



WYOMING HEALTHCARE COMMISSION

***PROJECTED EFFECT OF
CAPPING NON-ECONOMIC DAMAGES ON
PHYSICIANS AND SURGEONS
PROFESSIONAL LIABILITY COSTS***

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Diane Harrop
Director
Wyoming Healthcare Commission
PO Box 2760
Casper, WY 82602

Subject: Projected Effect of Capping Non-Economic Damages on Physicians and Surgeons Professional Liability Costs

Dear Diane:

Milliman is pleased to enclose five copies of the above-captioned final report. The final report has been revised from the second draft version to include minor editorial changes and other suggestions made by the Wyoming Healthcare Commission.

We appreciate this opportunity to provide consulting actuarial services to the Wyoming Healthcare Commission regarding the important medical malpractice reform issues under consideration by the Wyoming legislature. We further appreciate the cooperation and information provided by the Wyoming Healthcare Commission and the Wyoming Department of Insurance during the course of our analysis. We are available if there are any questions regarding this report or if we may provide any additional information.

Sincerely,

Richard B. Lord
FCAS, MAAA

Richard S. Biondi
FCAS, MAAA

RBL:mes
Enclosure

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INTRODUCTION

Milliman, Inc. (Milliman) was engaged by the Wyoming Healthcare Commission (WHCC) to analyze the potential effect of tort reform on physician professional liability costs in Wyoming. The goal of this project was to estimate the expected effect on medical malpractice losses and allocated loss adjustment expenses (ALAE)¹ of the imposition of a cap on the maximum allowable verdict amount for non-economic damages² (primarily, “pain and suffering”) and to compare claim frequency and malpractice premiums with those of surrounding states, all of which already have tort reform measures in place.

Milliman developed an actuarial model to estimate the effect of a \$250,000; \$350,000; \$500,000; and \$1 million cap on non-economic losses for physicians, using data provided by the Wyoming Department of Insurance, National Practitioner Data Bank loss data, Wyoming insurer data made available from the Wyoming Legislative Office (LSO), data from the Texas Department of Insurance, plus results from a 1997 Milliman study on non-economic damage caps in New York. Wherever possible, we relied on Wyoming specific data in our analysis.

Milliman is an independent consulting firm, which is wholly owned by its senior consultants. Our clients include insurance companies, regulators and government agencies, consumer groups, and industry associations.

We acknowledge and appreciate the cooperation received from the Wyoming Healthcare Commission and the Wyoming Department of Insurance during the course of our analysis.

¹ Allocated loss adjustment expenses pertain to the expenses associated with the defense of medical malpractice claims. These include defense attorneys’ fees, expert witness fees, and other defense-related expenses.

² Verdict amounts are generally itemized between economic damages and non-economic damages. Economic damages include reimbursement for medical expenses, lost wages and other out-of-pocket expenses. Additional verdict amounts are non-economic damages. These amounts mainly are intended to compensate claimants for pain and suffering endured from medical malpractice occurrences.

CONCLUSIONS

The results from our model are shown in Table 1. We conclude that a \$250,000 cap on non-economic damages would reduce loss (indemnity) by about 19%, which would correspond to a 15% reduction in the combined losses and ALAE for physician claims made policies written in 2005 at a \$1 million per occurrence policy limit.

Table 1: Projected effects of a \$250,000, \$350,000, \$500,000, and \$1,000,000 cap on non-economic damages on medical malpractice costs given a \$1,000,000 per occurrence policy limit.

Limit on Non-Economic Damage Award	Loss Only	Loss & ALAE
\$250,000	19%	15%
350,000	14%	11%
500,000	9%	7%
1,000,000	2%	2%

When we conclude that there is a 15% reduction associated with a \$250,000 cap on non-economic damages, we mean that we expect losses and ALAE to be 15% lower, at the same point in time, than they would have been in the absence of the cap. These anticipated savings may not translate directly to a 15% savings in malpractice premiums, but rather represent an upper bound to malpractice premium savings. If rates are inadequate prior to the application of the cap, the cap should reduce the margin of inadequacy by 15%, but will not necessarily support a rate reduction. Additionally, we made assumptions in our model as to the structure of the tort reform measures. If, for example, the Wyoming legislature enacts a per claim cap instead of a per occurrence cap or exempts certain types of claims from the cap on non-economic damages, the savings will be reduced.

Expanded results showing Wyoming's indicated savings at various cap levels and policy limits are shown on Exhibit 1.

OVERVIEW OF ANALYSIS

We based our analysis on data from the National Practitioner Data Bank Public Use Data File (NPDB) as of 06/30/2004, Wyoming insurer data made available through the Wyoming Department of Insurance, the Wyoming LSO, and other industry data.

We used NPDB claims data for Wyoming to determine the average cost per claim for claims made policies written throughout 2005. The NPDB has loss data on closed claims with indemnity payment by state. Some of these claims have multiple entries (payments) in the NPDB database. We combined the multiple entries to obtain one record for each entire claim.³

The NPDB does not contain information on:

- Insurer reserves on pending claims
- ALAE
- Number of physicians jointly sharing in the cost of a case
- Proportion of loss for non-economic damages

All ALAE parameters were based on Wyoming insurer data. The distribution of physician defendants in a case is based on Texas claims data, modified, to the extent believed credible, by Wyoming data⁴. The proportion of loss for non-economic damages is derived from an overall OHIC average result for Wyoming and fit to a distribution based on Texas data. Other parameters include a verdict adjustment factor, which is based on a study prepared by the Rand Institute for Civil Justice, and the distribution of verdict appeal factors, which is taken from a 1997 Milliman study on non-economic damages caps in New York.

³ Multiple payment entries were combined by identifying records with identical data fields, e.g. accident year, practitioner code, and type of claim.

⁴ The “NumbPrns” field in the NPDB does not directly satisfy our criteria for number of physician defendants in a case, but it does show a relationship between states (Texas and Wyoming, in this instance), which we used to modify the Texas DOI data distribution.

We then incorporated these parameters into a stochastic simulation model. The simulation generated hypothetical cases, each with values (e.g., number of defendants, indemnity for each defendant, percent non-economic damages, etc.) randomly selected within the bounds of the measured parameters. The value of each hypothetical case was determined under pre-reform and post-reform conditions and these values were applied to the Texas insurance structure. We measured and report on the average differences of over 30,000 iterations for loss only.

The indicated indemnity savings by size of cap and policy limit were then modified to include ALAE, given the estimated total ALAE to indemnity ratio (based on OHIC and The Doctors Company (TDC) Wyoming data), the ratio of CWIP⁵ ALAE to total ALAE⁶ (based on TDC CWIP claims), and the correlation of CWIP ALAE to size of loss (derived from TDC CWIP claims data).

OBSERVATIONS

Several points about the results warrant specific mention. First, our model indicates that tort reform in Wyoming should have a significant effect on expected losses. Reductions in indemnity are expected to be about 19%. The overall malpractice savings after incorporation of defense costs becomes lower at 15%. Our analysis assumes that defense costs (ALAE) follow the effects on indemnity, though to a lesser extent. Additionally, we estimated and incorporated the magnitude of ALAE on claims that close without indemnity payments (CWOP); a cap on non-economic losses should have no effect on these costs.

An important assumption in our analysis is that the caps will apply to the total non-economic damages for each medical malpractice occurrence, regardless of the number of physician defendants. Thus if, e.g., \$1 million of non-economic damages is awarded to a

⁵ CWIP claims are those closed with indemnity payment

⁶ Total ALAE comprises ALAE on claims with indemnity payment and ALAE on claims with no indemnity payment. Only ALAE on CWIP claims will be affected by non-economic damage caps.

claimant from an occurrence involving three physician defendants, it is assumed that the entire \$1 million would be capped, not the amounts apportioned to each of the three physician defendants. Thus, by dividing the cap among all of the defendants in a given case, the effective cap for any single defendant will often be lower than \$250,000.

A cap on non-economic loss can have certain additional effects that we did not consider in the analysis. It is possible, for example, that jury awards and settlements for economic loss will increase to partially offset the cap on non-economic loss, or that the percentage of defense verdicts will decline. Legal arguments might be devised to narrow the types of damages subject to the cap, or to define new forms of damages that are outside the limitations on non-economic loss. It is possible that certain types of lawsuits or damages may be exempted (either by statute or court decision) from the award cap. As a final example, greater care might be taken by plaintiffs to carefully define and fully list all elements of economic loss, if the possibility no longer exists to use non-economic losses as a catch-all for ill-defined damages. All of these items could act to decrease the savings realized by this type of tort reform. In our model we assumed that no such events would occur.⁷

We also assumed that tort reform would have no effect on the frequency with which claims or suits are filed. In actuality, certain suits currently in the system (particularly those with very low or zero economic loss) might not be brought to court if the potential reward to the plaintiff -- and the plaintiff's attorney -- is too low. If this happens, it would increase the savings realized by the tort reform.

Another important assumption in our analysis is that a cap on non-economic damages will have the same proportional effect on settlements as it does on verdicts. This is because a settlement is negotiated based upon the estimated cost of the claim if it were to

⁷ We also considered the possibility that the presence of a cap on physician liability could result in cost shifting to other healthcare providers; however, it is our understanding that the cap on non-economic damages under consideration in Wyoming would also include hospitals and other healthcare providers, thus we assumed no such cost shifting would occur.

go to a verdict. Thus, if the cost of verdicts is reduced due to a cap, it follows that the cost of settlements would be reduced proportionately.

METHODOLOGY

Overview

For this analysis, we created a stochastic simulation model to estimate the effect on the average settlement costs that would be realized by a cap on non-economic damages. This method randomly generates hypothetical lawsuits to measure uncapped and capped values.

The model is outlined in Exhibit 2 and works as follows:

Multiple Defendant Cases

Exhibit 2 shows an example of an occurrence that generates two claims, with one against the physician “A” and the other against the physician “B”. The number of physician claims per case, ranging from 1 thru 7 is randomly determined following our selected distribution (Exhibit 3).

Average Cost per Claim

In Stage A of the example, a case is “created” by randomly assigning the two physicians to the case. Each physician/claim is then assigned a random loss, which conforms to the projected loss distribution, determined primarily from the Wyoming NPDB loss data (see Exhibits 4 and 5). In the example in Exhibit 2, Physician “A” has a settlement value of \$1.77 million and the Physician “B” claim has a value of \$175,847.

In Stage B, the amounts from each claim are combined into a single case. In the example, the total case value is about \$1.95 million.

Settlements v. Verdicts

In Stage C, an implied verdict amount is calculated.

Of all malpractice claims reported, only a small percentage is the result of verdicts; practically all claim payments arise from settlements. Yet, caps on non-economic damages directly affect only payments awarded by verdict. In this analysis, we infer the nature of the relationship between verdicts and settlements in order to draw conclusions about the likely effect of tort reform on all claims. That is, though tort reform would directly affect only verdicts, we assume that it would indirectly affect settlements in a proportional fashion. The underlying assumption is that any lawsuit could be tried to verdict but that a settlement is reached based on an anticipated sustainable verdict amount for a case.

Up until now, the dollar amounts assigned to the claims are settlement amounts based upon Wyoming data. However, for any given type of occurrence, the cost of a verdict tends to be higher than the cost of a settlement because there is less risk to a claimant in accepting a settlement relative to pursuing the claim to a verdict. In Stage C, we adjust the value of the claim to the verdict amount, which is the amount that would actually be limited by the cap on non-economic damages.

We could not determine an inferred verdict value from any of our data sources. Therefore, we used the results of a study⁸ performed by the Rand Institute for Civil Justice to estimate the relationship between verdicts and settlements. Although the analysis is not recent, we believe that the type of relationship we are seeking will not change quickly over time. On the basis of this study, and other work that we have performed, we selected a factor of 1.3.

⁸ Danzon, P.M. and Lillard, L.A., 1982. The Resolution of Medical Malpractice Claims – Modeling the Bargaining Process. Rand Institute for Civil Justice.

Economic and Non-Economic Damages

In Stage D, the case is apportioned into economic and non-economic components based on our selected Texas Department of Insurance data distribution, normalized to OHIC's indicated non-economic to total damage ratio of 60.7%⁹ (Exhibit 6). We note that this percentage is consistent with the Texas distribution, and also consistent with those we have used in similar Milliman studies for Florida and New York. In the example in Exhibit 2, the simulation assigned a 25% economic share (\$633,595) and a 75% non-economic share. The non-economic amount (\$1,900,789) is capped at \$250,000. The capped branch of the diagram is used to compute the cost of the occurrence with a cap, while the uncapped branch is used to compute the current cost of the occurrence without a cap.

Post Verdict Appeal Reduction

In Stage E, post verdict adjustments (appeal factors) are applied to the case components. Most cases that go to verdict undergo further appeal and negotiation following the verdict. Cases usually settle for less than the verdict amount, even after a verdict has been returned. We therefore further adjusted the verdicts for the effects of the appeals process using values shown in Exhibit 7. These values could not be determined from the NPDB, Wyoming LSO data or Texas data, and are taken from a 1997 Milliman study on non-economic damages caps in New York.

The economic portion of a case is subjected to the same reduction under both pre and post reform scenarios. But, we assumed that the capped non-economic amount is not reduced further. Finally, the totals for the uncapped and capped verdict amounts are calculated and a savings determined. In the example, the total uncapped value is \$2.15M and the total capped value is \$788,557, a savings for this case of 63.4%.

⁹ The Doctors Company represented to the Wyoming Insurance Dept. that it does not have a breakdown of economic and non-economic damages. We contacted TDC and were informed that this is because all of its claims in the past five years have been settled and none have resulted in a jury verdict.

Indemnity Savings Calculations

The total (economic + non-economic) pre-reform amount is compared to the total post reform amount and a percentage savings is calculated. The savings is then applied to the initial settlement values for each individual claim. Thus it is possible for even relatively small claims to realize the benefits of the cap, provided that they are components claims of a larger case where the cap is exceeded. In the example on Exhibit 2, a \$2.15 million claim had a 63.4% savings due to a non-economic cap. The physician with a claim worth \$100,000 (well below the cap), would nevertheless, experience a savings of 63.4% and a claim value reduced to about \$36,600.

These steps were repeated over thirty thousand times to measure the average effect the caps for the entire population of claims, where the characteristics of all of the claims closely model the measured claim values.

Inclusion of ALAE

The indicated ALAE savings on CWIP claims is correlated with the savings on indemnity, whereas the savings on claims without indemnity payment (CWOP) is zero. We assume that CWIP ALAE will decrease as indemnity decreases, but at a lower rate. The total ALAE savings is combined with the indemnity savings to produce the results shown on Exhibit 1.

PARAMETERS OF SIMULATION MODEL AND DATA SOURCES

Unlimited Average Cost per Claim

Average cost per claim (Exhibits 4 and 5) was based on NPDB loss data for Wyoming and the surrounding states. These historical closed claims were used as the basis of our loss distribution¹⁰ used to generate simulated claims in our model. The mean of our

¹⁰ Our selected loss distribution is a lognormal distribution with a mu of 11.75 and CV of 3.42, which corresponds to an unlimited average claim size of \$449,356. The lognormal distribution is commonly used to approximate actual claim size distributions.

distribution was based on Wyoming losses exclusively, while the coefficient of variation was based on Wyoming and surrounding states (NE, CO, ID, MT, SD, and UT).

Before we determined the parameters of our loss distribution, we selected a trend rate to bring historical losses to prospective¹¹ levels. We selected a severity trend rate of 5% based on the most recent rate filings from Wyoming and NPDB data for Wyoming only, as shown on Exhibit 8.

Multiple Defendant Cases

Since we had no Wyoming data regarding number of physician defendants per case, we used a Texas distribution and modified it using NPDB Wyoming data¹². Our selected claims per occurrence distribution is shown on Exhibit 3.

Economic v. Non-Economic Losses

Exhibit 6 shows our selected distribution of non-economic to non-economic plus economic damages. The only Wyoming specific information we had regarding a breakdown of damages into these components was an overall average of 60.7% provided by OHIC¹³. Thus, we selected a distribution based on Texas data, and normalized it to OHIC's average. Please note that this distribution is consistent with those we have used in similar Milliman studies for Florida and New York.

Allocated Loss Adjustment Expenses

ALAE comprise a significant proportion of the overall cost of a case. Once the simulation was run to determine indemnity savings resulting from non-economic damage

¹¹ We estimated that the average date of closure for claims arising from claims-made policies written in 2005 is May 1, 2008, based on average age of cases derived from NPDB Wyoming data.

¹² The "NumbPrsn" field in the NPDB does not directly satisfy our criteria for number of physician defendants in a case, but it does show a relationship between states (Texas and Wyoming, in this instance), which we used to modify the Texas DOI data distribution.

¹³ The Doctors Company represented to the Wyoming Insurance Dept. that it does not have a breakdown of economic and non-economic damages. We contacted TDC and were informed that, since all of its claims in the past five years have been settled, this data does not exist. To the extent that the quality of loss experience of OHIC insureds differs from that of TDC, the average non-economic to total damages we selected may not be indicative of the entire state of Wyoming.

caps, ALAE savings was calculated and included in our indications. We determined all ALAE parameters based on Wyoming data.

Exhibit 9 shows our estimate, as a percent, of total ALAE costs associated with each indemnity claim (ALAE Load). This is based on historical data provided by OHIC and TDC. Also shown on this exhibit is our selected ratio of CWIP ALAE to total ALAE. This relationship is important because some savings on ALAE for CWIP claims will be realized (as explained below), whereas ALAE on claims without indemnity payment will not realize any savings.

We found that ALAE is not a fixed percentage of the settlement value but increases at a slower rate than loss payments. That is, it is relatively more expensive to defend a \$50,000 case than a \$5 million case. We quantified this relationship based on data in the Florida DOI database and applied the relationship to each case before and after application of the cap. Since there is a relationship between defense costs and settlement, a non-economic damages cap will cause some reduction in defense costs. However, because of the nature of the relationship, the savings in defense costs will necessarily be less than the savings in the settlement value (Exhibit 10).

STATE COMPARISONS

We have compared malpractice loss, claim frequency, premiums, and rates of Wyoming to its neighboring states, including Colorado, Idaho, Montana, Nebraska, North Dakota, South Dakota, and Utah to see if there is correlation between caps on non-economic damages and these statistics.

Summary of Damage Caps by State

Exhibit 11 summarizes the statutory damage caps for medical malpractice liability by state and when damage caps first went into effect. Colorado and Nebraska have caps on total damages; Colorado also has a limit on non-economic damages. Idaho, Montana,

North Dakota, South Dakota, and Utah have caps on non-economic damages only. Wyoming currently has no caps on damages.

Number of Physicians

We have determined both the number of physicians and physicians per 10,000 civilians for years 1995 – 2001. The US Census Bureau and the Center of Disease Control were our sources for this data. As shown on Exhibit 12, Sheet 1, Wyoming has the smallest number of doctors among all eight states. Wyoming doctors each serve more people than the other states (except for Idaho), suggesting that malpractice claims may be spread over fewer doctors in Wyoming. According to this data, there appears to be a steady, if not increasing, number of physicians per person in Wyoming.

It is interesting to note that the number of physicians in Colorado per person has been consistently higher since 1995. This may relate to the more favorable tort reform structure in that state.

Claim Frequency

Exhibit 12, Sheet 2 shows the claim frequency of closed claims by state for years 1995 through 2001. These statistics are based on NPDB data for closed with indemnity claims only and excludes expense only claims.

We examined frequency using two different exposure bases - number of physicians and number of civilians. With the exception of Montana, the tort reform states have lower claims frequency than Wyoming.

Exhibit 13 lists the earned premium, loss & LAE ratio, and average rates of three major classes of doctors, as provided by the Wyoming LSO. The average rates by state are consistent with our findings for claim frequency; the states with tort reform tend to have lower rates.

LIMITATIONS

Although we based our results on generally accepted actuarial and statistical procedures and our professional judgment, our results also reflect numerous assumptions. Due to the uncertainty associated with these assumptions and with the prediction of future events, actual results will vary from our projections.

Reasons for this uncertainty include random statistical fluctuations, as well as unanticipated changes in claim procedures and settlement practices, legislative and judicial decisions, attitudes of claimants and the courts, social and economic inflation, and numerous other social, political, and economic factors. These forces are particularly important in an analysis of this type, i.e., a study of the potential effect of tort reform. Data limitations also contribute significantly to the uncertainty surrounding these results.

Furthermore, no simple theoretical model can reflect all of the forces underlying a complex insurance process. The various parameters and probability distributions within a simulation model reflect numerous assumptions. The underlying "true" distributions of the various quantities within the model may be significantly different from the estimated distributions.

In performing this analysis we relied upon publicly available data from the Wyoming Department of Insurance, the National Practitioners Data Bank, the Wyoming Legislative Office (LSO), and industry sources of medical professional liability data. We did not audit any of this data or other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis will be affected.

GLOSSARY OF TERMS

Actuarial – Statistics related to insurance risks and premium.

Actuarial model – A statistical representation of insurance risks and premium.

Allocated loss adjustment expenses (ALAE) – The expenses associated with the defense of medical malpractice claims. These include defense attorneys' fees, expert witness fees, and other defense related expenses.

Cap – The amount at which claim damages are limited.

Claim frequency – The annual number of reported claims per exposure unit, such as physicians or civilians.

Claim severity – The average cost per physician claim.

Claims made policy – Insurance that provides coverage for claims that arise from incidents that occur on or after a retroactive coverage date specified by the policy and are reported during the policy term.

Claims per occurrence – The number of claims filed as the result of a single event.

Claims with indemnity payment (CWIP) - Claims that incur an indemnity payment.

Claims without indemnity payment (CWOP) - Claims that do not incur an indemnity payment, but may include payment for ALAE.

Closed claims – Claims that have been resolved.

Coefficient of variation – The ratio of the standard deviation to the mean of a statistical distribution or sample.

Collateral-source benefits - Amounts that a plaintiff recovers from sources other than the defendant, such as the plaintiff's own insurance.

Combined losses and ALAE – The total amount of loss and ALAE paid on a claim.

Defense verdict – A jury verdict in favor of the defense.

Economic damages - Funds to compensate a plaintiff for the monetary costs of an injury, such as medical bills or loss of income.

Implied verdict amount – The estimated amount that would have been awarded by a jury if a claim had been tried rather than settled.

Indemnity – The amount paid to a plaintiff to compensate for loss.

Inferred verdict value – See “implied verdict amount.”

Joint-and-several liability – Liability in which each liable party is individually responsible for the entire obligation. Under joint-and-several liability, a plaintiff may choose to seek full damages from all, some, or any one of the parties alleged to have committed the injury. In most cases, a defendant who pays damages may seek reimbursement from nonpaying parties.

Lognormal loss distribution – A statistical distribution commonly used by actuaries to estimate the probability of the occurrence of a claim of a given amount.

Loss payments – See “indemnity.”

Malpractice - Failure of one rendering professional services to exercise that degree of skill and learning commonly applied under all the circumstances in the community by the average prudent reputable member of the profession with the result of injury, loss or damage to the recipient of those services or to those entitled to rely upon them.

Malpractice Premiums – The amount paid by physicians to purchase insurance covering medical malpractice exposure.

Mean – The average value of a statistical distribution or sample.

Measured claim values – Actual claim amounts collected by surveying various sources.

Medical malpractice losses – Indemnity for medical malpractice claims.

Medical malpractice occurrence – A medical incident that leads to a claim of medical malpractice

NPDB – The National Practitioner Data Bank, a government database of medical malpractice claims, including indemnity payments made on behalf of physicians exclusively for resolved claims.

Negligence – A violation of a duty to meet an applicable standard of care.

Non-economic damages – Damages payable for items other than monetary losses, such as pain and suffering.

Normalizing – The process by which a distribution of values is scaled such that the mean value equals a target mean value.

OHIC – The Ohio Hospital Insurance Company, an insurer providing medical malpractice coverage to Wyoming physicians.

Pain and Suffering – Amounts awarded in a court of law for damages that do not have a specific dollar value, also known as general damages.

Parameters – The constant values that define a specific mathematical model, such as average claim size or standard deviation.

Policy limit – The maximum amount payable under an insurance policy.

Post verdict adjustments – The amount by which jury verdicts are changed upon appeal.

Projected loss distribution – The expected spectrum of claims of a given amount and the associated probabilities of occurrence.

Punitive Damages – Damages awarded in addition to compensatory damages to punish a defendant for willful and wanton conduct.

Settlements – Claims that are resolved between the parties without resorting to a jury trial.

Statute of Limitations – A statute specifying the period of time after the occurrence of an injury—or, in some cases, after the discovery of the injury or of its cause—during which any suit must be filed.

Statutory – Relating to a law enacted by a legislature.

Stochastic Simulation Model – A statistical model used to project a loss distribution by generating a large number of random outcomes. Stochastic simulation is often used when the process being modeled is too complex to be defined by a single mathematical formula, such as may be the case when the model includes a large number of parameters, and many of the parameters are in turn described by statistical distributions.

TDC – The Doctors Company, an insurer providing medical malpractice coverage to Wyoming physicians.

Tort reform – Change in laws imposing civil liability for damage, injury, or a wrongful act done negligently or willfully.

Verdict – The finding of a jury in a trial.

Verdict adjustment factor – A factor that represents the relative change in claim amounts due to post verdict adjustments.

WYOMING HEALTHCARE COMMISSION
Effects of Caps on Non-Economic Loss
%Savings

Indemnity and ALAE

Policy Limit	Non-Economic Cap			
	250,000	350,000	500,000	1,000,000
Unlimited	33%	29%	25%	17%
\$2,000,000	22%	17%	13%	5%
\$1,000,000	15%	11%	7%	2%
\$500,000	8%	5%	3%	1%
\$200,000	3%	2%	1%	1%
\$100,000	2%	1%	1%	0%

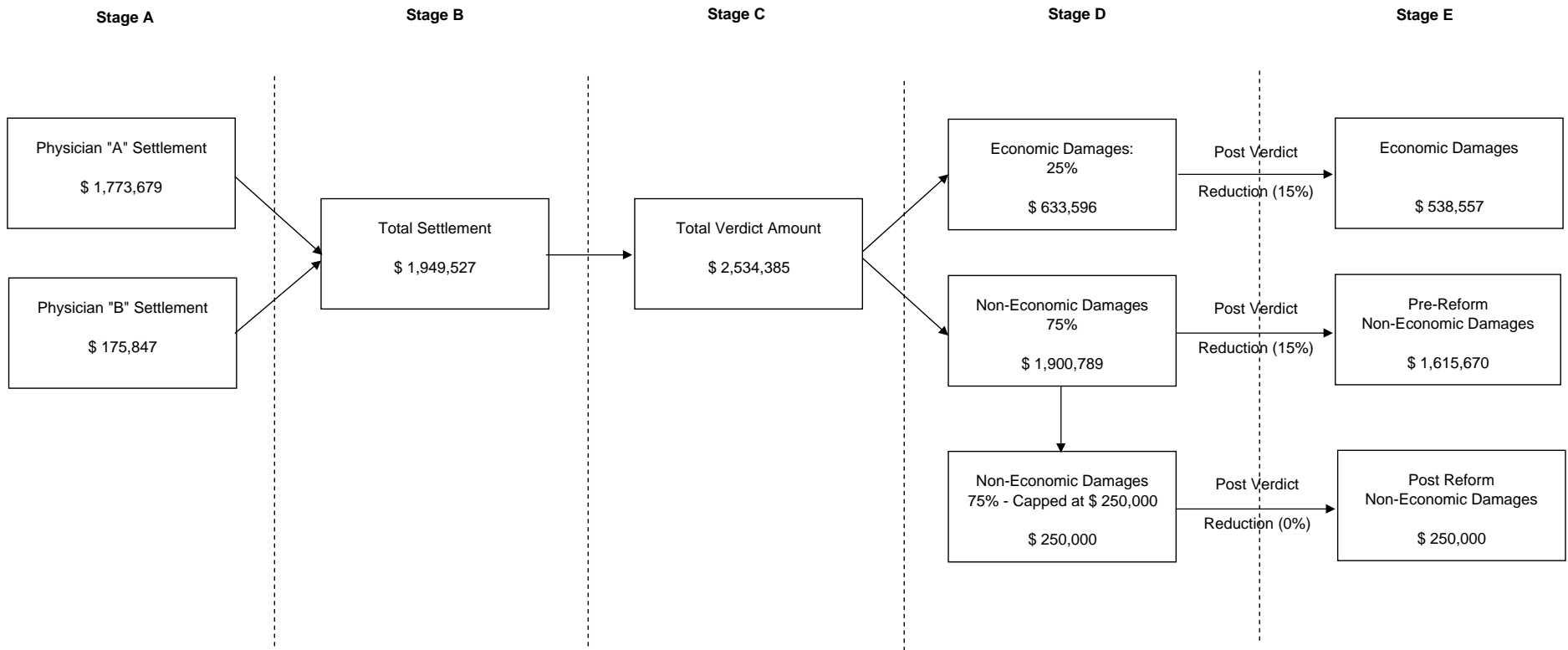
Indemnity Only

Policy Limit	Non-Economic Cap			
	250,000	350,000	500,000	1,000,000
Unlimited	38%	33%	29%	20%
\$2,000,000	26%	21%	15%	6%
\$1,000,000	19%	14%	9%	2%
\$500,000	11%	7%	4%	1%
\$200,000	4%	3%	2%	1%
\$100,000	3%	2%	1%	1%

ALAE Only

Policy Limit	Non-Economic Cap			
	250,000	350,000	500,000	1,000,000
Unlimited	11%	9%	8%	5%
\$2,000,000	7%	5%	4%	2%
\$1,000,000	5%	4%	2%	1%
\$500,000	3%	2%	1%	0%
\$200,000	1%	1%	0%	0%
\$100,000	1%	1%	0%	0%

WYOMING HEALTHCARE COMMISSION
 \$250,000 Cap On Non-Economic Damages
 Example of Simulation Model



$$\text{Loss Savings} = \frac{\text{Pre-Reform Non-Economic} - \text{Post Reform Non-Economic}}{\text{Total Pre-Reform Loss}} = \frac{1,615,670 - 250,000}{538,557 + 1,615,670} = 63.4\%$$

WYOMING HEALTHCARE COMMISSION

Distribution of Physicians Claims/Case

Number of Phys./Case	Texas		Total 8 States		
	NPDB*	Selected**	NPDB*	Estimate	Selected
1	95.7%	78.7%	95.3%	78.3%	78.3%
2	2.9%	14.2%	3.3%	14.5%	14.9%
3	0.8%	4.5%	0.9%	4.5%	4.5%
4	0.4%	1.5%	0.3%	1.4%	1.4%
5	0.1%	0.6%	0.1%	0.6%	0.6%
6	0.0%	0.3%	0.0%	0.2%	0.2%
7	0.0%	0.4%	0.1%	0.5%	0.1%

100.0% 100.0%

* From NPDB database as of 6/30/2004 and includes claims closed since 1991. The “NumbPrns” field in the NPDB does not directly satisfy our criteria for number of physician defendants in a case, but it does show a relationship between states (Texas and Wyoming, in this instance), which we used to modify the Texas DOI data distribution.

** Based on detailed Texas data

WYOMING HEALTHCARE COMMISSION
 Calculation of Trended, Unlimited Loss Severity
 Based on NPDB Data

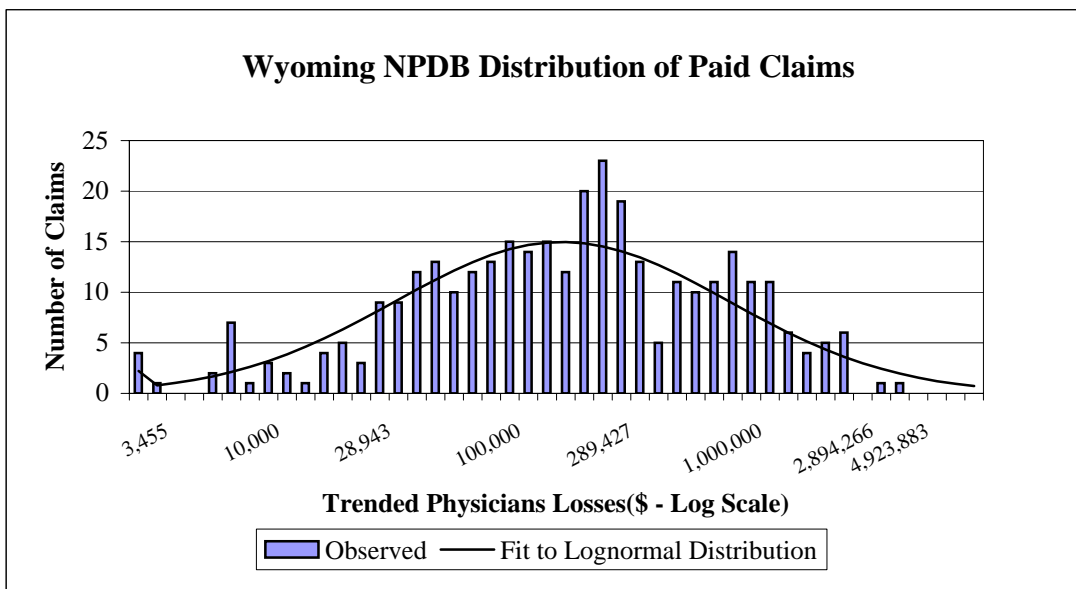
(1)	Mean of natural logarithms of trended losses using NPDB Wyoming loss data (mu)	11.75
(2)	Standard deviation of natural logarithms of trended losses using NPDB Wyoming and surrounding state loss data (sigma)	1.598
(3)	Coefficient of Variation of Lognormal Distribution	3.42
(4)	Lognormal Unlimited Average Severity based on (1) & (2)	449,356

Notes:

- (1) Trended at 5% to expected average closing date of May 1, 2008 of claims reported on policies written in 2005.
- (2) Surrounding states included are Nebraska, Colorado, Montana, South Dakota, Idaho, and Utah.
- (3) = $\text{SQRT}(\text{EXP}(\text{sigma}^2) - 1)$
- (4) = $\text{EXP}(\text{mu} + (\text{sigma}^2)/2)$

WYOMING HEALTHCARE COMMISSION

Distribution of Wyoming NPDB Losses with Per Claim Limits
and Simulation Model Fit of Claims



Source: NPDB Wyoming closed claims from 1991 to 6/30/2004. These claims were trended at an annual trend rate of 5% to May 1, 2008, the estimated average closing date of claims reported on policies written in 2005.

WYOMING HEALTHCARE COMMISSION
 Distribution of Non-Economic Damage Percentage
 Based on Texas DOI Data
 Normalized to OHIC Overall %

Non-Econ %	Mid-Point (for simulation)	Texas DOI	Normalized
		Distribution*	to OHIC
Exactly 0%	0%	3.4%	6.1%
0% - 10%	5%	1.3%	4.0%
10% - 20%	15%	2.2%	4.9%
20% - 30%	25%	4.0%	4.0%
30% - 40%	35%	4.8%	4.8%
40% - 50%	45%	7.0%	7.0%
50% - 60%	55%	10.8%	10.8%
60% - 70%	65%	12.3%	12.3%
70% - 80%	75%	14.0%	14.0%
80% - 90%	85%	17.1%	14.4%
90% - 100%	95%	11.7%	9.0%
Exactly 100%	100%	11.5%	8.8%
	Total	100.0%	100.0%

67.7%

60.7%

* Distribution based on Texas data is consistent with Milliman studies for Florida and New York.

Calculation of Wyoming Overall % Non-Economic to Total Damages - based on information provided by the Wyoming Department of Insurance.

OHIC	Damages	Percent
Non-economic	3,824,806	60.7%
Economic	2,476,587	39.3%
Total	6,301,393	100.0%

WYOMING HEALTHCARE COMMISSION
Distribution of Post Verdict Appeal Factors

Sustained Percentage*	Frequency
15%	8%
25%	8%
35%	8%
45%	8%
55%	8%
65%	8%
75%	8%
85%	8%
95%	8%
100%	14%
105%	7%
115%	7%
Total	100%

Average Sustained 69%
Percentage

Source: 1997 Milliman study of capping non-economic damages in New York.

WYOMING HEALTHCARE COMMISSION
Selection of Annual Wyoming Severity Trend Rate

The Doctors Company Severity Trend in Rate Filing Effective 6/1/2004*	3.0%
Medpro Severity Trend in Rate Filing Effective 9/1/2004	5.5%
UMIA Severity Trend in Rate Filing Effective 1/1/2004	5.5%
OHIC Severity Trend in Rate Filing Effective 12/1/2002	7.0%
NPDB Severity Trend based on 10 yrs as of 6/30/2004	5.0%

Selected Annual Severity Trend Factor:

5.0%

The severity trend is a measure of the average annual change in the cost per claim, and is used to adjust claims to a common cost level. This trend rate is utilized in the development of the claim distribution shown in Exhibit 5.

* Note TDC severity trend rate deemed to be low by WY Ins. Dept's outside actuary, compared to that of other WY filings and to those of surrounding states.

WYOMING HEALTHCARE COMMISSION

Calculation of Total Paid ALAE \$ to Total Paid Indemnity - Wyoming Data

Year	TDC Paid Indemnity	TDC Paid ALAE	OHIC Paid Indemnity	OHIC Paid ALAE	Total Paid Indemnity	Total Paid ALAE
1991			9,034	186,311	9,034	186,311
1992			87,208	41,367	87,208	41,367
1993			360,000	95,398	360,000	95,398
1994			1,831,892	677,646	1,831,892	677,646
1995			288,420	243,601	288,420	243,601
1996			5,546,892	1,553,199	5,546,892	1,553,199
1997	3,583,900	446,837	2,501,109	1,221,638	6,085,009	1,668,475
1998	5,723,726	1,220,411	910,973	660,130	6,634,699	1,880,541
1999	4,331,750	874,239	2,233,946	1,631,443	6,565,696	2,505,682
2000	2,196,500	831,297	1,783,030	654,295	3,979,530	1,485,592
2001	3,000,000	417,337	311,176	570,418	3,311,176	987,755
2002	409,000	178,724	215,000	187,936	624,000	366,660
2003	16,500	10,418			16,500	10,418
Total	19,261,376	3,979,263	16,078,680	7,723,382	35,340,056	11,702,645

Total ALAE to Indemnity 20.7% 48.0% **Selected 33.1%**
 (Assume CWIP + CWOP ALAE)

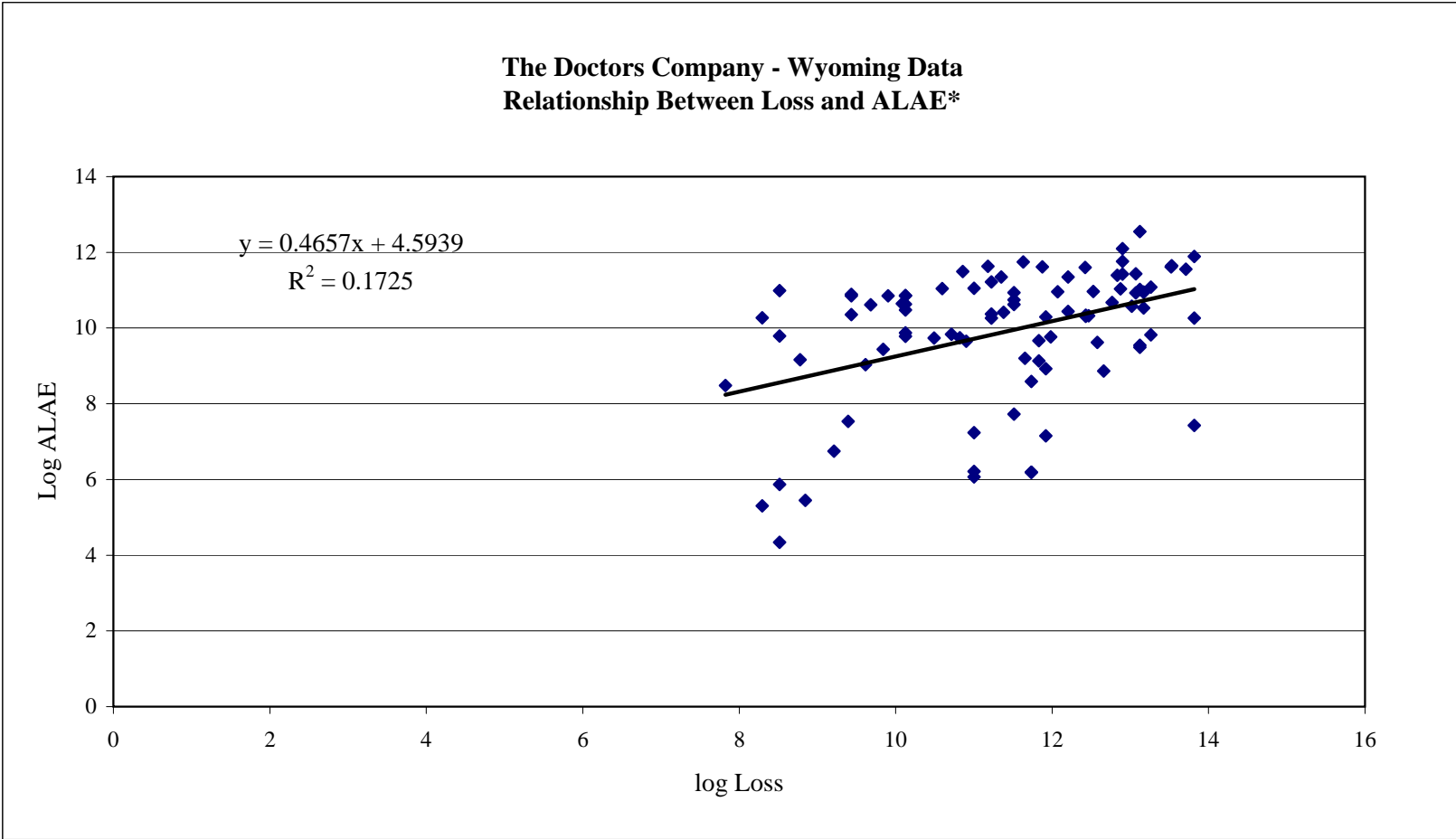
The Doctors Company CWIP ALAE on Closed Claims 1997-2003 4,119,203

The Doctors Company Total ALAE on Closed Claims 1997-2003 7,701,163

Selected CWIP ALAE to Total ALAE Ratio **53.5%**

Source: Wyoming Legislative Service Office - Issue Brief: Wyoming Medical Liability Insurance Company Summary

WYOMING HEALTHCARE COMMISSION



* Each data point on the graph represents the loss and ALAE on actual individual claims reported to The Doctors Company.

Source: The Doctors Company Wyoming claims closed with indemnity payment for claims reported between 1/1/1997 and 12/31/2003.

WYOMING HEALTHCARE COMMISSION
 Summary of Statutory Damage Caps for Medical Malpractice Liability by State

State	Damage Caps
Colorado	\$300,000 cap on non-economic damages, including damages for physical impairment and disfigurement. \$1,000,000 cap on total damages (CRS §13-64-302)
Idaho	\$250,000 cap on non-economic damages per claimant in all personal injury and wrongful death actions. Cap will be adjusted annually beginning on July 1, 2004 based on the average state wage increase. Cap does not apply to willful or reckless conduct or felonious acts. (Idaho Code §6.160).
Montana	\$250,000 cap on non-economic damages (Mont. Code Ann. § 27-9411)
Nebraska	\$1.75 million in total damages, depending upon date of occurrence is the maximum amount recoverable under the Excess Liability Fund. Health care providers who qualify under The Hospital-Medical Liability Act (i.e. carry minimum levels of liability insurance and pay surcharge into excess coverage fund) shall not be liable for more than \$500,000 in total damages. Any excess damages shall be paid from the excess coverage fund. Health care providers are not obligated to be covered under this program. (RRS Neb. § 44-2825; operative in January 2003)
North Dakota	\$300,000 cap on non-economic damages. Economic damage award in excess of \$250,000 are subject to judicial review for reasonableness. (ND Cent. Code §§ 28-01- 46 and 32-03.2-08)
South Dakota	\$500,000 cap on total non-economic damages (SD Codified Laws § 21-3-11)
Utah	\$250,000 cap on non-economic damages; for causes of action arising on or after 7/1/2001 but before 7/1/2002 limit increased to \$400,000. Limit adjusted annually for inflation thereafter. (Utah Code Ann. § 78-14-7.1)
Wyoming	None.

Source: Wyoming Legislative Service Office - Fact Sheet: Summary of Surrounding State Laws Broadly Relating to Medical Liability Issues

WYOMING HEALTHCARE COMMISSION

Comparison of State Statistics
Population and Number of Physicians

Population - Source: US Census Bureau

State	1995	1996	1997	1998	1999	2000	2001
Colorado	3,738,061	3,812,716	3,891,293	3,968,967	4,056,133	4,326,758	4,430,989
Idaho	1,165,000	1,187,706	1,210,638	1,230,923	1,251,700	1,299,721	1,320,585
Montana	868,522	876,656	878,706	879,533	882,779	903,416	905,382
Nebraska	1,635,142	1,647,657	1,656,042	1,660,772	1,666,028	1,713,375	1,720,039
North Dakota	641,548	642,858	640,945	637,808	633,666	641,131	636,550
South Dakota	728,251	730,699	730,855	730,789	733,133	755,783	758,324
Utah	1,976,774	2,022,253	2,065,397	2,100,562	2,129,836	2,243,406	2,278,712
Wyoming	478,447	480,085	480,031	480,045	479,602	494,086	493,754

Number of Physicians per 10,000 Civilians - Source: Center of Disease Control

State	1995	1996	1997	1998	1999	2000	2001
Colorado	20.6	20.4	21.5	21.2	21.6	20.9	21.2
Idaho	13.1	13.9	14.4	14.4	14.4	14.4	14.8
Montana	17.1	17.5	17.9	17.7	17.8	18.8	19.9
Nebraska	18.3	18.5	19.8	19.7	19.8	20.1	20.8
North Dakota	18.9	19.1	20.6	20.4	20.3	19.8	20.4
South Dakota	15.7	16.8	17.0	17.2	17.4	17.7	18.3
Utah	17.6	17.5	18.0	17.7	17.7	17.8	18.0
Wyoming	13.9	14.9	15.6	15.4	15.6	15.7	16.5

Number of Physicians = Population x Num Phys per 10,000 civilians / 10,000

State	1995	1996	1997	1998	1999	2000	2001
Colorado	7,700	7,778	8,366	8,414	8,761	9,043	9,394
Idaho	1,526	1,651	1,743	1,773	1,802	1,872	1,954
Montana	1,485	1,534	1,573	1,557	1,571	1,698	1,802
Nebraska	2,992	3,048	3,279	3,272	3,299	3,444	3,578
North Dakota	1,213	1,228	1,320	1,301	1,286	1,269	1,299
South Dakota	1,143	1,228	1,242	1,257	1,276	1,338	1,388
Utah	3,479	3,539	3,718	3,718	3,770	3,993	4,102
Wyoming	665	715	749	739	748	776	815

WYOMING HEALTHCARE COMMISSION
Comparison of State Statistics
Frequency, Severity, and Pure Premium

Frequency - Claims Closed in Year per 100 Physicians*									
State	1995	1996	1997	1998	1999	2000	2001	Mean	Standard Deviation
Colorado	2.33	2.04	2.12	1.97	1.89	1.83	1.63	1.97	0.23
Idaho	2.28	2.36	2.10	1.79	1.94	1.89	1.72	2.01	0.24
Montana	4.05	4.86	4.31	4.02	6.26	4.37	4.43	4.61	0.78
Nebraska	2.43	2.18	2.40	1.95	1.74	2.56	2.87	2.30	0.38
North Dakota	2.25	2.70	1.60	1.81	1.90	1.44	1.82	1.93	0.42
South Dakota	2.60	2.29	2.55	2.41	1.31	2.20	1.77	2.16	0.47
Utah	4.38	3.88	3.00	2.47	3.22	2.77	2.96	3.24	0.66
Wyoming	2.94	5.21	3.01	4.51	4.66	3.47	3.61	3.92	0.88

Frequency - Claims Closed in Year per 10,000 Civilians**									
State	1995	1996	1997	1998	1999	2000	2001	Mean	Standard Deviation
Colorado	4.39	3.96	4.01	3.83	3.62	3.28	3.07	3.74	0.45
Idaho	2.49	2.78	2.48	2.03	2.56	2.54	2.27	2.45	0.24
Montana	5.87	7.30	6.71	6.25	10.53	7.42	7.51	7.37	1.53
Nebraska	3.91	3.64	4.11	3.37	3.12	4.55	5.46	4.02	0.79
North Dakota	3.90	4.67	2.81	3.45	3.63	2.96	3.77	3.60	0.62
South Dakota	3.43	3.01	3.69	3.56	2.05	3.57	2.90	3.17	0.58
Utah	6.73	6.08	4.79	4.09	5.26	4.59	4.83	5.20	0.91
Wyoming	3.76	6.67	4.17	6.25	6.46	5.26	5.47	5.43	1.13

* Source of Closed Claims with Indemnity Payment is NPDB as of 6/30/2004. See Exhibit 12 Sheet 1 for Number of Physicians.

** Source of Closed Claims with Indemnity Payment is NPDB as of 6/30/2004. See Exhibit 12 Sheet 1 for Number of Civilians.

WYOMING HEALTHCARE COMMISSION
 Comparison of State Statistics
 Relationship of Loss and LAE to Premium

(1) State	(2) Earned Premium (\$000's)	(3) Rank (low to high)	(4) Loss & LAE Ratio	(5) Rank (low to high)	(6) Int. Med. Rate	(7) Gen. Surg Rate	(8) OB/Gyn Rate	(9) Average Rate	(10) Rank (low to high)
Colorado	109,708	8	91.1	3	11,047	38,728	37,202	28,992	5
Idaho	26,607	4	129.1	7	5,632	19,594	32,148	19,125	4
Montana	28,779	6	165.0	8	10,487	42,861	65,067	39,472	7
Nebraska	26,778	5	100.5	5	3,328	13,289	20,430	12,349	2
North Dakota	17,349	3	86.9	2	5,701	17,103	26,129	16,311	3
South Dakota	16,421	2	70.5	1	3,797	9,641	14,757	9,398	1
Utah	50,496	7	106.8	6	9,307	45,548	65,233	40,029	8
Wyoming	15,671	1	92.3	4	12,257	40,258	62,109	38,208	6

Notes:

- (2), (4) Source: Wyoming Legislative Service Office - Issue Brief: Wyoming Medical Liability Insurance Company Summary (June 2004). Based on 2002 data.
- (6), (7), (8) Source: Wyoming Legislative Service Office - Memorandum: Comparison of 2003 Medical Liability Rates for Wyoming and Selected Surrounding States

WYOMING HEALTHCARE COMMISSION
Summary of Key Assumptions

Item	Reference
Average Claim Cost	Exhibit 4, 5
Size-of-Loss Distribution	Exhibit 4
Average Claim Cost Trend	Exhibit 8
ALAE as a Function of Loss	Exhibit 9, 10
Multiple Defendant Cases	Exhibit 3
Non-economic Percentage of Total Damages	Exhibit 6
Settlements vs. Verdicts	Report page 6, 7
Post Verdict Appeal Reduction	Exhibit 7
Cap does not Impact Claim Frequency	Report page 5
Cap on Jury Verdicts affects Settlements Proportionally	Report page 5, 6
Cap does not Cause Costs to Shift from Non-economic to Economic Damages or other Healthcare Providers.	Report page 5 and footnote 7
Application of Cap on a per-Occurrence Basis	WHCC
Cap Applies to All Healthcare Providers	WHCC
No Exceptions to the Cap	WHCC
Cap Applies to all Claims Reported after Inception	WHCC
Data Sources	Wyoming Department of Insurance NPDB Wyoming LSO Texas Department of Insurance Rand Institute for Civil Justice Milliman