

The Influence of Motor Vehicle Legislation on Injury Claim Incidence

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ABSTRACT

Background: Although there have been numerous strategies to prevent motor vehicle collisions and their subsequent injuries, few have been effective in preventing motor vehicle injury claims. In this paper, we examine the role of legislation and compensation system in altering injury claim incidence.

Methods: The population base for our natural experiment was all Saskatchewan, Manitoba, British Columbia and Quebec residents who submitted personal injury claims to their respective motor vehicle insurance provider from 1990 to 1999. The provinces of Saskatchewan and Manitoba switched from Tort to pure No-Fault insurance on January 1, 1995 and on March 1, 1994 respectively. British Columbia maintained tort insurance and Quebec maintained pure no-fault insurance throughout the entire 10-year period.

Results: The conversion from tort insurance to pure no-fault motor vehicle insurance resulted in a five-year 31% (RR=0.69; 95% CI 0.68-0.70) reduction in total injury claims per 100,000 residents in Saskatchewan and a five-year 43% (RR=0.57; 95% CI 0.56-0.58) reduction in Manitoba. At the same time, the province of British Columbia retained tort insurance and had a five-year 5% reduction (RR=0.95; 95% CI 0.94-0.99). Quebec, which retained pure no-fault throughout the entire 10-year period, had less than one third of the injury claims per 100,000 residents than the tort province of British Columbia.

Interpretation: The conversion from tort to pure no-fault legislation has a large influence in reducing motor vehicle injury claim incidence in Canada. Legislative system and injury compensation scheme have an observable impact on injury claim incidence and can therefore have significant impact on the health care system.

MeSH terms: Automobiles; traffic accidents; insurance benefits

La traduction du résumé se trouve à la fin de l'article.

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The effect of legislation and its role in altering motor vehicle injury claim incidence has not been given appropriate consideration.¹⁻³ This paper explores the role of legislation and compensation scheme on injury claim incidence in four Canadian provinces with different motor vehicle injury compensation systems during the decade 1990 to 1999.

In general, there are two main types of insurance coverage for motor vehicle collision injury claims: Tort and No-Fault. Tort is a fault-based system under which the injured claimant not at fault for the collision must not only prove negligence on the part of the at-fault driver but must also prove their subsequent disability in order to secure a payment. If successful, the payment includes reimbursement for lost income, medical expenses, and pain and suffering. Conversely, the claimant at fault for the collision or single vehicle crash receives negligible lost income and medical expenses and is not eligible for a pain and suffering payment. Although there are variations of no-fault insurance plans, they all pay extended, guaranteed and scheduled medical, rehabilitation and income replacement benefits regardless of fault in a timely manner. A pure no-fault plan, however, means that the injured claimant is unable to sue for pain and suffering under any circumstance (similar to all provincial workers compensation plans in Canada).

Criticism of tort insurance includes concern that the system is too costly, too inefficient, too inequitable, too slow and that it promotes excess claiming.⁴⁻¹² For example, the pure no-fault province of Quebec had 70 whiplash claims per 100,000 inhabitants while the tort province of Saskatchewan had over 700 whiplash claims per 100,000 inhabitants in 1987.² When the province of Saskatchewan switched from tort to pure no-fault insurance in 1995, the six-month incidence of whiplash claims reduced by 28% while time to injury claim closure reduced by 54%.¹

The purpose of the current study was to look at the effect of changing from tort to pure no-fault legislation in the provinces of Saskatchewan and Manitoba on total injury claim incidence in comparison to a province that maintained tort insurance throughout the time period (British Columbia) and another province that

maintained pure no-fault insurance throughout (Quebec).

METHODS

Study population and design

The population base for our natural experiment was all Saskatchewan, Manitoba, British Columbia and Quebec residents who submitted personal injury claims to their respective motor vehicle insurance provider from 1990 to 1999. These provinces are unique as they are the only four jurisdictions in Canada in which there is only one motor vehicle insurance company offering compulsory coverage.

The provinces of Saskatchewan and Manitoba switched from tort to pure no-fault insurance on January 1, 1995 and March 1, 1994, respectively. British Columbia maintained tort insurance and Quebec maintained pure no-fault insurance throughout the entire 10-year time period of 1990 to 1999 (Table I). These four provinces provided the opportunity to observe the effect of tort or no-fault compensation system on motor vehicle injury claim incidence.

Outcome measure

Our primary outcome measure was the total number of personal injury claims submitted to each provincial motor vehicle insurance company from 1990 to 1999. Twelve-month cumulative incidence rates were calculated with the total number of residents in the province¹³ and the total number of automobile collisions. Total annual injury claim and automobile collision numbers were provided directly by each of the respective provincial insurance companies to the research team. There was no possible way to track potential injuries that did not convert into injury claims (did not submit to health care provider or insurance company). Rate ratios were used to determine the short-term (previous year to the following year) and long-term effect (previous five years to following five years) of switching from tort insurance to pure no-fault insurance in the provinces of Saskatchewan and Manitoba and relative values of the rate ratios were used to determine the effect of legislative change in comparison to the control province that retained tort insurance throughout the entire 10-year period (British

TABLE I
Flow Chart of Changes Between Four Provinces

	Saskatchewan	Manitoba	Quebec	British Columbia
Tort	1990-1994	1990-1993		1990-1999
Pure No-Fault	Jan 1, 1995	March 1, 1994	1990-1999	
Comparison	1990-1994 vs. 1995-1999	1990-1993 vs. 1995-1999		

TABLE II
Twelve-month Cumulative Incidence of Motor Vehicle Injury Claims in Canada

Injury Claims Number per 100,000 residents	Saskatchewan	Manitoba	Quebec	British Columbia
	1990	786	1475	496
1991	853	1552	496	1412
1992	849	1798	438	1380
1993	975	1750	425	1305
1994	952	1575	400	1327
1995	646	1223	369	1342
1996	590	755	371	1342
1997	591	752	387	1263
1998	598	910	380	1270
1999	636	1043	408	1249
Number per 10,000 automobile crashes				
1990	1560	1736		
1991	1596	1920		
1992	1691	2166		
1993	1884	2250		
1994	1705	2069		
1995	1109	1487		
1996	943	1139	434	2077
1997	981	1139	410	2004
1998	1117	1135	378	2044
1999	1150	1279	447	2010

Notes:
Saskatchewan switched from Tort to pure No-Fault on January 1, 1995.
Manitoba switched mid-year from Tort to pure No-Fault on March 1, 1994.
Quebec retained pure No-Fault legislation throughout the entire ten-year period.
British Columbia retained Tort legislation throughout the entire ten-year period.
At time of publication, auto crash numbers were not available for Quebec and British Columbia from 1990-95.
Numbers that are bold represent comparison years.

Columbia).^{14,15} The z statistic (log of rate ratio in one change province minus log of rate ratio in control province divided by standard error, in comparison to normal distribution) was used to determine if the change was significant.¹⁴

The province of Saskatchewan switched from tort to pure no-fault insurance on January 1, 1995. As such, the years 1994 and 1995 were used for comparison for Saskatchewan and British Columbia. The province of Manitoba switched from tort to pure no-fault insurance on March 1, 1994. Due to the intervention change occurring mid-year, the years 1993 and 1995 were used for comparison for Manitoba. To determine the long-term effect, the mean incidence of personal injury claims per 100,000 residents in the last five years of tort in Saskatchewan (1990-94) were compared to the first five years of pure no-fault (1995-99).

Excluding the year 1994, the mean incidence of personal injury claims per 100,000 residents in the last four years of tort in Manitoba (1990-93) were compared to the first five years of pure no-fault (1995-99). As British Columbia maintained tort throughout, the years 1990-94 and 1995-99 were used for comparison. The mean 10-year incidence of total injury claims per 100,000 population in Quebec was also compared to British Columbia for the years 1990 to 1999.

RESULTS

The conversion from tort insurance to pure no-fault motor vehicle insurance is associated with a 32% reduction in annual total injury claims per 100,000 population from 1994 to 1995 (RR=0.68; 95% CI 0.66-0.70) in Saskatchewan and a 30% reduction in annual total injury claims in

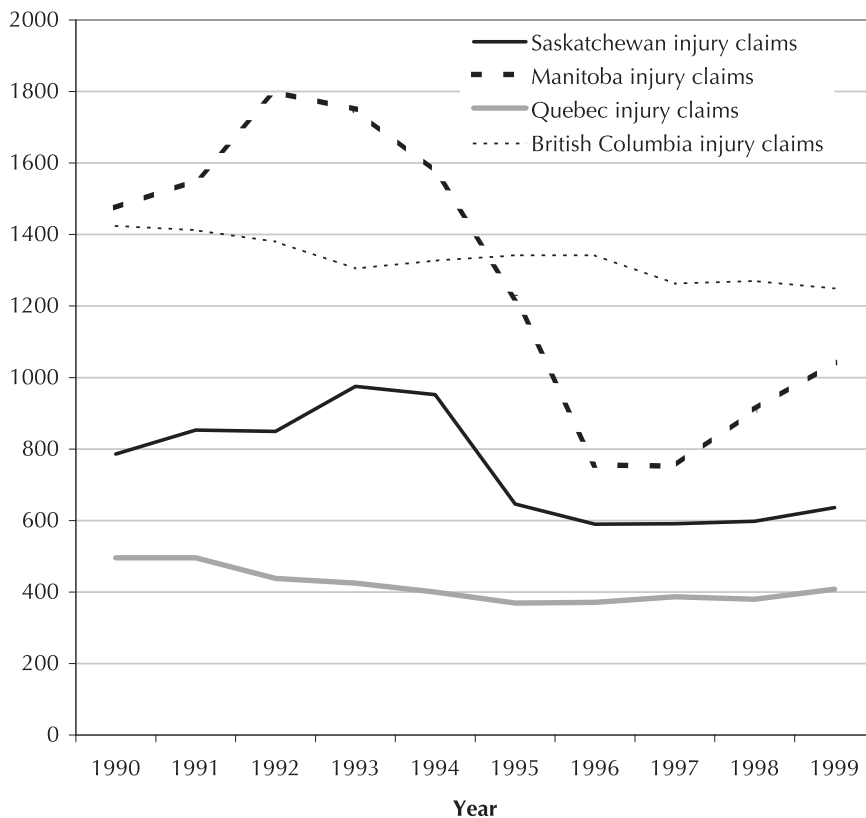


Figure 1. Total injury claims per 100,000 population by province and year

the province of Manitoba per 100,000 population from 1993 to 1995 (RR=0.70; 95% CI 0.68-0.71). At the same time, the province of British Columbia retained tort insurance and had a 1% increase in annual total injury claims per 100,000 population from 1994 to 1995 (RR=1.01; 95% CI 0.99-1.02) (Table II).

To determine the significance of the change from tort to pure no-fault from one year to the next in the change provinces (Saskatchewan and Manitoba) in comparison to the control province (British Columbia), the relative (or proportional) values of the rate ratios were compared. The z statistic for total injury claim incidence between Saskatchewan and British Columbia is 21.85 ($p < 0.001$), and between Manitoba and British Columbia is 28.83 ($p < 0.001$). Both suggest that the conversion from tort insurance to pure no-fault insurance is associated with lowering the annual total injury claim incidence per 100,000 population in the change provinces in comparison to the control province.

Comparing the last five years of tort to the first five years of pure no-fault in Saskatchewan (1990-94 and 1995-99), the

mean incidence of total injury claims per 100,000 residents reduced by 31% (RR=0.69; 95% CI 0.68-0.70). Comparing the last four complete years of tort to the first five years of pure no-fault in Manitoba (1990-93 and 1995-99), the mean incidence of total injury claims per 100,000 residents reduced by 43% (RR=0.57; 95% CI 0.56-0.58). At the same time, the province of British Columbia retained tort insurance and had a 5% reduction in total injury claims per 100,000 residents after comparing the years 1990-94 and 1995-99 (RR=0.95; 95% CI 0.94-0.99) (Table I). The z statistic for long-term total injury claim incidence between Saskatchewan and British Columbia is 39.09 ($p < 0.001$), and the z statistic for total injury claim incidence between Manitoba and British Columbia is 97.06 ($p < 0.001$). Both suggest that the conversion from tort insurance to pure no-fault insurance is associated with the long-term lowering of total injury claim incidence per 100,000 population in the change provinces in comparison to the control province (Figure 1).

Comparing 10 years of pure no-fault in Quebec to the same 10 years of tort in

British Columbia (1990 to 1999), we find that the mean incidence of total injury claims per 100,000 population for that decade is 417 in Quebec and 1,331 in British Columbia ($p < 0.001$) (Table II and Figure 1).

DISCUSSION

The conversion from tort to pure no-fault legislation for the provinces of Saskatchewan and Manitoba is associated with short-term and long-term reductions in overall injury claim incidence per 100,000 population. In the short term, both provinces had approximately the same reduction in annual total injury claim incidence (32% in Saskatchewan from 1994 to 1995 and 30% in Manitoba from 1993 to 1995) while the tort province of British Columbia had a 1% increase (1994 to 1995). These results were maintained for at least five years after legislative change. Large differences in total injury claim incidence were noted over a 10-year period between the pure no-fault province of Quebec and the tort province of British Columbia.

Strengths of the study include the fact that there are no known deterrents for submitting an injury claim in Saskatchewan or Manitoba (i.e., premium payment or administrative barrier) or in the two other provinces. The enhanced benefits associated with pure no-fault (for example, Saskatchewan has 90% income replacement to age 65, medical and rehabilitation allowances up to \$5 million and up to \$175,000 for permanent functional impairment, etc.) are also not likely to act as deterrents to submitting an injury claim.^{1,2} As well, provincial law in all four provinces mandates that all physicians and health care practitioners must submit an injury report to their respective provincial insurance company if any injury is believed to be the result of a motor vehicle collision (in order to transfer costs to the insurance company and not the provincial health plan). Finally, the current study findings are consistent with previous reports.^{1,2}

There are, however, study design limitations to consider. First, the respective injury claim rates between the provinces differ even when under similar legislative systems. As such, there might be province-specific factors to consider (i.e., safety in-

tiatives, minor differences in no-fault plans), which complicates direct comparisons between these different provinces. Second, the study design is a natural experiment and not a randomized trial. As such, any findings must be seen as associative and not cause and effect. Third, the study reviews injury claim incidence, not injury incidence, as there is no possible way to measure injuries that are not claimed to insurance companies or health care providers under either system in any province.

Because of the inevitable controversy surrounding legislative changes to motor vehicle injury compensation, it is important to try to gauge customer satisfaction. There are three potential ways to do so. In the last year of the study (1999), Saskatchewan residents submitted zero lawsuits to the court of Queens Bench to appeal the adjudication of their benefits while 5,110 lawsuits were submitted in the last year of tort (1994), despite the fact that the costs associated with successful lawsuits under no-fault are reimbursed by the insurance company. Second, the mean overall cost per claim in Saskatchewan in the last year of tort (1994) was \$24,726 while the mean overall cost per claim in the last year of no-fault under review (1999) was \$24,996. The pure no-fault benefits, however, were guaranteed, scheduled and immediate and did not require a certain percentage to be paid to an attorney (on average 31%⁸); nor were they limited to those not at fault for the collision. Third, in 2003, the government of Saskatchewan made the political decision to become the first jurisdiction in Canada to allow the choice of motor vehicle injury claim insurance (tort or pure no-fault). After the first 11 months of the option, less than half of one percent (0.4%) of the Saskatchewan population opted for tort coverage instead of pure no-fault coverage.

The conversion from tort to pure no-fault legislation has a large influence in reducing motor vehicle injury claim incidence in Canada. Legislative system and injury compensation scheme have an observable impact on injury claim incidence and can therefore have significant impact on the health care delivery system.

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RÉSUMÉ

Contexte : Il existe de nombreuses stratégies de prévention des collisions entre véhicules automobiles et des blessures qui en résultent, mais rares sont celles qui réussissent à faire diminuer les demandes d'indemnisation des accidentés de la route. La présente étude porte sur l'influence des régimes législatifs et d'indemnisation sur la fréquence des demandes d'indemnités.

Méthode : Notre échantillon, pour cette expérience dans les conditions naturelles, se composait de tous les résidents de la Saskatchewan, du Manitoba, de la Colombie-Britannique et du Québec ayant présenté des demandes d'indemnité pour lésions corporelles à leur assureur automobile respectif entre 1990 et 1999. Les provinces de la Saskatchewan et du Manitoba sont passées d'un régime de responsabilité délictuelle à un régime d'assurance sans égard à la responsabilité le 1^{er} janvier 1995 et le 1^{er} mars 1994, respectivement. La Colombie-Britannique a conservé un régime de responsabilité délictuelle, et le Québec un régime d'assurance sans égard à la responsabilité, pendant les 10 années de la période de référence.

Résultats : Le passage d'un régime de responsabilité délictuelle à un régime d'assurance sans égard à la responsabilité était associé à une baisse de 31 % sur cinq ans (RT = 0,69; IC de 95 % = 0,68-0,70) dans les demandes d'indemnités par tranche de 100 000 résidents en Saskatchewan et d'une baisse de 43 % sur cinq ans (RT = 0,57; IC de 95 % = 0,56-0,58) au Manitoba. En parallèle, nous avons constaté une baisse de 5 % sur cinq ans en Colombie-Britannique (RT = 0,95; IC de 95 % = 0,94-0,99), où l'on a conservé un régime de responsabilité délictuelle. Au Québec, où l'on a conservé un régime d'assurance sans égard à la responsabilité pendant les 10 années de la période de référence, le nombre de demandes d'indemnités par tranche de 100 000 résidents représentait moins du tiers des demandes présentées en Colombie-Britannique.

Interprétation : Le passage d'un régime de responsabilité délictuelle à un régime d'assurance sans égard à la responsabilité contribue beaucoup à réduire la fréquence des demandes d'indemnisation des accidentés de la route au Canada. Le régime législatif et le système d'indemnisation des accidentés ont une incidence observable sur la fréquence des demandes d'indemnités et peuvent donc avoir un effet important sur le système de soins de santé.