

I AM,  
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June 2010 | N° 10

## When kissing owies isn't enough: Injuries during childhood

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In the developed countries, injuries are the main cause of death among children under 14 years of age.<sup>1</sup> In Québec, they represent the most frequent cause of death among children between 1 and 18 years of age (60% of deaths) and the third-ranked cause of hospitalizations among children under 18 years of age (11% of hospitalizations).<sup>2</sup> In many cases, these injuries are avoidable. This is no doubt why reducing injury-related morbidity constitutes one of the priorities of the *Programme national de santé publique 2003-2012* (2003-2012 Québec Public Health Program).<sup>3</sup>

The Québec Longitudinal Study of Child Development (QLSCD 1998-2010) provides a variety of information on unintentional injuries among children born in Québec at the end the 1990s. More specifically, the data, which were collected annually from 1998 to 2004 and then in 2006 and in 2008, made it possible to estimate, at various ages, the percentage of children who sustained injuries during the reference period (see the sidebar on this page). The injuries in question were serious enough to have led to a visit to a health professional or the intention to do so. Each round of the survey also provided information on the cause and place of the most serious injury sustained by the child during the reference period. In addition, thanks to the information gathered from 1998 to 2004, we may estimate the percentage of children who sustained at least one injury at *one time or another* between birth and age 6.

### A sharp increase in injuries from 5 months to 2½ years of age

According to QLSCD data, the percentage of children with at least one injury serious enough to require the care of a doctor, a nurse, or a dentist was about 1% around the age of 5 months and 7% around 1½ years of age (Figure 1). It could well be that this increase results from the rapid development of gross motor skills associated with, among other things, learning to walk. Between 2½ and 10 years of age, the percentage of children who have had one such injury is near 10%.

### Injuries in the QLSCD

The questions concerning childhood injuries were drawn from the *Questionnaire informatisé rempli par l'intervieweur* (Computerized Questionnaire Completed by the Interviewer) at each data collection. These questions are intended to be answered by the person most knowledgeable about the child, usually the mother. The phrasing of the main question has changed slightly over time. Thus, from 1998 to 2001 (from 5 months to 3½ years of age), we asked the parent whether the child had sustained any injury "serious enough to require medical attention by a doctor, nurse, or dentist", such as a broken bone, bad cut or burn, head injury, poisoning, or sprained ankle. Beginning in 2002 (at age 4 or older), the questions related to injuries "serious enough for a family member to have seen, or to have thought about seeing, a doctor, a nurse, or a dentist".

**Reference period:** In general, injuries reported at a survey round had occurred during the preceding 12 months, which approximates the length of time between two data collections. In 1998, however, since the children were only about 5 months old, the questions concerned the period since birth. Likewise, in 2002 (age 4) the questions concerned injuries sustained since the previous interview because a change to the data collection schedule led to variations in the time elapsed since the preceding round that ranged between 3.5 and 14.5 months, depending on the children involved.

**Most serious injury:** At each data collection, information was gathered about the number of injuries that had occurred during the reference period. Nevertheless, questions relating to the nature and place of the injuries concerned only the most serious one.

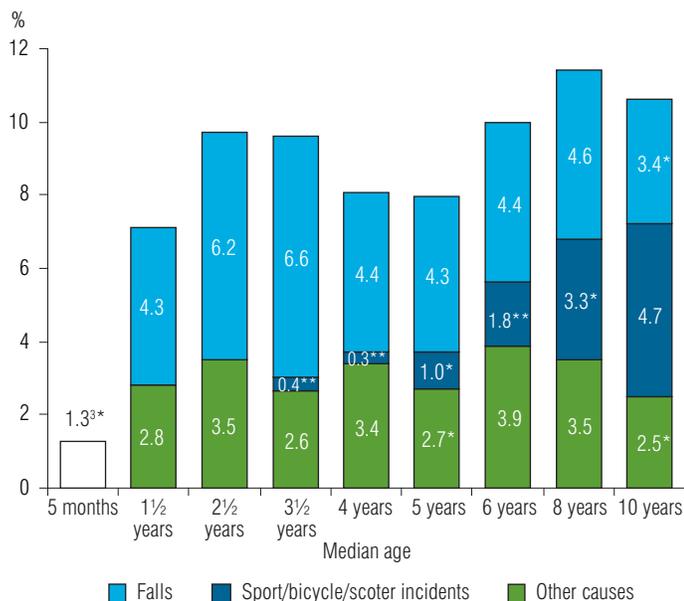
Note that the present analysis looks only at unintentional injuries (i.e., those that were not self-inflicted).

1. UNICEF (2001). *A league table of child deaths by injury in rich nations*, Innocenti Report Card No 2, Florence, Italy, Unicef Innocenti Research Centre, 33 pp.

2. GAGNÉ, M., S. LEDUC, P. MAURICE and P. PATRY (2009). *Les traumatismes chez les enfants et les jeunes québécois âgés de 18 ans et moins : état de situation*, Québec, Institut national de santé publique, 102 pp.

3. MINISTÈRE DE LA SANTÉ ET DES SERVICES SOCIAUX (2008). *Programme national de santé publique 2003-2012, mise à jour 2008*, Québec, Gouvernement du Québec, 133 pp.

**Figure 1**  
**The most serious injuries to children<sup>1</sup> during the reference period, by cause<sup>2</sup> and age, Québec, from 1998 to 2004, in 2006, and in 2008**



- Children born in Québec in 1997-1998.
  - The category "Falls" excludes falls while using a bicycle or scooter or engaging in sports. "Other causes" includes automobile accidents, burns, accidental poisonings, and assaults, among others.
  - Because of the low number of cases, this percentage represents an aggregate of all children who had ever had any kind of injury.
  - \* Coefficient of variation between 15% and 25%; interpret with caution.
  - \*\* Coefficient of variation higher than 25%; imprecise estimate provided for information purposes only.
- Source: Institut de la statistique du Québec, QLSCD 1998-2010.

**Toward 10 years of age, nearly one injury out of two is due to engaging in sports or using a bicycle or scooter**

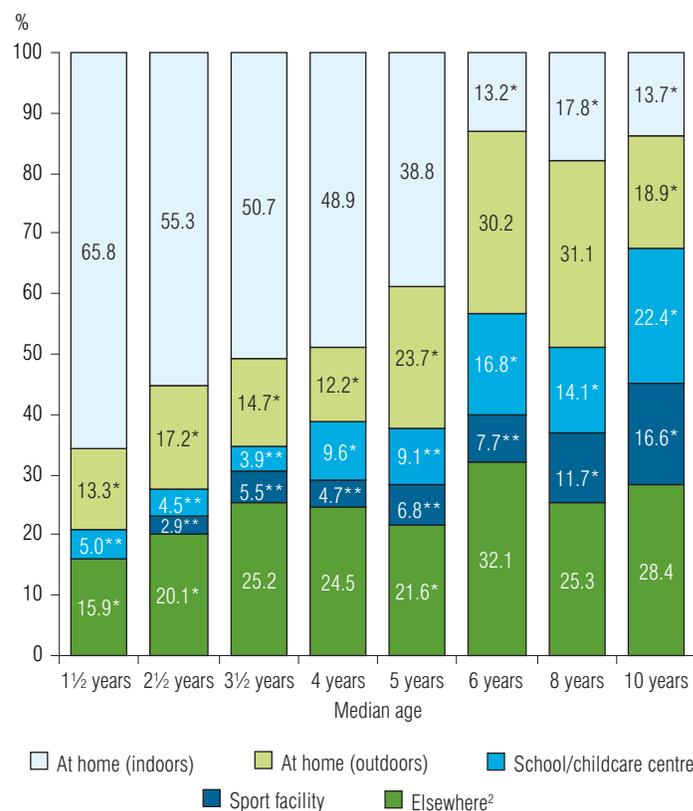
Falls constitute the leading cause of hospitalization for trauma among those under 18 years of age.<sup>4</sup> Still, the causes of injuries are varied and change as children get older. The data presented in Figure 1 show that the percentage of injuries due to falls (excluding those occurring while using a bicycle or scooter or taking part in sport) went from about 4% at around 1½ years to nearly 7% at 3½ years, only to decline soon thereafter. In fact, injuries due to falls are more common than those arising from sports (including cycling and scooter use) until around age 6 or so. From that age on, when children are starting school, the percentage of injuries due to sports or to the use of a bike or a scooter tend to increase; they represent nearly half of the most serious injuries reported around age 10, when children are in grade 4.

4. GAGNÉ, M., S. LEDUC, P. MAURICE and P. PATRY, *op. cit.*

**Injury sites that vary according to age**

Before starting school, the most serious injuries happen more often than not in the home. Thus, the percentage of injuries occurring inside the house goes from 66% around age 1½ years to about 14% at age 10 (Figure 2). This is no doubt due to the fact that the older children get, the more time they spend outside the home and the less they are under adult supervision. Around 10 years of age, the percentage of injuries occurring at school, in childcare settings, and in sport facilities is around 40%. The QLSCD data moreover show that at this age, children who are physically active very often during their free time are more subject to injuries than those who are active only sometimes or not at all (14% as opposed to 7%;  $p = 0.01$ ; data not shown).

**Figure 2**  
**Distribution of the most serious injuries sustained by children,<sup>1</sup> by site and age, Québec, from 1999 to 2004, in 2006, and in 2008**

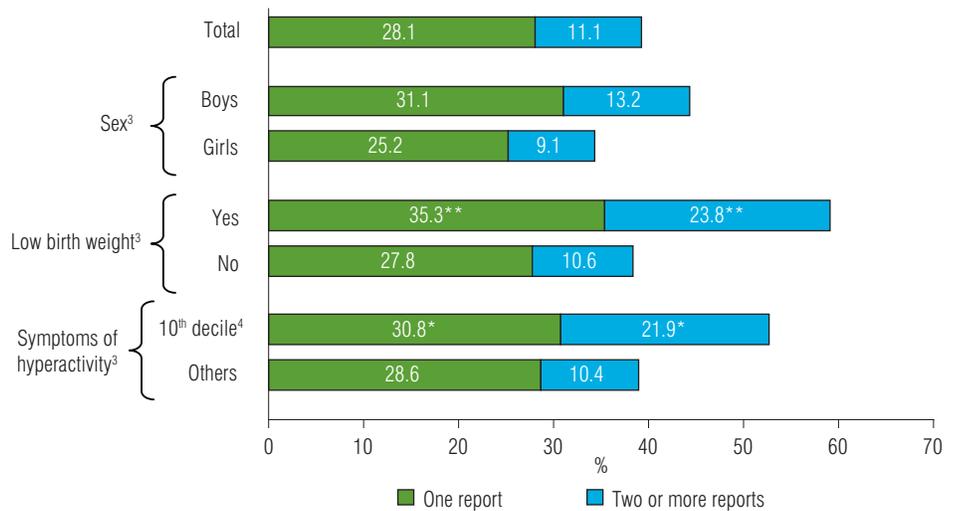


- Children born in Québec in 1997-1998.
  - The category "Elsewhere" includes playing fields, parks, sidewalks, streets and highways, other public buildings, other private residences, and any other locations not otherwise specified.
  - \* Coefficient of variation between 15% and 25%; interpret with caution.
  - \*\* Coefficient of variation higher than 25%; imprecise estimate provided for information purposes only.
- Source: Institut de la statistique du Québec, QLSCD 1998-2010.

**Four children in ten have sustained at least one injury before completing kindergarten**

The data make it possible not only to observe the prevalence of injuries for a given round of the survey, but also to know what percentage of children have had at least one injury between birth and about 6 years of age, when they are in kindergarten. Taken as a whole, the data show that nearly 4 children in 10, between birth and 6 years of age, have sustained an injury serious enough to prompt considering a visit to a health care professional. For 28% of children, injuries were reported at only one survey round, whereas injuries were reported at two or more rounds for about 1 child in 10 (Figure 3).<sup>5</sup> Boys are proportionally more likely than girls to have sustained at least one unintentional injury before finishing kindergarten (44% as opposed to 34%; Figure 3). The difference between the sexes is, however, only significant from age 4 on (Figure 4).

**Figure 3**  
Percentage of children<sup>1</sup> by number of injuries reported between 5 months of age and 6 years<sup>2</sup> and by selected characteristics, Québec, from 1998 to 2004

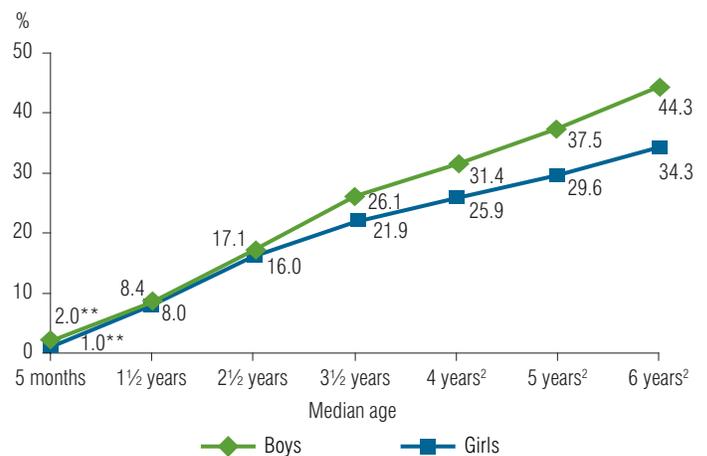


1. Children born in Québec in 1997-1998.
  2. See note 5 in the text.
  3. Chi-square test significant at the threshold of 0.05.
  4. That is, the 10% of children with the most hyperactivity symptoms.
  - \* Coefficient of variation between 15% and 25%; interpret with caution.
  - \*\* Coefficient of variation higher than 25%; imprecise estimate provided for information purposes only.
- Source: Institut de la statistique du Québec, QLSCD 1998-2010.

**An increased risk of repeated injuries among children with certain developmental problems**

Some analyses performed using Canadian and British surveys report an association both between health and the risk of injury and between development and the risk of injury among children under 12 years of age. In contrast, for socioeconomic characteristics, no clear trend emerged.<sup>6</sup> This is also the case for QLSCD when examining family socioeconomic characteristics in relation to the risk of injury before grade 1. Still, some children are more likely to have sustained repeated injuries during the pre-school period, such as boys (13% as opposed to 9%), low-birth-weight children (i.e., under 2,500 grams) (24% as opposed to 11%), and those showing higher levels of hyperactivity symptoms (e.g., restlessness, impulsiveness, impatience) toward age 6, according to their parents (22% as opposed to 10%) (Figure 3). Since it is known that low birth weight is associated with more frequent complications, disabilities, neurological sequelae, and developmental delays,<sup>7</sup> these results suggest that children with certain physical or neurological developmental problems could be more subject to injury.

**Figure 4**  
Cumulative percentage of children<sup>1</sup> having had an injury serious enough to warrant visiting a doctor, by age and sex, Québec, from 1998 to 2004



1. Children born in Québec in 1997-1998.
  2. Cumulative percentages by sex statistically significant at the 0.05 level.
  - \*\* Coefficient of variation higher than 25%; imprecise estimate provided for information purposes only.
- Source: Institut de la statistique du Québec, QLSCD 1998-2010.

5. Although the number of reports does not equal the number of injuries, it should be emphasized that very few children had more than one injury per survey round.  
 6. For a review, see: LESS, B., and W. MILLAR (2000). *Unintentional Injuries in Childhood: Results from Canadian Health Surveys*, Ottawa, Health Canada, 108 pp.  
 7. For studies on the subject that were done using QLSCD data, visit the study's web site at [www.jesuisjeserai.stat.gouv.qc.ca](http://www.jesuisjeserai.stat.gouv.qc.ca) and go to the "Publications" tab.

## Concluding remarks

The QLSCD data show that at each age studied after 1½ years of age, about 1 child in 10 had injured himself/herself at least once in a serious enough way that someone intended to consult a health professional. However, based on the cumulative data set for the period from birth up to the end of kindergarten, nearly 4 children in 10 had actually experienced this situation. This proportion appears worrisome when one knows that part of these injuries could be avoided using a variety of means such as legislation, product and environmental modifications, and campaigns promoting the use of safety devices.<sup>8</sup>

During the past few years, Québec has undertaken a number of prevention measures (for example, promoting the correct use of car seats, the wearing of bicycle helmets, regulatory initiatives to assure safety in residential swimming pools), but more remains to be done. Gaining a better understanding of injuries by age and of the factors that make some children more vulnerable to this kind of trauma constitutes a step in the right direction for devising and setting up effective prevention programs.

8. GAGNÉ, M., S. LEDUC, P. MAURICE and P. PATRY, *op. cit.*

### About the survey

The Québec Longitudinal Study of Child Development (QLSCD 1998-2010) is being conducted by the Institut de la statistique du Québec (ISQ) in collaboration with various partners. It is funded by the Ministère de la Santé et des Services sociaux, the Ministère de la Famille et des Aînés, the Fondation Lucie et André Chagnon, and the ISQ. The main goal of this study is to understand pathways and to identify the factors that, during early childhood, contribute to social adjustment and success in school.

The population targeted by the QLSCD was made up of children (singleton births only) born to mothers residing in Québec in 1997-1998, excepting those with mothers then residing in the administrative regions (as defined by the Ministry of Health and Social Services) of Nord-du-Québec, Terres-Cries-de-la-Baie-James, and Nunavik, as well as on Indian reserves. The initial sample suitable for longitudinal follow-up was made up of 2,120 children.

More information about the survey may be found on the QLSCD web site, also known as "I am, I'll be", at [www.jesuisjeserai.stat.gouv.qc.ca](http://www.jesuisjeserai.stat.gouv.qc.ca).

To access the study microdata, please contact the Research Data Access Centre of the ISQ (Centre d'accès aux données de recherche de l'ISQ – CADRISQ) at [www.stat.gouv.qc.ca/cadrisq](http://www.stat.gouv.qc.ca/cadrisq), or call 514 343-2299.

This fact sheet, translated by Robert Sullivan, is also available in French under the title "Quand becquer bobo ne suffit pas. Les blessures au cours de l'enfance".

This bulletin was designed by Direction des enquêtes longitudinales et sociales.

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Library and Archives Canada  
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2<sup>nd</sup> Quarter 2010

ISSN 1913-4851 (printed version)

ISSN 1913-486X (on-line version)

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Institut de la statistique du Québec, 2007