Center on Health Policy at BROOKINGS

Methodology Appendix:

How we did the data analyses for the Steward case study

To help us understand whether evidence existed before Steward Health Care's 2024 bankruptcy that its nearly three-dozen hospitals were in trouble, we performed four data analyses. Each relied on a different type of data. Most of it was information that the federal government and—in some instances—states collect. Other information is contained in the records of Steward's bankruptcy case in the United States Bankruptcy Court for the Southern District of Texas.

Here is a description of each analysis.

Steward hospital finances

We analyzed four measures of hospitals' financial condition, which we selected based on a review of academic research and work by hospital executives and state health officials. These metrics are among the ones most commonly used to indicate the condition of hospitals' finances. The data are readily available, because virtually every acute care hospital that participates in Medicare is required to report them as part of an annual Medicare Cost Report submitted to the Centers for Medicare and Medicaid Services (CMS).

The metrics are:

1. *Operating margin.* Indicating a hospital's ability to continue functioning, it is defined as excess operating revenue as a percentage of total operating revenue.
2. *Net profit margin.* Another measure of a hospital's profitability, it is not that different from operating margin, except that this one takes into account all forms of revenue, plus non-operating expenses, such as taxes and payments to shareholders.
3. *Current ratio.* A way of understanding a hospital's ability to cover its costs in the short term, it is defined as the ratio of "current" assets it could make liquid within a year to "current" debts that it owes within that year.
4. *Equity financing ratio.* A way of understanding how dependent a hospital is on debt, it is defined as the proportion of a hospital's net assets that it owns in full instead of being financed with debt.

These data come from three sources. One is the CMS Hospital Provider Cost Reports, published annually based on the cost reports compiled in the Healthcare Cost Report Information System (HCRIS). These data include information about revenues, costs, assets, and debts for every Medicare-certified institutional provider in the U.S. with data available from 2011 to 2022.[1] We used these data to produce figures on the current ratio and the equity financing ratio. A second

[1] Occasionally, during our study period, a hospital's fiscal year will change affecting its financial reporting. We drop the years in which a fiscal change occurs.

source is cost reports published in the National Academy of State Health Policy (NASHP) Hospital Cost Tool, which is also based on cost reports submitted by hospitals and compiled in the CMS HCRIS. These data include certain information about revenue and costs from 2011 to 2023. We used the NASHP data to produce figures on operating profit margin and net profit margin, but these data do not include metrics on hospitals' assets and liabilities, so we did not have information for 2023 on the two ratios we analyzed. We confirmed that the data are consistent between NASHP and CMS for the years they overlap. Finally, we used audited financial statements for Steward that were collected by the U.S. Securities and Exchange Commission and by the Massachusetts Center for Health Information and Analysis. We used these financial statements to analyze performance on the health-system level for all the metrics we analyze from 2011 to 2021, excluding 2016.[2]

We made some data adjustments. In periods during which hospitals change the time frame for their fiscal year, the CMS data and NASHP data differ. For example, if a hospital's fiscal year was July 2016 to June 2017 and it changes to January 2016 to December 2016, the data reported during 2016 is not consistent between the NASHP and CMS data. As a result, we eliminated just that year of data for any hospital that altered its fiscal year (so, for the example above, it would have missing data for 2016).[3]

With this financial data, we began by calculating an unweighted average each year for each metric among the hospitals that Steward owned.[4] We considered a hospital to be owned by Steward starting the year it was acquired. We then calculated an unweighted average across all U.S. hospitals for all four metrics.[5] Finally, we calculated these same metrics with the system-wide audited financial statements. Because the audited financial statements are at the system-level, these are weighted values.

Steward hospital quality

We analyzed four out of a variety of quality indicators that virtually all acute care U.S. hospitals report to CMS each year. To select measures for our analysis, we conferred with CMS officials and contractors, seeking their judgment about which metrics are the most telling reflection of the caliber of a hospital's care, rather than primarily a mirror of external factors, such as the

[2] Steward never produced a financial statement that was formally audited in 2016.
[3] Easton Hospital (PA) experienced a fiscal year change in 2016 and then was acquired in 2017 making the NASHP and CMS data inconsistent for both years, as a result, we dropped both 2016 and 2017 for Easton specifically.
[4] In this analysis, we excluded six Steward hospitals that, for various reasons, do not report their own financial data to CMS. These half-dozen hospitals were Abrazo Mesa Hospital (AZ), Luke's Behavioral Health Center (AZ), Florida Medical Center (FL), New England Sinai Hospital (MA), Hillside Rehabilitation Hospital (OH), and Mountain Point Medical Center (UT).
[5] To remove extreme outliers, we excluded the bottom and top 1% of the distribution for each metric when calculating the average.

socioeconomic make-up of a hospital's patient base. Using this criterion, we analyzed four measures:

1. *Complications.* Composite rate of medical complications from all hospital services.
2. *Emergency department.* Percentage of patients who left a hospital emergency department without being evaluated or treated by its staff.
3. *Pneumonia deaths.* Percentage of deaths from pneumonia within 30 days of patients' hospital discharge. Considered a better reflection of the quality of care than other mortality metrics, because patients sometimes acquire pneumonia as inpatients.
4. *Readmissions.* Percentage of patients unexpectedly readmitted to a hospital within 30 days of their discharge.

For each of these measures, we analyzed data from 2010, the year the Steward system was created, through 2024. We obtained the data for this analysis from the Wayback Machine and CMS's Care Compare website. Each year, CMS reports a score for each individual hospital and calculates a national score—both of which we used in our analysis.[6]

For each metric, we calculated the average score for each year among the hospitals owned by Steward and compared it with the average for all U.S. hospitals. Again, we considered a hospital to be owned by Steward starting the year in which it was acquired. In addition, we focused on the annual quality scores of five individual hospitals. We selected these because, in a different way, they appeared especially problem-ridden, and we were curious whether they appeared worse than the company-wide average. The five hospitals had the most deficiency citations (see explanation below) for the past five years, 2019 through 2024. The hospitals are Mountain Vista Medical Center (AZ), Glenwood Regional Medical Center (LA), Good Samaritan Medical Center (MA), The Medical Center of Southeast Texas (TX), and Wadley Regional Medical Center (TX).[7]

Lawsuits against Steward

To understand Steward's apparent failure to pay some of its bills, we reviewed lawsuits filed against the company and its hospitals by vendors. To identify lawsuits for this analysis, we relied on two sources of civil suits categorized as breach of contract—all of which alleged nonpayment. One source is in the records for the Chapter 11 bankruptcy case Steward filed in the U.S. Bankruptcy Court for the Southern District of Texas. A document that is an amendment to the "Statement of Financial Affairs for Non-individual Steward Health Care System LLC," includes all vendors that had a breach of contract lawsuit against Steward alleging unpaid bills that remained unresolved within a year of the bankruptcy filing, May 6, 2024. The other source is a

[6] The same six hospitals that we excluded from the financial analysis because they do not submit financial data were also not included in the quality analysis because they are not required to submit CMS hospital compare data.
[7] St. Lukes Behavioral Health Center also had a high number of deficiency citations in the past five years. Because it is not an acute care hospital, it does not report quality data and could not be included in the individual hospital analysis.

list of lawsuits from LexisNexis's CourtLink database. For those identified via CourtLink, we filtered for breach-of-contract cases in which Steward is the defendant. From these two sources, we identified 152 relevant cases. This sample is almost certainly an undercount, because some cases are too old to have been listed in the bankruptcy document, while some local circuit and district court dockets are not included in the CourtLink database.

For as many of the 152 cases as possible, we collected the original complaint in which the plaintiff describes the alleged breach of contract. For about 16 cases, the information in the bankruptcy docket's document was insufficient to identify a case number, so we were unable to locate the original complaint. For nearly 10 additional cases, the complaint was not publicly available or could be retrieved only in person at a distant courthouse. In the end, we read the original complaints in 127 cases. And, from the description in each one, we collected and analyzed the service provided, when the vendor began working for the company, when nonpayment was alleged to have begun, when the lawsuit was filed, and the amount Steward allegedly owed.

Hospital deficiencies

As another way of understanding Steward hospitals' quality, we focused on records involving deficiency citations. These are public records that follow complaints accusing a hospital of poor care, filed by patients, relatives, or staff members. Such complaints are lodged with an agency in each state, designated by CMS to conduct an investigation, known as a survey, that confirms a problem—that is, a deficiency—or finds a complaint unwarranted. If a deficiency exists, the agency requires the hospital to submit a plan to correct the flaw. CMS has defined three levels of deficiency citations, depending on their severity: standard, condition, and immediate jeopardy. An immediate jeopardy citation involves an instance in which a patient died or was injured, or easily could have been. The records specify each deficiency's level of severity.

For our deficiency analysis, we obtained from CMS a nationwide spreadsheet of hospital deficiencies through most of 2024, months after the company declared bankruptcy, and we then extracted from it the cases involving hospitals during the time they were owned by Steward. We identified hospitals as owned by Steward based on both the year and month that the hospital was acquired by the company. We also obtained records from four state health agencies—in Louisiana, Pennsylvania, Texas, and Utah. The state records contained deficiency citations, plus, where they existed, records of fines that the state levied against a Steward hospital found to have an immediate jeopardy citation. The federal government does not have the authority to financially punish hospitals for deficiencies, but some states do. The records contained 678 unique deficiencies for the Steward hospitals.[8] We analyzed them by level of severity and year,

[8] This includes one immediate jeopardy case provided to us in records from Louisiana that initially was not included in the federal database.

and we examined the narrative description of immediate jeopardy cases to understand what they entailed and which ones led to penalties

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