

# **The Impact of States' Managed Care Regulatory Backlash on Patient Outcomes, 1996-2004**

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## **Abstract**

**Context:** Hundreds of anti-managed care state regulations were passed during the managed care “backlash” of the late 1990s and early 2000s. Many of these regulations eased or eliminated constraints on patient utilization of health care services imposed by managed care organizations. Limited research exists on whether the regulations achieved their goal of improving quality of care for managed care enrollees. This study examines the impact of these anti-managed care regulations on patient-reported quality of care and mortality for managed care enrollees.

**Methods:** A difference-in-difference-in-difference approach is used to investigate the change in outcomes for managed care patients in states with moderate- and high-intensity regulations relative to managed care patient outcomes in states with low-intensity regulations. Data come from nationally-representative household surveys.

**Findings:** Managed care enrollees who lived in states that adopted moderate-intensity regulations between 2000 and 2004 reported relatively greater improvements in access to care and confidence in their provider than did managed care enrollees in states with low-intensity regulations. The positive effect on access to care was similar in states that adopted high-intensity regulations.

**Conclusions:** These results indicate that regulations did improve patient-reported outcomes, but to varying degrees and only in the latter period of the backlash.

**Keywords:** Patient-reported outcomes; managed care organizations; quality of health care; state regulations

## **Introduction**

Managed care was promoted as a cost-effective alternative to traditional fee-for-service (FFS) health insurance through the passage of the HMO Act of 1974, though managed care plans remained relatively rare throughout the 1980s (Noble and Brennan 1999). Managed care organizations (MCOs) achieved cost savings during that time by enforcing utilization rules and negotiating directly with providers on prices and coverage (Rodwin 1997). This contrasted sharply with the lack of constraints on FFS insurance reimbursement that incentivized providers to oversupply care, such as by ordering unnecessary tests and utilizing new and expensive technologies (Glied and Zivin 2002; Bodenheimer 2005). In the 1980s, health care expenditures grew rapidly due partly to provider-induced demand and often unjustifiable utilization of costly technologies (Emanuel and Fuchs 2008). The high cost of excessive utilization eventually led insurance companies to raise private-sector employer health insurance premiums by double-digits annually in the 1990s (Titlow and Emanuel 1999). Prompted by the drastic growth in annual employer health insurance premiums, businesses increasingly adopted lower-cost managed care plans for their employees (Zuvekas and Hill 2004). By 1999, almost ninety percent of Americans with private employer-sponsored health insurance were enrolled in a managed care plan (Kaiser Family Foundation 2002).

### **Managed care backlash.**

Negative public sentiment arose in the 1990s from the widespread belief that quality of care was suffering due to the cost-driven decisions of MCOs (Goldberg 1999). Although anecdotal evidence suggested some patients were negatively impacted from not receiving necessary care, reviews conducted in the early 2000s found MCO enrollees did not receive lower quality of care, on average, and preventative care was often better (Miller and Luft 2002;

Zuvekas and Hill 2004). Nonetheless, the perception that managed care was inferior to FFS insurance pervaded public and media sentiment in the 1990s (Noble and Brennan 1999). The “backlash” against managed care from both patients and providers culminated in the adoption of hundreds of state regulations in all fifty states mandating changes to MCOs (Sloan, Ratliff, and Hall 2005).

All states passed at least one anti-managed care regulation, but most states passed many (table 1). Banning gag rules was the most prevalent backlash regulation. These gag rules previously prevented providers from discussing treatments with patients that were not covered by the MCO. Over half of states passed laws allowing women to see an OB/GYN without first seeing their primary care physician (PCP), permitting patients with chronic illnesses to visit long-standing specialists without a referral, and ensuring patients with rare diseases could continue visiting their doctor even if he/she left the MCO network. In thirty-nine states, MCOs were forced to cover expenses for emergency room visits. Any willing provider laws required MCOs to accept into their network any provider that met certain requirements, enlarging the pool of available doctors for MCO enrollees in twenty-six states. Comprehensive reform legislation in many states prevented MCOs from conducting utilization reviews of providers in which the sole purpose of the review was to cut services. Additionally, most states banned MCOs from offering PCPs financial incentives to limit the number of procedures they provided to patients. And about half of states established report cards for managed care providers, providing managed care patients with a metric to compare the care they received from their PCP against a national average. Other backlash regulations granted patients the right to appeal MCO care coverage decisions through both internal and external review processes. Ombudsman programs were established to help address denial of service claims. In ten states, patients were granted the right

Table 1

*Managed Care Regulation Types and Number of States Adopting by 2004*

Type of Regulation	Number of States
Direct access to OB-GYNs	39
Standing referrals to specialists	30
Continuity of care protections	36
Emergency room access under “prudent layperson” standard	39
Any willing provider law	26
Bans on gag rules	48
Comprehensive reform bill	46
Bans on provider financial incentives	31
HMO report card established	27
Graduated levels of internal review	40
Independent external review of appeals required	43
Ombudsman program	18
Liability: right to sue health plans for damages	10

Source: Author’s analysis of data from Gray, Lowery, and Godwin (2007) and the National Council of State Legislatures (2011)

to sue MCOs for damages related to denial of care.

The main goals of the state regulations restricting managed care practices were to ensure patients' access to essential health care services and to improve quality of care (Zelman 1999). While clinical quality was found to be generally equivalent between people with managed care and FFS insurance, managed care patients often had worse patient-reported outcomes (PROs) (Miller and Luft 2002). In particular, managed care enrollees in the 1990s reported relatively worse satisfaction with care and access to care (Miller and Luft 1997; Phillips, Mayer, and Aday 2000). The anti-managed care laws sought to weaken MCO practices that impeded access to care, negatively impacted patient confidence in providers, and caused patient dissatisfaction with care. Despite the passage of hundreds of these laws in the late 1990s and early 2000s, limited research exists on whether the regulations fulfilled those intentions. To fill this gap, this study takes advantage of the different intensities of anti-managed care regulations enacted in the late 1990s and early 2000s to investigate their impact on quality of care for managed care enrollees. This analysis focuses on the outcomes directly related to the source of the managed care backlash: access to care, confidence in provider, and patient satisfaction with care.

## **Methods**

### **Data sources.**

The four data sources used in this analysis are the Medical Expenditure Panel Survey (MEPS) from the U.S. Agency for Healthcare Research and Quality (AHRQ); the National Health Interview Survey (NHIS), linked to the National Death Index, from the U.S. National Center for Health Statistics (NCHS); information about state regulations from the paper by Gray, Lowery, and Godwin (2007), "Political Management of Managed Care:

Explaining Variations in State Health Maintenance Organization Regulations;” and the Area Health Research File (AHRF) from the U.S. Department of Health and Human Services.

The MEPS contains the key variables used in this study: patient experiences with health care and managed care coverage. The MEPS is a nationally representative two-year overlapping panel survey of health care utilization and spending for non-institutionalized persons in the U.S (the institutionalized account for a small share of the population, including those in nursing homes, prisons, long-term psychiatric hospitals, and active military). The first available year of MEPS data is 1996, which is used as the base year in this study. Most of the managed care regulations were passed between 1996 and 2000 and were usually implemented within a year of being passed. Only a few dozen regulations were enacted prior to 1996. Although data availability prevents the use of an earlier base year, it would not impact this analysis given how few regulations were passed prior to 1996. The end of the backlash period is often considered to be between 2001 and 2002 (Sloan et al. 2005), but 2004 marks the last year of significant state regulatory activity. Managed care variables are not available in MEPS for the years 1997-1999 but are available for 1996 and 2000-forward. Therefore, two periods are examined: 1996-2000 and 2000-2004.

The MEPS sample size over the study period ranged from approximately 20,000-30,000 people each year, including both adults and children. A single respondent answered questions for the entire household during multiple in-person interviews. People who did not utilize health services are also included in the MEPS sample, providing an inclusive sample of respondents. Most of the environmental and patient characteristics described in the conceptual framework are also taken from the MEPS, including geography, demographics, and health status. Respondent survey weights account for the complex survey design of the MEPS, which oversamples certain

segments of the population.

The NHIS is a 3-year overlapping panel survey, from which MEPS respondents are chosen, that covers a variety of health care topics. The NHIS is linked to the National Death Index, which provides mortality information for MEPS respondents over age 18. Sample size for NHIS ranged from 75,000-85,000 people each year, however there are only a couple hundred instances of mortality annually due to the low occurrence of death in the general population (less than 1% in 2004).

The Gray et al. (2007) paper analyzed variations in state managed care regulations during the backlash period (1994-2003). The authors provided the data used in their analysis, which consisted of matrices that showed the number of every type of backlash regulation passed in each state for every year. Gray et al. determined that some regulations were passed with differing degrees of enforcement and limited scope of providers (e.g., any willing provider laws only applied to pharmacists in some states), so these matrices also accounted for stringency of regulation. Specifically, a regulation was assigned a weight with values ranging from 0.28-1 so that regulations of less importance were given a lower value and the most stringent regulations received a value of 1.

The AHRF is a meta-database of various government statistics compiled by the Health Resources and Services Administration under the Department of Health and Human Services. The AHRF is used to determine the barrier to care variable for each person living in a county with a PCP shortage.

### **Dependent variables.**

Nine patient-reported outcomes (PROs) from the MEPS are examined for the 1996-2000 period and three for the 2000-2004 period. Only three of the PROs are available in the second

period owing to a change in the survey questions in 2001. People were asked about their usual source of care, simplified hereafter to “doctor” (Medical Expenditure Panel Survey 2004).

Survey questions asking about difficulty or satisfaction had four potential options (very difficult, somewhat difficult, not too difficult, not at all difficult; very satisfied, somewhat satisfied, not too satisfied, not at all satisfied). In those cases, responses were transformed to binary so that “not at all difficult,” “very satisfied,” and “somewhat satisfied” were set to positive (1) and all other responses set to negative (0). The other survey questions were already binary.

Access to care is assessed using five survey questions. Two questions ask about difficulty and satisfaction with access to care. The other three questions ask about specific aspects of access to care, including difficulty making an appointment, difficulty contacting the doctor on the phone, and availability of doctor during night and weekend hours. Though these questions seem similar, summary statistics show the responses can be different. For example, 90% of managed care enrollees in 1996 reported no difficulty accessing care, but only 43% reported no difficulty getting an appointment. Thus, the access to care variables are analyzed individually.

Confidence in one’s provider is operationalized using three survey questions: if the respondent is confident in his/her provider, if the doctor listens, and whether the doctor asks patients about other treatments they are taking. This last question, available in the 1996, 2000, and 2004 surveys, is relevant because research has shown patients are confident in providers who are respectful, listen, and include the patient in the decision-making process (Verbeek et al., 2004). Only the last question was asked all three years. Mortality is determined by whether the person survived in the survey year and year after by examining date of death data from the National Death Index.

### **Independent variables.**

A key independent variable of interest constructed for this study is a measure of regulatory intensity. The intensity score measures the scope and breadth of each state's managed care regulations contingent on three factors: number, stringency, and rarity. The number and stringency of regulations was taken from the Gray et al. (2007) paper. To account for rarity of regulations, this study also weights each regulation using a Saidin index. A Saidin index gives more weight to a phenomenon when it is relatively less common to distinguish them from more commonplace laws (Spetz and Baker 1999). This corresponds to the finding by Sloan and Hall (2002) that states that passed rarer backlash regulations were favored by consumer advocates as having the strongest overall packages of laws. For this study, a Saidin rarity index is found using the proportion of states that did not pass a certain type of law. For example, 48 out of 50 states passed a law banning gag orders. Formally, the intensity score for each state is determined by the weighted sum of the number of adopted backlash regulations (the weights being the Saidin index and stringency weights from Gray et al.). The overall index for the state for each year is cumulative and only decreases over time if a law was repealed. The regulatory intensity categories were determined from these weighted state intensity scores, taken from the final distribution of state intensity scores in 2004 after regulatory activity ended. Specifically, low intensity is represented by index scores in the first quartile, moderate intensity are scores in the middle two quartiles and high intensity are scores in the last quartile. Based on this definition, all states begin in the low-intensity regulation category in 1996 and most shift to moderate- or high-intensity regulation states by 2004.

The other essential independent variable is whether a person is enrolled in managed care or has FFS coverage. A MEPS respondent can have insurance coverage for the whole year or

for part of the year (available in monthly intervals). The monthly interval data show some respondents had both HMO and FFS insurance in the same year, so the sample is restricted to those with full-year insurance coverage to avoid patients with overlap. Therefore, the final definition for a managed care patient used in this study is someone with an HMO or gatekeeper plan that had insurance coverage for the entire year. The final definition of a FFS patient is someone who was enrolled in a FFS plan that had insurance coverage for the entire year.

### **Control variables.**

We control for health and demographic factors previously identified to affect patient outcomes. These factors are operationalized using standard measures from previous research. Specifically, barriers to care are represented using indicators for whether the person lives in a county with a severe or partial PCP shortage and whether the person lives in a metropolitan area (White, Bazzoli, Roggenkamp, and Gu 2005). The relevant health and demographic controls include race, gender, marital status, individual income, education, Hispanic heritage, self-reported poor health, pre-existing chronic condition indicator, and Medicare or Medicaid status. These variables were all represented with binary indicators except for income, which was transformed to constant-2004 dollars using the Consumer Price Index.

### **Research design.**

This study uses a difference-in-difference-in-difference (DDD) empirical design. Differences in patient outcomes between managed care and FFS patients are compared over time as states changed the intensity of their managed care regulations. Specifically, this study investigates the difference in outcomes for managed care patients compared to FFS patients in states with low-intensity regulations and how this difference in outcomes changes in states that adopted moderate and high intensity regulations between 1996-2000 and 2000-2004. This

empirical design controls for changes that affected both FFS and managed care enrollees unrelated to regulatory treatment, such as changes in medical practices or changes in the prevalence of obesity.

Logit regressions are run for each outcome. These DDD regressions measure the change in outcomes for managed care patients in states with low-intensity regulations relative to patients in states that switched to moderate- and high-intensity, controlling for changes in corresponding FFS patients. For example, for the regression model comparing 2004 and 2000, the model includes dummy variables for the year 2004, for whether the patient was in a managed care or FFS plan, for whether the patient lived in a high- or moderate-intensity regulation state, and all the possible higher-order interactions of these dummy variables. Thus, the DDD estimates are obtained using the triple interactions for managed care patient in 2004 in a high-intensity regulation state and in a moderate-intensity regulation state. The analysis for measuring changes from 1996 to 2000 includes a similar set of dummy variables except that the DDD estimates are obtained from interactions representing managed care patients in a high-intensity regulation state and in a moderate-intensity regulation state, the interaction with the second period dummy variable being superfluous since all states were low-intensity in 1996. Standard errors are robust to heteroskedasticity and incorporate the complex survey design of MEPS which oversamples certain segments of the population.

## **Results**

### **Sample characteristics.**

The MEPS unweighted sample size of people with any health insurance increased from 19,142 in 1996 to 28,635 by 2004. Of those three years, managed care enrollment was highest in 2000, when 44% of MEPS respondents with insurance reported having managed care.

Reflecting the general changes in managed care regulations, low-intensity states had the smallest sample sizes by 2004, especially for managed care enrollees (n=850, or 3% of annual sample).

Table 2 shows the summary statistics of demographic information for FFS and managed care enrollees in 1996. The MEPS survey weights have been applied to all MEPS data to make them nationally representative of US households in all fifty states and Washington, DC. In general, managed care enrollees were more likely to be younger, married, have higher incomes, have college degrees, and live in a metropolitan area, and they were less likely to have a chronic condition or report being in poor health relative to FFS enrollees ( $p \leq 0.05$ ). Demographic information was mostly similar across the different regulatory categories (low/moderate/high-intensity) for 2000 and 2004. However, high-intensity states had a higher proportion of minority and Hispanic individuals than the other states. Additionally, a lower proportion of people in low-regulation intensity states lived in a metropolitan area compared to those in moderate- and high-intensity states in the latter years.

Table 2

*Nationally-representative Mean Summary Statistics for Control Variables by Insurance Status, 1996 (standard deviation)*

	Managed Care	Fee-For-Service
Age	33 (22)	37 <sup>†</sup> (27)
Female (%)	51	53 <sup>†</sup>
Race (%)		
Black	11	13 <sup>†</sup>
White	83	83 <sup>†</sup>
Other	6	4 <sup>†</sup>
Hispanic (%)	9	10 <sup>†</sup>
Married (%)	48	40 <sup>†</sup>
Education (%)		
No high school degree	32	43 <sup>†</sup>
High school	40	37 <sup>†</sup>
College	28	19 <sup>†</sup>
Chronic condition prevalence (%)	26	34 <sup>†</sup>
Self-reported bad health (%)	6	13 <sup>†</sup>
Lives in metropolitan area (%)	88	70 <sup>†</sup>
Lives in county with severe PCP shortage (%)	46	44
Lives in county with partial PCP shortage (%)	38	38
Individual Income (constant-2004\$)	34,169	25,445 <sup>†</sup>
Medicare disabled (%)	0.5	3.3 <sup>†</sup>
Medicare aged (%)	4.4	17.8 <sup>†</sup>
Number of enrollees (unweighted)	7,014	12,128

<sup>†</sup>Significant difference between managed care and FFS (p<0.05)

Table 3 summarizes the dependent variables for FFS and managed care enrollees in 1996. Many outcomes showed no significant difference between the two groups. Contrary to research showing dissatisfaction with managed care (Miller and Luft 2002), 94% of managed care enrollees reported satisfaction with care in 1996, just below the response of 96% for FFS respondents. Satisfaction rates increased slightly for most managed care enrollees between 1996 and 2000. Also, at least 90% of all respondents reported being satisfied with their ability to access to care in every reference group in 1996 and 2000. (Respondents were asked about their “usual source of care,” simplified here and afterwards as “doctor”). Likewise, at least 95% of all respondents reported feeling confident in their doctor in both 1996 and 2000. Lastly, most respondents reported their doctor asked them about other treatments they were taking across all three years.

Table 3

*Nationally-representative Mean Summary Statistics for Dependent Variables by Insurance Status, 1996 (%)*

		Managed Care	Fee-for-Service
Access to Care	Doctor has night or weekend hours	55	45 <sup>†</sup>
	Patient has no difficulty contacting doctor by phone	39	42 <sup>†</sup>
	Patient has no difficulty getting an appointment	43	44
	Patient has no difficulty accessing care	90	90
	Patient is satisfied with ability to access care	96	94 <sup>†</sup>
Confidence in Providers	Doctor asks patient if he/she is taking other treatments	75	79 <sup>†</sup>
	Doctor listens to patient	97	97
	Patient is confident in doctor	95	97 <sup>†</sup>
Satisfaction with Care	Patient is satisfied with care	94	96 <sup>†</sup>
Mortality	Patient did not die during survey year or year after	99.5	98.4 <sup>†</sup>

<sup>†</sup>Significant difference between managed care and FFS (p<0.05)

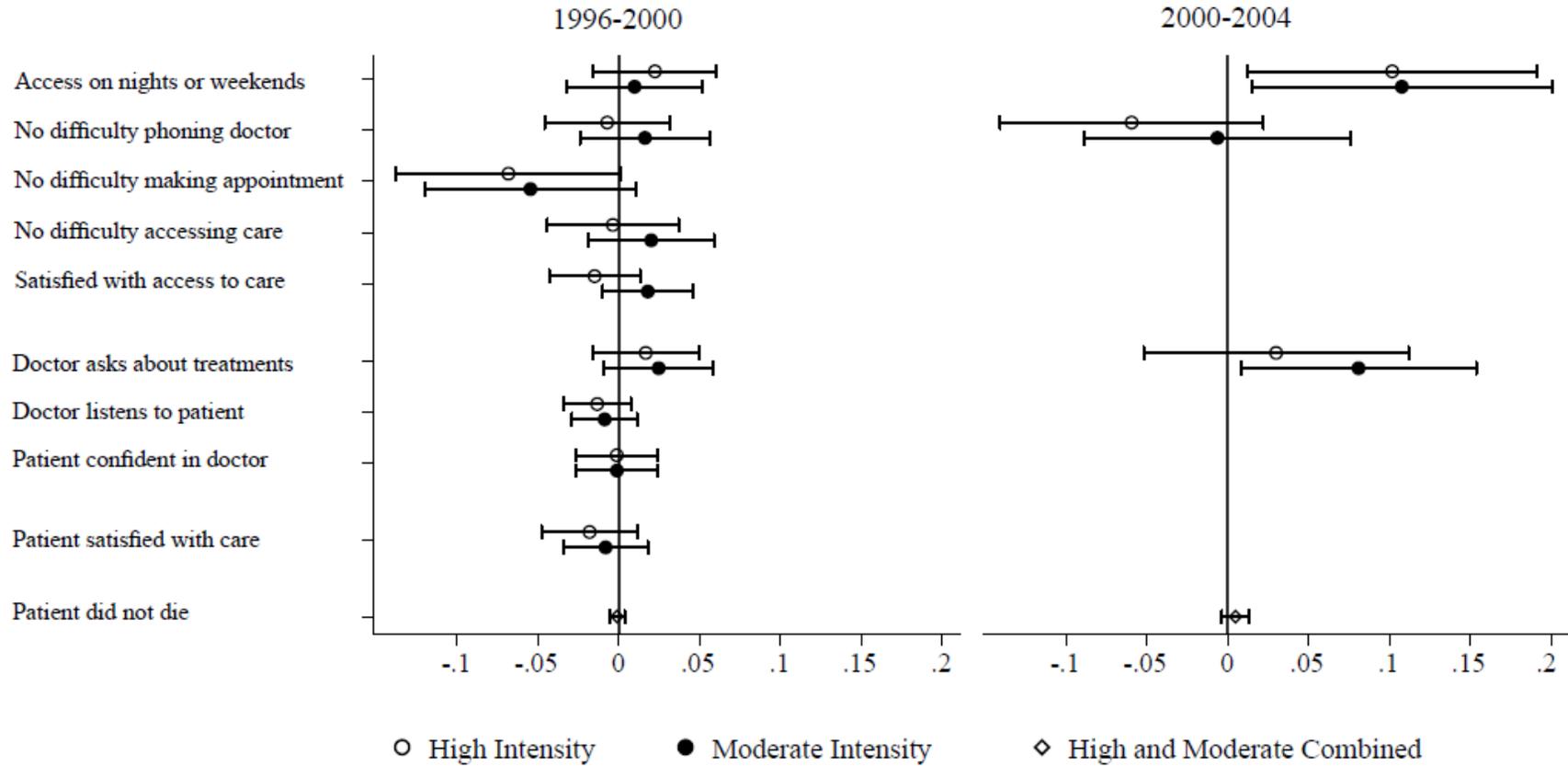
Despite high satisfaction with care and ability to access to care, most respondents reported at least some difficulty getting an appointment with their doctor in 1996 and 2000. In 1996, 43% of managed care and 44% of FFS respondents reported difficulty getting an appointment, while responses ranged between 42-48% for managed care and FFS enrollees in 2000 across different levels of regulatory intensity. Additionally, only 42% of FFS and 39% of managed care enrollees reported no difficulty contacting their doctor by the phone in 1996. However, this result improved by 2004, when 54-59% of respondents across all reference groups reported no difficulty contacting their doctor by the phone.

Mortality was rare for all groups across the three years, with 98-99% of respondents living until at least a year after they were in the survey. Due to the very small number of instances of mortality (only a few hundred), patients in states with high- and moderate-intensity were combined and compared to low-intensity regulation states. Managed care patients had a slightly higher likelihood of survival for all years relative to their FFS counterparts.

### **Regression results.**

***Regulatory effect.*** The DDD regressions measure the change in outcomes for managed care patients in states with low-intensity regulations relative to patients in states that switched to moderate- and high-intensity, controlling for changes in corresponding FFS patients. The full regression results are listed in the appendix. Figure 1 shows that states with a moderate-intensity regulatory response saw positive results for managed care enrollees in the second period for both access to care and confidence in provider. The only significant regulatory effect in the first period was negative and showed managed care enrollees reported relatively worse access to care in states that enacted moderate- and high-intensity regulations. No regulatory

Figure 1. Difference-in-Difference-in-Difference Estimates of the Effects of High- and Moderate-Intensity Regulations on Patient Outcomes (Differential Change in Probability with 95% Confidence Intervals)



effects were found for the mortality outcome or the satisfaction outcome (available only in the first period).

For access to care between 1996-2000, the probability of managed care enrollees reporting no difficulty making an appointment decreased 5.5 percentage points in states that moved from low- to moderate-intensity regulations, and 6.8 percentage points less when states went from low- to high-intensity. However, in the second period, managed care enrollees in states that went from low-intensity to moderate- or high-intensity were more likely to report their doctor was accessible on nights and weekends (10.8 and 10.2 percentage points, respectively). Also in the second period, managed care enrollees in states that went from low intensity to moderate were 8.1 percentage points more likely to report their doctor asked them about other treatments.

***Regulation intensity.*** Results indicated mostly positive outcomes for the regulation intensity variables (not shown). All statistically significant access and confidence variables for moderate-intensity states were positive for both periods. Specifically, people in moderate-intensity states in the first period were more likely to report their doctor had night or weekend hours and to report having no difficulty contacting their doctor by phone (marginal effect (ME) = 0.0304 and 0.1013, respectively). In the second period, they were again more likely to report their doctor had night or weekend hours and to report their doctor asked them about other treatments they were taking (ME = 0.0443 and 0.0550, respectively). The only negative parameter estimate for moderate-intensity states was in the first period, when people in those states were less likely to report being satisfied with care (ME = - 0.0176). People in high-intensity regulation states were less likely to report their doctor had night or weekend hours in both periods (ME = -0.0935 and -0.0974, respectively). But they were more likely to report

having no difficulty contacting their doctor by phone in the first period (ME = 0.0850) and that their doctor asked them about other treatments they were taking (ME = 0.0662). These results suggest that in states with moderate-intensity regulations, enrollees reported relatively better access to care and confidence in their doctor, on average, than people in low-intensity regulation states. People in high-intensity regulation states also reported relatively greater confidence in provider, but results were mixed for access to care.

## **Discussion**

Many of the anti-managed care regulations states enacted attempted to address the issue of managed care's potentially restrictive influence over provider and patient choices. Our results suggest that higher levels of regulation did protect or improve some outcomes, but not uniformly. For example, our study found that doctors were engaging more with their patients after the passage of moderate-intensity backlash regulations when it came to asking about other treatments. However, no concomitant increase was found in high-intensity states, suggesting the additional regulations were counterproductive for enhancing patient confidence in one's provider. High-intensity regulation states often passed dozens of regulations over multiple years. A study by Hamasaki, Takehara, and Hagihara (2008) found increasing rates of regulation limited provider communication with patients because providers believed their comments could be used against them in malpractice lawsuits. Another study found providers may not respond to regulations if they perceive them as having paternalistic motivations (Monahan 2012), such as HMO report card requirements, which insinuate managed care providers were offering sub-standard care to their patients.

The mixed regulatory effects on access to care across the two periods may reflect an increase in demand for services due to the regulations. Provider flexibility laws, such as

banning financial incentives for providers and the lifting of gag orders, had the potential to increase demand for procedures. Managed care enrollees in states that moved from low-intensity regulations to moderate- or high-intensity between 1996 and 2000 reported relatively more difficulty making an appointment with their doctor, controlling for changes in FFS patients. This could reflect providers not meeting the increased demand for services, resulting in a bottleneck for managed care enrollees seeking to access care. Likewise, managed care enrollees in states that moved from low-intensity regulations to moderate- or high-intensity between 2000 and 2004 were more likely to report having access to doctors on night or weekend hours. Doctors may have offered additional hours to accommodate additional demand for services. In both cases, the possible regulatory effect on access to care is indirect, as none of the regulations directly address ease of getting an appointment or additional business hours.

Finally, no significant regulatory effect was found for satisfaction with care. If the regulatory backlash was driven in part from patient dissatisfaction with existing or feared utilization constraints and MCO interference with services (Rodwin 1996), one would expect satisfaction for managed care enrollees in states with more intense managed care regulations would improve. The lack of a regulatory effect may partly be explained by the already high satisfaction rates for managed care enrollees. Additionally, the causes of overall dissatisfaction may have been misinterpreted or reports of dissatisfaction may have been overblown. For example, Blendon et al. (1998) found that HMO and FFS enrollees were equally satisfied with care, and Miller and Luft's 1997 review of the literature found only one study with statistically significant results showing MCO enrollees reported lower satisfaction than their FFS counterparts. It is also possible satisfaction did increase because of the regulations, but only in the second period, when the variable was unavailable. This would correspond with the finding

that confidence in provider only improved in the second period for managed care enrollees in moderate-intensity states.

There are a few limitations to this study. Due to confidentiality issues with state-level MEPS data, the authors were only permitted to test one specification of the state intensity categories. Therefore, no robustness check could be performed to see what impact, if any, resulted from giving rarer regulations more weight. The timing, number, and interrelatedness of regulations prevents an analysis of the impact of individual laws on patient outcomes. Therefore, the causal link between the regulations and any observed enhancements in the designated outcomes is somewhat limited since improvements cannot be attributed to specific laws. In addition, if omitted variable bias is present and unobserved factors are influencing both the intensity of the backlash and patient outcomes, then endogeneity may be an issue. However, Gray et al. (2007) and Pinkovskiy (2014) find no evidence that managed care enrollees in states that passed more regulations had worse outcomes prior to the backlash, weakening the endogeneity argument. Additionally, the DDD model used in this study controls for changes in corresponding FFS patients during the backlash. Finally, since MEPS questions changed in the early 2000s, only 4 out of 9 outcomes could be tested for the second period. Since the second period is when positive outcomes were found, the positive regulatory effects may be understated in this paper.

The results of this study indicate satisfaction with care and ability to access care was already very high for both managed care and FFS enrollees during the managed care backlash. In 1996, over 95% of managed care and FFS respondents said they were satisfied with their care and over 90% said they had no difficulty accessing care and were satisfied with their ability to access care. Likewise, over 95% of all patients said they were confident in their doctor and that

their doctor listened to them. Despite high marks for these general questions, more pointed questions about access to care and confidence in provider suggest issues existed beneath the surface. Less than half of all respondents in 1996 reported no difficulty accessing providers on nights and weekends or having no difficulty contacting providers by phone. Policymakers have begun using patient-reported outcomes as part of value-based reimbursement arrangements. For example, Accountable Care Organizations pay doctors or hospitals incentives to meet certain cost and quality benchmarks, including access to care and satisfaction with care survey scores (Highfill and Ozcan 2016). These types of delivery models may consider using more specific questions about aspects of quality over general questions that tend to always skew positive to get a more nuanced understanding of changes in patient outcomes and quality of care over time.

Hundreds of state laws were passed during the managed care backlash of the late 1990s and early 2000s. This study finds managed care enrollees who lived in states that adopted moderate-intensity regulations between 2000 and 2004 reported relatively better improvements in access to care and confidence in their provider than did managed care enrollees in states with low-intensity regulations. The positive effect on access to care was similar in states that adopted high-intensity regulations. However, no positive regulatory effect was found for any outcome in the first period (1996-2000). These results indicate that regulations did improve patient-reported outcomes for managed care enrollees, but to varying degrees and only in the latter period of the backlash.

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## Appendix

Appendix Table 1

*Average Marginal Effects and Standard Errors for 1996-2000*

	Access to Care					Confidence in Provider		
	Doctor has night or weekend hours	Patient has no difficulty contacting doctor by phone	Patient has no difficulty accessing care	Patient is satisfied with ability to access care	Patient has no difficulty getting an appointment	Doctor asks patient if he/she is taking other treatments	Doctor listens to patient	Patient is confident in doctor
2000	0.0013	-0.0859***	0.0021	-0.0027	0.0033	0.0546***	0.0067	-0.0054
	(0.0161)	(0.0149)	(0.0138)	(0.0084)	(0.0246)	(0.0146)	(0.0067)	(0.0074)
Managed Care (MC)	0.0471***	-0.0282**	-0.0202***	0.0007	-0.0045	-0.0282***	-0.0034	-0.0168***
	(0.0131)	(0.0137)	(0.0077)	(0.0064)	(0.0153)	(0.0109)	(0.0047)	(0.0053)
Moderate	0.0304**	0.1013***	-0.0100	-0.0098	0.0317	0.0013	0.0014	0.0094
	(0.0158)	(0.0168)	(0.0161)	(0.0105)	(0.0312)	(0.0133)	(0.0073)	(0.0088)
High	-0.0935***	0.0850***	-0.0239	-0.0149	0.0262	-0.0016	0.0027	0.0075
	(0.0159)	(0.0158)	(0.0170)	(0.0094)	(0.0275)	(0.0117)	(0.0077)	(0.0089)
MC * 2000	-0.0150	-0.0009	0.0350***	0.0228**	0.0266	-0.0290*	0.0059	0.0105
	(0.0177)	(0.0178)	(0.0164)	(0.0118)	(0.0313)	(0.0164)	(0.0092)	(0.0096)
MC * Moderate	0.0097	0.0161	0.0200	0.0179	-0.0547*	0.0246	-0.0088	-0.0012
	(0.0212)	(0.0205)	(0.0198)	(0.0142)	(0.0334)	(0.0173)	(0.0103)	(0.0127)
MC * High	0.0223	-0.0072	-0.0037	-0.0150	-0.0683*	0.0166	-0.0134	-0.0013
	(0.0195)	(0.0198)	(0.0207)	(0.0143)	(0.0354)	(0.0168)	(0.0106)	(0.0127)

(Appendix Table 1 continued)

Satisfaction		Mortality	
Patient is satisfied with care		Patient did not die during the survey year, or year after	
2000	-0.0056 (0.0081)	2000	0.0009 (0.0008)
MC	-0.0167** (0.0073)	MC	0.0011 (0.0015)
Moderate (Mod)	-0.0176** (0.0087)	ModHigh	0.0010 (0.0007)
High	-0.0031 (0.0097)		
MC * 2000	0.0294** (0.0131)	MC * 2000	-0.0025 (0.0024)
MC * Mod	-0.0082 (0.0133)	MC * ModHigh	-0.0011 (0.0021)
MC * High	-0.0181 (0.0151)		

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 2

*Average Marginal Effects and Standard Errors for 2000-2004*

	Access to Care		Confidence in Provider	Mortality	
	Doctor has night or weekend hours	Patient has no difficulty contacting doctor by phone	Doctor asks patient if he/she is taking other treatments	Patient did not die during the survey year, or year after	
2004	-0.0482*	0.1378***	-0.0155	2004	0.0007
	(0.0263)	(0.0302)	(0.0240)		(0.0016)
Managed Care (MC)	0.0454***	-0.0233*	-0.0346***	MC	0.0011
	(0.0133)	(0.0136)	(0.0114)		(0.0016)
Moderate (Mod)	0.0443*	0.0341	0.0550***	ModHigh	0.0010
	(0.0250)	(0.0233)	(0.0193)		(0.0011)
High	-0.0974***	-0.0175	0.0662***		
	(0.0215)	(0.0209)	(0.0179)		
MC * 2004	-0.0751**	0.0451	0.0069	MC * 2004	-0.0046
	(0.0350)	(0.0316)	(0.0303)		(0.0035)
MC * Mod	-0.0157	-0.0038	-0.0272	MC * ModHigh	-0.0023
	(0.0277)	(0.0270)	(0.0206)		(0.0025)
MC * High	0.0024	0.0050	-0.0161		
	(0.0260)	(0.0245)	(0.0265)		
Mod * 2004	0.0127	-0.0245	-0.0573*	ModHigh * 2004	-0.0002
	(0.0393)	(0.0397)	(0.0316)		(0.0019)
High * 2004	0.0455	0.0198	-0.0728**		
	(0.0352)	(0.0366)	(0.0304)		

(Appendix Table 2 continued)

	Access to Care		Confidence in Provider	Mortality
	Doctor has night or weekend hours	Patient has no difficulty contacting doctor by phone	Doctor asks patient if he/she is taking other treatments	Patient did not die during the survey year, or year after
MC * Mod * 2004	0.1077**	-0.0064	0.0809**	MC * ModHigh * 2004 0.0048
	(0.0474)	(0.0421)	(0.0371)	(0.0043)
MC * High * 2004	0.1017**	-0.0594	0.0299	
	(0.0455)	(0.0415)	(0.0418)	

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1