

Hospital Compare Quality Measures: 2010 National and Iowa Results for Critical Access Hospitals

*Michelle Casey, MS, Peiyin Hung, MSPH, Bridget Barton, BA, Ira Moscovice, PhD
University of Minnesota Rural Health Research Center*

Key Findings

National

- The 2010 CAH national participation rate in Hospital Compare (defined as publicly reporting data on at least one inpatient process of care measure) is 74%.
- By state, the percent of CAHs reporting inpatient process of care measures for 2010 ranges from 22% to 100%. Of the 45 states in the Flex program, eight states have 100% of CAHs reporting while five states have less than half of CAHs reporting.
- 282 CAHs (21.2%) reported data on at least one outpatient process of care measure. By state, outpatient reporting ranges from 0% to 84% of CAHs.
- 505 CAHs (38%) reported Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) data. State HCAHPS reporting ranges from 0% to 100%.
- One-fourth of CAHs are not publicly reporting any quality data to Hospital Compare.

Iowa

- Iowa's CAH reporting rates for inpatient measures are much higher than CAHs nationally; but reporting rates for outpatient measures are lower than CAHs nationally.
- Compared to quality scores for all other CAHs nationally, Iowa CAHs have:
 - Insufficient data to compare five inpatient measures and one outpatient measure.
 - No statistically significant differences for 13 inpatient and three outpatient measures.
 - There are no significantly higher scores.
 - Significantly lower scores on eight inpatient measures.
- HCAHPS results for Iowa CAHs are higher than CAH results nationally, and both are better than the results for all US hospitals.

Table of Contents

Introduction	1
Data and Approach	1
Reporting of Data to Hospital Compare	3
<i>Table 1. CAHs Reporting Inpatient and Outpatient Quality Measure Data and HCAHPS Data in Hospital Compare in Iowa and Nationally 2006-2010</i>	4
<i>Table 2. Number of Completed HCAHPS Surveys and Response Rates</i>	5
Inpatient Process of Care Results for CAH in Iowa and Nationally	5
<i>Table 3. Hospital Compare Inpatient Process of Care Results for 2010 Discharges for CAHs in Iowa, CAHs Nationally, and All US Hospitals</i>	7
Outpatient Process of Care Results for CAHs in Iowa and Nationally	6
<i>Table 4. Hospital Compare Outpatient Process of Care Results for 2010 Discharges for CAHs in Iowa, CAHs Nationally, and All US Hospitals</i>	9
Statistically Significant Differences between Iowa and All Other CAHs	6
HCAHPS Survey Results for CAHs in Iowa and Nationally	10
<i>Table 5. HCAHPS Results for 2010 for CAHs in Iowa and Nationally and all US Hospitals</i>	10
Mortality and Readmission Rate Categories for CAHs in Iowa and Nationally	11
<i>Table 6. Number (Percent) of CAHs in Iowa and Nationally in Risk-adjusted Mortality Rate Categories</i>	11
<i>Table 7. Number (Percent) of CAHs in Iowa and Nationally in Risk-adjusted Readmission Rate Categories</i>	12
Trends Over Time	12
Future Issues for CAH Quality Reporting	12
References	14
Appendix A: Definitions of Current Hospital Compare Process Measures	15
Appendix B: Iowa CAHs and CAHs Nationally for Inpatient and Outpatient Measures	18

With funding from the federal Office of Rural Health Policy (PHS Grant No. U27RH01080), the Rural Health Research Centers at the Universities of Minnesota, North Carolina, and Southern Maine are cooperatively conducting a performance monitoring project for the Medicare Rural Hospital Flexibility Program (Flex Program). The monitoring project is assessing the impact of the Flex Program on Rural Hospitals and communities and the role of states in achieving overall program objectives, including improving access to and the quality of health care services; improving the financial performance of CAHs; and engaging rural communities in health care system development.

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 74% for 2010 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, and surgical care improvement, 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. Definitions of the current process of care measures are included in Appendix A.

At the end of 2010, 1,329 CAHs were located in 45 states. These reports examine state-level CAH participation in Hospital Compare and quality measure results for 2010 as well as trends from 2008-2010 for each state with CAHs. Previous Flex Monitoring Team reports analyzed CAH participation and Hospital Compare inpatient quality measure results nationally for 2004-2009 and at the state level for 2006-2009.

Data and Approach

Data on the inpatient and outpatient process of care measures and HCAHPS survey results for January through December 2010, and data on the 3 year (July 2007 to June 2010) mortality and readmission rates calculated by CMS, were downloaded from the CMS Hospital Compare website when they became available in October 2011. These data were linked with previously downloaded data for 2006-2009 and data on all CAHs maintained by the Flex Monitoring Team.

Inpatient and Outpatient Process Measures

For this report, the percentages of patients that received recommended care for the inpatient and outpatient 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. Two outpatient AMI/chest pain measures, time to patient transfer for specialized care and time to ECG, are reported by hospitals as the median number of minutes for eligible patients at that hospital (a lower number of minutes is better). For this report, an

average (mean) score was calculated by summing the median times for all CAHs in the state, all CAHs nationally, and all US hospitals, and dividing those times by the number of hospitals reporting.

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.

The percent of CAH patients receiving recommended care in each state was then compared to the percent of CAH patients that received recommended care in all other states combined. For each state, the inpatient and outpatient measure scores were classified as: 1) insufficient data (less than 25 patients total); 2) not significantly different than CAHs in all other states; 3) significantly higher than all other CAHs; or 4) significantly lower than all other CAHs.

Chi-square tests were used to calculate whether the differences between the percent of patients who received recommended care in one state and the percent of patients who received recommended care in all other states were statistically significant, using a significance level (p-value) of .05. Chi-square is a common test for significance of the relationship between two categorical variables; it compares the actual frequencies with the frequencies we would expect if there was no relationship between the variables. Significance at the .05 level means that we are confident that 95 out of 100 times, the differences between the two groups did not occur solely by chance.

The ability to calculate the statistical comparisons depends on the number of CAH patients in each state for whom measure data were submitted. By state, the number of quality measures with sufficient data to do the statistical comparisons ranges from 0 to 26.

HCAHPS

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.

Mortality and Readmission Rates

CMS calculates hospital-level 30-day risk-standardized mortality and readmission rates for pneumonia, heart failure, and AMI 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 for 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 Iowa, 71 of the 82 CAHs in 2010 reported data to Hospital Compare on at least one inpatient process of care measure for 2010 discharges (Table 1). The Iowa participation rate of 86.6% was higher than the national rate of 74%. The 2010 rate was unchanged from the rate in 2009. (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 Iowa and Nationally 2006-2010

	Iowa				National			
	Number of CAHs	Inpatient data	Outpatient data	HCAHPS data	Number of CAHs	Inpatient data	Outpatient data	HCAHPS data
2006	82	57 (69.5%)	N/A	N/A	1287	811 (63.0%)	N/A	N/A
2007	82	67 (81.7%)	N/A	N/A	1293	891 (68.9%)	N/A	N/A
2008	82	69 (84.1%)	N/A	31 (37.8%)	1301	914 (70.3%)	N/A	442 (34.0%)
2009	82	71 (86.6%)	11 (13.4%)	32 (39.0%)	1312	943 (71.9%)	209 (15.9%)	465 (35.4%)
2010	82	71 (86.6%)	14 (17.1%)	37 (45.1%)	1329	977 (73.5%)	282 (21.2%)	505 (38.0%)

Table 1 also shows that the number of CAHs in Iowa that reported HCAHPS data was 37, for an HCAHPS reporting rate of 45.1%. This rate was greater than the national HCAHPS reporting rate of 38.0% for CAHs.

The number of CAHs in Iowa that reported outpatient data was 14, for an outpatient reporting rate of 17.1%. This rate was less than the national outpatient reporting rate for CAHs of 21.2%.

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 2010 per CAH in Iowa 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 Iowa and nationally.

Table 2. Number of Completed HCAHPS Surveys and Response Rates for CAHs in Iowa and Nationally 2010

	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%
Iowa	37	8	24	5	1	30	6
National	505	97	274	134	39	444	22

Inpatient Process of Care Results for CAHs in Iowa and Nationally

Table 3 displays the Hospital Compare inpatient quality measure results for 2010 discharges for CAHs in Iowa, 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 at least five 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 seven 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, so they may have fewer 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 Iowa and Nationally

Table 4 shows the Hospital Compare outpatient quality measure results for 2010 discharges for CAHs in Iowa, 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, average time to transfer is about the same (98 minutes) and time to ECG is lower for CAHs.

Statistically Significant Differences between Iowa CAHs and All Other CAHs

When the inpatient and outpatient quality scores for CAH patients in Iowa are compared to those of all other CAHs nationally, Iowa CAHs have:

- Insufficient data to compare four inpatient AMI measures (ACEI or ARB for LVSD, smoking cessation advice, fibrinolytic w/in 30 minutes of arrival, and PCI at arrival); one inpatient surgical care improvement measure (controlled 6AM post-operative blood glucose); one outpatient measure (outpatient with CP/AMI received drugs for clots within 30 minutes).
- No significant differences for two inpatient AMI measures (aspirin at arrival, and aspirin at discharge); two heart failure measures (discharge instructions, and ACE inhibitor or ARB for LVSD); five pneumonia measures (pneumococcal vaccination, blood culture prior to first antibiotic, initial antibiotics within six hours, most appropriate initial antibiotics, and influenza vaccination); four inpatient surgical care improvement measures (preventative antibiotics one hour before incision, preventative antibiotics stopped within 24 hours after surgery, appropriate hair removal, and beta blockers before/after surgery); three outpatient measures (outpatient received antibiotic within one hour before surgery, outpatient with CP/AMI received aspirin within 24 hours of arrival, and outpatient having surgery received the right kind of antibiotic).
- No significantly higher scores.
- Significantly lower scores on one inpatient AMI measure (beta blocker at discharge); two heart failure measures (assessment of LVS, and smoking cessation advice); one pneumonia measure (smoking cessation advice); four inpatient surgical care improvement measures (received appropriate preventative antibiotics, doctors ordered blood clot prevention treatments, received blood clot prevention treatments 24 hours pre/post-surgery and urinary catheter removed first or second day after surgery).

Table 3. Hospital Compare Inpatient Process of Care Results for 2010 Discharges for CAHs in Iowa, CAHs Nationally, and All US Hospitals

		CAHs in Iowa (n=71)			CAHs Nationally (n=977)			All US Hospitals (n=4,317)		
		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	28	101	93.1%	501	2,194	93.1%	3,565	375,828	98.8%
	Aspirin at discharge	27	88	85.2%	452	1,569	90.8%	3,474	418,090	98.8%
	ACEI or ARB for LVSD	*	*	*	194	312	84.3%	2,885	75,566	96.4%
	Smoking cessation advice	*	*	*	111	168	82.7%	2,694	136,574	99.6%
	Beta blocker at discharge	27	92	81.5%	460	1,602	90.6%	3,486	407,099	98.5%
	Fibrinolytic w/in 30 minutes of arrival	*	*	*	26	33	48.5%	410	1,140	62.0%
	PCI at arrival	*	*	*	*	*	*	1,559	58,101	91.2%
Heart Failure	Discharge instructions	68	706	81.0%	895	14,329	79.8%	4,074	614,962	89.9%
	Assessment of LVS	68	1,241	81.7%	907	20,990	84.3%	4,091	767,866	98.2%
	ACE inhibitor or ARB for LVSD	59	274	83.6%	780	4,854	85.9%	3,931	243,582	95.0%
	Smoking cessation advice	43	102	78.4%	681	2,614	86.7%	3,809	129,441	98.7%
Pneumonia	Pneumococcal vaccination	71	2,015	87.6%	966	29,508	86.8%	4,163	504,930	94.1%
	Blood culture prior to first antibiotic	70	1,205	93.4%	888	22,220	93.6%	4,038	504,903	96.2%
	Smoking cessation advice	66	387	81.4%	907	8,658	88.3%	4,089	198,877	97.7%
	Initial antibiotic(s) within 6 hours	68	1,658	95.6%	940	29,217	95.4%	4,129	534,415	95.8%
	Most appropriate initial antibiotic(s)	69	1,305	88.2%	951	22,299	88.7%	4,136	338,146	92.9%

Definitions of these measures can be found in Appendix A.

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

Table 3. Hospital Compare Inpatient Process of Care Results for 2010 Discharges for CAHs in Iowa, CAHs Nationally, and All US Hospitals

		CAHs in Iowa (n=71)			CAHs Nationally (n=977)			All US Hospitals (n=4,317)		
		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
Surgical Care Improvement	Influenza vaccination	68	615	86.7%	893	9,601	85.6%	4,066	175,841	91.7%
	Preventative antibiotic(s) 1 hour before incision	35	813	94.5%	444	19,044	92.9%	3,635	1,091,583	97.4%
	Received appropriate preventative antibiotic(s)	35	811	95.2%	440	19,113	96.7%	3,632	1,103,318	97.7%
	Preventative antibiotic(s) stopped within 24 hours after surgery	35	785	92.1%	439	18,548	93.6%	3,628	1,050,953	95.7%
	Doctors ordered blood clot prevention treatments	34	418	83.7%	422	8,990	90.6%	3,616	545,333	95.0%
	Received blood clot prevention treatments 24 hours pre/post surgery	32	398	82.9%	418	8,926	89.7%	3,609	543,492	93.3%
	Controlled 6AM post-op blood glucose	*	*	*	*	*	*	1,189	176,684	94.1%
	Appropriate Hair Removal	37	1,246	99.2%	458	25,081	99.0%	3,670	1,584,551	99.7%
	Beta blockers before/after surgery	9	100	87.0%	219	3,635	89.2%	3,382	459,876	94.1%
	Urinary Catheter removed 1st/2nd day before surgery	31	275	82.2%	408	10,758	90.0%	3,580	684,515	91.1%

Definitions of these measures can be found in Appendix A.

*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 2010 for CAHs in Iowa, CAHs Nationally, and All US Hospitals

		CAHs in Iowa (n=14)			CAHs Nationally (n=282)			All US Hospitals (n=3,473)		
		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	*	*	*	149	481	47.4%	1,043	5,416	55.9%
	Aspirin within 24 hours of arrival or prior to transfer	14	417	96.9%	281	12,853	95.5%	2,964	161,373	95.6%
Outpatient Surgery	Received antibiotic within 1 hour before surgery	7	40	92.5%	158	2,423	84.4%	3,227	665,613	94.3%
	Received right kind of antibiotic	7	41	90.2%	154	2,418	90.9%	3,209	672,515	94.5%

		CAHs in Iowa (n=14)			CAHs Nationally (n=282)			All US Hospitals (n=3,473)		
		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	Time to patient transfer for specialized care	*	*	*	181	844	98.8	1,648	12,716	98.1
	Time to ECG	14	434	5.1	281	13,434	9.8	2,973	167,843	11.5

Definitions of these measures can be found in Appendix A.

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

HCAHPS Survey Results for CAHs in Iowa 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 2010: CAHs in Iowa, 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 Iowa that reported HCAHPS data was 37, for an HCAHPS reporting rate of 45.1%. This rate was greater than the national HCAHPS reporting rate of 38% for CAHs.

Table 5. HCAHPS Results for 2010 for CAHs in Iowa and Nationally and all US Hospitals

Percent of patients who reported that:	Mean (average) for:		
	Iowa CAHs (n=37)	CAHs Nationally (n=505)	All US Hospitals (n=4,526)
Nurses always communicated well	83%	81%	76%
Doctors always communicated well	86%	84%	80%
Patient always received help as soon as wanted	75%	74%	64%
Pain was always well controlled	74%	72%	69%
Staff always explained about medications before giving them to patient	67%	66%	61%
Yes, staff gave patient information about what to do during recovery at home	85%	84%	82%
Area around patient room was always quiet at night	65%	63%	58%
Patient room and bathroom were always clean	82%	80%	72%
They gave an overall hospital rating of 9 or 10 (high) on 1-10 scale	78%	73%	68%
They would definitely recommend the hospital to friends and family	76%	73%	70%

Mortality and Readmission Rate Categories for CAHs in Iowa and Nationally

Table 6 displays the number of CAHs in Iowa 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 2007 to June 2010 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, 91.8% of CAHs either were missing AMI mortality data or had too few cases to reliably calculate a rate; the remaining 8.2% 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 (73%). 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 4% of CAHs for pneumonia).

Table 6. Number (Percent) of CAHs in Iowa 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	Iowa CAHs	82	13 (15.9%)	63 (76.8%)	6 (7.3%)	0	0
	CAHs Nationally	1329	347 (26.1%)	873 (65.7%)	209 (8.2%)	0	0
Heart Failure	Iowa CAHs	82	10 (12.2%)	12 (14.6%)	58 (70.7%)	0	2 (2.4%)
	CAHs Nationally	1329	286 (21.5%)	275 (20.7%)	760 (57.2%)	0	8 (0.6%)
Pneumonia	Iowa CAHs	82	10 (12.2%)	2 (2.4%)	66 (80.5%)	0	4 (4.9%)
	CAHs Nationally	1329	280 (21.0%)	81 (6.1%)	928 (69.8%)	0	40 (3.0%)

Table 7 shows the 30 day risk-adjusted readmission rates for AMI, heart failure, and pneumonia for CAHs in Iowa and nationally. For AMI, 97.2% of CAHs either were missing AMI readmission data or had too few cases to reliably calculate a rate, and the remaining 2.8% 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 (61.3%) and pneumonia (73.6%), but few CAHs had readmission rates that are either better than or worse than the US rates for all hospitals (0.3% of CAHs for heart failure and 0.2% of CAHs for pneumonia).

Table 7. Number (Percent) of CAHs in Iowa 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	Iowa CAHs	82	15 (18.3%)	65 (79.3%)	2 (2.4%)	0	0
	CAHs Nationally	1329	393 (29.6%)	899 (67.6%)	37 (2.8%)	0	0
Heart Failure	Iowa CAHs	82	10 (12.2%)	8 (9.8%)	64 (78.0%)	0	0
	CAHs Nationally	1329	286 (21.5%)	228 (17.2%)	811 (61.0%)	1 (0.1%)	3 (0.2%)
Pneumonia	Iowa CAHs	82	10 (12.2%)	1 (1.2%)	71 (86.6%)	0	0
	CAHs Nationally	1329	280 (21.1%)	71 (5.3%)	976 (73.4%)	0	2 (0.2%)

Trends Over Time

The figures that follow Table 4 compare the Iowa and national data trends for CAHs for 2008, 2009 and 2010. 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.

Future Issues for CAH Quality Reporting

Three key issues have implications for CAH quality reporting in the future: 1) CMS changes to the Hospital Compare quality measure set; 2) implementation of the Medicare Beneficiary Quality Improvement Project (MBQIP) by the Office of Rural Health Policy, which will encourage and assist CAHs in quality reporting; and 3) continued interest in payment reform at the national level, including the establishment of Value Based Purchasing demonstrations involving CAHs and other low volume hospitals.

Changes to CMS Hospital Compare

In January 2012, CMS is making several changes to the Hospital Compare inpatient quality measure set that will reduce the number of pneumonia, heart failure and AMI measures.¹⁰ These changes include:

- Retiring the pneumonia initial antibiotic timing measure due to concerns about potential incentives to overuse antibiotics.
- Retiring the pneumonia, heart failure and AMI smoking cessation advice measures and the pneumonia influenza and pneumococcal vaccination measures.
- Suspending data collection for three inpatient AMI measures (aspirin at arrival, ACEI/ARB for LVSD, and beta blocker at discharge) because performance is uniformly high nationwide (although CAH performance is not as high as other hospitals).
- Adding two new global influenza and pneumococcal vaccination measures.

The Medicare Beneficiary Quality Improvement Project

The Office of Rural Health Policy (ORHP) created the Medicare Beneficiary Quality Improvement Project (MBQIP) as a Flex Grant Program activity within the core area of quality improvement. The primary goal of this project is for CAHs to implement quality improvement initiatives to improve their patient care. CAHs that opt to participate in MBQIP were asked to sign a Memorandum of Understanding (MOU) allowing ORHP to access their quality measure data. As of December 2011, 42 of the 45 Flex states were participating in MBQIP and 879 CAHs had signed MOUs.

The MBQIP measures include the CMS inpatient pneumonia and heart failure measures (to be implemented starting in 2011-2012); CMS outpatient AMI/chest pain, outpatient surgery, and HCAHPS measures (starting in 2012-2013); the outpatient Emergency Department Transfer Communication measures and Pharmacist CPOE/verification of medication orders within 24 hours (starting in 2013-2014).

Quality Reporting and Payment Reform

Beginning in FY 2013, the CMS Value-Based Purchasing (VBP) Program will provide Medicare incentive payments to acute care hospitals that are paid under the Prospective Payment System, based on how well the hospitals perform on certain quality measures or how much the hospitals' performance improves from their baseline performance. Although CAHs are currently excluded from the CMS VBP Program, the Patient Protection and Affordable Care Act of 2010 included provisions for CMS to establish VPB demonstrations for CAHs and other low volume hospitals excluded from the VPB Program.

References

1. Casey, M. and Moscovice, I. *CAH Participation in Hospital Compare and Initial Results*. Flex Monitoring Team Briefing Paper No. 9, February 2006. http://www.flexmonitoring.org/documents/BriefingPaper9_HospitalCompare.pdf
2. Casey, M., Burlew, M. and Moscovice, I. *Critical Access Hospital Year 2 Hospital Compare Participation and Quality Measure Results*. Flex Monitoring Team Briefing Paper No. 16, April 2007. http://www.flexmonitoring.org/documents/BriefingPaper16_HospitalCompare.pdf
3. Casey, M., Burlew, M. and Moscovice, I. *Critical Access Hospital Year 3 Hospital Compare Participation and Quality Measure Results*. Flex Monitoring Team Briefing Paper No. 20, August 2008. http://www.flexmonitoring.org/documents/BriefingPaper20_HospitalCompare3.pdf
4. Casey, M., Burlew, M. and Moscovice, I. *Critical Access Hospital Year 4 Hospital Compare Participation and Quality Measure Results*. Flex Monitoring Team Briefing Paper No. 22, October 2009.
5. Casey, M., Burlew, M. and Moscovice, I. *Critical Access Hospital Year 5 Hospital Compare Participation and Quality Measure Results*. Flex Monitoring Team Briefing Paper No. 26, March 2010.
6. Casey, M., Burlew, M. and Moscovice, I. *Critical Access Hospital Year 6 Hospital Compare Participation and Quality Measure Results*. Flex Monitoring Team Briefing Paper No. 28, April 2011.
7. Previous state level reports are available on the Flex Monitoring Team website at <http://www.flexmonitoring.org/indicators.shtml>.
8. Centers for Medicare and Medicaid Services (CMS). HCAHPS Fact Sheet. March 2009. Available at: <http://www.hcahpsonline.org/files/HCAHPS%20Fact%20Sheet,%20revised1,%203-31-09.pdf>
9. CMS. Hospital Outcome of Care Measures: Calculation of 30-Day Risk-Standardized Mortality Rates and Rates of Readmission. http://www.hospitalcompare.hhs.gov/Hospital/Static/InformationForProfessionals_tabset.asp?activeTab=2&language=English&version=default
10. Centers for Medicare and Medicaid Services. 42 CFR Parts 412, 413, and 476. Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long Term Care Hospital Prospective Payment System and FY 2012 Rates. *Federal Register*. 2011, August 18; 76(170):51609-51660.

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

Appendix A: Definitions of Current Hospital Compare Process Measures

Inpatient AMI - Heart Attack and Chest Pain

Aspirin at arrival – Acute myocardial infarction (AMI) patients without aspirin contraindications who received aspirin within 24 hours before or after hospital arrival. (Is both an inpatient and outpatient measure.)

Aspirin at discharge – AMI patients without aspirin contraindications who were prescribed aspirin at hospital discharge.

ACEI or ARB for LVSD – (Angiotensin Converting Enzyme [ACE] Inhibitor or Angiotensin Receptor Blocker [ARB] for Left Ventricular Systolic Dysfunction) - AMI patients with left ventricular systolic dysfunction (LVSD) and without angiotensin converting enzyme inhibitor (ACE inhibitor) contraindications or angiotensin receptor blocker (ARB) contraindications who are prescribed an ACE inhibitor or an ARB at hospital discharge.

Beta blocker at discharge – AMI patients without beta-blocker contraindications who were prescribed a beta-blocker at hospital discharge.

Fibrinolytic medication within 30 minutes of arrival – AMI patients receiving fibrinolytic therapy during the hospital stay and having a time from hospital arrival to fibrinolysis of 30 minutes or less (this is both an inpatient and outpatient measure.)

PCI at arrival – Percutaneous Coronary Intervention (PCI) Received within 90 Minutes of Hospital Arrival - AMI patients receiving Percutaneous Coronary Intervention (PCI) during the hospital stay with a time from hospital arrival to PCI of 90 minutes or less.

Smoking cessation Advice – AMI patients with a history of smoking cigarettes, who are given smoking cessation advice or counseling during a hospital stay.

Time to transfer for specialized care – median time to transfer to another facility for acute coronary intervention (this is only an outpatient measure.) Median number of minutes before outpatients with heart attack who needed specialized care were transferred to another hospital (a lower number of minutes is better)

Time to ECG – (This is only an outpatient measure.) Median number of minutes before outpatients with heart attack (or with chest pain that suggest a possible heart attack) got an ECG (a lower number of minutes is better)

Heart Failure

Discharge instructions – Heart failure patients discharged home with written instructions or educational material given to patient or care giver at discharge or during the hospital stay addressing all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen

Assessment of LVS – Evaluation of left ventricular systolic (LVS) function - Heart failure patients with documentation in the hospital record that an evaluation of the left ventricular systolic (LVS) function was performed before arrival, during hospitalization, or is planned for after discharge.

ACE inhibitor or ARB for LVSD – Heart failure patients with left ventricular systolic dysfunction (LVSD) and without angiotensin converting enzyme inhibitor (ACE inhibitor) contraindications or angiotensin receptor blocker (ARB) contraindications who are prescribed an ACE inhibitor or an ARB at hospital discharge.

Smoking cessation advice – Heart failure patients with a history of smoking cigarettes, who are given smoking cessation advice or counseling during a hospital stay.

Pneumonia

Pneumococcal vaccination – Pneumonia inpatients age 65 and older who were screened for pneumococcal vaccine status and were administered the vaccine prior to discharge, if indicated.

Blood culture prior to first antibiotic – Cultures performed in the emergency department prior to initial antibiotic received in hospital - Pneumonia patients whose initial emergency room blood culture specimen was collected prior to first hospital dose of antibiotics.

Smoking cessation advice – Pneumonia patients with a history of smoking cigarettes, who are given smoking cessation advice or counseling during a hospital stay.

Initial antibiotics within six hours – Pneumonia inpatients that receive within 6 hours after arrival at the hospital. Evidence shows better outcomes for administration times less than four hours.

Most appropriate initial antibiotics – Immunocompetent patients with pneumonia who receive an initial antibiotic regimen that is consistent with current guidelines.

Influenza vaccination – Pneumonia patients age 50 years and older, hospitalized during October, November, December, January, or February who were screened for influenza vaccine status and were vaccinated prior to discharge, if indicated.

Surgical Care Improvement Project

Preventative antibiotics one hour before incision – Surgical patients who received prophylactic antibiotics within 1 hour prior to surgical incision. (This is both an inpatient and outpatient measure.)

Received appropriate preventative antibiotics – Prophylactic antibiotic selection – Surgical patients who received the recommended antibiotics for their particular type of surgery. (This is both an inpatient and outpatient measure.)

Preventative antibiotics stopped within 24 hours after surgery – Prophylactic antibiotics discontinued within 24 hours after surgery end time – Surgical patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time.

Doctors ordered blood clot prevention treatments – Surgery patients with recommended venous thromboembolism prophylaxis ordered – Surgery patients with recommended venous thromboembolism (VTE) prophylaxis ordered anytime from hospital arrival to 48 hours after *Surgery End Time*.

Received blood clot prevention treatments 24 hours pre/post-surgery – Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery – Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 Hours prior to *Surgical Incision Time* to 24 Hours after *Surgery End Time*.

Controlled 6AM post-op blood glucose – Cardiac surgery patients with controlled 6 A.M. postoperative blood glucose – Cardiac surgery patients with controlled 6 A.M. blood glucose (≤ 200 mg/dL) on postoperative day one (POD 1) and postoperative day two (POD 2) with *Surgery End Date* being postoperative day zero (POD 0).

Surgery patients with appropriate hair removal – Surgery patients with appropriate surgical site hair removal. No hair removal, or hair removal with clippers or depilatory is considered appropriate. Shaving is considered inappropriate.

Beta blockers before/after surgery – Surgery patients on a beta blocker prior to arrival who received a beta blocker during the perioperative period – Surgery patients who were taking heart drugs called beta blockers before coming to the hospital, who were kept on the beta blockers during the period just before and after their surgery.

Urinary Catheter removed 1st/2nd day after surgery – Inpatients whose urinary catheters were removed within 2 days after surgery to reduce the risk of infections – Shows the percent of surgery patients whose urinary catheters were removed on the first or second day after surgery.

Source: CMS. Hospital Compare. Technical Appendix. Available at: <http://www.hospitalcompare.hhs.gov/staticpages/for-professionals/poc/Technical-Appendix.aspx#POC3>. Accessed January 5, 2012.

Appendix B: Iowa CAHs and CAHs Nationally for Inpatient and Outpatient Measures

Figure 1. AMI: Aspirin at Arrival

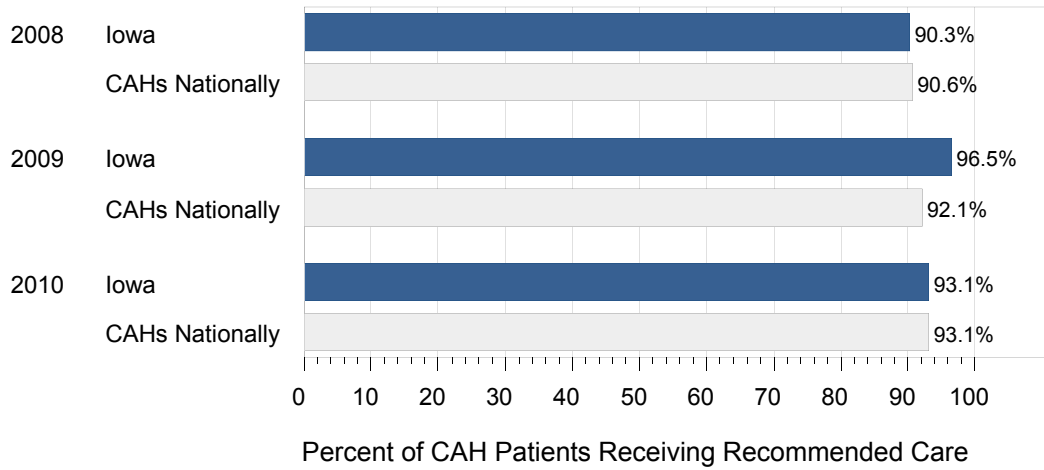


Figure 2. AMI: Aspirin at Discharge

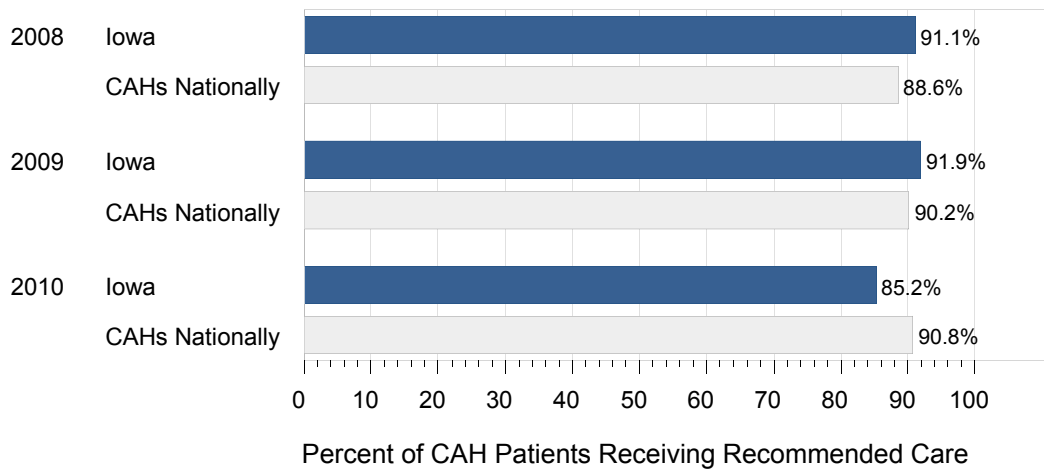


Figure 3. AMI: Beta Blocker at Discharge

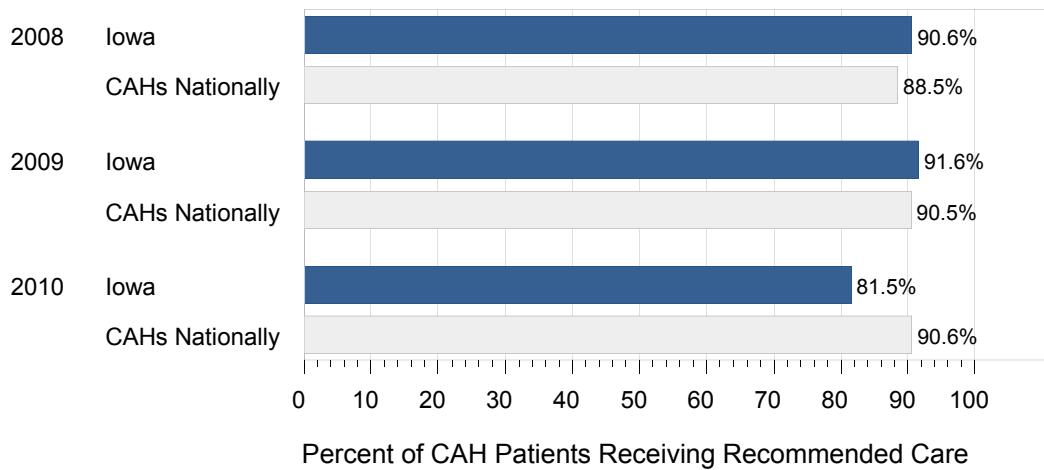


Figure 4. Heart Failure: Discharge Instructions

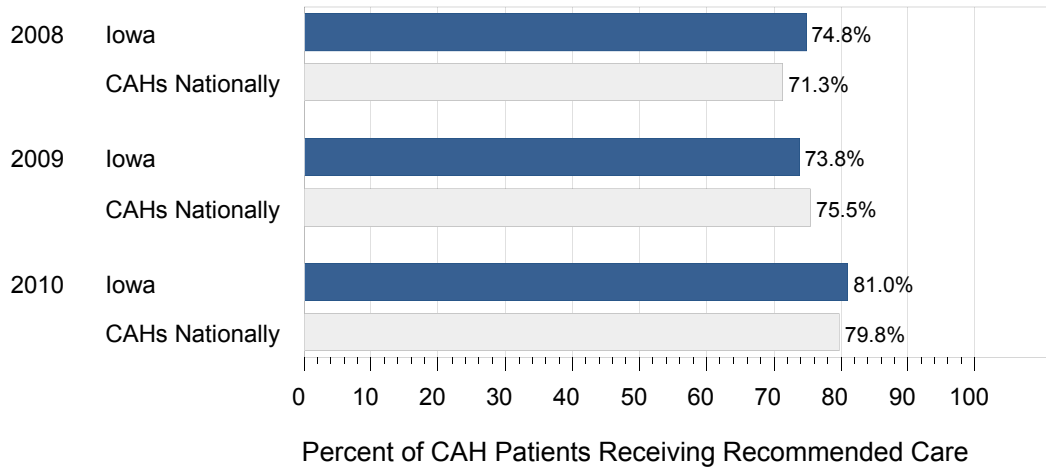


Figure 5. Heart Failure: Assessment of LVS

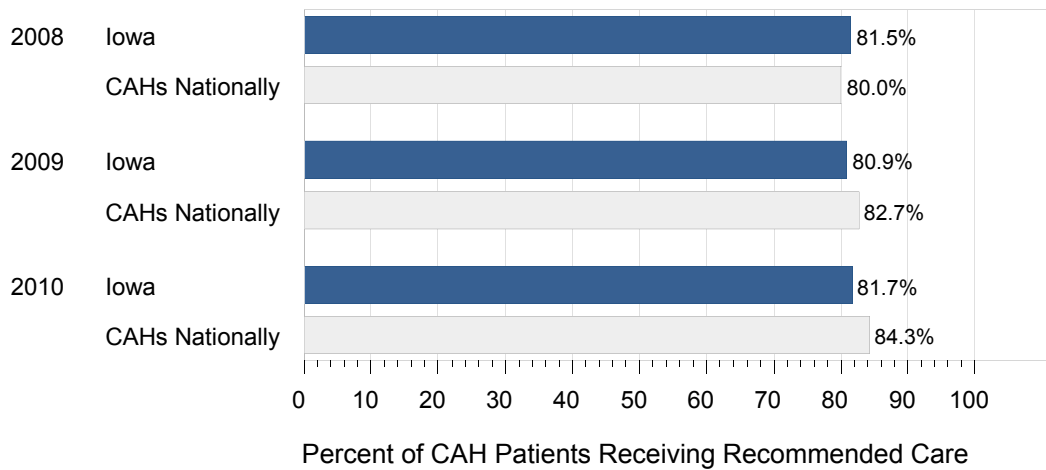


Figure 6. Heart Failure: ACE Inhibitor or ARB for LVSD

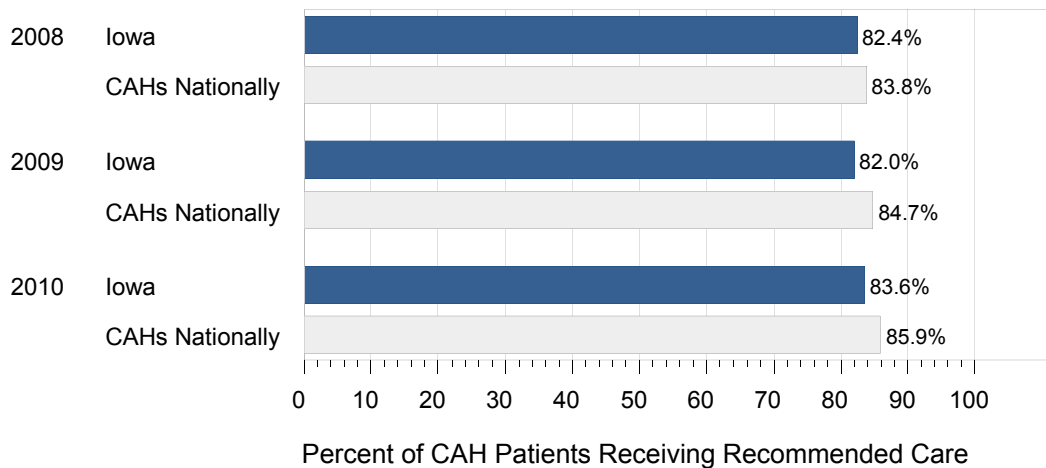


Figure 7. Heart Failure: Smoking Cessation Advice

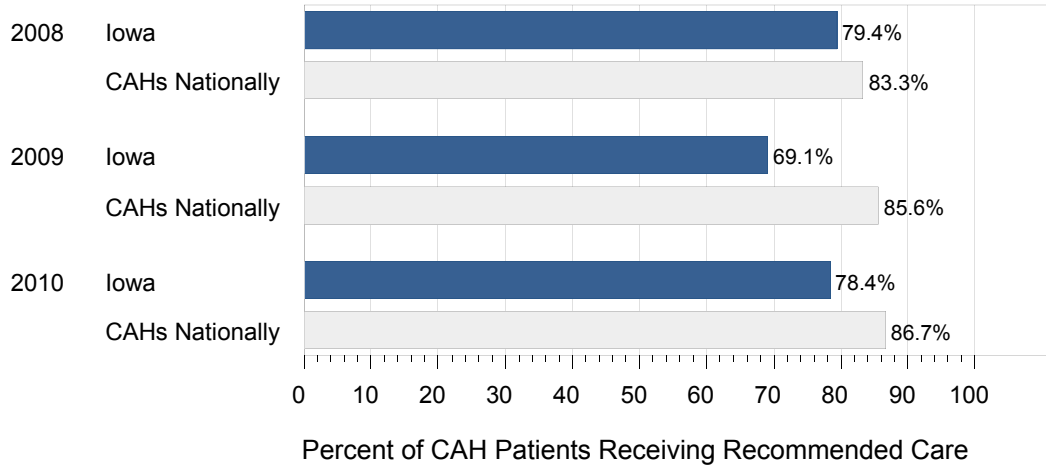


Figure 8. Pneumonia: Pneumococcal Vaccination

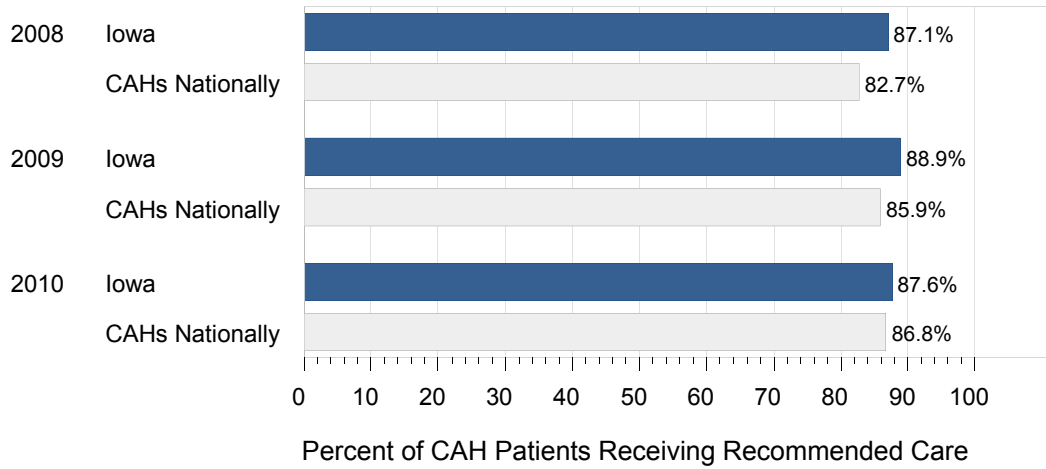


Figure 9. Pneumonia: Blood Culture Prior to First Antibiotic

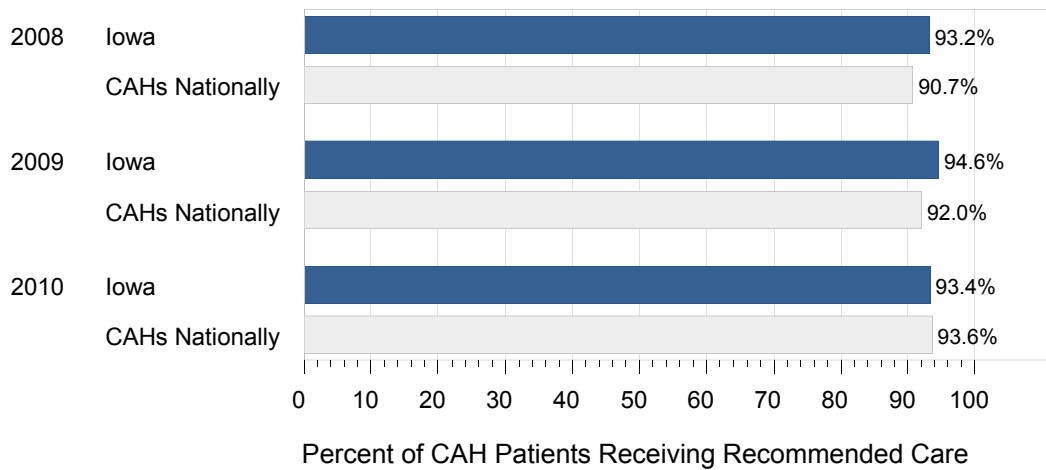


Figure 10. Pneumonia: Smoking Cessation Advice

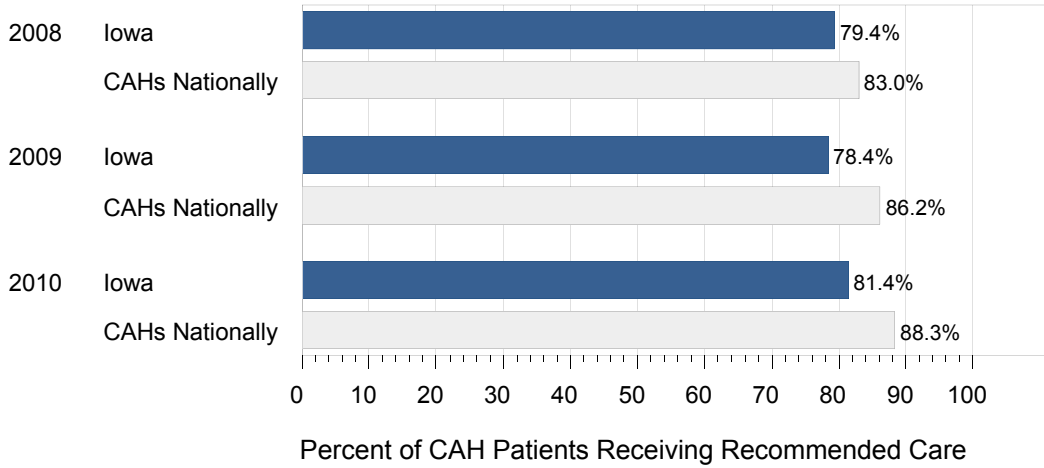


Figure 11. Pneumonia: Timely Administration of Initial Antibiotic

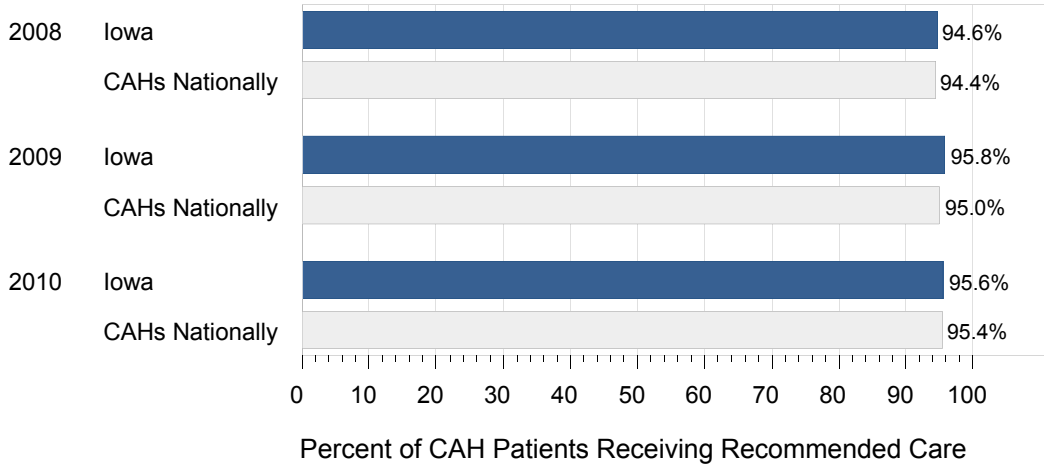


Figure 12. Pneumonia: Most Appropriate Initial Antibiotic(s)

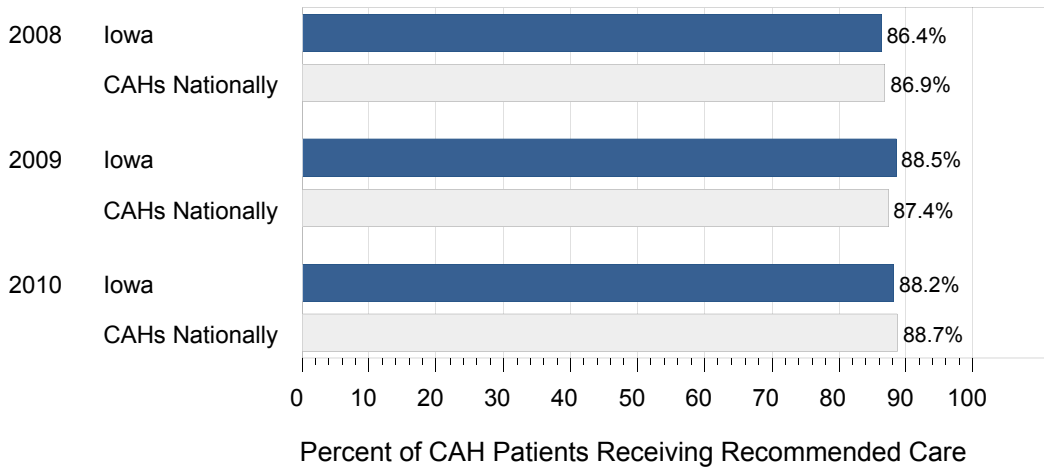


Figure 13. Pneumonia: Influenza Vaccination

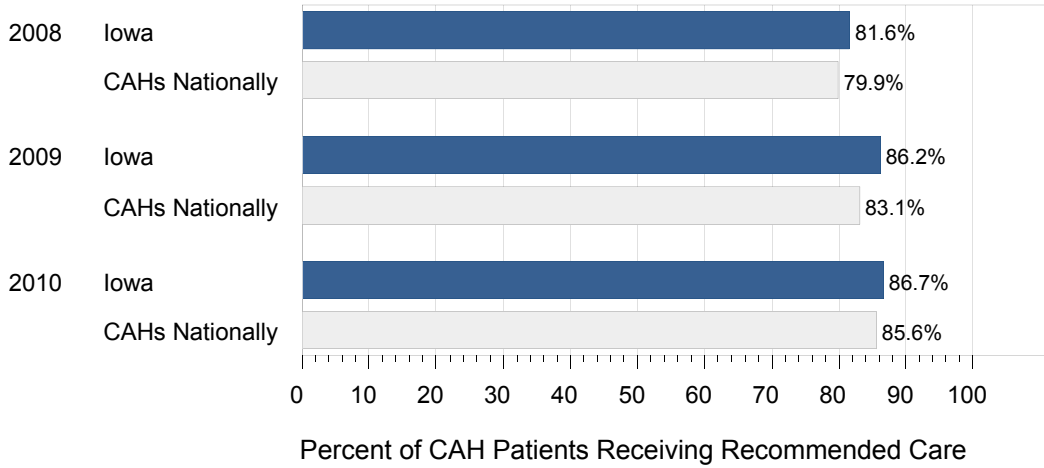


Figure 14. Surgical Care Improvement: Preventative Antibiotic(s) One Hour before Incision

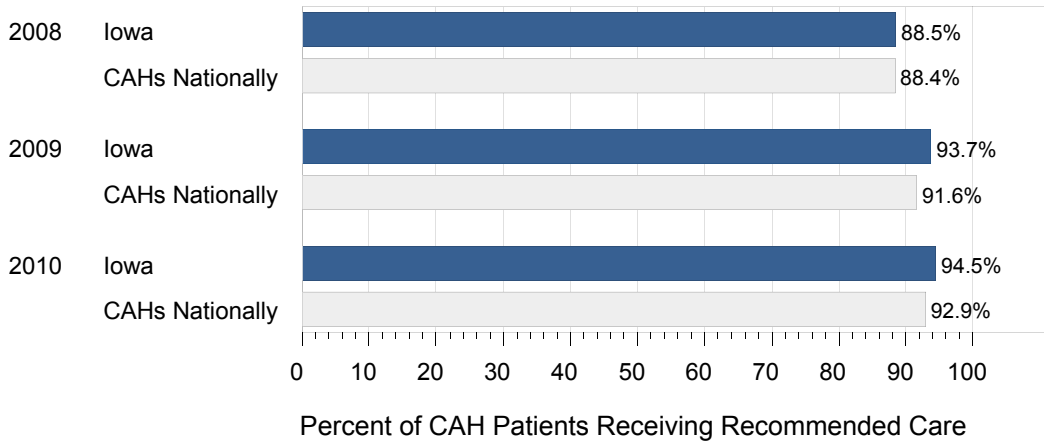


Figure 15. Surgical Care Improvement: Received Appropriate Preventative Antibiotic(s)

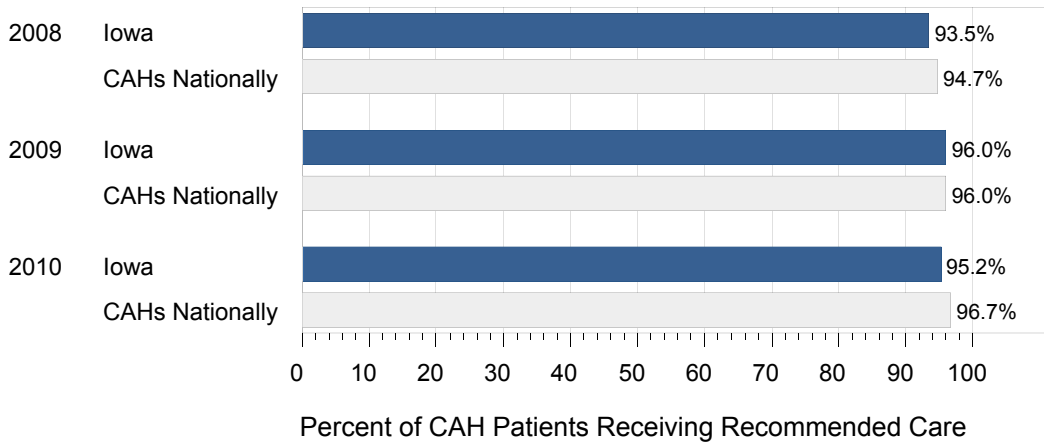


Figure 16. Surgical Care Improvement: Preventative Antibiotic(s) Stopped w/in 24 Hours Post Surgery

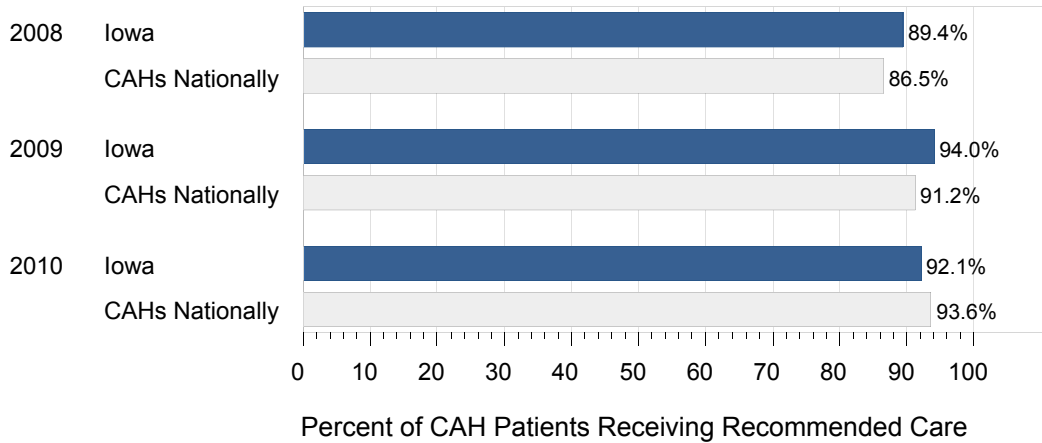


Figure 17. Surgical Care Improvement: Doctors Ordered Blood Clot Prevention Treatments

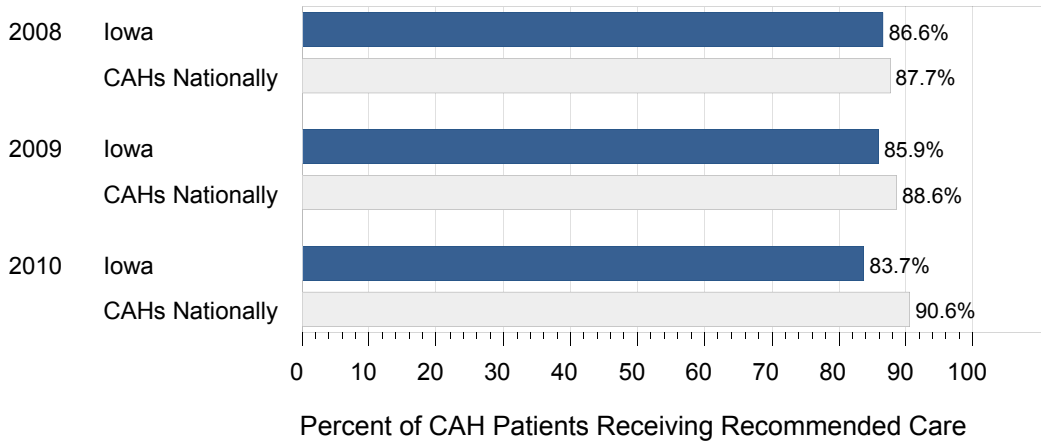


Figure 18. Surgical Care Improvement: Recvd Blood Clot Prevention Treatments 24 Hrs Pre/Post Surgery

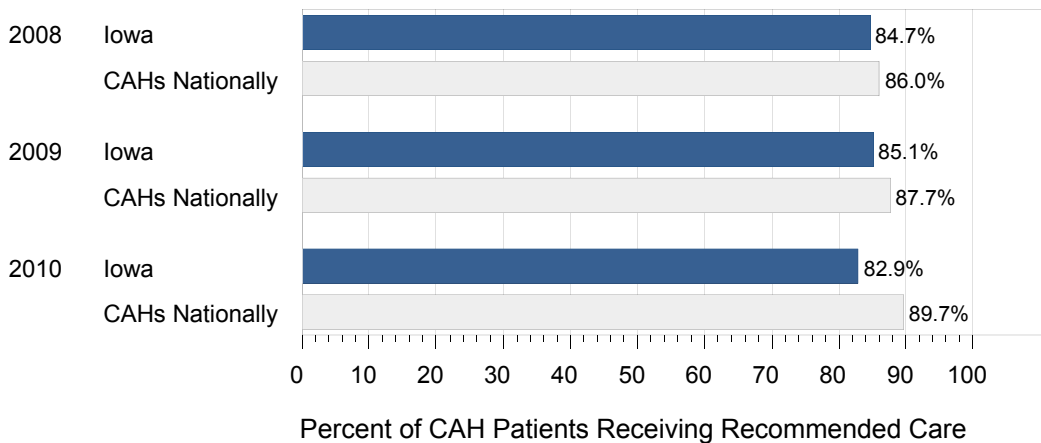


Figure 19. Surgical Care Improvement: Appropriate Hair Removal

