REPORT OF THE
STATE CORPORATION COMMISSION'S
BUREAU OF INSURANCE ON

The Actuarial Basis for the Costs of Malpractice Insurance for Obstetricians, Certified Nurse-Midwives, and Other Licensed Physicians Who Offer Obstetric Services

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

HOUSE DOCUMENT NO. 22

COMMONWEALTH OF VIRGINIA
RICHMOND
1993

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Executive Summary

A. Purpose

The State Corporation Commission's Bureau of Insurance (Bureau) was requested by the 1992 General Assembly, pursuant to House Joint Resolution No. 235, to study the actuarial basis for the costs of malpractice insurance for obstetricians, certified nurse-midwives, and other licensed physicians who offer obstetrical services. The Bureau retained the Actuarial Services Group of Ernst & Young to prepare the study.

This study was authorized because recent studies and surveys have found that high insurance premiums and fear of malpractice suits are the two major reasons physicians are leaving the practice of obstetrics.

B. Approach

This study is based on data collected from the major medical malpractice insurance writers licensed in the Commonwealth of Virginia. This included historical loss data specifically collected for this study as well as data from company rate filings submitted to the Bureau for review and approval. The companies surveyed write more than 75% of the physicians and surgeons medical malpractice insurance premiums in Virginia.

C. Findings

The findings of this study may be summarized as follows:

1. **The premiums charged by malpractice insurers in Virginia have been derived by using sound actuarial methods and procedures. In particular, premiums charged obstetricians/gynecologists (OB/GYNs) in Virginia are reasonable and actuarially sound.** This conclusion has been reached based on historical data and prevailing actuarial methods used in the most recent approved rate filings of surveyed companies. Companies must submit documentation and supporting data, in the form of a rate filing, to the Bureau whenever they wish to change their rates. Since the mid-1970s, all medical malpractice rate filings have been subject to review by the Bureau's consulting actuaries and economists. Only after detailed scrutiny by the consultants is approval for the change granted by the Bureau. For many rate filings the final approved rate change is often different from the original request. In addition, the Bureau has the authority to request that data be filed to support existing rates and has exercised that option when necessary.

2. Countrywide claim frequencies for OB/GYNs are four to five times higher than the claim frequencies for all classes of physicians combined. Countrywide claim severities for OB/GYNs are comparable to claim severities for all classes of physicians combined. Virginia claim frequencies and severities for OB/GYNs are erratic due to the relatively small number of OB/GYNs practicing in the state. **Rates for OB/GYNs are higher than the rates for most other physicians largely because of higher claim frequencies.**

3. **Medical malpractice premiums in Virginia and throughout the United States have generally fallen during the past five years.** This is in contrast to trends in the early part of the 1980s when premiums were increasing at annual rates far in excess of inflationary trends in medical care indices. The recent downward trend in premiums reflects the steady decline in the frequency of claims (number of reported claims per physician) during the latter part of the 1980s.

   St. Paul and The Virginia Insurance Reciprocal (TVIR) reduced their OB/GYN rates significantly in 1989 and 1990, respectively. This reduction was due to the significant drop in countrywide claim frequencies between 1985 and 1989 for all classes of physicians combined. These companies relied heavily on countrywide frequency trends in setting their malpractice rates in Virginia due to the limited credibility of their Virginia trend data.

4. **Medical malpractice premiums vary by territory, with the exception of PHICO. The difference in medical malpractice premiums by territory (practice location) within Virginia is actuarially justified** based on the data available. PHICO's loss experience justifies the use of one set of rates for all territories in Virginia.

5. **Medical malpractice premiums vary considerably by insurer.** Premiums for OB/GYNs practicing in Virginia averaged approximately $29,000 for $1 million of coverage in 1992. This puts Virginia among the least expensive states for malpractice insurance. Premiums in the urban area around Washington, D.C. average about $32,500, while premiums in all other territories of the state average about $27,500. Premiums vary by insurer around the above averages. The lowest available premium in the state is approximately $22,500 and the highest is approximately $35,000. Table 3 on page 12 summarizes the current premiums by territory and company for three of the largest writers in Virginia.

6. **High malpractice premium costs and exposure to liability are the major reasons physicians in Virginia are leaving the practice of obstetrics.** About one-half of the private practice physicians who have provided obstetrical services in Virginia have been named in at least one suit alleging malpractice. This is supported by a study prepared by the Medical Society of Virginia entitled Problems & Solutions to Access to Obstetrical Care: Virginia Physicians Respond.

7. Based on data from the American College of Nurse-Midwives (ACNM) there are only 72 certified nurse-midwives practicing in the Commonwealth of Virginia. Malpractice premiums for nurse-midwives are approximately one-fifth the amount charged OB/GYNs ($6,500 vs $30,000).

   The low number of nurse-midwives makes a rate level analysis difficult. However, based on the extremely limited data we were able to gather, **the premiums currently charged certified nurse-midwives are actuarially sound.**

8. Most rating plans used by insurers have eight or nine separate rating classes with all physicians being assigned to a rate class based on their specialty. Historical claim experience for each specialty is used to assign specialties to a rate class.

Family physicians providing obstetrical services are charged different premiums depending on whether they perform minor or major surgery (class 3 or class 4). For rating purposes, family physicians providing obstetrical services are included with several other types of physicians rated in classes 3 and 4. The data collected from the major Virginia medical malpractice insurers was provided by rating class and not by individual specialty class. We were, therefore, unable to analyze separately the experience of family physicians who perform obstetrical services.

D. Conclusion

The premiums paid by OB/GYNs and certified nurse-midwives in Virginia are actuarially justified. The Bureau maintains an aggressive posture regulating rates for medical malpractice insurance. The high rates for OB/GYNs are due to claim frequencies that are four to five times higher than the claim frequencies for all classes of physicians combined.

GENERAL ASSEMBLY OF VIRGINIA--1992 SESSION

HOUSE JOINT RESOLUTION NO. 235

Requesting the Bureau of Insurance of the State Corporation Commission to study the actuarial basis for the costs of malpractice insurance for obstetricians and for others who offer obstetric services.

Agreed to by the House of Delegates, March 5, 1992
Agreed to by the Senate, March 3, 1992

WHEREAS, the American Medical Association estimated that malpractice insurance rates increased for all physicians by 81 percent between 1982 and 1985 and by 113 percent for obstetricians; and

WHEREAS, a Medical Society of Virginia survey found that 48 percent of all private practice obstetricians had been named at least once as a defendant in a medical malpractice suit by an obstetrical patient; and

WHEREAS, that survey also reported that 78 percent of obstetricians and 83 percent of family practitioners were "very" or "somewhat" likely to stop providing obstetric service due to fear of malpractice liability; and

WHEREAS, in the Medical Society survey, physicians who had discontinued practicing obstetrics mentioned receiving financial assistance with malpractice premiums and reducing exposure to malpractice liability as incentives to induce them to return to obstetrical practice; and

WHEREAS, a primary concern expressed by physicians about practicing collaboratively with nurse practitioners is the fear of incurring greater malpractice liability risk; and

WHEREAS, the difficulty in finding collaborative physicians is a major barrier to entering the practice of nurse-midwifery; and

WHEREAS, some studies have indicated that there has been little actuarial substantiation for the level of increases in malpractice insurance premium rates; and

WHEREAS, the Commonwealth should take appropriate steps to meet its obstetric care needs; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Bureau of Insurance of the State Corporation Commission be requested to study the actuarial basis for the costs of malpractice insurance for obstetricians, certified nurse midwives, and other licensed physicians who offer obstetric services.

The Bureau shall complete its work in time to submit its findings and recommendations to the Governor and the 1993 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

Introduction

The State Corporation Commission's Bureau of Insurance (Bureau) was requested by the 1992 Session of the General Assembly to study the actuarial basis for the costs of malpractice insurance for obstetricians, certified nurse-midwives, and other licensed physicians who offer obstetrical services. As stated in House Joint Resolution No. 235, this study was authorized because recent studies and surveys have found that high insurance premiums and fear of malpractice suits are two major reasons physicians are leaving the practice of obstetrics.

The Bureau retained the Actuarial Services Group of Ernst & Young to prepare an actuarial study to evaluate whether malpractice insurance premiums currently charged by insurance companies are reasonable and justifiable based upon available data and prevailing actuarial principles and standards of practice. This report presents the results and conclusions of their study.

In conducting this study Ernst & Young collected and analyzed historical claim experience from the leading writers of medical malpractice insurance in the Commonwealth of Virginia. The companies surveyed included: St. Paul Insurance Company, The Virginia Insurance Reciprocal (TVIR), PHICO Insurance Company, State Volunteer Mutual Insurance Company, and CNA. On a combined basis these companies write more than 75% of the physicians and surgeons malpractice premiums in Virginia.[1] Ernst & Young also analyzed information contained in rate filings submitted to the Bureau by the above companies over the past several years. Ernst & Young held discussions with key representatives at the surveyed companies to get their input and insight on the issue of malpractice rates for physicians providing obstetrical services.

Background

The issue of access to obstetrical services and the related problems of low infant birth weight and high infant mortality have been of great concern to Virginia's lawmakers over the past several years. Numerous legislative steps were taken in the 1980s to improve access to prenatal and obstetrical care.[2] Concerned that access to adequate obstetrical services was still lacking - particularly in rural areas and among the financially needy - the 1989 General Assembly adopted a resolution requesting that the State Health Planning Board study the issue of access to obstetrical services and identify the cause of the continuing decline in such services in the Commonwealth.[3] On a national level, the Institute of Medicine (IOM) in 1989 conducted a study addressing the effects of medical professional liability on the delivery of, and access to, obstetrical care.[4] The Medical Society of Virginia also conducted a similar survey in 1989 of family physicians and obstetricians/gynecologists practicing in Virginia to get their perspective on the causes of the problem of declining access to obstetrical care.[5] The results of this latter survey revealed the following:

1. High malpractice premium costs and exposure to liability are the major reasons physicians in Virginia are leaving the practice of obstetrics. About one-half of the physicians who have provided obstetrical services in Virginia have been named in at least one suit alleging malpractice.

2. One-third of Virginia physicians who used to provide obstetrical services no longer provide these services. The most frequently cited reasons for giving up these specialty services were high insurance premiums (81% family physicians, 66% OB/GYNs) and risk of malpractice suits (63% and 64% respectively).

3. Over half of the physicians surveyed considered it very likely that they would stop providing obstetrical services sooner than they would ordinarily do so because of the high insurance premiums and the high risk of malpractice suits.

4. Without a dramatic restructuring of the civil justice system, high insurance premiums and the high risk of malpractice suits are likely to result in continued reductions in the number of physicians providing obstetrical services.

The above findings were the impetus for the passage of House Joint Resolution No. 235 which requested that the actuarial basis for the cost of malpractice premiums to physicians who provide obstetrical services and nurse-midwives be studied.

The following sections of this report provide the findings and conclusions of our study. **Section I** begins with a review of the *historical market conditions for malpractice insurance* in the United States and the Commonwealth of Virginia. **Section II** provides some *background information* on how actuaries calculate malpractice rates. **Section III** presents our findings from our *independent analysis* of data gathered for this study. This includes the results of our calculation of classification and territorial relativities in Virginia and a comparison of results to findings from company rate filings and other industry studies pertaining to malpractice classification relativities. Finally, **Section IV** presents our *conclusions* based on the findings and observations from all of the sections of our report.

Throughout this report we frequently refer to terms and terminology commonly used by insurers and actuaries. Appendix A contains a glossary of the more common terms along with brief descriptions of their meaning and derivation.

SECTION I
Current Market Conditions in Virginia

Most insurance companies writing medical malpractice coverage classify physicians providing obstetrical services into three groups: general practitioners who also provide some obstetrical services (class 3), general practitioners who provide obstetrical services and perform major surgery (class 4), and obstetricians/gynecologists (OB/GYNs). Each company surveyed, with the exception of PHICO, classified OB/GYNs as its own separate class for rating purposes (class 7). PHICO includes other types of physicians having similar risk characteristics in class 7. General practitioners who provide obstetrical services are generally classified as either rate class 3 or rate class 4 along with many other types of physicians. Because it is not possible to segregate physicians providing obstetrical services from all other class 3 and 4 physicians, we have limited our analysis of market conditions to just OB/GYNs.

A. OB/GYNs

The most recent data available from the American Medical Association indicates there were 13,795 physicians in 1990 practicing in the Commonwealth of Virginia. Of this total, 853 were in the specialized field of obstetrics/gynecology.[6]

The malpractice insurance companies surveyed for our study wrote approximately 400 OB/GYNs in 1990. Thus, despite being the largest writers of malpractice insurance in Virginia, the surveyed companies only wrote about 47% of all physicians providing obstetrical and gynecological services. The small market share is attributable to two factors:

First, the American Medical Association compiles data from the Physicians Professional Activity (PPA) questionnaire. Through this questionnaire each physician self-designates his/her specialty. As a result, the number of physicians designated as OB/GYNs in the American Medical Association data may include any family physician who provides some obstetrical or gynecological services (i.e. class 3 and 4 physicians could be included).

Secondly, the figures from the insurance companies include only those physicians in private practice that purchase their own individual coverage. Physicians that have malpractice insurance coverage provided through their affiliation with hospitals, HMOs, or other health care facilities are presumably included in the AMA data but not in the insurer data.

Finally, data on malpractice coverage provided via alternative insurance markets, such as Risk Retention Groups (RRG), Purchasing Groups, Trust Funds, and captive insurance companies, is not included in the surveyed company data.

The restriction of this study to data from the traditional insurance market does not distort our findings or undermine our conclusions.

As mentioned, exposure information was collected from companies writing medical malpractice insurance in Virginia. This data provides several interesting and important findings concerning historical coverage to OB/GYNs:

Based on the data from St. Paul, TVIR, PHICO, and State Volunteer regarding OB/GYN (class 7) exposures by year, the number of OB/GYNs practicing in Virginia and insured by the surveyed companies has remained fairly constant from 1987 through 1990. In 1991, however, there was a drop from 402 physicians in 1990 to 358 in 1991 (Table 1). Upon investigation we discovered that a significant portion of this decline was due to the transfer of business from TVIR to Doctors Insurance Reciprocal (Risk Retention Group). Data for Doctors Insurance Reciprocal is not included in our analysis since the study was confined to licensed insurers only.

As displayed in Table 2, most companies have limited business in territory 1 (Northern Virginia). This suggests that alternative sources of coverage are more dominant in the large Washington, D.C. suburban area, a fact confirmed in our discussions with company personnel. Exposures in territory 1 have been dropping since 1987, ranging from a high of 96 in 1987 to a low of 45 in 1991. Territory 2 (Tidewater area) has the most OB/GYNs insured by the surveyed companies. Exposures in this territory have steadily increased from 165 in 1987 to 220 in 1990. However, in 1991 there was a drop in exposures to 181, mostly due to TVIR's transfer of business. Territories 3 and 4 (Richmond and surrounding areas, and remainder of the state) have remained relatively stable.

TABLE 1

OB/GYN Exposures by Company by Year
Class 7 Exposures

	Year				
Company	1987	1988	1989	1990	1991
St Paul	196	219	207	201	194
TVIR (inclu Class 7a)	126	148	151	172	138
PHICO	83	43	36	29	26
Totals	405	410	394	402	358

Total OB/GYNs = 853 *

* Source: *1992 American Medical Association Physician Characteristics & Distribution in the United States.*
This figure includes any physician classifying himself/herself as providing obstetrical or gynecological services in Virginia during 1990.

TABLE 2

OB/GYN Exposures +
Exposures By Year By Territory
Class 7 Exposures

	Year				
Territory	1987	1988	1989	1990	1991
1	96	66	46	49	45
2	165	188	211	220	181
3	83	91	85	83	83
4	61	65	53	50	49
All Territories	405	410	394	402	358

\+ St Paul, TVIR, & PHICO only.

B. Malpractice Rates

Malpractice protection is provided by two general types of policies: occurrence policies and claims-made policies. With occurrence policies all incidents that occur during the term of the policy are covered regardless of when the claim for the incident is actually made. On the other hand, claims-made policies provide coverage for only those claims that are reported during the term of the policy. Since the mid-1970s insurers have gradually cut-back on the number of occurrence policies issued. Today, almost all medical malpractice coverage is written on a claims-made basis.

Rates for the first year that claims-made coverage is purchased are low because coverage is only provided for incidents occurring and reported during the year. Rates for the second year are considerably higher than those for the first year because coverage is now provided for incidents occurring in either of the first two years that are reported during the policy term (second year). This process of increasing premiums continues until the fifth or sixth year when the "mature claims-made" level is achieved. Thereafter, this element of the rate remains constant.

Unless specifically stated to the contrary, the rates quoted in the following discussion are for mature claims-made coverage at limits of $1,000,000 per occurrence, $1,000,000 annual aggregate (denoted $1,000,000/$1,000,000).

C. OB/GYN Rates

According to data contained in the Institute of Medicine Study, Medical Professional Liability and the Delivery of Obstetrical Care,[7] premiums paid by OB/GYNs practicing in the United States during the period 1982-1986 increased at a rate far in excess of the inflationary trend in other medical care cost indices. The cumulative increase in premiums over the 1982-1986 period was 171% whereas the corresponding increases in the CPI and the medical care component of the CPI were only 14% and 32% respectively. The large increase in OB/GYN rates in this period is due to a number of circumstances and events, including the following items:

- Increasing frequency of lawsuits in general
- Inherent riskiness of the specialty
- Increases in the frequency of claims filed against OB/GYNs

St. Paul and TVIR reduced their OB/GYN rates significantly in 1989 and 1990, respectively. This reduction was due to the significant drop in countrywide claim frequencies between 1985 and 1989 for all classes of physicians combined. These companies relied heavily on countrywide frequency trends in setting their malpractice rates in Virginia due to the limited credibility of their Virginia trend data.

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY Table
OB/GYNs
Rates By Territory

OB/GYN Rates by Company by Year
Class 7

Territory 1
Northern Virginia
Rates @ $1,000,000/$1,000,000 Limits

Company	1987	1988	1989	1990	1991	1992
St Paul	39,898	43,738	33,524	33,524	33,524	35,468
TVIR	NA	41,488	41,488	30,723	30,723	30,723
PHICO	37,055	37,055	37,055	31,130	31,130	31,130

Territory 2
Tidewater Area
Rates @ $1,000,000/$1,000,000 Limits

Company	1987	1988	1989	1990	1991	1992
St Paul	36,962	40,519	31,059	31,059	31,059	32,858
TVIR	NA	38,546	38,546	28,446	28,446	28,446
PHICO	34,269	34,269	34,269	31,130	31,130	31,130

Territory 3
Remainder of the State
Rates @ $1,000,000/$1,000,000 Limits

Company	1987	1988	1989	1990	1991	1992
St Paul	29,575	32,423	24,854	24,854	24,854	26,293
TVIR	NA	31,185	31,185	22,759	22,759	22,759
PHICO	27,860	27,860	27,860	31,130	31,130	31,130

Territory 4
Richmond and Surrounding Areas
Rates @ $1,000,000/$1,000,000 Limits

Company	1987	1988	1989	1990	1991	1992
St Paul	25,125	27,545	21,115	21,115	21,115	22,336
TVIR	NA	31,185	31,185	22,759	22,759	22,759
PHICO	23,682	23,682	23,682	31,130	31,130	31,130

Notes: Rates do not reflect Birth–Related Neurological Injury Compensation Act credit (See page 15 for complete description).

In spite of the general decline in rates over the past five years, there still exists a considerable spread among the rates charged by the surveyed companies (Table 3). Rates in territory 1 (Virginia suburbs surrounding Washington, D.C.) vary from a low of $30,723 to a high of $35,468. Rates in the counties surrounding Norfolk and Newport News (territory 2) vary from $28,446 to $32,858. The rates for Richmond and surrounding counties (territory 4) vary from $22,336 to $31,130. Finally, rates for the remainder of the state (territory 3) vary from $22,759 to $31,130.

Table 3 also illustrates that location of practice (territory) has a significant bearing on malpractice rates for OB/GYNs, with the exception of PHICO. Rates in the suburbs of Washington, D.C., the highest rated territory, are on average about 35% higher than in territory 4, the lowest rated territory.

Appendix B summarizes some additional statistics taken from the Institute of Medicine study which add some further perspective to the issue of the cost of malpractice insurance for OB/GYNs practicing throughout the United States. Based solely on St. Paul's rates as of September, 1988, the countrywide average premium charged OB/GYNs for $1,000,000/$3,000,000 coverage was $62,000. Virginia ranked 10th lowest among the states included in the data with an average premium of approximately $38,000. The lowest rate was in Kansas ($18,000), the highest in California ($137,000).[8] The Institute of Medicine study also provides statistics measuring the affordability of malpractice insurance for all physicians. Whether measured against professional expenses or gross income, malpractice premiums represent a much higher percent for OB/GYNs than for other physicians. For instance, malpractice premiums for OB/GYNs were on average over 10% of gross income and almost 20% of professional expenses. Corresponding figures for general practitioners were 3.6% and 6.1% respectively.[9]

It is clearly evident from the IOM data that substantial differences in malpractice rates exist by state and that malpractice premiums present a proportionately greater financial burden on OB/GYNs than other types of physicians.

D. Nurse-Midwives

Certified nurse-midwives (CNMs) represent a small market in Virginia and countrywide when compared to physicians performing obstetrical services. Based on information provided by the American College of Nurse-Midwives (ACNM) there are approximately 4,000 CNMs countrywide with 72 practicing in Virginia. Approximately 550 of the countrywide total are considered students.

Two available coverage options exist for CNMs in Virginia. First, coverage is available from St. Paul or State Volunteer Mutual Insurance Company (SVM) but only as an additional insured under a physician's professional liability policy. Secondly, independent coverage for CNMs is currently available from a program underwritten by American Continental Insurance Company (ACIC). The ACNM program is organized as a purchasing group under the Liability Risk Retention Act of 1986 and uses ACIC as its endorsed carrier. The ACIC program uses rates which became effective 2/16/92 and supersedes a similar program which had been underwritten by CNA since 1987.

The CNA program was formed in July, 1986 at the request of the National Association of Insurance Commissioners (NAIC) when the ACNM found coverage unavailable for its members. The program was organized by a consortium of insurers with CNA acting as lead insurer and servicing carrier. CNA only retained 15% of the actual risk, ceding the remaining 85% to consortium members.

CNA charged a single rate to all ACNM members regardless of the state in which the CNM worked. Three policy limits of $250,000/$250,000, $500,000/$500,000, and $1,000,000/$1,000,000, available on a claims-made policy form, were filed during 1987 and approved in Virginia. These rates never increased over the life of the program.

The new ACIC program represents a slight modification over the CNA program. A territorial rating system was developed based on several state groups. The rates currently used by ACIC in Virginia represent an approximate 5% increase over rates used by CNA at comparable policy limits. CNMs not involved in labor and delivery qualify for a 50% rate discount, which was not available under the CNA program.

St. Paul writes virtually no CNMs in Virginia and very few countrywide so limited loss data is available. SVM and ACIC have just recently entered the Virginia market and have no experience under their programs. CNA represents the only source of historical data for CNMs but no longer has an active program.

For this study, CNA provided historical data running from 1987 to 1992 on both a countrywide and Virginia-only basis. Based on our study this database represents the only significant loss history available for nurse-midwives. The following table displays policy count information as provided by CNA:

NUMBER OF NURSE MIDWIVES INSURED BY CNA

Year	Countrywide	Virginia
1987	430	6
1988	461	11
1989	477	9
1990	578	10
1991	554	13

Even though the CNA data is the largest database available, the loss history represents less than 15% of the nearly 4,000 members of the ACNM program.

E. Impact of the Birth-Related Neurological Injury Compensation Act

The Birth-Related Neurologic ' Injury Compensation Act ("the Act") was adopted by the Virginia General Assembly in 1987. From this Act a no-fault compensation type of system for specific types of birth-related neurological injuries was formulated. The intent of the Act is to compensate certain types of claims for birth-related neurological injuries outside of the tort system and thereby reduce malpractice premiums for obstetricians. Claimant eligibility is determined by:

1. Whether or not the injury sustained by the newborn infant meets the statutory definition of "birth-related neurological injury;"[10] and

2. Whether or not the physician/hospital participates in the fund.

Originally, in order for a neurologically impaired infant to be considered for compensation under the Act, both the hospital where the child was born and the obstetrician had to be participants in the fund. In July, 1990, the Act was amended so that the infant would be eligible if either the hospital or physician were participants.[11]

Physicians providing obstetrical services may chose to participate in the program but to do so they must pay an annual assessment of $5,000. Hospitals may also participate in the system at a rate of $50 per live birth subject to a maximum of $150,000 per year. Until July 1, 1992, except for certain exemptions, all licensed physicians practicing in Virginia, regardless of specialty, were required to pay an assessment of $250 per year. On July 1, 1992, the State Corporation Commission was given the authority to suspend the $250 assessment for non-participating physicians if the fund was determined to be actuarially sound. The Commission issued an order in August, 1992 suspending this assessment. Should the fund's reserves drop to a level that is not considered actuarially sound, the Commission may assess all non-participating physicians and liability insurance carriers licensed in Virginia.

When the program first began in 1988, there were 422 participating physicians and 47 participating hospitals. Since 1988, the number of physicians has gradually increased while the number of participating hospitals has gradually decreased. As of September, 1992, there were 576 participating physicians and 26 participating hospitals.[12]

Upon adoption of the Act, it was estimated that forty infants per year would be eligible for compensation by the fund.[13] As of October, 1992, only four claims had been reported to the fund and one claim had been approved for payment.

Due to the immaturity of the fund and its limited claim experience, it is impossible to estimate the impact that the fund will ultimately have on OB/GYN rates in Virginia. As a result, we have not made any allowance in our study for the effects that the passage of this act may have had, or will have, on the reasonableness of malpractice rates.

The companies surveyed reduce their rates for those OB/GYNs that participate in the fund. The rate

credit is approximately 10%. This equates to an annual savings of between $2,500 and $3,500, depending on company and territory. Whatever cred. amount used, however, the savings from participation in the program is less than the $5,000 assessment paid into the fund.

SECTION II
Current Ratemaking Methodology

This section describes the methods and assumptions most frequently used by casualty actuaries in calculating rates for medical malpractice insurance. An understanding of these methods/assumptions is essential in judging whether rates charged by insurers are reasonable.

Throughout this report we frequently refer to terms and terminology commonly used by insurers and actuaries. Appendix A contains a glossary of the more common terms along with brief descriptions of their meaning and derivation.

A. Ratemaking Principles

According to the ratemaking principles established by the Casualty Actuarial Society (CAS) an **actuarially sound rate** is one that provides for (1) the *expected* value of *future* costs, (2) *all* costs associated with coverage provided so that the insurance system in total is financially sound, and (3) costs associated with an *individual* risk transfer so that equity among insureds is maintained. If the above three provisions are met, the fourth principle states that rate is *reasonable and not excessive, inadequate or unfairly discriminatory.*[14]

For purposes of this study the third principle is very important. It requires that rates for an individual insured reflect the inherent costs associated with providing coverage to that individual. The statement of principles also states that if the experience of an individual risk does not provide a credible basis for estimating costs it is appropriate to consider the aggregate experience of similar risks. This principle is the foundation on which classification rating is based. Because of it, physicians that have similar risk characteristics may be grouped together for rating purposes and any such groups that have a greater propensity to loss based on historical experience may be charged a higher rate. Any such rate is also considered actuarially sound according to the CAS Ratemaking Principles. OB/GYNs, as a group, have similar risk characteristics and a greater propensity to loss based on their past experience. It is appropriate to group OB/GYNs together for rating purposes.

The fourth principle states that rates which are actuarially sound are, by definition, in compliance with the criteria contained in most state ratemaking statutes requiring that rates be reasonable, not excessive, not inadequate and not unfairly discriminatory. Thus, by these standards, actuaries need to assure themselves that rates are in compliance with the first three principles for rates to comply with the state ratemaking statutes.

In following the above principles the actuary's goal is to develop a rate which will provide sufficient funds to the insurer to cover all *expected* costs associated with providing the coverage. The funds include premiums and investment income earned on the premium that is held prior to payment of expenses and losses. Costs include claim payments and associated adjustment expenses, operating expenses, insurer profit, and a margin for potential adverse deviation in expected costs.

B. Ratemaking Methods

In practice, insurance companies make rates for malpractice insurance on a state-by-state basis using a combination of state-specific loss data and countrywide experience.

Companies must submit documentation and supporting data, in the form of a rate filing, with the Bureau whenever they wish to change their rates. Since the mid-1970s, all medical malpractice rate filings have been subject to review by the Bureau's consulting actuaries and economists. Only after detailed scrutiny by the consultants is approval for the change granted by the Bureau. For many rate filings the final approved rate change is often different from the original request. In addition, the Bureau has the authority to request that data be filed to support existing rates. This authority is used when claim frequency and/or claim severity for a particular class of business shows significant improvement and a company has not reflected that improvement by lowering their rates.

Three types of rate filings are typically prepared by insurers. These are commonly referred to as overall rate filings, classification rate filings, and territorial rate filings.

1. Overall Rate Filings

These filings use the combined historical experience of all physicians to determine the overall level of rates. The filings provide justification for the basic limit rates for the base class of physicians (class 1). Since rates for all classes, territories, and limits of coverage are determined as multiples of the base class rate, a change in the base class rate results in changes for all physicians. The change in the base class rate is calculated under the presumption that classification, territory, and limit factors do not change.

Rates for the base class are based on the loss experience of the state. However, since state-only experience may be volatile, the indications from the state-only data are usually credibility-weighted with countrywide experience. The amount of weight, or credibility, attached to the state-only experience is usually determined by the number of claims underlying the loss data. The more claims there are in the state experience, the more confidence attached to the indications from the state-only experience. The credibility weight attached to the state's experience is a measure of the relative degree of confidence the actuary has attached to the indications from the state-only data versus the indications from the countrywide data.

2. Classification Filings

These filings calculate the relativities between the loss experience of the different classes of physicians. The relativities are calculated by comparing the losses per insured physician (pure premium) in each rate class with the corresponding pure premium for the base class. Most rating plans used by insurers have eight or nine separate rating classes with all physicians being assigned to a rate class based on their specialty. Historical claim experience for each specialty is used to assign specialties to a rate class.

Companies usually have limited Virginia-only claims experience for each class of physicians. As a result, companies often use countrywide experience to calculate initial classification relativities and then, in making their final selections, weigh in the Virginia-only experience to

the extent that it is credible. Even on a countrywide basis, however, some companies have limited claims experience by class. In this case many companies use the classification relativities of their competitors as the starting point. Because of their dominant role in the medical malpractice insurance market, some companies use St. Paul's classification relativities as the starting point and, in making their final selections, weigh in their own indications to the extent that they are credible.

The reliance on countrywide experience to determine classification relativities assumes that the relationship of pure premiums between classes is consistent by state. That is, the relationship of pure premiums for OB/GYNs to the pure premiums for base class physicians is the same in every state, even though the absolute pure premiums by state may vary considerably. This assumption is reasonable and acceptable throughout the actuarial practice.

Because classification data can be quite volatile, even when credibility-weighted, most companies only change their classification relativities every four or five years. This maintains stability and consistency from year to year in their rating of the different classes of physicians.

3. Territorial Rate Filing

These filings justify the difference in rates by practice location. As for classification filings, the difference in territorial rates are expressed as relativities. Because state-specific data has to be used in a territorial analysis, the relativities are calculated using the experience of all classes of physicians combined and are usually credibility-weighted with the statewide average. Thus, to the extent the territorial experience is considered credible, it is used to justify higher or lower rates. To the extent a territory's experience is not credible, it is assumed to be equivalent to the statewide experience.

PHICO is the only company operating in Virginia that does not currently vary its rates by territory. The territorial relativities are therefore equal to 1.00 for each rating territory. These relativities of unity were actuarially justified based on the company's actual experience.

Territorial relativities are changed even less frequently than classification relativities.

Rate filings submitted by insurers may combine changes in one or more of the above areas. It is quite common for insurers to change their base rates on a fairly regular basis but only change their class, territory, or increased limit factors on a periodic basis. Over the past five years insurers in Virginia have generally changed their rates only once or twice (See Table 3, page 12). The Bureau has been proactive in this area by periodically requesting that insurance companies support their existing medical malpractice insurance rates.

Because rates by class, territory, and limit are based on relativity factors applied to the base class rate, the adequacy and reasonableness of rates by class, territory, and limit are linked to the adequacy of the basic limits

rates. If rate relativities are appropriate, but base rates are inadequate, then rates for other classes of risks will also be inadequate. See Appendix C for a more detailed description of rate making calculations.

SECTION III
Ernst & Young's Independent Analysis

In order to study the actuarial basis for the classification relativities currently used by malpractice insurers in Virginia we requested detailed loss and exposure information from the major writers. A copy of the data request sent to the insurers is contained in Appendix D.

Historical data was collected from St. Paul Insurance Company, The Virginia Insurance Reciprocal (TVIR), PHICO Insurance Company, State Volunteer Mutual Insurance Company, and CNA Insurance Company. Our analysis of classification relativities is based on data from St. Paul and TVIR. These two companies are by far the largest writers in Virginia. St. Paul is also the dominant writer in Virginia in that most companies look to St. Paul for guidance on rating issues because St. Paul is the largest medical malpractice writer in the United States. The data from the other companies was insignificant in relation to the data from St. Paul and TVIR.

A. Classification Analysis

In conducting our analysis we used the pure premium method of calculating indicated classification relativities. This method is described in detail in Appendix C of this report. Having calculated our own relativities we then compared our results with the indicated class relativities contained in company rate filings and other classification studies we were able to find.

In calculating indicated relativities we developed incurred loss data to an ultimate basis using each company's own loss development experience.

We first computed indicated relativities from countrywide experience using claim data for all years combined (1987-1991). These calculations are included in Appendix E of this report. We then computed indicated relativities from Virginia-only experience using claim data for all years combined (1987-1991). These calculations are included in Appendix F of this report. Since neither the Virginia experience nor the countrywide experience is fully credible for setting classification relativities we combined the data with the relativities indicated by the prior experience of TVIR and St. Paul. Exhibit E-1 contains these calculations.

Classification relativities were also calculated for each year separately (Appendix G). We used the indications based on the combined five-year data because the greater volume makes the resulting indications more stable.

Throughout our analysis we used both basic limits loss data and total limits data to calculate the class relativities. The results from using total limits data are essentially the same as those from using basic limits. Since basic limits data minimizes possible distortion in indications due to very large and unusual claims, we have chosen the results from basic limits data for purposes of our study.

The following chart provides a comparison of the OB/GYN relativities calculated by Ernst & Young and those currently being used by the surveyed companies.

Class 7 - OB/GYN
Comparison of Pure Premium Relativities

	Current Relativities			
Ernst & Young Indicated	St. Paul	TVIR	PHICO	State Volunteer
5.93	6.00	6.90	7.00	6.44

The Ernst & Young indicated classification relativity for OB/GYNs is comparable to the current St. Paul relativity. St. Paul reduced their prior relativity of 6.90 by 13% to 6.00 in June of 1992. The OB/GYN relativity indicated by PHICO in their latest rate filing is higher than our indicated relativity. In reviewing the PHICO filing we can attribute their higher factors to the fact that they gave considerable weight to the factors indicated by the experience of companies who report their data to Insurance Services Office (ISO). They also gave considerable weight to St. Paul's prior relativity of 6.90 (See Appendix H). State Volunteer bases their relativity on a review of their countrywide experience and industry experience. Both PHICO and State Volunteer used sound actuarial methods to establish their OB/GYN pure premium relativities.

B. Historical Frequency and Severity

The St. Paul Group of Insurance Companies is the largest writer of medical malpractice insurance in both Virginia and the United States. In their latest rate filing submitted to the Bureau in Virginia they included ten years of historical claim frequency and severity data. The data was shown for Virginia and on a countrywide basis, for all classes of physicians combined. The countrywide data is representative of the frequency and severity trends for the entire medical malpractice insurance business in the United States. Listed below are the significant conclusions that we have reached from our analysis of this data.

- Countrywide claim frequency trends for all classes of physicians on a combined basis dropped significantly from 1985 to 1989.

- Countrywide claim severity trends for all classes of physicians on a combined basis have been consistently upwards.

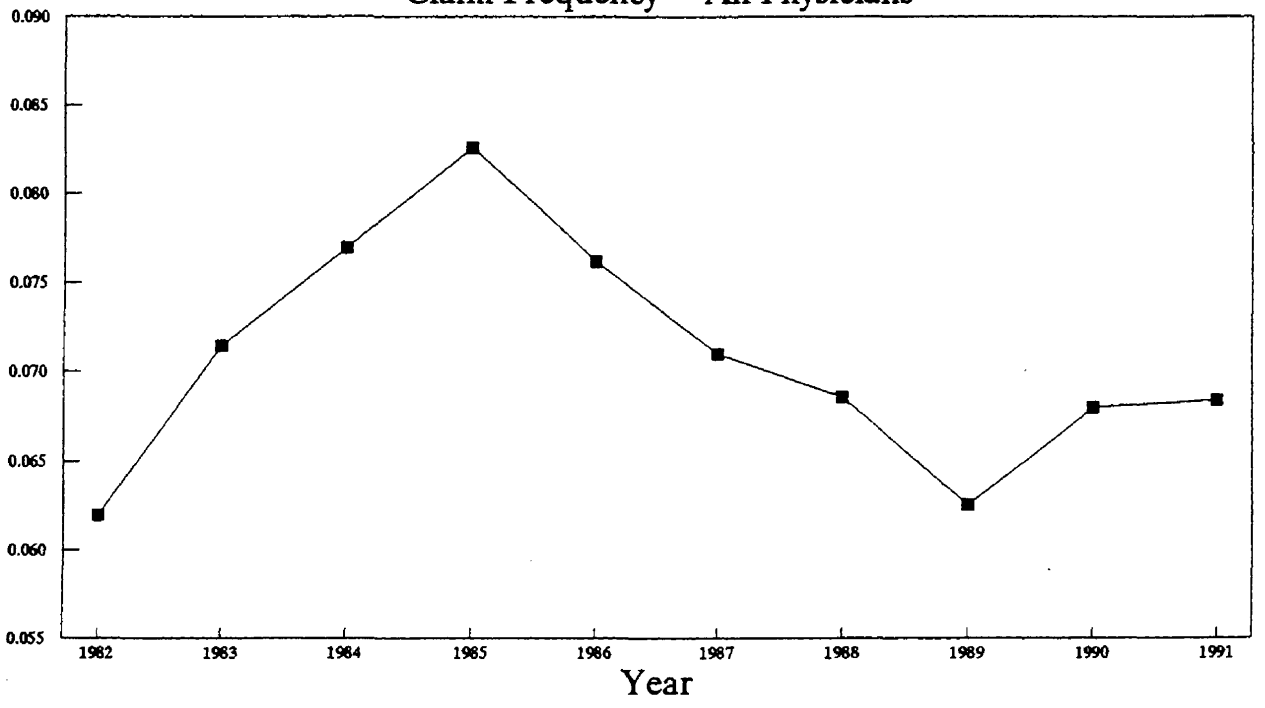
- Virginia claim frequency and severity trends for all classes of physicians on a combined basis have been erratic due to the relatively small volume of claims.

Although Virginia data indicates erratic frequency and severity trends, Virginia has seen an overall improvement in rates. The limited credibility of the Virginia data has lead to significant reliance upon countrywide indications. As a result, Virginia has benefited from the drop in claims frequency experienced countrywide.

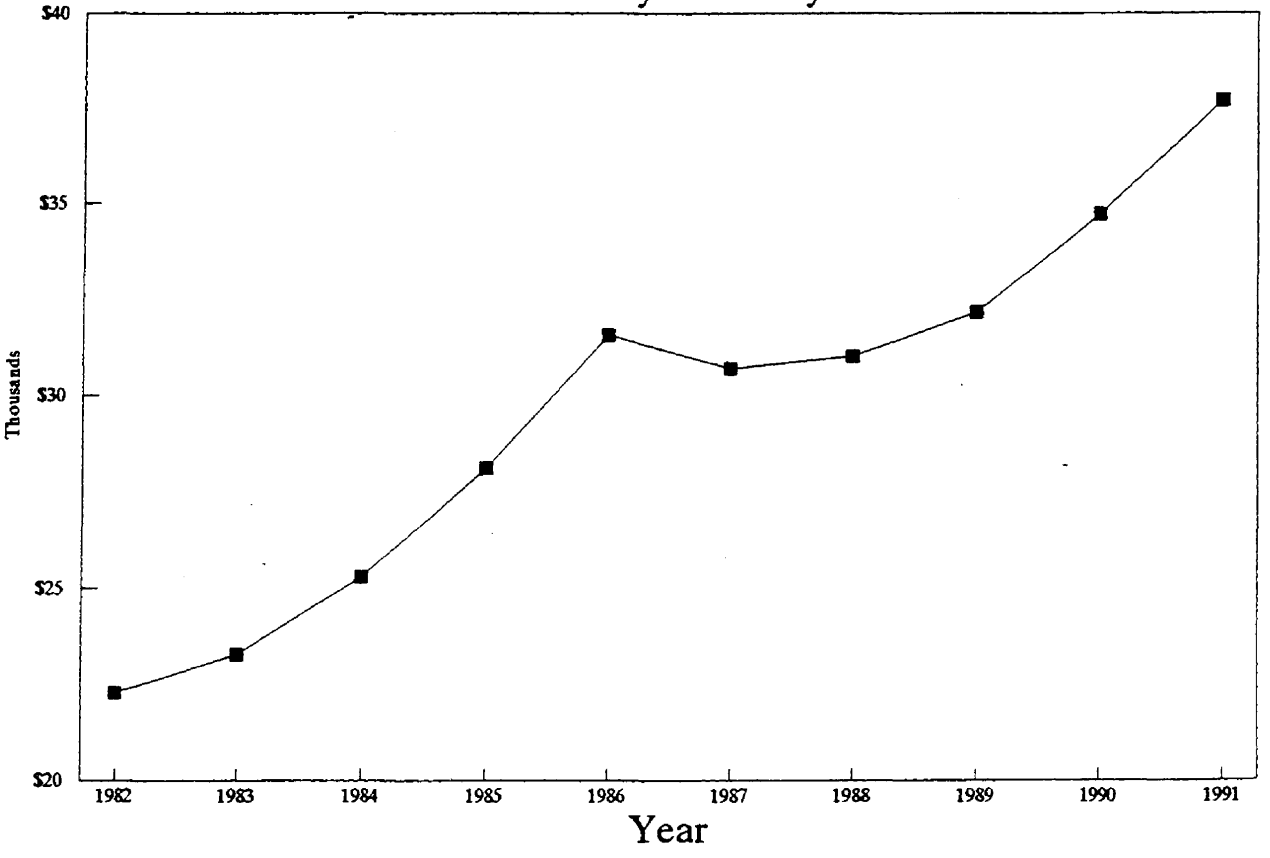
Graphs of the St. Paul data for all physicians combined are shown in the following pages.

St Paul – Countrywide

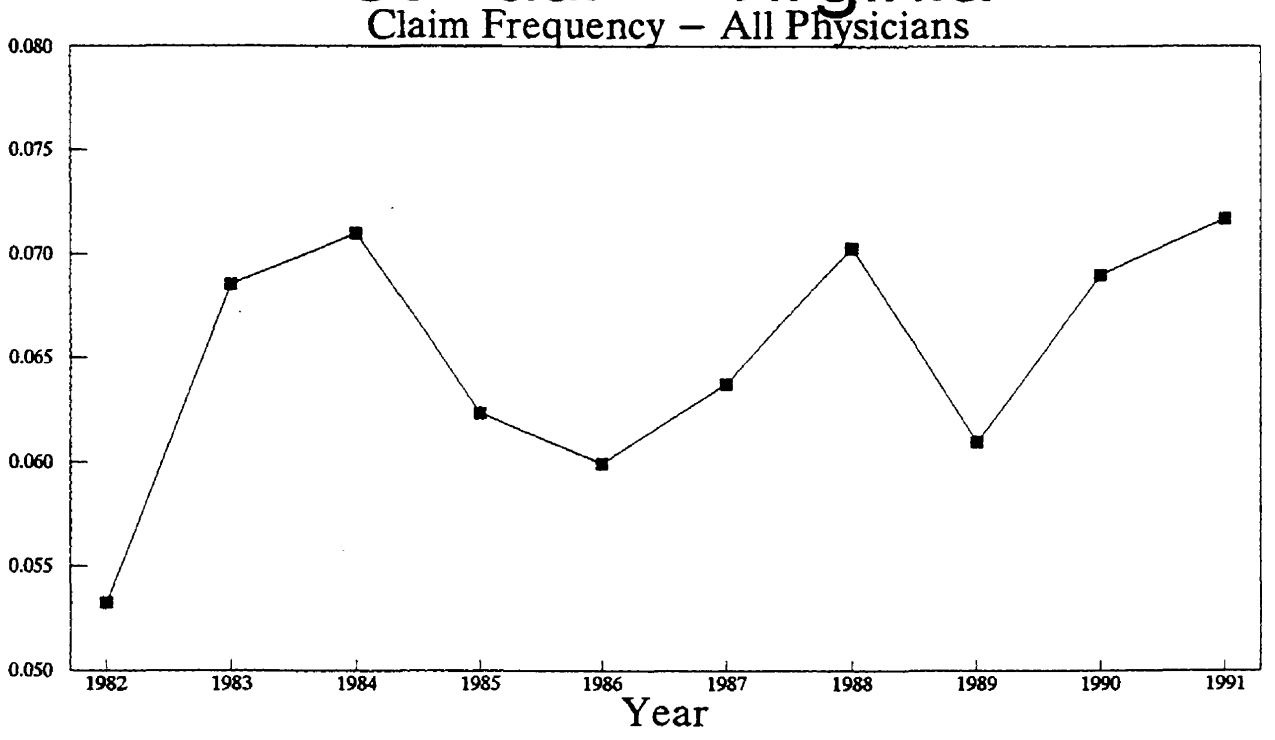
Claim Frequency – All Physicians

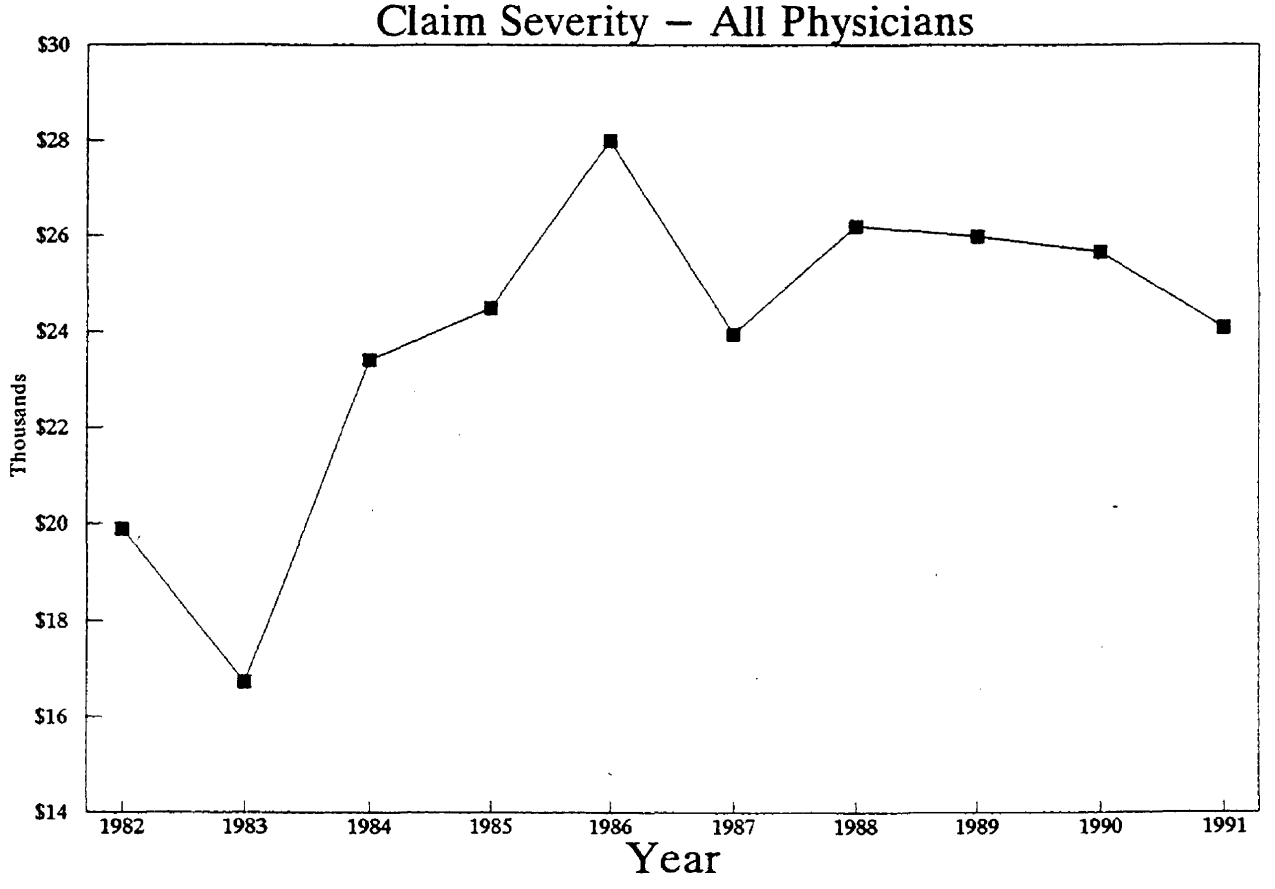


Claim Severity – All Physicians



St Paul – Virginia





Frequency and severity data for OB/GYNs (class 7) was reported to us as part of our data request. Countrywide and Virginia-only data was included. In contrast with the data for all classes of physicians, the data submitted to us by St. Paul included only five years of historical claim frequency and severity data for OB/GYNs. Implications from this data must be made with caution due to the limited amount of experience provided. We have, however, made the following observations:

- Countrywide claim frequency figures for OB/GYNs have remained at the 30% level since 1988 after a drop from 42% in 1987. OB/GYN frequency tends to be four to five times that for all classes combined.

- Countrywide claim severity figures for OB/GYNs, although erratic, tend to lie in the same ($30,000 to $38,000) range as the claim severity figures for all classes combined.

- The consistency in claim severity between all classes and OB/GYNs indicates that the difference in premium levels is due almost entirely to the level of claim frequency.

Graphs of the St. Paul OB/GYN trend data are shown on the following pages.

We have shown only the St. Paul data for the following reasons:

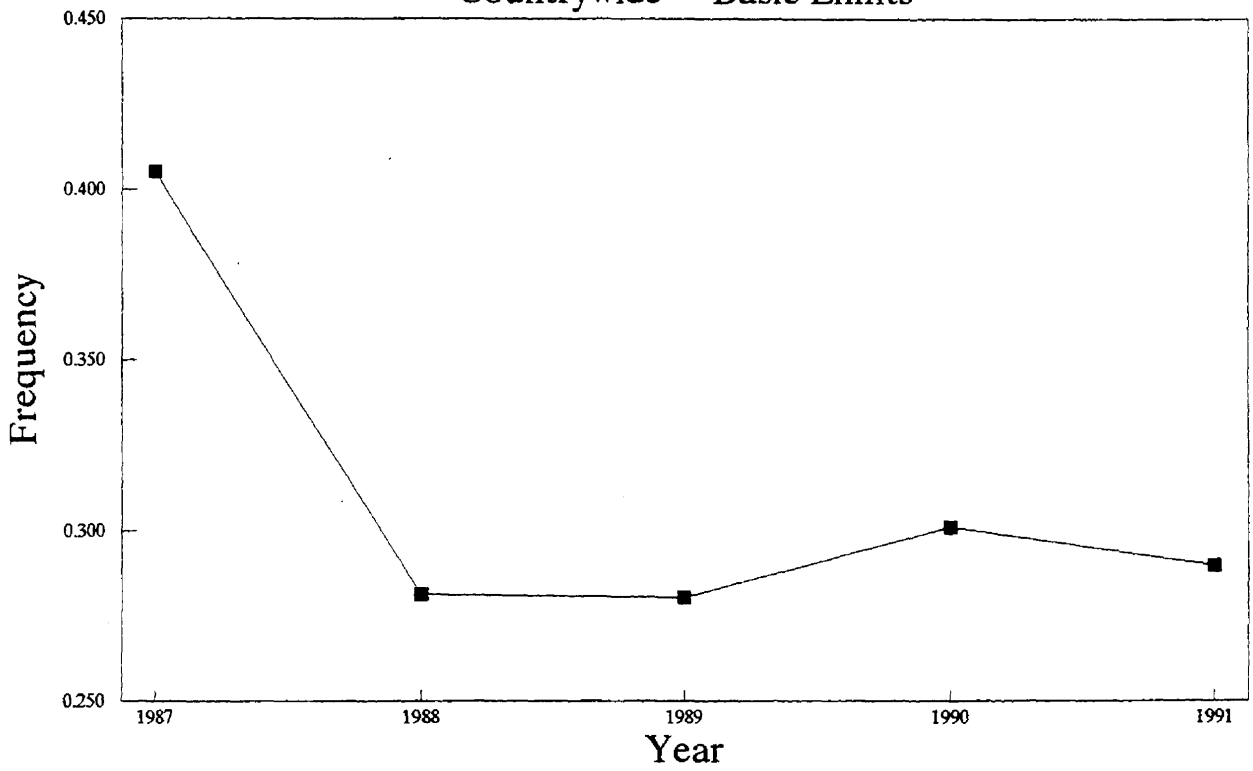
- Trends for St. Paul are representative of trends for all of the surveyed companies.

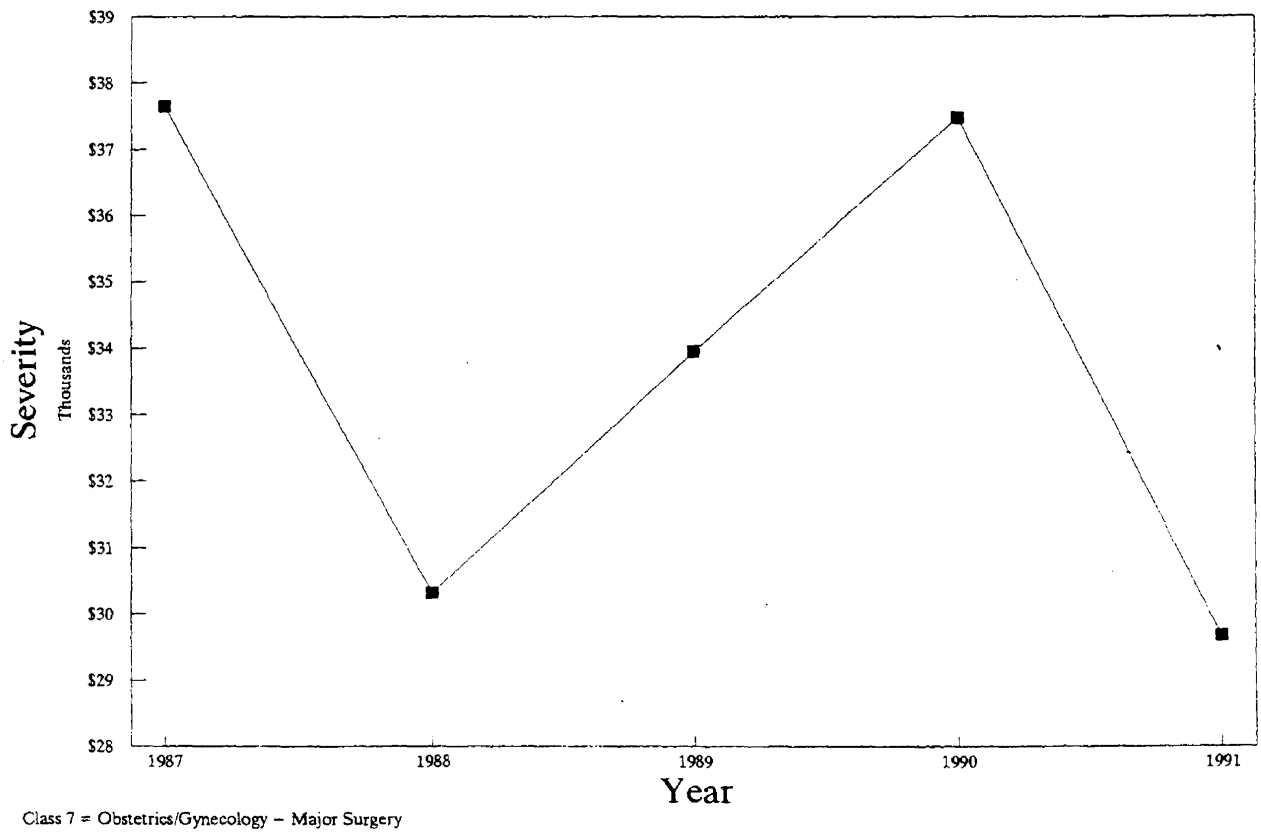
- St. Paul is the only one of the surveyed companies with a significant national presence.

- Data for TVIR, the second largest writer of medical malpractice insurance in Virginia, may be distorted because of the significant reduction in reported exposures due to their shifting of business to a risk retention group.

St Paul – Class 7

Countrywide – Basic Limits

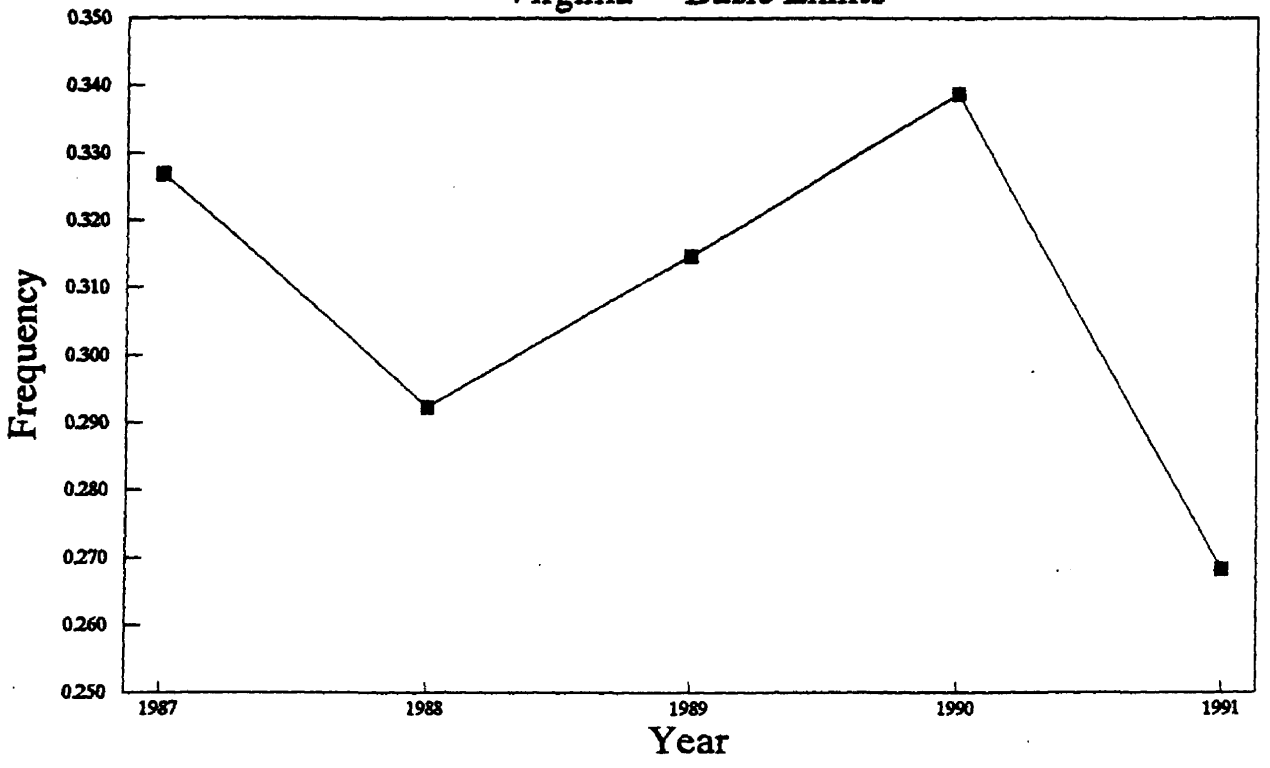


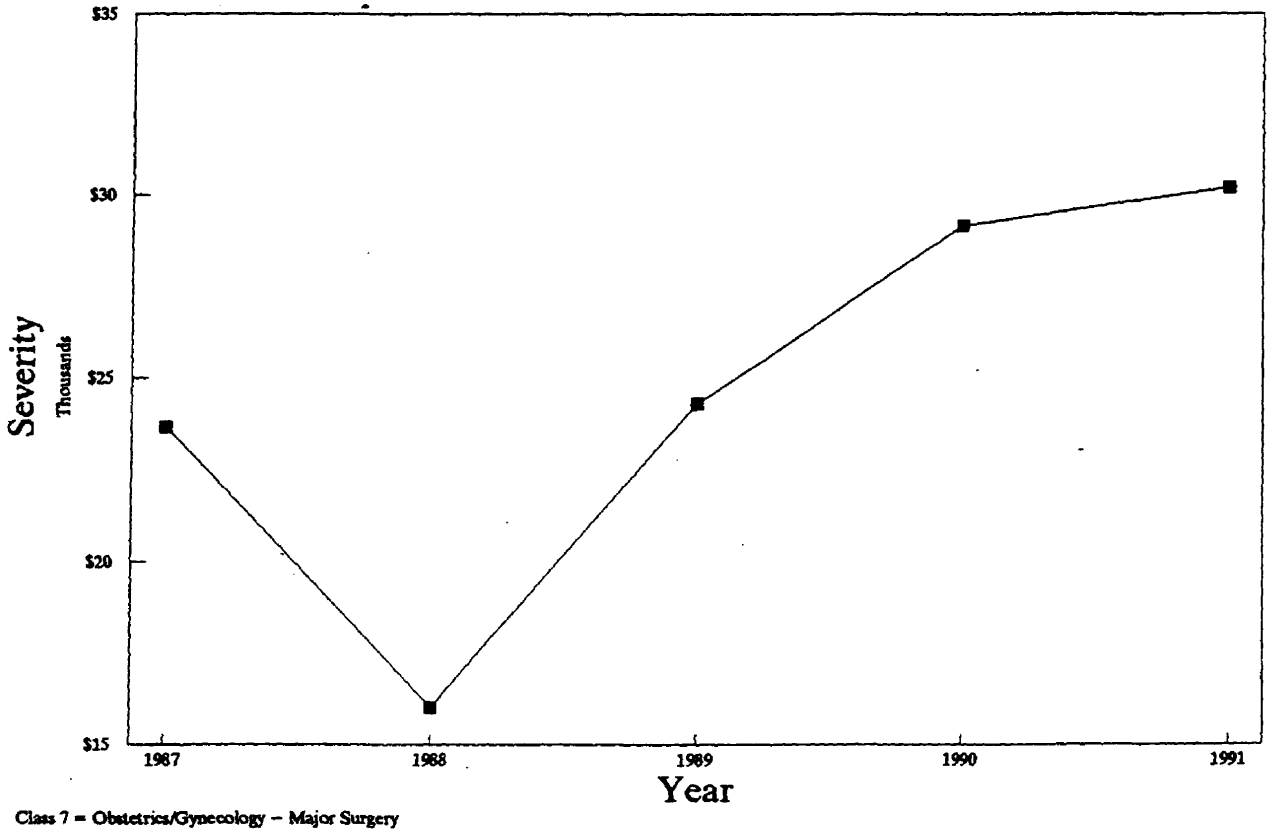


Class 7 = Obstetrics/Gynecology – Major Surgery

St Paul – Class 7

Virginia – Basic Limits





Class 7 = Obstetrics/Gynecology – Major Surgery

C. Certified Nurse-Midwife Findings

To study the actuarial basis of medical malpractice rates for certified nurse-midwives (CNMs) in Virginia, both countrywide and Virginia data were utilized. The only significant database for CNM experience is from the American College of Certified Nurse-Midwives (ACNM) Program underwritten through CNA. Even though this program offers the only significant database, it provides experience for less than 15% of the total midwife population. Only a limited number of losses have occurred countrywide, with no losses having occurred to date in Virginia under this program. Due to the lack of loss information in Virginia, the analysis of CNM malpractice rates utilized countrywide information (See Appendix I).

Unlike the analysis of physicians and surgeons rates which utilized pure premiums, a loss ratio approach was used for the CNM analysis. The CNM data that was available lead us to use the loss ratio approach instead of the pure premium approach. The two methods are known to produce the same results. With the loss ratio methodology all premiums are adjusted to current rate levels. Since no rate changes were made in the CNA program the earned premiums are equivalent to premiums at current rate levels. The loss ratio methodology was used to project the change to CNA premium levels. This was compared to the rates filed under the ACIC program.

Ultimate loss and loss adjustment expense amounts were projected by year using actuarial development triangles of reported loss and loss adjustment expense. The variability of results were highly dependent on the selection of the 66 month to ultimate "tail" loss development factor. The calculation of implied reserves on open claims was analyzed to gauge the reasonableness of this factor.

The projected ultimate loss and loss adjustment expense amounts were divided by the premiums at current rate levels to calculate loss ratios by report year. An expected loss ratio of 85% was selected based on current rate levels. The loss ratio was discounted for investment income at a rate of 6% per annum and also loaded for expenses. The discount factor and expense ratios were obtained from CNA 1986 rate justification for the original CNM program rates. The loss ratio was also trended from 6/30/91 by 6% per annum to the average effective dates of the current ACIC rate of 2/16/93. This resulted in the indicated trended loss ratio of 107.27%. The indicated loss ratio was compared to the desired loss ratio to produce an indicated countrywide change in rate level needed to reach the desired level.

An increase to CNA's countrywide CNM rates of 50.18% was indicated as a result of our analysis. This produced an indicated countrywide $250,000/$250,000 rate of $6,910,which was adjusted to a Virginia indicated level by using the historical relationship of countrywide physicians and surgeons pure premiums to Virginia-only pure premiums from the 1992 St. Paul rate filing. The St. Paul medical malpractice rate filing includes a relativity factor from countrywide to Virginia of 73.4%. This results in a calculated Virginia CNM rate of $5,072. The comparable current ACIC Nurse-Midwife rate is $5,063.

The calculation of an indicated rate for CNMs indicates that the rate currently used is within a range of reasonableness. It should be noted, however, that due to the limited historical loss information for CNMs, much variability in results can occur.

D. Territorial Analysis

In calculating territorial relativities we utilized the St. Paul historical Virginia-only data for 1987 through 1991. Because rating territories have different mixes of physicians by rate class, raw exposures per territory were converted to class 1 equivalent exposures using St. Paul's current classification relativities. This reduces the possibility that difference in experience by territory could be caused by higher risk physicians being concentrated in certain territories. In addition, it allows us to use the combined experience of all physicians in the calculation of territorial relativities.

As with our analysis of classification relativities we used a pure premium approach in calculating territorial relativities. The indicated relativities from the raw experience was credibility-weighted with the current St. Paul territorial relativities using 5,000 claims as the full credibility standard. The resulting credibility-weighted relativities are shown in Table 4 below.

TABLE 4

TERRITORIAL RELATIVITIES

Territory	Class 1 Equivalent Exposures	Credibility-Weighted Relativities	Current St. Paul Relativities
1	5,398	1.273	1.242
2	8,714	1.073	1.150
3	13,278	0.951	0.920
4	10,082	0.820	0.782

The credibility-weighted relativities are consistent with the current relativities. We, therefore, believe that the current relativities are actuarially sound.

We also prepared a similar territorial analysis using class 7 experience only. This analysis provided territorial relativities that were essentially the same as those using experience of all classes combined.

Appendix J contains all of the detailed calculations supporting our territorial analysis.

SECTION IV
Conclusion

For purposes of determining malpractice premiums, insurance companies assign physicians to rate classes based on their specialty. The higher the rate class the higher the risk associated with the specialty. Most companies use eight rating classes (1-8). Family physicians who perform no surgery or obstetrics are assigned to rate class 1, the lowest rated class.[15] Family physicians who provide obstetrical services are rated as either class 3 or class 4 depending on whether they also perform minor or major surgery. Most companies assign OB/GYNs to their own rate class (class 7). PHICO, however, includes other physicians in class 7. All other classes include multiple physician specialties.

Premiums for each rate class are determined as multiples of the premium set for rate class 1 (base class). The multiples, referred to as class relativities, are normally determined through an actuarial analysis of loss experience for each class. Some companies, because of limited claim experience, rely on the relativities selected by their competitors. Because of its large presence in the malpractice insurance marketplace both countrywide and in Virginia, St. Paul is most often the company referenced by smaller companies in selecting class relativities.

For purposes of this study we have prepared an actuarial analysis of classification relativities using the data collected from the leading writers in Virginia. In addition, we have reviewed the classification analyses contained in the rate filings of the leading writers in Virginia. The results of this analysis and review can be summarized as follows:

1. Our review of the rate filings submitted by the insurers surveyed for this study found that **the premiums charged by malpractice insurers in Virginia have been derived using sound actuarial methods and procedures. In particular, our review found that premiums currently charged OB/GYNs and certified nurse-midwives in Virginia are reasonable and actuarially sound.**

2. **Rate increases for medical malpractice insurance for companies licensed in Virginia are subject to review and approval by the Bureau. The Bureau also exercises its authority to request that insurance companies provide data to support existing rates when necessary.**

3. **The high malpractice rates for OB/GYNs are due to claim frequencies that are four to five times the average claim frequencies for all physicians.**

4. **Our analysis of loss experience by rating territory (practice location) within Virginia found that the current differences in rates by territory are actuarially justified.**

5. **Our analysis of the limited data available on nurse-midwives found that the premiums currently charged certified nurse-midwives are reasonable at approximately one-fifth those of OB/GYNs ($6,500 vs $30,000 for $1 million of coverage).** Based on data from the American College of Nurse-Midwives there are only 72 certified nurse-midwives currently practicing in Virginia.

ENDNOTES

1. A.M. Best (Best Link) Report 12: P/C Experience By State By Line - 2 year (1990 & 1991) Experience By Company.

2. Legislative steps taken during the 1980's to improve access to prenatal and obstetrical care include:

   1986 - Physicians fees elevated under the Medicaid Program for obstetrics.

   1987 - Virginia Birth Related Neurological Injury Compensation Act adopted by the General Assembly.

   1988 - "Babycare" program adopted to increase the availability of prenatal services.

   1989 - State Health Planning Board requested by the General Assembly to study the correlation between access to obstetrical care and infant mortality.

   Source: Medical Society of Virginia. Problems & Solutions to Access to Obstetrical Care: Virginia Physicians Respond, 1989, p.1.

3. Medical Society of Virginia. Problems & Solutions to Access to Obstetrical Care: Virginia Physicians Respond, 1989, p.1.

4. Institute of Medicine. Medical Professional Liability and the Delivery of Obstetrical Care, 1989, Volume I & II.

5. Medical Society of Virginia, op. cit.

6. 1992 American Medical Association Physician Characteristics and Distribution in the United States.

7. Institute of Medicine, op. cit., Volume I, p. 98-100.

8. Institute of Medicine, op. cit., Volume I, p. 99.

9. Institute of Medicine, op. cit., Volume I, p. 107-108.

10. Code of Virginia - 38.2-5001, p. 537

    "*'Birth-related neurological injury'* means injury to the brain or spinal cord of an infant caused by the deprivation of oxygen or mechanical injury occurring in the course of labor, delivery or resuscitation in the immediate post-delivery period in a hospital which renders the infant permanently motorically disabled and (i) developmentally disabled or (ii) for infants sufficiently developed to be cognitively evaluated, cognitively disabled. In order to constitute a 'birth-related neurological injury' within the meaning of this chapter, such disability shall cause the infant to be permanently in need of assistance in all activities of daily living. This definition shall apply to live births only and shall not include disability or death caused by genetic or congenital abnormality, degenerative neurological disease, or maternal substance abuse."

11. Per conversation on 9/1/92 with Eleanor Pyles of the Virginia Birth Related Neurological Injury Fund.

12. Per information gathered from the Virginia Birth Related Neurological Injury Fund.

13. Institute of Medicine, op. cit., p. 136-137.

14. Casualty Actuarial Society Statement of Principles Regarding Property and Casualty Insurance Ratemaking, May 24, 1988.

15. Some companies have a class 1A for lower rated specialties such as psychiatry.

APPENDICES

APPENDIX A

Appendix A
Glossary

Losses and Loss Adjustment Expenses - Amounts payable to claimants under the terms of an insurance policy are called losses. A loss that has actually been paid to a claimant is referred to as a paid loss. When a claim is expected to be paid in the future a claim will have a case reserve associated with it. The sum of paid losses and case reserves for a group of losses is referred to as case incurred losses.

Loss adjustment expenses are those expenses associated directly with the claims settlement process. Two types of adjustment expenses exist and are termed allocated or unallocated expenses. Allocated expenses are items such as legal fees which can be associated directly with individual claims while unallocated expenses represent items such as salaries of company claims staff.

Accident Date - The date that a loss actually occurs.

Report Date - The date that a company is notified of a loss.

Accident Year Losses - All losses whose occurrence date falls within an annual period usually January 1st to December 31st.

Report Year Losses - All losses whose report date falls within an annual period usually January 1st to December 31st.

Valuation Date - The point in time after the beginning of an accident year or report year at which losses are valued. The valuation date is usually measured in months and at a series of consecutive annual periods , i.e. 12, 24, 36, etc.

Loss Development - The observed growth at valuation dates in accident year or report year paid or case incurred losses. The growth in case incurred losses can either be positive or negative.

Earned Exposure - A count of physicians insured during the loss experience period being studied.

Severity - The average loss per claim which can be calculated by taking the total of all losses for the period and dividing by total claims.

Frequency - The average number of claims per exposure.

Pure Premium - The average cost per exposure unit which can be computed as the product of severity and frequency. The selected pure premium for the period during which rates are being made forms the portion of

premium allocated to pay for loss and loss adjustment expenses only, without other expense or profit loadings.

Indicated Pure Premium - Pure Premiums determined from the historical data of the individual company.

Pure Premium Relativities - Relationship to the base class pure premium generated by dividing pure premiums for each class by the base class pure premium.

Rate Relativity - Relationship to the base class rate generated by dividing the rate for each class by the base class rate.

Trend - The change in cost levels over time resulting from increases in severity and frequency levels. Trend can be measured in its separate frequency and severity components or a combined index can be developed by measuring changes in the pure premium.

Other Expenses - This category includes expenses other than loss adjustment. Items such as commissions, premium taxes, acquisition expense and general expenses fall into this category. These expenses can either be variable, meaning they are proportional to policy size, or fixed.

Profit and Contingencies - This category includes the allocation in premiums for insurance company profit and a provision for unforeseen adverse deviation.

Credibility - A measure of reliance which is placed on actuarial indications from a database. The credibility value can be arrived at judgmentally or through mathematical procedures.

Class Relativity - Ratio of rates between two rating classes.

Total Limits Losses - Reported losses limited only to policy limits purchased.

Basic Limits of Liability - Reported losses limited to a maximum of $200,000 per claim or policy limits, whichever is less.

APPENDIX B

Average OB/GYN Premiums Charged Per State

1	Kansas	$18,000
2	Arkansas	$21,000
3	North Carolina	$22,000
4	South Carolina	$24,000
5	Nebraska	$27,000
6	South Dakota	$28,000
7	Tennessee	$28,000
8	Indiana	$30,000
9	Wisconsin	$34,000
10	**Virginia**	**$38,000**
11	Texas	$40,000
12	Kentucky	$41,000
13	Maine	$45,000
14	North Dakota	$47,000
15	Vermont	$49,000
16	Iowa	$53,000
17	Georgia	$58,000
18	Georgia	$58,000
19	Mississippi	$58,000
20	Alabama	$59,000
21	Minnesota	$59,000
22	Louisiana	$61,000
23	Oklahoma	$61,000
24	Pennsylvania	$61,000
25	Colorado	$62,000
26	Connecticut	$65,000
27	Montana	$67,000
28	Utah	$69,000
29	Ohio	$72,000
30	Maryland	$78,000
31	New Jersey	$84,000
32	New Jersey	$84,000
33	Oregon	$84,000
34	Idaho	$85,000
35	Washington	$85,000
36	West Virginia	$85,000
37	Wyoming	$93,000
38	Arizona	$96,000
39	Missouri	$107,000
40	Nevada	$112,000
41	Illinois	$130,000
42	California	$137,000
43	Florida	NA
44	Massachusetts	NA
45	Michigan	NA
46	New Hampshire	NA
47	New Mexico	NA
48	New York	NA
	Overall Average	**$62,000**

Source: Institute of Medicine:
Medical Professional Liability and the Delivery of Obstetrical Care, p. 99.

APPENDIX C

Appendix C
Ratemaking Calculations

A. Base Rate

The two main methods for developing base rates are known as the **loss ratio method** and the **pure premium method**. The loss ratio approach estimates the amount by which the current base rate must be changed in order to be adequate to cover future expected costs. The pure premium approach determines the indicated rate by calculating provisions for each component piece of the costs (e.g. losses, expenses, and profit) and summing to get a total rate. Most insurers use the pure premium approach. This approach can be described in a five step process as follows:

1. *Calculation of ultimate losses by report year*
   Ultimate losses by report year are calculated by taking case incurred losses and multiplying by loss development factors. Loss development factors are selected by monitoring historical patterns and selecting patterns believed to match most closely future conditions.

2. *Trending of ultimate losses to the cost level of the policy effective period*
   Future trend factors are calculated by developing an index of historical frequency, severity, and pure premium levels. Once an index is developed the changes over time can be measured and used to project future changes in cost levels. This may be done using a variety of methods such as curve fitting.

3. *Calculation of class 1 equivalent exposures by year*
   Class 1 equivalent exposures are an adjusted earned exposure measure. The calculation process involves multiplying earned exposures by class relativities and then summing the exposures by class. The effect of this calculation is to develop a new exposure base which better represents the greater loss propensity of higher risk classes.

   In calculating base rates insurers use the experience of *all* classes of physicians. This is accomplished by converting exposures in each rating class to the equivalent number of base class exposures. For example, based on the prevailing class relativities currently used by insurers in Virginia, 100 OB/GYNs present the same exposure to loss as approximately 600 general practitioners. By converting all class exposures to a base class equivalent an implied base class pure premium can be determined from all of the experience. This historical pure premium is then trended forward to the period in which rates are being established and loaded for expenses, risk margin, and profit.

4. *Calculation of Pure Pr · ·ium for the policy effective period*
   The select pure premium is generated by dividing losses from step 2 by exposure from step 3. This process is typically completed separately for several years of data and a final select value developed by blending several years of information. Because class 1 equivalent exposures are used in the calculation the resulting pure premium is for the base class 1 only.

ERNST & YOUNG
Actuarial Services Group

Two Commerce Square
Suite 4000
2001 Market Street
Philadelphia
Pennsylvania 19103-7096

Phone: 215 448 5000
Fax: 215 448 4069

July 9, 1992

Mr. Craig R. Rowland
Second Vice President, Actuarial
PHICO Insurance Company
P. O. Box 85
Mechanicsburg, Pennsylvania 17055

Dear Mr. Rowland:

The State Corporation Commission Bureau of Insurance has been requested by the Virginia General Assembly to conduct a study of the actuarial basis for the costs of malpractice insurance for obstetricians, certified nurse midwives, and other licensed physicians who offer obstetric services. This request is being made pursuant to House Joint Resolution No. 235.

Overview of Required Data

In order to comply with House Joint Resolution, we are requesting the following information.

1. Classification Loss Report
2. Loss Development Data Triangle
3. Detailed Claim Listing
4. Current Virginia Manual of Rules, Rates and Classifications

The classification loss reports (item 1) should be produced on a 3.5" computer diskette that meets the specifications described below. The loss development data triangles, the detailed claims listing and the rate manual (items 2, 3 and 4) should be submitted in hard copy.

The Loss Classification Report

Two different loss classification spreadsheets must be prepared:

Virginia Data Only
Countrywide Data

The following ten fields are to be included:

1) Report year (1987 through 1991)
2) Rating Territory (*VA data only*)
3) Severity Code Assignment
4) Specialty Classification Code (5 digit ISO code)
5) Earned exposures
6) Reported incurred losses limited to $200,000 per occurrence
7) Reported incurred losses -- total limits
8) Reported incurred allocated loss adjustment expense
9) Report claim count
10) Claims closed without payment count

This data should be provided on a 3.5" diskette in Lotus 2.01 spreadsheet format. There should be one record for each specialty code (item 4). *Do not leave blank rows between records.* Label each column as indicated in items 1 through 10.

Loss Development Triangle Report

Four Triangles are required, each containing incurred loss and allocated loss adjustment expense shown by report year (1981 through 1991) at annual development stages (i.e., 12 months, 24 months, 36 months, etc.):

1. Virginia data only - total limits
2. Virginia data only - limited to $200,000 per occurrence
3. Countrywide data - total limits
4. Countrywide data - limited to $200,000 per occurrence

The data should be provided on hard copy. Note that the report year begins with 1981 (as opposed to 1987 for the loss classification report).

Detailed Claim Listing

This report should contain individual data for Virginia only. Each record should contain the following seven fields:

1) Report year (1987 through 1991)
2) Rating Territory
3) Severity Code
4) Specialty Classification Code (5 digit ISO code)
5) Claim number

5. *Loading of Pure Premium for other expenses, profit, and contingencies*
   The loading of the pure premium for expenses is usually done separately for fixed and variable expenses. Fixed expenses do not depend on the final rate and are therefore loaded as a flat dollar amount. Variable expenses do vary with the final rate so they are loaded as a percentage. In summary, the formula for the final rate is:

$$\text{Base Rate} = (\text{Pure Premium} + \text{Fixed Expenses})/(1 - \text{Variable Expense \%})$$

B. Class Relativities

Class relativities are developed through the use of historical loss and exposure information for groups of specialties. The purpose of this calculation is to develop a set of factors based on each class's loss characteristics that relate its loss level to the base class level. An important distinction exists between base rate and classification ratemaking which results from the volume of data available to generate final values. Typically the loss history for all classes is used for base rate ratemaking while the data is segmented to generate indications by class. The indications from the combined database generate more credible results than the segmented database. To increase the credibility of the state class data, countrywide class experience is usually considered.

Selected relativities are developed in the following 6 step process:

1. *Calculate Trended Ultimate Losses By Class*
   Ultimate trended losses by class are calculated in a similar manner to the base rate calculation. The same trend and development factors are generally used for base rate and classification ratemaking. These factors adjust the losses to final settlement values and to current cost levels.

2. *Calculate Earned Exposures By Class*
   Earned exposures by class are calculated by subdividing earned exposures into different class categories.

3. *Calculate Pure Premiums By Class*
   Pure Premiums by class are calculated by dividing ultimate trended losses by earned exposure amounts.

4. *Calculate Relationships To Base Class*
   Relationships to the base class pure premium are generated by dividing pure premiums for each class by the base class value. The resulting index yields the initial indication based on state-specific class data. At this point the credibility of the state data is examined based on the volume of data in each class category. Depending on how sparsely the data is distributed, indications from a countrywide classification analysis are blended with the statewide indications to generate final values.

5. *Evaluate Difference In State and Countrywide Trends*

6. *Select Final Relativities*

APPENDIX D

6) Incurred loss
7) Incurred allocated loss adjustment expense

This should be provided on hard copy. Note that the report year should start with 1987 (like the loss classification report).

Virginia Rating Manual

The current Virginia manual of rules, rates and classification should be provided; it should include the current territorial relativities and current severity group relativities.

This data should be returned to me no later than August 10, 1992.

Sincerely yours,

Dennis R. Henry
Partner

DRH/rk

APPENDIX E

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
OB/GYN Pure Premium Relativity

St. Paul & TVIR
Countrywide Data
Basic Limit

(1)	Indicated Base Class Pure Premium (CW)	$2,469
(2)	Indicated OB/GYN Pure Premium (CW)	$10,498
(3)	Indicated OB/GYN Pure Premium Relativity (CW)	4.25
(4)	Indicated Base Class Pure Premium (VA)	$1,769
(5)	Indicated OB/GYN Pure Premium (VA)	$6,966
(6)	Indicated OB/GYN Pure Premium Relativity (VA)	3.94
(7)	Prior Experience OB/GYN Pure Premium Relativity (VA)	6.90
(8)	**Credibility Weighted OB/GYN Pure Premium Relativity (VA**	5.93

Notes:

Line (1): From Exhibit E−2
Line (2): From Exhibit E−2
Line (3): Line (2)/Line (1)
Line (4): Exhibit F−1
Line (5): Exhibit F−1
Line (6): Line (5)/Line (4)
Line (7): Based on prior St. Paul and TVIR experience
Line (8): 0.15*Line (6) + 0.20* Line (3) + 0.65*Line (7)

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Rate Class	(1) RY 87–91 Exposures	(2) Claim Count	(3) Developed Loss + LAE	(4) Indicated Pure Premium
NM	59.2	1	$230,854	$3,900
1	53,584.9	4,311	$132,283,226	$2,469
1A	10,531.3	563	$15,815,475	$1,502
2	27,881.0	2,973	$77,178,434	$2,768
3	12,293.8	2,595	$68,956,175	$5,609
4	11,302.6	1,849	$50,175,631	$4,439
5	10,405.1	2,482	$71,865,394	$6,907
5A	6,688.0	1,015	$23,122,269	$3,457
6	8,387.7	2,394	$77,502,082	$9,240
7	6,983.3	2,131	$73,309,782	$10,498
8	846.2	352	$14,740,116	$17,419
Totals	148,963.1	20,666	$605,179,438	$4,063

Notes:

Cols (1)–(3) provided by St. Paul & TVIR

Col (4)=Col(3)/Col(1)

TVIR writes no Nurse Midwives.

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	NM	14.5	0	$0	$0	$0	$0	$0
1988	NM	9.1	0	$0	$0	$0	$0	$0
1989	NM	16.6	1	$200,000	$92,500	$292,500	$230,854	$13,907
1990	NM	14.6	0	$0	$0	$0	$0	$0
1991	NM	4.4	0	$0	$0	$0	$0	$0
Totals	NM	59.2	1	$200,000	$92,500	$292,500	$230,854	$3,900

Note: TVIR writes no Nurse Midwives.

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	1	13,246.0	1,304	$32,021,661	$15,701,788	$47,723,449	$44,443,110	$3,355
1988	1	11,630.0	837	$19,278,240	$8,063,092	$27,341,332	$24,434,538	$2,101
1989	1	10,099.4	659	$17,570,772	$6,963,214	$24,533,986	$19,759,471	$1,956
1990	1	9,428.6	749	$26,322,038	$9,407,997	$35,730,035	$24,175,570	$2,564
1991	1	9,180.9	762	$29,633,629	$11,654,655	$41,288,284	$19,470,537	$2,121
Totals	1	53,584.9	4,311	$124,826,340	$51,790,746	$176,617,086	$132,283,226	$2,469

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	1A	2,408.3	135	$2,646,847	$1,538,248	$4,185,095	$3,895,514	$1,618
1988	1A	2,191.4	131	$2,742,664	$1,566,889	$4,309,553	$3,811,729	$1,739
1989	1A	2,015.1	94	$2,399,827	$881,640	$3,281,467	$2,718,255	$1,349
1990	1A	1,928.1	95	$3,627,027	$1,396,948	$5,023,975	$3,442,204	$1,785
1991	1A	1,988.4	108	$3,050,433	$1,185,105	$4,235,538	$1,947,773	$980
Totals	1A	10,531.3	563	$14,466,798	$6,568,830	$21,035,628	$15,815,475	$1,502

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	2	6,273.6	842	$14,616,237	$6,757,269	$21,373,506	$19,885,040	$3,170
1988	2	5,852.9	611	$12,155,513	$5,806,165	$17,961,678	$15,883,794	$2,714
1989	2	5,530.0	510	$12,947,904	$4,679,795	$17,627,699	$13,928,165	$2,519
1990	2	5,406.4	545	$18,090,506	$5,953,814	$24,044,320	$16,009,849	$2,961
1991	2	4,818.1	465	$17,720,630	$6,982,389	$24,703,019	$11,471,586	$2,381
Totals	2	27,881.0	2,973	$75,530,790	$30,179,432	$105,710,222	$77,178,434	$2,768

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY

Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	3	3,146.3	523	$11,025,359	$4,115,618	$15,140,977	$14,096,086	$4,480
1988	3	2,520.9	540	$12,889,242	$5,664,821	$18,554,063	$16,497,616	$6,544
1989	3	2,310.8	467	$11,386,111	$4,128,055	$15,514,166	$12,495,629	$5,407
1990	3	2,268.9	570	$16,650,201	$5,930,929	$22,581,130	$15,633,076	$6,890
1991	3	2,046.9	495	$15,808,423	$6,344,952	$22,153,375	$10,233,768	$5,000
Totals	3	12,293.8	2,595	$67,759,336	$26,184,375	$93,943,711	$68,956,175	$5,609

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	4	2,765.2	576	$11,376,545	$4,721,485	$16,098,030	$15,002,841	$5,426
1988	4	2,310.7	348	$7,530,316	$3,132,757	$10,663,073	$9,438,824	$4,085
1989	4	2,047.7	270	$7,462,035	$2,108,303	$9,570,338	$7,620,393	$3,721
1990	4	2,080.4	306	$9,889,805	$3,433,621	$13,323,426	$9,163,494	$4,405
1991	4	2,098.6	349	$13,891,547	$5,326,979	$19,218,526	$8,950,079	$4,265
Totals	4	11,302.6	1,849	$50,150,248	$18,723,145	$68,873,393	$50,175,631	$4,439

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY

Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	5	2,779.4	845	$18,764,647	$8,007,508	$26,772,155	$25,021,246	$9,002
1988	5	2,210.7	453	$11,700,853	$4,310,894	$16,011,747	$14,364,375	$6,498
1989	5	1,901.4	357	$9,895,115	$3,354,369	$13,249,484	$10,718,841	$5,637
1990	5	1,844.4	425	$13,257,512	$4,352,908	$17,610,420	$12,421,722	$6,735
1991	5	1,669.2	402	$14,134,717	$5,292,524	$19,427,241	$9,339,210	$5,595
Totals	5	10,405.1	2,482	$67,752,844	$25,318,203	$93,071,047	$71,865,394	$6,907

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY

Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	5A	1,704.8	344	$4,807,340	$2,502,032	$7,309,372	$6,818,094	$3,999
1988	5A	1,431.7	203	$5,009,087	$1,925,404	$6,934,491	$6,172,213	$4,311
1989	5A	1,217.2	138	$2,956,394	$1,348,319	$4,304,713	$3,409,371	$2,801
1990	5A	1,184.3	168	$3,441,585	$1,279,768	$4,721,353	$3,357,012	$2,835
1991	5A	1,150.0	162	$4,992,331	$1,947,842	$6,940,173	$3,365,579	$2,927
Totals	5A	6,688.0	1,015	$21,206,737	$9,003,365	$30,210,102	$23,122,269	$3,457

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	8	203.8	78	$3,342,075	$1,400,822	$4,742,897	$4,439,832	$21,785
1988	8	175.9	61	$1,813,500	$807,614	$2,621,114	$2,357,298	$13,401
1989	8	152.1	49	$1,944,044	$755,781	$2,699,825	$2,130,818	$14,009
1990	8	161.9	71	$3,801,283	$1,224,933	$5,026,216	$3,353,919	$20,716
1991	8	152.5	93	$3,691,003	$1,517,933	$5,208,936	$2,458,249	$16,120
Totals	8	846.2	352	$14,591,905	$5,707,083	$20,298,988	$14,740,116	$17,419

APPENDIX F

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	6	2,088.2	787	$17,350,834	$8,570,031	$25,920,865	$24,211,404	$11,594
1988	6	1,707.9	463	$11,765,498	$4,608,210	$16,373,708	$14,518,752	$8,501
1989	6	1,538.9	372	$12,344,717	$4,394,317	$16,739,034	$13,450,990	$8,741
1990	6	1,537.8	412	$15,113,378	$5,338,946	$20,452,324	$13,966,663	$9,082
1991	6	1,514.9	360	$16,953,813	$6,179,084	$23,132,897	$11,354,273	$7,495
Totals	6	8,387.7	2,394	$73,528,240	$29,090,588	$102,618,828	$77,502,082	$9,240

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	7	1,816.1	702	$18,742,731	$9,807,007	$28,549,738	$26,617,967	$14,657
1988	7	1,399.0	373	$8,626,517	$4.597,505	$13,224,022	$11,838,441	$8,462
1989	7	1,170.9	313	$9,782,621	$3,335,563	$13,118,184	$10,542,818	$9,004
1990	7	1,268.8	368	$14,010,438	$5,104,035	$19,114,473	$12,935,036	$10,195
1991	7	1,328.5	375	$16,979,816	$6,712,189	$23,692,005	$11,375,520	$8,563
Totals	7	6,983.3	2,131	$68,142,123	$29,556,299	$97,698,422	$73,309,782	$10,498

Note: TVIR data includes class 7A.

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

	(1)	(2)	(3)	(4)
Rate Class	RY 87–91 Exposures	Claim Count	Developed Loss + LAE	Indicated Pure Premium
NM	0.0	0	$0	$0
1	10,734.5	796	$18,990,759	$1,769
1A	1,579.6	88	$2,355,520	$1,491
2	3,828.4	389	$6,519,781	$1,703
3	1,947.6	438	$7,985,500	$4,100
4	1,116.2	144	$2,672,528	$2,394
5	2,040.5	461	$11,978,446	$5,870
5A	1,471.6	176	$3,402,245	$2,312
6	1,990.6	494	$12,458,420	$6,259
7	1,750.9	446	$12,197,593	$6,966
8	221.2	100	$2,742,058	$12,396
Totals	26,681.1	3,532	$81,302,850	$3,047

Notes:

Cols (1)–(3) provided by St. Paul & TVIR

Col (4)=Col(3)/Col(1)

TVIR writes no Nurse Midwives

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	NM	0.0	0	$0	$0	$0	$0	$0
1988	NM	0.0	0	$0	$0	$0	$0	$0
1989	NM	0.0	0	$0	$0	$0	$0	$0
1990	NM	0.0	0	$0	$0	$0	$0	$0
1991	NM	0.0	0	$0	$0	$0	$0	$0
Totals	NM	0.0	0	$0	$0	$0	$0	$0

Note: TVIR writes no Nurse Midwives

VIR. .IA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	1	1,955.0	136	$2,816,647	$1,039,497	$3,856,144	$2,934,039	$1,501
1988	1	2,334.6	167	$4,331,682	$1,597,645	$5,929,327	$4,672,038	$2,001
1989	1	2,339.6	146	$3,903,537	$1,429,818	$5,333,355	$3,806,550	$1,627
1990	1	2,144.5	174	$4,238,421	$1,674,355	$5,912,776	$3,465,505	$1,616
1991	1	1,960.8	173	$5,720,432	$2,187,519	$7,907,951	$4,112,627	$2,097
Totals	1	10,734.5	796	$21,010,719	$7,928,834	$28,939,553	$18,990,759	$1,769

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	1A	277.8	14	$236,489	$148,925	$385,414	$283,110	$1,019
1988	1A	341.9	23	$512,480	$334,379	$846,859	$570,300	$1,668
1989	1A	361.6	16	$744,395	$257,373	$1,001,768	$820,115	$2,268
1990	1A	290.6	13	$255,101	$102,421	$357,522	$316,820	$1,090
1991	1A	307.7	22	$562,581	$239,027	$801,608	$365,175	$1,187
Totals	1A	1,579.6	88	$2,311,046	$1,082,125	$3,393,171	$2,355,520	$1,491

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	2	675.8	83	$1,838,072	$534,047	$2,372,119	$1,694,388	$2,507
1988	2	806.0	84	$1,387,203	$647,818	$2,035,021	$1,365,915	$1,695
1989	2	793.0	66	$855,961	$385,749	$1,241,710	$736,984	$929
1990	2	773.3	75	$2,070,962	$740,064	$2,811,026	$1,383,071	$1,789
1991	2	780.3	81	$1,763,604	$638,431	$2,402,035	$1,339,423	$1,717
Totals	2	3,828.4	389	$7,915,802	$2,946,109	$10,861,911	$6,519,781	$1,703

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	3	434.5	50	$331,895	$234,108	$566,003	$445,019	$1,024
1988	3	363.0	88	$2,415,568	$501,004	$2,916,572	$2,200,770	$6,063
1989	3	402.3	70	$1,384,004	$404,209	$1,788,213	$1,506,850	$3,746
1990	3	446.2	138	$2,936,262	$912,860	$3,849,122	$2,759,116	$6,184
1991	3	301.6	92	$1,442,550	$536,374	$1,978,924	$1,073,745	$3,560
Totals	3	1,947.6	438	$8,510,279	$2,588,555	$11,098,834	$7,985,500	$4,100

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	4	226.5	40	$557,400	$213,360	$770,760	$658,502	$2,907
1988	4	233.4	26	$209,000	$168,475	$377,475	$278,689	$1,194
1989	4	231.5	26	$201,000	$149,856	$350,856	$330,307	$1,427
1990	4	231.1	29	$727,505	$147,325	$874,830	$854,781	$3,699
1991	4	193.7	23	$441,003	$130,608	$571,611	$550,249	$2,841
Totals	4	1,116.2	144	$2,135,908	$809,624	$2,945,532	$2,672,528	$2,394

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY

Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	5	384.2	86	$2,242,210	$817,094	$3,059,304	$2,652,734	$6,905
1988	5	445.5	87	$2,550,281	$974,163	$3,524,444	$2,919,537	$6,553
1989	5	432.5	79	$2,065,349	$664,684	$2,730,033	$2,063,389	$4,771
1990	5	447.0	111	$2,528,311	$928,710	$3,457,021	$2,708,681	$6,060
1991	5	331.3	98	$1,866,108	$628,542	$2,494,650	$1,634,105	$4,932
Totals	5	2,040.5	461	$11,252,259	$4,013,193	$15,265,452	$11,978,446	$5,870

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	5A	264.8	35	$552,815	$299,071	$851,886	$681,565	$2,574
1988	5A	284.4	29	$779,759	$330,596	$1,110,355	$853,212	$3,000
1989	5A	302.9	25	$110,889	$187,734	$298,623	$193,114	$638
1990	5A	313.6	44	$620,217	$227,646	$847,863	$726,219	$2,316
1991	5A	305.9	43	$1,249,390	$474,790	$1,724,180	$948,135	$3,099
Totals	5A	1,471.6	176	$3,313,070	$1,519,837	$4,832,907	$3,402,245	$2,312

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	6	361.1	104	$2,191,023	$829,338	$3,020,361	$2,551,378	$7,066
1988	6	414.2	108	$1,211,418	$482,407	$1,693,825	$1,243,022	$3,001
1989	6	407.1	96	$2,715,510	$1,055,175	$3,770,685	$2,612,750	$6,418
1990	6	416.6	91	$3,222,042	$1,219,214	$4,441,256	$2,688,554	$6,454
1991	6	391.6	95	$4,492,006	$1,398,188	$5,890,194	$3,362,716	$8,587
Totals	6	1,990.6	494	$13,831,999	$4,984,322	$18,816,321	$12,458,420	$6,259

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	7	321.8	81	$1,999,917	$947,561	$2,947,478	$2,338,182	$7,266
1988	7	367.0	85	$1,878,831	$802,067	$2,680,898	$2,189,271	$5,965
1989	7	357.6	92	$2,713,366	$877,730	$3,591,096	$2,412,292	$6,746
1990	7	372.7	106	$3,413,696	$1,163,216	$4,576,912	$2,550,773	$6,844
1991	7	331.8	82	$3,597,760	$1,267,117	$4,864,877	$2,707,075	$8,159
Totals	7	1,750.9	446	$13,603,570	$5,057,691	$18,661,261	$12,197,593	$6,966

Note: TVIR data includes class 7A

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY

Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Report Year	Rate Class	RY 87–91 Exposures	Claim Count	Reported Incurred to $200k	Allocated LAE	Total Loss + LAE	Developed Loss + LAE	Pure Premium
1987	8	49.2	12	$308,333	$140,149	$448,482	$432,624	$8,/93
1988	8	47.0	11	$767,500	$252,941	$1,020,441	$791,354	$16,837
1989	8	33.2	14	$725,000	$301,213	$1,026,213	$583,915	$17,588
1990	8	49.8	19	$630,183	$236,961	$867,144	$436,844	$8,772
1991	8	42.0	44	$685,003	$253,933	$938,936	$497,321	$11,841
Totals	8	221.2	100	$3,116,019	$1,185,197	$4,301,216	$2,742,058	$12,396

APPENDIX G

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Indicated Pure Premiums

Rate Class	1987	1988	1989	1990	1991	1987–91
NM	$0	$0	$13,907	$0	$0	$3,900
1	$3,355	$2,101	$1,956	$2,564	$2,121	$2,469
1A	$1,618	$1,739	$1,349	$1,785	$980	$1,502
2	$3,170	$2,714	$2,519	$2,961	$2,381	$2,768
3	$4,480	$6,544	$5,407	$6,890	$5,000	$5,609
4	$5,426	$4,085	$3,721	$4,405	$4,265	$4,439
5	$9,002	$6,498	$5,637	$6,735	$5,595	$6,907
5A	$3,999	$4,311	$2,801	$2,835	$2,927	$3,457
6	$11,594	$8,501	$8,741	$9,082	$7,495	$9,240
7	$14,657	$8,462	$9,004	$10,195	$8,563	$10,498
8	$21,785	$13,401	$14,009	$20,716	$16,120	$17,419

Notes:

1) Pure Premium is basic limit ($200,000) losses developed to ultimate divided by earned exposure.

2) NM = Nurse Midwives

3) TVIR writes no Nurse Midwives

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Countrywide Data
Basic Limit

Indicated Pure Premium Relativities

Rate Class	1987	1988	1989	1990	1991	1987–91
NM	0.000	0.000	7.108	0.000	0.000	1.580
1	1.000	1.000	1.000	1.000	1.000	1.000
1A	0.482	0.828	0.689	0.696	0.462	0.608
2	0.945	1.292	1.287	1.155	1.123	1.121
3	1.335	3.115	2.764	2.687	2.357	2.272
4	1.617	1.944	1.902	1.718	2.011	1.798
5	2.683	3.093	2.881	2.627	2.638	2.798
5A	1.192	2.052	1.432	1.106	1.380	1.400
6	3.456	4.046	4.467	3.542	3.534	3.743
7	4.368	4.028	4.602	3.976	4.038	4.252
8	6.493	6.379	7.160	8.079	7.601	7.056

Notes:
1) Underlying pure premiums are shown on G–1

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Indicated Pure Premiums

Rate Class NM	1987 $0	1988 $0	1989 $0	1990 $0	1991 $0	1987–91 $0
1	$1,501	$2,001	$1,627	$1,616	$2,097	$1,769
1A	$1,019	$1,668	$2,268	$1,090	$1,187	$1,491
2	$2,507	$1,695	$929	$1,789	$1,717	$1,703
3	$1,024	$6,063	$3,746	$6,184	$3,560	$4,100
4	$2,907	$1,194	$1,427	$3,699	$2,841	$2,394
5	$6,905	$6,553	$4,771	$6,060	$4,932	$5,870
5A	$2,574	$3,000	$638	$2,316	$3,099	$2,312
6	$7,066	$3,001	$6,418	$6,454	$8,587	$6,259
7	$7,266	$5,965	$6,746	$6,844	$8,159	$6,966
8	$8,793	$16,837	$17,588	$8,772	$11,841	$12,396

Notes:

1) Pure Premium is basic limit ($200,000) losses developed to ultimate divided by earned exposure.

2) NM = Nurse Midwives

3) TVIR writes no Nurse Midwives

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Class

St. Paul & TVIR
Virginia Data
Basic Limit

Indicated Pure Premium Relativities

Rate Class	1987	1988	1989	1990	1991	1987–91
NM	0.000	0.000	0.000	0.000	0.000	0.000
1	1.000	1.000	1.000	1.000	1.000	1.000
1A	0.679	0.834	1.394	0.675	0.566	0.843
2	1.671	0.847	0.571	1.107	0.818	0.963
3	0.682	3.030	2.302	3.826	1.697	2.318
4	1.937	0.597	0.877	2.289	1.354	1.353
5	4.601	3.275	2.932	3.750	2.352	3.318
5A	1.715	1.499	0.392	1.433	1.478	1.307
6	4.708	1.500	3.945	3.994	4.094	3.538
7	4.841	2.981	4.146	4.235	3.890	3.938
8	5.859	8.414	10.810	5.428	5.645	7.007

Notes:
1) Underlying pure premiums are shown on G–3

APPENDIX H

PHICO Insurance Company
Countrywide Physicians Liability
Classification Relativity Analysis

›ort Years 1986–1990
.luated as of 12/31/90

Physician Specialty	ISO Code	Current Relativities PHICO	ISO	St Paul	Indicated Relativites Based on Loss Ratio	Based on Loss/Expos	PHICO Ced'blty	Credibility Weighted Relativities Based on Loss Ratio	Based on Loss/Expos	PHICO Selected
Allergy	80254	0.750	0.467	0.800	0.014	0.019	0.053	0.601	0.601	
Dermatology – NS	80256	0.750	0.724	0.800	0.159	0.175	0.096	0.704	0.706	
Diabetes – NS	80237	0.750	0.796	0.800			0.000	0.798	0.798	
Endocrinology – NS	80238	0.750	0.679	0.800			0.030	0.717	0.717	
Gastroenterology – NS	80241	0.750	1.513	0.800	0.176	0.133	0.053	1.105	1.103	
Gen Prev Med – NS	80231	0.750	0.597	0.800			0.000	0.699	0.699	
Geriatrics – NS	80243	0.750	0.540	0.800	1.777	2.161	0.030	0.704	0.715	
Gynecology – NS	80244	0.750	1.045	0.800	1.702	1.426	0.053	0.964	0.949	
Hematology – NS	80245	0.750	0.926	0.800	0.745	0.568	0.053	0.857	0.847	
Infectious Disease – NS	80246	0.750	1.033	0.800	1.077	0.867	0.068	0.927	0.913	
Neoplastic – NS	80259	0.750	1.093	0.800			0.000	0.947	0.947	
Nephrology – NS	80260	0.750	0.910	0.800	0.188	0.219	0.074	0.805	0.808	
Nuclear Medicine	80262	0.750	0.677	0.800			0.000	0.739	0.739	
Nutrition	80248	0.750	0.439	0.800			0.000	0.620	0.620	
Opthamology – NS	80263	0.750	0.308	0.800	0.138	0.143	0.043	0.536	0.536	
Otorhinolaryngology – NS	80265	0.750	0.807	0.800	0.810	0.794	0.061	0.804	0.803	
Pharmacology – Clinical	80234	0.750	0.932	0.800			0.000	0.866	0.866	
Physiatry	80235	0.750	0.661	0.800	0.213	0.143	0.068	0.695	0.691	
Phys Med & Rehab	80235	0.750	0.661	0.800	0.589	0.475	0.125	0.713	0.699	
Physicians – NS – NOC	80268	0.750	0.828	0.800	0.384	0.776	0.397	0.643	0.799	
Psychiatry – IC	80249	0.750	0.825	0.800	0.503	0.534	0.217	0.745	0.752	
Psychoanalysis	80250	0.750	0.654	0.800			0.000	0.727	0.727	
Public Health	80236	0.750	0.249	0.800			0.000	0.525	0.525	
›matology – NS	80252	0.750	0.876	0.800	0.562	0.567	0.053	0.823	0.824	
space Medicine	80230	0.750	0.858	0.800			0.000	0.829	0.829	
...nipulator	84801	0.750					0.000			
Occupational Medicine	80233	0.750	0.621		0.441	0.438	0.068			
Total Class 1A				Straight Avg	0.592	0.590		0.707	0.711	0.750
Family Physician – NS	80420	1.000	1.000	1.000	0.856	0.876	0.368	0.947	0.954	
General Pract. – NS	80420	1.000	1.000	1.000	0.891	1.102	0.261	0.972	1.027	
Internal Medicine – NS	80257	1.000	1.294	1.000	1.138	1.038	0.443	1.143	1.099	
Neurology – IC – NS	80261	1.000	1.855	1.000	1.163	0.985	0.177	1.381	1.349	
Pathology – NS	80266	0.750	0.784	1.000	2.137	1.549	0.229	1.177	1.043	
Pediatrics – NS	80267	1.000	1.362	1.000	0.943	1.083	0.278	1.115	1.154	
Pulmonary Disease – NS	80269	0.750	1.069	1.000	2.381	1.913	0.122	1.198	1.141	
Radiology Diag. – NS	80253	1.000	1.260	1.000	1.672	1.277	0.223	1.251	1.163	
Total Class 1				Straight Avg	1.398	1.228		1.148	1.116	1.000

PHICO Insurance Company
Countrywide Physicians Liability
Classification Relativity Analysis

Report Years 1986–1990
Evaluated as of 12/31/90

Physician Specialty	ISO Code	Current Relativities PHICO	Current Relativities ISO	Current Relativities St Paul	Indicated Relativites Based on Loss Ratio	Indicated Relativites Based on Loss/Expos	PHICO Ced'blty	Credibility Weighted Relativities Based on Loss Ratio	Credibility Weighted Relativities Based on Loss/Expos	PHICO Selected
Cardiovascular Disease – NS	80255	1.000	1.023	1.500	2.483	1.621	0.118	1.405	1.304	
Dermatology – MS	80282	1.600	0.916	1.500			0.030	1.171	1.171	
Endocrinology – MS	80272	1.600	0.998	1.500			0.000	1.249	1.249	
Family Physician – MS	80421	1.600	1.583	1.500	1.117	0.967	0.247	1.437	1.400	
Gastroenterology – MS	80274	1.600	1.822	1.500	0.653	0.930	0.074	1.586	1.607	
General Pract. – MS	80421	1.600	1.586	1.500	0.539	0.630	0.118	1.425	1.436	
Geriatrics – MS	80276	1.600	0.465	1.500	8.541	6.313	0.000	0.983	0.983	
Gynecology – MS	80277	1.600	0.837	1.500	3.820	3.292	0.061	1.329	1.297	
Hematology – MS	80278	1.600	1.577	1.500			0.000	1.539	1.539	
Infectious Disease – MS	80279	1.600	0.898	1.500	3.968	3.574	0.053	1.345	1.324	
Intensive Care Medicine	80283	1.600	1.886	1.500	1.929	2.336	0.030	1.700	1.713	
Internal Medicine – MS	80284	1.600	1.906	1.500	1.228	1.328	0.192	1.612	1.631	
Laryngology – MS	80285	1.600	0.027	1.500			0.000	0.764	0.764	
Nephrology – NS	80287	1.600	1.330	1.500	0.402	0.411	0.080	1.334	1.334	
Neurology – IC – MS	80288	1.600	3.379	1.500			0.000	2.440	2.440	
Opthamology – MS	80289	1.600	0.667	1.500	1.170	0.967	0.122	1.094	1.069	
Otology – MS	80290	1.600	0.045	1.500			0.000	0.773	0.773	
Otorhinolaryngology – MS	80291	1.600	1.316	1.500	2.309	1.874	0.068	1.469	1.440	
Pathology – MS	80292	1.600	1.130	1.500			0.000	1.315	1.315	
Pediatrics – MS	80293	1.600	1.663	1.500	1.086	0.859	0.122	1.521	1.494	
Physicians – MS – NOC	80294	1.600	1.280	1.500	0.691	0.663	0.061	1.348	1.346	
Podiatry – NS	80993	1.600		1.500	1.144	0.808	0.086			
Radiology Diag – MS	80280	1.600	1.627	1.500	1.945	1.772	0.305	1.680	1.627	
Surgery – Opthamalogy	80114	1.600	1.415	1.500	0.924	0.745	0.152	1.376	1.349	
Physicians – NMS	80443	1.600		1.500			0.000			
Physicians – NMS	80446	1.600		1.500			0.030			
Physicians – NMS	80449	1.600		1.500			0.000			
Total Class 2				Straight Avg	1.997	1.711		1.181	1.170	1.400
Physicians –NMS	80422	2.500		1.960	1.597	1.528	0.155			
Anesthesiology	80151	3.250	2.327	1.960	2.073	2.001	0.419	2.114	2.084	
Bronchoesophagology	80101	2.500	16.230	1.960			0.000	9.095	9.095	
Cardiovascular Dis – MS	80281	1.600		1.960	4.730	3.651	0.118			
Emergency Med – NMS	80102	2.500	2.263	1.960	2.452	2.356	0.657	2.335	2.272	
Podiatry – MS/IMS	80993	2.500		1.960	2.102	2.650	0.169			
Surgery – Endocrinology	80103	2.500	0.763	1.960			0.000	1.362	1.362	
Surg– Gastroenterology	80104	2.500	3.054	1.960	11.923	9.456	0.030	2.793	2.718	
Surg – Gen/Family Practice	80117	2.500	2.924	1.960	2.745	3.209	0.180	2.496	2.580	
Surgery – Urological	80145	2.500	2.540	1.960	2.758	2.997	0.166	2.335	2.374	
Physicians – NMS	80428	2.500		1.960	1.343	1.697	0.125			
Physicians – NMS	80425	2.500		1.960	1.468	1.852	0.195			
Physicians – NMS	80434	2.500		1.960			0.000			
Physicians – NMS	80431	2.500		1.960			0.000			
Total Class 3				Straight Avg	3.319	3.140		1.609	1.606	2.500

PHICO Insurance Company
Countrywide Physicians Liability
Classification Relativity Analysis

eport Years 1986–1990
Evaluated as of 12/31/90

Physician Specialty	ISO Code	Current Relativities PHICO	ISO	St Paul	Indicated Relativites Based on Loss Ratio	Based on Loss/Expos	PHICO Ced'bilty	Credibility Weighted Relativities Based on Loss Ratio	Based on Loss/Expos	PHICO Selected
Emergency Medicine – IMS	80157	4.000	0.825	3.870	0.875	0.631	0.043	2.284	2.274	
Surgery – Colon & Rectal	80115	4.000	2.921	3.870	5.674	4.756	0.053	3.515	3.467	
Surgery – General NMS/NOC	80143	4.000	4.446	3.870	3.264	2.919	0.498	3.713	3.541	
Surgery – Otology	80158	4.000	1.839	3.870			0.000	2.855	2.855	
Surgery – Otorhinolaryngolo	80159	4.000	2.903	3.870	4.149	4.030	0.139	3.493	3.476	
Total Class 5				Straight Avg	3.491	3.084		3.172	3.122	3.750
Surgery – Cardiac	80141	5.000	5.127	5.030	1.123	1.016	0.061	4.838	4.832	
Surgery – Hand	80169	5.000	2.915	5.030	0.290	0.410	0.030	3.861	3.864	
Surgery – Head & Neck	80170	5.000	3.874	5.030	1.457	0.940	0.053	4.294	4.267	
Surgery – Plastic NOC	80156	5.000	4.415	5.030	3.637	3.755	0.166	4.542	4.562	
Surgery – Plastic ENT	80155	5.000	3.517	5.030	3.617	4.244	0.096	4.210	4.271	
Surgery – Thoracic	80144	5.000	6.067	5.030	3.966	3.835	0.146	5.318	5.299	
Surgery – Gynecology	80167	5.000	3.021	5.030	3.123	4.008	0.132	3.906	4.023	
Total Class 6				Straight Avg	2.459	2.601		4.424	4.445	5.000
Surgery – Cardiovascular Dis	80150	5.000	7.618	6.000	8.743	10.205	0.101	7.004	7.151	
Surgery – OB/GYN	80153	7.000	6.009	6.000	5.767	6.439	0.617	5.858	6.273	
Surgery – Orthopedic	80154	7.000	6.102	6.000	4.981	5.394	0.427	5.594	5.770	
Surgery – Traumatic	80171	7.000	3.987	6.000	1.577	1.109	0.053	4.814	4.789	
Surgery – Vascular	80146	5.000	5.443	6.000	8.862	8.033	0.202	6.354	6.187	
Surgery – Obstetrics	80168	7.000	6.982	6.000	8.483	7.486	0.043	6.577	6.534	
Total Class 7				Straight Avg	6.402	6.444		6.033	6.117	7.000
Surgery – Neurology – IC	80152	10.000	9.269	8.200	10.644	12.209	0.409	9.515	10.154	
Total Class 8				Straight Avg	10.644	12.209		9.515	10.154	10.000

APPENDIX I

NURSE–MIDWIVES
Rate Calculation
Countrywide Data

1. Select Total Limits Loss Ratio		85.0%
2. Discount Factor @ 6% (from 1986 CNA Rate Justification)		82.0%
3. Discounted Total Limits Loss Ratio (1) * (2)		69.7%
4. Expense ratios (from 1986 CNA Rate Justification)		
	a. Acquisition	5.0%
	b. Loss Control	5.0%
	c. General Expense	7.0%
	d. Underwriting Profit	5.0%
	e. Premium Tax	3.0%
	f. ULAE	5.0%
5. Indicated Loss Ratio [(3)*{1+(4f)}]/[1−(4a)−(4b)−(4c)−(4d)−(4e)]		97.6%
6. Trend to Effective Period		1.099
7. Indicated Trended Loss Ratio [(5)*(6)]		107.2%
8. Expected Loss Ratio [100% * {1−(4a)−(4b)−(4c)−(4e)}]/[1+(4f)]		71.4%
9. Indicated Rate Change (7)/(8)−1		50.1%
10. CNA Countrywide Rate @ $250,000/$250,000 Limit		$4,601
11. Indicated Countrywide Rate (10)*[1+(9)]		$6,908
12. Countrywide/Virginia Relativity Factor [from St. Paul 1992 Rate Filing]		0.734
13. Virginia Indicated Rate (11)*(12)		$5,070
14. Current Virginia Nurse–Midwife Rate @ $250,000/$500,000		$5,063

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY

NURSE–MIDWIVES
Countrywide Total Limits Loss Data
CNA Companies

Report Year	RY 87–91 Earned Premium	Claim Count	Total Limits Reported Losses	Allocated LAE	Reported Loss & LAE	Reported LDF	Ultimate Loss & LAE	Loss Ratio
1987	1,116,000	4	153,000	42,000	195,000	1.050	204,750	18.3%
1988	1,601,000	5	1,135,000	296,000	1,431,000	1.050	1,502,550	93.9%
1989	1,970,000	10	1,758,000	309,000	2,067,000	1.050	2,170,350	110.2%
1990	2,211,000	15	1,667,000	175,000	1,842,000	1.379	2,539,473	114.9%
1991	2,358,000	14	163,000	18,000	181,000	5.515	998,143	42.3%
1992	1,113,000	9	59,000	0	59,000	33.088	976,084	87.7%
Totals	**10,369,000**	**57**	**4,935,000**	**840,000**	**5,775,000**		**8,391,350**	**80.9%**

Selected Loss Ratio	85.0%

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY

NURSE–MIDWIVES
Countrywide Total Limits Loss Data
CNA Companies

Reported Loss & ALAE (in 000s)

Report Year	6	18	30	42	54	66
1987	3	67	244	195	195	195
1988	16	308	1,275	1,892	1,431	
1989	48	403	1,645	2,067		
1990	21	1,188	1,842			
1991	36	181				
1992	59					

Reported Loss & ALAE Development

Report Year	6–18	18–30	30–42	42–54	54–66
1987	22.333	3.642	0.799	1.000	1.000
1988	19.250	4.140	1.484	0.756	
1989	8.396	4.082	1.257		
1990	56.571	1.551			
1991	5.028				
Average	22.316	3.353	1.180	0.878	1.000

Select	6.000	4.000	1.313	1.000	1.000	Tail
Cum Select	33.088	5.515	1.379	1.050	1.050	1.050

APPENDIX J

VIRGIN. MEDICAL MALPRACTICE RATE CLASSIFICATION . JDY
Physicians & Surgeons
Loss Experience By Territory
All Classes Combined

The St. Paul
Virginia Data
Basic Limit

Rating Territory	RY 87–91 Exposures	Class 1 Equivalents	Claim Count	Developed & Trended Loss+LAE	Frequency	Severity	Pure Premium	Indicated Relativities	Credibility	Current Relativity	Credibility Weighted Relativity
1	2,619.8	5,397.9	385	$9,091,178	0.0713	$23,613	$1,684	1.337	0.277	1.242	1.268
2	4,150.9	8,713.7	562	$10,219,153	0.0645	$18,184	$1,173	0.931	0.335	1.150	1.077
3	6,413.0	13,278.4	859	$16,619,438	0.0647	$19,347	$1,252	0.994	0.414	0.920	0.951
4	5,002.4	10,081.7	643	$11,266,681	0.0638	$17,522	$1,118	0.887	0.359	0.782	0.820
Totals	18,186.1	37,471.7	2,449	$47,196,450	0.0654	$19,272	$1,260	1.000	1.000	1.000	1.000

Notes: Class 1 Equivalents based upon current ("selected") Virginia relativity from Rate Filing, Exhibit D–2.

VIRGINIA MEDICAL MALPRACTICE RATE CLASSIFICATION STUDY
Physicians & Surgeons
Loss Experience By Territory

The St. Paul
Virginia Data
Basic Limit
Class 7 Only

Rating Territory	RY 87–91 Exposures	Claim Count	Developed & Trended Loss+LAE	Frequency	Severity	Pure Premium	Indicated Relativities	Credibility	Current Relativity	Credibility Weighted Relativity
1	176.7	41	$839,086	0.2320	$20,466	$4,749	0.629	0.091	1.242	1.186
2	159.0	49	$1,266,482	0.3082	$25,847	$7,965	1.055	0.099	1.150	1.141
3	406.5	130	$3,502,119	0.3198	$26,939	$8,615	1.141	0.161	0.920	0.956
4	273.7	93	$2,062,733	0.3398	$22,180	$7,536	0.998	0.136	0.782	0.811
Totals	1,015.9	313	$7,670,420	0.3081	$24,506	$7,550	1.000	1.000	1.000	1.000

Notes: Class 1 Equivalents based upon current ("selected") Virginia relativity from Rate Filing, Exhibit D–2.