



# BRSI

## **Summary**

### **Safe to school**

Analysis of road accidents involving children near primary schools and kindergardens

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## Summary

### Safe to school

### Analysis of road accidents involving children near primary schools and kindergardens

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Authors: Mathieu Roynard, Annelies Schoeters et Marie Wénin

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Veilig naar school. Analyse van verkeersongevallen met kinderen in de buurt van basisscholen.

En toute sécurité sur le trajet de l'école. Analyse des accidents de la circulation impliquant des enfants près des écoles maternelles et primaires

As of September 2005, public road authorities (municipalities and regions) have had a legal obligation to convert a perimeter around the school entrances into a 30 km/h zone. The justification for this is that at 30 km/h, drivers are better able to take vulnerable road users – and especially children – into consideration in determining their driving strategy. In addition, at 30 km/h the severity of an accident is less than at a speed limit of 50 km/h. But do these arrangements that have been put in place truly make the areas around schools safe? Should we continue to promote better management of these areas and/or should we also address safety along the rest of the commute between home and school? This was, in essence, the gist of this study.

## Objective and methodology

The aim of this study was to analyze accidents involving children aged between 3 and 11 years (pedestrians, cyclists and car passengers) on their way to and from school for the 2010-2012 period, including in the specific 30 km/h zone surroundings primary and nursery schools. The primary objective was to establish an estimate of which proportion of accidents occurring during the home-school commute actually happened in the areas surrounding schools, compared to along the rest of the way. The second objective was to achieve a better understanding of accidents occurring along the home-school commute so that, in the light of the results, avenues of research to increase children's safety may be suggested.

An innovative methodology from the Belgian Road Safety Institute (IBSR) knowledge centre was used in the analysis. It was based on the precise geographical location of accidents and their overlap with areas “surrounding schools”. We distinguished three distinct areas: the specific 30 km/h zone, a peripheral area lying between the 30 km/h zone and a perimeter radius at 300 m around schools, and the rest of the territory (beyond 300 m).

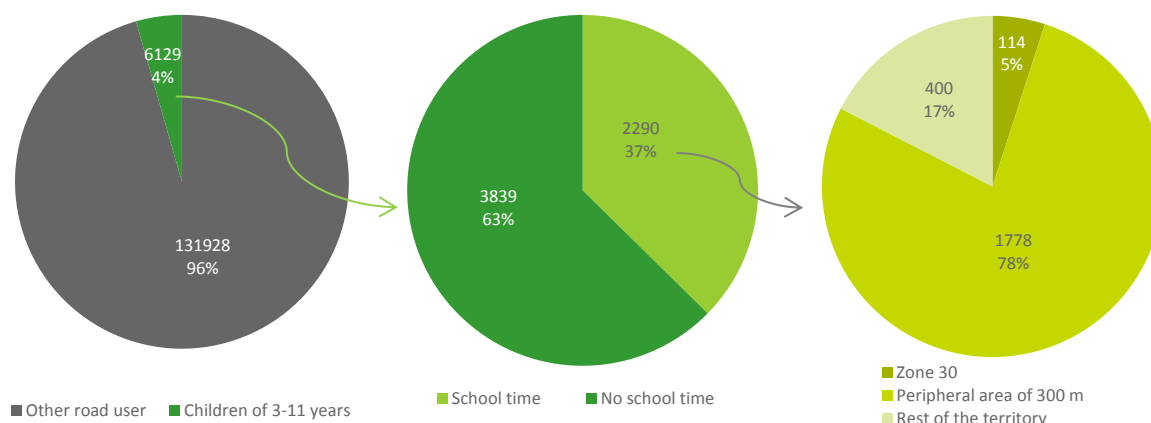
We worked on statistical data obtained from Traffic Accident Analysis Forms (FAC - *Formulaires d'analyse des Accidents de la Circulation*) that are completed by the police when an accident is discovered. A study by the IBSR (Nuytens, 2013) indicated that this source of information represented under-registration of accidents involving cyclists and pedestrians, especially with regard to children. The results of this study also only reflect part of the problem concerning the safety of children on the home-school commute.

## Main outcomes

During 2010-2012 nearly 4 out of 10 traffic accidents in Belgium involving child victims occurred during the commute from home (or other) to school. During a period of 3 years, a total of 2,547 children had an accident on the way to school – either as a pedestrian, cyclist or passenger in a car. However, only 5% of them had their accident in the 30 km/h zone “surrounding schools” (**Figure 1**). And less than 1.4% of primary schools experienced an accident in their 30 km/h zone during the 3 years that were studied.

It emerged from this study that the area immediately surrounding the establishments (30 km/h zone) is generally safe. The issue of child safety along the “home-school” commute relates to a peripheral area between the 30 km/h zone and the 300 m perimeter around schools, which has been identified as the area where almost 3/4 of the injuries or deaths involving children occurred. This result could be explained by a decrease in the vigilance of road users despite the fact that there was still a large density of children in this area.

**Figure 1: Distribution of injury accidents involving children aged between 3 and 11 years (pedestrians, cyclists and car passengers) compared to all accidents (left), on the commute to school (middle) and according of the location (right), Belgium 2010-2012 (N = 138 057)**



Source : Federal Public Service Economy (Directorate-General Statistics)/Computer graphics: BRSI

Overall 46% of children involved in an accident during school time were vehicle passengers, compared with 33% pedestrians and 21% cyclists. An analysis of the distribution of modes of transport used by children who were injured according to the location of the accident shows that in the 30 km/h zone “surrounding the school”, these consist of 51% pedestrians, 26% cyclists and 22% vehicle passengers. In the peripheral zone of 300 m surrounding schools (beyond the 30 km/h zone), the distribution is 44% vehicle passengers, 34% pedestrians and 22% cyclists. These results are explained by transfers between modes of transport: the children are all pedestrians when passing through the school gates, after which they disperse depending on their choices of transportation for commuting. This would be heavily influenced by population and traffic density, style of mobility, the distance between school and home etc.

Furthermore, 39% of the injured child pedestrians were crossing a pedestrian crossing (and 16% at less than 30 m) and 28% of child cyclist victims were traveling on a bicycle path.

## Key recommendations

It is important to continue working on increasing the safety of children – especially along the home-school commute, which represents nearly 1 out of every 3 accidents involving children. This study indicates that the 30 km/h area immediately surrounding schools is generally safe. However, the problem concerning the area surrounding the school is not completely solved.

The main recommendations are:

- Increase speed enforcement by police in the areas surrounding schools to encourage all users to observe the speed limit and raise awareness of the risk of accidents involving children.
- Give further consideration to the 30 km/h zones surrounding schools: their effect, the most relevant arrangements, and their extension to certain areas that are deemed particularly dangerous in order to increase all road users' acknowledgment of and regard for these areas.
- Work on the area lying between the school and a radius of 300 m around it, as this area is particularly accident-prone (75% of accidents involving children during school time). Investigate and evaluate a specific display system (Variable Message Sign) that would specifically alert road users to the presence of children in this area during the hours of entry into and exit from the school.
- Conduct in-depth security analyses for schools to identify a major accident accumulation zone (in their immediate environment) with a view to making this area safe.
- Carry out and support education and awareness of children – but also parents, teachers and road users – with regard to all matters related to road safety (education of pedestrians and cyclists,

proper use of child restraint systems, use of pedestrian crossings and cycle paths, getting road users to take children into account in their driving strategy etc.).

- Educate children and adults regarding the importance of always wearing a seat belt. Drivers must not minimize the dangers of the road and ensure that all vehicle occupants wear their seat belts as they should, including over very short distances.
- Develop specific driving aids such as a “pedestrian warning system” and ensure that their dissemination in the car park would, at low speed, reduce the rate of accidents or at least reduce the severity of accidents, especially in the areas surrounding schools.
- Have access to additional data sources – such as data from hospital services (for persons who are killed and injured) or insurance data (all levels of severity) – that would provide a more holistic and comprehensive view of the issues concerning the safety of children, particularly regarding their commute to and from school.
- Promote management and monitoring of physical, functional, psychological and socio-economic post-traumatic consequences of traffic accidents, especially for children.
- Expand research on safer commuting to and from school to secondary schools for adolescents aged between 12 and 17 years.



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Belgian Road Safety Institute  
Chaussée de Haecht, 1405  
1130 Brussels  
[info@ibsr.be](mailto:info@ibsr.be)

Tel.: 0032 2 244 15 11  
Fax: 0032 2 216 43 42