



## Estimated Reduction in CAH Profitability from Loss of Cost-Based Reimbursement for Swing Beds

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### BACKGROUND

Swing beds are an important source of post-acute care, benefiting both rural residents and Critical Access Hospitals (CAHs).<sup>1,2,3</sup> They were created in the early 1980s to address declining inpatient volume and long-term care in rural communities—allowing small rural and critical access hospitals to use their beds for either inpatient care or skilled nursing services as needed.<sup>4,5,6</sup> CAHs are currently reimbursed by Medicare for post-acute care provided in swing beds based on reasonable costs.<sup>3,5,7</sup> However, MedPAC,<sup>8,9</sup> the Office of the Inspector General,<sup>10</sup> and proposed legislation<sup>11</sup> have suggested changing reimbursement from cost-based to the Skilled Nursing Facility Prospective Payment System (SNF PPS). These proposals have suggested there would be substantial Medicare savings because the SNF PPS per diem reimbursement rate is typically less than the hospital's cost-based per diem rate. However, the methodology calculating the per diem cost comparisons has been challenged,<sup>12</sup> and other studies have suggested that potential savings would be diminished by the transfer of fixed costs back to acute care days<sup>4</sup> and/or longer lengths of stay (LOS) in skilled nursing facilities. The average SNF LOS is at least 30 days,<sup>11,13</sup> while the average swing bed LOS is only 10 days.<sup>11,14</sup>

Rural communities and CAHs are concerned about the proposed change from cost-based reimbursement to the SNF PPS because it would reduce the amount of Medicare reimbursement to CAHs. Approximately 92% of CAHs provide care in swing beds,<sup>4</sup> and for some rural communities, swing beds are the only source of post-acute care.<sup>1</sup> Further, CAHs have come to rely on swing beds to manage patients and staffing and to help ensure financial stability of their organizations.<sup>2</sup> **The purpose of this study was to estimate the impact of potential loss of cost-based reimbursement for swing beds on CAH profitability, and to examine the characteristics of CAHs that would be most affected by such a change in reimbursement.**

### METHODS

Using the reimbursement formula from the Medicare cost report, this study estimated Medicare reimbursement to CAHs assuming SNF PPS instead of cost-based reimbursement for skilled swing bed days. The SNF PPS determines reimbursement for post-acute care using Resource Utilization Groups (RUGs) – an index that accounts for the level of resources required to provide SNF care to patients with different needs. CAHs are not required to report the patient information used to determine RUGs; therefore, swing bed reimbursement under the SNF PPS was calculated for each CAH in a state using the median rural RUG rate for the state. Median rural RUG rates were calculated using a Centers for Medicare & Medicare Services (CMS) public use file that details SNF provider payments. The estimated SNF PPS Medicare reimbursement amounts were used to estimate what CAH overall operating margins would have been if

#### KEY FINDINGS

- If Medicare swing bed days were reimbursed using the Skilled Nursing Facility Prospective Payment System (SNF PPS) rather than cost-based reimbursement, the median change in Critical Access Hospitals' (CAH) 2016 operating margin is estimated to be -2.16 percentage points.
- CAHs with the greatest estimated reduction in operating margin have a higher swing bed average daily census and a greater percentage of inpatients covered by Medicare.
- The CAHs most negatively affected by a change in swing bed reimbursement are, on average, smaller, more isolated, and located farther from the nearest skilled nursing facility.

CAHs had been reimbursed for swing bed days under SNF PPS. Operating margin was defined as [Total net patient revenue from all sources minus total operating expenses divided by total net patient revenue from all sources]. The estimated operating margin was then compared to the actual operating margin to determine the net effect of a change in reimbursement, measured in percentage points.<sup>15</sup>

Next, CAHs were classified into quartiles based on the percentage point change in operating margin. Hospital characteristics including size, rurality, Medicare share, swing and acute

average daily census, and distance to the nearest skilled nursing facility were compared using descriptive analysis. Hospital characteristics were drawn from the following public use files: CMS Healthcare Cost Reporting Information System, CMS Provider of Services Current File, Hospital Service Area File, and Claritas Popfacts® File. All data and analyses were for the year 2016 (most complete available data at the time of the study). Sensitivity analyses were conducted using data from 2015 and 2017, and using 25<sup>th</sup> and 75<sup>th</sup> percentile rural RUG rates by state; however, the results were similar so only 2016 is presented.

## RESULTS

In 2016, 1,193 CAHs had complete data and reported at least one day of skilled swing bed care. The median change in operating margin resulting from a change in reimbursement from cost-based to the SNF PPS is estimated to be -2.16 percentage points (Table 1). CAHs most negatively affected (Quartile 1) have a median estimated reduction in operating margin of -5.82 percentage points as compared to -2.89, -1.53, and -0.44 percentage points for CAHs in quartiles 2, 3, and 4, respectively.

**Table 1. Summary Statistics of CAHs and Profitability Indicators with the Change in Reimbursement by Quartiles of Change in Operating Margin, 2016**

	Quartile 1: (Most affected)	Quartile 2	Quartile 3	Quartile 4: (Least affected)	Total	P-value
Number of CAHs	299	298	298	298	1,193	
Actual operating margin, median (%); [range]	-5.63 [-86.45 to 43.79]	0.02 [-45.90 to 37.87]	2.02 [-33.69 to 67.72]	4.08 [-37.25 to 71.89]	0.60 [-86.45 to 71.89]	
<b>Profitability indicator with change in reimbursement</b>						
Percentage point change in operating margin, median [range]	-5.82 [-46.86 to -4.04]	-2.89 [-4.02 to -2.16]	-1.53 [-2.15 to -0.99]	-0.44 [-0.99 to -0.0004]	-2.16 [-46.86 to -0.0004]	<.001

Most CAHs in the study sample did not provide long-term care in distinct part units, indicating they did not have their own SNF on site, and there were no statistically significant differences across quartiles of estimated changes in operating margin. Table 2 shows that CAHs in quartile 1 are smaller as measured by net patient revenue than CAHs in quartiles 2 through 4 (\$10.90M vs. \$16.40M, \$21.09M, and \$32.51M, respectively,  $p<.001$ ). Median swing bed average daily census is significantly higher for CAHs in quartile 1 as compared to CAHs in quartiles 2 through 4 (2.61 vs 2.40, 1.65 and 0.77,  $p<.001$ ). In contrast, median acute average daily census is significantly lower for CAHs in quartile 1 versus quartiles 2 through 4 (1.31 vs 2.28, 3.19, and 5.62,  $p<.001$ ). Median Medicare share is significantly higher in CAHs in quartile 1 as compared to quartiles 2 through 4 (68.29% vs 64.74%, 61.30%, and 54.90%,  $p<.001$ ) as is median distance to the nearest SNF (6.92 miles vs 2.37, 1.55, and 1.39 miles, respectively,  $p<.001$ ).

**Table 2. CAH Characteristics by Quartiles of Change in Operating Margin, 2016**

	Quartile 1: (Most affected)	Quartile 2	Quartile 3	Quartile 4: (Least affected)	Total	P-value
Net patient revenue (millions \$); [Interquartile Range (IQR)]	10.90 [6.36 to 16.48]	16.40 [10.30 to 22.95]	21.09 [13.49 to 30.10]	32.51 [21.06 to 53.54]	18.29 [10.97 to 29.13]	<.001
Swing Bed Average Daily Census [IQR]	2.61 [1.38 to 4.54]	2.40 [1.30 to 3.81]	1.65 [1.04 to 2.55]	0.77 [0.38 to 1.44]	1.72 [0.90 to 3.19]	<.001
Acute Average Daily Census [IQR]	1.31 [0.68 to 2.34]	2.28 [1.13 to 4.14]	3.19 [1.67 to 5.52]	5.62 [2.82 to 8.60]	2.67 [1.24 to 5.27]	<.001
Medicare Share of Patient Population (%); [IQR]	68.29 [57.12 to 76.72]	64.74 [57.25 to 73.73]	61.30 [53.21 to 69.94]	54.90 [45.87 to 63.74]	62.24 [52.65 to 72.09]	<.001
Distance to nearest SNF (miles); [IQR]	6.92 [0.93 to 19.73]	2.37 [0.50 to 12.42]	1.55 [0.44 to 12.18]	1.39 [0.49 to 7.65]	2.26 [0.54 to 12.90]	<.001

As shown in Table 3, a significantly greater percentage of CAHs are classified as “Isolated” in quartile 1 as compared to quartiles 2 through 4 (48.49% vs. 42.62%, 29.87%, and 15.10%,  $p<.001$ ), and a greater proportion of CAHs in isolated areas fall into quartile 1 as compared to CAHs in less rural areas. Lastly, there is a significantly greater percentage of CAHs located in the South census region in quartile 1 as compared to quartiles 2 through 4 (39.80% vs. 22.48%, 19.80%, and 21.21%,  $p=.05$ ). Similarly, a much greater proportion of CAHs in the South are in quartile 1 as compared to CAHs in other regions.

**Table 3. CAH Geographic Characteristics by Quartiles of Change in Operating Margin, 2016**

		Quartile 1: (Most affected)	Quartile 2	Quartile 3	Quartile 4: (Least affected)	Total Number of Hospitals by Rurality/ Region	P-value
<b>Rurality*</b> # of hospitals % of quartile	Urban	22 7.36%	20 6.71%	14 4.70%	21 7.05%	77	<.001
	Large Rural Area	33 11.04%	23 7.72%	30 10.07%	80 26.85%	166	
	Small Rural Area	99 33.11%	128 42.95%	165 55.37%	152 51.01%	544	
	Isolated Rural Area	145 48.49%	127 42.62%	89 29.87%	45 15.10%	406	
	Total Hospitals	299 100.00%	298 100.00%	298 100.00%	298 100.00%	1,193	
<b>Census Region</b> # of hospitals % of quartile	1: Northeast	7 2.34%	16 5.37%	21 7.05%	19 6.40%	63	<.05
	2: Midwest	121 40.47%	158 53.02%	161 54.03%	144 48.48%	584	
	3: South	119 39.80%	67 22.48%	59 19.80%	63 21.21%	308	
	4: West	52 17.39%	57 19.13%	57 19.13%	71 23.91%	237	
	Total Hospitals	299 100.00%	298 100.00%	298 100.00%	297 100.00%	1,192	

\* Hospitals are considered to be **rural** if they are **a**) in a nonmetropolitan county **or b**) in a metropolitan county but in an area that has a Rural Urban Community Area (RUCA) code of 4 or greater. Rural hospitals are further divided into three levels of rurality:

Large Rural Areas — hospitals in areas with a RUCA code less than 7

Small Rural Areas — hospitals in areas with a RUCA code of 7, 8, or 9

Isolated Rural Areas — hospitals in areas with a RUCA code of 10

For more information on RUCA codes, please see [www.ers.usda.gov/data-products/rural-urban-commutingarea-codes.aspx#](http://www.ers.usda.gov/data-products/rural-urban-commutingarea-codes.aspx#).

In 2016, all CAHs included in the study would experience a decrease in operating margin if the reimbursement method were changed (Table 4). In nearly half of CAHs, operating margin would decline from an already negative value to a more negative one, while an additional ten percent of CAHs would move from a positive to a negative operating margin.

**Table 4. Count of CAHs Based on Nature of Change in Operating Margin, 2016**

Nature of Change in Operating Margin (2016)	Number of CAHs
Negative to more negative	561
Positive to negative	122
Positive to less positive	510

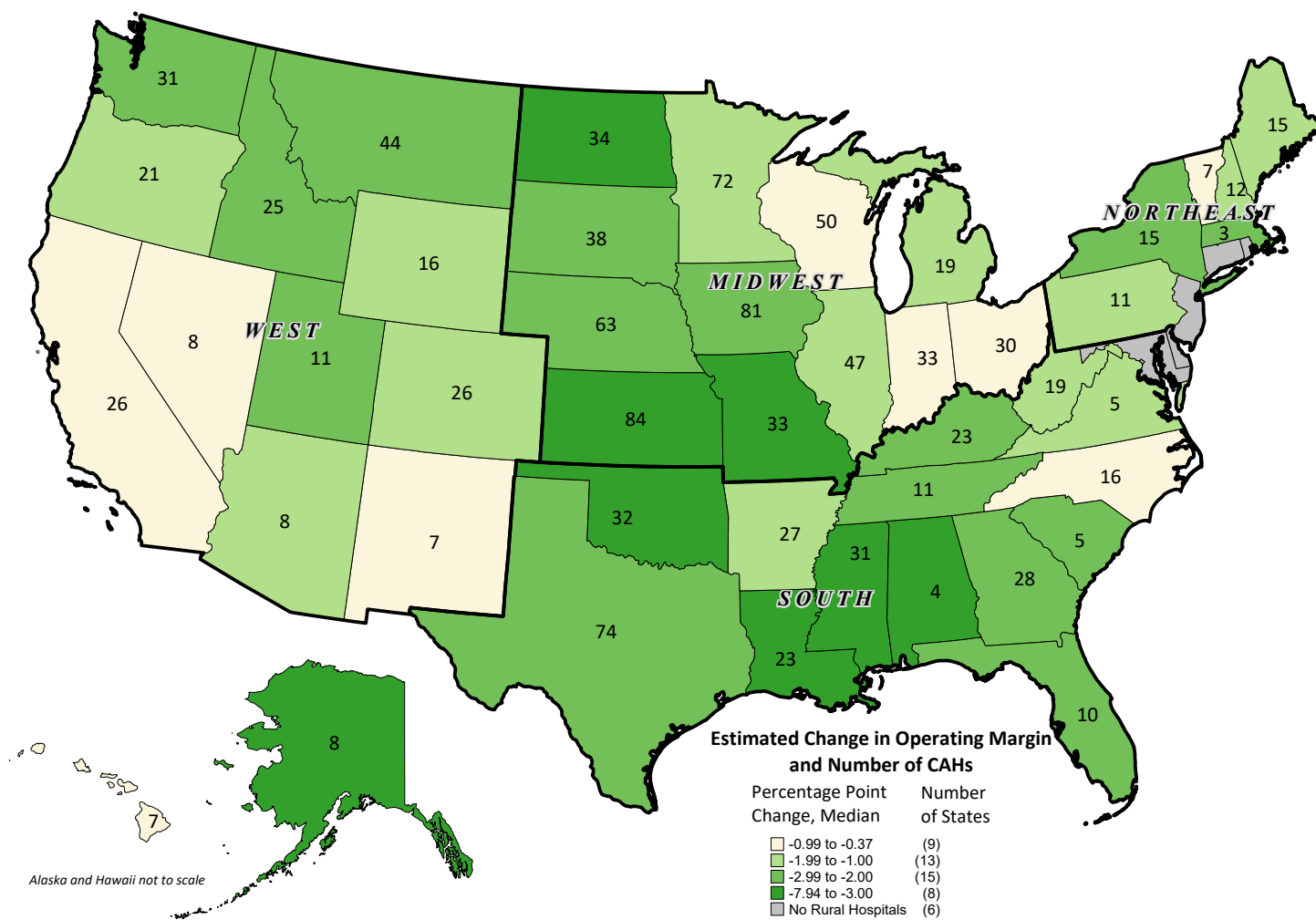
Table 5 shows the estimated median change in operating margin in 2016 by state. Maryland, Delaware, New Jersey, Connecticut, and Rhode Island were not included because they do not have CAHs. Consistent with the findings by census region shown in Table 3, analyses show that Alabama CAHs would experience the largest median change in operating margin (-7.94%), while Vermont CAHs would experience the smallest change (-0.37%).

**Table 5. Change in Operating Margin by State, Ordered from Greatest Impact to Least, 2016**

State	Percentage Point Change in Operating Margin, Median	Number of CAHs
AL	-7.94%	4
MS	-6.12%	31
OK	-5.45%	32
KS	-4.72%	84
AK	-3.72%	8
LA	-3.66%	23
MO	-3.17%	33
ND	-3.06%	34
SD	-3.00%	38
GA	-2.97%	28
TX	-2.92%	74
WA	-2.87%	31
UT	-2.72%	11
MT	-2.68%	44
ID	-2.46%	25
NE	-2.45%	63
KY	-2.43%	23
FL	-2.36%	10
TN	-2.26%	11
MA	-2.18%	3
SC	-2.12%	5
IA	-2.10%	81
NY	-2.05%	15
CO	-1.88%	26
ME	-1.57%	15
MN	-1.56%	72
OR	-1.56%	21
WV	-1.51%	19
WY	-1.47%	16
AR	-1.39%	27
PA	-1.36%	11
IL	-1.35%	47
NH	-1.15%	12
VA	-1.14%	5
AZ	-1.05%	8
MI	-1.04%	19
NC	-0.97%	16
IN	-0.77%	33
NM	-0.77%	7
NV	-0.65%	8
CA	-0.62%	26
WI	-0.59%	50
OH	-0.58%	30
HI	-0.57%	7
VT	-0.37%	7

Figure 1 maps the data in Table 5. It shows the estimated percentage point change in operating margin by state. Darker colored states have larger median estimated changes in CAH operating margins. Like Table 5, the figure also includes the number of CAHs in each state reporting at least one day of skilled swing bed care in 2016. Alabama for example is among the most affected based on CAHs' estimated percentage point changes in operating margin, but there are only four CAHs in Alabama, whereas Kansas is also among the most affected but has 84 CAHs.

**Figure 1. Median Estimated Change in Operating Margin Among CAHs Reporting at Least One Day of Skilled Swing Bed Care by State, 2016**



Note: Numbers printed on map are the number of Critical Access Hospitals in the State  
Source: North Carolina Rural Health Research and Policy Analysis Center, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, October 2019  
<http://www.shepscenter.unc.edu/programs-projects/rural-health/>

## DISCUSSION

This study found that changing the Medicare reimbursement method for CAH swing bed days from cost-based to the SNF PPS would result in an estimated median change in operating margin of -2.16 percentage points. CAHs most heavily impacted were smaller and more isolated, depend more heavily on swing beds, serve a higher percentage of Medicare beneficiaries, located farther from the nearest skilled nursing facility, and are in the South.

There are three implications of these findings. First, the potential reduction in Medicare reimbursement for swing bed days could result in a substantial increase in the number of CAHs at high risk of financial distress or closure, potentially exacerbating current trends.<sup>16</sup> In particular, the South census region includes the highest proportion of CAHs already at high risk of financial distress.<sup>17</sup> Eliminating cost-based reimbursement could substantially increase the pressure on already vulnerable rural hospitals. Second, the CAHs most likely to be adversely affected by a change in reimbursement

are among the most fragile and most rural CAHs. Third, a transition to the SNF PPS would likely require CAHs to report the patient information needed to determine RUGs, which could add administrative burden and cost that may be difficult for very small, rural CAHs to absorb. The potential reduction in profitability combined with added reporting requirements could make post-acute care unsustainable for the smallest and most rural CAHs. Since these hospitals were also located further, on average, from the nearest SNF, any changes to swing bed care could substantially reduce access to post-acute services close to home for rural populations. It may be important for policy makers to consider the potential unintended effects a change in reimbursement may have on access to care, and whether there are ways to mitigate such a risk, for example, by phasing in a change over a longer period of time.

## **LIMITATIONS**

There are several limitations to this study's design. First, CMS issued a final rule in July 2018 outlining changes in the SNF PPS. The agency replaced RUGs with a new case-mix classification system that went into effect in October 2019.<sup>18</sup> Results of this analysis may be different with this change in effect. Second, because CAHs are not required to report the patient-level information needed to determine RUGs for swing bed patients, there is no way to determine actual average RUGs rates on a hospital level. Rates used in this study are median rates based on the location of the CAH. Third, it is unknown how hospitals would respond to a change in swing bed reimbursement. Any changes in hospitals' use of swing beds could have an impact on the results; however, the direction of the effect is not known because it would depend on the behavior of each hospital. If swing bed usage declined significantly, a substantial portion of any potential savings could be offset by transfers of hospital fixed costs back to acute inpatient days.<sup>4</sup> Finally, the analysis assumes that the Medicare cost report formulas used to determine hospital reimbursement, including the swing bed carve-out, would remain unchanged.

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