margin

Chart 14: Median Operating Margin



During and immediately after replacement, median lower cost replacement performance lagged behind the median operating margin for higher cost replacements.

Higher cost replacements are less dependent upon volume gains and operating efficiency improvements to generate operating returns than lower cost replacements, as previously noted. Less dependence on operating efficiencies and volume gains may provide steadier results during and immediately after replacement. Once throughput gains and operating efficiencies take hold in years 2 and 3, lower cost replacements outperform their highest cost peers.

The pricing power of higher cost replacements yields benefits in the period during and immediately after replacement when volume gains and operating efficiencies are not yet fully realized. As a result, higher cost replacements enjoy more consistent median operating margin performance post-replacement.

While higher cost replacements have been able to capture significantly greater revenue per adjusted discharge than their lower cost peers in the recent past, the era of payment reform, consumerism, and pay for performance may be less accommodating to similar pricing variances in the future.

As noted in Part I of this analysis, 58% of replacements actually reduced their CMI adjusted operating expenses per adjusted discharge relative to the national average post-replacement. This result suggests that a significant

The 2009 Community Hospital Replacement Study

The Community Hospital Replacement Study is a comprehensive national study of 72 community hospital replacement projects completed between 2000 and 2007, which examines market, facility, operational, and financial metrics.

Prepared by Stroudwater Associates, CHRS sponsors are: Stroudwater, BE & K Building Group, Goldman Sachs, and Perkins + Will. The complete Study, ongoing research, and scheduling of presentations, are available at:

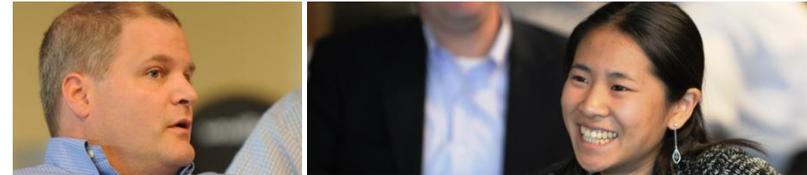
www.replacement-hospital.org

The CHRS findings have been presented to ratings analysts at Moody's Investors Service and Standard & Poor's as well as the Estes Park Institute.

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About Stroudwater Associates

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Our project specific inter-disciplinary teams include: experienced clinicians, academics, system leaders, corporate officers, investment bankers, financial analysts, and content specialists, with an average of 17 years in healthcare each. We serve a broad range of clients from academic medical centers, to community hospitals, to small hospitals and physician practices.

Our consultants research, publish, and speak nationally on the most recent trends and technologies affecting the delivery of healthcare. Many serve as subject matter experts to organizations such as the Advisory Board, the American College of Healthcare Executives and Estes Park. Most importantly, we do not re-frame client needs to fit pre-packaged solutions.

Our clients are unique, so are our solutions. □