Peterson-Milbank
Program for Sustainable
Health Care Costs

Guide to Understanding Hospital Spending through Financial Analysis

Analytic Support Resource: Illustrative Case Studies

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The Peterson-Milbank Program for Sustainable Health Care Costs supports state-led efforts to make health care more affordable for everyone. Starting with setting a target for reasonable cost increases, states across the country are collecting data on their annual health care spending and analyzing it to find the cost growth drivers. With this information, everyone in the state who has a stake in health care can work together to identify community-wide solutions to improve affordability. For more information, visit **The Peterson-Milbank Program for Sustainable Health Care Costs**.

About Bailit Health

Bailit Health is a health policy consulting firm dedicated to ensuring provider organization and insurer accountability to patients, employer purchasers and public agencies for access, quality, equity and affordability. For more information, visit **bailit-health.com**.

Illustrative Case Studies

The **Guide to Understanding Hospital Spending through Financial Analysis** describes how analysts can use Audited Financial Statements to calculate measures of health system **profitability, liquidity, debt capacity and solvency, and capital investment**.[1] The Guide suggests comparing health system performance on these measures against the national median ranges ("reference ranges") included in the resource. These reference ranges were informed by Fitch Ratings national medians for more than 200 non-profit hospitals and health systems from 2013–2022 (most recent data available).[2] **These reference ranges provide an indicator of relative financial health, but do not necessarily represent a desirable or undesirable level of financial performance.**

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1 The eight key financial indicators discussed in the Guide to Understanding Hospital Spending through Financial Analysis and in this accompanying resource were selected in consultation with Dr. Nancy Kane, Professor of Health Policy and Management, Emerita, Harvard T.H. Chan School of Public Health.

2 Median ranges are provided with the permission of Fitch Ratings and take into account median performance from 2013-2022. This period is exceptional due to the COVID-19 pandemic, the impact of the pandemic on health care utilization patterns, and the impact of pandemic-related policies (e.g., federal relief grants, Medicare advanced payments, and tax deferrals). In its July 2023 review of 2022 hospital performance, Fitch observed that "2023 medians (using audited 2022 data) largely show sizable and widespread deterioration in operating margins and balance sheet metrics, a stark contrast to last year" and "While we believe 2023 financial results will be better than those of 2022, this will not represent a full rebound, given the tremendous ongoing pressures on many credits in the sector." Fitch Ratings. 2023 Median Ratios: Not-for-Profit Hospitals and Healthcare Systems. **fitchratings.com/research/us-public-finance/2023-median-ratios-not-for-profit-hospitals-healthcare-systems-25-07-2023**. Published July 23, 2023. Accessed December 27, 2023.

The case studies below offer an illustration of how analysts and policymakers can use this framework of key financial indicators to analyze Audited Financial Statements and interpret their findings. These case studies draw data from the Audited Financial Statements of three actual health systems from different regions of the country that we reference as Health Systems A, B, and C. Each case study summarizes the state of the health systems' finances as of hospital fiscal year (FY) 2022 using the eight key financial indicators and comparing performance to reference ranges.

These are simplified case studies that focus largely on one year of data; they are for illustrative purposes only. The Guide recommends that analysts consider financial performance *over time*, typically three to five years. Operating margin and total margin can demonstrate significant volatility from year to year, so an assessment based on short-term performance can be misleading. Looking at trends over several years provides a more accurate picture of the financial health of the system, especially for the metrics EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) Margin, Days Cash on Hand, and Capital Expenditures. These case studies examine financial data for FY2022, a notoriously challenging year for health systems as they continued to face COVID-19, repaid federal taxes deferred and Medicare payments advanced earlier in pandemic, and dealt with rising staffing and supplies costs and stock market declines. For a detailed discussion of how to interpret performance on the eight key financial indicators, please refer to Section IV of the Guide.

TABLE 1. **Summary of Financial Performance, Health Systems A, B, and C (FY2022)**

	Health System A		Health System B		Health System C		
Metric	FY2022 Performance	Performance Relative to Reference Range	FY2022 Performance	Performance Relative to Reference Range	FY2022 Performance	Performance Relative to Reference Range	Reference Range
Profitability							
Operating EBITDA Margin	**7.9%**		**3.7%**		**0.7%**		8–10%
Total EBITDA Margin	**27.0%**		**4.1%**		**2.7%**		10–12%
Liquidity							
Days Cash on Hand (all unrestricted sources)	**387.3**		**145.2**		**120.3**		100–200
Days in Accounts Receivable*	**48.8**		**41.0**		**43.3**		40–50
Debt Capacity & Solvency							
EBITDA Debt Service Coverage	**7.0**		**2.6**		**1.4**		3–4
Long-Term Debt to Capitalization*	**21.7%**		**25.6%**		**34.9%**		35–40%
Capital Investment							
Capital Expenditures to Depreciation	**188.6%**		**131.0%**		**70.7%**		105–115%
Average Age of Plant (Years)*	**11.9**		**13.1**		**11.5**		10–12

* Lower value indicates more favorable financial performance for indicated measures.

Reference range

Performance favorable compared to reference range

Performance unfavorable compared to reference range

Performance within reference range

Case Study 1: Health System A (FY2022)

In FY22, Health System A's Total EBITDA Margin was very favorable compared to the reference range, as was Days Cash on Hand. Performance on these metrics is reinforced by favorable Long-Term Debt to Capitalization, which suggests that the entity was managing cash and debt well. Capital Expenditures to Depreciation indicates that the health system also made significant investments in property, plant, and equipment, well above the reference range. While analysts should evaluate this measure for a three- to five-year period, this one-year measurement demonstrates that in FY2022, the system was investing in the facilities while generating significant positive cash flow from operations. Performance on two measures, Average Age of Plant and Days in Accounts Receivable, were within the median range. The financial health of the system is also confirmed by the significant accumulation of unrestricted net assets of approximately $15 billion (not reflected in the table below).

These findings suggest that it's unlikely that state cost growth mitigation policies designed to slow the growth of hospital prices would threaten Health System A's financial viability.

TABLE 2. **Summary of Financial Performance, Health System A (FY2022)**

Metric	Health System A		Reference Range
	FY2022 Performance	Performance Relative to Reference Range	
Profitability			
Operating EBITDA Margin	**7.9%**		8–10%
Total EBITDA Margin	**27.0%**		10–12%
Liquidity			
Days Cash on Hand (all unrestricted sources)	**387.3**		100–200
Days in Accounts Receivable*	**48.8**		40–50
Debt Capacity & Solvency			
EBITDA Debt Service Coverage	**7.0**		3–4
Long-Term Debt to Capitalization*	**21.7%**		35–40%
Capital Investment			
Capital Expenditures to Depreciation	**188.6%**		105–115%
Average Age of Plant (Years)*	**11.9**		10–12

* Lower value indicates more favorable financial performance for indicated measures.

Reference range

Performance favorable compared to reference range

Performance unfavorable compared to reference range

Performance within reference range

Case Study 2: Health System B (FY2022)

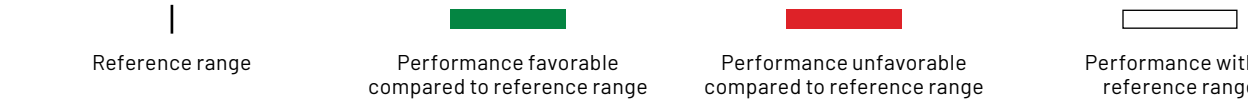
In FY2022, Health System B showed positive Operating and Total EBIDTA Margins, though they were unfavorable compared to the reference ranges. The liquidity measures (Days Cash on Hand and Days in Accounts Receivable) were at the lower end of the reference range. The Health System carries significant debt, but was able to service the debt, no doubt aided by the accumulation of unrestricted net assets of $2 billion (not reflected in the table below). Health System B was above the reference range for Capital Expenditures to Depreciation for FY2022 (131%) and in a separate calculation of a five-year average (approximately 144%) based on review of additional years of Audited Financial Statements. This investment in plant and equipment appears warranted given that Health System B's Average Age of Plant was unfavorable compared to the reference range.

Despite unfavorable profitability compared to the reference range in FY2022, these ratios, in addition to accumulated net assets of $2 billion shown on the organization's Audited Financial Statements, suggest that Health System B's finances are strong compared to other health systems nationally. If we observed similar values after reviewing three to five years of Audited Financial Statements, it could suggest that Health System B's financial viability would be able to withstand cost growth mitigation policies designed to slow the growth of hospital prices; multi-year analyses are needed to confirm these findings.

TABLE 3. **Summary of Financial Performance, Health System B (FY2022)**

Metric	Health System B		
	FY2022 Performance	Performance Relative to Reference Range	Reference Range
Profitability			
Operating EBITDA Margin	**3.7%**		8–10%
Total EBITDA Margin	**4.1%**		10–12%
Liquidity			
Days Cash on Hand (all unrestricted sources)	**145.2**		100–200
Days in Accounts Receivable*	**41.0**		40–50
Debt Capacity & Solvency			
EBITDA Debt Service Coverage	**2.6**		3–4
Long-Term Debt to Capitalization*	**25.6%**		35–40%
Capital Investment			
Capital Expenditures to Depreciation	**131.0%**		105–115%
Average Age of Plant (Years)*	**13.1**		10–12

* Lower value indicates more favorable financial performance for indicated measures.

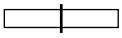
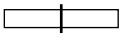


Case Study 3: Health System C (FY2022)

In FY2022, Health System C showed positive but very low Operating and Total EBIDTA Margins; both were unfavorable compared to the reference ranges. The liquidity measures (Days Cash on Hand and Days in Accounts Receivable) were within the reference range. While Health System C has a reasonable level of long-term debt, as shown by performance on Long-Term Debt to Capitalization that is just slightly favorable compared to the reference range, its debt service coverage ratio is unfavorable, well below the reference range. Capital expenditures were only 70.7% of depreciation in FY2022, suggesting that Health System C was not replacing property, plant, and equipment as fast as it was aging, though the 5-year average (93.2%, not included in the table below) was better than the FY2022 value. Despite these unfavorable levels of investment compared to the reference range, Average Age of Plant is within the reference range; this might reflect major investments in plant in prior years or write-downs of assets that have come to the end of their useful life.

Health System C's financial performance for FY2022 is mixed compared to national reference ranges. Performance on profitability measures and debt service coverage suggest that Health System C had a challenging year in terms of revenue; a review of the footnotes for its FY2022 Audited Financial Statement confirms this finding and identifies multiple causes of lost revenue. However, most of these causes are one-time occurrences, and strong liquidity, a reasonable level of long-term debt as indicated by Long-Term Debt to Capitalization, reasonable Average Age of Plant, and net assets of over $2.6 billion suggest that Health System C has the potential to bounce back from this challenging year. Review of additional years of data — and continued monitoring in subsequent years to assess improvement — will offer a clearer picture of whether Health System C can stay financially viable under cost growth mitigation policies designed to slow the growth of hospital prices.

TABLE 4. **Summary of Financial Performance, Health System C (FY2022)**

Metric	Health System C		
	FY2022 Performance	Performance Relative to Reference Range	Reference Range
Profitability			
Operating EBITDA Margin	0.7%		8–10%
Total EBITDA Margin	2.7%		10–12%
Liquidity			
Days Cash on Hand (all unrestricted sources)	120.3		100–200
Days in Accounts Receivable*	43.3		40–50
Debt Capacity & Solvency			
EBITDA Debt Service Coverage	1.4		3–4
Long-Term Debt to Capitalization*	34.9%		35–40%
Capital Investment			
Capital Expenditures to Depreciation	70.7%		105–115%
Average Age of Plant (Years)*	11.5		10–12

* Lower value indicates more favorable financial performance for indicated measures.

Reference range

Performance favorable compared to reference range

Performance unfavorable compared to reference range

Performance within reference range

Definitions of Key Financial Indicators from Audited Financial Statements

This section describes and provides formulas for each of the eight key financial indicators presented in Section IV of the **Guide to Understanding Hospital Spending through Financial Analysis**. These metrics rely largely on data that can be gathered from the Balance Sheet (sometimes also known as the Statement of Financial Position) and Income Statement (sometimes also known as the Statement of Activities or Statement of Operations), along with information contained in the footnotes to the Audited Financial Statements. One metric requires data from the Cash Flow Statement.

To support state analysts in standardizing and analyzing Audited Financial Statements and calculating the eight key financial performance indicators, the Guide to Understanding Hospital Spending through Financial Analysis includes a companion spreadsheet, the Hospital Financial Analysis Template. The template includes step-by-step instructions for users working with tables extracted from Audited Financial Statements, such as adding raw data tables and standardizing Audited Financial Statement data using the categories provided to produce the key indicators shown below.

KEY TERMS
EBITDA: Earnings from Operations Before Interest, Taxes, Depreciation, and Amortization.
Operating Revenue and Expenses: Revenue and expenses related to the hospital's core business of providing health care services to patients. Examples include income from patient care and expenses from labor and supplies.
Non-Operating Revenue and Expenses: Revenue and expenses not related to the hospital's core business. Examples include revenue and expenses related to parking and cafeteria. Notably, hospital 340B revenue and investment income are classified as *non-operating revenue*.
Depreciation and Amortization: Application of the expense of a business asset over multiple accounting years. Depreciation is used for tangible assets, while amortization is used for intangible assets. Example: A CT scanner purchased for $100,000 with an expected lifespan of five years may be depreciated at 20% per year.

Profitability

Operating EBITDA Margin (%)
Key question for states: Are the hospital's *core activities* profitable, excluding financing and tax expenses?
Description: Operating EBITDA Margin represents the earnings a hospital generates from its core operating activities before accounting for interest expenses, income taxes, and non-cash expenses such as depreciation and amortization. Earnings should exclude investment income and other sources of non-operating income. This metric can be useful for assessing the profitability of a hospital's core operations without the influence of financing factors (interest, taxes, depreciation, amortization).
Formula: Operating EBITDA Margin = ((Net Operating Income + Interest Expense + Tax Expense + Depreciation + Amortization Expense) / Operating Revenue) x 100
Reference Range: 8–10%.
Note: Calculation excludes "Investment returns on net assets without donor restrictions (portion included in operating revenue ONLY)" (row 117) and non-recurring expenses (row 86).
Total EBITDA Margin (%)
Key question for states: Are the hospital's total activities profitable (including non-operating activities), excluding financing and tax expenses?
Description: Total EBITDA Margin is a financial metric used to evaluate the overall operating performance and profitability of the entity for both the core business as well as non-core, usually "passive" activities such as investment income and philanthropy. Total EBITDA Margin represents the overall earnings a hospital generates from both core and peripheral activities before accounting for interest expenses, income taxes, and non-cash expenses such as depreciation and amortization.
Formula: Total EBITDA Margin = ((Net Income (removing unrealized gains or losses in the value of financial assets such as stocks and bonds) + Interest Expense + Tax Expense + Depreciation + Amortization Expenses) / (Operating Revenue + Non-Operating Revenue)) x 100
Reference Range: 10–12%.
Note: Calculation excludes "Investment returns on net assets without donor restrictions (portion included in operating revenue ONLY)" (row 117), non-recurring expenses (rows 86 and 98), and unrealized gains (losses) (row 97).

Liquidity

Days Cash on Hand (all unrestricted sources) (# days)
Key question for states: How long could the hospital operate and pay its bills without additional income?
Description: Days Cash on Hand is a financial metric that measures the number of days a hospital can continue to operate using its financial assets (unrestricted cash and investments) without any additional cash inflows. It is calculated by dividing the total unrestricted cash and investments by the average daily operating expenses of the hospital.
Formula: Days Cash on Hand = (Cash and Cash Equivalents + unrestricted investments) / (Average Daily Operating Expenses)
Reference Range: 100–200.
Notes: • Cash and Cash Equivalents refer to the total amount of cash and other financial assets that can be converted into cash, such as short-term investments, treasury bills, and commercial paper, as well as stocks and bonds reported as "noncurrent." It should exclude donor-restricted or trustee-held funds (such as reserves legally /contractually required for debt service, self-insurance, and risk-based reserves) but include Board-designated and other unrestricted investments. • Average Daily Operating Expenses refer to the average amount of money a hospital spends on its daily operations, such as salaries, rent, utilities, and other expenses (excluding non-cash items like depreciation and amortization). It is calculated by dividing Operating Expenses by 365.
Days in Accounts Receivable (# days)
Key question for states: How long does it take the hospital to collect payments from payers and patients?
Description: Days in Accounts Receivable (Days in AR) is a financial metric that measures the average number of days it takes for a hospital to collect payment from its customers or clients (in this case, payers and patients) after providing a service or making a sale on credit. It is a key indicator of how efficiently a hospital manages its accounts receivable, which are amounts owed to it by payers or patients for goods or services provided; a lower value for Days in AR represents better financial performance.
Formula: Days in AR = Total Accounts Receivable (net) / (Net Patient Revenue / 365)
Reference Range: 40–50. Lower value indicates more favorable financial performance for this measure.
Note: Sometimes Audited Financial Statements list Patient Accounts Receivable separately from other types of expected payments (e.g., donor contributions). If so, this metric should be limited to Patient Account Receivables.

Debt Capacity and Solvency

EDITA Debt Service Coverage (ratio)
Key question for states: Are the hospital's earnings high enough to pay its debt?
Description: EBITDA Debt Service Coverage is a financial metric that measures a hospital's ability to pay its debt obligations. It is calculated by dividing the hospital's total EBITDA by its debt service. Debt service refers to the amount of money required to pay the principal and interest on outstanding long-term debt. A higher ratio indicates that a hospital is more capable of servicing its debts. Some analysts also calculate this ratio using Operating EBITDA.
Formula: EBITDA Debt Service Coverage = EBITDA / (prior year Current Long-Term Debt + current year Interest Expense)
Reference Range: 3–4.
Note: Calculation excludes unrealized gains (losses) on investments (row 97).
Long-Term Debt to Total Capitalization (%)
Key question for states: How much debt does the hospital hold compared to its available assets?
Description: Long-Term Debt to Total Capitalization is a ratio that measures the total amount of outstanding long-term debt as a percentage of the firm's total capitalization. Total capitalization means the hospital's total available assets (unrestricted assets), minus the hospital's total liabilities. The ratio is an indicator of the hospital's leverage, or level of debt used to purchase assets. A higher ratio indicates a higher degree of leverage, which could mean greater financial risk if the hospital struggles to meet its debt service obligations; a lower ratio indicates that the hospital is less reliant on debt and represents stronger financial performance.
Formula: Long-Term Debt to Total Capitalization = (Total Long-Term Debt / (Total Long-Term Debt + Shareholders' Equity)) x 100
Reference Range: 35–40%. Lower value indicates more favorable financial performance for this measure.
Note: The term "Shareholders Equity" is used in for-profit organizations. Not-for-profit organizations use the term "Net Assets."

Capital Investment

Capital Expenditures to Depreciation (%)
Key question for states: Is the hospital replacing fixed assets as they age and investing in new assets?
Description: The ratio of Capital Expenditures to Depreciation is a financial metric used to assess how much a hospital is investing in its long-term assets, such as property, plant, and equipment (PP&E), relative to the depreciation expense it recognizes on those assets. This ratio provides insight into whether a hospital is investing in maintaining and expanding its productive capacity or simply replacing depreciated assets. It is best to measure this over a three- to five-year period if the information is available, as capital investments are made in multi-year cycles.
Formula: Capital Expenditures to Depreciation = (Capital Expenditures / Depreciation Expense) x 100
Reference Range: 105–115%.
Note: Capital Expenditures are found on the Cash Flow Statement within the organization's Audited Financial Statements. To calculate Cumulative Capital Expenditures to Depreciation, divide the sum of all capital expenditures during the years of interest by the sum of depreciation over those same years. Multiply by 100 to convert to a percentage. Cumulative Capital Expenditures to Depreciation = ((Sum of Capital Expenditures) / (Sum of Depreciation Expenditures)) x 100.
Average Age of Plant (# years)
Key question for states: How old, on average, are the hospital's fixed assets?
Description: Average Age of Plant is a financial and operational metric used to assess the age of a health system or hospital's assets, particularly those related to delivering patient care. It provides insight into how old the infrastructure of the facilities is on average. This metric includes all the fixed assets that an organization owns. Fixed assets typically include items such as buildings, machinery, equipment, vehicles, and furniture that are necessary for conducting operations. A higher average age of plant may indicate that assets are aging and might require maintenance, repair, replacement, or technological upgrades to remain efficient, effective, and competitive.
Formula: Average Age of Plant = Accumulated Depreciation / Annual Depreciation Expense
Reference Range: 10–12. Lower value indicates more favorable financial performance for this measure.

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