

Hospital Compare Quality Measures: 2009 National and Mississippi Results for Critical Access Hospitals

*Michelle Casey, MS, Michele Burlew, MS, Ira Moscovice, PhD
University of Minnesota Rural Health Research Center*

Introduction

Since 2004, acute care hospitals paid under the Medicare Prospective Payment System (PPS) have had a financial incentive to publicly report quality measure data on the Centers for Medicare and Medicaid Services' (CMS) Hospital Compare website. Although Critical Access Hospitals (CAHs) do not face the same financial incentives as PPS hospitals to participate, the Hospital Compare initiative provides an important opportunity for CAHs to assess and improve their performance on national standards of care. The percentage of CAHs voluntarily reporting data on at least one inpatient process of care measure to Hospital Compare increased from 41% for 2004 discharges to 71% for 2009 discharges.¹⁻⁵

The current Hospital Compare quality measures include inpatient process of care measures that reflect recommended treatments for acute myocardial infarction (AMI), heart failure, pneumonia, surgical care improvement, and children's asthma care; outpatient AMI/chest pain and surgical process of care measures; Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey results; and hospital 30 day risk-adjusted mortality and readmission rates for AMI, heart failure, and pneumonia calculated by CMS using Medicare claims data.

At the end of 2009, 1,312 CAHs were located in 45 states. These reports examine state-level CAH participation in Hospital Compare and quality measure results for 2009 as well as trends from 2007-2009 for each state with CAHs. Previous Flex Monitoring Team reports analyzed CAH participation and Hospital Compare inpatient quality measure results nationally for 2004-2008 and at the state level for 2006-2008.

Data and Approach

Data on the inpatient and outpatient process of care measures and HCAHPS survey results for January through December 2009, and data on the 3 year (July 2006 to June 2009) mortality and readmission rates calculated by CMS, were downloaded from the CMS Hospital Compare website when they became available in October 2010. These data were linked with previously downloaded process of care data for 2006-2008 and data on all CAHs maintained by the Flex Monitoring Team.

For this report, the percentages of patients that received recommended care for the inpatient process of care quality measures were calculated by dividing the total number of patients in all CAHs in the state, all CAHs nationally, and all US hospitals who received the recommended care by the total number of eligible patients in all CAHs in the state, all CAHs nationally, and all US hospitals for each measure. (The results for all US hospitals differ slightly from those calculated by CMS. CMS calculates mean scores for each hospital individually, and then calculates an average for the group of hospitals. This “average of averages” method can give a less accurate picture of the performance of a group of hospitals when a large number of the facilities have very small numbers of patients for the measures, as is currently the case with CAHs.)

CMS considers 25 patients to be the minimum number of patients for reliably calculating the process of care measures. Therefore, the percent of CAH patients receiving recommended care was not calculated when the total number of CAH patients in a state, or nationally, with data on a measure was less than 25.

HCAHPS is a national, standardized survey of patients’ perspectives of hospital care. It was developed by the Agency for Healthcare Research and Quality and CMS to complement other hospital tools designed to support quality improvement. The survey is administered to a random sample of adult patients following discharge from the hospital for inpatient medical, surgical, or maternity care.

Ten HCAHPS measures are publicly reported on the Hospital Compare website. Six composite measures address how well doctors and nurses communicate with patients, the responsiveness of hospital staff, pain management, and communication about medicines. These measures and two individual measures addressing the cleanliness and quietness of the hospital environment are reported in response categories of always, usually, and sometimes/never. Additional measures address the provision of discharge information (reported as yes/no), an overall rating of the hospital on a 1-10 scale (reported as high (9 or 10), medium (7 or 8), or low (6 or below), and a rating of the patient’s willingness to recommend the hospital (reported as definitely would recommend, probably would recommend, and probably/definitely would not recommend.) CMS adjusts the publicly reported HCAHPS results for patient-mix, mode of data collection and non-response bias.⁶

For this report, the percentages of patients reporting the highest response (e.g., always) on each HCAHPS measure were summed and averaged across all reporting CAHs within a state and nationally, and for all reporting hospitals in the U.S.

CMS calculates hospital-level 30-day risk-standardized mortality and readmission rates for pneumonia, heart failure, heart attack using Medicare fee-for-service claims and enrollment data and statistical modeling techniques. Rates are not calculated for hospitals that are not in the Hospital Compare database or for hospitals with less than 25 qualifying cases over the three-year period.

Both the mortality and the readmission rates are “all-cause” rates (e.g., the mortality rates include deaths from any cause within 30 days and the readmission rates include

patients who are readmitted for any cause to a hospital within 30 days after being discharged alive to a non-acute care setting). The CMS statistical models adjust for patient-level risk factors that affect the likelihood of dying or readmission, such as age, gender, past medical history, and having other diseases or conditions. For small hospitals, the models also rely on pooled data from all hospitals treated for the condition, which moves their estimated rates toward the overall U.S. rates for all hospitals. This reduces the chance that small hospitals will be wrongly classified as worse or better performers, but also makes it less likely that they will fall into either the “better than the national rate” or “worse than the national rate” categories.⁷

For this report, the number and percent of CAHs for which CMS did not calculate risk-adjusted mortality rates and readmission rates were determined. The number and percent of CAHs whose rates for each condition were not different than, better than or worse than the national rates, was determined by assessing whether the confidence intervals for the CAH rate for that condition were above, below or included the national rate.

Reporting of Data to Hospital Compare

As in previous years, the percent of CAHs reporting data to Hospital Compare varied considerably across states. In Mississippi, 15 of the 27 CAHs in 2009 reported data to Hospital Compare on at least one inpatient process of care measure for 2009 discharges (Table 1). The Mississippi participation rate of 55.6% was lower than the national rate of 72%. The 2009 rate was greater than the rate in 2008. (These numbers do not include CAHs that submit quality measure data to their Quality Improvement Organization (QIO) only, and do not allow it to be publicly reported to Hospital Compare).

Table 1. CAHs Reporting Inpatient and Outpatient Quality Measure Data and HCAHPS Data in Hospital Compare in Mississippi and Nationally 2005-2009

	Mississippi				National			
	Number of CAHs	Inpatient data	Outpatient data	HCAHPS data	Number of CAHs	Inpatient data	Outpatient data	HCAHPS data
2005	23	7 (30.4%)	N/A	N/A	1271	678 (53.3%)	N/A	N/A
2006	27	10 (37.0%)	N/A	N/A	1287	811 (63.0%)	N/A	N/A
2007	27	13 (48.1%)	N/A	N/A	1293	891 (68.9%)	N/A	N/A
2008	27	14 (51.9%)	N/A	2 (7.4%)	1301	914 (70.3%)	N/A	442 (34.0%)
2009	27	15 (55.6%)	6 (22.2%)	2 (7.4%)	1312	943 (71.9%)	209 (15.9%)	465 (35.4%)

Table 1 also shows that the number of CAHs in Mississippi that reported HCAHPS data was two, for an HCAHPS reporting rate of 7.4%. This rate was lower than the national HCAHPS reporting rate of 35.4% for CAHs.

The number of CAHs in Mississippi that reported outpatient data was six, for an outpatient reporting rate of 22.2%. This rate was greater than the national outpatient reporting rate for CAHs of 15.9%.

CMS recommends that each hospital obtain 300 completed HCAHPS surveys annually, in order to be more confident that the survey results are reliable for assessing the hospital's performance. However, some smaller hospitals may sample all of their HCAHPS-eligible discharges and still have fewer than 300 completed surveys.

Table 2 shows the number of completed HCAHPS surveys in 2009 per CAH in Mississippi and nationally, in the three categories reported by CMS: “less than 100 surveys”, “100 to 299 surveys”, and “300 or more surveys.” It also shows the survey response rates for the CAHs in Mississippi and nationally.

Table 2. Number of Completed HCAHPS Surveys and Response Rates for CAHs in Mississippi and Nationally 2009

	Total CAHs reporting HCAHPS data	Number of completed HCAHPS surveys			HCAHPS survey response rates		
		< 100 surveys	100-299 surveys	≥300 surveys	< 25%	25 – 50%	>50%
Mississippi	2	1	1	0	1	1	0
National	465	76	251	138	38	409	18

Inpatient Process of Care Results for CAHs in Mississippi and Nationally

Table 3 displays the Hospital Compare inpatient quality measure results for 2009 discharges for CAHs in Mississippi, CAHs nationally, and all US hospitals. Data are not reported for a measure where the total number of CAH patients in the state with data on the measure was less than 25.

Among CAHs nationally that reported data on the inpatient process of care measures, the majority reported data on the pneumonia and heart failure measures. Over 90% of the reporting CAHs had data on all pneumonia measures and two heart failure measures. Over half reported data on one AMI measure: aspirin at arrival; just under half reported data on two AMI measures: aspirin at discharge, and beta blocker at discharge. Between 42% and 47% of reporting CAHs had data on six of the surgical care improvement measures.

For the process of care measures, the number of CAHs reporting and the number of patients for whom data are available may differ by measure for several reasons.

Hospitals have had a longer time to become familiar with and report on the older measures. Some measures only apply to a portion of patients (e.g., the smoking cessation advice measures only apply to smokers), and several measures exclude patients with contraindications for receiving that type of medication. Small rural hospitals transfer many AMI patients seen in their emergency departments to larger hospitals, rather than admitting them as inpatients. Consequently, CAHs may have few eligible patients for the inpatient AMI measures. About two-thirds of CAHs provide inpatient surgery. The surgical care improvement measures apply to selected surgeries; some (e.g., hysterectomies) are more commonly provided in CAHs than others (e.g., cardiac procedures).

Compared to all US hospitals, patients in CAHs are less likely to receive recommended care on the inpatient AMI and heart failure measures. The percentages of patients in CAHs and all US hospitals receiving recommended care are similar for a number of the pneumonia and surgical care improvement measures; CAH rates are lower for some measures (e.g., vaccination and smoking cessation measures).

Outpatient Process of Care Results for CAHs in Mississippi and Nationally

Table 4 shows the Hospital Compare outpatient quality measure results for 2009 discharges for CAHs in Mississippi, CAHs nationally, and all US hospitals. Among CAHs nationally that reported data on the outpatient process of care measures, the most frequently reported measures were two outpatient AMI/chest pain measures: aspirin within 24 hours of arrival or prior to transfer and time to ECG.

For the outpatient measures that assess the percentages of patients receiving recommended care, CAHs are similar to all US hospitals for two measures and somewhat lower for two measures. For the outpatient timing measures, median time to fibrinolysis is a little higher and time to ECG is lower for CAHs.

Trends Over Time

The figures that follow Table 4 compare the Mississippi and national data trends for CAHs for 2007, 2008 and 2009. The percentages for each year are based on all CAH patients for whom data were reported that year. Again, data are not shown for measures with fewer than 25 patients per year.

Over this time period, the percentage of CAH patients nationally that received recommended care increased for all inpatient process of care measures. Some states may have greater year-to-year fluctuation in results due to small sample sizes for some measures.

Table 3. Hospital Compare Inpatient Process of Care Results for 2009 Discharges for CAHs in Mississippi, CAHs Nationally, and All US Hospitals

	CAHs in Mississippi (n=15)			CAHs Nationally (n=933)			All US Hospitals (n=4,279)			
	Hospitals reporting at least one patient	Total number of patients	Percent of patients receiving recommended care	Hospitals reporting at least one patient	Total number of patients	Percent of patients receiving recommended care	Hospitals reporting at least one patient	Total number of patients	Percent of patients receiving recommended care	
AMI	Aspirin at arrival	*	*	*	495	2,278	92.1%	3,577	330,309	98.3%
	Aspirin at discharge	*	*	*	447	1,648	90.2%	3,492	401,481	98.4%
	ACEI or ARB for LVSD	*	*	*	214	334	87.4%	2,946	75,878	95.4%
	Smoking cessation advice	*	*	*	130	234	89.7%	2,776	136,169	99.4%
	Beta blocker at discharge	*	*	*	446	1,711	90.5%	3,499	393,106	98.3%
	Fibrinolytic w/in 30 minutes of arrival	*	*	*	41	45	31.1%	528	1,624	54.5%
	PCI at arrival	*	*	*	*	*	*	1,530	55,022	87.5%
Heart Failure	Discharge instructions	15	298	51.3%	856	14,952	75.5%	4,066	629,317	86.5%
	Assessment of LVS	15	455	75.8%	872	21,417	82.7%	4,089	780,311	97.5%
	ACE inhibitor or ARB for LVSD	13	102	74.5%	749	4,885	84.7%	3,915	253,246	93.8%
	Smoking cessation advice	15	99	80.8%	680	2,832	85.6%	3,840	133,777	98.1%
Pneumonia	Pneumoccal vaccination	15	419	72.3%	922	29,136	85.9%	4,139	494,034	92.2%
	Blood culture prior to first antibiotic	15	216	90.7%	861	21,820	92.0%	4,033	498,208	94.9%
	Smoking cessation advice	14	140	80.7%	875	9,091	86.2%	4,079	207,375	96.9%
	Initial antibiotic(s) within 6 hours	14	409	93.2%	906	30,220	95.0%	4,117	546,964	94.8%
	Most appropriate initial antibiotic(s)	14	353	79.0%	915	22,753	87.4%	4,121	359,071	91.2%
	Influenza vaccination	15	134	76.1%	858	9,267	83.1%	4,056	173,379	89.6%
Surgical Care Improvement	Preventative antibiotic(s) 1 hour before incision	*	*	*	431	17,820	91.6%	3,633	1,076,479	96.2%
	Received appropriate preventative antibiotic(s)	*	*	*	432	17,829	96.0%	3,633	1,087,465	97.6%
	Preventative antibiotic(s) stopped within 24 hours after surgery	*	*	*	429	17,344	91.2%	3,627	1,025,255	93.3%
	Doctors ordered blood clot prevention treatments	*	*	*	403	7,888	88.6%	3,595	473,559	93.3%
	Received blood clot prevention treatments 24 hours pre/post surgery	*	*	*	402	7,822	87.7%	3,587	471,022	91.3%
	Controlled 6AM post-op blood glucose	*	*	*	*	*	*	1,212	178,036	92.7%
	Appropriate Hair Removal	*	*	*	441	23,238	97.7%	3,659	1,558,779	99.2%
	Beta blockers before/after surgery	*	*	*	197	2,947	85.9%	3,363	437,601	91.1%

*The total number of patients in the state or nationally with data on this measure was less than 25.

Table 4. Hospital Compare Outpatient Process of Care Results for 2009 for CAHs in Mississippi, CAHs Nationally, and All US Hospitals

		CAHs in Mississippi (n=6)			CAHs Nationally (n=209)			All US Hospitals (n=3,410)		
		Hospitals reporting at least one patient	Total number of patients	Percent of patients receiving recommended care	Hospitals reporting at least one patient	Total number of patients	Percent of patients receiving recommended care	Hospitals reporting at least one patient	Total number of patients	Percent of patients receiving recommended care
Outpatient AMI/Chest Pain	Received drugs for clots within 30 minutes	*	*	*	119	320	45.3%	1,128	6,034	54.3%
	Aspirin within 24 hours of arrival or prior to transfer	6	168	92.3%	209	9,676	94.6%	2,923	149,923	94.7%
Outpatient Surgery	Received antibiotic within 1 hour before surgery	*	*	*	115	1,448	83.4%	3,171	382,311	91.1%
	Received right kind of antibiotic	*	*	*	115	1,349	92.1%	3,148	373,617	94.2%

		CAHs in Mississippi (n=6)			CAHs Nationally (n=209)			All US Hospitals (n=3,410)		
		Hospitals reporting at least one patient	Total number of patients	Average minutes	Hospitals reporting at least one patient	Total number of patients	Average minutes	Hospitals reporting at least one patient	Total number of patients	Average minutes
Outpatient AMI/Chest Pain	Median time to fibrinolysis	*	*	*	119	319	42.2	1,127	6,014	38.4
	Time to patient transfer for specialized care	*	*	*	107	329	*	1,343	6,186	*
	Time to ECG	6	176	25.7	209	10,089	10.9	2,928	155,501	12.3

*The total number of patients in the state or nationally with data on this measure was less than 25.

Figure 1. Heart Failure: Discharge Instructions

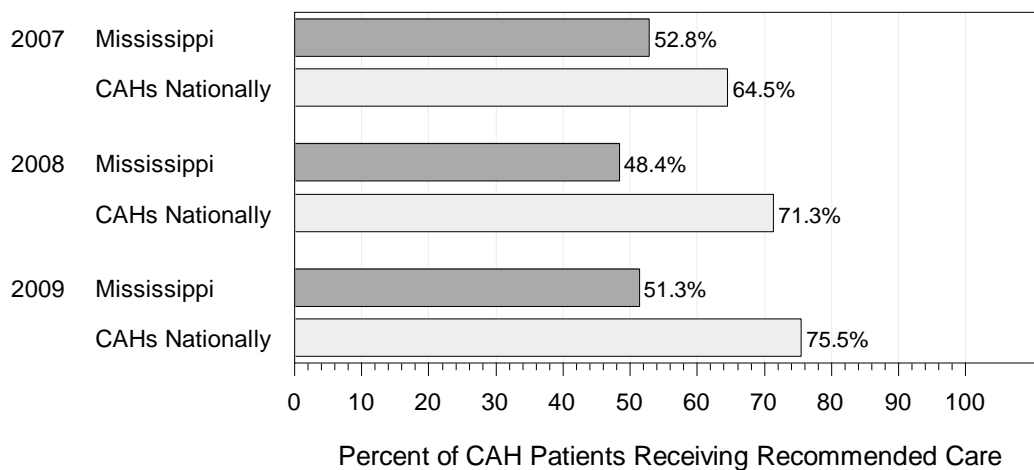


Figure 2. Heart Failure: Assessment of LVS

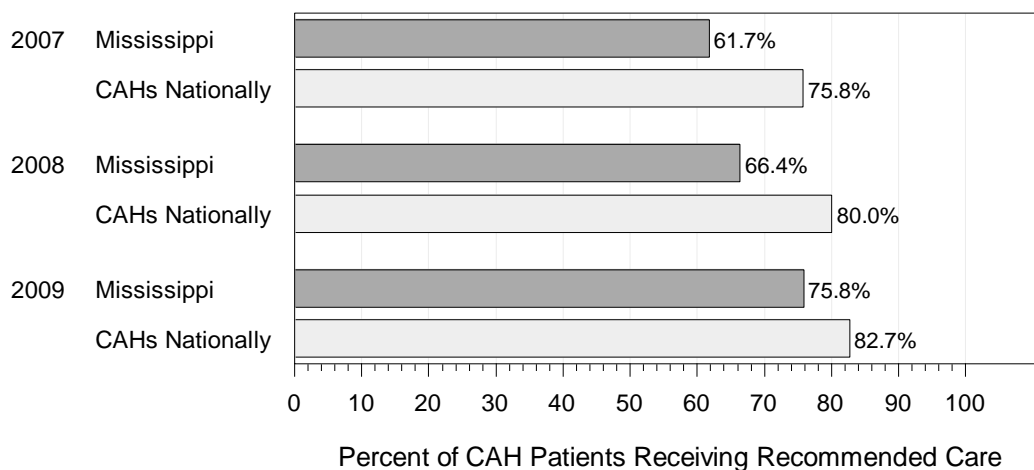


Figure 3. Heart Failure: ACE Inhibitor or ARB for LVSD

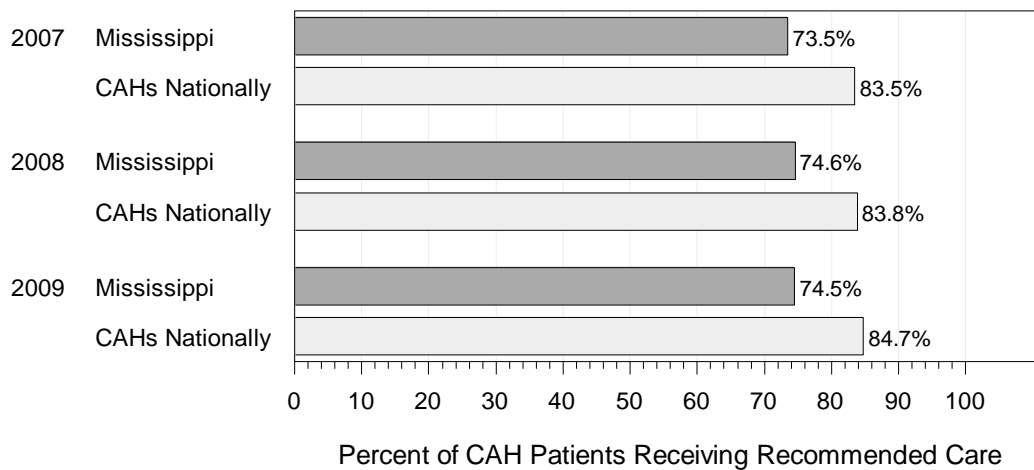


Figure 4. Heart Failure: Smoking Cessation Advice

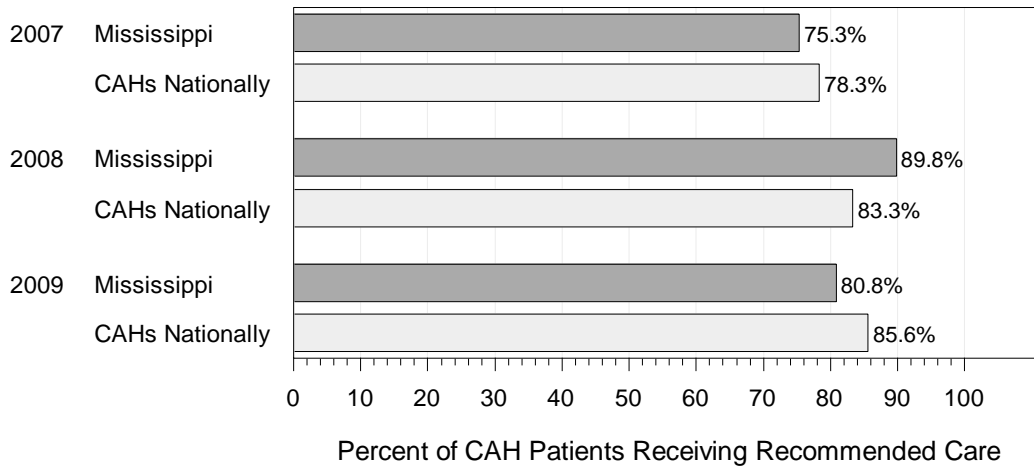


Figure 5. Pneumonia: Pneumoccal Vaccination

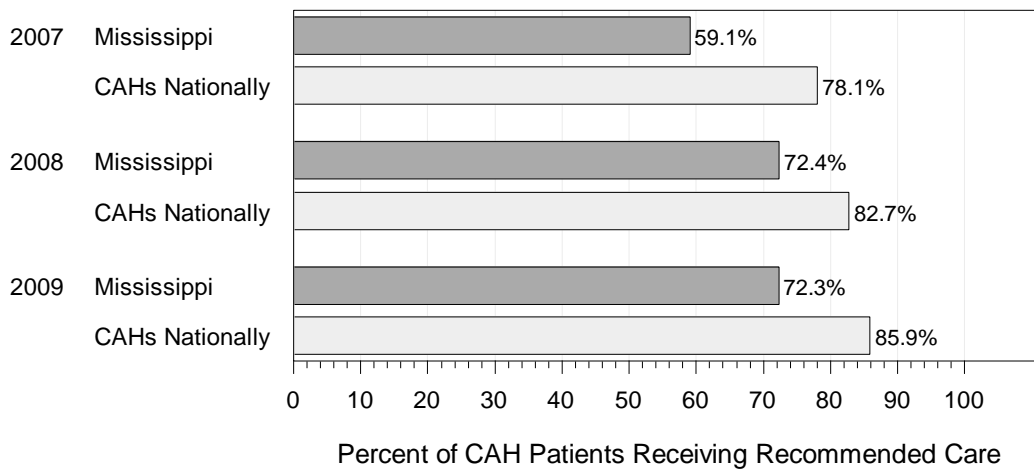


Figure 6. Pneumonia: Blood Culture Prior to First Antibiotic

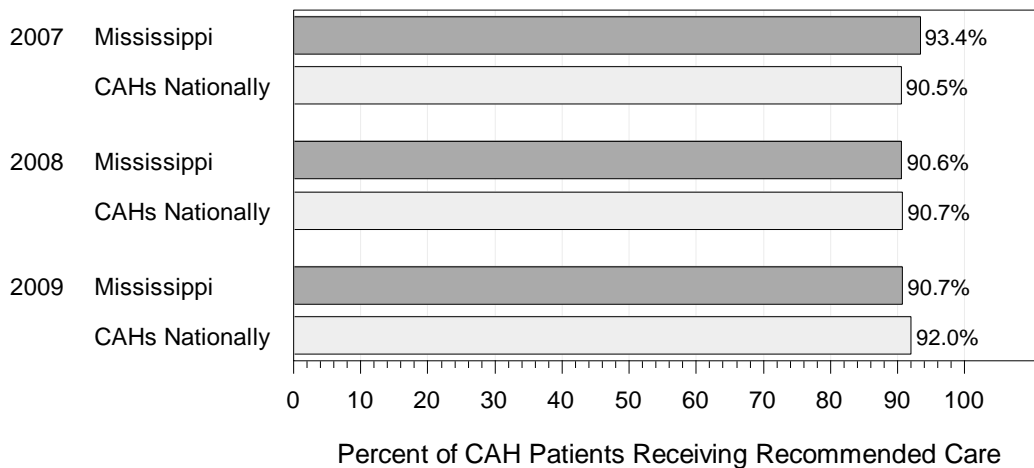


Figure 7. Pneumonia: Smoking Cessation Advice

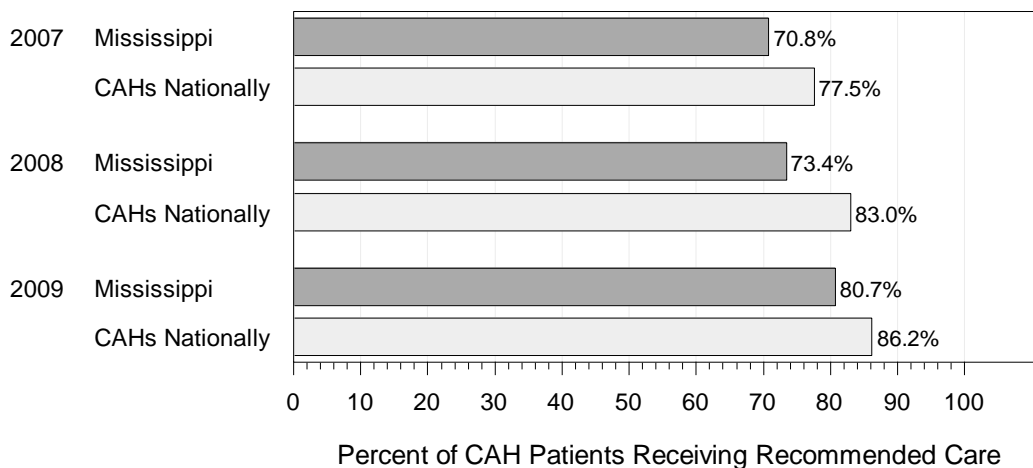


Figure 8. Pneumonia: Timely Administration of Initial Antibiotic

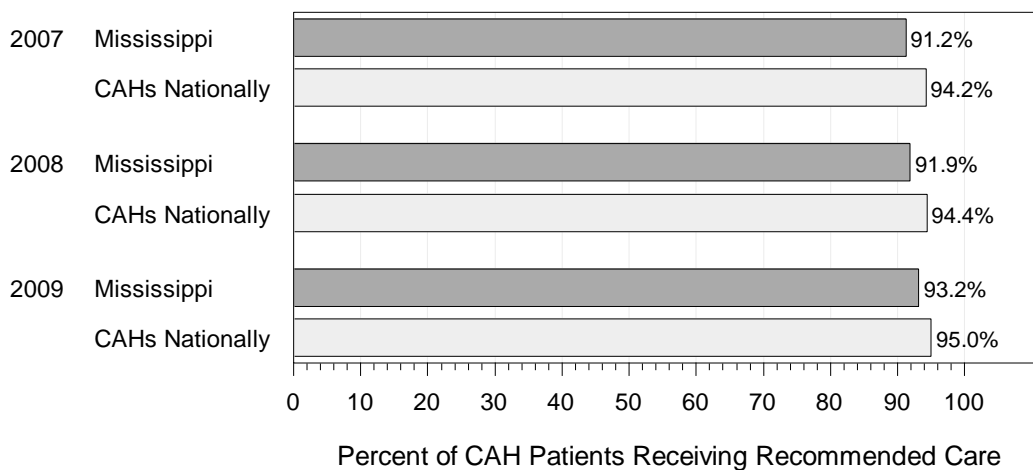


Figure 9. Pneumonia: Most Appropriate Initial Antibiotic(s)

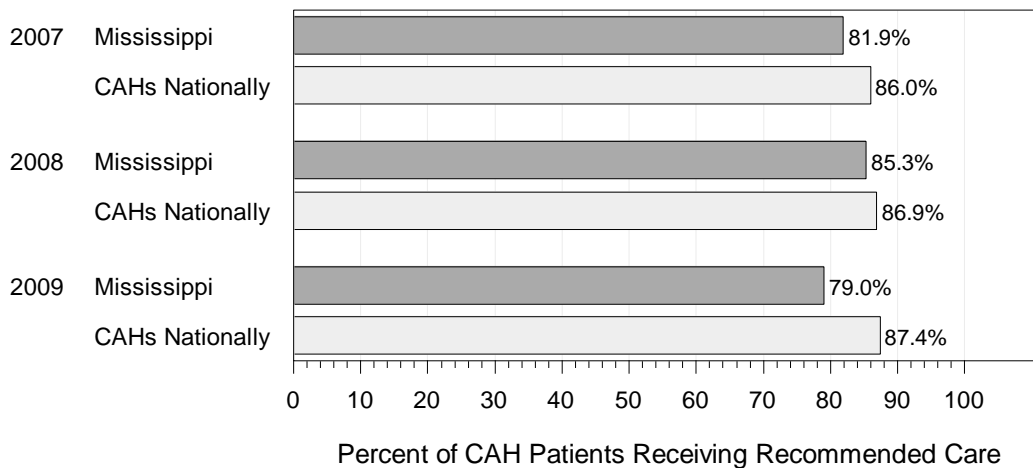
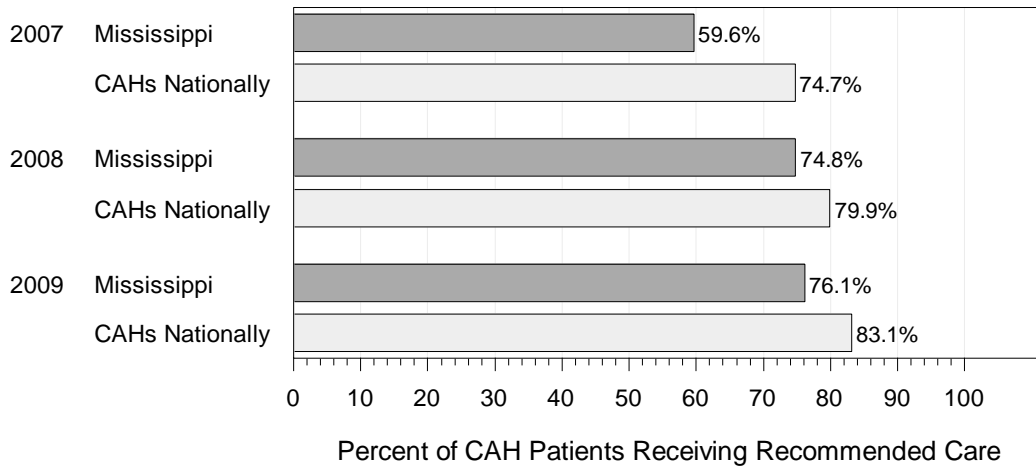


Figure 10. Pneumonia: Influenza Vaccination



HCAHPS Survey Results for CAHs in Mississippi and Nationally

Table 5 displays the mean (average) percentages of patients that gave the highest level of response (e.g., “always”) for each of the HCAHPS survey measures in three groups of hospitals that publicly reported HCAHPS data for 2009: CAHs in Mississippi, CAHs nationally, and all US hospitals.

Compared to all US hospitals, CAHs nationally had greater percentages of patients that assessed their experiences receiving care positively, i.e. gave the highest level of response for each of the HCAHPS survey measures.

Caution should be exercised in comparing HCAHPS results for states that have few CAHs reporting results and/or CAHs whose results are based on fewer than 100 completed surveys.

Table 5 also shows that the number of CAHs in Mississippi that reported HCAHPS data was two, for an HCAHPS reporting rate of 7.4%. This rate was less than the national HCAHPS reporting rate of 35.4% for CAHs.

Table 5. HCAHPS Results for 2009 for CAHs in Mississippi and Nationally and all US Hospitals

Percent of patients who reported that:	Mean (average) for:		
	Mississippi CAHs (n=2)	CAHs Nationally (n=465)	All US Hospitals (n=4,474)
Nurses always communicated well	86%	80%	75%
Doctors always communicated well	84%	83%	80%
Patient always received help as soon as wanted	73%	72%	63%
Pain was always well controlled	67%	72%	69%
Staff always explained about medications before giving them to patient	44%	64%	60%
Yes, staff gave patient information about what to do during recovery at home	85%	83%	81%
Area around patient room was always quiet at night	81%	62%	57%
Patient room and bathroom were always clean	85%	79%	70%
They gave an overall hospital rating of 9 or 10 (high) on 1-10 scale	81%	71%	66%
They would definitely recommend the hospital to friends and family	83%	72%	69%

Mortality and Readmission Rate Categories for CAHs in Mississippi and Nationally

Table 6 displays the number of CAHs in Mississippi and nationally 1) that did not have mortality data in Hospital Compare for AMI, heart failure, and/or pneumonia; 2) those that did not have the minimum 25 eligible cases per condition over the 3 year period from July 2006 to June 2008 to reliably calculate a rate; and 3) those that had rates that were not different from, better than or worse than the US rates for all hospitals.

Nationally, 90% of CAHs either were missing AMI mortality data or had too few cases to reliably calculate a rate; the remaining 10% of CAHs did not have an AMI mortality rate that is different from the US rate for all hospitals. More CAHs had the minimum number of patients to reliably calculate mortality rates for heart failure (58%) and pneumonia (71%). However, few CAHs had mortality rates that are either better than or worse than the US rates for all hospitals (less than 1% of CAHs for heart failure and 3% of CAHs for pneumonia).

Table 6. Number (Percent) of CAHs in Mississippi and Nationally in Risk-adjusted Mortality Rate Categories

		Number of CAHs with:					
		Total	No rate data in Hospital Compare	Not enough cases to reliably calculate	Not different from U.S. rate for all hospitals	Better than U.S. rate for all hospitals	Worse than U.S. rate for all hospitals
AMI	Mississippi CAHs	27	12 (44.4%)	15 (55.6%)	0	0	0
	CAHs Nationally	1312	378 (28.8%)	803 (61.2%)	131 (10.0%)	0	0
Heart Failure	Mississippi CAHs	27	11 (40.7%)	1 (3.7%)	15 (55.6%)	0	0
	CAHs Nationally	1312	322 (24.5%)	229 (17.5%)	755 (57.5%)	0	6 (0.5%)
Pneumonia	Mississippi CAHs	27	11 (40.7%)	0	14 (51.9%)	0	2 (7.4%)
	CAHs Nationally	1312	319 (24.3%)	65 (5.0%)	891 (67.9%)	1 (0.1%)	36 (2.7%)

Table 7 shows the 30 day risk-adjusted readmission rates for AMI, heart failure, and pneumonia for CAHs in Mississippi and nationally. For AMI, 96% of CAHs either were missing AMI readmission data or had too few cases to reliably calculate a rate, and the remaining 4% of CAHs did not have a rate that is different from the US rate for all hospitals. More CAHs had the minimum number of patients to reliably calculate readmission rates for heart failure (60%) and pneumonia (71%), but few CAHs had

readmission rates that are either better than or worse than the US rates for all hospitals (0.2% of CAHs for heart failure and 0.5% of CAHs for pneumonia).

Table 7. Number (Percent) of CAHs in Mississippi and Nationally in Risk-adjusted Readmission Rate Categories

		Number of CAHs with:					
		Total	No rate data in Hospital Compare	Not enough cases to reliably calculate	Not different from U.S. rate for all hospitals	Better than U.S. rate for all hospitals	Worse than U.S. rate for all hospitals
AMI	Mississippi CAHs	27	15 (55.6%)	12 (44.4%)	0	0	0
	CAHs Nationally	1312	417 (31.8%)	846 (64.5%)	49 (3.7%)	0	0
Heart Failure	Mississippi CAHs	27	11 (40.7%)	0	16 (59.3%)	0	0
	CAHs Nationally	1312	321 (24.5%)	200 (15.2%)	789 (60.1%)	1 (0.1%)	1 (0.1%)
Pneumonia	Mississippi CAHs	27	11 (40.7%)	0	16 (59.3%)	0	0
	CAHs Nationally	1312	319 (24.3%)	59 (4.5%)	928 (70.7%)	4 (0.3%)	2 (0.2%)

Discussion and Conclusions

Nationally, participation in Hospital Compare (defined as publicly reporting data on at least one inpatient process of care measure) increased from 41% of CAHs in 2004 to 71% of CAHs in 2009. The 2009 rate is very similar to the 2008 rate of 70%. By state, the percent of CAHs reporting inpatient process of care measures for 2009 ranged from 11% to 100%. Of the 45 states in the Flex Program, six states had 100% of their CAHs publicly reporting in 2009, while six states had less than half of their CAHs reporting.

A total of 209 CAHs (15.9%) publicly reported data on at least one outpatient process of care measure. By state, the percent of CAHs reporting outpatient process of care measures for 2009 ranged from 0% to 46%.

In addition, 35% of CAHs publicly reported HCAHPS survey data to Hospital Compare in 2009. By state, the percent of CAHs publicly reporting HCAHPS data ranged from 0% to 100%. Four states had 100% of their CAHs reporting HCAHPS data.

Overall, 11% of CAHs publicly reported inpatient, outpatient, and HCAHPS data; 24% of CAHs publicly reported inpatient and HCAHPS data; five percent of CAHs publicly reported inpatient and outpatient data; and less than one percent each publicly reported outpatient data only or HCAHPS data only. These results indicate that a subset of CAHs

(40%) have expanded their public reporting efforts beyond inpatient measures to include additional types of quality measures. At the same time, over one fourth of CAHs (27%) are not publicly reporting quality data of any kind to Hospital Compare. It is somewhat surprising that more CAHs are not reporting outpatient and HCAHPS measures, given the relevance of these measures for small rural hospitals and the fact that CAHs overall perform better than other hospitals on HCAHPS. Given that the outpatient measures are relatively new to Hospital Compare, it may just take more time for CAHs to become familiar with them.

The 30 day risk-adjusted readmission and mortality rates are not very useful quality measures for CAHs, given that few CAHs have rates that are either better than or worse than the US rates for all hospitals.

Federal health care reform and state level reforms in a number of states are moving toward a health care system that rewards the provision of high-quality care. In addition to using quality data for quality improvement activities, health care providers are increasingly being required to demonstrate the quality of the care they are providing to qualify for reimbursement incentives and avoid penalties for poor care. In the future, as reimbursement is linked to quality, it will be even more important for CAHs to be able to document the quality of care they provide.

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For more information, please contact Michelle Casey at mcasey@umn.edu