



Mortality in children and adolescents from unintentional injuries (falls, drowning, fires and poisoning)

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Cause-specific child mortality rates per 100 000 population for unintentional injuries not related to traffic accidents

This fact sheet reports on unintentional injury mortality in children and adolescents from falls, drowning, poisoning and fires in the 53 countries of the WHO European Region. Data are drawn from the WHO revised global burden of disease 2002 estimates (1) and the European mortality database (2). These data are interpreted taking the public health, environmental and policy contexts into account, followed by an assessment of the situation in the WHO European Region.

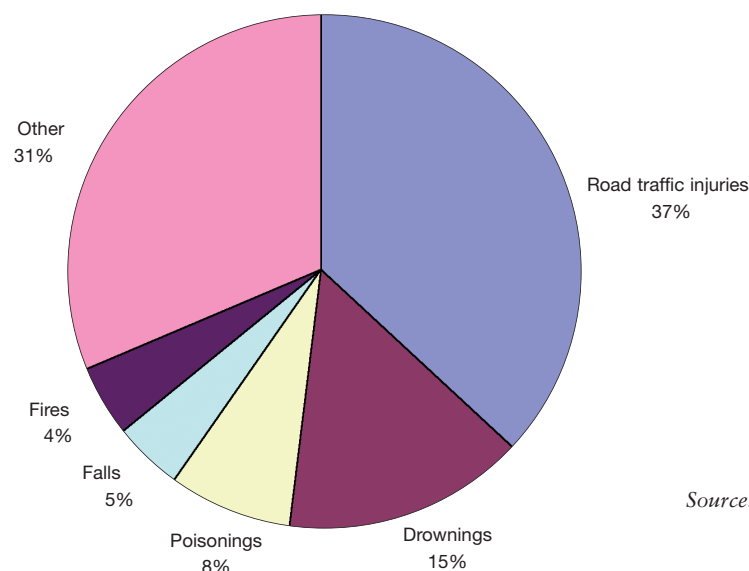
KEY MESSAGE

☹ Falls, drowning, fires and poisoning are some of the leading causes of death following unintentional injury in children and adolescents in the Region. Cause-specific rates vary greatly across the Region and are generally lowest in western Europe and highest in some eastern European countries and members of the Commonwealth of Independent States (CIS). Importantly, evidence-supported means exist to reduce this burden, and a combination of legislation, environmental modification and educational approaches is desirable.

RATIONALE

A clear picture of the current situation would enable decision-makers at European and national level to develop evidence-based policies, plan effective interventions and monitor programmes in order to improve the protection of children and adolescents from injuries in settings at and around their homes, playgrounds, schools and workplaces. The ultimate aim would be to monitor progress towards regional priority goal II (RPGII) of the Children's Health and Environment Action Plan for Europe (CEHAPE) on the reduction in childhood mortality from unintentional injuries (3).

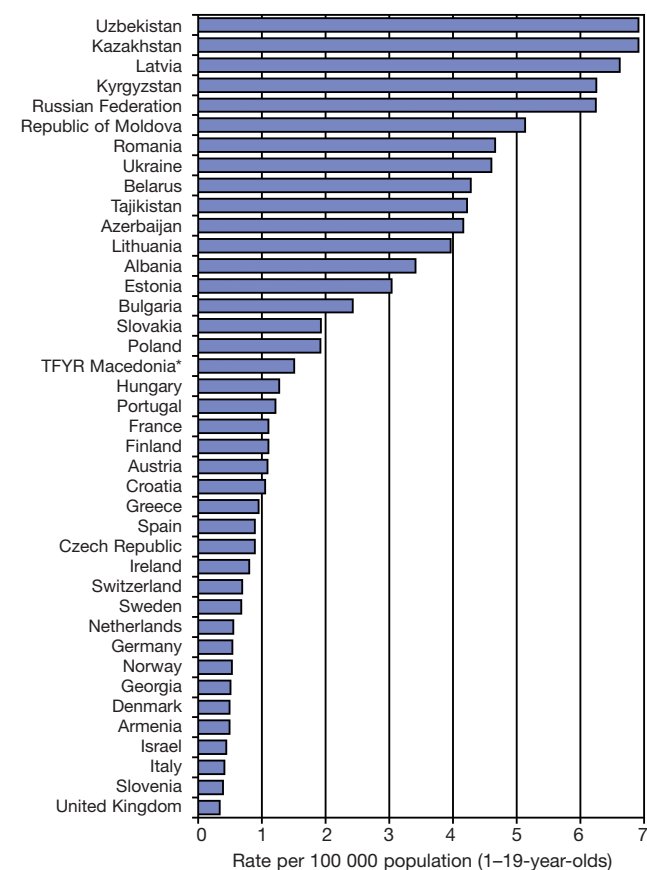
Fig. 1. Proportion of deaths from unintentional injuries by cause in the group aged 0–19 years, WHO European Region, 2002



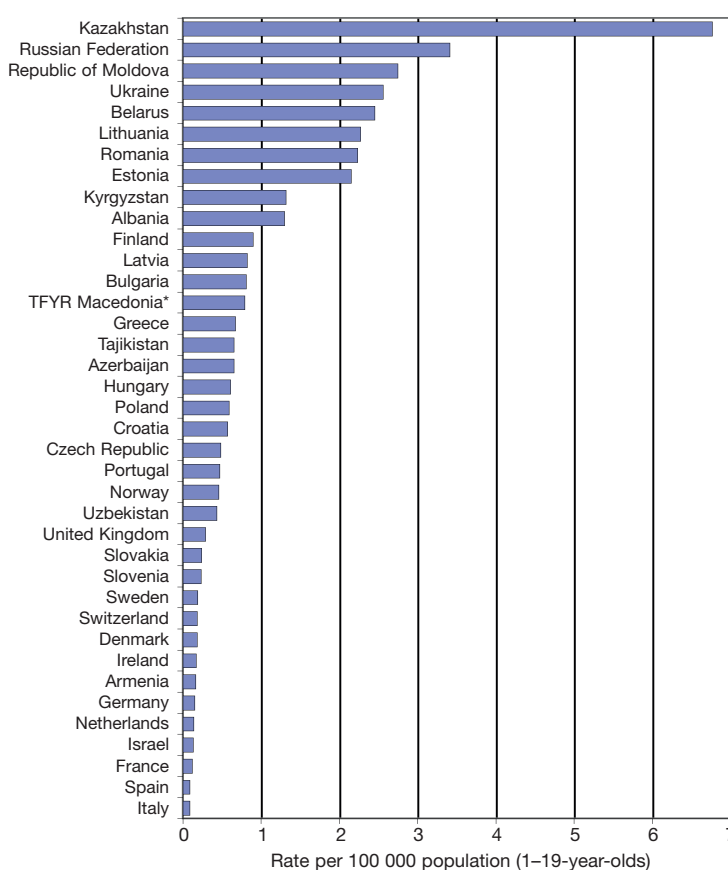
Source: Revised global burden of disease 2002 estimates (1).

Fig. 2. Standardized mortality rates for cause-specific unintentional injuries in the group aged 1–19 years, WHO European Region, 2003

2a. Drowning and submersion



2b. Poisoning



Note. Data for Denmark, Georgia, Italy and Tajikistan are for 2001; data for Sweden are for 2002; all rates are standardized by age. Source: WHO European mortality database (2).

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*TFYR Macedonia = The former Yugoslav Republic of Macedonia

PRESENTATION OF DATA

Figure 1 shows the proportion of deaths attributable to various causes of unintentional injury in children and adolescents aged 0–19 years in the Region. The chart reveals the three leading causes of unintentional injuries to be road traffic injuries (see ENHIS-2 fact sheet 2.1 on mortality from road traffic injuries (RTIs) in children and young people (4); this topic is not covered further in this fact sheet), drowning and poisonings.

Figures 2a–2d show European countries with more than one million inhabitants ranked by age-standardized mortality rate for specific causes of unintentional injury in children for 2003 (or latest available year). They show that a cluster of countries from the CIS and the Baltic region report the highest mortality rates for cause-specific unintentional injuries.

HEALTH – ENVIRONMENT CONTEXT

There is a direct relationship between childhood mortality from drowning, poisoning, falls and fires and the environment. Unsafe environments, whether the home, the playground, or recreation-

al waters, are associated with increased risks of drowning, fires and falls.

Specific factors leading to injuries may include unsafe building design in the home and school, unsafe furnishings, unsafe toys and products such as baby-walkers, and unsafe storage and packaging of toxic materials.

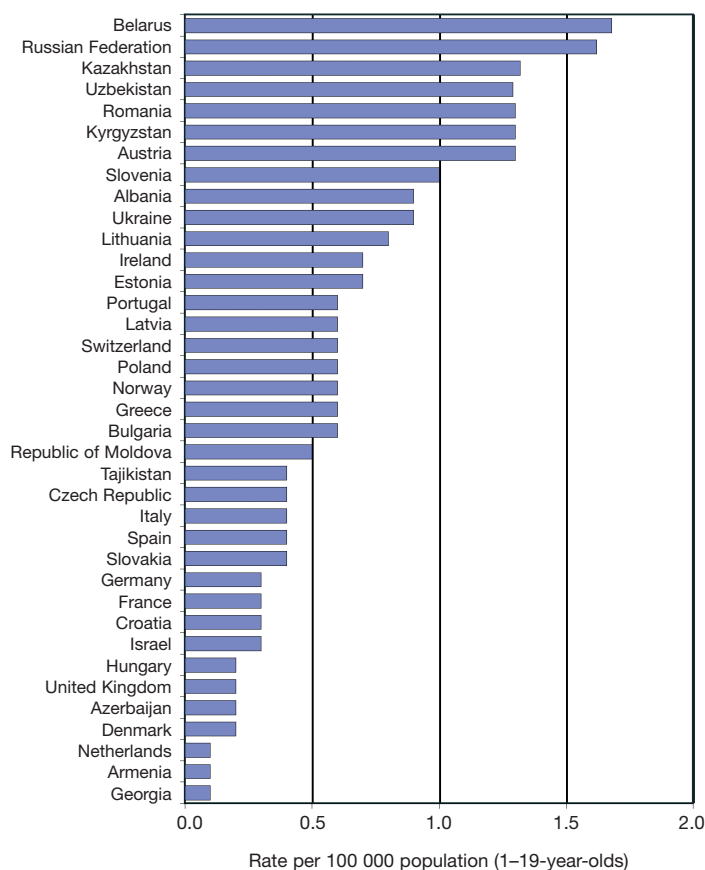
Environmental modification based on evidence of what works could therefore be used as part of a multifaceted programme of interventions to bring down the relentless daily loss of children's lives from unintentional injuries. Behaviour modification may be an essential part of such programmes. Evidence of the effectiveness of a number of interventions has recently been reviewed (5). Effective interventions include programmes to install smoke alarms to reduce the risk of fire and to fit window bars to stop deaths from falls, as well as supportive home visits which may facilitate behavioural or environmental changes that in turn lead to a reduction in hazards in the home. Child-resistant closings on packaging are highly effective in reducing the number of children's deaths from poisoning: fatal episodes in the United Kingdom fell by 85% following their introduction. The installation of rubber or bark surfacing in playground areas has been associated with lower rates of childhood injuries.

A major finding of policy effectiveness assessments is that legislation, environmental modification and educational approaches all have a part to play in preventing or reducing childhood injuries, and their interactive effects are encouraging. Nevertheless, there should be closer examination of the effectiveness and cost-effectiveness of interventions across the range of injuries incurred by children, because some areas are under- or even unexplored. In this connection, WHO has recently highlighted key elements for the development of effective home safety strategies in order to create physically safer environments and reduce the number of unintentional injuries in the home (6).

Socioeconomic determinants play an important role in childhood injuries. For example, deprived families are more likely to live in poor neighbourhoods which are unsafe, to resort to unsafe behaviour such as poor supervision of children, to have less access to safety equipment such as fire alarms because of their cost, to be associated with risk factors such as harmful alcohol use, and to have poorer access to good emergency medical services (6).

Deaths due to unintentional injuries are only the tip of the iceberg: for each death in children aged 0–14 years from unintentional injuries at home or at leisure, there are estimated to be 160 hospi-

2c. Accidental falls



Note. Data for Denmark, Georgia, Italy and Tajikistan are for 2001; all rates are standardized by age.

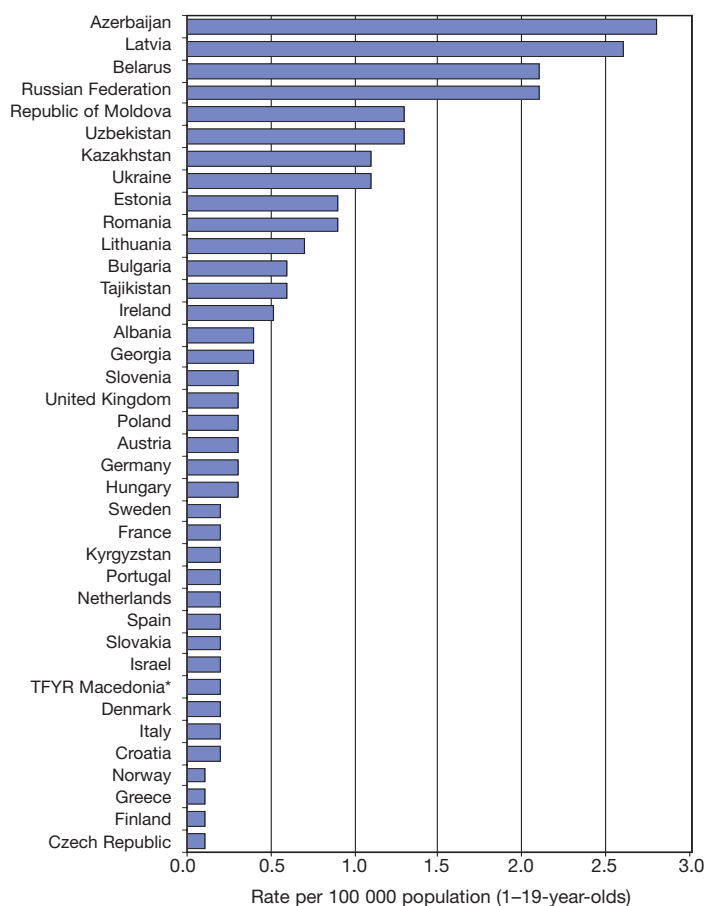
Source: WHO European mortality database (2).

tal admissions and 2000 visits to emergency departments (7). Projecting this for drowning, poisoning, falls, fires and other injuries (excluding RTIs) in children aged 0–14 years at the European level suggests that they result in around 3 million hospital admissions and 37 million emergency department visits per year in this age group alone. Further, injuries can have long-term physical and psychological consequences for children, with serious effects on their health in later life (6). It is only in relatively recent years, however, that organized efforts have been made to improve the collection of data on non-fatal outcomes of injuries, notably by the development of the European Union (EU) injury database (8). Finally, there is need for further work on the cost to society of unintentional injuries so that the cost-effectiveness of action can be adequately assessed.

POLICY RELEVANCE AND CONTEXT

The EU has several policy instruments, ranging from directives to non-legally binding standards and recommendations, which address unintentional injuries. These are presented and discussed in greater detail in ENHIS-2 fact sheet 2.6 on policies to reduce unintentional injuries from falls, drowning, poisoning and

2d. Exposure to smoke, fire and flames



Note. Data for Denmark, Georgia, Italy and Tajikistan are for 2001; data for Sweden are for 2002; all rates are standardized by age.

Source: WHO European mortality database (2).

*TFYR Macedonia = The former Yugoslav Republic of Macedonia

fires in children and adolescents (9), which also describes the current situation related to the implementation of policies on prevention of unintentional injuries in children in some European countries participating in the WHO Environment and Health Information System (ENHIS) projects.

In 2004, the Fourth Ministerial Conference on Environment and Health adopted the CEHAPE, which includes four regional priority goals to reduce the burden of environment-related diseases in children. One of the goals (RPGII) aims to reduce mortality and morbidity from injuries, including from RTIs, and to ensure the provision of safe conditions which also facilitate more physical activity among children (3). Further, in 2006 the WHO Regional Committee for Europe adopted a resolution (RC55/R9) on the prevention of injuries in the Region (10).

ASSESSMENT

This indicator should be interpreted with some caution as the quality and completeness of the data probably vary between countries. Furthermore, the data only refer to one year, which is not necessarily indicative of the long-term situation. Even so, this indicator, in combination

with that on policies to reduce unintentional injuries from falls, drowning, poisoning and fires in children and adolescents, is essential for monitoring this important problem in Europe. Unintentional injuries from drowning, poisoning, fires and falls remain a threat to children's health and this indicator shows that further concerted action needs to be taken.

RTIs are the major cause of death (37%) from unintentional injuries in children and adolescents aged 0–19 years (4).

Accidental drowning and submersion (Fig. 1) is the second most important cause (15% of deaths), associated with an estimated 6854 deaths in 2002 (1). The highest mortality rates were evident in Kazakhstan, Kyrgyzstan, Latvia, the Russian Federation and Uzbekistan (Fig. 2a), where the rates are more than twice the European average (3.1 per 100 000 for 1–19-year-olds in 2003 (2)). Rates were considerably lower in countries such as Italy, Slovenia and the United Kingdom.

Accidental poisoning (Fig. 1) is the third most important cause, implicated in 8% of deaths. Kazakhstan (Fig. 2b) had a rate five times higher than the European average (1.3 per 100 000 for 1–19-year-olds in 2003 (2)). The data for Kazakhstan may, however, be more or less biased due to peculiarities in the coding of

underlying causes. High rates were also evident in the Russian Federation and Ukraine. Falls (Fig. 1) were implicated in 5% of deaths from unintentional injury in the group aged 0–19 years; the highest rates were seen in Belarus, Kazakhstan and the Russian Federation (Fig. 2c).

Exposure to smoke, fire and flames (Fig. 2d) is an important cause of death in children aged 1–19 years, notably in Azerbaijan, Belarus, Latvia and the Russian Federation, where the rates are more than twice the European average (0.9 deaths per 100 000 for 1–19-year-olds in 2003 (2)). The lowest rates were seen in Armenia, the Czech Republic and Switzerland. Overall, some of the intercountry differences observed may be due to the different attention given to safety, differing regulatory capacity, varying quality of housing and public building stock (particularly in view of the economic downturn experienced in some countries), and the loss of social safety networks in some countries undergoing economic and political transition.

DATA UNDERLYING THE INDICATOR

Data source

European mortality database for age-specific and standardized rates (2)

Revised global burden of disease 2002 estimates (1).

Description of data

Cause-specific child mortality rates per

100 000 population for unintentional injuries, not related to RTIs, by sex and by age group. Deaths are reported by countries every year from national registers of births and deaths. The national population estimates used by WHO are those of the United Nations Population Division 2002 revision (11).

Method of calculating the indicator

Numerator: deaths stratified by: age, gender, unintentional injuries (ICD–10 codes below or equivalent ICD–9 codes):

- drowning (ICD 9 BTL: E521; ICD 10: W65–W74)
- falls (ICD 9 BTL: E50; ICD 10: W00–W19)
- burns (ICD 9 BTL: E51; ICD 10: X00–X09)
- poisoning (ICD 9 BTL: E48; ICD 10: X40–X49).

Denominator: total resident population stratified by: age, gender and socioeconomic status if available.

Data stratification specified in the methodology sheet: by male, female and total in the age groups <1, 1–4, 5–14, 15–24 and 1–19 years. Age-standardized death rates are already calculated within the European mortality database released in January 2007, using the direct method and standard European population structure. Mortality rates have been calculated by the WHO Regional Office for Europe using the data on deaths by cause/age/sex and mid-year population by age/sex reported annually by the Member States.

Geographical coverage

The European mortality database should provide data for all 53 countries within the Region. Data are, however, missing for Andorra, Bosnia and Herzegovina, Monaco, Montenegro, San Marino, Serbia and Turkey. Belgium and Turkmenistan reported very old data (before 1998), which have not been considered in this fact sheet.

Period of coverage

For most of the countries in the Region, time series cover 1997–2004.

Frequency of update

Annually.

Data quality

These data should be interpreted with caution as there may be considerable differences in quality and completeness. Under-reporting or deaths attributed to incorrect underlying causes in some countries lead to the size of the problem being underestimated. Further, data presented in this fact sheet refer to only one year, which does not allow for possible annual fluctuations.

The quality and completeness of the data reported are still matters of concern, and improvements appear particularly necessary with respect to non-fatal outcomes of injuries.

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