

Evidence of Effectiveness of Policy Levers to Contain Medical Costs in Workers' Compensation

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The escalation of medical costs is a persistent concern in both workers' compensation and the larger health care delivery systems. Public officials are regularly called upon to develop public policies that attempt contain medical costs while ensuring that injured workers receive high quality care. In the nearly two decades of work with public officials on these issues, the researchers at the Workers Compensation Research Institute have found the settings to differ, but the questions framed by public officials to be fairly constant:

- How fast are medical costs growing?
- What drives cost growth? How much is due to rising prices? How much due to excess utilization? And how much might be caused by inappropriate or fraudulent billing?
- Which types of providers and services are most responsible for escalating costs?
- What are the tools available to stem the growth in medical costs?
- What are the impacts of these tools on costs and worker outcomes?
- How will changes affect the incomes of different provider groups?

This paper discusses the cost drivers and major policy levers available in workers' compensation that are commonly considered to contain medical costs. The focus is on the evidence from studies about the effectiveness of the different policy levers. The emphasis is on workers' compensation, but we include evidence from Medicare and other health delivery systems. Because this is such a broad area of inquiry, this paper does not attempt a comprehensive review of the literature. Rather, evidence presented

illustrates the major themes, using many of the most widely-cited studies or studies of particular relevance to the workers' compensation public policy debate..

Effectiveness should be evaluated based on the impact on both medical costs and worker outcomes. The most important worker outcomes to be considered include:

- Recovery of health and function
- Return to work – including the speed and sustainability of the initial return to work, and earnings recovery
- Access to medical care
- Satisfaction with medical care

The reader will see that the empirical literature about effectiveness is, at best, uneven. For some policy levers, there are a series of studies, especially for non-workers' compensation health care delivery systems, that present a reasonably consistent body of evidence. For other levers, the evidence is substantive regarding the impact on costs, but only suggestive or sketchy on worker outcomes. And for other levers, there is very limited information about the impact on both costs and worker outcomes.

The paper is organized into several sections. First, we begin on a note of skepticism by framing the question – has anything worked to contain costs – from the economy-wide perspective. Next we show how the cost drivers vary from state to state – hence, solutions must be crafted state-by-state depending on the specifics of the situation, which may also vary within a state over time. Then we discuss the major policy levers available to public officials. The majority of the paper addresses the evidence about specific policy levers – how frequently are they used in different states, and what is the impact on costs and worker outcomes. We discuss the levers in the following order: fee schedules for non-hospital providers; hospital price regulation; state laws that govern whether workers or employers have the right to select the medical provider; networks of medical providers; case management; utilization review; and practice or treatment guidelines.

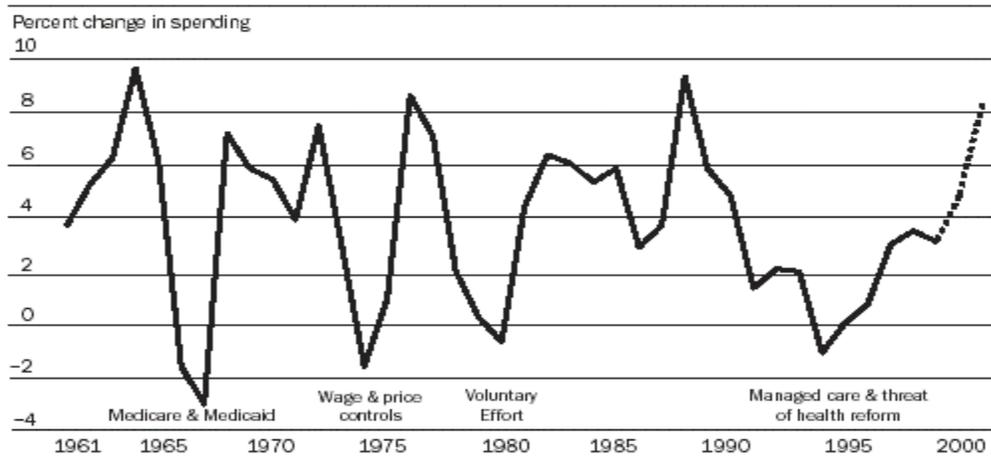
Has Anything Worked to Contain the Growth of Medical Costs?

Some note that the forces pushing medical expenditures ever-upward are not readily amenable to the types of policy levers that are commonly considered in workers' compensation or the general health delivery system. These forces include:

- An aging population
- Rapid introduction of new and expensive technologies that save lives and reduce suffering
- An inability as a society to reach consensus about how to ration care

As a result, observers argue, the best we can do is to make temporary reductions in the rate of growth of medical expenditures per capita. In a very brief, but telling commentary entitled “The Sad History Of Health Care Cost Containment As Told In One Chart,” Altman and Levitt (2002), they conclude that “... no approach our nation has tried, over the past thirty-five years, to control health costs has had a lasting impact.” Exhibit 1 is reproduced from their article and it shows, since the early 1960s, efforts at medical cost containment have only temporarily stemmed the rate of growth of medical expenditures. Four times in the past four decades, per capita medical expenditures actually fell – only to accelerate until it grew again by 8-10 percent per year.

EXHIBIT 1
Annual Change In Private Health Spending Per Capita (Adjusted For Inflation),
1961-2001



SOURCES: Henry J. Kaiser Family Foundation analysis. Private health expenditures per capita, 1960-1999, are from the Centers for Medicare and Medicaid Services (CMS). Change in private spending per capita, 2000-2001, is estimated based on average premium increases for employer-sponsored coverage from the Kaiser/HRET Survey of Employer-Sponsored Health Benefits.
NOTES: Real change in spending is calculated using the Consumer Price Index (CPI-U) all items, average annual change for 1961-2000 and July-to-July change for 2001. This analysis was inspired by an analysis done by Jeff Merrill and Richard Wassermann more than fifteen years ago. See J.C. Merrill and R.J. Wassermann, "Growth in National Expenditures: Additional Analyses," *Health Affairs* (Winter 1985): 91-98.

The implications for workers’ compensation, which comprises about 3 percent of the nation’s health care expenditures, are several. First, workers’ compensation will continue to be buffeted by the developments in the larger health care delivery system. Second, Exhibit 1 above shows that there have been multiple rounds of significant “one-time” “successes” in containing the costs. Together, the savings have been significant. This probably describes the workers’ compensation experience as well. Third, each round of “success” will be more difficult to achieve – the lowest lying cost containment fruit tends to be picked first. For workers’ compensation, much of this low lying fruit was harvested in the cost containment activities of the 1990s. The next round will require more careful empirical analysis of the opportunities and a greater political will than required for the reforms of the 1990s.

Workers’ Compensation Cost Drivers Vary from State to State

More discouraging news ... there is no silver bullet solution that state policymakers in workers’ compensation can adopt. The focus of attention needs to be tailored to the specific cost drivers in each state. Depending on the state, the medical cost drivers involve only prices, only utilization, or both. Consider just two of many examples drawn from *The Anatomy of Medical Costs and Utilization* [Eccleston, 2003]. Utilization of medical services in California is much higher than in many other states, but prices are lower.

*Table 1: Utilization Drives California Medical Costs**

	<u>CA</u>	12-State	<u>% Diff</u>
		<u>Median</u>	
Average payment/claim	\$5,667	\$5,786	similar
# services/visit	3.6	3.2	similar
# visits/claim	29.7	17.4	+71%
Average price/service	\$57	\$101	-44%

*1999/2000 Claims with > 7 Days Lost Time, (Injury/Industry Mix Adjusted)

Source: Eccleston, 2003

As Table 2 shows, the higher utilization is due to provider practices that involve treatment using many more visits than similar providers use in other states to treat similar cases. By contrast, in Tennessee, the major driver of medical costs is higher prices (Table 3).

Table 2: More Frequent Visits in California for Similar Cases, by Type of Non-hospital Provider

	<u>Visits per Claim*</u>		
	<u>CA</u>	<u>12-State Median</u>	<u>%Diff.</u>
Physician	11.6	7.8	↑ 49%
Chiro.	34.1	16.6	↑ 105%
PT/OT	17.0	12.2	↑ 39%

*1999/2000 Claims with > 7 Days Lost Time, (Injury/Industry Mix Adjusted)

Source: Eccleston, 2003

Table 3: Price is the Major Medical Cost Driver on Tennessee*

	<u>TN</u>	<u>12-State</u> <u>Median</u>	<u>% Diff</u>
Payment/claim	\$7,218	\$5,786	+25%
Visits/claim	16.8	17.4	-3%
Services/visit	3.3	3.2	same
Ave.price/service	\$128	\$101	+27%

*1999/2000 Claims with > 7 Days Lost Time, (Injury/Industry Mix Adjusted)

Source: Eccleston, 2003

Even in states where price or utilization may be the major medical cost driver, different types of providers or different types of services may be driving costs. For example, in Florida, the prices paid to hospital providers are much higher than typical and the prices paid to non-hospital providers are much lower than typical [Eccleston, 2003]

Public Policies to Contain Medical Costs

By public policies or policy levers, we mean the statutes or regulations that are intended to affect the cost or delivery of care. Policy levers may have a direct influence on costs. For example, fee schedules establish maximum allowable prices that may be paid. Or policy levers may have an indirect effect by determining the nature of tools available to claims managers. For example, state laws regarding the right of employees or employers to select providers may affect medical costs by affecting the claims manager's ability to send the worker to a provider who is in a network or who has agreed to use certain practice or treatment protocols.

Policy levers aimed at limiting prices include non-hospital fee schedules, hospital price regulation (inpatient or outpatient) and laws that encourage networks. Policy levers focused on utilization include provider choice laws, fee schedule limits on the number and types of reimbursable services, laws that encourage networks, utilization review, case management, and treatment protocols or guidelines. And policy levers aimed at the types and mix of providers involved in treatment include provider choice laws, fee schedule reimbursement levels, fee schedule limits on number and types of reimbursable services, laws that encourage networks and case management.

Non-hospital Fee Schedules

Fee schedules typically set maximum allowable reimbursement rates for non-hospital services. In California, they also apply to professional and technical services provided in hospitals and surgery centers, but not to the fees billed by the hospitals and surgery centers for facilities (e.g. room and board, operating rooms, supplies, etc.).

Workers' compensation fee schedules are found in 41 states. The bases for fee schedules vary widely. Increasingly, states base their fee schedule on the Resource Based Relative Value System (RBRVS) that was originally developed for Medicare, but is now used in many group health insurance plans. Seventeen states use some form of the RBRVS, although only 3 states use a pure RBRVS (Washington, West Virginia and Hawaii) in which a single conversion factor (unit price) is used (Eccleston, 2002). The remainder of the RBRVS states use different conversion factors for different service groups, e.g., surgery, radiology, physical medicine, etc. The principal rationale for using the RBRVS is that it provides neutral incentives for utilization because it rewards providers for different procedures in proportion to the time, expertise and out-of-pocket expenses required for each procedure. For example, if a certain type of surgery requires 10 times the time, expertise and out-of-pocket expenses as required to provide an intermediate established patient office visit, then the RBRVS fee for that surgery would be 10 times that of the intermediate established patient office visit. Under the typical non-RBRBS fee schedule, providers have financial incentives to provide more invasive and specialty care and less primary and non-invasive care. Under the RBRVS system (with a single conversion factor), these perverse incentives are neutralized.

The maximum fee levels established by workers' compensation fee schedules vary widely from state to state. Eccleston (2002) shows that the typical fee schedule provides, on average, a premium of 20 to 60 percent over the Medicare rates in a state. However, seven states that set average fee levels lower than 20 percent above Medicare and nine states that set rates at more than 60 percent over the state's Medicare rates in 2001. In California, the average was 12 percent over Medicare. In 2001, the states with the three highest premiums over Medicare were Idaho (202%), Alaska (151%), and Oregon (97%). In these states, policymakers may be concerned that the maximum fees are higher than necessary for workers to obtain access to quality care. The states with the

three lowest premiums over (under) Medicare were Florida (-17%), Massachusetts (-13%) and Maryland (0%). In these states, policymakers may be concerned if the fee levels are adequate for workers to obtain access to quality care.

The average premium over Medicare also varies widely across medical service groups. The average across the 40 fee schedules ranges from 9 percent above Medicare for evaluation and management services (office visits) to 80 percent above Medicare for surgery (Table 4). In California, this range is 10 percent below Medicare for evaluation and management to 36 percent above Medicare for surgery.

Table 4: Fee Schedule Premiums Over Medicare Rates, California Compared to the Multi-state Average

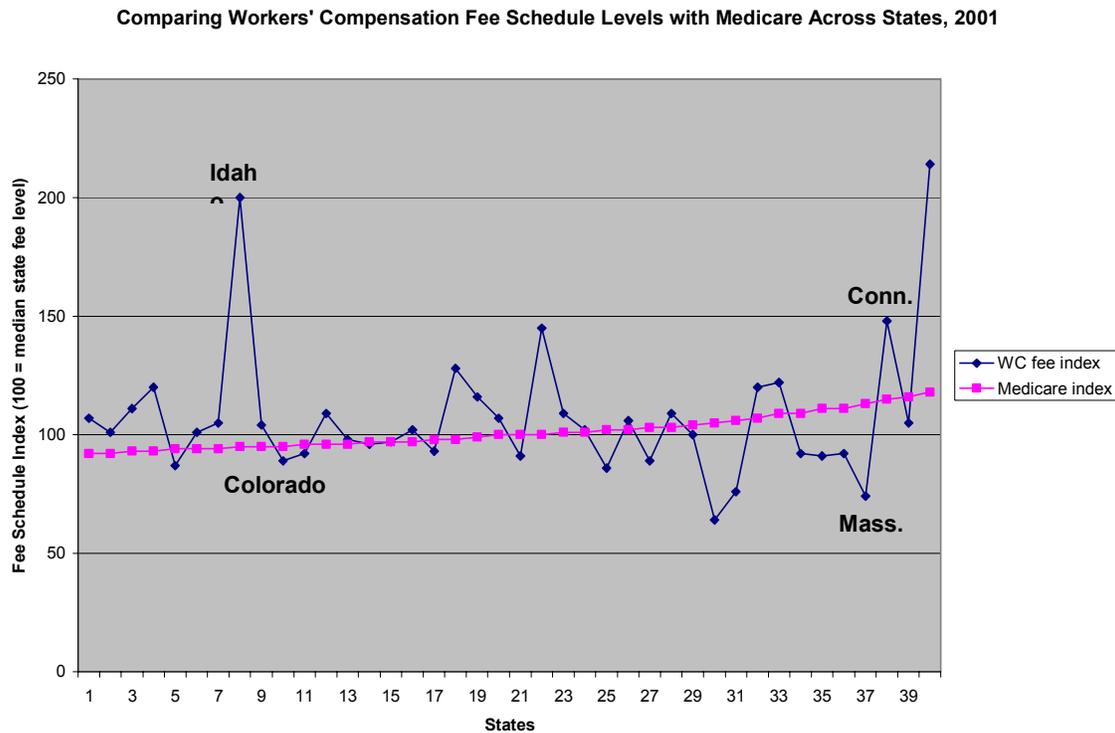
Service Group	Multi-state Average	California
Surgery	80%	36%
Radiology	66%	14%
General Medicine	50%	59%
Physical Medicine	13%	-1%
Evaluation/Management	9%	-10%

Source: Eccleston (2002)

As described above, there is tremendous variation in the design and levels of state workers' compensation fee schedules. Ideally, interstate variation in fee schedule levels should mirror interstate variation in the costs to providers of delivering the services – largely captured in interstate differences in office practice and malpractice expenses. Not surprisingly, when we look across states, we find almost no such rational relationship. The Medicare rates are constructed to reflect interstate differences in the providers' expenses of delivering services. Figure A compares the interstate variation in Medicare rates with that of workers' compensation fee schedules. States with higher provider

office and malpractice expenses are found at the right side of the graph (e.g. Massachusetts and Connecticut) and those with lower office practice and malpractice expenses are found at the left of the graph (e.g. Idaho and Colorado). It is hard to find an economically rational explanation for why there are such large differences in fee schedule levels in states with similar provider expenses – e.g. Massachusetts and Connecticut, or Idaho and Colorado. Where revenues exceed expenses by such large margins (e.g. Connecticut or Idaho), one might expect more services to be delivered than when revenues are much lower, but expenses are not lower (e.g. Massachusetts or Colorado).

Figure A



What are the impacts of fee schedules? Studies suggest that fee schedules lower costs by lowering prices. The magnitude of the impact on costs depends on the fee schedule level and some other factors discussed below. Most fee schedule levels are set below the level of charges (Eccleston, 1996) so that the fee schedule should produce price reductions for many services and providers.

There is good reason to expect that fee schedules reduce costs by less than many would expect. First, provider networks are increasingly involved in workers' compensation medical care. These networks negotiate price discounts. In states with fee schedules, the prices paid are often below the fee schedule level as a result of network discounts. In the absence of fee schedules, negotiated price discounts also occur. Hence, it would be inappropriate to attribute the full savings between charges and the fee schedule to the impact of the fee schedule. However, it should be noted that negotiated prices tend to be lower in states with fee schedules (Eccleston, 2003). This seems to occur because the fee schedule level sets the starting point for negotiations, except in states with very low fee schedules.

Studies of Medicare show that when providers are faced with fee schedule reductions, they may offset the reductions in their revenue by increasing the volume or intensity of services that they deliver or change the coding of services or diagnoses in retain revenue. Medicare originally adopted a 50 percent offset – expecting that half of any price decrease would be offset by provider behavior to maintain revenue. Many studies show that providers increase volume or intensity to offset the Medicare price reductions (Christiansen, 1992; Yip, 1994; Nguyen, 1997;PPRC, 1993; Verrilli, 1995). A recent study shows the offset declining over time to 30 percent – for both medical and surgical specialties (HCFA, 1998).

HCFA (1998) provides two real-world examples observed in the Medicare data of how providers change volume or intensity to retain revenues in the face of a price reduction. Table 5 shows how one orthopedic surgery practice increased its volume when Medicare lowered the prices paid for surgeries by an average of 27 percent and the prices paid for lab tests by 55 percent. Despite having only a 17 percent increase in surgical procedures, they increased the number of office visits by 84 percent.

Table 5: Example of Increased Volume in Response to a Price Reduction in One Illinois Orthopedic Surgery Practice, Medicare

Type of Service (Medicare)	Allowed Services		Volume	
	1994	1996	Price change	change
Surgical Procedures	29	34	-27%	17%
Visits	45	83	14%	84%
Tests	5	5	-55%	0%
TOTAL	79	122	-23%	54%

Providers may also increase the intensity of the services provided. In another example from HCFA (1998), the physicians in an ophthalmology practice faced a average 27 percent reduction in the prices paid by Medicare (Table 6). They did not materially increase the number of surgeries performed nor the number of office visits. But they did increase the intensity of the office visits billed for by 63 percent. Table 7 shows how the intensity of the office visits changed. Before the price reduction, most new patient office visits were formerly coded as 99203 and paid at the 1994 rate of \$52.48. After the price reduction, most were coded as 99204 and paid at the 1994 rate of \$79.80 – an effective price increase of 66 percent to help offset the 27 percent reduction in surgery prices. Similar changes in intensity were found for established patient office visits, as well.

Table 6: Example of Increased Volume in Response to a Price Reduction in One North Dakota Ophthalmology Practice, Medicare

Type of Service (Medicare)	Allowed Services		Price change	Volume change	Intensity Change
	1994	1996			
Eye Surgical Procedures*	350	379	-27%	8%	-2%
Visits	1097	1182	5%	8%	63%

*Mostly cataract surgery.

Table 7: Increased Intensity of Office Visits in Response to a Medicare Price Reduction, in One North Dakota Ophthalmology Practice

CPT Code	Office Visit	Price 1994	Allowed Services		Price change
			1994	1996	
99202	New	\$37.05	2	6	8%
99203	New	\$52.48	98	6	6%
99204	New	\$79.80	4	149	4%
99205	New	\$96.54	0	10	8%
99212	Estab	\$20.16	288	135	8%
99213	Estab	\$29.30	439	210	5%
99214	Estab	\$47.23	80	14	1%
99215	Estab	\$73.44	129	595	3%

We found no studies about the impact of workers' compensation fee schedules on worker outcomes. This is an important gap in the empirical literature. We also found few studies on the impact of Medicare reimbursement rates on the outcomes that are most relevant for workers' compensation. There are some studies about the impact of Medicaid rates, but we do not report them here because Medicare rates are typically much lower than most workers' compensation fee schedules and, hence, are of questionable relevance.

Hospital Price Regulation

Thirty-seven states regulate workers' compensation hospital inpatient prices among the 43 states that have authority to do so. The approaches vary widely. A dozen states use case rates, often DRG-based. Fourteen states reimburse based on per diem or per procedure. Eight based reimbursements on an approved cost-to-charge ratios. And 12 involved discounted charges. (Tanabe and Murray, 2001).

There is substantial interstate variation in the prices of hospital services. Table 8 illustrates this for selected services. The table shows average prices of services for the state with the highest and lowest prices, as well as the median of the 12 states that were included in the Eccleston (2003) study. Hospital prices in the highest state are generally double to triple that of the lowest state. Yet we know that interstate differences in the hospital expenses for providing these services do not vary by that large a factor. So we presume that the large differences are due to differences in regulation and market conditions. Zwanziger, et. al. (2000) finds that increased competition among hospitals lowered the rate of growth of hospital costs in California. This was especially true among for-profit hospitals.

Table 8: Average Hospital Prices Paid for Common Workers' Compensation Services, in 12 Large States

Hospital Services	Among 12 Large States*			Ratio of Highest to Lowest
	Highest Price	Median	Lowest Price	
Facility	\$1138	\$879	\$567	2.0
Physical Medicine	93	62	31	3.0
Lab Test	77	60	40	1.9
Minor Radiology	182	113	58	3.1

*California, Connecticut, Florida, Georgia, Illinois, Indiana, Massachusetts, North Carolina, Pennsylvania, Tennessee, Texas and Wisconsin.

Source: Eccleston (2003).

The substantial interstate variation in hospital prices in workers' compensation raises questions about the effectiveness of hospital price regulation as currently implemented. It may be that such regulation is effective to reduce prices in some states, but we found no studies that examined this question for workers' compensation. Nor did we find studies that addressed the impact of hospital price regulation on worker outcomes in workers' compensation.

The studies that examine hospital price regulation in Medicare generally find that costs are lower. The studies generally find mixed evidence regarding the intensity of services and, at least one, finds up-coding of bills in response to a regulatory reduction in hospital

prices. Cutler (1990) found reduced intensity (length of stay and number of procedures per patient) when Medicare DRG rates fell. Hadley (1989) also found a similar effect. However, Dafny (2002) found no intensity effect, but did find up-coding to higher revenue DRGs. If reductions in regulated prices reduces intensity, one must ask if this signals a reduction in quality. The studies on this issue using Medicare data is sparse. One study by Cutler (1995) found that a regulatory price reduction did not lead to higher overall mortality rates.

There does not appear to be a systematic compilation or assessment of state policies as to the regulation of hospital prices for outpatient services or for prices charged by ambulatory surgery centers. Eccleston (2003) shows that the average prices for hospital-billed ancillary services (e.g. radiology, physical medicine, lab tests) are, in many states, about double the prices paid if the service was billed by a non-hospital provider. By contrast, in California, the fee schedule covers these services regardless of the type of provider. Recently, policymakers in at least one other state (Florida) have begun to question why services like x-rays should cost much more if billed by a hospital than by a non-hospital provider. One active proposal is to adopt the California approach.

Provider Choice Laws

State laws assign the control of the selection of providers to either the employee, the employer or some combination of both. These laws are the subject of much passionate debate. Worker advocates argue that workers should control the decision about who treats them, and that providers selected by the employer may have dual loyalties. Employer advocates argue that the claims managers have a strong interest in obtaining quality medical care because they are focused on an expeditious return to work. Moreover, they point out that, as repeat purchasers of medical care, they are often more familiar with the quality of care provided by different providers in the local marketplace.

Table 9 categorizes the state laws about the choice of initial provider. Table 10 categorizes the laws based on the control of the decision to change providers. As Table 9 shows, states general use three different approaches. In 14 states, the employee has relatively unfettered choice of initial provider. In 17 states, the employer or insurer

retains the right to direct the worker to a specific provider. And in a dozen state, the employee may select the initial provider unless the employer is covered by a managed care organization (MCO) – in which case the worker selects a provider from within the provider network.

Table 9: Summary of State Laws About Choice of Initial Medical Provider

Type of State Law	Number of States
Employee Selects	14
Employee Selects; if MCO, selects within MCO	12
Employee Selects from list provided by employer/insurer	4
Employer/insurer selects	17
Combination of approaches	4

. Source: Tanabe and Murray (2001)

Employees can unilaterally change providers, at least once, in 10 states (Table 10). The other states impose some limits on the worker’s decision to change providers, typically approval of the employer/insurer or the state governmental agency.

Table 10: Summary of State Laws About Change of Medical Provider

Type of State Law	Number of States
Unrestricted employee change	3
Unrestricted one-time employee change	7
Some restrictions on employee change	38
No change	2

. Source: Tanabe and Murray (2001)

The evidence about the cost impact of laws governing initial choice of provider is limited and not recent. There is only one study of the impact of provider change laws and it offers a rough estimate of the cost impact. We found no studies of the impact on worker outcomes.

A study by Durbin and Appel (1991) examined data from 1964 to 1984 for 33 states and found that medical costs are 5-8 percent higher in states that permit the employee to

select the initial provider. An earlier study by Appel and Durbin (1986) found an opposite result. Victor and Fleishman (1990) analyzed the impact of changes in state laws in Illinois (1975-76) and Texas (1973-74). They found that, in the year after the change, medical costs per claim were 8-11 percent higher. Because medical costs grew faster for multiple years after the law change, the authors estimate the total impact to be 19-49 percent in Illinois and 7-29 percent in Texas. By contrast, a more recent study by Pozzebon (1994) found no effect on medical costs.

Victor, et. al. (2002) examines the impact of state laws that govern the change of provider on the use of network providers, and indirectly on the medical costs. The authors offer a “rough estimate” that laws that vest in the employer the control of the change of provider reduce medical costs by 7-10 percent.

Several studies suggest that regardless of what the law authorizes, both employers and employees actually make the provider selection. Table 11 shows responses to a survey of injured workers who had more than 7 days of lost time in Texas in 1998. In Texas, the law vests the choice of provider and the right to change providers with the worker. The workers who were surveyed reported that they exercised this right about one-half of the time (Barth and Victor, 2003). A 1998 study by the Texas Research and Oversight Council also found that workers reported selecting the initial provider in 44 percent of cases. In earlier studies, Lewis found that the employer selected the initial provider in Illinois (and employee choice state) in one-third of cases (Lewis, 1989). And employees selected the initial provider in Colorado (an employer choice state) in 20 percent of cases (Lewis, 1988).

Table 11: Who Workers Say Selected Their Medical Providers, Texas, 1998

Who Chose the Provider	Initial Provider	Primary (non-initial) Provider
Worker	44%	53%
Worker's attorney*	1	2
Employer	35	22
A medical center/hospital/clinic	14	20

Someone else	5	3
Total	100	100

Source: Barth and Victor (2003)

What about worker outcomes? The evidence is just beginning to emerge. Barth and Victor (2003) found only small differences in workers' reports of problem getting access to the desired care (Table 12). They also found similar levels of dissatisfaction with care regardless of who selected the provider (Table 13). However, a higher percent workers reported being "very satisfied" with their care when the worker selected the initial provider.

Table 12: Was There A Problem Getting the Services That You or Your Provider Desired? By who selected the initial provider

Who Selects Initial Provider	"Not a Problem"	"Small Problem"	"Big Problem"
Employee	74%	10%	16%
Employer	68%	16%	16%

Table 13: Overall Satisfaction with Care, By Who Selected the Provider

	Employee Selects	Employer Selects
Very Satisfied	58%	41%
Somewhat Satisfied	21%	39%
Somewhat Dissatisfied	9%	9%
Very Dissatisfied	11%	11%

Provider Networks

Recent studies find that medical networks in workers' compensation can reduce medical costs in workers' compensation through price discounts and lower utilization of (Dembe 1998; Cheadle et al. 1999; Johnson et al. 1999; Fox, et. al., 2001). Proponents of networks argue that directing an injured worker to network providers who are knowledgeable about occupational injuries and the requirements of the workers' compensation system, medical costs will be lower (Miller 1998). Critics express concerns

about the quality of care provided by network providers who may have a greater focus on cost containment than non-network providers.

The implementation of provider or managed care networks in workers' compensation varies considerably across states (Tanabe and Murray, 2001). Twenty-five states either mandate or regulate network arrangements. Of these, five states mandate the use of networks for treating the majority of workers or within residual markets. For example, in Colorado health care services must be provided in network arrangements and employees can be required to seek treatment within specific plans. In North Dakota, Ohio, and South Dakota services must be provided through network arrangements, but employees may opt out of plans or obtain treatment from non-plan providers. Twenty other states authorize and regulate the use of networks. California and Massachusetts, for example, regulate but do not mandate the provision of health care through network arrangements. If a network arrangement exists, employees may or may not be required to seek treatment within the network depending on the state's regulations.

There is a small, but growing set of studies about the impact of network providers on workers' compensation – largely, but not entirely on focused on medical costs. For example, Johnson, et. al (1999) analyzed the use of networks in California, Connecticut, and Texas, and found them to be associated with lower medical costs (between 13 and 46 percent depending on the type of claim and the nature of the injury). They also found those savings were not associated with an increase the duration of disability or indemnity benefit costs among workers who received network care. The study did not measure the impact of networks on health and functioning or satisfaction.

The Washington State Workers' Compensation Managed Care Pilot Evaluation, examined the impact of managed care networks. Cheadle, et. al. (2000) found that that capitated managed care costs were 27 percent lower than fee-for-service care. Further, there was no difference in functional outcomes between the two groups. Those receiving care via the managed care plan also had shorter durations of disability. Moreover, those

treated in the managed care plan were less satisfied with certain aspects of their medical care, particularly with the treatment, the attending physician, and access to care.

Other studies have examined managed care programs in Florida, New Hampshire, and Oregon. These studies have demonstrated varying degrees of cost-reductions under managed care (Borba, Appel and Fung 1994; Witcraft and Appel 1995; Oregon Workers' Compensation Division 1997). In addition to costs, the Florida and Oregon studies worker satisfaction examined satisfaction with medical care. In each study, the authors typically found that workers in the managed care plan had lower rates of satisfaction than in the other group.

Fox, et al (2001) shows that the initial choice of a network provider is a key leverage point. Victor et al (2002) finds that state laws governing provider choice materially affect the use of network providers. Employee control of provider change decisions reduce network penetration by 15-20 percentage points for care rendered from 4 to 9 months post injury and 25-30 percentage points after 10 months post-injury.

Case Management.

Case management has many different definitions, objectives and incarnations. In workers' compensation, the most common forms currently in use focus on return-to-work. It seeks to leverage the relationships among employer, employee and medical provider to facilitate effective and cost-effective medical care with goal of a timely and sustainable return to work.

We found little published evidence on the impact of case management on medical costs, the recovery of health, return to work and indemnity costs, access to care and satisfaction with care.

Utilization Review and Treatment Guidelines

Utilization review includes a collection of tools focusing on cost-effectiveness and quality of care with an eye to reducing unnecessary resource use. Much of utilization

review and the evaluations of utilization review deal with inpatient admissions, surgeries and certain diagnostic procedures.

In workers' compensation, utilization review is mandated for at least some significant portion of cases in 12 states – if a managed care organization is involved, 16 states mandate utilization review (Tanabe and Murray, 2001). Initially, UR was focused largely on inpatient admissions, length of hospital stay and surgery. More recently in workers' compensation, it has expanded to physical therapy, chiropractic care and diagnostics. Utilization review is often used in conjunction with treatment guidelines.

Treatment or practice guidelines typically draw upon scientific evidence and consensus panels to articulate what constitutes appropriate care. In workers' compensation, there were substantial new efforts in mid-1990s. Low-back guides are most common, although guidelines for upper and lower extremities have also been promulgated. Some guides are developed or endorsed by states. Other guides are proprietary and voluntary. There has been growing interest in "evidence-based" guidelines as a replacement for consensus-based guides. Sixteen states have adopted guidelines for low back pain, 10 for upper extremities, 10 for lower extremities, and 8 for carpal tunnel syndrome (Tanabe and Murray, 2001).

In a survey of the UR plans of 22 large claims administrators that handle claims in California, Rudolph, et al (2001) found that 91 percent specify the review criteria and 80 percent use criteria that were developed by other organizations. Table 14 shows that the most popular guidelines are those developed by Milliman.

Table 14: Sources of Externally-developed Utilization Review Criteria Used by California Claims Administrators

<i>Source of Utilization Review Criteria</i>	<i>Number of Claims Administrators Using</i>
Milliman	10
Presley Reed Medical Disability Advisor	4
Interqual	3

Intracorp	3
HCIA	2
IHQ	2
AHCPR/AHRQ	2
California Industrial Medicine Council	1

Source: Rudolph et al (2001)

Only a few studies have examined utilization review in the workers' compensation context. Wickhizer et. al. (1999) analyzed 9319 cases from a national UR program from 1991-93. They found that the denial rate was 5% spine surgery and 8% CTS release. They also found that many denials were reversed, limiting the cost savings from UR. The average length of stay was 1.9 days shorter than requested. Also, the authors cite the need to assess the impact on outcomes of care.

Another study evaluated the use of mandatory treatment parameters for low back pain in Minnesota (Lohman, et al, 1999). The study examined 626 workers with back pain who were treated under a mandatory guideline. The authors found 70% compliance with treatment guidelines. Those whose care was in compliance had less lost time and better physical functioning.

Elam et al (1997) analyzed the impact of lumbar fusion guidelines that were adopted by Washington state in 1988. They found a 33% drop in lumbar fusions from before the adoption of the guideline to 1992. By contrast, there was little change in other types of lumbar surgeries.

In the general health care arena, a number of studies have found that utilization review has reduced inpatient admissions, hospital length of stay, surgeries and some diagnostic procedures. Wickhizer (1992) analyzed 223 private insured groups in 1984-86. He found that hospital admissions fell by 12%, routine hospital expenditures were 14% lower, and total medical spending reduced 6%. He noted that the main effect of UR was on hospital admissions.

Rosenberg et al (1995) conducted an intriguing study of New York City employees in 1989. The employees were divided into two groups: one had real UR and the other had “sham” UR. The study found that the real UR group had fewer surgeries and diagnostics, and 7% lower expenditure on medical care. It also found that these procedures not appear to be deferred until the next year. However, no difference in admissions or length of stay was found. The authors cite deterrence to explain this. That is, patients and providers, even in the “sham” group, perceived that their requests would be reviewed and self-limited requests for unnecessary or marginally necessary admissions.

A survey by Wynia et al (2000) highlights an important limitation on the effectiveness of utilization review – the willingness of physicians to provide accurate information to reviewers. The authors report on a national survey of 1164 randomly selected physicians (64% response rate). They found that 39% said that they “sometimes “or more often used at least 1 “tactic” in past year to secure patient coverage. The tactics were (1) to exaggerate severity of condition; (2) changing billing diagnosis; and (3) reporting symptoms that patient did not have. In a multivariate analysis of how those who used these tactics differed from those who did not, the authors found the following to be important explanatory factors:

- Twenty-eight percent of physicians said that it was currently necessary to game system in order to provide quality care
- Physicians who said that received patient requests to deceive payers
- Physicians who said they did not have enough time with patients
- At least 25 percent of a physicians practice was Medicaid patients

McGuirk et al (2001) evaluated the impact of a proposed Australian guideline for acute low back pain. The study examined the experience of 437 patients treated under the guideline and 83 in the comparison group. These patients were surveyed for the study at intake, and 3, 6 and 12 months after injury. The study finds that those treated under the guideline had very different care, lower costs at 3 months and less pain and better

function at 12 months after injury. Table 15 shows the differences in care and selected outcomes between the guidelines patients and the control group.

Table 15: Differences in Treatment and Outcomes, Evaluation of a Proposed Australian Acute Back Pain Guideline (% of patients)

<i>Nature of Treatment</i>	Guidelines Group	Control Group
Home Rehabilitation	83%	20%
Manual Therapy	65	17
Physiotherapy	6	46
Rest	2	40
Hot/cold packs	6	25
Injections	17	1
Drugs		
Simple analgesics	21	28
Lesser opioids	7	25
NSAIDs	16	39
Imaging	7	30

Limits on Visits to Chiropractors

Six states place “hard” limits on the number of visits to a chiropractor for which the payer must pay. By hard limit, we mean that the payer is not obligated beyond the stated number of visits. Other states have “soft” limits – where the payer may be obligated for additional visits if determined to be reasonably necessary. Unlike the hard limits, soft limits do not appear to have significant utilization-limited effects.

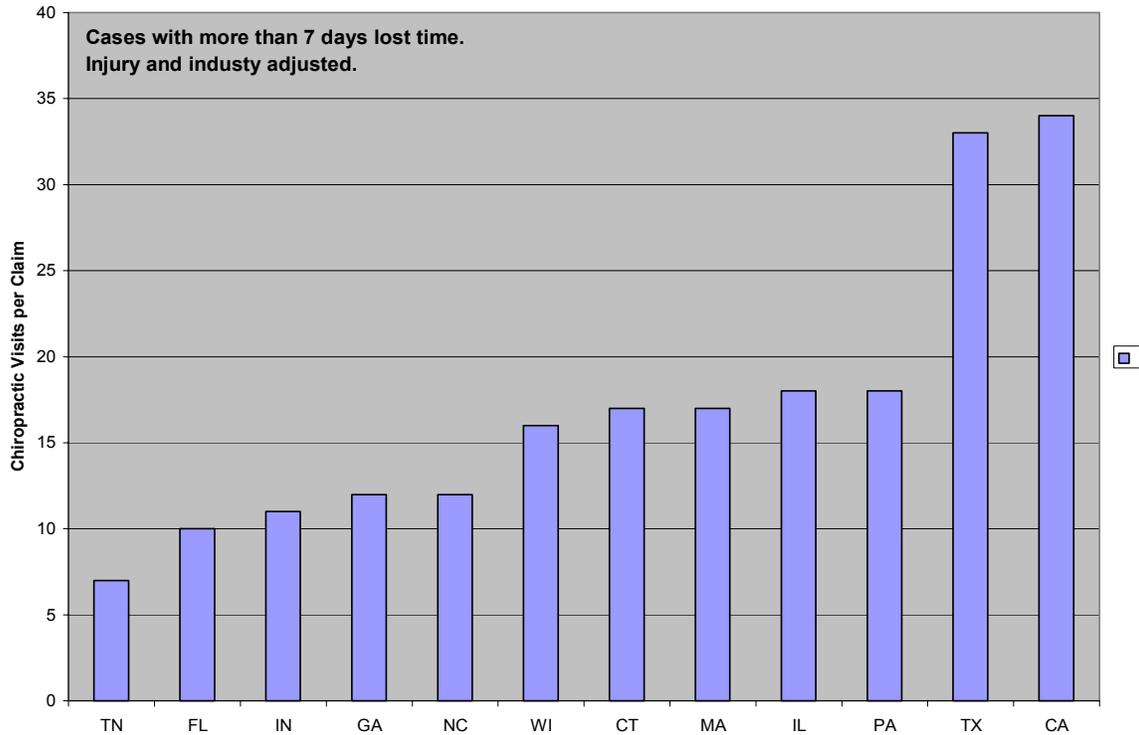
Table 16 shows the states with hard limits. Eccleston (2003) shows that chiropractic treatment practices may differ greatly in different states for the same group of injuries. As

State	Limit
Tennessee	12 visits
Florida	18 visits or 8 weeks
N. Carolina	20 visits
Kansas	21 visits
Hawaii	30 visits in 180 days
Alaska	46 visits in 1 year

shown in Figure B, the states fall into three groups. In five states, chiropractors treat a standardized group on injuries with an average of 7-12 visits per claim. In five others, chiropractors treat with 16-18 visits per claim. And in Texas and California, chiropractors use 33-34 visits per claim. Limitations on the number of visits may have been enacted to address the potentially large variation in practice patterns shown in Figure B.

Victor and Wang (2002) compared the medical costs cases treated with chiropractic care and physician-directed physical therapy for back sprains, strains and non-specific back pain. To achieve the same duration of temporary disability, they found that chiropractic care was 30 percent more costly in California, Connecticut and Texas. However, in Florida, chiropractic care was 10 percent less expensive to achieve the same duration of temporary disability. Because the major driver of the higher costs of chiropractic care is the higher number of visits in the three states, the authors attribute the Florida difference to the statutory limit on the number of visits.

Figure B: Chiropractic Visits per Claim in 12 States



Conclusion

Public officials have a significant and ongoing need for empirical information about the impact of the public policies that they are asked to consider or enact to control the growth of medical costs. The existing literature is uneven in meeting that need. There is a growing body of empirical knowledge about the impact of price regulation on costs, but little on price regulation and worker outcomes. The studies of the impact of Medicare price regulation on costs suggest that provider behavior to retain revenues offsets a significant part of any regulatory reduction in medical prices. One study shows that hospital prices are lower when there is more competition.

The strongest area of empirical evidence in workers' compensation involves the impact of medical networks. There are a number of solid studies covering diverse states and time periods. All find that networks reduce medical costs. A few examine the impact on duration of disability or recovery of health, finding that workers that receive care from

network providers are equally healthy and do not have longer durations of disability. Several studies also find that workers report higher levels of satisfaction with non-network care.

There are a few studies of the impact of provider choice laws on costs. The evidence is mixed, although recent studies suggest that network penetration is lower in states where the employee controls the selection of providers. As discussed above, lower network penetration means higher medical costs.

Studies of utilization review and treatment guidelines in workers' compensation provide sketchy evidence of their impacts. Combined with evidence from Medicare and group health, the studies suggest fewer hospital admissions, shorter lengths of stay and fewer surgeries. A survey of physicians highlights a major limitation on the effectiveness of utilization review – 39 percent of physicians report that, at least sometimes, physicians do not provide accurate information for utilization review. One recent Australian study found that compliance with treatment guidelines led to better outcomes for workers with acute low back pain – better perceived physical health and reduced pain.

We found little evidence on the effectiveness of case management.

Public officials are often frustrated in their efforts to enact legislation or promulgate regulations to contain medical costs. It is indeed a difficult problem – made more difficult by the complexity of the problem, the inherent emotionality of the subject matter (“our health”), the absence of a consensus about how to ration care, and the very large amounts of money involved – hence the fierce politics that surround proposed legislative change that will reduce revenues to health care providers or redistribute monies from one group to another. None of this is made better by the too-often inadequate empirical foundation for making trade-offs between higher costs and better worker outcomes.

Moreover, past successes in reducing the rate of growth of medical costs have been transitory. The next round of medical cost containment will be much more difficult to achieve since the much of the low lying cost containment fruit was harvested in the cost containment activities of the 1990s. The next round will require more careful empirical

analysis of the opportunities and a greater political will than required for the reforms of the 1990s.

However, there is another, often overlooked, way to frame the legislative debate. Invariably, there must be no shortage of opportunities to reform the financing and delivery of medical care in ways that improve outcomes for injured workers without materially raising costs to employers --or to reduce costs to employers without materially affecting the outcomes for workers. The best opportunities for constructive change in workers' compensation, in our view, will come from these "win-wins". Empirical research should begin immediately to identify where they exist and to disseminate these opportunities to employer representatives, worker advocates and public officials. Reform proposals driven by win-wins for workers and their employers, and supported by a solid base on evidence on employers' costs and workers' outcomes, should be hard to resist.

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