

Hospital Compare Quality Measures: 2011 National and Massachusetts Results for Critical Access Hospitals

Michelle Casey, MS, Peiyin Hung, MSPH, Maeve McClellan, BS, Ira Moscovice, PhD, University of Minnesota Rural Health Research Center

Key Findings

National

- Of the 1,328 Critical Access Hospitals (CAHs) operating as of December 31, 2011, a total of 1,059 CAHs (79.7%) reported data to Hospital Compare on at least one inpatient process of care measure for 2011. This total includes 121 CAHs that reported data on ten or fewer patients for all inpatient measures, and had their data suppressed by CMS.
- 362 CAHs (27.3%) reported data on at least one outpatient measure, including 105 CAHs that reported data on ten or fewer patients for all outpatient measures and had their data suppressed by CMS.
- Of the 45 states in the Flex program, twelve states have 100% of CAHs reporting inpatient data while three states have less than half of CAHs reporting. Outpatient reporting ranges from 0% of CAHs in two states to 100% of CAHs in one state.
- 548 CAHs (41.3%) reported data on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS). HCAHPS reporting ranges from 0% in one state to 100% of CAHs in three states. Eight states have 100% of CAHs reporting HCAHPS data, and seven states have less than half of CAHs reporting.

Massachusetts

- The inpatient reporting rate for Massachusetts's 3 CAHs (100%) is higher than CAHs nationally. The Massachusetts reporting rate for outpatient measures (0%) is lower than CAHs nationally.
- The Massachusetts HCAHPS reporting rate (100%) is greater than CAHs nationally.
- Compared to quality scores for all other CAHs nationally, Massachusetts CAHs have:
 - Significantly higher scores on one inpatient measures and zero outpatient measures.
 - Significantly lower scores on zero inpatient measures and zero outpatient measures.
 - No statistically significant differences for twelve inpatient and zero outpatient measures.
 - Insufficient data to compare fifteen inpatient and four outpatient measures.

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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 Hospital Compare quality measures for 2011 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 process of care measures are included in Appendix A.

At the end of 2011, 1,328 CAHs were located in 45 states. These reports examine state-level CAH participation in Hospital Compare and quality measure results for 2011 as well as trends for 2009-2011 for each state with CAHs. Previous Flex Monitoring Team reports analyzed CAH participation and Hospital Compare inpatient quality measure results nationally for 2004-2010 and at the state level for 2006-2010.¹⁻⁸

The Medicare Beneficiary Quality Improvement Project (MBQIP) was created by the federal Office of Rural Health Policy (ORHP) as a Flex Grant Program activity within the core area of quality improvement. The primary goal of MBQIP is for CAHs to implement quality improvement initiatives to improve their patient care. As of October 2012, a total of 1,085 CAHs had signed a Memorandum of Understanding to participate in MBQIP. The MBQIP Phase 1 and Phase 2 quality measures are a subset of the Hospital Compare measures, and include inpatient pneumonia and heart failure, outpatient AMI/chest pain, and surgery, and HCAHPS measures. The Phase 3 MBQIP measures will be Emergency Department Transfer Communication measures and a Pharmacist CPOE/verification of medication orders within 24 hours measure. Many CAHs are participating in both Hospital Compare and MBQIP, while others are participating in one program but not the other, and some CAHs are still not participating in either program.

Data and Approach

Data on the inpatient and outpatient process of care measures and HCAHPS survey results for January through December 2011, and data on the 3 year (July 2008 to June 2011) mortality and readmission rates calculated by CMS, were downloaded from the CMS Hospital Compare website when they became available in October 2012. These data were linked with previously downloaded data for 2006-2010 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 AMI/chest pain composite measures and two surgical infection composite measures were also created by combining data for individual measures that are used in both inpatient and outpatient settings.

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.

For each measure, 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. Chi-square tests were used to calculate whether these differences were statistically significant. 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. For the two outpatient AMI timing measures, two-sample *t* tests were used to compare the median times for CAHs in each state and all other CAHs.

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.⁹

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.¹⁰

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 Massachusetts, 3 of the 3 CAHs in 2011 reported data to Hospital Compare on at least one inpatient process of care measure for 2011 discharges (Table 1). Massachusetts was one of twelve states with 100% of CAHs reporting inpatient process of care data. The 2011 rate was unchanged from the rate in 2010. (These numbers do not include CAHs that only submit quality measure data to

their Quality Improvement Organization (QIO) or only to the MBQIP program, if they do not allow the data to be publicly reported to Hospital Compare).

Table 1. CAHs Reporting Inpatient and Outpatient Quality Measure Data and HCAHPS Data in Hospital Compare in Massachusetts and Nationally 2007-2011

| | Massachusetts | | | | National | | | |
|-------------|----------------|----------------|-----------------|-------------|----------------|----------------|-----------------|-------------|
| | Number of CAHs | Inpatient data | Outpatient data | HCAHPS data | Number of CAHs | Inpatient data | Outpatient data | HCAHPS data |
| 2007 | 3 | 2 (66.7%) | N/A | N/A | 1293 | 891 (68.9%) | N/A | N/A |
| 2008 | 3 | 3 (100.0%) | N/A | 3 (100.0%) | 1301 | 914 (70.3%) | N/A | 442 (34.0%) |
| 2009 | 3 | 3 (100.0%) | 0 (0.0%) | 3 (100.0%) | 1312 | 943 (71.9%) | 209 (15.9%) | 465 (35.4%) |
| 2010 | 3 | 3 (100.0%) | 0 (0.0%) | 2 (66.7%) | 1328 | 977 (73.5%) | 282 (21.2%) | 505 (38.0%) |
| 2011 | 3 | 3 (100%) | 0 (0%) | 3 (100%) | 1328 | 1,059 (79.7%) | 362 (27.3%) | 548 (41.3%) |

Table 1 also shows that the number of CAHs in Massachusetts that reported HCAHPS data was three, for an HCAHPS reporting rate of 100.0%. This rate was greater than the national HCAHPS reporting rate of 41.3% for CAHs.

No CAHs in Massachusetts reported outpatient data in 2011. The national outpatient reporting rate for CAHs in 2011 was 27.3%.

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 2011 per CAH in Massachusetts 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 Massachusetts and nationally.

Table 2. Number of Completed HCAHPS Surveys and Response Rates for CAHs in Massachusetts and Nationally 2011

| | 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% |
| Massachusetts | 3 | 0 | 2 | 1 | 0 | 3 | 0 |
| National | 548 | 132 | 309 | 107 | 53 | 476 | 19 |

Process of Care Results for CAHs in Massachusetts and Nationally

For the Hospital Compare inpatient and outpatient 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. 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).

Tables 3 and 4 display the inpatient and outpatient AMI/chest pain results for 2011 discharges for CAHs in Massachusetts, CAHs nationally, and all US hospitals. Table 5 shows the inpatient heart failure and pneumonia results, and Table 6 shows the inpatient and outpatient surgical care improvement results.

The number of CAHs reporting AMI inpatient measures has decreased substantially since 2010. 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 few pneumonia measures and lower for others. CAH rates are similar to US rates for almost all of the surgical care improvement measures. On the AMI ECG outpatient timing measure, median time to ECG is lower for CAHs.

Statistically Significant Differences between Massachusetts CAHs and All Other CAHs

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

- Significantly higher scores for one inpatient measure (surgical care improvement measures: preventative antibiotics stopped within 24 hours after surgery) and zero outpatient measures.

- Significantly lower scores for zero inpatient and zero outpatient measures.
- No significant differences for 12 inpatient measures (heart failure measures: discharge instructions, assessment of LVS; pneumonia measures: pneumococcal vaccination, blood culture prior to first antibiotic, initial antibiotics within 6 hours, most appropriate initial antibiotics; surgical care improvement measures: preventative antibiotics one hour before incision, received appropriate preventative antibiotics, doctors ordered blood clot prevention treatments, received blood clot prevention treatments 24 hours pre/post-surgery, appropriate hair removal, surgery patients with perioperative temperature management) and zero Outpatient measures.
- Insufficient data to compare 15 inpatient measures (AMI measures: aspirin at arrival, aspirin at discharge, ACEI or ARB for LVSD, smoking cessation advice, beta blocker at discharge, fibrinolytic within 30 minutes of arrival, PCI at arrival, statin at discharge; heart failure measures: ACE inhibitor or ARB for LVSD, smoking cessation advice; pneumonia measures: smoking cessation advice, influenza vaccination; surgical care improvement measures: controlled 6AM post-operative blood glucose, beta blockers before/after surgery, urinary catheter removed first or second day after surgery); and four outpatient measures (AMI measures: fibrinolytic within 30 minutes of arrival, aspirin at arrival; surgical care improvement measures: preventative antibiotics 1 hour before incision, received appropriate antibiotics).

Table 3. Hospital Compare Acute Myocardial Infarction Process of Care Results for 2011 Discharges for CAHs in Massachusetts, All CAHs Nationally, and All US Hospitals

| | | CAHs in Massachusetts (n=3) | | | CAHs Nationally (n=908) | | | All US Hospitals (n=4,213) | | |
|--------------------------------------|---|--|--------------------------|--|--|--------------------------|--|--|--------------------------|--|
| | | 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 |
| Inpatient AMI | Inpatient: Aspirin at arrival | * | * | * | 56 | 735 | 95.8% | 2,554 | 473,991 | 99.3% |
| | Aspirin at discharge | * | * | * | 24 | 274 | 93.1% | 2,310 | 415,542 | 99.2% |
| | ACEI or ARB for LVSD | * | * | * | * | * | * | 1,578 | 69,276 | 97.6% |
| | Smoking cessation advice | * | * | * | * | * | * | 1,658 | 134,055 | 99.8% |
| | Beta blocker at discharge | * | * | * | 22 | 259 | 91.9% | 2,320 | 403,746 | 99.0% |
| | Inpatient: Fibrinolytic w/in 30 minutes of arrival | * | * | * | * | * | * | 34 | 154 | 70.8% |
| | PCI at arrival | * | * | * | * | * | * | 1,437 | 58,896 | 93.9% |
| | Statin at Discharge | * | * | * | 24 | 262 | 76.3% | 2,291 | 401,964 | 97.5% |
| Outpatient AMI/Chest Pain | Outpatient: Fibrinolytic w/in 30 minutes of arrival | * | * | * | 3 | 41 | 78.0% | 108 | 1,715 | 67.2% |
| | Outpatient: Aspirin at arrival | * | * | * | 252 | 11,483 | 96.1% | 2,083 | 131,414 | 96.6% |
| Composite Inpatient & Outpatient AMI | Composite: Aspirin at arrival | * | * | * | 287 | 12,218 | 96.1% | 3,357 | 605,405 | 98.7% |
| | Composite: Fibrinolytic w/in 30 minutes of arrival | * | * | * | 3 | 41 | 78.0% | 142 | 1,869 | 67.5% |

Chart does not include hospitals whose data was suppressed by CMS.

Table 4. Hospital Compare Acute Myocardial Infarction Time-Relevant Process of Care Results for 2011 Discharges for CAHs in Massachusetts, All CAHs Nationally, and All US Hospitals

| | | CAHs in Massachusetts (n=0) | | | CAHs Nationally (n=257) | | | All US Hospitals (n=3,397) | | |
|---------------------------|---|--|--------------------------|-----------------|--|--------------------------|-----------------|--|--------------------------|-----------------|
| | | 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 | OP Median Time to Fibrinolysis | * | * | * | 3 | 41 | 20.3 | 107 | 1,698 | 27.2 |
| | Median mins before OP with CP/AMI transferred | * | * | * | 19 | 289 | 72.9 | 406 | 7,623 | 65.7 |
| | Median mins to ECG for OP with CP/AMI | * | * | * | 253 | 12,011 | 8.7 | 2,103 | 136,624 | 9.7 |

Chart does not include hospitals whose data was suppressed by CMS.

Table 5. Hospital Compare Heart Failure and Pneumonia Process of Care Results for 2011 Discharges for CAHs in Massachusetts, All CAHs Nationally, and All US Hospitals

| | | CAHs in Massachusetts (n=3) | | | CAHs Nationally (n=908) | | | All US Hospitals (n=4,213) | | |
|---------------|---|--|--------------------------|--|--|--------------------------|--|--|--------------------------|--|
| | | 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 |
| Heart Failure | Discharge instructions | 3 | 61 | 82.0% | 529 | 11,884 | 84.2% | 3,621 | 588,772 | 92.3% |
| | Assessment of LVS | 3 | 76 | 90.8% | 669 | 18,840 | 87.9% | 3,779 | 735,041 | 98.8% |
| | ACE inhibitor or ARB for LVSD | * | * | * | 178 | 2,197 | 88.0% | 2,982 | 221,310 | 96.3% |
| | Smoking cessation advice | * | * | * | 72 | 536 | 90.9% | 2,580 | 119,749 | 99.4% |
| Pneumonia | Pneumococcal vaccination | 3 | 118 | 85.6% | 853 | 29,971 | 90.0% | 3,977 | 518,736 | 95.8% |
| | Blood culture prior to first antibiotic | 3 | 101 | 96.0% | 654 | 23,529 | 94.4% | 3,725 | 539,177 | 97.0% |
| | Smoking cessation advice | * | * | * | 396 | 6,666 | 91.7% | 3,394 | 205,607 | 98.5% |
| | Initial antibiotic(s) within 6 hours | 3 | 105 | 96.2% | 755 | 28,044 | 95.9% | 3,848 | 546,858 | 96.3% |
| | Most appropriate initial antibiotic(s) | 2 | 65 | 93.8% | 773 | 22,387 | 89.4% | 3,883 | 343,871 | 94.9% |
| | Influenza vaccination | * | * | * | 427 | 6,694 | 89.1% | 3,401 | 173,172 | 94.0% |

Chart does not include hospitals whose data was suppressed by CMS.

**Table 6. Hospital Compare Surgical Care Improvement Process of Care Results for 2011 Discharges
for CAHs in Massachusetts, All CAHs Nationally, and All US Hospitals**

| | | CAHs in Massachusetts (n=3) | | | CAHs Nationally (n=908) | | | All US Hospitals (n=4,213) | | |
|---|---|--|--------------------------|--|--|--------------------------|--|--|--------------------------|--|
| | | 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 |
| Inpatient Surgical Care Improvement | Inpatient: Preventative antibiotic(s) 1 hour before incision | 2 | 70 | 97.1% | 320 | 18,784 | 95.1% | 3,375 | 1,044,459 | 98.2% |
| | Inpatient: Received appropriate preventative antibiotic(s) | 2 | 71 | 97.2% | 317 | 18,815 | 97.6% | 3,371 | 1,056,007 | 98.4% |
| | Preventative antibiotic(s) stopped within 24 hours after surgery | 2 | 70 | 100.0% | 315 | 18,355 | 94.4% | 3,364 | 1,009,607 | 97.0% |
| | Doctors ordered blood clot prevention treatments | 2 | 70 | 100.0% | 335 | 18,553 | 95.6% | 3,433 | 975,622 | 97.8% |
| | Received blood clot prevention treatments 24 hours pre/post surgery | 2 | 70 | 100.0% | 333 | 18,431 | 95.2% | 3,428 | 974,043 | 96.9% |
| | Controlled 6AM post-op blood glucose | * | * | * | * | * | * | 1,161 | 170,300 | 95.4% |
| | Appropriate Hair Removal | 2 | 87 | 100.0% | 366 | 25,169 | 99.5% | 3,485 | 1,539,368 | 99.9% |
| | Beta blockers before/after surgery | * | * | * | 207 | 5,398 | 92.1% | 3,133 | 455,100 | 96.3% |
| | Urinary Catheter removed 1st/2nd day after surgery | * | * | * | 265 | 12,171 | 93.9% | 3,257 | 772,890 | 93.9% |
| | Surgery Patients with Perioperative Temperature Management | 2 | 89 | 100.0% | 370 | 25,981 | 98.8% | 3,490 | 1,414,070 | 99.6% |
| Outpatient Surgical Care Improvement | Outpatient: Preventative antibiotic(s) 1 hour before incision | * | * | * | 70 | 2,239 | 88.8% | 2,892 | 689,401 | 96.2% |
| | Outpatient: Received appropriate preventative antibiotic(s) | * | * | * | 75 | 2,345 | 93.2% | 2,896 | 704,021 | 96.3% |
| Composite of Inpatient & Outpatient Surgical Care Improvement | Composite: Preventative antibiotic(s) 1 hour before incision | 2 | 70 | 97.1% | 334 | 21,023 | 94.5% | 3,428 | 1,733,860 | 97.4% |
| | Composite: Received appropriate preventative antibiotic(s) | 2 | 71 | 97.2% | 332 | 21,160 | 97.1% | 3,427 | 1,760,028 | 97.6% |

Chart does not include hospitals whose data was suppressed by CMS.

HCAHPS Survey Results for CAHs in Massachusetts and Nationally

Table 7 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 2011: CAHs in Massachusetts, 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 7 also shows that the number of CAHs in Massachusetts that reported HCAHPS data was three, for an HCAHPS reporting rate of 100.0%. This rate was greater than the national HCAHPS reporting rate of 41% for CAHs. Massachusetts was one of three states with a 100% participation rate in HCAHPS.

Table 7. HCAHPS Results for 2011 for CAHs in Massachusetts and Nationally and all US Hospitals

| Percent of patients who reported that: | Mean (average) for: | | |
|--|--------------------------|-------------------------|----------------------------|
| | Massachusetts CAHs (n=3) | CAHs Nationally (n=548) | All US Hospitals (n=4,609) |
| Nurses always communicated well | 85% | 81% | 77% |
| Doctors always communicated well | 82% | 85% | 81% |
| Patient always received help as soon as wanted | 76% | 74% | 65% |
| Pain was always well controlled | 75% | 73% | 70% |
| Staff always explained about medications before giving them to patient | 66% | 67% | 62% |
| Yes, staff gave patient information about what to do during recovery at home | 89% | 85% | 83% |
| Area around patient room was always quiet at night | 67% | 64% | 59% |
| Patient room and bathroom were always clean | 86% | 80% | 72% |
| They gave an overall hospital rating of 9 or 10 (high) on 1-10 scale | 76% | 73% | 69% |
| They would definitely recommend the hospital to friends and family | 77% | 73% | 70% |

Mortality and Readmission Rate Categories for CAHs in Massachusetts and Nationally

Table 8 displays the number of CAHs in Massachusetts 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 2008 to June 2011 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, 93% of CAHs either were missing AMI mortality data or had too few cases to reliably calculate a rate; the remaining 7% 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 (57%) and pneumonia (76%). 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 8. Number (Percent) of CAHs in Massachusetts 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 | Massachusetts CAHs | 3 | 0 | 3 (100%) | 0 | 0 | 0 |
| | CAHs Nationally | 1328 | 295 (22.2%) | 944 (71.1%) | 89 (6.7%) | 0 | 0 |
| Heart Failure | Massachusetts CAHs | 3 | 0 | 0 | 3 (100%) | 0 | 0 |
| | CAHs Nationally | 1328 | 204 (15.4%) | 371 (27.9%) | 741 (55.8%) | 0 | 12 (0.9%) |
| Pneumonia | Massachusetts CAHs | 3 | 0 | 0 | 3 (100%) | 0 | 0 |
| | CAHs Nationally | 1328 | 198 (14.9%) | 116 (8.7%) | 970 (73.0%) | 1 (0.1%) | 43 (3.2%) |

Table 9 shows the 30-day risk-adjusted readmission rates for AMI, heart failure, and pneumonia for CAHs in Massachusetts and nationally. For AMI, 97.6% of CAHs either were missing AMI readmission data or had too few cases to reliably calculate a rate, and the remaining 2.4% 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 (61%) and pneumonia (77%), but few CAHs had readmission rates that are either better than or worse than the US rates for all hospitals (0.1% of CAHs for heart failure and 0.3% of CAHs for pneumonia).

Table 9. Number (Percent) of CAHs in Massachusetts 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 | Massachusetts CAHs | 3 | 0 | 3 (100%) | 0 | 0 | 0 |
| | CAHs Nationally | 1328 | 340 (25.6%) | 956 (72.0%) | 32 (2.4%) | 0 | 0 |
| Heart Failure | Massachusetts CAHs | 3 | 0 | 0 | 3 (100%) | 0 | 0 |
| | CAHs Nationally | 1328 | 205 (15.4%) | 309 (23.3%) | 813 (61.2%) | 0 | 1 (0.1%) |
| Pneumonia | Massachusetts CAHs | 3 | 0 | 0 | 3 (100%) | 0 | 0 |
| | CAHs Nationally | 1328 | 198 (14.9%) | 105 (7.9%) | 1021 (76.9%) | 1 (0.1%) | 3 (0.2%) |

Trends over Time

The figures in Appendix B compare the Massachusetts and national data trends for CAHs for 2009, 2010 and 2011. 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 process of care measures. Some states may have greater year-to-year fluctuation in results due to small sample sizes for some measures.

Discussion and Conclusions

The percent of CAHs reporting publicly on inpatient process of care measures increased from 73.5% for 2010 to 79.7% for 2011. Public reporting of outpatient process measures also increased from 21.2% of CAHs for 2010 to 27.3% for 2011. CAH reporting of HCAHPS measures increased a little, from 38% in 2010 to 41.3% in 2011.

As with previous years, there was wide variation across the 45 Flex states in CAH reporting. For inpatient measures, 13 states had 100% of CAHs reporting while three states had less than half of CAHs reporting. Outpatient reporting ranged from 0% of CAHs in two states to 100% in one state, and HCAHPS reporting ranged from 0% in one state to 100% of CAHs in three states.

Quality measurement is an important component of health care reform efforts. CAHs will need to report quality measures to show meaningful use of electronic health records (EHRs) and to participate in payment reform initiatives, such as Accountable Care Organizations. In states where CAH reporting is lower than the national average, additional state initiatives may be necessary to encourage reporting. Efforts to assist CAHs in quality reporting are underway as part of the MBQIP project and Quality Improvement Organizations' (QIO) 10th Scope of Work.

For 2011 discharges, CMS instituted a policy of suppressing Hospital Compare data for hospitals that reported data for ten or fewer patients on a measure. As a consequence, 121 CAHs had their data suppressed for all inpatient measures and 105 CAHs had their data suppressed for all outpatient measures. The CMS data suppression policy results in a significant number of CAHs being excluded from ongoing monitoring of CAH quality performance at the hospital, state and national levels. The CMS policy also limits the data available to address small volume issues in CAH quality measurement through alternatives such as aggregating data over time and creating composite measures by condition.

Hospital Compare and MBQIP have several pneumonia and heart failure measures in common. Hospital Compare also includes several additional quality measures that are relevant to CAHs. ORHP encourages CAHs to participate in both MBQIP and public reporting to Hospital Compare, and to report on all cases, regardless of low volume. MBQIP includes all cases reported by CAHs, with no data suppression. As MBQIP continues to be implemented and more CAHs begin to participate in MBQIP, CAH reporting to Hospital Compare will continue to be tracked and monitored.

CMS also made several changes to the Hospital Compare inpatient quality measure set that became effective starting with 2012 discharges.¹¹ These changes included:

- 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 was uniformly high nationwide (although CAH performance is not as high as other hospitals).
- Adding two new global influenza and pneumococcal vaccination measures.

The CMS changes to the Hospital Compare measure set are reducing the number of quality measures for pneumonia and heart failure, which are the most common inpatient

conditions in CAHs, while adding new inpatient and outpatient measures for other conditions that are relevant to CAHs. Future reports will reflect these changes and monitor their impact on CAH participation in public reporting and quality performance.

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11. CMS. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 01-01-12 (1Q121Q12) through 12-31-12 (4Q124Q12). Available at www.qualitynet.org.

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

Appendix A: Definitions of Current Hospital Compare Process Measures

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)

Statin at discharge - AMI patients who are prescribed a statin at hospital discharge.

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

Appendix A: Definitions of Current Hospital Compare Process Measures

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.)

Appendix A: Definitions of Current Hospital Compare Process Measures

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.

Surgery Patients with Perioperative Temperature Management - Surgery patients for whom either active warming was used intraoperatively for the purpose of maintaining normothermia or who had at least one body temperature equal to or greater than 96.8° Fahrenheit/36° Celsius recorded within the 30 minutes immediately prior to or the 15 minutes immediately after *Anesthesia End Time*.

Source: Specifications Manual for National Hospital Quality Measures. Available at: <http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPPage%2FQnetTier4&cid=1228771525863>. Accessed February 5, 2013.

Appendix B: Three Year Trends in Inpatient and Outpatient Measures

Figure 1. Heart Failure: Discharge Instructions

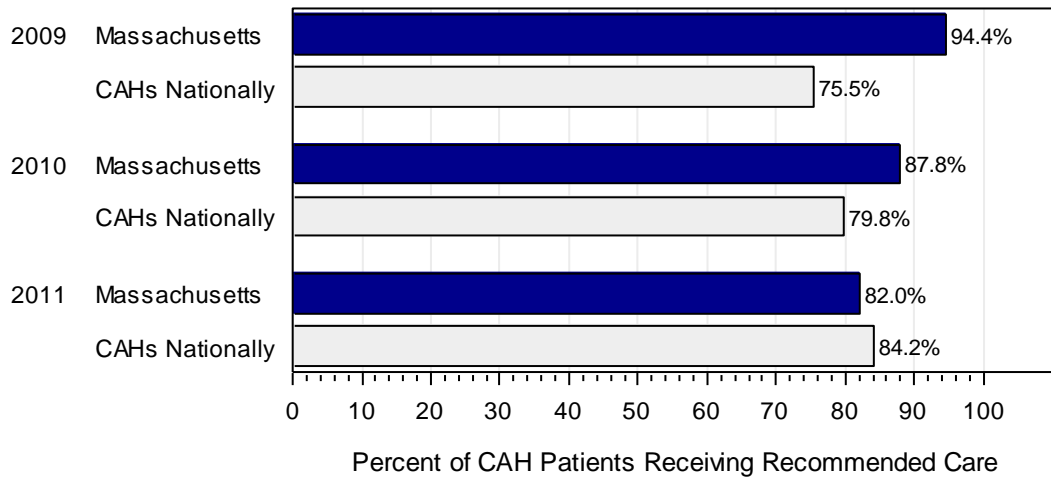


Figure 2. Heart Failure: Assessment of LVS

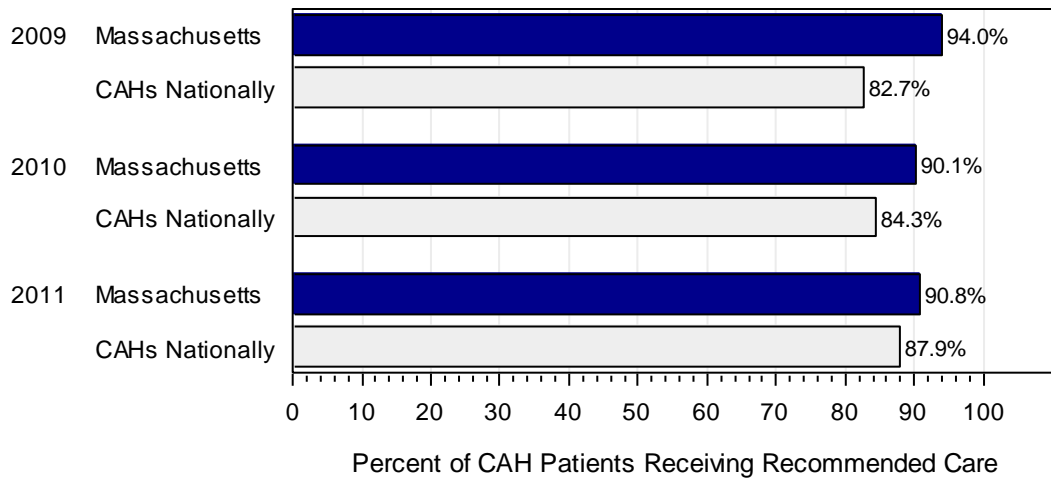
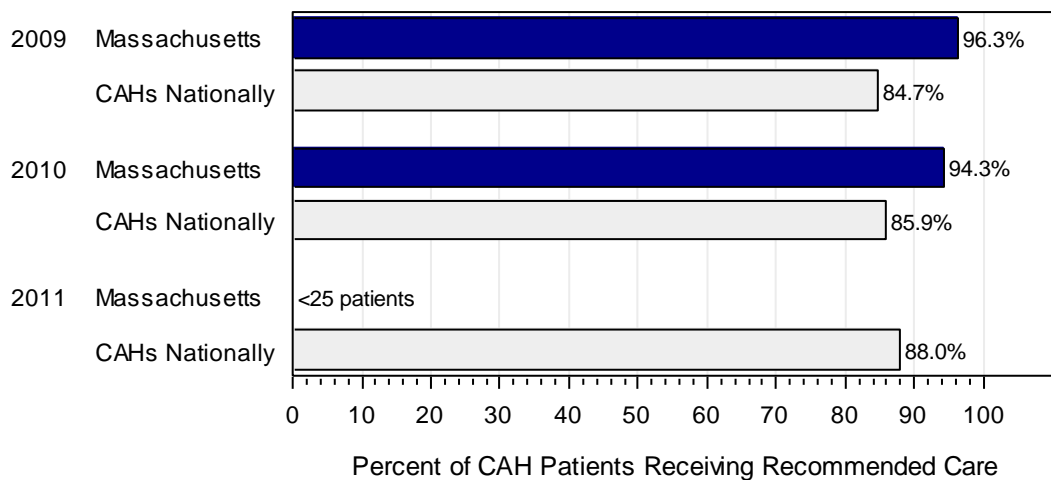


Figure 3. Heart Failure: ACE Inhibitor or ARB for LVSD



Appendix B: Three Year Trends in Inpatient and Outpatient Measures

Figure 4. Pneumonia: Pneumococcal Vaccination

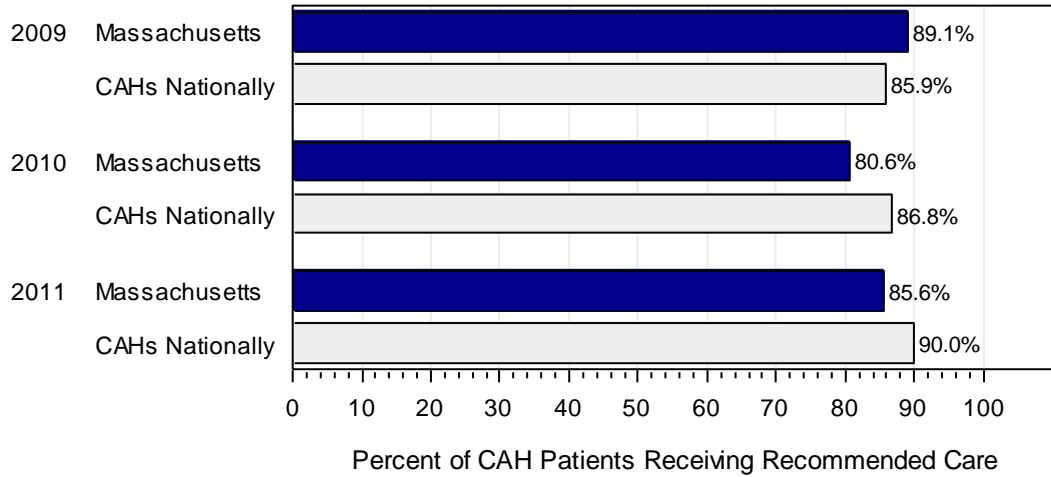


Figure 5. Pneumonia: Blood Culture Prior to First Antibiotic

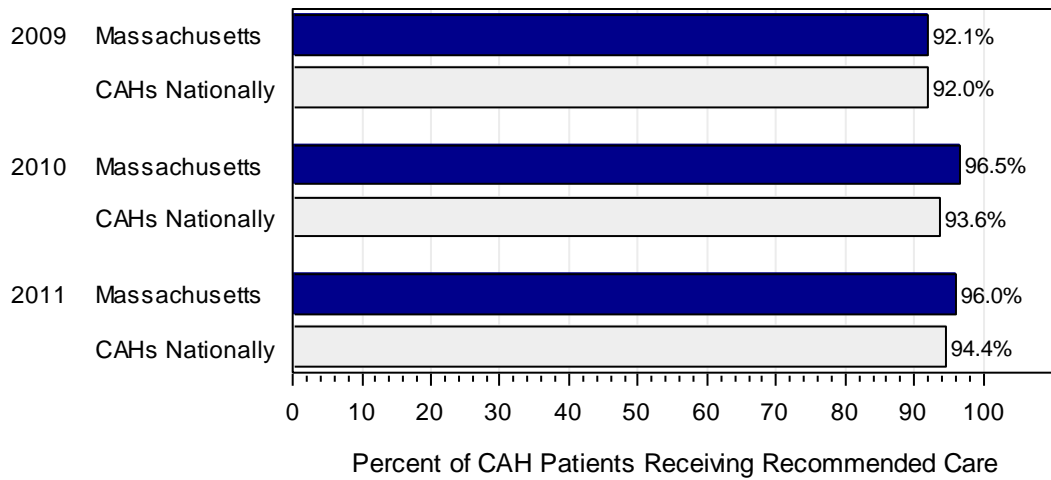
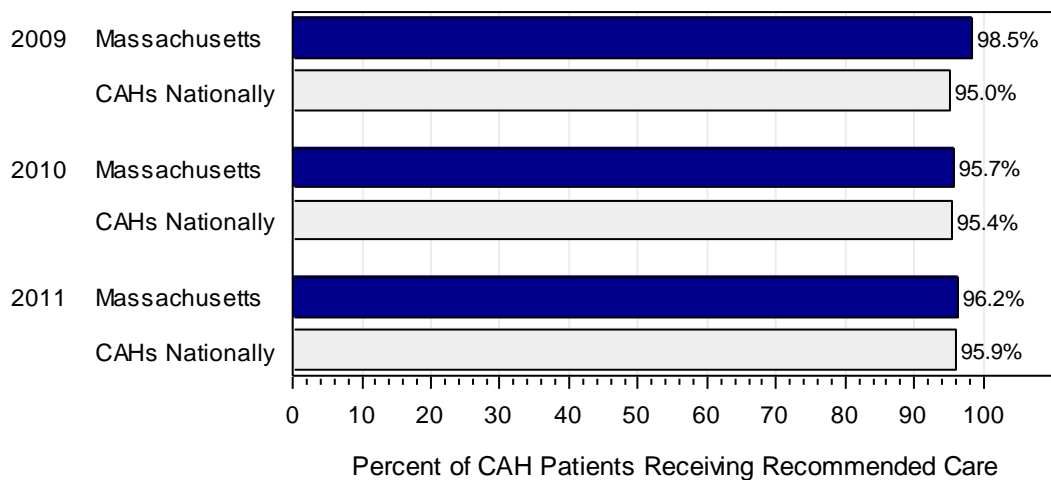


Figure 6. Pneumonia: Timely Administration of Initial Antibiotic



Appendix B: Three Year Trends in Inpatient and Outpatient Measures

Figure 7. Pneumonia: Most Appropriate Initial Antibiotic(s)

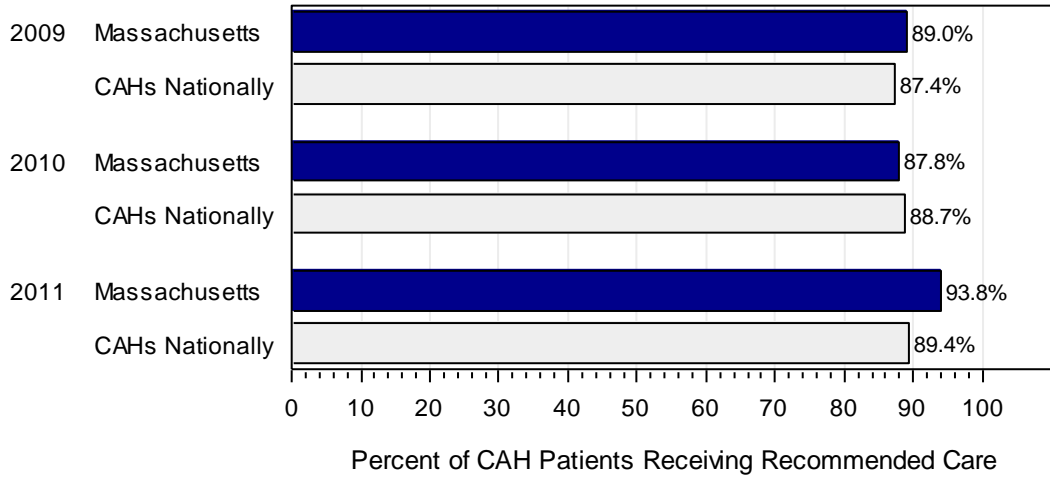


Figure 8. Surgical Care Improvement: Preventative Antibiotic(s) One Hour before Incision

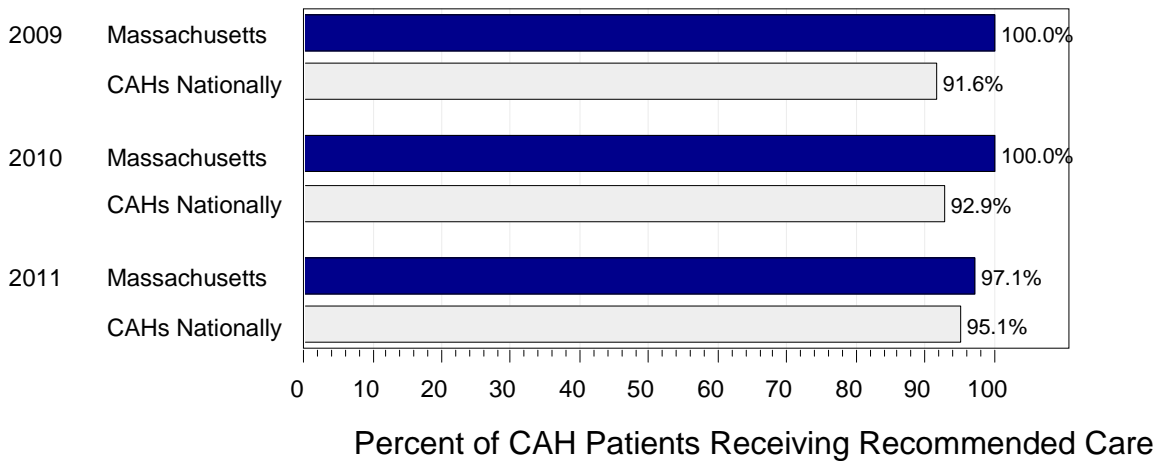
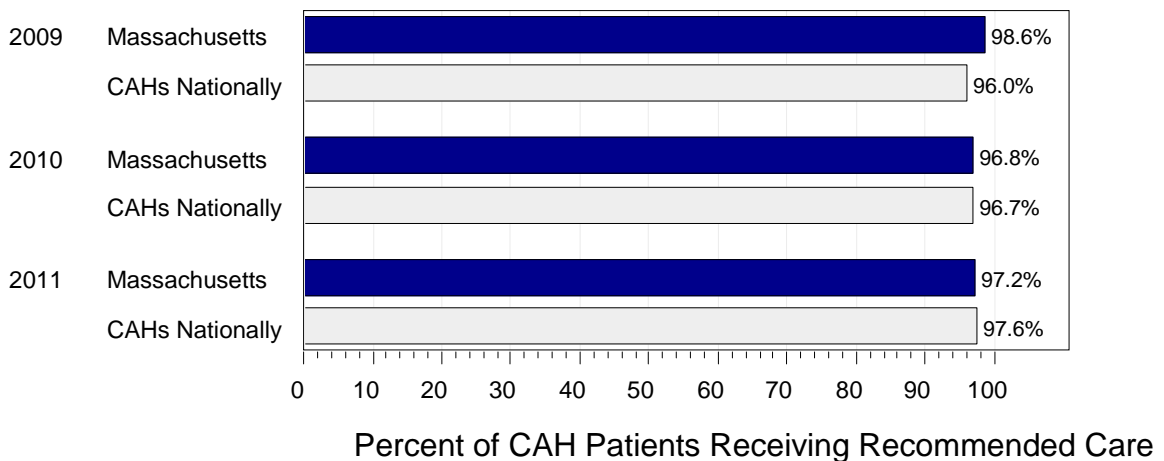


Figure 9. Surgical Care Improvement: Received Appropriate Preventative Antibiotic(s)



Appendix B: Three Year Trends in Inpatient and Outpatient Measures

Figure 10. Surgical Care Improvement: Preventative Antibiotic(s) Stopped w/in 24 Hours Post Surgery

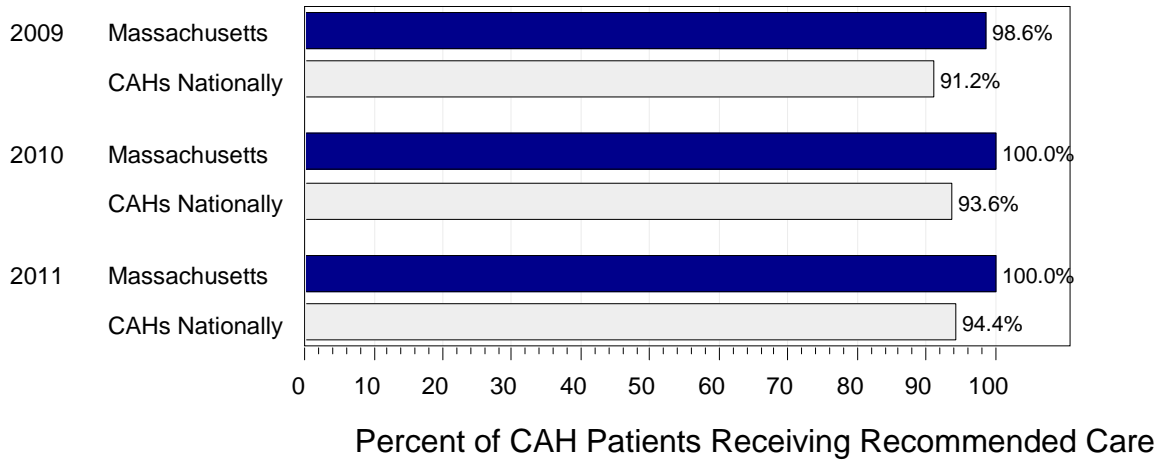


Figure 11. Surgical Care Improvement: Doctors Ordered Blood Clot Prevention Treatments

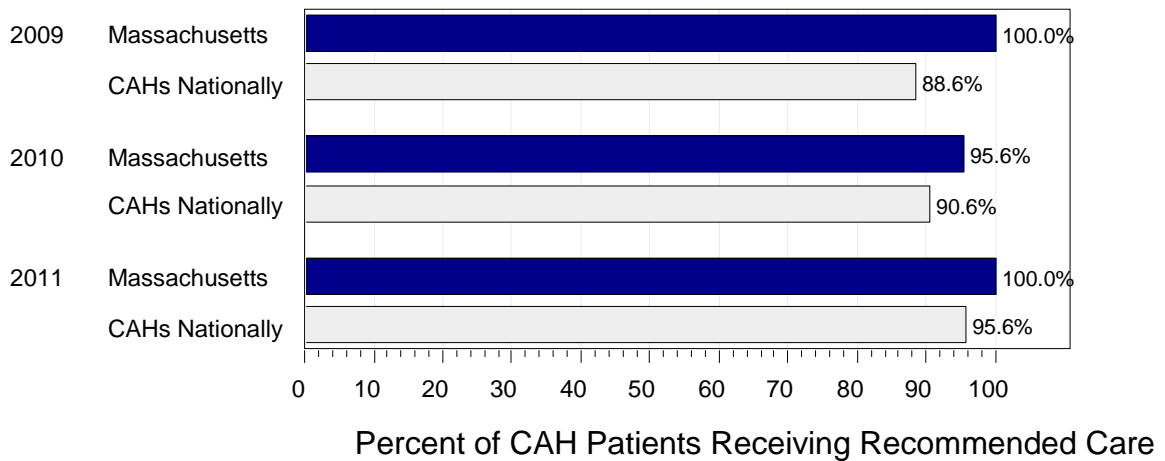
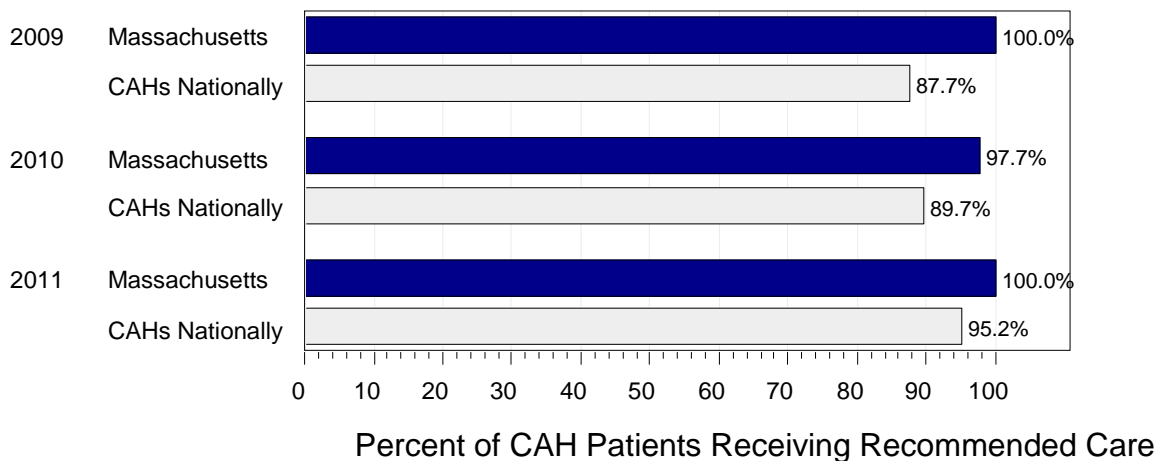


Figure 12. Surgical Care Improvement: Recv'd Blood Clot Prevention Treatments 24 Hrs. Pre/Post Surgery



Appendix B: Three Year Trends in Inpatient and Outpatient Measures

Figure 13. Surgical Care Improvement: Appropriate Hair Removal

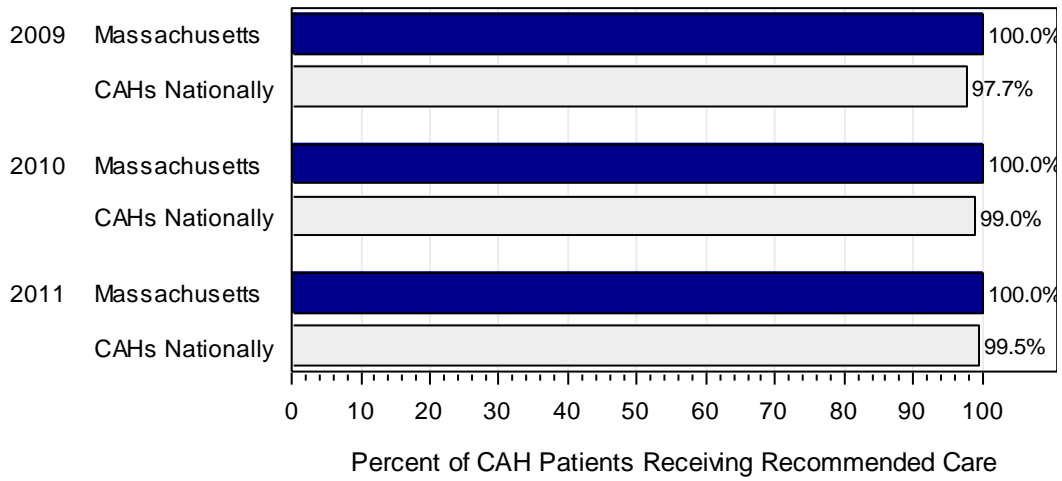
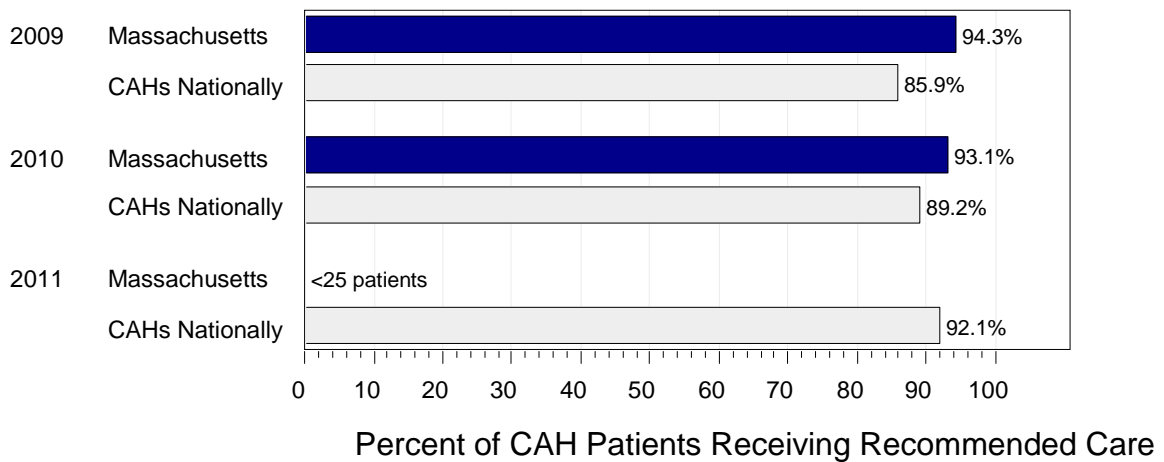


Figure 14. Surgical Care Improvement: Patient on Beta Blockers Prior to Hospitalization and Pre/Post Surgery



Appendix C: Massachusetts Critical Access Hospitals Reporting Inpatient, Outpatient, and HCAHPS Data with At Least One Patient

| Inpatient | Hospital City |
|--------------------------------|----------------------|
| ATHOL MEMORIAL HOSPITAL | ATHOL |
| FAIRVIEW HOSPITAL | GREAT BARRINGTON |
| MARTHA'S VINEYARD HOSPITAL INC | OAK BLUFFS |

| HCAHPS | Hospital City |
|--------------------------------|----------------------|
| ATHOL MEMORIAL HOSPITAL | ATHOL |
| FAIRVIEW HOSPITAL | GREAT BARRINGTON |
| MARTHA'S VINEYARD HOSPITAL INC | OAK BLUFFS |