An analysis of traffic accidents and children: the case of Uruguay

I. Introduction

Traffic accidents are a serious public health problem and one of the leading causes of death and injuries around the world. As discussed in detail in FAL Bulletin 275: “The need to establish coordinated measures for the reduction of road accidents in Latin America and the Caribbean”, it is estimated that traffic accidents will become the third leading cause of death worldwide by 2020 if urgent actions are not taken to reduce their incidence.

Children are in a particularly high risk group and because their physical proportions (weight, muscular maturity and reflex development) are completely different from those of adults, their specific needs must be taken into account when developing public policies to increase road safety.

This bulletin therefore calls for the implementation of national regulations that include special restraining devices for children, technically known as Child Restraint Systems (CRS) and commonly known as “car seats”, which can significantly reduce the risk of injury during a traffic collision. The bulletin also points out, however, that the mere presence of a CRS is not enough to reduce the risk of injury in children. Instead, they must be used correctly and meet certain standards for how they were manufactured, approved and installed. These issues should be considered by the authorities when designing their technical regulations and by parents when purchasing (and later re-equipping) their vehicle and CRS.
Traffic accidents and their inclusion on public agendas

Despite the fact that traffic accidents result in high economic costs and large numbers of fatalities in developing countries, only in the last five years have the countries of the region begun to establish specialized agencies devoted to fully addressing the problem. Establishing an agency, however, is not a solution in and of itself. As proposed in previous ECLAC documents, all levels of Government (both legislative and judiciary), together with the public and private sectors must take coordinated and decisive action. This action must be combined with the active involvement of civil society. Technical studies to help uncover the real situation of road safety in the region, collect statistics and propose policies for action are examples of the coordinated efforts and partnerships that should be undertaken throughout the region.

In the case of Uruguay, the National Traffic Safety Agency was created with the passage of Law 18,133 in May 2007\(^1\) under the Executive Branch to “...regulate and oversee traffic and road safety in the entire national territory...”.\(^2\) Similarly, Law 18,191 or the “National Traffic and Road Safety Act” was passed in November 2007.

These two laws were a milestone in the fight against traffic accidents in Uruguay, since according to official statistics from the Ministry of the Interior, over 400 people were killed and over 20,000 were injured in traffic accidents in 2007.\(^3\) This epidemic, which most often affects individuals under 35 years of age, is linked to poverty, social exclusion and causes considerable economic losses. Estimates for the year 2000 made by the National Commission for the Prevention of Traffic Accidents, under the Ministry of Transport and Public Works (MTOP), show that yearly spending for traffic accidents reached US $927 million, equivalent to 4.5% of the country’s GDP for that year.

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\(^1\) Although the National Commission for the Prevention and Control of Traffic Accidents was created under the MTOP in 1994, it was not able to meet its objectives owing, essentially, to lack of funding and the volunteer nature the commissioners.

\(^2\) Legislative Branch, Eastern Republic of Uruguay (2007), Law Nº 18.113, Article 5 (Objetives).

The Gonzalo Rodríguez Foundation in Uruguay and its EDU-CAR Road Safety Plan for Children

The Gonzalo Rodríguez Foundation (GRF) is a non-governmental, non-profit organization founded in Uruguay in 2000 in memory of the Uruguayan pilot Gonzalo “Gonchi” Rodríguez (1971-1999). The Foundation helps make civil society contributions to improve education, health and development, and has carried out numerous educational projects which have benefited over 15,000 children and young adults in Uruguay. Within this context, the EDU-CAR Road Safety Plan for Children was designed to research the existing state of traffic accidents affecting children in Uruguay, propose a sustainable model for systemic change and later expand its efforts to the rest of Latin America and the Caribbean. In order to carry out its work, the EDU-CAR Plan receives funding from the FIA Foundation for the Automobile and Society and the World Bank Global Road Safety Facility, and received technical collaboration from the following institutions: BioEchoes, Inc., the Task Force for Global Health–Global Road Safety Forum and the United States Centers for Disease Control and Prevention.

EDU-CAR is a three-year plan (2007-2010) focused on proposing public actions and policies on road safety for children, taking into account all aspects affecting the safety and well-being of children aged 0-14 years who are passengers in a motor vehicle.

With a view to “protecting today’s children and educating them to become tomorrow’s drivers” this plan is in keeping with the WHO recommendations found in the “World report on road traffic injury prevention” and the “Decade of Action on Road Safety (2010-2020)” proposed at the “First Global Ministerial Conference on Road Safety” held in November 2009 in Moscow. EDU-CAR was also recognized with a Declaration of National Interest by the President of the Republic of Uruguay in July 2009 and has been endorsed by various public institutions in Uruguay. 4.

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4 The EDU-CAR Plan has been endorsed by several governmental institutions in Uruguay: (i) Framework Agreement signed by the Ministry of Public Health, the National Board of Health, the National Health Services Administartion and FGR to support the collaboration and exchange of resources to promote child traffic safety in Uruguay (July 2009); (ii) phase 3 of the EDU-CAR Road Safety Plan for Children was declared an ‘educational interest’ by the Ministry of Education and Culture (April 2008); and (iii) ‘declaration of ministerial interest’ by the following Uruguayan Ministries: Interior; Public Health; Industry, Energy and Mining; Tourism and Sport.
Methodology

The following pages present data collected within the framework of an independent re-
search and data collection series conducted by the EDU-CAR Plan in Uruguay\(^5\) (with
heavy emphasis on the city of Montevideo) in 2008-2009 in an effort to promote policies
to protect children on the roads.

The information was obtained through inspections and surveys conducted on available
equipment in new and existing vehicles, vehicle safety systems (such as seat-belts and
CRSs) available in the Uruguayan market and through public opinion polls and direct
field measurements to assess how children aged 0-14 travel in passenger cars and
trucks.

Children and road safety

As previously mentioned, children do not have the same physical proportions as adults;
their body weight is more heavily distributed throughout the upper body and their mus-
cular maturity and reflex development are still ongoing. Therefore, they need devices
that are especially designed for their body size, height and weight.

When a vehicle is involved in a collision and its occupants are not restrained by a safety
device (seat-belt or CRS) three simultaneous collisions occur: the first collision involves
the vehicle colliding with another object (another vehicle, a tree, a barrier or other ob-
ject); the second collision occurs when the passengers collide with the interior of the
vehicle itself (steering wheel, windshield, windows or other passengers in their vehicle)
and, finally, the third collision occurs when the passenger’s internal organs collide with
their other organs and bones, which can lead to severe internal injuries. The effects of
the second collision are the ones that can be eliminated or diminished if the vehicle oc-
cupants correctly use the appropriate safety devices.

The three-point seat-belt (that is, one that restrains an individual by means of a lap belt
and a diagonal shoulder belt) is an effective safety device for passengers measuring 1.5
meters in height. Children do not reach this height until somewhere between 8 and 12
years of age, which is why they must use a CRS and ride in the back seat to ride safely.
According to a series of studies conducted in the United States, correct usage of a CRS

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\(^5\) The Gonzalo Rodríguez Foundation has conducted several statistical surveys and studies: “Observatio-
nal study on the prevalence of vehicle safety device usage in Montevideo, Salto and Paysandu” Uruguay,
(2008); “Survey and study of child restraint systems in 0-14 year olds in Montevideo” (2009); “Survey of
traffic behaviours, opinions and attitudes” (2009); “Survey of safety devices in used cars” (2009).
drastically reduces the risk of injury or death for children involved in traffic accidents. These studies have shown that use of an appropriately installed CRS can reduce the risk of death in children by 70%, and can reduce the risk of hospitalization for children aged 0-4 by almost the same percentage if an accident occurs.

**Parental behaviour and perceptions regarding children in cars: the idea that “my children are safe in the car”**

Research conducted under the EDU-CAR Plan has shown that parent drivers in the city of Montevideo believe they have sufficient information about how their children can be safe when riding in a vehicle. According to a public opinion poll carried out by FGR, 87% of drivers nationwide believe that the children aged 0-14 who ride in their personal cars or trucks do so safely, as shown in Figure 1. However, the data collected from that same study indicates that 87% of surveyed drivers had no CRS in their car or truck.

**Figure 1: Opinions regarding safety of children ages 0-14 when riding in cars and trucks (Entire country)**


**Vehicle equipment**

Another FGR study showed that one in four surveyed cars or trucks did not have three-point lap and shoulder seat-belts in the rear side seats, and only 14.3% of these vehicles had this type of seat-belt in the rear middle seat. The data collected throughout the country indicate that only 10% of adult drivers believe that the safe way for children to ride in a vehicle is using a CRS. Only 2% of those surveyed stated that, in addition to be secured in a CRS, children should always ride in the back seat.
This clearly demonstrates the mistaken belief on the part of parent drivers that riding in the back seat is sufficient to keep children safe. Despite the fact that adults say they are conscious of their children’s safety, in reality, their concept of safety is inconsistent with international traffic safety recommendations, which state that children must ride in a CRS installed in the back seat.

**How children ride in cars and trucks**

This mistaken concept on the part of many parents that their “children are safe in the car” fits with the data collected in another study conducted in Montevideo in 2008. That study showed that 77.8% of children aged 0-14 rode in the back seat of the cars and trucks studied. The drivers’ perception that children should ride in the back seat in order to ride safely matches their behaviour since the majority of them did in fact have their children ride in the back seat.

With regard to the type of passenger restraint system used by children when they do ride in cars and trucks, a survey conducted in Montevideo demonstrated that 73.3% of children aged 0-14 years rode without any kind of restraining device, that is, they rode completely unrestrained inside the vehicle (see Figure 2).

![Figure 2: Type of safety device used by children ages 0-14 observed in cars or trucks (Montevideo)](image)

Child restraint system usage in Montevideo

A total of 13,658 cars and trucks were observed as part of the research conducted by EDU-CAR in Montevideo in 2009. Of those 13,658 vehicles, 2,131 (15.6%) had passengers aged 0-14 years. Out of those 2,131 vehicles that had children riding in them, 249 had at least one CRS.

In percentage terms, only 11.7% of the vehicles observed with child passengers had at least one CRS. These figures indicate that, ‘a priori’, 9 out of 10 children in the study were riding in an unsafe manner. This figure is deemed “a priori” because the number of children riding unsafely is actually higher, given that the vast majority of those who did use a CRS did so incorrectly. This was either due to the fact that the child was not correctly buckled in, the seat they used was not appropriate for their height and weight or simply because the device did not meet technical safety standards. Thus, while 77.7% of parents of children using a CRS stated they understood how to correctly use the restraint system, more than 94.2% of the children observed were riding unsafely in their seats (see Figure 3).

Figure 3: Correct and incorrect use of Child Restraint Systems (CRS) (Montevideo)


With regard to the installation of CRSs in vehicles, the study revealed that 65.9% of children were found to be riding in a CRS that was not adequately attached to the vehicle using the seat-belt. When children did use a CRS, the straps were found to be too loose in 66.8% of the cases, that is, not sufficiently snug around the child's body,
leaving the child with practically no protection.\textsuperscript{6} An additional 53.7\% of the inspected CRSs did not have labels indicating they met any recognized international technical standard\textsuperscript{7}, while in 21.3\% of these cases it was not possible to corroborate this fact. These findings also held true for new CRS devices that were inspected by EDU-CAR in other studies. Of these, 80\% did not comply with recognized technical standards.

**How vehicles are equipped to safely carry children**

There are two ways a CRS can be attached to the seat of a car or truck: using a seat-belt or an anchoring system such as ISOFIX or LATCH. These systems consist of rigid connection points located in the rear seats that are bolted or soldered to the vehicle’s frame. The CRS can be directly attached to these connectors using special clips, eliminating the need for a seat-belt. Such devices make it significantly easier to install children’s car seats, which in turn decreases the risk of incorrect installation and increases their effectiveness. The research conducted by EDU-CAR in Montevideo in 2009 showed that a limited number of cars and trucks actually had rear anchoring systems: 94.1\% of surveyed vehicles did not have an ISOFIX system in the rear side seats and 98.5\% did not have the LATCH system in those seats. Given that so few of the vehicles inspected actually had anchor systems, correct usage of three-point seat-belts is critical for safely installing a CRS.

However, other EDU-CAR Plan studies conducted in 2009 revealed that 10\% of the cars and trucks currently on the roads did not have any seat-belts, while 17.5\% of vehicles had two-point seat-belts in the side seats and 72.5\% had three-point seat-belts for those seats. In addition, 46.5\% of seat-belts in the rear side seats did not have labels showing they met any recognized technical standards. Other studies, meanwhile, showed that 60\% of new vehicle models surveyed did not have three-point seat-belts for all seating positions, while 85\% of available after-market seat-belts did not show they met recognized technical standards. Considering that seat-belts are the most-widely used mechanism for installing carseats in Montevideo, that two-point seat-belts are very common and that carseats are often misused, some other kind of device to improve the safety of child passengers is clearly needed. Along these lines, the use of a *top tether*, or third anchor point, can prevent the rotation of a CRS and substantially improve its performance in case of a crash. Although this device significantly increases

\textsuperscript{6} Because children have small shoulders and rounded trunks, insufficiently snug straps can lead to the child sliding out from under the straps and being unrestrained inside the vehicle in the case of a collision or rapid deceleration.

\textsuperscript{7} Recognized technical standards help ensure that a safety device will function properly, that is, protect the occupant in the case of a collision. The technical standard that applies to CRSs is ECE-R44, issued by the *United Nations Economic Commission for Europe* (UNECE). Other international standards that provide the same level of safety include the FMVSS213,(United States *Federal Motor Vehicle Safety Standards*); the *Japanese Industrial Standard* and the AS/NZ *Australian/New Zealand Standard*.  

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the safety of child passengers, EDU-CAR studies showed that 98% of used vehicles (2009) and 80% of new vehicles (2008) did not have one. In addition, only 10% of the CRSs surveyed were manufactured with a third anchor point.

According to this data, it can be concluded that not only are most children in Montevideo unprotected when they ride in cars, they are riding in cars that are not equipped to safely carry them.

**Conclusions**

The EDU-CAR research indicates that although parents think they understand how to ensure the safety of their 0-14 year-old children when riding in cars, in fact, the general concept that “my children are safe in the car” is not consistent with international recommendations on child traffic safety. In fact, the manner in which most children ride is decidedly unsafe.

Nine out of ten children who ride in cars or trucks in Montevideo are not secured in a CRS, and the few who are in a carseat are largely using them incorrectly.

Given this scenario, increasing public awareness about children and road safety is of paramount importance. Notwithstanding the fact that education is critical for promoting road safety, meaningful change cannot occur unless the local vehicle and safety device market makes the necessary equipment available to consumers at a reasonable price. This is where national authorities must set and effectively enforce appropriate standards and regulations. Given that, unlike other countries in the world, there is currently no legislation in Uruguay requiring children under 1.5 meters to ride in an approved CRS that fits their height and weight, and considering the lack of regulation regarding the technical standards for equipment in new and used vehicles, it is absolutely critical that legislation be promoted to ensure child traffic safety, particularly from a right to life and child safety perspective.

According to the WHO, “nongovernmental organizations promote road safety by publicizing the problem of road traffic injury, identifying effective solutions, challenging ineffective policies and forming coalitions to lobby for improved road safety” (2004). In keeping with this theory, the EDU-CAR Plan is a way for FGR, as a non-profit organization, to work with the public and private sectors to help identify effective solutions for the problem of road safety. For more information about the EDU-CAR Plan or the work of the Gonzalo Rodriguez Foundation, please visit: http://www.gonzalorodriguez.org