HEALTH POLICY

Massachusetts Health Reform and Disparities in Coverage, Access and Health Status

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BACKGROUND: Massachusetts health reform has achieved near-universal insurance coverage, yet little is known about the effects of this legislation on disparities.

OBJECTIVE: Since racial/ethnic minorities and low-income individuals are over-represented among the uninsured, we assessed the effects of health reform on disparities.

DESIGN: Cross-sectional survey data from the Behavioral Risk Factor Surveillance Survey (BRFSS), 2006–2008.

PARTICIPANTS: Adults from Massachusetts (n=36,505) and other New England states (n=63,263).

MAIN MEASURES: Self-reported health coverage, inability to obtain care due to cost, access to a personal doctor, and health status. To control for trends unrelated to reform, we compared adults in Massachusetts to those in all other New England states using multivariate logistic regression models to calculate adjusted predicted probabilities.

KEY RESULTS: Overall, the adjusted predicted probability of health coverage in Massachusetts rose from 94.7% in 2006 to 97.7% in 2008, whereas coverage in New England remained around 92% (p<0.001 for difference-in-difference). While cost-related barriers were reduced in Massachusetts, there were no improvements in access to a personal doctor or health status. Although there were improvements in coverage and cost-related barriers for some disadvantaged groups relative to trends in New England, there was no narrowing of disparities in large part because of comparable or larger improvements among whites and the non-poor.

CONCLUSIONS: Achieving equity in health and health care may require additional focused intervention beyond health reform.

KEY WORDS: health coverage; health care reform; Massachusetts.

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INTRODUCTION

In 2006, Massachusetts passed comprehensive health reform legislation to expand health coverage to all residents, featuring

Medicaid expansions, a new purchasing pool, and subsidized insurance for low-income individuals ineligible for Medicaid, called Commonwealth Care. Under Commonwealth Care, individuals earning less than 300% of the federal poverty level (FPL) qualify for subsidized coverage.¹ Premiums for the program are set on a sliding scale based on household income; individuals earning less than 150% FPL are eligible for subsidized insurance with comprehensive benefits, and premiums are waived.¹ Insurance mandates for both employers and individuals were implemented in 2007 with additional components phased in more recently.^{2,3} For example, the tax penalty for individuals without coverage increased on January 1, 2008. As a result of these measures, Massachusetts has achieved near-universal coverage.^{4–7}

While studies suggest that Massachusetts health reform has been associated with temporal gains in coverage, less is known about its effects on access to care or health status, or how this legislation has impacted racial/ethnic and socioeconomic disparities.^{6–8} Between 2006–2008, annual telephone surveys of Massachusetts residents suggested that there were improvements in access to a usual source of care, but that reductions in out-of-pocket costs were not sustained.⁷ Moreover, although gains in health care use were strongest for adults earning <300% FPL, lower income adults were more likely to report difficulties in finding a provider.⁷ To our knowledge, only one prior study accounted for other temporal trends by incorporating a concurrent control group.⁸

Massachusetts's health reform experience may offer valuable and timely insights for national efforts to confront health care inequality. As minorities and low-income groups are more likely to be uninsured, health coverage is widely recognized as an important strategy for reducing disparities.^{9,10} Yet the complexity of addressing this issue is underscored by a substantial literature that finds persistent racial/ethnic and socioeconomic disparities even with health coverage.^{10–16} Like Commonwealth Care, the federal Patient Protection and Affordable Care Act (PPACA) also features insurance exchanges, individual and employer mandates, and expanded Medicaid coverage, although the financing mechanism, penalties and thresholds for subsidies differ.¹⁷ As in Massachusetts, a goal of national health care reform is to reduce racial/ethnic and socioeconomic disparities.¹⁷ Given these similarities, Massachusetts provides an opportune setting to examine the relationship between health reform and disparities in access to health care and health status. Despite these similarities, it is also important to consider the Massachusetts context as the rate of uninsurance had declined from 11.0% in 1996 to 5.4% in 1998, prior to comprehensive reform.^{18,19}

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In this paper, we address two key issues. First, did improvements in access to care and health status follow Massachusetts health reform? Second, and was this legislation associated with a narrowing of racial/ethnic and socioeconomic disparities?

METHODS

Overview

To gauge the effects of Massachusetts health reform, we examined trends from 2006 to 2008 in rates of coverage, financial barriers to care, access to a personal doctor, and self-reported health status for adults in Massachusetts compared with those in other New England states to allow us to account for other temporal factors, such as regional economic trends or the availability of primary care physicians. We then analyzed changes in these measures by race/ethnicity and income, and evaluated whether disparities narrowed during the study period.

Data and Study Population

We used data from the Behavioral Risk Factor Surveillance System (BRFSS), a state-based, random-digit telephone survey of the US civilian, non-institutionalized population (<http://www.mass.gov/dph/hsp>; also provides additional tabulations by race/ethnicity and income). We compared Massachusetts data for adults aged 18–64, who self-identified as non-Hispanic white, non-Hispanic black, and Hispanic, with data for residents of all other New England states (Connecticut, New Hampshire, Vermont, Rhode Island, and Maine). We did not include individuals aged 65 and above as these individuals are typically covered by Medicare. The final sample included 36,505 Massachusetts and 63,263 New England residents. Because BRFSS data are a publicly available data source, this study was granted exemption by the Partners Healthcare Institutional Review Board.

Study Variables

Outcome Variables. We examined four dichotomous outcomes asked of participants in each of the 3 study years. Participants were asked: “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?” (yes or no); “Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?” (yes or no); “Do you have one or more persons you think of as your personal doctors or health care providers?” (yes or no); and “Would you say that in general your current health is excellent/very good/good/fair/poor?” (fair or poor health versus better health).

Independent Variables. We examined demographic characteristics including age, gender, marital status, education, and employment. The BRFSS also collects data on the number of household members and annual household income (<\$10,000, \$10,000–14,999, \$15,000–19,999, \$20,000–\$24,999, \$25,000–

\$34,999, \$35,000–\$49,999, \$50,000–\$74,999, and >\$75,000). Because Massachusetts eligibility guidelines for coverage subsidies are based on annual federal guidelines, we regrouped observations into four categories: <100%, 101–200%, 201–300%, and >300% of the FPL for each year.²⁰ To translate the BRFSS household income categories into variables based on these groupings, we used publicly available data from the American Community Survey. We calculated the mean income for individuals reporting income in each BRFSS category for Massachusetts and the other New England states by year. We then used this mean income to set a specific income amount for each BRFSS category.²¹ Finally, we used the number of household members reported by each individual to categorize each observation into the four FPLs.

Statistical Analyses

To gauge the differential effects of Massachusetts health reform by race/ethnicity, we performed multivariate logistic regression analyses, adjusted for age, gender, marital status, education, income, and employment, and including an interaction term of race/ethnicity by time. From these models, we calculated adjusted predicted probabilities for each outcome by year and region; these adjusted predicted probabilities were adjusted to the average values (pooled over the two regions) of the potential confounders. In each region, we then calculated the difference in the adjusted predicted probabilities between racial-group pairs, using non-Hispanic whites as the reference group. Trends in the adjusted disparities in Massachusetts were compared to those for New England (i.e., difference-in-difference analysis). Because the implementation of the Massachusetts health reform law relevant to adults largely began in January 2007 with a substantial increase in the individual penalty for remaining uninsured beginning in January 2008, we tested for trends across 2006 (baseline), 2007, and 2008. Weighted least squares chi-square tests were used to test for trends in differences in the adjusted predicted probabilities within Massachusetts and New England as well as for trends in the differences-in-differences between Massachusetts and New England. To assess the effects of the Massachusetts health reform by poverty level, we repeated the logistic regression models by including an interaction term of poverty level by time. We used >300% of FPL as the reference group. In sensitivity analyses, we examined alternate control groups, including New England States without health reform efforts during the study period,²² and the continental US. Missing data was addressed using a re-weighting technique to estimate logistic regression parameters.²³ All statistical analyses incorporated the survey sample weights to account for the sampling strategy, non-response, and the potential design effect of cluster sampling of the BRFSS.

RESULTS

Characteristics of Massachusetts and New England Residents

Although the distribution of sociodemographic characteristics was similar in Massachusetts and New England during the

study period, there were statistically significant differences between the two regions, reflecting the large sample sizes (Table 1). In both regions, black and Hispanic adults were younger than whites, less likely to be married, more likely to be unemployed or unable to work, and more likely to have lower income and educational attainment. In both Massachusetts and New England, there were disparities by race/ ethnicity in insurance coverage, cost barriers to care, access to a personal doctor, and fair or poor health.

Overall Trends in Coverage and Access to Care

While the adjusted predicted probability of health insurance coverage rates in New England hovered around 92% over the study period (Table 2), overall coverage rates in Massachusetts improved significantly from 94.7% in 2006 to 97.7% in 2008 ($p < 0.001$). As a result of this improvement, the difference in health insurance coverage increased significantly in Massachusetts compared with New England ($p < 0.001$). The proportion of adults reporting financial barriers to care in Massachusetts followed a similar trend, declining from 6.1% in 2006 to 4.6% in 2008 ($p = 0.001$). In contrast, the proportion of adults in New England who were unable to obtain care due to costs remained steady at about 8% ($p = 0.001$ for difference-

in-difference) Table 3. However, access to a personal health care provider and self-reported health status remained essentially unchanged for both Massachusetts and New England. Findings were similar in sensitivity analyses using the alternative control groups.

Disparities in Coverage and Access to Care by Race/Ethnicity

In 2006, black (91.2%) and Hispanic (91.9 %) adults in Massachusetts were less likely to be insured than white residents (94.7% percent, Table 2) and black and Hispanic adults remained less likely to be insured than whites after health reform. While there were statistically significant increases in coverage in Massachusetts for Hispanics, the disparity in coverage between Hispanics and whites did not improve. Relative to the persistent Hispanic-white disparity in coverage in Massachusetts, there was a significant improvement in the Hispanic-white disparity in the rest of New England ($p = 0.03$ for difference-in-difference). Relative to blacks in New England, blacks in Massachusetts had a significant increase in coverage, but because of a similar increase for whites, there were no significant improvements in black-white disparities.

Table 1. Characteristics of the Sample for Massachusetts and New England, 2006–2008

	Massachusetts			New England			p-value ²
	White ¹	Black	Hispanic	White	Black	Hispanic	
N	30,315 % ³	2,024	4,166	58,787 % ³	1,584	2,892	
Mean age (years)	41.8	38.6	35.8	42.0	38.7	35.5	0.44
Gender							
Male	48.1	54.4	48.6	49.5	46.5	47.2	<0.001
Employment							<0.001
Employed for wages	66.9	65.1	60.1	64.9	65.9	60.6	
Self-employed	9.8	5.0	6.9	11.3	4.9	8.5	
Out of work	4.8	9.5	10.3	4.9	11.4	8.9	
Student	6.0	2.3	7.4	6.0	2.9	9.0	
Homemaker	5.0	8.2	5.6	5.1	6.0	5.3	
Retired	3.4	2.3	1.3	3.9	1.3	1.3	
Unable to work	4.2	7.8	8.4	3.9	7.7	6.5	
Education							<0.001
Did not complete high school	3.8	8.0	27.7	4.1	11.2	24.2	
High school graduate	23.0	28.7	30.8	25.6	35.3	32.7	
Some college	23.8	29.7	20.8	25.9	26.6	19.8	
College graduate	49.4	33.5	20.7	44.5	27.0	23.3	
Marital status							<0.001
Married	62.8	42.0	44.3	63.6	44.4	48.8	
Income (% of federal poverty level)							<0.001
≤100%	5.0	14.9	30.9	5.4	16.2	30.1	
101–200%	10.0	24.5	32.8	11.7	28.1	27.3	
201–300%	10.2	14.9	9.8	11.6	13.8	11.2	
>300%	74.8	45.8	26.4	71.3	41.9	31.4	
Outcomes							
Insurance coverage	94.4	86.9	79.1	89.8	79.3	65.9	<0.001
Cost barrier	6.3	13.7	17.6	9.4	17.7	23.3	<0.001
Personal doctor	89.6	82.3	72.4	87.6	78.5	64.9	<0.001
Fair or poor health	8.1	15.0	24.4	8.9	13.7	22.6	<0.001

Notes: Some columns do not add to 100% due to rounding. Data were missing for: (Massachusetts): employment 110; education 94; marital status 157; and household income 4,832; (New England): employment 163; education 98; marital status 251; and household income 8,047

¹White, non-Hispanic; Black, non-Hispanic; Hispanic

²P-value for Wald χ^2 test for the differences between Massachusetts and New England by race/ ethnicity

³Weighted percentages (unadjusted)

Table 2. Adjusted Trends in Health Care Access Outcomes, Overall and by Race/Ethnicity

	Massachusetts				New England				
	2006	2007	2008	p-value for trend in MA	2006	2007	2008	p-value for trend in NE	p-value for trend in MA vs NE
Coverage									
Overall	94.7%	95.9%	97.7%	<0.001	92.5%	92.2%	92.7%	0.71	<0.001
White	94.8	96.2	97.9	<0.001	93.3	93.0	93.1	0.54	<0.001
Black	91.2	94.9	95.7	0.09	92.9	88.6	90.0	0.17	0.03
Hispanic	91.9	92.1	95.3	0.006	83.2	85.2	89.4	0.006	0.39
(Black-white disparity)	(-3.6)	(-1.3)	(-2.2)	0.88	(-0.4)	(-4.4)	(-3.1)	0.21	0.26
(Hispanic-white disparity)	(-2.9)	(-4.1)	(-2.6)	0.63	(-10.1)	(-7.8)	(-3.7)	0.005	0.03
Cost barrier									
Overall	6.1	5.8	4.6	.001	7.9	8.2	8.5	0.11	0.001
White	5.9	5.6	4.5	0.005	7.5	7.8	8.0	0.25	0.004
Black	9.8	7.7	6.4	0.22	6.8	11.2	11.7	0.02	0.01
Hispanic	8.2	8.7	6.5	0.20	11.3	11.1	11.9	0.78	0.30
(Black-white disparity)	(3.9)	(2.1)	(1.9)	0.56	(-0.7)	(3.4)	(3.7)	0.04	0.11
(Hispanic-white disparity)	(2.3)	(3.1)	(2.0)	0.76	(3.8)	(3.3)	(3.9)	0.99	0.89
Personal doctor									
Overall	90.8	90.8	91.5	0.32	89.6	88.3	89.2	0.31	0.26
White	90.9	91.5	91.7	0.42	90.4	89.2	89.6	0.08	0.11
Black	93.3	87.6	89.9	0.13	87.5	85.9	87.1	0.82	0.49
Hispanic	86.2	84.0	88.9	0.16	80.8	78.0	85.5	0.07	0.74
(Black-white disparity)	(2.4)	(-3.9)	(-1.8)	0.09	(-2.9)	(-3.3)	(-2.5)	0.94	0.23
(Hispanic-white disparity)	(-4.7)	(-7.5)	(-2.8)	0.28	(-9.6)	(-11.2)	(-4.1)	0.04	0.33
Fair or poor health									
Overall	6.6	6.5	6.0	0.22	6.6	7.4	6.0	0.77	0.41
White	6.4	5.9	5.6	0.20	6.2	6.7	6.2	0.90	0.26
Black	9.8	7.6	8.5	0.80	5.0	9.7	5.7	0.64	0.64
Hispanic	10.8	14.0	11.0	0.89	10.8	12.9	11.0	0.82	0.80
(Black-white disparity)	(3.4)	(1.7)	(2.9)	0.98	(-1.2)	(3.0)	(-0.5)	0.64	0.88
(Hispanic-white disparity)	(4.4)	(8.1)	(5.4)	0.85	(4.6)	(6.2)	(4.8)	0.86	0.82

Notes: Massachusetts (MA). New England (NE). Predicted probabilities are adjusted for age, gender, marital status, education, income, and employment, and include an interaction term of race/ethnicity by year

Health reform was also associated with a significant decline in financial barriers to physician services for whites from 5.9% in 2006 to 4.5% in 2008, but not for blacks or Hispanics. Trends in financial barriers to care were constant in the remainder of New England for whites and Hispanics, but increased significantly for blacks from 6.8% to 11.7%. Therefore, trends in cost barriers for blacks in Massachusetts improved relative to those in the rest of New England ($p=0.01$), but again because of gains made by whites there were no improvements in disparities.

There were no significant changes in access to a personal doctor for any racial/ethnic group in Massachusetts. While blacks were more likely than whites to report access to a personal doctor in 2006 (93.3% versus 90.9%), the reverse was observed in 2008. Access to a personal physician was unchanged during the study period for whites, blacks and Hispanics in New England. Thus, health reform did not ameliorate disparities in access to a regular provider. Self-reported health status did not improve for any racial/ethnic group. In 2008, blacks and Hispanics in Massachusetts were more likely to report fair or poor health than whites (8.5%, 11.0%, and 5.6%, respectively). Findings by race/ethnicity were similar in sensitivity analyses using the alternative control groups.

Disparities in Coverage and Access to Care by Income

Coverage for adults with household incomes below 100% of the FPL did not improve relative to coverage among those with

incomes >300% of FPL. By comparison, individuals earning 201–300% of FPL in Massachusetts experienced the largest increase in coverage from 89.5% to 96.4% ($p<0.001$), followed by those earning between 101–200% FPL (also $p<0.001$). For both of these groups, the disparity in coverage compared to the highest income group decreased significantly in Massachusetts but did not improve in the rest of New England ($p=0.003$ for difference-in-difference for both groups). There were, however, no significant improvements in the disparities in coverage for these two groups relative to those in New England.

In contrast, lowest income adults in Massachusetts were significantly less likely to report cost barriers between 2006 and 2008 (15.6% and 8.1% respectively, $p=0.001$), and this change was significant relative to the same group in New England. There were not significant improvements in disparities in cost-related barriers relative to the trend in the rest of New England. Any gains in coverage made by lower income adults in Massachusetts did not translate into reduced disparities in access to a personal doctor or to improvements in health status. Socioeconomic disparities in access to a personal physician and self-reported health status persisted in both Massachusetts and New England. Findings by income were similar in sensitivity analyses using the alternative control groups.

DISCUSSION

After accounting for temporal trends in New England, we found that Massachusetts health reform was associated with expanded

Table 3. Adjusted Trends in Health Care Access Outcomes by Percent Federal Poverty Level (FPL)

	Massachusetts				New England				
	2006	2007	2008	p-value for trend in MA	2006	2007	2008	p-value for trend in NE	p-value for trend in MA vs NE
Coverage									
>300% FPL	95.7%	97.5%	98.6%	<0.001	95.1%	94.7%	95.0%	0.74	<0.0001
201–300% FPL	89.5	93.6	96.4	<0.001	87.5	86.4	87.3	0.86	0.003
101–200% FPL	88.1	88.4	93.8	<0.001	82.8	83.0	82.7	0.98	0.003
≤100% FPL	89.9	89.6	93.1	0.08	81.7	81.5	84.5	0.25	0.78
(≤100% FPL→>300% FPL)	(-5.8)	(-7.9)	(-5.5)	0.68	(-13.4)	(-13.2)	(-10.6)	0.24	0.47
(101–200% FPL→>300% FPL)	(-7.6)	(-9.1)	(-4.8)	0.02	(-12.3)	(-11.7)	(-12.4)	0.94	0.17
(201–300% FPL→>300% FPL)	(-6.2)	(-3.9)	(-2.2)	0.02	(-7.6)	(-8.3)	(-7.7)	0.93	0.12
Cost barrier									
>300% FPL	4.1	4.1	3.6	0.21	5.2	5.4	6.1	0.07	0.03
201–300% FPL	9.7	9.6	8.2	0.35	12.7	14.4	14.5	0.22	0.13
101–200% FPL	13.2	12.4	10.9	0.22	17.7	17.7	18.2	0.74	0.24
≤100% FPL	15.6	13.7	8.1	0.001	19.1	20.5	18.2	0.71	0.03
(≤100% FPL→>300% FPL)	(11.5)	(9.6)	(4.5)	0.003	(13.9)	(15.1)	(12.1)	0.45	0.14
(101–200% FPL→>300% FPL)	(9.1)	(8.3)	(7.3)	0.40	(12.5)	(12.3)	(12.1)	0.82	0.61
(201–300% FPL→>300% FPL)	(5.6)	(5.5)	(4.6)	0.58	(7.5)	(9.0)	(8.4)	0.51	0.49
Personal doctor									
>300% FPL	92.1	93.1	92.7	0.73	91.5	90.7	90.5	0.07	0.19
201–300% FPL	88.0	89.4	89.1	0.68	87.7	85.7	88.1	0.89	0.78
101–200% FPL	84.6	83.6	87.0	0.22	85.3	81.1	85.6	0.92	0.27
≤100% FPL	87.4	79.9	87.2	0.91	79.7	79.8	81.7	0.45	0.56
(≤100% FPL→>300% FPL)	(-4.7)	(-13.2)	(-5.5)	0.81	(-11.8)	(-10.9)	(-8.8)	0.26	0.33
(101–200% FPL→>300% FPL)	(-7.5)	(-9.5)	(-5.7)	0.30	(-6.2)	(-9.6)	(-4.9)	0.60	0.90
(201–300% FPL→>300% FPL)	(-4.1)	(-3.7)	(-3.6)	0.84	(-3.8)	(-5.0)	(-2.4)	0.45	0.77
Fair or poor health									
>300% FPL	5.1	5.3	5.0	0.68	5.3	5.5	5.0	0.65	0.93
201–300% FPL	8.1	7.4	7.7	0.88	7.7	9.2	9.5	0.11	0.28
101–200% FPL	11.4	10.7	10.1	0.46	11.3	13.6	10.2	0.36	0.90
≤100% FPL	13.5	13.4	10.7	0.15	13.3	15.1	14.4	0.51	0.14
(≤100% FPL→>300% FPL)	(8.4)	(8.1)	(5.7)	0.19	(8.0)	(9.6)	(9.4)	0.49	0.21
(101–200% FPL→>300% FPL)	(6.3)	(5.4)	(5.1)	0.57	(6.0)	(8.2)	(5.2)	0.52	0.97
(201–300% FPL→>300% FPL)	(3.0)	(2.1)	(2.7)	0.997	(2.4)	(3.7)	(4.5)	0.10	0.33

Note: Massachusetts (MA). New England (NE). Predicted probabilities are adjusted for age, gender, race/ethnicity, marital status, education, and employment, and include an interaction term of income by year

insurance coverage and reduced financial barriers in obtaining health care for working-age adults. These early successes were not accompanied by overall improvements in access to a regular physician or in self-reported health. Although there were improvements in coverage and cost barriers for some disadvantaged groups relative to trends in New England, there were no improvements in racial/ethnic or socioeconomic disparities in these outcomes, in large part because of comparable or larger improvements among whites and those earning $\geq 300\%$ FPL. Further, the 3% decline in uninsurance observed during the study period needs to be placed within the context of substantial declines in the rate of uninsurance in Massachusetts prior to the enactment of this reform.^{18,19}

Because minorities and low-income adults are overrepresented among the uninsured,¹⁶ health insurance expansion may be particularly beneficial for these groups.⁹ Enrollment following health reform was largest in the subsidized plans. Nearly 90% of the uninsured below 100% FPL have enrolled, yet only 29% of the uninsured between 200%–300% FPL.²⁴ We found, however, that under health reform disparities in access persisted. Lasting disparities in care and health status despite health coverage have been demonstrated in other settings for both private and public health plans.^{10–15} This observation is also consistent with the persistence of disparities in countries with universal health coverage, like Canada and the UK.^{25,26} Taken together these findings suggest that health reform policies should address

social determinants of health more broadly if a goal is to advance health equity.²⁷

The observation that access to a personal physician did not improve with health reform suggests the importance of additional barriers beyond coverage. These results are consistent with reports that between 2006 and 2008, substantially more primary care providers in Massachusetts reported closed patient panels with substantial wait times for a new patient to providers with an open practice.²⁸ An influx of newly insured adults may have exacerbated existing strains on the health care delivery system, such as a critical shortage of primary care physicians.⁷ Although health insurance coverage generally improves health status,²⁹ this effect largely occurs because of increased access to care and utilization of services. Moreover, it may still be too early post-reform to detect impacts on health outcomes.

These findings build upon previous studies that assess the impact of health insurance coverage on racial/ethnic and socioeconomic disparities. Several studies have found that health insurance explains a portion of racial/ethnic disparities in health care.^{9,30–34} Remaining gaps may be due to various factors including cultural or linguistic barriers, or lack of infrastructure within underserved communities to promote outreach and enrollment in health plans or facilitate the establishment of a relationship with a primary care provider.^{16,27,33,35,36} Finally, some individuals may still feel that insurance is unaffordable, as the majority of new enrollees since reform have been

covered under fully subsidized plans.⁷ In addition, health reform is not likely to eliminate the need for a safety net.³⁷ Because health reform in Massachusetts may have left fewer resources for safety net providers, individuals who remained uninsured after health reform may have had fewer options for care, and others with new coverage may have been displaced from existing relationships.^{37,38}

Thus, health reform may be more effective at promoting health care equity when implemented alongside complementary strategies such as minority health report cards that specifically track outcomes for underrepresented groups,³⁹ language resources and cultural competency training,⁴⁰ diversification of the health care workforce, and systemic changes in the quality, delivery, and management of care.^{27,39} Massachusetts health reform did include initiatives to reduce racial/ethnic disparities using pay-for-performance goals for MassHealth and a Health Disparities Council.² Pay-for-performance goals have included reducing disparities in readmission rates, avoidable hospitalizations, and the screening and management of chronic illnesses, outcomes not assessed by this study. The Disparities Council is charged with making recommendations to reduce and eliminate disparities in health care and health outcomes in Massachusetts; because the Council had met only once as of March 2008,² its influence may not yet be apparent in these data.

As in Massachusetts, national health reform strives to reduce disparities in access to and quality of care, the PPACA includes provisions such as enhanced collection of data on race/ethnicity and improved monitoring of trends in disparities.¹⁷ Despite some similar features between the two plans, including insurance exchanges, individual and employer mandates, and expanded Medicaid coverage, it is unlikely that the Massachusetts experience will predict that of the US. Various factors that have played into the initial expansion of health insurance in Massachusetts are not applicable on the national scale, including a low baseline rate of uninsurance; a lower undocumented immigrant population than other states; and an established health care infrastructure including an extensive community health network.

Several limitations of this work should be noted. First, because of sociodemographic differences and policy changes in other states, there is no ideal control group. During the study period, two other New England states began health reform, though not as comprehensive.^{22,41,42} Sensitivity analyses found that the exclusion of these states from the control group or use of the continental US as an alternative does not influence our conclusions. Second, although the BRFSS sample is large, our power was limited to detect small changes over time. In general, we had 80% power to detect a difference-in-difference of approximately 5% over 3 years for disparities in Massachusetts compared to New England. Smaller reductions in disparities may be too small to be considered meaningful. Third, our analyses used self-reported data from the BRFSS, and patterns of self reporting may vary by race/ethnicity.⁴³ Any self-reporting biases are likely to be consistent over time. Fourth, since implementation of reform measures were staggered, some effects of the legislation may not yet be apparent.

In conclusion, this work confirms that Massachusetts health reform was associated with improvements in coverage and a decline in financial barriers to care. We extend what is known about this health reform by demonstrating that the expansions

were not associated with increased access to a personal physician or improvements in self-rated health. This work suggests that health reform is necessary but not sufficient to achieve equity in health care. These results are particularly salient with the passage of the PPACA. The Massachusetts experience suggests the need to prioritize strategies to specifically address health care disparities such as incorporating disparities reduction goals into health plan provider contracts; linking monetary incentives to reducing disparities in health care; analyzing utilization and performance data by race/ethnicity and socioeconomic status of enrollees; and increasing culturally and linguistically appropriate care. Ongoing monitoring of access and affordability will be important to ensure that health reform improves equity.

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