Recent Trends in Workers Compensation Coverage

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TITLE: RECENT TRENDS IN WORKERS COMPENSATION COVERAGE

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RECENT TRENDS IN WORKERS COMPENSATION COVERAGE

ABSTRACT

As a line of business, workers compensation has undergone many significant changes in the last few years. Key elements at the forefront of change include the following:

- Increased levels of retained exposure by employers;
- Rapid growth in managed care initiatives; and
- State enactment of comprehensive system reforms.

Due to the above changes, actuaries involved in reserving workers compensation coverage will find it necessary to use new methodologies and assumptions to correctly estimate reserve levels because historical loss data may not accurately predict future cost levels and trends. When employers purchase large deductible insurance they retain the smaller more stable losses and leave the catastrophic exposures to the insurer. This creates increased severities, decreased frequencies and longer tailed reporting and payment patterns. Use of managed care techniques should decrease medical severities and should also decrease indemnity severities and will likely cause a shift in frequency among types of injuries. The impact of statutory benefit level reforms must be assessed before all affected claims are reported and settled. Thus the challenge will be to make well informed judgments as to the impact of such comprehensive changes on future reserve levels. The purpose of this paper is not so much to answer questions but rather to raise the types of questions the reserving actuary must ask in order to revise and revamp his or her approach to reserving workers compensation exposures.

RECENT TRENDS IN WORKERS COMPENSATION COVERAGE

INTRODUCTION

Several changes have occurred in the workers compensation marketplace in recent years. Three of the most significant changes which affect reserve levels are:

- Increased levels of retained exposure by employers;
- Rapid growth in managed care initiatives; and
- State enactment of comprehensive system reforms.

The first section of this paper describes how the increased retention of the exposure by insureds affects standard reserving techniques. This section also describes a relatively simple modification to the standard Bornhuetter-Ferguson procedure which is used in reserving excess/reinsurance products.

The second section discusses managed care initiatives and how they impact standard reserving assumptions. This section also provides a general discussion of the various roles of the insurance carrier, employer, employee, case manager, claim adjuster and medical provider in a managed care setting. In describing these roles we outline the managed care process and highlight some of the savings associated with managed care initiatives.

The third section discusses some special financial arrangements between insurance carriers and managed care organizations and discusses the effect these arrangements may have on reserve

levels. As a natural extension of this section, we outline some techniques for measuring managed care savings in workers compensation.

The fourth section discusses how health insurance principles can be used to derive a capitated rate for workers' compensation medical costs.

Finally, we take a brief look at the types of workers compensation reforms that have occurred over the last few years and how these reforms may affect loss reserves.

I. HIGH DEDUCTIBLE RESERVING ISSUES

Starting in the early 1990's, many carriers began to offer high deductible policies to their workers' compensation insureds. These deductibles would usually range between $50,000 and $1,000,000 per occurrence. These products were offered to:

- Reduce the carriers' share of the highly unprofitable residual markets in several states;
- Compete with self-insurance and excess workers compensation products;
- Have the insured share in its own loss experience and directly benefit from effective risk management procedures and pay for ineffective procedures; and
- Market a product that fits in with some companies' strategic plans.

These policies create complications for many reserving analysts who previously may have only reserved "first dollar" workers compensation products. The extended and slow reporting patterns displayed by many workers compensation industry statistics is almost unfathomable. For example, recent data published by the Reinsurance Association of America implies that only 50% of the losses are reported 8 years after the beginning of the accident year[1].

If a primary company begins to write excess/high deductible workers compensation products and does not separately analyze this experience, reserve projection methods may produce biased results. We will illustrate this through an example where the reserve analyst uses a simple incurred loss projection method. However, instead of analyzing the data separately for high deductible products and primary products, the analyst assumes that the combined loss experience will be reflected in development factors and result in unbiased projections. This approach will significantly understate a company's estimated reserves.

To illustrate this point, assume:

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[1] 1995 edition of Reinsurance Association of America. The 8 year period assumes a relatively low per occurrence retention (e.g., $50,000 - 200,000). It would take longer than 8 years for one-half of the losses to be reported if the retention were higher. We would also note that reporting patterns differ significantly from company to company and some carriers (especially those who specialize in excess/high deductible workers compensation exposures) may display significantly quicker reporting patterns than average industry statistics as published by RAA. The reporting pattern is heavily dependent upon the carrier's case reserving philosophy (e.g., use of additional case reserves) and how quickly claims are reserved as permanent total disability cases.

- Company A has been in existence for 15 years and prior to year 10 only wrote first dollar workers' compensation coverage in 15 states.

- Starting in year 10 Company A began to offer high deductible policies, all with a deductible amount of $100,000.

- The high deductible premium represents 5% of total premium in year 10 and grows to 10% in year 11 and 15% in year 12 and subsequent years.

- Company A assumes that the high deductible policies are a small percentage of the total so it does not alter its reserving procedure (which consists mainly of an incurred loss development method based on the historical weighted average development factors).

- The incurred development projection produces an accurate estimate of reserves for years 9 and prior.

As the attached Exhibits 1-4 display, this approach will substantially underestimate reserve levels. The reserve underestimation represents over 30% of carried reserves at the end of year 15.

This example is based on a hypothetical block of workers compensation business and is intended to highlight the importance of separating the high deductible experience and analyzing it separately.

It should be noted that in addition to the reporting pattern difference, two other factors will affect the reserve shortfall using Company A's traditional approach:

1) The trend for excess losses exceeds the trend in primary losses; and

2) The ultimate undiscounted loss ratio for high deductible policies generally exceeds the loss ratio for primary policies. This is largely because investment income will be substantial for high deductible policies.

As the above example implies, the extended reporting pattern for excess/high deductible workers compensation products compels the actuary to place little weight on the unadjusted traditional incurred projection method.

We would recommend that the following techniques be utilized to estimate reserves for the carrier's high deductible exposures:

1) Counts times average severity [2];
2) Trended pure premium method[2];
3) Expected loss ratio method;
4) Bornhuetter-Ferguson method (B-F); and
5) B-F method - adjusted for off-balance.

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[2] See *Funding for Retained Workers Compensation Exposures* by Brian Z. Brown and Michael D. Price, CAS Forum, 1994 for a discussion of these methods.

Additionally, we would recommend that medical losses be analyzed separately from indemnity losses. These two types of losses have different development patterns and much of the excess development in the older accident years is usually attributable to medical losses.

Methods 1-4 are widely used and discussed in detail in the actuarial literature[3]. We believe that method 5 is also used but the particulars of this method are not as well published. Therefore, we will provide a brief description of this method.

There are two parameters (assumptions) which are needed to perform B-F calculations by accident year.

- A set of á priori loss ratios (which will vary by accident year based on rate adequacy as well as other factors); and

- An assumed reporting pattern for incurred losses.

When analysts select their assumptions, they use their best actuarial judgement; however, they will not know for many years (or possibly not even in their lifetime for excess workers compensation) if these assumptions are correct. Additionally, the assumptions need to be revisited

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[3] NCCI publishes data to assist in selecting excess frequency and severity assumptions - see Gillam, Retrospective Rating: Excess Loss Factors (PCAS LXXVIII). Additionally, many carriers can create historical excess experience by imposing phantom deductibles on previous first dollar claim experience. Methods 1 - 4 above refer to projections in the excess layer (i.e., for method 1 the counts and average severity are for the excess layer).

annually, and modified if indicated. The B-F off-balance method incorporates an additional ste into the traditional B-F method. This adjustment is documented in Exhibit 5 and involve comparing actual reported losses to expected reported losses (for all accident years) and adjustin the á priori loss ratios for a portion of the difference in the ratio of actual to expected reporte losses.

One potential shortcoming with the traditional B-F method is that if actual loss experience is worse (or better) than expected due to an understatement (or overstatement) in the á priori loss ratios, it may take a long time before this is reflected. The B-F adjustment, as displayed on Exhibit 5, corrects for this phenomenon by adjusting for 50% of the indicated off-balance (i.e., the percentage difference between the actual reported and expected reported losses).[4] We selected the 50% for illustrative purposes. We believe that it is important that the actual loss experience be used (at least partially) to modify the initial assumptions.

In our first example on Exhibit 5, we constructed a scenario where the analyst selected an á priori loss ratio of 80%, whereas the actual loss ratio is 100%. We then display the corresponding off balance calculations. For all accident years combined, we would have expected $1.2 million of losses to be reported; however, $1.5 million was actually reported. This should alert the analyst

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[4] It should be noted that analysis of the data may assist in selecting the off-balance weighting. For example, if the ratio of actual to expected losses is less than one for all accident years, it may imply that the á priori loss ratios are overstated (indicating an off-balance weighting near 1.00 or revision of the á priori loss ratios). However, if there is a trend in the ratio of actual to expected losses it may imply a bias in the reporting pattern (this would indicate a low off-balance weighting and a revision to the reporting pattern). In other cases, it may not be clear from analysis of the data which assumption is biased so a weighting near 50% may not be unreasonable.

that one (or both) of the underlying B-F assumptions may be incorrect. Underlying assumptions should be scrutinized, particularly if the ratio of actual to expected losses is either consistently less than 1.00 or greater than 1.00 for multiple accident years. However, it may be difficult or impossible to determine whether the á priori loss ratios should be modified or the reporting pattern should be modified. Therefore, we introduce the off-balance calculation.

In the example on Exhibit 5, the actual reported losses are 25% higher than the expected losses. Therefore, we adjust these á priori loss ratios upward by 12.5%, or one half of the off-balance. We theorize that since actual experience is not consistent with our expectations, either the á priori loss ratios are understated, the reporting pattern is too slow or the experience to date has a relatively large random element. We have assumed that 50% of the difference is attributable to the á priori loss ratio assumption. The bottom of Exhibit 5 displays the revised B-F calculation and the resultant loss ratio of 93% for all accident years combined. This adjusted B-F calculation produces results closer to the actual loss ratio of 100% than the initial unmodified B-F calculation which produces a loss ratio of 86% for all years combined.

The accuracy of the off-balance calculation is dependent upon many factors including:

- The accuracy of the initial assumptions; and

- The randomness associated with the actual reported losses to date.

As mentioned above, we believe that if the actual losses reported to date are consistently and significantly different than expectations, then the analyst should repeatedly review the assumptions

underlying the B-F calculation. If the analyst does not have enough additional information to modify the assumptions, we believe that the B-F adjusted for off balance should be reviewed when selecting ultimate loss ratios. We have computed B-F calculations both with and without an adjustment for off-balance for the following scenarios (note that we have assumed that the "true" loss ratio is 100%):

Unadjusted B-F Loss Ratio - All Years			
Reporting Pattern	**Loss Ratio Assumptions**		
	Less Than Actual	**Equal to Actual**	**Greater than Actual**
Quicker than Actual	75%	86%	97%
Equal to Actual	86%	100%	114%
Slower than Actual	90%	105%	120%

The corresponding calculation for the adjusted B-F is as follows:

Adjusted (for off-balance) B-F Loss Ratio* - All Years			
Reporting Pattern	**Loss Ratio Assumptions**		
	Less Than Actual	**Equal to Actual**	**Greater than Actual**
Quicker than Actual	72%	77%	83%
Equal to Actual	93%	100%	107%
Slower than Actual	105%	113%	120%

*For 50% of the off-balance

For the examples we constructed, the adjusted B-F calculation produces more accurate indications when the expected reporting pattern is accurate. It is also generally more accurate when the á

priori loss ratio is understated. As a note, understatement of the á priori loss ratios is often a concern for reserving actuaries.

II. MANAGED CARE INITIATIVES

Description of Managed Care Initiatives

The objective of workers compensation managed care can be summed up in one sentence; "To combine medical cost containment with optimal medical treatment and concurrently expedite worker re-entry into the work force." The process of managed care has many possible components, which is why there are many different definitions of managed care floating about. A comprehensive workers compensation managed care program requires committed participation from all interested parties: the insurance carrier or third party administrator (TPA), the medical provider (hospitals, physicians etc.), the case manager, the utilization review vendor, the employer and the employee. Each participant brings to the table a component of the managed care process. For example:

- Insurance carriers and TPA's must be dedicated to proper claims handling. Workloads per examiner should be reasonable (e.g. maximum of 150-200 lost time files per claims handler). Claims handling policies and procedures should foster pro-active, investigative, cooperative claims handling that is always focused on the ultimate goal of claim resolution and returning injured workers back to work.

- Via preferred provider organizations (PPO's) physicians, hospitals, durable equipment vendors, home health care providers etc. agree to provide medical goods and services at pre-

negotiated discounts as long as one of the providers in the PPO is used. The pre-negotiated discounts are usually 15% to 25% below the charges allowed by the legislated workers compensation fee schedule for a given state, if one exists. If there is no fee schedule then the pre-negotiated discounts will be less than the usual and customary charges for the area. Discounts typically vary by type of provider. An orthopaedic surgeon will often give less of a discount than an internist simply due to the law of supply and demand. Providers must be focused not only on proper medical treatment for the injured worker but also in returning that worker to gainful employment as soon as feasible (in order to reduce indemnity payments). Thus it is not sufficient to simply use a typical health care PPO for workers compensation injuries. Workers compensation PPO's must include occupational medicine physicians, providers must be trained on return to work issues, and some types of speciality physicians, such as obstetricians, may not be necessary at all.

- Health maintenance organizations (HMO's) are also providers of workers compensation medical services. HMO's provide comprehensive medical care for a negotiated fixed fee per person, payable per month/year, called a capitated rate which is paid to physicians for delivery of all health services to injured workers. The capitated rate is fixed regardless of the amount/type of service rendered. Physicians and other health professionals are on salary or under contract with the HMO to provide such services at the capitated rate. Injured workers are steered by their employer to a primary care physician (gatekeeper) within the HMO who decides upon appropriate medical treatment and refers injured workers to specialists within the HMO if necessary.

A case manager is typically a registered nurse with a certified case manager (C.C.M.) designation and experience in handling industrial disability cases. The case manager ensures that proper medical treatment and return to work protocols are applied for a specific type of injury. Such protocols are available from several different sources including Milliman and Robertson, Interqual and the Commonwealth of Massachusetts Department of Industrial Accident Study. Many managed care organizations develop their own internal protocols as well. The case manager develops a treatment plan for the injured worker based on protocol and the particular set of circumstances, communicates it to the treating physician, employer, employee and claims handler and then constantly monitors the treatment process to keep it on track. The case manager will also work closely with the employer and perhaps a vocational rehabilitation specialist to develop appropriate light duty (return to work) programs where necessary.

- Utilization review is often outsourced to a vendor. The goal here is to influence, manage, assess, improve and review patient care on an individual case basis. Via utilization review, medical treatment is evaluated based upon frequency, duration, and medical reasonableness and necessity. Utilization review can be conducted on a prospective, concurrent or retrospective basis to pre-certify hospital admissions.

- The employer's role in managed care is pervasive. Employers should have well defined light duty work programs for injured workers including a video tape library of available jobs, job descriptions with applicable stated salary and defined duration of job availability. Employers should educate employees regarding the importance of reporting all injuries immediately to a supervisor and in explaining the workers compensation system and available benefits.

Supervisors must be trained to steer injured workers into the employer's PPO or HMO and to immediately report claims to the carrier or TPA. It is imperative that employers maintain effective communication with an injured employee via frequent telephone calls, personal visits, cards and inclusion in any company sponsored events so that the employee knows that the employer is genuinely interested in their return to good health. This will also tend to keep the employee/employer relationship from being adversarial, which often leads the employee to hire an attorney. Wellness programs should also be offered to all employees e.g. weight reduction programs, smoking cessation programs and newsletters/literature on pertinent health topics.

- The employee's willingness to be restored to good health and gainful employment is critical to the ultimate success of a managed care program. The claims examiner, case manager and employer must all work together to assure the employee that they are receiving the proper medical treatment and that the employer is ready for them to return to work the moment they are released to do so by their physician.

Obviously the most effective workers compensation managed care program is one where all participants are committed to the common goal of returning the injured worker to full health and thus to their job as quickly as possible. Now that we have described the basic elements of a managed care program, we will review the results of three different studies that measure the savings of different types of programs. We will then discuss the possible impact on reserving of different aspects of managed care.

Potential Cost Savings Due to Managed Care Initiatives

Findings of Actual Studies

Presented below are findings from various studies performed which measure savings generated by using managed care techniques on work related injuries.

Florida Insurance Department Workers Compensation Managed Care Pilot Project[5]

The pilot project consisted of two programs. The first involved 17,000 state government employees in south Florida. Half of these employees received medical care via an HMO and half through the traditional "fee-for-service" arrangement (known as the control group) where no managed care initiatives were used. The second program was for 7,500 privately employed workers in the Tampa-St. Petersburg area. Medical care for these workers was provided through a PPO. Loss data for the study consisted of payments on claims with accident dates between June 15, 1991 and March 15, 1993. Over 5,500 individual claims were included.

Findings

The authors of the study observed significant differences in the average costs of injuries treated under managed care versus the traditional "fee-for-service" arrangement. In general the differences were attributed to lower use of hospital services, lower incidence of indemnity claims and fewer and less costly use of physician services in a managed care environment.

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[5] "Florida Managed Care Pilot Program; July 1, 1994 Final Report", prepared by Philip S. Borba, Ph.D., David Appel, Ph.D., and Matthew Fung, Ph.D of Milliman and Robertson, Inc.

HMO Results

Average claim costs for the HMO participants were 60% lower than the average claim costs in the control group. Of this 60% savings:

- 6-7 percentage points were attributable to lower incidence of indemnity claims and shorter duration of indemnity claims

- 8-12 percentage points were attributable to less frequent use of hospital services

- 0-5 percentage points were attributable to fewer days of treatment and fewer numbers of physician treatments

- 26-40 percentage points can be attributed to other aspects of managed care such as payments for medical services were discounted 15% off the Florida fee schedule and HMO participants were treated with a less costly mix of services.

PPO Results

Average claim costs for the PPO participants were 28% lower than the average claim costs in the control group after area factors were considered. Of the 28% savings:

- 7-8 percentage points were attributable to reduced incidence and duration of indemnity claims

- 12-13 percentage points were attributable to less frequent use of hospital treatments

- 2-7 percentage points were attributable to fewer days of service and medical treatments

New Hampshire Workers Compensation Assigned Risk Plan[6]

On April 1, 1993, Liberty Mutual Insurance Company and Healthsource New Hampshire became the sole servicing carrier of the New Hampshire assigned risk plan. Healthsource directs the application of managed care techniques such as negotiated fee reductions with providers, use of less costly services, recommendations regarding optimal treatment patterns and review of invoices for reasonableness of charges both in regard to amount and appropriateness of procedures in light of diagnoses. Healthsource has also introduced wellness programs for employers. Both Liberty Mutual Insurance Company and Healthsource worked with employers to improve their return to work programs.

Findings

Paid loss ratios after April 1, 1993 were 20% to 27% lower than expected based on historical plan experience:

- 7 to 12 percentage points of the savings were attributable to lower than expected average claim costs

[6] "A Preliminary Evaluation of Changes to the New Hampshire Worker's Compensation Assigned Risk Plan as of March 31, 1994" Prepared by Milliman and Robertson, Inc.

- 14 percentage points of the savings were attributable to fewer claims and/or more premium than expected. (i.e., the reduction is probably a result of loss prevention programs, wellness programs and an increase in the premium collected relative to historical levels.)

Intracorp/NCCI Methodology for Measuring Financial Impact of Workers Compensation Managed Care Techniques[7]

Since 1970, Intracorp has been providing workers compensation rehabilitation and managed care services across the United States and Canada. This study measures the impact of their Early Assessment workers compensation managed care product which combines early reporting and intervention with aggressive medical, utilization and return-to-work management by registered nurses using internal protocols. Potential savings from use of a PPO were not measured.

The NCCI studied 38,000 lost time claims in many states from several of Intracorp's largest customers including a multi-state self-insured employer and a state fund. 5,000 of these claims were managed by Intracorp, the others were not. The NCCI measured claim costs from these sources over identical time periods and controlled for variables influencing claim costs such as state legislation, medical and indemnity inflation, employee population, age and catastrophic claims experience.

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[7] Intracorp/NCCI Methodology for Measuring Financial Impact of Workers Compensation Managed Care Techniques. December 1995.

Findings

- On average, claim costs dropped about 23% when case management intervention took place within three months of accident date.

- Managed claims closed 27% faster than those that were unmanaged.

- Savings are highest on the longest, most severe cases and Early Assessment successfully selects these cases for management.

While each study employed a different managed care model and focused on different cost drivers, one item commonly measured was the decrease in average claim cost.

Managed Care				
	Florida Study		NH Assigned Risk Plan	Intracorp
	HMO	PPO		
Average Claim Cost Change	-60%	-28%	-7% to -12%	-23%

In light of the findings of these studies, what would **you** say regarding the potential savings of a managed care program? One question rarely asked is "What were the baseline claims handling philosophies, processes and procedures before managed care techniques were applied?" What are we measuring from? If claims handlers were simply bill payers (as does happen sometimes) and a comprehensive managed care model was introduced to the process then a radical savings could be achieved. If claims handlers are adeptly performing their duties and applying certain aspects

of managed care on their own already (e.g., trying to properly manage the medical component of a claim) then managed care techniques may have a lesser impact on cost.

Also, one element of the studies to keep in mind is that the evaluation periods were not long enough to capture all medical and indemnity payments on long-duration claims, which of course are the most expensive workers compensation claims. Even though the various studies displayed a wide variation in their estimates of managed care savings, all of the programs produced savings of some amount. Thus it appears likely that implementation of managed care in general will reduce future year's loss ratios. This information may be used in selecting á priori loss ratios for Bornhuetter-Ferguson calculations when estimating reserve levels.

Reserving Implications

As actuaries we must quickly become keenly aware of the cost savings potential of employing a comprehensive workers compensation managed care program. Indeed, we will (if we haven't already) be asked by our employers and co-workers to measure the savings under a given set of specific circumstances. We say "under a given set of specific circumstances" rather than "in general" because there is no way to accurately measure the savings "in general". Many questions must be asked before making a measurement. For instance;

- Is the claims examiner for the carrier or TPA cooperating with the case manager? Does the case manager give the claims examiner appropriate information so that the examiner can set medical and indemnity case reserves accordingly? Effective communication between the two individuals means more accurate and timely case reserves and increases the chances that the

injured worker will be returned to work more quickly. This will potentially affect a company's reporting and payment patterns.

- If a PPO is used: What is the distribution of physicians by type of speciality? What is the discount by type of physician? What types of physicians are likely to be visited the most often (e.g. occupational medicine) and how will this affect the "average" physician discount likely to be achieved? Is there appropriate geographic coverage of the network? (e.g., what is the value of having three orthopaedic surgeons in the network, all of them residing in one urban area, if many of your exposures are in outlying rural areas at the other end of the state?) What hospital discounts are available? What is the distribution of medical costs between hospitals and physicians for the types of claims expected to be experienced? In general, the more comprehensive the PPO arrangement the greater the reduction in ultimate losses.

- If case management is used to what claims will it be applied, e.g., all claims including medical-only or all lost time claims or only catastrophic claims such as spinal cord injuries? Will case management decrease medical costs, on a percentage basis, more for smaller claims (temporary total and temporary partial) or for larger claims (permanent partial and permanent total)? If the decrease does vary by injury type then what will the average decrease be? Will case management increase or decrease disability duration? If the case management process works correctly it is likely that claims will be resolved quicker, which implies a speed up in reporting and payment patterns. Allocated loss adjustment expense may be reduced if employees are treated such that they do not feel the need to hire an attorney to help them through the workers compensation maze. Also, overall medical severities should decrease and

the frequency of medical-only claims may increase as more injuries are kept from becoming temporary total.

- If utilization review is used is there a possibility of duplicative efforts between the case manager, the claims handler and the utilization review vendor? This may increase the need for ULAE reserves.

- How effective is the employer at steering injured employees into the PPO? Does the employer lack a return to work program so that even if managed care enables employees to come back to work more quickly there is no job waiting for them? Return to work programs with light duty jobs will reduce ultimate costs and the resulting needed reserves.

- Are employees satisfied with the quality of care they are receiving? Is the employee a willing participant in the process, e.g., do they show up for their medical and rehabilitation appointments? The more they cooperate, the lower ultimate costs will be.

- How were claims handled in the past? If the insurance carrier or TPA was doing little in terms of managed care, before they implemented a comprehensive program, the potential for cost savings is very large. If they were doing an excellent job of pro-active claims handling prior to managed care then the impact will be less.

The above are only samples of questions to be asked. The point is to know the specifics of the managed care model you are working with and attempt to determine how that particular model will affect reserves in reality versus how it might look in theory.

II. MANAGED CARE FINANCIAL ARRANGEMENTS

Contracts with a Managed Care Organization (MCO) can have significant impacts on estimating workers' compensation reserves. This section will briefly describe some MCO arrangements and their effects on estimating reserves.

A) Discounted Fee For Services

Discounted fee-for-service refers to a reduction from the providers normal fees for certain groups. Larger groups with significant bargaining power are frequently able to reduce medical fees in return for the commitment to channel a large number of injured workers to a particular provider. Many companies have been using this type of arrangement with medical providers for several years. Additionally, in some states, a fee schedule may function like a discounted fee for service arrangement. This type of arrangement is generally believed to have a small impact on total workers compensation costs, unless implemented with other procedures (i.e., utilization review). Providers may agree to discount services but increase utilization.

Discounted fee for service arrangements can be reflected by modifying á priori loss ratios and expected future development if the anticipated savings can be quantified.[8]

B) **Case Rates**

Case rates refers to a flat fee per claim for medical costs. Typically the flat fee varies by type of injury (e.g., lower back sprain). One potential disadvantage of this method is that it may encourage providers to substitute "bed rest" as a treatment in place of other treatments to heal injured workers. Thus, case rates may cause a rise in indemnity costs if not properly managed. As discussed later, dividend compensation arrangements have been introduced as an attempt to offset this reduction in treatment incentive. Under this type of arrangement, the savings associated with an MCO are estimated and a percentage of the savings is paid to the MCO in the form of a dividend.

If the case rates are paid up front, this could dramatically speed up the workers' compensation medical reporting and payment patterns. Additionally, if case rates are fixed for the life of the claim, the analyst may consider extracting them from the data and treating them separately (since future medical development may be minimal). If the case rates are only fixed for 12 months of care after the date of injury (or if case rates are negotiated annually), standard reserve projection methods may not be as materially biased.

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[8] Brian Brown and Michael Price in "Funding for Retained Workers' Compensation Exposures" quantified the effect of a future 1% trend reduction for workers' compensation medical costs. IBID 2.

C) **Capitated Rates**

Capitated rates refers to a flat fee to be charged for all workers compensation claimants for certain or all medical expenses. Capitated rates require significant modification to reserve projection techniques. The extent of the modifications will vary depending on the extent of capitation. We will briefly describe the adjustments for various levels of capitation.

1) Full Capitation For All Workers Compensation Medical Costs

Under this arrangement, the workers compensation carrier pays a fee to an MCO and the MCO agrees to provide all medical services (for the life of the claim) for claims occurring during a certain time period. Under this arrangement, the carrier has in essence transferred its workers compensation medical exposure to the MCO. Therefore, the carriers' expected retained unpaid obligation is zero after it has paid the fee (ignoring credit risk and the fact that some claims will not be covered by the MCO arrangement).

The attached exhibit 6, which is based on a presentation given by Ms. Ruth Bauman of Blue Cross and Blue Shield of Oregon, illustrates the transfer of risk from employees to MCO's and finally to physicians under a capitation arrangement.

However, in most cases the MCO will not be responsible for:

- The lifetime of the claim;

- All claims (especially those occurring outside of the state); and

- The full medical expense on catastrophic claims.

Therefore the reserving analyst will need to estimate an accrual for the above items.

2) Partial Capitation

Under this arrangement the MCO may be responsible for:

- Most medical expenses for a 1 to 3 year period after the injury date of a claim; and

- The first portion (e.g., $50,000) of medical costs per claim.

In this case the reserving analyst is required to estimate a provision for:

- Claim payments made after the 1 to 3 year period for a given accident year; and

- Claim cost above $50,000.

Claim payments made 1 to 3 years after the accident date can be estimated based on the company's historical data, if available. For example, claim payments made after 3 years can be compared to payroll or premium (both should be adjusted to current cost and

benefit levels). Additionally, an expected amount by claim, or type of claim, can be constructed from the company's historical data.

The expected medical payments above a threshold during the first 3 years can also be computed based on historical claim experience. Historical claims can be projected to ultimate values as well as to current cost levels, and an average provision by claim (or type of claim) can be estimated.

3) **Limited Capitation**

For this arrangement only certain types of claim procedures are subject to capitation, and the capitation is only effective for one year.

The procedures outlined above for Section C2 - Partial Capitation can be used to estimate reserves. A claim count times average severity method also may be well suited to estimate outstanding reserves after the 1 year capitation arrangement. The severity used in this case should be the medical severity for payments in years 2 and subsequent. Additionally, claim counts will correspond to all claims expected to remain open after the capitation arrangement has ended.

D) **Dividend Formulas Between Workers Compensation Carriers and the MCO**

It appears that many carriers and the MCO are using dividend plans for the following purposes:

- An incentive to the MCO to return injured workers back to work;
- To reward the MCO for effectively and efficiently managing care; and
- To have the MCO guarantee payments to carriers if loss experience is adverse.

We will describe two types of dividend programs:

1) An incurred loss ratio plan; and

2) An average severity method.

One form of the incurred loss ratio plan involves comparing the actual reported losses to a target loss provision at intervals 2, 3, and 4 years after the end of an accident year or policy year. The target loss provision is equal to the actual earned premium multiplied by a target loss ratio (adjusted to reflect the estimated percentage of losses expected to be reported at the evaluation interval). The dividend is equal to a portion of the amount by which actual losses are below the target losses. In other words, to the extent that the MCO is able to reduce costs, part of the savings will be shared with the MCO. As a technical note, claim payments above a certain threshold are usually excluded. Exhibit 7 displays a sample calculation.

This method has several limitations in measuring savings attributable to the MCO's involvement, because:

1) The frequency (i.e., the number of claims) is usually outside the control of the MCO; and

2) Claim costs vary depending on the type of injury, and injury type is also usually outside the control of the MCO.

Therefore, some dividend plans may develop expected costs based on an estimated severity (average cost per claim) for the prospective period, rather than in aggregate. The actual number of claims is then multiplied by the severity estimate to determine the target claim costs. This target claim cost can then be compared to the actual reported claim costs to derive the indicated dividend. Exhibit 8 displays the calculation for a sample program based on the average severity method.

This average severity plan may result in the MCO receiving a dividend even if actual total claim costs exceed initially targeted claim costs (calculated in aggregate based on the number of expected claims). In other words, the greater than expected number of reported claims is reflected in the target claim costs for this method. This is believed to be appropriate since claim counts are generally assumed to be outside the control of the MCO.

An additional modification to the average severity method would involve computing the target costs based on benchmark average claim costs by type of injury. For example, expected average severities could be computed by injury type (i.e, ICD-9 code combination). For this method, the target costs are computed by multiplying the actual number of claims for each injury type by the expected severity for that injury type. These products are then summed across all injury types to arrive at an aggregate target cost. The actual costs are compared to the target cost to estimate

the projected savings (and a portion of the savings is returned to the MCO in the form of a dividend).

It is important for the reserving analyst to estimate an accrual for dividends to the MCO if the analyst's company is using these types of arrangements.

IV. DEVELOPING WORKERS COMPENSATION CAPITATED RATES

One approach used to estimate capitated rates for workers compensation medical costs which has been developed by health actuaries is to project the workers compensation medical costs for a group of injuries based on health insurance data. An average cost is then computed based on the probability of a certain condition and the associated costs of the treatment for the condition. We will illustrate this type of analysis for an industrial ankle injury.

The first step is to analyze the costs for ankle injuries in more detail. Possible combinations of ankle injuries include:[9]

1) Fractures or Dislocations
   ICD-9 Codes: 823.2X, 823.3X, 824.X, 837.0, 837.1, 928.21

2) Sprain, Sprain-Fracture or Contusion
   ICD-9 Codes: 845.0X, 924.21

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[9] Health insurance costs are captured by ICD-9 codes. The ICD-9 code refers to the 9th revision of the International Classification of Diseases.

3) Laceration
ICD-9 Codes: 891.0, 891.1, 891.2

4) Tendinitis
ICD-9 Codes: 726.71, 726.72, 726.79, 727.06, 727.67, 727.81, 845.09

5) Traumatic Arthritis, Acute Episodes
ICD-9 Code: 716.17

6) Systemic Disease
ICD-9 Codes: Multiple

Milliman & Robertson, Inc. has developed Healthcare Management Guidelines (HMG) based on data from managed care plans and input from employed physicians. These guidelines include ranges of time within which injured workers are expected to return to work by injury type (i.e., grouping of ICD-9 codes). An example of these guidelines is included as Exhibit 9. The guidelines also include ranges of the duration of care by injury type, as displayed on Exhibit 10.

The Healthcare Management Guidelines also include frequency and cost statistics for the procedures used in the course of treatment of various injuries. Procedure statistics are delineated by CPT code, which refers to the code assigned to a medical procedure under the Physicians Current Procedural Terminology.

Exhibit 11 outlines initial care statistics for ankle fractures and dislocations. As shown on Exhibit 11, it is expected that 80% of all cases will be initially treated by an office visit, and 20% will be treated in the emergency room. The probabilities of various procedures being used for treatment

are then listed by CPT Code in Column (b). Based on these probabilities combined with the expected number of times each procedure will be required (Column (e)) and the expected price per service (Column (f)), the expected price for each course of treatment can be derived (i.e., by summing across all CPT codes the product of columns (b), (e), and (f). The $353 estimated total cost for initial care is then calculated (see Exhibit 11) by computing the weighted average cost across both courses of treatment using the treatment probabilities in column (a) as weights.

The follow-up care for ankle fractures and dislocations may be treated in three fashions:

- Completely by primary care physicians;
- Closed surgery by a specialist; and
- Open surgery by a specialist.

Estimated costs for each of these courses of subsequent treatment are calculated in the same manner as the initial care cost estimate. These calculations are outlined on Exhibits 12, 13, and 14.

Based on optimal treatment patterns and the health insurance data outlined above, the following costs and treatment probabilities for an ankle fracture and dislocation are estimated:

Probability	Course of Subsequent Treatment	Cost of Treatment*
71%	Therapy by Primary Care Physician	$1,280
4%	Closed Therapy by Specialist	2,900
25%	Open Surgery by Specialist	4,900
Average		$2,250

*Including the cost of initial care

It should be noted that this is the cost for an optimally managed case[10]. It is expected that care will not always be optimally managed and some workers will require more services than expected due to extreme cases. These factors could be built into the pricing by adding a loading for additional costs or procedures (or both).

The final element which is needed in estimating a capitated rate is the probability of a certain type of claim. This may be done through an analysis of historical claim data (e.g., claim frequency per $100 of payroll by injury type). The capitated rate could then be derived by multiplying the cost of each injury by the estimated probability of that injury and calculating the total across all types of injuries.

V. REFORMS OF WORKERS COMPENSATION SYSTEMS

From 1983 through 1992 workers compensation countrywide combined ratios ranged from 113% to 123%, residual market operating losses soared and several insurance carriers withdrew from writing voluntary coverage. These factors lead thousands of employers to opt for self-insurance to escape workers compensation insurance rate increases and the frustration of being unable to obtain coverage outside of an assigned risk pool. All system participants proclaimed the need for reforms that would alter the system to truly reduce the cost levels and trends of workers compensation benefits without sacrificing equitable compensation for the injured worker. Thus was born an era of change. From 1991 through 1995 approximately 60% to 65% of the states

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[10] The above example is based on a presentation by Richard Minifie, ASA, MAAA, of Milliman & Robertson, Inc., titled "Developing Capitation Rates Consistent with Clinical Practice Guidelines."

implemented some type of workers compensation reform, ranging from instituting medical fee schedules to totally overhauling all aspects of the benefit delivery system. Several other states are currently developing plans for reform.

Types of Reforms

Listed below are examples of different types of reform and the potential effect on loss reserves.

- Compensability can be restricted. Originally workers compensation benefits were for injuries that arose out of the course of employment. Over the years compensability has been interpreted more and more liberally by courts, for example, considering an injury to be compensable when it occurs at a softball game after work when the team is made up of employees from a common employer. Additionally, stress claims have been filed by employees due to fear or dislike of a fellow employee and some courts have deemed these to be work related claims. If a reform can bring compensability back into line with it's original intent then of course the number of compensable workers compensation claims should decrease. This reduction in frequency should reduce future year's loss ratios.

- Total disability. The duration for temporary total disability can be restricted to fewer weeks, which will lower indemnity severities. The definition of permanent total injuries has been narrowed considerably in some states, e.g., in Florida as of January 1, 1994 total disability is limited to injuries such as severe paralysis, amputation, major burns or other injuries that would qualify for Social Security disability benefits. This type of reform may increase indemnity and medical severities for permanent total injuries (because it removes the lower

dollar cases from the permanent total category) while reducing their frequency. Some states escalate the indemnity portion of total disability benefits by an annual cost of living factor. Connecticut decided that for injuries occurring on or after July 1, 1993 the escalation factor would no longer apply. This change should greatly decrease indemnity severities and shorten the tail on payment patterns.

- Permanent partial disability. "Permanent partial disability claims represent the largest share of losses in many states, are among the most complex benefits to deliver, and bring more attorneys into the workers compensation system than any other type of claims."[11] These benefits vary greatly among states and can be based on the degree of impairment or wage loss or loss of earning capacity. Rather than delve into each type of compensation available suffice it to say that any major reform dealing with this injury type should be studied closely by reserving actuaries.

- Alternative dispute resolution/restriction of attorney involvement. Comprehensive reforms often include these areas. Alternative dispute resolution processes are meant to be a more informal, non-adversarial means to resolve claim disputes between employers and employees without the involvement of attorneys (for either side), i.e., without the need to go to court for a hearing. Other reforms specifically aimed at curbing attorney involvement include elimination of lump sum awards for claimants (because they are very enticing to plaintiff's

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[11] BNA's Worker's Compensation Report, July 24, 1995. "NCCI Report Examines State Differences in Permanent Partial Disability Benefits"

attorneys who usually get one third of the award). Some states have also limited attorney fees to much less than one third of the award. For instance, Florida's January 1, 1994 law limits awards to attorneys for indemnity payments to 20% of the first $5,000 in benefits, 15% of the next $5,000 and 10% of the remaining benefits payable within 10 years and 5% of benefits payable after that.[12] Obviously such reforms should greatly reduce allocated loss adjustment expense payments as fewer cases will work their way into the court system.

- Medical care cost containment. Various medical cost containment strategies have been implemented in most states including employer choice of physician, limited provider change, use of medical fee schedules, regulation of hospital charges, mandated utilization and/or bill review and use of other managed care techniques. The Workers Compensation Research Institute has examined the use of such cost containment strategies over the past five years. Exhibit 15 shows the types of cost containment measures that were in effect from 1991 to 1992.[13] 21 states limited the employee's initial provider choice and 40 states placed limits on an employee's ability to change providers. 27 states had medical fee schedules in place and 22 regulated hospital charges via statute. Only about 14 states mandated utilization and/or bill review by payers, the workers compensation agency and/or the state fund.

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[12] BNA's Worker's Compensation Report, November 22, 1993 "Lawmakers Approve Reform Package; Allows Managed Care, Limits Attorneys"

[13] WCRI's " Medical Cost Containment in Workers Compensation - A National Inventory 1991-1992

Exhibit 16 shows the status of such cost containment measures during 1995 and 1996.[14] It is interesting to note the changes between the two reports. 14 additional states now limit provider choice, 11 of which provide for the limitation via managed care arrangements. 40 states now have medical fee schedules, which is an increase of 48%. 35 jurisdictions now regulate hospital charges, which is up from 22 states in the prior study. The percentage of states mandating utilization review and bill review has increased 50% and 23% respectively. In the 1991-1992 study no mandated managed care statutes existed whereas 8 states now require that payers provide such programs. 12 states have completed development of treatment guidelines (i.e., treatment protocols for certain types of injuries such as low back injuries) and 9 other states are in the developmental stages.

Obviously the trend towards medical cost containment initiatives has increased dramatically over the last few years and will continue to do so as payers become more proficient at applying managed care techniques to workers compensation and as regulators and legislators recognize the value of such programs. Medical cost containment initiatives should reduce the absolute cost level and trends of the medical component of work related injuries. If medical costs can be held in check then medical payment will also be accelerated in the short run but reduced in the long run.

Reserving actuaries should take care to understand the types of major workers compensation reforms affecting individual states. Reforms, however, should not simply be taken at face value.

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[14] WCRI's " Medical Cost Containment in Workers Compensation - A National Inventory 1995-1996.

The statutory language of a reform has an intended purpose, but by the time it is interpreted by the courts and administrative law judges and scrutinized by plaintiff's attorneys, it may not reach it's original objective. Often an excellent source for insight into the true impact of a given state's reform is the workers compensation claims examiner responsible for that state. They work daily to practically apply the statutory language. Ask their opinion as to how reforms will play out in reality. Take their judgment as well as your own into account when estimating the impact of workers compensation reforms on a book of business.

VI. CONCLUSION

Several changes have occurred in the workers compensation marketplace in recent years including greater risk retention by employers, innovative financial arrangements between insures/self-insurers and medical care providers, increased emphasis on controlling costs, and a movement to integrate health insurance concepts into workers compensation pricing. These changes will require significant changes in many companies' current reserving procedures. But before new methods can be fully developed, reserving analysts must understand managed care principles and recent changes in financial arrangements. This paper has outlined many of these changes and attempted to describe how current reserving assumptions can be altered based on these new arrangements.

Company A
Incurred Losses 1)
Medical and Indemnity Combined
($000'S)
as of Year-end 10

Accident Year	Month of Development									
	12	24	36	48	60	72	84	96	108	120
1	400	800	990	1,111	1,115	1,125	1,130	1,130	1,130	1,130
2	510	902	1,096	1,151	1,160	1,170	1,170	1,190	1,190	
3	790	1,180	1,396	1,500	1,540	1,560	1,500	1,519		
4	901	1,391	1,501	1,559	1,570	1,590	1,690			
5	1,120	1,460	1,661	1,842	1,950	2,000				
6	1,401	1,701	1,900	2,011	2,110					
7	1,761	2,340	2,465	2,550						
8	1,700	2,316	2,675							
9	2,400	2,995								

Development Factors

Accident Year	Months of Development								
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1	2.000	1.238	1.122	1.004	1.009	1.004	1.000	1.000	1.000
2	1.769	1.215	1.050	1.008	1.009	1.000	1.017	1.000	
3	1.494	1.183	1.074	1.027	1.013	0.962	1.013		
4	1.544	1.079	1.039	1.007	1.013	1.063			
5	1.304	1.138	1.109	1.059	1.026				
6	1.214	1.117	1.058	1.049					
7	1.329	1.053	1.034						
8	1.362	1.155							
9	1.248								
Average	1.474	1.147	1.069	1.026	1.014	1.007	1.010	1.000	1.000
Column Sum	1.373	1.132	1.065	1.030	1.015	1.008	1.010	1.000	1.000
Selected Factors									Tail
Age to Age	1.373	1.132	1.065	1.030	1.015	1.008	1.010	1.000	1.000	
Cumulative	1.762	1.283	1.133	1.064	1.033	1.018	1.010	1.000	1.000	1.000

1) Includes ALAE

Notes:
These selected LDF's are assumed to produce accurate ultimate losses for all primary business.

Exhibit 2

Company A
Projection of Loss
Excess v. Primary
($000'S)

Accident Year	% of Premium		% of Loss		Total Loss	Excess Loss	Primary Loss
	Excess	Primary	Excess	Primary			
9	0.00%	100.00%	0.00%	100.00%	3,843	0	3,843
10	5.00%	95.00%	6.17%	93.83%	4,500	278	4,222
11	10.00%	90.00%	12.20%	87.80%	4,950	604	4,346
12	15.00%	85.00%	18.07%	81.93%	5,445	984	4,461
13	15.00%	85.00%	18.07%	81.93%	5,990	1,082	4,908
14	15.00%	85.00%	18.07%	81.93%	6,589	1,191	5,398
15	15.00%	85.00%	18.07%	81.93%	7,248	1,310	5,938
					38,565	5,449	33,116

Cumulative Development Factors

Accident Year	Excess	Primary
9	2.755	1.010
10	2.926	1.018
11	3.055	1.033
12	3.333	1.064
13	3.933	1.133
14	4.971	1.283
15	9.778	1.762

Loss Ratio Assumptions

Primary	80%
Excess	100%

Notes:
Ultimate primary and excess losses combined are assumed to total $4.5 million for accident year 10. Ultimate losses for subsequent accident years increase 10% per year

LDF's for primary losses are based on accident years 9 and prior while LDF's for excess losses are based on worker compensation reinsurance aggregate statistics

Company A
Incurred Losses 1)
Medical and Indemnity Combined
($000'S)

Accident Year	Month of Development													Column Sum CDF	Indicated Ultimate Loss
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180		
1	400	800	990	1,111	1,115	1,125	1,130	1,130	1,130	1,130	1,130	1,130	1,130	1,130	1,130	1.000	1,130
2	510	902	1,096	1,151	1,160	1,170	1,170	1,190	1,190	1,190	1,190	1,190	1,190	1,190		1.000	1,190
3	790	1,180	1,396	1,500	1,540	1,560	1,500	1,519	1,519	1,519	1,519	1,519	1,519			1.000	1,519
4	901	1,391	1,501	1,559	1,570	1,590	1,690	1,707	1,707	1,707	1,707	1,707				1.000	1,707
5	1,120	1,460	1,661	1,842	1,950	2,000	2,016	2,036	2,036	2,036	2,036					1.000	2,036
6	1,401	1,701	1,900	2,011	2,110	2,142	2,159	2,180	2,180	2,180						1.000	2,180
7	1,761	2,340	2,465	2,530	2,627	2,666	2,687	2,714	2,714							1.000	2,714
8	1,700	2,316	2,675	2,849	2,934	2,978	3,002	3,032								1.000	3,032
9	2,400	2,995	3,390	3,611	3,719	3,775	3,805									1.010	3,843
10	2,425	3,346	3,795	4,050	4,177	4,242										1.018	4,318
11	2,530	3,509	3,988	4,265	4,405											1.033	4,550
12	2,634	3,676	4,187	4,488												1.065	4,780
13	2,898	4,045	4,607													1.136	5,234
14	3,186	4,447														1.289	5,732
15	3,504															1.783	6,248

Development Factors

Accident Year	Months of Development													
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
1	2.000	1.238	1.122	1.004	1.009	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2	1.769	1.215	1.050	1.008	1.009	1.000	1.017	1.000	1.000	1.000	1.000	1.000	1.000	
3	1.494	1.183	1.074	1.027	1.013	0.962	1.013	1.000	1.000	1.000	1.000	1.000		
4	1.544	1.079	1.039	1.007	1.013	1.063	1.010	1.000	1.000	1.000	1.000			
5	1.304	1.138	1.109	1.059	1.026	1.008	1.010	1.000	1.000	1.000				
6	1.214	1.117	1.058	1.049	1.015	1.008	1.010	1.000	1.000					
7	1.329	1.053	1.034	1.030	1.015	1.008	1.010	1.000						
8	1.362	1.155	1.065	1.030	1.015	1.008	1.010							
9	1.248	1.132	1.065	1.030	1.015	1.008								
10	1.380	1.134	1.067	1.031	1.016									
11	1.387	1.137	1.069	1.033										
12	1.396	1.139	1.072											
13	1.396	1.139												
14	1.396													
Average	1.444	1.143	1.069	1.028	1.015	1.008	1.010	1.000	1.000	1.000	1.000	1.000	1.000	
Column Sum	1.383	1.135	1.067	1.031	1.015	1.008	1.010	1.000	1.000	1.000	1.000	1.000	1.000	
Selected Factors														
Age to Age	1.383	1.135	1.067	1.031	1.015	1.008	1.010	1.000	1.000	1.000	1.000	1.000	1.000	Tail
Cumulative	1.783	1.289	1.136	1.065	1.033	1.018	1.010	1.000	1.000	1.000	1.000	1.000	1.000	1.000

1) Includes ALAE

Notes

Actual development for years 10 and subsequent is assumed to follow the patterns outlined on the previous exhibit seperately for primary and excess losses

Exhibit 4

Company A
Comparison of Indicated Reserves to Actual Reserves
($000'S)
as of Year-end 15

Accident Year	Ultimate Loss Based on Incurred Method	Paid Loss	Indicated Reserve	Actual Ultimate Losses	Actual Reserve	Difference	% Difference
1	1,130	1,130	0	1,130	0	0	0%
2	1,190	1,190	0	1,190	0	0	0%
3	1,519	1,519	0	1,519	0	0	0%
4	1,707	1,707	0	1,707	0	0	0%
5	2,036	2,036	0	2,036	0	0	0%
6	2,180	2,180	0	2,180	0	0	0%
7	2,714	2,705	9	2,714	9	0	0%
8	3,032	3,000	32	3,032	32	0	0%
9	3,843	3,765	78	3,843	78	0	0%
10	4,318	4,176	142	4,500	324	182	56%
11	4,550	4,274	276	4,950	676	400	59%
12	4,780	4,192	588	5,445	1,253	665	53%
13	5,234	4,227	1,007	5,990	1,763	756	43%
14	5,732	3,916	1,816	6,589	2,673	857	32%
15	6,248	1,623	4,625	7,248	5,625	1000	18%
Total	50,213	41,640	8,573	54,073	12,433	3,860	31%

Bornhuetter-Ferguson Off Balance

(1) Accident Year	(2) Premium	(3) Expected Loss	(4) Expected Reported	(5) Actual Reported	(6) Initial Off Balance	(7) Indicated Ultimate	(8) Indicated Loss Ratio	Expected 3) Reporting Pattern
1	1,000	800	80	150	188%	870	87.0%	10.0%
2	1,000	800	160	300	188%	940	94.0%	20.0%
3	1,000	800	240	250	104%	810	81.0%	30.0%
4	1,000	800	320	400	125%	880	88.0%	40.0%
5	1,000	800	400	400	100%	800	80.0%	50.0%
Total	5,000	4,000	1,200	1,500	125%	4,300	86.0%	

A priori Loss Ratio	80%
Actual Loss Ratio	100%
Indicated Off Balance	125%

Adjusted Bornhuetter-Ferguson 1)

(1) Accident Year	(2) Premium	(3) Expected Loss	(4) Expected Reported	(5) Actual Reported	(6) Indicated Ultimate	(7) Indicated Loss Ratio	Expected Reporting Pattern
1	1,000	900	90	150	960	96.0%	10.0%
2	1,000	900	180	300	1,020	102.0%	20.0%
3	1,000	900	270	250	880	88.0%	30.0%
4	1,000	900	360	400	940	94.0%	40.0%
5	1,000	900	450	400	850	85.0%	50.0%
Total	5,000	4,500	1,350	1,500	4,650	93.0%	

adjusted 2)	90%
Actual Loss Ratio	100%

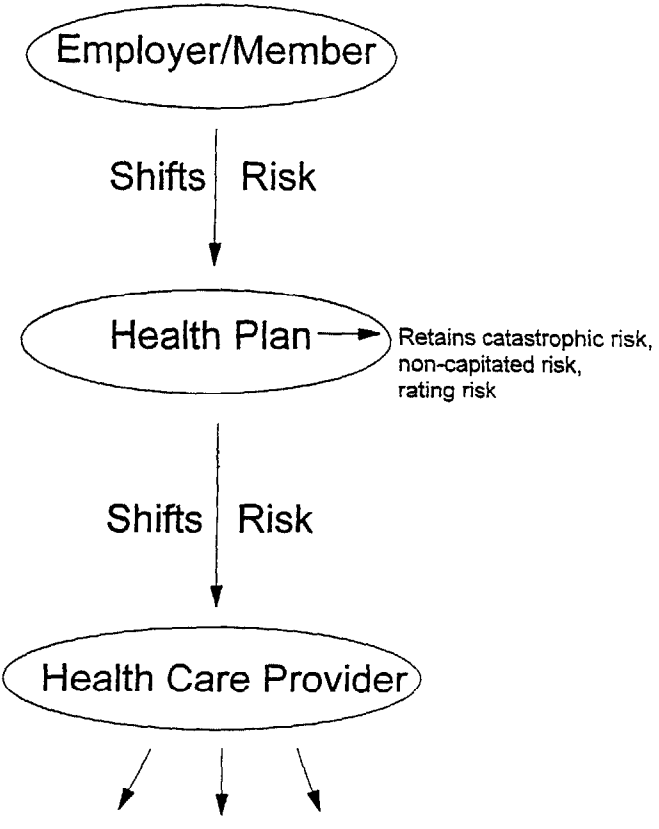
1) The adjustment is to adjust for half of the initial off balance, .5 x (1500/1200 - 1) = .125

2) The calculation is 80% x (1.125)

3) We have assumed this is the current reporting pattern but have incorporated some randomness into the reporting losses

Exhibit 6

THE SHIFTING OF RISK



bcbso.bauman capit.pre

Note: This exhibit is extracted from a presentation given by Ms. Ruth Bauman of Blue Cross and Blue Shield-Oregon at a Global Business Research Seminar titled "Risk Sharing Arrangements in Workers' Compensation Managed Care...Toward Capitation"

LOSS RATIO DIVIDEND PLAN

1) *Assumptions*

- Projected loss ratio for prospective period based on trending and developing prior years' claim costs and comparing to premium at current rate level is: 75%

- Earned premium subject to MCO program: $100,000,000

- Claim costs above $100,000 are excluded from the dividend plan.
  Expected cost of losses above $100,000[1]: .184

- Expected Reporting Pattern at 12 months: 50%
  24 months: 75%
  36 months: 80%
  48 months: 90%

- Calculations performed
  at 36 months and
  30% of the savings
  returned to MCO

- Actual reported losses at 36 months = $45,000,000

[1] *PCAS Volume LXXVIII 1991; Retrospective Rating: Excess Loss Factors*, William R. Gillam, Pages 1-40

LOSS RATIO DIVIDEND PLAN

2) *Dividend Calculation*

1)	Earned Premium	$100,000,000
2)	Target Loss Ratio	75%
3)	Expected Ultimate Losses (1)x(2)	75,000,000
4)	Excess Ratio	.184
5)	Expected Ultimate Limited Losses (3)x(1-4)	61,200,000
6)	Expected Percentage of Losses Reported	.80
7)	Expected Limited Losses Reported	48,960,000
	36 months after the beginning of the accident year (5)x(6)	
8)	Actual Reported Losses	45,000,000
9)	MCO Savings (7)-(8)	3,960,000
10)	Dividend Sharing Percentage	30%
11)	Dividend Due MCO	1,188,000

Exhibit 8

AVERAGE CLAIM COST MODEL

1) Expected Ultimate Severity (Based on trended and developed ultimate losses)	$4,500
2) Relative severity at a 36 month evaluation:	.7
3) Target severity at a 36 month evaluation (1)x(2)	3,150
4) Actual number of claims reported	16,000
5) Target claim costs (3)x(4)	50,400,000
6) Actual Reported Losses	45,000,000
7) MCO savings (5)-(6)	5,400,000
8) Dividend Sharing Percentage	30%
9) Dividend Due MCO (7) x (8)	1,620,000

EXHIBIT 9

ANKLE and LOWER LEG INJURIES	Return-to-Work (days) by Level of Activity at Work[1]					
	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
Fracture of Ankle, Simple	0-14	0-21	0-28	14-56	21-63	28-77
ICD-9 Codes: 824.0, 824.2						
Fracture or Dislocation of Ankle, Closed Therapy	0-21	0-28	7-35	21-63	35-70	42-98
ICD-9 Codes: 824.0, 824.1, 824.2, 824.3, 824.4, 837.0						
Fracture or Dislocation of Ankle, Surgery[2]	14-28	14-35	21-42	42-70	56-84	63-112
ICD-9 Codes: 824.X, 837.0, 837.1, 928.21						
Fracture of Tibia, Shaft, Closed Therapy	14-35	21-49	35-70	63-98	70-119	84-140
ICD-9 Code: 823.20						
Fracture of Fibula, Shaft, Closed Therapy	4-21	7-28	21-42	42-56	42-70	56-84
ICD-9 Code: 823.21						
Fracture of Tibia & Fibula, Shaft, Closed Therapy	14-35	21-49	42-70	70-98	77-119	91-140
ICD-9 Code: 823.22						
Fracture of Tibia, Shaft, Surgery[2]	14-35	21-49	35-70	63-98	70-119	84-140
ICD-9 Codes: 823.20, 823.30						
Fracture of Fibula, Shaft, Surgery[2]	4-21	7-28	21-42	42-56	42-70	56-84
ICD-9 Codes: 823.21, 823.31						
Fracture of Tibia & Fibula, Shaft, Surgery[2]	21-35	28-42	49-70	77-98	84-119	98-140
ICD-9 Codes: 823.22, 823.32						
Sprain, Sprain-fracture, or Contusion, Grade I	0-3	0-5	0-10	0-14	0-21	0-28
ICD-9 Codes: 845.0X, 924.21						
Sprain, Sprain-fracture, or Contusion, Grade II	0-5	0-8	3-14	7-21	14-28	14-35
ICD-9 Codes: 845.0X, 924.21						
Sprain, Sprain-fracture, or Contusion, Grade III	7-10	7-14	14-21	21-28	28-42	35-63
ICD-9 Codes: 845.0X, 924.21						

[1] Each entry represents the number of days, since the date of injury, which the patient is expected to require to enter each Level of Activity at Work.
[2] Times noted are for operative and post-operative periods only.

ANKLE and LOWER LEG INJURIES	Duration of Care (days) by Percent of Patients Finished with Care		
	50%	75%	95%
Fracture of Ankle, Simple ---------- ICD-9 Codes: 824.0, 824.2	56	70	84
Fracture or Dislocation of Ankle, Closed Therapy ---------- ICD-9 Codes: 824.0, 824.1, 824.2, 824.3, 824.4, 837.0	70	84	112
Fracture or Dislocation of Ankle, Surgery[1] ---------- ICD-9 Codes: 824.X, 837.0, 837.1, 928.21	84	119	168
Fracture of Tibia, Shaft, Closed Therapy ---------- ICD-9 Code: 823.20	98	119	168
Fracture of Fibula, Shaft, Closed Therapy ---------- ICD-9 Code: 823.21	63	84	112
Fracture of Tibia & Fibula, Shaft, Closed Therapy ---------- ICD-9 Code: 823.22	98	119	168
Fracture of Tibia, Shaft, Surgery[1] ---------- ICD-9 Code: 823.20, 823.30	98	119	168
Fracture of Fibula, Shaft, Surgery[1] ---------- ICD-9 Code: 823.21, 823.31	63	84	112
Fracture of Tibia & Fibula, Shaft, Surgery[1] ---------- ICD-9 Code: 823.22, 823.32	98	119	168
Sprain, Strain, Sprain-Fracture, or Contusion, Grade I ---------- ICD-9 Codes: 845.0X, 924.21	7	14	21
Sprain, Strain, Sprain-Fracture, or Contusion, Grade II ---------- ICD-9 Codes: 845.0X, 924.21	14	28	42
Sprain, Strain, Sprain-Fracture, or Contusion, Grade III ---------- ICD-9 Codes: 845.0X, 924.21	56	70	84
Laceration, Simple ---------- ICD-9 Code: 891.0	10	14	21
Laceration, Intermediate ---------- ICD-9 Codes: 891.0, 891.2	14	21	28
Laceration, Complex ---------- ICD-9 Codes: 891.0, 891.1, 891.2	70	84	105
Tendonitis, Achilles Tendonitis ---------- ICD-9 Codes: 726.71, 727.81, 845.09	14	28	84
Tendonitis, Achilles Tendon Rupture, Surgery[1] ---------- ICD-9 Code: 727.67	133	147	168
Tendonitis, Anterior Tibial Tendonitis ---------- ICD-9 Codes: 726.72, 727.06	14	28	84
Tendonitis, Posterior Tibial or Peroneal Tendonitis ---------- ICD-9 Codes: 726.72, 726.79	14	28	84
Traumatic Arthritis, Acute Episode ---------- ICD-9 Code: 716.17	14	28	42

[1] Times noted are for operative and post-operative periods only.

EXHIBIT 11

Table 3a
Ankle Injuries - Optimally Managed
Fractures and Dislocations

Initial Care

Ankle Injuries : 4.23% **of Lost Work Day Cases**
Fractures and Dislocations : 11.50% **of Ankle Injuries**
Initial Care : 100.00% **of Ankle Fractures and Dislocations**

Charge Basis
Example Fee Schedule
Center Date: 7/1/96

Treatment Probabilities

(a) Treatment % of Total	(b) Procedure % of (a)	(c) Course of Treatment	(d) Procedure Code	(e) Number of Services	(f) Price Per Service
80.00%		**I. Office Visit**			
	75.00%	1. Office/Outpatient New Detailed Moderate	99203	1.0	$80.22
	25.00%	2. Office/Outpatient New Comp Moderate	99204	1.0	$114.60
	100.00%	3. X-ray Exam, Ankle-Complete	73610	1.0	$58.07
	70.00%	4. Pain Injection	90782	1.0	$14.33
	10.00%	5. Tetanus Toxoid Injection	90782	1.0	$14.33
	100.00%	6. Apply Short Leg Splint	29515	1.0	$63.13
	100.00%	7. Trilateral Splint (Plaster/Fiberglass)	AP032	1.0	$100.00
	100.00%	8. Crutches	AP001	1.0	$18.63
			Subtotal, Sum of (b) x (e) x (f):		$340.11
20.00%		**II. Emergency Room Visit**			
	50.00%	1. ER Visit Focused Mod Complex	99283	1.0	$94.55
	50.00%	2. ER Visit Severe Mod Complex	99284	1.0	$143.25
	100.00%	3. ER Charge - Ankle Fracture	ER002	1.0	$32.98
	100.00%	4. X-ray Exam, Ankle-Complete	73610	1.0	$58.07
	70.00%	5. Pain Injection	90782	1.0	$14.33
	10.00%	6. Tetanus Toxoid Injection	90782	1.0	$14.33
	100.00%	7. Apply Short Leg Splint	29515	1.0	$63.13
	100.00%	8. Trilateral Splint (Plaster/Fiberglass)	AP032	1.0	$100.00
	100.00%	9. Crutches	AP001	1.0	$18.63
			Subtotal, Sum of (b) x (e) x (f):		$403.17

Total Cost, Sum of (a) x Subtotal **$352.72**

Table 3b
Ankle Injuries - Optimally Managed
Fractures and Dislocations

EXHIBIT 12

Subsequent Therapy by PCP

Ankle Injuries :	4.23%	**of Lost Work Day Cases**	**Charge Basis**
Fractures and Dislocations :	11.50%	**of Ankle Injuries**	Example Fee Schedule
Subsequent Therapy by PCP :	71.00%	**of Ankle Fractures and Dislocations**	Center Date: 7/1/96

Treatment Probabilities

(a) Treatment % of Total	(b) Procedure % of (a)	(c) Course of Treatment	(d) Procedure Code	(e) Number of Services	(f) Price Per Service
100.00%		***I. Therapy***			
	100.00%	1. Office/Outpatient Est Expanded Focused	99213	1.0	$51.57
	90.00%	2. Apply Cast Short Leg	29405	1.0	$84.18
	90.00%	3. Cast Materials, Short Leg	AP048	1.0	$75.00
	10.00%	4. Apply Short Leg Splint	29515	1.0	$63.13
	10.00%	5. Trilateral Splint (Plaster/Fiberglass)	AP032	1.0	$100.00
	80.00%	6. Pain Medication	RX001	7.0	$2.88
	60.00%	7. NSAIDs	RX002	10.0	$2.40
			Subtotal, Sum of (b) x (e) x (f):		$241.67
100.00%		**II. Follow-up Care**			
	100.00%	1. Office/Outpatient Est Expanded Focused	99213	4.0	$51.57
	100.00%	2. X-ray Exam, Ankle-Complete	73610	4.0	$58.07
	90.00%	3. Apply Cast Short Leg - Walking	29425	1.0	$105.22
	90.00%	4. Cast Materials, Short Leg - Walking	AP049	1.0	$90.00
	30.00%	5. Phys Med-Therapeutic Exercises	97110	5.0	$45.84
			Subtotal, Sum of (b) x (e) x (f):		$683.02

Total Cost, Sum of (a) x Subtotal	**$924.69**

CPM: Wcproto.xls-Ankle - Fractures

6/7/96

EXHIBIT 13

Table 3c
Ankle Injuries - Optimally Managed
Fractures and Dislocations

Therapy by Specialist

Ankle Injuries :	4.23%	**of Lost Work Day Cases**	**Charge Basis**
Fractures and Dislocations :	11.50%	**of Ankle Injuries**	Example Fee Schedule
Therapy by Specialist :	4.00%	**of Ankle Fractures and Dislocations**	Center Date: 7/1/96

Treatment Probabilities (a) Treatment % of Total	(b) Procedure % of (a)		(c) Course of Treatment	(d) Procedure Code	(e) Number of Services	(f) Price Per Service
100.00%		**I.**	**Pre-Therapy Care**			
	100.00%	1.	ER Visit Severe Mod Complex	99284	1.0	$143.25
	25.00%	2.	MRI, Lower Extremity Joint	73721	1.0	$1,016.26
	100.00%	3.	X-ray Exam, Ankle-Complete	73610	1.0	$58.07
	3.00%	4.	EKG	93000	1.0	$44.69
	3.00%	5.	X-ray Exam, Chest-2 Views	71020	1.0	$66.37
				Subtotal, Sum of (b) x (e) x (f):		$458.72
12.50%		**II.**	**Inpatient Therapy**			
	100.00%	1.	Closed Reduction of Trimalleolar Fracture	27818	1.0	$683.93
	100.00%	2.	Assistant Surgeon	27818-80	1.0	$136.79
	40.00%	3.	Hospital - 1 Day - Ankle Closed Fracture	IS001	1.0	$1,026.44
	60.00%	4.	OS Facility - Ankle Closed Fracture	OS001	1.0	$568.05
	100.00%	5.	Anesthesia - Open Lower Leg Bone Surgery	1480	1.0	$519.53
	100.00%	6.	Cast Materials, Short Leg	AP048	1.0	$75.00
				Subtotal, Sum of (b) x (e) x (f):		$2,166.66
87.50%		**III.**	**Outpatient Therapy**			
	100.00%	1.	Closed Reduction of Bimalleolar Fracture	27810	1.0	$526.10
	55.00%	2.	OS Facility - Ankle Closed Fracture	OS001	1.0	$568.05
	55.00%	3.	Anesthesia - Open Lower Leg Bone Surgery	1480	1.0	$519.53
	100.00%	4.	Cast Materials, Short Leg	AP048	1.0	$75.00
				Subtotal, Sum of (b) x (e) x (f):		$1,199.27
100.00%		**IV.**	**Post-Therapy Care**			
	100.00%	1.	Follow-Up Visit, Post-Operative	99024	8.0	$0.00
	50.00%	2.	Office/Outpatient Est Expanded Focused	99213	6.0	$51.57
	100.00%	3.	X-ray Exam, Ankle-Complete	73610	5.0	$58.07
	100.00%	4.	Cast Materials, Short Leg - Walking	AP049	1.0	$90.00
	50.00%	5.	Ankle Brace - Air Cast	AP002	1.0	$40.00
	90.00%	6.	Pain Medication	RX001	10.0	$2.88
	80.00%	7.	NSAIDs	RX002	12.0	$2.40
	60.00%	8.	Phys Med-Therapeutic Exercises	97110	6.0	$45.84
				Subtotal, Sum of (b) x (e) x (f):		$769.04

Total Cost, Sum of (a) x Subtotal	**$2,547.95**

EXHIBIT 14

Table 3d
Ankle Injuries - Optimally Managed
Fractures and Dislocations

Surgery by Specialist

Ankle Injuries :	4.23%	**of Lost Work Day Cases**	**Charge Basis**
Fractures and Dislocations :	11.50%	**of Ankle Injuries**	Example Fee Schedule
Surgery by Specialist :	25.00%	**of Ankle Fractures and Dislocations**	Center Date: 7/1/96

Treatment Probabilities

(a) Treatment % of Total	(b) Procedure % of (a)	(c) Course of Treatment	(d) Procedure Code	(e) Number of Services	(f) Price Per Service
100.00%		**I. Pre-Surgery Care**			
	100.00%	1. ER Visit Severe Mod Complex	99284	1.0	$143.25
	25.00%	2. MRI, Lower Extremity Joint	73721	1.0	$1,016.26
	15.00%	3. EKG	93000	1.0	$44.69
	15.00%	4. X-ray Exam, Chest-2 Views	71020	1.0	$66.37
			Subtotal, Sum of (b) x (e) x (f):		$413.97
60.00%		**II. Bimalleolar Fracture**			
	100.00%	1. Open Treatment of Bimalleolar Fracture	27814	1.0	$1,315.25
	100.00%	2. Assistant Surgeon	27814-80	1.0	$263.05
	100.00%	3. Anesthesia - Open Lower Leg Bone Surgery	1480	1.0	$519.53
	60.00%	4. OS Facility - Ankle Open Fracture	OS002	1.0	$568.05
	40.00%	5. Hospital - 1 Day - Ankle Open Fracture	IS002	1.0	$1,026.44
	100.00%	6. Cast Materials, Short Leg	AP048	1.0	$75.00
			Subtotal, Sum of (b) x (e) x (f):		$2,924.24
40.00%		**III. Trimalleolar Fracture**			
	100.00%	1. Open Treatment of Trimalleolar Fracture	27822	1.0	$1,525.69
	100.00%	2. Assistant Surgeon	27822-80	1.0	$305.14
	100.00%	3. Anesthesia - Open Lower Leg Bone Surgery	1480	1.0	$519.53
	50.00%	4. Hospital - 1 Day - Ankle Open Fracture	IS002	1.0	$1,026.44
	50.00%	5. OS Facility - Ankle Surgery - 23 hour	OS027	1.0	$568.05
	100.00%	6. Cast Materials, Short Leg	AP048	1.0	$75.00
			Subtotal, Sum of (b) x (e) x (f):		$3,222.61
100.00%		**IV. Post-Surgery Care**			
	100.00%	1. Follow-Up Visit, Post-Operative	99024	6.0	$0.00
	45.00%	2. Office/Outpatient Est Expanded Focused	99213	4.0	$51.57
	100.00%	3. X-ray Exam, Ankle-Complete	73610	4.0	$58.07
	100.00%	4. Cast Materials, Short Leg - Walking	AP049	1.0	$90.00
	50.00%	5. Ankle Brace - Air Cast	AP002	1.0	$40.00
	100.00%	6. Pain Medication	RX001	12.0	$2.88
	90.00%	7. NSAIDs	RX002	15.0	$2.40
	30.00%	8. Antibiotics	RX005	7.0	$6.84
	15.00%	9. Hardware Removal - Deep	20680	1.0	$420.88
	15.00%	10. OS Facility - Removal of Hardware	OS040	1.0	$654.61
	10.00%	11. Anesthesia	1999	1.0	$349.50
	90.00%	12. Phys Med-Therapeutic Exercises	97110	8.0	$45.84
	10.00%	13. Therapeutic Activities-Each 15 Min	97530	12.0	$28.65
			Subtotal, Sum of (b) x (e) x (f):		$1,077.13

Total Cost, Sum of (a) x Subtotal	**$4,534.69**

TABLE A
COMMON COST CONTAINMENT STRATEGIES IN WORKERS' COMPENSATION

Jurisdiction	Limited Initial Provider Choice	Limited Provider Change	Medical Fee Schedule	Hospital Charge Regulation	Utilization Review	Bill Review
Alabama	X	X				
Alaska		X	X			
Arizona*	X	X	X			
Arkansas	X	X	†			
California*	X	X	X	†		
Colorado	X	X	X	X		
Connecticut		X		X		
Delaware						
District of Columbia		X			X	
Florida	X	X	X	X	X	X
Georgia	X	X	X	†		
Hawaii		X	X	X		
Idaho	X	X				
Illinois		X				
Indiana	X	X				
Iowa	X	X				
Kansas	X	X	†	†		†
Kentucky			X			
Louisiana		X	†	†	X	X
Maine		X	X	†	†	
Maryland			X			
Massachusetts			X	X		
Michigan	X	X	X	X	X	X
Minnesota		X	X	X		
Mississippi						
Missouri	X	X				
Montana		X	X	X		
Nebraska		X	X	X		
Nevada#		X	X	X	X	X
New Hampshire			†	†	†	
New Jersey	X	X		X	X	
New Mexico*	X	X	†	X	X	
New York			X	X	X	
North Carolina	X	X	X	X		X

These strategies were in effect during 1991-92.

TABLE A (Continued)

Jurisdiction	Limited Initial Provider Choice	Limited Provider Change	Medical Fee Schedule	Hospital Charge Regulation	Utilization Review	Bill Review
North Dakota#		X	†	†	X	X
Ohio#			X		X	X
Oklahoma		X	X	X		
Oregon		X	X	X	†	X
Pennsylvania	X	X				
Rhode Island				X		
South Carolina	X	X	X	X		X
South Dakota		X				
Tennessee	X	X				
Texas		X	X	X	†	X
Utah	X	X	X		X	
Vermont						
Virginia	X	X				
Washington#			X	X	X	X
West Virginia#		X	X	X	X	X
Wisconsin		X				
Wyoming#		X	X	X	X	X
TOTALS (exclude †)	21	40	27	22	14	13

* Arizona and California divide initial provider choice between the employer and the employee. In New Mexico, the employer/insurer can control provider choice and change during the sixty days following the injury or after that period.

† Being developed.

\# Exclusive state fund.

NOTE: The table does not reflect strategies that the states have authorized, but rather strategies that the states have implemented.

TABLE A. COMMON COST CONTAINMENT STRATEGIES IN WORKERS' COMPENSATION, 1995*

Jurisdiction	Limited Initial Provider Choice	Limited Initial Provider Choice via MCO	Limited Provider Change	Limited Provider Change via MCO	Medical Fee Schedule	Hospital Payment Regulation	Mandated Managed Care	Mandated Utilization Review	Mandated Bill Review	Treatment Guidelines
Alabama	X		X		X	X				
Alaska			†		X	X				
Arizona	X♦		X		X					
Arkansas	X		X		X	X	X♦	X	X	
California	X♦		X		X					‡
Colorado	X		X		X	-	X♦	X		X
Connecticut		X	X		X					‡
Delaware										
District of Columbia			X							
Florida	X		X		X	X	X♦	X	X	X
Georgia	X		X		X	X				§
Hawaii			†		X	X				X
Idaho	X		X							
Illinois			†							
Indiana	X		X							
Iowa	X		X							
Kansas	X		X		X	X			X	
Kentucky		X	†	X	X	X		X		‡
Louisiana			X		X	X		X	X	
Maine	X		†		X	X		X		‡
Maryland					X	X				
Massachusetts		X♦	X		X	X		X		X
Michigan	X		†		X	X		X	X	
Minnesota		X	X		X	X				X
Mississippi			†		X			X	X	
Missouri	X		X							
Montana		X	X		X	X		X		‡

TABLE A. COMMON COST CONTAINMENT STRATEGIES IN WORKERS' COMPENSATION, 1995* (CONTINUED)

Jurisdiction	Limited Initial Provider Choice	Limited Initial Provider Choice via MCO	Limited Provider Change	Limited Provider Change via MCO	Medical Fee Schedule	Hospital Payment Regulation	Mandated Managed Care	Mandated Utilization Review	Mandated Bill Review	Treatment Guidelines
Nebraska	X‡		X		X	X				§
Nevada		X	†		X	X	X‡	X	X	X
New Hampshire		X		X	‡	‡	X‡	‡		
New Jersey	X		X			X				§
New Mexico	X‡		X		X	X		X		
New York		**		**	X	X				§
North Carolina	X		X		X	X			X	‡
North Dakota		X‡	X		X	X	X‡	X	X	
Ohio		‡		‡	X	X		X	X	§
Oklahoma		X	X		X	X				‡
Oregon		X	X		X	X			X	‡
Pennsylvania	X		X		X	X				
Rhode Island				X	X	X		X		‡
South Carolina	X		X		X	X			X	
South Dakota		X	X		X		X‡			X
Tennessee	X		X					X		
Texas			X		X	X		X	X	X
Utah	X		†		X			X		X
Vermont	X				X	X	X‡			
Virginia	X		X							
Washington		**		**	X	X		X	X	X
West Virginia				X	X	X		X	X	X
Wisconsin			†		X	X				
Wyoming			X		X	X		X	X	X
TOTAL††	24	11	32	4	40	35	8	21	16	12