2017

PATIENT OUTCOMES AND MANAGED CARE: WHAT WAS THE IMPACT OF THE STATE REGULATORY BACKLASH?

TINA C. HIGHFILL
Virginia Commonwealth University

Patient Outcomes and Managed Care: What Was the Impact of the State Regulatory Backlash?

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

by

Tina C. Highfill
M.A., Applied Economics, Johns Hopkins University, 2008
B.A., Economics, Virginia Tech, 2003

Director: Dolores G. Clement, Dr. P.H.
Professor and Director of Dual Degree Programs
Department of Health Administration

Virginia Commonwealth University
Richmond, Virginia
May, 2017

Acknowledgement

I wish to thank several people. I am grateful to my parents, Elaine and Dwight Highfill, my husband, Jared Dunbar, my sisters, Valerie Wightman, Andrea Burrows, and Marcia Sheehan, and my parents-in-law, Ann and Frank Dunbar. I am honored to be advised by Dr. Dolores G. Clement and I am very grateful for the feedback from my other committee members, Dr. David Harless, Dr. Jessica Mittler, and Dr. Askar Chukmaitov. I also thank Dr. Jan Clement and my fellow doctoral students, especially, Jennifer Early, Matthew DePuccio, Marisa Roczen, and Jaya Khushalani. I am thankful for the support I received from my superiors at the Bureau of Economic Analysis, especially Ana Aizcorbe, Erich Strassner, Brian Moyer, and David Johnson. I thank my fellow researchers for their feedback, especially, Abe Dunn, Eli Liebman, William Larson, Virginia Henriksen, and Pao-Lin Tien. Thank you to Virginia Gray, David Lowery, and Erik K. Godwin for the use of their data. Finally, I thank Ray Kuntz at AHRQ for help accessing and processing my numerous data requests.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

AHRF	Area Health Resource File
AHRQ	Agency for Healthcare Research and Quality
DDD	Difference-in-difference-in-difference
FFS	Fee-for-service
HMO	Health Maintenance Organization
IPA	Independent Provider Association
MC	Managed Care
MCO	Managed Care Organization
ME	Marginal Effects
MEPS	Medical Expenditure Panel Survey
NCHS	National Center for Health Statistics
NCSL	National Council of State Legislators
NDI	National Death Index
NHIS	National Health Insurance Survey
OB/GYN	Obstetrician/Gynecologist
PCP	Primary Care Physician
PRO	Patient-reported Outcome
SPO	Structure Process Outcomes

Abstract

PATIENT OUTCOMES AND MANAGED CARE: WHAT WAS THE IMPACT OF THE STATE REGULATORY BACKLASH?

By Tina C. Highfill, M.A.
A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2017.
Major Director: Dolores G. Clement, Dr. P.H., Department of Health Administration

Hundreds of state regulations were passed during the “managed care backlash” of the late 1990s and early 2000s. Many of these anti-managed care regulations eased or eliminated constraints on patient utilization of health care services imposed by managed care organizations. Other regulations gave managed care providers more flexibility in the way they practiced care or helped patients appeal denials of claims. Despite the effort undertaken to pass these regulations, limited research exists on whether the regulations achieved their goal. To fill this gap, this study takes advantage of the variety of regulations enacted during the managed care backlash of the late 1990s and early 2000s to investigate their impact on patient-reported quality of care and mortality for managed care enrollees.

The Medical Expenditure Panel Survey (MEPS), a nationally-representative survey of health care expenditures and experiences, provided information for the three patient-reported outcomes in this analysis: access to care, confidence in provider, and patient satisfaction with care. Mortality was determined by linking the MEPS data to the

National Death Index. Data for 1996, 2000, and 2004 were examined. A difference-in-difference-in-difference approach was used to investigate the change in outcomes for managed care patients in states with moderate- and high-intensity backlash regulations relative to managed care patients in states with low-intensity regulations.

The results indicate the regulations did improve patient-reported outcomes, but to varying degrees and only in the latter period of the backlash. Specifically, 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 backlash regulations. The positive effect on access to care was similar in states that adopted high-intensity regulations. However, no positive effect was found for any outcome in the first period (1996-2000). These results show that states with the most intense regulatory backlash did not realize better patient-reported outcomes. Instead, states that pursued moderate-intensity backlash regulations experienced relatively better outcomes for their managed care enrollees.

Chapter I: Introduction

Study Problems

This study examines the impact of the managed care regulatory backlash on patient outcomes for managed care enrollees. In the late 1990s, almost one-third of Americans with private health insurance were enrolled in managed care plans (Kaiser Family Foundation, 2002). During that time, managed care organizations (MCOs) pursued cost savings by negotiating payment directly with providers and by enforcing strict utilization rules (Rodwin, 1997). Negative public sentiment arose from the widespread belief that access to services and quality of care was suffering due to the cost-driven decisions of MCOs (Goldberg, 1999). A “backlash” against managed care began in 1990s, leading to hundreds of state regulations in all fifty states mandating changes for these companies (Pinkovskiy, 2014). While clinical quality was found to be generally equivalent between people with managed care and traditional fee-for-service (FFS) insurance, managed care patients often had worse patient-reported outcomes (PROs) (Miller & Luft, 2002). In particular, managed care enrollees in the 1990s reported relatively lower satisfaction with care and worse access to care (Miller & Luft, 1997; Phillips, Mayer, & Aday, 2000).

A principal goal of the managed care backlash regulations was to ensure patients’ access to essential health care services and improve quality of care (Zelman, 1999). Despite the passage of hundreds of state laws in the late 1990s and early 2000s to do so, limited research exists on whether the regulations had those intended outcomes. To fill this gap, this study investigates the impact of managed care laws on access to care, confidence in provider, patient satisfaction with care, and mortality.

Study Scope

This study takes advantage of the variety of regulations enacted during the managed care backlash of the late 1990s and early 2000s to investigate their impact on quality of care for managed care enrollees. Patient-reported access to care is the first PRO examined since the bulk of the regulations specifically sought to enhance this aspect of quality. The second PRO included in this study is patient confidence in their provider. During the backlash of the late 1990s and early 2000s, many managed care patients believed treatment decisions were being driven by cost concerns and not the quality of their care (Baker & McClellan, 2001). This belief was thought to undermine confidence or trust in the patient-provider relationship and lead to dissatisfaction with care. The third PRO in this study is patient satisfaction with care, which was found to be consistently lower for managed care patients relative to FFS patients before the backlash (Miller & Luft, 2002). The fourth outcome studied is overall mortality. Past research is mixed on whether mortality for managed care patients significantly differed from those with FFS insurance (Miller & Luft, 2002). A 2014 analysis on the impact of the managed care backlash on health care spending and mortality suggests the regulations did not significantly affect mortality (Pinkovskiy, 2014). However, only state-level mortality data were used and the results are described as measuring the impact of increased managed care prevalence and not necessarily the regulatory backlash. This analysis will help clarify Pinkovskiy's results on mortality using more sophisticated data and methods.

This study investigates whether the managed care regulatory backlash affected two domains of care quality: patient-reported outcomes and mortality. Specifically, in states that adopt relatively intense managed care backlash regulations, do managed care enrollees experience:

1. Improved access to care?
2. More satisfaction with their care?
3. More confidence in their providers?
4. Lower overall mortality?

Background

Managed care.

Most working Americans had fee-for-service (FFS) health insurance plans obtained through their employer in the second half of the twentieth century (Shi & Singh, 2014). In traditional employer-sponsored FFS insurance plans, insurance companies were paid premiums by employers to cover the cost of health care services for their employees. Large firms could also self-insure and pay for medical bills directly. With FFS insurance, employees obtained services from their choice of provider, the provider submitted a claim (i.e., bill) to the insurance company or employer, and the provider was reimbursed. Patients usually paid a small deductible or co-payment for services. Providers reimbursed using FFS insurance relied on the volume of care they delivered to sustain their income. Providers had an inherent incentive to supply more care than necessary to increase their income, such as by ordering unnecessary tests (Glied &

Zivin, 2002). Beginning in the 1980s, many providers also began utilizing new and expensive technologies to treat their FFS patients (Bodenheimer, 2005). Soon after, health care expenditures grew rapidly due partly to provider-induced demand and often unjustifiable utilization of costly technologies (Emanuel & Fuchs, 2008). The high cost of unrestrained utilization eventually led insurance companies to raise annual private-sector employer health insurance premiums in the late 1990s by double-digits annually (Titlow & Emanuel, 1999). Though managed care was formally promoted in the 1970s as a cost-effective alternative to FFS health insurance through the passage of the HMO Act of 1974 (Noble & Brennan, 1999), managed care plans were relatively rare compared to traditional FFS insurance until the mid-1990s when more than one-third of people with private health insurance belonged to an HMO (Zuvekas & Hill, 2004). By then, annual employer premiums for health care had grown drastically and some employers turned to managed care to cut costs. As of 1996, only 27% of eligible employees participated in traditional employer-sponsored FFS insurance plans (Shi & Singh, 2014).

Definitions for managed care differ, but the general concept is an integration of the four major aspects of the health care system: financing, insurance, delivery, and payment (Shi & Singh, 2014). In the strictest form of managed care, health care providers are salaried employees of a managed care organization (MCO). In this MCO “staff” model of care, the salaries eliminate the incentive for provider-induced demand because provider compensation is not related to the volume of care delivered. Instead, these providers follow care guidelines established by the MCO that often relied on utilization restrictions to keep costs low (Kemper, Tu, Reschovsky, & Schaefer, 2002).

Providers can also contract with an MCO directly or as part of an independent provider association (IPA). These providers are reimbursed either through capitation or discounted fees. With capitation, a provider receives a fixed monthly payment from the MCO for each enrollee that designates the provider as his/her PCP. Capitation helps MCOs control its share of the costs by shifting financial risk to providers by making them responsible for the total cost of each member's care in exchange for a fixed monthly payment. The advantage to providers for contracting with the MCO is the guaranteed income from supply of enrollees, since PCPs are paid the same capitation payment regardless of whether the enrollee receives care. With capitation, providers also have an incentive to keep costs low to cover unexpectedly high-cost patients and because any money left over annually is paid out to the providers (Zuvekas & Hill, 2004).

In practice, over half of providers who contracted with MCOs in the late 1990s and early 2000s were reimbursed using a discounted fee schedule agreement (Zuvekas & Cohen, 2010). This means for each service or procedure provided to patients, providers were paid a previously-negotiated amount from the MCO, similar to FFS insurance. However, with managed care, not all health care services were covered, some services required preauthorization by the MCO, and enrollees were required to see only providers in the MCO network. These MCO policies served to keep costs down for MCOs and restrict utilization without the explicit control found in the MCO staff model. Most managed care plans also required that a single provider be responsible for coordinating an enrollee's care, called a primary care physician (PCP) or gatekeeper. Research has shown that patients with chronic conditions whose care is coordinated through a gatekeeper often have better clinical outcomes and lower costs (Smith, 2003).

Many programs used today to curb spending on high-cost patients utilize gatekeeping, such as patient-centered medical homes, acknowledging the method's effectiveness for controlling costs and potentially increasing quality (Cromwell, Trisolini, Pope, Mitchell, & Greenwald, 2011).

The four major aspects of health care (financing, insurance, delivery, and payment) were largely separated for people with FFS insurance in the late 1990s, unlike with managed care. There was no formal mechanism like gatekeeping to coordinate care for patients who required intensive health care services since patients chose where and when to receive care themselves. Disjointed care often resulted in unnecessarily high costs and poor quality of care in these cases (Baldwin, 2001). Additionally, MCO enrollees often paid nothing or very little for preventative care services received from their PCP, unlike people with FFS insurance. Emphasis was given to preventative care because it has shown to prevent more expensive services in the long run, such as high-cost inpatient hospital stays (Zhan, Miller, Wong, & Meyer, 2004). Past research has found MCO enrollees are often satisfied with the cost of their care, more so than people with FFS insurance (Pifer et al., 2003).

Managed care backlash.

The cost-driven aspect of managed care is believed to have undermined patient confidence in providers, eventually leading to a backlash against managed care beginning in the mid-1990s (Baker & McClellan, 2001). In particular, patients worried about the effect of restricting utilization on quality of care. Managed care organizations required providers to undergo extensive utilization reviews and negotiated with them directly on prices and coverage to reduce costs (Rodwin, 1997). Providers in MCO networks were sometimes offered incentives for restricting utilization, such as year-end bonuses for keeping costs below a pre-determined amount (Grumbach, Osmond, Vranizan, Jaffe, & Bindman, 1998). Although anecdotal evidence showed some patients were negatively impacted from not receiving necessary care, a review found MCO enrollees on average did not receive lower quality of care and preventative care was often better (Miller & Luft, 2002; Zuvekas & Hill, 2004). Nonetheless, the perception that managed care was inferior to FFS insurance pervaded public and media sentiment (Noble & Brennan, 1997).

Two major factors appeared to perpetuate the extent of the managed care backlash. First, providers became openly hostile to the utilization restrictions imposed by MCOs, convincing patients that their decision-making process was being interfered with (Shi & Singh, 2014). Second, the shift to managed care was driven almost entirely by employers responding to increases in health insurance premiums. Since employees were mostly shielded from the cost of insurance in the past, the savings for employers from reduced premiums went mostly unnoticed by employees (Blendon, Brodie, Benson, & Altman, 1998). Instead, employees perceived their health care plan choices were being scaled back with no accompanying reduction in their share of the costs. The issue of limited choice of plans was especially relevant for employees in firms that only offered a single health insurance option or in areas with few managed care providers.

While some studies demonstrated negative outcomes for managed care patients relative to FFS patients regarding access to specialty services (Van Voorhees, Wang, & Ford, 2003) and satisfaction with care (Miller & Luft, 1997), other studies showed a lack of public understanding about MCOs drove much of the backlash (Bernard & Shulkin, 1998; Wilensky, 1999). One study found that people with FFS insurance were much more likely to rate MCOs as low-quality compared to ratings from actual MCO patients (Kahana et al., 2004). In the same survey, respondents were asked to name advantages of having managed care—MCO enrollees overwhelmingly chose lower costs, while those with FFS were not able to think of a single advantage. The strong negative perception of managed care was therefore not always a matter of personal experience.

Emphasizing preventative care and gatekeeping were relatively new concepts to many people in the early 1990s. The FFS system was never intended to provide comprehensive health care services and care management that MCOs offer, instead it was designed for the treatment of illness and injury. Despite the enhanced access to preventative services from MCOs, the idea of restricting patient and provider choices was often considered unacceptable to people with traditional insurance (White, 1999). Pervasive negative media attention highlighted denial of care horror stories for certain managed care enrollees, further fueling the perception that managed care was synonymous with poor-quality care (Bernard & Shulkin, 1998).

In general, the managed care backlash is linked to the perception that strict utilization rules were motivated entirely by cost containment goals, without considering the quality of care being delivered (Baker & McClellan, 2001). As such, many states began passing regulations that directly sought to weaken these rules for MCOs and ensure access to services for their enrollees (Zelman, 1999). Although health care has long been a heavily-regulated sector, the anti-managed care regulations were distinctive in their scope and magnitude. All states passed at least one law characterized as a “managed care backlash” law by the National Council of State Legislators (NCSL), and many states passed dozens of these laws (Blendon et al., 1998). In general, the regulations sought to ensure MCOs treat their enrollees more similar to that of FFS patients. The content of each state’s managed care backlash regulations is unique, though the laws are often grouped into three categories: access to services, right to appeals, and provider flexibility (Pinkovskiy, 2014; NCSL, 2011). A number of laws specifically curtailed the PCP gatekeeper requirement. States also passed laws allowing women with managed care to have direct access to OB/GYNs and requiring that MCOs cover care provided in the Emergency Department. Regulations relating to appeals addressed liability issues, such as allowing patients to sue health plans for damages and requiring external reviews of appeals (Hurley & Draper, 2002). Finally, provider flexibility regulations dealt with constraints on treatment options imposed by MCOs. These laws included banning provider financial incentives to reduce utilization and banning provider “gag” clauses that prohibited providers from informing patients of alternative high-cost treatment options that the MCO did not want to reimburse.

Patient-reported outcomes.

The regulatory backlash against managed care coincided with a growing movement toward more patient-centered health care (Institute of Medicine, 2001). Whether patients are receiving patient-centered care, which focuses on providing care to patients in a respectful and responsive manner, requires collection of patient-reported outcomes (PROs). Patient-reported outcomes describe non-clinical outcomes reported directly by patients, such as satisfaction with care, which provide a more comprehensive picture of the patient experience and quality of care than is available using solely clinical information (Cella et al., 2010). Patient perceptions of health care quality are important for providers because PROs are often correlated with other favorable health outcomes. Patients who are satisfied with their care are more likely to stay with their primary care providers and to adhere to treatments (Safran, Montgomery, Chang, Murphy, & Rogers, 2001; Zolnierek & Dimatteo, 2009). A study on heart attack patients showed that people who reported higher satisfaction with their care not only adhered to guidelines more frequently, but also had lower rates of inpatient mortality (Glickman et al., 2010). Additionally, patients who have confidence in their primary care providers are more likely to have better medication management and to engage in behaviors associated with other favorable clinical outcomes (Street, Makoul, Arora, & Epstein, 2009).

Patient-reported outcomes are not universally embraced as legitimate measures of health care quality (Kane, 2006). The link between clinical outcomes, such as mortality and morbidity, and PROs varies. Although research suggests positive clinical outcomes are linked to PROs such as satisfaction with care (Gotay, Kawamoto, Bottomley, & Efficace, 2008; Glickman et al., 2010), other studies have found no significant relationship between the two outcome types (Sequist et al., 2008; Chang et al., 2006). One study suggested patient satisfaction is linked to providers meeting patient expectations, even if that means a patient receives services with no medical benefit (Fenton, Jerant, Bertakis, & Franks, 2012).

Study Objectives

To understand if regulation is an effective strategy, policymakers must know whether past regulation achieved their goals. Hundreds of regulations were passed in the late 1990s and early 2000s to ensure access to care and quality for managed care enrollees, but limited research exists on whether the regulations led to those intended outcomes. The scant research available often focuses on a single regulation, thereby explaining only part of the managed care backlash effect. This analysis studies all categories of backlash regulations to obtain a more complete understanding of the backlash and their impact on patient outcomes. States are categorized by backlash regulation intensity (number of regulations, plus stringency and rarity of regulations) to understand how variations in the types of regulations impacted patient outcomes. Therefore, the objective of this analysis is to determine whether states with a more intense regulatory backlash realized more gains in patient outcomes for its managed care enrollees relative to states with less intense backlash regulations.

Analytical approach.

The concepts for this study are organized using Donabedian's (1988) structure, process, outcomes (SPO) framework, which serves as a common foundation for health care quality research (Kane, 2006). The SPO framework provides a succinct outline for describing how managed care and the managed care regulations can impact patient outcomes and is well-suited for examining the research questions of this study. The structure dimension represents the fixed aspects of health care delivery, including environmental, organizational, and patient factors. Environmental factors are considered structural characteristics in this framework. While environmental factors are not explicitly included in the original SPO model, research often rectifies this weakness by including them as part of "Structure," reflecting their potential to influence health care processes and outcomes, and their relatively fixed nature (Unruh & Wan, 2004). Environmental factors, such as where a patient lives and what problems a patient faces when accessing health care services, have been associated with differing costs and quality of care (Hearld, Alexander, Fraser, & Jiang, 2008; Ly, Lopez, Isaac, & Jha, 2010). Regulatory environment, including managed care backlash regulations, is another environmental factor included in the Structure dimension.

The process dimension in the SPO framework encompasses the activities of health care professionals when delivering care to patients, including diagnosing, making recommendations, and implementing treatment (Donabedian, 1988). Managed care uses a process called gatekeeping to influence how care is coordinated. Coordination of care for managed care enrollees entails having a single point of contact (PCP) to diagnose and treat all medical problems, and to refer patients for specialty services when needed. Gatekeeping can also influence the treatments patients receive. Managed care patients may receive relatively fewer services than FFS patients because MCOs limit the number and type of services they reimburse (Davidoff, Hill, Courtot, & Adams, 2007). Therefore, due to gatekeeping, managed care patients experience different care processes than FFS patients when they interact with health care professionals.

The Medical Expenditure Panel Survey (MEPS) provides information for the three PROs in this analysis, patient satisfaction with care, confidence in provider, and access to care. The MEPS is a representative two-year overlapping panel survey of health care utilization and cost for non-institutionalized persons in the U.S., with an annual sample size of around 30,000 people. It also includes information on insurance status (including managed care enrollment) and demographics, including age, gender, and income. Mortality can be determined by linking the MEPS data to the National Death Index.

A difference-in-difference-in-difference (DDD) approach is used to address each research question. Using a DDD model, differences in patient outcomes between managed care and FFS patients are compared over time as states enacted their managed care regulations. Specifically, this study investigates the difference in outcomes for managed care patients in states with an intense regulatory backlash relative to managed care patients in states with a moderate or mild backlash. This model controls for changes in quality that potentially affected both types of patients over the period, such as the adoption of electronic health records. The reference year in this study is 1996. Most of the managed care regulations were passed between 1996-2000 and were usually implemented within a few months of being passed. Years 2000 and 2004 are considered as “post” periods. Studying quadrennial independent cross-sections allows an analysis the regulatory effects bearing in mind the different timing of regulation adoption.

It is unclear whether the state managed care backlash regulations passed in the 1990s actually improved patient outcomes. However, there is some evidence that the managed care backlash regulations were responsible for much of the increase in health care spending growth in the early 2000s (Pinkovskiy, 2014). This study contributes to our understanding of governmental policy to manage health care by answering what impact the regulatory backlash had on quality of care for managed care enrollees.

Conclusion.

During the 1980s and 1990s, MCOs pursued cost savings by implementing strict utilization rules and limiting provider networks (Rodwin, 1997). A backlash against managed care arose from the perception that quality of care was suffering due to the cost-driven decisions of MCOs (Goldberg, 1999). As part of this backlash, states passed laws regulating MCOs, eventually leading to hundreds of regulations by the mid-2000s mandating changes for these companies (Pinkovskiy, 2014). The central goal of the backlash regulations was to ensure patients received good quality of care (Zelman, 1999). To investigate whether this goal was achieved, this study takes advantage of the differing levels of regulatory intensity to investigate the impact of these laws on quality of care for managed care enrollees. The next chapter presents a literature review of past research relevant to quality of care for managed care enrollees and to the managed care backlash and regulations. Following the literature review, the conceptual framework used to guide this analysis is presented. The methodology is then discussed, followed by a presentation of the empirical analysis results. The final chapter discusses the major lessons learned and ends with a brief discussion of future research.

Chapter II: Literature Review

Quality of care for managed care enrollees has been a topic of interest since managed care was promoted as a cost-effective alternative to traditional health insurance in the 1970s (Miller & Luft, 1994). However, managed care enrollment was relatively low compared to traditional fee-for-service (FFS) insurance until the mid-1990s. By that point, double-digit increases in employer health care insurance premium rates led many private employers to turn to managed care to save money (Enthoven, Schauffler, & McMenamin, 2001). Since cost savings were often sought by restricting utilization, providers and patients worried about the effect of managed care on quality of care and patient outcomes. Research on health care quality for managed care enrollees through the 1990s found that clinical quality was essentially equivalent between people with managed care and FFS, though managed care patients often described relatively worse patient-reported outcomes (Miller & Luft, 2002). In particular, managed care enrollees reported relatively lower satisfaction and more problems accessing health care services (Miller & Luft, 1997; Phillips, Mayer, & Aday, 2000). This study extends past research by analyzing patient outcomes for FFS and managed care enrollees in the context of the volatile regulatory environment of the late 1990s and early 2000s, referred to as the “managed care backlash” era. Therefore, this literature review begins with a synthesis of research on the managed care backlash and state regulations. This provides insight into the motivation behind the backlash and provides a framework for understanding the other area of this review, quality of care for managed care enrollees.

This chapter begins with a description of the literature review search, followed by a synthesis of the research and an integration of the literature. The final section explains how the concepts learned from this review will help inform the theoretical and empirical models of this study, presented in the subsequent two chapters.

Literature Review Search

This review was conducted using concepts from the systematic literature review process. Petticrew and Roberts (2008) describe systematic reviews as, “[L]iterature reviews that adhere closely to a set of scientific methods that explicitly aim to limit systematic error (bias), mainly by attempting to identify, appraise and synthesize all relevant studies (of whatever design)” (p.9). This approach helps to provide a comprehensive and complete search of past literature, and better informs the theoretical framework of this study. PubMED/MEDLINE and Web of Science (excluding MEDLINE) search engines were used to investigate the two themes: the managed care backlash and quality of care. The search for Theme 1 contained the keywords: “managed care” or “health maintenance organization” and regulation or backlash. For Theme 2, “managed care” or “health maintenance organization” and quality and access or confidence or satisfaction or mortality or “health status.” Including the outcome variables narrowed the results to papers relevant to the scope of this study. Keywords were searched across titles and abstracts in PubMED and across topics in Web of Science. All articles and books published in English, with human subjects, and with the U.S. as the setting were included in the search. Theme 2 (quality of managed care) was restricted to July 2001-

forward, owing to Miller and Luft's (2004) earlier literature review covering the same topic. No year restriction was given to the Theme 1 (managed care backlash and regulations).

Search results.

Though many of the studies were published after the main backlash era (2004+), the data used in the papers were often from the 1990s and early 2000s. The empirical analyses range from case studies of patients transitioning to managed care from FFS over time (usually Medicaid), to more straightforward comparisons of outcomes for managed care (MCO) versus FFS patients. Cross-sectional analyses and papers with only MCO enrollees were excluded. The exclusion criteria for Theme 1 was not as stringent, since the goal was to provide context and background for the backlash. A handful of additional papers were added from citations from the chosen articles. In the end, 105 articles were included in the literature review, split almost evenly between the two themes. Surprisingly few papers overlapped across both themes, highlighting the need for research that integrates these areas.

A number of unique trends emerged from the selected papers. Research for Theme 1 is grouped into four broad subthemes: understanding the backlash, provider sentiment towards managed care, consumerism in health care, and redefining managed care. Research for Theme 2, which is comprised solely of empirical analyses, is grouped into three subthemes. The first subtheme specifically explores research on health care quality for managed care enrollees, following in the footsteps of Miller and Luft. The second subtheme examines the value and validity of using patient-reported outcomes in health care quality research. Although this area of research was not specifically targeted for investigation, the amount of research on the topic and its relevance to this study warranted its own subtheme. The last collection of papers describe empirical research related to quality of managed care that did not fit into the first two themes, including papers related to cost of care and rationing of care.

Synthesis of Previous Work

Theme 1. Managed care backlash and regulations.

Theme 1 provides a general overview of the managed care backlash and regulations. Fifty-two papers are discussed, about half of which are devoted to the first subtheme, understanding the motivation and nature of the backlash. The second subtheme describes provider opinion of managed care, most of which turned out to be negative. Next, the role of health care consumerism in perpetuating the backlash is discussed. The final subtheme summarizes the evolution of managed care since the backlash and regulations were passed.

Theme 1a. Understanding the managed care backlash.

While health insurance has been regulated since the mid-20th century, state regulations became pervasive beginning in the 1970s (Gray, Lowery, & Godwin, 2007). Many states began passing mandated benefit laws in the 1980s that required insurance companies to cover specific people or services, laws that applied to all private insurance companies (Laugesen, et al., 2006). By the 1990s, two mandates were eventually adopted in all states: mandatory minimums for maternity stays and a requirement for breast reconstruction surgery after a mastectomy (also federally mandated). These mandated benefits laws paved the way for laws regulating managed care. Specifically, in the 1990s, states began passing laws particular to MCOs. While many of these laws are essentially mandated benefit laws, others included allowing patients to sue insurance companies and many broad “patient protection” laws. In general, the laws were labeled backlash or anti-managed care regulations (Pinkovskiy, 2014; NCSL, 2011). Papers written after the backlash often characterize the end of the backlash as 2003-2004, once states finished passing backlash regulations (Pinkovskiy, 2014; Sloan, Rattliff, & Hall, 2005).

The backlash regulations were characterized by economists as a response to market failures (Sloan & Hall, 2002). This argument suggests laws are necessary to protect enrollees from predatory insurance companies that do not provide adequate coverage. In this way, legislation was seen by some as necessary. Bolin, Buchanan, and Smith (2003) described the laws as a response, in part, to preserving the patient-provider relationship and enhancing access to care. Hurley and Draper (2002) suggested legislation proved useful for encouraging insurer accountability for consumer choice and access. Swartz and Brennan (1996), writing at the beginning of the backlash, described how financial arrangements between MCOs and providers incentivizes poor quality of care. They suggested government oversight and regulations as the ways to correct the tradeoff between cost and quality.

Bernard and Shulkin (1998) found that negative media stories influenced public sentiment of MCOs, even though most of the people surveyed never had a negative experience with an MCO personally. Furthermore, Brodie, Brady, and Altman (1998) determined the media portrayal of MCOs by 1997 was mostly negative and anecdotal, contrasting with a generally neutral and factual tone of the media portrayal in the early 1990s. Similarly, Hall (2004) found states with more stringent backlash laws were more likely to experience copious amounts of negative media attention about MCOs. However, those same health plan administrators insisted the laws were primarily passed to ensure patients' rights and to address provider interests. Mechanic (2001) suggested public anger at managed care was misplaced due to the disproportionately negative media attention, which prevented a discussion about better ways to deliver care. Rabinowitz (2010) found newspaper support for managed care laws was swayed by advertising campaigns. In general, many of the papers included in this subtheme referenced some external voice as a major source of the backlash.

Teixeira (2000) argued the backlash reflected the sentiment of the public, who were described as being satisfied with their care, but worried about what the future held if MCOs and cost-cutting proliferated. Noble and Brennan (1999) list consumer dissatisfaction with care as a key reason for backlash legislation. Many people resented the idea of MCOs restricting their choice of doctor or the types of services they received, even if quality of care was essentially equivalent for MCO and FFS enrollees (Kahana et al., 2004). Interference by MCOs into treatment decisions was sometimes seen as an impediment to patient confidence and trust in providers (Baker & McClellan, 2001). However, Gawande et al. (1998) found that people without a choice of health plan had the same level of satisfaction with care as people with managed care plans, suggesting the dissatisfaction with MCOs was more about the perception of restricted choice than managed care itself. Kemper et al. (2002) found that more restrictive MCOs had relatively lower scores on patient satisfaction and trust in provider than people with FFS. Blendon et al. (1998) specified two reasons for the backlash: a significant proportion of Americans reported having issues with MCOs, and people were scared

MCOs would not take care of them if they got sick. One article suggested the backlash was partially caused by consumer ignorance of the true cost of health care (Thompson & Cutler, 2010).

Many articles suggested the regulations could result in unintended negative consequences. Balla (1999) argued the regulations would prevent HMO development and thereby raise overall costs. Mays, Hurley, and Grossman (2003) predicted employer costs would increase once the MCO utilization constraints were lifted and provider networks were opened. Relaxing MCO restrictions on prescription drug utilization was also predicted to increase share of health care expenditures attributable to drugs (Bolin et al., 2002). Brown and Hartung (1998) predicted the regulation of health insurance would eventually lead to most plans looking like PPOs. Hurley and Draper (2002) suggested additional laws would increase health care costs directly (MCOs need to hire more lawyers, pay for more things, pass those costs to consumers), driving up costs by preventing the cost-saving mechanisms of MCOs. As explained in the last subtheme of Theme 1, many of the predictions proved to be accurate.

Theme 1b. Provider sentiment towards managed care.

This subtheme reviews papers related specifically to provider sentiments towards managed care. These studies usually described how provider behaviors or practices changed as a result of MCO practices, and if providers thought managed care negatively impacted patient outcomes. Beach, Meredith, Halpern, Wells, and Ford (2005) found in a survey of almost 900 physicians that providers in more restrictive MCO models felt less responsibility for their patients compared to physicians in less restrictive MCO arrangements. Ettner et al. (2006) found outcomes for diabetes patients were better when physicians were paid a salary instead of FFS or capitation, though positive outcomes were dependent on how each organization was structured. Van Voorhees et al. (2003) found physicians with the largest percentage of MCO patients were more likely to report issues that prevented them from providing high-quality care.

Provider attitudes about managed care evolved since the 1970s, especially relating to provider satisfaction. Using an early survey, Lum (1975) found physician attitudes about HMOs were favorable on the whole, specifically surrounding prepayment and quality of care. By the late 1990s, MacDermid et al. (2002) found provider concern over reimbursement led to decreased provider satisfaction. However, another paper found MCOs did not impact the relationship between provider satisfaction and patient-reported quality (Grembowski, Patrick, Williams, Diehr, & Martin, 2005). The authors found many physicians did not believe MCOs impacted how they delivered care. Those same providers reported negative feelings toward the degree of regulation. Likewise, Landon et al. (2002) found job dissatisfaction increased markedly among physicians in Massachusetts between 1996 and 1999, driven by perceived external influence on practice decisions. Misra, Modawal, and Panigrahi (2009) researched experiences of Asian-Indian physicians and found those serving the lowest percentage of MCO patients had the highest satisfaction scores. Tietze and Sinha (2003) found perceptions of managed care were higher for health administrators than physicians in areas with a high managed care penetration.

A couple of papers written after the backlash provide perspective on whether the regulations changed provider sentiment of managed care. Kronebusch, Schlesinger, and Thomas (2009) found physicians reported their autonomy was less constrained due to certain backlash regulations. Likewise, Hargraves and Pham (2003) found specialists reported more freedom to provide patients with necessary, but found no change in the percentage of PCPs reporting independence in their clinical decision-making. The authors suggest the enhanced feelings of freedom by specialists were due to relaxed constraints from MCOs, likely due to the backlash. The studies in this subtheme emphasize that provider sentiment towards managed care was mostly negative by the mid-1990s and throughout the era of the backlash.

Theme 1c. Consumerism in health care.

The third subtheme describes managed care and the subsequent backlash in terms of the growing importance of consumerism in health care. Consumer-driven health care describes the desire for more individual control over health care choices (Robinson & Ginsburg, 2009). As alluded to in Theme 1a, a number of papers characterized the backlash as a response to patient choices being limited. However, Enthoven et al. (2001) found that satisfaction with health insurance plans was more likely to be correlated with the number of choices available to an employee, regardless of whether plans were FFS or managed care. The authors suggest managed care thrived in many areas before the backlash and dissatisfaction was related to the move by many employers to offer only one insurance option in the 1990s, many of which were MCOs. A study on HMO market penetration trends by Marquis, Rogowski, and Escarce (2004) lends supports to this claim. Specifically, the authors found people in managed care plans tended to be satisfied with their care overall and chose to remain enrolled with the MCO even when a FFS option was available.

The consensus from many health care consumerism articles was patient choice of health care plans and providers constitute an important part of patient expectations and satisfaction with care. Barry and Ridgely (2008) found the provision of mental health services by MCOs was expanded in response to increased coverage by FFS insurance. And Tai-Seale and Pescosolido (2003) found the ability to choose providers was significantly related to positive patient opinion of their physician. The authors argued that enhancing consumer choice could improve public sentiment of health care if it translated into increased patient satisfaction.

Theme 1d. Regulations and the evolution of managed care.

The final subtheme discusses the evolving concepts of managed care and how the backlash and regulations changed MCOs over time. Miller (2006) found managed care and gatekeeping encouraged efficiency in the health care sector by preventing people from “doctor shopping,” which resulted in extraneous spending from unnecessary procedures and medications. Sekhri (2000) suggested managed care positively transformed the US healthcare system in the 1990s by lowering costs and emphasizing preventative care. Musser (1997) noted that although early versions of physician-run MCOs often ran into issues cutting costs and instituting mechanisms for quality control, with time other MCO models proved to be more effective as MCOs relented on utilization constraints. Simon, White, Gamliel, and Kletke (1997) describe the impact of managed care on scope of practice and the provision of primary care services. They found that specialists were spending less time on primary care and PCPs were spending more time on primary care as managed care penetration increased, which they suggested would create efficiencies and potentially better quality of care.

The backlash caused significant changes in health plan approaches for controlling utilization while maintaining quality, according to interviews with insurance administrators (Felt-Lisk & Mays, 2002). Gatekeeping began to focus on improving disease management, especially for people with certain chronic conditions (Felt-Lisk & Mays, 2002). Mays and Claxton (2007) provide empirical evidence that disease management programs offered by insurance companies increased post-backlash, while Fang, Liu, and Rizzo (2009) find that gatekeeping did not diminish after the backlash. Less restrictive forms of managed care began flourishing in the mid-1990s, especially preferred provider organizations (PPOs) (Shi & Singh, 2014). National data on employer insurance coverage showed PPOs accounted for about one third of insurance coverage for private employees in 1997, but covered the majority of employees by 2003 (Cooper, Simon, & Vistnes, 2006). As with an HMO, a PPO utilizes a network of providers and pays using discounted fees, but patients can go outside of the network in exchange for paying a higher share of the cost. Hirth, Grazier, Chernew, and Okeke (2007) found that when employees at the University of Michigan were first offered a PPO, people with FFS insurance were more likely to switch to the PPO versus HMO enrollees. The authors argue this is because HMO enrollees were satisfied with their care and the negative sentiment regarding managed care was not a major deterrent for the FFS enrollees that switched.

Noble and Brennan (1999) suggest the variation in state regulations eventually converged towards a shared view of what managed care should look like. Mays (2004) found many MCOs in the mid-2000s reintroduced many of the strategies criticized during the backlash after costs rapidly increased, like requiring prior authorization Konetzka, Zhu, Sochalski, and Volpp (2008) found high managed care penetration stopped serving as an indicator of relatively lower cost growth by 2001, arguing the effects of managed care on lowering hospital costs were diminished post-backlash. In general, these studies found the backlash forced MCOs to change many of their most restrictive practices, such as gag orders and financial incentives to providers, even though these were the same strategies that were most effective at constraining health care spending.

Theme 1. Summary.

Theme 1 describes the motivation for the managed care backlash, including how provider sentiment towards managed care changed over time, increasing health care consumerism in the 1990s, and the general evolution of managed care. Research found the backlash regulations stemmed partly from genuine concerns over quality of care for managed care enrollees, especially the three key outcome variables in this study: access to care, patient satisfaction, and confidence in providers. However, research also shows biased media coverage, increasingly limited options of employer-sponsored health insurance, and negative provider sentiment towards MCOs also contributed to the public outcry that led to many of the regulations. Although the backlash changed certain aspects of managed care, other aspects remained the same (emphasis on preventative care) or were eventually reintroduced (financial incentives). In fact, enrollment in managed care increased since the backlash, but mostly to less restrictive

PPO plans. Theme 2 discusses research on managed care quality during the height of the backlash and beyond.

Theme 2. Quality of managed care.

The 2002 literature review by Miller and Luft is the most current synthesis of the research on quality of care for managed care enrollees. In general, they found managed care enrollees did not show significantly different outcomes compared with FFS enrollees. In some ways, they found quality was better for managed care enrollees, such as with preventative care. However, quality was usually worse when comparing access to care and certain aspects of satisfaction with care. The papers included in their review were often from the period before the backlash had completely taken hold (pre-2000). The first subtheme in Theme 2 provides an update to this research, reviewing empirical research on quality of care for managed care enrollees from 2001-forward, when Miller and Luft's last review left off. The second subtheme in Theme 2 reviews the value and validity of using patient-reported outcomes (PROs) in health care quality research. Although some of these articles do not directly relate to managed care enrollees, they provide background and context for the PRO measures used in this study. The last section describes the empirical papers that did not fit with the other subthemes.

Theme 2a. Quality of care for managed care enrollees.

Empirical analyses of quality of care for managed care enrollees are discussed in this subtheme. A similar coding scheme as the one developed by Miller and Luft (2002) is used to organize the results of the studies identified in the literature search. Studies were categorized as showing either positive results towards managed care enrollees, negative towards managed care enrollees, no difference versus the comparison group, or having mixed results. In most cases, the analyses compared quality between managed care and FFS beneficiaries, especially for private and Medicare analyses. Other studies were panel analyses of patients transitioning from FFS to managed care, usually single-state Medicaid analyses. Many papers used managed care penetration as the key independent variable, but some used medical claims and surveys to gather individual information about patients.

Forty empirical papers were reviewed, 23 of which related only to Medicare or Medicaid managed care patients (Table 1). The patient outcomes analyzed in these papers generally correspond to those used in past research on MCO quality, specifically access to care and satisfaction with care. The studies from post-backlash did not consistently have better or worse outcomes. Of the 40 papers, 14 found MCO enrollees to have relatively better outcomes, while most showed mixed, negative, or no difference in outcomes. Studies that included private MCO enrollees were more likely to show positive MCO results (7/16) than studies with only Medicare and Medicaid patients (7/23). Five of the 9 studies with negative MCO results related solely to public managed care. Mixed results were also more likely to be related to Medicare and Medicaid. While most of the data used in these studies were from during the backlash, a few were from the mid- to late-2000s.

While the anti-managed care regulations apply to private MCOs in each state, MCOs that contract with Medicare and Medicaid are mostly exempt (“mostly” because preemption of federal regulations was challenged by some states). However, Pinkovskiy (2014) suggests public MCOs likely experienced significant spillover from the backlash

Table 1

Summary of Empirical Findings for Quality of Care for Managed Care Enrollees, Studies Published between 2001 and 2016

Finding	Number of Studies	Medicare or Medicaid MCO	MCO only (transition to or from FFS)	Studies, by First Author and Year of Publication
Positive, MCO	14	7	4	Berman 2005, Blanc 2003, Daley 2005, Garrett 2005, Gowrisankaran 2003, Jiang 2013, Kane 2004, Luft 2003, Mitchell 2004, Nicholas 2013, Paul 2013, Rogowski 2007, Roohan 2006, Zhan 2004
Negative, MCO	9	5	2	Aizer 2007, Dwyer 2012, Garwood 2008, Haile 2002, Kerr 2004, Lopez de Fete 2010, Porell 2001, Thompson 2003, Xu 2007
Same or No Difference	8	3	0	Backus 2001, Bian 2006, Chen 2010, Keyes 2001, Kim 2007, Mark 2005, Porell 2001, Pracht 2011
Mixed	8	6	6	Fox 2003, Hewner 2016, Kahana 2004, Kane 2005, Laditka 2000, Safran 2002, Skinner 2007, Slutsman 2002, Smith 2005
Total	40	24	12	

regulations, such that MCOs offering public or private coverage operated under similar guidelines. Regardless, these results suggest the distinction between private and public managed care is important to consider when studying patient outcomes.

Patients tended to be satisfied with their overall care, regardless of their insurance coverage. This finding is consistent with what Miller and Luft (1997 & 2002) found in their earlier reviews. Many of the mixed results related to access to care, usually specific to public MCO patients or to accessing services from specialists. Mortality and confidence in provider were not as commonly-studied as satisfaction and access, though a few papers reported significant findings. Dwyer, Liu, and Rizzo (2012) studied whether HMO and FFS patients reported a difference in how much they trust their physicians, defined as having confidence in the provider. Using a survey from 2001, the authors found HMO patients had relatively less trust in their providers which the authors equated with lower quality of care.

The overall findings of this subtheme are similar to Miller and Luft (2002) in that the results are mostly mixed. While there are many cases of positive results for MCO enrollees, there are more cases of negative and mixed results. Though MCO enrollees were still found to have issues with access to care, especially specialty services, overall satisfaction was found to be generally high for all patients. Additionally, whether the studies examined private or public managed care appeared to be an important mediating factor in the results, with public managed care patient having worse patient outcomes more often than private managed care patients.

Theme 2b. The value and validity of patient-reported outcomes in health quality research.

The second subtheme in Theme 2 focuses on the value and validity of using patient-reported outcomes (PROs) in health care quality research. Many of the articles describe quality of care as relating to a multitude of factors. Matchar et al. (2008) describes PROs as necessary to comprehensively measure quality of care for some patients, such as those with frequent and severe headaches. Schatz et al. (2005) find patient experience for asthma patients is comprised of important aspects usually not considered in traditional research, such as level of concern over access to medication. Bender and Garfinkel’s (2001) analysis of Medicare patients with MCO and FFS insurance identified three distinctive areas of patient-reported quality: provider communication, access to services, and plan administration. Ko and Coons (2005) described a myriad of quality of life concerns that impact older adults with common chronic conditions, such as functioning and wellbeing. Hazelhurst, McBurnie, Mularski, Puro, and Chauvie (2012) argue that measuring quality of care requires comprehensive information on patient services and health status, something MCOs are better equipped to handle because they already have standardized systems in place. Beckles et al. (2007) found patient self-reports of health care services often do not match their medical claims, suggesting physicians do not have access to accurate information on their patients, which could lead to lower quality of care.

Certain patient experiences were found to correspond closely with perceptions of quality. Pifer et al. (2003) found mental quality of life for managed care patients was positively correlated with satisfaction with financial aspects of their coverage, but not other clinical quality measures. Born and Query (2004) found that patient complaints against MCOs were often correlated with truly poor quality. And Price, Elliott, Cleary, Zaslavsky, and Hays (2014) found positive patient experiences were correlated with behaviors and decisions that resulted in better outcomes.

A couple articles show that perceptions of quality can differ depending on the specific factor being studied. Newacheck et al. (2001) found that patients sometimes reported high overall satisfaction even if they also reported issues with access to care. Likewise, sick and healthy patients within the same health plan sometimes provided different responses about their health insurance (Zaslavsky & Cleary, 2002).

The impact of PROs on physician practice and behaviors was discussed in a number of papers. During the backlash, a high percentage (70%) of MCOs reported utilizing patient satisfaction surveys for substance and mental health services, even more than clinical outcomes assessments (49%) (Merrick, Garnick, Horgan, & Hodgkin, 2002). From 1997 to 2001, physicians reported that patient satisfaction feedback had an increasingly significant impact on the way they practice (Strunk & Reschovsky, 2002). Likewise, Callahan, Fein, and Battleman (2002) found providers overwhelmingly reported that patient feedback useful, though only about half said it would influence their practice. Thompson, Ryan, Pinidiya, and Bost (2003) found MCOs that publicly divulged performance measures were more likely to be high-performing, though this could reflect correlation instead of causality. Huesch (2009) noted that MCOs may have difficulty measuring quality of providers when samples sizes are small, such as with cardiac surgeons, limiting the usefulness of PROs in these cases.

A few papers discussed PROs in context of the patient-centeredness movement. Frankel and Hourigan (2004) found focus groups were often useful to determine the true nature of patient satisfaction and to achieve “patient-centeredness.” Nutting et al. (2005) found primary care interventions were associated with higher rates of suicide detection in depressed patients, suggesting a more hands-on approach to care results in better outcomes. Similarly, home assessments were found to be correlated with better dementia caregiver outcomes, while a negative correlation was found when the caregiver was assigned to a community agency (Connor et al., 2008). The authors suggest the in-house, one-on-one interaction was important for realizing positive outcomes for both the dementia patient and the caregiver.

Theme 2c. Assorted empirical research on managed care quality and cost.

The last section covers a few areas of research not covered in the other subthemes relating to managed care quality and the cost of care. A couple cost studies highlight the benefits of managed care. Bloom et al. (2002) found that cost of care for the mentally ill in Colorado was relatively lower in Medicaid managed care areas than in areas with mostly FFS Medicaid. And Goetghebeur, Forrest, and Hay (2003) attributed rises in inpatient hospital costs to loosening utilization restrictions by MCOs. However, other papers found managed care was not always the cheapest option. Buntin, Garber, McClellan, and Newhouse (2004) found Medicare MCOs kept costs relatively low by avoiding costly patients, specifically those who are terminally ill. McGuire, Newhouse, and Sinaiko (2011) found Medicare MCOs were paradoxically paid relatively higher payments for some services than FFS insurance. Additionally, Shenkman, Tian, Nackashi, and Schatz (2005) found physicians paid mostly by MCOs were more likely to refer children to specialists versus physicians paid mostly with FFS insurance.

A few papers describe the potential for managed care rationing and utilization restrictions to negatively affect patient outcomes. Ridgely, Giard, Shern, Mulkern, and Burnam (2002) found managed care impacted the process of substance abuse care delivery by restricting services, medications, and employment. Albrecht's (2001) qualitative study on the experience of people with disabilities characterized their care as rationed and low-quality due to MCO restrictions on covered services. Likewise, MCO practices were found to negatively influence the treatment of substance abuse due to reduced patient autonomy (Ghose, 2008). Writing during the backlash, Fournier and McInnes (2002) surmised referrals required by many MCOs shielded the reputation of poor-performing doctors and perpetuated low quality. Studdert, Bhattacharya, Schoenbaum, Warren, and Escarce (2002) found physicians were half as likely to choose an MCO for their own insurance as non-physicians. The authors suggest this is due to physicians' negative experience with MCO rationing in their practice.

However, some papers found little difference in quality between MCO and FFS patients. Ma, Coleman, Fish, Lin, and Kramer (2004) found acute care elderly patients with FFS and MCO insurance were both as likely to receive fractured care (characterized by multiple transfers between health care settings). Additionally, one study found patient quality ratings for restrictive MCOs were essentially the same as the FFS control group, excepting pain patients who reported issues with access to specialty services (Grembowski et al., 2007). Willging, Waitzkin, and Wagner (2005) determined many of the preventative care services covered by MCOs were not accessible in rural areas because of a lack of providers in the MCO network. These papers indicate managed care restrictions translated to unsatisfactory care for some segment of enrollees.

A few papers described managed care success stories and the need for more research comparing FFS insurance with managed care. Kyes, Wickizer, and Franklin (2003) found employer satisfaction with employee health care was higher with MCO plans than FFS insurance. A systematic review found managed care reduced emergency department utilization in 10 of 12 studies (Morgan, Chang, Alqatari, & Pines, 2013). Mukamel, Weimer, Zwanziger, and Mushlin (2002) found evidence MCOs contracted with cardiac surgeons of relatively higher quality, as measured by mortality rates, because higher quality translated to fewer readmissions and less spending. One article described Medicaid managed care in North Carolina in largely positive terms because MCOs were subject to regulations and held accountable, unlike FFS insurance (Shipman, 2012). One paper on long-term care services identified the transition from FFS to managed care insurance as the most important topic in need of research in the field of long-term care (Kaye & Harrington, 2015).

Theme 2. Summary.

Theme 2 reviews empirical research on quality of managed care from 2001-forward. The empirical evidence remains mixed as to whether quality of care is relatively better or worse for managed care enrollees versus people with traditional FFS insurance. However, the research finds that access to specialty services, and services for people with special needs, continues to be a problem for managed care enrollees. Aside from studies covering traditional comparisons of MCO and FFS enrollees, papers describing the value and validity of using PROs in health care quality research emerged as a distinct area of research. These papers defined health care quality using a combination of factors that are often unmeasured or underutilized in practice, including incorporating patient reports of quality into care decisions. The final subtheme reviews various empirical research on managed care quality and cost of care. Many papers analyzed MCO costs and utilization, with mixed sentiment on their future in the post-backlash era.

Summary and Rationale for Formulating an Analytic Framework

The managed care backlash dominated the health care discussion in the mid- and late-1990s. Patient protection was identified as the impetus behind many of the backlash regulations (Hall, 2004), though many other factors are identified in the literature as motivating and perpetuating the backlash. As Miller and Luft (2002) found in the early 2000s, and Theme 2 of this review confirms is still accurate, evidence shows that quality of care is not clearly better or worse for managed care enrollees. Nonetheless, states passed hundreds of anti-managed care regulations to water down or eliminate many of the strategies used by MCOs to reduce costs and streamline care. These same strategies are increasingly used in value-based and accountable care delivery models emanating from the ACA (Highfill & Ozcan, 2016).

Despite the effort undertaken to pass the backlash regulations, limited research exists on whether the regulations ever achieved their intended outcome of enhancing quality of care for managed care patients. The few articles that did study the impact of the backlash regulations often focused on individual laws or used imprecise and unreliable data. Sloan et al.’s (2005) research on the backlash regulations is the most relevant study of the impact of these laws, but their analysis ends at 2001 and the authors admit the data used were not ideal for discerning effects. This study seeks to fill this gap by analyzing data better suited for analyzing patient outcomes and analyzing a longer time series. The themes described in this chapter are incorporated into the conceptual framework and hypotheses of this study, presented in the next chapter.

Chapter III: Conceptual Framework

The managed care backlash regulations passed in the mid-1990s and early 2000s sought to improve quality of care for managed care enrollees (Gray et al., 2007). Quality of care is comprised of multiple areas or domains of care, ranging from clinical outcomes, like mortality rates, to emotional well-being (Kane, 2006). The main outcomes of this study relate directly to the areas of care quality considered lacking for managed care enrollees during the backlash: access to care, confidence in provider, and patient satisfaction with care (Miller & Luft 1997, 2002; Baker & McClellan, 2001). The concepts for this study are organized using Donabedian’s structure, process, outcome (SPO) framework, which serves as a common foundation for health care quality research (Kane, 2006). The SPO framework describes how structural aspects of care effect the processes of care for patients, which in turn impact patient outcomes (Donabedian, 1980). Elements from economic theory are also incorporated into the framework to help explain the motivation and potential effects of the backlash regulations.

Structure of Care

In the SPO framework, structure describes fixed attributes of the health care setting, such as equipment, and organizational characteristics, such as methods of care reimbursement (Donabedian, 1988). Managed care is a structural factor because it effects how health care is organized for enrollees. Specifically, all health care services for managed care patients are arranged by a single provider, called a gatekeeper. This differs from how care is delivered with traditional indemnity insurance, where patients visit the doctor of their choice.

Patient and environmental characteristics are also included as structural components in the SPO framework. These characteristics represent fixed aspects of health care delivery that impact health care utilization and patient outcomes outside of organizational attributes of the care setting (Ridgley et al., 2002). Relevant patient characteristics include medical history, insurance coverage, health status, income, and basic demographic information (e.g., race, age). These characteristics have all been shown to impact patient-reported outcomes (PROs), including patient satisfaction and trust in provider (Ko & Coons, 2005; Grembowski et al., 2007; Pifer, 2003). Environmental factors include geography, such as where a patient lives and the barriers a patient faces when seeking health care services (Ly et al., 2010; Hearld et al., 2008). For example, the supply of providers is often lower for people living in a rural setting, making access to care more difficult than for people living in metropolitan areas (Chan, Hart, & Goodman, 2006). Environmental factors also include laws with the potential to impact health care, such as minimum nurse staffing ratios in hospitals and the managed care backlash regulations, the variable of interest in this study.

Process of Care

The process dimension of the SPO framework encompasses the activities of health care professionals and organizations when patients seek care. This involves diagnosing, making recommendations, and implementing treatment (Donabedian, 1980). Processes of care for managed care enrollees differ from people with traditional insurance because of the gatekeeping requirement. The gatekeeper or primary care physician (PCP) is responsible for coordinating all health care services for managed care patients. Coordination of care involves approving, scheduling, and monitoring all the health care services a patient receives (AHRQ, 2014). Patients with complicated health care requirements, such as people with chronic conditions, have been shown to have better clinical and financial outcomes when health care services are coordinated through a gatekeeper (Smith, 2003). Additionally, consistent interactions between a patient and provider can lead to enhanced communication, potentially improving patient outcomes such as patient trust in provider and satisfaction with care (Street, et al., 2009).

Gatekeeping requirements can sometimes introduce hurdles to receiving care. Requiring a referral from a PCP for every specialist visit may seem unnecessary for common medical services, such as the person seeking acne treatment from a dermatologist or the woman seeking an annual pap smear from an OB/GYN. Managed care patients have reported difficulty getting an appointment with their PCP if their MCO provider network is limited (Phillips, et al., 2000). Additionally, gatekeepers may limit the number or type of services they provide to managed care patients. In the 1990s, some MCOs offered providers financial incentives to restrict the number of procedures they provided to patients (Davidoff et al., 2007). Likewise, some PCPs were required to undergo extensive reviews of their service utilization by MCOs. The goal of these reviews was to reduce costs by cutting back on the use of services and procedures (Rodwin, 1997).

Outcomes of Care

The outcomes analyzed in this study are the PROs directly related to the source of the managed care backlash: access to care, confidence in provider, and satisfaction with care. As described in Miller and Luft (1997, 2002), and was confirmed in the Literature Review, MCO enrollees reported relatively more problems accessing care than FFS patients before and during the backlash. In addition to access problems, the cost-driven focus of managed care undermined patient confidence in providers (Baker & McClellan, 2001) and decreased satisfaction with care for MCO enrollees (Dugan, 2015).

Mortality is also included as an outcome in this study. Past research is mixed on whether mortality for managed care patients differs from those with FFS insurance (Miller & Luft, 2002). However, studies have shown PROs are often correlated with clinical outcomes. For example, patients who are satisfied with their care or have confidence in their PCP are more likely to adhere to treatments and engage in behaviors associated with favorable medical outcomes (Zolnierek & Dimatteo, 2009; Glickman et al., 2010; Street et al., 2009). To assess whether the backlash regulations impacted clinical outcomes as well as PROs, mortality is also included in this study.

Backlash Regulations

Regulation is often considered to be a tool used by governments to respond to market failures (Peltzman, Levine, & Noll, 1989). Sloan and Hall (2002) identified a number of potential market failures in the MCO market (“consumer ignorance and asymmetric information; imperfect risk adjustment; myopic orientation of health plans; lack of consumer choice; and excessive standardization” (p.182)) suggesting that concerns by patients and providers were somewhat justified. While some of these failures are also apparent in the market for traditional FFS insurance, lack of consumer choice in care decisions and excessive standardization of care are hallmarks of gatekeeping specific to managed care (Mechanic & Schlesinger, 1996). Accordingly, many of the backlash regulations weakened gatekeeping restrictions to force MCOs to operate more like traditional insurance.

All states passed at least one backlash regulation, but most states passed many (Table 2). The backlash regulations impacted multiple aspects of care. Over half of states passed laws allowing women to see an OB/GYN without first seeing their 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 (continuity of care). In 39 states, MCOs were required to cover expenses for Emergency Room visits. Additionally, any willing provider laws forced MCOs to accept into their network any provider that met certain requirements, enlarging the pool of available doctors for MCO enrollees in 26 states. All these laws provided patients with more control over their care choices and PCPs with more time to engage in direct care for patients (as opposed to unnecessary visits for specialist referrals), potentially leading to increased access to care and satisfaction with provider.

A major aspect of the managed care backlash was patients’ belief that PCP treatment decisions were influenced by MCOs at the expense of quality of care (Baker & McClellan, 2001; Dugan, 2015). Many regulations attempted to remove MCOs from

Table 2

Managed Care Regulation Types and Number of States Adopting by 2004

Type of Regulation	Number of States Adopting
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

the decision-making by relaxing and removing constraints on care processes imposed by MCOs. For example, banning gag rules was the most prevalent backlash regulation. Gag rules prevented physicians from discussing treatments with patients that were not covered by the MCO. Now PCPs could discuss all possible care choices with patients, potentially improving or restoring trust in the patient-provider relationship. 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. These report cards provided 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 to sue MCOs for damages related to denial of care. Again, these laws sought to give managed care patients more choice in their care decisions by weakening MCO constraints that caused patient dissatisfaction with care and a lack of confidence in providers.

Some of the backlash regulations had the potential to impact multiple PROs. For example, laws banning gag rules may improve both confidence and satisfaction if patients believe their PCPs are now discussing all possible treatment options with them. Also, access and satisfaction may improve with any willing provider laws since those regulations add more doctors to the MCO network and may make it easier to get an appointment. Consequently, all types of regulation are important to consider when measuring their potential to impact patient outcomes. But even regulations of the same type differed in scope, stringency, and level of enforcement across states. Gray et al. (2007) found that language in some of the comprehensive reform backlash regulations was so innocuous it was considered useless in practice. And Laugesen et al. (2006) argued that backlash regulations were sometimes passed just to benefit the legislators involved. Therefore, the different levels of regulatory severity or intensity should also be considered when analyzing the effect of these laws on patient outcomes. The conclusions presented in this Conceptual Framework and the Literature Review lead to the following hypotheses:

Hypothesis 1. Managed care enrollees in states with more intense backlash regulations will show greater improvements in access to care than managed care enrollees in states with less intense backlash regulations, ceteris paribus.

Hypothesis 2. Managed care enrollees in states with more intense backlash regulations will show greater improvements in confidence in provider than managed care enrollees in states with less intense backlash regulations, ceteris paribus.

Hypothesis 3. Managed care enrollees in states with more intense backlash regulations will show greater improvements in satisfaction with care than managed care enrollees in states with less intense backlash regulations, ceteris paribus.

Past research is mixed on whether mortality for managed care patients differed from those with FFS insurance. Pinkovskiy's (2014) study on the effects of backlash regulations did not find evidence of county-level mortality effects, though he admits the data and model used were not ideal for studying mortality. Since people with chronic conditions can have better clinical outcomes when care is coordinated through a gatekeeper, this may suggest weakening gatekeeping could negatively impact patient health. On the other hand, research has shown patient satisfaction and other PROs are often correlated with clinical outcomes, suggesting improvements in PROs and mortality should be related. Since most people do not have complicated health care requirements, the evidence does not suggest the managed care regulations should impact overall patient mortality, leading to the last hypothesis:

> Hypothesis 4. Managed care enrollees in states with more intense backlash regulations will not show different mortality outcomes than managed care enrollees in states with less intense backlash regulations, ceteris paribus.

Conclusion

This study investigates changes in patient outcomes arising from the managed care regulatory backlash. The concepts for this study are organized using an enhanced version of Donabedian’s SPO framework. The main hypothesis derived from this framework states that PROs for managed care patients in states with a more intense regulatory backlash will show greater improvements than PROs for managed care patients in states with less intense regulations. The next chapter describes the methods and data used to test this hypothesis. The variables identified in the conceptual framework are incorporated into the empirical model to best isolate the effect of the backlash regulations on patient outcomes.

Chapter IV: Methods

This study takes advantage of the variety of regulations enacted across states during the managed care backlash of the late 1990s and early 2000s to investigate their impact on quality of care for managed care enrollees. Four research questions ask how the managed care regulatory backlash affected two domains of quality of care: patient-reported outcomes and mortality. Specifically, did regulations improve quality of care for managed care enrollees by improving access to care, confidence in providers, and satisfaction with care, and lowering mortality? This chapter describes the research design and methods used to answer these questions.

Research Design

Differences in patient outcomes between managed care and fee-for-service (FFS) patients are compared over time as states enacted their managed care regulations. Specifically, this study investigates the difference in outcomes for managed care patients in states with low-intensity regulations relative to managed care patients in states that moved to moderate and high intensity for 1996-2000 and 2000-2004. The empirical design controls for changes that affected both FFS and managed care enrollees over time that are not associated with differences in regulatory treatment, such as the adoption of electronic health records.

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); data 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.

MEPS. The MEPS contains the key variables used in this study: patient experiences with health care and managed care coverage. Managed care variables are not available for years 1997-1999, but are available for 1996 and 2000-forward. Most of the environmental and patient characteristics described in the conceptual framework are also taken from the MEPS, including geography, demographics, and health status. 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). MEPS sample size over the study period ranged from 20,000-30,000 people each year, 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. The first available year of MEPs data is 1996, which is used as the base year in this study. Respondent survey weights account for the complex survey design of the MEPS, which oversamples certain segments of the population.

NHIS. 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 (around 0.8% in 2014 (Centers for Disease Control [CDC], 2015)).

Gray, Lowery, and Godwin (2007). The Gray et al. paper analyzed variations in state managed care regulations during the backlash period. The authors provided the data used in their analysis, which consisted of matrices for each year and state that showed the passage of each backlash regulation. These matrices incorporate weights for stringency of regulation since Gray et al. determined that some regulations were passed with differing degrees of enforcement and limited scope of providers. For example, any willing provider laws only apply to pharmacists in some states. To account for these differences, some regulations were given less importance than others such that a regulation could have a value anywhere between 0.28 and 1. Gray et al. determined the details for each regulation from the sources listed in Table 3. Many of these sources are databases run by non-profit or professional groups, such as the Kaiser Family Foundation.

Table 3

Data Sources Used to Identify Managed Care Backlash Regulations, by Type of Regulation, Gray et al. (2007)

1. Access to Ob-Gyns: Kaiser Family Foundation. 2004. State Mandated Benefits: Direct Access to OB/Gyns, 2004.
2. Any Willing Provider: Health Policy Tracking Service. 2003. Any Willing Provider. Issue Brief, Year End Report. December 31.
3. Bans on Provider Financial Incentives: Health Policy Tracking Service. 2003. Bans on Financial Incentives. Issue Brief, Year End Report. December 31.
4. Continuity of Care: Health Policy Tracking Service. 2003. Continuity of Care. Issue Brief, Year End Report. December 31.
5. External Review Requirements: Health Policy Tracking Service. 2003. Consumer Grievance Procedures: Internal and Independent Appeals. Issue Brief, Year End Report. December 31.
6. Gag Bans: Health Policy Tracking Service. 2003. Bans on Gag Clauses. Issue Brief, Year End Report, December 31.
7. Internal Review: Health Policy Tracking Service. 2003. Consumer Grievance Procedures: Internal and Independent Appeals. Issue Brief, Year End Report.
8. Liability Regulations: National Council of State Legislatures (NCSL) Managed Care Insurer Liability.
9. Ombudsman and Report Cards: NCSL Managed Care Insurer State Laws for Ombudsman, Report Cards and Provider Profiles.
10. Standing Referral to Specialists: Kaiser Family Foundation. 2004. Patients’ Rights: Standing Referrals for Ongoing Care with a Specialist, 2004.

Four states passed managed care regulations after 2003, the latest year covered in the Gray et al. paper. The National Council of State Legislatures (NCSL) is a bipartisan organization that maintains a table of managed care laws, categorized by state, year of implementation, and type of regulation (NCSL, 2011). Information from the NCSL website was used in this analysis to update the matrix from the Gray et al. (2007) paper and account for changes that occurred to laws after 2003. This includes the addition of 6 various laws by 4 states and the repeal of liability laws in 10 states in 2004 after the Supreme Court ruled against them.

AHRF. 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 data is used to determine the barrier to care variable for each person, specifically, whether they live in a county with a PCP shortage. A severe shortage impacts the whole county and a partial shortage impacts part of the county.

Sampling.

The MEPS asks respondents about characteristics of their insurance coverage. This includes whether they are enrolled in an HMO plan or if they are required to use a gatekeeper. If people responded affirmatively to either of those questions, they are identified as having managed care coverage. People with insurance that is not managed care are classified as having traditional FFS insurance in this study. Uninsured individuals are excluded from the analysis.

Measurement of variables.

Independent Variables. The key independent variable is the interaction of whether a person was a managed care enrollee and a measure of state regulatory intensity. The intensity score measures the scope and breadth of each state's regulations contingent on three factors: number, stringency, and rarity. The regulation data provided by Gray et al. were already weighted for stringency such that each state regulation was given a value at 1 or less. They determined stringency weights by accounting for differing levels of enforcement and scope of laws across states. To account for rarity of regulations, a Saidin index was also applied. The Saidin index gives more weight to a phenomenon when it is relatively less common (Spetz & Baker, 1999). Giving rare regulations more weight distinguishes them from more commonplace laws. This corresponds to the finding by Sloan and Hall (2002) that states that passed rarer backlash regulations had the strongest overall packages of laws and were favored by consumer advocates. For this study, the 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. The Saidin index value for this regulation is [1 – (48/50)] = 0.04 (Table 4). The low weight of 0.04 reflects how common the law was. Formally, the intensity score for each state is determined by the weighted sum of adopted backlash regulations (the weights being the Saidin index and stringency weights from Gray et al.). The scores are cumulative and only decrease over time if a law was repealed. The regulatory intensity categories (low, moderate, and high) were determined from distribution of state intensity scores in 2004, when regulatory activity ended. Low

Table 4

Managed Care Regulation Types and the Saidin Index

Type of Regulation	Number of States Adopting	Saidin Index
Bans on gag rules	48	0.04
Comprehensive reform bill	46	0.08
Independent external review of appeals required	43	0.14
Graduated levels of internal review	40	0.20
Direct access to OB-GYNs	39	0.22
Emergency room access under “prudent layperson” standard	39	0.22
Continuity of care protections	36	0.28
Bans on provider financial incentives	31	0.38
Standing referrals to specialists	30	0.40
HMO report card established	27	0.46
Any willing provider law	26	0.48
Ombudsman program	18	0.64
Liability: right to sue health plans for damages	10	0.80

intensity is represented by scores in the first quartile, moderate intensity are scores in the middle two quartiles and high intensity are scores in the last quartile. States were categorized as having low, moderate, or high intensity regulations based on their intensity score in each year of the study (1996, 2000, and 2004). Table 5 illustrates that all states begin in the low-intensity regulation category in 1996 and most shift to moderate- or high-intensity regulation states by 2004 (Figures 1 & 2).

Table 5

Number of States in each Category of Regulatory Intensity, after Stringency and Rarity Weights Applied

Year	Low	Moderate	High
1996	50		
2000	22	22	6
2004	13	24	13

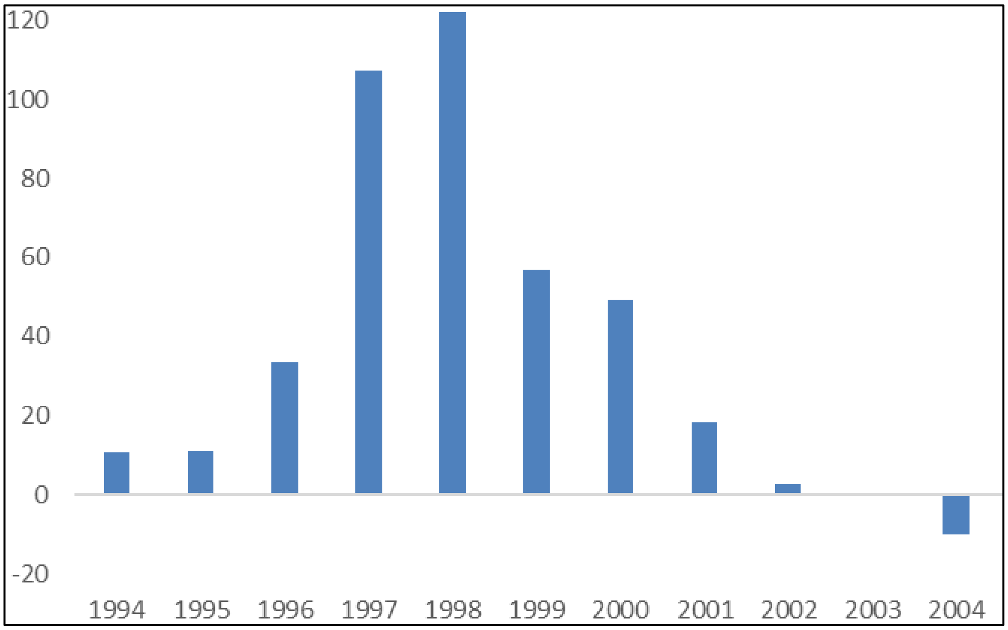

Figure 1. Number of State Managed Care Backlash Regulations Passed by Year, Weighted by Stringency, 1994-2004

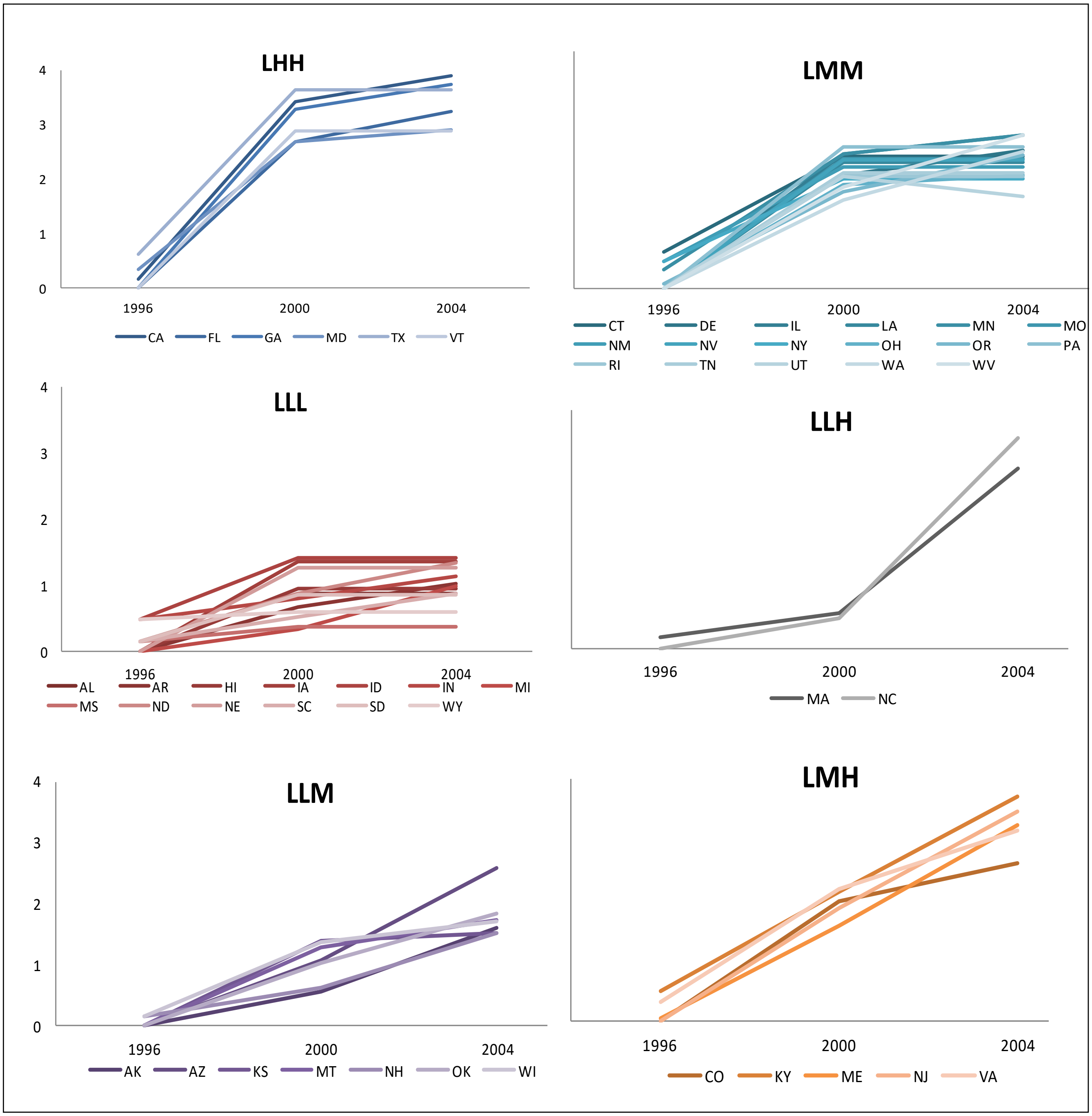

Figure 2. Managed Care Regulatory Backlash Intensity Graphs, 1996-2004

Note: L=low-intensity regulation state, M=moderate, and H=high

Applying the Saidin index impacted the categorization of 14 out of 50 states. Eight states moved into a higher category, either from low- to moderate-intensity or moderate- to high-intensity. This often reflected the passage of regulations that were rarer, like adopting an ombudsman program. Six states moved into a lower category when the Saidin index was applied, moving from moderate- to low-intensity or high- to moderate-intensity. This normally happened in states that passed multiple commonplace regulations.

The other characteristic used to identify our key independent variable is whether a person has managed care. A MEPS respondent can describe an insurance plan as an HMO and/or as a gatekeeper plan. In addition, a 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.

Dependent Variables. Nine PROs from the MEPS are examined for the 1996-2000 period and three for the 2000-2004 period (Table 6). Mortality is also examined using data from the NHIS. 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” (MEPS, 2004). 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.

Table 6

Patient-reported Outcomes and Mortality—Dependent Variables

Patient Outcome	Survey Questions
Access to Care	Doctor has night or weekend hours Patient has no difficulty contacting Doctor by phone Patient has no difficulty getting an appointment* Patient has no difficulty accessing care* Patient is satisfied with ability to access care*
Confidence in Providers	Doctor asks patient about other treatments he/she is taking Doctor listens to patient* Patient is confident in Doctor*
Satisfaction with Care	Patient is satisfied with care*
Mortality	Patient did not die during survey year or year after

Note: Survey questions marked with an asterisk (*) are only available in 1996 and 2000

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 (see Table 8a in the Results chapter). For example, 90% of MC 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 and not aggregated into a single access measure.

Confidence in providers is operationalized using three survey questions (Table 6). One question asks if the respondent is confident in his/her provider, another asks if the Doctor listens, and the last question is whether the Doctor asks patients about other treatments they are taking. This last question 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 in both periods. Satisfaction with care is asked about directly and mortality is determined by whether the person survived in the survey year and year after.

Control Variables. The control variables include the structural characteristics described in the conceptual framework. The 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, & Gu, 2005). The relevant health and demographic information 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 income, which was transformed to constant-2004 dollars using the overall Consumer Price Index.

Observations were dropped if values were missing for age, education or metropolitan area, which was relatively uncommon (1% of observations). However, missing values for income was more common (65% of observations), so those values were imputed rather than losing those observations. The average annual income for each reference group (FFS and MCO for high/moderate/low-intensity category) was used in place of missing values (n=). More sophisticated imputation techniques for income that incorporate race and health status were not pursued due to the relatively small sample sizes of minority subpopulations in some reference groups.

Validity and Reliability. Validity is addressed in this model first by operationalizing constructs using common concepts and definitions from past research as outlined in the conceptual framework. These constructs are included in the model to help control for confounders and isolate the true effect of regulations. Also, the reliability of the outcome variables is enhanced by using questions asked in the same manner, from the same survey, for all years of the analysis.

Methods of Procedures for Hypothesis Testing

A difference-in-difference-in-difference (DDD) approach is used to address the research question. Using the DDD model, differences in patient outcomes between managed care and FFS patients are compared over time as states enacted their managed care regulations. This empirical design controls for changes that affected both

FFS and managed care enrollees unrelated to regulatory treatment, such as changes in health over time.

Most of the managed care regulations were passed between 1996-2000 and were usually implemented within a year of being passed. A few dozen regulations were enacted prior to 1996. Data availability prevents the use of an earlier base year, though it would not impact this analysis given how few regulations were passed at the time. The end of the backlash period is often considered to be between 2001-2002 (Sloan et al., 2005), but 2004 marks the last year of significant regulatory activity. Therefore, two periods are examined, 1996-2000 and 2000-2004.

Analytical strategies.

Logistic regressions are run separately for each binary dependent variable. Combining the five access to care and three confidence in provider variables into individual composite variables was ruled out because each variable captures different aspects of 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. Robust standard errors (SEs) are calculated to account for the complex survey design of MEPS which oversamples certain segments of the population. Since all states are considered low intensity in 1996, the 1996-2000 regression varies slightly from the 2000-2004 regression. Formula 1 is for the first period, 1996-2000, and Formula 2 is for the second period, 2000-2004.The DDD parameter for 2000-2004 is MC*High*2004, but this interaction is dropped in 1996-2000 because MC*High*2000 is collinear with MC*High (since no state was considered high-intensity in 1996).

Formula 1. $Outcome_{i,t} = a_0 + a_1 2000 + \beta_1 MC_i + \beta_2 Moderate_i + \beta_3 High_i + a_2 2000 * MC_i + \beta_4 MC_i * Moderate_i + \beta_5 MC_i * High_i + \theta F_{i,t} + u_{i,t}$

Formula 2. $Outcome_{i,t} = c_0 + c_1 2004 + \gamma_1 MC_i + \gamma_2 Moderate_i + \gamma_3 High_i + c_2 2004 * Moderate_i + c_3 2004 * High_i + \gamma_4 MC_i * Moderate_i + \gamma_5 MC_i * High_i + c_4 2004 * MC_i * Moderate_i + c_5 2004 * MC_i * High_i + \theta F_{i,t} + u_{i,t}$

β_4 and β_5 are the parameters of interest for 1996-2000

c_4 and c_5 are the parameters of interest for 2000-2004

Outcome = PROs and mortality

MC = managed care dummy (MC=1 for MC enrollees)

Moderate = moderate intensity regulation state dummy (Moderate=1 for states with moderate-intensity regulations)

High = high intensity regulation state dummy (High=1 for states with high-intensity regulations)

F = vector of control variables

Sensitivity analysis.

Ideally, a sensitivity test would be conducted to quantify the impact of using the Saidin rarity index. Running the analysis excluding the Saidin Index would present a more comparable model to past research on the backlash regulations which do not include the Saidin index (Sloan et al., 2005; Pinkovskiy 2014). However, due to data confidentiality issues, robustness checks could not be run on the categorization of states into different intensity categories. State-level MEPS data are confidential and due to restrictions on the data, only one categorization of states was authorized for this study. The concern by AHRQ was that an individual state could be identified if the results of different categorizations of states were compared. Therefore, different categorizations of state regulatory intensities could not be tested.

Limitations.

Despite the care taken in designing this study, there are important limitations to consider. There were three main issues that arose from using the MEPS data. First, identifying managed care enrollees is not possible in the MEPS for 1997-1999. Therefore, those years cannot be included in this analysis to test for effects using different time periods. Second, the survey changed in 2001 and questions were no longer asked about satisfaction with care and about most aspects of confidence in provider. This prevented a comparison of these outcomes between the first and second period. Finally, like many health care surveys, the MEPS has issues with non-response and under-representation of certain populations, such as the very sick (Zuvekas & Olin, 2009). This is important because people who are sick are more likely to report dissatisfaction with care and have different responses to other PROs (Zaslavsky & Cleary, 2002). This issue was addressed by including variables for old age, severe disabilities, and chronic conditions.

Though the empirical strategy in this study attempts to control for as many confounders as possible, the model contains certain drawbacks. 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 quality 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 MC 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, providing an additional level of control to combat omitted variable bias. The next chapter describes the results of this analysis, including a summary of the descriptive statistics and regression results.

Chapter V: Results

Differences in patient outcomes between managed care (MC) and fee-for-service (FFS) enrollees are compared over time as states enacted regulations specific to managed care organizations during the period known as the "managed care backlash." To start this chapter, summary statistics are described for key variables across the sample. The results of the hypothesis testing are then presented. A detailed discussion of policy implications and limitations to this study are presented in the next chapter.

Summary Statistics

Table 7 provides the unweighted sample sizes by insurance status and regulatory intensity category for each year represented in the analysis. Overall, the MEPS 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. By 2004, low-intensity states had the smallest sample sizes, especially for MC enrollees (n=850, or 3% of annual sample).

Tables 8a-c show the summary statistics of demographic information by MC status. The MEPS survey weights have been applied to these data to make them nationally representative. Table 8a compares mean values for FFS and MC enrollees in 1996. Tables 8b-c are further delineated by regulatory intensity (low/moderate/high) for

Table 7

Unweighted Sample Sizes by Insurance Type and State Regulatory Intensity

	Managed Care				Fee-For-Service				Total Sample			
	Regulatory Intensity				Regulatory Intensity				Regulatory Intensity			
	Low	Moderate	High	Total	Low	Moderate	High	Total	Low	Moderate	High	Total
(n)												
1996	7,014			7,014	12,128			12,128	19,142			19,142
2000	1,926	3,951	3,474	9,351	3,623	4,635	3,657	11,915	5,549	8,586	7,131	21,266
2004	850	3,637	4,425	8,912	3,007	7,566	9,150	19,723	3,857	11,203	13,575	28,635
(%)												
1996	37			37	63			63	100			100
2000	9	19	16	44	17	22	17	56	26	40	34	100
2004	3	13	15	31	11	26	32	69	13	39	47	100

Table 8a

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

	Managed Care	Fee-For-Service
Age	33 (22)	37† (27)
Female (%)	51	53†
Race (%)		
Black	11	13†
White	83	83†
Other	6	4†
Hispanic (%)	9	10†
Married (%)	48	40†
Education (%)		
No high school degree	32	43†
High school	40	37†
College	28	19†
Chronic condition prevalence (%)	26	34†
Self-reported bad health (%)	6	13†
Lives in metropolitan area (%)	88	70†

(Table 8a continued)

	Managed Care	Fee-For-Service
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[†]
Medicare disabled (%)	0.5	3.3[†]
Medicare aged (%)	4.4	17.8[†]

[†] Significant difference between MC and FFS ($p<0.05$)

Table 8b

Nationally-representative Mean Summary Statistics for Control Variables by Insurance Status and Regulatory Intensity, 2000

	Managed Care			Fee-For-Service		
	Regulatory Intensity					
	Low	Moderate	High	Low	Moderate	High
Age	33 (21)	33 (22)	32 (20)	38‡ (27)	39‡ (28)	38‡ (25)
Female (%)	52	50	52	52	53‡	54‡
Race (%)						
Black	12	11	14	12‡	12‡	15
White	87	86	77	86‡	84‡	78
Other	2	4	8	2	4‡	7‡
Hispanic (%)	3	6	19	3	7‡	25‡
Married (%)	48	46	45	44‡	39‡	37‡
Education (%)						
No high school degree	32	35	36	41‡	42‡	47‡
High school	42	38	36	40‡	38‡	33‡
College	26	27	28	19‡	20‡	20‡
Chronic condition prevalence (%)	32	28	25	40‡	41‡	40‡
Self-reported bad health (%)	6	6	6	14‡	13‡	12‡

(Table 8b continued)

	Managed Care			Fee-For-Service		
	Regulatory Intensity					
	Low	Moderate	High	Low	Moderate	High
Lives in metropolitan area (%)	73	85	98	58‡	76‡	90‡
Lives in county with severe PCP shortage (%)	34	43	48	38‡	48‡	48‡
Lives in county with partial PCP shortage (%)	44	40	36	45	37‡	31‡
Individual Income (constant-2004$)	34,756 (33,739)	36,660 (24,556)	38,018 (25,529)	27,390‡ (23,599)	27,017‡ (22,245)	27,045‡ (26,378)
Medicare disabled (%)	0.7	0.7	0.6	3.5‡	4.9‡	3.6‡
Medicare aged (%)	3.4	4.3	3.9	19.1‡	22.2‡	19.5‡

‡Significant difference between MC and FFS in each regulatory category (e.g., MC Low versus FFS Low) (p<0.05)

Table 8c

Nationally-representative Mean Summary Statistics for Control Variables by Insurance Status and Regulatory Intensity, 2004

	Managed Care			Fee-For-Service		
	Regulatory Intensity					
	Low	Moderate	High	Low	Moderate	High
Age	35 (19)	34 (21)	34 (18)	38‡ (24)	38‡ (24)	38 (21)
Female (%)	49	51	51	52	53‡	53‡
Race (%)						
Black	9	10	13	14‡	10‡	15‡
White	85	84	76	82‡	84‡	78
Other	6	6	11	4‡	6	7‡
Hispanic (%)	5	7	17	3‡	9‡	20‡
Married (%)	50	48	45	41‡	40‡	39‡
Education (%)						
No high school degree	31	31	33	40‡	39‡	43‡
High school	43	37	37	38‡	39‡	34‡
College	26	31	30	22‡	22‡	23‡
Chronic condition prevalence (%)	33	37	33	43‡	42‡	42‡
Self-reported bad health (%)	7	7	7	13‡	12‡	12‡

(Table 8c continued)

	Managed Care			Fee-For-Service		
	Regulatory Intensity					
	Low	Moderate	High	Low	Moderate	High
Lives in metropolitan area (%)	75	87	95	65‡	75‡	84‡
Lives in county with severe PCP shortage (%)	36	51	37	43‡	56‡	38‡
Lives in county with partial PCP shortage (%)	44	37	47	41	32‡	42‡
Individual Income (constant-2004$)	35,189 (21,775)	37,755 (25,124)	38,349 (26,766)	27,158‡ (20,915)	28,138‡ (21,831)	28,126‡ (21,028)
Medicare disabled (%)	0.5	0.6	0.5	4.3‡	4.6‡	4.4‡
Medicare aged (%)	4.1	3.9	4.4	16.7‡	17.8‡	17.1‡

‡Significant difference between MC and FFS in each regulatory category (e.g., MC Low versus FFS Low) (p<0.05)

2000 and 2004, respectively. T-tests ($p <= 0.05$) run on these means found statistically significant differences for many demographic variables between MC and FFS enrollees in states with the same regulatory intensity each year. In general, MC 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. In contrast, a higher share of both MC and FFS respondents reported having a chronic condition in 2004 versus 1996 or 2000. The most drastic change was for MC enrollees in moderate-intensity regulation states, where 25% of people reported a chronic condition in 2000 versus 37% in 2004.

Demographic information was mostly similar across the different regulatory categories (low/moderate/high-intensity) for 2000 and 2004. However, states with high-intensity regulations had a higher proportion of minority and Hispanic people than states with low- or moderate-intensity regulations. 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.

Tables 9a-c summarize the dependent variables for each reference group. Table 9a compares information for FFS and MC enrollees in 1996. Tables 9b-c are further delineated by regulatory intensity (low/moderate/high) for 2000 and 2004, respectively. Many outcomes showed no significant difference between the two groups. When significant differences were found, the values were often very similar. Contrary to research showing dissatisfaction with managed care (Miller & Luft, 2002), 94% of MC enrollees reported satisfaction with care in 1996 (Table 9a), just below the response of

Table 9a

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[†]
	Patient has no difficulty contacting Doctor by phone	39	42[†]
	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[†]
Confidence in Providers	Doctor asks patient if he/she is taking other treatments	75	79[†]
	Doctor listens to patient	97	97
	Patient is confident in Doctor	95	97[†]
Satisfaction with Care	Patient is satisfied with care	94	96[†]
Mortality	Patient did not die during survey year or year after	99.5	98.4[†]

[†] Significant difference between MC and FFS (p<0.05)

Table 9b

Nationally-representative Mean Summary Statistics for Dependent Variables by Insurance Status and Regulatory Intensity, 2000 (%)

		Managed Care			Fee-For-Service		
		Regulatory Intensity					
		Low	Mod-erate	High	Low	Mod-erate	High
Access to Care	Doctor has night or weekend hours	49	57	45	38[‡]	47[‡]	35[‡]
	Patient has no difficulty contacting Doctor by phone	46	44	39	44	46	40
	Patient has no difficulty getting an appointment	46	44	42	44	48	46[‡]
	Patient has no difficulty accessing care	93	94	91	90[‡]	88[‡]	87[‡]
	Patient is satisfied with ability to access care	97	98	95	95[‡]	93[‡]	91[‡]
Confidence in Providers	Doctor asks patient if he/she is taking other treatments	80	79	82	80	84[‡]	85[‡]
	Doctor listens to patient	98	97	97	97	97	97
	Patient is confident in Doctor	96	96	96	96	97	96
Satisfaction with Care	Patient is satisfied with care	97	94	95	96	94	95
		Low	Moderate/High		Low		Moderate/High
Mortality	Patient did not die during survey year or year after	99.5	99.7		98.5[‡]		97.9[‡]

[‡] Significant difference between MC and FFS in each regulatory category (e.g., MC Low versus FFS Low) (p<0.05)

Table 9c

Nationally-representative Mean Summary Statistics for Dependent Variables by Insurance Status and Regulatory Intensity, 2004 (%)

		Managed Care			Fee-For-Service		
		Regulatory Intensity					
		Low	Moderate	High	Low	Moderate	High
Access to Care	Doctor has night or weekend hours	39	55	47	37‡	43‡	34‡
	Patient has no difficulty contacting Doctor by phone	59	59	54	57‡	57	56
Confidence in Providers	Doctor asks patient if he/she is taking other treatments	75	80	77	77	77‡	77
		Low	Moderate/High		Low	Moderate/High	
Mortality	Patient did not die during survey year or year after	99.3	99.8		98.0‡	98.5‡	

‡Significant difference between MC and FFS in each regulatory category (e.g., MC Low versus FFS Low) (p<0.05)

96% for FFS respondents. Satisfaction rates increased slightly for most MC 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. (People 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.

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 MC and 44% of FFS respondents reported difficulty getting an appointment, while responses ranged between 42-48% for MC and FFS enrollees in 2000 across different levels of regulatory intensity. Additionally, only 42% of FFS and 39% of MC 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 mortality observations (only a couple of hundred per year), 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.

Hypothesis Testing

A difference-in-difference-in-difference (DDD) model is used to estimate differences in patient outcomes between MC and FFS patients as backlash regulations were passed. For each period, the DDD model measures the change in outcomes for managed care patients (relative to FFS patients) in states with low-intensity regulations relative to patients in states that switched to moderate- and high-intensity (again relative to FFS patients). Tables 10a-b show regression results for the key independent variables for 1996-2000 and 2000-2004, respectively. The key variables include the dummies for managed care, regulatory intensity, post-period, and their interactions. The regulatory effects are shown as the DDD estimates: MC*Moderate and MC*High for 1996-2000 and MC*Moderate*2004 and MC*High*2004 for 2000-2004 (since all states are considered low intensity in 1996, the formulas used to estimate the effects are slightly different; see Formulas 1 & 2 in the Methods Chapter). For clarity, parameter estimates for the control variables are not shown, but are included in Appendix A.

Main model results.

The first three hypotheses in this study predict MC enrollees in states with more intense backlash regulations will show greater improvements in access to care, confidence in provider, and satisfaction relative to MC enrollees in states with less intense backlash regulations, ceteris paribus. Overall, some support was found in the second period for the access to care and confidence in provider hypotheses, but results were negative for access to care in the first period and no support was found for the patient satisfaction hypothesis. The rest of this chapter describes the regression results in detail. Explanations for these results are provided in the next chapter.

Table 10a

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
y2000	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 * y2000	-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)

(Table 10a continued)

	Satisfaction		Mortality
	Patient is satisfied with care		Patient did not die during the survey year, or year after
y2000	-0.0056	y2000	0.0009
	(0.0081)		(0.0008)
Managed Care (MC)	-0.0167**	MC	0.0011
	(0.0073)		(0.0015)
Moderate	-0.0176**	ModHigh	0.0010
	(0.0087)		(0.0007)
High	-0.0031		
	(0.0097)		
MC * y2000	0.0294**	MC * y2000	-0.0025
	(0.0131)		(0.0024)
MC * Moderate	-0.0082	MC * ModHigh	-0.0011
	(0.0133)		(0.0021)
MC * High	-0.0181		
	(0.0151)		

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

Table 10b

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
y2004	-0.0482*	0.1378***	-0.0155	y2004	0.0007
	(0.0263)	(0.0302)	(0.0240)		(0.0016)
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 * y2004	-0.0751**	0.0451	0.0069	MC * y2004	-0.0046
	(0.0350)	(0.0316)	(0.0303)		(0.0035)
MC * Moderate	-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 * y2004	0.0127	-0.0245	-0.0573*	ModHigh * y2004	-0.0002
	(0.0393)	(0.0397)	(0.0316)		(0.0019)
High * y2004	0.0455	0.0198	-0.0728**		
	(0.0352)	(0.0366)	(0.0304)		

(Table 10b 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 * y2004	0.1077**	-0.0064	0.0809**	MC * ModHigh * y2004	0.0048
	(0.0474)	(0.0421)	(0.0371)		(0.0043)
MC * High * y2004	0.1017**	-0.0594	0.0299		
	(0.0455)	(0.0415)	(0.0418)		

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

The following section explains each element of the regression results for a single outcome, to clarify the meaning of the marginal effect for each variable as they are presented in the tables. Specifically, the results for “Doctor Asks Patient if He/She is Taking Other Treatments” for 2000-2004 are explained for each variable in the order they are presented in Table 10b. After the marginal effects for this specific outcome are explained, the rest of the chapter summarizes the statistically significant results for the key independent variables. Specifically, the DDD estimates are presented for both periods, which show the regulatory effects for each outcome variable, followed by a summary of the results for the managed care and regulatory intensity dummies.

Confidence in Provider*.* This section explains the regression results for “Doctor Asks Patient if He/She is Taking Other Treatments” for 2000-2004 as they are presented in Table 10b. The results suggest there was no significant difference in the likelihood of patients reporting their Doctors asked about other treatments they were taking in 2004 compared to 2000, holding all else equal (marginal effect [ME] = -0.0155, standard error [SE] = 0.0240; Table 10b). However, significant differences were found for both the MC dummy and the regulation dummies. On average, people with MC in the first period reported a 3.46 percentage point lower likelihood of Doctors asking about other treatments relative to FFS patients. In contrast, people in states with moderate- and high-intensity regulations were more likely to report Doctors asking about other treatments in the first period (by 5.50 and 6.62 percentage points, respectively). The interaction of MC with 2004 was statistically insignificant, as were the interactions of MC with the regulation dummies. The latter finding means MC enrollees in states with different regulatory intensities did not report differences in confidence in provider in the first period, on average. People in moderate- and high-intensity regulation states in 2004 were less likely to report a Doctor asked about other treatments they were taking (-5.73 percentage points and -7.28 percentage points, respectively).

The DDD estimates are the final two parameters in Table 10b. Significant effects were found for moderate-intensity regulation states, but not for high-intensity states. Specifically, MC patients in states that moved from low-intensity regulations to moderate-intensity between 2000 and 2004 were more likely to report their Doctor asked them about other treatments there were taking by 8.09 percentage points, controlling for changes in FFS patients. No regulatory effects were found for high-intensity states. These results are discussed in the next chapter.

The next three sections summarize the results for the main variables of interest across all outcomes and time periods. The regulatory effects (DDD estimates) are first summarized, followed by the individual estimates on the managed care and regulatory intensity dummies. Unlike the previous section which discussed results for a single outcome, these sections summarize results across outcomes for each key independent variable. This allows for a more comprehensive comparison of results across all outcomes. To keep the presentation of results concise, only the statistically significant results are mentioned.

<u>Regulatory Effect</u>. This section describes the regulatory effects on MC patients when moving from low- to moderate- or high-intensity regulations, as represented by the DDD estimates (MC*Mod and MC*High for 1996-2000; MC*Mod*2004 and MC*High*2004 for 2000-2004). Significant results were negative in the first period for

access to care, but were positive in the second period for access to care and confidence in provider. For access to care in the first period, the probability of MC enrollees reporting no difficulty making an appointment was 5.47 percentage points less in states that moved from low- to moderate-intensity regulations and 6.83 percentage points less when states went from low- to high-intensity (Table 10a). However, in the second period, MC 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 (10.77 and 10.17 percentage points, respectively; Table 10b). Also in the second period, MC enrollees in states that went from low intensity to moderate were 8.09 percentage points more likely to report their Doctor asked them about other treatments (Table 10b). Results did not indicate any regulatory effect on patient satisfaction, which was only available for the first period. Regulatory effects were also not found for the mortality outcome, as expected.

These results show states with a moderate-intensity regulatory backlash saw positive results for MC enrollees in the second period for both access to care and confidence in provider. However, the only significant regulatory effect in the first period was negative and showed MC enrollees reported relatively worse access to care in states that enacted moderate- and high-intensity regulations.

Managed Care. This section describes the managed care dummy estimates (MC and MC*2000 for 1996-2000; MC, MC*2004, MC*Mod, and MC*High for 2000-2004). Results showed outcomes for MC enrollees, in general, were mostly negative relative to FFS enrollees. The only positive result was found in a single access to care variable—MC enrollees were significantly more likely to have access to Doctors on nights or weekends (ME = 0.0471; Table 10a; ME=0.0454; Table 10b). However, they were less likely to report no difficulty contacting the Doctor by phone in both periods (ME = -0.0282; Table 10a; ME=0.0233; Table 10b) and less likely to report no difficulty accessing care in the first period (ME = -0.0202; Table 10a).

The significant confidence and satisfaction outcomes for MC enrollees were all negative. MC enrollees were less likely to report Doctors asked about other treatments they were taking by 2.82 percentage points in the first period (Table 10a) and by 3.46 percentage points in the second period (Table 10b). Additionally, MC enrollees reported less confidence in provider in the first period (ME = -0.0168; Table 10a) and less satisfaction with care (ME = -0.0167; Table 10a). These last two questions were only available in the first period.

Mixed results were found for the MC interactions. In the first period (MC*2000), results were positive for access and satisfaction, but negative for confidence. Specifically, MC enrollees in 2000 were more likely to report having no difficulty accessing care (ME = 0.0350; Table 10a), being satisfied with ability to access to care, (ME = 0.0228), and being satisfied with care (ME = 0.0294). However, they were less likely to report that Doctors asked if they were taking other treatments (ME = -0.0290; Table 10a). In the second period (MC*2004), the only significant effect was negative for access to care. Specifically, MC enrollees in 2004 were less likely to report their Doctor had night or weekend hours (ME = -0.0751; Table 10b). No significant effects were found for the interaction of MC with the regulatory intensity dummies (MC*Mod and MC*High) for any of the outcomes for 2000-2004.

To summarize, the results suggest MC enrollees, on average, reported relatively worse confidence in provider and satisfaction than people with FFS insurance. Both positive and negative results were found for access to care. However, the interactions suggest access to care and satisfaction improved between 1996 and 2000 for MC enrollees. There is no indication of average improvements for MC enrollees during the second period, 2000-2004.

Regulations. This section describes the remaining regulatory intensity dummy estimates (Moderate and High for 1996-2000; Moderate, High, Mod*2004, and High*2004 for 2000-2004). Results showed mostly positive outcomes for the regulation intensity variables. All 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 (ME = 0.0304 and 0.1013, respectively; Table 10a). 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; Table 10b). The only negative parameter 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; Table 10a).

Results for the high-intensity regulation dummies were mixed for access to care and positive for confidence in provider. People in these states were less likely to report their Doctor had night or weekend hours in both periods (ME = -0.0935; Table 10a; and ME = -0.0974; Table 10b). But they were more likely to report having no difficulty contacting their Doctor by phone in the first period (ME = 0.0850; Table 10a) and that their Doctor asked them about other treatments they were taking (ME = 0.0662; Table 10b).

To summarize, the results suggest people in states with moderate-intensity regulations enrollees, on average, reported relatively better access to care and confidence in provider 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.

Additional analysis.

A base model was estimated that only included the key independent variables to test the model specification. As expected, the base model parameters (Appendix B) were generally consistent with those in the fully-specified model, except for mortality. The mortality variable in the baseline model showed positive, statistically significant results for MC patients in moderate/high-intensity regulation states (relative likelihood of being alive in the survey year or year after was estimated to be 0.94 percentage points; Appendix Table 2c). However, these results were not significant in the fully-specified model when relevant control variables were included, such as old age and self-reported poor health.

Summary

Results indicate states with a moderate-intensity regulatory backlash saw positive results for MC enrollees for both access to care and confidence in provider in the second period. However, MC enrollees reported relatively worse access to care in states that enacted moderate- and high-intensity regulations in the first period. No significant regulatory effects were found for satisfaction with care or mortality. The results also showed MC enrollees, on average, reported relatively worse confidence in provider and satisfaction than people with FFS insurance. However, access to care and satisfaction with care appeared to improve between 1996 and 2000 for MC enrollees, on average (but not between 2000 and 2004). Finally, results find people in states with moderate- and high-intensity regulations, on average, reported relatively better confidence in provider than people in low-intensity regulation states and people in moderate-intensity regulations states also reported improvements in access to care. The next chapter includes a detailed discussion of these results in context of the Literature Review and Conceptual Framework chapters. Policy implications and future research are also discussed.

Chapter VI: Conclusion

Hundreds of state laws were passed during the managed care backlash of the late 1990s and early 2000s. The backlash reflected negative public sentiment arising from the widespread belief that access to services and quality of care was suffering due to the cost-driven decisions of MCOs (Goldberg, 1999). The intent of many backlash regulations was to force MCOs to operate more like traditional FFS insurance. Many of the regulations eased or eliminated constraints on utilization that prevented patient access to care. Several regulations gave providers more flexibility in the way they practiced care. Other laws helped patients appeal denials of service. Whether the backlash regulations translated to better outcomes for MC enrollees is examined in this study. The results indicate the regulations did improve outcomes for MC enrollees, but to a varying degree and only in the latter period of the backlash. Specifically, MC 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 provider relative to MC enrollees in low-intensity regulations states. Similar positive effects for access to care were found for MC enrollees in states that adopted high-intensity regulations. Conversely, access to care was found to be relatively worse for MC enrollees in states that adopted moderate- or high-intensity backlash regulations between 1996 and 2000. And no evidence was found to support backlash regulations had a positive effect on patient satisfaction with care. This chapter offers a few explanations for these outcomes. Possible implications for health care policy and management are also provided, along with suggestions for future research.

Between 2000 and 2004, MC enrollees in states that enacted moderate-intensity regulations reported their Doctor asked about other treatments they were taking at higher rates than enrollees in states that remained with low-intensity regulations. This suggests after the passage of moderate-intensity backlash regulations, Doctors were engaging more with their patients, indicative of a trust-based relationship. During the managed care backlash, MCOs were characterized as disrupting the patient-doctor relationship by interfering with provider treatment decisions (Baker & McClellan, 2001). Many of the regulations attempted to address the issue of MCO influence over provider and patient choices by allowing Doctors to fully engage with patients, such as by discussing all their treatment options. All but two states passed regulations banning physician gag orders that prevented providers from discussing treatments with patients if the MCO did not cover it. And 31 states banned MCOs from providing financial incentives to providers for restricting patient utilization of services. States with moderate-intensity regulations had a combination of these types of laws. The positive impact on confidence in provider in the second period suggests providers did respond to the moderate-intensity backlash regulations by involving patients more in the decision-making process.

Results also show no accompanying improvement in confidence in provider was found in high-intensity regulation states. Many high-intensity states passed one or more of every type of regulation. Therefore, high-intensity states generally had the same regulations as moderate-intensity states, just more of them. This means there were also more likely to pass rarer regulations, such as ombudsman programs and liability regulations. The lack of effect on confidence in provider for enrollees in high-intensity states, but not moderate-intensity states, may indicate the additional regulations were counterproductive. High-intensity regulation states often passed dozens of laws over multiple years. Providers may have resented the excessive regulation of care and not responded, even if the intent of the laws was to improve patient outcomes. One study found increasing rates of regulation limited provider communication with patients because providers believe their comments could be used against them in malpractice lawsuits (Hamasaki, Takehara, & Hagihara, 2008). Additionally, 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.

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 had the potential to increase demand for procedures, specifically, the bans on gag orders and financial incentives for providers. 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 MC enrollees seeking to access care. Likewise, between 2000 and 2004, MC enrollees in states that moved from low-intensity regulations to moderate- or high- intensity were more likely to report having access to Doctors on night or weekend hours. This could also reflect the additional demand for services resulted in providers offering additional hours. In both cases, the regulatory effect on access to care is indirect, as none of the regulations directly address ease of getting an appointment or PCPs providing additional business hours.

No significant regulatory effect was found for satisfaction with care. If the backlash was driven in part from patient dissatisfaction with utilization constraints and MCO interference (Rodwin, 1996), the expectation was satisfaction for MC enrollees in states with more intense regulations would improve once those issues were resolved. The lack of effect from regulations may partly be explained by the already high satisfaction rates for managed care enrollees, as shown in the summary statistics in the Results chapter. Additionally, reports of dissatisfaction may have been overblown or misinterpreted. In Blendon et al. (1998), HMO enrollees were found to be satisfied with care at the same rate as FFS enrollees. Likewise, in the first review by Miller and Luft (1997), four out of five papers found MCO enrollees reported less satisfaction than their FFS counterparts, though results were significant in only one of those papers. It is also possible satisfaction did increase because of the regulations, but only in the second period, when the variable was unavailable. This corresponds with the finding that confidence in provider only improved in the second period for managed care enrollees in moderate-intensity states.

Health Care Policy and Management Implications

Much of the uptick in overall health care spending in the early 2000s is attributed to the backlash regulations (Pinkovskiy, 2014). This study indicates moderate-intensity regulations resulted in benefits to MC enrollees by way of increased access to care and confidence in provider in the second half of the backlash, suggesting a potential justification for the increase in spending over the period. Additionally, a spillover effect from the regulations may have occurred for FFS enrollees. This analysis shows some outcomes were higher for all patients in both periods in states with moderate-intensity regulations, not just MC enrollees. Research has found providers who treat a high proportion of MC patients end up treating their FFS patients more like MC patients compared to providers who treat only FFS patients (Glied & Zivin, 2002). If providers generally felt more freedom to discuss treatment options with patients after regulations were adopted that banned gag orders and financial incentives, this may have resulted in better outcomes for all their patients.

These results also point out the importance of distinguishing between different levels of intensity when discussing the backlash regulations. Managed care enrollees in states with moderate-intensity regulations were found to have relatively better access to care and confidence in provider in the second half of the backlash. The results also show MC enrollees in states with high-intensity regulations did not report increases in confidence in provider in the second period like they did in moderate-intensity regulation states. And the positive effect for high-intensity access to care in 2004 was almost the same as for moderate-intensity states. This indicates that more regulations did not translate into better outcomes, instead it was the mix of regulations that mattered. Positive results only in the latter part of the backlash coincide with a prediction by Noble and Brennan (1999) that managed care backlash regulations would become more nuanced, and more impactive, as the years went on as legislators learned how to write more effective laws using earlier regulations as a guide.

The managed care backlash was precipitated by widespread patient and provider dissatisfaction with care (Baker & McClellan, 2001). However, the results of this study indicate satisfaction with care and ability to access care was already very high for both MC and FFS enrollees during the backlash. In 1996, over 95% of MC 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 (Table 9a). 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 generalize questions, more pointed questions about access to care and confidence in provider suggest issues exist 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 (Table 9a). Policymakers have begun using PROs as part of value-based reimbursement arrangements, such as Accountable Care Organizations that pay doctors or hospitals to meet certain cost and quality benchmarks, including high scores on certain aspects of satisfaction with care and access to care (Highfill & Ozcan, 2016). These types of delivery models may consider using specific questions about aspects of quality over the more generalized questions that tend to always skew positive.

Suggestions for Future Research

This study helps inform the scant research on the impact on patient outcomes from the hundreds of states managed care backlash regulations passed between 1996-2004. The results of this analysis find the regulations did improve access to care and confidence in providers for MC patients in the second half of the backlash. This is the same period Pinkovskiy (2014) attributes increases in health care spending to the backlash regulations. Future research may pursue a genuine cost-benefit analysis by combining patient outcomes and health care spending into a single study to determine a monetary value of the regulatory benefits. Additionally, a different data source besides MEPS, one that is not constrained by confidentiality rules, is desirable for future research that requires state-level analysis. Since this study was only permitted to test one version of state intensity categories, a robustness check could not be performed to see what impact, if any, resulted from giving rarer regulations more weight and contributed to states being categorized as high-intensity. This is potentially significant considering high-intensity regulation states were not found to have the same positive effect as moderate-intensity states.

Conclusion

This study contributes to the literature by analyzing the impact of state regulations on patient-reported quality of care and mortality for managed care enrollees. The stated goal of the backlash regulations was to ensure patients received good quality of care (Zelman, 1999). The results of this analysis show the managed care backlash regulations had the intended effect of improving access to care and confidence in provider for MC enrollees states that adopted moderate-intensity regulations in the second half of the backlash. The positive effect on access to care was similar in states that adopted high-intensity regulations. However, no positive effect was found in the first period for any outcome. These results show that states with the most intense backlash did not realize better patient outcomes, instead, outcomes were most impacted by the composition of regulations in each state.

References

Adler, Loren, and Paul B. Ginsburg. Obamacare premiums are lower than you think. Health Affairs, July 21 (2016).

Aizer, A., Currie, J., & Moretti, E. (2007). Does managed care hurt health? evidence from Medicaid mothers. The Review of Economics and Statistics, 89(3), 385-399. doi:10.1162/rest.89.3.385

Backus, L. I., & Bindman, A. B. (2001). Low- income Californians' experiences with health insurance and managed care. Journal of Health Care for the Poor and Underserved, 12(4), 446-460.

Baker, L. C., & McClellan, M. B. (2001). Managed care, health care quality, and regulation. The Journal of Legal Studies, 30, 715-741. doi:10.1086/339299

Baldwin, A. (2001). Wagging the dog: An analysis of year 2000 workforce and education outcomes from recommendations of the 1995 pew commission report. Journal of Allied Health, 30(3), 160.

Balla, S. J. (1999). Markets, governments, and HMO development in the 1990s doi:10.1215/03616878-24-2-215

Balla, S. J. (2001). Interstate professional associations and the diffusion of policy innovations. American Politics Research, 29(3), 221-245. doi:10.1177/1532673X01293001

Barry, C. L., & Ridgely, M. S. (2008). Mental health and substance abuse insurance parity for federal employees: How did health plans respond? Journal of Policy Analysis and Management, 27(1), 155-170. doi:10.1002/pam.20311

Beach, M. C., Meredith, L. S., Halpern, J., Wells, K. B., & Ford, D. E. (2005). Physician conceptions of responsibility to individual patients and distributive justice in health care. Annals of Family Medicine, 3(1), 53.

Beckles, L. A., G., Williamson, F., D., Brown, F., A., Gregg, W., E., Karter, J., A., Kim, A., Catherine, Thompson, J., T. (2007). Agreement between self-reports and medical records was only fair in a cross-sectional study of performance of annual eye examinations among adults with diabetes in managed care. Medical Care, 45(9), 876-883. doi:10.1097/MLR.0b013e3180ca95fa

Bender, R., & Garfinkel, S. (2001). Differences in the structure of CAHPS measures among the Medicare fee-for- service, Medicare managed care, and privately insured populations. Health Services Research, 36(3), 489-508.

Berman, S., Armon, C., & Todd, J. (2005). Impact of a decline in Colorado Medicaid managed care enrollment on access and quality of preventive primary care services. Pediatrics, 116(6), 1474.

Bernard, D. B., & Shulkin, D. J. (1998). The media vs managed health care: Are we seeing a full court press? Archives of Internal Medicine, 158(19), 2109.

Bian, J., Dow, W. H., & Matchar, D. B. (2006). Medicare HMO penetration and mortality outcomes of ischemic stroke. The American Journal of Managed Care, 12(1), 58.

Blanc, P. D., Trupin, L., Earnest, G., San Pedro, M., Katz, P. P., Yelin, E. H., & Eisner, M. D. (2003). Effects of physician- related factors on adult asthma care, health status, and quality of life. The American Journal of Medicine, 114(7), 581-587. doi:10.1016/S0002-9343(03)00053-6

Blendon, R., Brodie, M., Benson, J., & Altman, D. (1998). Understanding the managed care backlash. Health Affairs, 17(4), 80-94.

Bloom, J. R., Hu, T., Wallace, N., Cuffel, B., Hausman, J. W., Sheu, M., & Scheffler, R. (2002). Mental health costs and access under alternative capitation systems in Colorado. Health Services Research, 37(2), 315-340. doi:10.1111/1475-6773.025

Bodenheimer, T. (2005). High and rising health care costs. part 2: Technologic innovation. Annals of Internal Medicine, 142(11), 932.

Bolin, J. N., Buchanan, R. J., & Smith, S. R. (2002). State regulation of private health insurance: Prescription drug benefits, experimental treatments, and consumer protection. The American Journal of Managed Care, 8(11), 977-985. doi:152 [pii]

Born, P., & Query, J. (2004). Health maintenance organization (HMO) performance and consumer complaints: An empirical study of frustrating HMO activities. Hospital Topics, 82(1), 2-9. doi:10.3200/HTPS.82.1.2-9

Brodie, M., Brady, L. A., & Altman, D. E. (1998). Media coverage of managed care: Is there a negative bias? Health Affairs (Project Hope), 17(1), 9-25.

Brown, V. Y., & Hartung, B. R. (1998). Managed care at the crossroads: Can managed care organizations survive government regulation? Annals of Health Law / Loyola University Chicago, School of Law, Institute for Health Law, 7, 25.

Buntin, M. B., Garber, A. M., McClellan, M. B., & Newhouse, J. P. (2004). The costs of decedents in the Medicare program.

Callahan, M., Fein, O., & Battleman, D. (2002). A practice- profiling system for residents. Academic Medicine, 77(1), 34-39.

Cella, D., Riley, W., Stone, A., Rothrock, N., Reeve, B., Yount, S., Choi, S. (2010). The patient-reported outcomes measurement information system (PROMIS) developed and tested its first wave of adult self-reported health outcome item banks: 2005–2008. Journal of Clinical Epidemiology, 63(11), 1179-1194.

Centers for Medicare and Medicaid Services. (2012). National health expenditure data. Historical Tables Available at Http://www.Cms.Hhs.gov/NationalhealthexpendData/downloads/tables.Pdf,

Chan, L., Hart, L. G., & Goodman, D. C. (2006). Geographic access to health care for rural Medicare beneficiaries. The Journal of Rural Health, 22(2), 140-146.

Chen, J., H., Bazzoli, W., G., Harless, P., D., & Clement, P., J. (2010). Is quality of cardiac hospital care a public or private good? Medical Care, 48(11), 999-1006. doi:10.1097/MLR.0b013e3181eafa0d

Connor, K. I., Mcneese-smith, D. K., Vickrey, B. G., Van Servellen, G. M., Chang, B. L., Lee, M. L., Chodosh, J. (2008). Determining care management activities associated with mastery and relationship strain for dementia caregivers. Journal of the American Geriatrics Society, 56(5), 891-897. doi:10.1111/j.1532-5415.2008.01643.x

Cooper, P., & Green, K. (1991). The impact of state laws on managed care. Health Affairs (Project Hope), 10(4), 161-169.

Cooper, F., P., Simon, I., K., & Vistnes, I., J. (2006). A closer look at the managed care backlash. Medical Care, 44(5), I-4-I-11. doi:10.1097/01.mlr.0000208155.10817.6d

Cromwell, J., Trisolini, M. G., Pope, G. C., Mitchell, J. B., & Greenwald, L. M. (2011). Pay for performance in health care: Methods and approaches RTI Press.

Daley, M. (2005). Race, managed care, and the quality of substance abuse treatment. Administration and Policy in Mental Health and Mental Health Services Research, 32(4), 457-476. doi:10.1007/s10488-004-1670-3

Davidoff, A., Hill, I., Courtot, B., & Adams, E. (2007). Effects of managed care on service use and access for publicly insured children with chronic health conditions. Pediatrics, 119(5), 956.

Donabedian, A. (1980). Explorations in quality assessment and monitoring.

Donabedian, A. (1988). The quality of care: How can it be assessed? Jama, 260(12), 1743-1748.

Dugan, J. (2015). Trends in managed care cost containment: An analysis of the managed care backlash. Health Economics, 24(12), 1604-1618.

Dwyer, D., Liu, H., & Rizzo, J. A. (2012). Does patient trust promote better care? Applied Economics, 44(18), 2283-2295. doi:10.1080/00036846.2011.564139

Emanuel, E. J. (2012). Why accountable care organizations are not 1990s managed care redux. Jama, 307(21), 2263-2264.

Emanuel, E. J., & Fuchs, V. R. (2008). The perfect storm of overutilization. Jama, 299(23), 2789. doi:10.1001/jama.299.23.2789

Enthoven, A. C., Schauffler, H. H., & McMenamin, S. (2001). Consumer choice and the managed care backlash. American Journal of Law & Medicine, 27(1), 1.

Ettner, S. L., Thompson, T. J., Stevens, M. R., Mangione, C. M., Kim, C., Neil Steers, W., Venkat Narayan, K. M. (2006). Are physician reimbursement strategies associated with processes of care and patient satisfaction for patients with diabetes in managed care? Health Services Research, 41(4), 1221-1241. doi:10.1111/j.1475-6773.2006.00533.x

Fang, H., Liu, H., & Rizzo, J. (2009). Has the use of physician gatekeepers declined among HMOs? evidence from the united states. International Journal of Health Care Finance and Economics, 9(2), 183-195. doi:10.1007/s10754-009-9060-8

Felt-Lisk, S., & Mays, G. (2002). Back to the drawing board: New directions in health plans' care management strategies. Health Affairs, 21(5), 210-7.

Fenton, J. J., Jerant, A. F., Bertakis, K. D., & Franks, P. (2012). The cost of satisfaction: A national study of patient satisfaction, health care utilization, expenditures, and mortality. Archives of Internal Medicine, 172(5), 405-411.

Fournier, G. M., & McInnes, M. M. (2002). The effects of managed care on medical referrals and the quality of specialty care. Journal of Industrial Economics, 50(4), 457-473. doi:10.1111/1467-6451.00186

Fox, H. B., McManus, M. A., & Limb, S. J. (2003). Early assessments of SCHIP’s effect on access to care for adolescents. Journal of Adolescent Health, 32(6), 40-52. doi:10.1016/S1054-139X(03)00068-5

Frankel, R. M., & Hourigan, N. T. (2004). Thirty-five voices in search of an author: What focus groups reveal about patients experiences in managed care settings. Communication & Medicine, 1(1), 45-58. doi:10.1515/come.2004.005 [doi]

Garrett, B., & Zuckerman, S. (2005). National estimates of the effects of mandatory Medicaid managed care programs on health care access and use, 1997–1999. Medical Care, 43(7), 649-657. doi:10.1097/01.mlr.0000167105.75204.71

Garwood, C. L., Dumo, P., Baringhaus, S. N., & Laban, K. M. (2008). Quality of anticoagulation care in patients discharged from a pharmacist- managed anticoagulation clinic after stabilization of warfarin therapy. Pharmacotherapy, 28(1), 20.

Gawande, A. A., Blendon, R., Brodie, M., Benson, J. M., Levitt, L., & Hugick, L. (1998). Does dissatisfaction with health plans stem from having no choices? Health Affairs (Project Hope), 17(5), 184.

Ghose, T. (2008). Organizational- and individual- level correlates of posttreatment substance use: A multilevel analysis. Journal of Substance Abuse Treatment, 34(2), 249-262. doi:10.1016/j.jsat.2007.04.007

Glickman, S. W., Boulding, W., Manary, M., Staelin, R., Roe, M. T., Wolosin, R. J., . . . Schulman, K. A. (2010). Patient satisfaction and its relationship with clinical quality and inpatient mortality in acute myocardial infarction. Circulation.Cardiovascular Quality and Outcomes, 3(2), 188-195. doi:10.1161/CIRCOUTCOMES.109.900597 [doi]

Glied, S., & Zivin, J. G. (2002). How do doctors behave when some (but not all) of their patients are in managed care? Journal of Health Economics, 21(2), 337-353. doi:10.1016/S0167-6296(01)00131-X

Goetghebeur, M. M., Forrest, S., & Hay, J. W. (2003). Understanding the underlying drivers of inpatient cost growth: A literature review. Am J Manag Care, 9(Spec No 1), SP3-SP12.

Goldberg, M. A. (1999). Two backlashes: Targeted reforms and supply chain management. Journal of Health Politics, Policy and Law, 24(5), 1001-1003.

Gotay, C. C., Kawamoto, C. T., Bottomley, A., & Efficace, F. (2008). The prognostic significance of patient-reported outcomes in cancer clinical trials. Journal of Clinical Oncology : Official Journal of the American Society of Clinical Oncology, 26(8), 1355-1363. doi:10.1200/JCO.2007.13.3439 [doi]

Gowrisankaran, G., & Town, R. J. (2003). Competition, payers, and hospital quality 1. Health Services Research, 38(6), 1403-1422. doi:10.1111/j.1475-6773.2003.00185.x

Gray, V., Lowery, D., & Godwin, E. K. (2007). The political management of managed care: Explaining variations in state health maintenance organization regulations. Journal of Health Politics, Policy and Law, 32(3), 457-495. doi:32/3/457

Grembowski, D. E., Patrick, D. L., Williams, B., Diehr, P., & Martin, D. P. (2005). Managed care and patient-rated quality of care from primary physicians. Medical Care Research and Review : MCRR, 62(1), 31-55. doi:62/1/31 [pii]

Grembowski, D., Paschane, D., Diehr, P., Katon, W., Martin, D., & Patrick, D. L. (2007). Managed care and patient ratings of the quality of specialty care among patients with pain or depressive symptoms. BMC Health Services Research, 7, 22-22. doi:10.1186/1472-6963-7-22

Grumbach, K., Osmond, D., Vranizan, K., Jaffe, D., & Bindman, A. B. (1998). Primary care physicians' experience of financial incentives in managed-care systems. New England Journal of Medicine, 339(21), 1516-1521.

Haile, P. A., & Stein, R. M. (2002). Managed care incentives and inpatient complications. Journal of Economics & Management Strategy, 11(1), 37-79. doi:10.1111/j.1430-9134.2002.00037.x

Hall, M. A. (2004). Managed care patient protection or provider protection? A qualitative assessment. The American Journal of Medicine, 117(12), 932-937. doi:10.1016/j.amjmed.2004.06.042

Hamasaki, T., Takehara, T., & Hagihara, A. (2008). Physicians' communication skills with patients and legal liability in decided medical malpractice litigation cases in japan. BMC Family Practice, 9(1), 43.

Hargraves, J. L., & Pham, H. H. (2003). Back in the driver's seat: Specialists regaining autonomy Center for Studying Health System Change.

Hazelhurst, B., McBurnie, M. A., Mularski, R. A., Puro, J. E., & Chauvie, S. L. (2012). Automating care quality measurement with health information technology. The American Journal of Managed Care, 18(6), 313.

Hearld, L. R., Alexander, J. A., Fraser, I., & Jiang, H. J. (2008). Review: How do hospital organizational structure and processes affect quality of care?: A critical review of research methods. Medical Care Research and Review : MCRR, 65(3), 259.

Hewner, S., Wu, Y. B., & Castner, J. (2016). Comparative effectiveness of risk-stratified care management in reducing readmissions in Medicaid adults with chronic disease. Journal for Healthcare Quality : Official Publication of the National Association for Healthcare Quality, 38(1), 3. doi:10.1097/01.JHQ.0000479826.80326.2e

Highfill, T., & Ozcan, Y. (2016). Productivity and quality of hospitals that joined the Medicare Shared Savings Accountable Care Organization Program. International Journal of Healthcare Management.

Hirth, R. A., Grazier, K. L., Chernew, M. E., & Okeke, E. N. (2007). Insurers' competitive strategy and enrollment in newly offered preferred provider organizations (PPOs). Inquiry, 44(4), 400-411.

Huesch, M. D. (2009). Can managed care plans reliably infer the quality of cardiac surgeons' outcomes? The American Journal of Managed Care, 15(12), 890.

Hurley, R. E., & Draper, D. A. (2002). Health plan responses to managed care regulation. Managed Care Quarterly, 10(4), 30-42.

Institute of Medicine (US). Committee on Quality of Health Care in America. (2001). Crossing the quality chasm: A new health system for the 21st century National Academy Press.

Jiang, H., Friedman, B., & Jiang, S. (2013). Hospital cost and quality performance in relation to market forces: An examination of U.S. community hospitals in the “post-managed care era”. International Journal of Health Care Finance and Economics, 13(1), 53-71. doi:10.1007/s10754-013-9122-9

Kahana, E., Dan, A., Kahana, B., Kercher, K., Seçkin, G., Stange, K., & Kronenfeld, J. (2004). Changing health care experiences and perspectives of older adults: Comparison of HMO and fee-for-service enrollees. Chronic care, health care systems and services integration (pp. 65-80) Emerald Group Publishing Limited.

Kaiser Family Foundation. (2002). Health Care Marketplace Project: Trends and Indicators in the changing health care marketplace. Accessed May 10, 2015 at https://kaiserfamilyfoundation.files.wordpress.com/2002/04/marketplace2002_finalcuuuuuu.pdf.

Kane, R. (2006). Understanding health care outcomes research (Second Edition ed.). Sudbury, MA: Jones and Bartlett Publishers, 2006.

Kane, R. L., Flood, S., Bershadsky, B., & Keckhafer, G. (2004). Effect of an innovative Medicare managed care program on the quality of care for nursing home residents. The Gerontologist, 44(1), 95.

Kane, R. L., Homyak, P., Bershadsky, B., Lum, T., Flood, S., & Zhang, H. (2005). The quality of care under a managed- care program for dual eligibles. The Gerontologist, 45(4), 496.

Kapoor, J. R., Kapoor, R., Hellkamp, A. S., Hernandez, A. F., Heidenreich, P. A., & Fonarow, G. C. (2011). Payment source, quality of care, and outcomes in patients hospitalized with heart failure. Journal of the American College of Cardiology, 58(14), 1465-1471. doi:10.1016/j.jacc.2011.06.034

Kaye, H. S., & Harrington, C. (2015). Long- term services and supports in the community: Toward a research agenda. Disability and Health Journal, 8(1), 3-8. doi:10.1016/j.dhjo.2014.09.003

Kemper, P., Tu, H. T., Reschovsky, J. D., & Schaefer, E. (2002). Insurance product design and its effects: Trade- offs along the managed care continuum. Inquiry, 39(2), 101-117.

Kerr, E. A., Gerzoff, R. B., Krein, S. L., Selby, J. V., Piette, J. D., Curb, J. D., Mangione, C. M. (2004). Diabetes care quality in the veterans affairs health care system and commercial managed care: The TRIAD study. Annals of Internal Medicine, 141(4), 272.

Keyes, K. B., Wickizer, T. M., & Franklin, G. (2001). Two-year health and employment outcomes among injured workers enrolled in the Washington state managed care pilot project. American Journal of Industrial Medicine, 40(6), 619.

Kim, C., Steers, W., Herman, W., Mangione, C., Narayan, K., & Ettner, S. (2007). Physician compensation from salary and quality of diabetes care. Journal of General Internal Medicine, 22(4), 448-452. doi:10.1007/s11606-007-0124-5

Ko, Y., & Coons, S. J. (2005). pihi0 an examination of self- reported chronic conditions and health status in the 2001 Medicare health outcomes survey doi:10.1016/S1098-3015(10)62770-2

Konetzka, R. T., Zhu, J., Sochalski, J., & Volpp, K. G. (2008). Managed care and hospital cost containment. Inquiry, 45(1), 98-111.

Kronebusch, K., Schlesinger, M., & Thomas, T. (2009). Managed care regulation in the states: The impact on physicians' practices and clinical autonomy doi:10.1215/03616878-2008-045

Kyes, B., K., Wickizer, M., T., & Franklin, M., G. (2003). Employer satisfaction with workers’ compensation health care: Results of the Washington state workers’ compensation managed care pilot. Journal of Occupational and Environmental Medicine, 45(3), 234-240. doi:10.1097/01.jom.0000058337.05741.a1

Laditka, S., & Laditka, J. (2000). Utilization, costs, and access to primary care in fee-for- service and managed care plans. Journal of Health & Social Policy, 13(1), 21-39. doi:10.1300/J045v13n01_02

Landon, B. E., Aseltine Jr, R., Shaul, J. A., Miller, Y., Auerbach, B. A., & Cleary, P. D. (2002). Evolving dissatisfaction among primary care physicians. Am J Manag Care, 8(10), 890-901.

Latham, S. R. (1996). Regulation of managed care incentive payments to physicians. Am.JL & Med., 22, 399.

Laugesen, M. J., Paul, R. R., Luft, H. S., Aubry, W., & Ganiats, T. G. (2006). A comparative analysis of mandated benefit laws, 1949– 2002. Health Services Research, 41(3), 1081-1103. doi:10.1111/j.1475-6773.2006.00521.x

Lichtenberg, F. R. (2013). The effect of pharmaceutical innovation on longevity: Patient level evidence from the 1996–2002 medical expenditure panel survey and linked mortality public-use files. Forum for Health Economics and Policy, , 16(1) 1-33.

Lòpez-de, F. A., Hardin, J. W., Smith, K. L. M., Liu, Q., Payne, T., Stewart, J. E., & Brantley, V. (2010). Associations between mental health and diabetes: Findings from the South Carolina Medicaid managed care program in 2006- 2008. Ethnicity & Disease, 20(3), 239.

Luft, H. S. (2003). Variations in patterns of care and outcomes after acute myocardial infarction for Medicare beneficiaries in Fee-for- service and HMO settings. Health Services Research, 38(4), 1065-1079. doi:10.1111/1475-6773.00163

Lum, D. (1975). The health maintenance organization delivery system. A national study of attitudes of HMO project directors on HMO issues. American Journal of Public Health, 65(11), 1192.

Ly, D. P., Lopez, L., Isaac, T., & Jha, A. K. (2010). How do black-serving hospitals perform on patient safety indicators? implications for national public reporting and pay-for-performance. Medical Care, 48(12), 1133. doi:10.1097/MLR.0b013e3181f81c7e

Ma, E., Coleman, E. A., Fish, R., Lin, M., & Kramer, A. M. (2004). Quantifying posthospital care transitions in older patients. Journal of the American Medical Directors Association, 5(2), 71-74. doi:10.1016/S1525-8610(04)70058-4

MacDermid, J. C., Fess, E. E., Bell-Krotoski, J., Cannon, N. M., Evans, R. B., Walsh, W., Santore, G. (2002). A research agenda for hand therapy. Journal of Hand Therapy, 15(1), 3-15. doi:10.1053/hanthe.2002.v15.0153

Mark, B. A., Harless, D. W., & McCue, M. (2005). The impact of HMO penetration on the relationship between nurse staffing and quality. Health Economics, 14(7), 737-753. doi:10.1002/hec.988

Mark, B. A., Harless, D. W., McCue, M., & Xu, Y. (2004). A longitudinal examination of hospital registered nurse staffing and quality of care. Health Services Research, 39(2), 279-300.

Marquis, M. S., Rogowski, J. A., & Escarce, J. J. (2004). The managed care backlash: Did consumers vote with their feet? Inquiry, 41(4), 376-390.

Matchar, D. B., Harpole, L., Samsa, G. P., Jurgelski, A., Lipton, R. B., Silberstein, S. D., Blumenfeld, A. (2008). The headache management trial: A randomized study of coordinated care. Headache: The Journal of Head and Face Pain, 48(9), 1294-1310. doi:10.1111/j.1526-4610.2007.01148.x

Mays, G. P. (2004). MarketWatch: Managed care rebound? recent changes in health plans' cost containment strategies. Health Affairs, doi:10.1377/hlthaff.w4.427

Mays, G. P., Hurley, R. E., & Grossman, J. M. (2003). An empty toolbox? changes in health plans' approaches for managing costs and care. Health Services Research, 38(1), 375-393. doi:10.1111/1475-6773.00121

Mays, G., Au, M., & Claxton, G. (2007). MARKETWATCH: Convergence and dissonance: Evolution in private- sector approaches to disease management and care coordination. Health Affairs, 26(6), 1683-91.

McGuire, T. G., Newhouse, J. P., & Sinaiko, A. D. (2011). An economic history of Medicare part C. The Milbank Quarterly, 89(2), 289-332.

Mechanic, D. (2001). The managed care backlash: Perceptions and rhetoric in health care policy and the potential for health care reform. Milbank Quarterly, 79(1), 35-54. doi:10.1111/1468-0009.00195

Mechanic, D., & Schlesinger, M. (1996). The impact of managed care on patients' trust in medical care and their physicians. Jama, 275(21), 1693-1697.

Merrick, W., Elizabeth, Garnick, M., D., Horgan, M., C., & Hodgkin, M., D. (2002). Quality measurement and accountability for substance abuse and mental health services in managed care organizations. Medical Care, 40(12), 1238-1248.

Miller, N. H. (2006). Insurer- provider integration, credible commitment, and managed-care backlash. Journal of Health Economics, 25(5), 861-876. doi:10.1016/j.jhealeco.2005.12.007

Miller, R. H., & Luft, H. S. (1994). Managed care plan performance since 1980: A literature analysis. Jama, 271(19), 1512-1519.

Miller, R. H., & Luft, H. S. (1997). Does managed care lead to better or worse quality of care? Health Affairs (Project Hope), 16(5), 7-25.

Miller, R. H., & Luft, H. S. (2002). HMO plan performance update: An analysis of the literature, 1997-2001. Health Affairs (Project Hope), 21(4), 63-86.

Misra, R., Modawal, A., & Panigrahi, B. (2009). Asian-indian physicians' experience with managed care organizations. International Journal of Health Care Quality Assurance, 22(6), 582-599. doi:10.1108/09526860910986858

Mitchell, J. M., & Gaskin, D. J. (2004). Do children receiving supplemental security income who are enrolled in Medicaid fare better under a fee-for- service or comprehensive capitation model? Pediatrics, 114(1), 196.

Monahan, A. (2012). Fairness versus welfare in health insurance content regulation. University of Illinois Law Review, , 12-02.

Morgan, S. R., Chang, A. M., Alqatari, M., & Pines, J. M. (2013). Non– emergency department interventions to reduce ED utilization: A systematic review. Academic Emergency Medicine, 20(10), 969-985. doi:10.1111/acem.12219

Mukamel, D. B., Weimer, D. L., Zwanziger, J., & Mushlin, A. I. (2002). Quality of cardiac surgeons and managed care contracting practices. Health Services Research, 37(5), 1129-1144. doi:10.1111/1475-6773.10212

Musser, J. (1997). State regulation of managed care: NAIC president Josephine Musser. interview by John K. Iglehart. Health Affairs (Project Hope), 16(6), 36.

National Council of State Legislatures. (2011). Managed Care State Laws and Regulations, Including Consumer and Provider Protections. Accessed April 6, 2015 at http://www.ncsl.org/issues-research/health/managed-care-state-laws.aspx.

Newacheck, P. W., Hung, Y. Y., Marchi, K. S., Hughes, D. C., Pitter, C., & Stoddard, J. J. (2001). The impact of managed care on children's access, satisfaction, use, and quality of care. Health Services Research, 36(2), 315.

Nicholas, L. H. (2013). Better quality of care or healthier patients? hospital utilization by Medicare advantage and fee-for-service enrollees De Gruyter. doi:10.1515/fhep-2012-0037

Noble, A. A., & Brennan, T. A. (1999). The stages of managed care regulation: Developing better rules doi:10.1215/03616878-24-6-1275

Nutting, P. A., Dickinson, L. M., Rubenstein, L. V., Keeley, R. D., Smith, J. L., & Elliott, C. E. (2005). Improving detection of suicidal ideation among depressed patients in primary care. Annals of Family Medicine, 3(6), 529.

Paul, J., Jordan, R., Duty, S., & Engstrom, J. L. (2013). Improving satisfaction with care and reducing length of stay in an obstetric triage unit using a nurse- midwife-managed model of care. Journal of Midwifery & Women's Health, 58(2), 175-181. doi:10.1111/j.1542-2011.2012.00239.x

Peltzman, S., Levine, M. E., & Noll, R. G. (1989). The economic theory of regulation after a decade of deregulation. Brookings Papers on Economic Activity. Microeconomics, 1989, 1-59.

Petticrew, M., & Roberts, H. (2008). Systematic reviews in the social sciences: A practical guide John Wiley & Sons.

Phillips, K. A., Mayer, M. L., & Aday, L. A. (2000). Barriers to care among racial/ethnic groups under managed care. Health Affairs (Project Hope), 19(4), 65-75.

Pifer, T. B., Bragg-Gresham, J., Dykstra, D. M., Shapiro, J. R., Oppenheimer, C. C., Gaylin, D. S., Held, P. J. (2003). Quality of life and patient satisfaction: ESRD managed care demonstration. Health Care Financing Review, 24(4), 45-58.

Pinkovskiy, M. L. (2014). The impact of the political response to the managed care backlash on health care spending: Evidence from state regulations of managed care Federal Reserve Bank of New York.

Porell, F. W. (2001). A comparison of ambulatory care- sensitive hospital discharge rates for Medicaid HMO enrollees and nonenrollees. Medical Care Research and Review : MCRR, 58(4), 404.

Porell, F. W., & Miltiades, H. B. (2001). Disability outcomes of older Medicare HMO enrollees and Fee-for- service Medicare beneficiaries. Journal of the American Geriatrics Society, 49(5), 615-631. doi:10.1046/j.1532-5415.2001.49123.x

Pracht, E. E., Orban, B. L., Comins, M. M., Large, J. T., & Asin-Oostburg, V. (2011). The relative effectiveness of managed care penetration and the healthcare safety net in reducing avoidable hospitalizations. Journal for Healthcare Quality : Official Publication of the National Association for Healthcare Quality, 33(4), 42. doi:10.1111/j.1945-1474.2011.00154.x

Price, R. A., Elliott, M. N., Cleary, P. D., Zaslavsky, A. M., & Hays, R. D. (2015). Should health care providers be accountable for patients' care experiences? Journal of General Internal Medicine, 30(2), 253-256.

Ridgely, M., Giard, J., Shern, D., Mulkern, V., & Audrey Burnam, M. (2002). Managed behavioral health care: An instrument to characterize critical elements of public sector programs. Health Services Research, 37(4), 1105-1123. doi:10.1034/j.1600-0560.2002.68.x

Rittenhouse, D. R., & Shortell, S. M. (2009). The patient-centered medical home: will it stand the test of health reform?. Jama, 301(19), 2038-2040.

Robinson, J. C., & Ginsburg, P. B. (2009). Consumer-driven health care: Promise and performance. Health Affairs, 28(2), w272-w281.

Rodwin, M. A. (1996). Consumer protection and managed care: The need for organized consumers. Health Affairs (Project Hope), 15(3), 110-123.

Rodwin, V. (1997). The Rise of Managed Care in the United States: Lessons for French Health Policy. Health Policy Reform, National Schemes and Globalization. Ed. C. Altenstetter and J. Björkman. London: Macmillan; New York: St. Martin's Press, l997.

Rogowski, J., Jain, A. K., & Escarce, J. J. (2007). Hospital competition, managed care, and mortality after hospitalization for medical conditions in California. Health Services Research, 42(2), 682-705. doi:10.1111/j.1475-6773.2006.00631.x

Roohan, P. J., Butch, J. M., Anarella, J. P., Gesten, F., & Shure, K. (2006). Quality measurement in Medicaid managed care and fee-for- service: The New York state experience. American Journal of Medical Quality : The Official Journal of the American College of Medical Quality, 21(3), 185.

Safran, D. G., Montgomery, J. E., Chang, H., Murphy, J., & Rogers, W. H. (2001). Switching doctors: Predictors of voluntary disenrollment from a primary physician's practice. J Fam Pract, 50(2), 130-136.

Safran, D. G., Wilson, I. B., Rogers, W. H., Montgomery, J. E., & Chang, H. (2002). Primary care quality in the Medicare program: Comparing the performance of Medicare health maintenance organizations and traditional fee-for-service Medicare. Archives of Internal Medicine, 162(7), 757.

Schatz, M., Mosen, D., Apter, A. J., Zeiger, R. S., Vollmer, W. M., Stibolt, T. B., Cook, E. F. (2005). Relationships among quality of life, severity, and control measures in asthma: An evaluation using factor analysis. The Journal of Allergy and Clinical Immunology, 115(5), 1049-1055. doi:10.1016/j.jaci.2005.02.008

Sekhri, N. (2000). Managed care: The US experience. World Health Organization. Bulletin of the World Health Organization, 78(6), 830-44.

Sequist, T. D., Schneider, E. C., Anastario, M., Odigie, E. G., Marshall, R., Rogers, W. H., & Safran, D. G. (2008). Quality monitoring of physicians: Linking patients' experiences of care to clinical quality and outcomes. Journal of General Internal Medicine, 23(11), 1784-1790.

Shenkman, E., Tian, L., Nackashi, J., & Schatz, D. (2005). Managed care organization characteristics and outpatient specialty care use among children with chronic illness. Pediatrics, 115(6), 1547.

Shi, L., & Singh, D. A. (2014). Delivering health care in America Jones & Bartlett Learning.

Shipman, P. (2012). Managed care: Right or wrong for North Carolina. North Carolina Medical Journal, 73(3), 189.

Simon, C., White, W., Gamliel, S., & Kletke, P. (1997). The provision of primary care: Does managed care make a difference? Health Affairs, 16(6), 89-98.

Skinner, A. C., & Mayer, M. L. (2007). Effects of insurance status on children's access to specialty care: A systematic review of the literature. BMC Health Services Research, 7, 194-194. doi:10.1186/1472-6963-7-194

Sloan, F. A., & Hall, M. A. (2002). Market failures and the evolution of state regulation of managed care. Law and Contemporary Problems, 65(4), 169-206. doi:10.2307/1192283

Sloan, F. A., Rattliff, J. R., & Hall, M. A. (2005). Impacts of managed care patient protection laws on health services utilization and patient satisfaction with care. Health Services Research, 40(3), 647-668. doi:10.1111/j.1475-6773.2005.00378.x

Slutsman, J., Emanuel, L. L., Fairclough, D., Bottorff, D., & Emanuel, E. J. (2002). Managing End-of- life care: Comparing the experiences of terminally ill patients in managed care and fee for service. Journal of the American Geriatrics Society, 50(12), 2077-2083. doi:10.1046/j.1532-5415.2002.50622.x

Smith, A. P. (2003). Case management: Key to access, quality, and financial success. Nursing Economic$, 21(5), 237-40, 244.

Smith, M. A., & Finch, M. D. (2005). Rehospitalization and survival for stroke patients in managed care and traditional Medicare plans. Medical Care, 43(9), 902-910.

Spetz, J., & Baker, L. C. (1999). Has managed care affected the availability of medical technology? Public Policy Institute of California.

Stigler, G. J. (1971). The theory of economic regulation. The Bell Journal of Economics and Management Science, , 3-21.

Street, R. L., Makoul, G., Arora, N. K., & Epstein, R. M. (2009). How does communication heal? pathways linking clinician–patient communication to health outcomes. Patient Education and Counseling, 74(3), 295-301.

Strunk, B. C., & Reschovsky, J. (2002). Kinder and gentler: Physicians and managed care, 1997-2001 Center for Studying Health System Change.

Studdert, M., D., Bhattacharya, J., J., Schoenbaum, J., M., Warren, J., B., & Escarce, J., J. (2002). Personal choices of health plans by managed care experts. Medical Care, 40(5), 375-386.

Sun, B. C., Burstin, H. R., & Brennan, T. A. (2003). Predictors and outcomes of frequent emergency department users. Academic Emergency Medicine, 10(4), 320-328. doi:10.1111/j.1553-2712.2003.tb01344.x

Swartz, K., & Brennan, T. A. (1996). Integrated health care, capitated payment, and quality: The role of regulation. Annals of Internal Medicine, 124(4), 442.

Tai-Seale, M., & Pescosolido, B. (2003). The public's opinions of physicians: Do perceived choice and exercised choice matter? The American Journal of Managed Care, 9(9), 631-638. doi:2498 [pii]

Teixeira, R. (2000). Happy with health care? International Journal of Health Services : Planning, Administration, Evaluation, 30(3), 581.

Thompson, J. W., Pinidiya, S. D., Ryan, K. W., McKinley, E. D., Alston, S., Bost, J. E. . Simpson, P. (2003). Health plan quality-of- care information is undermined by voluntary reporting. American Journal of Preventive Medicine, 24(1), 62-70. doi:10.1016/S0749-3797(02)00569-X

Thompson, J. W., Ryan, K. W., Pinidiya, S. D., & Bost, J. E. (2003). Quality of care for children in commercial and Medicaid managed care. Jama, 290(11), 1486.

Thompson, M., & Cutler, C. (2010). Health care consumerism movement takes a step forward. Benefits Quarterly, 26(1), 24-28.

Tietze, M., & Sinha, S. (2003). Impact of managed care on healthcare delivery practices: The perception of healthcare administrators and clinical practitioners / practitioner application. Journal of Healthcare Management, 48(5), 311-21; discussion 321-2.

Titlow, K., & Emanuel, E. J. (1999). Employer decisions and the seeds of backlash. Journal of Health Politics, Policy and Law, 24(5), 941-947.

Unruh, L., & Wan, T. T. (2004). A systems framework for evaluating nursing care quality in nursing homes. Journal of Medical Systems, 28(2), 197-214.

Van Voorhees, B.,W., Wang, N., & Ford, D. E. (2003). Managed care organizational complexity and access to high- quality mental health services: Perspective of U.S. primary care physicians. General Hospital Psychiatry, 25(3), 149-157. doi:10.1016/S0163-8343(03)00017-3

White, K. R., Bazzoli, G. J., Roggenkamp, S. D., & Gu, T. (2005). Does case management matter as a hospital cost-control strategy? Health Care Management Review, 30(1), 32-43.

Wilensky, G. R. (1999). What's behind the public's backlash? Journal of Health Politics, Policy and Law, 24(5), 1015-1019.

Willging, C., Waitzkin, H., & Wagner, W. (2005). Medicaid managed care for mental health services in a rural state

Xu, X., & Jensen, G., A. (2007). Managed care and the near- elderly: Effects of plan enrollment on functionality. Applied Economics, 39(16), 2027-2037. doi:10.1080/00036840600707217

Zaslavsky, M., A., & Cleary, D., P. (2002). Dimensions of plan performance for sick and healthy members on the consumer assessments of health plans study 2.0 survey. Medical Care, 40(10), 951-964.

Zelman, W. A. (1999). The view from the health plan trenches. Journal of Health Politics, Policy and Law, 24(5), 1095-1098.

Zhan, C., Miller, M. R., Wong, H., & Meyer, G. S. (2004). The effects of HMO penetration on preventable hospitalizations. Health Services Research, 39(2), 345-361. doi:10.1111/j.1475-6773.2004.00231.x

Zolnierek, K. B., & Dimatteo, M. R. (2009). Physician communication and patient adherence to treatment: A meta-analysis. Medical Care, 47(8), 826-834. doi:10.1097/MLR.0b013e31819a5acc [doi]

Zuvekas, S. H., & Cohen, J. W. (2010). Paying physicians by capitation: Is the past now prologue? Health Affairs (Project Hope), 29(9), 1661-1666. doi:10.1377/hlthaff.2009.0361 [doi]

Zuvekas, S. H., & Hill, S. C. (2004). Does capitation matter? impacts on access, use, and quality. Inquiry, , 316-335.

Zuvekas, S. H., & Olin, G. L. (2009). Validating household reports of health care use in the medical expenditure panel survey. Health Services Research, 44(5p1), 1679-1700.

Appendix A

Appendix Table 1a. Marginal effects and standard errors for 1996-2000 control parameters: Access to Care and Confidence in Provider (for Table 10a)

Appendix Table 1b. Marginal effects and standard errors for 1996-2000 control parameters: Satisfaction and Mortality (for Table 10a)

Appendix Table 1c. Marginal effects and standard errors for 2000-2004 control parameters (for Table 10b)

Appendix Table 1a

Marginal effects and standard errors for 1996-2000 control parameters: Access to Care and Confidence in Provider (for Table 10a)

	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
Income ($000s), 1996 dollars	-0.0003**	0.0004***	0.0006***	0.0005***	0.0002	-0.0001	0.0001	3.02E-05
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Race: Black	-0.0359***	-0.0127	0.0282***	0.0106	0.0148	0.0381***	0.0047	-0.0006
	(0.0120)	(0.0121)	(0.0086)	(0.0072)	(0.0161)	(0.0108)	(0.0044)	(0.0050)
Race: Other	0.0067	-0.0102	-0.0136	-0.0110	-0.0757**	0.0116	0.0043	-0.0069
	(0.0167)	(0.0183)	(0.0122)	(0.0097)	(0.0306)	(0.0152)	(0.0083)	(0.0082)
Education: No high school degree	0.0784***	0.0387***	-0.0036	0.0048	0.0625***	-0.0323***	0.0036	0.0074**
	(0.0080)	(0.0068)	(0.0041)	(0.0031)	(0.0102)	(0.0060)	(0.0031)	(0.0034)
Education: College degree	-0.0209**	-0.0216***	0.0018	0.0113**	-0.0282**	0.0115	0.0017	0.0029
	(0.0083)	(0.0080)	(0.0061)	(0.0051)	(0.0110)	(0.0070)	(0.0037)	(0.0040)

(Appendix Table 1a continued)

	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
Female	-0.0128***	0.0068	0.0012	0.0009	0.0018	-0.0070**	-0.0005	0.0004
	(0.0041)	(0.0046)	(0.0031)	(0.0022)	(0.0059)	(0.0033)	(0.0016)	(0.0021)
Hispanic	-0.0246*	-0.0328***	-0.0028	-0.0159***	-0.0536***	0.0664***	-0.0123***	-0.0030
	(0.0126)	(0.0125)	(0.0094)	(0.0052)	(0.0159)	(0.0095)	(0.0037)	(0.0045)
Metropolitan Statistical Area	0.156***	-0.0214	-0.0011	-0.0024	0.0100	0.0050	0.0001	-0.0038
	(0.0169)	(0.0153)	(0.0075)	(0.0054)	(0.0183)	(0.0123)	(0.0047)	(0.0055)
Married	-0.0316***	0.0014	0.0124**	0.0107***	-0.0196*	0.0151***	-0.0032	-0.0025
	(0.0068)	(0.0068)	(0.0051)	(0.0041)	(0.0105)	(0.0052)	(0.0031)	(0.0031)
Chronic condition	-0.0365***	-0.0005	-0.0236***	-0.0103***	-0.0218**	-0.0087	0.0004	-0.0018
	(0.0068)	(0.0074)	(0.0044)	(0.0034)	(0.0088)	(0.0055)	(0.0034)	(0.0039)
Whole county PCP shortage	-0.0420***	-0.0021	-0.0085	-0.0034	0.0032	-0.0241**	-0.0072	-0.0122**
	(0.0162)	(0.0139)	(0.0084)	(0.0076)	(0.0173)	(0.0105)	(0.0050)	(0.0057)
Partial county PCP shortage	-0.0343**	0.0255*	-0.0045	-0.0017	0.0055	-0.0170	-0.0050	-0.0098*
	(0.0161)	(0.0148)	(0.0092)	(0.0079)	(0.0184)	(0.0109)	(0.0049)	(0.0056)
Self-reported poor health	-0.0107	-0.0148	-0.0417***	-0.0373***	-0.0049	0.0146*	-0.0148***	-0.0118***
	(0.0100)	(0.0101)	(0.0061)	(0.0052)	(0.0127)	(0.0080)	(0.0039)	(0.0043)

(Appendix Table 1a continued)

	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
Medicare: Aged	-0.145***	0.0048	0.0963***	0.0390***	0.0310**	-0.0341***	0.0015	0.0178***
	(0.0108)	(0.0101)	(0.0092)	(0.0070)	(0.0131)	(0.0073)	(0.0039)	(0.0054)
Medicare: Disability	-0.0224	0.0351	-0.0043	-0.0022	0.0091	0.0036	-0.0026	-0.0026
	(0.0203)	(0.0216)	(0.0121)	(0.0083)	(0.0272)	(0.0154)	(0.0076)	(0.0091)
Medicaid	-0.0693***	-0.0208*	-0.0660***	-0.0398***	-0.0331**	-0.0084	-0.0122***	-0.0138***
	(0.0119)	(0.0109)	(0.0069)	(0.0050)	(0.0156)	(0.0091)	(0.0039)	(0.0051)

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

Appendix Table 1b

Marginal effects and standard errors for 1996-2000 control parameters: Satisfaction and Mortality (for Table 10a)

	Satisfaction	Mortality
	Patient is satisfied with care	Patient did not die during the survey year, or year after
Income ($000s), 1996 dollars	-1.80E-05	6.74e-05**
	(0.0001)	(0.0000)
Race: Black	0.0108*	-0.0006
	(0.0061)	(0.0009)
Race: Other	-0.0054	0.0048**
	(0.0111)	(0.0022)
Education: No high school degree	0.0013	0.0007
	(0.0036)	(0.0008)
Education: College degree	0.00793*	0.0008
	(0.0043)	(0.0011)
Female	-0.0021	0.0041***
	(0.0024)	(0.0007)
Hispanic	0.0002	0.0028**
	(0.0050)	(0.0013)
Metropolitan Statistical Area	-0.0106**	0.0006
	(0.0052)	(0.0007)

(Appendix Table 1b continued)

	Satisfaction	Mortality
	Patient is satisfied with care	Patient did not die during the survey year, or year after
Married	-0.0028	0.0012*
	(0.0037)	(0.0007)
Chronic condition	-0.0067*	-0.0044***
	(0.0038)	(0.0012)
Whole county PCP shortage	-0.0030	-0.0003
	(0.0065)	(0.0010)
Partial county PCP shortage	0.0032	-0.0009
	(0.0063)	(0.0011)
Self-reported poor health	-0.0177***	-0.0087***
	(0.0046)	(0.0009)
Medicare: Aged	0.0328***	-0.0146***
	(0.0061)	(0.0012)
Medicare: Disability	0.0112	-0.0046**
	(0.0098)	(0.0020)
Medicaid	-0.0116**	-2.22E-05
	(0.0054)	(0.0011)

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

Appendix Table 1c

Marginal effects and standard errors for 2000-2004 control parameters (for Table 10b)

	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
Income ($000s), 1996 dollars	-0.0002	0.0002	-0.0001	6.57e-05**
	(0.0001)	(0.0001)	(0.0001)	(0.0000)
Race: Black	-0.0360***	-0.0128	0.0380***	-0.0006
	(0.0120)	(0.0120)	(0.0108)	(0.0009)
Race: Other	0.0087	-0.0131	0.0110	0.0047**
	(0.0169)	(0.0182)	(0.0153)	(0.0022)
Education: No high school degree	0.0780***	0.0390***	-0.0323***	0.0007
	(0.0080)	(0.0067)	(0.0060)	(0.0008)
Education: College degree	-0.0219***	-0.0195**	0.0107	0.0007
	(0.0083)	(0.0079)	(0.0070)	(0.0008)
Female	-0.0128***	0.0062	-0.0069**	0.0007
	(0.0042)	(0.0045)	(0.0033)	(0.0011)

(Appendix Table 1c 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
Hispanic	-0.0247*	-0.0281**	0.0646***	0.0041***
	(0.0126)	(0.0125)	(0.0094)	(0.0007)
Metropolitan Statistical Area	0.155***	-0.0104	0.0009	0.0028**
	(0.0171)	(0.0150)	(0.0125)	(0.0013)
Married	-0.0319***	0.0022	0.0149***	0.0006
	(0.0069)	(0.0068)	(0.0052)	(0.0007)
Chronic condition	-0.0358***	-0.0053	-0.0083	0.0012*
	(0.0068)	(0.0074)	(0.0055)	(0.0007)
Whole county PCP shortage	-0.0414**	-0.0004	-0.0249**	-0.0003
	(0.0161)	(0.0137)	(0.0104)	(0.0010)
Partial county PCP shortage	-0.0345**	0.0243*	-0.0161	-0.0008
	(0.0160)	(0.0146)	(0.0108)	(0.0011)
Self-reported poor health	-0.0115	-0.0125	0.0144*	-0.0087***
	(0.0101)	(0.0100)	(0.0080)	(0.0009)

(Appendix Table 1c 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
Medicare: Aged	-0.146***	0.0083	-0.0355***	-0.0145***
	(0.0108)	(0.0101)	(0.0072)	(0.0012)
Medicare: Disability	-0.0236	0.0370*	0.0031	-0.0045**
	(0.0204)	(0.0216)	(0.0153)	(0.0020)
Medicaid	-0.0687***	-0.0224**	-0.0089	0.0000
	(0.0119)	(0.0109)	(0.0092)	(0.0011)

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

Appendix B

Appendix Table 2a. Marginal effects for 1996-2000 base model: Access to Care and Confidence in Provider (no control variables)

Appendix Table 2b. Marginal effects for 1996-2000 base model: Satisfaction with Care and Mortality (no control variables)

Appendix Table 2c. Marginal effects for 2000-2004 base model (no control variables)

Appendix Table 2a

Marginal effects for 1996-2000 base model: Access to Care and Confidence in Provider (no control variables)

	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
y2000	-0.0072	-0.0828***	0.0055	0.0028	0.0021	0.0519***	0.0082	-0.0050
	(0.0168)	(0.0148)	(0.0142)	(0.0089)	(0.0244)	(0.0149)	(0.0069)	(0.0074)
Managed Care (MC)	0.101***	-0.0282**	-0.0006	0.0168***	-0.0096	-0.0188*	0.0012	-0.0157***
	(0.0128)	(0.0132)	(0.0073)	(0.0063)	(0.0145)	(0.0109)	(0.0045)	(0.0051)
Moderate (Mod)	0.0277*	0.0953***	-0.0180	-0.0169	0.0324	-0.0001	-0.0004	0.0079
	(0.0165)	(0.0167)	(0.0168)	(0.0116)	(0.0315)	(0.0139)	(0.0075)	(0.0087)
High	-0.0806***	0.0757***	-0.0334*	-0.0274***	0.0167	0.0066	-0.0034	0.0033
	(0.0159)	(0.0156)	(0.0173)	(0.0102)	(0.0271)	(0.0118)	(0.0081)	(0.0087)
MC * y2000	-0.0080	0.0011	0.0318*	0.0191	0.0297	-0.0278*	0.0058	0.0114
	(0.0180)	(0.0178)	(0.0176)	(0.0123)	(0.0309)	(0.0166)	(0.0094)	(0.0099)

(Appendix Table 2a continued)

	Access to Care					Confidence in Provider		
	Doctor has night or weekend hours	Patient has no difficulty contacting PCP 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
MC * Moderate	0.0114	0.0207	0.0295	0.0256*	-0.0522	0.0239	-0.0075	-0.0005
	(0.0211)	(0.0205)	(0.0213)	(0.0152)	(0.0330)	(0.0177)	(0.0105)	(0.0125)
MC * High	0.0237	-0.0031	0.0063	-0.0055	-0.0645*	0.0156	-0.0097	0.0008
	(0.0194)	(0.0200)	(0.0214)	(0.0148)	(0.0352)	(0.0170)	(0.0108)	(0.0125)

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

Appendix Table 2b

Marginal effects for 1996-2000 base model: Satisfaction with Care and Mortality (no control variables)

	Satisfaction		Mortality
	Patient is satisfied with care		Patient did not die during the survey year, or year after
y2000	-0.0042	y2000	-0.0012
	(0.0083)		(0.0014)
Managed Care (MC)	-0.0171**	MC	0.0179***
	(0.0071)		(0.0025)
Moderate (Mod)	-0.0194**	ModHigh	0.0001
	(0.0088)		(0.0013)
High	-0.0077		
	(0.0099)		
MC * y2000	0.0293**	MC * y2000	0.0063*
	(0.0132)		(0.0037)
MC * Moderate	-0.0071	MC * ModHigh	-0.0012
	(0.0136)		(0.0014)
MC * High	-0.0156		
	(0.0153)		

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

Appendix Table 2c

Marginal effects for 2000-2004 base model (no control variables)

	Access to Care		Confidence in Provider		Mortality
	Doctor has night or weekend hours	Patient has no difficulty contacting PCP by phone	Doctor asks patient if he/she is taking other treatments		Patient did not die during the survey year, or year after
y2004	-0.0631**	0.137***	-0.0163	y2004	0.0006
	(0.0282)	(0.0298)	(0.0245)		(0.0025)
MC	0.101***	-0.0220*	-0.0254**	MC	0.0189***
	(0.0131)	(0.0131)	(0.0114)		(0.0027)
Moderate	0.0383	0.0328	0.0513***	ModHigh	-0.0023
	(0.0252)	(0.0238)	(0.0199)		(0.0018)
High	-0.0868***	-0.0278	0.0709***		
	(0.0214)	(0.0211)	(0.0182)		
MC * y2004	-0.0840**	0.0464	0.0085	MC * y2004	-0.0060
	(0.0380)	(0.0313)	(0.0310)		(0.0060)
MC * Moderate	-0.0082	0.0012	-0.0266	MC * ModHigh	0.0094**
	(0.0273)	(0.0270)	(0.0211)		(0.0047)
MC * High	0.0089	0.0126	-0.0151		
	(0.0257)	(0.0248)	(0.0265)		
Mod * y2004	0.0267	-0.0297	-0.0542*	ModHigh * y2004	0.0033
	(0.0408)	(0.0395)	(0.0324)		(0.0030)
High * y2004	0.0594	0.0255	-0.0689**		
	(0.0374)	(0.0365)	(0.0311)		

(Appendix Table 2c continued)

	Access to Care		Confidence in Provider		Mortality
	Doctor has night or weekend hours	Patient has no difficulty contacting PCP 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 * y2004	0.107**	-0.0095	0.0782**	MC*ModHigh * y2004	0.0003
	(0.0500)	(0.0420)	(0.0379)		(0.0080)
MC * High * y2004	0.103**	-0.0653	0.0265		
	(0.0478)	(0.0414)	(0.0424)		

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

Vita

Tina Colleen Highfill was born on September 6, 1982, in Rinteln, Germany, and is an American citizen. She graduated from Lake Braddock Secondary School, Burke, Virginia in 2000. She received her Bachelor of Arts, *summa cum laude*, in Economics from Virginia Tech, Blacksburg, Virginia in 2003. She received a Master of Arts in Applied Economics from Johns Hopkins University, Baltimore, Maryland in 2008. Tina has been an economist with the US Bureau of Economic Analysis since 2003.