Appendix 2. The accident injuries situation

- Almost 90% of injury deaths take place in home and leisure
- Almost 80% of accidents leading to injury take place in home and leisure
- Unintentional injuries are the fourth most common cause of death in Finland
- Unintentional injuries cause the second most hospitalisations in secondary care compared to other main categories of diseases
- Unintentional injury mortality in Finland is the fourth highest in EU region

During the past twenty years Finland has become a much safer place in several measures. Deaths caused by traffic accidents and occupational accidents have been steadily decreasing. The number of children’s injury deaths is now the all-time record low. Such development is a consequence of long-term systematic work for improving safety in these sectors. Despite these successes the number of deaths caused by unintentional injuries has been increasing due to the growth of deaths from injuries in home and leisure. Currently injury deaths in home and leisure are decreasing slightly. However, their proportion of all injury deaths has increased while other sectors have become safer. Unintentional injuries are the most significant or one of the most significant causes of death in several age groups and are also one of the biggest reasons for hospitalisations. Considering how common unintentional injuries are and what is the magnitude their treatment demands they should be considered one of the major public health problems, comparable to cardiovascular diseases, cancers or musculoskeletal disorders.

COMPIRING INJURY STATISTICS – RECENT SITUATION

- The incidence of less serious unintentional injuries is multiple compared to unintentional injury fatalities and hospitalisations.
- Statistics on serious unintentional injuries are reliable in Finland.
- The most important statistical sources for injury monitoring are the cause of death statistics and hospitals’ care registers.
In Finland, statistics on serious unintentional injuries is accurate and comprehensive. In general, the statistics are the most reliable on the most serious injuries. Especially the law on reporting the cause of death guarantees the high quality of Cause-of-Death Statistics on fatal injuries. Hospital inpatient registers are in most cases also accurate even though some unintentional injuries are not necessarily documented. Records on outpatient visits in secondary care are also compiled; however the information contained in the database has not yet been systematically reviewed and can be rather incomplete.

According to the official statistics unintentional injuries are the fourth most common cause of death in Finland. In addition, unintentional injuries and poisonings are the second most common cause of hospitalisations in secondary care and the fourth most common cause of hospitalisation in primary health care when compared to the other disease groups.

For each serious accident injury there is in general a multiple number of milder injuries. This can also been expressed so that a certain proportion of all accidents results in mild injuries, a smaller proportion in serious injuries, and a very small proportion in death. Only the part of accidents that results in serious physical or material injuries or damages are recorded in statistics. The majority of the cases that only have mild consequences are not included in any statistics and investigation of them is left to other research. Often we indeed speak about “the tip of the iceberg” when dealing with the reasons for accidental deaths and hospitalisation.
Eurostat (http://ec.europa.eu/eurostat) is the statistical office of the European Union (EU). Its tasks include collecting data on the causes of death and occupational accidents produced by different national agencies within the Member States. Even though compiling statistics should be consistent in principle, it is based on the national statistics which may be affected by many different local practices (e.g. the procedures of collecting data on the causes of death or resources available for investigations). Accordingly, the comparison between different member states might not be completely accurate.
The burden of fatal injuries differs in EU between the East and the West. Western European countries tend to have the lowest burden of fatal injuries whereas the highest burden of fatal injuries is in the Eastern European countries. Baltic countries have the highest mortality caused by injuries, followed by Finland which has the fourth highest injury mortality rate in EU. In Finland, the mortality by unintentional injuries is almost double in comparison to the average in EU. Finland’s situation can be explained by differences in the rate of fatal home and leisure injuries which are responsible for the majority of injury deaths in the country. Differences in fatal road traffic injuries are smaller among the EU-28.

![Figure 3. Standardized injury mortality rate per 100,000 inhabitants in 2000-2010.](image)

Injury mortality is significantly higher in Finland than in other Nordic countries; however it is clearly lower than in Estonia. During the first decade of the 21st century, injury mortality has remained relatively steady in Finland and other Nordic countries (Figure 3). In Estonia the positive development has been notable, as the number of fatal injuries was cut down to half during the past ten years (for instance, fatal traffic injuries have fallen to one third since the year 2000.)
FATAL INJURIES IN FINLAND

- The majority of unintentional fatal injuries occurs at home and in leisure time, in health care facilities and other places excluding occupational and traffic environment
- The burden of fatal injuries increased at the beginning of the 2000s, but started to decrease at the turn of 2010
- Falls are the most common type of unintentional injuries causing deaths
- Unintentional injuries are currently the fourth most common cause of death in Finland

Altogether 2766 people (1846 men and 920 women) died as a result of injuries in 2011. The most common types of unintentional injuries causing death among women and men were falling or tumbling, which accounted for the death of 1212 people. 292 people died as a result of road traffic accidents during 2011, the proportion of men being three fourths. 26 people died in occupational accidents.

![Figure 4. Fatal injuries in the three main categories in 1986-2011.](image)

When fatal injuries are classified under three main categories, i.e. traffic accidents, home and leisure accident injuries and occupational accidents, the large number of fatal home and leisure injuries can be clearly seen compa-
red to the other types of injuries leading to death (Figure 4). The number of traffic accidents and occupational accidents has been decreasing during the past twenty years whereas the number of home and leisure injuries has increased during the same time. Especially in 2003 and 2004 deaths due to alcohol poisonings and other alcohol-related injury increased clearly.

Traffic accidents include all light traffic (i.e. cyclists and pedestrians) and road traffic accidents in which at least one of the involved parties has been a moving vehicle (Statistics Finland, road traffic accidents). Occupational accidents include those injuries which have occurred to employees or farmers (Statistics Finland, occupational accidents). The number of fatal home and leisure accident injuries has been counted by reducing the number of fatal traffic accidents and fatal occupational accidents from all fatal unintentional injuries in the cause of death statistics.

Injuries that are neither related to occupational accidents nor road traffic accidents are defined as home and leisure injuries (HLI). A significant proportion of these injuries occurs at home. Every fourth fatal injury among men

![Diagram](image_url)
and almost half of the fatal injuries among women occur at home. Poisonings and traffic accidents are also leading causes of injury deaths among men, whereas injuries in health care facilities and poisonings are leading causes of injury death among women. Approximately every sixth fatal injury has not been categorized into any of the above-mentioned main category type.

Figure 6. Fatal injuries according to age and sex in 2011

Fatal injuries are rare among children aged less than 15 years, but their number increases rapidly with age. The greatest number of fatal injuries occurs to men between the ages of 50 and 70 years, whereas the peak of fatal injuries among women is reached between the ages of 80 and 94 years (Figure 6). The mortality rate is higher among men than women in all age groups, being constantly around 1.5–5 times higher compared to women.

Figure 7. Standardized injury mortality rate per 100,000 inhabitants by province in 2011 (excluding the Åland Islands)
There are significant regional differences in injury mortality. Specifically, differences can be seen in men’s mortality: high mortality rates are mostly observed in Eastern and Northern Finland whereas lower mortality rates appear in Western and Southern Finland.

HOSPITALISATIONS CAUSED BY UNINTENTIONAL INJURIES IN FINLAND

- Injuries and poisonings cause more than 100,000 hospital treatment episodes and almost one million days in treatment annually.
- Injuries are the second most common cause of hospitalisation in treatment episodes in secondary care and the fourth most common cause of treatment episodes in primary health care compared to other disease groups.
- The number of hospitalisations is especially high in older women
- Estimating the number of unintentional injuries is dependent on whether injuries are documented at hospitals

The biggest proportion of unintentional injuries demanding hospital inpatient treatment occur in everyday environments: home, sports or other leisure activities. More than half of the injuries demanding hospitalisation are due to falls. Ageing, intoxication and poor functional capacity are factors increasing the risk of injury. Men suffer somewhat higher numbers of injuries leading to hospitalisation than women.

Figure 8. The number of individuals treated in hospitals as a result of an injury in 2000-2011
Approximately 80,000 people per year are hospitalised for unintentional injuries and treated in more than 100,000 hospital treatment episodes (Figure 8). The number of hospital treatment episodes increased continuously from 2003 to 2009, during which time the amount of treatment increased by 10,000 episodes. The number of hospital treatment episodes started to decrease in 2010. Even though the hospital treatment episodes have become shorter and the total number of days spent in the hospital has declined, injuries still cause almost one million hospital treatment days annually.

The number of serious injuries is almost the same among men and women. However, the stage of life when unintentional injuries occur differs among men and women, and the injury rates vary across age groups. More serious injuries occur to men than women until the age of 70 (Figure 9). The numbers of injuries increase in males aged 15 to 19 and again towards the age of 60 years. The number of serious injuries experienced by women in the older age groups is bigger than among men, which is mostly due to the larger number of women in these age groups. However, the risk of injuries increases steeply in older age groups among both sexes.

There are significant regional differences when examining the number of unintentional injuries demanding hospitalisation. However, there is need to be cautious when analysing the results. While the external cause leading to injury is always reported in regard to injury deaths, in regard to injuries...
demanding hospitalisation the external cause is not always recorded in the patient data registers. In that case it is impossible to identify the event which caused the injury. It is, however, possible to compare reliably the numbers of injuries demanding hospitalisations according to their actual medical diagnosis which is recorded nearly always. As most of the injuries are due to accidents, the number of injuries also represents the number of accidents. In 2010, the highest incidence of injuries demanding inpatient treatment (approximately 3000 treatment episodes per 100,000 inhabitants) occurred in Lapland and Northern Ostrobothnia. The Uusimaa province and Åland Islands had the lowest incidence of injuries demanding inpatient hospitalisation (approximately 2200 treatment episodes per 100,000 inhabitants). In 2010, there was least missing data on external causes leading to hospitalisation (less than 5 %) in Southern and Middle Ostrobothnia and Central Finland.

Regions reporting least data on external causes leading to injuries included Northern Karelia, Åland and the Satakunta province, where the missing data accounted for 46%, 30% and 23%. Accordingly, it is difficult to estimate the exact number of unintentional injuries in these provinces.

Figure 10. Accidents leading to inpatient treatment in different provinces and proportion (%) of missing data on the external causes of hospitalisation in 2011
**UNINTENTIONAL INJURIES LEADING TO MILD INJURIES**

- Finns experience more than one million unintentional injuries annually when including mild injuries.
- 72% of unintentional injuries occur in home and leisure.
- Injuries at home and in sports are the leading causes of unintentional injuries.
- Mild unintentional injuries treated at home and individual hospital admissions are not necessarily registered in the statistics. Information on such injuries is collected by surveys.

The cause of death statistics and hospitals’ care registers encompass only the most serious injuries. The National Victimization Survey, conducted altogether seven times between the years 1980-2009, has gathered data on mild injuries and injuries that are not included in the registers. Unlike statistics on serious injuries, the National Victimization Survey provides a different kind of picture of the injury problem because mild unintentional injuries due to bruises, cuts or sprains occur to different population in different environments compared to serious injuries.

Finns experienced approximately 1,100,000 unintentional injuries in 2009. Home and leisure time injuries accounted for 72% of all unintentional injuries. Traffic accidents accounted for 7% and occupational accidents for 21% of all unintentional injuries. 53% of the injuries occurred to men and 47% to women.

<table>
<thead>
<tr>
<th>Accident type</th>
<th>Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports injuries</td>
<td>348 000</td>
</tr>
<tr>
<td>Home injuries</td>
<td>321 000</td>
</tr>
<tr>
<td>Occupational accidents</td>
<td>230 000</td>
</tr>
<tr>
<td>Other accidents</td>
<td>123 000</td>
</tr>
<tr>
<td>Traffic accidents</td>
<td>74 000</td>
</tr>
<tr>
<td>All</td>
<td>1 096 000</td>
</tr>
</tbody>
</table>

A closer examination of the types of injuries indicates the occurrence of different types of injuries among the sexes. Occupational accidents and sports injuries are more common among men (62% and 61%), whereas the majority of home and other leisure injuries (55% and 66%) occurred to women.
There were also differences in injuries among different age groups, for example, younger age groups experienced the highest levels of sports injuries and traffic accidents. Annually, over 400,000 visits to doctors were due to unintentional injuries. The total number of unintentional injuries has remained high all through the 2000s.

According to the survey conducted in 2009, 321,000 unintentional injuries in home occurred during the year for population aged 15 years and older. This accounts for 29 % of all the unintentional injuries. 270,000 people were victims of home injuries which accounts for approximately 6.4 % of the population aged 15 years or older. The number of home injuries has almost doubled during the past 25 years, since the first Victimization Survey. Activities most commonly leading to injuries included preparing food, different maintenance and repair works and other moving around at home.

Table 2: Activities leading to home injuries

<table>
<thead>
<tr>
<th>Activity leading to injury</th>
<th>Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooking</td>
<td>65,000</td>
</tr>
<tr>
<td>Maintenance, repair and construction work outdoors</td>
<td>50,000</td>
</tr>
<tr>
<td>Heating, maintenance and repair work indoors</td>
<td>29,000</td>
</tr>
<tr>
<td>Cleaning, laundry, clothing maintenance</td>
<td>23,000</td>
</tr>
<tr>
<td>Hobbies</td>
<td>19,000</td>
</tr>
<tr>
<td>Sauna and personal hygiene</td>
<td>18,000</td>
</tr>
<tr>
<td>Other moving around at home</td>
<td>63,000</td>
</tr>
<tr>
<td>Other past time activities</td>
<td>54,000</td>
</tr>
</tbody>
</table>

Sports injuries are evidently the most common type of unintentional injuries. Finns aged 15 years and older experienced almost 350,000 sports injuries, which accounted for 32 % of all the unintentional injuries. Males experienced 62 % of the sports injuries. The total number of sports injuries has increased by approximately 1.5 times since the first Victimization Surveys during the 1980s.

During 2009, the population aged 15 years and older experienced approximately 230,000 occupational accidents (i.e. injuries at work, injuries on the way to work or injuries during employment at home). Males experienced 62 % of the occupational accidents, whereas 38 % of this type of accidents occurred to females. Since the year 2000, the number of women's occupational accidents has been 10 %-points higher than in the previous surveys.
Almost every third fatal injury occurs under the influence of alcohol. Approximately half of these injuries are alcohol poisonings and the other half are due to other kind of alcohol-related injuries. The incidence of alcohol-related injuries is substantially higher among men than among women. The number of alcohol-related fatal injuries increased in particular after cutting the alcohol tax in 2004, which resulted in an increase in alcohol poisonings by 100 to 150 cases per year. The fatal injuries due to other injuries also increased by 50 cases annually but decreased shortly after. Between the years 2008 and 2011, the situation has however improved and the number of fatal injuries due to poisonings has decreased. The changes in numbers have been more pronounced among men: approximately 300 deaths less occurred during 2011 in comparison to 2006. The relative changes among women have also been considerable as the number of alcohol poisonings among women was almost halved during this period.

Figure 11. Alcohol-related fatal injuries among men and women in 1998 to 2011.
The incidence of alcohol-related deaths tends to vary between different age-groups. Alcohol-related injury deaths are rare among children under the age of 15 but as the consumption of alcohol increases with the age so do deaths. The highest number of alcohol-related injury deaths occurs around the ages from 45 to 64 years. The incidence of all other alcohol-related injuries than poisonings remains quite stable across the age groups. Fatal alcohol poisonings occur rarely to population under the age of thirty years. The majority of fatal alcohol poisonings occur to population aged 45 to 64 years, and more than half of their accidental deaths are alcohol-related.

Figure 13. Percentage of intoxicated persons in fatalities from some types of accidents in 2009-2011.
FALLS

- Falling and tumbling cause one third of unintentional injury deaths and almost half of the injuries resulting in hospitalisation.
- The risk of falling increases and its consequences are more serious in older people.
- Fall-related deaths of women above 75 years of age account for more than half of all unintentional injury deaths among women.

Falls are the leading cause of unintentional injury deaths and hospitalisations. In statistics falls on the level are difficult to separate from the falls from high levels. Most of these cases however refer to falls on the same level (i.e. floor, street) or falling down from low level, less than one meter high, to another (e.g. bed). The proportion of falls from high level is relatively low compared to the proportion of falls on the same level. From now on all these cases will be referred to as falls.

Even more than every third unintentional injury death and half of the injuries resulting in inpatient treatment are due falls. Annually, falls are responsible for between 600 and 700 deaths among men and between 500 and 600 deaths among women. Older age groups experience the highest numbers of fall-related injury deaths. The number of fall-related fatal injuries increases among men from the age of 40 years onwards, whereas women’s fall-related fatal injuries mostly occur in older age groups. Among women, 93 % of all fall-related deaths occur after the age of 75, while in men 65 % of fall-related deaths occur after this age.

Figure 14. Deaths due to falls by age and sex in 2011
In 2010, 67,000 hospitalisations were caused by falls. More than half of these occurred to women. Hospitalisations have increased by 10% since the year 2000, which is mainly due to the greater number of hospitalisations among women. Approximately half of the treatment episodes due to falls occur to people over 70 years. Half of the treatment episodes occur to population aged over 55 years for men and 75 years and older for women.

![Graph showing treatment periods due to falls by sex from 2000 to 2011](image)

**Figure 15. Treatment periods due to falls by sex in 2000–2011**

**UNINTENTIONAL INJURIES AMONG CHILDREN AND YOUTH**

- In recent decades, unintentional injury deaths among children under 15 have decreased substantially
- Unintentional injuries are the leading cause of death among children and adolescents
- Especially traffic accidents and poisonings cause many deaths among adolescents

Accidents and other external causes (e.g. intentional self-harm, homicides and events of undetermined intent) are the leading causes of death among children and youth after the first year after birth (Figure 14). Among children and adolescents the proportion of fatal injuries of all deaths is bigger than in other age groups since the overall mortality among children and adolescents
is low. The highest rates of unintentional injury deaths occur in both sexes at the age of 15–19 years; at that age 47% of all deaths among males and 35% among females are due to unintentional injuries.

While injuries are the cause of one third of all mortality, the proportion of suicides increases rapidly among adolescents at the age of 15–24. More than 75% of all deaths are caused by external causes among youths aged 15–24 years.

![Figure 16. Proportion (%) of external causes of death by 5 years age groups](image)

The most common types of accidents leading to death among children aged less than 15 years are traffic accidents, drownings and other suffocations and strangulations. Among 15–24-year-old adolescents the most common types of fatal injuries are traffic accidents and poisonings. The major proportion (87%) of fatal injuries before the age of 25 years occurs among adolescents aged 15–24 years. Nevertheless, unintentional injury deaths among children under the age of 15 have decreased clearly during the first decade of the 2000s.

![Figure 17. Injuries and poisonings leading to hospitalisation among under 35-year-olds by sex in 2011](image)
There has not been any significant change during the last 10 years among children and adolescents considering the number of hospitalisations due to unintentional injuries. Injuries leading to hospitalisation are most often caused by falls. Traffic accidents are the second most common reason for hospitalisation among children and adolescents above seven years. The second most common cause of hospitalisation among children under seven years is injuries due to inanimate mechanical energy (such as colliding), injuries due to scalding and contact with hot objects. Half of the injuries that are treated in inpatient care occur to children under school age in the home environment, and even 70% of the injuries occurring to children under the age of three. As children grow up they start to spend more time in different kinds of environments. The highest number of injuries requiring inpatient treatment among primary school aged children and older adolescents are experienced in leisure time, outside home.

SUICIDES AND VIOLENCE

- Almost one thousand people die as a result of suicides annually even though the number of suicides has been decreasing over the past 20 years
- Alcohol and drugs are often involved in suicides, homicides and deaths of undetermined causes

In addition to unintentional injuries, more than one thousand people die annually as a result of other external causes. Suicides are the leading cause of these deaths, due to which almost one thousand persons die every year. The number has decreased significantly for the last ten years while suicide deaths have decreased by almost 200 cases annually. Around one hundred people die every year as a victim of homicide. In around one hundred deaths every year it is not possible to reliably determine whether the death was unintentional or intentional. The number of cases of undetermined intent has remained roughly the same during the last years. In homicides the victim was intoxicated in half of the cases. In suicides the victim was intoxicated in every fourth case.
Suicides are three times as common among men as among women, and the number of suicides is higher for men than women in all 5 years age groups.
Figure 20. Accidental and violence-related deaths in 2009–2011 by cause.

- Home and leisure time: 65%
- Suicide: 25%
- Traffic: 7%
- Work: 1%
- Violence: 2%