EuroSafe
European Association for
Injury Prevention and Safety Promotion

Injuries

in the European Union

Summary of injury statistics
for the years 2012-2014

6th
EDITION

ACKNOWLEDGEMENT

The sixth edition of “Injuries in the European Union” presents a summary of the most recent injury statistics from almost all EU - and associated countries, covering the years 2012-2014. The report presents data on non-fatal injuries produced by twenty-six countries for the European Injury Data Base (IDB), complemented by data on fatalities from the WHO-European Detailed Mortality Database.

The IDB is a unique data source that contains standardised cross-national data on the external causes and circumstances of injuries examined and treated in emergency departments of hospitals, and from there admitted to in-patient care or released to home care or other ambulatory treatment. Thanks to IDB we can present a comprehensive picture of the entire spectrum of injury severity, main injury causes and circumstances. This is badly needed for guiding prevention policies and programmes policy sectors such as consumer safety, road safety and safety at work.

The 26 members of the IDB-network, i.e. the national bodies which collect and share data in accordance with the agreed IDB-methodology, are to be congratulated for their efforts to enhance the reporting on the burden of injury and main injury characteristics at national and EU level.

EuroSafe acknowledges also with thanks Rupert Kisser (our EuroSafe-injury surveillance expert) and Samantha Turner (Swansea University College of Medicine, Health Information Research Unit) for collating the WHO-statistics and IDB-data presented in this publication and for producing the sixth edition of the report on Injuries in the European Union.

This report is produced in the framework of the BRIDGE-Health project, which aims to prepare the basis for a comprehensive EU health information system and which receives co-funding from the European Commission and its EC Health Programme.

Phil Buckle,
General secretary EuroSafe

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Despite the harmonisation efforts undertaken by the data providers and analysts, the injury statistics presented may not always be completely comparable between countries due to differences in national health systems and differences in procedures for data collection and reporting.

Content:

01

SUMMARY

Injuries are a predictable and largely preventable public health problem in Europe. To reduce injuries, injury surveillance systems which measure the scale of the injury problem and provide information on the underlying causes of injury, are essential for guiding preventative actions and empowering policy makers to make informed decisions.

The need for injury surveillance data in the fields of work safety and road safety has been acknowledged for some time. Consequently, for a number of decades work and road safety dedicated EU-level reporting systems have been in use across Europe. While these surveillance systems are helpful, they are far from complete, as many other types of injuries such as those which occur in the home, are not captured. Although the majority of injury related emergency department (ED) attendances and hospital admissions result from injuries in the home and during leisure, the need for better data in these areas was realised much later. As a result, data on home and leisure injuries is currently very limited in Europe.

In order to remedy these deficiencies in injury data, an increasing number of countries are developing injury monitoring systems based on ED patient registries. These ED based systems allow a more comprehensive picture of the entire spectrum of injuries to be drawn, including detailed information on the causes and severity of injuries. Successful pilots throughout Europe, inspired countries to collaborate and develop systems which could collate all available data into one EU-level database: The European Injury Data Base (EU-IDB).

The 6th edition of the "Injuries in the European Union" report presents data on non-fatal injuries from the IDB, complemented with data on fatalities from the WHO-European Detailed Mortality Database (DMDB). The information presented in this report relates to the most recent three years of data which varies by country. The total number of around 500 hospitals, submitting data on 1.2 million cases every year to the EU-IDB, is sufficiently large and representative to enable incidence rates at EU-level to be calculated for specific groups of injuries by age, intent, setting, and type of injury.

It is clear from observing the number of injuries in IDB that the 232.000 injury fatalities within the EU every year are only the "tip of the iceberg" in Europe. For every injury fatality in Europe, there are approximately 163 ED attendances (38 million cases every year), of which 23 (5.3 million cases every year) end up being admitted to hospital. A large proportion of these injuries results in permanent disability. Direct medical care costs alone to treat injured patients in hospitals (inpatients and ambulatory care patients) across the EU is estimated to be at least 80 billion Euros each year. Further, home and leisure injuries are by far the biggest share of these costs.

As evidenced by this report, IDB provides improved insight into the magnitude and characteristics of non-fatal injuries, and presents the injury community with a comprehensive picture of the burden of injury in the EU. It also offers a data set which can be utilised to produce estimates on the four core injury indicators within the set of eighty-eight European Core Health Indicators (ECHI).

Further development and consolidation of EU-health monitoring and information exchange is much needed. The European Commission (EC) initiative to support the EU-wide project BRIDGE-Health is much welcomed. The BRIDGE-Health project, which runs from 2015-2017, aims to secure the continuation of current information exchange activities like IDB, and create from 2018 onwards an integrated and sustainable EU health information structure that covers all relevant health topics including injuries.

The 6th edition of the "Injuries in the European Union" report, demonstrates the immense value of the IDB as a core component within the European health information structure. This report also reinforces the importance of the IDB as an indispensable asset for shaping informed and effective injury prevention policies across Europe.

02

PURPOSE

The following chapter summarises the purpose of injury data collection systems, and the role Emergency Department (ED) data plays in filling in the gaps on non-fatal injuries.

With almost one quarter of a million fatalities each year, injury is after cardiovascular disease, cancer and respiratory disease, the fourth most common cause of death within the EU. In children, adolescents and young adults, injuries are the leading cause of death.

However, injury related fatalities are only the "tip of the injury iceberg", with millions more patients requiring hospital treatment or treatment in rehabilitation centres each year; a significant number of which result in permanent disability. The exact magnitude and characteristics of these non-fatal injuries are less well known.

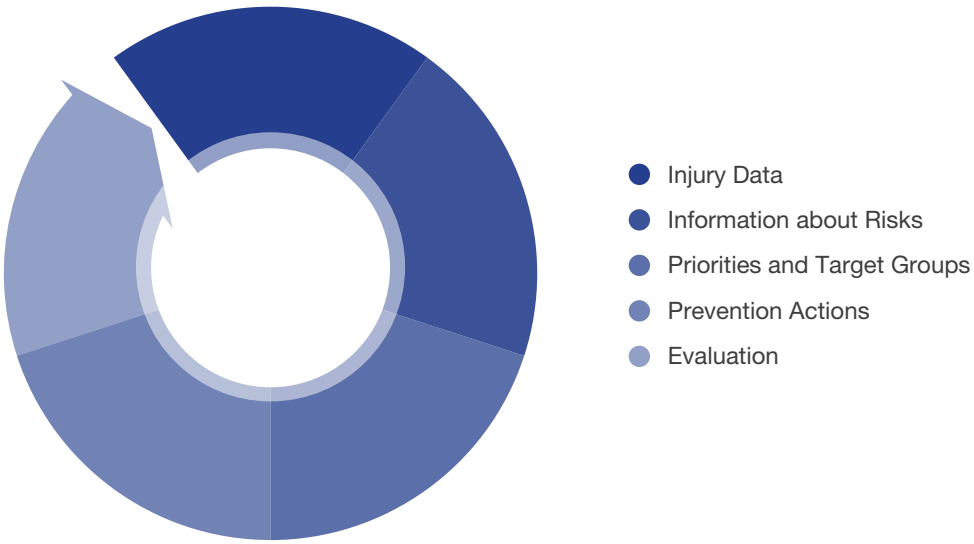
The Need for Injury Data

Injuries are a predictable and largely preventable public health issue. To support the reduction of injuries in Europe, the collection of standardised injury data is extremely important, in that it facilitates more effective targeting of preventative interventions towards high risk groups, and to help address external factors such as exposure to high risk settings and activities. Injury data is also a critical tool for activating stakeholders.

Further, injury data are important in help to (see *Figure 2.1*):

- *Enable proper assessment of the health burden of injury at national and EU-level*
- *Identify risks related to gender, specific age-groups, activities, and responsible policy domains*
- *Facilitate decision making on priority issues and target groups to address*
- *Identify preventative measures which tackle the actual risk factors and target audiences*
- *Measure whether the targets of prevention policies and actions are being met*

Figure 2.1: *The cycle of action for injury prevention*



Information gaps

In the fields of work safety and road safety, the need for injury information across the entire severity spectrum was acknowledged long ago, and dedicated reporting systems at the EU level have been in place for a number of decades:

- *For work safety, accident reports from public, social or private insurance organisations and labour inspectorates provide the basis for the European statistics on accidents at work (ESAW)* [1] [2]
- *For road traffic injuries, police reports from all Member States provide the basis for the data shared through the Community database on Accidents on the Roads in Europe (CARE)* [3] [4]

Although these data sources are helpful, they are far from complete, as many injuries such as those which occur in home or during leisure activities are not captured in these systems. Moreover, the figures from these different sources are often not comparable due to vast differences in the definition of cases and other methodological deviations.

Injuries which occur in the home or during leisure activities are the predominant cause of injury related hospital admissions and ED attendances. However, the need for better data in these areas was realised at a much later date than in the field of work and transport accidents. While household surveys like the European Health Interview Survey (EHIS) [5] [6] are one way in which to fill the information gaps on non-fatal injuries, surveys are detrimentally affected by recall-biases, difficulties interviewing children and older people, and high data collection costs, which often make it impossible to establish continuous (annual) monitoring systems.

ED attendances as a prime source of information on non-fatal injuries

The deficiencies associated with survey based systems, resulted in an increasing number of countries developing monitoring systems based on ED patient registries. These ED based registers provided countries with a comprehensive understanding of the entire spectrum of injuries, and encouraged several countries to collaborate and collate all available data into one standardised EU-level database: The European Injury Data Base (IDB) [7].

The key objective of the IDB is to collect and exchange information on the frequency, causes, circumstances and consequences of non-fatal injuries in EU Member States and associated countries. IDB covers unintentional injuries in all walks of life as well as intentional injuries due to violence and self-harm. IDB data are complementary to general mortality statistics, hospital discharges statistics, and health surveys, as well as to specific registers of road and workplace accidents.

Through a series of projects co-financed by the European Commission (EC), the IDB-partners are working together to enhance the quality of injury data collection and to expand the number of countries across the continent that are actively engaged in IDB and its injury data exchange at the EU-level. The network of IDB-countries reports regularly on the findings from national data that is collated and analysed at EU-level, through bi-annual reports titled “Injuries in the European Union”.

Purpose of this report

This 6th edition of “Injuries in Europe” aims to:

- *Inform stakeholders in all relevant policy sectors about the magnitude of the injury problem and eventual priorities for prevention*
- *Motivate stakeholders to put injury prevention higher on their agenda*
- *Demonstrate the usability of IDB data for deriving meaningful indicators and invite stakeholders to make better use of available data*

The main target groups for this report are policy makers in public health, individuals responsible for health information and health promotion in general and/or those working in specific policy sectors such as road safety, work safety, consumer safety, and the prevention of interpersonal violence and self-harm.

Main data source for this report

The main data source for this report is the European Injury Data Base (IDB) [8], complemented with data on fatalities from the WHO-European Detailed Mortality Database (EDMD) and Health for All database (HFA) [9]. The IDB is based on national injury surveillance efforts, with participating countries collecting injury data from emergency departments in hospitals. In some countries the basic IDB data is collected routinely across all hospitals. However, in the majority of countries IDB data is only collected in a limited number of hospitals – i.e. in a representative sample of hospitals - nationwide or in one region or province. The IDB methodology is comprehensively laid down in the IDB-manual [10].

The combined EU-level sample includes both large and middle-size hospitals, located in urban as well as rural areas, and includes hospitals that are accessible by all age groups as well as specialized children/adult hospitals. Specialized departments within selected hospitals, such as paediatric departments, dental departments, ophthalmologic departments and burn units, are also included in the system where possible to ensure that all injured patients entering a hospital are included.

Countries are expected to report only on cases of acute physical injuries attending emergency departments (EDs) at selected hospitals for diagnosis or treatment. Attendances relating to disease complaints or due to complications of medical/surgical care are excluded. Further, follow up attendances for treatment are not recorded as a new case.

The total number of hospitals in the IDB sample is sufficiently large and representative for deriving incidence rates at EU-level, even for quite specific groups of injuries (as defined by age, intent, setting, or type of injury). Overall, the IDB gathers data on approximately 1.2 million cases each year, from over 500 selected hospitals, in countries participating in the EU-level exchange.

03

IDB: CORE COMPONENT IN EU HEALTH INFORMATION SYSTEM

This chapter presents injury data collection and exchange efforts within the broader framework of EU-Health information policy and EU core health indicators, and describes how the IDB fits into current efforts to create a more comprehensive, integrated and sustainable EU health information system.

Legal base

The Treaty of Lisbon (Article 168) [11] elevated the importance of health policy within the EU, stipulating that "a high level of human health protection shall be ensured in the definition and implementation of all Community policies and activities". It was also specified that this should be achieved through Community support for Member States and by fostering cooperation.

Primary responsibility for health protection continues to lie with Member States. However, the EU has an important role in improving public health, preventing and managing injuries and diseases, mitigating sources of danger to human health, and harmonising health strategies between Member States.

As for health information policy in particular, the recent Council conclusions on "Modern, Responsive and Sustainable Health Systems" (EPSCO 2013/10 DEC) [12] delivered a new boost to health information systems, by inviting the Commission and Member States to "cooperate with a view to establishing a sustainable and integrated EU health information system, built on what has been already achieved through different groups and EC co-funded projects".

The need for enhanced investments in injury surveillance and prevention had been earlier clearly profiled in the Council Recommendation on the "Prevention of Injury and the Promotion of Safety" (2007/C 164/01) [13]. This Recommendation concludes among other things that:

- *Injuries are, after cardiovascular diseases, cancer and respiratory diseases, the fourth most common cause of death in the Member States;*
- *Many survivors of severe injuries suffer life-long impairments; and that*
- *Injuries, while being largely avoidable, are the main cause of chronic disability among younger people, and lead to significant losses in healthy life years.*

It states therefore that:

- *Member States are recommended to make better use of existing data and develop, where appropriate, representative injury surveillance and reporting instruments to obtain comparable information, monitor the evolution of injury risks and the effects of prevention measures over time and assess the needs for introducing additional initiatives on product and service safety and in other areas; and*
- *The Commission is invited to gather, process and report Community-wide injury information based on national injury surveillance instruments and to facilitate the exchange of information on good practices and on policy actions in the identified priority areas and the dissemination of the information to relevant stakeholders.*

Within the broader European region of the World Health Organisation, injuries have also been identified as a major public health issue and threat to economic and social development within the region. Injuries and violence account for 9% of all deaths in the WHO-European region, with approximately 550,000 people losing their lives due to injury-related causes each year. To support countries in addressing this problem more comprehensively, a Resolution on the "Prevention of Injuries in the WHO European Region" (EUR/RC55/R9) [14] was issued, which placed violence and injury prevention firmly on the public health agenda. The Resolution urges Member States to:

- *Develop injury surveillance, in order to obtain a better understanding and to raise awareness of the*

burden, causes and consequences of injuries, so that programmes and investments for prevention, care and rehabilitation can be better targeted, monitored and evaluated;

- *Strengthen their technical and institutional capacity to address the issue of injuries, in terms of prevention and along the whole continuum of trauma care, from the pre-hospital phase, through hospital care to rehabilitation; and*
- *Promote research on effective intervention measures and the implementation of evidence-based approaches for prevention and care, which would also involve establishing effective mechanisms for identifying, disseminating and sharing good practices across and within countries and sectors.*

The European Parliament and the Council Regulation on "Community Statistics on Public Health and Health and Safety at Work" (L354/70/1338/2008) [15] also identifies "accidents and injuries, including those related to consumer safety", as a core component of statistics on health status and health determinants. The Regulation is designed to ensure that health statistics provide adequate information for all EU Member States to monitor EU actions in the field of public health. The statistics on health status and health determinants are based on self-assessment and compiled from population surveys such as the European Health Interview Survey (EHIS), as well as "other statistics compiled from administrative sources such as those on morbidity or accidents and injuries".

European Core Health Indicators for Injury

Public health indicators are instrumental in providing an evidence base for the development and evaluation of public health policies and interventions. In order to enable benchmarking, it is key that health indicators are comparable across countries.

For this purpose, the European Commission together with the European Member states, developed a set of 88 standardised European Core Health Indicators (ECHI) [16]. In due course, these indicators will be available for every EU Member State, broken down by age, gender and severity of injury (e.g. whether the ED attendance was admitted to hospital). Common measurement parameters are absolute numbers (counts or estimated numbers of cases) and rates (crude rates or age standardized rates), which enable the injury burden to be compared across various settings, population-groups and even countries.

Among the 88 European Core Health Indicators, four relate to core injury categories:

- *Home, leisure, sport and school injuries (ECHI-29)*
- *Road traffic injuries (ECHI-30)*
- *Workplace injuries (ECHI-31)*
- *Suicide attempts (ECHI-32)*

Definitions, preferred data types and data sources have been specified by the ECHIM-project [17] and summarized in table 3.1. ECHI-29 and ECHI-30 are expected to be based on two data sources: self-assessments compiled from population surveys such as the European Health Interview Survey (i.e. ECHI 29a and 30a), as well as other statistics compiled from administrative sources (ECHI 29b and 30b). For ECHI 29b and ECHI 30b, internationally comparative hospital based systems such as the IDB are expected to be the most promising sources of data.

ECHI-31 (workplace accidents) is expected to be based on administrative data only. The ESAW (European Statistics on Accidents at Work) database, which compiles data from insurance systems and labour inspectorate-based reporting systems is likely to be selected for ECHI-31. However, given that the IDB system also collects data on non-fatal work-place injuries, the IDB should be considered as an additional data source in the future. In the meantime, further analyses evaluating the validity of the IDB system as a data source for non-fatal work place injuries are required.

Regarding ECHI-32 (suicide attempts), the ECHIM project was not able to provide a recommendation on a preferred data source. While surveys often lead to an underestimation of the actual number of suicide attempts, hospital based figures may overestimate the true number, as not all individuals who deliberately self-harm intend to commit suicide. Nonetheless, the IDB can be considered a potential indicator for all self-harm related incidents requiring medical attention.

Specific registers like ESAW (European Statistics on Accidents at work) [18] or CARE (Community Database on Road Accidents) [4] have the advantage of being based on current accident reporting practices in Member States, i.e. registries maintained respectively by police and by labour inspectorates (employers-reported incidents). However, these registries are incomplete and lack comparability with other injury data sources: ESAW data

are based on quite distinct national systems and suffer considerable underreporting by some countries; the CARE database, which contains data on road traffic injuries, lacks information on injury diagnose and injury outcome, and suffers severe underreporting of accidents involving two-wheelers and/or pedestrians. Finally, Eurostat's hospital discharge register (HDR) [19] contains medical information, but lacks information on the external circumstances and setting of injuries.

From table 3.1, it can be concluded that only the EU Injury Data Base (IDB) covers the entire scope of non-fatal injuries (e.g. all four domains and three severity outcomes). Together with WHO's Detailed Mortality Database (DMDB) and WHO's European Health for All Database (HFADB) [20], the IDB provides a complete picture of the burden of injury in the EU.

Table 3.1: *EU core indicators for the burden of injury (ECHI 29-32) and their preferred sources: DMDB (WHO's Detailed Mortality Data Base), CARE (Community Database on Road Accidents), HFADB (WHO's European Health for All Database), ESAW (European Statistics on Accidents at Work), HDR (Eurostat's hospital discharge register), and IDB (European Injury Database);*
[1]ECHI 32 focuses on suicides; however, rates for all self-harm incidents are presented in this table as it is not possible in IDB to distinguish between suicidal self-harm and non-suicidal self-harm.

Severity/ Setting	Home, Leisure, Sport and School Injuries	Road Traffic Injuries	Workplace Injuries	Self-harm[1]
ECHI-Nr.	29b	30b	31	32
Deaths	DMDB	DMDB CARE	HFADB ESAW	DMDB
Admissions	**IDB**	**IDB** HDR	**IDB** ESAW	**IDB** HDR
ED-Cases	**IDB**	**IDB**	**IDB** ESAW	**IDB**
All Cases Treated in Hospitals	**IDB**	**IDB** CARE	**IDB** ESAW	**IDB**

The following chapters demonstrate the value of IDB in helping Member States contribute data towards the European health information system and core indicators ECHI 29-32, as well as providing countries with an evidence base to derive informed country specific injury prevention policies and actions.

EU-health information challenges

Over the past decades, EU health information and evidence for policy has been taken forward by the work of the European Commission in collaboration with OECD and WHO and through investments in a wide range of EC-projects. The EC-Programmes of Community Action in the field of Health [21] helped initiate a number of EC-projects, which provided useful inputs into research and decision making at the national and European level. In relation to injuries, the series of EC co-funded IDB-projects and the latest Joint Action on Injury Monitoring in Europe (JAMIE) [22] were instrumental in achieving standardised high quality injury data quality across the EU.

The consecutive EC-Programmes of Community Action in the field of Health helped to harmonise data collection and exchange on a number of important health topics. Further, enhanced EU-wide topical research networks, have helped pool scarce resources and increase efficiency of health reporting at both Member State and European level. These projects have also identified significant gaps and deficiencies in health information across Europe, such as: diversity of health information structures, health information inequality between countries, fragmentation of databases and registries, and lack of sustainable health information structures.

Unfortunately, there is no mechanism at present to include the results from all of these projects in a common European statistical system, as envisaged by the "Regulation 1338/2008 on the community statistics on public health and health and safety at work" [15], and to amend the gaps and deficiencies in current health information. As such, if continuity is not assured, previous significant investments into improved specific health information systems may go to waste.

Therefore, it was agreed that the EU required a standardised health information infrastructure to support research and evidence-based policy-making across the EU. The earlier mentioned Council conclusions on "Modern, Responsive and Sustainable Health Systems" (EPSCO 2013/10 DEC) [12] states rightly that "health monitoring and information at EU level should be further developed and consolidated". The Council also requested that such a system should be "based on the European Core Health Indicators (ECHI) and on existing health monitoring and reporting systems developed as a result of a cooperation between Member States supported by the Programmes of Community Action in the field of Health".

The Council request led the Commission to initiate a EU-wide project with a view to create a comprehensive, integrated and sustainable EU health information system, covering all relevant health topics: BRidging Information and Data Generation for Evidence-based Health policy and research (BRIDGE Health) [23].

BRIDGE Health is working towards a European health information and data generation network covering all major EU health policy areas. It includes 31 partners in 16 countries, and aims to coordinate and unify all existing key projects in health information. The project was launched in May 2015 and will run for 30 months. The BRIDGE Health project assures knowledge transfer from previous health and research networks in the domains of population and health system monitoring, indicator development, health examination surveys, environment and health, and health system monitoring and evaluation methods. Injury surveillance is one of the core components within this framework.

BRIDGE Health will also explore the possibility of alternative structures for a comprehensive, integrated and sustainable EU health information system, designed to support research and evidence-based policy for the EU and Member States from 2018 onward. The primary goal of this final EU-level health information system would be to foster a common health information strategy, and the development of a common health information structure built upon on coherent and compatible national systems and existing EU health information infrastructures.

04

THE BIGGER PICTURE:
The health burden of injury

The following chapter reports on injuries according to severity of outcome (fatal, hospital admission and ambulatory treatment only), age and gender, and the setting they occurred, respectively the relevant policy domain responsible for prevention.

The overall picture

Every two minutes an EU citizen dies as the result of an injury. Additionally, for every injury related fatally, there are approximately 23 injury related hospital admissions, and 140 injury related Emergency Department (ED) attendances receiving only ambulatory care. This means that each year an estimated 37.8 million people attend ED departments across the EU, 5.3 million of which are admitted to hospital for further treatment (*Figure 4.1*). In total, this amounts to around 38 million injuries in the EU each year; 0.6% of which lead to death, 14.1% to a hospital admission and 85.9% to ambulatory care in ED departments (*Figure 4.2*). The number of injury cases which do not attend EDs or which are treated outside of hospitals (e.g. at doctor's offices) is unknown. However it can be assumed that the IDB encapsulate the majority of injury cases for which expert medical assistance was deemed necessary.

Figure 4.1: *The injury pyramid for the European Union*

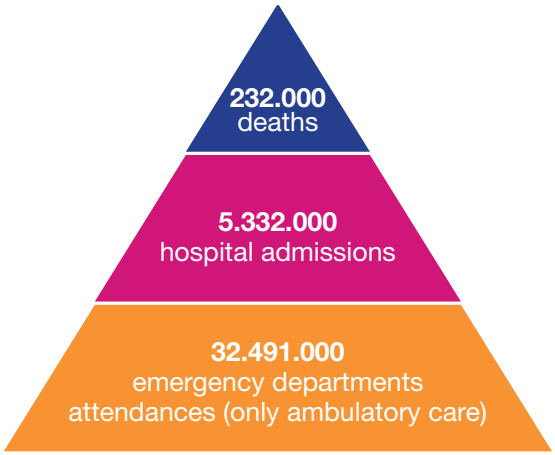
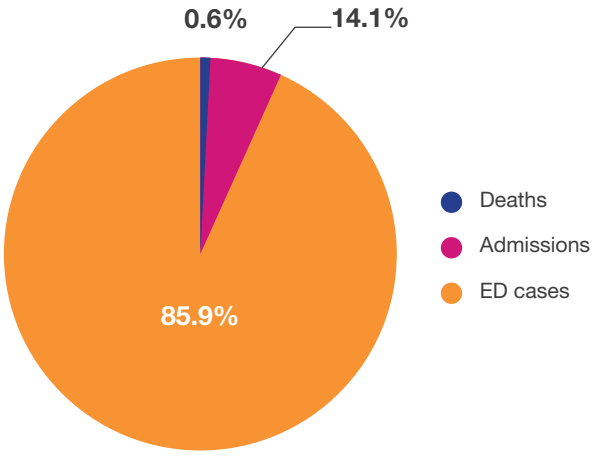


Figure 4.2: *Estimated 38 million injuries in the EU by severity*



The Hospital Discharge statistics [16] report that one out of every twelve hospital admissions in the EU relates to an injury and that at least 50 million days of hospital care delivered in the EU relate to injury.

The direct medical care costs of injuries treated in hospitals (inpatients and ambulatory care) in the EU is estimated to be at least 80 billion Euros each year (EuroSafe 2013) [24]. However, the actual direct costs of injury are likely to be much higher, due to sick pay, cost for treatments outside of hospital, costs for rehabilitation and/or disability pensions. Further, the 80 billion estimate does not include indirect costs, such as loss of productivity, which are often much higher than the direct medical costs.

All injuries by setting/ domain

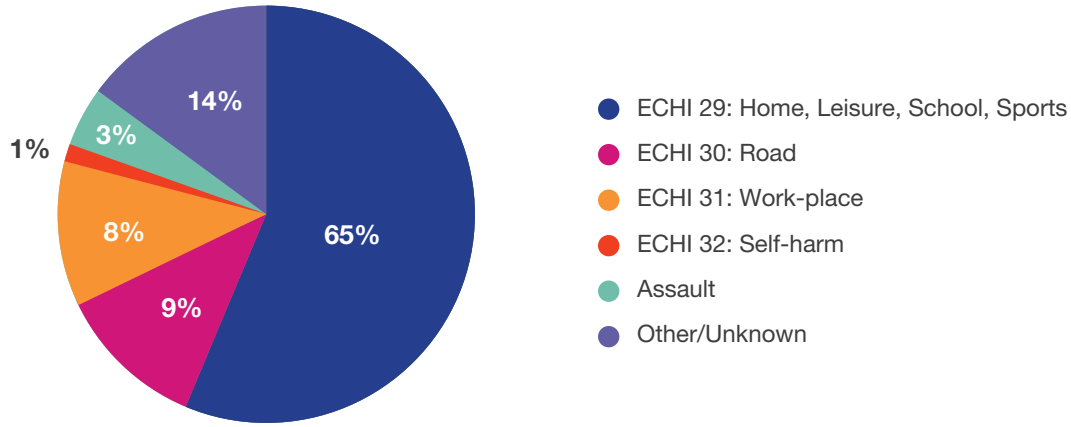
In order to relate the proportion of injury burden to the relevant policy sector, the ECHI project [16] proposed four register based indicators on the burden of non-fatal injuries: Home and leisure injuries (ECHI 29b), road traffic injuries (ECHI 30b), workplace injuries (ECHI 31) and suicide attempts (ECHI 32).

The IDB system covers all injuries, except those which were the consequence of medical interventions. Within the IDB system, "road traffic injuries" are defined as those injuries in which a moving road vehicle was involved. "Work-place injuries" include those which occurred during the course of paid work, but exclude road traffic injuries. "Home, leisure, school and sport injuries" were a residual category, defined by subtracting road-traffic and work-place accidents from all unintentional injuries. This group contains injuries at home and in various institutions (e.g. schools, nursing homes etc.) and/or during a great variety of leisure time activities (e.g. household-keeping, play, recreation, sports, unpaid work, simple walking etc.). For further details please refer to the IDB-Manual [10].

Table 4.3: *European core health indicators (ECHI) for the burden of injuries: Estimates for the EU*
[1]ECHI 32 specifies suicides; however, rates for all self-harm incidents are presented in this table as it is not possible in IDB to distinguish between suicidal self-harm and non-suicidal self-harm.

ECHI/Setting	Home, Leisure, School, Sport	Road Traffic	Work-place	Self-harm[1]	Assault	Other/ Unknown	Total
ECHI-Nr.	29b	30b	31	32			
Estimated No. of Injury Cases Attending EDs (both ambulatory care and admitted patients)	24.573.903	3.384.447	3.118.562	395.045	1.008.739	5.341.765	37.822.462
Crude Rate per 1000 Persons	53,70	7,32	7,95	0,89	2,26	5,67	77,79
%	64,97%	8,95%	8,25%	1,04%	2,67%	14,12%	100,00%

Figure 4.4: *Injuries in the EU by setting (based on an estimated 38 million ED attendances)*
[1]ECHI 32 specifies suicides; however, the proportions in this figure are based on all self-harm incidents, as it is not possible in IDB to distinguish suicidal self-harm from non-suicidal self-harm



By referring to Table 4.3 and Figure 4.4, it can be seen that around two thirds of injury related ED attendances occur as a result of injuries in the home or during leisure activities (24.6 million; 65% of the total of 38 million). A further 9% result from road traffic accidents (3.4 million), 8% from injuries in the work-place (3.1 million), 3% from assaults (1 million) and 1% from individuals deliberately self-harming (0.4 million). To date, road and work related injuries have received the most attention and resources in terms of policy actions and prevention programmes, which is surprising given the clear dominance of home and leisure injuries observed in the IDB.

It can be seen in Table 4.5. and Figure 4.6 that the risk of being seriously injured or fatally injured are quite different amongst these different settings. The highest proportion of deaths occur in self-harm related injuries, with 12% of all injuries resulting in a fatality, and 43% resulting in a hospital admission. Among unintentional injuries, the average percentage of fatalities is 0,5%, with the lowest death rate observed in injuries occurring at work (0,1%) and the highest death rate observed in road traffic accidents (0,9%). Accordingly, unintentional injuries with highest proportion of hospital admissions were road traffic accidents (18%) and the lowest proportion of admissions were observed for work-place accidents (9%). Home and leisure accidents were reported to have an admission rate of approximately 14%.

Table 4.5: *Estimated number of injuries in the EU by severity and setting*
[1]Only those cases not admitted to hospital; [2]Admissions as well as ambulatory treatments

Severity/ Setting	Home, Leisure, School, Sport	Road Traffic	Work-place	Self-harm[1]	Assault	Other/ Unknown	Total
Deaths	113.861	31.069	4.386	60.017	4.175	18.945	232.451
%	0,43%	0,87%	0,11%	12,17%	0,38%	0,35%	0,61%
Admissions	3.539.816	624.868	274.423	200.963	110.529	581.362	5.331.962
%	13,98%	17,79%	8,99%	42,87%	10,11%	10,84%	14,01%
ED cases[1]	21.034.087	2.759.579	2.844.140	194.082	898.210	4.760.403	32.490.500
%	85,59%	81,35%	90,90%	44,96%	89,51%	88,80%	85,38%
ED attendances[2]	24.573.903	3.384.447	3.118.562	395.045	1.008.739	5.341.765	37.822.462
%	99,57%	99,13%	99,89%	87,83%	99,62%	99,65%	99,39%
All Cases	24.687.763	3.415.516	3.122.948	455.062	1.012.914	5.360.710	38.054.913
%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	232.451

Figure 4.6: *Percentage of deaths, admissions and ED attendances (not admitted to hospital) by setting*

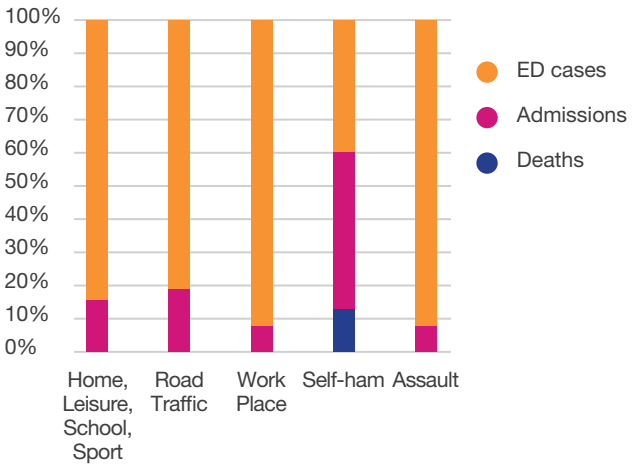
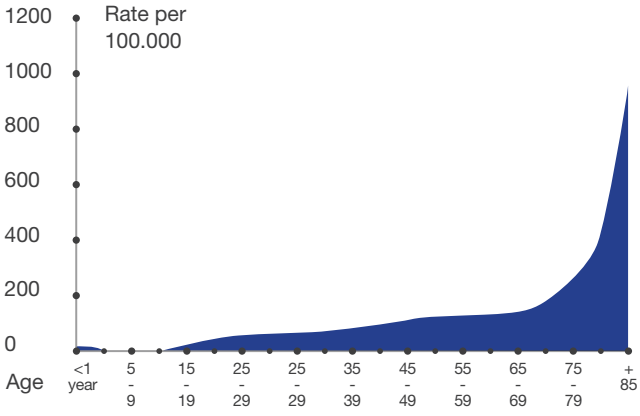


Figure 4.7: *European age standardized injury death rate per 100.000 persons*



All injuries by age and gender

It can be observed in Figure 4.7, that the risk of experiencing an injury related death varies greatly by age. Naturally, the injury death rate is highest in older age groups, where injuries more frequently lead to death due to frailty. However, the picture is completely different when considering the percentage of all deaths which are injury related (*Figure 4.8*). The younger age groups suffer the highest proportion of injury related deaths, with more than 50% of all deaths in the adolescent and young adult age groups related to injury (15-25 years of age) – see Figure 4.8.

Figure 4.8: *Percentage of deaths which are injury related by age*

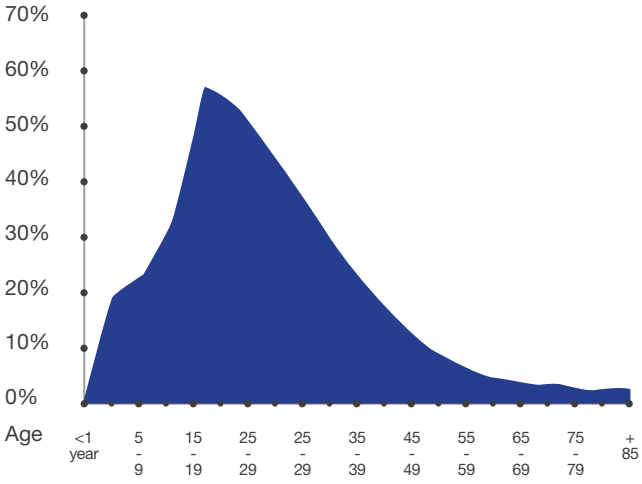
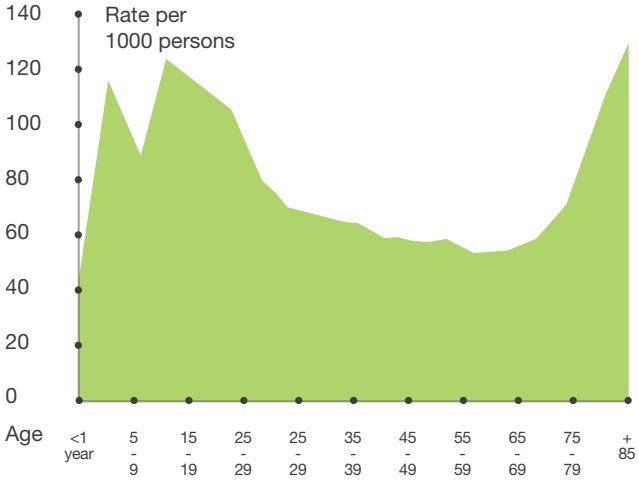


Figure 4.9: *Crude injury related ED attendance rates per 1000 persons*



Again, the picture is quite different for non-fatal injuries (*Figure 4.9*). Three age groups which bear a higher non-fatal injury risk compared to others include: small children (1-4 years of age); older children, adolescents and young adults (10-24 years); and older age groups (aged 80+).

Males and females injury risk also differs considerably (*Table 4.10* and *Figure 4.11*). While the average European Age Standardized Death Rate (EASR) for females is 21,93 per 100.000, males have an average death rate almost three times as high, 68,89 per 100.000. While the differences between younger boys and girls (up to 9 years of age) are not as sizeable, the disparity in risk grows with increasing age. Between the ages of 20 and 54 years, male injury death rates exceed female injury death rates by a factor of 4-5. In the highest age groups these differences appear to be much smaller again, but males bear the higher death risk throughout the entire life course - see table 4.10 and Figure 4.11.

Table 4.10: *European age standardized injury death rate per 100.000 by age and gender/percentage of all deaths which are injury related by age and gender*

Age/Gender	Males Rate	Females Rate	Males % of All Deaths	Females % of All Deaths	Injury Deaths
< 1 year	11,33	9,43	2,45	2,43	445
1 - 4	4,42	3,55	20,81	18,58	761
5 - 9	3,15	1,93	27,01	20,87	549
10 - 14	4,96	2,53	37,95	28,98	873
15 - 19	28,58	9,45	65,38	51,13	4.468
20 - 24	48,60	10,54	66,23	44,35	7.781
25 - 29	52,36	11,32	59,96	36,84	8.208
30 - 34	57,43	11,79	51,97	28,70	8.912
35 - 39	61,59	12,91	40,43	21,61	10.476
40 - 44	71,98	16,99	30,66	16,16	12.531
45 - 49	87,30	21,69	22,84	11,96	14.404
50 - 54	99,78	24,82	14,95	8,40	15.992
55 - 59	107,19	27,83	10,14	6,24	15.888
60 - 64	103,97	28,31	6,43	4,10	14.253
65 - 69	106,70	31,66	4,63	3,09	12.096
70 - 74	122,70	47,31	3,72	2,93	13.985
75 - 79	161,01	76,11	3,15	2,57	17.638
80 - 84	251,16	144,91	2,90	2,48	22.949
85+	549,73	406,54	3,13	2,74	50.244
All Ages	68,89	21,93	53,32%	46,68%	232.451

Table 4.12: *Crude incidence rate for all injury related ED attendances in the EU per 1000 persons by age and gender/ percentage of all injuries by age and gender*

Age/Gender	Males Rate per 1000	Females Rate per 1000	Males % of All Injury Related ED Attendances	Females % of All Injury Related ED Attendances	Estimated Number of ED Attendances in EU
< 1 year	41,42	33,31	52,99%	47,01%	190.384
1 - 4	135,93	97,35	60,92%	39,08%	2.364.520
5 - 9	98,22	82,03	61,18%	38,82%	2.156.284
10 - 14	144,03	111,87	60,10%	39,90%	3.115.767
15 - 19	141,96	88,01	59,75%	40,25%	2.993.667
20 - 24	134,75	76,29	64,00%	36,00%	3.133.225
25 - 29	111,11	55,85	67,30%	32,70%	2.516.148
30 - 34	90,54	49,75	60,36%	39,64%	2.308.235
35 - 39	85,10	52,88	61,52%	38,48%	2.301.564
40 - 44	77,62	50,48	60,48%	39,52%	2.319.655
45 - 49	73,71	49,17	59,54%	40,46%	2.188.147
50 - 54	68,32	60,73	56,03%	43,97%	2.041.876
55 - 59	63,02	59,16	50,99%	49,01%	1.890.941
60 - 64	55,73	57,54	47,44%	52,56%	1.609.735
65 - 69	53,97	56,06	41,44%	58,46%	1.316.461
70 - 74	57,81	62,35	35,89%	64,11%	1.272.215
75 - 79	62,86	79,54	29,68%	70,32%	1.301.243
80 - 84	87,19	111,46	22,78%	77,22%	1.367.872
85+	109,55	134,54	14,87%	85,13%	1.434.523
All ages	91,22	67,36	56,35%	43,65%	37.822.462

The risk associated with experiencing a non-fatal injury also differs for males and females (*Table 4.12* and *Figure 4.13*), although the difference in risk is not as substantial as injury related deaths. The average rate of an injury related ED attendance for males is 91,22 per 1000 persons, whereas the rate for females is 67,36 per 1000 persons. Due to the higher life expectancy of women, the share of all ED attendances which are injuries, is much greater for females in the older age groups (*Figures 4.14* and *4.15*).

Figure 4.11: *European age standardized injury death rate in the EU per 100.000 persons by age and gender*

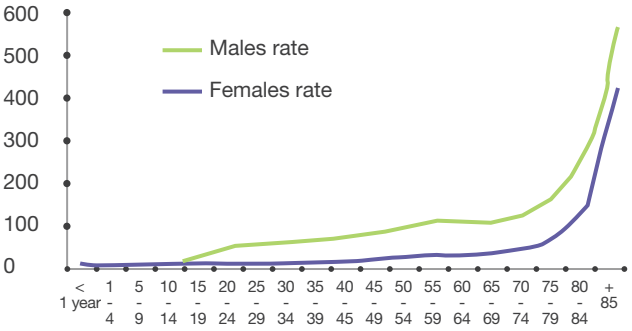
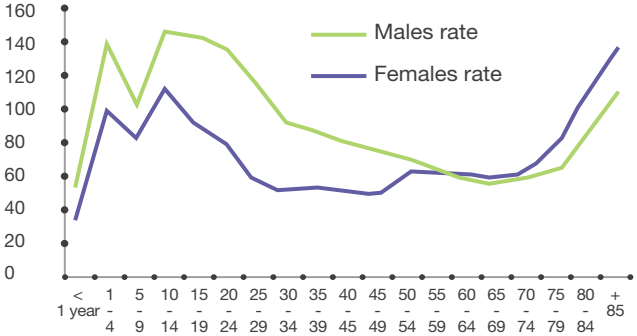
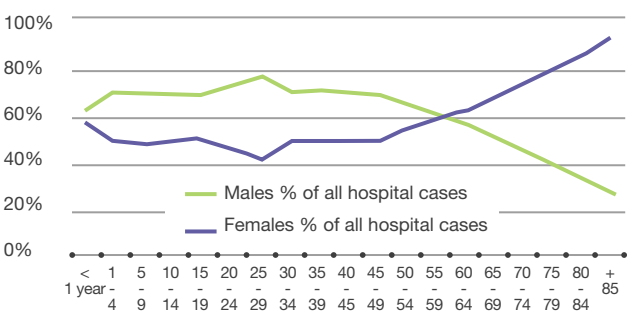
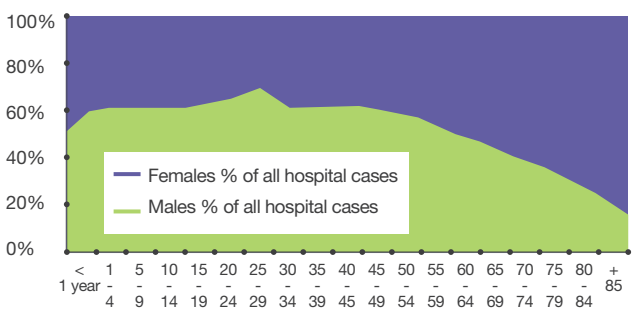


Figure 4.13: *Crude incidence rates for all injury related ED attendances in the EU per 1000 persons by age and gender*



Figures 4.14 and 4.15: *Gender shares of all injury related ED attendances in the EU by age and gender*



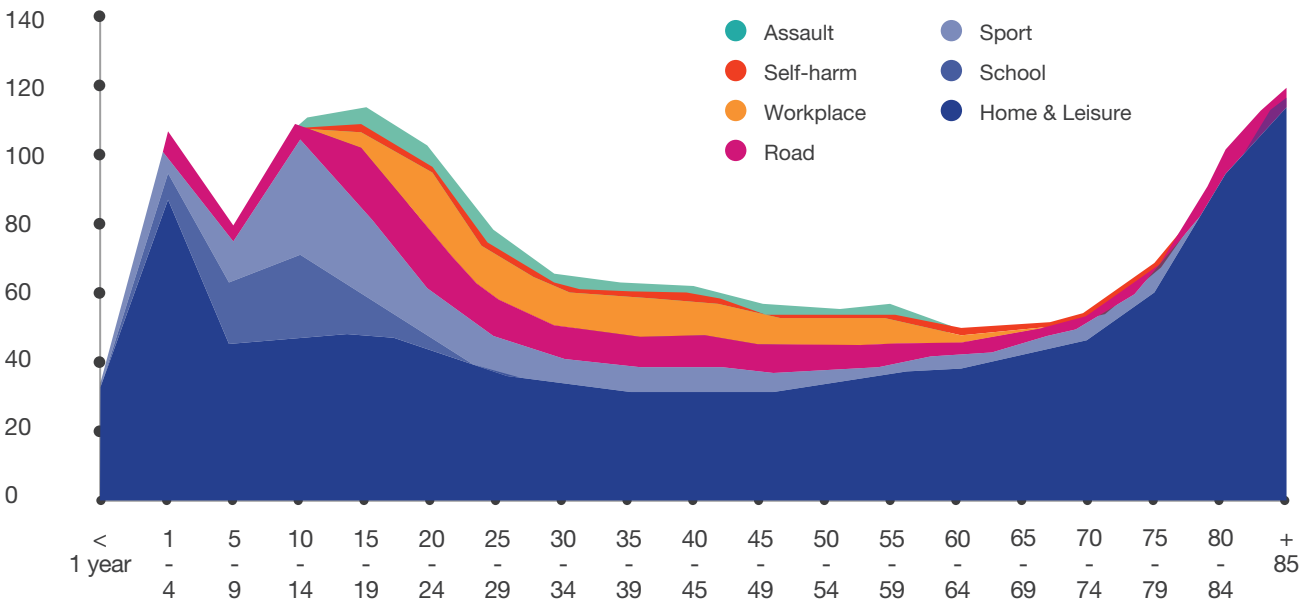


Injury risk is also influenced by an individual's environment and the length of time spent in different settings, which varies throughout the life course (*Table 4.16* & *Figure 4.17*). For example, young children (0-4 years) and older adults (75 years +) spend more time in the home and leisure setting, and therefore it is no surprise to see increased rate of non-fatal injuries in the home and leisure environment in these age groups (*Table 4.16* & *Figure 4.17*). School injuries play an almost exclusive role in school aged children (5-19 years) and the risk of sports injuries substantially increases when children enter school, with a peak in the 15-19 years age group. Road traffic injuries peak in the 15-24 year age group, indicating that younger, more inexperienced drivers are at a greater risk of injury than older drivers. As expected, work-place injuries contribute the highest risk during the working years (between 20-65 years of age). Finally, self-harm and assault related injuries peak in young and middle aged adults, decreasing throughout the remainder of the life course.

Table 4.16: *Crude incidence rates for all injury related ED attendances in the EU per 1000 persons by age and setting*

Age/ Setting	Home & Leisure	School	Sport	Road	Workplace	Self-harm	Assault	All Settings
< 1 year	31,15	0,53	2,41	2,91	0,11	0,14	0,31	38,80
1 - 4	87,11	8,80	5,36	4,10	0,86	0,07	0,16	117,89
5 - 9	46,00	17,33	11,25	3,50	0,67	0,07	0,52	89,35
10 - 14	46,23	25,37	31,90	5,60	0,27	0,37	1,17	124,19
15 - 19	48,86	10,47	26,01	15,33	7,02	1,83	4,34	115,18
20 - 24	45,24	1,25	13,63	17,37	18,16	1,98	6,13	106,63
25 - 29	37,01	0,58	9,52	11,63	13,87	1,54	4,17	82,09
30 - 34	33,81	0,37	6,14	9,00	12,68	1,21	3,30	70,25
35 - 39	33,00	0,26	5,32	8,42	13,37	1,22	3,00	67,43
40 - 44	33,79	0,32	4,39	7,58	12,74	1,17	2,30	65,21
45 - 49	32,27	0,18	3,70	7,10	10,95	1,18	1,73	60,01
50 - 54	34,19	0,15	2,79	6,62	9,63	1,02	1,30	58,92
55 - 59	36,72	0,17	2,27	6,38	8,81	0,74	1,08	59,31
60 - 64	37,45	0,12	2,39	5,22	4,15	0,62	0,64	54,00
65 - 69	41,59	0,25	2,19	4,54	1,41	0,36	0,49	54,63
70 - 74	46,74	0,12	1,81	4,47	0,64	0,40	0,42	59,04
75 - 79	60,08	0,25	1,59	4,78	0,63	0,27	0,42	73,31
80 - 84	92,08	0,16	2,09	4,58	0,37	0,29	0,31	106,39
85+	114,05	0,17	2,55	3,17	0,25	0,42	0,35	131,53
All Ages	45,66	0,32	7,72	7,32	7,95	2,26	2,26	79,36

Figure 4.17: *Crude incidence rate for all injury related ED attendances in the EU per 1000 persons by age & setting*



05

INJURY FATALITIES

The following chapter reports on fatal injuries by cause and type of injury, by age and gender, by setting (place of occurrence) and by country.

Cause of fatal injuries

Approximately 232.451 individuals are fatally injured across the EU every year (*Table 5.1* - based on the most recent three years of available data in the WHO's European Detailed Mortality Database (DMDB) [9]). In Figure 5.2, it can be seen that 51% of these injury related fatalities were caused by either a road traffic accident, fall, cut/pierce, poisoning or burn/scald. The remaining 49% of injury fatalities are the result of an unspecified or unknown causes. By referring to Figure 5.2, it can be seen that falls are the leading cause of injury fatalities followed by road traffic accidents. Relatively high also are poisoning related deaths (10%), which include those deaths resulting from suicide, illegal drugs and alcohol. The risk of fall related death is particularly high in the older age groups (65 years and older), with 77% of fatal falls occurring in individuals aged 65+ (*Table 5.1* and *Figure 5.3*).

Table 5.1: *Number of injury deaths in the EU by cause, age-group and gender*

Cause/ Age+gender	0 - 14 years	15 - 24 years	25 - 64 years	65+ years	Males	Females	All
Road	805	5.437	17.178	7.648	23.690	7.379	31.069
Fall	171	792	11.195	39.815	27.079	24.894	51.973
Cut/Pierce	76	534	5.607	2.807	7.763	1.261	9.024
Poisoning	102	1.118	17.174	4.734	15.322	7.806	23.128
Burn/Scald	144	111	2.169	2.010	2.808	1.626	4.434
Other/ Unknown	1.532	5.153	49.229	56.910	73.641	39.183	112.824
All Fatal Injuries	2.830	13.145	102.552	113.924	150.302	82.149	232.451

Figure 5.2: *Injury deaths by cause in the EU (%)*

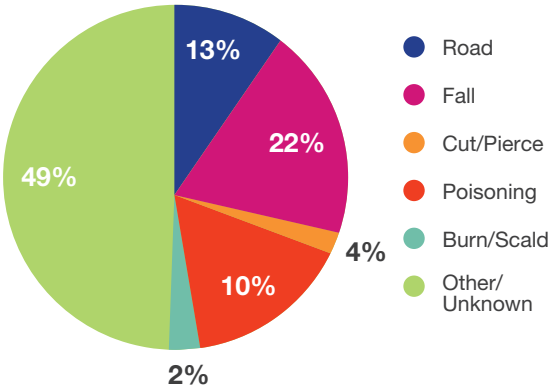
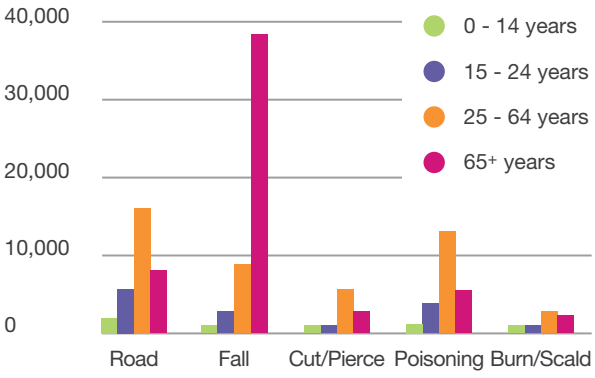


Figure 5.3: *Injury deaths by age-group and cause in the EU*



Fatal injuries by age and gender

Figures 5.4 and 5.5 present a breakdown of injury fatalities by cause and gender. Males continue to exhibit an increased risk across all categories. The smallest difference in gender risk is observed for fall related deaths, and the greatest difference in fatality risk is seen in cut/pierce fatalities and road traffic fatalities.

Figure 5.4: *Number of Injury deaths by cause and gender in the EU*

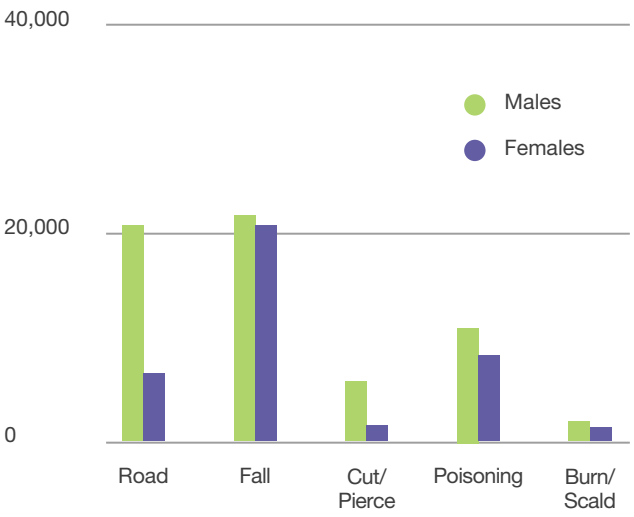
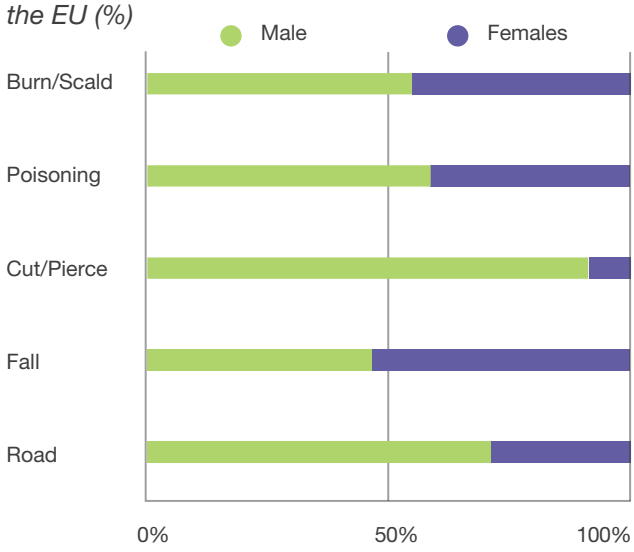


Figure 5.5: *Gender shares by cause of injury death in the EU (%)*



Information on the type of injury (e.g. the injury diagnosis) is currently not available in publicly available injury fatality databases.

Fatal injury by setting/domain

By referring to table 5.6 and figure 5.7, it can be seen that workplace accidents result in approximately 4.400 fatalities each year in the EU (2% of all injury related deaths), a similar number to homicides (4.200 fatalities). More than 31.000 EU citizens die as a result of road traffic accidents, and almost twice as many EU citizens commit suicide each year (60.000). Finally a staggering 114.000 EU people are fatally injured in the home or during leisure activities each year, which is more than all suicides, homicides, workplace and road traffic related fatalities combined. These figures are most likely underestimated as well, as an additional 19.000 fatal injuries (8%) result from other or unknown causes (*Table 5.6* and *Figure 5.7*).

In figure 5.8 it can be seen that 55% of individuals fatally injured in the home or during leisure activities are older than 64 years of age, while in all other settings the highest number of injuries occur in the 25-64 years age group. However, it should be noted that the high number of injuries in this age group are largely due to the breadth of this age group compared to other age groups (*Table 5.7* and *Figure 5.8*). In figures 5.9 and 5.10, it can be clearly observed that males are at higher risk of being fatally injured in all settings. While the difference between genders is relatively small for home and leisure fatalities; males were three times more likely to be fatally injured in road traffic accidents and suicides compared to females. Further, four out of every five workplace fatalities are male, and 60% of homicide victims are male.

Table 5.6: *Number of injury deaths in the EU by setting, age-group and gender*

Setting/ Age+gender	0 - 14 years	15 - 24 years	25 - 64 years	65+ years	Males	Females	All
Home, Leisure, School, Sports	1.639	3.287	42.109	66.826	63.516	50.345	113.861
Road	805	5.437	17.178	7.648	23.690	7.379	31.069
Workplace	217	442	3.540	186	3.605	780	4.386
Suicide	166	3.931	40.033	15.887	46.512	13.505	60.017
Homicide	223	395	2.818	739	2.730	1.445	4.175
Other/Unknown	195	731	8.003	10.016	11.408	7.537	18.945
All Fatal Injuries	2.830	13.145	102.552	113.924	150.302	82.149	232.451

Figure 5.7: *Injury deaths in the EU by setting*

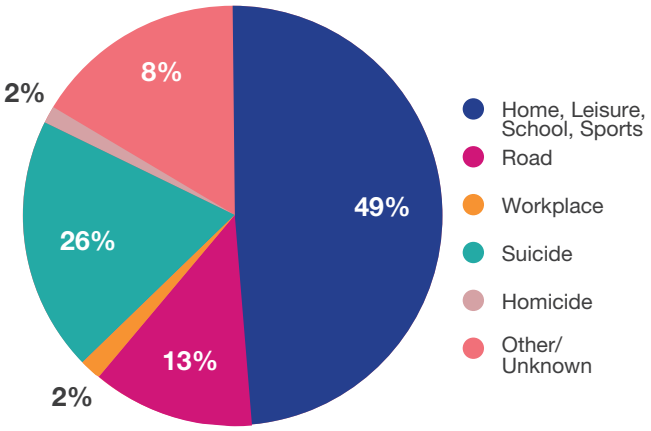


Figure 5.8: *Number of injury deaths in the EU by setting by age-group*

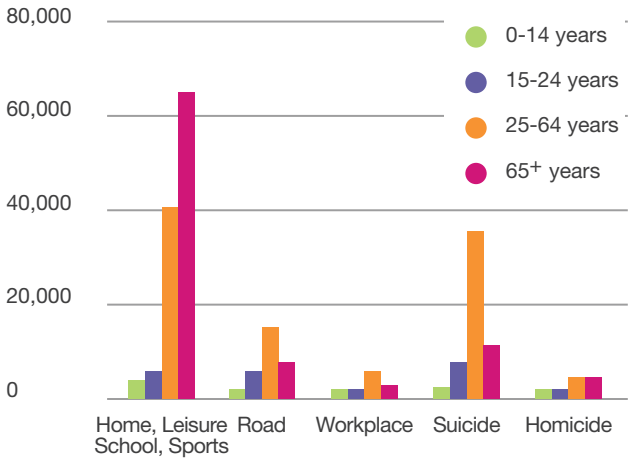


Figure 5.9: *Number of injury deaths in the EU by setting and gender*

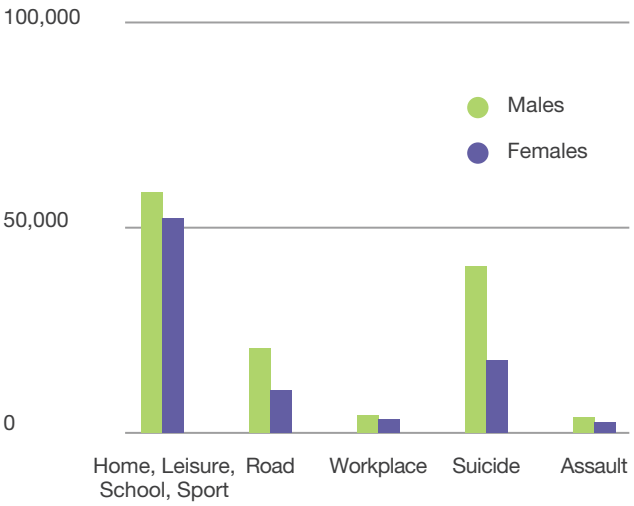
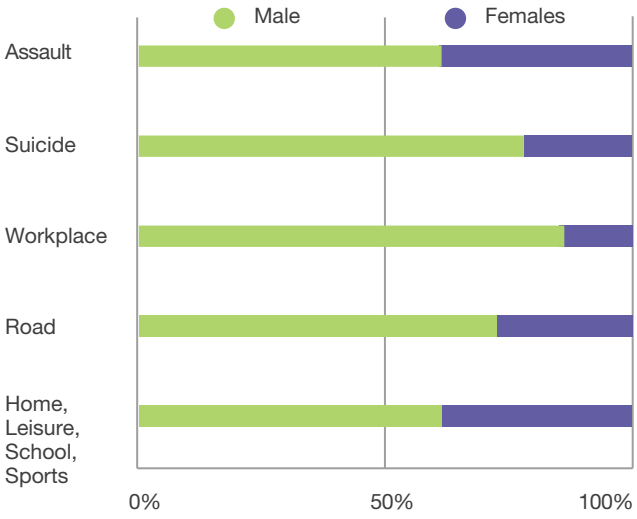


Figure 5.10: *Gender share of injury deaths by setting (%)*



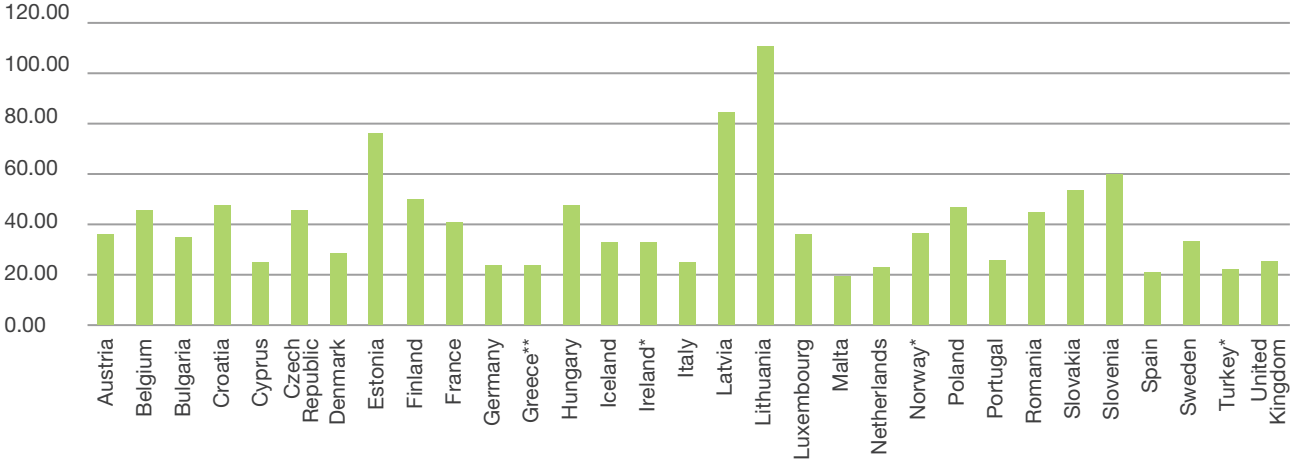
Injury death rates by country

By referring to Table 5.11, it can be seen that injury fatality rates differ greatly between countries. The three Baltic countries appear to having the highest injury fatality rates (Lithuania, Latvia and Estonia). In particular, Lithuania appears to have high suicide rates in comparison to other EU countries, and Estonia, Latvia and Lithuania experience the highest homicide rates across Europe. There is quite high variability between unintentional home and leisure fatality rates, but these rates may have been affected by the subtraction method used to assign home and leisure fatalities (e.g. as location of death is not recorded in fatality databases, home and leisure deaths were assigned by subtracting all intentional, RTA and work place deaths from the total number of injury related deaths). Therefore poor cause of death coding in other settings may have artificially inflated home and leisure rates in some countries. One factor which is well known to influence injury fatality rates between countries, is differing death certification coding practices. In older age groups, a fall related injury often initiates a sequence of health related events which ultimately lead to death. In some practices the initial cause of death may be recorded (e.g. the fall), whereas in other practices the health condition prior to death may be recorded (e.g. pneumonia). Thus it appears in some countries it may be more frequent to record the cause of death as the secondary disease, rather than the initial injury related cause.

Table 5.11: *European age standardized death rate by country and setting*
Notes: *(*) Country is not an EU Member State – its rate was not included in the calculation of the EU-rate*
(**) Country reports death using ICD-9 instead of ICD-10
(***) Data from European Health For All Database instead of DMDB

Country/ Setting	Home, Leisure, School, Sports	Road	Workplace (***)	Suicide	Homicide	All Injuries
Austria	11,91	4,83	1,93	12,38	0,41	35,70
Belgium	17,72	7,23	0,66	16,85	1,15	47,20
Bulgaria	11,39	7,83	1,60	9,12	1,28	34,11
Croatia	22,30	9,47	0,87	13,97	1,07	49,28
Cyprus	11,81	7,94	0,89	3,85	1,68	27,73
Czech Republic	19,71	7,08	1,12	13,59	0,82	45,44
Denmark	13,50	3,58	0,69	9,73	0,62	29,74
Estonia	44,47	6,90	1,33	14,87	4,57	77,87
Finland	30,10	4,26	0,56	15,44	1,56	54,11
France	18,74	5,97	0,86	14,72	0,64	42,71
Germany	9,56	4,26	0,82	9,79	0,49	27,47
Greece**	11,51	3,88	0,53	7,46	0,83	26,55
Hungary	20,37	7,29	0,75	19,84	1,30	51,85
Iceland*	12,38	4,26	0,42	11,69	0,40	35,74
Ireland	15,10	3,66	1,08	11,61	0,74	34,73
Italy	9,88	6,52	0,97	5,67	0,73	24,97
Latvia	39,99	9,69	1,60	19,00	5,91	83,86
Lithuania	48,19	10,68	1,91	30,79	4,63	108,86
Luxembourg	15,88	5,08	1,57	8,26	0,26	38,12
Malta	8,51	3,28	0,95	5,91	1,18	20,97
Netherlands	11,59	3,01	0,36	9,60	0,83	27,22
Norway*	21,26	3,44	0,91	10,68	1,32	38,12
Poland	19,69	10,36	0,89	14,83	0,97	53,16
Portugal	4,03	6,77	2,07	7,84	0,94	28,23
Romania	20,82	11,02	2,20	11,20	1,96	48,47
Slovakia	26,04	6,91	0,88	9,83	0,99	53,88
Slovenia	25,97	8,82	1,00	17,69	0,49	59,10
Spain	9,70	4,19	0,68	6,37	0,64	22,30
Sweden	15,63	2,79	0,47	11,20	0,74	35,25
Turkey*	9,77	7,36	1,69	2,05	1,39	23,19
United Kingdom	13,57	2,65	0,29	6,90	0,26	26,94
EU 28	18,91	6,37	0,86	12,25	1,37	43,62
Total number of EU deaths	113.861	31.069	4.386	60.017	4.175	232.451

Figure 5.12: *European age standardized death rate by country.* ***Notes:*** *(*) Country is not an EU Member State – its rate was not included in the calculation of the EU-rate; (**) Country reports death using ICD-9 instead of ICD-10*



06

ADMITTED INJURY ED-CASES

The following chapter reports on injury cases which were admitted to hospital. The data are being presented by cause and type of injury, by age and gender, by setting (place of occurrence), and by country.

Cause of injury (admissions only)

Based on the most recent three years of data in the IDB (e.g. 2012-2014) it is estimated that around 5.3 million patients are admitted to a hospital in the EU every year for the treatment of an injury *(Table 6.1* and *Figure 6.2*). The most frequent cause for an injury admission is a fall (50%), followed by road accidents (12%t). Cuts/piercings and poisonings result in a similar magnitude of hospital admissions (5% and 4%), while burns/scalds account for approximately 1% of admissions.

By referring to figure 6.3 it can be seen that the incidence rates of some causes differ considerably among various age-groups. The risk for road traffic injuries is highest among adolescents and young adults (2,10 per 1000 persons compared to 0,68 for children), the risk for burns and falls is highest among children (0,28 compared to 0,06 for adults), and the risk for falls is in particular high for seniors (15,86 compared to 2,33 for young people).

Gender differences for injury related hospital admissions appear much less prominent than those observed for injury related deaths (*Table 6.1, Figures 6.4* and *6.5*) Hospital admissions as a result of road traffic accidents, cuts/piercings, and burns/scalds, are much more frequent among males than females. On contrary, higher numbers of females require inpatient treatment for poisoning or fall related injuries (*Table 6.1, Figures 6.4* and *6.5*).

Table 6.1: *Estimated number of EU injury admissions by cause, age-group and gender*

Cause/ Age+gender	0 - 14 years	15 - 24 years	25 - 64 years	65+ years	Males	Females	All
Road	51.437	116.886	339.935	114.017	395.900	217.733	622.275
Fall	288.652	130.121	834.640	1.399.485	1.141.189	1.482.385	2.652.898
Cut/Pierce	28.605	33.123	139.800	36.113	173.992	54.487	237.641
Poisoning	28.221	51.993	166.819	26.229	119.769	155.781	273.261
Burn/Scald	20.934	4.227	14.780	6.763	25.977	15.053	46.704
Other	116.412	119.497	419.067	202.949	567.380	321.770	857.924
Unknown	79.691	55.820	238.292	267.457	329.880	330.666	641.259
All Admissions	613.950	511.667	2.153.333	2.053.013	2.754.087	2.577.875	5.331.962

Figure 6.2: *Injury admissions by cause (%)*

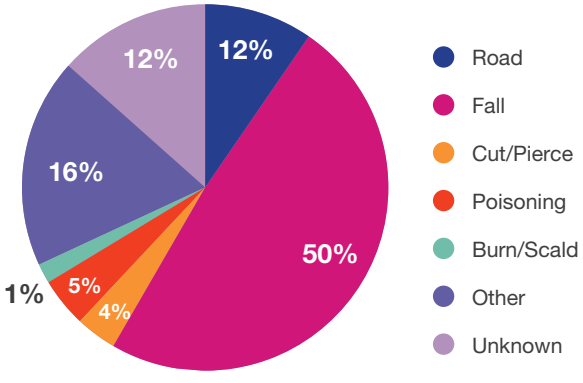
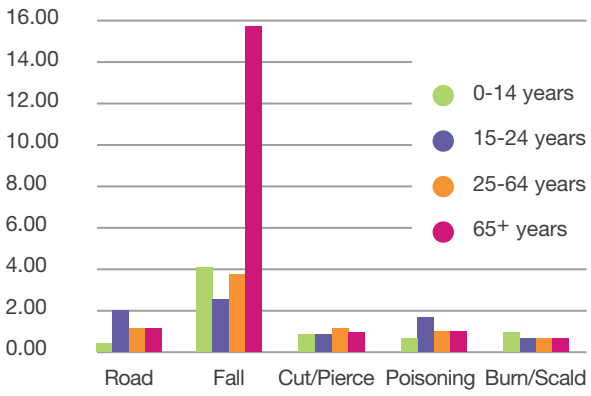


Figure 6.3: *Crude rate of EU injury admissions by cause and age-group (per 1000 persons)*



Figures 6.4: *Estimated number of injury admissions in the EU by cause and gender*

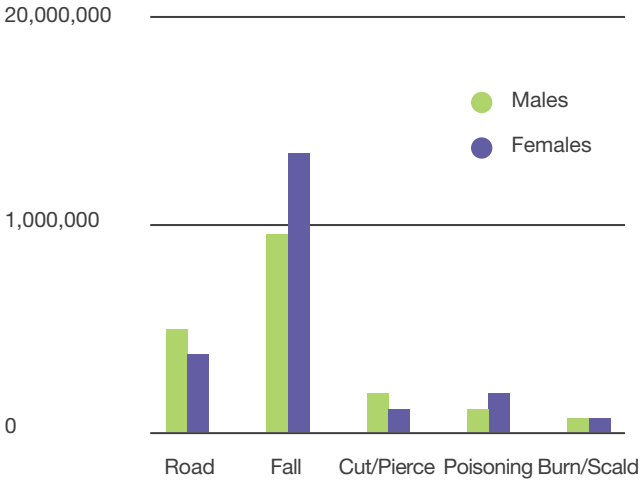
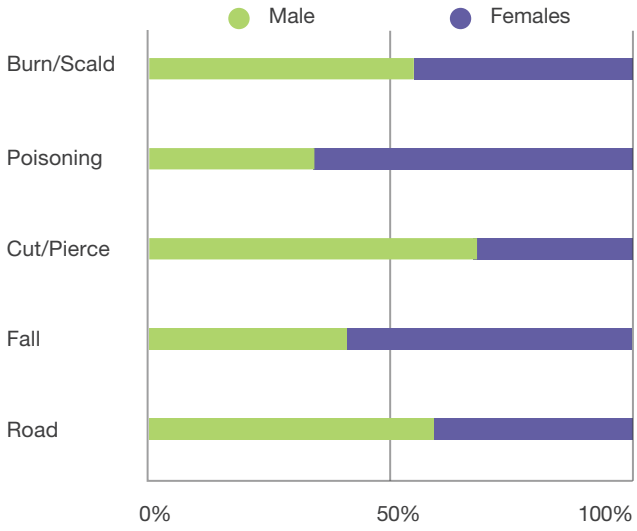


Figure 6.5: *Gender shares of injury admissions by cause*



Type of injury (admissions only)

Across all age groups, fractures are the most frequent cause of hospital admissions in the EU (46%), followed by contusions/bruises and then concussion/brain injury (both around 8%) (*Table 6.6* and *Figure 6.7*). Older people (65+) are disproportionally affected by fractures, while children are admitted to hospital more frequently than older age groups as a result of burns/scalds, foreign body injuries and concussion/brain injury (Table 6.6 and Figure 6.8).

Figure 6.8 reveals that the rate of admissions is in particular high for seniors. This holds true for almost all types of injuries, except for burns and scalds, which affect children more frequently than other age-groups, and poisonings, which are more frequent among adolescents and young adults. Among seniors, the admission rate is in particular high for fractures (13,05 per 1000 persons, compared to 2,94 for adolescents or young adults).

While injury admissions in general are almost equally distributed between the sexes, males are much more likely to be admitted to hospital with: an open wound/abrasion; injury to the internal organs; muscles, tendon, blood vessels or nerve injury; or multiple injury. Females on the other-hand, are more likely to be admitted to hospital with a fracture or poisoning related injury (*Table 6.6* and *Figure 6.7*).

Table 6.6: *Estimated number of injury admissions in the EU by type of injury, age-group and gender*

Injury/ Age+gender	0 - 14 years	15 - 24 years	25 - 64 years	65+ years	Males	Females	All
Contusion/Bruise	54.388	33.848	145.552	209.669	207.625	228.971	443.457
Open Wound/Abrasion	49.808	46.803	175.178	111.007	251.585	115.492	382.795
Fracture	250.589	163.150	882.929	1.146.919	1.117.998	1.345.439	2.443.587
Dislocation/Subluxation	9.010	14.086	42.995	37.370	53.670	48.143	103.461
Sprain/Strain	7.263	10.169	34.374	16.419	34.377	27.401	68.226
Concussion/Brain Injury	82.904	55.494	151.505	137.343	254.427	173.128	427.246
Foreign Body	14.825	6.254	20.339	14.342	28.441	22.491	55.760
Burns/Scalds	23.031	5.093	17.646	7.194	28.321	17.258	52.964
Muscles, Tendon, Blood Vessels and Nerves	13.421	38.507	158.946	44.967	174.643	79.154	255.842
Injury to Internal Organs	10.683	13.808	45.023	14.076	55.053	20.726	83.591
Poisoning	29.084	62.241	162.721	32.909	118.788	176.790	286.954
Multiple Injuries	2.011	8.450	36.562	14.979	43.481	17.476	62.001
Other	38.727	25.591	122.261	76.047	147.682	110.623	262.625
Unknown	56.228	32.532	130.654	184.039	216.242	216.538	403.453
All admissions	641.974	516.025	2.126.684	2.047.279	2.732.332	2.599.630	5.331.962

Figure 6.7: *Injury admissions in the EU by type of injury*

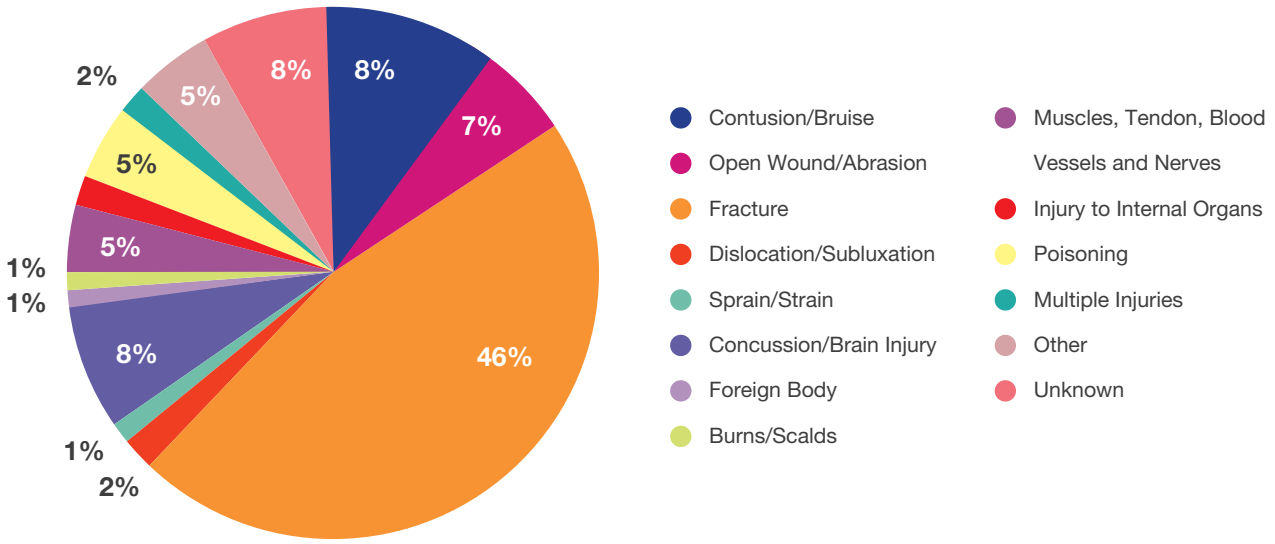


Figure 6.8: *Crude rate of injury admissions by type of injury and age-group (per 1000 persons)*

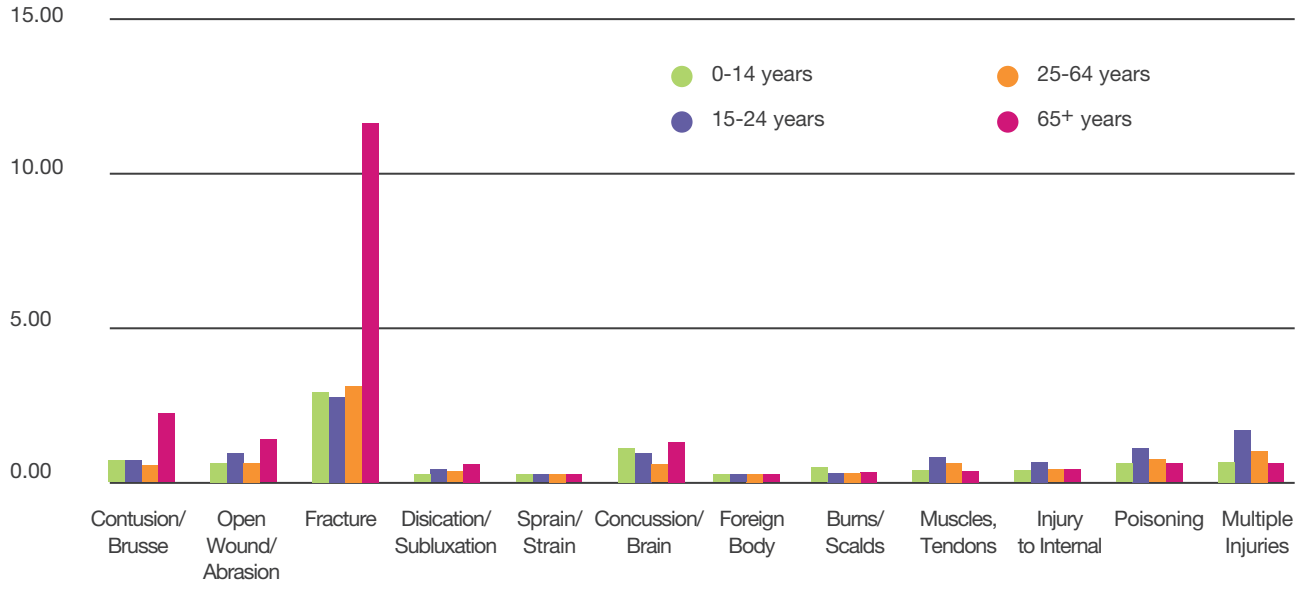


Figure 6.9: *Estimated number of injury admissions by type of injury and gender*

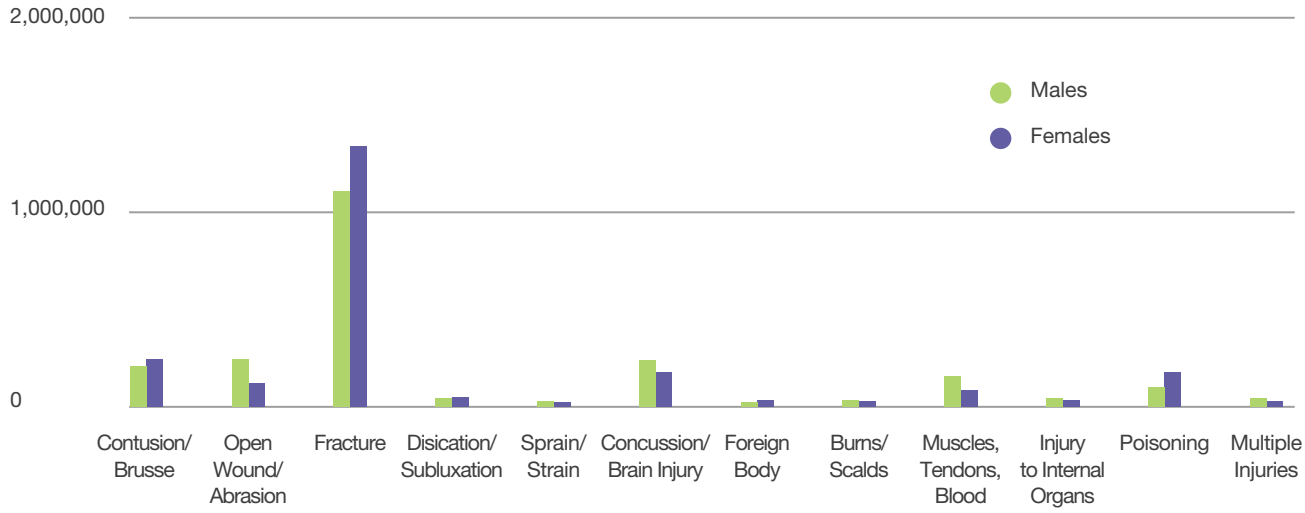
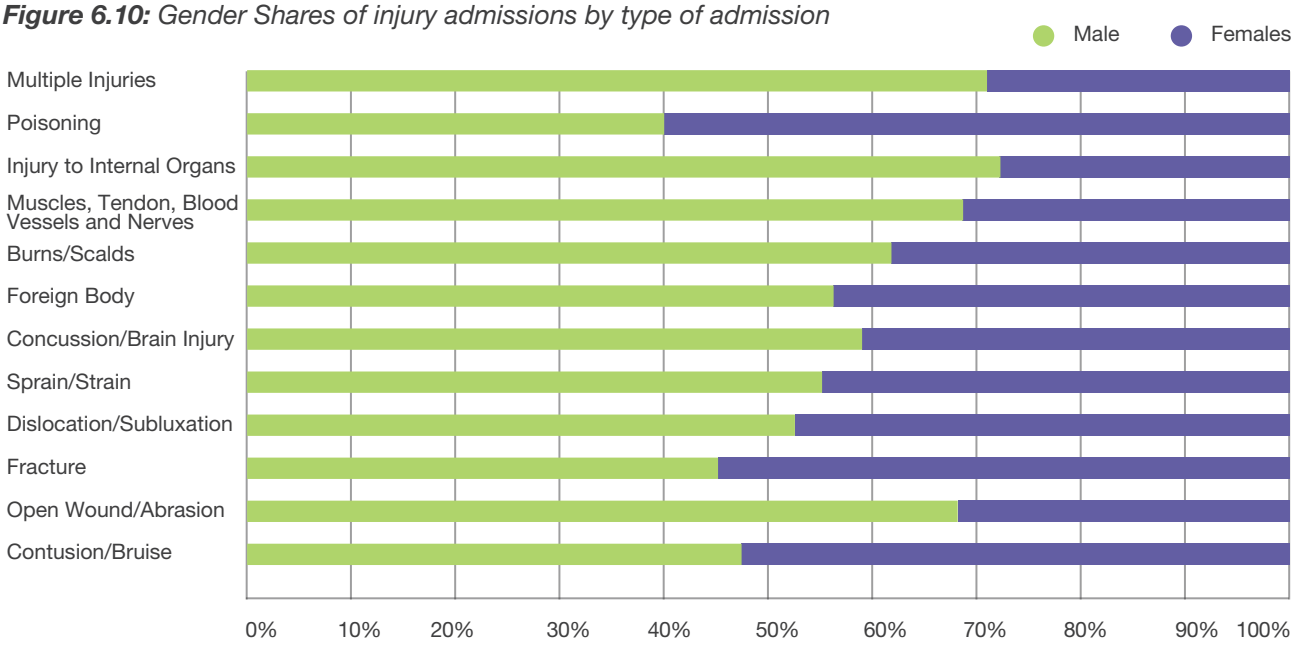


Figure 6.10: *Gender Shares of injury admissions by type of admission*



Injuries by setting/domain (admissions only)

The group of home and leisure accidents account by far for most injury admissions (66%). This holds true for all age-groups and for both sexes (*Table 6.11* and *Figure 6.12*).

The admission rates for various settings show considerable differences among age-groups. The risk of road traffic injuries, assault and self-harm are highest among young adults, Adults (between 25-64 years) bear the highest risk for a workplace accidents, while seniors bear the highest risk for home and leisure accidents, which is clearly correlated to the respective exposure in these age groups (*Figure 6.13*).

The greatest gender differences can be found for workplace accidents and assaults, where males are clearly at higher risk (*Table 6.11 and 6.15*).

Table 6.11: *Estimated number of injury admissions in the EU by setting, age-group and gender*

Setting/Age+gender	0-14 years	15-24 years	25-64 years	65+ years	Males	Females	All
Home, Leisure, School, Sports	450.734	251.476	1.174.354	1.663.252	1.686.136	1.846.414	3.539.816
Road	51.802	116.822	341.393	114.851	396.435	218.534	624.868
Workplace	13.601	27.649	221.524	11.650	219.196	47.438	274.423
Self-harm	7.318	41.785	134.299	17.562	90.146	120.045	200.963
Assault	6.822	25.180	71.454	7.073	86.406	20.842	110.529
Other/Unknown	81.386	46.224	217.026	236.726	279.793	320.576	581.362
All ED Cases	611.662	509.135	2.160.050	2.051.115	2.758.113	2.573.849	5.331.962

Figure 6.12: *Injury admissions in the EU by setting (%)*

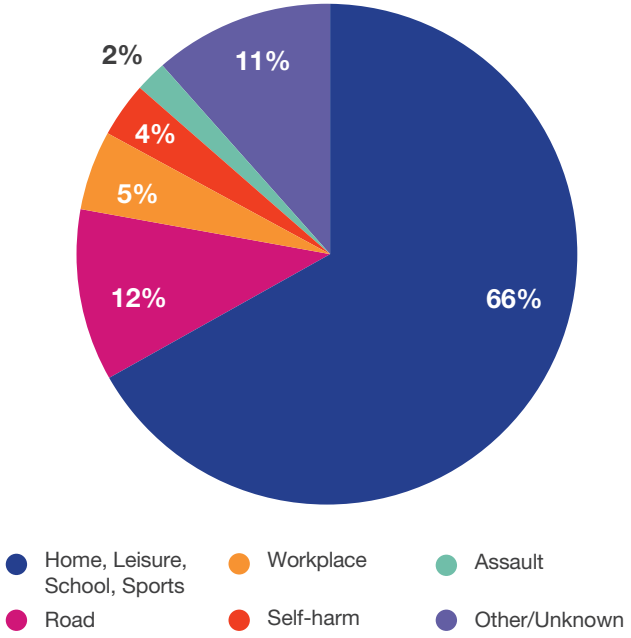


Figure 6.13: *Crude rate of injury admissions in the EU by setting and age-group (per 1000 persons)*

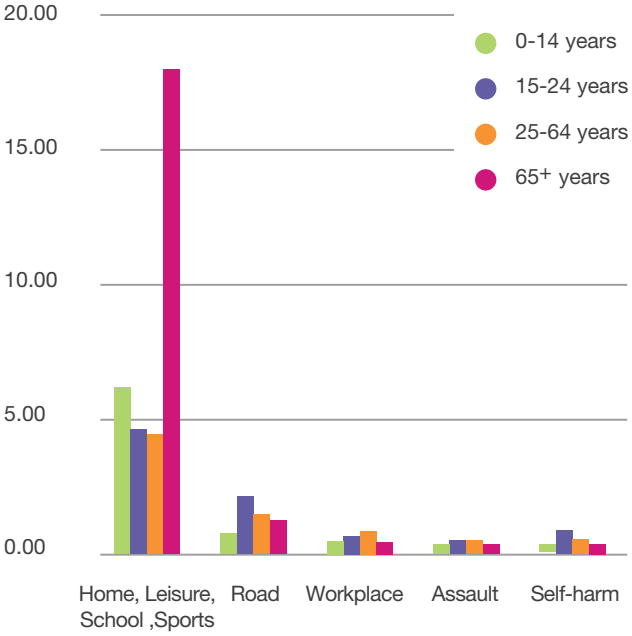
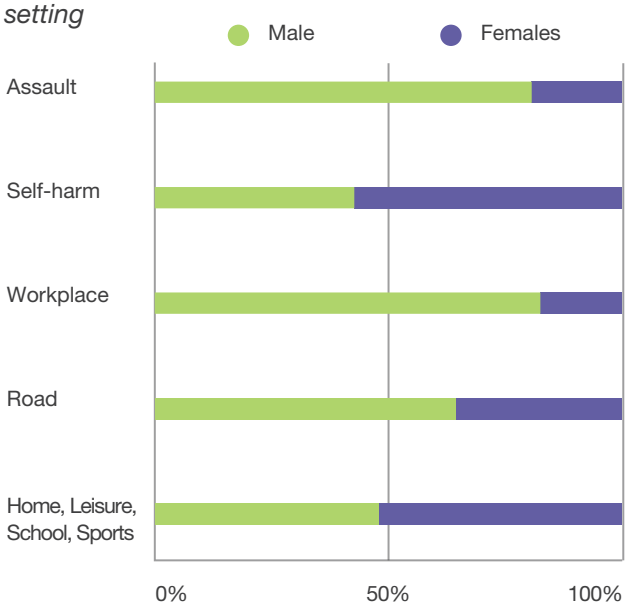


Figure 6.14: *Estimated number of injury admissions in the EU by setting and gender*

Figure 6.15: *Gender shares of injury admissions by setting*



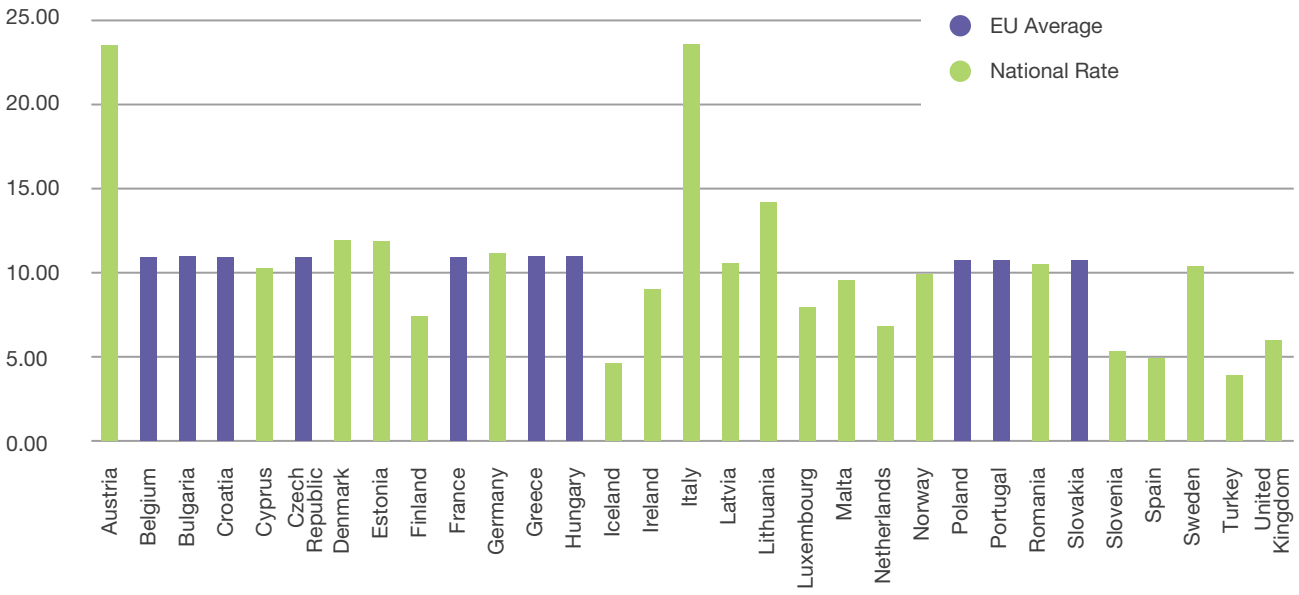
Injury admission rates by country

IDB-based estimations for national admission rates (per 1000 persons) are presented in table 6.16 and figure 6.17. Two countries report particularly high admission rates: Austria and Italy. Regarding Austria, it is well known that particularities in the health care and financing system result in high admission rates for various diseases as well as injuries. Further, the increased rate in admissions is influenced to a certain extent by the data recording system in Austria which utilises specialized interviewers , which eventually leads to an additional bias toward admissions. For the high admissions rates observed in Italy are also the consequence of such factors. Further investigations are required however to clarify the reasons behind this heightened rates. In general, the results given here as well as in the consequent chapters (*Table 7.16* and *Figure 7.17, Table 8.16* and *Figure 8.17*) are preliminary, and reflect the current data situation. The publication makes it possible to reflect national particularities or eventual data quality issues.

Table 6.16: *Crude rate of injury admissions per 1000 persons by country and setting*
Notes: *(*) Country is not an EU member state; rate excluded from EU average*
(**) The high admission rates in Austria and Italy indicate a potential data quality issue

Country/Setting	Home & Leisure & School & Sport	Road traffic	Work-place	Self-harm	Assault	All
Austria **	17,03	3,54	3,68	0,07	0,17	23,97
Cyprus	5,35	3,14	2,31	0,03	0,10	10,22
Denmark	6,84	0,83	0,02	0,39	0,19	11,84
Estonia	6,41	0,25	0,11	0,31	6,41	7,59
Finland	5,38	0,78	0,31	0,22	0,10	7,46
Germany	4,79	0,91	0,49	0,14	4,70	11,04
Iceland*	3,56	n. a.	0,28	0,42	0,11	4,48
Ireland	6,22	0,48	0,52	1,20	0,49	8,93
Italy **	15,43	3,87	0,57	0,12	0,13	23,97
Latvia	7,65	0,66	0,28	0,51	7,65	10,69
Lithuania	10,54	0,41	0,27	0,82	0,44	14,25
Luxembourg	5,65	0,85	0,68	0,61	0,17	8,02
Malta	7,59	0,85	0,23	0,22	0,17	9,42
Netherlands	4,48	1,40	0,23	0,51	0,15	6,78
Norway*	7,33	0,90	0,76	0,35	0,24	10,12
Romania	7,35	1,34	0,90	0,34	0,73	10,64
Slovenia	4,12	0,67	0,15	0,03	0,13	5,31
Spain	3,62	0,33	0,08	0,30	0,06	4,97
Sweden	8,33	0,75	0,41	0,95	0,19	10,57
Turkey*	1,91	0,82	0,51	0,31	1,91	3,81
United Kingdom	3,76	0,22	0,24	0,63	0,18	6,09
EU 28	7,45	1,30	0,71	0,43	0,23	10,83
Estimated Number of EU Admission Cases	3.666.121	638.746	347.727	211.454	111.516	5.331.962

Figure 6.17: *Crude rate of injury admissions per 1000 persons (all settings) by country*
Notes: *The EU average has been inserted for countries where IDB data were not available or were not of sufficient quality (blue bars). Further, the high admission rates in Austria and Italy indicate potential data quality issues*



07

NOT-ADMITTED INJURY ED-CASES

The following chapter reports on injury cases which received only ambulatory care. The data are being presented by cause and type of injury, by age and gender, by setting (place of occurrence) and by country.

Cause of ambulatory treated injuries

The vast majority of patients injured in the EU is not admitted to hospital and only require ambulatory care in Emergency Departments (86% of all injuries, 32.5 million cases - *Table 7.1*). Fall related injuries are the most common mechanism of injury attending EDs for ambulatory care (34%), followed by cuts/piercing injuries (10%). However "other" causes of injury related ED attendances, which include crushing injuries, abrasion, or contact with a person, object, machinery or animal, together make up 29% of all non-admitted injury related ED attendances (*Figure 7.2*).

Figure 7.3 shows considerable differences of ED presentation rates for certain causes by age-group. The risk for road traffic injuries is highest among adolescents and young adults (14,02 per 1000 persons compared to 2,78 for seniors), and the risk for injuries as a consequence of falling is in particular high for children (40,19 compared to 18,03 for adults in the age-group 25-64 years). Compared to figure 6.3. it can be seen that less than 10% of fall injuries of children require admission to inpatient care, while for seniors this percentage is more than 30%.

Table 7.1: *Estimated number of injury related ED-cases in the EU by cause, age-group and gender*

Cause/Age+gender	0-14 years	15-24 years	25-64 years	65+ years	Males	Females	All
Road	241.595	712.216	1.579.045	223.180	1.535.098	1.181.158	2.756.036
Fall	2.772.640	1.400.712	4.352.651	2.567.661	5.421.484	5.606.954	11.093.664
Cut/Pierce	490.980	558.423	1.873.197	352.314	2.191.801	1.091.704	3.274.914
Poisoning	40.640	74.021	180.753	29.254	172.119	144.230	324.668
Burn/Scald	80.058	51.395	156.654	22.427	160.378	153.027	310.535
Other	1.910.299	1.958.876	4.728.780	773.622	6.038.218	3.446.892	9.371.576
Unknown	1.747.657	819.300	2.120.254	671.895	3.092.430	2.255.006	5.359.106
All ED Cases	7.283.869	5.574.942	14.991.335	4.640.354	18.611.529	13.878.971	32.490.500

Figures 7.2: *Injury ED-cases by cause (%)*

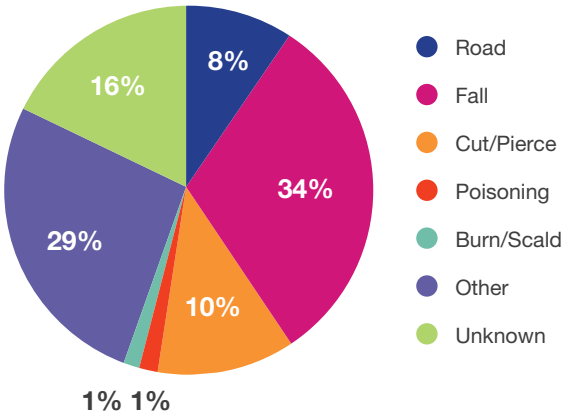
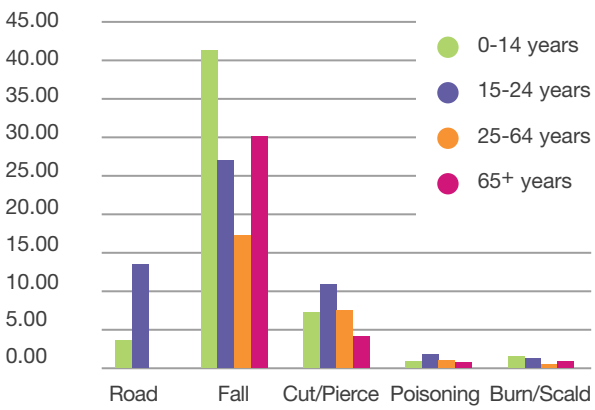


Figure 7.3: *Crude rate of injury related ED-cases in the EU by cause and age-group (per 1000 persons)*



Gender differences in ED attendances display a similar pattern to injury related deaths and admissions (*Table 7.1, Figure 7.4 and 7.5*). Higher numbers of males attend EDs with an injury compared to females across all mechanisms other than falls, whereby female attendances are slightly higher.

Figure 7.4: *Estimated number of injury ED-cases by cause and gender*

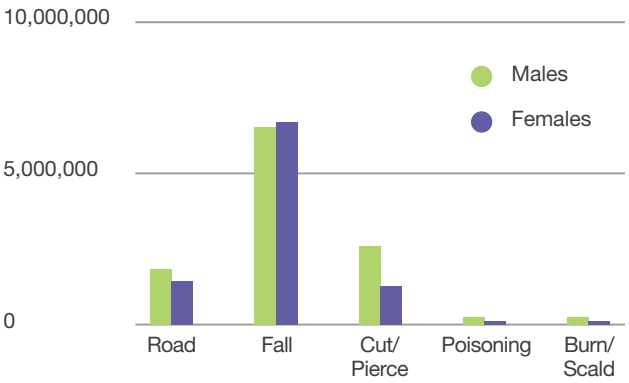
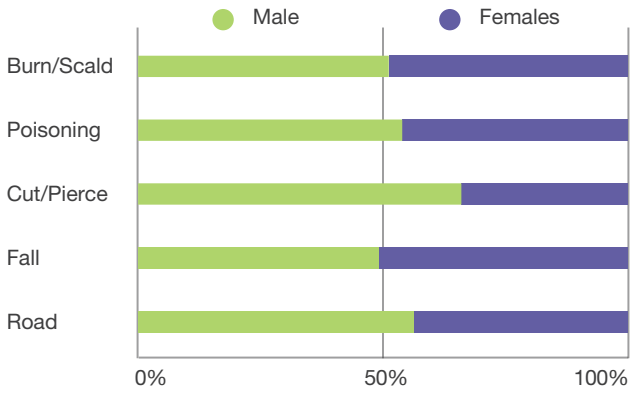


Figure 7.5: *Gender shares of injury ED-cases by cause*



Type of injuries treated ambulatory

The most frequent type of injuries attending EDs in the EU for ambulatory care are contusions/bruises (26%), followed by open wounds (19%) and fractures (16%) (*Table 7.6, Figure 7.7*). This pattern remains true for all age-groups, except older adults whereby fractures are the second most common injury. Higher numbers of males attend ED across all injury types; however the gender difference is most pronounced for open wounds/abrasions (double-fold increase) and foreign body injuries (more than a 3 fold increase - *Table 7.6, Figures 7.9 and 7.10*).

Table 7.6: *Estimated number of injury of ED-cases in the EU by type of injury, age-group and gender*

Injury/Age+gender	0-14 years	15-24 years	25-64 years	65+ years	Males	Females	All
Contusion/Bruise	1.818.418	1.521.113	3.731.021	1.249.497	4.496.971	3.966.386	8.320.049
Open Wound/Abrasion	1.282.926	954.782	2.967.856	845.229	4.039.704	1.991.636	6.050.792
Fracture	1.263.699	698.835	2.144.736	1.040.246	2.654.058	2.414.872	5.147.517
Dislocation/Subluxation	99.580	111.003	231.293	79.288	311.988	215.730	521.165
Sprain/Strain	649.825	847.433	1.750.160	245.958	1.819.946	1.668.760	3.493.375
Concussion/Brain Injury	239.190	138.123	324.364	196.125	487.987	435.346	897.803
Foreign Body	161.812	116.575	627.760	76.483	781.774	216.762	982.630
Burns/Scalds	99.309	77.118	242.894	29.018	271.148	180.127	448.339
Muscles, Tendon, Blood Vessels and Nerves	127.010	236.930	643.236	124.938	666.341	449.344	1.132.113
Injury to Internal Organs	23.226	18.186	40.037	12.392	44.043	32.389	93.841
Poisoning	41.965	83.003	172.034	29.621	166.993	157.239	326.624
Multiple Injuries	3.835	25.095	63.450	27.073	62.374	54.125	119.454
Other	358.220	278.395	951.926	276.092	1.073.536	754.547	1.864.634
Unknown	1.100.848	437.718	1.143.918	409.681	1.638.627	1.437.746	3.092.165
All ED Cases	7.269.861	5.544.310	15.034.686	4.641.642	18.515.490	13.975.009	32.490.500

Figure 7.7: *Injury ED-cases by type of injury*

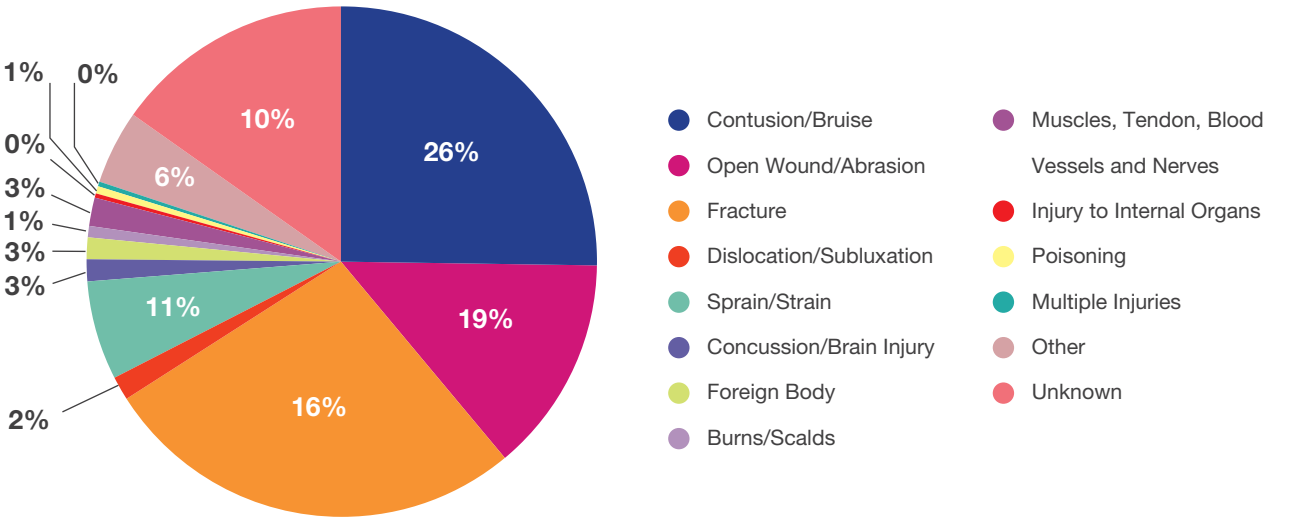


Figure 7.8: *Crude rate of injury ED-cases in the EU by type of injury and age-group (per 1000 persons)*

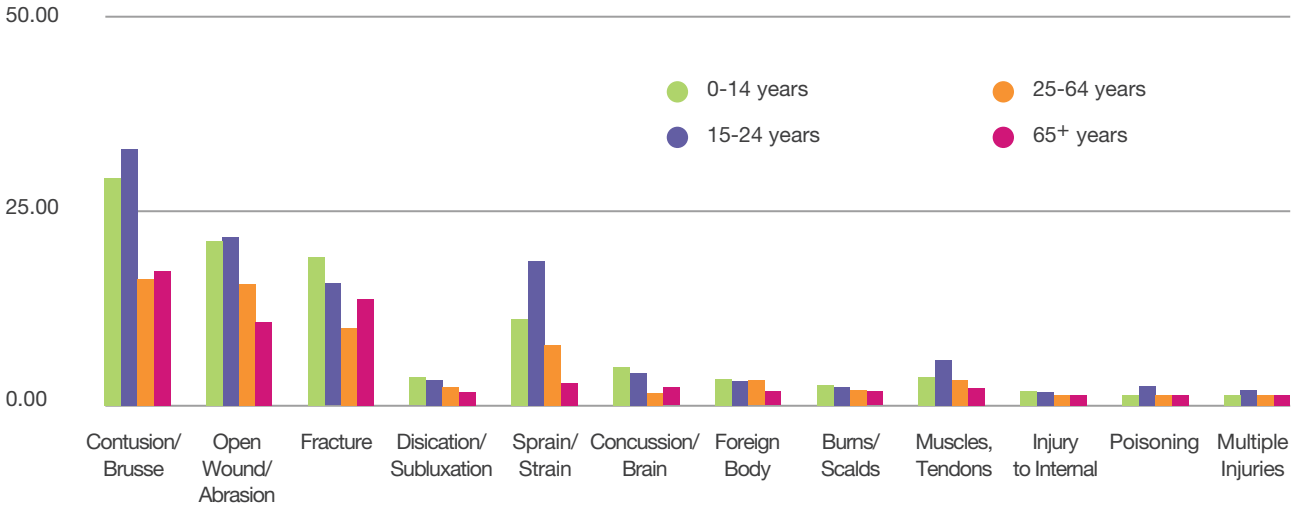


Figure 7.9: *Estimated number of injury ED-cases in the EU by type of injury and gender*

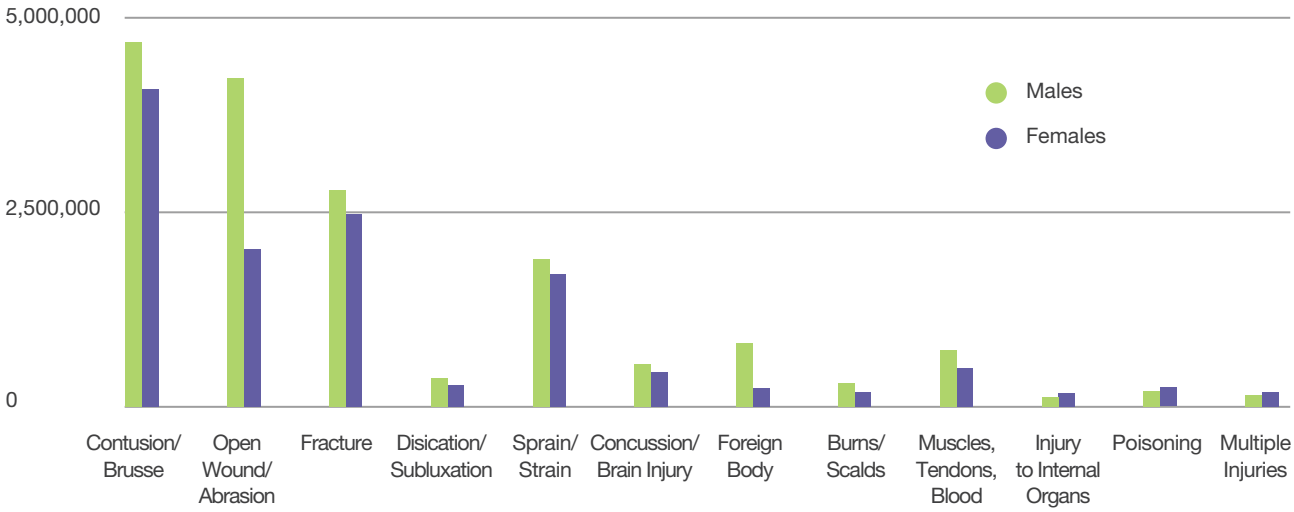
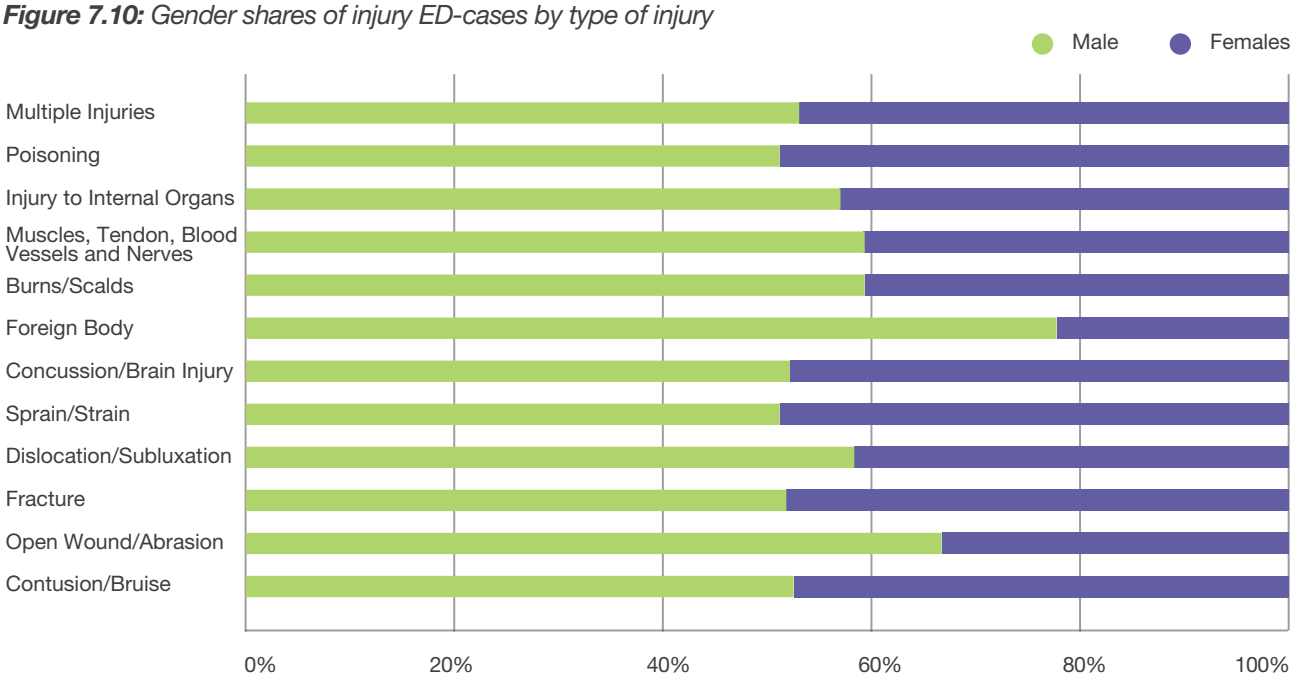


Figure 7.10: *Gender shares of injury ED-cases by type of injury*



Ambulatory treated injuries by setting/domain

Injuries which occur in the home, at school or during leisure/sporting activities (HLSS) are the most common attending ED departments for ambulatory care across the EU (65%) (*Table 7.11* and *Figure 7.12*). In particular, HLSS injuries appear to disproportionally affect children and seniors (*Figure 7.13*) which likely relates to the increased time these age-groups spend in the HLSS setting in addition to other factors. The most pronounced gender differences are observed for assault and workplace related injuries. Males are three times more likely to be injured in the workplace, and twice as likely to be injured through interpersonal violence (*Figure 7.14 and 7.15*).

Table 7.11: *Estimated number of injury ED-cases by setting, age-group and gender*

Setting/Age+gender	0-14 years	15-24 years	25-64 years	65+ years	Males	Females	All
Home, Leisure, School, Sports	5.167.606	3.433.897	8.817.990	3.614.594	11.641.413	9.507.780	21.034.087
Road	241.964	712.792	1.580.984	223.839	1.537.519	1.188.764	2.759.579
Workplace	50.612	493.672	2.258.487	41.368	2.192.965	664.647	2.844.140
Self-harm	6.192	54.777	122.153	10.959	101.636	108.693	194.082
Assault	47.286	265.931	554.973	30.021	664.842	273.130	898.210
Other/Unknown	1.671.180	559.984	1.817.305	711.934	2.317.331	2.291.778	4.760.403
All ED Cases	7.184.840	5.521.052	15.151.892	4.632.715	18.455.706	14.034.793	32.490.500

Figure 7.12: *Injury ED-cases by setting*

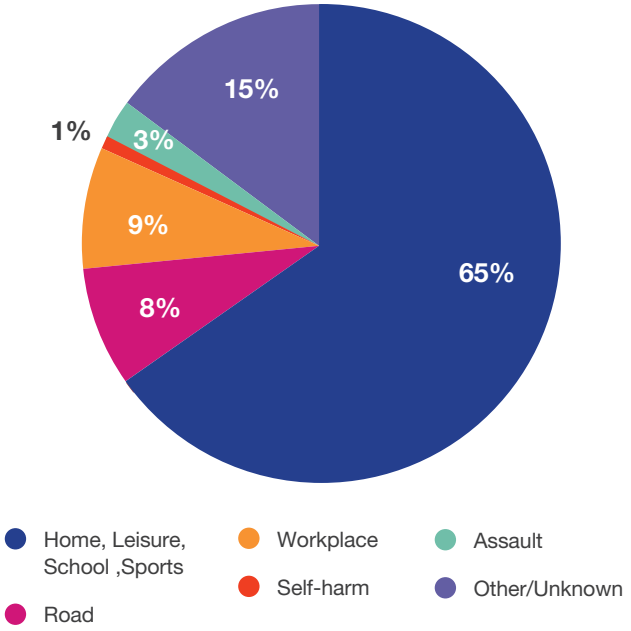


Figure 7.13: *Crude rate of injury related ED-cases in the EU by setting and age-group (per 1000 persons)*

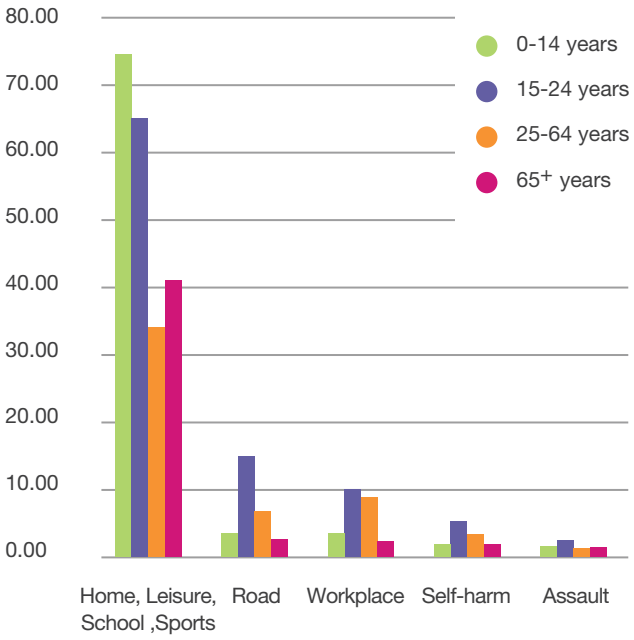


Figure 7.14: *Estimated number of injury ED-cases in the EU by setting and gender*

Figure 7.15: *Gender shares of injury ED-cases by setting*

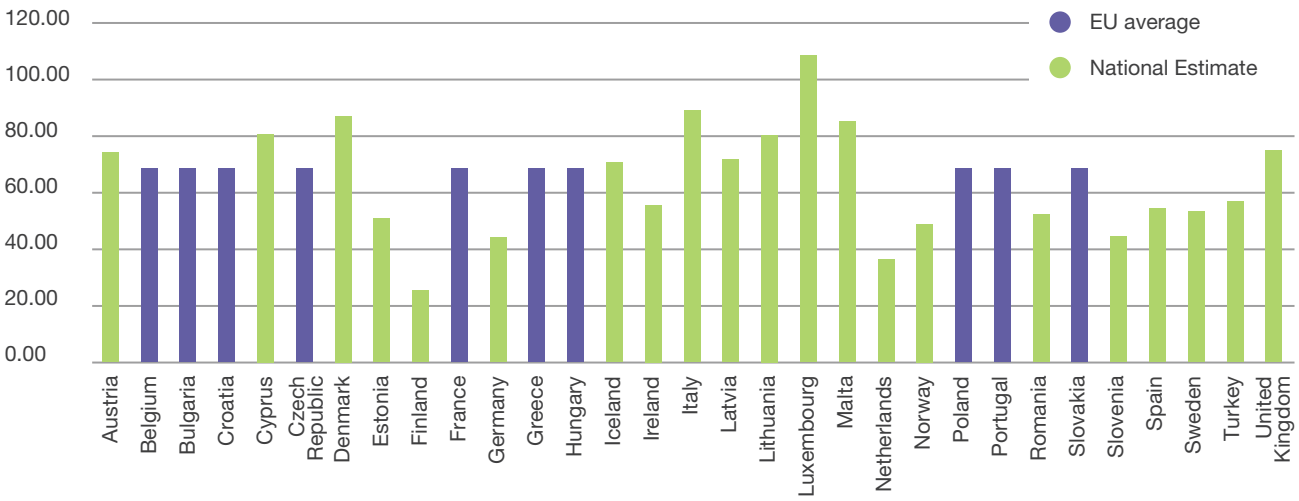
Injury rates by country (ambulatory treated patients only)

Injury related ED attendance rates (non-admitted attendances) were established in 22 European countries (*Table 7.16*). However, it was only possible to estimate HLSS injury rates in Portugal, as information on road, work and intentional injuries were not included in the Portuguese injuries system. It can be observed in Table 7.16 that ED attendance rates receiving only ambulatory care varied markedly between countries, ranging between 25 attendances per 1000 population in Finland to 109 per 1000 population in Luxembourg. The wide range in attendance rates suggests that injury morbidity isn't the only factor influencing IDB based ED rates, and it is likely, that factors such as differing health care systems and data quality issues also exert influence on some of the national IDB estimates. For a more detailed discussion around the variability of the IDB ED attendance rates, please refer to the following chapter which reports on all hospital cases (ED attendances which were both admitted and not admitted to hospital).

Table 7.16: *Crude rate of injury ED-cases per 1000 persons by country and setting*
Notes: *(*) Country is not an EU member state; rate excluded from EU average*

Country/Setting	Home, Leisure, School, Sport	Road	Workplace	Self-harm	Assault	All
Austria	57,50	5,58	11,43	0,09	0,60	74,40
Cyprus	38,03	11,40	34,02	0,05	4,01	80,92
Denmark	64,31	4,29	7,16	0,15	1,96	87,03
Estonia	40,44	1,85	1,46	2,24	2,49	50,95
Finland	14,16	2,37	1,31	0,42	0,38	25,14
Germany	33,37	3,69	5,73	0,48	1,01	44,27
Iceland*	56,58	n.a	9,92	0,79	2,99	70,90
Ireland	36,89	4,83	5,35	1,62	5,32	55,39
Italy	45,06	26,65	4,06	0,18	1,60	89,11
Latvia	44,70	4,43	3,66	2,84	15,04	71,78
Lithuania	52,98	0,54	0,62	0,53	1,10	80,71
Luxembourg	77,53	7,86	18,61	0,81	3,98	108,77
Malta	76,46	4,11	2,00	0,15	2,03	85,25
Netherlands	26,80	5,25	3,10	0,32	0,95	36,45
Norway*	38,55	1,76	4,81	0,48	0,63	49,32
Portugal	45,67	n. a.	n. a.	n. a.	n. a.	n. a.
Romania	39,56	2,71	5,73	0,54	3,81	52,20
Slovenia	35,38	3,68	2,48	0,05	0,73	44,58
Spain	33,23	2,93	1,06	0,36	1,12	54,81
Sweden	42,77	4,14	5,31	0,88	1,23	53,73
Turkey*	38,12	5,53	9,78	1,27	2,42	56,91
United Kingdom	53,78	3,97	6,45	0,70	1,73	76,00
EU 28	46,26	6,02	7,25	0,46	2,04	66,96
Estimated Number of EU ED Cases	22.443.035	2.921.440	3.515.821	221.754	987.391	32.490.500

Figure 7.17: *Crude rate of injury ED attendances (non-admitted cases) per 1000 persons by country*
Notes: *The EU average has been inserted for countries where IDB data were not available or not of sufficient quality (blue bars)*



08

ALL INJURY ED-CASES

The following chapter reports on all injury related hospital cases in the IDB i.e. both cases which were admitted to hospital and those which received only ambulatory care. The data are being presented by cause and type of injury, by age and gender, by setting (place of occurrence) and by country

Cause of injury (all hospital cases)

Table 8.1: *Estimated number of injury related hospital cases in the EU by cause, age-group and gender*

Cause/Age+gender	0-14 years	15-24 years	25-64 years	65+ years	Males	Females	All
Road	293.032	829.102	1.918.980	337.197	1.930.998	1.398.891	3.378.311
Fall	3.061.292	1.530.834	5.187.291	3.967.146	6.562.674	7.089.339	13.746.563
Cut/Pierce	519.584	591.546	2.012.997	388.428	2.365.793	1.146.191	3.512.555
Poisoning	68.861	126.013	347.572	55.483	291.888	300.010	597.929
Burn/Scald	100.992	55.622	171.434	29.190	186.355	168.080	357.238
Other	2.026.710	2.078.372	5.147.846	976.571	6.605.598	3.768.663	10.229.500
Unknown	1.827.348	875.120	2.358.546	939.351	3.422.310	2.585.672	6.000.365
ED Attendances	7.897.819	6.086.609	17.144.668	6.693.366	21.365.616	16.456.846	37.822.462

Figure 8.2: *All injury hospital cases by cause (%)*

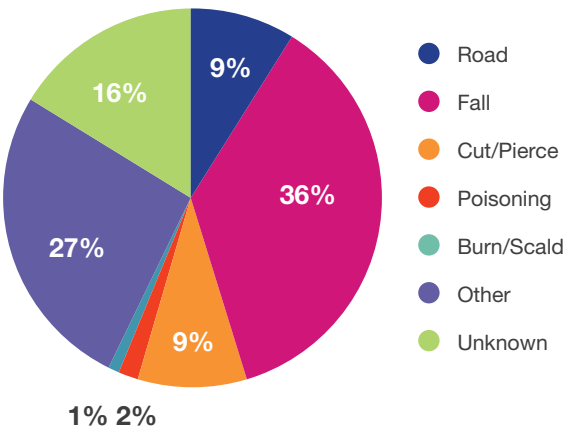
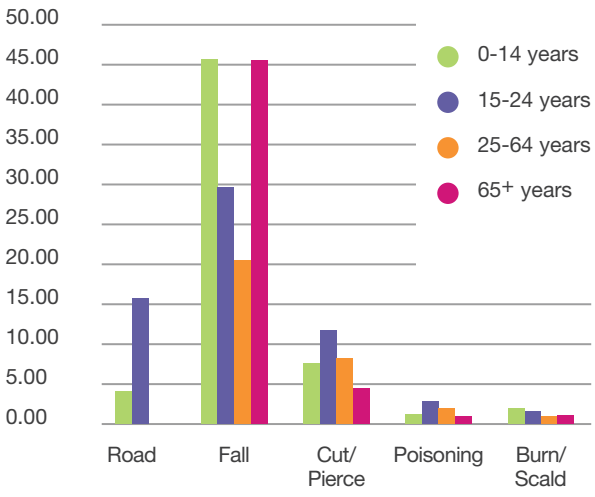


Figure 8.3: *Crude rate of injury related hospital cases by cause and age-group (per 1000 persons)*



Females appear to suffer more frequently from falls and poisoning, while all males attend hospital more commonly for all other injury mechanisms (*Figures 8.4 and 8.5*).

Figure 8.4: *All injury hospital cases by cause and gender*

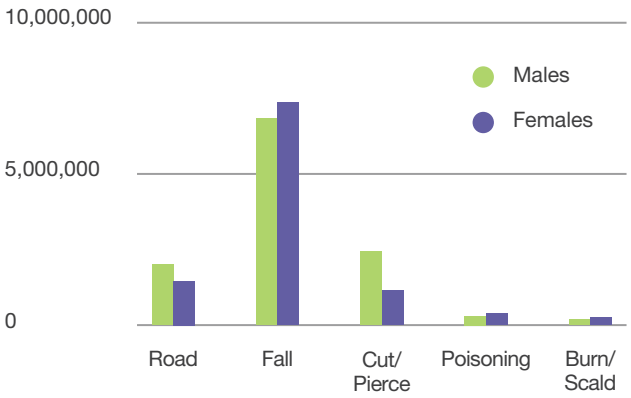
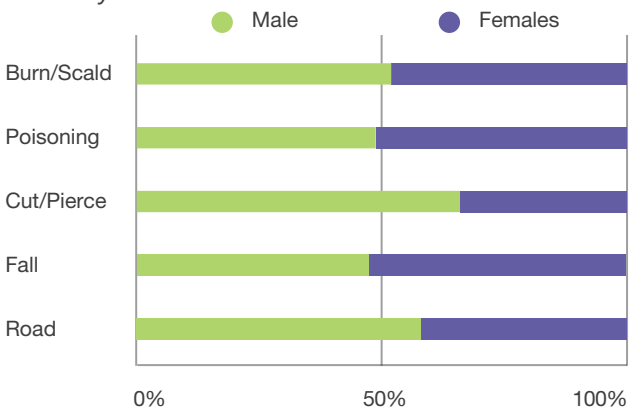


Figure 8.5: *Gender shares of all injury hospital cases by cause*



Type of injury (all hospital cases)

The most frequent type of injury attending ED departments are contusion/bruises (at least 23%), followed by fractures (20%) and open wounds (17%) (*Table 8.6 and Figure 8.7*). More children (0-14 years) attend EDs across the EU with a contusion/bruise injury than any other age group, while most fractures occur in the older adults (65 years+) (*Table 8.6 and Figure 8.8*). By observing distributions of injury types by gender (*Figure 8.10*) it clear that females are at higher risk of poisonings and fractures, and males are at increased risk of open wound and foreign body injuries.

Table 8.6: *Estimated number of injury related hospital cases in the EU by type of injury, age-group and gender*

Setting/Age+gender	0-14 years	15-24 years	25-64 years	65+ years	Males	Females	All
Contusion/Bruise	1.872.806	1.554.961	3.876.573	1.459.166	4.704.596	4.195.357	8.763.506
Open Wound/Abrasion	1.332.734	1.001.584	3.143.034	956.236	4.291.289	2.107.128	6.433.587
Fracture	1.514.288	861.985	3.027.665	2.187.165	3.772.057	3.760.311	7.591.104
Dislocation/Subluxation	108.590	125.089	274.288	116.658	365.658	263.873	624.626
Sprain/Strain	657.088	857.602	1.784.534	262.377	1.854.323	1.696.160	3.561.601
Concussion/Brain Injury	322.095	193.617	475.869	333.468	742.414	608.474	1.325.049
Foreign Body	176.637	122.829	648.099	90.825	810.215	239.253	1.038.390
Burns/Scalds	122.340	82.212	260.540	36.212	299.469	197.385	501.303
Muscles, Tendon, Blood Vessels and Nerves	140.431	275.437	802.182	169.905	840.984	528.499	1.387.955
Injury to Internal Organs	33.909	31.994	85.061	26.469	99.097	53.115	177.432
Poisoning	71.049	145.244	334.755	62.530	285.781	334.029	613.578
Multiple Injuries	5.846	33.545	100.012	42.052	105.855	71.601	181.455
Other	396.947	303.986	1.074.187	352.139	1.221.218	865.170	2.127.259
Unknown	1.157.076	470.250	1.274.573	593.719	1.854.868	1.654.284	3.495.618
ED Attendances	7.911.835	6.060.335	17.161.370	6.688.922	21.247.823	16.574.639	37.822.462

Figure 8.7: *All injury hospital cases by type of injury*

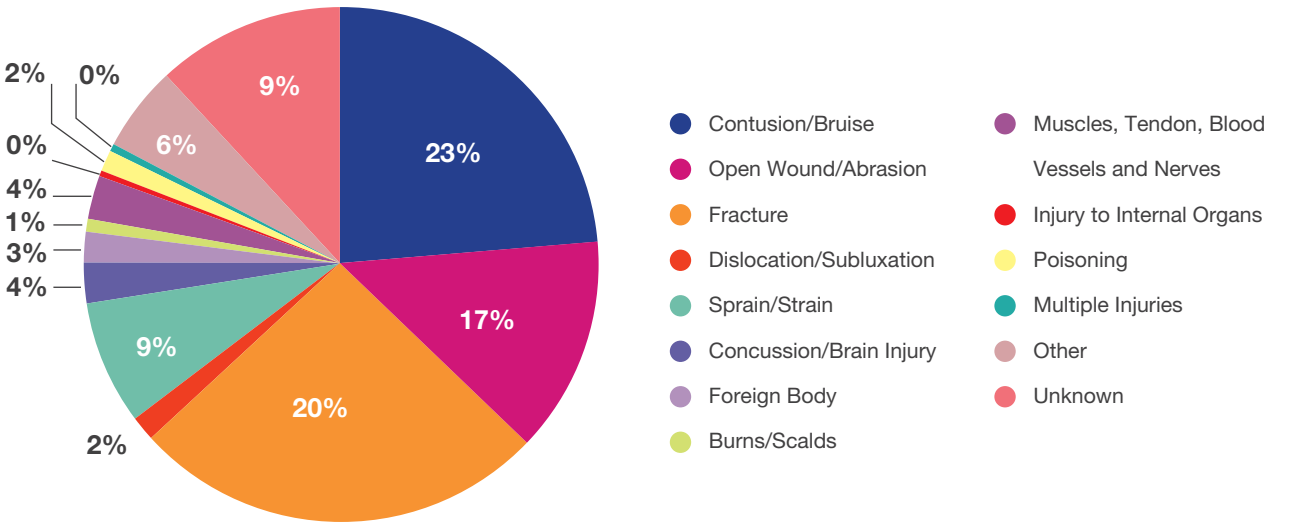


Figure 8.8: *Crude rate of injury related hospital cases in the EU by type of injury and age-group (per 1000 persons)*

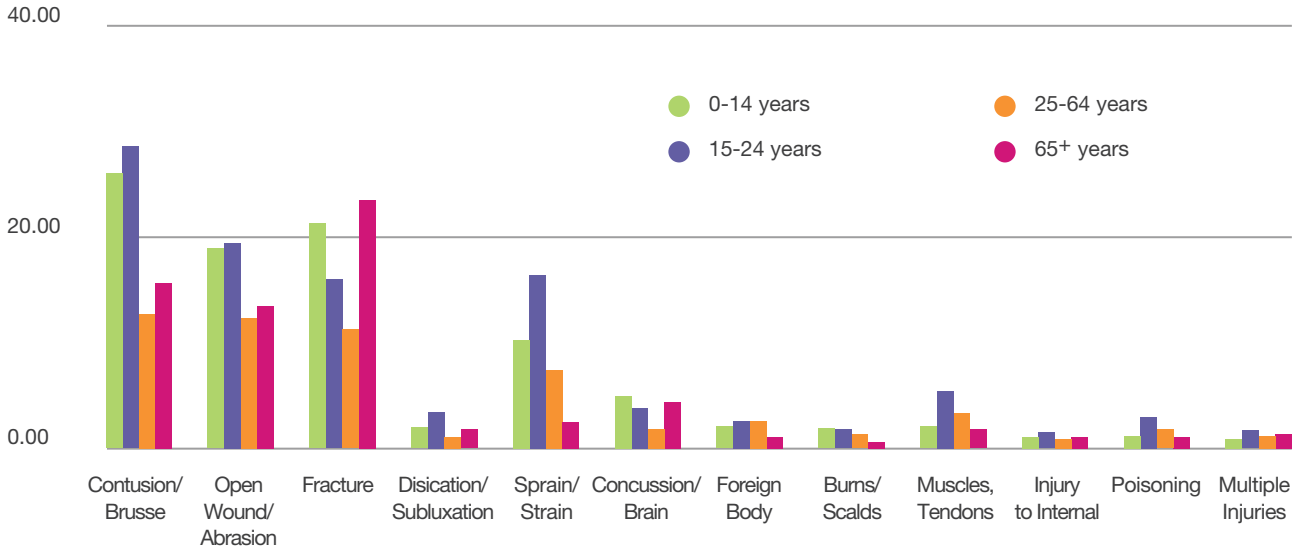


Figure 8.9: *Estimated number of injury related hospital cases in the EU by type of injury and gender*

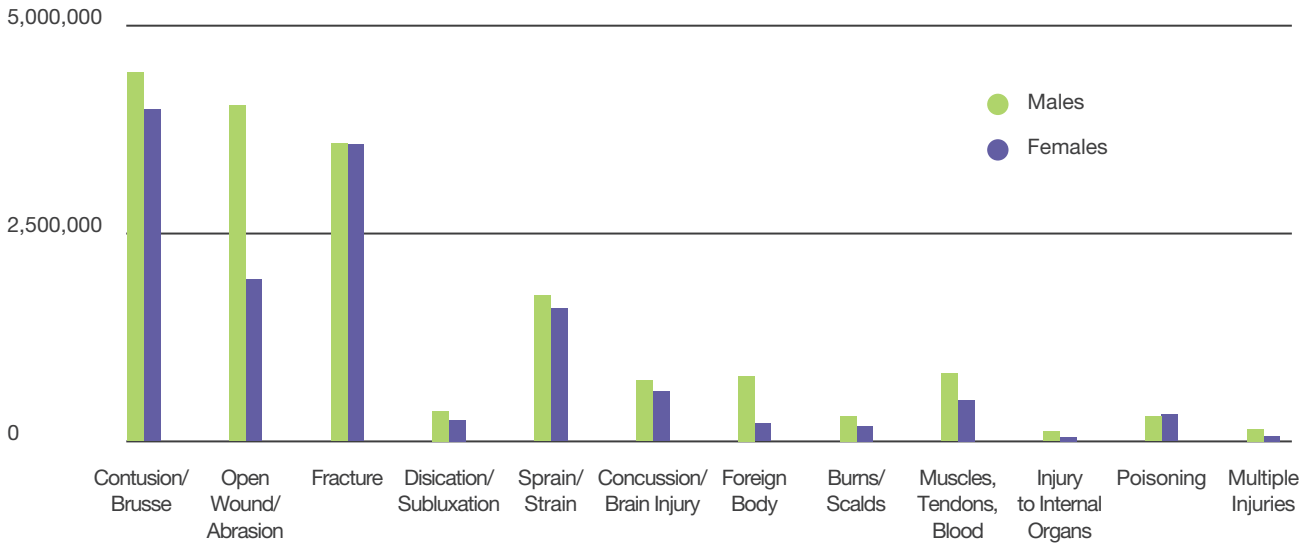
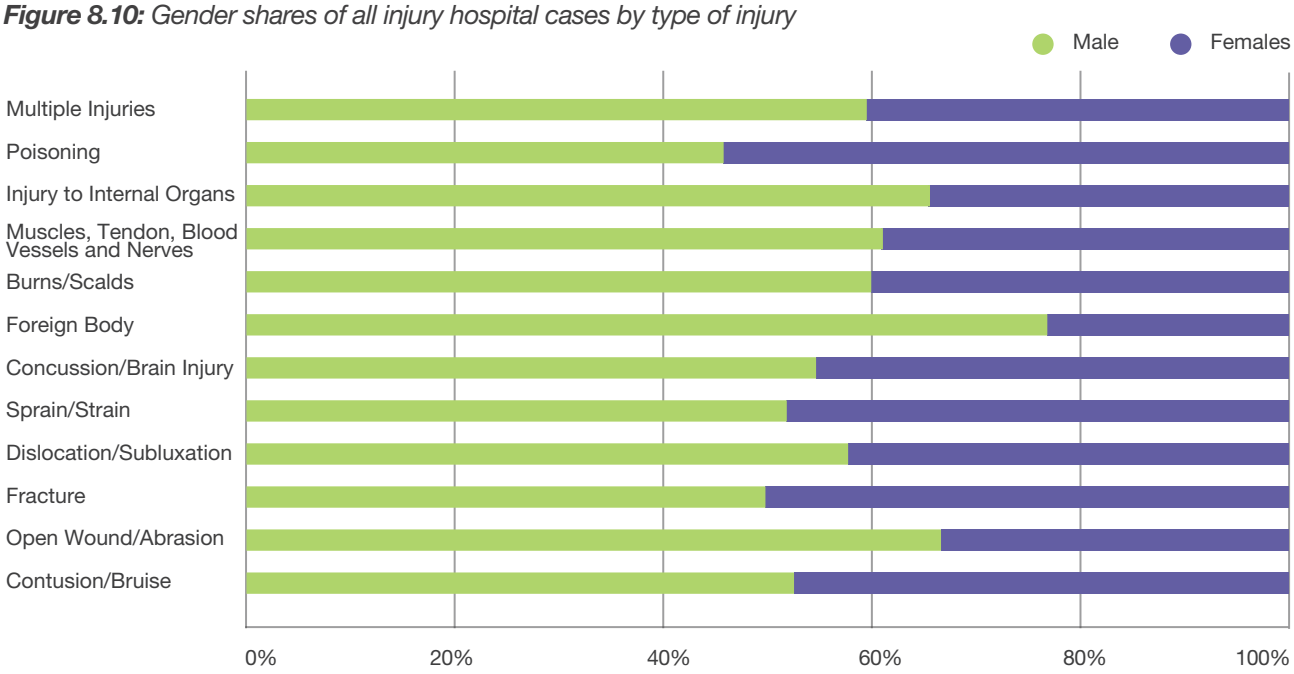


Figure 8.10: *Gender shares of all injury hospital cases by type of injury*



Injury by setting/ domain (all hospital cases)

Unintentional injuries which occur in the home, at school, or during leisure/sporting activities ("home and leisure accidents") are by far the most common setting for injuries attending EDs across the EU (*Table 8.11*, *Figure 8.12*). Every year, it is estimated that approximately 24.6 million EU citizens suffer a home or leisure injury which requires medical assistance (65% of all injuries attending ED departments). These figures emphasise how it important it is to ensure the European Core Health Indicator ECHI 29 (covering home and leisure accidents), is recorded accurately through standardised methods and on a regular basis. A further 3.4 million EU citizens are injured during a road traffic accident (ECHI 30) and an additional 3.1 million EU citizens are injured during an accident in the workplace (ECHI 31). ECHI 32 should report on suicide attempts, however it is difficult to establish from hospital records whether a non-fatal self-harm incident was suicidal or not. Thus the IDB estimate of 0.4 million self-harm incidents across the EU, should only be considered as an indicator of self-harm.

Table 8.11: *Estimated number of injury related hospital cases by setting, age-group and gender*
[1]ECHI 32 specifies suidices; however, rates for all self-harm incidents are presented in this table as it is not possible in IDB to distinguish between suicidal self-harm and non-suicidal self-harm

Setting/Age+gender	0-14 years	15-24 years	25-64 years	65+ years	Males	Females	All
Home, Leisure, School, Sports	5.618.340	3.685.372	9.992.344	5.277.846	13.327.549	11.354.194	24.573.903
Road	293.766	829.614	1.922.377	338.690	1.933.954	1.407.298	3.384.447
Workplace	64.213	521.321	2.480.011	53.018	2.412.161	712.086	3.118.562
Self-harm	13.510	96.562	256.452	28.521	191.782	228.739	395.045
Assault	54.108	291.110	626.427	37.094	751.248	293.972	1.008.739
Other/Unknown	1.752.565	606.207	2.034.331	948.661	2.597.125	2.612.354	5.341.765
All ED Cases	7.796.502	6.030.187	17.311.942	6.683.830	21.213.819	16.608.643	37.822.462

Figure 8.12: *Injury ED attendances in the EU by setting*

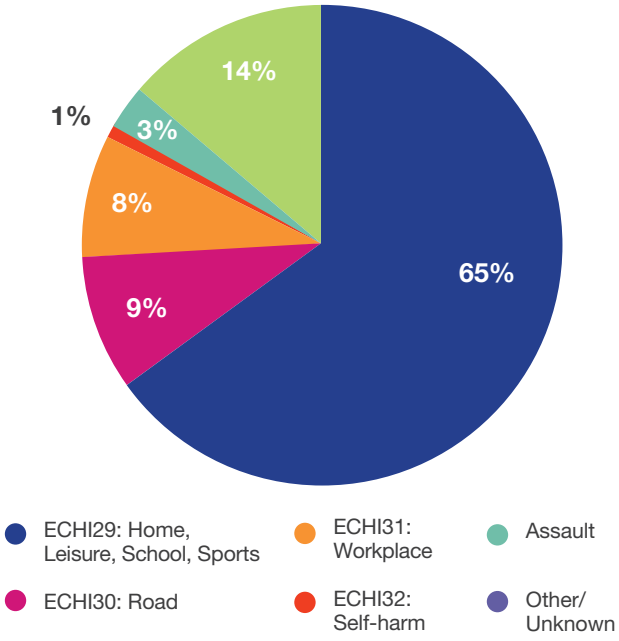


Figure 8.13: *Crude rate of injury ED attendances in the EU by setting and age-group (per 1000 persons)*

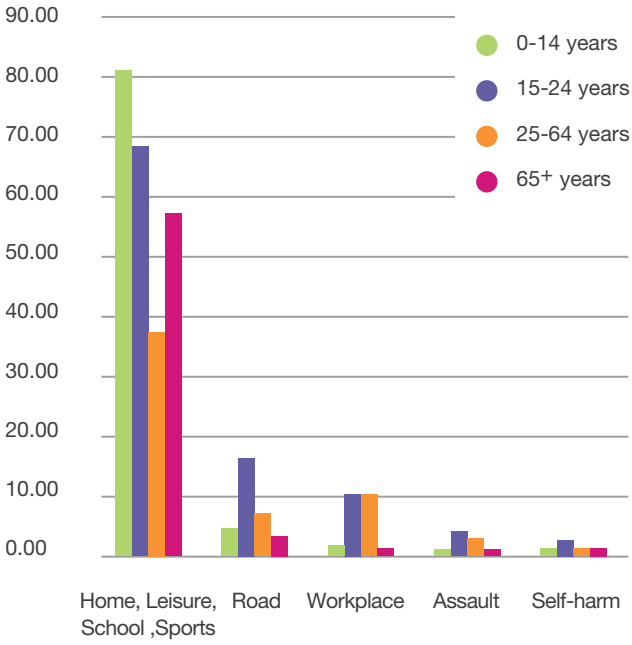


Figure 8.14: *Estimated number of injury ED attendances in the EU by setting and gender*

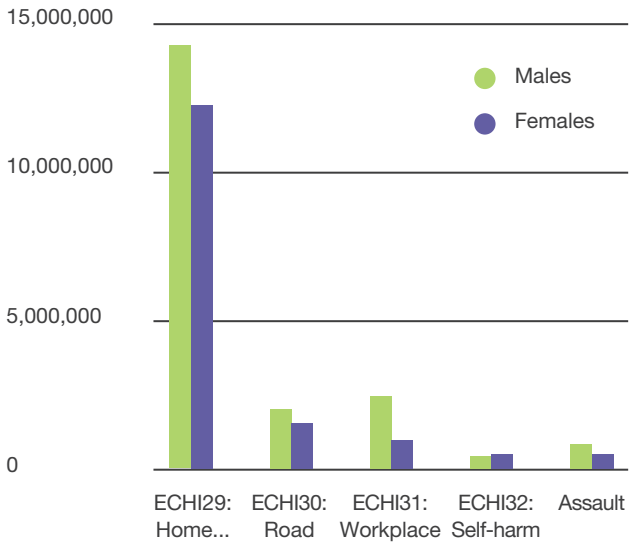
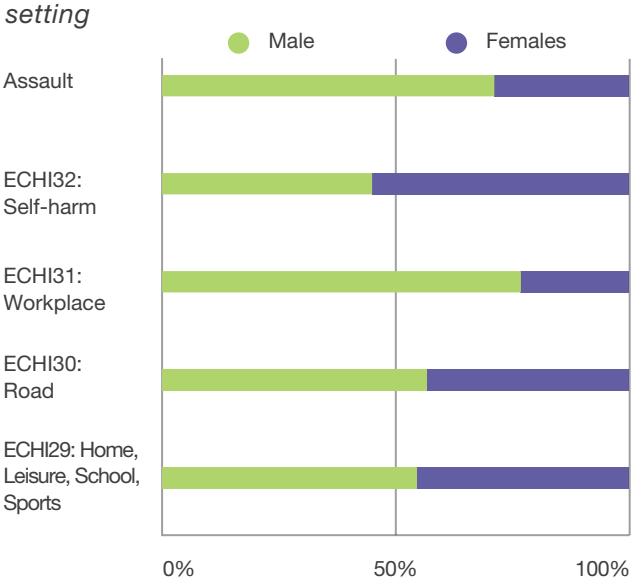


Figure 8.15: *Gender shares of ED attendances by setting*



Injury rates by country (all hospital cases)

Table 8.16 contains preliminary IDB estimates for the ECHI injury indicators 29-32, in addition to estimates for assault and all injuries combined. The rate for all injury related ED attendances per 1000 population, ranges from 32,6 in Finland (lowest rate) to 116,8 in Luxembourg. A range of this size suggests that other factors may have a part to play besides differences in injury morbidity. For example, variations in national health care systems, accessibility and utilisation of emergency departments, differences in data sampling methods and sample sizes, and other data quality issues, are likely to affect the national estimates generated through the IDB. For instance, in Luxembourg, it is well known that many non-residents live and work in this relatively small country. As the denominator for IDB incidence rates is based on the national population, it is likely these additional non-residents increase the injury rate in Luxembourg. In Finland, primary health care centres which are not captured in the IDB, are frequently the first point of contact for minor injuries, instead of EDs, which explains to a certain extent the low incidence rates observed in Finland (Table 8.16, Figure 8.17)

Regarding ECHI 29b ("home and leisure accidents"), the estimated IDB rate per 1000 population, ranges from 19,54 in Finland to 84,05 in Malta; a range factor of 4,3. However, a range factor of this size is not unusual when

comparing national health statistics. For example, the ESAW (European Statistics on Accidents at Work) in 2013 reported incidence rates for work-place accidents (ECHI 31) to range from 61,9 in Romania to 3570,8 in Portugal per 100.000 workers; a range factor of 57.7. The range in ECHI injury mortality rates is also unexpectedly high. In 2012, ECHI 13 (injury death rate per 100.000 population) ranged from a minimum of 14,9 in Portugal to a maximum of 74,1 in Lithuania, a factor of 5.0, which is slightly higher than IDB's factor of 4.3. Nonetheless, in accordance with Article 168 of the Treaty [11], the main purpose of national injury statistics is not perfect international comparability, but instead to guide national injury prevention policies and programmes, and provide data to support the evaluation of preventative actions. For these purposes, it is crucial that a sustained injury surveillance system, which delivers consistent, standardised and national data on various risk groups is available.

In relation to the other ECHI indicators (e.g. ECHI 30b, ECHI 31 and ECHI 32) the IDB results should only be interpreted as preliminary results, highlighting potential issues in countries and directions for further improvement. Regarding ECHI 30b ("road traffic accidents") the IDB based national estimates range from 0,96 per 1000 population in Lithuania to 30,52 in Italy. ECHI 31 ("workplace accidents") ranges from 0,89 per 1000 population in Lithuania to 36,33 for Cyprus. The estimated rates for self-harm (ECHI 32) range from 0,08 per 1000 population in Cyprus and Slovenia to 3,36 in Latvia. Finally, IDB rates for assault related injuries range from 0,48 in Finland to 22,69 for Latvia. Such wide ranges between national estimates indicate that the extreme rates at least, are the result of sampling biases. Further analyses and actions are required to reduce the biases in these countries.

Table 8.16: *Crude rate of all injury related hospital cases per 1000 persons by country and setting, i.e. European Core Health Indicators (ECHI) on injuries*
[1]ECHI 32 specifies suicides; however, rates for all self-harm incidents are presented in this table as it is not possible in IDB to distinguish between suicidal self-harm and non-suicidal self-harm

Country/ECHI	ECHI 29b: Home, Leisure, School, Sport	ECHI 30b: Road traffic	ECHI 31: Work-place	ECHI 32: Self-harm[1]	Assault	All Injuries
Austria	74,53	9,12	15,11	0,15	0,76	98,36
Cyprus	43,38	14,53	36,33	0,08	4,11	91,14
Denmark	71,15	5,11	7,18	0,54	2,15	98,86
Estonia	46,85	2,10	1,57	2,54	8,91	58,53
Finland	19,54	3,15	1,62	0,64	0,48	32,60
Germany	38,16	4,60	6,22	0,62	5,71	55,31
Iceland*	60,14	n. a.	10,20	1,21	3,09	75,38
Ireland	43,10	5,31	5,87	2,82	5,81	64,32
Italy	60,49	30,52	4,63	0,30	1,73	113,08
Latvia	52,35	5,08	3,93	3,36	22,69	82,47
Lithuania	63,52	0,96	0,89	1,35	1,54	94,96
Luxembourg	83,18	8,71	19,28	1,42	4,14	116,79
Malta	84,05	4,96	2,23	0,37	2,20	94,67
Netherlands	31,28	6,65	3,33	0,83	1,10	43,22
Norway*	45,88	2,65	5,57	0,83	0,87	59,44
Portugal	45,67	n. a.	n. a.	n. a.	n. a.	n. a.
Romania	46,91	4,04	6,63	0,88	4,55	62,83
Slovenia	39,50	4,35	2,63	0,08	0,86	49,89
Spain	36,86	3,26	1,14	0,67	1,18	59,78
Sweden	51,09	4,89	5,72	1,84	1,41	64,30
Turkey*	40,03	6,35	10,29	1,57	4,33	60,72
United Kingdom	57,54	4,20	6,69	1,33	1,91	82,10
EU 28	53,70	7,32	7,95	0,89	2,26	77,79
ED Attendances	26.109.156	3.560.186	3.863.549	433.208	1.098.907	37.822.462

Figure 8.17: *Crude rate of all injury related hospital cases per 1000 persons by country*
Notes: *The EU average has been inserted for countries where IDB data were not available or not of sufficient quality (blue bars)*

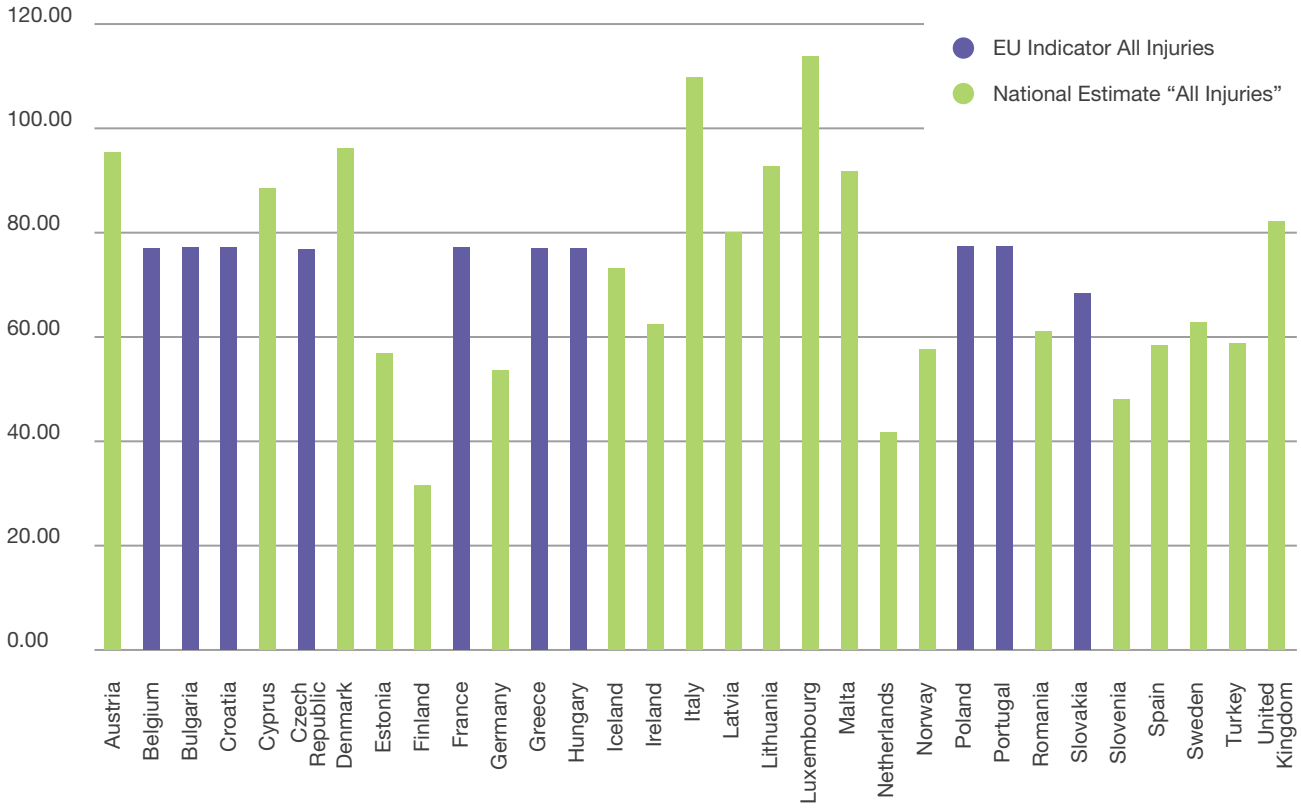


Figure 8.18: *Crude rate of all injury related hospital cases per 1000 persons which occurred in the home or during leisure activities (ECHI29) by country*
Notes: *The EU average has been inserted for countries where IDB data were not available or not of sufficient quality (blue bars)*

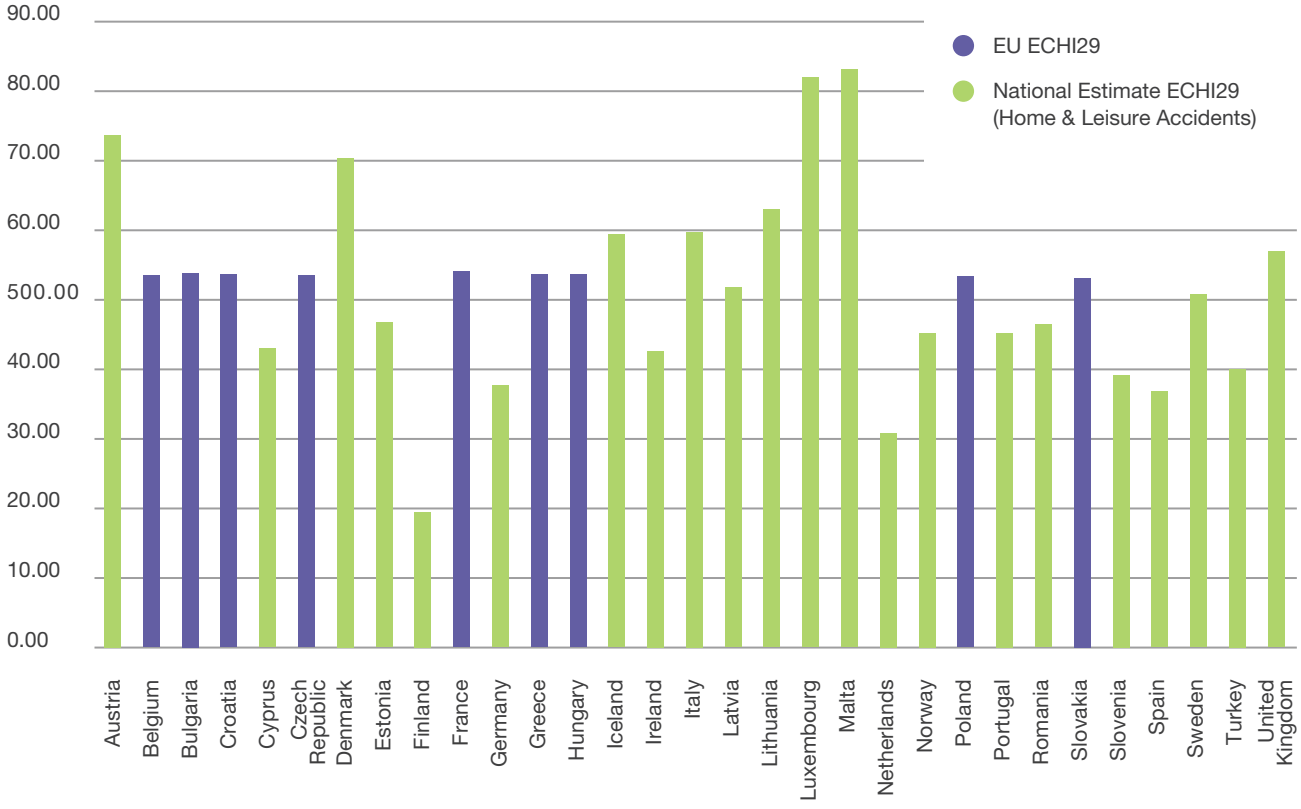


Figure 8.19: *Crude rate of all injury related hospital cases per 1000 persons which occurred as the result of an unintentional road traffic injury (ECHI30) by country*
Notes: *The EU average has been inserted for countries where IDB data were not available or not of sufficient quality (blue bars)*

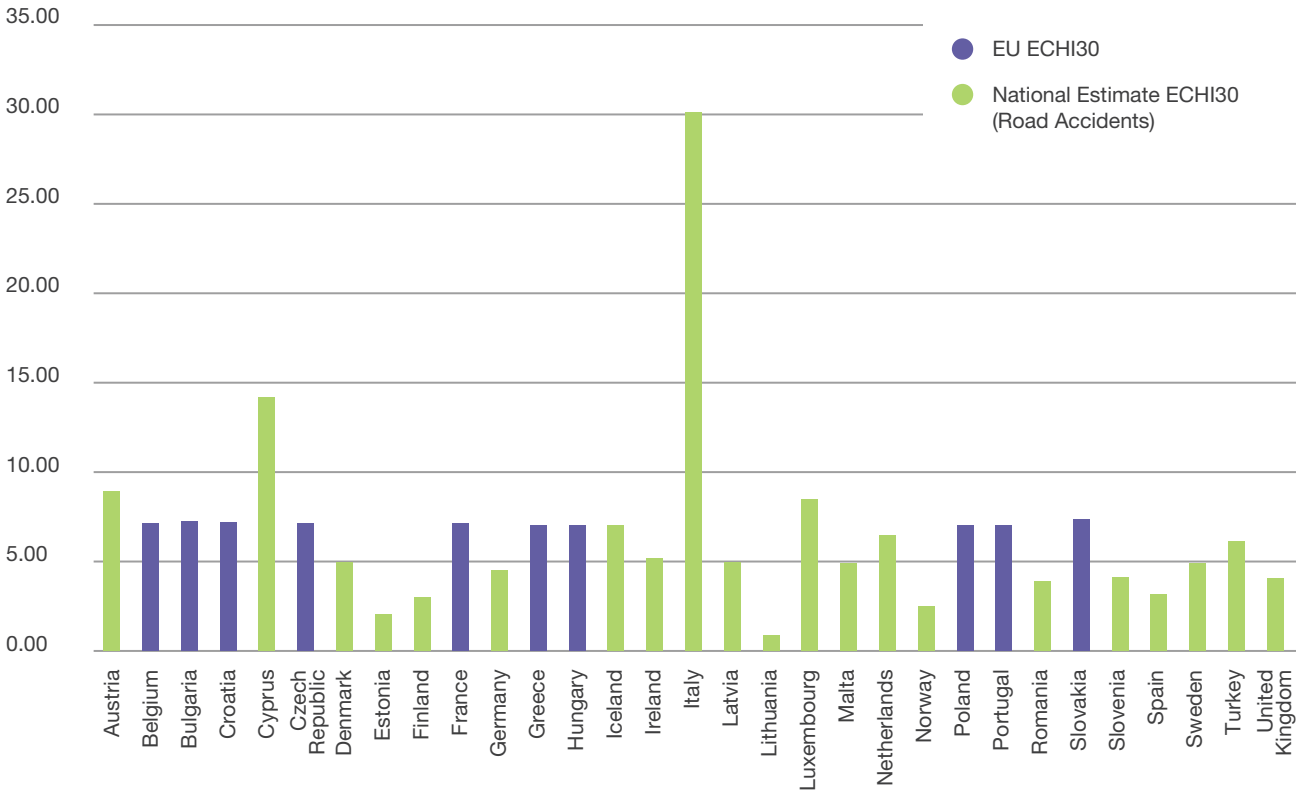


Figure 8.20: *Crude rate of all injury related hospital cases per 1000 persons as a result of unintentional workplace injuries (ECHI31) by country*
Notes: *The EU average has been inserted for countries where IDB data were not available or not of sufficient quality (blue bars)*

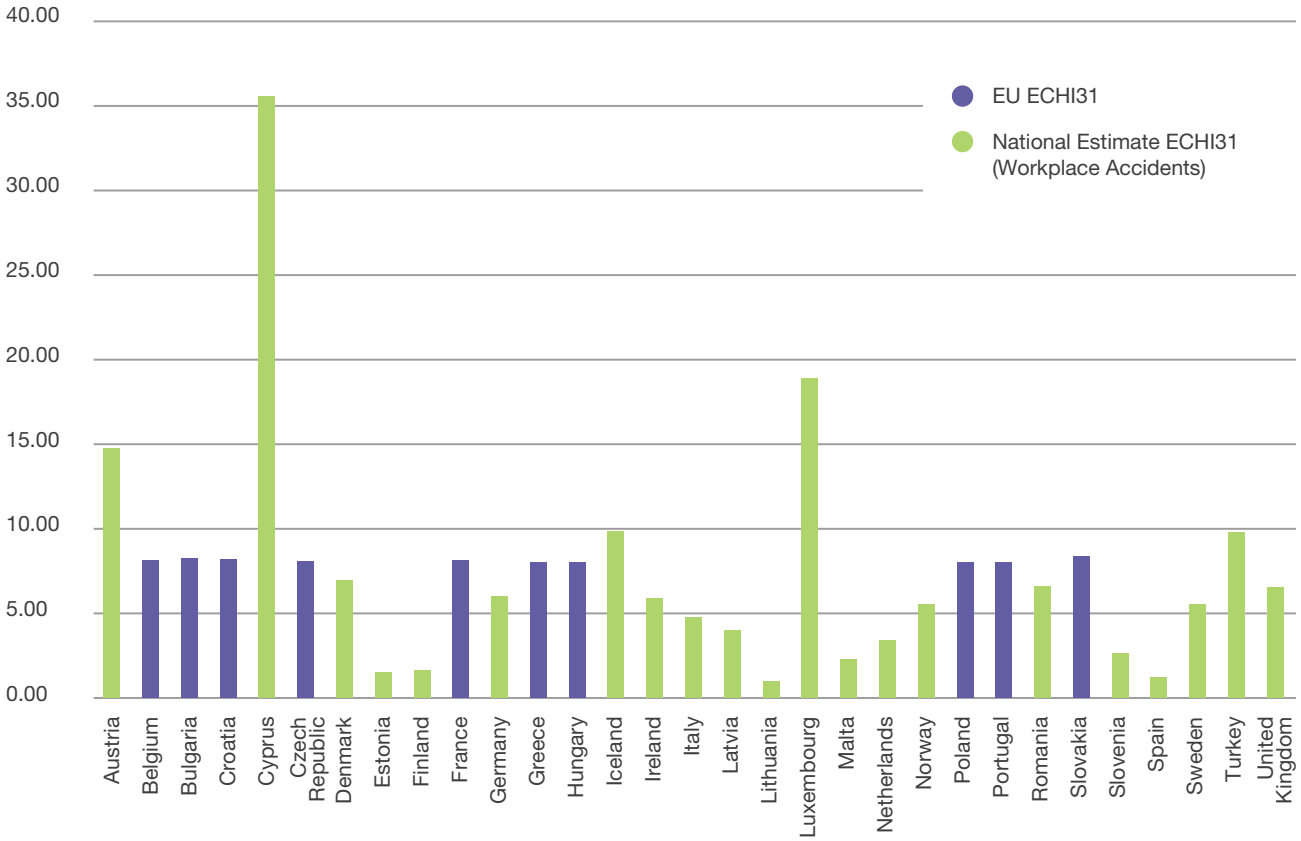


Figure 8.21: *Crude rate of all hospital treated injuries due to self-harm (ECHI32) by country*
Notes: *The EU average has been inserted for countries where IDB data were not available or not of sufficient quality (blue bars)*

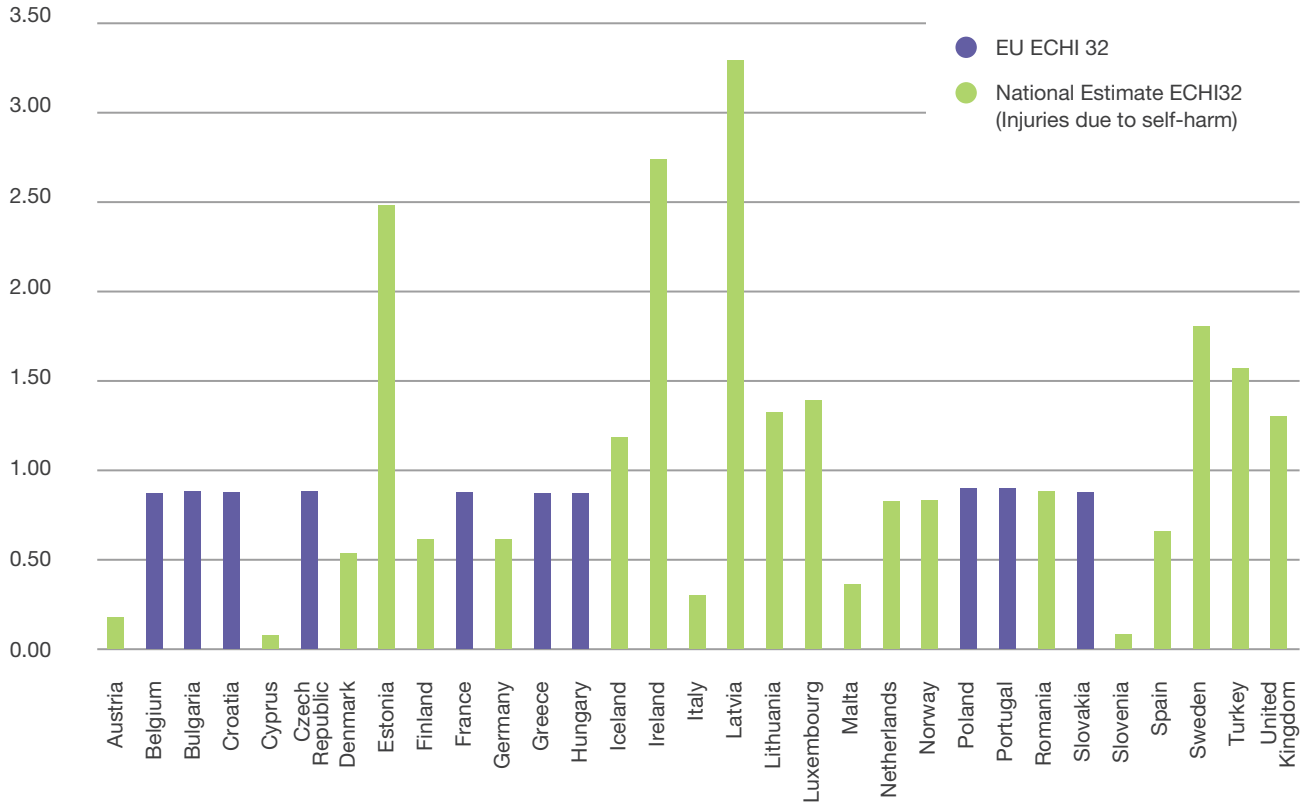
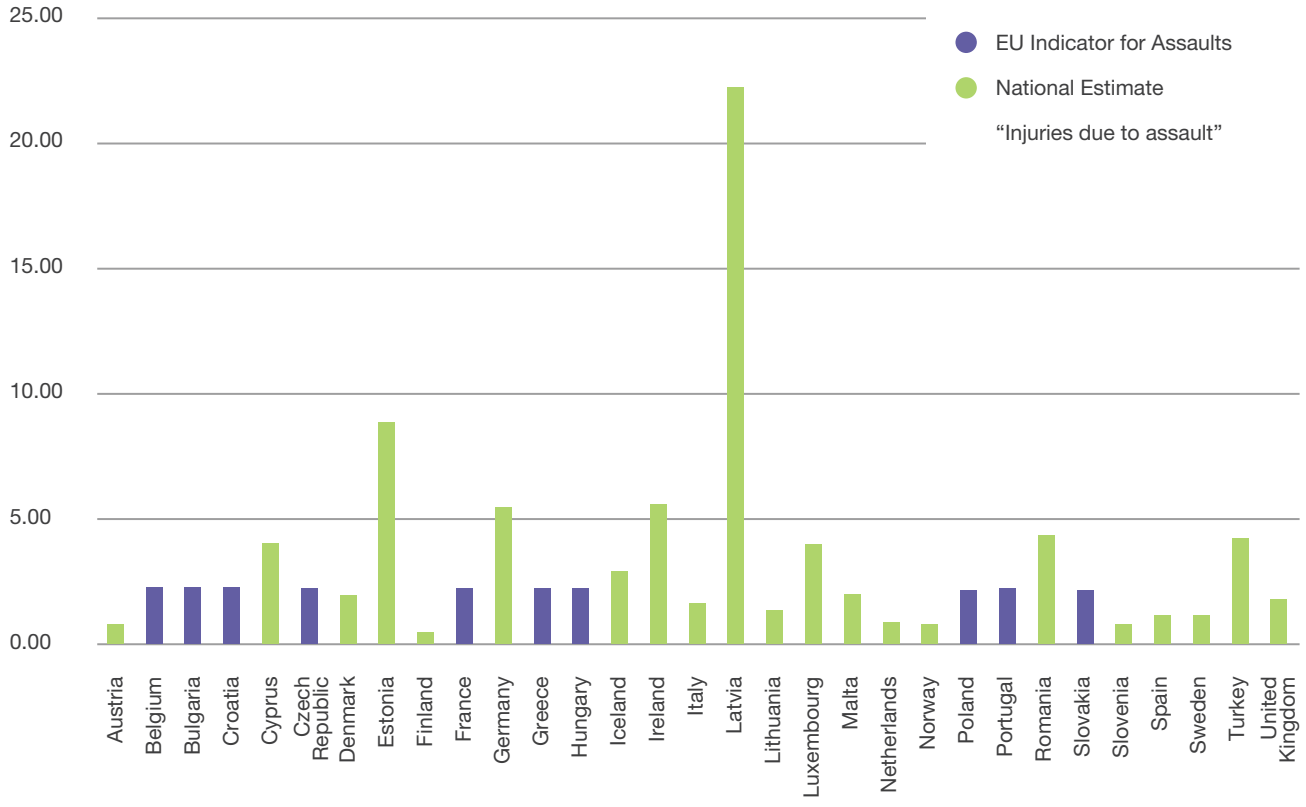


Figure 8.22: *Crude rate of all interpersonal violence injury related hospital cases per 1000 persons by country*
Notes: *The EU average has been inserted for countries where IDB data were not available or not of sufficient quality (blue bars)*



09

CONCLUSIONS AND THE WAY FORWARD

Accidents and injuries place a huge burden on societies and individuals in the European Union (EU). In addition to the immense human costs in terms of premature death and years lived with disability, a substantial proportion of annual health care costs result from injuries, and European growth and prosperity are at risk through loss of productivity.

Until recently, information on injuries tended to focus on fatal injuries; however, injury-deaths are only "the tip of the iceberg". The almost 40 million non-fatal injuries are also a huge burden to health, and take a significant share in the ever-rising health care expenditures in today's society. The development of the European Injury Data Base (IDB) [7] [8] [10] has provided a much better insight into the magnitude and characteristics of non-fatal injuries across the injury-spectrum. Based on this vital source of information it can be concluded that:

- Approximately a quarter of a million individuals are fatally injured across the EU every year.
- For every person fatally injured, 163 people attend ED with an injury, 23 of which are admitted to hospital.
- One out of every twelve hospital admissions in the EU relates to an injury.
- At least 50 million days of hospital care delivered in the EU relate to injury.
- The direct medical care costs of all injuries treated in hospitals in the EU (ambulatory care and hospital admissions) is estimated to be around 80 billion Euro each year.
- The majority of non-fatal injuries occur at home, at school, or during leisure time activities including sport (HLSS). However, injuries in this environment are often overlooked when setting policies and establishing priority areas for prevention.

Challenges

A number of European and national led initiatives have been undertaken in recent decades to reduce the frequency of injuries resulting from accidents and violence. Several types of injuries have been successfully reduced including: road traffic fatalities; workplace accidents; chemical accidents and some consumer product-related injuries, including those associated with electrical appliances and toxic household products.

Serious injuries in children have also decreased over the past years, as a result of enhanced child safety programmes and campaigns carried out across all EU-countries, focussing in particular on the most serious and life-threatening accidents in childhood. Also pre-hospital and hospital trauma care have improved significantly over past decades, resulting in a sharp decline in death due to injury trauma.

However, there is still scope for more effective action. In particular by addressing risk settings that have up until now received much less attention, such as those occurring at home or in leisure time.

Key injury hot spots which emerged from the latest figures, include:

- The high share of adolescents in the total number of non-fatal injuries. Sports related injuries play an important role for this age-group. While sporting and physical activities in general is beneficial for health, a large proportion of health benefits get lost due to injuries. Health gains associated with sports and physical activities need to be optimised by ensuring proper safety measures are in place.
- The high share of older adults (65^{+}) in fatal and non-fatal injuries. Most of the injuries in high ages, in particular in the age-group of 75^{+} are caused by falls. Although much of the increased risk of falling depends on geriatric conditions and much of the increased risk of severe injuries depends on frailty, there are proven strategies to reduce these risks, e.g. by removing barriers in the living environment or physical exercise for decelerating the loss of muscle substance.

The high injury rates observed in this report, especially the injury rates related to home and leisure accidents, indicate that there is still great potential to reduce the burden of injuries in individual countries and the European Community as a whole.

Enhanced data which is standardised and comparable within countries - for age-groups, causes, settings and years - and increasingly also between European countries is required to assess the actual health and economic burden of injury, in addition to helping countries identify trends and assess the impact of various policies and actions.

Political responsibility for injury prevention is vested in a wide range of policy domains, and that presents a particular challenge for developing successful strategies and programmes. Thus, while injury is an important determinant of ill health and therefore clearly a priority for public health, there are other policy domains, such as consumer protection, transport, sports, education, welfare, employment, justice and research, that also carry responsibility for investing in prevention and research.

Injury data: a health sector priority

The health sector plays a key role in injury prevention as:

- The health sector's mandate includes preventing and responding to all major health threats and causes of mortality and morbidity including injury; and
- A substantial proportion of direct costs to the health sector result from injuries.

The health sector is uniquely positioned to collect data, analyse risk factors and to generate multi-sector prevention efforts across the wider range of relevant policy domains.

As for injury data collection, it is clear that emergency departments in hospitals provide the best setting for collecting information on more serious cases of injury which require expert medical assistance. Further, information on a large number of injury cases can be obtained easily in hospital records at low costs. Household surveys on the other hand are more expensive and suffer several data quality issues resulting from memory decay and non-responders. Technological developments in medical administration and data linkage, also offer new opportunities for recording additional information which is relevant for injury prevention.

The costs of injury data collection are marginal compared to the overall direct medical costs of injuries. (EuroSafe, 2013) [24]. A system collecting comprehensive information on the causes and circumstances of injury from a representative sample of patients treated in EDs, will cost only 0.2-0.3 per mille per annum of the direct medical costs required to treat injuries. Further, the availability of injury data to support injury prevention initiatives, will result in cost savings to the health sector which far surpass the marginal costs of collecting the data.

The way ahead

The IDB-methodology [10] [25] allows countries to collect accident and injury data from a representative sample of emergency departments using a standardized coding system on the circumstances of an injury-event and its outcome. It complements existing data sources such as the routine causes of death statistics, hospital discharge registers and data sources specific to injury areas, including road accidents and work place accidents.

The simple IDB-Minimum Data Set (MDS) for Europe [26] supports the development of EU level and member state injury indicators, and can be easily implemented into wide variety of practices across Member States through a simple check-box system.

However, the continuation and wider implementation of the IDB across Europe requires a strong political commitment from EU-institutions and Member State governments. A binding arrangement for all countries to provide ED-based injury data would be extremely helpful in ensuring continued EU-level exchange of vital injury data in the forthcoming years. The set of agreed European Core Health Indicators, including four core injury indicators, provide the right framework for continued injury data collection and exchange efforts.

Taking into account the variety of health issues that require appropriate monitoring in Member States and at the EU-level, the European Union should consider creating a common health information infrastructure to support research and evidence-based policy-making across the European Union. Such a system should include knowledge and information generated by past health and research projects, and should include injury monitoring as a core component.

Therefore the European Commission initiative, BRIDGE-Health, which aims to prepare the transition towards a sustainable and integrated EU health information system for both public health and research purposes, is much welcomed. The BRIDGE-Health project, which runs from 2015-2017, aims to secure continuation of current information exchange activities like IDB, and create from 2018 onwards an integrated and sustainable EU health information structure that covers all relevant health topics including injuries. Taking into account the magnitude of the injury burden to health, continued injury surveillance should be considered as an essential component of the future European Health Information Structure.

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ANNEX: METHODOLOGICAL REMARKS

Focus on IDB Minimum Data Set

The current issue of "Injuries in the EU" (issue 6) is the first to utilise the IDB Minimum Data Set (MDS). Recent developments in the political environment are taken into account in this report, resulting in some changes to the content compared to previous editions (Eurosafe 2014) [27]. The Council Recommendation 2007 [13] identified eight priority prevention policies: children, adolescents, seniors, vulnerable road users, consumer products & services, sports, interpersonal violence and suicide. These eight priorities have led accordingly to data and information requirements [28]. In recent years the political interest has shifted from guiding prevention policies towards the implementation of public health statistics and valid health indicators on the burden of injury – at the national-level as well as the EU level.

Consequently the focus of this report has been to utilise IDB-MDS to estimate the four injury related European Core Health Indicators ECHI-29b, ECHI-30b, ECHI-31 and ECHI-32 [16]. While previous IDB reports and analyses have presented findings from the IDB-FDS [29] data set (which provides more detailed information about external circumstances of injury) the current report focuses on IDB-MDS [26], which provides less detail, but can be recorded more easily in a larger number of hospitals across Europe. Information on product-related injuries, using the IDB-FDS is still be provided to the consumer policy sector, e.g. through EC-Consumer Markets Scoreboard publications [30].

Systematic structure of analyses

The number of tables and graphs presented in this report have been reduced compared to previous editions of the report, based on the decision that it would be more useful to policy makers to have a systematic analysis of fatal and non-fatal injuries in the key policy areas, which in principle can be easily replicated in future reports.

As far as possible, the same analyses were carried out for deaths, admissions, ambulatory treatments as well as for all ED attendances: By cause, type of injury, setting in country. All these analyses contain breakdowns by age-group and gender.

Data sources

All analyses on injury deaths are based on WHO's European Detailed Mortality Database (WHO-DMDB) [9], excluding the figures on work-place related fatalities which were obtained from the WHO's European Health for All Database (WHO-HFA-DB) [20].

All analyses of non-fatal injuries (i.e. admissions, ambulatory cases only and all ED attendances) are based on the European Injury Database EU-IDB MDS [8]. Incidence rates have been calculated using reference population data supplied by the IDB National Data Administrators, and estimated number of national and EU cases have been calculated by applying incidence rates to national & EU populations presented on Eurostat's population statistics website (population on 1st of January) [31]. As these data sources are consistently used throughout the report, the data sources are not explicitly mentioned in the tables and figures presented in this report.

This report deals exclusively with data from health registers. While survey based data, such as those collected by the European Health Interview Survey (EHIS) [5] have advantages, they associated with several drawbacks. An advantage of survey based data, is the ability to capture all severity of injuries, even those which do not result in medical support. However the disadvantages include recall-biases, difficulty recording data on children and older people and high costs per record which usually lead to long intervals between surveys. The EHIS data on self-reported accidents and injuries is also not yet available for a large number of countries. Health care registers provide a sustainable basis for a continuous surveillance system, which cover all population groups and can provide large samples for accurate estimates. The disadvantage of health registers is that they are constrained to the characteristics of individual registers e.g. particularities associated with regional and national health care systems such as standard practice, and accessibility of emergency departments.

Geographical scope

All EU Member States, EFTA countries and EU candidate countries are eligible for a participation in the IDB injury data exchange. At present, 23 EU-Member States and three non-EU-Member States (the EFTA countries Norway and Iceland and the EU candidate country Turkey) are participating in the IDB system. These three non-EU-member countries are included in the "countries" sections of the report, but were not included in the calculation of the EU rates, which are based solely on the rates of participating Member States, and refer to the population of the EU 28 Member States only.

Data on fatalities are available for all 31 countries. Fatality figures are not presented in some cases for Greece, as their coding system (ICD-9) was not comparable in some cases to the ICD-10 coding system used in all other countries [32]. IDB data on non-fatal injuries is available for 26 countries, however it was only possible to calculate non-fatal injury incidence rates for 22 countries due to systematic shortcomings in the remaining four countries. Further it was only possible to estimate HLSS incidence rates in Portugal.

Three years – averages

Average figures of the most recent three years are presented in order to iron out any random fluctuations between years. For IDB-data the years 2012-2014 have been included. If data were not available for the years 2012-2014 in an individual country, the most recent three years of data were used (or one/two years if three years of data were not available). For the WHO mortality data, the three most recent years, 2011-2013, were analysed where available.

Levels of severity of injuries

The severity of injuries presented in this report range from minor injuries in which medical assistance was sought to life-long disabilities or death. The present report deals three main levels of injury severity: 1. Cases receiving only ambulatory care in an emergency departments ("ED cases"); 2. Cases admitted to hospital inpatient care ("Admissions") and 3. Injury deaths as reported by national statistical offices. Additional indicators measuring the severity and impact of injuries will be included in future reports, such as the disability score, Disability Adjusted Life Years ("DALYs"). However, these data are not routinely available at present.

Additionally, both admissions and ambulatory cases ("ED attendances") were analyzed together in the fourth chapter, as ED attendances are the basis for estimating the European core health indicators ECHI-29b, 30b, 31 and 32 on non-fatal injuries.

Break-downs

In general, throughout the report the same analyses have been conducted for deaths and IDB non-fatal injuries. However, there were a few exceptions. Information on the type of injury is not available for deaths. The settings "home", "school", "sport" and "leisure time activities" have been combined into one group, HLSS. This broad category, which represents ECHI indicator 29b, represents all unintentional injuries excluding road traffic and workplace accidents. A separate analysis, presenting breakdown analyses for home, school, sport and leisure injuries separately, are provided at the Eurosafe web-site [33] and not repeated here.

Data in the report have been presented by 4 key age groups: 0-14 ("children"), 15-24 ("adolescents and young adults"), 25-64 ("adults"), 65^{+} ("seniors"). The report has been restricted to these age groups to help make the report more readable, and injury risk profiles typically change during these 4 key life-spans.

Definitions

For deaths (DMDB), the following ICD-10 codes were used to define the different injury settings:

- "Road traffic": V01-V09, V12-V15, V19-V79, V81-V89, V95, V97-V99
- "Violence": X85-Y09; "Suicide": X60-X84
- "Home, leisure, school and sport accidents": All external causes of injury mortality (V01-Y98) minus all other categories (e.g. road, work, violence, suicide), and other non-relevant injuries (e.g. medical complications, undetermined, war, legal intervention: Y10-Y84,Y86-Y98
- "Work related deaths": European age standardized rates from HFA-DB

The external causes of fatal injuries were defined using the following codes:

- "Fall": V81, W00-W19, X80, Y01, Y30
- "Cut/Pierce": W25-W29, W32-W34, W45, W46, X72-X74, X78, X93-X95, X99, Y22-Y24, Y28
- "Poisoning": X40-X49, X60-X69, X85, X87-X90, Y10-Y19
- "Burn/Scald": X00-X19, X76, X77, X86, X97, X98, Y26, Y27
- "Other/Unknown": All injuries (V01-Y98) minus all other specified causes

For IDB non-fatal injuries, the according data elements of the IDB-MDS [26] were utilised:

- "Treatment and follow-up": For the distinction between admissions and ED-cases
- "Bature of injury 1": Equivalent to "type of injury"
- "Mechanism of injury": Equivalent to external cause of injury
- "Intent": For the distinction between intentional injury (self-harm and assault) and unintentional injury (accident)
- "Setting of injury" and "activity when injured": For the various settings
    - Road traffic accidents: Intent = 1 (unintentional injury) and Mechanism = 1 (road traffic injury)
    - Workplace accidents: Intent = 1 (unintentional injury) and Activity = 1 (paid work) and Mechanism = 2-8 (all mechanisms except road traffic injury)
    - Home, Leisure, School and Sport: All unintentional injuries minus road traffic accidents and work-place accidents

Shortcomings of national IDB samples

There is a great variation in the quality of national IDB samples due to various restrictions e.g. lack of governmental support or legal guidelines which restrict the scope of the surveillance system, or systems which are restricted to children or home and leisure accidents only. "Warning flags" at the EU IDB web-gate [8] provide information on the shortcomings associated with every IDB data sample. In the current report, IDB rates could be produced for the following 22 countries: Austria, Cyprus, Denmark, Estonia, Finland, Germany, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal (only home and leisure accidents), Romania, Slovenia, Spain, Sweden, Turkey and United Kingdom. It was not possible to calculate incidence rates using the data samples provided by the Czech Republic and Poland, as their samples contained only data on children, and the samples from Greece and Hungary were not sufficiently representative.

IDB-PARTNERS

The national IDB-partners that contributed to the 6th edition of "Injuries in Europe" by collecting injury data in accordance with the IDB-methodology and provided their data for analysis at EU-level, are:

Austria	Austrian Road Safety Board
Czech Republic	University Hospital Brno
Cyprus	Ministry of Health, Health Monitoring Unit
Denmark	National Institute of Public Health
Estonia	Ministry of Social Affairs, Health Information and Analysis Dept.
Finland	National Institute for Health and Welfare
Germany	Brandenburg State Dept. for Health, Environment and Consumer protection
Greece	National School of Public Health
Hungary	National Institute for Health Development
Iceland	Ministry of Health, Division of Health Statistics
Ireland	National Suicide Research Foundation
Italy	National Institute of Health
Latvia	National Centre for Disease Prevention & Control
Lithuania	National Institute of Hygiene
Luxembourg	National Institute of Public Health
Malta	Ministry of Health, Dept. Elderly and Community Care
Netherlands	Consumer Safety Institute
Norway	Norwegian Safety Forum
Poland	Memorial Holy Family Hospital Poznan
Portugal	National Institute of Public Health
Romania	Babes-Bolyai University, Centre for Health Policy and Public Health
Slovenia	National Institute of Public Health
Spain	Health Agencyof the Region of Navarra
Sweden	National Board of Health and Welfare
Turkey	Turkish National Public Health Agency
United Kingdom	Swansea University, College of Medicine

Injuries in Europe 2012-2014 is the sixth edition of a series of annual summaries of key figures on injuries in the European Union, combining available data on mortality and morbidity. It provides a comprehensive view about this important public health problem, in particular for health policy makers, researchers in the area of public health and safety, and safety practitioners.

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