

Motor vehicle accidents in Ontario: 1987–1994

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Introduction

Neck pain and other injuries arising from motor vehicle accidents (MVA) are highly prevalent complaints. Spitzer et al.'s^{1,2} review of the literature reported varying annual incidence rates in Canadian provinces ranging from 70 to 700 per 100,000 population. They also indicate that these provincial (as well as international) prevalence rates are likely influenced by the legal/administrative schema operative in the jurisdiction, with no-fault insurance programs, particularly those limiting tort action, producing lower claims rates.

Neck pain complaints are the second leading reason for visiting a chiropractor³ and, together with headache, occupy approximately one third of the typical chiropractic caseload. Chiropractic spinal manipulation was cited as one of the few useful therapeutic approaches endorsed by the Quebec Task Force Report, although there is still a dearth of rigorous data supporting any form of treatment. The role of manual therapies combined with other conservative measures has recently been reviewed by Aker et al.^{4,5} with an overall positive result emerging from their small meta-analysis of the clinical trial data.

Administrative databases provide important information on accident and injury rates, as these are the predicate upon which treatment of injured claimants is based. Spitzer et al.^{1,2} reported an annual rate of compensated whiplash-related claims in Quebec at 70 per 100,000 inhabitants in 1987 (according to a cohort study of claims managed by the provincial auto insurer).

In Canada's most populous province, Ontario, this data is published annually in the Ministry of Transportation Annual Road Safety Report. This data would likely be most representative of national trends as over a third of Canadians and up to 40% of its drivers reside in this

province. A compilation of MVA-related statistics for Ontario for the years 1987, 1991, 1992 and 1994 (the most recent year of publication) is presented here for the benefit of the reader.

Methods

Data was extracted and tabulated from the MOT Annual Road Safety Reports from 1987, 1991, 1992 and 1994. Certain pertinent data was calculated as percentages of the total number of accidents or injuries as required.

Results

The results are presented in Tables 1 to 3.

Discussion

A number of features are apparent from these data. First, the total number of reportable accidents has varied little in the nine year period (11.5% from 1987–1994); however, this increase is almost three times greater than the rise in population (3.8%). At the macro level, this likely indicates a small trend toward an increase in the number of MVA's per capita. On the other hand, the rate of accidents per 100 million kilometres driven has remained quite steady.

The rate of fatal accidents and fatalities has dropped approximately 20%—a welcome development. Reasons for this could include increased safety features in vehicles such as air bags, anti-lock brakes and stronger vehicle body frames as well as increased use of seat belts. More rigorous monitoring of and greater prohibitions against drunk driving may also have contributed to this trend.

A recent finding by the US National Highway Safety Transportation Administration should prompt some concern. They recently reported that when collisions involve a standard automobile and one of the growingly popular sport utility vehicles, there is a four times greater rate of fatalities among passengers in the car. They cite the greater weight and tougher construction of the sport utilities as factors which might increase damages done to a

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standard car. It has occurred to me that the height of these vehicles may also play a role. The front and back bumpers of these vehicles are considerably higher than those of a car and this may lead to impacts above the level of the important side door reinforcements and front and back crumple zones built into the newer automobiles (drivers of older cars, look out!). On the other hand, this Association reported that the overall proportion of fatalities in MVA's is greater in sport utilities, because, as a result of their height, they roll over much more frequently than cars.

The number of personal injury accidents dropped considerably, particularly from 1987 to 1991 (26%) as did the number of injured persons (25%); however, these rates have remained quite steady since 1991. Hospital admissions for fractures and other serious musculoskeletal injuries have also been reduced (from 1987–1994 = 17% and 37%, respectively).

The total number of injured drivers and passengers dropped precipitously between 1978 and 1991, but has remained steady since then. What is most remarkable is

the percentages of injury categories since 1991 which are virtually unchanged since then. Approximately 75% of all injured parties in MVA's have severity ratings of "none" to "minimal". In the recently promulgated Quebec Task Force Classification of Whiplash Associated Disorder (WAD), these injuries would correspond to Grade I. On the other hand, the more serious category of WAD III constitutes no more than 3% of injuries, leaving the Grade II category (minor) to occupy 18–19%. This last fact is important for chiropractors who treat and assess MVA-injured patients, as it is highly likely that only claimants with these injuries would seek ambulatory-type treatment from any provider. In Spitzer et al.'s report², 88% of injuries suffered were of the negligible-to-minor severity while 11% were of major severity, essentially supporting the Ontario data.

An interesting aspect of injury statistics in MVA's is the use of headrests. The Quebec Task Force Report identified proper headrest use as one of the most important preventative measures for reducing WAD. In two recent studies,

Table 1
MVA Statistics in Ontario: 1987–1994

	1987	1991	1992	1994
Total reportable accidents	203,431	213,669	224,249	226,996
Fatal accidents	1,085	956	942	875
Personal Injury accidents	80,432	59,242	58,889	58,525
Fatalities	1,229	1,102	1,090	990
Injured persons	121,089	90,519	91,025	90,030
Ontario population	9,270,700	9,624,700	as in 1991	as in 1991
Fatalities/100,000 accidents	13.3	10.9	11.3	10.4
Accident rate per 100 million kilometres	283.9	293.9	305.9	290.4
Hospital admissions for: 1] fractures of neck and trunk	1,786	1,767	1,717	1,483
2] disloc/spr/str	681	503	433	428

one by Aker et al. (personal communication), no more than 25% of drivers are observed to be using their headrests properly. This is certainly one area where chiropractors could make a significant health promotion contribution by providing good advice to their patients.

Conclusion

Accident and injury rates have remained relatively unchanged in the early part of this decade in Canada's most populous province. Thankfully, the rate of fatal accidents and fatalities has dropped since 1987, but not since 1991. It may be that we have reached the limit of the impact of vehicle and enforcement-related efforts to reduce the rate and impact of MVA's.

The proportion of injured claimants from whom chiropractors may see their patient base has remained virtually unchanged since 1991 and represents probably only 25% of those injured at all in MVA's. These data may have an influence on large-scale health policy planning as well as on the future direction of individual chiropractic practices,

although it appears that legislative changes, particularly in Ontario, have had the biggest impact on the provision of treatment to MVA-injured claimants.

References

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- 2 Spitzer WO, Skovron ML, Salmi LR et al. "Whiplash-Associated Disorder": redefining "whiplash" and its management. Quebec City, Que. Soc. De L'Assurance du Quebec: 1995.
- 3 Waalen DP, White TP, Waalen JK. Demographic and clinical characteristics of chiropractic patients: a five-year study of patients treated at the Canadian Memorial Chiropractic College. *J Can Chiropr Assoc* 1994; 38:75-82.
- 4 Aker PD, Gross AR, Goldsmith CH, Peloso P. Conservative management of mechanical neck pain: systematic review and meta-analysis. *Br Med J* 1996; 313:1291-1296.
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Table 2 Injury Severity: Drivers

	1987	1991	1992	1994
Total injuries	353,116	100,668	102,193	102,941
Severity: none (%)	81	51	51	51
minimal	11	27	27	27
minor	8	18	18	17
major	1	3	3	3
fatal	.1	.5	.5	.4

Table 3 Injury Severity: Passengers

	1987	1991	1992	1994
Total injuries	222,494	62,707	62,803	61,785
Severity: none (%)	82	51	50	52
minimal	10	25	27	26
minor	6	19	19	18
major	1	3	3	3
fatal	.1	.5	.4	.4