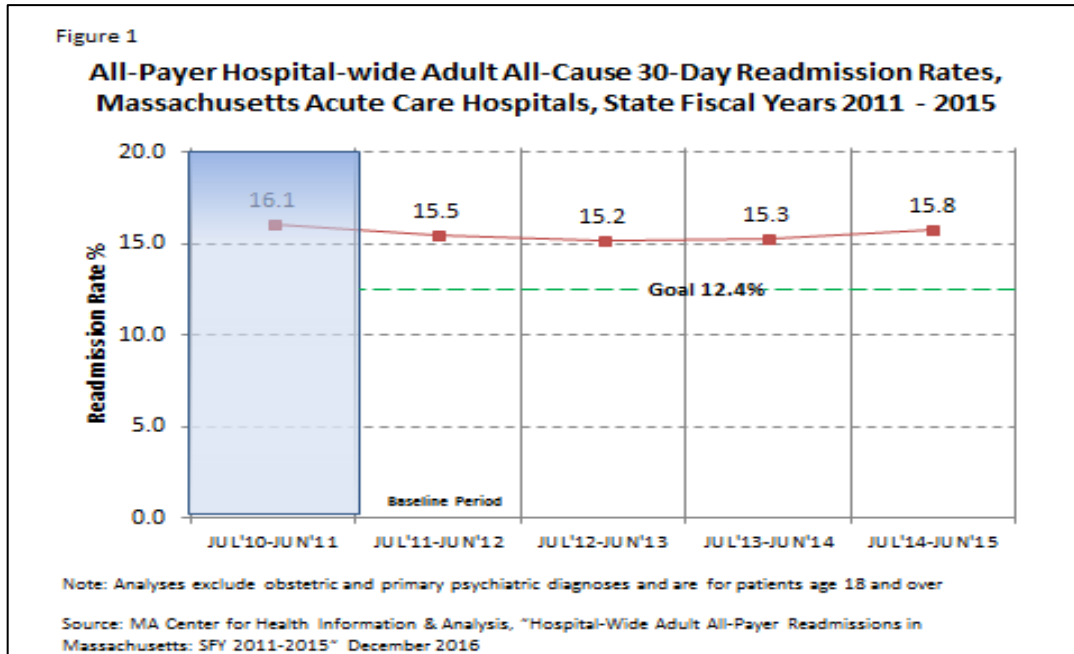


## Massachusetts Hospitals Statewide Performance Improvement Agenda Final Report

### MHA Board-approved Quality & Safety Goal January 2013 Reduce Preventable Readmissions by 20% by 2015

#### All-Payer Adult 30-Day Hospital-Wide All-Cause Unplanned Readmissions in Acute Care Hospitals



The **rate of all-payer, adult all-cause 30-day readmissions** in Massachusetts acute care hospitals **rose to 15.8%** in the period July 2014 – June 2015 (Fig.1). That increase placed the rate 1.9% above the baseline rate of 15.5% versus the goal of reducing the rate to 12.4% (20% below the baseline year rate). Complete details on the Massachusetts Center for Health Information and Analysis report containing this data, as well as hospital-specific readmission rates and additional analyses may be found at <http://www.chiamass.gov/hospital-wide-adult-all-payer-readmissions-in-massachusetts/> .

Prior studies of Massachusetts all-payer acute care hospital 30-day **Potentially Preventable Readmissions** placed those rates at 7.7 and 7.8 in FY 2012 and FY 2013, respectively, suggesting that roughly one-half of total adult readmissions included in the Figure 1 data may be preventable.

In the course of tracking performance on readmissions relative to the readmission reduction goal, MHA and hospitals have tracked other available readmission data to provide context and insights about longer-term readmission trends and performance of Massachusetts hospitals relative to hospitals across the country. A number of these measures are updated regularly and promoted on public hospital report card websites and shape public and policymaker perceptions about Massachusetts hospitals. The measures are discussed below.

#### Medicare 30-Day Risk-Standardized Readmission Measures

Figure 2 on the following page displays Massachusetts and United States aggregate data over eight three-year periods (each year/period covers July through June) for **risk-standardized, all-cause 30-day**

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**readmission rates for Medicare patients hospitalized with a principal diagnosis of heart attack (acute myocardial infarction), heart failure, and pneumonia.** The readmission rates are for patients discharged alive to a non-acute care setting. The estimates are produced from Medicare claims and enrollment data using sophisticated statistical modeling techniques that adjust for patient-level risk factors and account for the clustering of patients within hospitals. The rates account for readmissions to any other hospital, not just the same hospital. The data are updated annually and published at the Hospital Compare website. The analysis also employs techniques to remove planned readmissions.

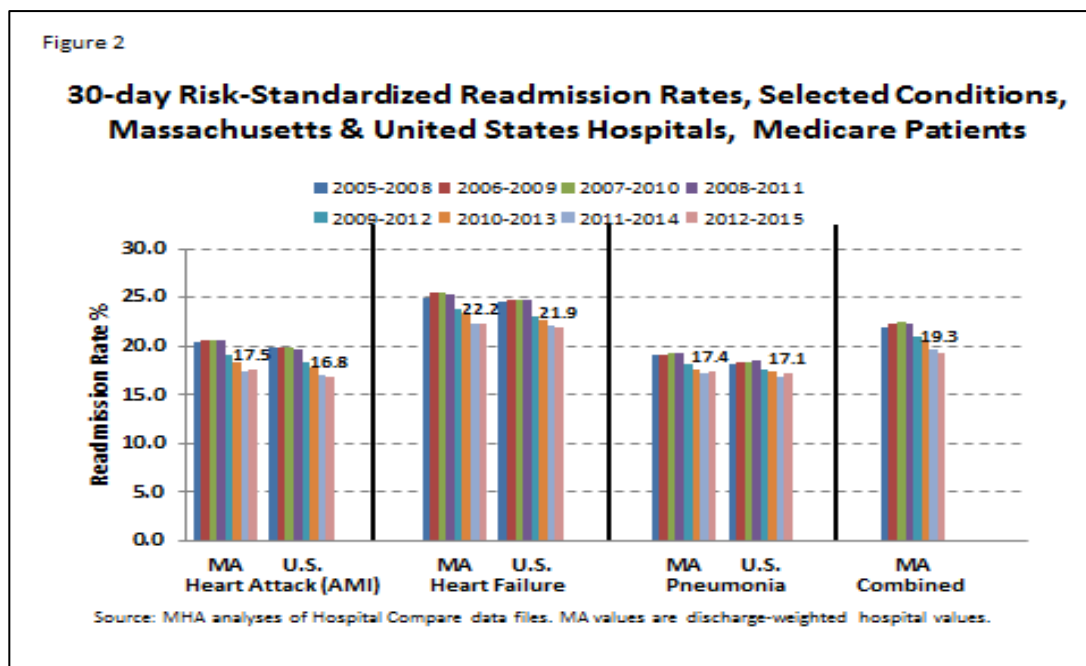
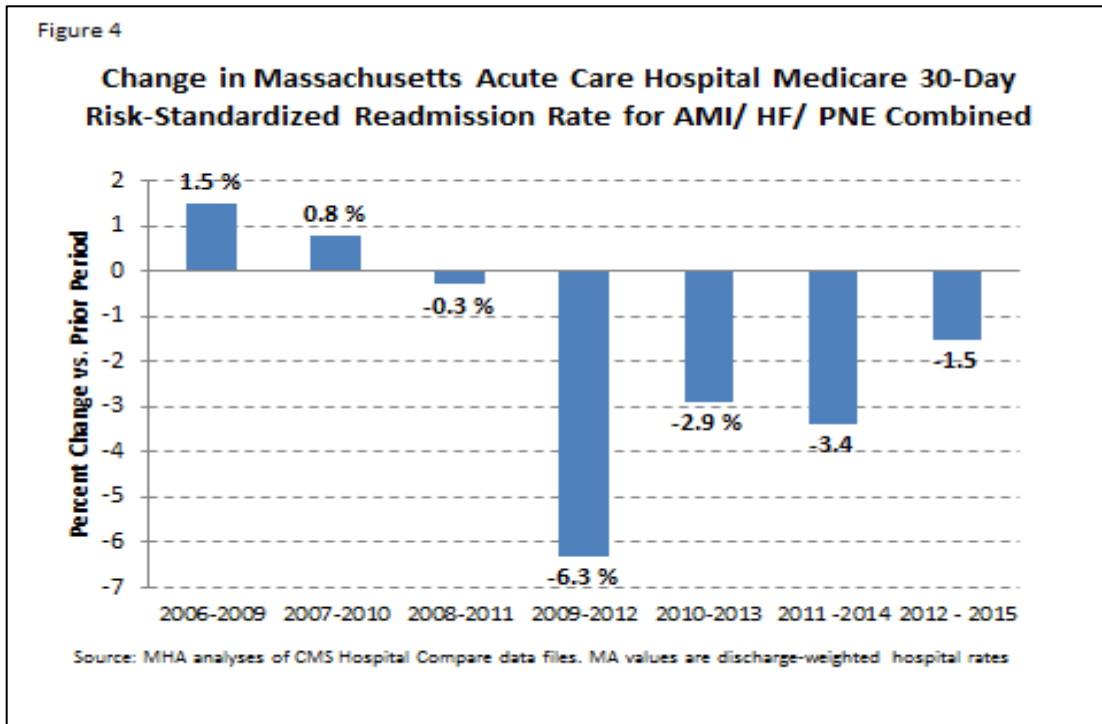
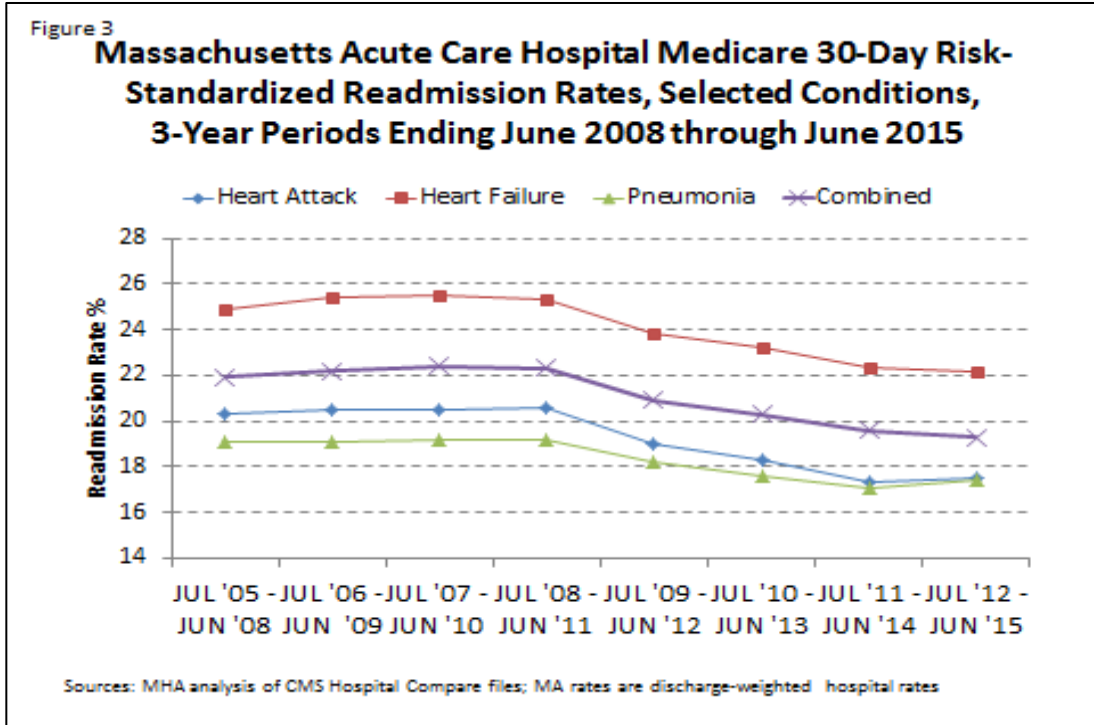


Figure 2 illustrates several points. In both Massachusetts and the United States, readmission rates for these conditions increased slightly or were unchanged over the first four three-year measure periods. Commencing in the period ending in 2012 and continuing in 2013 and 2014, rates declined distinctly in both Massachusetts and the United States. In the period ending in 2015, the heart attack and pneumonia rates in Massachusetts increased slightly, while the heart failure rate dropped slightly. In the U.S. during that period, the pneumonia readmission rate also increased while the heart attack and heart failure rates continued to drop. Rates for all three measures were slightly higher in Massachusetts than the United States in this period, ranging from 1.4% higher for heart failure to 4.2% higher for heart attack. (See also the Appendix)

Figures 3 and 4 (following page) magnify the changes in the rates for the three conditions and the combination of all three.

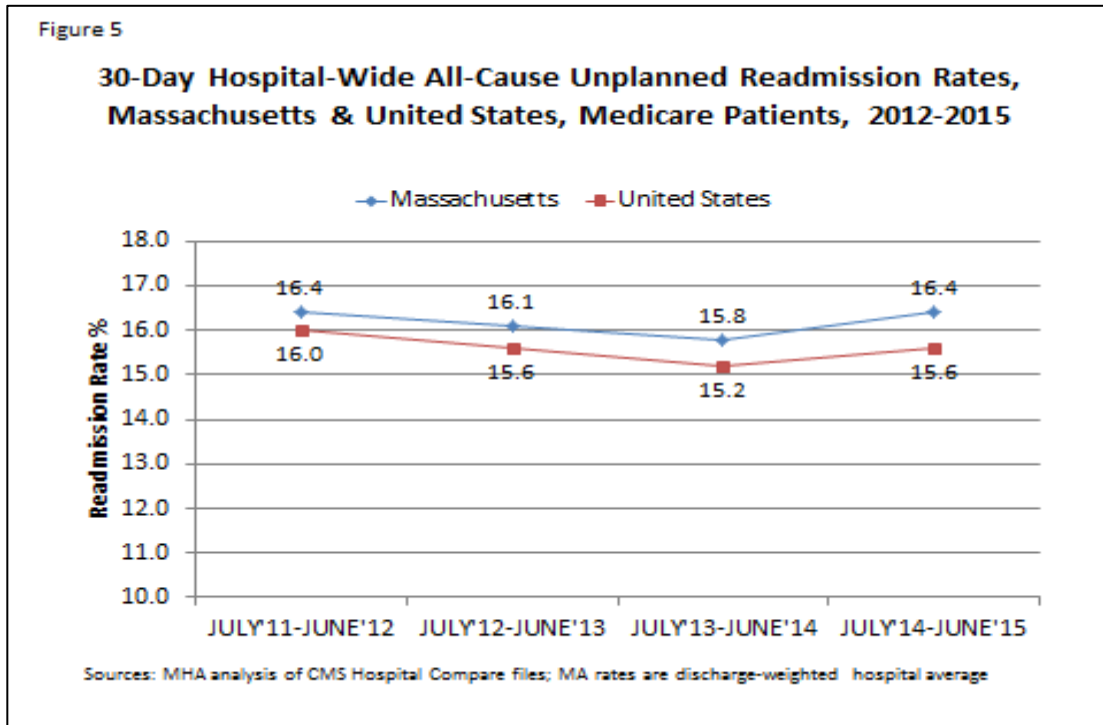
Figure 3 illustrates the decline in rates from 2012 through 2014, and the leveling off in 2015.

Figure 4 displays the rate of change in the combined measure for all periods since reporting began. The rate of decline in the periods since 2012 have slowed considerably, perhaps signaling that future reductions will be more difficult to achieve.



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Figure 5 below displays the first four years of data for the **30-Day Hospital-Wide All-Cause Unplanned Readmission (HWR) Rate for Medicare Patients** for acute care hospitals in Massachusetts and the U.S.



This measure, also published on Hospital Compare, provides a more comprehensive picture of readmissions than the condition-specific measures discussed earlier, covering nearly all patient diagnoses/procedures. The measure also provides a more current picture of readmissions because it requires only one-year of data to have sufficient statistical power to use in comparing hospitals. The HWR rates dropped in Massachusetts (down 1.8%) and the U.S. (down 2.5%) in 2013 and again in 2014 (down 1.9% and 2.6% respectively). 2015 saw this rate increase in both Massachusetts and the U.S., with the Massachusetts rate returning to the same level as in 2012. The Massachusetts rate stood 5.1% higher than the U.S. rate in 2015.

Data for all Medicare 30-day risk-standardized readmission measures for Massachusetts and the U.S. for all time periods/years that have been reported are included in the appendix at the end of this report.

### Medicare 30-Day Unadjusted All-Cause Readmission Measures

CMS has developed data for evaluating geographic variation in the utilization and quality measures for the Medicare fee-for-service (FFS) population, aggregated in a Geographic Variation Public Use File that has demographic, spending, utilization, and quality indicators at the state, hospital referral region (HRR) level, and county level. The data files and methodology are described and may be found at [http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Geographic-Variation/GV\\_PUF.html](http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Geographic-Variation/GV_PUF.html). The files provide a rich data set that extends from federal fiscal year (FFY) 2007 through FFY 2013 and contain data on Medicare beneficiaries that were not enrolled in a Medicare Advantage plan and were not enrolled Part A only or Part B only.

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Figure 6 below displays **30-day unadjusted all cause readmission rates for Medicare FFS beneficiaries of all ages** in Massachusetts and the U.S. from 2007 through 2014. Rates declined since 2009 for both Massachusetts and the U.S., and at an accelerating pace until 2014. The Massachusetts readmission rate then increased in 2014, while the U.S. rate slowed its decline.

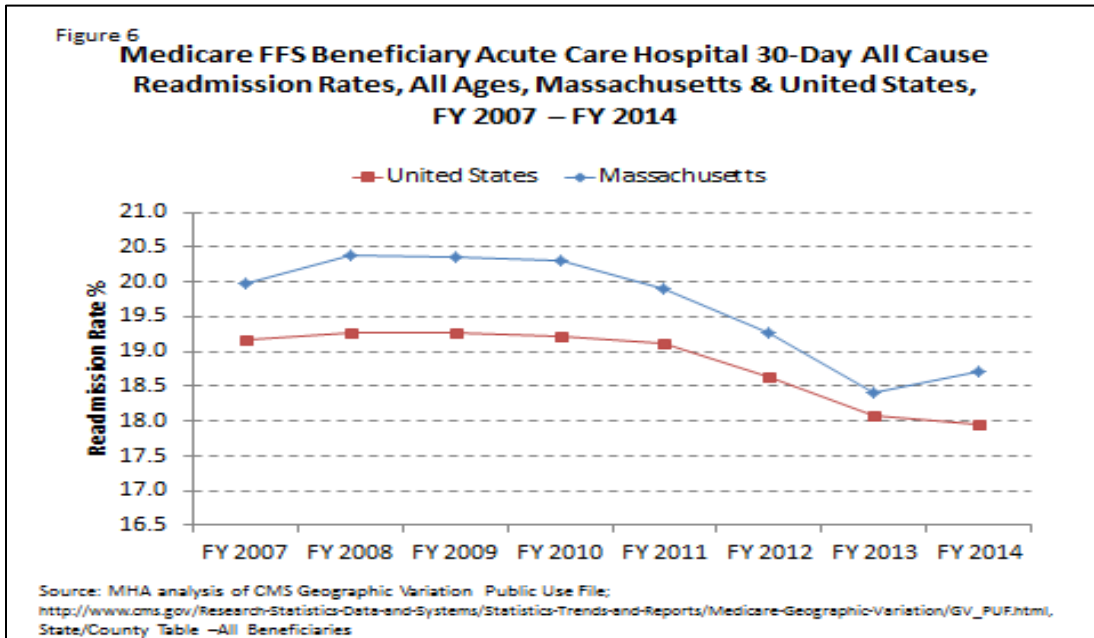
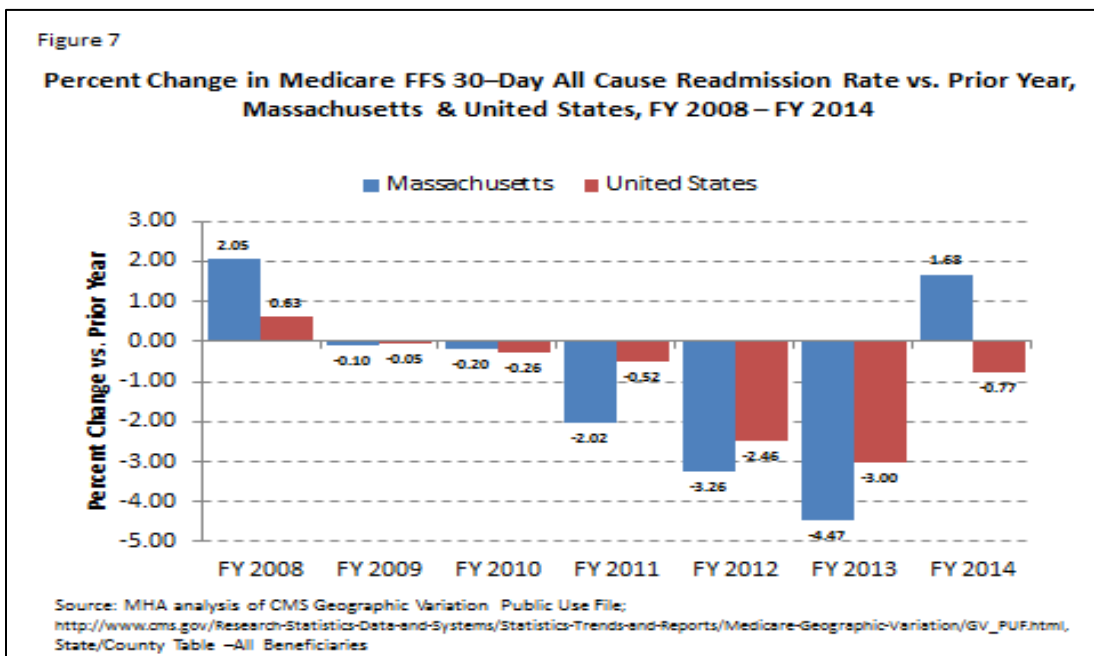


Figure 7 displays the **rates of change** in readmission rates in both Massachusetts and the U.S. versus the prior year from 2008 through 2014. The rates of decrease were greater in Massachusetts for five years, ending with the abrupt reversal of 2014.



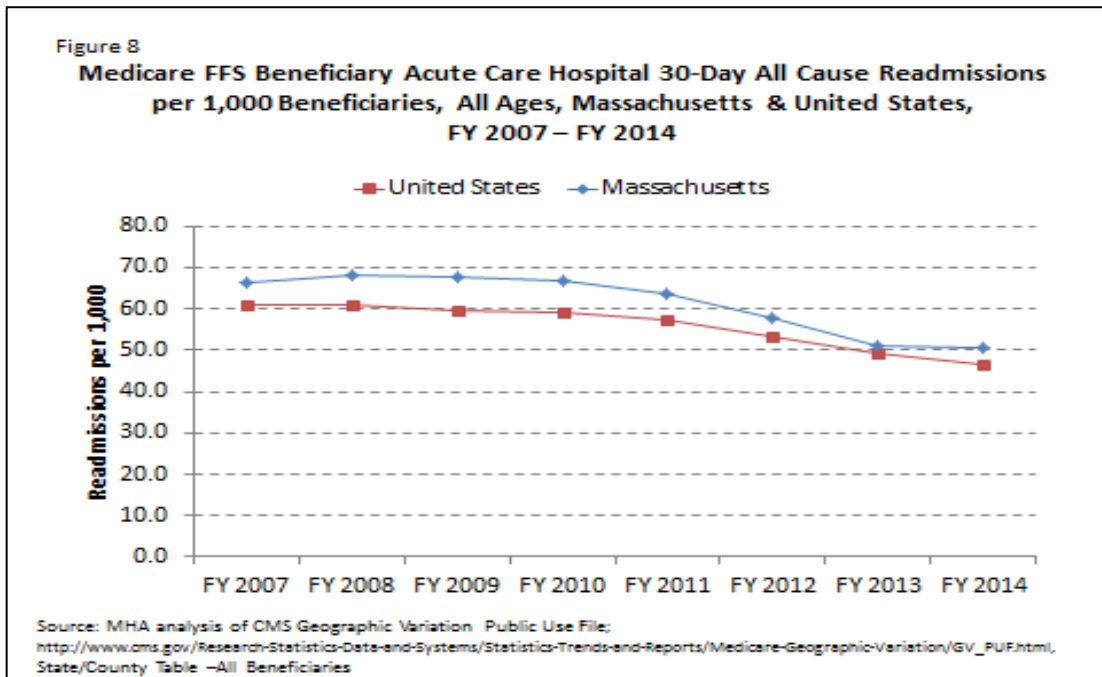


Figure 8 presents **30-day all cause readmissions per 1,000 Medicare fee-for-service (FFS) beneficiaries of all ages** in Massachusetts and the U.S. from 2007 through 2014. As with readmission rates, the number of readmissions per 1,000 beneficiaries dropped for six consecutive years in both Massachusetts and the U.S., and at a continuously accelerating pace until a slowdown in 2014.

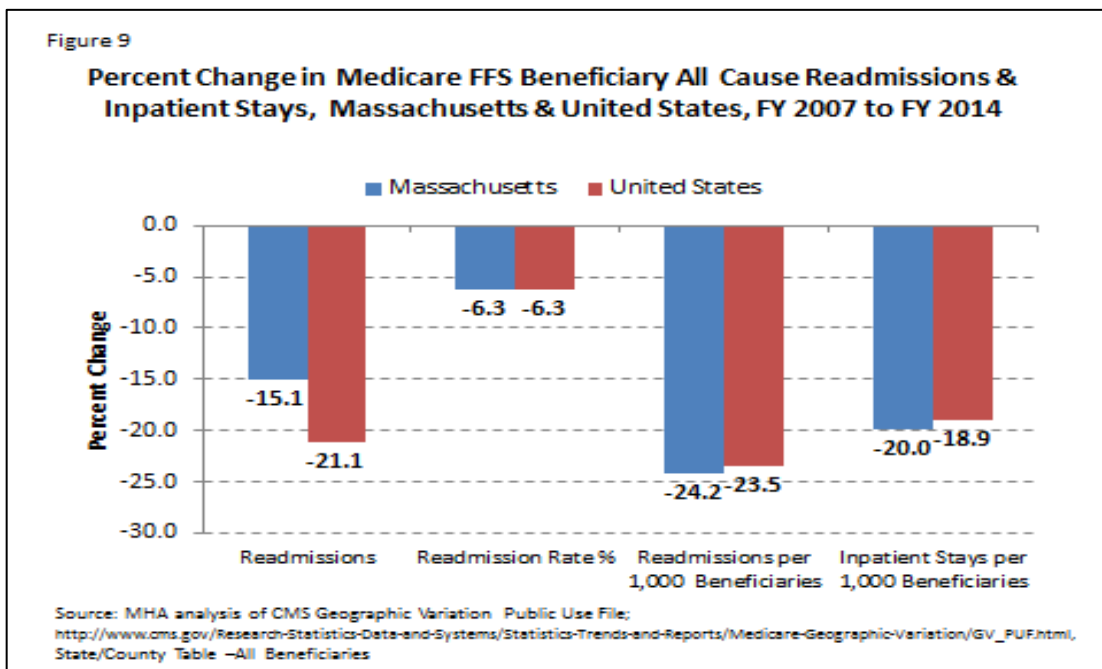


Figure 9 summarizes changes in readmission measures in Massachusetts and the U.S. from 2007 to 2014 for Medicare FFS beneficiaries. The number of readmissions dropped by 15% and 21% in Massachusetts and the

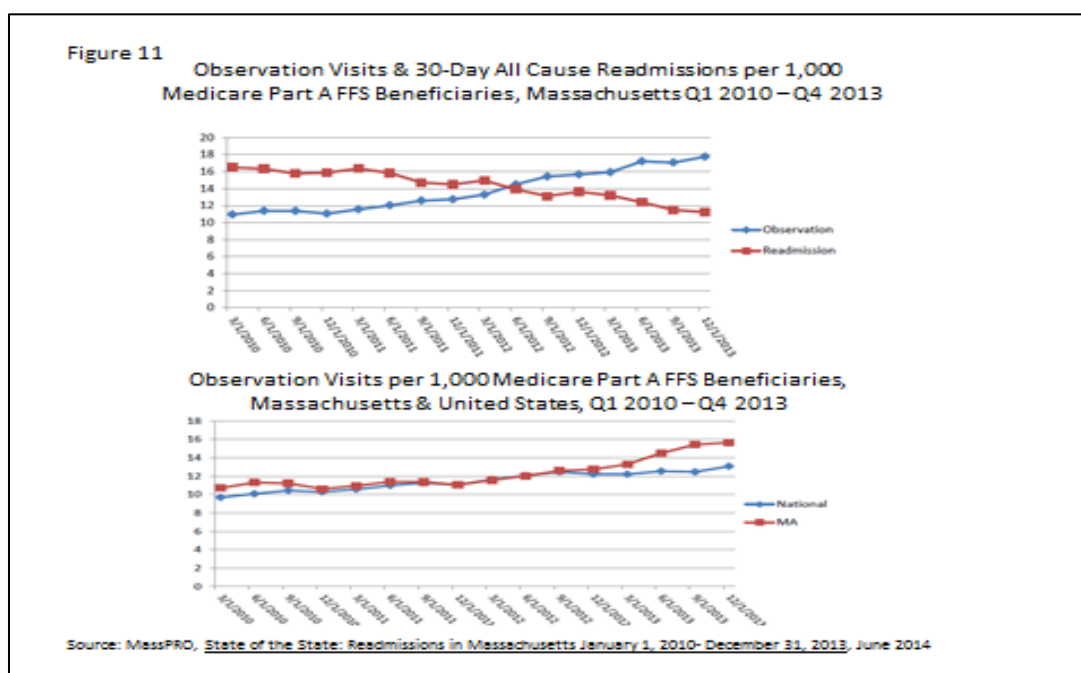
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U.S. respectively, while the number of readmissions per 1,000 FFS beneficiaries dropped by roughly 24% in both areas. The data suggest a virtuous cycle whereby fewer inpatient stays helped lead to fewer readmissions by reducing the opportunities for readmissions, and a lower readmission rate in turn reduced the number of inpatient stays.

### Why Are Medicare Readmission Rates Declining? Improved Care or Accounting Artifact?

CMS analysts first reported in 2013<sup>\*</sup> on their finding and projections of a decline in national Medicare readmissions in 2012. They cautioned that the reasons for the reductions were unclear, but speculated that it **could have been caused by care improvements incentivized by payment reforms such as the Medicare Readmission Reduction Program which imposed financial penalties (beginning in October 2012) on hospitals judged to have high rates of excess readmissions and other initiatives aimed at reducing avoidable readmissions, or by substitution of post-discharge observation stays, ED visits, or care in other non-inpatient settings for inpatient acute care hospital stays.** Subsequent announcements from CMS<sup>†</sup> reported an 8.0% decrease in Medicare fee-for-service 30-day readmissions from a 2010 baseline through 2013, which it attributed to the Affordable Care Act and “...strong, diverse public-private partnerships, active engagement by patients and families, and a wide range of aligned federal programs and initiatives.”

While it may not be possible to attribute and measure the impact of all factors affecting readmission rates with precision, it is probably too early to dismiss the role of observation visits, in which short stays in the hospital are classified and paid for as outpatient visits rather than inpatient admissions.



<sup>\*</sup> Gerhardt, G. and others, “Medicare Readmission Rates Showed Meaningful Decline in 2012,” Medicare & Medicaid Research Review March 2013:Volume 3, Number 2 pp. E1-E11

<sup>†</sup> U.S. Department of Health & Human Services, “New HHS Data Shows Major Strides Made in Patient Safety, Leading to Improved Care and Savings,” May 7, 2014

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Figure 11 displays 30-day all cause readmissions and observation visits per 1,000 Medicare FFS beneficiaries in Massachusetts, along with observation visits per 1,000 Medicare FFS beneficiaries in both Massachusetts and the U.S. The rates of change in Massachusetts beneficiary observation visits and readmissions were near mirror images of each other, and the rate of increase in observation visits in Massachusetts clearly outpaced the rate of growth in the U.S. from mid-2012 through the end of 2013. Both findings would be consistent with the narrowing spread between Massachusetts and U.S. readmission rates (until 2014) and readmissions per 1,000 beneficiaries documented in this report.

### Summary

**All-Payer 30-Day Hospital-Wide All-Cause Unplanned Readmission** rates in Massachusetts dropped from 16.2% in FY 2011 to 15.5% in FY 2012 (down 4.3%) and again in FY 2013 to 15.2% (down 1.9% from 2012). The rate increased in 2014 to 15.3% and to 15.8% in 2015, and now stands 1.9% lower than in 2011. Hospitals did not achieve the MHA board-endorsed goal of a 20% drop in readmission rates from the 2012 baseline through the end of 2015. Rather, the rate increased 1.9% over that period.

**Medicare 30-day risk-standardized readmission measures**, reported for various specific conditions going back to multi-year care periods beginning in 2005-2008 dropped distinctly in both Massachusetts and the U.S. for the first time when 2012 data was reported, and continued to drop with the addition of 2013 and 2014 data. In 2015, the rate of decline leveled off. A more comprehensive measure, the **30-day Hospital-Wide All-Cause Unplanned Readmission (HWR) Rate**, was introduced beginning with 12-month data ending in June 2012, and dropped in both Massachusetts and the U.S. in 2013 and 2014, before increasing in both Massachusetts and the U.S. The Massachusetts rate has returned to 2012 levels while the U.S. rate dropped 2.5% since 2012. The Massachusetts rate now stands 5.15 higher than the U.S. rate. These measures are calculated using claims data for Medicare fee-for-service beneficiaries and use techniques to remove certain planned readmissions from the analyses.

**Medicare 30-day unadjusted all-cause readmission rates** for fee-for-service beneficiaries of all ages declined in Massachusetts and the U.S. every year beginning with FFY 2008 through FFY 2013, and at an accelerating pace, until abruptly reversing in Massachusetts in 2014 and a slowing in the pace of decline nationwide. Massachusetts **readmission rates** went from 5.8% above U.S. rates in 2008 to 4.2% above in 2014. **Readmissions per 1,000 beneficiaries** dropped for six consecutive years in both Massachusetts and the U.S., and at a continuously accelerating pace until slowing in 2014. Readmissions and readmissions per 1,000 beneficiaries dropped by close to 24% from FFY 2007 to FFY 2014 in both Massachusetts and the U.S. The raw **number of Medicare readmissions** dropped 15.1 percent in Massachusetts over the 2007-2014 period, while dropping 21% nationwide.

The **decline in Medicare readmissions may have been caused by care improvements** incentivized by payment reforms such as the Medicare Readmission Reduction Program and other initiatives aimed at reducing avoidable readmissions, **or by substitution of post-discharge observation stays**, ED visits, or care in other non-inpatient settings for inpatient acute care hospital stays. Evidence indicates that Medicare observation visits in Massachusetts grew at about the same rate as the decline in readmissions, and more rapidly than the growth in observation visits nationwide.

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		Massachusetts							
		Medicare 30-Day Risk Standardized Readmission Rate							
		Patient Weighted Average							
Condition		JUL'05-JUN'08	JUL'06-JUN'09	JUL'07-JUN'10	JUL'08-JUN'11	JUL'09-JUN'12	JUL'10-JUN'13	JUL'11-JUN'14	JUL'12-JUN'15
Heart Attack		20.3	20.5	20.5	20.6	19.0	18.3	17.3	17.5
	% change vs. prior period	NA	1.1	-0.2	0.7	-7.8	-3.7	-5.5	1.2
Heart Failure		24.9	25.4	25.5	25.3	23.8	23.2	22.3	22.2
	% change vs. prior period	NA	1.9	0.6	-1.0	-5.9	-2.5	-3.9	-0.4
Pneumonia		19.1	19.1	19.2	19.2	18.2	17.6	17.1	17.4
	% change vs. prior period	NA	0.0	0.7	-0.1	-5.2	-3.3	-2.8	1.8
Combined		21.9	22.2	22.4	22.3	20.9	20.3	19.6	19.3
	% change vs. prior period	NA	1.5	0.8	-0.3	-6.3	-2.9	-3.4	-1.5
Elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)		NR	NR	NR	NR	5.2	4.9	4.5	4.3
	% change vs. prior period	NA	NA	NA	NA	NA	-5.8	-8.2	-4.4
Hospital-wide all-cause unplanned readmission (HWR)*		NR	NR	NR	NR	16.4	16.1	15.8	16.4
	% change vs. prior period	NA	NA	NA	NA	NA	-1.8	-1.9	3.8
COPD		NR	NR	NR	NR	NR	21.8	20.9	20.8
	% change vs. prior period	NA	NA	NA	NA	NA	NA	-4.1	-0.5
STROKE		NR	NR	NR	NR	NR	13.8	13.2	13
	% change vs. prior period	NA	NA	NA	NA	NA	NA	-4.3	-1.5
CABG		NR	NR	NR	NR	NR	NR	14.3	14.2
	% change vs. prior period	NA	NA	NA	NA	NA	NA	NA	-0.7
		United States							
		Medicare 30-Day Risk-Standardized Readmission Rate							
Condition		JUL'05-JUN'08	JUL'06-JUN'09	JUL'07-JUN'10	JUL'08-JUN'11	JUL'09-JUN'12	JUL'10-JUN'13	JUL'11-JUN'14	JUL'12-JUN'15
Heart Attack		19.9	19.9	19.8	19.7	18.3	17.8	17.0	16.8
	% change vs. prior period	NA	0.0	-0.5	-0.5	-7.1	-2.7	-4.5	-1.2
Heart Failure		24.5	24.7	24.8	24.7	23.0	22.7	22.0	21.9
	% change vs. prior period	NA	0.8	0.4	-0.4	-6.9	-1.3	-3.1	-0.5
Pneumonia		18.2	18.3	18.4	18.5	17.6	17.3	16.9	17.1
	% change vs. prior period	NA	0.5	0.5	0.5	-4.9	-1.7	-2.3	1.2
Combined		21.2	21.4	NA	NA	NA	NA	NA	NA
	% change vs. prior period	NA	0.9	NA	NA	NA	NA	NA	NA
Elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)		NR	NR	NR	NR	5.4	5.2	4.8	4.6
	% change vs. prior period	NA	NA	NA	NA	NA	-3.7	-7.7	-4.2
unplanned readmission (HWR)*		NR	NR	NR	NR	16.0	15.6	15.2	15.6
	% change vs. prior period	NA	NA	NA	NA	NA	-2.5	-2.6	2.6
COPD		NR	NR	NR	NR	NR	21.8	20.2	20
	% change vs. prior period	NA	NA	NA	NA	NA	NA	-7.3	-1.0
STROKE		NR	NR	NR	NR	NR	13.3	12.7	12.5
	% change vs. prior period	NA	NA	NA	NA	NA	NA	-4.5	-1.6
CABG		NR	NR	NR	NR	NR	NR	14.9	14.4
	% change vs. prior period	NA	NA	NA	NA	NA	NA	NA	-3.4

Sources: MHA analysis of CMS 30-day readmission; U.S. data from CMS Hospital Compare data file for same periods; U.S. Combined AMI/HF/PN from AHA analyses in AHA RPB SPIA report and AHA Strategic Plan 2011-2013 p.6 and note 4

\*Note: All-cause readmission (HWR) data period is 12-months (JUL-JUN) ending in last listed year