CENTER FOR HEALTH
INFORMATION AND ANALYSIS

PERFORMANCE OF THE MASSACHUSETTS HEALTH CARE SYSTEM SERIES: A FOCUS ON PROVIDER QUALITY

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Performance of the Massachusetts Health Care System Series: A Focus on Provider Quality

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Executive Summary

Health care quality in Massachusetts, as measured by the Commonwealth's Standard Quality Measure Set (SQMS), is strong and improving. There are, however, apparent opportunities for continued improvement. Performance on many quality measures is not substantially different from similarly high national rates, while the cost of health care in Massachusetts is comparatively high. In addition, there are large differences between the highest and lowest scores received by providers on some measures, suggesting variation in provider quality.

Sustained national reporting on quality performance and financial incentives have had a favorable influence on provider quality results, including in Massachusetts. But quality measurement is still in its early stages of development, with most measures focusing on the processes of care, rather than the outcomes. Additionally, some important areas of health care are either missing appropriate measures or the measures are new and have not been adequately tested.

This report is a baseline for ongoing, annual quality reporting. Though these measures have been reported before, this report consolidates performance on SQMS measures in a single publication. The Center for Health Information and Analysis (CHIA) will continue to work with Massachusetts' stakeholders to expand the scope of measurement to include outcomes measures and to address under-reported areas such as care coordination, behavioral health, pediatrics, end-of-life, resource efficiency and patient-centered care. As measures continue to evolve and mature, CHIA expects that they may become part of the SQMS and regular statewide reporting.

As market participants seek ways to reduce costs while improving quality – through greater coordination of care, reduction in the use of inefficient or resource-intensive tests, and by providing the right care in the right place at the right time—SQMS measures will be central to the emerging discussion

about the value realized through these system reforms and efficiencies.

This report includes an examination of performance in three Massachusetts health care sectors: acute hospitals, primary care, and post-acute care (home health and skilled nursing). Included with the report are a Databook and Quality At-A-Glance appendices which include performance data for each measure, by individual hospital or medical group.

Acute Hospital Care

Hospitals in the Commonwealth did very well on effective care process measures; average hospital performance was above 94% on all sixteen indicators analyzed for this report. While impressive, there was little difference from national average scores on the same measures between 2011-2012 and 2012-2013. Hospital readmissions, one measure of potential inefficiencies and poor outcomes, appeared to decline for the Medicare population, but still triggered penalties from the Centers for Medicare and Medicaid Services (CMS). In 2014, 80% of the Commonwealth's hospitals received penalties for excessive readmissions.

On patient safety, Massachusetts' hospitals performed favorably compared to national results and improved from 2011 to 2013. The range of scores across hospitals has narrowed since 2011, indicating more consistency across hospitals and potentially better control over safety outcomes. A very encouraging result was the drop in early elective deliveries, which was facilitated by focused quality improvement work. In 2012-2013, 20 of 41 reporting hospitals had zero early elective deliveries.

Patients' experiences during their acute hospital stays were rated very similarly to national averages except for noise levels, for which Massachusetts hospitals' performance was below the national average. Both national and Massachusetts patient experience scores have not changed during the last two reporting years, suggesting that further improvement may require new systems or approaches.

Primary Care

The quality of primary care services provided to certain commercial HMO/POS members[1] was assessed using SQMS measures related to clinical performance and patient experience. While medical groups performed well, often scoring above the national 90th percentile, there was large variation in primary care provider performance, shown by wide gaps between the highest and lowest scores on some measures.

Adult primary care providers (PCPs) scored well on management of diabetes and certain medications. A measure of the use of imaging studies for back pain, a resource utilization measure, indicated that providers in the Commonwealth generally used this technology judiciously. Pediatricians received high scores on preventive care, with the majority exceeding 90% for well child visits in the first six years of life.

Performance on the two behavioral health medication management measures, anti-depressants for adults and ADHD medications for children, were also better than national averages. For adult PCPs and pediatricians alike, communication with providers was the highest scoring measure, and access to care the lowest. Given the central role of primary care in driving more efficient resource utilization, patient-perceived access issues may be an area for needed focus.

Post-Acute Care

Post-acute providers of home health and skilled nursing were evaluated using the SQMS measures specific to their care settings. The Commonwealth's home health agencies appeared to effectively get patients started on home care promptly post-discharge, but within 60 days 17% of these patients are admitted to the hospital and 12% visited the Emergency Department without an admission. Hospital admissions from home health care were similar to national levels. Skilled nursing facilities were also measured on patients' reported pain experience and the occurrence of pressure ulcers. Whether looking at long or short-term patients in nursing facilities, there was wide variation in results across facilities, indicating opportunities for improvement in low performing facilities.

[1] Commercially insured enrollees in HMO and Point of Service products offered by Blue Cross Blue Shield of Massachusetts, Fallon Community Health Plan, Harvard Pilgrim Health Care, Health New England, and Tufts Health Plan are included in these primary care quality performance calculations.

Introduction

In 2012, the Massachusetts Legislature passed Chapter 224 of the Acts of 2012 (Chapter 224), An Act Improving the Quality of Health Care and Reducing Costs Through Increased Transparency, Efficiency and Innovation. Chapter 224 created the Center for Health Information and Analysis (CHIA) to monitor the Massachusetts health care system and to provide information to support improvements in quality, affordability, access, and outcomes. This is CHIA's first annual report on the quality of care delivered across the Massachusetts health care system.

The measures in this report are included in the Standard Quality Measure Set (SQMS), which provides a standardized set of metrics by which CHIA can monitor and report on quality performance in the Massachusetts health care system. The development of the SQMS is supported by a Statewide Quality Advisory Committee (SQAC), which is comprised of a diverse group of health care experts, industry stakeholders and consumer advocates. The State Legislature mandated that the SQMS include certain widely used measure sets for hospitals and physicians, such as the Consumer Assessment of Healthcare Performance and Systems (CAHPS) surveys, selected hospital process measures from the Centers for Medicare and Medicaid Services (CMS), and the Healthcare Effectiveness Data and Information Set (HEDIS). This report outlines provider performance on these measures, as well as on selected hospital Patient Safety Indicators (PSIs), Leapfrog measures and measures of the quality of care delivered in Massachusetts' skilled nursing facilities (SNFs) and home health agencies (HHAs).

In this report, provider performance is presented within a national context when possible, comparing the performance of Massachusetts providers to national provider averages, and within the Massachusetts system context, comparing performance across providers and systems of affiliated providers. This report highlights quality measures with either a notable change in the average score between measurement periods or a change in variation across providers during the reporting period. The statistical significance of these performance data has not been tested.

In addition to providing information on provider performance on select quality measures, this report aims to advance the discussion of the Massachusetts health care system's performance across settings, from primary care to acute care and post-acute care. Massachusetts has some of the highest personal health care expenditures per capita of the 50 states.[2] As market participants seek ways to reduce costs while maintaining or improving quality – through greater coordination of care, reduction in the use of inefficient tests, and providing the right care in the right place at the right time—measures of quality performance are central to the emerging

The Lenses of Quality Measurement

Quality can be evaluated and understood using a variety of measure types:

Process: how consistently is an effective workflow followed?

Structure: how are aspects of an organization such as staffing, IT infrastructure and equipment facilitating quality care?

Outcome: what are the results of patient care?

Patient Experience: how do patients perceive their care?

[2] Centers for Medicare and Medicaid Services, Office of the Actuary, *National Health Expenditures Report*, December, 2011

discussion around the value realized through these system reforms and efficiencies.

This report is a baseline for future reporting on the quality of care delivered in the Massachusetts health care system. Quality measurement is still in its early stages of development; most measures evaluate processes of care, rather than the outcomes and in some important areas of health care, either appropriate measures are missing or new measures have not yet been adequately tested. As measures continue to evolve and mature, new measures may become part of the standard measure set and statewide reporting.

This report's Technical Appendix provides detailed information on the quality measures analyzed for this report and methodological notes. Except where noted, the accompanying Databook outlines performance data for each measure, by hospital or medical group. Additionally, individual hospital and medical group performance for each measure (except for all-payer readmission) is outlined in accompanying Quality At-A-Glance appendices.

Care in Acute Hospitals

In 2007, CMS began offering incentives to acute care hospitals to report data for certain quality measures. Since then, Massachusetts' and U.S. hospitals' overall performance on many of these measures has converged. This is particularly true with the process of care measures, which reflect provider implementation of best practices in care for post-surgical patients and patients with cardiovascular disease and pneumonia. Scores for appropriate care were in the nineties and holding steady. In addition to measures of clinical care, hospitals are also required by CMS to report on patient experiences of care. Here too, Massachusetts and national averages were nearly the same. These results demonstrate the effects of sustained focus through public reporting and payment incentives on hospital quality performance.

While the measurable quality of hospital services in Massachusetts is generally in line with the national average, the cost of acute care in Massachusetts is 27.5% higher than the national average.[3] Across hospital systems[4] and hospitals within Massachusetts, there is generally minor variation on many quality measures, with differences across providers narrowing from 2011 to 2013.

This section highlights a subset of hospital measures for which performance was variable or showed notable changes over time. All available acute hospital-specific measure scores are provided in the Data Appendix by provider.

Key Findings on Hospital Quality:

- Massachusetts hospital performance on 16 clinical process of care measures was strong and virtually the same as national performance.
- 80% of Massachusetts hospitals received Medicare penalties for excessive unplanned readmissions in 2014, making it the fourth most penalized state in the nation.[5]
- Between 2011 and 2013, the performance of hospitals on an aggregated patient safety measure[6] converged, and average rates improved for six of nine health systems.
- The number of hospitals reporting no early elective newborn deliveries grew from 6 in 2012 to 20 in 2013, and the range between the highest and lowest performing hospitals dropped from 38 percentage points to 5 percentage points.
- Patient ratings of hospital experience in Massachusetts were generally high and virtually the same as the nation (within 1 to 2 percentage points), except on a measure of hospital noise levels. A lower proportion of Massachusetts patients (52%) experienced the hospital as "always quiet at night" compared to the national average (61%).

Processes of Care in Acute Hospitals

Process of care measures evaluate the extent to which evidence-based best practices for treating particular conditions and performing particular procedures are being followed. They also assess the use of clinically appropriate practices for specific patient populations. Although process measures are valuable for demonstrating that patient care is provided as recommended, they do not reveal the outcomes of care, such as whether the patient got better.

Data for acute hospital process measures were collected and publicly reported by *CMS* on Hospital Compare. For the sixteen hospital process measures included in this report and its appendices,[7] performance was

Process of care scores are publicly available on CMS Hospital Compare. Scores on these measures include all payers.

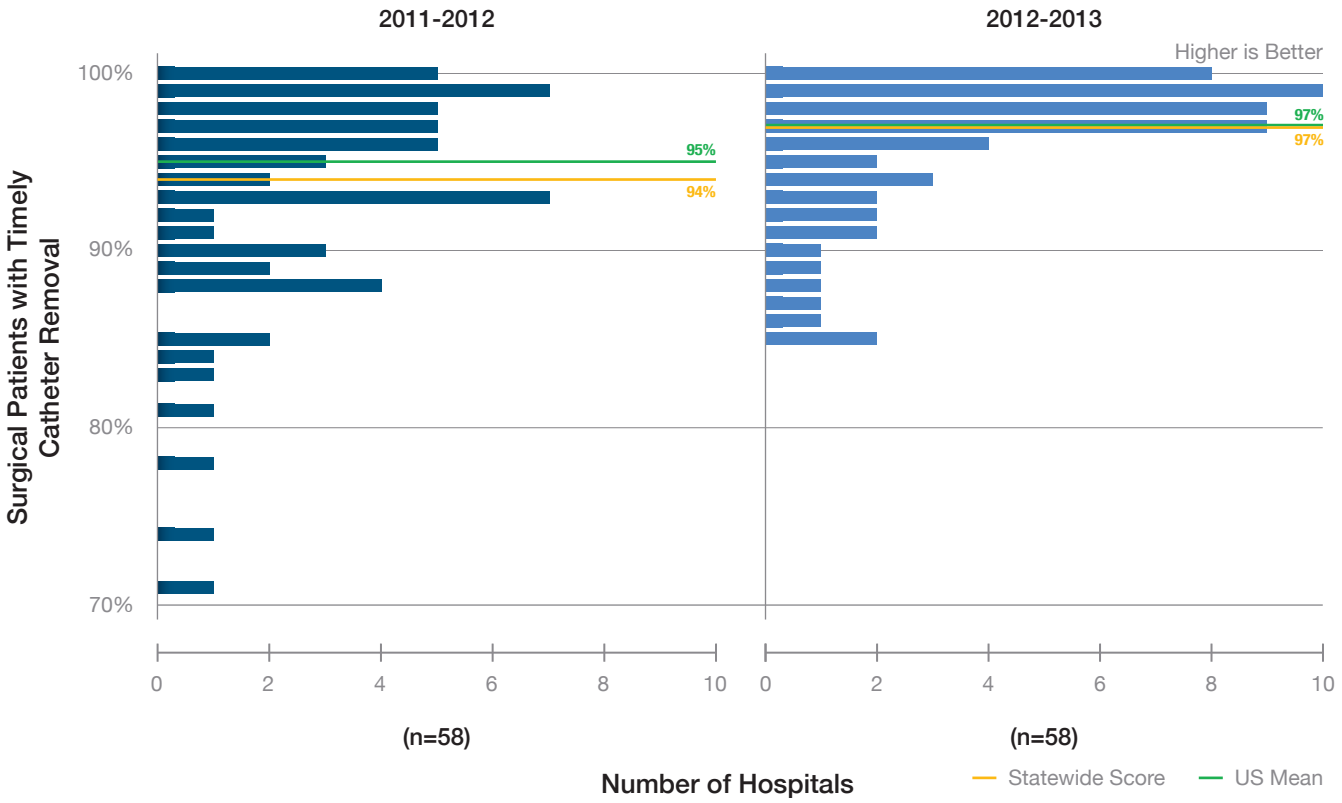
1. Statin Prescribed at Discharge for Heart Attack
2. Primary Percutaneous Coronary Intervention (PCI) Received within 90 Minutes of Hospital Arrival
3. Aspirin Prescribed at Discharge for Heart Attack
4. Heart Failure Patients Given an Evaluation of Left Ventricular Systolic (LVS) Function
5. Heart Failure Patients Given Discharge Instructions
6. Heart Failure Patients Given ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)
7. Pneumonia Patients Given the Most Appropriate Initial Antibiotic(s)
8. Pneumonia Patients Whose Initial Emergency Room Blood Culture was Performed Prior to the Administration of the First Hospital Dose of Antibiotics
9. Urinary Catheter Removed on Postoperative Day 1 or 2 with Day of Surgery Being Day Zero
10. Surgery Patients with Perioperative Temperature Management
11. Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis within 24 Hours Prior to Surgery to 24 Hours After Surgery
12. Surgery Patients on Beta-Blocker Therapy Prior to Arrival Who Received a Beta-Blocker During the Perioperative Period
13. Prophylactic Antibiotics Discontinued within 24 Hours After Surgery End Time
14. Prophylactic Antibiotic Selection for Surgical Patients
15. Prophylactic Antibiotic Received within 1 Hour Prior to Surgical Incision
16. Cardiac Surgery Patients with Controlled Postoperative Blood Glucose

[3] Kaiser Family Foundation 2012. Hospital adjusted expenses per inpatient day. In Massachusetts the adjusted inpatient cost per day was $2,587 while the U.S. adjusted cost per inpatient day was $2,029. Available from: http://kff.org/other/state-indicator/expenses-per-inpatient-day/ (Accessed December 9, 2014).

[4] A hospital system is an entity that includes two or more acute hospitals. There are 67 acute care hospitals in Massachusetts. These hospitals are organized into one of 11 multi-acute hospital systems, based on ownership. If a hospital is not part of hospital system, it is considered "non-affiliated." See the Technical Appendix for a list of Massachusetts acute hospitals and hospital systems.

1 Distribution of Hospital Performance Scores: Urinary Catheter Removed within 2 Days of Surgery

Between 2011 and 2013, variation between the highest and lowest performing hospitals on timely catheter removal decreased by 14 percentage points.



Source: CMS Hospital Compare | Note: All Payer, Age 18+

generally consistent across Massachusetts hospitals and nearly the same as the national average. Hospitals documented effective care processes between 94% and 100% of the time on all the measures included in this report. Changes in average performance between the 2011 and 2012 measurement periods were generally small, both within Massachusetts and nationally. The only process measure on which performance notably changed was the percentage of patients that received timely post-surgical catheter removal; the state average increased from 94% to 97% between the 2011-2012 and 2012-2013 measurement periods[8] and variation among hospitals decreased.

See Figure 1

Urinary Catheter Removal:
Surgery patients whose urinary catheters were removed on the first or second day after surgery.

Hospital-Wide All-Cause Unplanned Readmissions

The 30-day all-cause unplanned hospital readmission rate examines the proportion of admitted patients who were readmitted within 30 days of a prior hospital discharge. The Yale/CMS methodology was the basis for both a Medicare-specific readmission rate and an all-payer readmissions rate that includes patients 18 years of age and older.[9]

Unplanned and preventable hospital readmissions are a large driver of unnecessary medical spending. The United States spent approximately $41 billion dollars in 2011 on adult 30-day all-cause hospital readmissions. The federal government estimated the annual cost of Medicare readmissions to be $26 billion per year with $17 billion associated with avoidable readmissions.[10] Recognizing this issue, CMS began penalizing hospitals for having more Medicare readmissions than expected in 2012.[11] The high number of Massachusetts hospitals that received penalties from Medicare in 2014 suggests that there are opportunities for providers to reduce unnecessary readmissions, improve care and, potentially, reduce costs. A hospital's readmission rate is at least partially indicative

[5] Kaiser Health News, October 2, 2014. Available from: http://kaiserhealthnews.org/news/medicare-readmissions-penalties-by-state/ (Accessed December 9, 2014). Analysis provided by Dr. Amy Boutwell, Collaborative Healthcare Strategies.

[6] Based on the Agency for Healthcare Research and Quality's Patient Safety Indictor composite (PSI 90), which includes 11 patient safety measures.

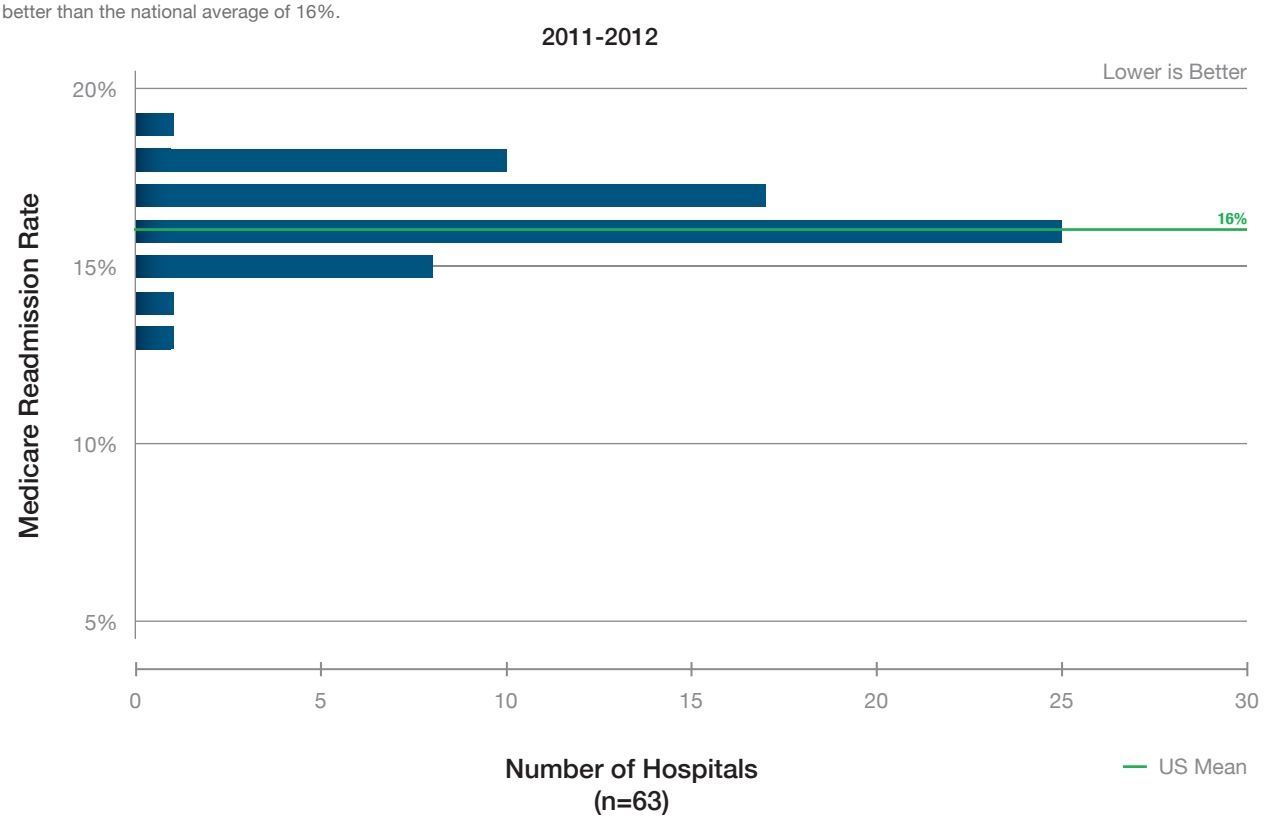
[7] Individual hospitals' performance on each measure is reported in the Databook and the Quality At-A-Glance appendices.

[8] The data period for these measures was April 2011–March 2013.

[9] Hospital-Wide All-Cause Unplanned Readmissions (Yale/CMS) NQF #1789.

2 30-Day All-Cause Hospital-Wide Unplanned Readmission Rate – Medicare FFS, Ages 65+

About 79% of Massachusetts' acute hospitals had a risk-adjusted readmission rate for Medicare FFS patients (65+) that was equal to or better than the national average of 16%.



Source: CMS Hospital Compare | Note: Medicare FFS only, Age 65+

of its ability to plan and coordinate a patient's successful discharge. Proper planning and coordination between the hospital and a post-acute care facility or outpatient provider can reduce the chance of an unplanned, preventable readmission. Adjustments in how and when care is delivered, such as the expansion of after-hours ambulatory services, may reduce the statewide readmission rate. There may also be higher risk patient populations and social factors, such as homelessness, that contribute to higher than expected readmission rates.

While hospitals play a large role in preparing patients for discharge and in ensuring a successful transition home or to another care setting, policy makers are increasingly recognizing that the onus of reducing readmissions cannot lie solely on acute care hospitals.[12] Reducing readmissions requires careful planning and communication among each of a patient's providers and caregivers, as well as with community social services and patients themselves.

Hospital-Wide All-Cause Unplanned Readmissions: Estimates a hospital's risk-standardized rate of all-cause, unplanned readmission, defined as an inpatient admission to any acute care facility within 30 days of the discharge date of an earlier admission.

The rates below reflect unplanned readmissions within 30 days for all causes.[13]

Medicare Fee For Service (FFS) Readmissions

Data for this measure were collected and publicly reported by CMS on Hospital Compare. The percentage of Medicare FFS (age 65+) admissions in Massachusetts hospitals that resulted in an unplanned readmission for all causes within 30-days of discharge ranged from 13% to 19% in 2011-2012.[14] The national average was reported at 16%.[15] Fifty of the 63 Massachusetts hospitals included in this analysis had rates that were at or below the national average in 2011-2012.

[10] Agency for Healthcare Research and Quality. Statistical Brief #172, April 2014 Available from: http://www.hcup-us.ahrq.gov/reports/statbriefs/sb172-Conditions-Readmissions-Payer.pdf (Accessed December 9, 2014).

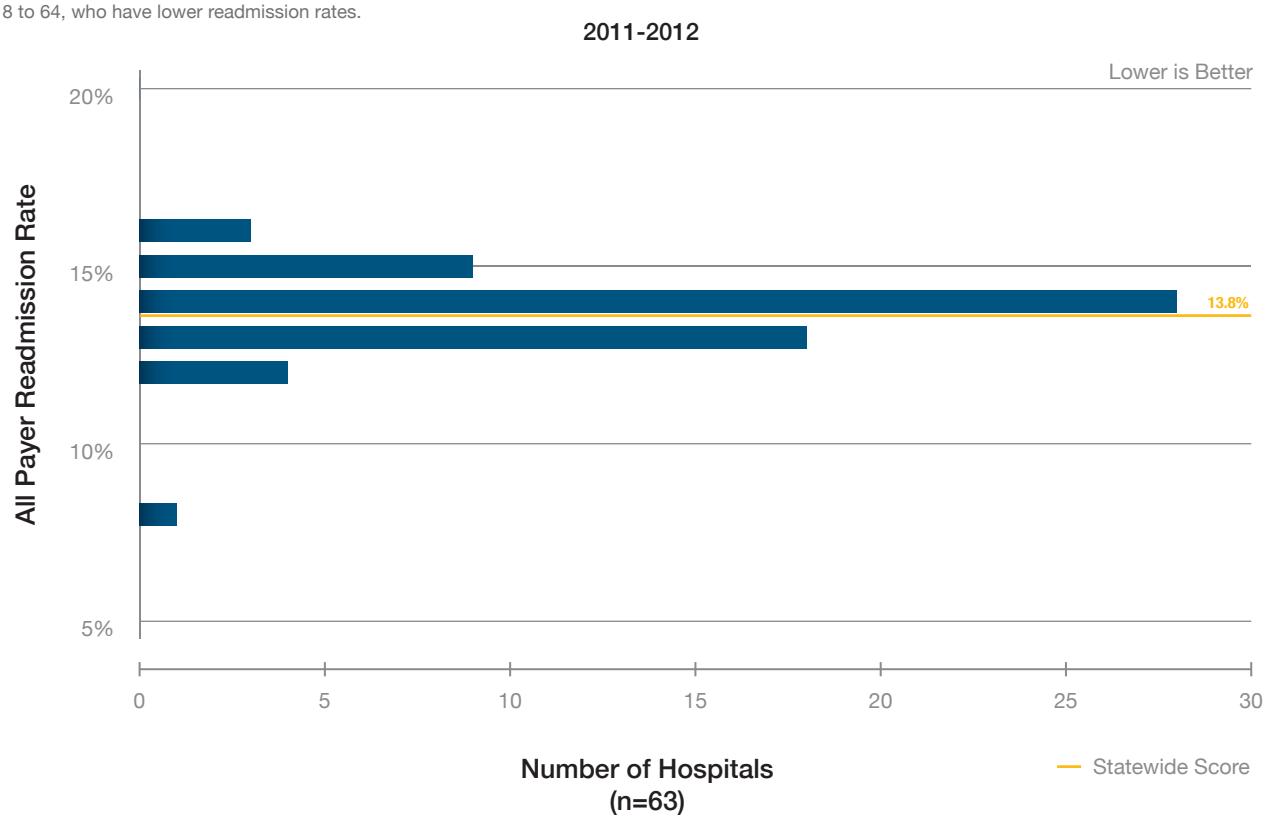
[11] The Robert Wood Johnson Foundation. *The Revolving Door: A Report on U.S. Hospital Readmissions*, Feb., 2013.

[12] *ibid*

[13] The Yale/CMS methodology specifies two criteria an admission must meet to be considered "planned": the procedure must be specified on a list of planned procedures and the discharge condition category must not be considered "acute" or a "complication of care."

3 30-Day All-Cause Hospital-Wide Unplanned Readmission Rate – All Payer, Ages 18+

The readmission rates for the all-payer readmission measure are lower than the Medicare Fee-for-Service measure due to the inclusion of patients ages 18 to 64, who have lower readmission rates.



Source: CHIA Hospital Discharge Database | Note: All Payers, Age 18+, Rates are preliminary

See Figure 2

Consistent with national trends, readmissions of Medicare beneficiaries in Massachusetts (measured per 1,000 beneficiaries) have been declining since 2009, with the rate of observation stays rising during the same period.[16] However, 80% of all eligible hospitals in Massachusetts were penalized for readmissions in 2014, the fourth highest state rate for the percentage of hospitals receiving readmission penalties.[17]

All-Payer Readmissions

All patients can be affected by inadequate coordination of care or post-discharge support. CHIA calculated 30-day all-cause unplanned hospital-wide risk-adjusted readmission rates using CHIA's hospital discharge data for patients 18 years of age and older across all payer types.[18] Based on preliminary calculations, the 2012 statewide average readmission rate was 13.8%. An all-payer national benchmark is not available.

See Figure 3

The risk-standardized rates per hospital for 63 acute care Massachusetts hospitals ranged from 8.3% to 16.3%.[19] Both raw and risk-adjusted readmission rates for Massachusetts hospitals are provided in the Data Appendix, though specific hospitals are not identified because the calculations are preliminary. CHIA plans to include hospital-specific readmissions data in subsequent reports.

Patient Safety in Acute Hospitals

The Agency for Healthcare Research and Quality's (AHRQ) Patient Safety Indicators (PSIs) provide information on the frequency of procedural and post-surgical complications in an acute hospital. A higher rate on a PSI means that complications occurred more often, while a lower rate indicates less frequent complications. The PSI 90 is a single composite measure that includes 11 risk-adjusted PSIs. CHIA calculated performance on PSI 90 using hospital discharge data for patients age 18 years and older. Performance on this measure was evaluated by hospitals and statewide.[20]

[14] This refers to the Medicare fiscal year, July 1-June 30.

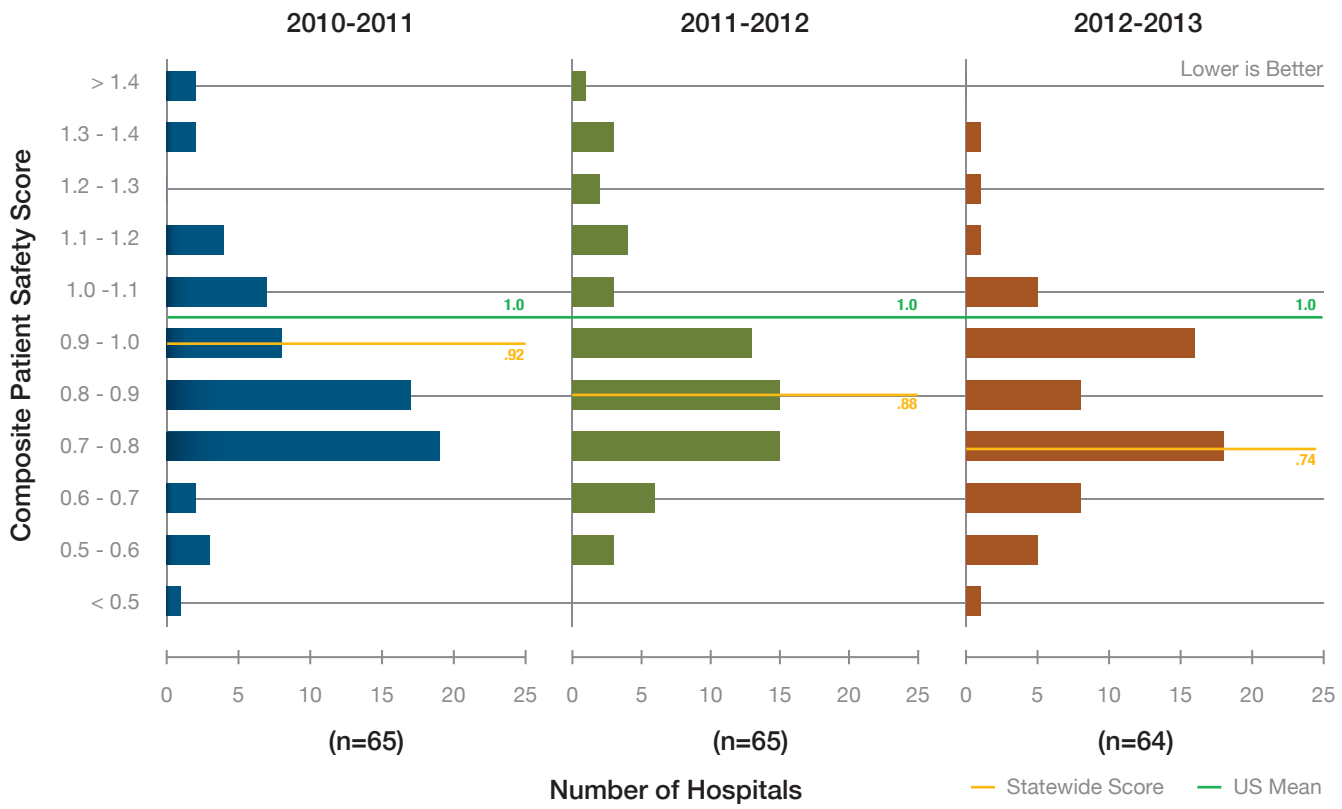
[15] CMS Hospital Compare, July 2011-June 2012. Rates are risk-adjusted and include only unplanned readmissions.

[16] *Integrating Care for Populations and Communities,* February 28, 2014. Quarterly Scorecard, January 1, 2009-September 30, 2013, prepared by Colorado Foundation for Medical Care (now Telligen).

[17] Kaiser Health News, October 2, 2014. Available from: http://kaiserhealthnews.org/news/medicare-readmissions-penalties-by-state/ (Accessed December 9, 2014). Analysis provided by Dr. Amy Boutwell, Collaborative Healthcare Strategies. Certain hospitals are exempt from the penalties, such as cancer treatment, critical access, rehabilitation and psychiatric hospitals. The penalties are based on readmissions from July 2010 through June 2013.

4 Distribution of Hospital Scores: Patient Safety Composite (PSI 90)

The Massachusetts state average declined by 18 points over three years.



Source: CHIA Hospital Discharge Database | Note: All Payers, Age 18+

Massachusetts hospitals overall performed better than the national average of 1.0 for the three years analyzed. Statewide, the average score declined from 0.92 to 0.74 (lower is better) between 2011 and 2013.[21] Thirty-eight out of 65 hospitals had improved their scores from 2011 to 2013. In addition, on a hospital system basis, six out of nine systems had lower rates each year and the gap between the highest and lowest hospital's average score decreased.[22]

See Figure 4

Although Massachusetts hospitals are improving, the ultimate goal is to eliminate avoidable complications. Accordingly, the federal Hospital Acquired Condition (HAC) Reduction Program penalizes the bottom quartile of hospitals based on ten categories

PSI 90 Composite captures events per 1,000 eligible cases and includes:

- Pressure Ulcers
- Iatrogenic Pneumothorax
- Central Venous Catheter-Related Blood Stream Infections
- Postoperative Hip Fractures
- Perioperative Hemorrhage or Hematomas
- Postoperative Physiologic and Metabolic Derangement
- Postoperative Respiratory Failure
- Perioperative Pulmonary Embolism or Deep Vein Thrombosis
- Postoperative Sepsis
- Postoperative Wound Dehiscence
- Accidental Puncture or Laceration

[18] CHIA calculated all-payer readmissions using the Yale/CMS methodology. The payers included in this analysis are those included in CHIA's case mix database. See Technical Appendix for details.

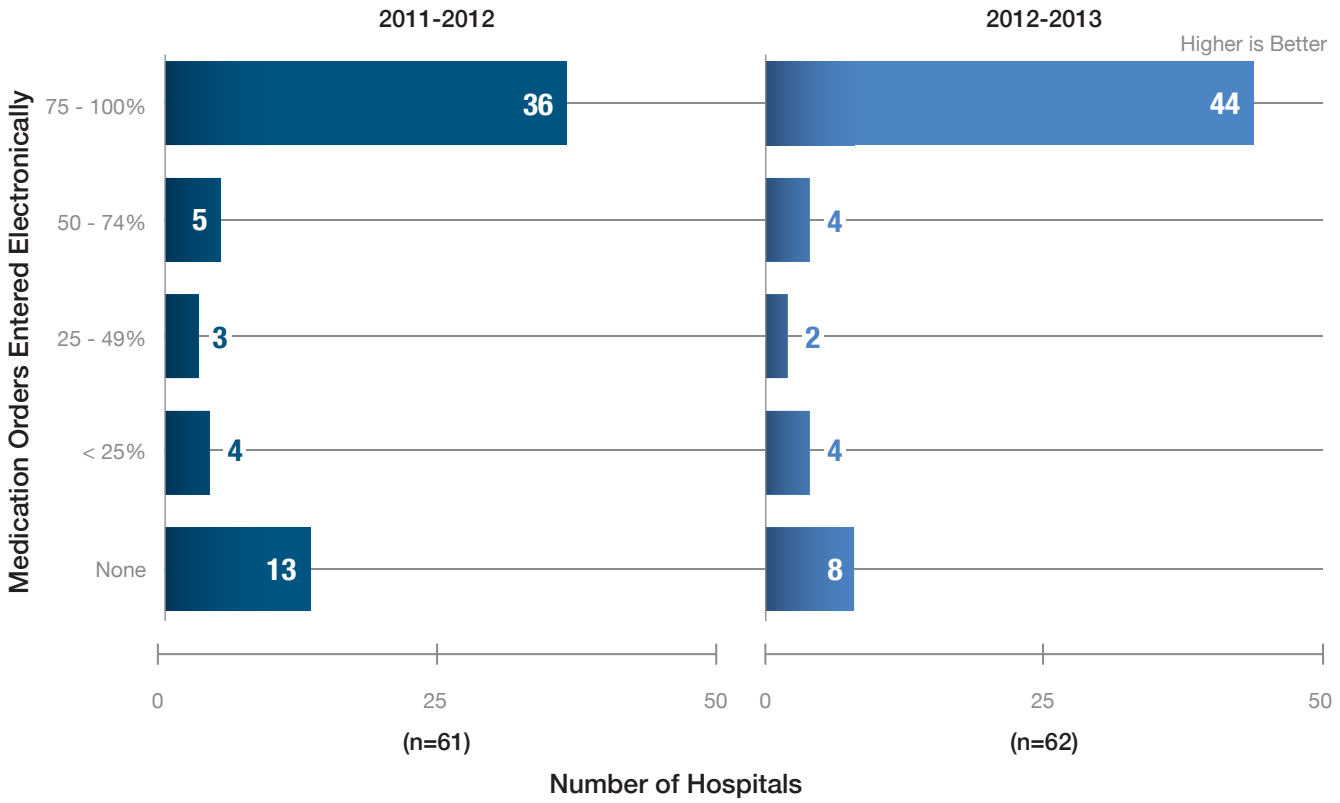
[19] More data and analyses on the all-payer readmission rates will be in a forthcoming CHIA publication.

[20] Individual hospitals' performance on each measure is reported in the Data Appendix and in the accompanying Quality At-A-Glance appendices.

[21] The PSI 90 is a weighted average of 11 PSIs for at risk patients compared to the national average of 1.0. As this measure was calculated using CHIA's casemix database, the data periods for this measure are FY2011, FY2012, and FY2013.

5 Distribution of Hospital Scores: Computerized Physician Order Entry

In 2013, over two-thirds of Massachusetts hospitals were able to enter between 75% and 100% of their medication orders electronically.



Source: The Leapfrog Group | Note: All Payers, All Ages

of avoidable safety events. Thirteen, or 22%, of Massachusetts hospitals fell into the bottom quartile during 2014 and will receive 1% reductions in their FY15 Medicare payments.[23]

The patient safety results reported in national and state monitoring programs may not tell the entire story. A recent Massachusetts study of patient perceptions of medical mistakes found that 23% of respondents had personally experienced a medical error, half involving a serious consequence.[24] This result shows that although improvements are occurring in some publicly reported measures due to transparency and financial incentives, there are other important safety issues that are not yet being measured and reported.

Computerized Physician Order Entry

Computerized Physician Order Entry (CPOE) is one of several Meaningful Use measures developed by the federal government to encourage the adoption of Electronic Medical Records (EMR).[25] CPOE can be used to submit medication, laboratory or radiology orders within a hospital.[26] Though this technology is in the early stages of implementation and can present organizational challenges, entering orders electronically is expected to reduce medication errors and simplify the communication of physician orders across hospital departments.

CPOE implementation data were provided by Leapfrog. In order to fully meet the related standard developed by Leapfrog, at least 75% of physician medication orders must be entered electronically. In addition, the inpatient system must be able to alert providers to a number of types of medication prescribing errors, such as correct dosage, patient allergies and relevance of the medication to the diagnosis 50% of the time.[27]

The number of Massachusetts acute care hospitals reporting the use of CPOE for

CPOE: The percentage of all medication orders made using a Computerized Physician Order Entry (CPOE) system

[22] See Data Book for system-level PSIs.

[23] Kaiser Health News, Penalties for Hospital Acquired Conditions, Dec. 18, 2014

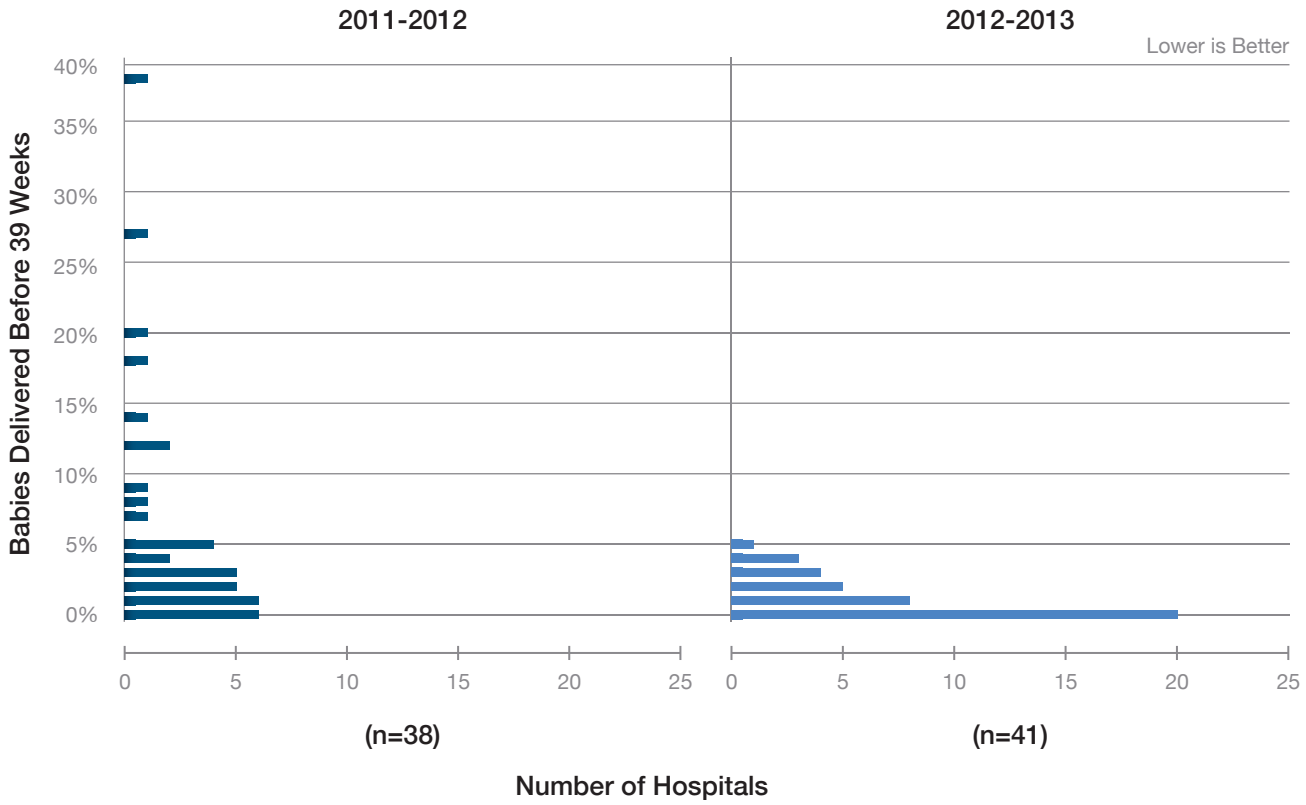
[24] The Public's Views of Medical Error in Massachusetts, Harvard School of Public Health, 2014, p.4

[25] The Centers for Medicare and Medicaid Services. EHR Incentive Programs. Available from: http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Meaningful_Use.html (Accessed December 9, 2014).

[26] The Centers for Medicare and Medicaid Services. EHR Incentive Programs. Available from: http://www.cms.gov/Regulations-and Guidance/Legislation/EHRIncentivePrograms/downloads/Stage2_EPCore_1_CPOE_MedicationOrders.pdf (Accessed December 9, 2014).

6 Distribution of Hospital Rates: Early Elective Deliveries

Massachusetts has made impressive strides in reducing early elective deliveries.



Source: The Leapfrog Group | Note: All Payers, All Ages

more than 75% of their medication orders increased from 36 hospitals in the 2011-2012 period to 44 hospitals in the 2012-2013 period. Five additional hospitals reported to the Leapfrog Group that CPOE was implemented in at least one inpatient unit this year, leaving only eight reporting hospitals in the Commonwealth that have yet to implement CPOE in some form as of 2013.[28]

See Figure 5

Overall, these data suggest that hospitals were better equipped to coordinate care through EMRs in 2012-2013 than they were in prior years.

Early Elective Deliveries

According to the American Congress of Obstetricians and Gynecologists, elective delivery of a newborn before 39 weeks of gestation poses greater risks for the newborn than allowing the pregnancy to reach full term.[29] While early deliveries are clinically appropriate in certain cases, early *elective* deliveries refer to those cases where the choice to deliver before 39 weeks is not based on clinical necessity. The high rates of early elective deliveries in Massachusetts in recent years, and the steps hospitals are taking to improve performance, gained press coverage in 2011.[30]

The Massachusetts Perinatal Quality Collaborative (MPQC) was founded in 2011 to address ongoing perinatal safety and quality issues in the Commonwealth, including early term elective deliveries. MPQC's primary focus was the reduction of early elective deliveries and they advocated strongly for a "hard stop" approach to early elective deliveries. This relied on hospitals formalizing and enforcing

Elective Early Deliveries:
The percentage of all inductions or cesarean procedures performed prior to 39 completed weeks gestation without medical necessity.

[27] The Leapfrog Group. The Leapfrog CPOE Evaluation Tool. Available at: https://leapfroghospitalsurvey.org/web/wp-content/uploads/CPOEscoring.pdf (Accessed December 9, 2014). This standard applies to adult inpatient facilities only.

[28] Cape Cod Hospital, Falmouth Hospital, Lahey Clinic, Marlborough Hospital, New England Baptist Hospital, North Adams Regional Hospital, UMass Memorial Medical Center, Wing Memorial Hospital and Medical Center. North Adams Regional Hospital closed in March 2014.

[29] The American Congress of Obstetricians and Gynecologists. Deliveries Before 29 Weeks. Available from: http://www.acog.org/About-ACOG/ACOG-Departments/Deliveries-Before-39-Weeks (Accessed December 9, 2014).

[30] Commonhealth Blog, *Top Maternity Hospitals in Mass. Stop Early Elective Deliveries*, November 14, 2011. Available from: http://commonhealth.wbur.org/2011/11/top-maternity-hospitals-in-mass-stop-early-elective-deliveries (Accessed December 9, 2014).

T1 Hospital Patient Experience Measures, Massachusetts and U.S. Averages

Scores on patient experience in Massachusetts hospitals are nearly identical to national averages, except on noise levels.

Measure	2011-2012		2012-2013	
	MA	US	MA	US
Doctors Always Communicated Well	80%	81%	80%	81%
Nurses Always Communicated Well	79%	78%	79%	78%
Discharge Information Given	87%	84%	87%	85%
Pain Always Well Controlled	71%	70%	70%	71%
Always Received Help	65%	66%	66%	67%
Room Always Clean	73%	73%	72%	72%
Staff Always Explained Medications	63%	63%	64%	64%
Hospitals Always Quiet at Night	52%	60%	52%	61%

Source: CMS Hospital Compare | Note: All Payer, Age 18+

a strict policy against medically unnecessary inductions before the 39th week of gestation.[31]

Perhaps influenced by this initiative, the 2011-2012 and the 2012-2013 Leapfrog hospital survey results indicated notable improvement in Massachusetts' rate of early elective deliveries. Between 2012 and 2013, the number of hospitals in Massachusetts with no early elective deliveries increased from 6 to 20. The range of scores between the highest and lowest performing hospitals decreased substantially, from 38 percentage points in 2011-2012 to five percentage points in 2012-2013. In the 2012-2013 survey period the Massachusetts median percentage of early elective deliveries was 0.9%, while the national median was 2.5%. While many states have shown improvement on this measure, the Leapfrog Group has identified Massachusetts as a standout performer.[32]

See Figure 6

Patient Experience with Hospital Care

Patients' experiences when interacting with health care providers and organizations are a critical dimension of health care quality. The importance of patient experience was underscored by the Patient Protection and Affordable Care Act of 2010, which included performance on patient experience measures in value-based payments for participating hospitals beginning in October 2012.[33] To monitor patient experiences in the Massachusetts health system, CHIA evaluated data from

HCAHPS Measures:

- Communication with Doctors
- Communication with Nurses
- Discharge Information Given
- Pain Control
- Help Available when Needed
- Cleanliness of Room
- Explanation of Medications Given
- Hospital Noise Levels

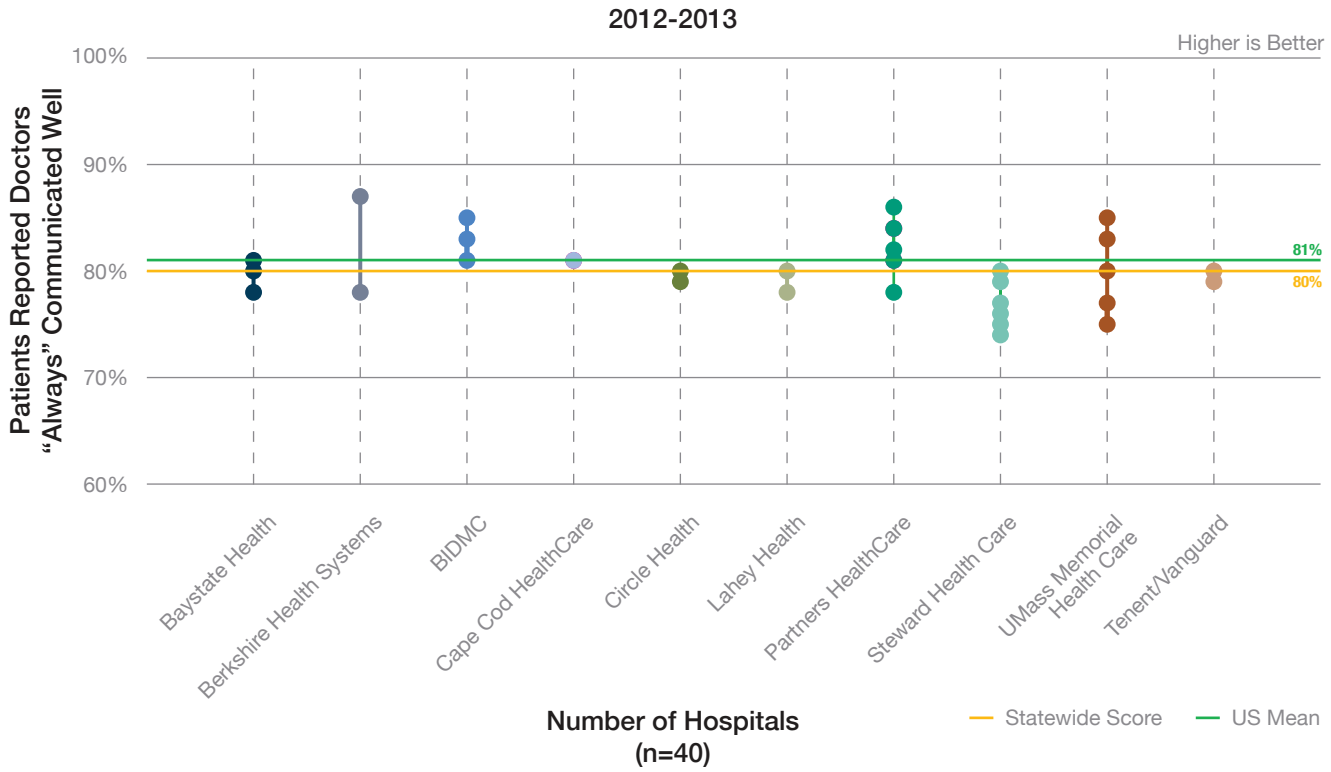
[31] The MPQC was comprised of members of the Department of Public Health, the Massachusetts chapter of the American College of Obstetricians and Gynecologists, the March of Dimes, and providers from 44 of the 47 maternity hospitals in Massachusetts. Association of State and Territorial Health Officials 2012. State Initiatives to Improve Health Outcomes. Available from: http://www.astho.org/Programs/Access/Maternal-and-Child-Health/_Materials/Massachusetts-Perinatal-Quality-Collaborative/ (Accessed December 9, 2014).

[32] The Leapfrog Group. *Dramatic Decline in Dangerous Early Elective Deliveries.* Available from: http://www.leapfroggroup.org/policy_leadership/leapfrog_news/5164214 (Accessed December 9, 2014).

[33] Agency for Healthcare Research and Quality 2012. HCAHPS Fact Sheet. Available from: http://www.hcahpsonline.org/files/HCAHPS%20Fact%20Sheet%20May%202012.pdf (Accessed November 17, 2014)

7 Patients Who Reported that Doctors "Always" Communicated Well, by Hospital System

Across hospital systems, there was little variation in patient ratings of communication with their doctors.



Source: CMS Hospital Compare | Note: All Payers, Age 18+

the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey provided by CMS. This survey captures data on eight measures of experience, which are presented as the percentage of patients reporting that their provider fulfilled key expectations related to patient experience standards.

In the 2011-2012 and the 2012-2013 measurement periods, average performance among Massachusetts providers was generally consistent with national averages on HCAHPS measures. There was one notable exception: the measure of hospital noise levels, which was eight points below the national average in 2011-2012 and nine points below the national average in 2012-2013. Across all measures, there was very little demonstrated change in performance in Massachusetts.

See Table 1

Communication: The percentage of surveyed patients who reported that their nurses or doctors "always" communicated well.

Communication with Hospital Staff

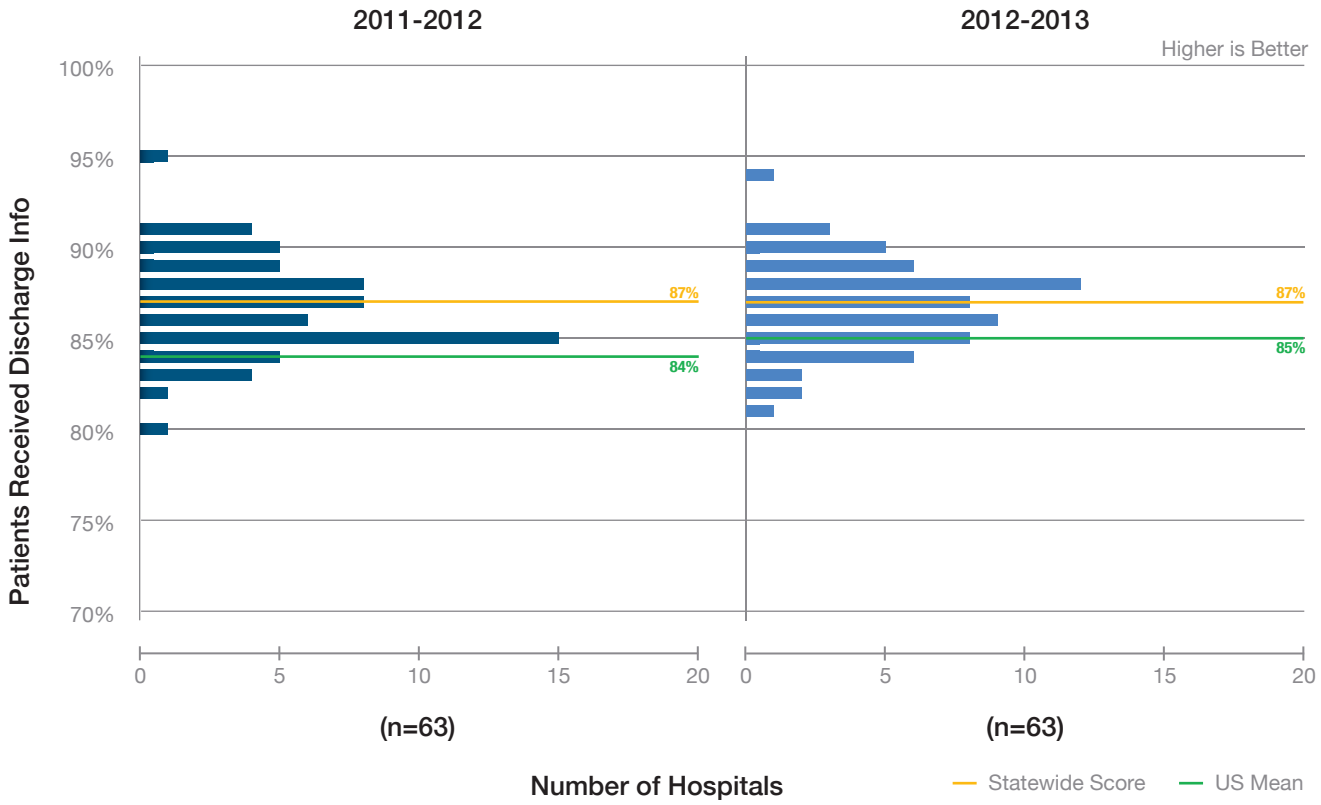
The average proportion of patients in 2012-2013 who reported their nurses and doctors "always" communicated well (79% and 80%, respectively) did not show notable variation from the previous year and were virtually identical to national averages for these measures.

See Figure 7

Across hospital systems, there was little variation in patient ratings of communication with their doctors, indicating that performance on this dimension of quality was generally consistent.

8 Distribution of Hospital Scores:
Patients Who Reported They Received Discharge Information

Massachusetts hospitals scored highest among patient experience measures on this dimension of care.



Source: CMS Hospital Compare | Note: All Payers, Age 18+

Discharge Information Given

Upon discharge, a patient's care may extend to their home, providers' offices, or to a post-acute facility. Communication and coordination surrounding the transition at discharge contributes to the patient's ultimate success in managing their care and avoiding an unplanned hospital readmission. In the 2012 and 2013 measurement periods, Massachusetts hospitals scored highest among patient experience measures on this dimension of HCAHPS, with 87% of patients responding that they were given recovery information at discharge. Despite a high score relative to other measures, and slightly outperforming the national average in both years (84% in 2011 and 85% in 2012), Massachusetts' performance on this measure indicates that 13% of patients may be leaving the hospital without information on how to manage their care. This highlights an opportunity to continue to improve discharge planning, communication and care coordination.

Discharge Information Given: The percentage of patients who indicated that they were given information about what to do during their recovery.

See Figure 8

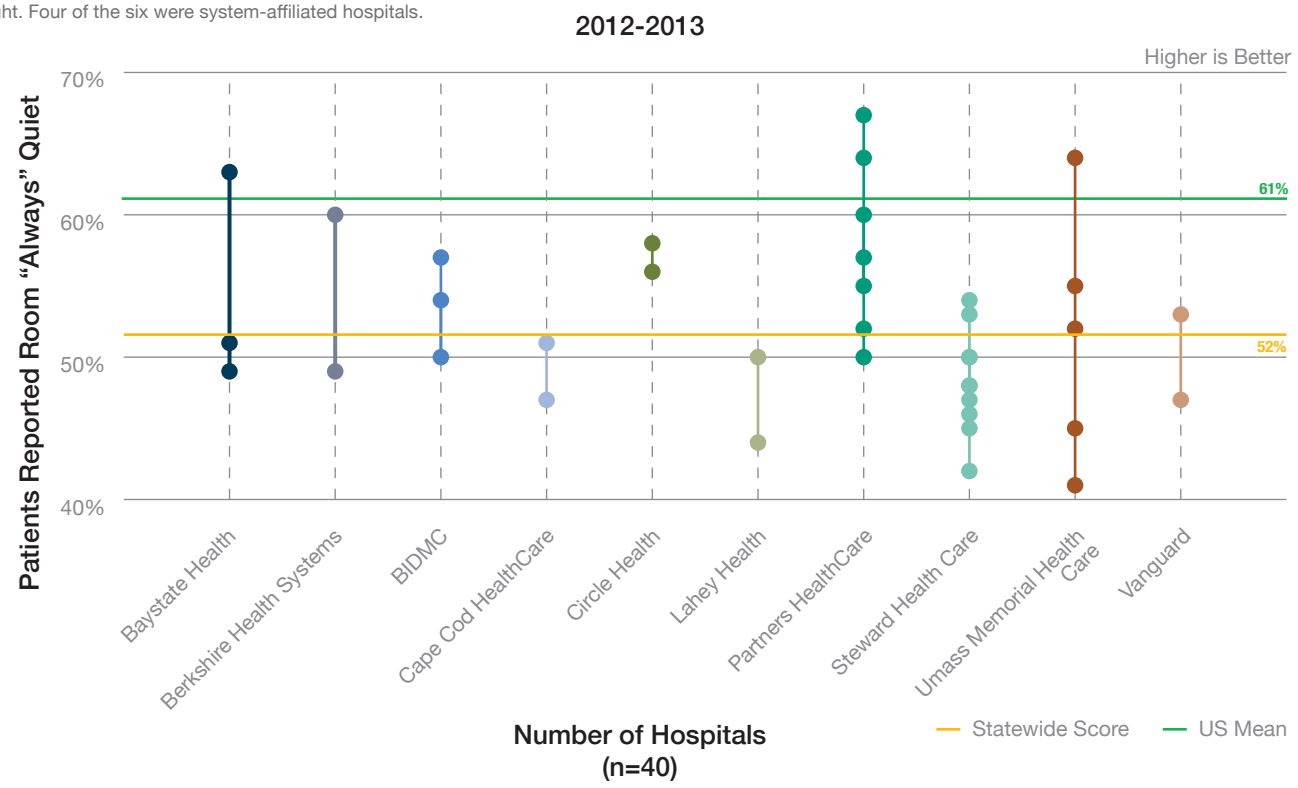
Hospital Noise Levels

Sleep is important for a patient's recovery, and loud environments, especially at night, may make sleep difficult. The Agency for Healthcare Research and Quality (AHRQ) has identified several ways to reduce noise while still providing necessary care.[34] However, Massachusetts hospitals' scores on maintaining a consistently quiet environment at night were the lowest of all patient experience measures, with the state average

[34] Agency for Healthcare Research and Quality, "Clean and Quiet Environment" August 14, 2013. Available at http://www.psl-network.org/component/phocadownload/category/9-hcaps-information?download=58:clean-and-quiet-august-8-14-2013 (Accessed December 4, 2014).

9 Patients Who Reported Area Around Room was "Always" Quiet, by Hospital System

Only six hospitals in the Commonwealth exceeded the national average on the measure of the area around patients' rooms being quiet at night. Four of the six were system-affiliated hospitals.



Source: CMS Hospital Compare | Note: All Payers, Age 18+

nine percentage points below the 2012 national average (52% and 61%, respectively). Of the three hospital systems with the most hospitals (Partners, UMass, Steward), Steward Health Care had lower relative scores but the least in-system variation.

See Figure 9

Hospital Noise Levels:
The percentage of patients that reported that the area around their room was "always" quiet at night

Based on the measures analyzed for this report, the quality of care delivered in Massachusetts hospitals is strong and improving in many areas. Patients consistently received the expected care and providers appear to be responding to changing policies (such as on early elective deliveries) and incentives to improve quality (such as for CPOE). Rates of complications dropped and became more predictable across hospital systems. Unplanned readmissions for Medicare patients mirrored the national average, though this remains an area of care where Massachusetts providers can improve. Patient experience of care scores across Massachusetts hospitals were comparable to national levels and have held steady from 2011-2013.

Primary Care in Medical Groups

In alignment with the goals of containing health care costs while improving quality, stakeholders continue to emphasize the importance of the primary care provider (PCP) as the center of the care team. The PCP provides the foundation of their patients' care, by monitoring their health, providing preventive services such as immunizations and screenings, and connecting patients with specialists when appropriate. This coordinated care model is of special importance in cases where patients have complex chronic conditions involving comorbidities and multiple providers.

The clinical and experience measures analyzed for this report provide a view of how PCPs are performing in Massachusetts and are aggregated by medical group (or local practice group) and by network of affiliated medical groups (or provider orgainzation).[35] All clinical quality measures are included in the Healthcare Effectiveness Data and Information Set (HEDIS) and patient experience is measured using the Clinician & Group-Consumer Assessment of Healthcare Providers and Services (CG-CAHPS) survey. Data were provided by Massachusetts Health Quality Partners (MHQP). Measures of care for adults are reported separately from measures of care for children. All scores reflect care provided to commercially insured HMO/POS patients.[36]

Care for Adults

To interpret primary care group performance in Massachusetts, the selected HEDIS measures reported here are compared to the national 90th percentile.[37] Overall, Massachusetts medical groups performed at or near this benchmark. However, there was still substantial variation among Massachusetts PCPs, both across groups and measures, indicating there is room for improvement in certain areas.

Clinical Quality of Adult Primary Care

Massachusetts medical groups demonstrated generally high performance on clinical quality measures

Key Findings on Quality of Adult Primary Care:

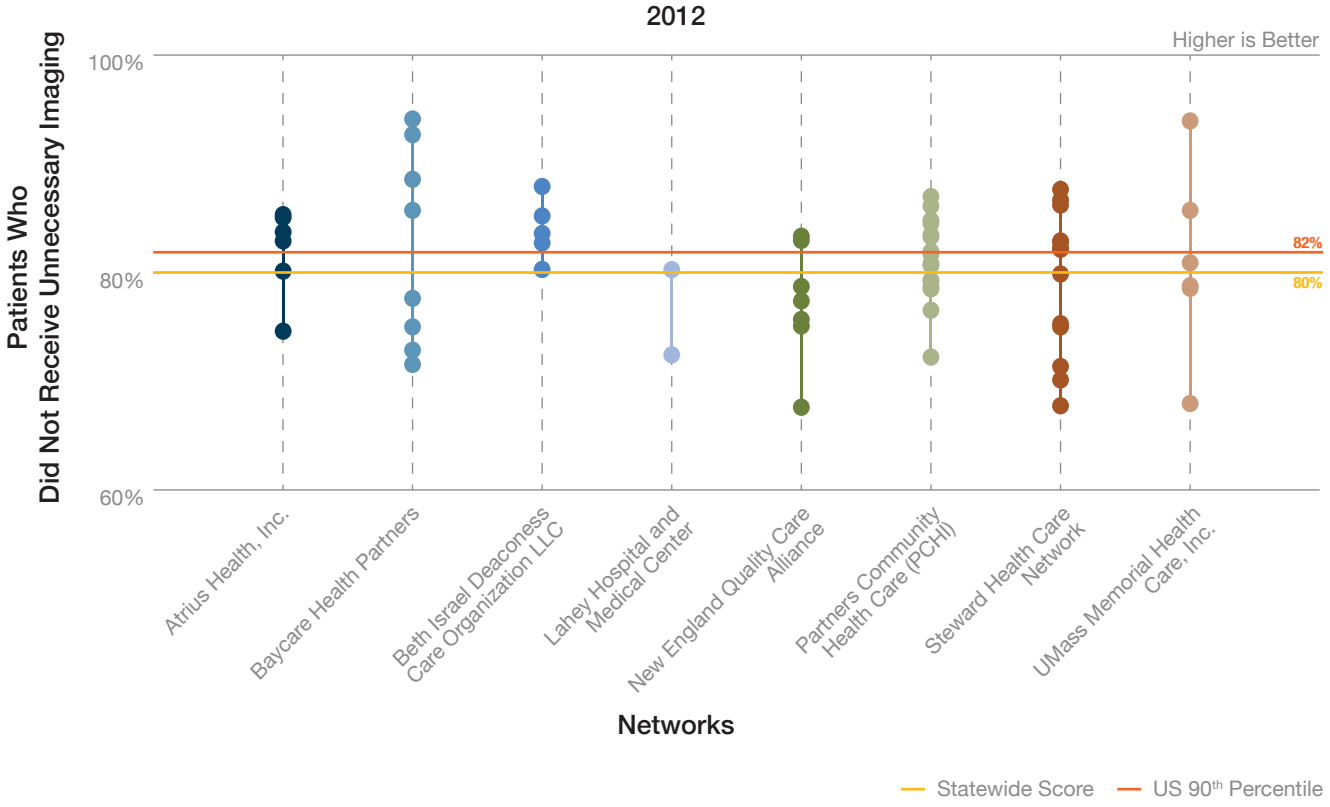
- Overall, Massachusetts PCPs performed well on clinical quality measures, though there was notable variation in scores across primary care groups – both across groups on the same measure and across measures.
- Massachusetts physicians scored well on management of diabetes, but there was wide variation in PCP group performance, with the range of scores exceeding 40 percentage points.
- Statewide, 93% of commercial patients with cardiovascular conditions received cholesterol screenings, which was equal to the national benchmark score.
- 55% of patients who take medication for depression received medication management, which was just under the national benchmark.
- 80% of Massachusetts patients seen by their PCPs for lower back pain did not receive an imaging study, indicating a high level of appropriate use of imaging.
- Chlamydia screening was provided for 68% of sexually active women ages 21-24. This was well above the national benchmark of 61%.
- Patient satisfaction with the care they received from primary care groups was highest on communication with doctors and nurses.
- Massachusetts PCPs scored lower on operational factors, specifically wait times and the patient's ability to get an appointment when wanted. There were also larger gaps between the highest and lowest scores on these measures.

[35] Massachusetts Health Quality Partners, uses "networks" to refer to an affiliation of medical groups that have an integrated approach to quality improvement. CHIA intends to call "networks" "provider organizations" in future reports, to be consistent with Health Policy Commission regulation 958 CMR 6.00. For detailed medical group performance data, see the Databook and Quality At-A-Glance appendices. For detailed quality measure information, see the Technical Appendix.

[36] Commercially insured enrollees in HMO and Point of Service products offered by Blue Cross Blue Shield of Massachusetts, Fallon Community Health Plan, Harvard Pilgrim Health Care, Health New England, and Tufts Health Plan are included in these primary care quality performance calculations.

10 Use of Imaging for Low Back Pain, by Network

Massachusetts medical groups are just below the 90th percentile nationally on appropriate use of imaging studies for low back pain.



Source: Massachusetts Health Quality Partners | Note: Commercial HMO/POS members, Age 18+

compared to the national 90th percentile. However, there was notable variation in scores across medical groups – both across groups on the same measure and across measures.

Primary care practices are often affiliated with a medical group and/or a network of affiliated medical groups, which can offer management services and establish best practice-based protocols across practices to ensure quality standards are met uniformly. For the clinical quality measures reported by network, there was substantial variation within each network.

Use of Imaging for Lower Back Pain

The use of imaging studies is a costly way to evaluate patients with low back pain and it is not always clinically necessary.[38] On this measure, a higher score is better and indicates greater alignment with clinical guidelines and more judicious use of health care resources.

Figure 10 shows the range of scores on use of imaging for low back pain across Massachusetts' eight networks of affiliated medical groups in 2012, compared to the statewide score of 80%. Though performance of the Commonwealth's networks on this measure is above the national average of 74%, indicating a relatively high level of appropriate use of imaging, more than half of medical groups scored below the national 90th percentile of 82%. The range of median

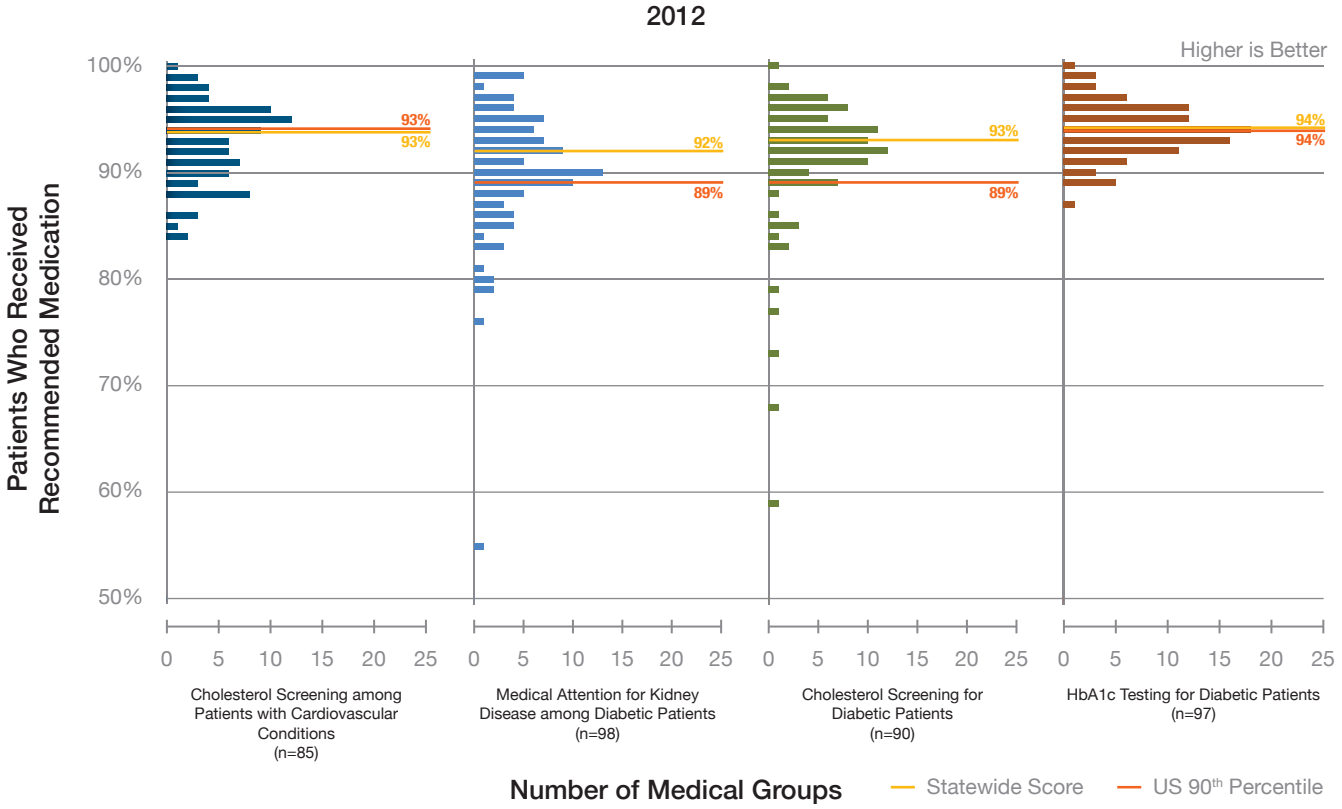
Imaging for Low Back Pain:
The percentage of patients with a primary diagnosis of low back pain that did not have an imaging study (plain x-ray, MRI, CT scan) within 28 days of the diagnosis.
A higher score indicates more appropriate treatment of low back pain.

[37] Throughout this section the national 90th percentile was used as a benchmark for Massachusetts providers because relatively high performance on these measures called for a more rigorous standard of comparison than a state or national average. National data were retrieved from NCQA's Quality Compass results for commercial HMO/POS plans in Massachusetts.

[38] According to the American College of Radiology, low back pain often does not warrant an imaging study. Most patients return to their usual activities within 30 days. American College of Radiology. ACR appropriateness criteria, Available from: http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/LowBackPain.pdf (Accessed December 9, 2014.

11 Distribution of Medical Group Scores: Management of Chronic Conditions

Massachusetts met or exceeded the national 90th percentile on all four chronic care management measures included in this report.



Source: Massachusetts Health Quality Partners | Note: Commercial HMO/POS members, Age 18+

medical group scores varies by network and, in some cases, the range of scores within a network is wide, highlighting an opportunity for more consistent use of resources within networks.

See Figure 10

Chronic Conditions

Providers' performance on quality measures related to chronic conditions is of particular interest, as proper management of these conditions can prevent unneccessary hospitalizations and improve health outcomes. Among the primary care quality measures analyzed for this report, Massachusetts medical groups demonstrated the highest scores on measures of how well they managed certain chronic conditions, such as diabetes and cardiac conditions. However, for measures of cholesterol screening and medical attention for kidney disease among diabetic patients, there were large ranges between the highest and lowest scores, due to certain providers with very low relative scores.

Chronic Conditions: These measures evaluate whether patients with diabetes or heart failure have received important tests that help them maintain their health.

See Figure 11

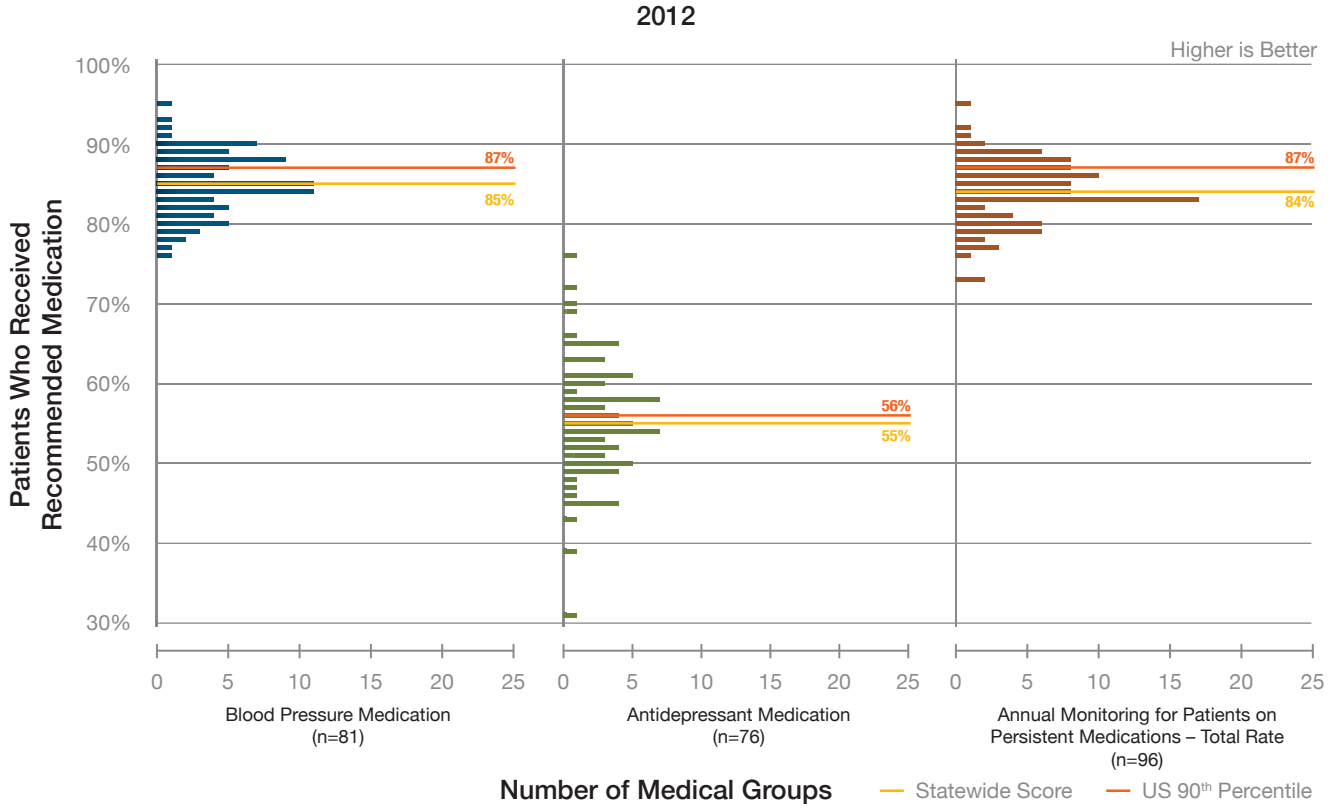
Statewide performance on the four reported measures was between 92% and 94%. Massachusetts exceeded the national 90th percentile on the measures of medical attention for kidney disease among diabetic patients and cholesterol screening for diabetics. The statewide scores on the measures of cholesterol screening among patients with cardiovascular conditions and HbA1c testing for diabetic patients were consistent with the national 90th percentiles.

Medication Management

A central aspect of caring for patients with chronic conditions is medication

12 Distribution of Medical Group Scores: Medication Management Among Patients with Chronic Conditions

Lower scores on management of patients on continuing antidepressants point to the need for further integration of primary care and behavioral health.



Source: Massachusetts Health Quality Partners | Note: Commercial HMO/POS members, Age 18+

management. One HEDIS measure, Annual Monitoring for Patients on Persistent Medications – Total Rate, assesses whether PCPs periodically evaluate their patients who are on four long-term medications.[39] The overall rate for annual monitoring of patients on persistent medications was 84%. This indicates that of the population of patients who take one of these four medications on a long-term basis, 84% of patients received the appropriate tests to assess whether the prescription may need to be adjusted. This is below the national 90th percentile of 87%.

See Figure 12

On the measure of a PCP's continuing management of anti-depressant medications the rate was just 55% and there was a range of 45 percentage points between the highest and lowest performing medical groups (76% and 31%, respectively). The statewide rate on this measure was slightly below the national 90th percentile of 56% and the percentage of patients that received continuing management has been increasing annually for the last six years.[40] Integration of behavioral health into primary care is a significant goal of national and state health care reforms[41] and efforts to support integration may lead to additional improvements in these rates over time.

Medication Management:
These measures evaluate whether patients on long-term medications receive monitoring to assess the need for any changes in their prescription.

Preventive Screening

Massachusetts medical groups perform better than the national 90th percentile on the four preventive screening measures included in this report: breast cancer, cervical cancer, colorectal cancer and chlamydia. While overall

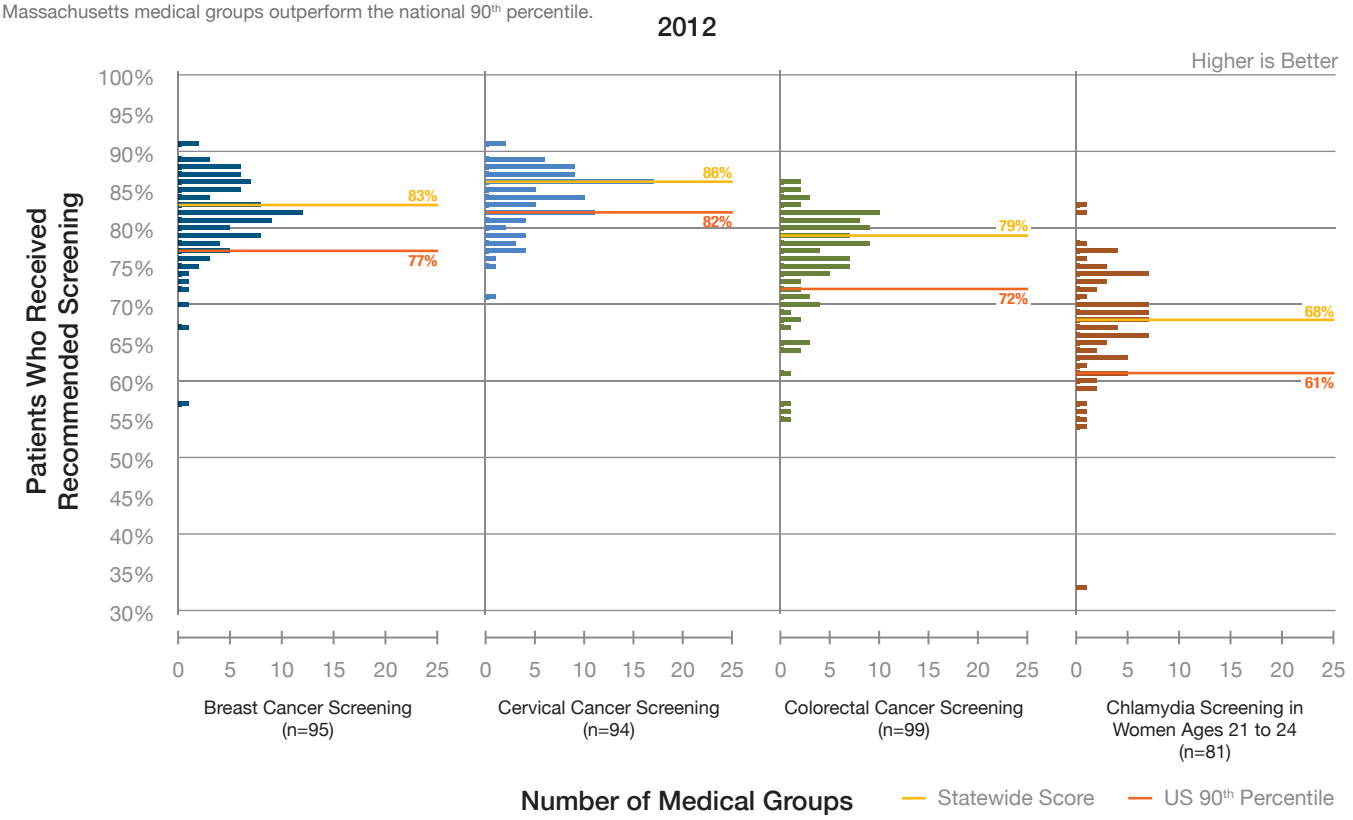
[39] The medications included in this measure are angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs), digoxin, diuretics and anticonvulsants.

[40] Massachusetts Health Quality Partners, *Clinical Quality Report, 2011 HEDIS Results.*

[41] Section 275 of Chapter 224 of the Acts of 2012, enacted August 2012, established "a special task force to examine behavioral, substance use disorder, and mental health treatment, service delivery, integration of behavioral health with primary care, and behavioral, substance use disorder and mental health reimbursement systems."

13 Distribution of Medical Group Scores: Recommended Preventive Screenings Administered

Even for cervical cancer, the highest-scoring screening measure, some Massachusetts medical groups screen less than 80% of at-risk patients. Still, most Massachusetts medical groups outperform the national 90th percentile.



Source: Massachusetts Health Quality Partners | Note: Commercial HMO/POS members, Age 18+

performance was strong relative to the nation, there was still variation of more than 30 points on three measures, indicating that the frequency with which Massachusetts residents receive preventive screenings varies based on their medical group.

See Figure 13

At 68%, the scores on the chlamydia screening rate for women aged 21-24 were the lowest of the four screening measures in this report, but still above the national 90th percentile. According to the Centers for Disease Control and Prevention, chlamydia infections in women are usually asymptomatic, but can lead to Pelvic Inflammatory Disease, which in turn may cause infertility, ectopic pregnancy, and chronic pelvic pain. Screening has been shown to reduce the incidence of Pelvic Inflammatory Disease by up to 60%.[42] While Massachusetts PCPs perform better than the national 90th percentile on this measure, there is still room for improvement, particularly in reducing the variation among medical groups.

Patient Experience in Adult Primary Care

As with inpatient care, patients' experiences when interacting with their primary care providers (PCPs) are an important dimension of care. A positive relationship with a PCP provides the foundation for maintenance and improvement of a patient's health. The measures reported in this section are from the Clinician & Group CAHPS survey, which is closely related to the Hospital CAHPS survey. This survey is a standardized tool used to measure patient perspectives on access to and quality of primary care. The CG-CAHPS survey was administered to commercially insured HMO/POS patients in Massachusetts. Ninety-two Massachusetts medical groups were measured using the CG-CAHPS, which includes questions related to five domains of care, as well as the patients' "willingness to recommend" their PCP. The resulting data reflect adult patients' favorable responses.[43]

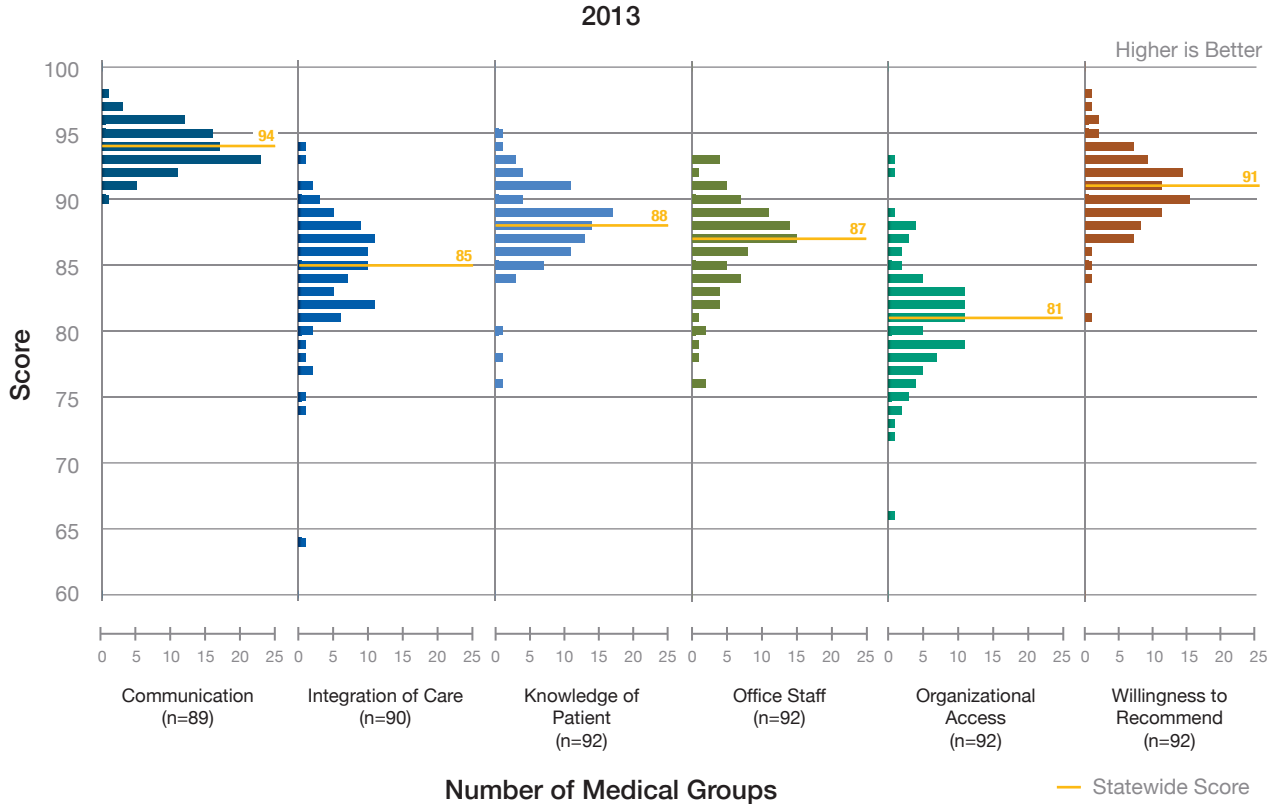
Massachusetts medical group scores on patient experience measures generally were above 80 out of 100 points in 2013, with

[42] The Centers for Disease Control and Prevention. 2010 Sexually Transmitted Disease Surveillance. Available from: http://www.cdc.gov/std/stats10/chlamydia.htm (Accessed December 9, 2014).

[43] Patient experience scores range from 0 to 100. National benchmark data is not available for these measures. See the Technical Appendix for more information on MHQP's methodology.

14 Distribution of Medical Group Scores: Adult Patient Experience

Patients are satisfied with communication with their doctor, but access to care is seen by patients as the least satisfying aspect of the primary care experience.



Source: Massachusetts Health Quality Partners | Note: Commercial HMO/POS members, Age 18+

relatively little difference in results among groups on most measures. Medical groups had the highest score on communication (94 out of 100). This patient experience measure reflects how well patients thought their doctors and nurses communicated with them. There was also the least variation between groups on this measure (90 to 98 out of 100).

See Figure 14

One component of patient experience emphasized by organizations such as the National Committee for Quality Assurance (NCQA) as a critical metric of medical group performance is a patient's ability to access care when needed. By providing patients timely access to their providers and supporting staff, PCP practices can help prevent unnecessary emergency utilization and hospital (re)admissions.

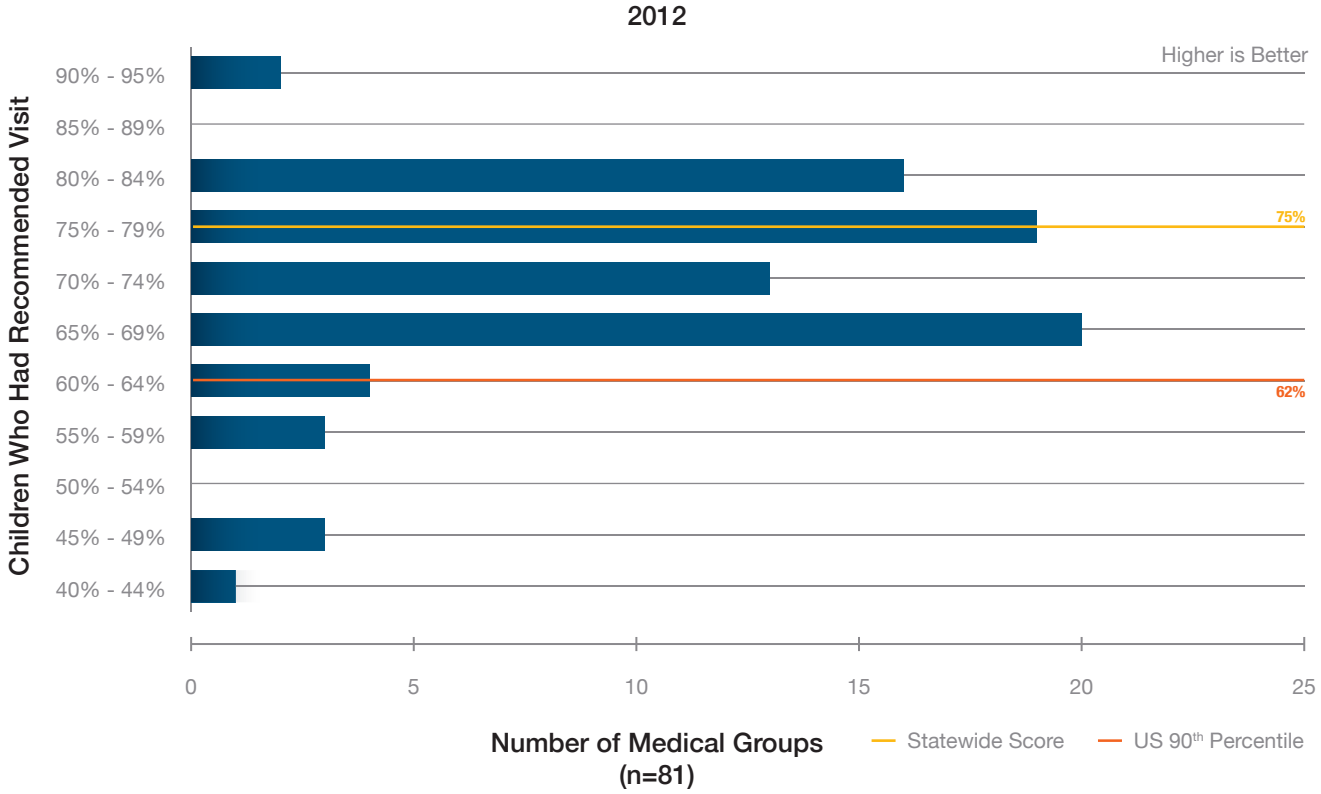
The CG-CAHPS' Organizational Access measure captures patients' perspectives about access to care. Of the patient experience measures, medical groups had the lowest state average score on Organizational Access (81 out of 100 points). This measure captures patient satisfaction with scheduling an appointment when one is wanted and with wait times in the provider's office. While some groups performed well above the state average, scores over 90 points were rare. Access to primary care is a critical point of entry into the health care system, and while experience scores of 100 for all groups are not expected, this score suggests a need for more attention to this aspect of care delivery.

Health care reform efforts continue to emphasize the PCP's role in coordinating their patients' care. In support of this role, the Patient Centered Medical Home (PCMH)

Patient Experience Measures: The measures evaluate how consumers perceive their care. They are particularly useful in understanding whether doctors and nurses communicate effectively and also capture patient perspectives on areas that are not directly related to care provided, such as whether office staff are courteous and helpful.

15 Distribution of Pediatric Medical Group Scores: Adolescent Well Care Visits, Age 12-21

Pediatricians outperform the nation on wellness visits for all ages of children. Scores for adolescent visits are comparatively low relative to other age groups, possibly reflecting the unique challenges of adolescent care.



Source: Massachusetts Health Quality Partners | Note: Commercial HMO/POS members, Age 12-21

model places the PCP at the center of a patient's care team with the goals of providing patient-centered, highly coordinated care and strengthening communications with patients. Practitioner adherence to the model is expected to provide access to care when care is needed, preventing unnecessary emergency room visits and hospitalizations. CHIA plans to report measures related to PCMH patient experience later this year.

Care for Children

The unique developmental, behavioral, and physical characteristics of children require a distinct approach to quality measurement, reporting, and improvement. For instance, one important quality measure for children is whether wellness visits have occurred at appropriate intervals during childhood. This section examines clinical and experience measures for commercial patients of pediatric medical groups.[44]

Pediatric Clinical Quality

The primary care medical groups included in this analysis demonstrated high performance on clinical measures, with statewide scores on five of eight pediatric clinical quality measures between 93% and 97%. Variation differed by measure. On the measure Use of Appropriate Medications for Asthma, Ages 5-11, the variation between the highest and lowest scores was 14 percentage points, while the measure Appropriate Testing for Children

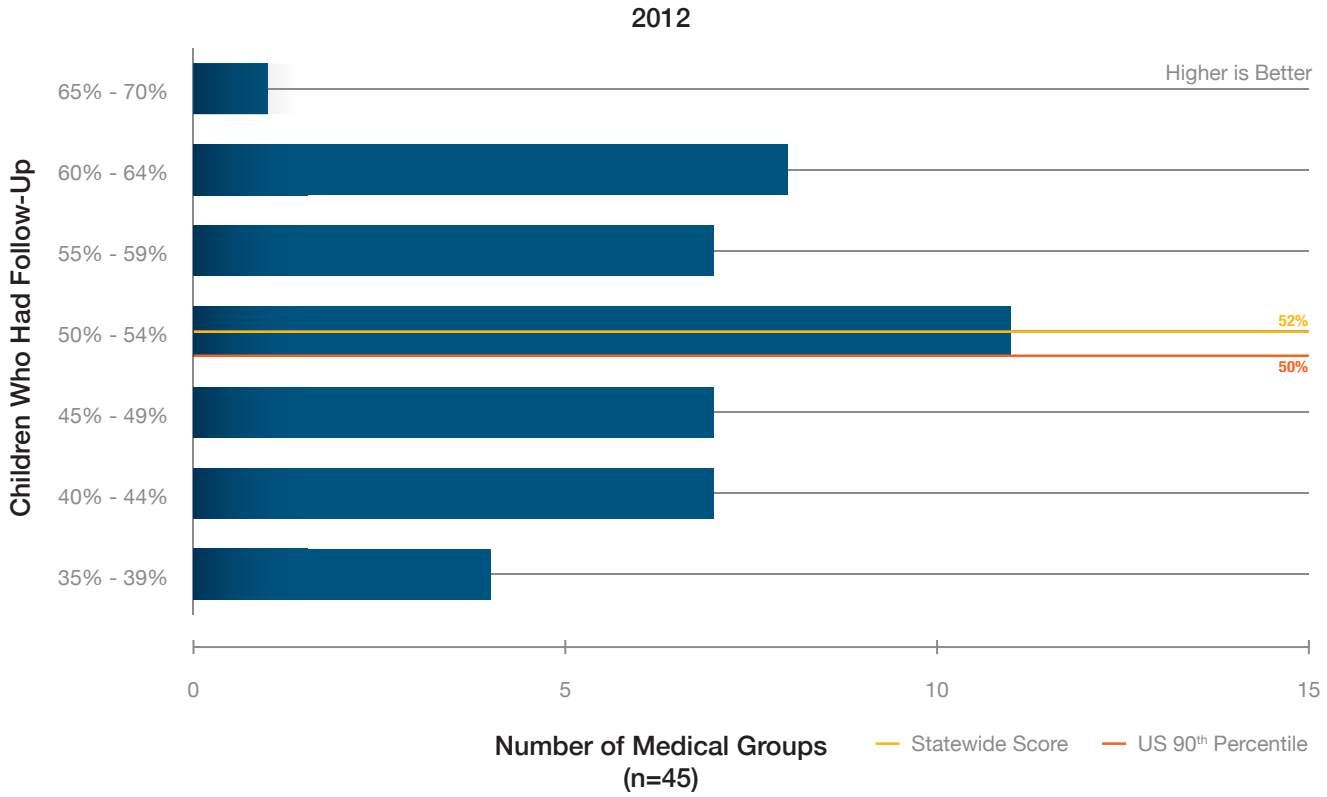
Key Findings of Pediatric Care Quality:

- Massachusetts pediatric medical groups performed above the national 90th percentile on well-child visits in the third, fourth, fifth, and sixth years of life, with the majority scoring over 90%.
- Pediatricians had lower percentages for well-child visits for adolescents, with a statewide score of 75%. Compared with the national average of 44% and the 90th percentile national benchmark of 62%, however, Massachusetts pediatricians performed very well.
- The statewide score for pediatric patients that received appropriate testing for pharyngitis (sore throat) was 95%, meaning that a large proportion of children with this condition were not prescribed antibiotics inappropriately.

[44] For the purposes of this report, the pediatric population is defined as children, youth and young adults from birth to age 21. American Academy of Pediatrics: http://www.healthychildren.org/English/ages-stages/teen/Pages/Stages-of-Adolescence.aspx (Accessed November 3, 2014).

16 Distribution of Pediatric Medical Group Scores: Follow-up for Children Prescribed ADHD Medication

Although ADHD medication follow up care was the lowest of the clinical scores, about half of Massachusetts medical groups outperform the national 90th percentile.



Source: Massachusetts Health Quality Partners | Note: Commercial HMO/POS members, Age 6-12

Key Findings of Pediatric Care Quality, Continued:

- On a measure of whether follow-up care for children prescribed ADHD medication was provided, pediatricians had a statewide score of 52%. This exceeded the national 90th percentile by two percentage points.
- Similar to adult primary care, pediatricians had the highest scores on provider communication measures and the lowest scores on measures of access to care.

with Pharyngitis had a range of 54 percentage points. Although statewide scores were high compared to the national 90th percentile, the range of scores on some measures was wide, indicating that some Massachusetts providers scored well below the national benchmark.

Wellness Visits

Important routine and preventive care is delivered to Massachusetts children at regular well-child visits. Measures of the proportion of children who were seen by their pediatric providers at the recommended intervals are segmented by age category to reflect the unique health needs of children at various developmental stages. For all measures of well-child visits, a higher score indicates better performance.

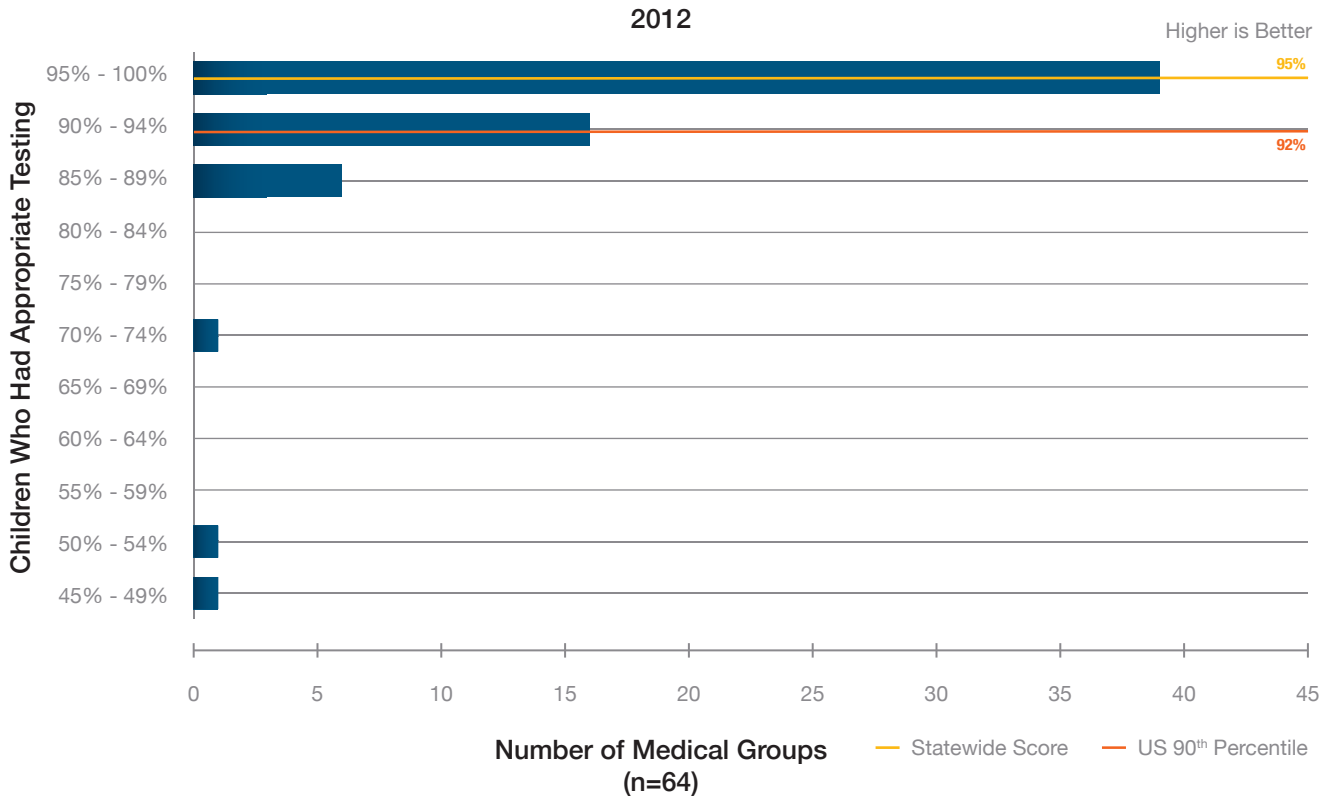
The frequency of well-child visits in the first 15 months of life was high in Massachusetts, with the vast majority of medical groups scoring at or above 95%. The frequency of well-child visits for children ages 3 to 6 years was similarly high, with the vast majority of medical groups performing

These measures capture the percentage of children who had well-child visits at the recommended intervals:

- At least 6 well-child visits in the first 15 months of life.
- One or more well-child visits in the third, fourth, fifth and sixth years of life.
- One or more visits each year for adolescents ages 12-21.

17 Distribution of Pediatric Medical Group Scores: Appropriate Testing for Pharyngitis

Despite a small number of lower-scoring providers, about three-quarters of Massachusetts medical groups exceeded the national 90th percentile.



Source: Massachusetts Health Quality Partners | Note: Commercial HMO/POS members, Age 2-18

above 90%. Massachusetts PCP performance for both measures exceeds the national 90th percentile (90.8% and 86.6%, respectively).

However, performance on Adolescents Well Care Visits, ages 12 to 21, varied substantially, with a range of 51 percentage points (the highest medical group scored 92% and the lowest 41%) and a statewide score of 75%. These findings highlight a performance improvement opportunity for many medical groups that provide routine primary care to adolescents.

See Figure 15

Follow-up Care for Children Prescribed ADHD Medication

After a child is prescribed ADHD medication, follow-up care allows a PCP to work with the parent and child to identify any problems or concerns and track the child's experience on the medication.[45] The statewide score was 52%, indicating that about half of children with a new ADHD medication did not receive follow-up care regarding their new medication. The highest performing medical group scored 68%, which exceeds the national 90th percentile (50%), but the range between that high score and the lowest score was 32 percentage points.

Low relative performance and high variation on this measure highlights an area for continued improvement.

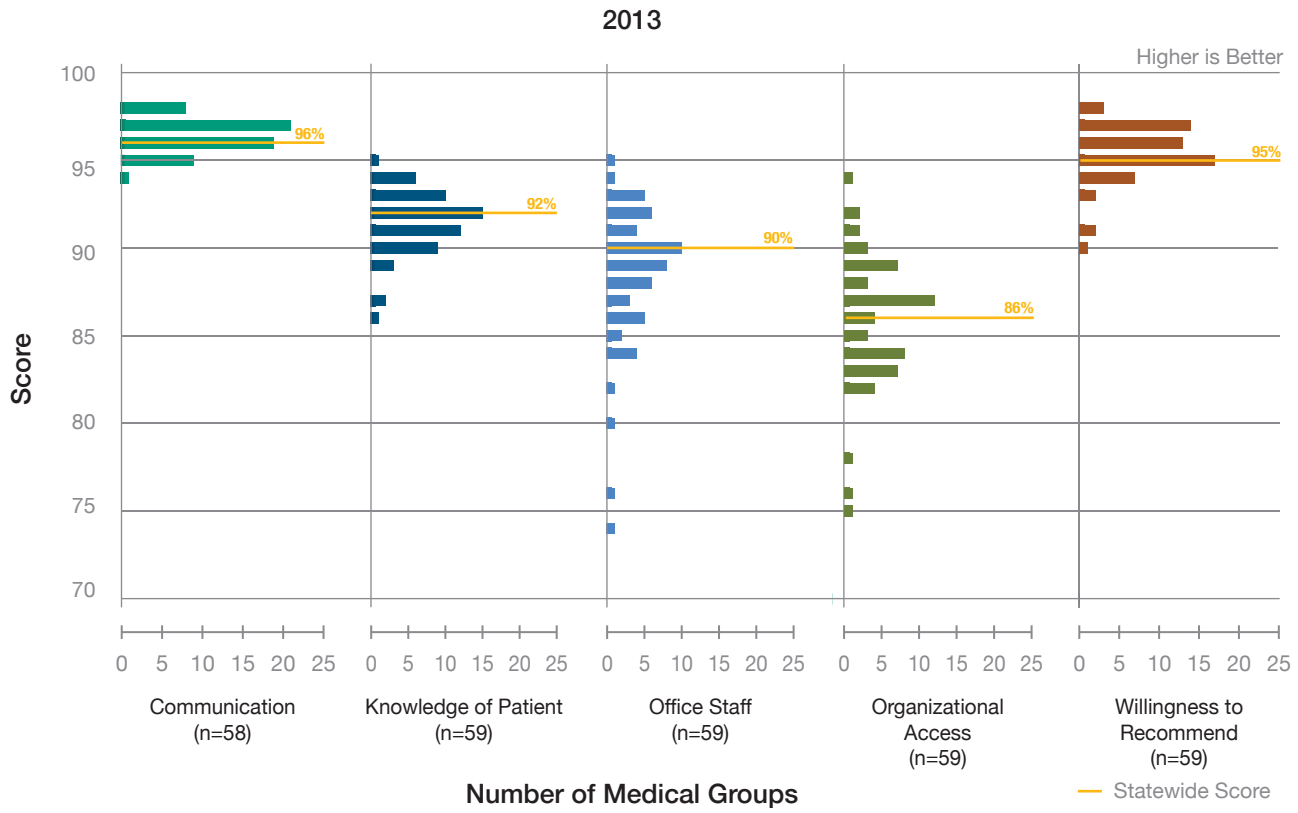
See Figure 16

Follow up for Children Prescribed ADHD Medications: The percentage of children 6-12 years of age with an ambulatory prescription dispensed for an ADHD medication that had one follow-up visit with a prescribing authority during the 30 day initiation phase.

[45] This measure can be used to assess follow-up after the prescription has been initiated ("initiation phase") or as the patient continues to use the medication ("continuation phase"). In this report, this measure assesses follow-up in the "initiation phase."

18 Distribution of Pediatric Medical Group Scores: Pediatric Patient Experience

As with adult measures, parents and caregivers were pleased with communications with their child's doctor, but access to care is less satisfying.



Source: Massachusetts Health Quality Partners | Note: Commercial HMO/POS members, Age 17 and under

Appropriate Testing for Children with Pharyngitis

Before prescribing an antibiotic for a patient with a complaint of pharyngitis (sore throat), the diagnosis of streptococcus (strep) should be validated with a laboratory test. This test is widely available and helps to rule out strep throat and the inappropriate use of antibiotics when they are not clinically useful.

At 95%, statewide medical group performance on Appropriate Testing for Children with Pharyngitis was one of the highest among the pediatric measures analyzed for this report, and was above the national 90th percentile of 92%.

See Figure 17

Appropriate Testing for Pharyngitis: The percentage of patients ages 2–18 who were diagnosed with pharyngitis (sore throat), dispensed an antibiotic and received a streptococcus (strep) test during the episode of care. This measures appropriate use of the diagnostic test. A higher score indicates more appropriate testing.

More than 85% of medical groups analyzed scored above 90%, but the range between the lowest and highest scoring groups was 54 percentage points (46% and 100%, respectively). A very small number of medical groups accounted for this variation.

Pediatric Patient Experience

The CG-CAHPS survey includes questions relevant to the experience of pediatric care, such as the ease of access to appointments and services and how well health care providers communicate.[46] While these domains are similar to those in the adult patient experience survey, successful communication and coordination for the pediatric population involves the doctor and the patient, as well as the child's caregiver. The survey was administered to the caregivers of commercially insured HMO/POS children

[46] MHQP performs reliability testing on these patient experience data; if, for a given practice, the patient ratings on a specific question are unreliable or highly variable, those data are excluded from MHQP's dataset and reports derived from this dataset.

17 years of age and younger and the results reported here reflect the experiences of children's parents or guardians. Fifty-nine Massachusetts medical groups were measured on the four patient experience domains and on the patients' willingness to recommend the provider. As with the adult survey, patient experience scores range from 0 to 100.[47]

Parents' and caregivers' experiences receiving care for their children in Massachusetts medical groups varied little within and across the domains. Overall, there was less variation in patient experience than was demonstrated in the clinical quality measures. Variation in scores was low overall; the least variation (4 percentage points) was seen in the Communication domain, while the greatest variation (21 percentage points) was seen in the Office Staff domain, which measures patients' perspective on whether office staff were courteous and helpful.

Results on these measures indicate that parents and pediatric patients generally rated their experiences with Massachusetts medical groups favorably. The median score was over 90 out of 100 in four of the five domains; only Organizational Access at 87 points, was below 90.

See Figure 18

The two lowest scoring domains, Organization Access and Office Staff, also had the largest range of scores, at approximately 20 points each, indicating variation in performance and opportunities for improvement, particularly within lower performing medical groups.

Pediatric Patient Experience:
Caregivers rate their experiences with obtaining care for children. These scores indicate favorable responses out of a total potential score of 100.

[47] National benchmark data is not available for these measures.

Post-Acute Care

According to U.S. Census projections, one out of five Americans will be age 65 and older in 2030.[48] Current population estimates show that only 15% of the Massachusetts population and 14% nationally are in this age group now.[49] Additionally, 18% of Massachusetts residents who were 65 years of age or older were nursing home residents in 2012, which was 5 percentage points higher than the national figure.[50] As Massachusetts residents age, a high quality of care provided by home health agencies (HHAs) and skilled nursing facilities (SNFs) will be instrumental in helping residents recover from injury and illness, age in their homes and potentially avoid or preempt the need to receive care in costly acute care settings. Another important reason to evaluate the quality of care delivered by these providers is that post-acute care spending nationally has the most geographic variation of any Medicare spending category.[51] Measures that assess the quality delivered by these providers must be monitored and further developed to support post-acute care providers and their patients. Data for the post-acute measures analyzed for this report were provided by CMS.

Key Findings in Post-Acute Care:

- In 2013, Massachusetts home health providers scored slightly higher than the national average in initiating care promptly in the home after hospital discharge (94% vs. 92%).
- Within 60 days after Medicare patients started home health care in 2013, 17% were admitted to the hospital, and 12% were admitted to the emergency department without a hospital admission.
- The proportion of short- and long- stay SNF residents who reported moderate to severe pain appeared to be slowly but steadily improving between 2011 and 2013.
- The proportion of nursing facility residents with pressure ulcers (both short- and long- stay) also shows signs of improving, but more slowly.

Care Provided by Home Health Agencies

Home health services can offer a more convenient, lower-cost alternative to care in a hospital or nursing home. For one of the three measures analyzed (Timely Initiation of Care), a higher score indicates that the facility has performed better on the measure; for all other measures a lower score is better. Claims Measures (ED and Hospital) are Medicare-only, but the OASIS measures (Timely Care) are Medicare/Medicaid.

Timely Initiation of Care

In 2014, Massachusetts home health agencies were able to initiate timely care for patients 94% of the time, which was slightly higher than the national average of 92%.

Between April 2012 and March 2014, 50 agencies showed improvement in providing timely care to patients, 50 showed a decrease in the percent of cases that received care in a timely manner, and 19 maintained their performance on this measure.

Timely Care: The percentage of home health episodes of care in which the start or resumption of care was either on the physician-specified date or within two days of the referral date or inpatient discharge date, whichever is later.

Patients' Use of the Emergency Department

In both 2012 and 2013, and in keeping with national results, 12% of home health cases in Massachusetts included an emergency

Emergency Department Use: The percentage of home health cases in which patients used the emergency department but were not admitted to the hospital during the 60 days following the start of the home health stay.

[48] United States Census Bureau, 2012 National Population Projections, Summary Table 1: Projections of the Population and Components of Change for the United States: 2015 to 2060, Middle Series. Available from: http://www.census.gov/population/projections/data/national/2012/summarytables.html (Accessed December 9, 2014).

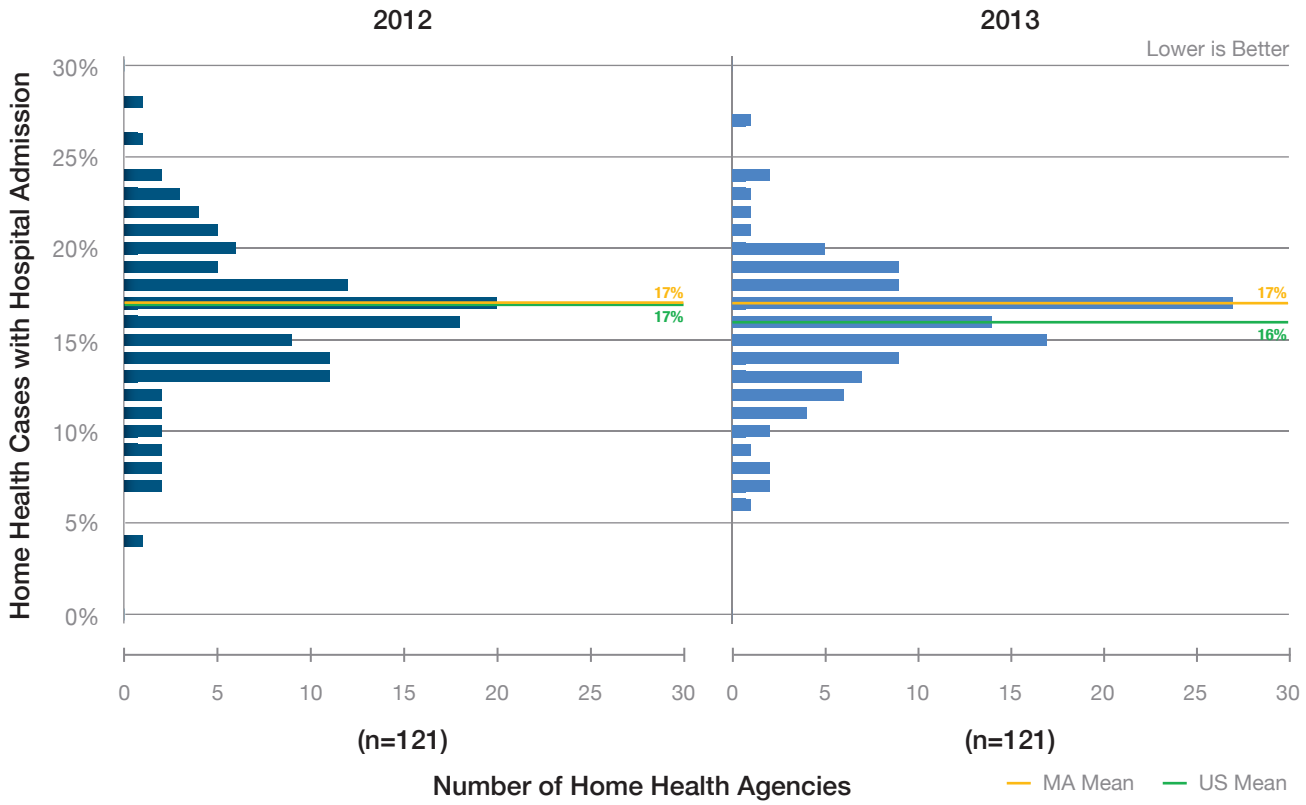
[49] United States Census Bureau. State and County Quick Facts: Massachusetts. Available from: http://quickfacts.census.gov/qfd/states/25000.html (Accessed December 9, 2014).

[50] The Centers for Medicare and Medicaid Services. The CMS Nursing Home Data Compendium, 2013.

[51] Testimony to House Ways and Means Committee on Post-Acute Care Medicare Spending, Jonathan Blum, Director, Center for Medicare Management, June 2013.

19 Home Health Cases with an Admission to the Hospital Within 60 Days

While the Massachusetts mean has held steady, the national rate of hospital admissions has dropped slightly.



Source: CMS Home Health Compare | Note: Medicare only, All Ages

department visit without admission to the hospital during the 60 days following the initiation of home care.

Patient Hospitalizations

On average, 17% of home care episodes included an acute hospital admission during the 60 days following the initiation of home care. The average did not change between April 2012 and March 2014 though the proportion of agencies with more than 20% of home health episodes with an admission within 60 days decreased.

See Figure 19

Hospital Admission:
The percentage of home health cases in which patients are admitted to an acute care hospital during the 60 days following the start of the home health stay.

Care in Skilled Nursing Facilities (SNFs)

In 2009, Massachusetts per capita spending in SNFs was 74% higher than the national average.[52] According to the Massachusetts Health Policy Commission, 36% of this variation is attributable to demographics and higher prices paid to SNFs in Massachusetts.[53] Significant differences between the nation and Massachusetts, in both hospital utilization rates and discharge rates into SNFs and similar facilities, at 10% and 8% above the national average,[54] respectively, also point to opportunities for improvements in efficiency related to admissions and care transitions. To evaluate the extent to which additional value may or may not be added through these higher spending and higher utilization rates, comparable quality measures are necessary. The current Standard Quality Measure Set measures for SNFs focus on the clinical status of patients while in skilled nursing care, rather than transitions to and from acute and post-acute care settings. Still,

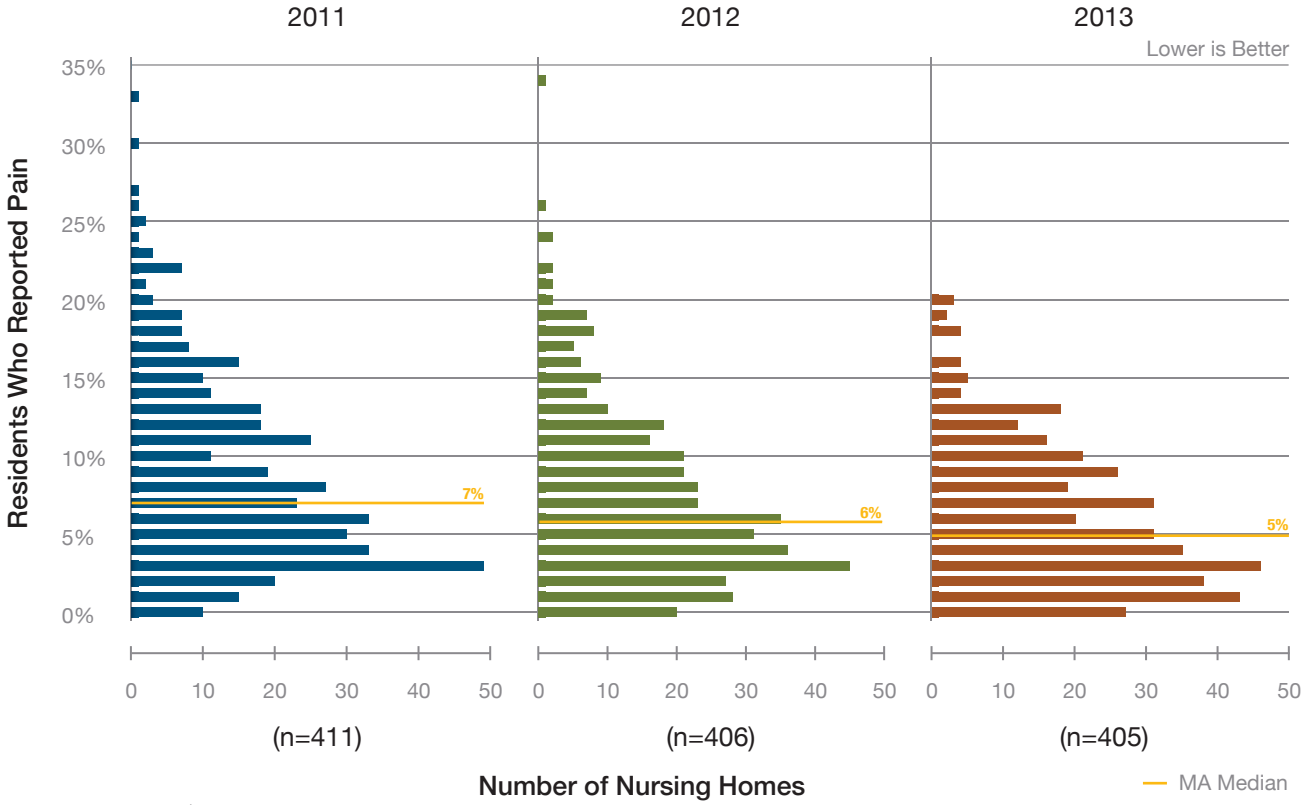
[52] Health Policy Commission. 2013 *Cost Trends Report – July 2014 Supplement.*

[53] *ibid*

[54] *ibid*

20 Long-Stay Residents Who Self-Reported Moderate or Severe Pain

The number of nursing homes with high proportions of patients reporting pain has dropped since 2011.



Source: CMS Nursing Home Compare | Note: All Payer, All Ages

these clinical measures provide snapshots of Massachusetts' nursing homes success in providing appropriate care, managing residents' pain and preventing pressure ulcers.

The quality of care delivered in Massachusetts SNFs was evaluated for this report using measures of self-reported pain among residents and by the proportion of residents with pressure ulcers. For both SNF measures, there are two performance results: the result for short-stay residents (100 days or less) and the result for long-stay residents (101 days or more). These measures reflect the experience of patients covered by all payers.

Self-Reported Pain

Measures of pain indicate the percentage of nursing home residents who report that they experienced moderate to severe pain during the measurement period.

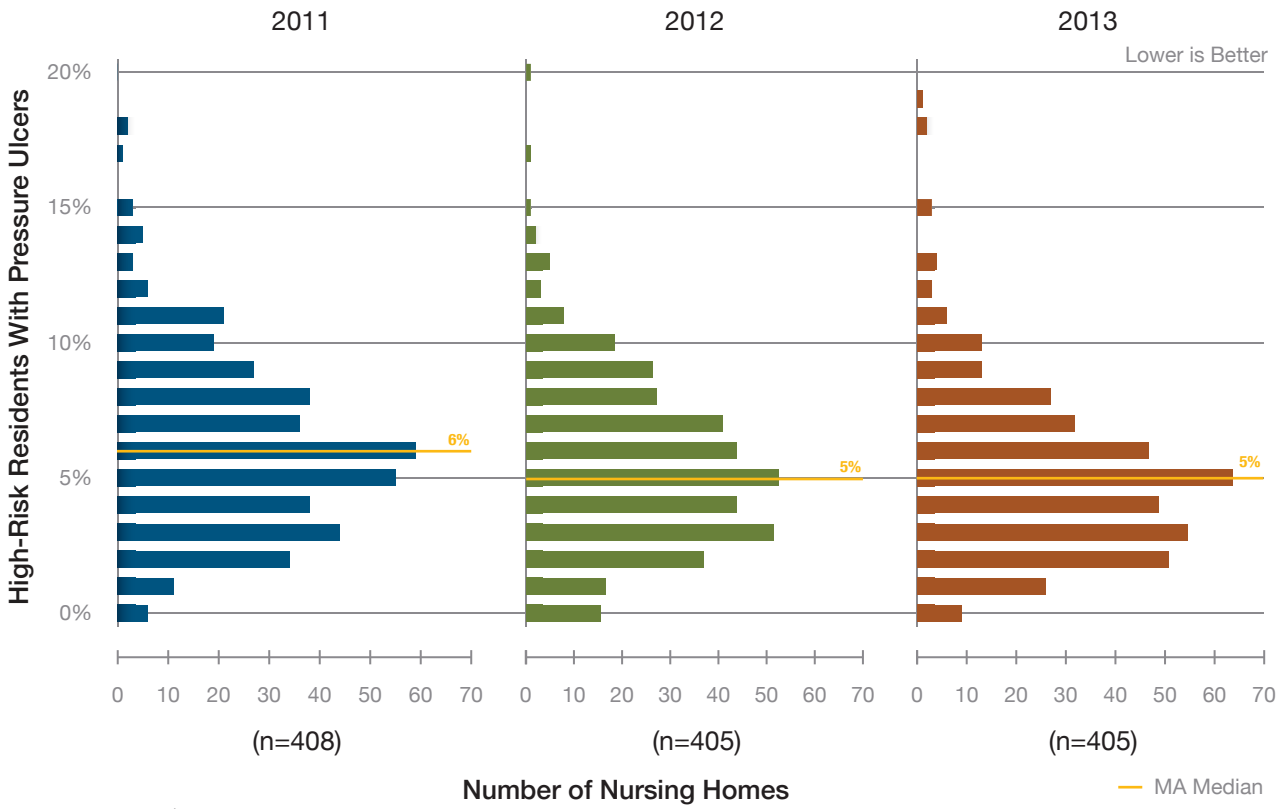
The proportion of short- and- long stay SNF residents who reported moderate to severe pain appeared to be slowly but steadily improving between 2011 and 2013. The median proportion of long-stay patients who reported experiencing moderate to severe pain ranged between five and seven percent during the three year period. The range between the highest and lowest scoring facilities dropped from a high of 33 percentage points in 2011 to 20 percentage points in 2013. The reduction in facilities in 2013 that had a relatively high proportion of long-stay patients who reportedly experienced pain may be a sign of improving quality.

See Figure 20

Pain among short-stay residents was more prevalent than among long-stay residents, with the median score ranging from 21% in 2011 to 19% in 2013. Scores on this measure varied widely across SNFs, with gaps of up to 60 percentage points between the highest and lowest performing facilities. Some of this variation

21 Distribution of Nursing Home Scores: Long-Stay Residents With Pressure Ulcers

The Massachusetts median held steady between 2012 and 2013, a slight improvement over 2011 performance.



Source: CMS Nursing Home Compare | Note: All Payer, All Ages

may be attributable to certain SNFs more closely monitoring pain among their residents.

Long Stay with Reported Pain:
The percentage of nursing home residents with a duration of stay at 101 days or more who report almost constant or frequent moderate to severe pain within the last five days, in addition to at least one episode of moderate to severe pain; or report very severe/horrible pain of any frequency.

Pressure Ulcers

The percentage of long-stay patients in Massachusetts nursing homes who had pressure ulcers ranged from 0% to 19% in 2013. Half of the facilities had 5% or fewer of their high risk long-stay residents with this condition. However, the range of scores remained relatively constant from 2011 to 2013.

Half of Massachusetts SNFs had between 0% and 1% percent of short-stay patients with new or worsening pressure ulcers. Median performance on this measure improved from 2011 to 2013. Each year showed a growing number of nursing homes reporting 0% of short-stay patients with new or worsening pressure ulcers, though the range of performance varied from year to year. This was due to a small number of facilities with high proportions of new or worsening pressure ulcer cases among short-stay residents.

Long Stay Residents with Pressure Ulcers:
The percentage of high-risk nursing home residents across all payers with a duration of stay at 101 days or greater with stage II-IV pressure ulcers.

Conclusion

Health care quality in Massachusetts, based on the measures analyzed for this report is strong and improving, with variation in provider performance decreasing on some measures. Relatively high satisfaction among Massachusetts' patients and robust performance on care processes can be the direct consequence of clear steps provider organizations have taken to influence performance in these areas. These results may also be attributable in part to public reporting, provider feedback and financial incentives. Certain measures, such as hospital readmissions or anti-depressant medication management are more complex and involve factors that may be more difficult for a provider organization to influence directly. Improving scores will require greater care coordination and integration of services across the health care delivery system.

As providers and payers implement policies and programs to realize the goals of health care reform in Massachusetts – lower costs and higher quality through primary care driven services, better integration between behavioral and medical care and innovative reimbursement models – measuring and reporting on quality measures is crucial. Statewide, standard quality measures that capture not just the processes of care but the clinical and patient-experienced outcomes for all populations are essential for determining whether reform initiatives are succeeding and that residents of the Commonwealth are receiving high value, high quality health care.

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Primary staff for this publication:

Joshua Manning, Senior Health Quality Data Analyst

Sophia Zhao, Senior Health Quality Data Analyst

Margaret Anshutz, Special Projects Manager

Cristi Carman, Quality Reporting Manager

Kristina Philipson, Quality Director

center
for health
information
and analysis

For more information, please contact:

CENTER FOR HEALTH INFORMATION AND ANALYSIS

Two Boylston Street
Boston, MA 02116
617.988.3100
www.mass.gov/chia

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