may still be relatively unfamiliar. All of us will be hearing more about these organisms, and we owe it to our patients to become familiar with the clinical peculiarities of the diseases they cause, the special maneuvers required to confirm the diagnosis and the appropriate antibiotic therapy. The cases reported by Embil and colleagues offer us valuable help in the familiarization process.

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Effects of seatbelt legislation and reduction of highway speed limits in Ontario

On Jan. 1, 1976 the province of Ontario became the first major North American jurisdiction to enact legislation requiring that seatbelts be worn in motor vehicles. The legislation was prompted by an increasing amount of research data and experience showing that seatbelts, when properly worn, are effective in reducing the proportion of fatalities and the severity of injuries resulting from traffic accidents. Pertinent statistics have been documented in a report by the Ontario ministries of transportation and communications, and of health, and it is from this report that I have drawn the following information.[1]

The legislation made the wearing of seatbelts mandatory for all drivers and passengers, with the exception of children under 5 years of age, people with medical problems, and people whose work requires them to get in and out of a motor vehicle frequently and whose vehicle travels at a speed not exceeding 40 km/h.

Enforcement of the law began Feb. 1, 1976. The initial law required the use of shoulder belts if they were fitted. An amendment, effective Feb. 27, changed that requirement; now shoulder belts are required only if the car was manufactured on or after Jan. 1, 1976, when inseparable three-point belts became required equipment under the Motor Vehicle Safety Act of Canada.

The Canadian Medical Association, through its Council on Medical Services and in resolutions of the General Council, has over the past 7 years consistently advocated use of the three-point restraint system, and has urged that the use of seatbelts be mandatory.

At present Ontario, Quebec and British Columbia have laws requiring that seatbelts be worn. The Nova Scotia legislature has passed similar legislation, but it is still awaiting proclamation.

Reinforcing the seatbelt legislation, the Ontario government reduced highway speed limits in February 1976. All highway limits previously posted at 70 mph (110 km/h) were changed to 60 mph (100 km/h), and most that were previously posted at 60 mph were lowered to 50 mph (80 km/h). The limits of certain sections of some highways were changed from 60 to 55 mph (90 km/h) or were not changed because of special considerations.

The primary purpose of the lower highway speed limits was to reduce the fuel consumption of motor vehicles within Ontario. On the basis of experience in the United States, the lower speed limits were also expected to further reduce the number of highway fatalities and injuries.

Prior to introducing the legislation, the Ministry of Transportation and Communications had launched a promotional campaign to persuade motorists to wear seatbelts voluntarily. As a result, there were positive changes in the public's knowledge of

and attitudes towards seatbelts from March to October 1975, but the proportion of motorists using seatbelts remained virtually unchanged, at 17.2%. However, after the legislation was enacted the proportion increased dramatically; in March 1976 it was 76.8%. However, by mid-1976 it had dropped to about 65% and by the end of 1976 the proportion using seatbelts while driving on urban and rural roads had decreased to 50%. At the same time, the proportion of motorists wearing seatbelts while they were driving on expressways rose significantly but not as dramatically as for other types of roads. In October 1975 on expressways the proportion was 38.1%, but after the legislation was enacted it increased to 76.3%, which was approximately the overall rate of use at that time. By the end of 1976 it had dropped to 44.4%, only 6.3% above that before the legislation.

Following the reduction of highway speed limits the average highway operating speeds decreased by approximately 50% of the posted reductions — that is, when a speed limit had been reduced by 16 km/h the drivers were reducing their speed by an average of 8 km/h. Further, highway speeds were less variable, which should have resulted in smoother, more uniform and safer traffic flow.

A statistical monitoring mechanism to assess the combined effects of seatbelt legislation and lower highway speed limits was created. While the number of accidents and deaths from motor vehicle accidents in Ontario has been recorded, the monitoring mechanism was designed to assess the changes in the cost of hospital and medical treatment of such injuries. Owing to data limitations, only the information for persons who were treated as inpatients or outpatients in selected hospitals was evaluated. Furthermore, only the cost of active treatment — defined as the sum of outpatient emergency treatment, acute inpatient hospital care, and cost of medical treatment and therapy — was ascertained.

The cost of the monitored injuries was recorded for 1975 and 1976, before and after seatbelt legislation was enacted and the highway speed limits were reduced, and was projected to provincial estimates. The changes between 1975 (the control period) and

1976 (the experimental period) are illustrated on the basis of statistics from the Ministry of Transportation and Communications and provincial estimates from the monitoring system.

Below are the pertinent comparative statistics. Costs are indicated in constant 1975 dollars.

- The number of persons killed in motor vehicle accidents decreased by 16.1%, from 1800 to 1511.
- The number of persons injured (hospitalized and nonhospitalized) decreased by 13.7%, from 97 034 to 83 736.
- The number of hospitalized victims (inpatients and outpatients) decreased by 16.1%, from 53 923 to 45 242.
- The number of inpatient victims decreased by 21.6%, from 11 018 to 8635.
- The number of outpatient victims decreased by 14.7%, from 42 905 to 36 607.
- The cost of active treatment for hospitalized persons (inpatients and outpatients) decreased by 10.7%, from approximately $18-280 000 to $16 332 000.
- Hospital inpatient care accounted for the largest expenditure; approximately $14 506 000 and $13 078 000 in 1975 and 1976 respectively (a reduction of 9.8%).
- Medical fees accounted for the second largest expenditure; approximately $2 856 000 and $2-476 000 in 1975 and 1976 respectively.
- The number of persons with minor injuries declined by 13.0% and the number of persons with moderate to maximum injuries was reduced by 14.5%.
- The number of days of acute hospital care for the victims declined from the estimated 127 423 to 111 088, a reduction of 12.8%.
- The average acute hospital stay for inpatients increased from 11.6 to 12.9 days.
- The average cost of active treatment per hospitalized victim increased by 6.5%, from $339 to $361, mainly because of the increased stay.
- In 1976 the average cost of active treatment for victims who reported having worn seatbelts was $228. Victims who reported otherwise and had been inside the vehicle incurred an average cost of $419. Other victims, such as pedestrians and cyclists (including bicyclists, moped and motorcycle drivers and passengers) incurred average costs of $693 and $498 respectively.

Although before-and-after situations are always subject to qualification, the results of the statistical monitoring in Ontario clearly indicate the combined effectiveness of the wearing of seatbelts and the reducing of highway speed limits on the number and cost of injuries, and reflect the reluctance of some people to comply with the new regulations.

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Reference

1. *Changes in the Number and Cost of Motor Vehicle Injury Victims in Ontario Following the Introduction of Seat Belt Legislation and Highway Speed Limit Reductions, 1975-1976*, Monitoring System Committee, Ministry of Health, Ministry of Transportation and Communications, Toronto, 1978

Stamp of medical interest

Postage stamps have been used for propaganda purposes for many years. Recently Austria issued the well designed, multicoloured stamp (Scott no. 1012) reproduced below to promote the wearing of seatbelts.

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"Seatbelts will tie the hands of death"