

Part II

Community Value Index®

The Community Value Index® Hospital Ranking

For the sixth year, The State of the Hospital Industry includes the Community Value Index® (CVI) Top 100 and Five Star hospitals ranking. The CVI was created to provide a measure of the value that a hospital provides to its community. The CVI is composed of ten measures that assess a hospital's performance in four areas:

1. Financial viability and plant reinvestment
2. Hospital cost structure
3. Hospital charge structure
4. Hospital quality performance

Fundamentally, the CVI suggests that a hospital provides value to the community when it is financially viable, is appropriately reinvesting back into the facility, maintains a low cost structure, has reasonable charges, and provides high quality care to patients.

New for this year's study is the quality dimension. Hospitals are increasingly reporting quality performance data to public and private entities that has resulted in more accurate comparison across facilities. As reporting standards and number of facilities submitting data have increased we believe that comparison in this critical area is more reasonable to conduct. Our comparison of data in this area is done through the

Figure 30: CVI Components

Community Value Index Components	
Measure	Purpose
<i>Core Area One: Financial Viability and Plant Reinvestment</i>	
Total margin	Assess profitability at hospital
Growth in net fixed assets (2 years)	Assess level of hospital reinvestment
Fixed asset turnover	Assess efficiency of plant use
Debt financing percentage	Assess how hospital is financed
<i>Core Area Two: Hospital Cost Structure</i>	
Medicare cost per discharge (CMI/MI adj)	Assess inpatient cost structure
Medicare cost per visit (RWMI adj)	Assess outpatient cost structure
<i>Core Area Three: Hospital Charge Structure</i>	
Medicare charge per discharge (CMI/MI adj)	Assess level of inpatient charges
Medicare charge per visit (RWMI adj)	Assess level of outpatient charges
Disproportionate share percent	Assess level of low-income patients
<i>Core Area Four: Hospital Quality Performance</i>	
Hospital Quality Index	Assess process and outcomes of patient care

examination of a new metric: the Hospital Quality Index.

The CVI, as suggested above, seeks to assess the value a hospital has in its community by examining four core areas. Within the core areas, ten measures (Figure 30) were selected to determine hospital performance. A discussion of the core areas and individual measures follows:

Core Area One: Financial Viability and Plant Reinvestment

The first core area of the CVI examines a hospital's financial viability and facility reinvestment. A hospital must be financially viable in order to be a valuable asset in the community. Perhaps there is no greater disservice than to have a facility purport to be a leading care provider to citizens and then close due to poor financial management. Certainly, a strong financial position must be achieved in order for a hospital to continue its mission of providing care, while at the same time surviving in the turbulent health services market. Of course, a hospital must also continue reinvestment in the facility in order to provide for current and emerging health needs in the community. This does not imply that hospitals should spend money just for the sake of spending it but rather should make wise investments into plant and equipment that will be used efficiently.

Appropriately combining these two concepts of financial strength and reinvestment enhances a hospital's value in the community. This core area of the CVI suggests that hospitals in both for-profit and non-profit settings should be generating a positive return on operations; however, they should be using those resources to continue to improve the level of care provided to the communities they serve. The four measures used to determine a hospital's performance in this core area are: total margin, growth in net fixed assets,

fixed asset turnover, and debt financing percentage.

Total margin provides information on the level of profitability at a hospital. Without appropriate returns, a hospital will be unable to continue serving the community's health needs. Perhaps this concept is confused in the non-profit setting. At times, there seems to be a perception that because a hospital is "not-for-profit" it should not be making a profit. This could not be further from the truth. Just as individuals and for-profit businesses need resources in excess of expenses in order to meet current and future obligations, so also do non-profit organizations require similar returns in order to ensure survival.

As suggested previously, however, providing value to the community also involves reinvestment in the facility. To measure this concept, a growth rate in net fixed assets was determined for a two-year period for each hospital in our study. This was balanced with an examination of how efficiently hospitals use their plant and equipment, as measured by the fixed-asset turnover ratio. The combination of these two fixed-asset measures balances any extreme results that may occur. For example, let us imagine that a hospital embarked on a major capital project that was not needed to fulfill a community health need. Of course, the hospital would have a high growth rate in net fixed assets, implying significant investment in the facility; however, the turnover ratio would be low, suggesting that the project may not have been needed. The offsetting scores would balance the hospital's final ranking.

Finally, debt financing percentage measures how the hospital is financing its capital investments. While debt is not a negative thing, too much debt certainly will cripple a hospital – putting it into jeopardy and compromising its ability to continue to meet the needs of the community it serves.

Core Area Two: Hospital Cost Structure

The next core area of the CVI involves a hospital's cost structure. Keeping costs low allows a hospital to provide efficient care that can result in lower costs for community members and third-party payers. Allowing for an appropriate margin on care provided to community members will be less costly to them if the hospital's underlying cost structure is lower. In the end, this efficient care also promotes value to the community.

In order to assess a hospital's performance in this area, two measures were used: Medicare cost per discharge (adjusted for case mix and wage index), and Medicare cost per visit (adjusted for relative weight and wage index).

The CVI does not employ adjusted day or discharge measures to calculate cost positions or charge positions (as will be seen) because information based on these measures often can be misleading. Adjusted-day or discharge measures were started in order to try to convert outpatient activity into a common inpatient unit (day or discharge). However, the methodology to do this can lead to flawed results. To be clear, determining outpatient volume based on gross outpatient revenue and inpatient days or discharges can be flawed because of the differences in pricing and overall service mix at the facility. Increased outpatient pricing or greater percentage of outpatient activity can decrease the reliability of the data.

Although the CVI cost measures are restricted to the Medicare population, this does not present a particularly strong case against applying the results to the rest of the hospital's patient population for two reasons. First, Medicare represents the largest patient population for almost every US hospital. Second, because Medicare pays on a fixed, prospective-payment methodology, hospitals have an incentive to keep costs low for these

patients. If a hospital has high costs in treating Medicare patients, it can be reasonably assumed that it would also have high costs in treating other patients.

Core Area Three: Hospital Charge Structure

The third core area of the CVI examines a hospital's charges. Certainly, this area has received great attention in the past few years as health expenses, in general, have been rising. Obviously, consumers and third-party payers desire healthcare that is reasonably priced. However, hospitals are often in a difficult position because their pricing does not reflect actual payment that will be recovered for provided care. A patient's bill may appear less shocking if the individual knew what discounted price was actually compensated by the third-party payer. In the end, however, hospitals should strive for pricing that is reasonable and competitive with peer facilities. The CVI examines this by comparing hospital charges among hospitals in similar size/geographic classes.

Similar in methodology to assessing a hospital's cost structure, the CVI determines a hospital's charges based primarily on two measures: Medicare charge per discharge (adjusted for case mix and wage index) and Medicare charge per visit (adjusted for relative weight and wage index). As stated in the cost discussion, the CVI's charge measures can be reasonably applied to the rest of the hospital's non-Medicare business because Medicare represents such a significant portion of total business for most US hospitals. Also, gross charges for Medicare patients should be applicable to gross charges for other payers because prices for specific billable services do not vary by payer.

Also included in the charge areas is the Medicaid days percentage. This ratio is simply the number of Medicaid and Medicaid-

HMO days divided by total patient days at the hospital. The purpose for our inclusion of this new measure is to bring greater parity to relative charge structures at US hospitals. Our belief, which has been documented through published research, is that hospitals with higher levels of low-income patients have higher overall charge structures. The suggestion is clear: hospitals with high levels of low-income patients must have higher overall pricing structures to cover financial deficiencies incurred by treating this population. The inclusion of this measure does not totally erase a hospital's high charges; however, it does bring more balance to the overall charge score of the CVI.

Core Area Four: Hospital quality performance

As stated previously, the CVI now includes the quality dimension as part of the methodology to assess a hospital's overall community value performance. Quality has always been a central component of value; however, until recently there were only a limited number of metrics that were publicly available for a large number of hospitals. In addition, some metrics that were available were not consistently reported across organizations or did not adequately address a larger breadth of quality areas. As standards and number of facilities reporting have improved, the comparison of quality data has become more meaningful. For these reasons, the quality dimension is now included in the CVI calculation.

To assess this area of performance, we have analyzed Medicare's process of care and outcome of care quality measures for the most current periods. Process of care measures are reported for the period July 2007 through June 2008 and outcome of care measures are reported for the period July 2006 through June 2007.

There were twenty-five process of care metrics

that were used in our analysis in the areas of Heart Attack, Heart Failure, Pneumonia, and Surgical Infection Prevention. These process of care areas refer to medical standards for treatment protocols. For example, heart attack patients given aspirin upon arrival. Hospitals report the percentage of time standards were met in each of the twenty-five areas. From this data, we determined the percentage the hospital was above or below the US average, as well as, the frequency at which the hospital performed at or above the highest performing hospitals in the country. In sum, hospitals received high process of care composite scores when a higher number of areas were reported and when performance in those areas exceeded the US average and high-performance levels.

Outcome quality measurement is conducted through risk-adjusted mortality rates established for each facility by Medicare. These rates are provided for hospitals in three areas: heart attack, heart failure, and pneumonia patients. The mortality rates estimate the risk-adjusted frequency of death within thirty days of patient discharge. From the data in these areas, we created a composite score to evaluate the percentage a hospital was above or below US average levels. Hospitals that had lower levels of mortality had better composite scores.

The final step in our quality analysis was to create a Hospital Quality Index (HQI) based on the review of data in the process of care and outcomes areas. Combining the composite scores of these two areas created the overall HQI score. The HQI served as the overall quality score for each hospital in the Community Value Index® study.

Calculating the Community Value Index®

Hospitals Included in the Community Value Index® Study

All US acute-care facilities (without critical access status) were used to calculate the Community Value Index®. However, hospitals with less than \$10 million in annual net patient revenue were removed from the study group to provide a greater representation to larger hospitals where the majority of hospital expenditures occurs. It is important to note, however, that the exclusion of these hospitals does not imply that they are not high-performing facilities concerning community value. In addition, hospitals that were missing a data element for the financial and/or hospital charge and cost measures were excluded. The CVI study group is composed of 2,643 hospitals.

Assigning CVI Hospitals to Appropriate Comparison Groups

After assembling all of the study group members, hospitals were divided among five different groups:

- **Teaching – High Intensity** (131 hospitals with average net patient revenue of \$760 million)
- **Teaching – Medium Intensity** (279 hospitals with average net patient revenue of \$366 million)
- **Teaching – Low Intensity** (420 hospitals with average net patient revenue of \$206 million)
- **Non-Teaching – Large** (397 hospitals with average net patient revenue of \$249 million)
- **Non-Teaching – Small** (1,416 hospitals with average net patient revenue of \$65 million)

Dividing hospitals among these groups allowed more accurate comparison and appropriate ranking.

Calculating the CVI

As seen previously, the CVI's ten measures provide an assessment of a hospital's performance in four core areas: financial viability and plant reinvestment, cost structure, charge structure, and quality performance. The combination of the results of these ten measures for each hospital creates the Community Value Index®. To explain further, a hospital's result for each measure was compared against all other results for hospitals in its comparison group and then given a score based on its relative position among the other hospitals in that group. These ranked scores for each measure were then combined to provide a composite score that is the Community Value Index®. Each of the four areas has equal weighting even though the number of measures in each area may be different. For example, the financial viability and plant reinvestment area has four measures, while the cost area has two measures. The relative weight for each section, however, is one-fourth the total CVI score.

Explanation of Top 100 and Five-Star Hospitals Ranking

Certainly, the ten CVI measures provide a good aggregate assessment of hospital performance. Only hospitals that are performing well in all areas will be able to achieve a top-tier ranking. For instance, a hospital that is generating high returns on relatively high charges would not be top tier. Although the hospital's total margin score would compare well against other hospitals in its class, its charges would not, thus generating a closer-to-average composite score. Similarly, the balances for other measures can be reasoned logically. In the end, top-tier hospitals provide community value in each core area through above-average performance in the majority of the ten measures.

Top 100 Hospitals

Hospitals that achieved the highest scores in their respective size/geographic group were included in the “Community Value Index® Top 100 Hospitals” list (page 40). The hospitals are listed in alphabetical order. Top-performing hospitals in each group were selected to create the CVI Top 100 list. Each group, although different in number of hospitals, was approximately the same in size when net patient revenue for all the hospitals within the group was summed. Therefore, the top twenty hospitals from each group were selected:

- Teaching – High Intensity = 20 Hospitals
- Teaching – Medium Intensity = 20 Hospitals
- Teaching – Low Intensity = 20 Hospitals
- Non-teaching – Large = 20 Hospitals
- Non-teaching – Small = 20 Hospitals

Five-Star Hospitals

In addition to the Top 100 Hospitals ranking, those hospitals that achieved CVI scores within the top quintile (20%) of all hospitals within their group were designated as “Five-Star Hospitals.” A complete listing of these hospitals within their respective size/geographic groups can be seen beginning on page 42.

Summary

In conclusion, the Community Value Index® provides a good overall measure of a hospital’s financial strength and performance concerning costs, charges, and quality. The aggregate of these four core areas can produce value for a community when a hospital achieves a strong financial position, low cost structure, reasonable charges, and high quality patient care for services. While certain hospitals excelled in specific measures, CVI Top 100 and Five-Star facilities were able to achieve better-than-average results in all four CVI core areas.