



# CAH Participation in Flex Financial and Operational Improvement Activities, 2015–2018

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## KEY FINDINGS

Under the Medicare Rural Hospital Flexibility Program, states with Critical Access Hospitals (CAHs) are eligible to receive federal funds to support hospital improvement. This study finds:

- CAHs typically change activities year to year rather than continue the same activity. Further, in the second and third years of the evaluation period, less than 50% of CAHs participated in a financial or operational improvement intervention.
- Over the three years examined, the typical activity pathway for a given CAH through a performance period is an initial assessment in year one, and an in-depth assessment in both years two and three.
- Compared to CAHs at low risk of financial distress, CAHs at higher risk of financial distress are more likely to participate in financial and operational improvement activities.
- Additional data on the intensity of each CAH activity is needed to determine how Flex resources are distributed among CAHs at higher risk of financial distress.

## BACKGROUND

Under the Medicare Rural Hospital Flexibility Program, states with Critical Access Hospitals (CAHs) are eligible to receive federal funds to provide technical assistance and/or direct support to CAHs for four types of financial and operational improvement:<sup>1</sup> 1) Activity 2.01: a required statewide financial needs assessment, 2) Activity 2.02: an optional CAH-specific needs assessment and action planning activity, 3) Activity 2.03: an optional financial improvement project, and 4) Activity 2.04: an optional operational improvement project.

Under Activity 2.01, state Flex Programs are expected to conduct a high-level appraisal of the financial and operational vulnerabilities of their CAHs and use the results to inform the targeting of CAHs in greatest need as well as the implementation of proposed interventions under Activities 2.02, 2.03, and 2.04. As such, the results of the statewide financial needs assessment are not a direct intervention to improve the performance of CAHs in a given state but, rather, a source of data to support the program management and monitoring over the course of the funding cycle.



State Flex coordinators develop and submit activity plans for the performance period to the Federal Office of Rural Health Policy (FORHP). Performance data about funded projects are submitted to FORHP through the Performance Improvement and Measurement Systems (PIMS). At the end of 2018, there were 1,350 CAHs nationally in 45 states; 1,183 unique CAHs (87.6%) participated in at least one financial or operational improvement activity during the performance period 2015–18.

The flexibility provided to states in determining how best to utilize the funding to support their CAHs makes it difficult to characterize the “average” duration and intensity of CAH participation within and across states. For example, some CAHs participate for only one year, while others participate for two or three years. Similarly, some states and CAHs engage in more intense activities (e.g., comprehensive charge-master review, continuous improvement training programs, ongoing training and technical assistance, etc.) while others focus on broader needs assessment such as reporting and review of CAH financial data.

The purpose of this brief is to identify the patterns of CAH participation in Flex-funded activities over the period 2015 to 2018 and investigate whether CAHs at greater risk of financial distress were more likely to participate in financial and operational improvement activities in 2015 and 2016.

## **METHOD**

### *Timeline*

This brief examines CAH participation in financial and operational improvement activities between September 1, 2015 and August 31, 2018. The full performance period includes three years of performance data: Year 1 includes activities between September 1, 2015 and August 31, 2016, Year 2 includes activities between September 1, 2016 and August 31, 2017, and Year 3 includes activities between September 1, 2017 and August 31, 2018; however, because of data availability, we are only able to use the first two years of PIMS data in regression analyses.

### *Outcome Variable: Participation in Financial and Operational Improvement Activities*

Self-reported CAH participation in financial and operational improvement activities is collected through the PIMS as part of the Flex program, and CAH participation in each activity and for each year of the performance period is coded as yes or no. We examined participation for at least one year and participation for at least two years in two separate logistic regression analyses.

### *Explanatory Variables*

In a 2017 article, we presented the Financial Distress Index (FDI).<sup>2</sup> The FDI is an algorithm that uses historical data about hospital financial performance, government reimbursement, organizational characteristics, and market characteristics to predict the current risk of financial distress. The model assigns every rural hospital to one of four financial risk categories: high, mid-high, mid-low, or low. For 2016, 1,249 CAHs were assigned a financial risk category: 82 (6.6%) were predicted to be at high risk, 208 (16.7%) at mid-high risk, 682 (54.6%) at mid-low risk, and 277 (22.2%) were predicted to be at low risk of financial distress.

Additional explanatory variables related to CAH financial performance included whether a CAH operates a distinct part long-term care unit or operates a rural health clinic, CAH net patient revenue (under \$10 million, between \$10 million and \$20 million, and over \$20 million), census region, and whether the state implemented Medicaid expansion by the end of 2016.<sup>4,5</sup> These variables were derived from the CMS Healthcare Cost Report Information System data, with the exception of expansion status, which can be found on the Kaiser Family Foundation website.<sup>6</sup>

### *Analytical Method*

Using the FDI as the explanatory variable of interest, we estimate the probability of participation in financial and operational improvement activities using logistic regression models.<sup>2,3</sup> We hypothesize CAHs at high and mid-high risk of financial



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distress are more likely to participate in financial and operational improvement activities (Table 2).

### RESULTS

#### *Hospital Participation in Improvement Activities*

During the first year of the performance period, the majority of CAHs reported participating in an initial financial and operational improvement assessment (Table 1). In the second year of the performance

period, 556 (41.5%) transitioned from an initial financial and operational improvement assessment to an in-depth assessment. Four hundred twenty-three (31.6%) CAHs participated in an operational improvement activity, and 376 (28.1%) CAHs participated in a revenue cycle management activity in the third year of the performance period. One hundred sixty-seven of all eligible CAHs (12.4%) did not report participation in any intervention.

**TABLE 1.** Number of CAHs Participating in Each Activity by Year

	Performance Period							
	2015–16 Year 1		2016–17 Year 2		2017–18 Year 3		Overall	
<b>Financial and Operational Improvement Activities</b>	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Activity 2.01: Participation in Statewide Assessment	860	64.3%	0	0.0%	0	0.0%	860	63.7%
Activity 2.02: Participation in CAH-Specific Assessment	268	20.0%	556	41.5%	420	31.1%	726	53.8%
Activity 2.03: Participation in Financial Improvement Activity	358	26.8%	348	26.0%	376	27.9%	641	47.5%
Activity 2.04: Participation in Operational Improvement Activity	478	35.8%	396	29.5%	423	31.3%	627	46.4%
Non-participating CAHs	330	24.7%	681	50.8%	773	57.3%	167	12.4%
Participating CAHs	1,007	75.3%	660	49.2%	577	42.7%	1,183	87.6%
Total CAHs	1,337		1,341		1,350		1,350	

Note: CAHs are eligible to participate in more than one activity per year; therefore, the number of CAHs in each activity do not add to the number of participating CAHs.



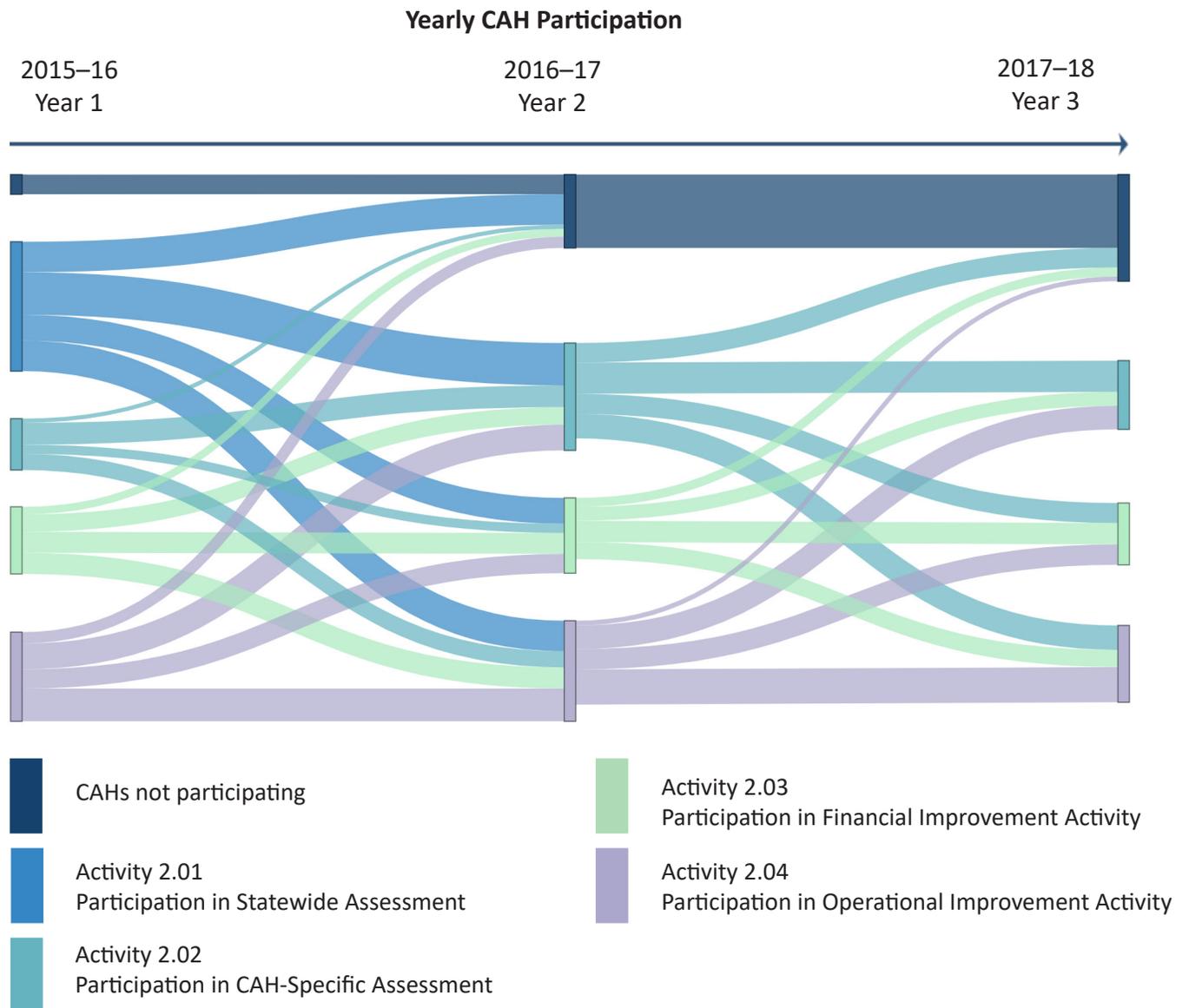
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Figure 1 shows the transition of CAHs into activities by each year of the performance period. Activities are color-coded across the performance period years. The thickness of the lines represents the number of CAHs transitioning to each activity in the next year, and the height of the colored blocks at each year starting point represent the number of CAHs participating in each activity that year. CAHs are able to

participate in more than one activity each year of the performance period, so the total number of activities does not equal the number of participating CAHs at the end of each year. For example, in the most common pathway based on the number of hospitals transitioning to each activity, a CAH with participation in the statewide assessment in year one (blue) is linked to the CAH-specific assessment in years two and three (teal).

**FIGURE 1.** CAH Participation in Financial and Operational Improvement Activities by Year





#### *Financial Risk*

Table 2 shows the logistic regression results by participation group. The coefficients of the financial distress index categories are statistically significant across all participation groups (the reference group is hospitals at low risk of financial distress). Compared to CAHs at low risk of financial distress, CAHs at higher risk of financial distress are more likely to participate in a financial and operational improvement activity for both one and two years. We calculated the predicted probability of participating for at least two years for CAHs with varying characteristics. For a CAH at high risk of financial distress, that operates a long-term care unit, operates a rural health clinic, has net patient revenue less than \$10 million, has nonprofit ownership, is located in the south census region and is not in a Medicaid expansion state, the predicted probability of participating for at least two years is 85.7%. For a CAH at low risk of financial distress, that does not operate a long-term care unit, does not operate a rural health clinic, has net patient revenue more than \$20 million, has for-profit ownership, is located in the northeast census region and is in a Medicaid expansion state, the predicted probability of participating for at least two years is 13.2%.

#### **DISCUSSION**

Table 1 and Figure 1 suggest a need for further examination of the reasons underlying participation patterns. First, states report some CAHs did not participate in the first year statewide assessment. This could be the result of incomplete reporting in PIMS, or could reflect lack of access to data, for example, for CAHs that are part of the Indian Health Service. Second, relatively few CAHs participate in the same activity over time. States were not asked to report individual CAH participation in the statewide assessment in Year 2 or 3 so we could not observe participation in Activity 2.01; however, as shown in Figure 1, the majority of CAHs transition to other activities after Year 1 anyway. The lack of extended participation in intervention activi-

ties over time may reflect completion of interventions during the year; however, it may also suggest opportunities to improve the effectiveness of interventions by increasing activity continuity between performance period years. Finally, the number of CAHs that discontinue participation in any activity increases over time. While this may suggest that need is declining over time, it may alternatively suggest opportunities for greater improvement by sustaining participation for longer periods.

As hypothesized, CAHs with high and mid-high financial distress risk categories have greater participation in Flex financial and operational improvement activities than CAHs with low risk of financial distress. This suggests that state flex programs may be targeting CAHs with greater need, and/or that CAHs at high risk of financial distress are more likely to choose to participate in financial and operational improvement activities.

Future research should examine the variation in participation and outcomes across activity categories among CAHs in each FDI category. This may provide state Flex coordinators with information to help identify the most effective interventions and tailor technical assistance resources and guidance for CAHs with different needs. Additional research is also needed on hospital characteristics that facilitate the successful implementation of financial and operational improvement activities. For example, the level of engagement of hospital leadership, the existence of intervention champions, or the availability of resources (e.g., time, personnel, funding) may all influence the extent to which financial or operational improvement activities are successful. This type of information would help the Flex Program target CAHs for specific activities depending on their level of readiness for implementation, and provide resources or assistance to help address any CAH- and/or state-specific implementation barriers.



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**TABLE 2.** Logistic Regression Results by Participation Group

	Participation for One Year		Participation for Two Years	
	Coefficient	Marginal Effect	Coefficient	Marginal Effect
<b>Financial Distress Index</b>				
High	2.098*** (0.455)	0.202*** (0.033)	1.092*** (0.313)	0.237*** (0.068)
Mid-High	1.556*** (0.322)	0.170*** (0.032)	1.243*** (0.218)	0.272*** (0.045)
Mid-Low	0.764*** (0.214)	0.099*** (0.029)	0.578*** (0.163)	0.120*** (0.032)
<b>Long-Term Care Unit</b>	0.485* (0.244)	0.049* (0.023)	0.414** (0.145)	0.093** (0.033)
<b>Rural Health Clinic</b>	0.288 (0.180)	0.032 (0.020)	0.622*** (0.130)	0.136*** (0.028)
<b>Net Patient Revenue Categories</b>				
\$10 to \$20 million	0.082 (0.245)	0.008 (0.025)	-0.104 (0.175)	-0.023 (0.039)
More than \$20 million	-0.189 (0.246)	-0.021 (0.027)	-0.221 (0.173)	-0.049 (0.038)
<b>Ownership Type</b>				
Nonprofit	-0.205 (0.197)	-0.021 (0.020)	0.080 (0.132)	0.018 (0.029)
For-Profit	-1.165** (0.374)	-0.150** (0.056)	-0.475 (0.333)	-0.099 (0.065)
<b>Census Region</b>				
Northeast	-1.517* (0.750)	-0.098*** (0.029)	-0.942*** (0.288)	-0.214*** (0.062)
Midwest	-2.239** (0.762)	-0.186*** (0.035)	-1.717*** (0.316)	-0.376*** (0.065)
West	-1.392 (0.778)	-0.086* (0.035)	-0.743* (0.307)	-0.168* (0.067)
<b>Medicaid Expansion Status</b>	1.998*** (0.213)	0.219*** (0.022)	0.174 (0.133)	0.038 (0.029)
<b>Constant</b>	1.829 (0.813)		-0.417 (0.375)	

Significance reported as \*p<0.05, \*\* p<0.01, and \*\*\*p<0.001; standard error in parenthesis

Referent Groups: Financial Distress Index - Low; Net Patient Revenue Categories - Less than \$10 Million; Ownership Type - Government Owned; Census Region - South



### RECOMMENDATIONS

Measurement of activity participation and intensity of activities at each CAH is limited by binary reporting measures in PIMS and the diversity of activities in each category.

The measurement of activity participation by CAHs in the PIMS as either yes or no, without regard to intensity of activities at each CAH, limits our understanding of participation and the effects of these activities over time.

The intensity of participation within a participation group may vary widely between CAHs in the same activity category. For example, CAHs participating in an operational improvement intervention could engage in activities ranging from holding a few training sessions for staff to address service line issues, training staff in Lean or Six Sigma practices, to conducting continuous improvement cycles throughout the performance year. It is currently not possible to distinguish among these based on the PIMS data. In this study, participation was limited in the logistic regression to the first two years of the performance period because of data availability, so the findings of this brief should be interpreted with caution. In future evaluations, a more nuanced participation measure may provide more insights on how participation in financial and operational improvement activities can be better targeted and leveraged to improve CAH financial outcomes.

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