

The “Crisis” in Medical Malpractice: A Comparison of Trends in the United States, Canada, the United Kingdom and Australia

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As the sense of crisis in medical malpractice reemerged in the United States in the early 1980s, other countries previously thought immune to liability problems were experiencing similar difficulties. In fact, the frequency and severity of malpractice claims and the cost of malpractice insurance have risen as dramatically in Canada and the U.K. as in the United States, despite legal systems in the U.K. and Canada that are generally less favorable to potential plaintiffs. The absolute level of claims and insurance costs are still lower in the U.K. and Canada than in the U.S., but the gap is narrowing. This paper reviews the evidence on recent trends in claims, awards and insurance premiums in these three countries and comments on the lessons that can be learned from this cross-national comparison.

United States

Claim frequency. The frequency of malpractice claims (number of claims per 100 physicians) rose rapidly in the early 1970s, then stabilized in the late seventies and actually fell in some states. But in the 1980s the upward trend resumed (Figure 1). Over the period 1975 to 1985, claims per physician rose at an average rate of 10 percent a year¹ reaching a level of 0.163 by 1986.² Since the number of physicians per capita has increased, this implies an even larger growth in claims per capita. Recent evidence suggests that the rate of increase has slowed,³ but given the erratic experience of the last two decades it would be premature to base long-term projections on this recent development.

There remain large differences among states and among specialties in both the overall level of claims and

the rate of increase. For example, among the six states surveyed by the General Accounting Office,⁴ claim frequency per 100 physicians ranged from 8.6 in Arkansas to 35.7 in New York. The level of claims against obstetricians and other high-risk surgical specialties is two to three times the average for all specialties.

Claim severity. Claim severity is measured by averaging the indemnity paid on all claims that are closed with payment, including court awards and out-of-court settlements that account for over 90 percent of paid claims. Severity increased at roughly twice the rate of increase of the consumer price index from 1975 to 1984 (Danzon, 1986).⁵ Since 1980, claim severity has grown at roughly 14 percent a year in real terms, after netting out the effects of general inflation (see Figure 2). By 1986, the mean payment exceeded \$100,000, although the median or typical payment was only roughly one fifth of this (roughly \$20,000). This five-fold difference between the mean and median reflects the very skewed distribution of awards, with over 50 percent of dollars paid on 5 percent of claims. To some extent this reflects the skewness of the underlying distribution of economic loss or injury severity.⁶ Most claims are for relatively minor injuries and receive modest awards. But the relatively small number of cases involving permanent disability or death tend to receive very large awards that pull up the average.

Some evidence suggests that awards for these high stakes cases have grown more rapidly than awards for more routine cases,⁷ and awards have grown more rapidly for medical malpractice and product liability than for automobile and other personal injuries, after standardiz-

ing for type of injury.⁸ Moreover, compensation for non-economic loss (pain and suffering) accounts for an increasing proportion of large awards. Data on jury verdicts in Cook County show that, comparing the period 1980-1984 to the period 1959-1979, while the number of medical malpractice cases increased from 2.0 percent to 4.6 percent of all cases, malpractice plaintiffs increased their share of total dollar indemnity fourfold, from 3.7 percent to 16.4 percent. Their share of total payment for pain and suffering increased more than seven-fold, from 3.4 percent to 29 percent. Payments in excess of \$100,000 for pain and suffering on malpractice cases increased from 1.8 percent to 12.8 percent of total payments to plaintiffs on all tort cases.⁹ Even allowing for possible errors in estimating levels and trends in payments for pain and suffering from jury verdict data, it seems that, if Cook County is typical of other jurisdictions, payments for pain and suffering in excess of \$100,000 for medical malpractice cases are increasing disproportionately, relative to payments for economic loss.

There are significant differences among states and specialties in both the level of claim severity and its rate of increase. Levels and growth rates in claim severity tend to be even more volatile than for claim frequency, because the average is very sensitive to a few very large awards, particularly in small states.

These trends and interstate differences in observed severity probably understate differences in real compensation for a particular category of injury. An increase in levels of real compensation tends to expand the number of marginal claims that are worth filing, attracting claims that would not be brought at lower levels of compensation, because of low stakes or low probability of winning. If more of these marginal claims are filed at higher levels of real compensation, this will tend to pull down the observed average payment on paid claims. In general, therefore, differences across states or over time in observed severity tend to understate true differences in levels of real compensation.

Malpractice Insurance Costs. The conceptually correct measure of trends in the cost of malpractice insurance is the cost of covering a constant percentage of the expected loss distribution. This cost of coverage has risen both because of increasing rates for given limits of coverage and because the limits of coverage necessary to provide a given level of financial protection have risen.

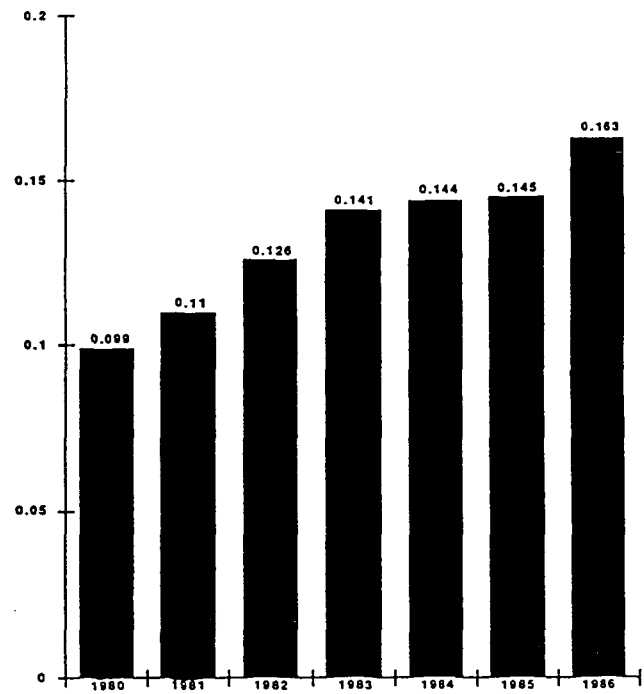
The increase in malpractice insurance rates roughly parallels rising claims costs, although year-to-year changes of premiums have been more volatile.¹⁰ In the early 1970s premium rates initially lagged behind rising claim costs. The catch-up increases of over 300 percent in some states in 1974-1975 sparked the first malpractice insurance crisis. Rates stabilized or fell in constant dollars in the late 1970s, but accelerated sharply in the

1980s, with increases averaging between 25 and 40 percent per year from 1985 to 1987. Figure 3 shows the average percentage change in the cost of basic limits of coverage (\$100,000 per claim, up to \$300,000 for all claims) from 1978 to 1984. This understates the increase in the cost of a constant level of real protection, which requires purchasing higher policy limits as claim frequency and severity increase.¹¹ The cost of excess limits relative to basic limits fell in the late 1970s but increased in the 1980s, more for surgeons than for other physicians.¹²

For 1976-1984 as a whole, the increase for basic limits is 109 percent for the lowest risk specialties such as general practitioners, 189 percent for the highest risk surgical specialties such as neurosurgeons. This implies annualized average growth rates of 9.6 percent for GPs and 14 percent for neurosurgeons. During the same period, the consumer price index increased 82.5 percent and its medical care component increased 125 percent. Thus, although malpractice rates increased more rapidly than other medical costs in the 80s, the discrepancy is less when viewed over a longer time frame.

In the U.S. no single measure accurately reports the cost of coverage for all physicians, because physicians buy different limits of coverage and the cost for given limits differs by specialty and locality. This contrasts to the U.K. and Canada where, at least until recently, all physicians paid the same insurance subscription rate which yields

Figure 1
Claims Filed Per Physician



Note: Based on claims-made coverage.
Source: Unpublished national data base from insurers compiled by Sloan and Bovbjerg (1989)

a unique measure of the increase in the cost of coverage. A 1986 survey of physicians¹³ shows an average premium payment of \$14,781. In the U.S. the rate of increase of premiums since 1976 has been higher in states where the initial level was relatively low.¹⁴ Such trends, if they persist, would narrow the geographic differentials in rates, whereas the specialty differentials show no sign of narrowing, with higher growth rates for the already high-rated surgical specialties (see Figure 3).

Canada¹⁵

Claim frequency. Between 1971 and 1987 the number of claims per 100 physicians increased at an average rate of 9 percent a year, quadrupling from 0.5 in 1971 to 1.8 in 1987 (see Figure 4a). Since this figure treats multiple defendant claims as a single claim and there were 1.7 defendants per claim this implies roughly 3.1 named defendants per 100 physicians per year.¹⁶ This rate of increase is similar to the 10 percent per annum average rate of increase in the U.S., but the absolute level of claims is still 5-6 times higher in the U.S. than in Canada.

Claim severity. Between 1971 and 1987 claim severity increased at an average annual rate of 19 percent in current dollars, or 9.5 percent a year in constant dollars. The relatively small number of paid claims results in substantial year-to-year volatility (see Figure 4b). The average payment reached C\$117,000 in 1987 (\$88,000 in \$U.S.),¹⁷ not far below the average payment in the U.S., despite several differences in legal rules that might be expected to lower award levels in Canada (e.g., a C\$200,000 (\$1988) cap on payment for pain and suffering, lower medical costs, use of judges rather than juries, and infrequent use of contingent fees for plaintiff attorneys). This similarity in mean payment levels does not, however, necessarily imply comparable levels of real compensation for similar injuries in the U.S. and Canada. The use in Canada of the English rule that allocates all legal costs to the losing party is likely to discourage the filing of claims with relatively low probability of winning or potential award. A higher frequency of such cases would tend to pull down the average award in the U.S. If so, the similarity of observed mean payment levels would be consistent with higher levels of real compensation in the U.S.

Malpractice insurance rates. Between 1976 and 1982, malpractice premiums in Canada were essentially stable in constant dollars, and then grew at 42 percent a year in current dollars (39 percent in constant dollars) from 1982 to 1987 (Figure 4c). This recent dramatic growth in excess of claim costs partly reflects the temporary charges required to fund the changeover from pay-as-you-go to funded insurance, which was initiated in 1983. A switch from pay-as-you-go to fully funded occurrence

coverage would require surcharges for several years, up to roughly 70 percent in the first year of the change, with decreasing amounts in successive years.¹⁸ The shift from community (uniform) rating to specialty-specific rating in 1984 necessitated even larger increases for high-risk specialties, with more modest increases for lower risk medical specialties. The average C\$1,828 (U.S. \$1,371) premium in 1987 was roughly one-twelfth the level in the U.S.¹⁹ The difference in premiums is greater than the combined difference in claim frequency and severity, possibly because premiums in the U.S. are set to cover reserves for all expected future claims under the policy (full funding) whereas insurance in Canada has traditionally been on a pay-as-you-go basis. Since the switch to full funding began in 1983 the 1987 Canadian premiums may still reflect less than full funding of future claims.²⁰

The United Kingdom

The data available on claim frequency and severity are less comprehensive for the U.K. than for the U.S. or Canada. The fragmentary data available from the two physicians' mutual defense societies (the Medical Protection Society and the Medical Defence Union)²¹ and the Regional Health Authorities reported in Ham, Dingwall, Fenn and Harris (1988)²² suggest growth rates similar to those in the U.S. and Canada, but lower absolute levels.

Claim frequency. Claim frequency varies regionally from 6.2 claims to 20.5 claims per 100,000 population (1986-1987), or one fifth to two thirds of the U.S. level of 29.4 claims per 100,000 population (1984).²³ Trends in claim frequency are not available for all regions. In one region (Region E which had the highest 1987 claim frequency), the average annual rate of increase over the decade 1977 to 1987 was 17 percent (Figure 7), with most growth occurring in the 1980s. This is consistent with the 19 percent annual growth rate implied by the information reported by the Medical Protection Society (MPS), that the number of claims increased from 1,000 in 1983 to over 2,000 in 1987.²⁴ This rate of increase appears to substantially exceed growth rates for claim frequency in the U.S. and Canada. It is unlikely that the difference can be fully explained by the shorter time period (the averages for the U.S. and Canada span several years of the 1970s when claims grew less rapidly), and the fact that the U.S. and Canadian growth rates in claims per physician understate the growth rate in claims per 100,000 population for a period when the number of physicians per capita was increasing.

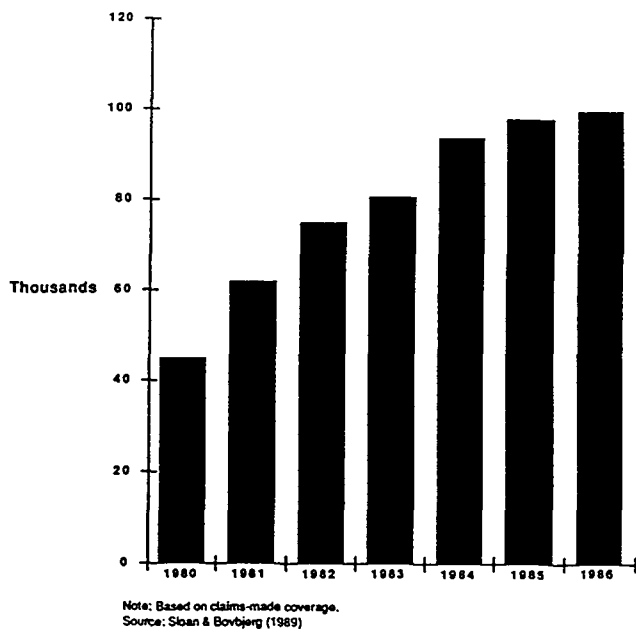
Claim Severity. MPS data show that average claim severity increased over 300 percent between 1976 and 1985, although the average yearly changes have been quite volatile (see Figure 5b).

The implied average growth rate of 17 percent a year resembles Canada's 19 percent annual growth rate.²⁵ According to data from the Medical Defence Union (MDU), the maximum award has increased even more rapidly than the mean payment, at a rate of 23 percent on average from 1977 to 1987 (Figure 5b), from £132,970 in 1977 to £1.03 million (\$1.65m) in 1988. The more rapid rate of increase for the maximum than for the mean suggests that, as in the U.S., award levels in the U.K. have increased more rapidly for the more severe injuries than for the more typical cases. Based on data for one region only (the West Midlands), the mean payment of £15,000 (\$24,000) is roughly one fourth of the mean payment in the U.S. As noted earlier, however, this difference in mean payment per closed claim probably understates the difference in real compensation for a standardized injury, because the legal rules and norms of compensation in the U.S. probably induce the filing of relatively more minor claims which depresses the average payment.

Malpractice Insurance Costs. Over the decade 1978 to 1988, defense society subscription rates increased about 40 percent a year, driven approximately equally by increases of claim frequency and severity of just under 20 percent a year. Although this exceeds the rate of growth of insurance in the U.S., the full subscription rate of £1,080 (\$1,728) for established physicians in 1988 is only roughly one-tenth of the average premium paid by physicians in the U.S.²⁶

Figure 2

Paid Claim Severity
1987 Dollars



Australia²⁷

Information on malpractice claims and premiums in Australia is even more sparse, but malpractice has certainly become a more important issue in recent years. Malpractice insurance is available through nine medical defense organizations in Australia, including the Medical Defence Union and the Medical Protection Society and seven state associations. Comprehensive data on claim frequency and severity are not available. Between 1984 and 1986 the total number of incidents notified to both of the main New South Wales medical defense unions doubled. The introduction of territorial differentials in 1986 and specialty differentials in 1989 imply that the premium increases over those years range from 4.7-fold for general practice (non-procedural) in Queensland and Northern Territory to 27.5-fold for the highest risk surgical specialties in New South Wales and Australian Capital Territory.²⁸ As in Canada, this increase does not necessarily reflect the change in expected claims cost because the program is not fully funded. But for the MDU worldwide operation reserves as a percent of liability for reported claims fell from 56 percent in 1985 to 34 percent in 1987. This pattern suggests that, if anything, the increase in premiums in the U.K. and Australia may understate the increase in reported claims cost, and understates even more the increase in total incurred cost, including claims incurred but not reported (IBNR).

The Determinants of Malpractice Claim Frequency and Severity

The causes of this international increase in the number and size of malpractice claims are not well understood. There are many hypotheses, but empirical evidence remains limited and inconclusive for two fundamental reasons. First, many of the key variables are not readily observable. In particular, the frequency of negligent injuries is not measured systematically. Our limited information on rates of iatrogenic injury and negligently caused iatrogenic injury is from infrequent and geographically limited special surveys of hospital records. What is observed is the frequency of claims and average amount per paid claim. But claims depend not only on the underlying frequency of injuries but also on the relevant legal rules, social norms, and costs of litigation which affect plaintiffs' incentives to file and the propensities of courts. These legal rules and social norms also cannot be readily observed or measured.

Second, the underlying causal relationships between the legal system and the medical system are complex. The rate of injuries, claim frequency and severity, legal expenditures, and even the legal rules are simultaneously determined. The complexity of these relationships increases the data requirements necessary to identify empirically these separate effects and estimate the

underlying relationships that are of policy interest, including the determinants of claims and the deterrent effects of liability on injury rates. Such data are generally not available for medical malpractice and other injuries governed by tort law, including other professional and personal liability and product liability. However, the evidence from studies of the workers' compensation system, where eligibility and benefits are set by statute and so can be more readily quantified, confirms that the level of benefits payable in the event of injury does have feedback effects to both the rate of injuries and the rate of claims.

In all four countries—the U.S., the U.K, Canada and Australia—liability for medical malpractice requires, at least in theory, that the plaintiff incurred an injury that was caused by negligent care of the medical provider. Accordingly, one possible explanation of the growth in claims is that the underlying rate of negligent injury has increased. This seems implausible.²⁹ It seems even less plausible that differences across states and specialties can be fully explained by differences in the underlying rate of negligent treatment. Changes in the volume and technology of medical care may have increased the frequency of procedures that tend to generate an obvious and serious injury if things go wrong. Evidence from both the U.S.³⁰ and Canada³¹ shows that claim frequency is related to the rate of surgical procedures. Assuming that surgeons are not generally more negligent than medical specialists, a plausible explanation is that adverse surgical outcomes are more evident and have more severe consequences than medical errors.

If the growth in claims over time and regional differences within single countries cannot be fully explained by different rates of negligent injury, or volume and type of medical care, part of the explanation must lie in changes in legal rules and costs, or changing social norms that increase the propensity to file a claim, given an observable injury. It is possible that the rise in claims in the U.S. simply reflects a catch-up, that is, the filing of an increasing proportion of potential claims under a negligence standard. The fact that as of 1974 fewer than one in ten negligent injuries resulted in a claim being filed³² suggests a significant potential for increase in number of claims without any increase in invalid claims or shift to a strict liability standard. As the expected pay-off from filing has risen, an increasing number of potential claimants may find it worth-while to file. Evidence consistent with the catch-up hypothesis is the fact that the rate of increase of malpractice premiums over the last decade has been greatest in states that started from a relatively low level in 1976.³³ For countries such as Canada, the U.K. and Australia, which started from a much lower level of claims in the 1970s, the potential for claim expansion was and remains even greater, assuming that the underlying rate of negligent injury was no less than in the U.S.

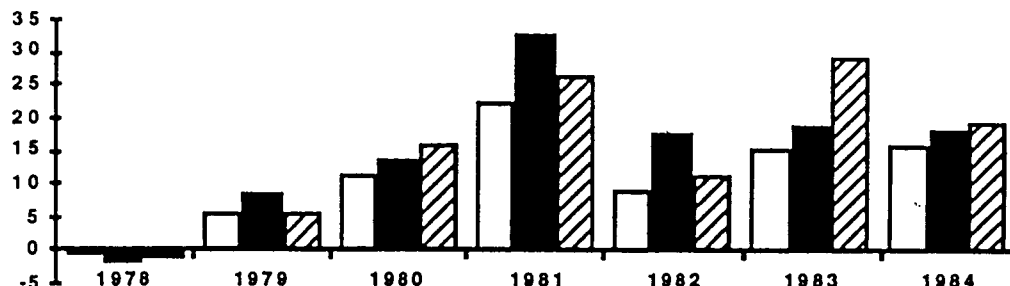
A basic assumption of economic models of claims is that a necessary (but not sufficient) condition for a typical potential plaintiff to bring a suit is that the expected net pay-off is positive:

$$pA < C;$$

that is, the probability of winning (p) times the expected

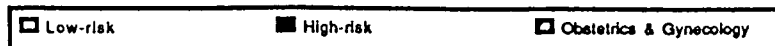
Figure 3

Average Percentage Change in Cost of \$100,000-\$300,000 Policy 1978-86*



1977-84 Low-risk: 109.0 High-risk: 189.0 Obstetrics & Gynecology: 179.9
 All Specialties: 1985 -- 30% (25-40%, depending on specialty and state)
 1986 -- 30%

Source: U.S. Department of Health and Human Services, Health Care Financing Administration, annual malpractice insurer's surveys.
 *Coverage of \$100,000 per claim and up to \$300,000 aggregate. Mean of state-specific rates of change. Unweighted average. Companies included in sample vary from year to year.



award if successful (A) exceeds expected costs of filing (C), including legal expense and the plaintiff's own time and inconvenience. This condition simply says that plaintiffs are unlikely to continue to bring claims if on average they lose money as a result. Of course this may be neither a necessary nor a sufficient condition for filing for some plaintiffs: risk aversion and the desire to see justice done or to tell their side of the story play a role for many. Nevertheless, it is likely that any factor that tends to raise the probability of winning for plaintiffs (p) or increase the size of awards (A) will tend to increase the overall frequency of claims, and any factor that tends to raise the cost of filing (C) will tend to reduce claim frequency. For example, factors commonly cited to explain the higher level of claims in the U.S. relative to Canada or the U.K. include: higher potential awards, both for medical expense and pain and suffering, which raises A; greater availability of expert witnesses, more liberal rules of informed consent that effectively raise p ; and the contingent fee lowers the effective cost of litigation for risk averse plaintiffs.

Legal changes that affect p , A or C have certainly played a role in the increase in claims. In the U.S. early modification of the common law doctrines of *respondeat superior*, informed consent, and the locality rule contributed to the rise in claims in the early '70s. Since the mid-'70s, statutory tort reforms have slowed but not reversed the upward trend in some states. Statistical analysis suggests that reducing the statute of limitations for adults by one year (from date of injury) reduced claim frequency by roughly 8 percent; collateral source offset reduced claim frequency by 14 percent.³⁴

But in the U.S. there do not appear to have been any major explicit doctrinal shifts since the mid-'70s that could account for the continued growth in claim frequency. The standard is still nominally a negligence standard, defined by customary practice. It is possible—and widely alleged—that *de facto* the standard is increasingly a strict liability (or no fault) standard, but this is hard to document. Even if true, it still leaves trends in this standard unexplained.

Deweese et al.³⁵ cite the change in the doctrine of informed consent, from a reasonable physician standard to a reasonable patient standard, as a potential contributor to the rise in claims in Canada. The fact that the increase in claims in the U.S. has continued, although this and other common law changes widely blamed for the increase in claims in the U.S. had probably run their course by the mid-'70s³⁶, suggests that this is by no means the dominant factor in the growth in claims in Canada.

Size of Awards. As reported earlier, jury verdicts have risen in the U.S., particularly for the most severe injuries, with some evidence of a disproportionate increase in awards for pain and suffering. This has occurred without

any explicit change in legal rules. By contrast, in Canada the changes in rules of damages have surely contributed to the growth in mean claim severity.³⁷

So far it has not been possible to tease out empirically the feedback from increase in awards to increase in claim frequency, as the potential for higher recovery increases the incentive to file and invest legal effort on claims. Evidence consistent with such a feedback is that states that have enacted statutes permitting or mandating collateral source offset have experienced lower growth in claim frequency (14 percent) as well as lower growth of severity (18 percent less) than states that have preserved the traditional rule of no collateral source offset. Statutory caps on awards have reduced claim severity but do not appear to have affected frequency. This is not surprising, since caps have no effect on the potential award for the majority of claims, which would be affected by provisions for offset of collateral sources for medical and wage loss.

Costs of Litigation. A highly significant variable in explaining regional differences in claim rates across states in the U.S. is the percentage of the population living in urban areas. Precisely what characteristics of urban environments lead to higher litigation rates has not been determined. More impersonal patient-physician relationships and greater rates of referral are possible candidates. Also, since awards are higher in urban areas, higher potential awards may feed back to higher propensity to file. After controlling for urbanization, surgery rates and other demographic variables, average per capita income is not a significant factor, nor is the number of attorneys per capita. Although a strong positive simple correlation exists between number of attorneys and claim frequency, statistical analysis suggests the more likely causal relation is that attorneys are likely to locate in areas with high rates of litigation.³⁸

Effects of Liability of Physicians' Practice Patterns

The response of physicians to the costs of liability is fundamentally important in determining whether liability serves a useful deterrent function or whether it is simply a haphazard and inefficient system of compensation. Several studies (for example, Greenwald and Mueller, 1974; Reynolds, Rizzo and Gonzalez, 1987; Danzon, 1990) have attempted to estimate the effects of liability on resource allocation in medical care, but without a measure of injury rates have been unable to distinguish cost-justified improvements in prevention that liability is intended to induce from wasteful "defensive medicine."³⁹

Survey data provide some (inconclusive) evidence that physicians do increase time per patient visit in response to higher liability costs.⁴⁰ With the fee-for-service system of reimbursement in which physicians cannot readily

charge for additional time spent per visit or procedure, there is some presumption that in the absence of liability physicians would spend too little of their own time and substitute too many other resources, such as diagnostic tests and hospital inputs which are reimbursed separately. Some increase in physician time in response to liability is therefore consistent with improved efficiency.

The evidence on effects of liability on frequency of diagnostic tests and x-rays is mixed. Data from the 1976, 1978 and 1983 Physician Practice Costs and Income Surveys (PPCI) analyzed in Danzon (1989)⁴¹ show little evidence of increased frequency of routine lab tests, and limited increase in use of x-rays. Data from the American Medical Association Socioeconomic Monitoring System analyzed by Zuckerman (1984)⁴² and Reynolds, Rizzo and Gonzalez (1987)⁴³ show that over 40 percent of physicians report ordering more tests in response to increased liability. However, the increase in tests over all physicians was estimated at only 3.2 percent. Moreover, the evidence from the SMS survey is potentially seriously biased by the wording of the questions and possibility of biased response.

Effects on Physicians Fees, Reimbursement and Incomes

If the net effect of liability were that physicians simply passed on malpractice premium costs in higher fees, there would no basis for beneficial deterrence effects, wasteful defensive practices, or adverse effects on physicians' incomes. Several studies⁴⁴ have confirmed that physicians "usual charges" are positively related to malpractice insurance costs. The magnitude of the effect suggests a full pass through and possibly more than full pass through. But what appears to be more than full pass through of premium costs may be explained by three factors. First, level of care and length of visit may increase, as already noted. Second, if there are significant uninsurable, non-monetary costs of suit, this effectively raises the marginal cost to the physician of treating each patient and would tend to increase fees.

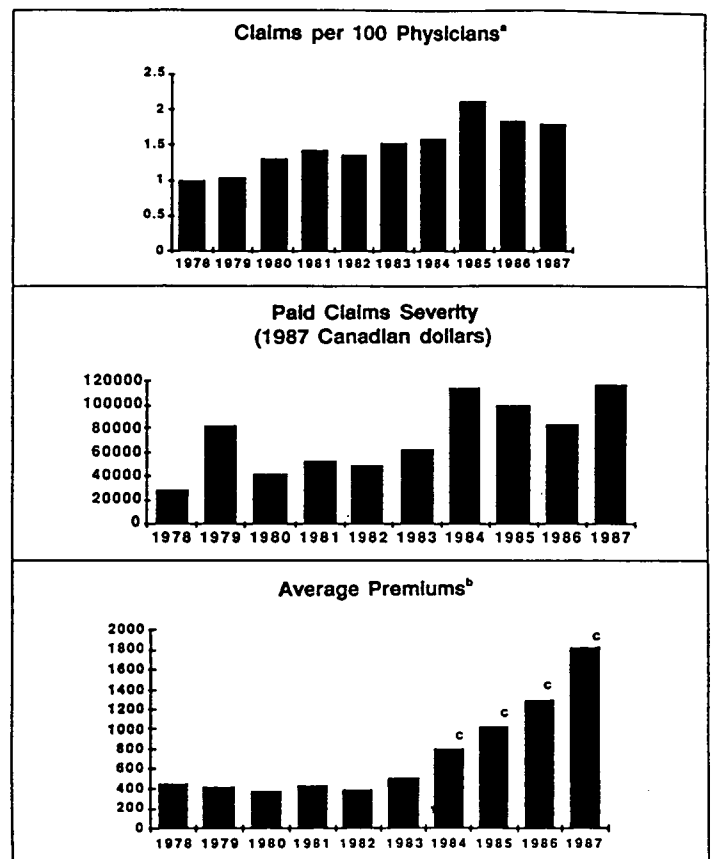
Third, many physicians are reimbursed at less than their "usual charge" by third-party payers. This discrepancy varies among payers, with commercial insurers generally paying closest to usual charges and Medicaid paying least. Analysis of the responsiveness of reimbursement rates paid by third-party payers to interstate differences in liability costs indicates that, as of 1983, rates paid by Blue Shield, commercial insurers and Medicare adjusted roughly in the same proportion as usual fees, whereas rates paid by Medicaid were inversely related to liability costs (Danzon, 1990; Danzon, Pauly and Kington, 1990). This suggests that, to the extent liability decreases physicians' willingness to treat Medicaid patients, the failure of Medicaid payment rates to keep

pace with malpractice costs may be more important than the alleged (but so far undocumented) greater propensity of indigent patients to sue.

The Market for Malpractice Insurance

Recent premium volatility in medical malpractice, product liability and other lines of commercial liability insurance has raised questions about the competitiveness of the liability insurance industry. In medical malpractice insurance, however, physician-owned companies now write over half the business in the U.S., and the experience of these companies has been similar to that of the commercial insurers. These facts, together with the data on trends in claim frequency and severity, strongly suggest that the rising cost of medical malpractice insurance cannot simply be attributed to noncompetitive behavior of the insurance industry.

Figure 4
Canada: Malpractice Claims, Awards and Premiums



Source: Dewees, Coyte and Trebilcock (1989)

- * Multiple defendant claims reported as a single claim
- ^b Canadian Medical Protective Association
- ^c Increases after 1984 reflect switch to funded program

Outside the U.S. medical malpractice insurance is provided almost exclusively by medical defense organizations which, because they have the discretion not to meet claims, are not required to be authorized as insurers. Although technically they do not sell insurance, in practice the services they provide their members—indemnity, legal defense and advisory services—are similar to those provided by a commercial insurer.⁴⁵

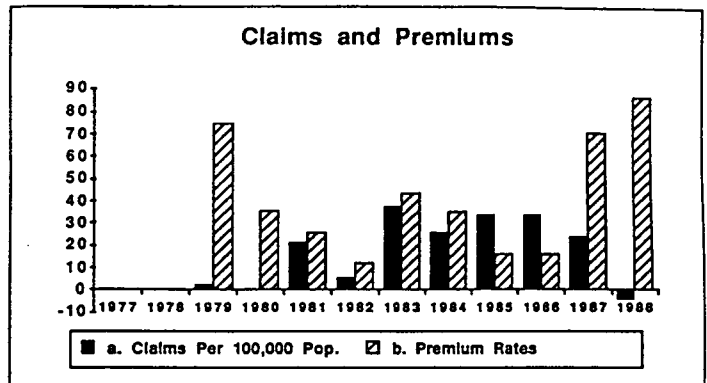
Two features that distinguish these medical defense organizations from commercial insurers may threaten their viability as the cost of claims and hence of subscriptions rises. First, defense associations in Canada, the U.K. and Australia have traditionally charged a single rate to all physicians. Such a system of community rating in the face of significant specialty or geographic differentials in claim costs is likely to be viable only so long as premiums are low, unless insurance is provided by a monopolistic insurer and the elasticity of demand for coverage is low. As premiums have risen, specialty-specific rating has been introduced in Canada in 1984, and in Australia in 1989. In the U.K. the MDU and MPS charged a common rate until 1989, when the MPS introduced specialty differentials, ranging from £1,080 for GPs up to £4,900 for obstetricians and gynecologists, while the MDU maintained a common rate of £1,350. This move to specialty differentials led to a proposal by the Department of Health for a National Health Service indemnity by the health authorities for their medical and dental staff.⁴⁶

A second distinguishing feature of medical defense associations that may be threatened in more competitive insurance markets is that they have traditionally operated to some degree on a pay-as-you-go basis. Commenting on the operation of these organizations in Australia, Cumpston, Rennie and Walsh (1989)⁴⁷ conclude that “although their assets have generally been much less than their liabilities, the medical defense organizations operating in Australia have served their members well for many years, and have demonstrated their capacity to overcome difficulties.” However, in a competitive insurance market an insurer that charges premiums in the current year that include a charge to cover claims filed in previous years is likely to be undercut by a new entrant that only needs to charge for expected claims this year.⁴⁸ The threat of competitive entry may be one reason why the Canadian Medical Protection Society initiated a move to specialty differentials and funded insurance.

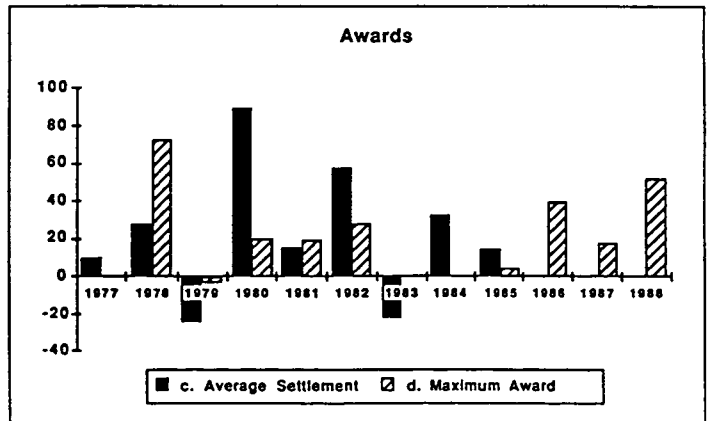
The evidence of movement from the traditional community-rated, pay-as-you-go subscriptions in the direction of funded, specialty-rated subscriptions suggests that the medical defense associations are feeling pressure from actual or potential competition. One potential obstacle to would-be entrants is that physicians considering switching would have to purchase a retroactive endorsement to cover claims incurred but not reported while the physician was covered by the defense association.

Should the physician subsequently want to switch back to the defense association, he or she would have to purchase a reporting endorsement to cover claims incurred but not reported during the years of coverage with the commercial carrier, assuming claims-made commercial coverage. This exposes the physician to the risk of being individually risk-rated, which does not exist if he or she does not switch carriers. Thus the physician considering switching faces a lower mean but higher variance in expected cost of future coverage.⁵⁰ This is likely to be appealing primarily to physicians who have either low intrinsic risk or low aversion to risk. Conversely, with potential entry the medical defense associations should anticipate adverse selection unless they can avoid the defection of low risk physicians by moving to specialty-specific rating. Thus a move to more actuarially-based specialty and geographic differentials seems inevitable, forced by actual or potential entry of commercial carriers, unless such entry is barred by regulation.

Figure 5
UK: Annual Increase in Malpractice Claims, Awards and Premiums (Percentage)



a. Region E only, which has highest claim rate. Ham et al. Fig 5
b. Ham et al. Table 3



c. From Medical Protection Society. Ham et al. Fig. 2
d. From Medical Defense Union. Ham et al. Fig. 3

Source: Calculated from data reported in Ham, Dingwall, Fenn and Harris (1988)

Discussion

The evidence from the U.S., the U.K., and Canada, which is summarized in Tables 1 and 2, indicates that physicians in the U.S. are five to six times more likely to be sued than physicians in Canada or the U.K. Claim severity (average payment per paid claim) is similar in the U.S. and Canada, where it is roughly four times the level in the U.K. This does not, however, provide an unbiased measure of differences in real compensation for a standardized injury. On the one hand, there are probably relatively more minor claims in the U.S., which biases downward the estimate of levels of real compensation relative to other countries. On the other hand, the gross payment in the U.S. exceeds the net compensation received by the plaintiff by the amount of the attorney's contingent fee, typically one third, which biases upward the estimate of relative compensation in the U.S.⁵¹ Although levels of claim frequency and severity remain higher in the U.S., the rate of increase has been at least as rapid in Canada and the U.K. Similarly, the recent rate of increase of malpractice insurance costs has been as high if not higher in the U.K. and Canada than in the U.S., although absolute levels remain roughly ten times higher in the U.S.

Pressure for actuarial rating of premiums, to reflect differences among specialties and localities in actual claim costs, is inevitable in competitive insurance markets. It is also consistent with the cost-internalization and deterrent purposes of the tort system, if prices for medical services also adjust to reflect differential compensation costs. In countries where reimbursement for physicians' services is set at uniform levels that do not reflect differential liability costs, however, the incidence of specialty or geographic differentials in malpractice subscriptions will be on physicians in the first instance, creating possibly unacceptable distributional effects among physicians. It is not surprising that the sense of crisis on the part of physicians has been great in Canada and the U.K., nor is it surprising that the introduction of specialty-specific rating in the U.K. precipitated the NHS proposal to assume financial responsibility for their medical and dental staff. Whether physicians' incentives to increase cost-justified preventive measures or wasteful defensive medicine are greater in countries in which the possibility of raising fees is constrained, than in the U.S. with its greater fee flexibility, depends on a complex mix of factors, including the extent of uninsured costs borne by physicians, ability to charge for additional care or defensive practices (greater under fee-for-service than salary reimbursement), and on the effectiveness of such measures in reducing the risk of suit.

Although malpractice premiums are a larger percentage of physicians' gross and net income in the U.S. than in Canada or the U.K., it would be incorrect to infer that premiums are a larger burden on physicians in the U.S. in the sense of reduction in net income or utility. To measure the real effect of malpractice premiums requires knowing what physicians' net incomes would have been in the absence of malpractice costs. Answering this counterfactual question from actual data is difficult, because physicians change their fees and practice patterns in response to the expected costs of liability, including both insurance costs and uninsurable costs of litigation, thereby affecting net incomes. To the extent physicians in the U.K. and Canada have less flexibility in adjusting fees and practice patterns in response to higher malpractice costs than their U.S. counterparts, the lower level of malpractice costs in these countries may actually have a greater effect on net income of physicians. In the absence of better data this remains a plausible but untested hypothesis.

Table 1

AVERAGE ANNUAL GROWTH RATES IN MALPRACTICE CLAIM FREQUENCY, SEVERITY AND PREMIUMS (VARIOUS TIME PERIODS)

<u>Country</u>	<u>Frequency</u>	<u>Severity</u>	<u>Premiums</u>
U.S.	10% (1976 - 1984)	19%* (1980 - 1987)	> 20% ^b (1976 - 1987)
Canada	9% (1971 - 1987)	19% ^c (1971 -1987)	23% (1976 - 1986) 42% (1982 - 1987)
U.K.	17% ^d (1980 - 1987) 19%* (1983 - 1987)	17% (1976 - 1985)	39% (1978 - 1988)

Notes

- * 14% in constant dollars
- ^b 10-20% for basic limits
- ^c 9.5% in constant dollars
- ^d Claims per 100,000 population, Region E
- * Derived from MPS data, assuming constant number of insured physicians

References

1. P.M. Danzon, "The Frequency and Severity of Medical Malpractice Claims: New Evidence," *Law and Contemporary Problems*, 49 (2), Spring, 1986.
2. F.A. Sloan and R.R. Bovbjerg, "Medical Malpractice: Crisis, Response and Effects," *Health Insurance Assoc. of America Research Bulletin*, May 1987.
3. The St. Paul Fire and Marine Insurance Company, which covers more physicians than any other carrier and writes in 42 states, reports an average premium increase of 32% in 1986, 30% in 1987, and 5.5% in 1988. A 14% decrease on average is projected for 1989. Rate increases for the physician-owned companies and other commercial carriers have also slowed. This deceleration or even decline in premiums is attributed primarily to fewer claims being filed. "Are Malpractice Premiums Leveling Off for Good?" *Medical Economics*, 1989. Jury Verdicts Research Inc. reports a decline in median and mean jury verdicts. *Wall St. Journal*, April 28, 1989. However such trends may be biased by changes in caseload composition. See n. 5.
4. U.S. Accounting Office, *Medical Malpractice Case Studies*, U.S. Government Printing Office, December, 1986.
5. Danzon, supra note 1. The growth of malpractice awards in excess of general inflation cannot be fully explained by the more rapid growth in the medical price index, since medical expenses are a relatively small fraction of compensable damages in malpractice claims. NAIC (1980) reports that medical expense was less than one-quarter of the reported economic loss in medical malpractice cases closed with payment.
6. P.M. Danzon and L.A. Lillard, "Settlement Out of Court: The Disposition of Medical Malpractice Claims," *Journal of Legal Studies*, June, 1983.
7. M.A. Peterson, "Civil Juries in the 1980s: Trends in Jury Trials and Verdicts in California and Cook County, Illinois," Rand Corp., Institute for Civil Justice, 1987.
8. A. Chin and M.A. Peterson, "Deep Pockets, Empty Pockets: Who Wins in Cook County Jury Trials," The Rand Corp., Institute for Civil Justice, 1985.
9. Based on data provided by George Priest, reported in P.M. Danzon, "Florida Malpractice Awards for Pain and Suffering" in Manne, ed. *Medical Malpractice Policy Guidebook*, 1985, 139. There are several possible sources of error in generalizing from such data. Payment for pain and suffering is estimated as the difference between the total award and reported economic loss (wage loss, medical and other tangible expense). These data do not correct for awards that are reduced on appeal. The sample of cases litigated to verdict tends to be atypical and unrepresentative of cases settled out of court (Danzon and Lillard, 1983); cases involving atypical issues and very large stakes are more likely to be tried to verdict. Estimates of trends over time may be biased by changes in caseload composition. In particular, estimates of trends in the mean may be upward biased if cases tried to verdict represent an increasingly small percentage of the largest cases.
10. A precise parallel movement between premiums and paid claim costs is not expected since premiums reflect anticipated future claim costs, which may reflect other information in addition to current paid claims.
11. The percentage of physicians carrying at least \$1 million in coverage increased from 21 percent in 1976 to 41 percent in 1983. Dutton, 1986.
12. The cost of \$1 million-\$1 million coverage, expressed as a multiple of the \$100,000 - \$300,000 basic limits of coverage was 2.0 in 1977, fell to 1.7 in 1980 and rose to 2.26 in 1986. St. Paul Fire and Marine Insurance Company, private communication.
13. Health Economics Research, Inc., "Impact of Malpractice Insurance Costs on Physician Practice," 1983-1986. Final Report May 16, 1988.
14. The correlation between the level of premiums in 1976 and the percentage increase between 1976 and 1984 is -0.4.
15. The data in this section are from D. Dewees, P. Coyte, and M. Trebilcock, *Canadian Medical Malpractice Liability: An Empirical Analysis of Recent Trends*, University of Toronto, June, 1989. Growth rates are estimated by an exponential model.
16. Dewees et al. Figure 2-2.
17. The June 1987 exchange rate was C8.75 = U.S. \$1.00. Federal Reserve Bulletin.
18. In the first year of a switch to full funding, the premium levy must cover claims payable in that year plus the present value of expected losses accruing to new policies written in that year. The length of the payout tail determines the investment income and hence the amount and duration of the surcharges necessary to move to full funding.
19. This assumes a \$16,000 mean premium in the U.S.
20. Figure 4c gives the average cost of total limits of coverage in Canada, whereas Figure 3 gives the cost of basic limits of coverage for the U.S., based on a subset of insurers. As indicated earlier, because physicians in the U.S. pay different premiums, depending on specialty, location and limits of coverage selected, estimates of the average cost of insurance for U.S. physicians are sensitive to the sample of physicians on which the estimate is based.
21. The Medical Defence Union, established in 1885, has about 135,000 physicians and dentist members (including members of wholly-owned subsidiaries), principally in the U.K., Australia, New Zealand and Spain (Cumpston et al. 1989). The Medical Protection Society was established in 1891 and has about 117,000 members worldwide, principally in the U.K., Australia, New Zealand, Hong Kong, Malaysia, Singapore, and South Africa.
22. C. Ham, R. Dingwall, P. Fenn, and D. Harris, *Medical Negligence: Compensation and Accountability*, The King's Fund Institute, London, 1988.
23. Ham et al. p. 12.
24. The 19 percent growth rate calculated from the MPS data assumes that the number of physicians insured by the MPS remained constant over this period.
25. MDU reports that severity doubled between 1984 and 1987, which would imply a 19 percent growth rate, similar to the 17 percent reported for the MPS.
26. This assumes an increase in the average premium of \$14,781 in the U.S. in 1986 to \$17,000 in 1988 and an exchange rate of \$1.6 = £1.
27. The data in this section are from R. Cumpston, Rennie and Walsh, "Compensation for Medical Misadventure," Mimeo, (1989).
28. The New South Wales Medical Defense Union, which shares the NSW market roughly equally with the MDU, charged the same premiums as the MDU at least from 1984-1988.
29. However, some commentators attribute the recent slowdown in claims to success of risk management programs. *Medical Economics*, supra note 3.
30. Danzon, supra note 1.
31. Dewees et al., supra note 15.
32. P.M. Danzon, *Medical Malpractice: Theory, Evidence, and Public Policy* (Cambridge: Harvard University Press, 1985), and sources cited therein. The definition of a claim is as defined in NAIC, 1980. It includes all claims filed with an insurance company by a patient or patient's attorney, including claims that are settled or dropped without filing a legal suit. It does

not include cases where a hospital might provide remedial medical care to a patient without the filing of a formal claim.

33. P.M. Danzon, "The Effect of Medical Malpractice on Physicians' Practice Patterns and Incomes," unpublished paper, June, 1989.

34. Danzon, *supra* note 1. These are average percentage reductions, in a single year, over the period 1975-1984.

35. Dewees et al., *supra* note 15.

36. Danzon, *supra* note 1.

37. S.A. Rea, Jr., "Economic Perspectives of the Liability Insurance Crisis," in *Insurance Law*, pp. 1-12, (Toronto: DeBoo).

38. Danzon, *supra* note 1.

39. B. Greenwald and M. Mueller, "Medical Malpractice and Medical Costs," in S. Rottenberg (ed.) *The Economics of Medical Malpractice*, Washington D.C., America Enterprise Institute, 1978, 65-86; R. Reynolds, J. Rizzo and M. Gonzalez, "The Cost of Medical Professional Liability," *JAMA*, May 22/29, 1987, 257:20; Danzon, *supra* note 33. "Defensive Medicine" has been variously defined. In principle it should be defined to include procedures performed and other actions taken by medical providers that would not have been chosen by a fully informed patient, given his or her first-party insurance coverage, and that would not have been taken in the absence of liability. It is important to exclude resource misallocations that may be induced by moral hazard on first party health insurance or asymmetric information in the physician/patient relationship.

40. S. Zuckerman, "Medical Malpractice: Claims, Legal Costs, and the Practice of Defensive Medicine," *Health Affairs*, Vol. 3, Fall, 1984, 128-33; Reynolds et. al, *supra* note 39; Danzon, *supra* note 33.

41. Danzon, *supra* note 33.

42. Zuckerman, *supra* note 40.

43. Reynolds et al., *supra* note 39.

44. Greenwald and Mueller, *supra* note 39; Reynolds et al., *supra* note 39; Danzon, *supra* note 33.

45. The data available do not permit a rigorous comparison of the services provided and efficiency of the medical defense associations compared to commercial insurers. In 1985-1987, indemnity payments accounted for 42-57% of subscription payments for the MDU; advisory services and legal charges account for roughly an additional 15 and 16 percent, respectively (Cumpston et al, 1989). The MPS reports similar percentages. The ratio of indemnity payments to subscriptions for the medical defense associations would be comparable to loss ratios for commercial insurance in the U.S., only if the subscriptions reflected full funding.

46. This would not cover office-based general practitioners, who would continue to have their subscriptions reimbursed through the expenses system (*British Medical Journal*, v. 298 13 May, 1989), nor would it cover the private practice of physicians (*British Medical Journal* v. 298, 1 April 1989). Difficult details of this proposal remain to be resolved, in particular, the transfer of responsibility and reserves for claims arising out of prior actions, and liability for indemnity payments if the doctor retained separate representation. Under the original proposal, doctors who elected to retain separate legal defense cover would continue to be responsible for all costs and damages awarded for medical negligence.

47. Cumpston, et al., *supra* note 27.

48. Pure pay-as-you-go insurance is a more extreme form of retroactive charging than claims-made insurance.

49. Cumpston et al., *supra* note 27, report that brokers representing commercial insurers have tried to enter the Australian market by bidding away physicians with "low risk" practices.

50. A similar risk faces physicians who switch claims-made carriers in the U.S.

51. Legal costs of successful plaintiffs would typically be paid by the defense in Canada and the U.K., but this is reported separately from the average payments reported here.