

CENTER FOR HEALTH INFORMATION AND ANALYSIS

ANNUAL REPORT SERIES

**PERFORMANCE OF THE
MASSACHUSETTS
HEALTH CARE SYSTEM**

**A FOCUS ON
PROVIDER QUALITY**

NOVEMBER 2015



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Executive Summary

Each year, CHIA reports on health care quality as part of its Performance of the Massachusetts Health Care System Series. This report is the second annual look at health care quality in the Commonwealth using the Standard Quality Measure Set (SQMS). Select measures from the SQMS were chosen to evaluate provider performance on potentially unnecessary care, patient experience, patient safety, and care coordination.

The performance of Massachusetts providers on selected quality measures was generally at or above national averages. However, there was variation in performance across providers, across types of measures, and across patient populations.

POTENTIALLY UNNECESSARY CARE

Massachusetts has an opportunity to further reduce potentially unnecessary health care and improve service quality and patient outcomes. For example, there was wide variation among acute care providers on maternity care measures and rates of some maternity procedures far exceeded performance targets. There were 29 percentage points between the highest and lowest hospital-specific cesarean rates. Additionally, early elective deliveries rose during 2014-2015 after a decline in 2013-2014. Massachusetts has done well compared to national performance on potentially avoidable admissions for diabetes complications, but exceeded the national rate of such admissions for both asthma and congestive heart failure. As reported in CHIA's *Hospital-Wide Adult All-Payer Readmissions in Massachusetts: 2011-2013* report, statewide performance on adult all-payer readmissions declined by less than one percentage point between 2011 and 2013. Finally, the percentage of patients who have been admitted to a hospital within 60 days of initiation of home health care has remained 17% for three years.

PATIENT EXPERIENCE

Overall, Massachusetts patient ratings of their experiences with an acute hospital admission were in line with national averages, with the exception of hospital room noise level, which was nine percentage points below the national average. In the primary care setting, patient ratings are generally high, but there are a few areas of exception. The lowest scoring domain was the monitoring of adult behavioral health, for which the statewide score was 30 points below the next lowest-scoring domain. As in 2013, access

to appointments remained one of the lowest scoring domains. Additionally, examining patient experience by demographic and self-reported health status exposed significant differences between the experiences of White patients and Black, Latino or Hispanic, and Asian patients; White patients consistently rated all aspects of their primary care more highly. Statewide, experience ratings declined on all measures as patients' self-reported health or mental health status declined from "excellent" to "poor."

PATIENT SAFETY

Patient safety performance in Massachusetts was assessed using measures of health care-associated infections and patient safety indicators (PSIs), measures that calculate the rate of complications related to certain procedures and surgeries. Among selected PSIs, providers had the lowest and least variable rates on post-operative hip fractures. Provider performance varied the most on post-operative respiratory failure, where rates ranged from zero to 30 cases per 1,000 hospitalizations. Most Massachusetts hospitals performed as expected or better on central line associated bloodstream infections and Methicillin-resistant *Staphylococcus aureus* (MRSA), but several hospitals had worse than expected incidences of catheter-associated urinary tract infections and hospital-onset *C.difficile*, and colon surgery site infections.¹

Safety issues affecting patients extend beyond those captured in these performance data, including the safety of care in ambulatory and other non-acute settings. According to the Betsy Lehman Center for Patient Safety and Medical Error Reduction, nearly one in four Massachusetts residents surveyed in 2014 recalled a preventable medical error affecting them or someone they knew personally.

CARE COORDINATION

Finally, the care coordination analyses in this report focus on behavioral health care. Among acute hospitals with psychiatric inpatient units and psychiatric hospitals, a post-discharge continuing care plan was created for 69% of applicable hospitalizations. In 57% of cases, continuing care plans were transmitted to the next care provider. Across hospitals, the applicable hospitalizations for which a continuing care plan was created or transmitted ranged from 0% to 100%. Furthermore, the statewide average on both measures was well below the national average.

While the Massachusetts health care system generally performs well, providers' performance on the measures reported here suggests room for continued improvement.

¹ The incidences of health care-associated infections were adjusted to reflect the case mix and characteristics of each hospital.

29 pp

There was a 29 percentage point range in the rates of cesarean section deliveries across Massachusetts hospitals.

p.6

15%

The statewide rate of unplanned all-cause hospital readmissions improved slightly from 15.9% to 15.0% in 2013.

p.10

KEY FINDINGS



Massachusetts patients rated their primary care experience highly, but scores varied by the patient's race/ethnicity.

p.14



Across all measures, patients that self-reported poorer health or mental health status also reported worse primary care experiences.

p.16

4%

Half of reporting nursing homes had 4% or fewer long-stay residents with pressure ulcers, an improvement over previous years.

p.24



Most acute hospitals performed as expected on measures of health care-associated infections, though preventable infections still occurred.

p.23

57%

Massachusetts hospitals transferred a continuing care plan to the next care provider for 57% of psychiatric discharges.

p.27



Overall, Massachusetts hospitals performed at or around national averages for measures of effective processes of care.

See databook

Introduction

CHIA monitors the performance of the Massachusetts health care system and provides data to support improvements in quality, access, affordability, and outcomes of care. CHIA measures health care quality using the Commonwealth's SQMS.²

CHIA's second annual report on the quality of care delivered in the Massachusetts health care system summarizes the performance of primary care providers, acute hospitals, and post-acute care providers on measures of potentially unnecessary care, patient experience, patient safety, and care coordination. These SQMS measures were selected because they summarize performance of the health system on high-impact and high-priority areas of care. Many of these measures also reveal significant performance variation across providers and facilities.

This report includes all SQMS measures for which CHIA currently has sufficient data. All available performance data on SQMS measures are included in the data appendix and organized by medical group or hospital. Individual hospital and medical group

performance for each measure is also summarized in the accompanying Quality At-A-Glance appendices. The technical appendix provides detailed information on the quality measures analyzed and methodological notes.

² The SQMS are approved by the Statewide Quality Advisory Committee annually. See the technical appendix for further details on the SQMS.

POTENTIALLY UNNECESSARY CARE

KEY FINDINGS

There was great variation across hospitals in the use of cesarean sections and episiotomies and, in 2014-2015, the rates of early elective deliveries rose slightly after a decline the previous year.

Potentially avoidable hospital admissions for asthma in older adults or chronic pulmonary obstructive disease (COPD) improved substantially from 2013 to 2014, but worsened for asthma in younger adults, short-term diabetes complications, and heart failure.

Unplanned hospital readmissions improved slightly from 15.9% in 2011 to 15.0% in 2013.

Seventeen percent of home health patients in Massachusetts were readmitted to the hospital within 60 days of the initiation of home care, a rate that has shown no improvement for three years.

BACKGROUND

Nationally, estimates of unnecessary health care expenditures are between 10%-30% of total health care spending, leading to as much as \$765 billion in potentially wasteful spending.³ Potentially unnecessary care also exposes patients to health risks and sometimes to harm. This section highlights three specific areas of potentially unnecessary care within the hospital setting: maternity care, potentially preventable hospitalizations, and hospital readmissions.

MATERNITY CARE

In recent years there has been increasing attention on maternity care in Massachusetts due to the wide variation across hospitals in clinical practices and quality performance.⁴ Childbirth and related services are among the most frequent reasons for hospitalizations in Massachusetts; as such, potentially unnecessary interventions in maternity care have substantial impacts on both patient experience and system costs.

Cesarean Deliveries

Cesarean delivery is a potentially lifesaving procedure that is often undertaken in cases where vaginal delivery may jeopardize the health of the mother or infant. Compared to vaginal delivery, however, the risks of this surgery for mother and infant are significant: women experience greater risk of injury, blood clot, infection, and an emergency hysterectomy, and newborns have an increased risk of respiratory distress.^{5,6} Recovery from the surgery can be delayed and painful and can compromise breastfeeding. Undergoing a cesarean section also greatly increases the mother's chance of having a repeat cesarean.^{7,8}

Evidence suggests, however, that cesarean deliveries are performed unnecessarily at times. One-third of deliveries were by cesarean in Massachusetts in 2012.⁹ The World Health Organization recommends a cesarean rate of 10%-15% and the US Department of Health and Human Services' (HHS) goal is to reduce first-time delivery cesarean sections to 23.9% of births nationally.^{10,11} Compared to both targets, the Massachusetts cesarean delivery rate is excessive. Additionally, The Leapfrog Group (Leapfrog), an employer-based health care safety and quality organization, recently published statewide and hospital-specific cesarean section rates, including in their calculation only women who were unlikely to need surgical intervention.¹² Among the Massachusetts hospitals that reported these data, there was a range of 29 percentage points between the hospitals with the highest (43%) and lowest (14%) rates (Figure 1), indicating great variation in the care provided to mothers and infants in the Commonwealth. Massachusetts was ranked 19th of 33 states with these data for the most cesarean deliveries for low-risk pregnancies.¹³

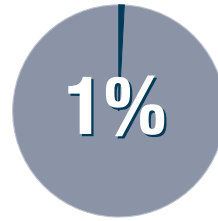
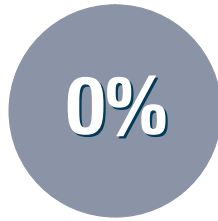
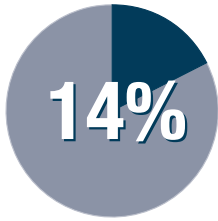
The high rate of cesarean deliveries and substantial practice variation is not unique to Massachusetts. Thirty-three percent of babies are delivered by cesarean nationally¹⁴ and cesarean rates in US hospitals varied by as much as 63 percentage points overall, and by as much as 34 percentage points among low-risk pregnancies. The cost implications of potentially unnecessary cesareans are significant; for commercial payers, the average total payments for maternal and newborn care associated with cesarean births are about 50% higher than the average payments associated with vaginal births (\$27,866 versus \$18,329).¹⁵ Some Massachusetts hospitals have a significant opportunity to bring their cesarean rates in line with the US HHS quality target.

Cesarean Sections for Low-Risk Pregnancies

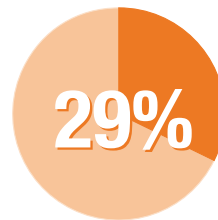
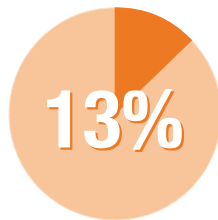
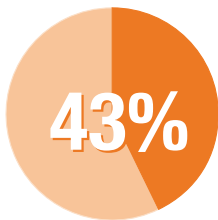
Early Elective Deliveries

Episiotomies

The frequency of this procedure at the highest performing hospital



The frequency of this procedure at the lowest performing hospital



1 Frequency of Obstetrical Procedures 2014-2015

These three measures represent interventions that are not currently recommended by obstetrical clinical guidelines for low-risk deliveries. The majority of reporting Massachusetts hospitals exceeded performance targets for cesarean sections and episiotomies.

PERFORMANCE ACROSS HOSPITALS ON CESAREAN SECTION AND EPISIOTOMY MEASURES RANGED BY 29 AND 28 PERCENTAGE POINTS, RESPECTIVELY, INDICATING GREAT VARIATION IN THE CARE PROVIDED TO WOMEN IN THE COMMONWEALTH.

Source: The Leapfrog Group

Note: All payers, all ages

Early Elective Deliveries

A growing body of evidence suggests that vital fetal development of the brain, lungs, and liver occurs between 37 and 39 weeks gestation. Accordingly, the American Congress of Obstetricians and Gynecologists stated in 2013 that *elective* delivery of a newborn before 39 weeks gestation, defined as delivery after an induction or cesarean section for non-medical reasons, is not appropriate care.¹⁶ Massachusetts hospitals made significant progress on this measure after a campaign by the Massachusetts Perinatal Quality Collaborative for a “hard stop” on elective deliveries and many payers included this measure in pay for performance programs. In 2014-2015, the range in rates of early elective deliveries broadened from five percentage points in 2013-2014 to 13 percentage points.¹⁷

Use of Episiotomy

An episiotomy is recommended under certain conditions, but also carries additional postpartum risks, including incontinence, persistent pain, and delayed recovery time for women.¹⁸ Leapfrog recommends an episiotomy rate of 5% or lower.¹⁹ Of the 36 Massachusetts hospitals that reported these data to Leapfrog, only 17 (47%) fully met that standard of care. Ten hospitals reported episiotomy rates that range from double to nearly six times greater than the Leapfrog standard of care.

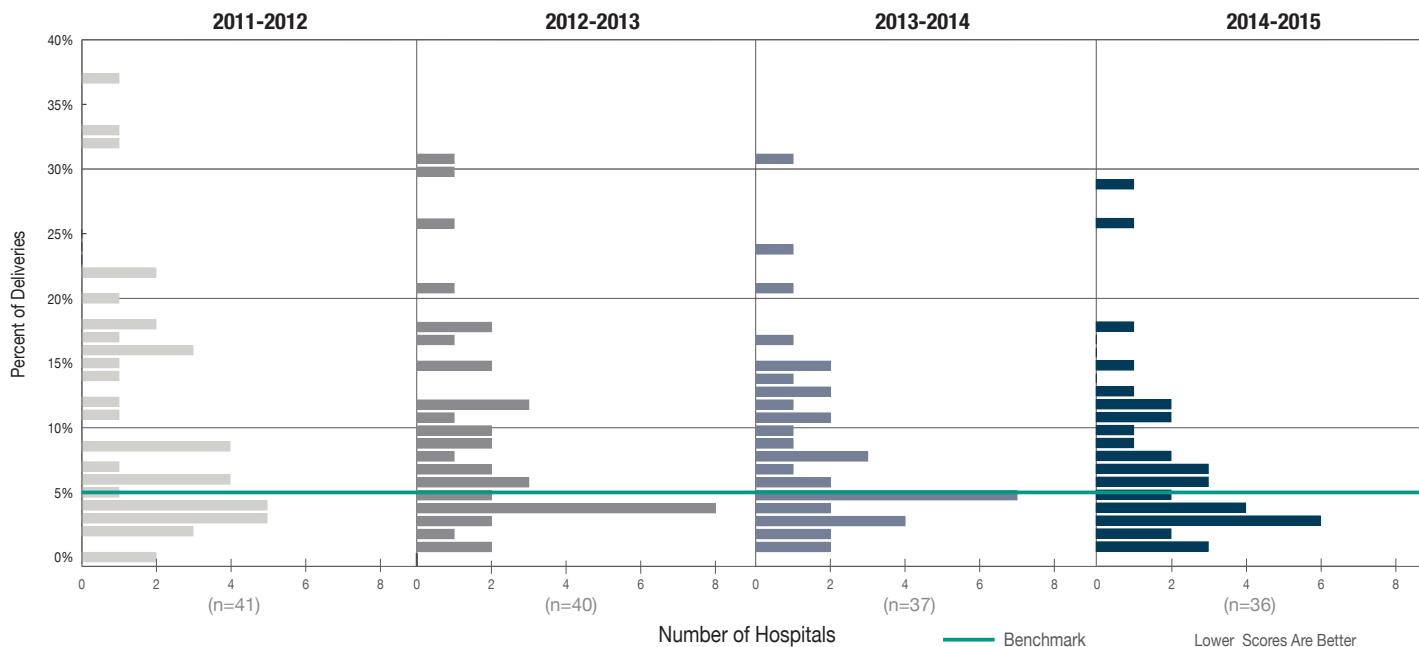
In the most recent reporting year, there was a 28 percentage point difference between the hospitals with the highest (29%) and lowest (1%) use of episiotomy (Figure 2). Though cross-hospital variation among reporting Massachusetts hospitals has decreased since last year (down from 31 percentage points in 2013-2014), this wide range in performance suggests that delivering physicians’ practices vary greatly from hospital to hospital and that some hospitals’ policies on the use of episiotomy may not reflect the most current standards of care.

2 Distribution of Hospital Scores: Percentage of Deliveries With Episiotomy Performed, 2011-2015

Episiotomy has been clearly linked to worse outcomes for women. Due to the increased risk of adverse outcomes, the American Congress of Obstetrics and Gynecology has recommended “restricted use” of the procedure.

Source: The Leapfrog Group
Notes: All payers, all ages

THE USE OF EPISIOTOMY DURING CHILDBIRTH HAS DECLINED SOME IN THE LAST FOUR YEARS. STILL, ONLY 47% OF REPORTING HOSPITALS MET THE QUALITY PERFORMANCE TARGET OF 5% IN 2014-2015.



POTENTIALLY AVOIDABLE ADMISSIONS

While hospital admissions are often unavoidable, they are costly and can pose new risks to patients. In certain cases, hospital admissions can be avoided if individuals with chronic conditions can manage their diseases with appropriate self-care and education, have sufficient community support, and if effective primary care services can prevent complications. Prevention Quality Indicators (PQIs) are used to measure hospital admissions that might have been avoided. The SQMS includes these measures for four clinical conditions: short-term diabetes complications, asthma in younger adults, COPD or asthma in older adults, and heart failure. Performance on these measures is calculated as an admission rate per 100,000 Massachusetts residents and reported as a statewide result.

Compared to the nation, Massachusetts performed better on two measures and worse on two measures. Potentially avoidable hospital admissions for COPD or asthma in older adults improved substantially from 2013

to 2014, making the Massachusetts rate (487) better than the national rate (496 per 100,000) (Figure3). In 2014, patients with diabetes in Massachusetts were less likely to be admitted for short-term complications than they were nationally. However, the rates of potentially avoidable admissions for asthma in younger adults and heart failure in Massachusetts increased from 2013 to 2014 and exceeded national admissions rates.²⁰

These measures are useful in examining the health care system in Massachusetts broadly. They illuminate how well providers support patients with chronic conditions in managing their care and highlight conditions for which patients may need improved social supports and preventive care. These rates of potentially avoidable admissions may indicate improvements in outpatient care for COPD or adult asthma and diabetes. However, young adults with asthma and individuals with heart failure might experience fewer complications and admissions with improved access to care, education about self-care, and timely outpatient interventions.

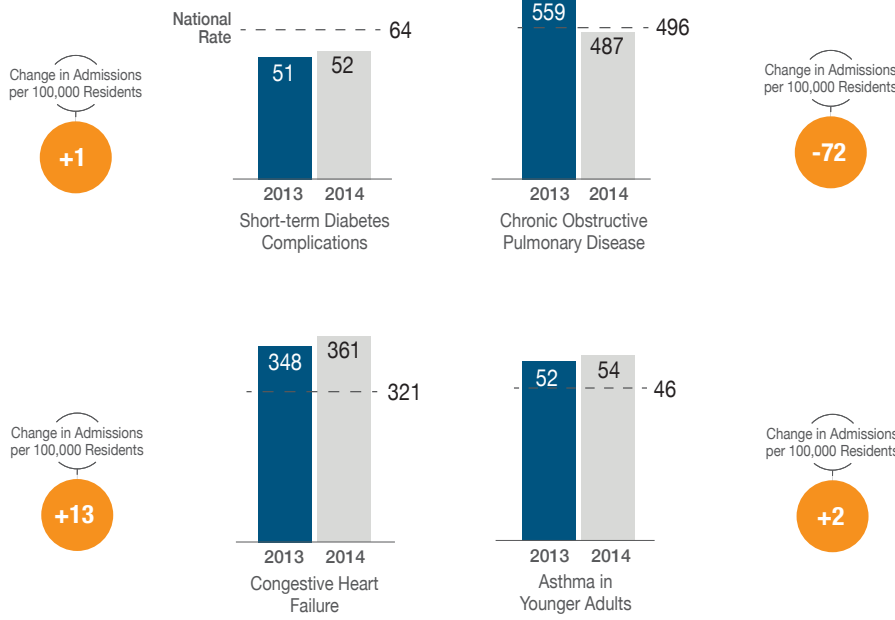
3 Potentially Avoidable Hospitalizations per 100,000, by Condition, 2013 and 2014

Prevention Quality Indicators calculate the rate of potentially avoidable hospitalizations in the population that are related to certain conditions. These measures assess the effectiveness of primary and outpatient care in reducing or preventing hospitalizations. High-quality primary care, appropriate self-care, and early interventions can prevent complications and hospital admissions for these conditions.

COMPARED TO THE NATION, MASSACHUSETTS HAD MORE POTENTIALLY PREVENTABLE HOSPITALIZATIONS FOR CONGESTIVE HEART FAILURE AND ASTHMA IN YOUNGER ADULTS IN 2014.

Source: CHIA Hospital Discharge Database

Note: All payers, age range varies by measure. The denominator is age-specific Massachusetts residents for each measure. The differences between Massachusetts rates and national rates for all measures were statistically significant.



Lower Scores Are Better

HOSPITAL READMISSIONS

Unplanned hospital readmissions are costly and potentially preventable. In October 2015, the Centers for Medicare and Medicaid Services (CMS) penalized 78% of Massachusetts acute hospitals for higher-than-expected Medicare readmission rates from 2011-2014.²¹ The Massachusetts Health Policy Commission (HPC) estimated the cost of preventable readmissions in Massachusetts in FY2009 to be \$700 million.²²

Massachusetts's hospital readmission rate reflects the proportion of hospital discharges that resulted in a readmission to any acute hospital within 30-days of the initial discharge. To calculate hospital readmissions, CHIA adapted the Yale/CMS hospital-wide all-cause, unplanned, 30-day readmission methodology for use with CHIA's all-payer hospital discharge database.

AHRQ's Prevention Quality Indicators (PQIs) capture hospital admission rates for conditions for which early interventions can potentially prevent complications and high quality outpatient care can help patients avoid hospitalizations. These conditions are referred to as "ambulatory care-sensitive conditions." The ambulatory care-sensitive conditions represented in the PQI set are:

- Asthma in younger adults
- Angina without procedure
- Bacterial pneumonia
- Chronic obstructive pulmonary disease or asthma in older adults
- Heart failure
- Dehydration
- Diabetes, long-term complications
- Diabetes, short-term complications
- Hypertension
- Low birth weight
- Lower extremity amputations among patients with diabetes
- Perforated appendix
- Uncontrolled diabetes
- Urinary tract infections

CHIA reports on the PQIs in the Commonwealth's SQMS.

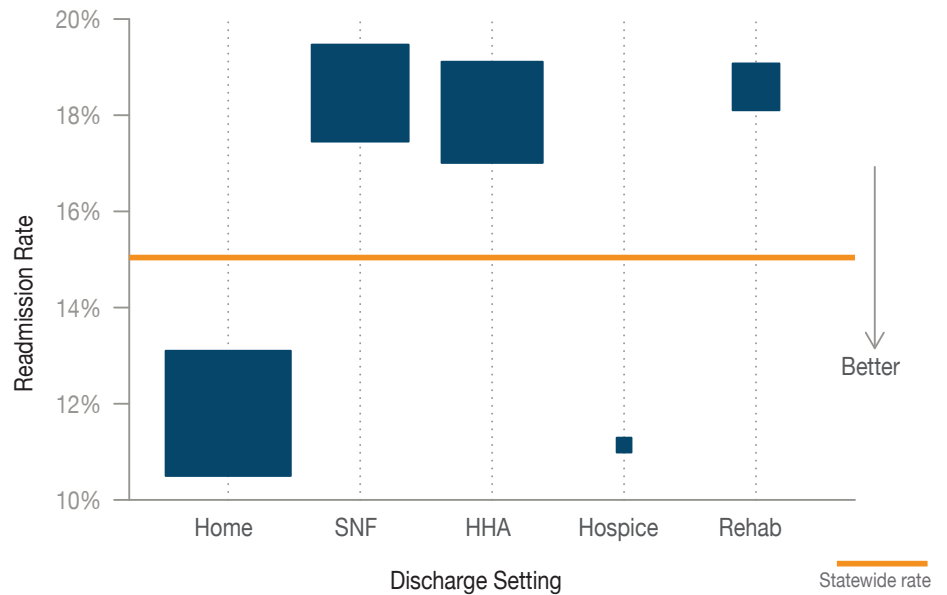
4 Unadjusted All-Payer Readmission Rates by Discharge Setting, 2012-2013

Improving transitions between care settings, especially for patients with complex health needs, can play an important role in reducing readmissions in Massachusetts.

19% OF PATIENTS DISCHARGED TO SKILLED NURSING (SNF) CARE AND 18% OF PATIENTS DISCHARGED TO HOME HEALTH CARE (HHA) WERE READMITTED WITHIN 30 DAYS.

Source: CHIA Hospital Discharge Database

Note: All payers, age 18+. Size of squares represents proportion of overall readmissions.



Massachusetts's hospital readmission rate was 15.0% in 2013, which was a slight improvement over recent years (15.9% in 2011 and 15.4% in 2012).²³ The statewide rate was driven by a small portion of patients who experienced repeated admissions and discharges over the year. In the three year period 2011-2013, 7% of patients in Massachusetts accounted for 59% of readmissions. More than one in three readmissions (37%) occurred within seven days of the initial discharge. Furthermore, patients who were readmitted after being discharged to a skilled nursing facility (SNF) or to home with the assistance of home health agency (HHA) care had higher readmissions rates (18.5% and 18.1%, respectively) than those discharged to home (11.8%) (Figure 4). These patients may be at a higher risk for a hospital readmission, which may underscore the importance of discharge planning for patients with complex health needs.

In September, CHIA published hospital-specific readmission profiles. These profiles outline data on the hospital's readmission rate by payer type, the length of time between discharge and readmission, readmission rates by age, and by the setting to which patients were discharged, among other analyses.²⁴ With these detailed data, CHIA aims to help hospitals better understand their readmission rates and target their ongoing improvement initiatives.

ADMISSIONS FROM HOME HEALTH CARE

As part of its Home Health Care Quality Reporting Program, CMS collects data for four measures that monitor patients' use of acute hospital care within 30 and 60 days of the initiation of home health care. These risk-adjusted measures can highlight needed improvements in care and care transitions for home health patients. Hospital admission rates within the first 60 days of the initiation of home health care have remained constant at 17% since 2012 (Figure 5). Massachusetts's performance on this measure was similar to national performance of 16%. Despite CMS's public reporting of this measure and tying payments to performance, there has been no improvement in Massachusetts's rate in three years. While the average rate has not changed since 2012, the variation across home health agencies has decreased from 24 percentage points in 2012 to 19 percentage points in 2014. This variation, however, remains high. Furthermore, only five home health agencies had hospital admission rates below 10% in 2014.

SUMMARY

Potentially unnecessary care imposes physical and emotional costs to patients and is a source of waste and inefficiency in the health care system. In Massachusetts, there appear to be opportunities to examine the use of potentially unnecessary interventions in maternity care, improve care planning and transitions, and address existing inefficiencies.

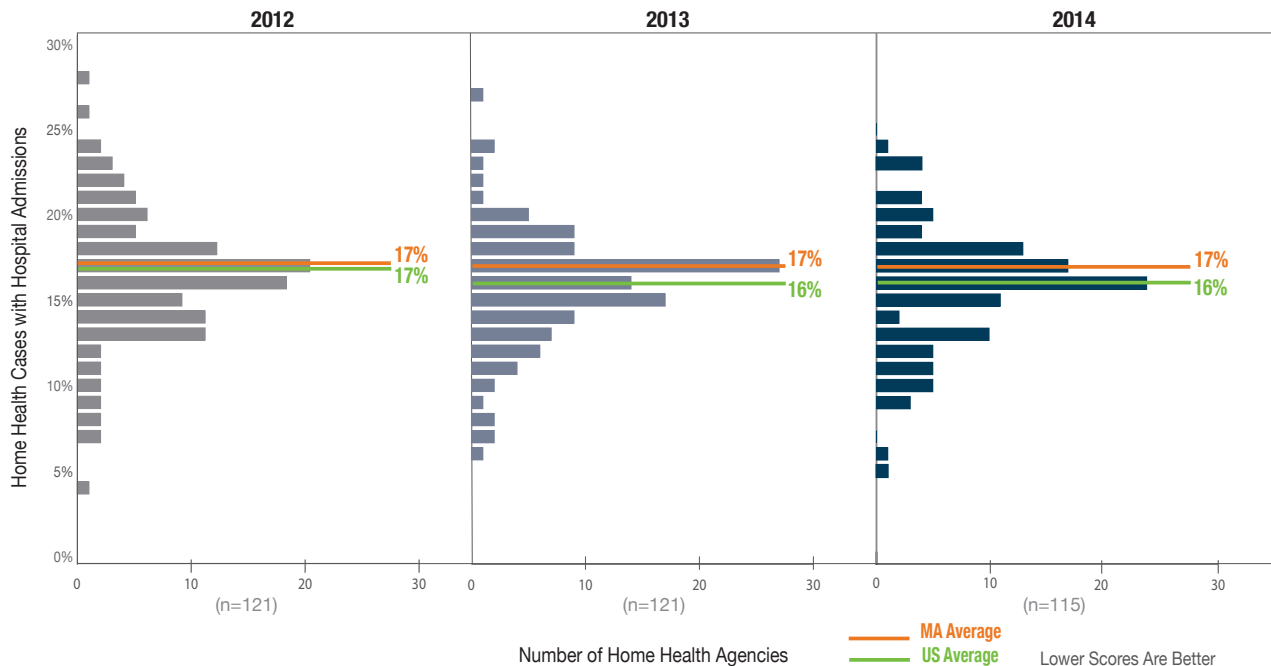
17% OF PATIENTS WHO INITIATED HOME HEALTH CARE WERE ADMITTED TO A HOSPITAL WITHIN 60 DAYS. MASSACHUSETTS STATEWIDE PERFORMANCE ON THIS MEASURE HAS NOT CHANGED IN 3 YEARS.

5 Distribution of Home Health Agency Scores: Percentage of Home Health Cases with a Hospital Admission Within 60 Days, 2012-2014

Home health services include nursing care, physical, occupational, and speech therapy, and medical social services. Effective home care can allow patients to remain in their homes and prevent hospitalizations or admissions to long-term care facilities.

Source: CMS Home Health Compare

Note: Medicare only, all ages



ENDNOTES

- ³ Institute of Medicine. *The Healthcare Imperative: Lowering Costs and Improving Outcomes*. February 2011. Available at: <http://iom.nationalacademies.org/Reports/2011/The-Healthcare-Imperative-Lowering-Costs-and-Improving-Outcomes.aspx> (Last accessed October 29, 2015).
- ⁴ Kaiser Health News. *Having a Baby? Big Differences Noted in Hospital Quality Across Massachusetts*. July 24, 2015. Available at: <http://khn.org/news/having-a-baby-big-differences-noted-in-hospital-quality-across-mass/> (Last accessed October 29, 2015).
- ⁵ Kozhimannil, Law, Virnig. (2013). *Cesarean Delivery Rates Vary Tenfold Among US Hospitals; Reducing Variation May Address Quality and Cost Issues*. *Health Affairs*;32(3), 527-535.
- ⁶ Ecker JL, Frigoletto FD Jr. (2007). *Cesarean delivery and the risk-benefit calculus*. *New England Journal of Medicine*;356(9):885-8.
- ⁷ Declercq E, Cunningham DK, Johnson C, Sakala C. (2008). *Mothers' reports of postpartum pain associated with vaginal and cesarean deliveries: results of a national survey*. *Birth*;35(1):16-24.
- ⁸ Landon MB, Hauth JC, Leveno KJ, Spong CY, Leindecker S, Varner MW, et al. (2004). *Maternal and perinatal outcomes associated with a trial of labor after prior cesarean delivery*. *New England Journal of Medicine*;351(25):2581-9.
- ⁹ This statistic was calculated using CHIA's casemix database. These percentages were not risk-adjusted.
- ¹⁰ The World Health Organization. *WHO Statement on Cesarean Section Rates*. April 2015. Available at: http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/cs-statement/en/ (Last accessed October 29, 2015).
- ¹¹ US Department of Health and Human Services. *Healthy People 2020: Maternal, Child, and Infant Health Objectives*. Available at: <http://www.healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and-child-health/objectives> (Last accessed October 29, 2015).
- ¹² This measure results in the NTSV cesarean section rate. NTSV refers to low-risk pregnancies, which are first-time pregnancies (nulliparous) that have reached full term (term) and that involve one fetus (singleton) in the head-down position (vertex).

- ¹³ The Leapfrog Group. *C-Section Rates by Hospital*. October 2015. Available at: <http://www.leapfroggroup.org/patients/c-section#Overview> (Last accessed October 29, 2015).
- ¹⁴ Centers for Disease Control and Prevention. *Births: Preliminary Data for 2010*. November 17, 2011. Available at: http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_02.pdf (Last accessed October 29, 2015).
- ¹⁵ Truven Health Analytics. *The cost of having a baby in the United States*. January 2013. Greenwood Village (CO).
- ¹⁶ The American Congress of Obstetricians and Gynecologists. *New Gestational Age Designations: Full Term Starts at 39 Weeks*. Available at: <http://www.acog.org/About-ACOG/ACOG-Departments/Deliveries-Before-39-Weeks> (Last accessed October 29, 2015).
- ¹⁷ Forty-four Massachusetts hospitals reported discharges for vaginal deliveries to CHIA in fiscal year 2014. Of those, 36 voluntarily reported delivery and maternity care data to Leapfrog in their 2014-2015 measurement year.
- ¹⁸ Hartmann K, Viswanathan M, Palmieri R, Gartlehner G, Thorp J, Lohr KN. (2005). *Outcomes of Routine Episiotomy: A Systematic Review*. *The Journal of the American Medical Association*;293(17):2141-2148.
- ¹⁹ The Leapfrog Group. *Proposed Changes to the 2015 Leapfrog Hospital Survey*. Available at: http://www.leapfroggroup.org/media/file/ProposedChanges_2015_LeapfrogHospitalSurvey.pdf (Last accessed October 29, 2015).
- ²⁰ The differences between Massachusetts rates and national rates for all measures were statistically significant.
- ²¹ Kaiser Health News. *Half of Nation's Hospitals Fail Again to Escape Medicare's Readmission Penalty*. August 3, 2015. Available at: <http://khn.org/news/half-of-nations-hospitals-fail-again-to-escape-medicares-readmission-penalties/> (Last accessed October 29, 2015).
- ²² Health Policy Commission. *2013 Cost Trends Report July 2014 Supplement*. Boston (MA). Available at: <http://www.mass.gov/ant/docs/hpc/07012014-cost-trends-report.pdf> (Last accessed October 29, 2015).
- ²³ In June 2015, CHIA published *Hospital-Wide Adult All-Payer Readmissions in Massachusetts: 2011-2013*. Available at: <http://www.chiamass.gov/assets/docs/r/pubs/15/CHIAReadmissions-Report-June-2015.pdf>.
- ²⁴ CHIA's *Hospital-Specific Readmissions Profiles* are available at: <http://www.chiamass.gov/hospital-wide-adult-all-payer-readmissions-in-massachusetts-2011-2013#hospital-specific>.

PATIENT EXPERIENCE

KEY FINDINGS

Adult patients' ratings of their experiences with primary care varied by patient's race/ethnicity across all domains of care, especially with regard to access to care.

Massachusetts PCPs scored only 52 out of 100 on the monitoring of adult behavioral health composite, the lowest-scoring domain.

Across all measures, patients that self-reported poorer health or mental health status also reported worse primary care experiences.

Only 52% of acute hospital patients reported that they "strongly agree" that they understood their care instructions at discharge.

BACKGROUND

Improved patient experiences have been linked to improved effectiveness of clinical processes to prevent and manage diseases, improved self-management skills among certain patients, better adherence to treatment plans, and improved outcomes.^{25, 26, 27} Positive interactions with health care providers are also inherently valuable for patients and consumers. This section summarizes adult patients' ratings of their experiences with primary care and acute hospital care.

PRIMARY CARE PATIENT EXPERIENCE

Patient experience is a critical aspect of health care quality. The vision for well-coordinated patient care is that primary care clinicians are the first point of contact for health problems, as they see the patient's health holistically – that is, connected to the patient's environment, socioeconomic status, mental health, and emotional wellbeing – and are responsible for coordinating a patient's care across the health system. A positive relationship with a primary care provider (PCP) is the foundation for ongoing care and potential improvement of a patient's health.

Patients' experiences interacting with their PCP are measured using the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey. The CAHPS survey is a standardized tool used to measure patient perspectives on access to and quality of primary care and it includes questions covering a variety of topics, from communication with providers, to experience interacting with office staff, to access to appointments. The CAHPS survey was administered in 2014 to patients in Massachusetts who had a primary care visit in the past 12 months.²⁸ Ninety-six Massachusetts medical groups were measured using the CAHPS survey.

Statewide Performance

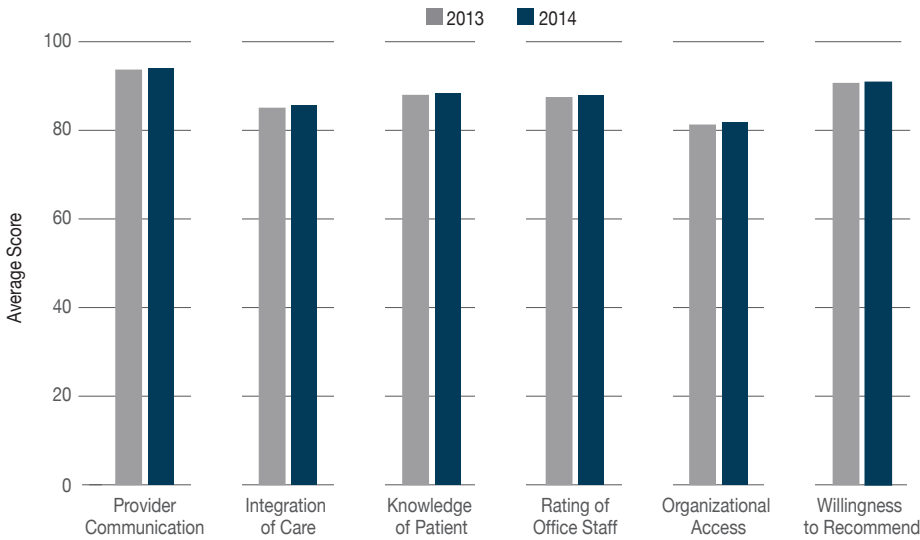
Consistent with findings from the 2013 survey, patient experience ratings remained high in 2014.²⁹ In fact, statewide patient experience scores in 2014 generally indicated a slight but meaningful improvement over 2013 scores in four of six survey domains (Figure 6).³⁰ Improvements in patient ratings of integration of care, knowledge of patient, rating of office staff, and organizational access were quite small—less than one point out of 100—but these gains are consistent with trends in recent years and may indicate that patients are steadily experiencing improved care in these domains.^{31, 32}

The lowest-scoring domain, 30 points below the next-lowest domain, was monitoring of adult behavioral health. In this domain, patients reported whether anyone in their PCP's office asked about things that worried them or caused them stress; personal or family problems, alcohol or drug use, or mental or emotional illnesses; or if they had felt sad, empty or depressed in the past 12 months. Patients can answer each of these questions either yes or no. In 2014, Massachusetts PCPs scored only 52 out of 100 on this domain.

As in 2013, access to appointments remained one of the lowest-scoring domains. Patient-reported experiences communicating with their PCPs or their willingness to recommend their PCP did not meaningfully improve in 2014, but statewide scores on both these domains exceeded 90 points out of 100.

6 Adult Primary Care Experience, 2013-2014 (Score 0-100)

The Consumer Assessment of Healthcare Providers and Systems survey is a standardized tool used to assess patients' experiences accessing and receiving primary care services. Higher scores on these measures signify better patient-reported experiences.



STATEWIDE BETWEEN 2013 AND 2014, THERE WAS A SLIGHT BUT MEANINGFUL IMPROVEMENT IN ADULT PATIENTS' RATINGS OF THEIR PRIMARY CARE EXPERIENCES.

Source: Massachusetts Health Quality Partners

Note: Commercial HMO/PPO members, age 18+. Differences between 2013 and 2014 statewide patient experience scores were statistically significant for all domains except provider communication and willingness to recommend.

Medical Group and Network Performance

There was significant variation across medical groups on every survey domain. The smallest variation was in patients' willingness to recommend, in which the difference between the highest and lowest scores was 15 points. For the integration of care, adult behavioral health, and organizational access domains, performance across medical groups varied by more than 25 points. These wide ranges in scores indicate that the way patients perceive the care they receive in these domains varies significantly across medical groups.

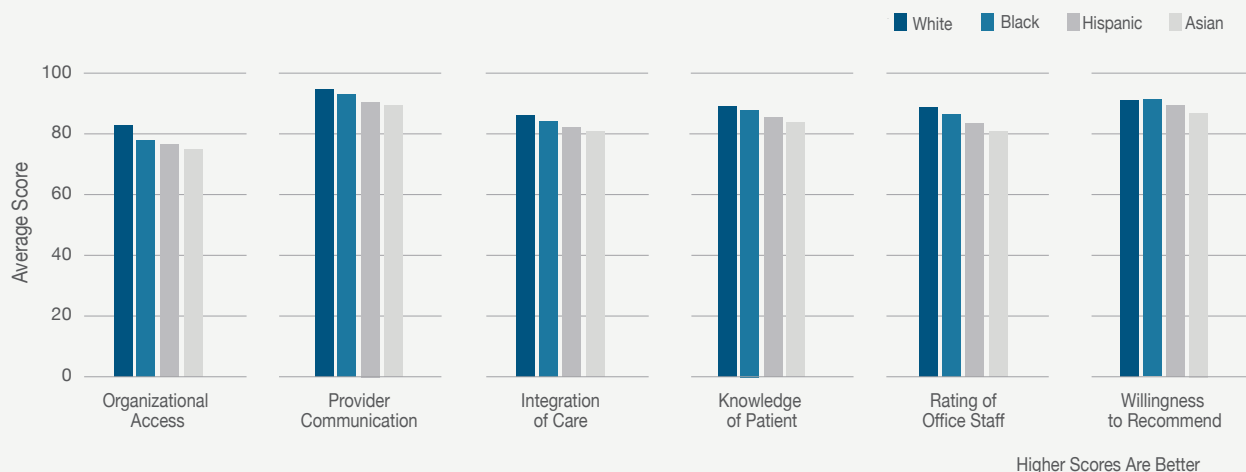
Over two-thirds of medical groups in Massachusetts are affiliated with nine major networks, or parent provider groups.³³ Most networks perform consistently with statewide scores on the majority of patient experience measures. Notably, no networks significantly exceeded statewide scores on organizational access and variation between the highest and lowest performing networks was 4 points. Seven unaffiliated medical groups had scores that were significantly better than the statewide score for organizational access. Of the other patient experience domains, the greatest variation in performance across networks was found in adult behavioral health (10 points) and the lowest variation was in communication (1 point).

7 Adult Primary Care Patient Experience by Race, 2014 (Score 0-100)

Source: Massachusetts Health Quality Partners

Notes: Commercial HMO/PPO members, age 18+. All differences in care between White patients and patients of other races/ethnicities were statistically significant, except for Black patients' ratings on knowledge of patient and willingness to recommend.

OVERALL, ADULT PATIENTS IN MASSACHUSETTS RATED THEIR EXPERIENCE WITH PRIMARY CARE HIGHLY IN 2014, BUT SCORES VARIED BY PATIENT'S RACE/ETHNICITY ACROSS ALL PATIENT EXPERIENCE DOMAINS, ESPECIALLY ON ACCESS TO CARE.



Care Experience Differences for Key Populations

Patient experience measures can provide insight into how well practices are accommodating cultural differences among patients. Differences in patient experience cannot solely be attributed to provider behavior – cultural and individual differences influence a patient's perspective on the care they receive as well. Nonetheless, patient-centered care relies on providers' understanding and responding to patients' values. Meaningful differences in patient experience between populations may point to areas in which care may need to be more patient-centered. These measures illuminate how patients perceive their interactions with their PCP and how the doctor-patient relationship varies across demographic groups.³⁴

Race and Ethnicity

Patients self-identify their race and ethnicity on the CAHPS survey. This report examines the four largest patient demographic groups: White, Black, Hispanic or Latino, and Asian. Patients may identify themselves as fitting into one or more of these groups.

Among these groups, Asian and Hispanic or Latino adults consistently reported the lowest patient experience scores. White patients rated their experiences more highly than other respondents.

The largest disparity between White patients and patients in other racial groups was in organizational access (Figure 7). In this domain, Asians patients reported average scores 8 points below those of White patients. Likewise, Hispanic or Latino and Black patients reported average scores of 6 points and 5 points, respectively, below those of White patients. Despite reporting lower scores in other patient experience domains, Black patients were willing to recommend their PCP at the same rates as White patients.³⁵

To assess pediatric patient experience, adults reported their experience receiving care for their child. While disparities in experience between racial groups were still present, variation in scores across domains and races/ethnicities was more limited.³⁶ Parents of White children consistently reported better experiences than parents of Asian and Hispanic or Latino children, but the differences in reported experiences were much smaller. Finally, across all domains and groups, patient experience scores were higher for pediatric care than for adult primary care providers.

National Context

The Agency for Healthcare Research and Quality (AHRQ) monitors health disparities nationally, although they have used different measures. The US has made strides in increasing access to and quality of care, but has eliminated few health care disparities. AHRQ reported that there are racial disparities nationally on a wide range of access and experience measures. Of the groups analyzed (White, Black, Hispanic, Asian, American Indian and Alaskan Native) all non-White groups reported worse care than reported by White patients on a substantial portion of these measures. In 2013, Massachusetts was among the states in the lowest performing quartile on the average difference in overall quality between Blacks, Hispanics, and Asians compared to Whites.³⁷

Education

Across the levels of education analyzed, patients without a high school diploma or GED consistently reported the lowest experience scores on some

domains. In addition, among parents and caregivers reporting their experience receiving care for their child, scores on three of the six survey domains were higher for those with a high school diploma or GED compared to parents who did not have a high school diploma. However, among adults with a high school diploma or GED or higher, there was little variation in patient experience scores.

Gender

Adult women uniformly reported less positive patient experiences than men across all survey domains. The gender disparity in experience scores was largest on organizational access to care. These data are consistent with findings that indicate that women generally self-report less positive experiences in health care.³⁸

Age

Patients reported worse experiences as they entered their mid-twenties and early thirties. However, after this point, patient experiences began to rebound and continued to improve with age. Even in high-performing measures like communication, older patients reported better experiences.

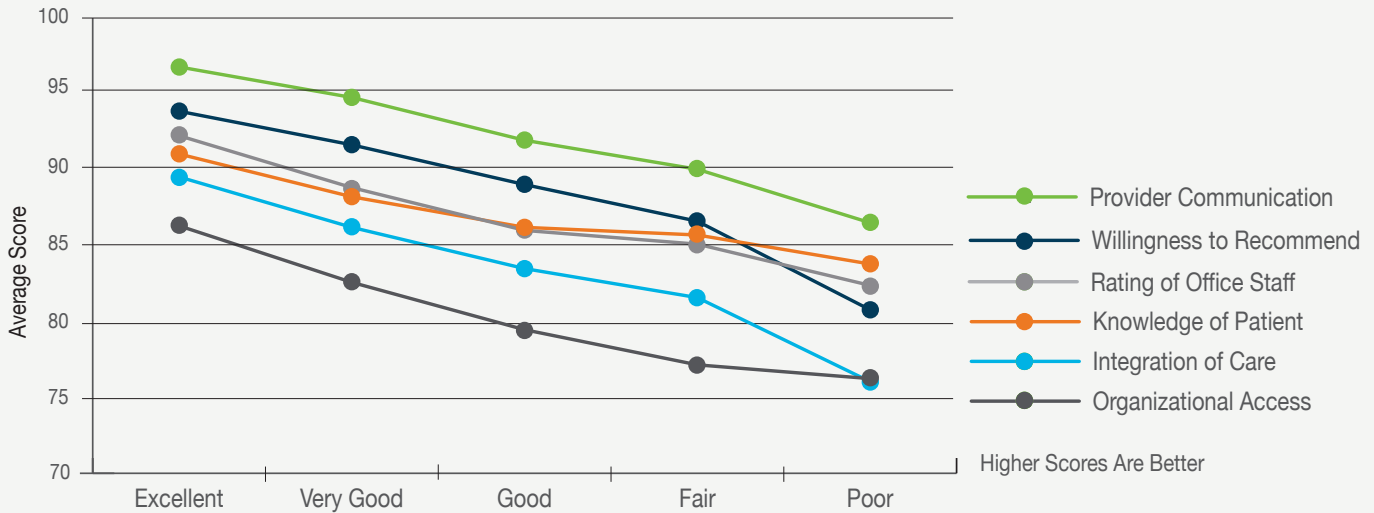
Parents reported that access to care for their children decreased with the child's increasing age, but on other measures remained fairly constant with age. Interestingly, the self-reported scores of young adults fell noticeably below the parent- or caregiver-reported scores. This does not necessarily indicate that young adults had worse experiences than older children; it may result from the children's scores being reported by parents, whereas young adult scores were reported directly by the patients.

8 Adult Patient Experience, by Self-Reported Health Status, 2014 (Score 0-100)

Source: Massachusetts Health Quality Partners

Notes: Commercial HMO/PPO members, age 18+. All but the following differences were statistically significant: between fair and poor health on organizational access; between good/fair, fair/poor, and good/poor on rating of office staff; between good/fair and fair/poor on knowledge of patient.

ACROSS ALL DOMAINS, PATIENTS THAT SELF REPORTED POORER HEALTH AND MENTAL HEALTH ALSO REPORTED WORSE PRIMARY CARE EXPERIENCES.



Self-Reported Health

Patients with poorer self-reported health gave lower experience ratings than other patients (Figure 8). In general, the reported differences were significant and consistent.³⁹ Furthermore, the decreased ratings were not limited to patients who reported being in fair or poor health; they affected patients across the entire range of health status, decreasing sequentially from “excellent” to “poor” health status.

The greatest disparity in experience between patients that self reported excellent and poor health was on intergration of care. Among patients who reported poorer health status, integration of care ratings were 13 points lower than among those who reported excellent health status. The smallest gap in experience scores between patients in excellent and poor health was 7 points, on the rating of office staff. The variation in patient experience by health status highlights opportunities to focus improving care experiences for patients who may be accessing the health system more often or who have complex health needs.

PATIENT EXPERIENCE VARIED BY AS MUCH AS 18 POINTS BETWEEN PATIENTS WHO REPORTED EXCELLENT MENTAL HEALTH AND PATIENTS WHO REPORTED POOR MENTAL HEALTH.

9 Adult Patient Experience, by Self-Reported Mental Health Status, 2014 (Score 0-100)

Source: Massachusetts Health Quality Partners

Note: Commercial HMO/PPO members, age 18+. On integration of care, all differences in experiences for each descending level were statistically significant. For all other domains, differences for each descending level were statistically significant except for differences between fair/poor.



Self-Reported Mental Health

Mental health status may impact the way patients experience primary care and their interactions with their PCP. Patients with poorer self-reported mental health status reported lower ratings of their primary care experiences (Figure 9).⁴⁰ The effects were striking; the average rating score for integration

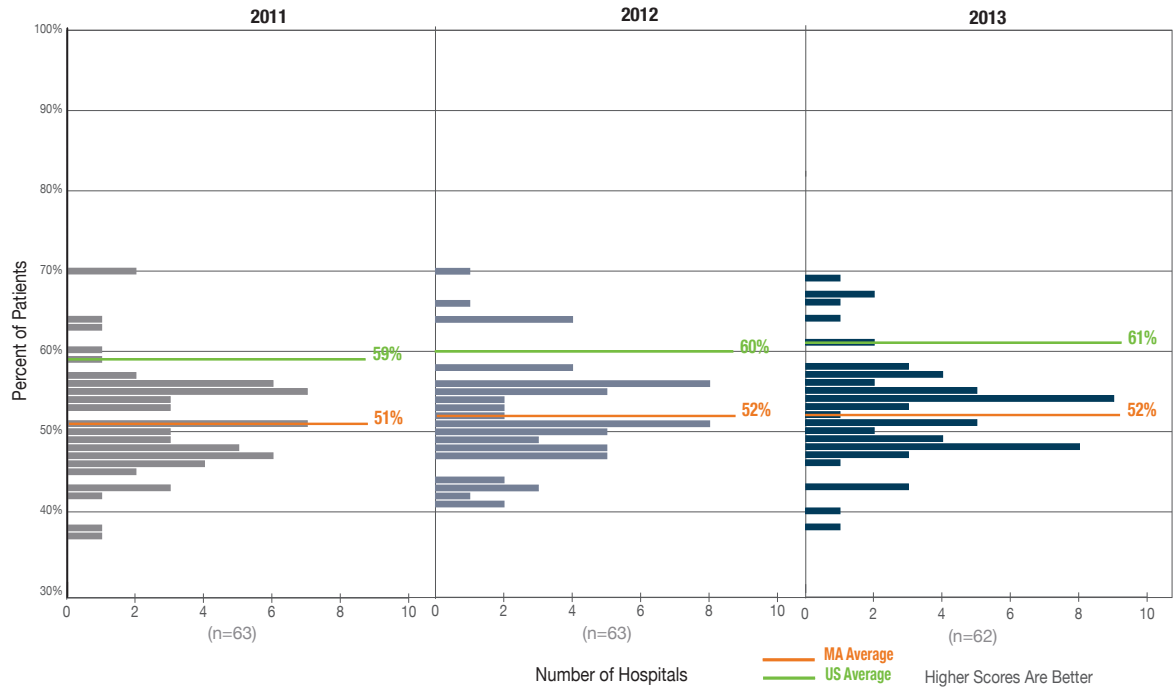
of care drops 18 points between excellent and poor self-reported mental health. Even the smallest drop, in the rating of office staff domain, was 10 points. The gap in experience scores between patients who reported excellent and poor mental health presents an opportunity for further research.⁴¹

10 Distribution of Hospital Scores: Percentage of Patients Who Reported Their Room Was “Always” Quiet, 2011-2013

The Consumer Assessment of Healthcare Providers and Systems hospital survey is a standardized tool used to assess patients’ experiences during their hospital admission. Higher scores on these measures signify better patient-reported experiences.

Source: CMS Hospital Compare
 Note: All payers, age 18+

MASSACHUSETTS PROVIDERS CONTINUED TO FALL SHORT OF NATIONAL PERFORMANCE ON HOSPITAL NOISE LEVELS, WITH ONLY 52% OF PATIENTS REPORTING THEIR ROOM WAS ALWAYS QUIET AT NIGHT.



PATIENT EXPERIENCE WITH HOSPITAL ADMISSION

As with primary care, patients’ experiences interacting with their care providers during an inpatient stay is a critical component of the overall quality of care delivered. Studies show associations between positive patient experiences and reduced hospital readmissions rates, as well as improved adherence to clinical guidelines for certain conditions.^{42, 43} Underscoring the importance of patient experience, CMS now includes patient experience measures in value-based payments to participating hospitals and plans to weight patient experience measures more heavily in hospital payment.⁴⁴

To monitor patients’ experiences in Massachusetts hospitals, CHIA analyzed data from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, which captures patient experience during a recent acute hospital admission on 11 dimensions of care, including communication

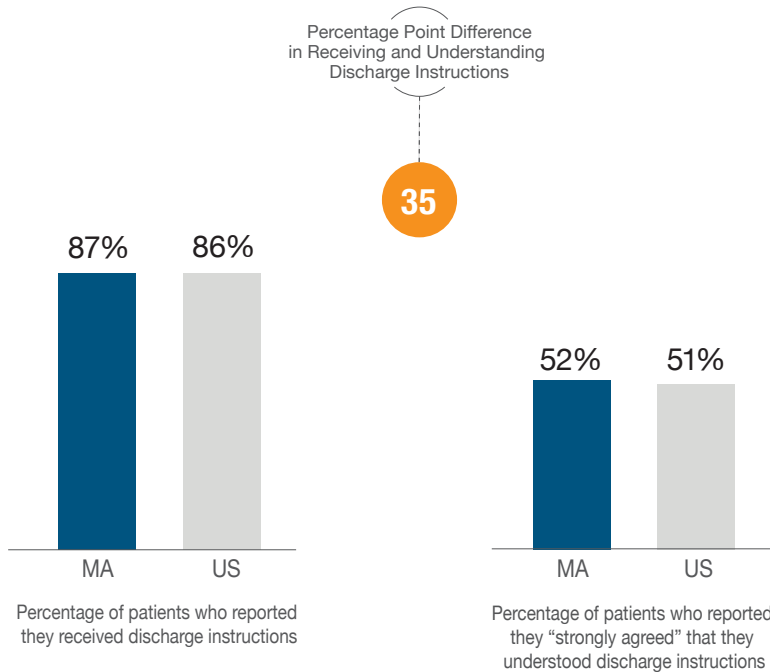
with providers, pain control, and receiving help when needed. Performance is expressed as the percentage of patients who reported that the care they received met key expectations.

Statewide Performance

Consistent with 2012 data, Massachusetts average hospital performance was close to national averages on 10 of the 11 domains of care measured by the survey. Overall, there was very little change in performance from 2012 to 2013.

Noise Levels

Massachusetts providers underperformed relative to the nation on the measure of hospital noise levels at night. Sixty-one percent of patients nationwide reported that their room was “always” quiet at night, compared to only 52% of patients in Massachusetts (Figure 10). Since 2011, few Massachusetts acute hospitals have outperformed the national average on this measure.



ALTHOUGH 87% OF MASSACHUSETTS PATIENTS REPORTED THAT THEY RECEIVED INSTRUCTIONS AT DISCHARGE, ONLY 52% OF PATIENTS "STRONGLY AGREED" THAT THEY UNDERSTOOD THEIR CARE INSTRUCTIONS.

Source: CMS Hospital Compare
Note: All payers, age 18+

Noise levels in hospitals have effects beyond immediate patient satisfaction. Increased noise levels at night may impact a patient's sleep and delay their recovery. There are associations between hospital noise levels and a wide range of adverse outcomes, from delayed wound healing to increased risk of hypertension and increased rehospitalization rates.⁴⁵ Given these impacts to both patient health and care experiences, improved performance on this measure is important.

Communication at Discharge

After being discharged from a hospital, a patient's utilization of health care services can extend into other care settings, such as their home, providers' offices, or post-acute facilities. In 2012 and 2013, 87% of patients reported that they received information about how to manage their care after their hospitalization (Figure 11). Though performance on this measure has increased slightly between 2011 and 2013 and remains above national rates, as many as 13% of patients may be discharged without receiving care instructions, indicating that there may be room for Massachusetts hospitals to improve how they help patients to transition from the hospital.

Furthermore, receiving discharge instructions does not mean that patients have a full understanding of their care or are able to act on the information effectively.

In fact, only 52% of responding patients strongly agreed that they understood their care at discharge. As ineffective self-management may compromise a patient's recovery and potentially lead to complications and unplanned readmissions, improved patient experience in this domain could potentially improve patient confidence, health outcomes, and reduce the cost of care.

Overall, there was wide variation in hospital performance on these patient experience measures. For five of nine measures, the range in performance exceeded 20 percentage points. There was more than a 30 percentage point difference between the highest and lowest performing hospitals on the measures of hospital noise levels and receiving help when needed. In some aspects of care, patients reported very different experiences across hospitals.

SUMMARY

Primary care patients continued to report relatively positive experiences with their care but there may be opportunities to address differential patient experiences, particularly in patients' access to appointments. Patients' ratings of their experiences with an inpatient admission were generally similar to the nation. Continued focus on care transitions and provider-patient communication at the time of discharge may improve patients' understanding of their care instructions.

ENDNOTES

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- ²⁶ DiMatteo, MR. (1994). Enhancing patient adherence to medical recommendations. *Journal of the American Medical Association*; 271:79–83.
- ²⁷ Doyle C, Lennox L, Bell D. (2013). A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. *BMJ Open*; 3(1):e001570.doi:10.1136/bmjopen-2012-001570
- ²⁸ MHQP's 2014 patient experience survey sample was drawn from 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 who had a primary care visit in calendar year 2013. The survey was administered in 2014 and asks patients to consider their visits in the past 12 months.
- ²⁹ 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.
- ³⁰ Adult behavioral health was not reported last year so there is no data for comparison. Differences between 2013 and 2014 statewide patient experience scores are statistically significant for all domains but provider communication and willingness to recommend.
- ³¹ MHQP calculates scores on a scale from 1 to 100. Each qualitative survey answer is converted to a number, and patient responses are then combined to create a final score.
- ³² MHQP has conducted similar patient experience surveys since 2005 and has reported small but consistent year-over-year improvements in patient experience.
- ³³ MHQP and CHIA definitions of networks of provider groups are different. The findings based on MHQP data rely on MHQP's definitions.
- ³⁴ When reporting care differences, CHIA did not adjust for patient characteristics. Multiple demographic and socioeconomic factors may interact to affect patient experience. The analyses provided here are not designed to assess the impact of a single demographic factor on patient experience, but instead to understand how different populations actually experience health care with their PCP.
- ³⁵ When comparing all other racial and ethnic groups to White patients' responses, these differences in experiences are statistically significant except for Black patients' ratings on knowledge of patient and willingness to recommend their PCP.
- ³⁶ Parents and caregivers are given the CAHPS survey to assess care given to their children ages 17 and under.
- ³⁷ 2014 National Healthcare Quality and Disparities Report. Rockville, MD: Agency for Healthcare Research and Quality; May 2015. AHRQ Pub. No 15-0007.
- ³⁸ Elliott, MN, Lehrman, WG, Beckett, MK, Goldstein, E., Hambarsoomian, K., Giordano, LA. (2012). Gender differences in patients' perceptions of inpatient care. *Health services research*, 47(4), 1482–1501.
- ³⁹ All differences were statistically significant, except the difference between fair and poor health on organizational access, the differences between good/fair and fair/poor and good/poor on rating of office staff, differences between good/fair and fair/poor on knowledge of patient.
- ⁴⁰ On integration of care, all differences in experiences for each descending level were statistically significant. For all other domains, differences for each descending level were statistically significant except for differences between fair/poor.
- ⁴¹ Raleigh, V.S. et al. Ethnic variations in the experiences of mental health service users in England. *Br. J. Psychiatry* 191, 304–312 (2007).
- ⁴² Boulding, W, Glickman, SW, Manary, MP, Schulman, KA, Staelin, R. (2011). Relationship Between Patient Satisfaction With Inpatient Care and Hospital Readmission Within 30 Days. *American Journal of Managed Care*. 17(1), 41–48.
- ⁴³ Glickman, SW, Boulding, W, Manary, MP, Staelin, R, Roe, MT, Wolosin, RJ, Ohman, EM, Peterson, ED, Schulman, K. (2010). Patient Satisfaction and Its Relationship With Clinical Quality and Inpatient Mortality in Acute Myocardial Infarction. *Circulation: Cardiovascular Quality and Outcomes*. 3:188–195.
- ⁴⁴ The Centers for Medicare and Medicaid Services. Patient Experience of Care domain, Hospital Value-based Purchasing. Available at: <https://www.medicare.gov/HospitalCompare/Data/Patient-Experience-Domain.html> (Last accessed October 29, 2015).
- ⁴⁵ Stokowski LA, Yox S. The Inhospitable Hospital: No Peace, No Quiet: How Noise Affects Patients. *Nursing Perspectives*. Available from: http://www.medscape.org/viewarticle/574813_4 (Last accessed October 29, 2015).

BACKGROUND

Patient harm is an unintended outcome of health care that can result from a lack of adherence to clinical guidelines, a breakdown of recommended processes between individuals and teams, and inappropriate care. These complications are costly to patients and their families and to the health care system. This section summarizes performance in five areas of patient safety: patient-reported experiences with medical errors, adverse events related to certain surgeries and procedures, health care-associated infections, medication errors, and pressure ulcers among nursing home residents.

Recent qualitative research by the Betsy Lehman Center (BLC), a state agency with a broad mandate to improve the safety of health care in the Commonwealth, also exposed a variety of emerging, systemic risks to patients that are particularly challenging to measure. **Inadequate communications** – among providers or between providers and patients – can compromise patient health especially during transitions from one care setting to another. The widening adoption of the **electronic health record** and other health information technology promises to bridge some communications gaps but has also created new threats to safe, high-quality patient care. **Diagnostic errors** that occur in primary care and other settings are also among the most pressing of the emerging risks to health care consumers identified by the BLC's and others' research.

SCOPE OF PATIENT SAFETY MEASUREMENT IN MASSACHUSETTS

There is considerable evidence that current measures of health care safety are limited in scope and underestimate the extent of harm to patients in Massachusetts and elsewhere. Most available measures assess only the safety of hospital care. Yet significant medical harm occurs in outpatient settings where complex care is increasingly delivered. According to the Centers for Disease Control and Prevention (CDC), more than two-thirds of all surgeries in the country now take place in freestanding and hospital-based ambulatory surgery centers.

In the hospital setting, recent studies based on patient chart reviews reveal significantly higher rates of adverse events than are detected through some safety metrics, such as the AHRQ PSIs. In addition, many states, including Massachusetts, rely on hospitals to self-report after a serious adverse event takes place. However, a 2012 study by the US Department of Health and Human Services Office of the Inspector General (OIG) demonstrated the inadequacies of hospitals' internal incident reporting systems when it comes to identifying and cataloging adverse events and medical errors. The OIG found that hospital staff do not recognize the majority of adverse events that take place within their own institutions.⁴⁷

KEY FINDINGS

In a survey of medical consumers in Massachusetts, nearly one in four adults reported a preventable medical error in their care or in the care of someone close to them in the previous five years.

Overall performance on Patient Safety Indicators (PSI) was mixed. For all non-obstetric indicators,⁴⁶ complications occurred in fewer than 7 in 1,000 hospitalizations statewide. However, the rate of post-operative respiratory complications varied by 30 cases per 1,000 hospitalizations across facilities.

In 2013, some Massachusetts hospitals under-performed on measures of health care-associated infections, notably catheter-associated urinary tract and colon surgery site infections.

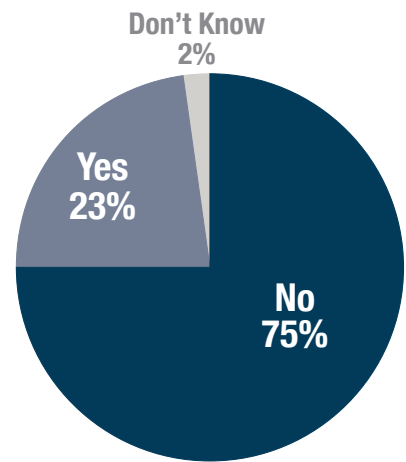
By 2014-2015, many hospitals had implemented a physician order entry system that can catch medication errors. Four of the 54 reporting hospitals have not implemented this technology.

12 Percentage of Massachusetts Survey Respondents Who Experienced a Preventable Medical Error

Patient harm is an unintended outcome of health care that can result from a lack of adherence to clinical guidelines, a breakdown of recommended processes between individuals and teams, and/or inappropriate care. Medical errors are costly to patients, their families, and to the health care system.

NEARLY 1 IN 4 ADULT SURVEY RESPONDENTS EXPERIENCED A MEDICAL ERROR WHEN RECEIVING CARE FOR THEMSELVES OR SOMEONE CLOSE TO THEM.

Source: Harvard School of Public Health/Betsy Lehman Center for Patient Safety and Medical Error Reduction/Health Policy Commission. *The Public's Views on Medical Error in Massachusetts*. September 2-28, 2014.



To assess health care safety from the patient perspective, the Betsy Lehman Center for Patient Safety and Medical Error Reduction⁴⁸ and the HPC sponsored a large survey of Massachusetts adults in 2014. Nearly one in four respondents recalled a preventable medical error in their care or in the care of someone close to them in the prior five years (Figure 12). Among those experiencing an error, 59% described the resulting health consequences as serious.⁴⁹ These findings align with national estimates of adverse events identified using automated chart reviews; between 18% and 33%⁵⁰ of patients in US hospitals experience adverse events, some of which result in death, temporary or permanent disability, or prolonged hospital stays that may not be reflected in published patient safety measures.

PATIENT SAFETY INDICATORS

AHRQ developed a set of PSIs to measure the frequency of procedural and post-surgical complications in an acute care hospital. CHIA uses the subset of PSIs that are in the SQMS to analyze patient safety trends in Massachusetts. A higher rate on a PSI means that complications occurred more frequently. CHIA calculated risk-adjusted performance on PSIs using hospital discharge data for patients age 18 years and older.

Of the 10 PSIs CHIA calculated and analyzed, Massachusetts providers performed especially well on the measure of post-operative hip fractures. For this measure, there was very little variation across hospitals in 2014 and the statewide rate was zero per 1,000 eligible

hospitalizations. There was the greatest variation across hospitals in the rates of post-operative respiratory failure, with the best-performing hospital having zero occurrences per 1,000 hospitalizations and poorest-scoring hospital having 30 cases per 1,000 hospitalizations. Statewide, less than one in 1,000 hospitalizations had at least one advanced pressure ulcer, with the highest rate at 2 per 1,000⁵¹ and the lowest rate at zero per 1,000 hospitalizations. Forty-one hospitals in the Commonwealth had a rate of zero per 1,000 hospitalizations.

Overall, the performance of Massachusetts hospitals on PSIs was mixed; rates of post-operative hip fractures and pressure ulcers were relatively low, but performance varied on other measures, such as the obstetric care indicators and post-operative respiratory failure, suggesting that care may be delivered inconsistently between facilities.

The accompanying databook provides four years of hospital-specific rates on 11 PSIs, including three obstetric safety measures: the rates of injury to neonates (PSI 17), injury during instrument-assisted vaginal delivery (PSI 18), and injury during vaginal delivery without instrument (PSI 19). Massachusetts hospital performance on these three measures varied widely. Unlike other PSIs, these measures were not risk-adjusted.

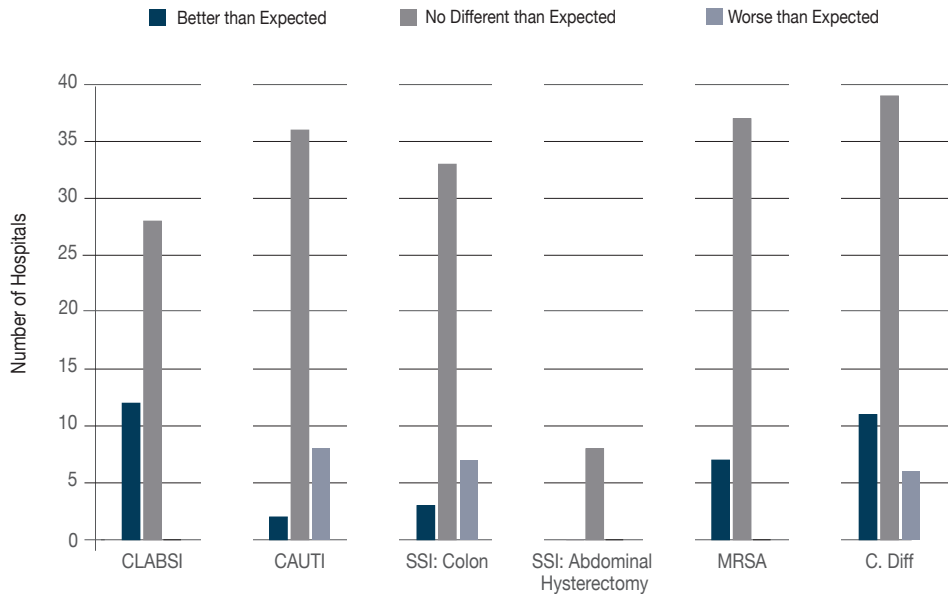
13 Hospital Performance on Health Care-Associated Infections, 2014

Health care-associated infections are infections patients acquire while they are receiving care for an unrelated condition. These infections harm patients, are associated with significant health care costs, and are among the leading causes of preventable deaths nationally.

MOST HOSPITALS PERFORMED AS EXPECTED ON HEALTH CARE-ASSOCIATED INFECTIONS. EIGHT HOSPITALS UNDERPERFORMED ON CAUTI AND SEVEN UNDERPERFORMED ON COLON SURGERY SITE INFECTIONS.

Source: CMS Home Health Compare

Note: All payers, age 18+



HEALTH CARE-ASSOCIATED INFECTIONS

Health care-associated infections (HAIs) are infections patients acquire while admitted to a hospital for an unrelated condition. In US hospitals, HAIs account for an estimated two million infections and 90,000 deaths. In addition, HAIs are a significant cost driver and are estimated nationally to account for \$4.5-\$5.7 billion in excess health care costs annually.⁵² The incidence of HAIs nationwide and by state has been tracked by the CDC since 2008, in an effort to eliminate these largely preventable infections.⁵³

HAIs are reported as a Standardized Infection Ratio, which compares the actual rate of infections at a given hospital to the hospital’s expected rate, which is based on hospital characteristics and patient population.⁵⁴

Most Massachusetts hospitals performed as predicted on HAIs in 2014 (Figure 13). For central line associated bloodstream infections (CLABSI), abdominal hysterectomy site infections, and MRSA, Massachusetts hospitals have uniformly similar to or better than expected incidences. Despite high statewide performance (98%) on the process of care measure for urinary catheter removal,⁵⁵ eight Massachusetts hospitals had worse incidences of CAUTI relative to what was expected.⁵⁶ Similarly, seven hospitals underperformed on colon surgical site and six underperformed on *C. difficile* infections.⁵⁷

In 2013, the Massachusetts Hospital Association (MHA) established a target of reducing CLABSI, CAUTI, and SSIs by 40% before 2015.⁵⁸ Data compiled by MHA show that Massachusetts hospitals have not yet met this quality improvement goal. As of October 2015, the incidences of these HAIs were down 13.5%.

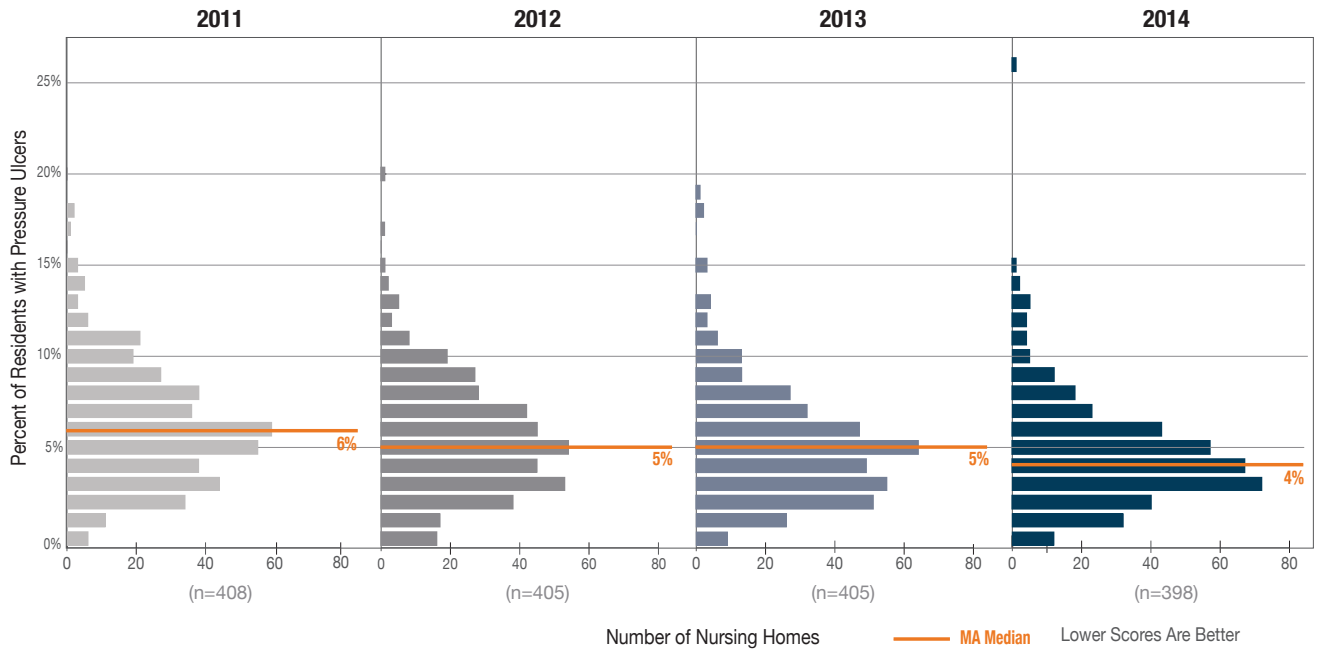
14 Distribution of Nursing Home Scores: Percentage of High-Risk Long-Stay Residents with Pressure Ulcers, 2011-2014

A high-risk resident is one who has impaired mobility, is comatose, or who suffers from malnutrition. A long stay is defined by CMS as a stay of 101 days or longer in a skilled nursing facility.

Source: CMS Nursing Home Compare

Notes: All payers, age 18+

FOUR PERCENT HIGH-RISK, LONG-STAY NURSING HOME RESIDENTS IN MASSACHUSETTS HAD AT LEAST ONE ADVANCED PRESSURE ULCER IN 2014. ACROSS FACILITIES, THE PERCENTAGE OF THESE RESIDENTS WITH PRESSURE ULCERS RANGED FROM 0% TO 15%.



MEDICATION ERRORS

Another specific type of harm that patients can experience is medication errors. Computerized Physician Order Entry (CPOE) is one of several Meaningful Use measures designed to encourage the adoption of Electronic Health Records (EHRs).⁵⁹ This measure captures providers' implementation of systems for electronic medication and clinical orders. It assesses both the frequency with which EHRs are used to enter medication orders – that is, how established is this system in the workflow – and the ability of the EHR to catch errors such as incorrect dosage, medication interactions, and choosing an inappropriate medication for the patient's condition.⁶⁰

In order to fully meet Leapfrog's CPOE standard, 75% of orders must be entered electronically into a system that can identify at least 50% of common

prescribing errors. Many hospitals reached this goal, with 36 of 54 reporting hospitals fully meeting the standard in 2014-2015. An additional four hospitals entered 75% of medication orders via CPOE but did not test the system's effectiveness in catching errors. There are a few hospitals that have not made strides in implementing CPOE; four reporting hospitals have not implemented CPOE at all.

POST-ACUTE CARE SAFETY

Post-acute care settings form an important part of the care continuum for many patients. In 2014, the HPC reported that Massachusetts has a 46% higher nursing facility residency rate than the US average.⁶¹ Given the relatively high use of post-acute care and an increasingly aging Massachusetts population, monitoring provider quality performance can provide essential information about the care provided in these settings.

The percentage of high-risk long-stay patients with pressure ulcers in Massachusetts nursing homes ranged from 0% to 15%⁶² in 2014 (Figure 14). This range was narrower than in previous years and the median has improved. Further improvements are needed in some facilities; half of nursing homes had more than 4% long-stay residents with pressure ulcers.

Short-stay residents also continue to have fewer new or worsening pressure ulcers. The median percentage remained 1% in 2014 and the percentages ranged from 0% to 8% across facilities, a narrower range than in previous years.

SUMMARY

Based on the data analyzed here, Massachusetts providers' patient safety performance was mixed. One in four health consumers reported being affected by a medical error, and there was wide variation on some indicators of surgery and procedure-related complications and in the rates of pressure ulcers among nursing home residents. On some measures of health care-associated infections, however, Massachusetts hospitals generally perform as expected and it appears that many hospitals are using medication error-catching order entry systems. CHIA will continue to monitor performance on these measures and follow the development of outpatient care safety measures in order to provide a more comprehensive perspective on patient safety in the Massachusetts health care system.

ENDNOTES

⁴⁶ The obstetric-related PSIs (PSI 17, 18, and 19) are reported in the accompanying databook.

⁴⁷ Department of Health and Human Services, Office of Inspector General. Hospital Incident Reporting Systems Do Not Capture Most Patient Harm, January 2012. OEI-06-09-00091

⁴⁸ More information about the Betsy Lehman Center can be found here: <http://www.mass.gov/betsylehman>.

⁴⁹ Blendon, R. The Public's Views on Medical Error in Massachusetts, Harvard School of Public Health. 2014. Available at: <http://www.chiamass.gov/assets/Uploads/blc-research/blc-hsph-research-report.pdf> (Last accessed October 29, 2015).

⁵⁰ Classen DC, Resar R, Griffin F, et al. 'Global Trigger Tool' shows that adverse events in hospitals may be ten times greater than previously measured. *Health Affairs*, 2011;30:581-589.

⁵¹ The highest rate of complications on this measure was 7 per 1,000 eligible patients. This rate was excluded from this analysis because the rate was based on 1 case at the hospital.

⁵² The Centers for Disease Control and Prevention. Guidance on Public Reporting of Healthcare-Associated Infections: Recommendations of the Healthcare Infection Control Practices Advisory Committee. Available at: <http://www.cdc.gov/hicpac/pubReportGuide/publicReportingHAI.html> (Last accessed October 29, 2015).

⁵³ To track hospitals' progress in preventing HAIs, the CDC developed the Standardized Infection Ratio (SIR), which compares the actual number of infections in a hospital to the expected number (lower SIRs indicate better success at preventing HAIs). The expected number is calculated from a national baseline and risk-adjusted for each hospital to account for differences in patient demographics and hospital characteristics, such as the presence of an Intensive Care Unit.

⁵⁴ Beyond the minimum CDC requirements, Massachusetts has opted to perform validation on the reported HAI rates to improve the accuracy of these numbers and further assist with prevention efforts. Hospitals and states with more advanced data reporting and validation capabilities may capture more infections and adverse events and appear to have higher rates.

⁵⁵ Urinary catheter removed on postoperative day 1 (POD 1) or postoperative day 2 (POD 2) with day of surgery being day zero. The accompanying databook includes three years of data on this measure.

⁵⁶ Centers for Disease Control and Prevention. National and State Healthcare-Associated Infections Progress Report. January 2015. Available at: <http://www.cdc.gov/HAI/pdfs/progress-report/hai-progress-report.pdf> (Last accessed October 29, 2015).

⁵⁷ The Massachusetts Department of Public Health (MDPH) also tracks data on health care-associated infections. Due to measure differences, performance data may vary from those reported by MDPH.

⁵⁸ Massachusetts Hospital Association. Statewide Aggregate Performance Measures. Available at: <http://www.patientcarelink.org/Healthcare-Provider-Data/Hospital-Data/Statewide-Aggregate-Performance-Measures.aspx> (Last accessed October 29, 2015).

⁵⁹ The Centers for Medicare and Medicaid Services. EHR Incentive Programs. Available at: <https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/index.html?redirect=ehrincentiveprograms> (Last accessed October 29, 2015).

⁶⁰ Cullen DJ; Small SD; Vander Vliet M; et al. (1995). Incidence of adverse drug events and potential adverse drug events: implications for prevention. *Journal of the American Medical Association*. 274: 29-34

⁶¹ Health Policy Commission. 2013 Cost Trends Report. July 2014 Supplement. Boston (MA). Available at: <http://www.mass.gov/anf/docs/hpc/07012014-cost-trends-report.pdf> (Last accessed October 29, 2015).

⁶² One outlying facility reported 26% of high-risk long-term patients with at least one stage II-IV pressure ulcer. 398 Massachusetts nursing facilities are included in this analysis.

CARE COORDINATION

KEY FINDINGS

There was substantial variation across hospitals on the three behavioral health care coordination measures analyzed for this report.

Hospital performance ranged from 0% to 100% on creating a post-discharge care plan for psychiatric patients and transmitting it to the next care provider.

Massachusetts statewide performance was below national rates on all three measures, but with such wide ranges in performance, these average rates are not indicative of any one hospital's performance.

BACKGROUND

Care coordination is an emerging area of health care quality measurement. Greater coordination may simplify communication across providers, teams and facilities, promote more timely and efficient care delivery, and prevent complications and adverse events. When care is well-coordinated, patients experience smoother processes and interactions with their providers, fewer repetitive appointments and procedures, and potentially less confusion and frustration in accessing the health care system.

Quality measurement in this area of care is relatively new and there are few well-tested measures. The National Quality Forum in recent years has convened a committee to make recommendations for measures to assess the effectiveness of care coordination, so additional measures may be available in the future. The SQMS includes several measures that assess care coordination, including three measures related to the coordination of behavioral health care.

BEHAVIORAL HEALTH COORDINATION

The quality of behavioral health care has become an increasing focus in the Commonwealth. In 2014 a Behavioral Health Task Force was convened to identify structural or policy-based impediments to behavioral and mental health treatment. In its final report, the Task Force identified the difficulty of measuring access, quality outcomes, and the efficiency of behavioral health care in Massachusetts. The Task Force made multiple recommendations to several state agencies, including to CHIA. Following the Task Force recommendations, CHIA will publish a behavioral health quality measures reporting plan in early 2016.

Other SQMS measures that can be used to assess care coordination include:

- Follow-up care for children prescribed ADHD medication
- Follow-up after hospitalization for mental illness

- Timely transmission of transition record
- Proportion admitted to hospice for less than 3 days (lower is better)
- Advance Care Plan

The calculation of these measures requires data that CHIA does not currently collect or otherwise acquire.

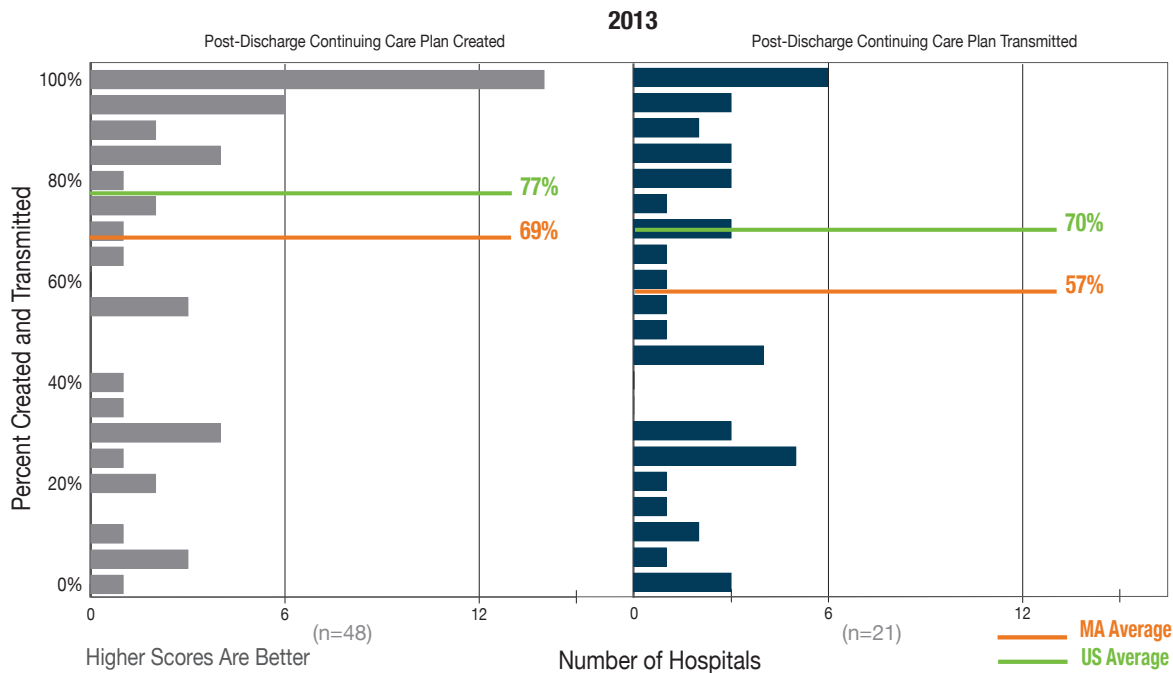
ON AVERAGE, A CONTINUING CARE PLAN WAS CREATED FOR 69% OF PSYCHIATRIC DISCHARGES IN MASSACHUSETTS. THE CARE PLAN WAS TRANSMITTED FOR 57% OF DISCHARGES.

15 Distribution of Hospital Scores: Percentage of Post-Discharge Care Plans Created and Transmitted for Psychiatric Patients, 2013

Patients may not be able to report the details of their hospitalization and treatment plan to their next care provider. These measures assess how often continuing care plans were created, if they contained the information necessary for the next care provider to understand the patient's recent hospitalization, and whether the care plan was sent to the next level of care.

Source: CMS Home Health Compare

Note: All payers, all ages



The Hospital-Based Inpatient Psychiatric Services (HBIPS) core measure initiative is a national effort to evaluate and improve behavioral health care. CMS recently began publicly reporting hospital performance on three measures in the HBIPS set that are in the SQMS. These measures evaluate care delivered by both for free-standing psychiatric hospitals and psychiatric units within acute care hospitals.⁶³ Two of these measures are designed to capture whether a care plan for after a patient's inpatient stay was created before his or her discharge, and whether that care plan was transmitted to the appropriate post-acute provider.

Performance variation on these measures was extremely wide (Figure 15). On both measures, performance ranged across the entire spectrum, with some hospitals reporting a plan was created and transmitted for all patients while some hospitals did so

for none. Massachusetts statewide performance was below national rates on both measures, but with such wide ranges in performance, these average rates may not be indicative of any one hospital's performance.

A third HBIPS measure captures the frequency with which patients are discharged on multiple antipsychotic medications. Massachusetts hospital performance on this measure ranged from 0% to 48% of patients. Thirty-five of the 45 reporting hospitals exceeded the national average of 9%. Stakeholders have called for efforts to begin the use of a second antipsychotic only after multiple trials of a single medication have proven inadequate.⁶⁴ Based on the high degree of variation on this measure, some providers may be following this guideline more closely than others.

SUMMARY

Care coordination is an essential strategy for improving health care quality and reducing cost to the system. It can reduce redundant care, improve patients' experience accessing and receiving health services, and prevent unnecessary utilization of health services like hospital admissions and emergency department visits. There is great interest in the field to continue to develop valid measures of care coordination. These measures, as well as measures that assess other reform-oriented concepts like primary care and behavioral health care integration and patient engagement, can enhance our understanding of the effectiveness of delivery system and payment reforms in Massachusetts.

ENDNOTES

⁶³ These data include patients at both acute and psychiatric hospitals. For patients discharged on multiple antipsychotic medications, 51 hospitals are included in this analysis; 21 hospitals are included in the analysis of post-discharge continuing care plan created and post-discharge continuing care plan transmitted.

⁶⁴ The Joint Commission. Hospital Based Inpatient Psychiatric Services (HBIPS) Measure Information Form. Specifications Manual for Joint Commission National Quality Measures (v2013A1), 2012. Available from: <https://manual.jointcommission.org/releases/TJC2013A/MIFO119.html> (Last accessed October 29,2015).

Conclusion

The findings of this report suggest that Massachusetts health care providers have an opportunity to decrease unnecessary care and the associated costs and risks. There is wide variation across hospitals in the use of cesarean sections and episiotomies and Massachusetts far exceeds the recommended rate for both procedures. Potentially avoidable admissions have recently improved for some conditions, but have declined on others, while the overall hospital readmission rate has only slightly improved over three years. Patient safety, as measured here, was inconsistent, with some hospitals having higher than expected infection rates and more risk-adjusted complications. Patient experiences with care appear to vary systematically by patient characteristics and health status. While factors influencing quality performance are complex, the results offer care providers and their institutions additional context as they work with their patients to achieve better outcomes.



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