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# Developing Financial Benchmarks for Critical Access Hospitals

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*This study developed and applied benchmarks for five indicators included in the CAH Financial Indicators Report, an annual, hospital-specific report distributed to all critical access hospitals (CAHs). An online survey of Chief Executive Officers and Chief Financial Officers was used to establish benchmarks. Indicator values for 2004, 2005, and 2006 were calculated for 421 CAHs and hospital performance was compared to the benchmarks. Although many hospitals performed better than benchmark on one indicator in 1 year, very few performed better than benchmark on all five indicators in all 3 years. The probability of performing better than benchmark differed among peer groups.*

## INTRODUCTION

As of December 2007, there were 1,292 CAHs in the U.S. They now represent almost 80 percent of all small rural hospitals and over 60 percent of all rural hospitals. CAH status was created in the 1997 Balanced Budget Act as part of the Medicare Rural Hospital Flexibility Program (Flex program). One of the objectives of the Flex program is to improve the financial status of CAHs, and in 2002 we

began a sustained effort to support CAH administrators and State and Federal officials involved in the Flex program in meeting that objective. We developed a set of financial indicators with specific relevance to CAHs that is reported to administrators annually in the *CAH Financial Indicators Report*. Since the inception of the *CAH Financial Indicators Report*, the research team has focused on three separate but related problems: (1) how to measure CAH financial performance, (2) how to compare CAH financial performance, and (3) how to evaluate CAH financial performance.

## How to Measure CAH Financial Performance

The first problem required selection of indicators, assessment of data quality and availability, and specification of the mechanics of calculating performance metrics (Pink et al., 2006). We first undertook a non-systematic review of articles in peer-reviewed journals, industry publications, and practitioner journals to identify ratios that were found to be important measures of hospital financial performance. To select the indicators that were most relevant to the financial performance of CAHs, a Technical Advisory Group of four individuals knowledgeable in CAH financial and operational issues, data, and reporting practices was selected to provide advice to a research team from the University of North Carolina at Chapel Hill. Twenty indicators for measuring the financial performance of CAHs were selected and

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calculated using Medicare Cost Report data. Hospital-specific values of these indicators were included in the *CAH Financial Indicators Report* that was disseminated to all CAH administrators in the summers of 2004, 2005, 2006, 2007, and 2008. A survey of CEOs found the indicators to be useful, the underlying formulas to be appropriate, and the *CAH Financial Indicators Report* to be a useful first step toward comparative financial indicators for CAHs. A summary of indicator medians by State from the 2008 *CAH Financial Indicators Report* and other data reports can be found at the Flex Monitoring Team Web site: [www.flexmonitoring.org](http://www.flexmonitoring.org).

### **How to Compare CAH Financial Performance**

The second problem required identification of peer groups of CAHs to provide a meaningful basis for performance comparisons (Pink et al., 2007). There is substantial variation in facility revenue as well as the number and types of services provided by CAHs that can make performance comparisons among CAHs problematic. To investigate whether indicators of financial performance and condition systematically vary among CAHs, suggestions from CAH administrators, a literature review, expert panel advice, and statistical analysis were used to create peer groups based on whether a CAH: (1) had less than \$5 million, \$5-\$10 million, or over \$10 million in net patient revenue; (2) was owned by a government entity; (3) provided long-term care; and (4) operated a provider-based Rural Health Clinic. Significant differences in financial performance and condition were found to exist among CAH peer groups, implying that CAHs should ensure that they use appropriate peer data when comparing their financial performance and condition.

### **How to Evaluate CAH Financial Performance**

The third problem was how to evaluate performance, either relative to medians or other comparators and that is the focus of this article. We describe the method that was used to establish benchmarks for five indicators of financial performance and condition and present the results of application of the benchmarks to 3 years of recent CAH data.

### **EVALUATION OF FINANCIAL PERFORMANCE AND CONDITION**

Since its inception, the method of evaluating financial performance and condition used in the *CAH Financial Indicators Report* has been comparison to medians. In the 2004 issue, the comparison was to the medians of CAHs with and without long-term care and the national median for each indicator. In the 2005 and 2006 issues, the comparison was to a peer group, State, and national median for each indicator.

After the 2006 issue of the *CAH Financial Indicators Report*, the research team decided to move beyond assessment of performance relative to medians. There are two fundamental limitations to relative performance assessment. The first is the assumption that ranking performance is the important question, rather than assessment against an absolute standard. For example, if the median all-payer total margin is -3 percent, then a hospital with a margin of -1 percent would be assessed, on a relative basis, as above-average financial performance. However, most financial managers would agree that organizations require positive all-payer total margins to replace buildings, acquire new technology, and so on. With sustained negative margins, it is unlikely that a hospital will be able to meet these needs and, on an

absolute basis, a margin of -1 percent is poor financial performance. A hospital with an all-payer total margin of -1 percent is in no less financial stress if 80 percent of its peers or 20 percent of its peers have similar margins.

The second limitation is the transitory nature of relative assessment. If a hospital had identical all-payer margins in 2 years, but performed better than the median 1 year and worse the next, relative assessment would place the hospital in different “performance groups” although the margins are the same. In essence, the goalposts change every year with relative assessment.

Although performance relative to comparable institutions is informative, assessment of the financial health of the institution should be independent of how others are doing and unchanging over time. For these reasons, the research team decided to augment current measures of relative performance (medians) with measures of absolute performance by developing benchmarks that are sample independent and time invariant.

## **CHALLENGES IN DEVELOPING BENCHMARKS**

Benchmarking has been defined as a “continuous systematic process of evaluating the products, services and work practices of organization that are recognized as representing best practices for the purpose of organizational improvement” and, generally, is considered a key component of many organizational performance measurement systems (Spendolini, 2002). Essentially, benchmarking helps to identify best in class performance, provides a method to set aggressive targets for improvement, and identifies potential strategies on how to improve performance.

There are many challenges in benchmarking, but the research team was faced by two, in particular. First, although banks, bond rating agencies, industry associations, and other groups have various informal and formal targets for acceptable performance, there have been no financial benchmarks specifically for CAHs. CAHs vary considerably from most other acute care short term stay hospitals because they are limited to 25 or fewer inpatient beds, typically have low inpatient volume, and face other restrictions (such as limits on length of stay) as conditions of participation. They also differ from PPS hospitals, even small PPS hospitals in rural areas, due to the difference in their Medicare reimbursement (Medical Care Payment Advisory Commission, 2003). Second, a benchmark forces explicit specification of good performance, but the threshold where performance changes from average to good is often not obvious. For example, most people can probably agree that long-term losses are bad and that hospitals need profits to replace capital assets, acquire new technology, and so on. However, what level of profitability is “average” and what level is “good”? The indicator values at which performance changes from average to good are not consistently addressed in the financial literature.

## **CREATION OF CAH FINANCIAL BENCHMARKS**

A number of steps were undertaken to create benchmarks of financial indicators with specific relevance to CAHs. At two stages in the process, the research team surveyed the Chief Executive Officers (CEOs) and Chief Financial Officers (CFOs) of CAHs to solicit their opinions about benchmarks. These individuals have the overall responsibility for the financial performance and condition of their

hospitals. Furthermore, most CFOs are accountants or individuals trained in financial management who are knowledgeable about methods of assessing financial performance and condition. They are responsible for the ongoing financial management of the organization, including reporting financial information to the hospital board, auditors and CMS.

The method used to create and validate CAH benchmarks of financial performance and condition involved six steps:

### Step 1: Selection of Indicators to Benchmark

The *CAH Financial Indicators Report* includes 20 indicators; however, a benchmark for each of these indicators was considered too many and probably unnecessary. Instead, the research team decided to focus on Key Performance Indicators, or KPIs (Gapenski, 2007). KPIs are a limited number of financial (and possibly non-financial) metrics that measure performance critical to the success of an organization. In essence, they assess the

current state of the business, measure progress toward organizational goals, and prompt managerial action to correct deficiencies. Clearly, the number of KPIs used must be kept to a minimum to allow managers to focus on the most important aspects of financial performance.

From the indicators included in the *CAH Financial Indicators Report*, five KPIs were selected in consultation with a technical adviser who has extensive knowledge and expertise in CAH financial management. Cash flow margin, days cash on hand, debt service coverage, long-term debt to total capitalization, and Medicare outpatient cost to charge were selected because they are among the most widely-used and accepted indicators of financial performance and condition and are relevant to CAHs. Table 1 shows the definition and interpretation of each indicator.

### Step 2: Development of Survey to Create Benchmarks

Most hospital CEOs and CFOs are busy executives who do not have a lot of time

**Table 1**  
**Indicator Definitions**

Indicator	Definition	Interpretation
Cash flow margin	$\frac{\text{Net income} - (\text{Contributions, Investments, and Appropriations}) + \text{Depreciation} + \text{Interest expense}}{\text{Net patient revenue} + \text{Other income} - (\text{Contributions, Investments, and Appropriations})}$	Dollars of cash inflow per dollar of revenue from providing patient care services
Days cash on hand	$\frac{\text{Cash} + \text{Marketable securities} + \text{Unrestricted investments}}{(\text{Total expenses} - \text{Depreciation}) / \text{Days in period}}$	Number of days an organization could operate if no cash was collected or received
Debt service coverage	$\frac{\text{Net income} + \text{Depreciation} + \text{Interest expense}}{\text{Current portion of long-term debt} * (\text{Days in period} / 365) + \text{Interest expense}}$	Dollars of cash inflow per dollar of principal payments and interest expense
Long-term debt to capitalization	$\frac{\text{Long-term debt}}{\text{Long-term debt} + \text{Fund balance}}$	Percentage of total capital that is debt
Medicare outpatient cost to charge	$\frac{\text{Outpatient Medicare costs}}{\text{Outpatient Medicare charges}}$	Outpatient Medicare costs per dollar of outpatient Medicare charges

SOURCE: Pink, G.H., Holmes, G.M., D'Alpe, C., McGee, P., Strunk, L., and Slifkin, R.T.: Financial Indicators for Critical Access Hospitals. *Journal of Rural Health* 22(3):229-236, Summer 2006.

available to answer surveys. For this reason, the survey was designed to be short and answerable within 5-10 minutes. The benchmark creation survey is shown in Appendix 1.

The survey was pilot tested on two CEOs. Each was asked to review the instrument for clarity and ease of data collection, and to identify any potential issues with the validity or quality of the data to be gathered. Based on their feedback, several minor wording changes were made.

### **Step 3: Survey of CEOs and CFOs to Create Benchmarks**

In August 2006, CAH administrators received a letter telling them how to access from a secure Web site the third issue of the *CAH Financial Indicators Report* for their facility. After they downloaded the report, CEOs and CFOs were prompted to complete an on-line questionnaire about benchmarks for the five indicators. The Web site included a description of the purpose of the survey and how the results would be used, a promise of confidentiality, and contact information in case they had questions about the survey. The description of the indicators included definition of each ratio (numerator and denominator) and an interpretation of each indicator. All survey responses were tracked using an ID number, which was linked to the particular hospital in a Master List accessible only to the research team.

### **Step 4: Assessment of the Sample of Questionnaire Respondents**

In a previous article, we described how suggestions from CAH administrators, a literature review, expert panel advice, and statistical analysis were used to create peer groups (Pink et al., 2007). Significant

differences in financial performance and condition exist among CAH peer groups, so it was important to ensure that questionnaire respondents from particular peer groups were not over- or under-represented. Table 2 shows that the survey response rates by peer group ranged between 25 and 32 percent (the response rate was considered to be those who responded as a proportion of those who were asked to complete the survey, which is the subset of administrators who logged on to the *CAH Financial Indicators Report* Web site). The distribution of respondents was also compared to the universe of CAHs. The variation across peer groups was minimal, with 14 and 18 percent of CAHs in each group represented. The research team was satisfied that the respondents were a fair representation of CAH peer groups.

Response bias was also investigated. First, we tested whether CEOs and CFOs from high-performing hospitals (defined as hospitals with indicator values better than the median) were more or less likely to respond to the questionnaire than CEOs and CFOs from low-performing hospitals (defined as hospitals with indicator values worse than the median). Results showed that the propensity to answer the benchmark survey was not associated with hospital performance on the five indicators. Second, we tested whether CEOs differed from CFOs in the benchmarks they identified for each indicator. Results showed that there were no differences except for the cash flow margin where CEOs had a lower benchmark. Finally, we tested whether CEO and CFO respondents from different geographic regions were over- or under-represented and results showed they were not. In general, no evidence of substantial response bias was found.

**Table 2**  
**2006 CAH Benchmark Creation Survey Response Rate by Hospital Peer Group**

Hospital Peer Group	Number of Responses from Hospitals in Peer Group	Number of Potential Respondents*	Percent Response Rate	Number of Hospitals in Peer Group (December 2005)	Percent Represented in Universe
	(a)	(b)	(a) / (b)	(c)	(a) / (c)
Net patient revenue:					
< \$5m	27	102	26	233	12
\$5m - \$10m	51	177	29	354	14
> \$10m	91	338	27	657	14
Total	169	617	27	1244	14
Provided long-term care:					
No	100	401	25	812	12
Yes	69	216	32	432	16
Total	169	617	27	1244	14
Owned by a government entity:					
No	92	369	25	753	12
Yes	77	248	31	491	16
Total	169	617	27	1244	14
Operated a Rural Health Clinic:					
No	89	328	27	684	13
Yes	80	289	28	560	14
Total	169	617	27	1244	14

\* Potential respondents include all CAH CEOs and CFOs who logged on to the *CAH Financial Indicators Report* Web site in 2006 and downloaded a report for their hospital.

SOURCE: Pink, G.H., Holmes, G.M., Slifkin, R.T., University of North Carolina at Chapel Hill, and Thompson, R. E., Seim, Johnson, Sestak & Quist, LLP, 2009.

### Step 5: Assessment of Variation among Peer Groups

Significant differences in financial performance and condition exist among CAH peer groups (Pink et al., 2007), so it was important to investigate whether the CAH benchmarks identified by CAH administrators varied by the peer group of the respondents' hospitals. For example, did the benchmarks identified by respondents from hospitals with higher net patient revenue differ from the benchmarks identified by respondents from hospitals with lower net patient revenue?

Results showed that there were no statistically significant differences between peer groups in the suggested benchmarks for cash flow margin or days cash on hand. For these two indicators, relatively similar benchmarks were identified regardless of the peer group of the respondent. However, differences were found between peer groups in the suggested benchmarks

for debt services coverage, long-term debt to capitalization, and Medicare outpatient cost to charge. For these three indicators, benchmarks appear to be influenced by the peer group of the respondent.

The research team and a technical adviser debated the advantages and disadvantages of peer group-specific benchmarks. The case for peer group-specific benchmarks was based on the argument that, although a benchmark should be a high but achievable level of performance, there may be differential ability among CAHs to reach the benchmark. If attainment of benchmark performance is influenced by whether the CAH provides long-term care, for example, then one benchmark may set the bar too low for one group and too high for the other. The case against peer group-specific benchmarks was based on the argument that a benchmark should be a high level of financial performance regardless of factors that influence the ability of a hospital to reach the benchmark.

Again, if attainment of benchmark performance is influenced by whether the CAH provides long-term care, then one group of hospitals will have more difficulty reaching benchmark compared to the other, but this is the stark operating reality faced by the hospital. In general, evaluation of hospital performance by external parties will not adjust for peer group characteristics. For example, it seems unlikely that lenders would apply different credit standards to hospitals with and without long-term care.

In the end, the research team decided to adopt one set of benchmarks for all CAHs and to eschew the use of peer group-specific benchmarks. In addition to the argument above, it was believed that: (1) one benchmark per indicator is simple and easy to understand, and (2) the percent of CAHs meeting benchmark by peer group would clearly identify the effects of peer group characteristics. For example, if 50 percent of CAHs overall failed to meet the benchmark but 90 percent of the CAHs in the hospital's peer group failed, then clearly there was a peer group effect.

### **Step 6: Assessment of Benchmark Validity**

Alternative percentiles of indicator values identified by questionnaire respondent were considered for benchmarks, but the median of the responses was chosen as a first step: cash flow margin of 5 percent, days cash on hand of 60 days, debt service coverage of 3, long-term debt to capitalization of 25 percent, and Medicare outpatient cost to charge of 0.56.

As an assessment of benchmark face validity, the CAH benchmarks were compared to a subset of the Key Hospital Financial Statistics and Ratio Medians (December 2007) reported on the Web site of the Healthcare Financial Management Association (HFMA). HFMA compiles data

for 11 financial indicators from Standard & Poor's, FITCH, Thomson Healthcare, Data Advantage Corp., INGENIX, and Premier, Inc. Although HFMA states that the figures are "very high-level benchmarks," there is a range of benchmarks for each of the financial indicators (a wide range for several indicators), probably due to large differences in sample sizes (from 218 to 4,363 hospitals). The HFMA benchmarks are based on all types of acute care hospitals (not just CAHs) and the proportion of the samples that are CAHs probably varies substantially. However, very small hospitals have historically been less profitable, less liquid, and had less debt in their capital structure. Therefore, it seemed reasonable to expect that CAH benchmarks should be at the lower end of the HFMA benchmarks.

For days cash on hand, the CAH benchmark of 60 days was less than four and greater than one of the five reported HFMA benchmarks. For debt service coverage, the CAH benchmark of 3.0 was less than all of the four reported HFMA benchmarks, which may reflect a respondent view that CAHs historically have had less ability to pay obligations related to long-term debt in comparison to larger hospitals included in the HFMA samples. For long-term debt to capitalization, the CAH benchmark of 25 percent was less than all of the six reported HFMA benchmarks. Again, the CAH benchmark may reflect a respondent view that CAHs historically have had less ability to access the capital markets in comparison to larger hospitals included in the HFMA samples. In general, the differences between the CAH and HFMA benchmarks were reasonable and in the expected direction, which the researchers considered to be evidence of face validity of the benchmarks.<sup>1</sup>

<sup>1</sup> The HFMA benchmarks are proprietary so specific values cannot be included in this article.

A more extensive assessment of benchmark validity was undertaken through the use of a survey. In August 2007, CAH administrators received a letter telling them how to access from a secure Web site the fourth issue of the *CAH Financial Indicators Report* for their facility. Included in the *Report* was a page entitled “Benchmark Report for (Hospital Name).” The Benchmark Report described why the benchmarks were created, how the benchmarks were created (from the 2006 questionnaire), some factors to be kept in mind when evaluating hospital performance against benchmarks, and a table of data about the hospital’s performance relative to the benchmarks. For each of the five selected indicators, the table identified the hospital’s value, the benchmark, whether the benchmark was met, and the percent of all CAHs meeting the benchmark (in the U.S. and in the hospital’s peer group and state).

After they downloaded the fourth issue of the *CAH Financial Indicators Report* for their facility, CEOs and CFOs were prompted to complete an on-line questionnaire about their evaluation of the benchmarks for the five indicators. Respondents were asked whether each benchmark was much too low, too low, about right, too high

or much too high. All survey responses were tracked using an ID number, which was linked to the particular hospital in a Master List accessible only to the research team. The benchmark evaluation questionnaire is shown in Appendix 2.

Potential response bias in the benchmark evaluation survey was investigated in the same manner as the benchmark creation survey. The research team was satisfied that the respondents were a fair representation of CAH peer groups and no evidence of substantial response bias was found.

Table 3 shows the results of the 2007 CAH Benchmark Evaluation Survey. The percentage of respondents who considered the benchmarks “about right” was very high for cash flow margin, debt service coverage, long-term debt to capitalization, and Medicare outpatient cost to charge. A somewhat lower percentage of respondents considered the days cash on hand benchmark of 60 days to be about right (73 percent). Respondents from hospitals with greater days cash on hand were more likely to consider the benchmark “too low,” possibly reflecting their individual risk tolerance. Therefore, some hospitals may want to increase the days cash on hand benchmark according to their individual

**Table 3**  
**2007 CAH Benchmark Evaluation Survey Number and Percent of Responses by Indicator**

Indicator	Much Too Low	Too Low	About Right	Too High	Much Too High	Total
Cash flow margin Benchmark = 5%	1 (1%)	17 (6%)	241 (89%)	9 (3%)	2 (1%)	270 (100%)
Days cash on hand Benchmark = 60 days	4 (2%)	57 (21%)	198 (73%)	11 (4%)	0 (0%)	270 (100%)
Debt service coverage Benchmark = 3.0	0 (0%)	2 (1%)	241 (89%)	27 (10%)	0 (0%)	270 (100%)
Long-term debt to capitalization Benchmark = 25%	2 (1%)	12 (4%)	248 (92%)	7 (3%)	0 (0%)	269 (100%)
Medicare outpatient cost to charge Benchmark = 0.56	1 (1%)	11 (4%)	236 (88%)	18 (6%)	1 (1%)	267 (100%)

SOURCE: Pink, G.H., Holmes, G.M., Slifkin, R.T., University of North Carolina at Chapel Hill, and Thompson, R. E., Seim, Johnson, Sestak & Quist, LLP, 2009.

circumstances. The research team will continue to monitor this benchmark in particular to ensure that it accurately reflects current opinion in the industry.

## APPLICATION OF THE CAH FINANCIAL BENCHMARKS

A natural question was “how many hospitals performed at or above benchmark?” That is, how many hospitals had cash flow margins greater than 5 percent, days cash on hand of 60 days or more, debt service coverage greater than 3.0, long-term debt to capitalization of 25 percent or less, and Medicare outpatient cost to charge of 0.56 or less? To answer this question, the five indicators were calculated for all CAHs that had a Medicare Cost Report covering at least 360 days in period, had no missing data for calendar years 2004, 2005, and 2006, and were CAHs during all 3 years. Only 421 CAHs satisfied these criteria.

Table 4 shows hospital performance in each of 3 years for each indicator. For cash flow margin, the percent of hospitals that performed better than the benchmark was 49 percent in 2004, 51 percent in 2005, and 56 percent in 2006. For the 3 years, the percent of hospitals that performed better than benchmark was highest for Medicare

outpatient cost to charge and lowest for long-term debt to capitalization. For all indicators except days cash on hand, there was a small increase in the percentage of hospitals that performed better than benchmark between 2004 and 2006. These results suggest that many hospitals performed better than benchmark on one indicator in at least 1 year.

Table 5 shows hospital performance over 3 years for each indicator. CAHs were most successful meeting benchmark for Medicare outpatient cost to charge; just over one-half (51 percent) performed better than benchmark in all 3 years. For cash flow margin, 31 percent of CAHs performed better than benchmark in all 3 years. The percent of hospitals that performed better than benchmark in 2 of 3 years was 21 percent, and in 1 of 3 years was 21 percent. Twenty-seven percent of hospitals failed to meet the benchmark in any of the 3 years. The most difficult benchmark to consistently attain was debt service coverage (26 percent achieved this level in all 3 years). Comparing these results to those in Table 4, while many hospitals are able to perform better than benchmark in a single year, fewer hospitals met or performed better than benchmark on any given indicator in all 3 years.

**Table 4**  
**Hospital Performance in Each of 3 Years for Each Indicator**

Indicator	CAHs that Performed Better than Benchmark*		
	2004	2005	2006
Cash flow margin	208 (49%)	216 (51%)	237 (56%)
Days cash on hand	209 (50%)	211 (50%)	208 (49%)
Debt service coverage	185 (44%)	202 (48%)	211 (50%)
Long-term debt to capitalization	167 (40%)	173 (41%)	179 (43%)
Medicare outpatient cost to charge	246 (58%)	250 (59%)	261 (62%)

\* Out of 421 CAHs with valid values for all benchmarks for 2004, 2005, and 2006.

SOURCE: Pink, G.H., Holmes, G.M., Slifkin, R.T., University of North Carolina at Chapel Hill, and Thompson, R. E., Seim, Johnson, Sestak & Quist, LLP, calculations using Healthcare Cost Report Information System (HCRIS) Version 3/31/08, Centers for Medicare & Medicaid Services.

**Table 5**  
**Hospital Performance Over 3 Years for Each Indicator**

	CAHs that Performed Better than Benchmark				Total
	0 of 3 years	1 of 3 years	2 of 3 years	3 of 3 years	
Cash flow margin	112 (27%)	88 (21%)	90 (21%)	131 (31%)	421 (100%)
Days cash on hand	153 (36%)	55 (13%)	66 (16%)	147 (35%)	421 (100%)
Debt service coverage	125 (30%)	103 (24%)	84 (20%)	109 (26%)	421 (100%)
Long-term debt to capitalization	204 (48%)	40 (10%)	52 (12%)	125 (30%)	421 (100%)
Medicare outpatient cost to charge	127 (30%)	45 (11%)	35 (8%)	214 (51%)	421 (100%)

SOURCE: Pink, G.H., Holmes, G.M., Slifkin, R.T., University of North Carolina at Chapel Hill, and Thompson, R. E., Seim, Johnson, Sestak & Quist, LLP, calculations using Healthcare Cost Report Information System (HCRIS) Version 3/31/08, Centers for Medicare & Medicaid Services.

The next question investigated was whether hospitals that performed better than benchmark were able to maintain this performance over time. More specifically, were hospitals that performed better than benchmark in the first year of the study period (2004) also able to perform better than benchmark in the last year of the study period (2006)? Performance in the first and last years of the study period only was compared for simplicity of presentation. Table 6 shows the results are for all five indicators for 2004 and 2006. The upper left cell of the table shows that 2 percent (9 out of 421 hospitals) did not perform better than benchmark on any indicator in either 2004 or 2006. These hospitals were clearly poor performers and were probably in some degree of financial distress. Conversely, the lower right hand cell shows that 4 percent

(17 out of 421 hospitals) performed better than benchmark on all 5 indicators in both 2004 and 2006. These hospitals were clearly high performers and were likely in a very strong financial position. These results indicate that very few hospitals performed better than benchmark on all five indicators in both the year at the beginning of the study period and in the year at the end of the study period.

As stated previously, significant differences in financial performance and condition exist among CAH peer groups and the peer group with the most influence on financial performance was net patient revenue (Pink et al., 2007). The final question investigated was whether the proportion of hospitals that performed better than benchmark varied among net patient revenue peer groups and results showed that

**Table 6**  
**Distribution of Hospitals by the Number of Benchmarks Met at Beginning and End of Study Period**

Number of Benchmarks Met in 2004	Number of Benchmarks Met in 2006						Total
	0	1	2	3	4	5	
				Percent			
0	2	3	1	0	0	0	6
1	2	8	5	3	2	1	21
2	2	5	8	7	5	1	28
3	0	4	5	7	6	2	24
4	0	0	3	3	6	3	15
5	0	0	0	1	1	4	6
Total	6	20	22	21	20	11	100

SOURCE: Pink, G.H., Holmes, G.M., Slifkin, R.T., University of North Carolina at Chapel Hill, and Thompson, R. E., Seim, Johnson, Sestak & Quist, LLP, calculations using Healthcare Cost Report Information System (HCRIS) Version 3/31/08, Centers for Medicare & Medicaid Services.

**Table 7**

**Number of Years Cash Flow Margin Benchmark Met by Net Patient Revenue Peer Group**

Net Patient Revenue Peer Group	0 of 3 Years	1 of 3 Years	2 of 3 Years	3 of 3 Years	Total
	Percent				
Under \$5 million	52	25	11	12	100
\$5 – 10 million	26	23	25	26	100
Over \$10 million	17	18	23	43	100

SOURCE: Pink, G.H., Holmes, G.M., Slifkin, R.T., University of North Carolina at Chapel Hill, and Thompson, R. E., Seim, Johnson, Sestak & Quist, LLP, calculations using Healthcare Cost Report Information System (HCRIS) Version 3/31/08, Centers for Medicare & Medicaid Services.

it did. For example, Table 7 shows that 43 percent of hospitals with net patient revenue greater than \$10 million performed better than cash flow margin benchmark in all three years in comparison to 26 percent and 12 percent for the other net patient revenue peer groups. Similarly, a higher proportion of hospitals with net patient revenue less than \$10 million did not perform better than benchmark in any year in comparison to the other net patient revenue peer groups.

**CONCLUSION**

This article describes the method that was used to develop benchmarks for five indicators of financial performance and condition and presents results of application of the benchmarks to three years of recent data for CAHs. Many hospitals performed better than benchmark on one indicator in one year, but fewer hospitals performed better than benchmark on one indicator in two or three years. Very few hospitals performed better than benchmark on all five indicators in the year at the beginning of the study period and the year at the end of the study period. The higher the net patient revenue, the higher the proportion of hospitals that performed better than benchmark in more than one year.

The results suggest that the benchmarks are appropriate but it is very difficult for hospitals to consistently perform better than benchmark on more than one

indicator. In other words, it is a challenge to concurrently generate high margins, bank substantial cash, have little debt in the capital structure, and achieve low costs relative to charges. The results are consistent with prior work suggesting that it is more difficult to manage low-volume hospitals (Dalton, Holmes, and Slifkin, 2003a, b) and support the notion that Medicare reimbursement policies specific to these hospitals (CAH status) are necessary.

CEOs and CFOs of CAHs struggle with issues such as Medicaid reimbursement, wage inflation, physician and nurse recruitment and retention, aging physical plants, the cost of pharmaceuticals, advances in medical technology, growth in the uninsured and underinsured, and consumerism. These challenges appear to be particularly difficult for CAHs with low revenue. In general, many factors impact the profitability, liquidity, capital structure, costs and utilization of a CAH, making achievement of benchmark financial performance a significant challenge.

A limitation of the study is that these benchmarks were assessed on CAHs that had complete years of financial data for 2004, 2005, and 2006, which implies that the hospital had to convert by no later than 2003. Roughly one-third of current CAHs converted after this time, so the study sample may not be representative of the set of currently operating CAHs, especially because more recent converters tend to be larger and financially healthier.

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## REFERENCES

Dalton, K., Holmes, M., and Slifkin, R.: Unpredictable Demand and Low-Volume Hospitals. NC RHRP *Findings Brief* #75. 2003.

Dalton, K., Holmes, M., and Slifkin, R.: Unstable Demand and Cost per Case in Low-Volume Hospitals. NC RHRP *Findings Brief* #76. 2003.

Gapenski, L.C.: *Understanding Healthcare Financial Management, Fifth Edition*. AUPHA Press/Health Administration Press. Chicago, IL. 2007.

Medical Care Payment Commission: *Report to the Congress* (Appendix D). March 2003.

Pink, G.H., Holmes, G.M., D'Alpe, C., et al.: Financial Indicators for Critical Access Hospitals. *Journal of Rural Health* 22(3):229-236, Summer 2006.

Pink, G.H., Holmes, G.M., Thompson, R., et al.: Variations in Financial Performance Among Critical Access Hospitals. *Journal of Rural Health* 23(4): 299-305, Fall 2007.

Spendolini, M.J.: *The Benchmarking Book*. Amacom. New York. 2002.

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## APPENDIX 1

### 2006 BENCHMARK CREATION QUESTIONNAIRE

We would appreciate your participation in a consensus process to develop a set of benchmarks that are relevant and useful in assessing the financial performance of CAHs. Benchmarks are a key component of many performance measurement systems because they help identify good financial performance and provide specific targets for improvement.

This survey is being filled out by both CEOs and CFOs (separately) of CAHs. All responses will be kept confidential. The results of this survey will be incorporated into the 2007 issue of the CAH Financial Indicators Report.

We would like your opinion about benchmarks that are a high but attainable level of financial performance by CAHs for five of the indicators included in the CAH Financial Indicators Report: cash flow margin (A better measure of operating cash flow in comparison to total margin), days cash on hand, debt service coverage, long-term debt to capitalization, and Medicare outpatient cost to charge.

Please enter your benchmark in each shaded box. Keep in mind that there are no right or wrong answers. You are the expert, and your experience as a CAH administrator is very important to this process. [Click Here](#) for a printable version.

Cash flow margin	Above____%	There is financial viability Capital can be readily accessed from short-term lenders Assets can be replaced when needed
Days cash on hand	Above____ days	There is appropriate liquidity Current obligations can readily be met from current assets Extraordinary costs can be covered without financial problems
Debt service coverage	Above____ times	Debt obligations can readily be met Capital can be accessed from long-term lenders
Long-term debt to capitalization	Below____%	The amount of debt in the capital structure is appropriate
Medicare outpatient Cost to charge	Below____ times	Outpatient services are highly profitable

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SOURCE: Pink, G.H., Holmes, G.M., Slifkin, R.T., University of North Carolina at Chapel Hill, and Thompson, R. E., Seim, Johnson, Sestak & Quist, LLP, 2009.

## APPENDIX 2

### 2007 BENCHMARK EVALUATION QUESTIONNAIRE

Last year we asked CAH administrators to participate in a process to develop a set of benchmarks that are relevant and useful in assessing the financial performance of CAHs. When the 3<sup>rd</sup> issue of the *CAH Financial Indicators Report* was distributed in Summer 2006, administrators were asked to complete a questionnaire about benchmarks for five key financial indicators. 169 administrators completed the questionnaire and the medians of these responses have been used to create benchmarks that are included in the Benchmarking Report (page 6) of the 4<sup>th</sup> and 5<sup>th</sup> issues of the *CAH Financial Indicators Report*.

We are interested in your opinion about these benchmarks. Please answer the questions following each benchmark.

#### 1. Cash flow margin

For cash flow margins above the benchmark, there is financial viability, capital can be readily accessed from short-term lenders, and assets can be replaced when needed. According to surveyed administrators, the appropriate benchmark value for CAHs is **5 percent**. In your judgment, is this value:

Much too low       Too low       About right       Too high       Much too high

If not about right, please tell us why.

#### 2. Days cash on hand

For days cash on hand above the benchmark, there is appropriate liquidity, current obligations can readily be met from current assets, and extraordinary costs can be covered without financial problems. According to surveyed administrators, the appropriate benchmark value for CAHs is **60 days**. In your judgment, is this value:

Much too low       Too low       About right       Too high       Much too high

If not about right, please tell us why.

#### 3. Debt service coverage

For debt service coverage above the benchmark, debt obligations can readily be met and capital can be accessed from long-term lenders. According to surveyed administrators, the appropriate benchmark value for CAHs is **3.0 times**. In your judgment, is this value:

Much too low       Too low       About right       Too high       Much too high

If not about right, please tell us why.

#### 4. Long-term debt to capitalization

For long-term debt to capitalization below the benchmark, the amount of debt in the capital structure is appropriate. According to surveyed administrators, the appropriate benchmark value for CAHs is **25 percent**. In your judgment, is this value:

Much too low       Too low       About right       Too high       Much too high

If not about right, please tell us why.

#### 5. Medicare outpatient cost to charge

For Medicare outpatient cost to charge below the benchmark, outpatient services are highly profitable. According to surveyed administrators, the appropriate benchmark value for CAHs is **0.56**. In your judgment, is this value:

Much too low       Too low       About right       Too high       Much too high

If not about right, please tell us why.

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SOURCE: Pink, G.H., Holmes, G.M., Slifkin, R.T., University of North Carolina at Chapel Hill, and Thompson, R. E., Seim, Johnson, Sestak & Quist, LLP, 2009.