CENTER FOR HEALTH INFORMATION AND ANALYSIS

PERFORMANCE OF THE MASSACHUSETTS HEALTH CARE SYSTEM

A FOCUS ON PROVIDER QUALITY

NOVEMBER 2016

CHIA.

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Executive Summary

In support of its mission to provide objective data and analysis on the performance of the health care system, the Center for Health Information and Analysis (CHIA) monitors and reports on health care provider quality using the Commonwealth's Standard Quality Measure Set (SQMS). This third annual report and the accompanying databook represent CHIA's broadest analysis to date of the quality of care delivered across the health care continuum; the report summarizes the performance of Massachusetts acute care hospitals, primary care providers, and post-acute care providers on measures of patient safety, effectiveness, efficiency, and patient-centeredness. These areas align with the National Academy of Medicine's long-established aims for a high-quality health care system.[1]

Overall, the performance of Massachusetts providers on selected quality measures was often consistent with or better than national benchmarks. There remain, however, areas for continued analysis and quality improvement efforts. More hospitals than in previous years had worse-than-predicted rates of health care-associated infections. Statewide rates of surgical complications were consistent with previous years for the majority of patient safety indicators (PSIs) analyzed, but improved slightly for accidental puncture or laceration and the patient safety composite measure (PSI 90).

Many Massachusetts hospitals have made progress in reducing potentially unnecessary cesarean sections and episiotomies, though some have yet to meet national performance targets. Twenty-three of 36 reporting hospitals reported no early elective deliveries for non-medical reasons, and seven hospitals met performance targets on all three of the maternity care measures analyzed.

The rates of potentially preventable hospitalizations for certain chronic conditions exceeded comparable national rates on three of four measures analyzed. Rates of potentially preventable hospitalizations varied by county; residents of Hampden County had higher rates than residents of any other Massachusetts county.

Massachusetts primary care providers consistently exceeded the national 90th percentile on measures of preventive care, including recommended screenings for colorectal cancer and breast cancer. However, performance on measures of patient adherence to antidepressants and follow-up for children prescribed ADHD medication were low both in Massachusetts and nationwide.

Finally, there was meaningful variation among providers in patient-reported experiences in acute care hospitals and primary care offices. Patients in both settings gave the highest ratings on measures of communication with doctors, but other measures—quietness and communication about medicines in hospitals, and self-management support in primary care offices—received lower ratings.

While this report explores many important aspects of care, the data and measures included do not comprehensively evaluate the quality of health care in Massachusetts. As data collection improves and quality measures are developed, CHIA will continue to evaluate the strengths of and opportunities for improvement in the Massachusetts health care system.

CHIA calculates performance on patient safety indicators and prevention quality indicators using the Hospital Discharge Database. CHIA acquires data for all other SQMS measures included in this report from datasets created by other organizations that collect data directly from health care payers or providers, such as the Centers for Medicare and Medicaid Services (CMS), Massachusetts Health Quality Partners, and The Leapfrog Group.

All available performance data on SQMS measures are included in the databook and organized by medical group or hospital.

Safe Care

While the benefits of seeking care and treatment for health problems are clear, interactions with the health care system carry some risks. On any given day, about one in 25 hospital patients has at least one infection associated with their care.[2] Government agencies, accreditation bodies, and health care provider-led consortiums urge all health care workers to minimize serious risks to their patients' health—such as infections, complications from surgery, medication errors, and unnecessary procedures—by following the latest clinical guidelines and adhering closely to safety protocols.

Overall, most Massachusetts hospitals perform similarly to hospital performance nationally on measures of infections and surgical complications, but more complete reporting of harms associated with care is needed.

Key findings:

- Six of 43 reporting Massachusetts acute care hospitals had worse-than-predicted rates of surgical site infections from colon surgery; one hospital had a better-than-predicted rate. For each of the other infection measures, four or fewer hospitals had worse-than-predicted infection rates.
- Statewide rates of surgical complications were consistent from 2013 to 2015. Massachusetts's hospital performance on PSI 90, a patient safety composite measure that examines the incidence of 11 safety-related events, was slightly better than the nation's in 2015 (0.7 vs 0.9, respectively).
- Forty of 51 reporting Massachusetts hospitals had fully implemented systems for doctors to enter medication orders electronically. However, only six hospitals fully implemented bar code checks during medication administration that have been shown to significantly reduce medication errors.[3]
- Disclosure of serious reportable events (SREs) to the state by hospitals and ambulatory surgical centers continued to be inconsistent, with only 10 acute care hospitals having reported close to 60% of the 1,494 events disclosed in 2015.

SAFE CARE

Incidence of Health Care-Associated Infections, Relative to Hospital-Specific Predictions, by Hospital System

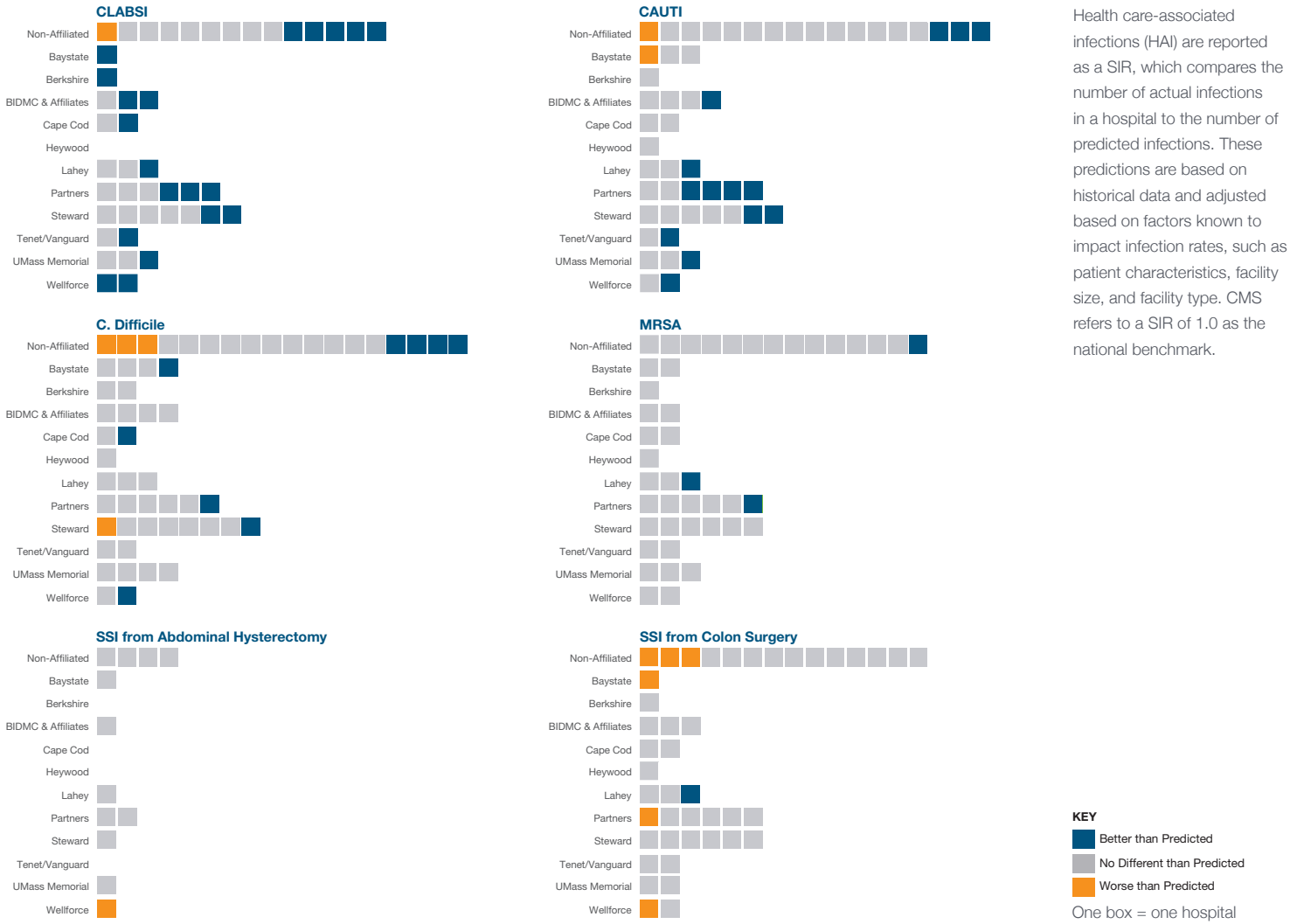
2015

Massachusetts acute care hospitals most frequently performed better than predicted on measures of central line-associated blood stream infections (CLABSI) (20 of 44 reporting hospitals) and catheter-associated urinary tract infections (CAUTI) (14 of 51). In 2015, Mercy Medical Center had a worse-than-predicted rate of CLABSI; Baystate Medical Center and Mercy Medical Center had a worse-than-predicted rate of CAUTI.

Six hospitals had worse-than-predicted rates of surgical site infections (SSI) from colon surgery. Four hospitals had worse than predicted *Clostridium difficile* infection rates.

Of the 12 reporting Massachusetts hospitals, none had better than predicted standardized infection ratios (SIRs) for surgical site infections from abdominal hysterectomy.

In 2015, methicillin-resistant *Staphylococcus aureus* (MRSA) was present in all Massachusetts hospitals at rates that were either no different or better than predicted.



Health care-associated infections (HAI) are reported as a SIR, which compares the number of actual infections in a hospital to the number of predicted infections. These predictions are based on historical data and adjusted based on factors known to impact infection rates, such as patient characteristics, facility size, and facility type. CMS refers to a SIR of 1.0 as the national benchmark.

Note: All Payers, All Ages. Overall, in 2015 more hospitals performed worse than predicted on more measures of HAIs than in 2014. See databook. See technical appendix for full names of hospital systems and their affiliated hospitals.

Data Source: CMS Hospital Compare.

SAFE CARE

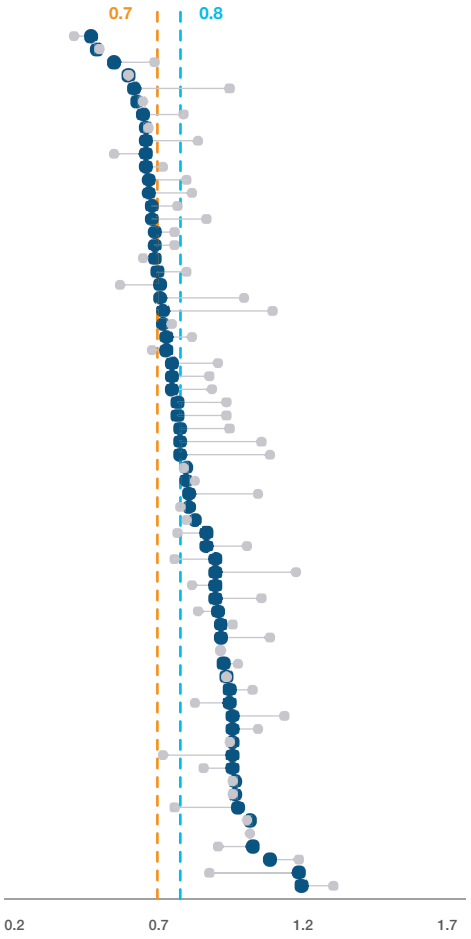
Incidence of Surgical Complications, by Hospital

2014 – 2015

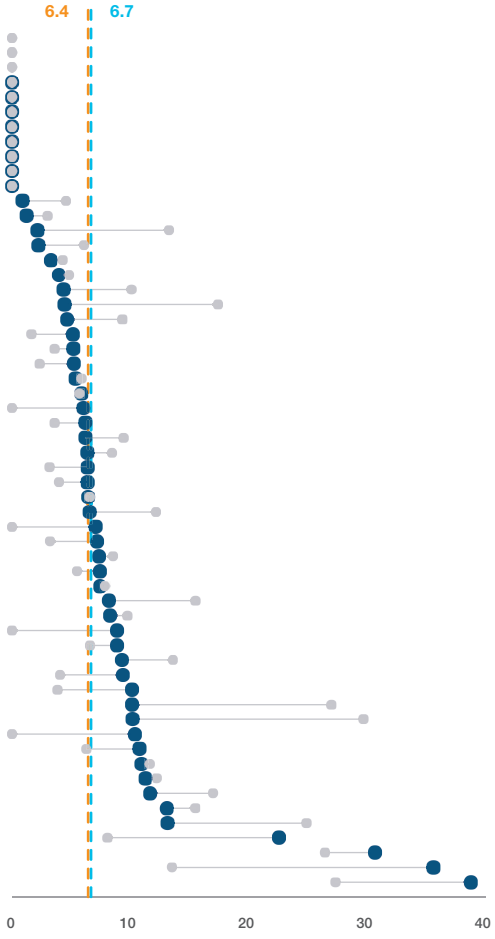
Patient safety indicators (PSIs)[4] measure certain known safety risks for hospitalized patients, primarily complications from surgery. Performance on PSI 90 is a weighted average of the observed-to-expected ratios for 11 risk-adjusted PSIs. A lower score indicates fewer adverse events relative to expectations. Statewide performance was better than the nation's in 2015 (0.7 and 0.9, respectively), an improvement from 2014 in which Massachusetts hospitals matched the national score (0.8).

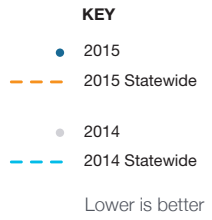
Statewide performance on six of the eight non-obstetric PSIs analyzed was consistent between 2013 and 2015, with only PSI 90 and the measure of accidental puncture or laceration rate improving over this time. The statewide rate of post-operative respiratory failure (PSI 11) is representative of this stability, and was 6.7 per 1,000 discharges in 2014 and decreased to 6.4 per 1,000 discharges in 2015. Individual hospital scores varied from year to year.

Patient Safety Composite (PSI 90)



Post-Operative Respiratory Failure (PSI 11)





Note: All Payers, Ages Vary By Measure. The databook includes hospital scores for all PSIs analyzed for 2013-2015.
Data Source: CHIA Hospital Discharge Database.

SAFE CARE

Number of Hospitals Implementing Electronic Systems to Prevent Medication Errors

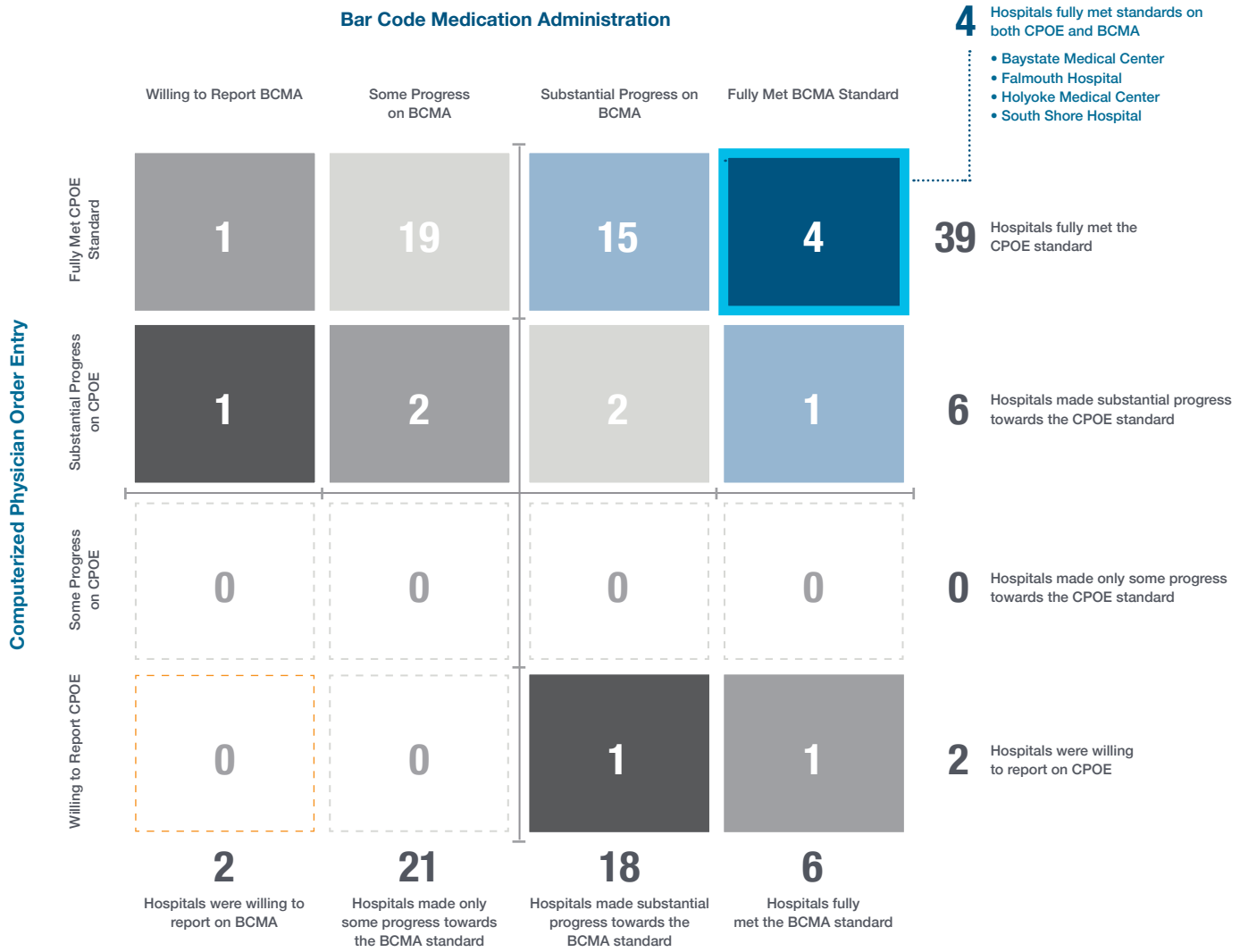
2016

Medication errors are a common source of harm for patients in hospitals. The Leapfrog Group (Leapfrog) set two standards to try to mitigate these problems: more consistent use of both computerized physician order entry (CPOE) and bar code medication administration (BCMA).[5]

To meet Leapfrog's standards for CPOE, at least 75% of medication orders must be entered electronically into a system that catches at least 50% of common prescribing errors such as drug interactions, allergies, and incorrect dosage prescriptions.

BCMA involves matching a patient-specific barcode and the medication's barcode prior to administering a drug. Leapfrog's standard calls for BCMA systems in 100% of medical, surgical, and intensive care units, with 95% of bedside medication administrations using a BCMA system that includes clinical decision support. Also, hospitals must have protocols to prevent staff from bypassing the system.

In 2016, 47 hospitals reported their progress implementing both CPOE and BCMA. Four hospitals fully met Leapfrog standards for both CPOE and BCMA.



Note: All Payers, All Ages. Four hospitals, not pictured, reported on CPOE but not BCMA.

Data Source: The Leapfrog Group Hospital Survey.

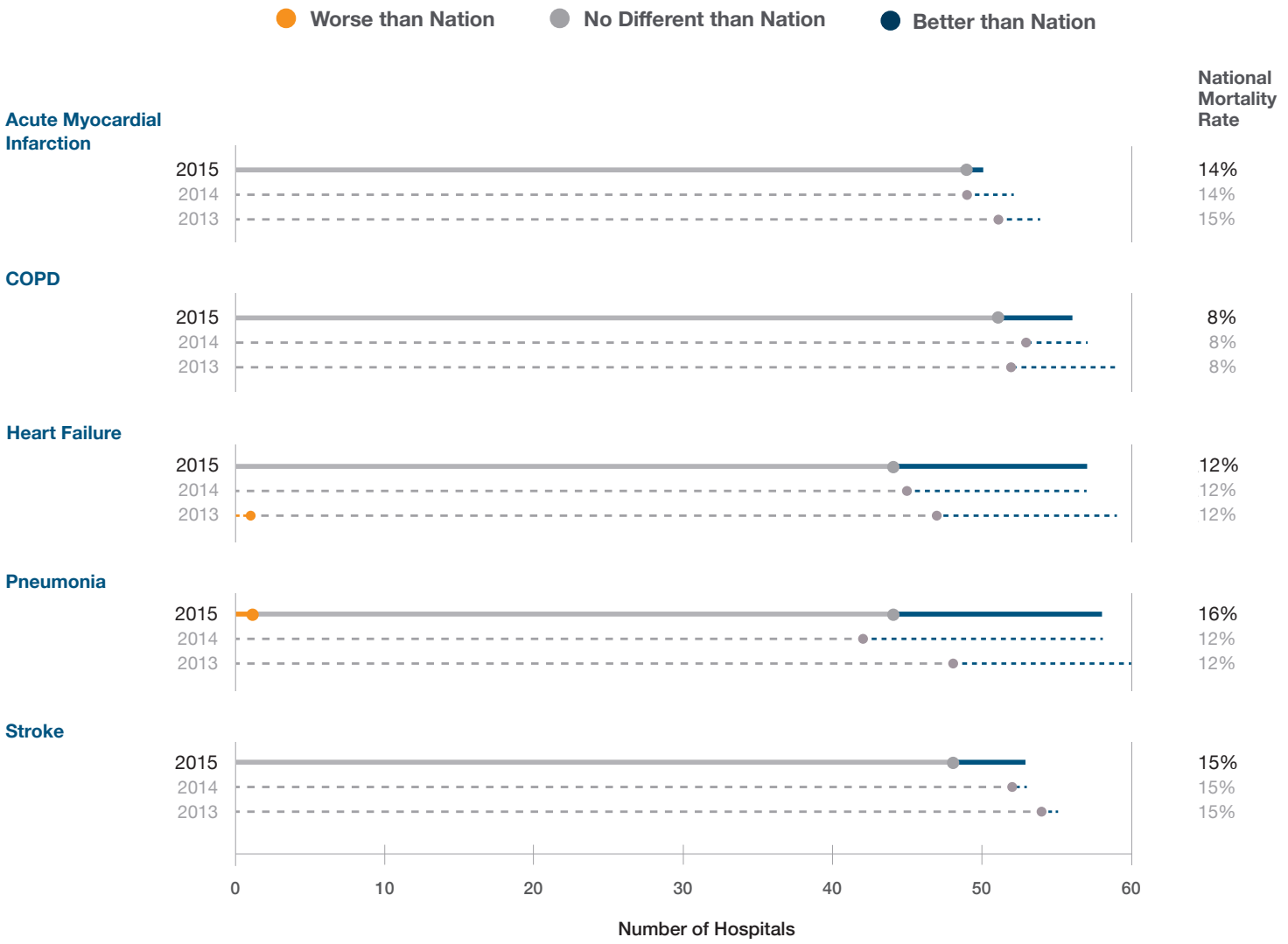
SAFE CARE

Most Massachusetts hospitals performed similarly to or better than the nation on the five analyzed measures of 30-day post-admissions mortality. Nationwide in 2015, between 8% and 16% of patients treated for these conditions died within 30 days of admission.

The national mortality rate for pneumonia increased from 12% in 2013 to 16% in 2015. In Massachusetts, this was the measure on which the greatest number of hospitals performed better than the nation in 2015. However, pneumonia was also the only mortality measure analyzed in which a Massachusetts hospital performed worse than the nation in 2015.

30-day Hospital Mortality Rates among Patients with Certain Conditions, Compared to the Nation

2013 – 2015



Note: Medicare FFS, Age 65+. Thirty-day post-admission mortality rates are calculated based on three years of data (e.g., the 2013 mortality rate reflects mortality from 2011 through 2013).

Data Source: CMS Hospital Compare.

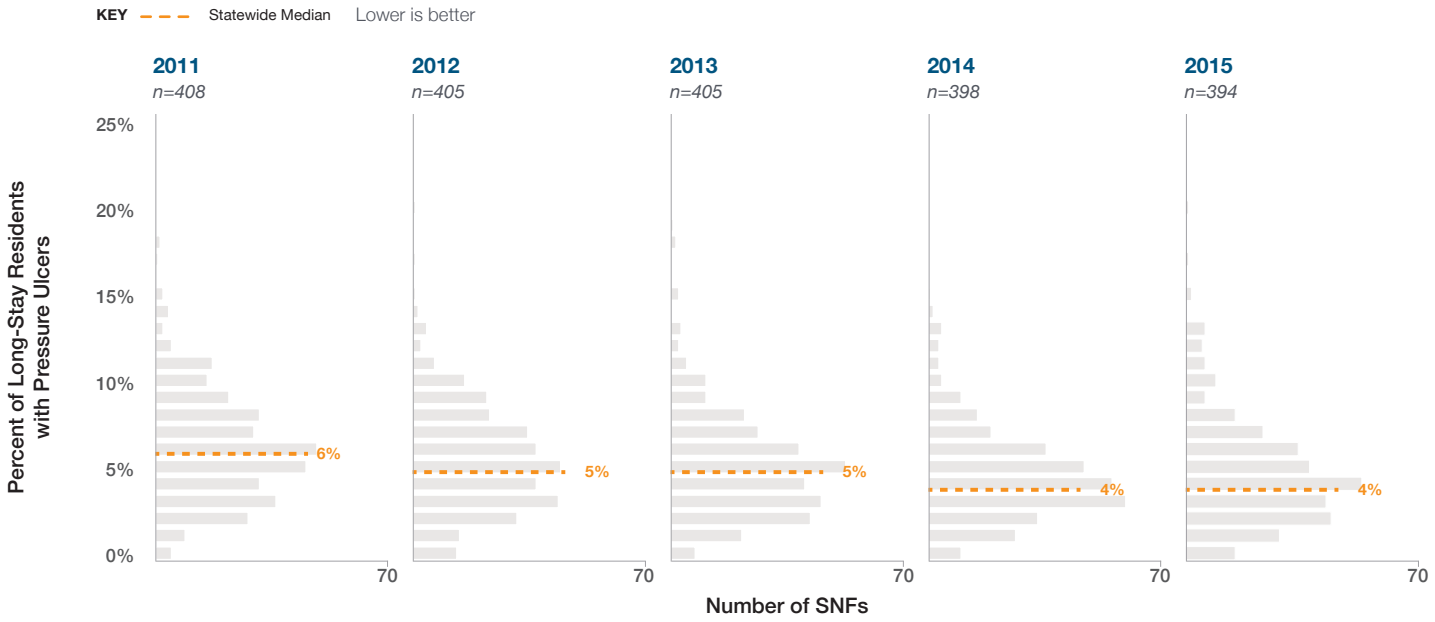
SAFE CARE

Distribution of Nursing Home Scores: Percent of Long-Stay Residents with Pressure Ulcers

2011 – 2015

The development of pressure ulcers has been associated with the overall quality of health care patients receive.[6] Long-term care residents at highest risk for pressure ulcers are those with impaired mobility and poor nutrition. The median rate of high-risk long-stay (101 days or greater) residents in Massachusetts skilled nursing facilities (SNFs) with pressure ulcers has decreased over five years from 6% to 4%.

Pressure ulcer rates among short-stay (100 days or fewer) patients in SNFs are lower, and have remained consistent at 1% since 2012. An additional indicator of health care quality—pain management—also highlights differences between the experiences of short- and long-stay SNF residents. The median rate of short-stay residents who reported moderate to severe pain has improved slightly. The median rate of long-stay patients who reported moderate to severe pain increased from 4% to 5% between 2014 and 2015.



There were seven skilled nursing facilities out of about 400 in Massachusetts that are consistently in the lowest-performing quartile in all years. However, in any given year, none of these had the highest rate of pressure ulcers in the state.

Name	2011	2012	2013	2014	2015
Boston Home, Inc. (The)*	10%	9%	13%	12%	11%
Don Orione Nursing Home	8%	12%	12%	14%	8%
German Center for Extended Care	12%	10%	7%	6%	7%
Heritage Hall South	15%	8%	11%	14%	8%
Kindred Transitional Care & Rehab-Country Estates	9%	9%	8%	8%	6%
Leonard Florence Center for Living*	13%	14%	8%	7%	6%
Pine Knoll Nursing Center	12%	9%	10%	6%	12%

Note: All Payer, All Ages. Scores are not risk adjusted, however, this measure includes only Stage 2-4 and unstageable pressure ulcers among long-stay patients who are comatose, impaired in bed mobility or transfer, or suffer from malnutrition. These patients are at high risk of developing pressure ulcers. (*) Starred facilities serve residents with particularly complex needs. Information on the case mix of these seven SNFs is available in the technical appendix.

Data Source: CMS Nursing Home Compare.

Provider Reporting of Adverse Events in Massachusetts and the Nation

The Massachusetts Department of Public Health collects data about serious harm to patients in hospitals and ambulatory surgery centers, known as Serious Reportable Events (SREs). In 2015, 1,494 SREs were reported to the state, up from 1,067 in 2014 and 1,097 in 2013.

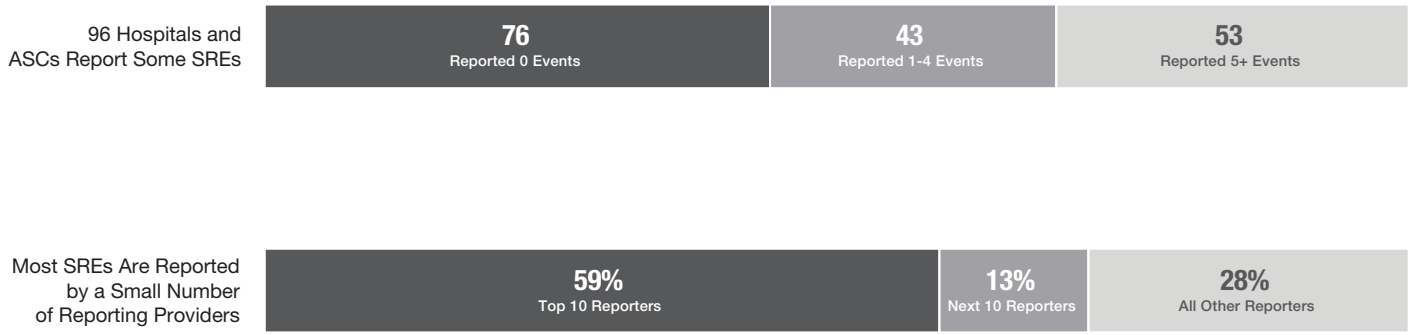
However, just 10 hospitals reported 59% of SREs last year, suggesting that this dataset is incomplete. An analysis by the Betsy Lehman Center for Patient Safety suggests that factors such as bed count or patient characteristics do not account for reporting differences.[7]

A study by the Office of the Inspector General in 2012 found that state-based patient safety data collection systems, on average, receive reports on only about 9% of adverse events, in part because facilities' internal incident reporting systems fail to detect 86% of adverse events that affect their patients.[8]

Though more robust SRE reporting would not capture all incidents of patient harm, these data can be used to signal important trends in patient safety.

Nationwide Reporting on Adverse Events (AEs)

Massachusetts Reporting on SREs in 2015, One Type of AE



Note: Percentages for Nationwide Reporting on AEs do not sum to 100 due to rounding.

Data Source: MA Department of Public Health and Office of Inspector General of the U.S. Department of Health & Human Services.

Effective & Efficient Care

In 2015, health care spending in Massachusetts totaled $57 billion.[9] Published studies have estimated 10% to 30% of national health care spending may be unnecessary.[10] Clinicians can provide effective preventive care and ensure that patients receive the right care at the right time by following evidence-based guidelines. Such recommended practices can also aid clinicians in avoiding providing costly, unnecessary services that may needlessly expose patients to additional risk of harm.

Overall, many Massachusetts acute care hospitals are making progress toward meeting performance targets for maternity care, and primary care providers are outperforming national targets on several measures.

Key findings:

- Seven of 37 reporting hospitals fully met Leapfrog's health care quality targets for the three maternity measures analyzed. Three hospitals did not meet targets on any of the three maternity measures.
- In Massachusetts, rates of potentially preventable hospitalizations exceeded national rates for patients with chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), and asthma.
- Post-discharge planning for psychiatric patients improved statewide from 2013 to 2014. On measures that count the creation and transmission of post-discharge care plans for this group of patients, however, hospital scores varied by as much as 95 percentage points.
- Statewide, most medical groups performed above the national 90th percentile on measures of whether patients returned for well-care visits and screenings, and whether the delivery of inappropriate care was avoided. However, many medical groups were below the national 90th percentile on management of long-term medications for some patients, such as children on ADHD medications and adults on antidepressants.

EFFECTIVE & EFFICIENT CARE

Rates of Maternity Related Procedures Relative to Performance Targets, by Hospital

2015

While cesarean sections can be lifesaving, the risks to mothers and infants are significant.[11] In 2015, 15 hospitals met Leapfrog's standard that no more than 23.9% of women with low-risk pregnancies deliver via cesarean section,[12,13] an improvement from 10 hospitals in 2014. Rates ranged from 15.8% to 44.9%.

An early elective delivery is an induction or cesarean birth prior to 39 weeks gestation for non-medical reasons. Leapfrog's target rate for early elective deliveries is 5%. Since 2012, rates of early elective deliveries have increased at 12 of 36 hospitals, with the highest rate being 13.5% in 2015 (compared to 4.8% in 2012). However, 23 of 36 hospitals reported no early elective deliveries.

Leapfrog has set a target episiotomy rate among delivering patients of 5% or less; 17 of 37 hospitals met this target in 2015. The high episiotomy rates in a few hospitals are far outside practice norms for Massachusetts.

	Early Elective Deliveries	Incidence of Episiotomy	Cesarean Section
Leapfrog Standard is ≤	**5.0%**	**5.0%**	**23.9%**
Fully Met Three Standards			
Baystate Franklin Medical Center	3.8%	0.0%	15.8%
Beth Israel Deaconess Hospital – Plymouth	0.0%	2.5%	18.5%
Beth Israel Deaconess Medical Center	0.0%	3.2%	20.9%
Brigham and Women's Hospital	3.5%	5.0%	23.2%
Cambridge Health Alliance	0.0%	3.0%	18.9%
Heywood Hospital	5.0%	3.7%	16.7%
Holyoke Medical Center	0.0%	1.2%	18.9%
Fully Met Two Standards			
Anna Jacques Hospital	n/a	1.7%	17.0%
Baystate Medical Center	3.6%	4.5%	25.2%
Berkshire Medical Center	0.0%	1.2%	25.1%
Boston Medical Center	0.0%	2.0%	29.9%
Cape Cod Hospital	0.0%	5.3%	22.3%
Cooley Dickinson Hospital	0.0%	4.8%	25.0%
Emerson Hospital	3.4%	3.7%	30.3%
Fairview Hospital	0.0%	4.2%	25.6%
Hallmark Health	0.0%	9.8%	22.0%
Lawrence General Hospital	0.0%	7.7%	15.9%
Lowell General Hospital	2.5%	10.5%	23.7%
Mercy Medical Center	0.0%	3.8%	24.7%
Milford Regional Medical Center	0.5%	30.5%	23.4%
Mt. Auburn Hospital	0.0%	5.3%	23.7%
Northeast Hospital	0.0%	3.3%	25.3%
Tufts Medical Center	0.0%	3.5%	31.1%

	Early Elective Deliveries	Incidence of Episiotomy	Cesarean Section
Leapfrog Standard is ≤	**5.0%**	**5.0%**	**23.9%**
Fully Met One Standard			
Falmouth Hospital	3.2%	6.3%	26.6%
Harrington Memorial Hospital	0.0%	36.6%	24.7%
MetroWest Medical Center	1.5%	12.5%	29.6%
St. Vincent Hospital	0.0%	5.9%	27.7%
Signature Healthcare Brockton	0.0%	6.4%	26.0%
South Shore Hospital	0.0%	6.8%	28.6%
Steward Good Samaritan Medical	0.0%	14.7%	30.5%
Steward Morton Hospital & Medical Center	0.0%	9.4%	44.9%
Steward Norwood Hospital	0.0%	9.8%	27.8%
Sturdy Memorial Hospital	9.1%	10.7%	23.4%
Winchester Hospital	0.0%	5.2%	24.2%
Fully Met No Standards			
Newton-Wellesley Hospital	12.2%	12.5%	29.2%
Steward Holy Family Hospital	13.5%	28.5%	39.9%
Steward St. Elizabeth's Medical Center	8.1%	8.9%	30.5%

Seven hospitals meet Leapfrog standards for reducing all three potentially unnecessary maternity practices. An additional 16 hospitals meet the standards on two measures.

KEY (Based on Leapfrog Standard)

Fully meets standard | Some progress | Substantial progress | Willing to report | Lower is better

Note: All Payers, All Ages. See the technical appendix for information on Leapfrog's standards and scoring methodologies. A hospital is "Willing to Report" if it provided data for a measure but has not demonstrated progress according to Leapfrog's scoring methodology.

Data Source: The Leapfrog Group Hospital Survey.

EFFECTIVE & EFFICIENT CARE

Prevention quality indicators calculate the rate of avoidable hospitalizations in the population for certain conditions. These measures assess the effectiveness of primary care, appropriate self-treatment, and early interventions in preventing complications and hospital admissions.

In Massachusetts, 509 people per 100,000 residents had a potentially preventable hospitalization for chronic obstructive pulmonary disease (COPD), 380 for congestive heart failure (CHF), and 47 for asthma in younger adults. These rates of potentially preventable hospitalizations exceeded national rates of 496, 321, and 46 hospitalizations per 100,000 residents, respectively.

The rates of potentially preventable hospitalizations in Massachusetts varied widely by county. In 2015, residents of Hampden County had the highest rate of potentially preventable hospitalizations for all of the conditions measured, including those not shown at right.

Potentially Preventable Hospitalizations for COPD and CHF per 100,000 Massachusetts Residents, by County of Residence

2015

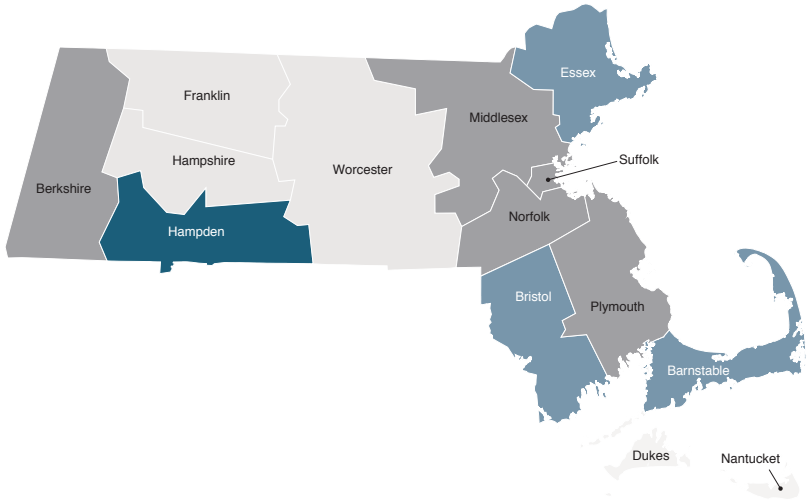
Preventable Hospitalizations for COPD

KEY

- < 400
- 400-499
- 500-599 (MA Rate = 509)
- 600-699
- 700+

Lower is better

Preventable Hospitalizations for CHF



KEY

- < 300
- 300-359
- 360-419 (MA Rate = 380)
- 420-479
- 480+

Lower is better

Note: All Payers, Ages Vary By Measure.
Data Source: CHIA Hospital Discharge Database.

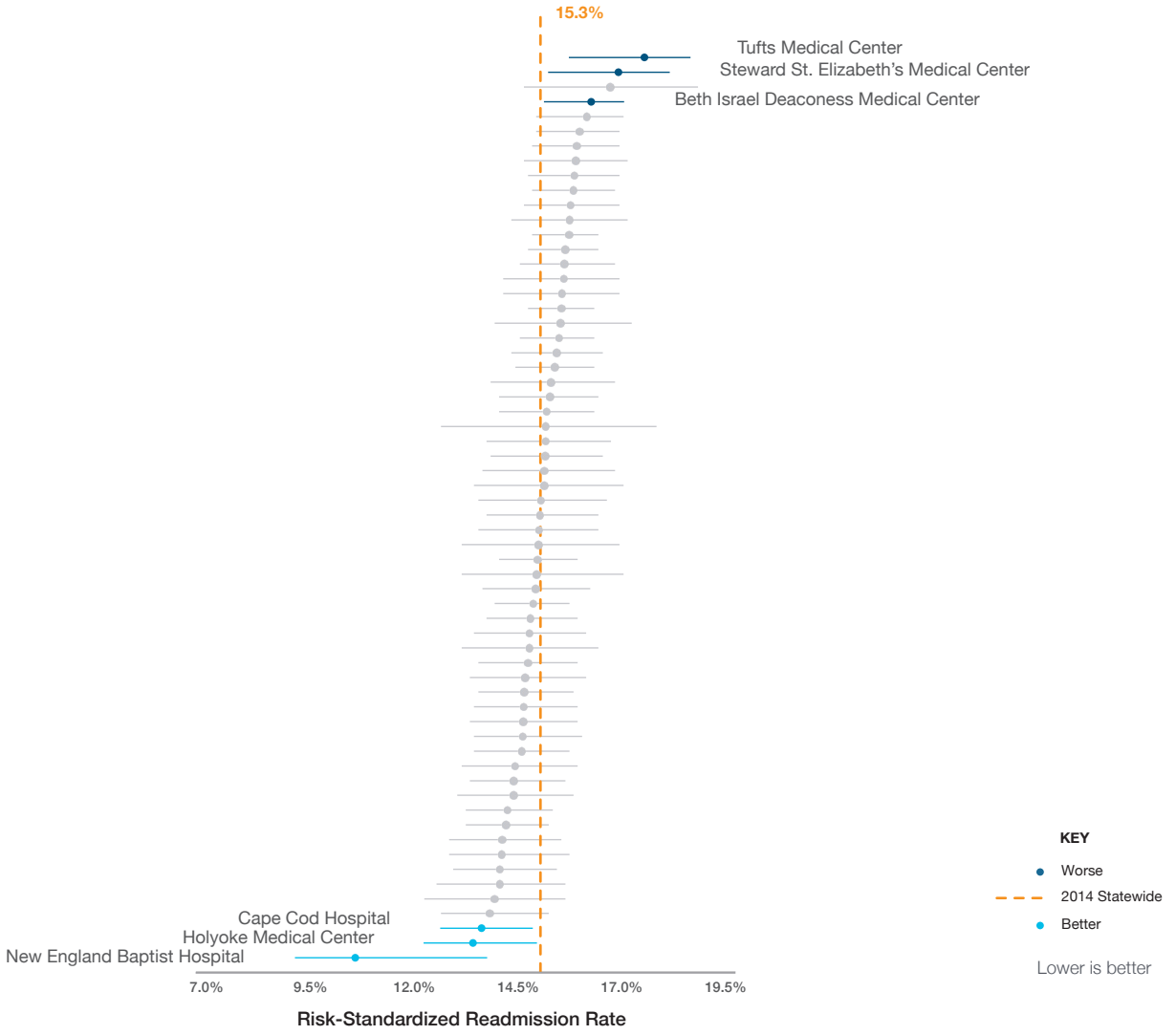
EFFECTIVE & EFFICIENT CARE

Unplanned hospital readmissions are costly and affect patient health and experience of care. To monitor readmissions in the Commonwealth, the all-payer hospital-wide all-cause unplanned 30-day readmissions measure is used. Moreover, the risk-standardized readmission rates provide more accurate comparisons across hospitals by adjusting for differences among hospitals in patient characteristics and service mix. Excluding specialty hospitals (New England Baptist Hospital and Massachusetts Eye and Ear Infirmary), Massachusetts hospitals' risk-standardized readmission rates ranged by four percentage points, from Holyoke Medical Center at 13.7% to Tufts Medical Center at 17.8%. The statewide readmission rate was 15.3% in 2014.

In relative terms, the readmissions rate at Tufts Medical Center was 30% higher than the rate at Holyoke Medical Center. Despite this wide range, only six hospitals had risk-standardized rates that were statistically different from the overall statewide rate, three higher and three lower.

All-Payer Risk-Standardized Readmission Rates, by Hospital

2014



Note: Calculation of the readmission measure is based on discharges as submitted to the Massachusetts Hospital Inpatient Discharge Database. Confidence intervals in the figure are 95% ($p < .05$). Analyses include discharges for adults with any payer, excluding discharges for obstetric or primary psychiatric care. All Payers, Ages 18+.

Data Source: CHIA Hospital Discharge Database.

EFFECTIVE & EFFICIENT CARE

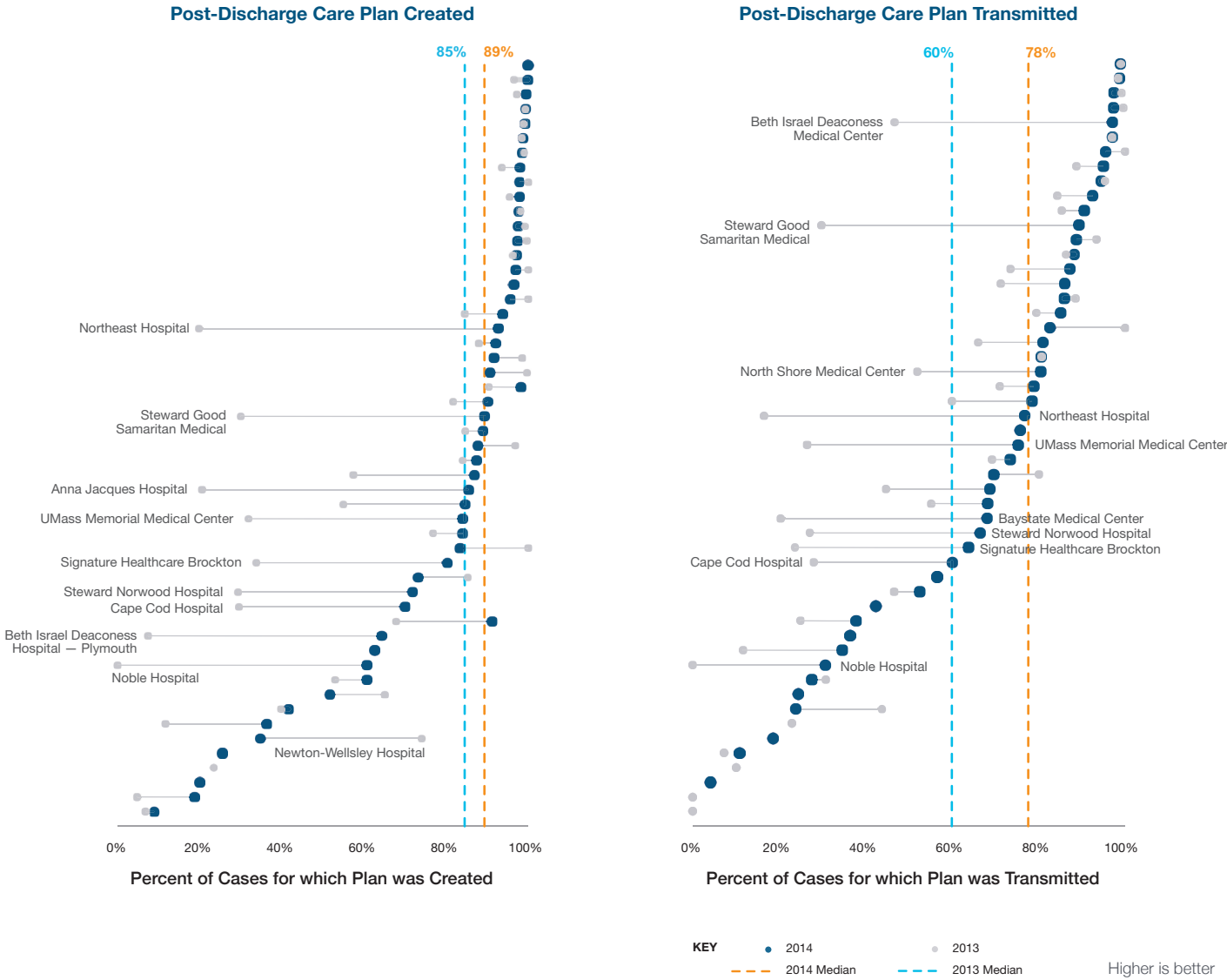
Care coordination is particularly important for inpatient behavioral health patients, whose complex needs present unique challenges.

Massachusetts hospital performance varied widely on two hospital-based inpatient psychiatric services (HBIPS) measures of care coordination, whether a post-discharge care plan was created, and whether that plan was transmitted to the patients' next care provider. In 2014, the median scores for creating and transmitting care plans increased to 89% and 78%, respectively (from 85% and 60%). As in 2013, however, scores varied by at least 91 percentage points on both measures.

Another HBIPS measure not shown at right is of patients discharged on multiple antipsychotic medications. Hospital scores ranged from 0% to 47%. This suggests that hospitals may have different approaches to managing the use of multiple antipsychotics in patient treatment.[14]

Change in Hospital Performance on Two Measures of Care Coordination for Psychiatric Patients

2013 – 2014



Note: The labeled hospitals are those with the greatest change in performance between 2013 and 2014. All Payers, All Ages.

Data Source: CMS Hospital Compare.

EFFECTIVE & EFFICIENT CARE

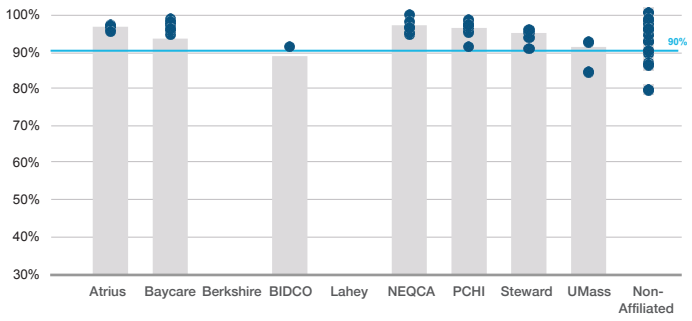
Rates of Recommended Well-Care Visits for Newborns, Children, and Adolescents, by Parent Provider Group

2014

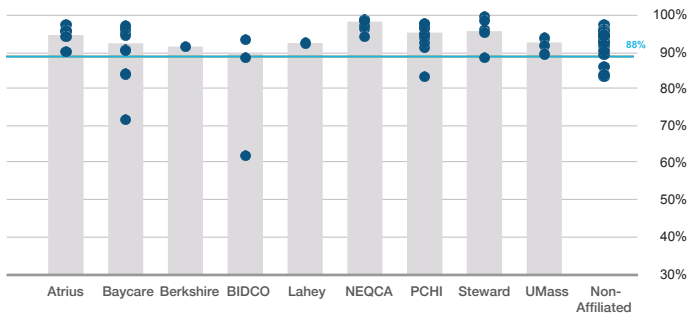
Well-care visits give primary care providers the opportunity to interact routinely with their patients, learn about patients' families and environmental circumstances, and discuss health concerns. Clinical guidelines recommend six well-care visits for children during the first 15 months of life. These visits include immunizations and important screenings. In Massachusetts, 95% of children attended all six visits, with little variation between medical groups. Similarly, performance was generally high on well-care visits for children ages 3-6, at 94%.

The U.S. Department of Health and Human Services created Healthy People 2020, a national initiative to improve health that sets performance targets for the utilization of certain health care services, including well-care visits for adolescents. In 2014, the rate of Massachusetts adolescents attending well-care visits was 79%, surpassing the Healthy People 2020 target rate of 76%. Despite this progress, rates of adolescent well-care visits across 71 medical groups ranged from 50% to 93% in 2014.

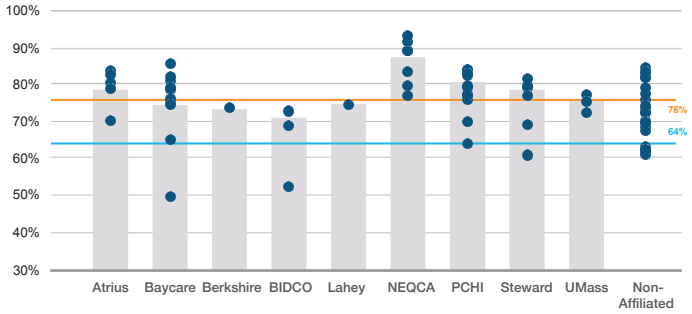
Well-Child Visits in the First 15 Months of Life



Well-Child Visits in the Third, Fourth, Fifth and Sixth Years of Life



Well-Care Visits for Adolescents Ages 12 to 21



KEY

Parent Provider Group Score | Healthy People 2020 Target | National 90th Percentile | Medical Groups

Higher is better

Note: Data includes commercially insured members of five health plans in Massachusetts. Age varies by measure. Some data is not available for Berkshire or Lahey. See technical appendix for full names of parent provider groups and their affiliated medical groups.

Data Source: Massachusetts Health Quality Partners.

EFFECTIVE & EFFICIENT CARE

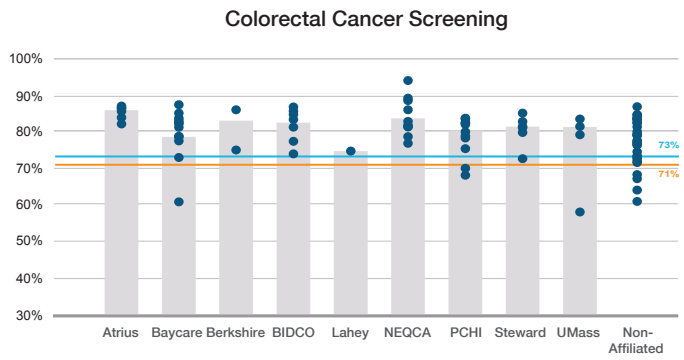
Rates of Recommended Screenings for Certain Conditions, by Parent Provider Group

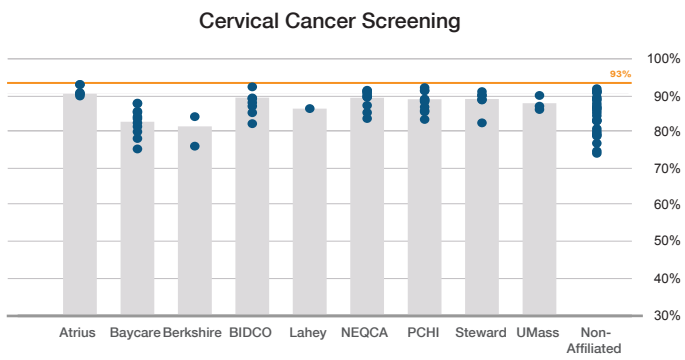
2014

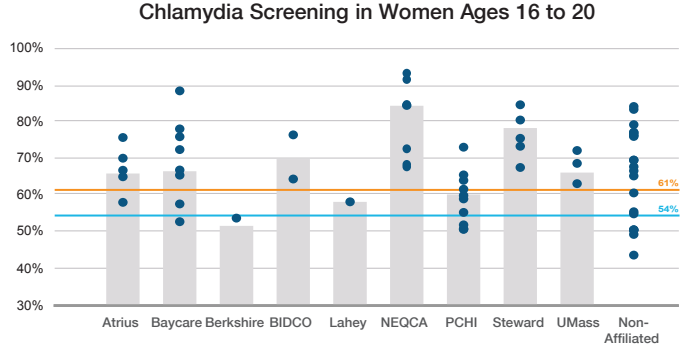
For cancers and diseases with evidence-based screening tools, regular screenings contribute to early detection of cancer or potential warning signs that may prevent or minimize disease progression. The Healthy People 2020 initiative set target rates for screening at-risk patients for chlamydia, colorectal cancer, breast cancer, and cervical cancer.

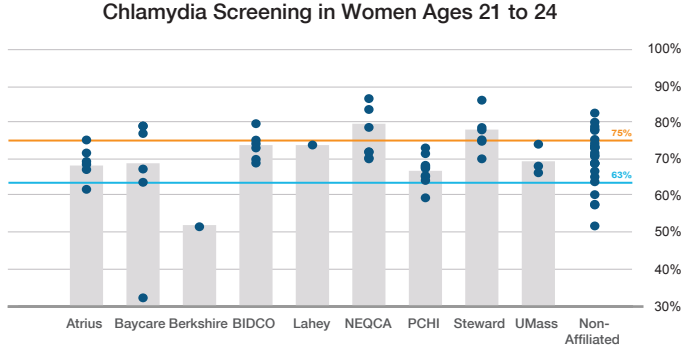
Statewide rates of breast cancer screenings (not shown at right), colorectal cancer screenings, and chlamydia screenings for women age 16-20 were above Healthy People 2020 targets, at 86%, 81%, and 70%, respectively.

However, all 83 Massachusetts medical groups analyzed performed below the Healthy People 2020 target for cervical cancer screening. Similarly, 50 of 70 medical groups were below the target for chlamydia screening for patients age 21-24. There was wide variation across medical groups in chlamydia screening rates for both age groups—44% to 93% for women age 16-20 and 32% to 86% for women age 21-24.









KEY

Parent Provider Group Score | Healthy People 2020 Target | National 90th Percentile | Medical Groups | Higher is better

Note: Data includes commercially insured members of five health plans in Massachusetts. Age varies by measure. No national benchmark data is available for the measure of cervical cancer screening. See technical appendix for full names of parent provider groups and their affiliated medical groups.

Data Source: Massachusetts Health Quality Partners.

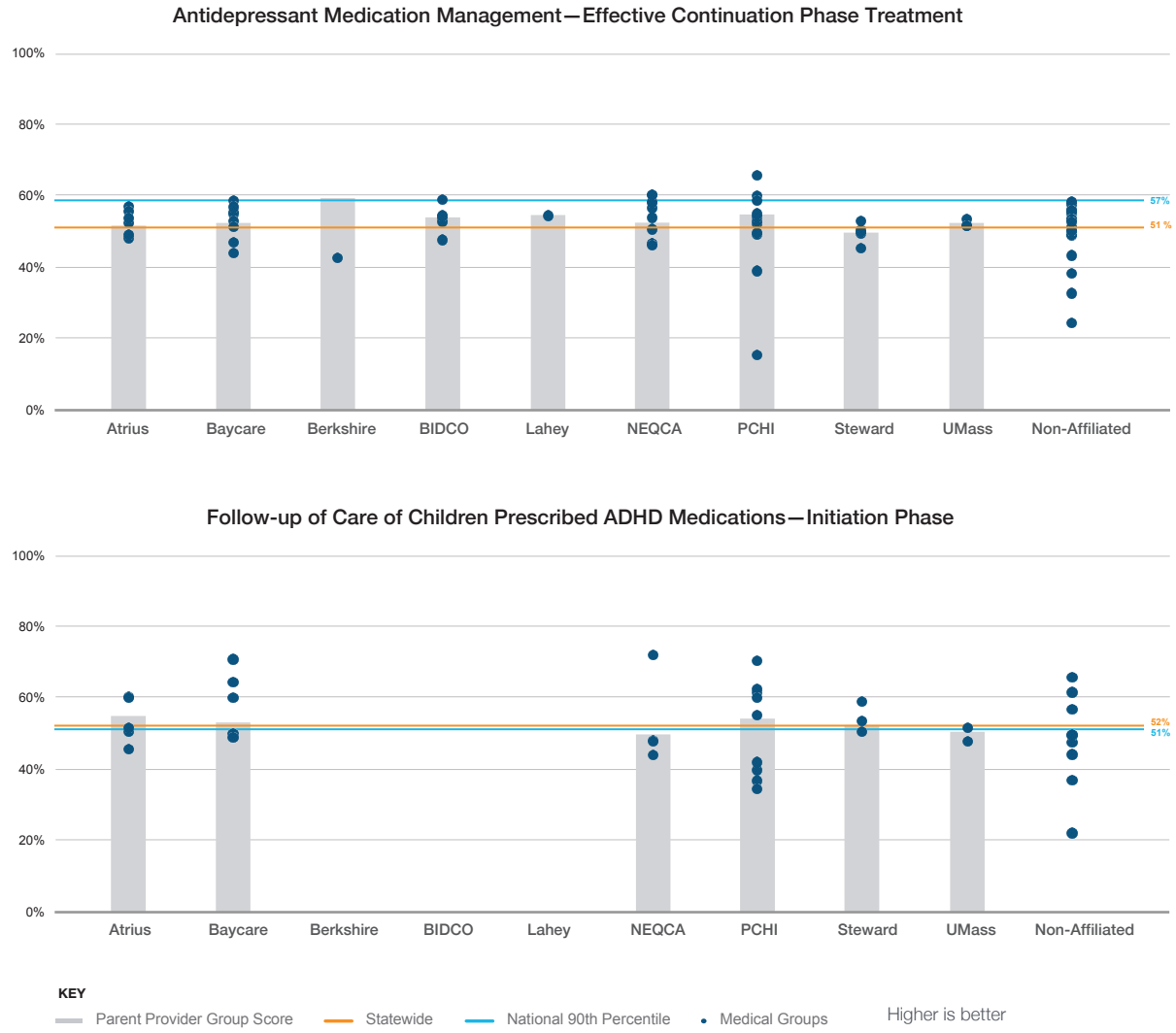
EFFECTIVE & EFFICIENT CARE

Rates of Appropriate Management for Certain Medications, by Parent Provider Group

2014

Adherence to a treatment plan is key to the successful management of major depressive disorder.[15] In 2014, only 51% of Massachusetts adults prescribed antidepressants for major depression remained on an antidepressant for 180 days or longer, down from 55% in 2012. There was wide variation across medical groups (15% to 64%). Seven of 76 medical groups met or exceeded the national 90th percentile of 57%.

A 30-day follow-up visit after prescribing ADHD medication is recommended so providers can assess the efficacy of the treatment for that patient.[16] Follow-up care for children on ADHD medications remained low in 2014, with 52% of children having a 30-day follow-up visit. Nationally, the 90th percentile reported 30-day follow-up visits for 51% of patients.



Note: Data includes commercially insured members of five health plans in Massachusetts. Age varies by measure. Some data not available for Berkshire, BIDCO, and Lahey. See technical appendix for full names of parent provider groups and their affiliated medical groups.

Data Source: Massachusetts Health Quality Partners.

EFFECTIVE & EFFICIENT CARE

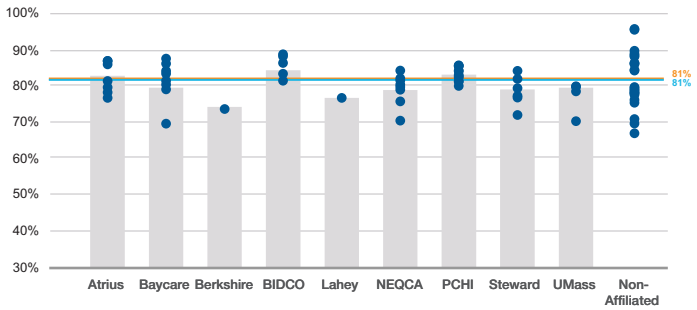
Rates of Appropriate Care, by Parent Provider Group

2014

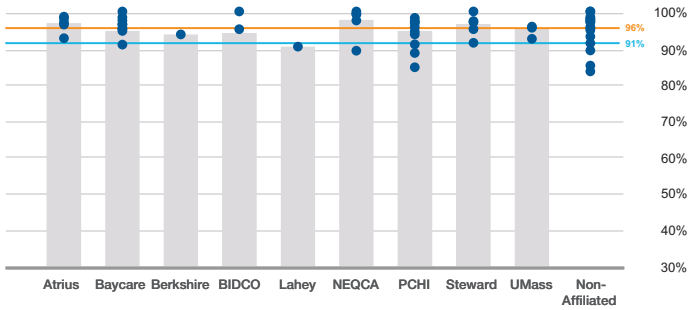
The use of imaging for lower back pain is costly and is not recommended unless the patient exhibits specific symptoms or previous diagnoses.[17] Massachusetts provider performance on this measure was in line with the national 90th percentile (81%), indicating that providers in the state generally avoid inappropriate imaging studies for lower back pain. However, medical group scores varied from 67% to 95%.

Inappropriate antibiotic prescriptions for upper respiratory infection were minimal statewide, with little variation between medical groups. Prescribing antibiotics for *Streptococcus A* without first performing a strep test was also minimal; 96% of children who were prescribed antibiotics were also tested. However, nine of 62 Massachusetts medical groups analyzed scored below the national 90th percentile of 91%, indicating these medical groups are less likely to complete a strep test before prescribing antibiotics for pharyngitis.

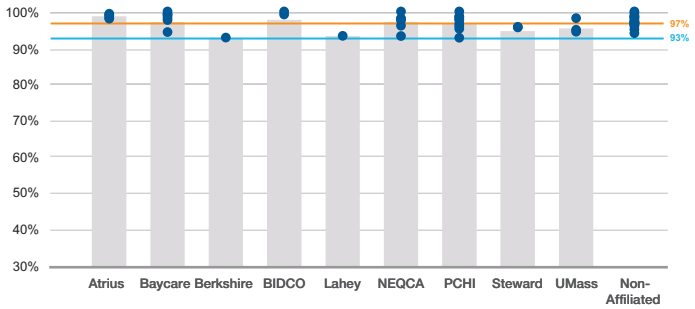
Avoiding Imaging for Lower Back Pain



Strep Testing for Children with Pharyngitis



Avoiding Antibiotics for URI



KEY

Parent Provider Group Score — Statewide — National 90th Percentile — Medical Groups — Higher is better

Note: Data includes commercially insured members of five health plans in Massachusetts. Age varies by measure. See technical appendix for full names of parent provider groups and their affiliated medical groups.

Data Source: Massachusetts Health Quality Partners.

Patient-Centered Care

Positive doctor-patient interactions are inherently valuable, and patient-centered care can help patients more actively manage their own care in partnership with their doctors.[18] Better experiences have been linked to better outcomes, and patient-reported experiences are being increasingly tied to alternative payment arrangements.[19,20,21]

Key findings:

- When asked about their hospital stays, patients rated their communications with doctors and nurses highly, but gave poorer ratings on measures of hospitals' quietness and communication about medicines.
- Similarly, patients rated their primary care providers highly on communication but both adult and pediatric patients gave lower ratings on the measure of self-management support. The self-management support measure reflects whether providers asked patients about specific health goals and obstacles to maintaining their health.
- Statewide performance on nine of 11 domains of patient-reported experience in primary care offices improved from 2013 to 2015.

PATIENT-CENTERED CARE

Patients rated communications with doctors and nurses highly, but provided a poorer assessment of hospitals' quietness and how well staff communicated with them about medicines.

Notably, Fairview Hospital (Berkshire Health Systems) either received or tied for the highest rating in the state on 8 of 10 patient experience measures.

Steward Morton Hospital had the lowest scores on the measure of cleanliness and on overall rating, and was tied with Steward Good Samaritan Medical Center for the lowest scores on measures of doctor communication and care transitions. Steward Good Samaritan also had the lowest score on communication about medicines. Boston Medical Center had the lowest scores on nurse communication, staff responsiveness, and pain management.

Findings related to patient-provider communications are particularly notable, as effective communication from providers may help patients stay engaged in their care and adhere to a care plan.[22]

Patient-Reported Experience During Acute Hospital Admission, by Hospital System

2014

Note: All Payers, Ages 18+. See technical appendix for full names of hospital systems and their affiliated hospitals.
Data Source: CMS Hospital Compare.

PATIENT-CENTERED CARE

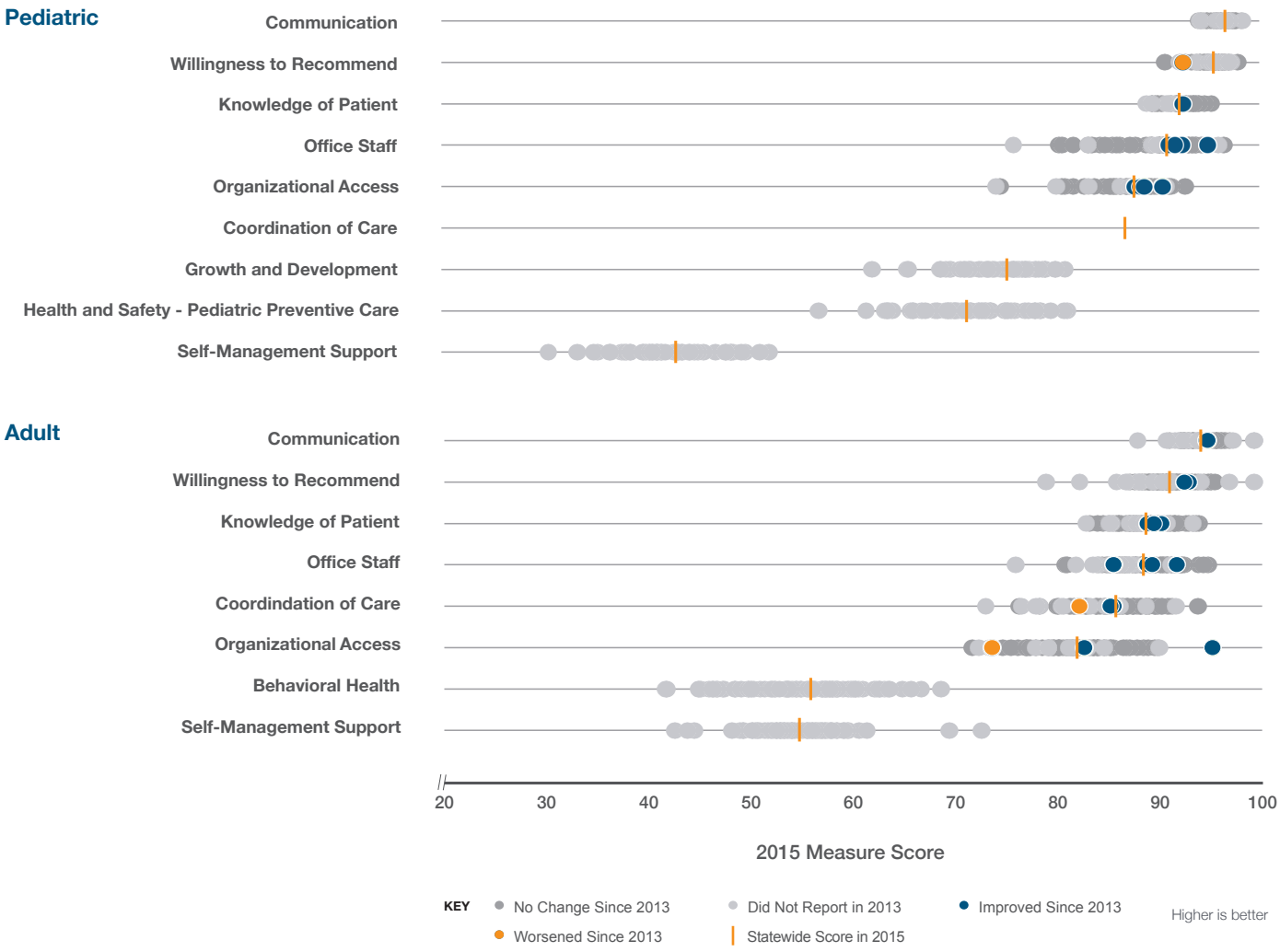
Overall, patients expressed positive experiences with their primary care providers in both 2013 and 2015. In 2015, experiences at a large majority of medical groups remained similar to those reported in 2013. Of the 68 medical groups that had reportable patient experience scores on all adult measures, Affiliated Physicians Inc. was the only medical group in the top quartile for all eight measures.

While improvements in individual medical group scores were generally not significant, small improvements across many medical groups led to improvement in the statewide scores for most domains between 2013 and 2015.

Patients rated Massachusetts primary care medical groups highest on provider communication and their willingness to recommend the provider. Pediatric self-management support, which measures whether doctors asked parents about challenges in managing their child's health, was the lowest-scoring measure (statewide score of 43) and varied by 21 points (31 to 52 out of 100).

Change in Primary Care Patient-Reported Experiences, by Medical Group

2013 and 2015



Note: There is no comparison data from 2013 for three measures of pediatric patient experience and two measures of adult patient experience. Adult patients' ages 18+, pediatric patients age 0 to 17. Changes are statistically significant.

Data Source: Massachusetts Health Quality Partners, Patient Experience Survey (PES). Center for Health Information and Analysis, *Performance of the Massachusetts Health Care System, A Focus on Provider Quality* (Boston, January 2015).

Conclusion

The performance of the Massachusetts health care system on certain quality measures improved incrementally over prior years and was often consistent with or better than national benchmarks. Massachusetts providers adhered to recommendations for some preventive care visits and screenings and patients generally reported positive experiences with their providers. However, there remain opportunities to improve the quality of care delivered in the Commonwealth. Providers can improve care management and follow-up for patients prescribed certain medications, and reduce rates of potentially preventable hospitalizations, health care-associated infections, and surgical complications. Additionally, there was meaningful variation in quality performance across hospitals in the use of cesarean sections, episiotomies, and early elective deliveries and, while there have been notable reductions in the use of these procedures, some hospitals continued to exceed the recommended rates.

Although measurement of health care quality performance is complex and evolving, these measures and data provide valuable information for care providers and policymakers to inform their work with patients, promote evidence-based and patient-centered care, and ultimately improve outcomes.

Notes

1 The Academy of Medicine also identifies high-quality care as being timely and equitable; however few measures are currently available to directly measure these concepts. "The Six Domains of Health Care Quality," National Committee for Quality Assurance, accessed October 13, 2016, http://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/sixdomains.html

2 Magill SS, Edwards JR, Bamberg W, Beldavs ZG, Dumyati G, et al. Multistate point-prevalence survey of health care-associated infections. N Engl J Med 2014; 370:1198-1208.

3 Wideman MV, Whittler ME, Anderson TM. Barcode Medication Administration: Lessons Learned from an Intensive Care Unit Implementation. Available at http://www.ahrq.gov/downloads/pub/advances/vol3/wideman.pdf. Last accessed October 7, 2016

4 Patient safety indicators are developed by the Agency for Healthcare Research and Quality. A lower score on these measures indicates fewer than expected adverse events. National performance is based on data publicly available on CMS Hospital Compare. For both HAI and PSI 90, hospitals with more advanced data reporting capabilities may capture more infections and adverse events and appear to have higher rates.

5 The Leapfrog Group is an employer-based health care safety and quality organization that collects quality data and information from hospitals. Hospitals voluntarily report quality and operational data to Leapfrog.

6 National Quality Forum. Serious Reportable Events in Healthcare: A Consensus Report. Washington, DC: National Quality Forum, 2002.

7 Betsy Lehman Center for Patient Safety. Explainer: What do the adverse event report data tell us?. Available at http://www.betsylehmancenterma.gov/news/explainer-what-do-adverse-event-report-data-tell-us. Last accessed October 13, 2016

8 Department of Health and Human Services Office of the Inspector General. Hospital Incident Reporting Systems Do Not Capture Most Patient Harm. January 2012. Available at https://oig.hhs.gov/oei/reports/oei-06-09-00091.asp. Last accessed October 13, 2016

9 CHIA. Annual Report on the Performance of the Massachusetts Health Care System, September 2016. September 2016. Available at http://www.chiamass.gov/assets/2016-annual-report/2016-Annual-Report-rev-1.pdf (Last accessed October 7, 2016)

10 Institute of Medicine. *The Healthcare Imperative: Lowering Costs and Improving Outcomes*. February 2011. Available at: http://www.nationalacademies.org/hmd/Reports/2011/The-Healthcare-Imperative-Lowering-Costs-and-Improving-Outcomes.aspx (Last accessed June 21, 2016).

11 Ecker JL, Frigoletto FD Jr. (2007). Cesarean delivery and the risk-benefit calculus. New England Journal of Medicine;356(9):885-8

12 The Leapfrog Group. Factsheet: Maternity Care. April 2016. Available at http://www.leapfroggroup.org/sites/default/files/Files/Maternity%20Care%20Fact%20Sheet.pdf. Last accessed October 13, 2016

13 Leapfrog's standard aligns with the US Department of Health and Human Services Healthy People 2020 target. Available at http://www.healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and-child-health/objectives. Last accessed October 7, 2016

14 The Joint Commission. *Specifications Manual for Joint Commission National Quality Measures* (v2015B). Available at https://manual.jointcommission.org/releases/TJC2015B/MIF0120.html. Last accessed October 7, 2016

15 American Psychiatric Association. 2010. *Practice Guideline for the Treatment of Patients with Major Depressive Disorder, Third Edition*. Available at https://psychiatryonline.org/pb/assets/raw/sitewide/practice_guidelines/guidelines/mdd.pdf. Last accessed October 7, 2016

16 *HEDIS 2016*. Vol. 1: Narrative. National Committee for Quality Assurance, 2016.

17 "Clinical Recommendation for Imaging for Low Back Pain," American Academy of Family Physicians, accessed October 13, 2016, http://www.aafp.org/patient-care/clinical-recommendations/all/cw-back-pain.html.

18 Epstein RM, Street RL (2011). The Values and Value of Patient-Centered Care. *Annals of Family Medicine*; 9(2): 100-103

19 Sequist TD, Schneider EC, Anastario M, Odigie EG, Marshall R, Rogers WH, et al. (2008). Quality monitoring of physicians: linking patients' experiences of care to clinical quality and outcomes. Journal of General Internal Medicine; 23(11):1784–90.

20 DiMatteo, MR. (1994). Enhancing patient adherence to medical recommendations. Journal of the American Medical Association; 271:79-83.

21 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

22 Martin LR, Williams SL, Haskard KB, DiMatteo MR. The challenge of patient adherence. Ther Clin Risk Manag. 2005 Sep;1(3):189-199

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