Sleep and Transit in Brazil: New Legislation

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Sleep disorders are common throughout the world and have profound effects in industrialized 24-hour societies. Consequences of these problems include impaired social and recreational activities, increased human errors, loss of productivity, and elevated risk of accidents.1 Conditions such as acute and chronic insomnia, chronic insufficient sleep, excessive sleepiness, shift-work, jet lag, narcolepsy, and obstructive sleep apnea warrant public health attention, inasmuch as residual sleepiness during the day may affect performance of daily activities including driving a motor vehicle. There is a considerable body of evidence that sleepiness contributes to the cause of various accidents in industries and in transport systems.2

According to Garbarino et al.,3 between 17% and 19% of traffic deaths are the result of sleepy driving. Sleepy driving can be caused by both sleep disorders and also long work shifts. Extremely long work shifts can lead to both insufficient sleep and alterations in individual biological rhythms.

SLEEP DRIVING IN BRAZIL

In Brazil, sleepy driving represents a costly problem. According to the IPEA/Brazilian Federal Government (IPEA, 2003),4 the average cost of a traffic accident in Brazil is US$ 5,167 overall, US$ 1,919 in accidents with no victims, US$ 52,942 in accidents resulting in injury, and US$ 247,647 in accidents resulting in death. These estimates by the IPEA involved the following aspects: loss of productivity (42% of the cost); damage to property (vehicles, city equipment, traffic signs, and property of a third party—30% of the cost); medical/hospital expenses (rescue, medical treatment and rehabilitation—15.9% of the cost); and other costs (legal, traffic jams, social security, removal of the vehicles, other means of transportation, police assistance, traffic officers, impact on the family—11.30% of the cost). Another important aspect to highlight is that according to the Brazilian Secretary of Sanitary Vigilance of the Ministry of Health, of 1,024,073 deaths in 2004, 127,470 deaths (12%) resulted from external causes (such as homicides and vehicle accidents), and 35,674 deaths (28%) were the result of traffic accidents; 81% of these accidents involved males. These data show that in Brazil in 2004, there were 97.74 deaths per day, 4,072 deaths per hour, or 1,018 deaths every 15 minutes resulting from traffic accidents, with a total financial cost of US $28.95 billion. If we consider the data from Garbarino et al.,3 6,421.32 of the traffic-related deaths in Brazil resulted from sleepy driving (17.60 deaths per day or 0.73 deaths per hour). If we incorporate the data from the IPEA, there was a total financial cost of US $414,397,997 as a consequence of traffic-related deaths in 2004, a major cause of which was sleepy driving.

Data from our laboratory indicate that professional drivers account for a large percentage of traffic accidents. For example, we have found that 16% of the Brazilian interstate bus drivers sleep while driving, with an average of 8 naps per trip,9 and that 38% of these drivers were diagnosed with sleep apnea.1,10

INITIATIVE TO IMPROVE DETECTION OF SLEEP DISORDERS IN PROFESSIONAL DRIVERS

Given this costly problem, we collaborated with governmental bodies to improve detection of sleep disorders in Brazilian drivers. The National Traffic System (SNT) in Brazil is comprised of a set of organizations and entities of the Federal Government (CONTRAN, DENATRAN). The States, the Federal District, and the Cities belong to DENATRAN and provide licenses to drivers, and issue National Driver’s Licenses (Figure 1).

In Brazil, there are various levels/categories of licenses for different kinds of vehicles.5 Drivers are licensed to drive vehicles according to the number of wheels, weight, size, and type of cargo to be transported. There are 5 different categories of licenses: A (vehicles with 2 or 3 wheels), B (vehicles that do not exceed 8 seats), C (cargo vehicles), D (vehicles for the transportation of passengers that exceed 8 seats), and E (vehicles with an attached unit of ≥ 6,000 kilograms of gross weight). The drivers in categories C, D, and E are informally referred to as “professional” drivers. Therefore, there might be differences regarding the evaluation of drivers based on the levels of their licenses.

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