Injury-related Hospitalizations in Europe

2004

Acknowledgement

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Universidad de Navarra ECIP

APOLLO

Injury-related Hospitalizations in Europe 2004

ECIP

Featuring the EU-sponsored database http:/www.unav.es/apollo/asistente/

Pamplona, October 2008
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About this report

This report, "Injury-related Hospitalizations in Europe, 2004", is one of the deliverables of a large contract with DG SANCO under the name of APOLLO (2004199). Under this contract, several distinct projects were undertaken, including one entitled "Burden of Injuries in Europe" (WP2) which, among other things, was to assess the feasibility and usefulness of a web-based query passive surveillance system based on patient-level hospital discharge data from a collection of voluntarily participating countries. Researchers from these countries collaborated with researchers at the European Center for Injury Prevention at the Universidad de Navarra to derive more than 500 injury-related indicators which are available at www.unav.es/preventiva/apollo/asistente/. This report presents a selection of findings from this web-based system.

As a standard, data are from 2004 from 18 participating countries. Exceptions and information about the data and indicator calculations are available in the Annex. The system was developed from 2006 to 2008.

Despite specific inclusion and exclusion criteria and standardization procedures, hospital discharge data collected for administrative purposes by all participating countries may not always be comparable. This may relate to a variety of factors, ranging from different hospitalization practices in relation to health insurance systems in place to variation in coding practices, to the level of detail and the number of codes used to describe an injury hospitalization episode.

More information on injury statistics can be found at:

-mortality http://www.who.int/healthinfo/morttables/en/index.html
and www.euroipn.org/stats_portal
-morbidity WHO http://www.euro.who.int/hfadb
-home and leisure https://webagate.ec.europa.eu/idb
work place, road traffic, general http://epp.eurostat.ec.europa.edu/

Editorial

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PREFACE

In December 2004 a project co-financed by EU DGSANCO and named Apollo was started. Among other things, its commitment was to explore which information systems had member states in place in regards to injuries. As a result of a series of interviews with experts from different countries, it became clear that hospital discharge data were widely available, yet rarely used to monitor injuries in the Union. This is most surprising in view of findings from other projects which suggested some 7.000.000 injury discharges take place every year in Europe (Angeman A et al, 2007).

The present report provides an example of what types of information can be derived from these data and shows variability between countries.

In summary:

. Population-based hospital discharge data are available for most European citizens

. These data had rarely been used to evaluate the burden of injuries in the past

. Standardization of processes and empowerment of researchers within Europe proved feasible and allowed a more efficient use of resources

. Large variability in percentages and rates suggest great opportunities to both improve data quality and to investigate modifiable risk factors and effective interventions to address this major public health problem.

The report and the underlying web-based system (www.unav.es/ecip/apollo/asistente/) are possible thanks to the work of many researchers who agreed to provide the hospital discharge raw data from their countries (stripped from personal identifiers) and/or analyze them using a series of algorithms developed centrally. These are: Nina Zimmerman (AT), Anna Marinova-Bedrozova (BG), Veronila Benesova (CZ), Birthe Frimodt-Möller (DK), Liis Rooväli (EE), Antero Heloma (FI), Jutta Spindler (DE), Mária Bényi (HU), Alessio Pitidis (IT), Jautrite Karaskevica (LT), Renzo Pace-Asciak (MT), Saakje Mulder (NL), Johan Lund (NO), Teresa Contreiras (PT), Mateja Rok (SL) Nick Dessypris (GR) and Lothar Schelp (SE). Researchers and staff from the European Center for Injury Prevention dedicated time and attention to this project: Jan Krafka, Rafael Heredero, Montserrat Ruiz, Maria Carmen Lezáun, Eduardo del Pozo, Carlos Arregui, and Francisco J. López-Valdés. The managerial committee of APOLLO: Wim Rogmans, Ruppert Kisser, and Eva Negri, together with its leader, Eleni Petridou, provided advice and input all along.

The hope is that this report is the first of many to come as the system grows by adding more years of data and more countries to the system. Also, the hope is that it is translated to other languages to assist with dissemination within country officials and decision makers.

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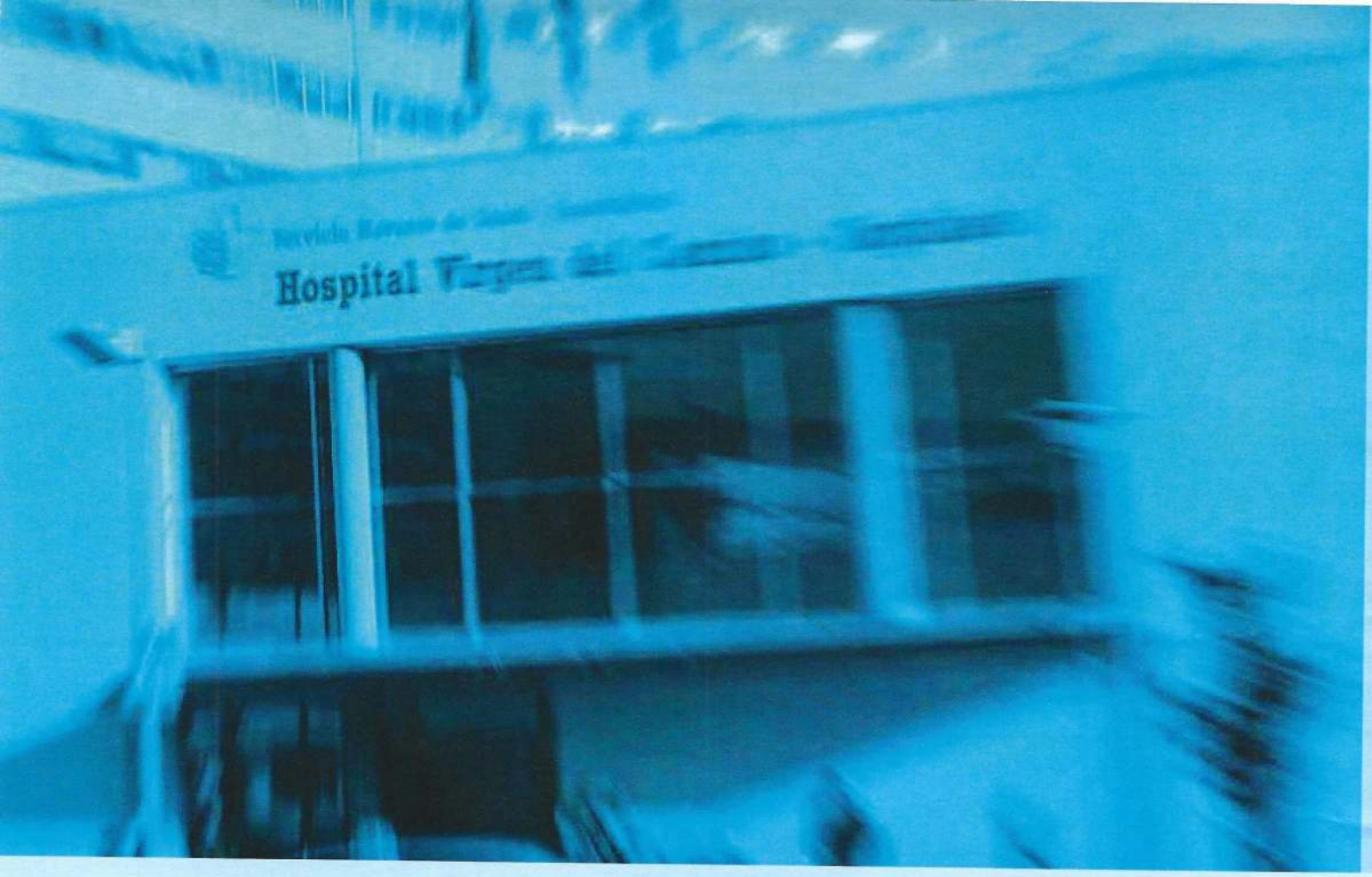

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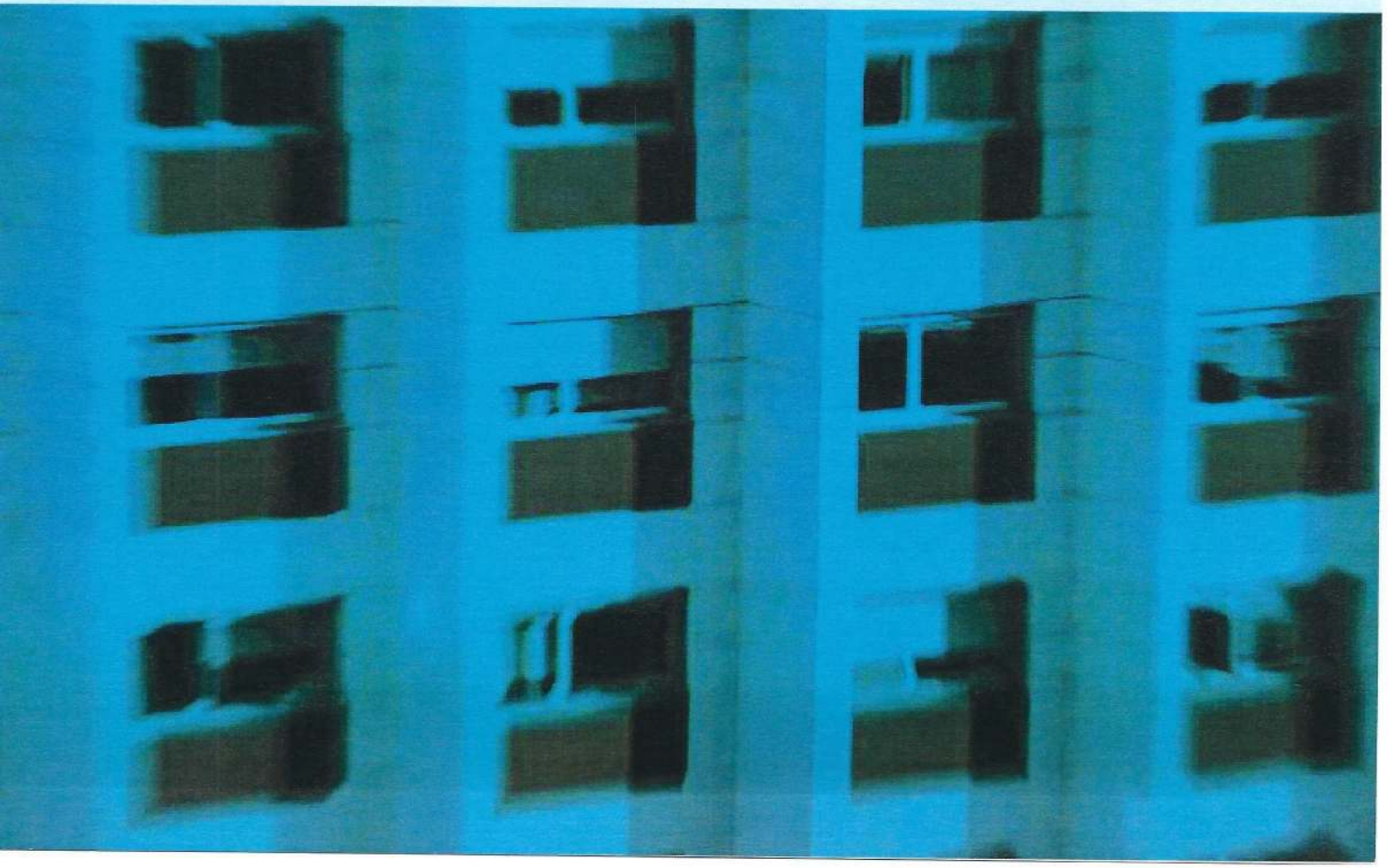


This report measures the burden of injuries as they result to burden to the health care sector by means of hospitalization episodes. Regardless of whether patients survived the event, in the report we identify as hospitalizations related to an injurious event any discharge record for which there is evidence that there was at least one physical injury to the patient, regardless of whether the record also contains information on the mechanism leading to such injury. To better approximate discharge events with incidence, the indicators presented in this report only relate to urgent admissions and/or episodes not identified as readmissions.

Eighteen countries voluntarily participated in the project up to October 2008: Austria, Bulgaria, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Italy, Latvia, Malta, the Netherlands, Norway, Portugal, Slovenia, Spain and Sweden. These 18 countries represent 287 million people, or 68% of the EU member and candidate states plus Norway, in 2004. More than 4 million discharge records were analyzed in this project. Data from 2004 was available from all countries except for Estonia and Italy, for which 2003 data were used instead, and Malta, where 2005 was used.

Researchers from all participating countries could access unidentified record level data, except for Greek data which were only available in the aggregate. Whether participating researchers chose to keep the data in house and use the standardized analysis protocol or to send the data to the European Center for Injury Prevention (ECIP) for analyses varied, but all data were analyzed using the same routine and augmentation algorithms listed in the reference section. These algorithms are publicly available at ECIP's website.

In all participating countries the hospital discharge data depositories that researchers accessed are meant to cover all hospitalization events in their respective countries, granted those occurring in some specific hospitals such as some military facilities, private clinics, etc. The exception to this statement being Latvia where only a sample was provided and Germany, where a 10% sample was used but results are corrected for this.

2004 Injury-related Hospitalizations in Europe

A literature review assisted in identifying indicators previously used to assess the magnitude of injures; all these indicators are available by age- and gender- specific counts at the web-query system. From this selection, and guided by the suggestions from the Council recommendation on priority areas in injury prevention in Europe and the International Collaborative Effort in Injury statistics, 10 injury or injury data problems and the 10 indicators summarized in the next pages were chosen.

In order to ease the presentation of the indicators data into maps, countries were grouped by quartiles, that is, by choosing some cut-off points that would split countries into 4 groups (of about 4 countries each, depending on the exact numeric distribution) ranging from those with the lowest values to those with the highest values.

Overall, data covering 68% of the EU-25 population were analyzed to produce a wide array of indicators covering data quality-, nature of injury, and mechanism of injury information. For ease of presentation, this report presents these indicators aggregated across all ages and both genders and rates are age- and gender- adjusted. No attempts have been made to extrapolate from the Latvia data to the Latvian population as a whole, as no corrections have been made to account for the less than complete reporting on mechanism of injury in several countries. Since there is no evidence that neither of both issues are random, we preferred to point out the limitation than to hide it.

This passive surveillance system grows on the strength of long-time existing administrative records, and with this, it inherits a few conceptual and data quality issues that can be resolved in future years. To provide the feasibility of the system and to point out some of the current limitations are some of the objectives of this report. The other objective was to highlight some of the findings, such as that hospitalization rates, as well as most other indicators, vary widely between countries. Variation equals hope as modifiable risk factors can be investigated and interventions (including changes in the health care system) can be implemented. Interestingly, there is no country consistently ranking in the lower or highest, thus, this research and policy-evaluation exercise shoud be implemented by all.

Injury-related hospital discharges rates

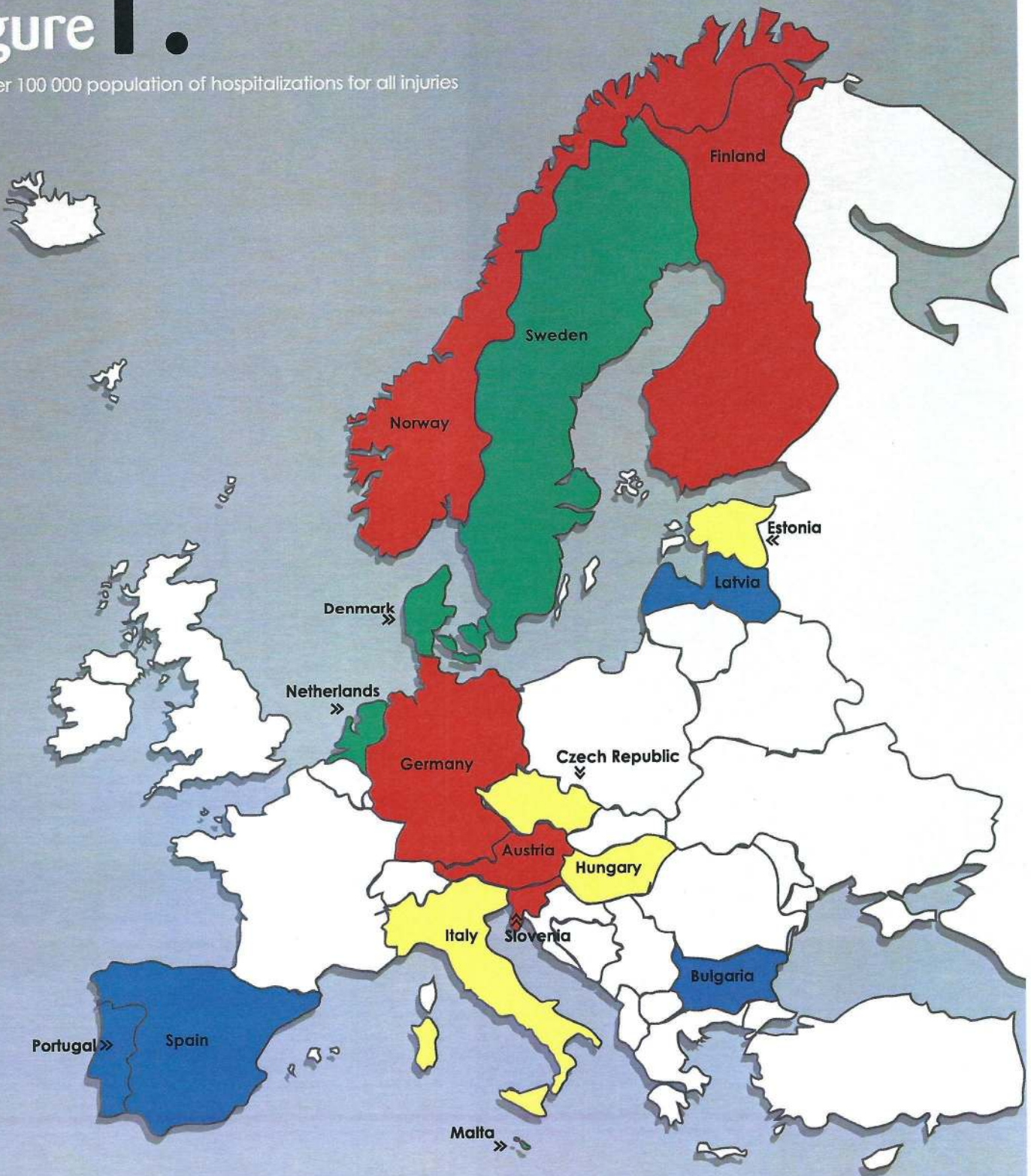
A hospital discharge is the administrative record associated with individuals being released from a hospital. This release can occur for different reasons such as having become healthy again and leaving to go home, having recovered partially and being sent to a rehabilitation clinic or having died, whereas the admission process can be driven by acute or recurrent illness, complications of previous treatments or observation.

Hospital discharge rates can be used to monitor how severe the injury problem in a specific area is. Comparisons across areas (i.e., countries) can be confounded by other factors like the national health insurance system and the structure of the medical system; still they provide an opportunity for research.

There is a wide variability in injury-related hospital discharge rates. Austria, Finland, Germany, Norway and Slovenia have the highest rates. Actually, there are 15-fold differences in these rates.

Figure 1.

Rate per 100 000 population of hospitalizations for all injuries



0-632 | 633-1153 | 1154-1367 | +1368

Note that unlike for all other countries, Latvia´s data are a sample

Traumatic brain injury hospitalization rates

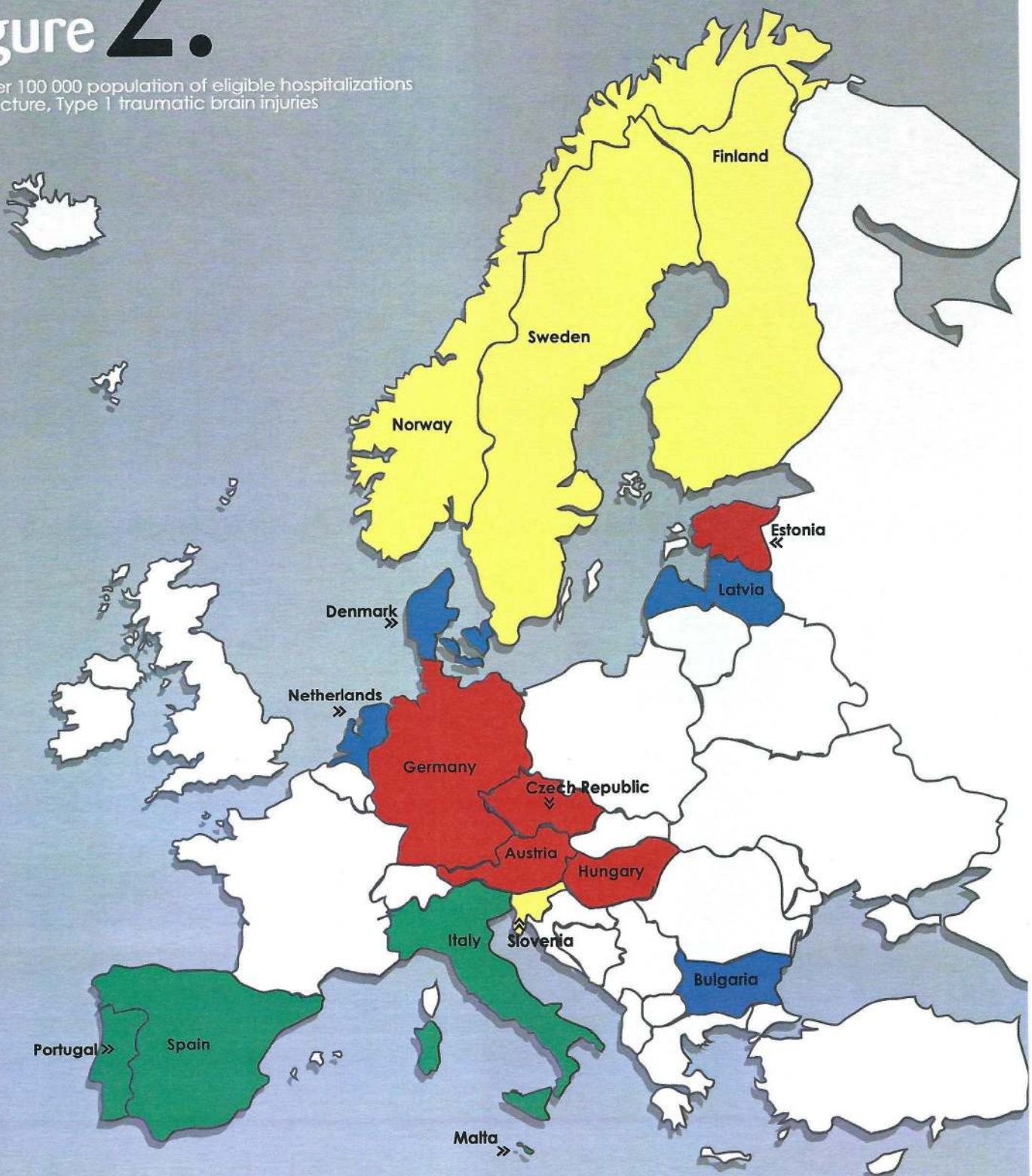
Traumatic brain injury (TBI) can result when the head suddenly and violently hits an object, or when an object pierces the skull and enters the brain tissue or when something causes rotational acceleration. Symptoms of a TBI can be mild, moderate, or severe, depending on the extent of the damage to the brain. A person with a mild TBI may remain conscious or may experience a loss of consciousness for a few seconds or minutes. Other symptoms of mild TBI include headache, confusion, lightheadedness, dizziness, behavioral or mood changes, and trouble with memory, concentration, attention, or thinking. Approximately half of severely head-injured patients will need surgery to remove or repair hematomas (ruptured blood vessels) or contusions (bruised brain tissue). Disabilities resulting from a TBI depend upon the severity of the injury, the location of the injury, and the age and general health of the individual.

TBI occurs through a variety of mechanism: motor vehicle crashes, falls, firearms. They are common in occupational injuries. The most severe type is known as Type 1.

There is a surprisingly large variation in hospital stays because of TBIs Type 1 between the participating countries. Austria, Hungary, Estonia, the Czech Republic and Germany present the highest rates.

Figure 2.

Rate per 100 000 population of eligible hospitalizations with fracture, Type 1 traumatic brain injuries



0-6 | 7-18 | 19-27 | +28

Excludes Greece.
Note that unlike for all other countries, Latvia's data are a sample

Long bone fracture hospitalization rates

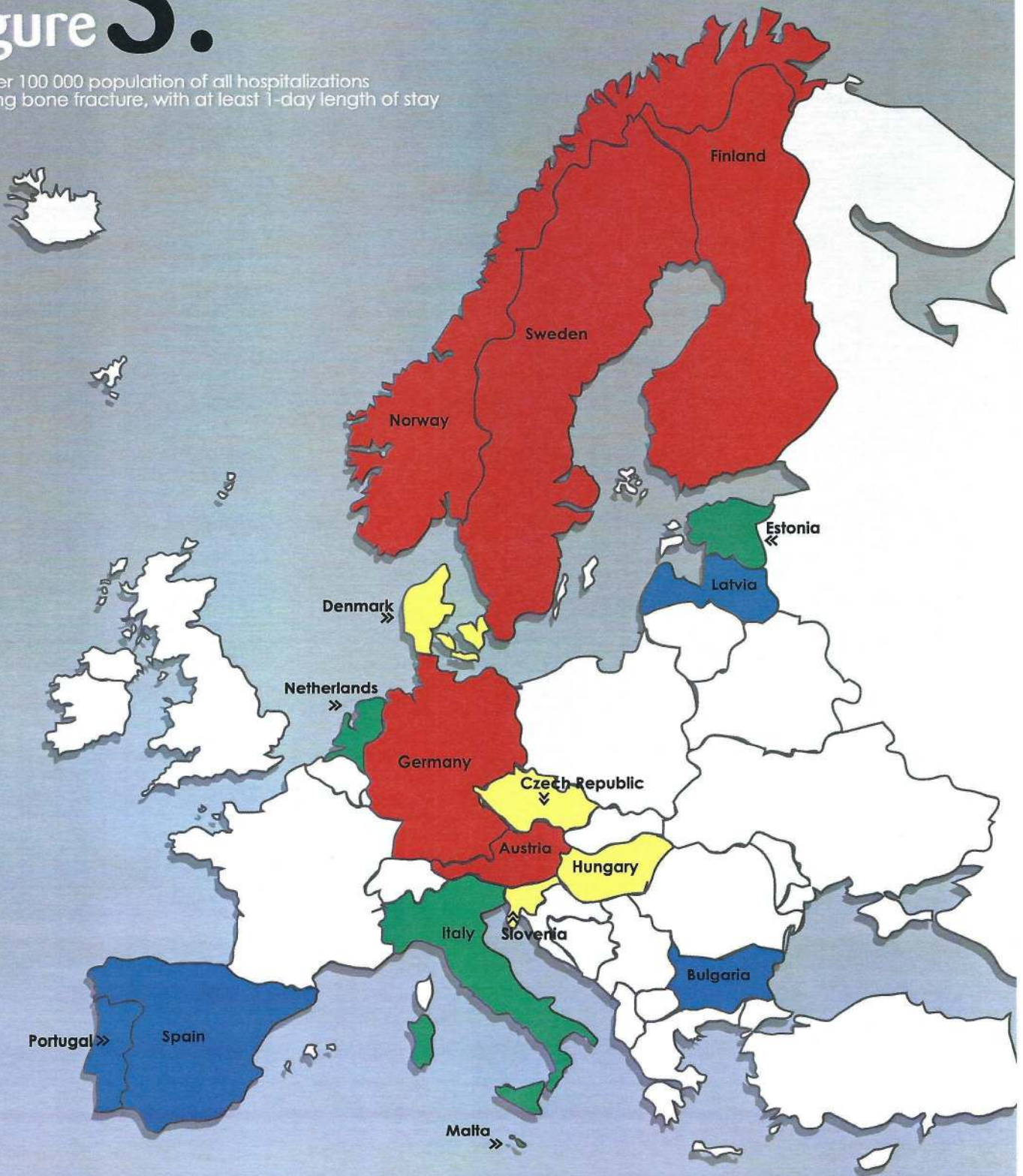
Long bones are the main bones of the arm (humerus, radius and ulna) and leg (femur, tibia and fibula). Fractures on combinations of these 12 "long bones" (left and right side) are, together with traumatic brain injuries, the most common injuries associated with a variety of mechanisms. These bones are long, cylindrical and hollow in the middle, and have a joint at each end and they can be fractured at any place along the course of the bone. Fractures can either be closed (skin intact) or open (wound of the skin).

These bones' fractures are rarely fatal and they can be treated with a cast, by attaching a device to the bone (plate or external fixator) or by inserting a rod inside of the bone (intramedullary nail). Yet, the long-term impairments derived from these injuries are very large.

Hospitalization rates due to these injuries are much larger than those related to TBI, and there is substantial variation between countries. Finland, Austria, Norway, Sweden and Germany present the largest such rates.

Figure 3.

Rate per 100 000 population of all hospitalizations with long bone fracture, with at least 1-day length of stay



0-178 | 179-306 | 307-358 | +359

Excludes Greece.
Note that unlike for all other countries, Latvia's are a sample

Hospitalizations with AIS

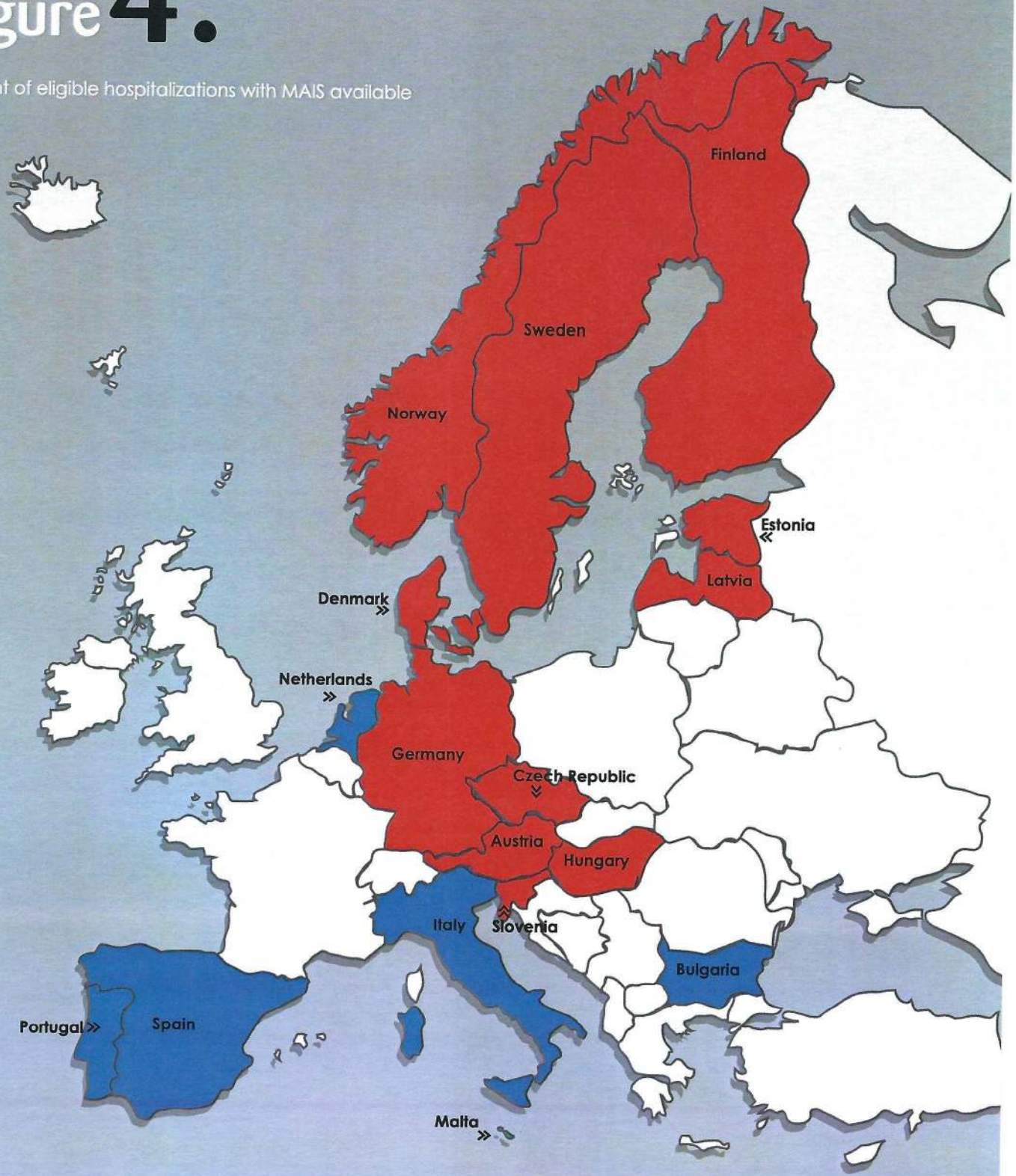
Injuries can be described in a number of ways (e.g., their localization), including an assessment of how likely they are to threaten the patients' life. For this assessment of their severity there exists a "gold standard" among injury prevention researchers– theAbbreviated Injury Scale (AIS). In this scale, each injury is ranked with a value between 1 and 6. The most severe code for any particular individual is known as the Maximum AIS, or MAIS.

Although the coding in AIS can be done directly from medical records, it is also possible to derive such information through transformations of other classification systems used in hospital discharge datasets. Whether the specificity of the codes provided in these administrative records is enough for the transformations to apply to a large percent of codes becomes a data quality indicator.

Out of all 17 participating countries with patient-level data, only Spain, Portugal, the Netherlands and Italy had some records for which this transformation was not possible. For every other country, the level of quality of data was such that an overall severity score per each discharged subject could be computed.

Figure 4.

Percent of eligible hospitalizations with MAIS available



*Note that unlike for all other countries, Latvia's data are a sample. Excludes Greece due to the aggregated nature of their data

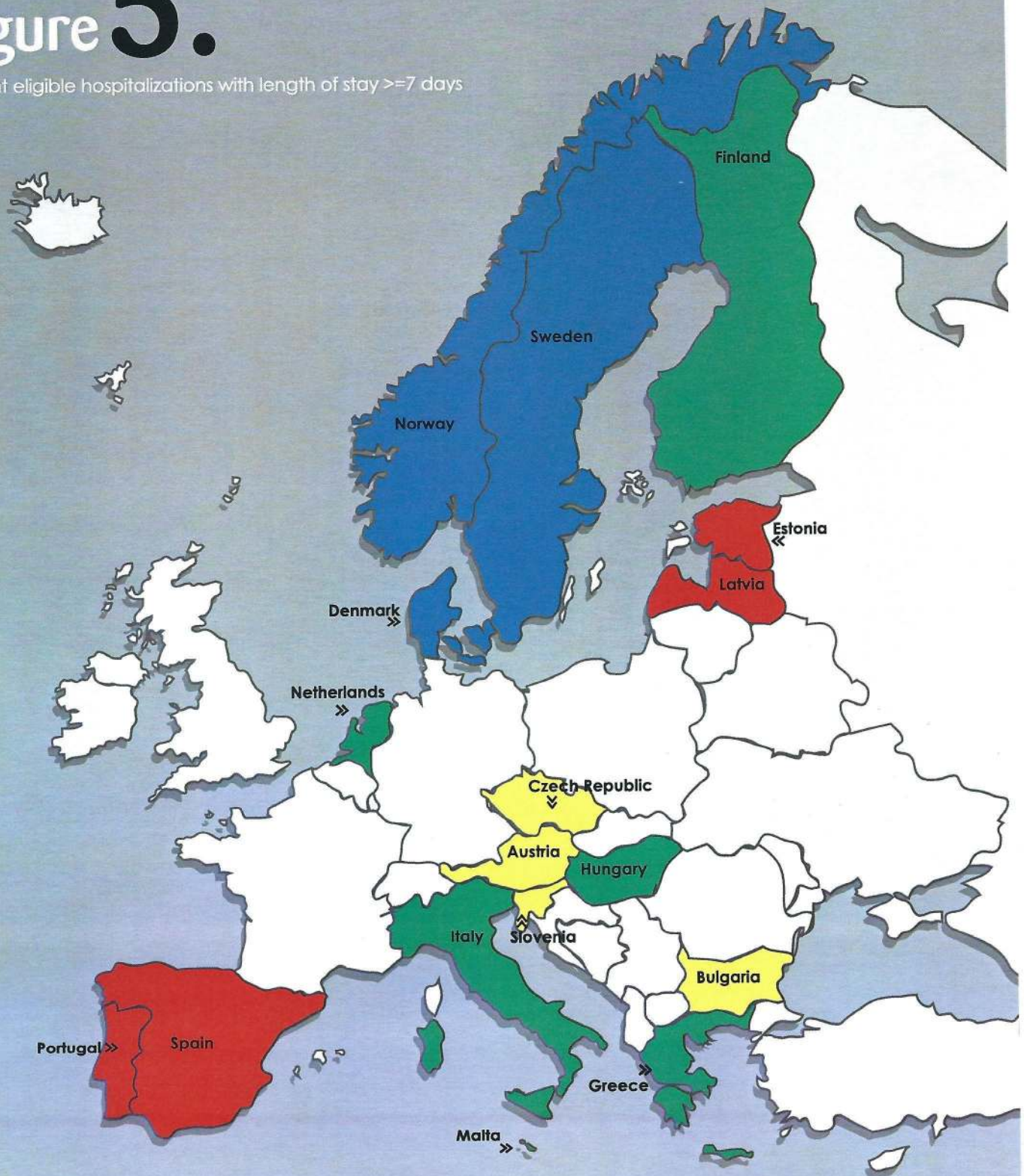
Hospital length of stay

The length of stay in the hospital is another indicator on how severily injured a person is. But it is also dependent on other factors like – for example - the payment system of the country. Because of the not uncommon circumstance of a few patients having extraordinarily long stays, a more robust assessment of this indicator relates to which percent of discharges need more than some particular length of time (e.g., 4 days, 7 days).

Our analyses of the percent of eligible discharges reaching 7 days or longer of hospital stay show some of the lesser variability between countries of all indicators presented in this Atlas. Countries with the largest percents of hospitals with such long stays include Spain, Portugal, Estonia, Lavia whereas Denmark, Norway and Sweden present the lowest such percentages.

Figure 5.

Percent eligible hospitalizations with length of stay >=7 days



0-25 | 26-31 | 32-33 | +34

Excludes Germany because no data on length of stay were provided. Note that unlike for all other countries, Latvia's data are a sample

Percent of injury discharges with mechanism of injury information

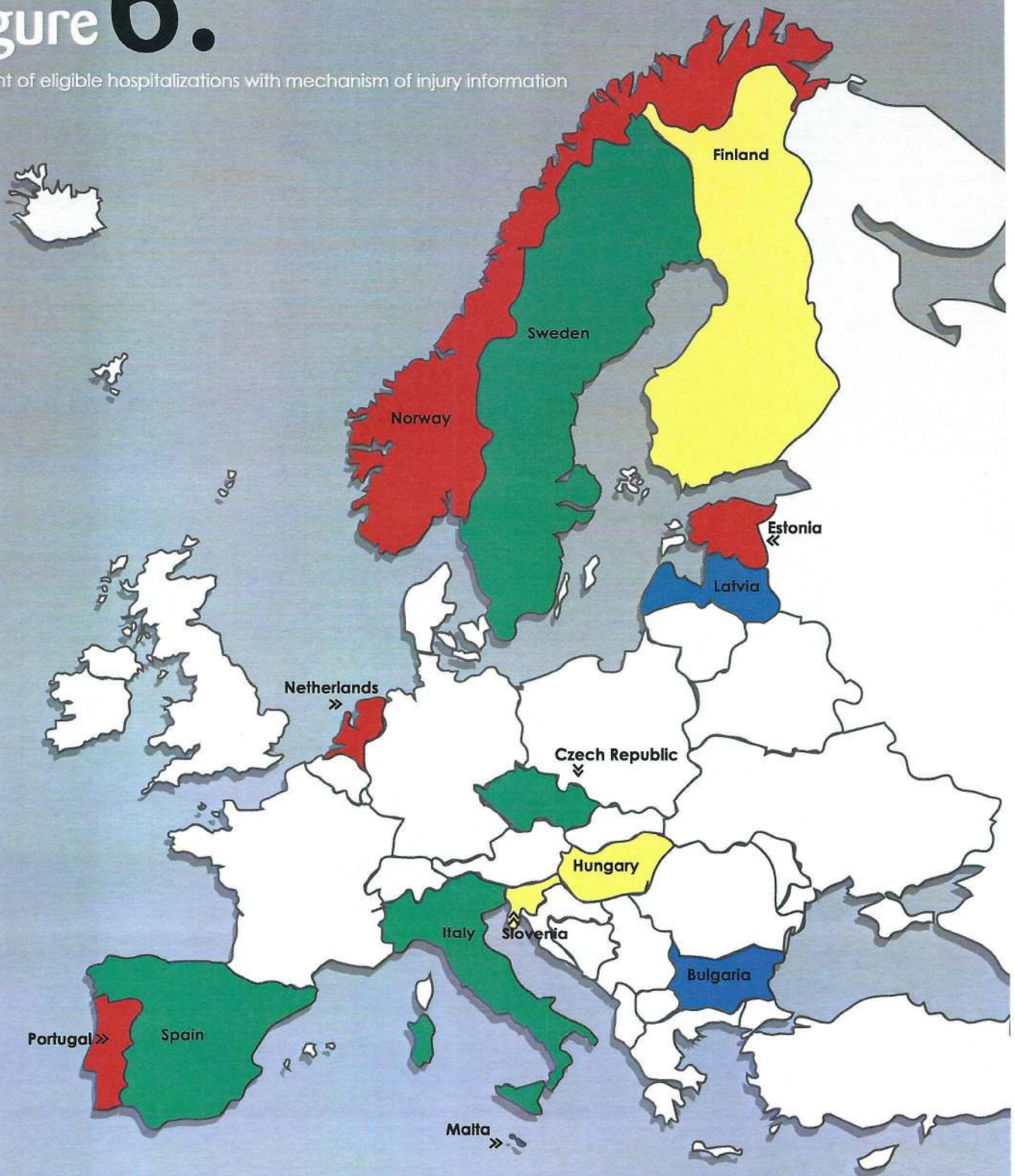
For effective prevention, it is not only necessary to know what type of injury somebody suffered but also to know how the injury came about. For this reason, the World Health Organization (WHO) requests that when injuries occur, the so-called external causes of injuries or injury mechanism information should also be collected.

Whether this is done routinely in hospital discharge data becomes an important quality of data assessment as any subsequent analysis of discharge rates by mechanism will depend on how many patients have this information available. The availability of these codes has previously been cited as a deterrent to use hospital discharge data for injury surveillance.

Yet, the findings show that the majority of countries are coding a substantial amount of their records, which allows for further analyses of these data by mechanism. Three of the participating countries (Austria, Denmark and Germany) code this information as well, but this was not available for this analysis because they use other coding systems. It is understood that in several countries, the number of records with mechanism of injury information is increasing.

Figure 6.

Percent of eligible hospitalizations with mechanism of injury information



0-46 | 47-84 | 85-94 | +95

Excludes Austria, Greece, Denmark and Germany since no mechanism of information was provided. Note that unlike for all other countries, Latvia's data are a sample

Motor vehicle hospitalization rates

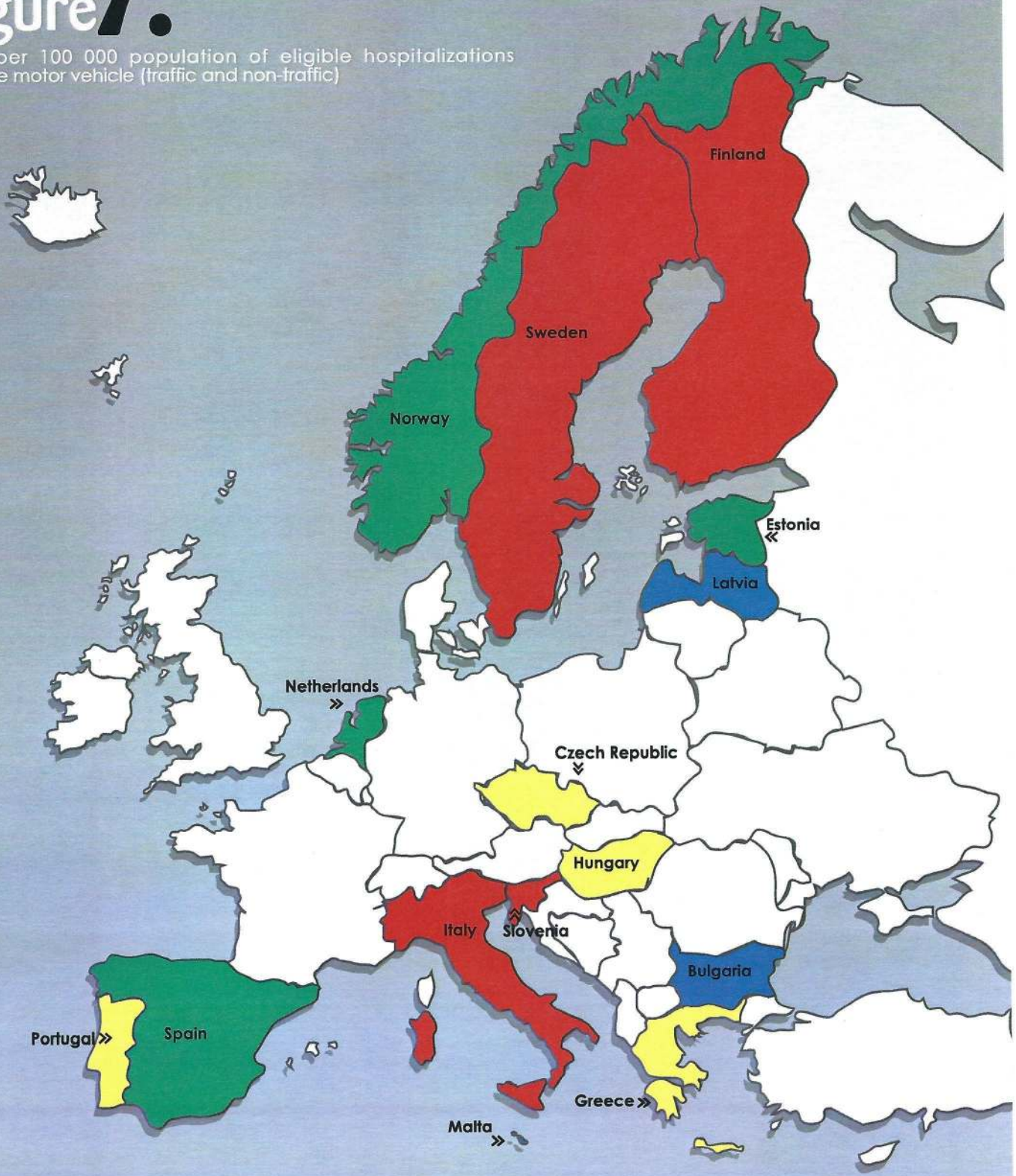
Road traffic injuries have been a major public health problem among European Union members for more than half a century. Even though significant decreases in fatalities have been achieved despite increasing numbers of vehicles and kilometers driven, the toll is still unacceptable.

From the records with mechanism of injury information, it can be seen that road traffic hospitalizations continue to be the leading mechanism of injuries requiring hospitalizations.

Even though direct comparisons of rates should only be done when mechanism information is complete, it is interesting to note that there is substantial variation even within the countries that already have complete coding.

Figure 7.

Rate per 100 000 population of eligible hospitalizations that are motor vehicle (traffic and non-traffic)



Excludes Austria, Denmark, Germany and Greece since no mechanism of injury information was available. Also note <85% percent of discharge records with mechanism information for Latvia, Malta, Bulgaria, Norway, Italy, Spain, Sweden and Czech Republic. Note that unlike for all other countries, Latvia's data are a sample

Poisoning hospitalization rates

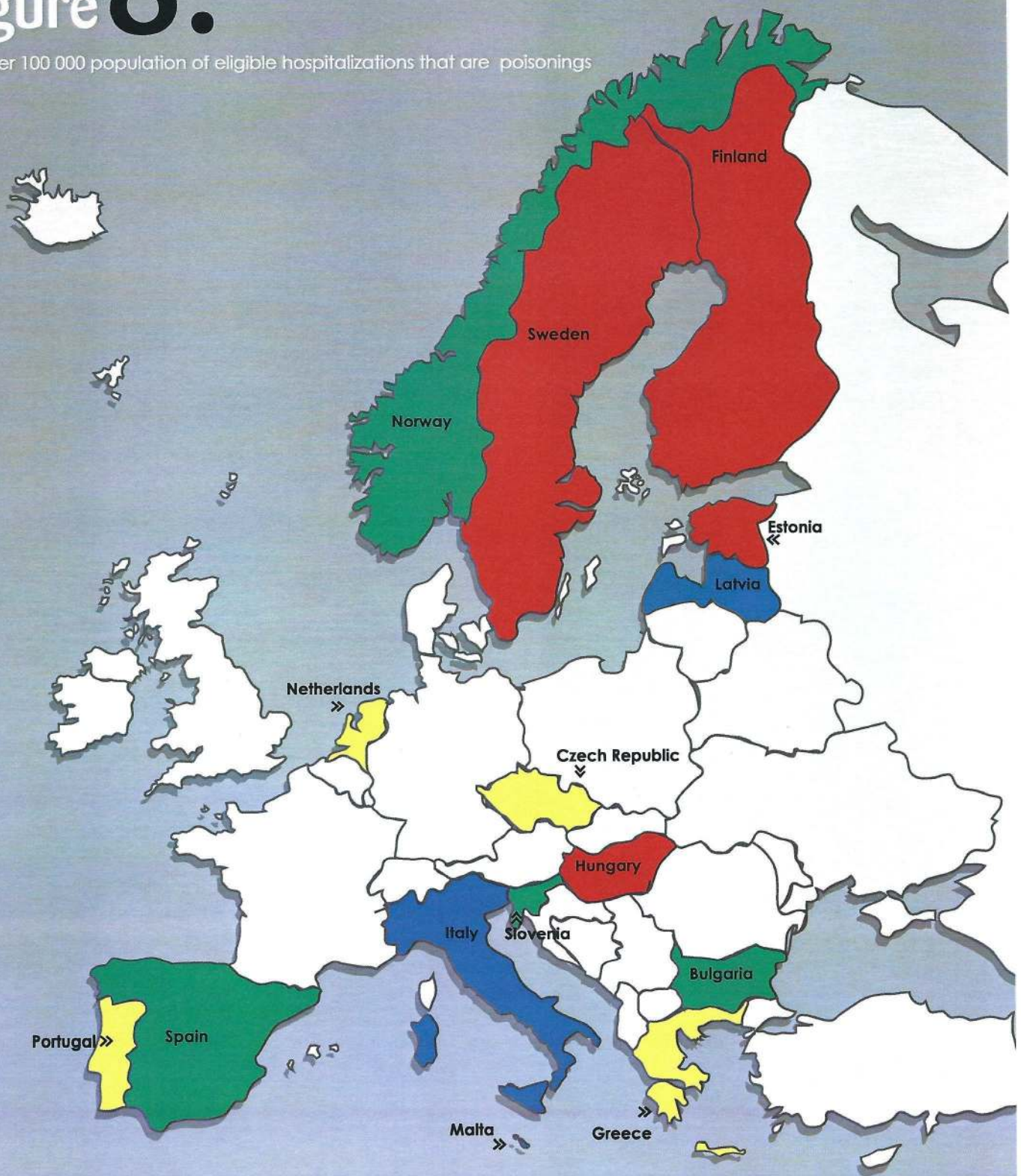
Poisoning is another leading mechanism of injuries. Poisoning cases occur in relation to poisonous chemicals, plants (e.g., mushrooms), animal bites and others, but also through common-life substances like alcohol and medication.

Even though direct comparisons of rates should only be done when mechanism information is complete, there is almost three-fold variation within countries while rates tend to be lower than for motor vehicle-related hospitalizations for each country.

Sweden, Finland, Estonia and Hungary are the countries with the highest hospitalization rates.

Figure 8.

Rate per 100 000 population of eligible hospitalizations that are poisonings



0-3 | 4-38 | 39-83 | +84

Excludes Austria, Greece, Denmark and Germany since no mechanism of injury information was available. Also note <85% percent of discharge records with mechanism information for Latvia, Malta, Bulgaria, Norway, Italy, Spain, Sweden and Czech Republic. Note that unlike for all other countries, Latvia's data are a sample

Suicide and suicide attempt hospitalization rates

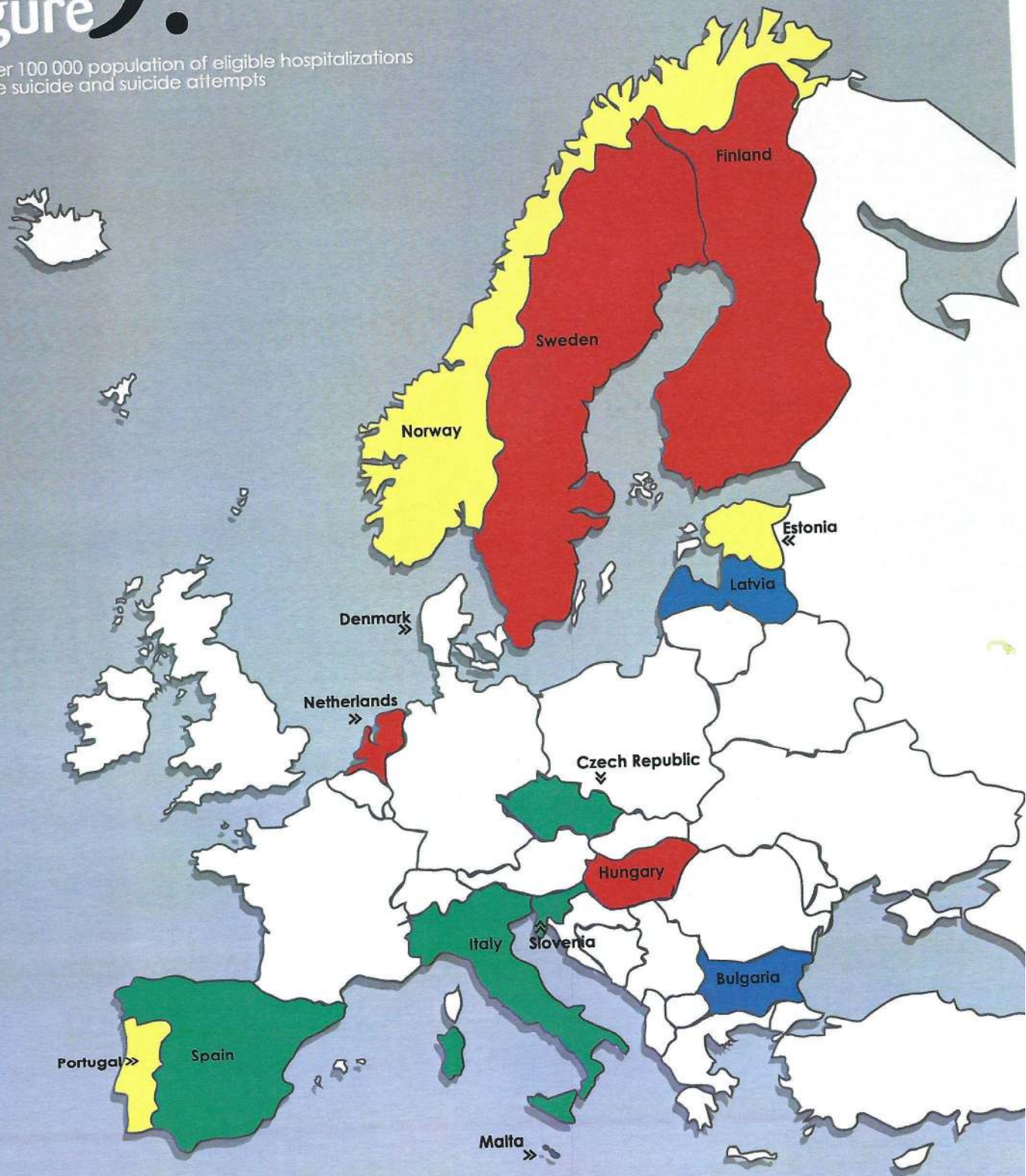
Suicide and suicide attempts are an important injury issue as they have become the leading cause of mechanism of death among European Union member states in recent years.

Even though direct comparisons of rates should only be done when mechanism information is complete, there is approximately a two-fold difference in rates between countries.

High values for suicide and suicide attempt hospitalization are found for Hungary, Sweden, Finland and the Netherlands.

Figure 9.

Rate per 100 000 population of eligible hospitalizations that are suicide and suicide attempts



0-7 | 8-25 | 26-53 | +54

Excludes Austria, Greece, Denmark and Germany since no mechanism of injury information was available. Also note <85% percent of discharge records with mechanism information for Latvia, Malta, Bulgaria, Norway, Italy, Spain, Sweden and Czech Republic. Note that unlike for all other countries, Latvia's data are a sample

Violence hospitalization rates

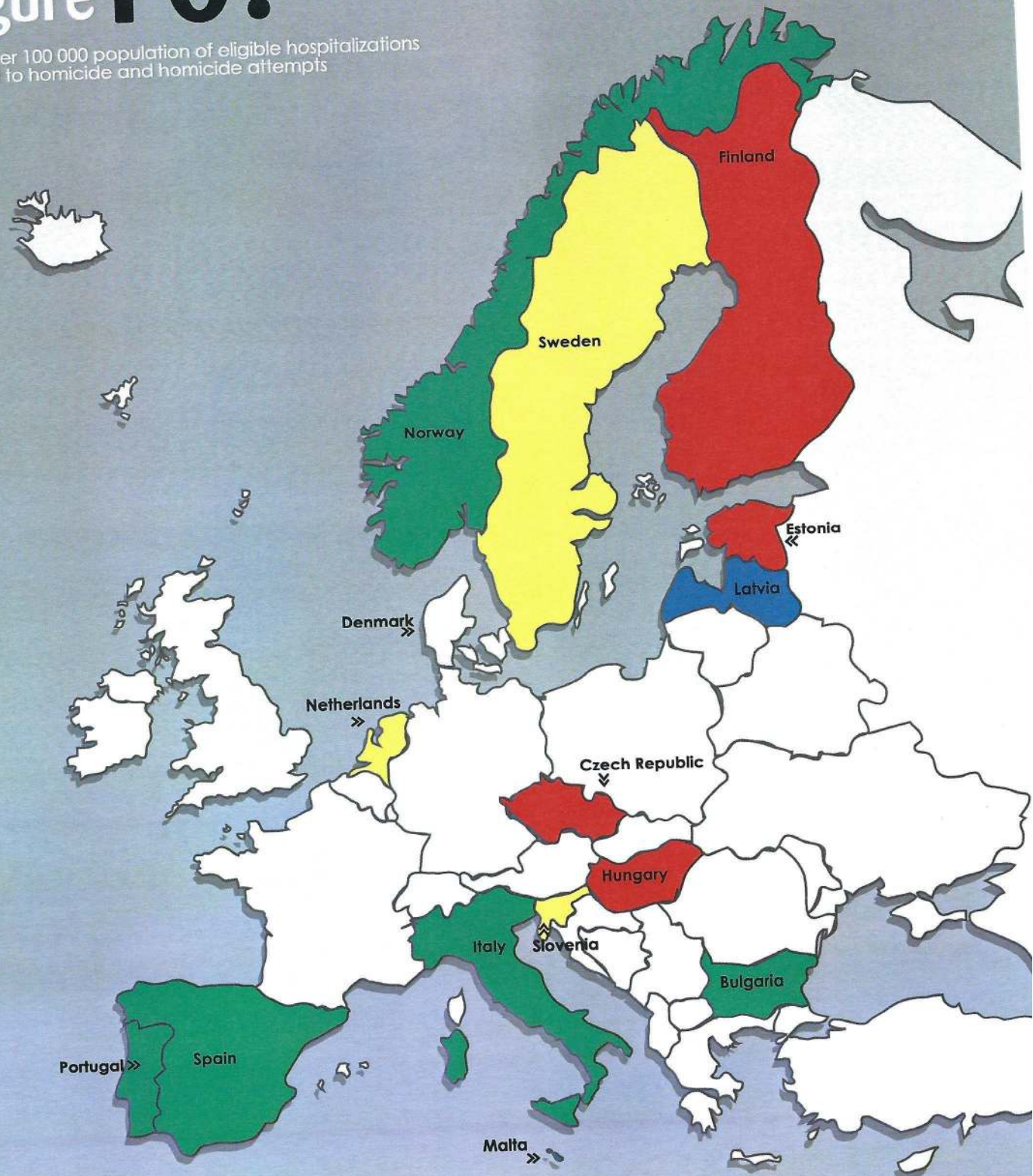
Interpersonal violence has many different facets. It includes violence against children and women (sexual and non-sexual) as well as youth violence and abuse of the elderly. Males are the vast majority both among perpetrators and victims. Interpersonal violence occurs frequently under influence of alcohol. It is strongly associated with socioeconomic conditions.

In this report, we present homicides and homicide attempts as one specific violence-related indicator.

Even though direct comparisons of rates should only be done when mechanism information is complete, here too there is variation between countries, with the highest rates being reported in Estonia, Czech Republic, Finland and Hungary.

Figure 10.

Rate per 100 000 population of eligible hospitalizations related to homicide and homicide attempts



0-4 5-15 16-32 +33

Excludes Austria, Greece, Denmark and Germany since no mechanism of injury information was available. Also note <85% percent of discharge records with mechanism information for Latvia, Malta, Bulgaria, Norway, Italy, Spain, Sweden and Czech Republic. Note that unlike for all other countries, Latvia's data are a sample.

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European Center for Injury Prevention, University of Navarra. 2007 Algorithm to calculate long-term disability weights by nature of injury, age and treatment category, using ICD-10 codes. V.1.0 STATA version.

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European Center for Injury Prevention, University of Navarra. 2007 Algorithm to calculate the Functional Capacity Index (version 2.0) using AIS-98. V.1.0 STATA version.

APPENDIX

Inclusion criteria

A discharge was to be included if it contained at least one "nature" of injury code within any of the first 3 diagnoses fields of the discharge record. In particular, in countries coding in ICD-9-CM this meant that regardless of whether there were any E codes, there had to be at least one code 800-999 or 380.12, 363.31, 370.24, 371.82, or 388.11. Whereas in countries coding in ICD-10, and regardless of whether there were any V, W, X, or Y codes, there had to be at least one code S00-T98 or F10 through F19 except F17 within the first 3 available diagnostic fields.

Participating countries' hospital discharges and population in 2004

	Population	Injury eligible HDD cases (eliminating readmissions)
Austria	10 364 388	267 173
Bulgaria	7 450 349	47 331
Czech Republic	10 241 138	148 481
Denmark	5 432 335	73 359
Estonia*	1 332 893	18 455
Finland	5 223 442	123 424
Germany	82 431 390	1 607 185
Greece	10 668 354	171 458
Hungary	10 006 835	150 250
Italy*	58 103 033	860 509
Latvia	2 290 237	6 981
Malta**	398 534	2 389
Netherlands	16 407 491	135 475
Norway	4 593 041	114 799
Portugal	10 566 212	85 905
Slovenia	2 011 070	32 381
Spain	40 341 462	340 192
Sweden	9 001 774	179 345
Total	276 195 624	4 365 092

*2003 data
**2005 data

Percentages and age- and gender-adjusted rates of injury-based indicators, selected countries, 2004

	Rate per 100 000 population of hospitalization for all injuries	Rate per 100 000 population of eligible hospitalizations with Fracture, Type 1 traumatic brain injuries	Rate per 100 000 population of all hospitalizations with long bone fracture, with at least 1-day lenght of stay	Percent of eligible hospitalizations with MAIS available	Percent eligible hospitalizations with length of stay >=7 days
Austria	2815	51	474	100%	33%
Bulgaria	590	4	131	78%	32%
Czech Republic	1242	28	317	100%	33%
Denmark	1104	6	342	100%	20%
Estonia*	1171	31	278	100%	43%
Finland	1764	19	527	100%	27%
Germany	1720	30	430	100%	NA
Greece	NA	NA	NA	NA	26%
Hungary	1248	38	331	100%	26%
Italy*	1154	7	267	77%	31%
Latvia	129	3	25	100%	34%
Malta**	637	7	197	100%	26%
Netherlands	633	4	179	70%	30%
Norway	1430	26	433	100%	23%
Portugal	555	12	151	66%	45%
Slovenia	1368	23	307	100%	33%
Spain	485	8	153	63%	50%
Sweden	1111	26	359	100%	24%

Latvia–sample
*2003 data
**2005 data
NA Not applicable

Percentages and age- and gender-adjusted rates of injury-based indicators, selected countries, 2004

	Percent of eligible hospitalizations with mechanism of injury information	Rate per 100 000 population of eligible hospitalizations that are motor vehicle (traffic and non-traffic)	Rate per 100 000 population of eligible hospitalizations that are poisonings	Rate per 100 000 population of eligible hospitalizations that are suicide and suicide attempts	Rate per 100 000 population of eligible hospitalizations related to homicide and homicide attempts
Austria	NA	--	--	--	--
Bulgaria	14%	11	8	2	6
Czech Republic	83%	119	54	24	33
Denmark*	NA	--	--	--	--
Estonia***	95%	50	95	47	106
Finland	86%	139	84	63	38
Germany*	NA	--	--	--	--
Greece	NA	NA	62	NA	NA
Hungary	90%	119	125	88	47
Italy***	47%	120	0	10	8
Latvia	5%	4	<1	1	3
Malta****	11%	6	1	0	2
Netherlands	100%	70	66	54	16
Norway**	17%	57	4	37	5
Portugal	99%	101	40	28	15
Slovenia	88%	216	37	23	22
Spain	47%	45	16	8	5
Sweden	75%	141	110	91	30

*No mechanism of injury data on dataset –although available in origin
** Mechanism of injury codes are recorded in ICECI. Data were transformed into their E or VXYZ equivalent codes
Latvia –sample
***2003 data
****2005 data
NA Not applicable

Operational Definitions of indicators

Percent of eligible HDD with mechanism of injury information		
Self explanatory	(fN_E/fN)x100	fN_E: Total eligible HDD with mechanism of injury information fN: How many HDD meet inclusion criteria and are likely not readmissions
Rate per 100,000 population of hospitalization for all injuries		
ICD-10: S00.0-T98.3, but excluding T36.0 - T39.9, T41.0 - T50.9, T80 - T88 ICD-9: N-Codes 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, 995.80-995.85	(Nc_1 if fN/Population)x100000	Nc_1 if fN : Number of eligible HDD that meet criteria as hospitalization for all injuries
Rate of eligible HDD with Fracture, Type 1 TBI injuries		
ICD-10: S02.0-S02.1, S02.3-S02.3, S02.7-S02.9, T90.2 ICD-9: 800.03-800.05, 800.1-800.4, 800.53-800.55, 800.6-800.9, 801.03-801.05, 801.1-801.4, 801.53-801.55, 801.6-801.9, 803.03-803.05, 803.1-803.4, 803.53-803.55, 803.6-803.9, 804.03-804.05, 804.1--804.4, 804.53-804.55, 804.6-804.9	(A1 if fN/Population)x100000	A1 if fN: (percent of eligible HDD with) Fracture, Type 1 TBI
Rate of all discharges with long bone fracture, with at least 1 day long of stay		
ICD-10: S42.2-S42.4,S52, S72, S82.1-S82.2, S82.4-S82.7 ICD-9: 812, 812.0-812.5, 813, 813.0-813.9, 820, 823	(FLB_169 if fN/Population)x100000	FLB_169 if fN: Hospital admissions with first diagnoses being long bone fracture requiring hospital admission Proposed by Polinder, McCluer
Percent of eligible HDD with MAIS not available		
Self explanatory	(MAISmissing/fN)x100	MAISmissing: Number of eligible discharges with MAIS not available
Rate of eligible HDD that are motor vehicle (Traffic and non-traffic)		
ICD-10: V30-V39, V40-V49, V50-V59, V60-V69, V70-V79, V81.1, V82.1, V83-V86, V20-V28, V29, V12-V14, V19, V02-V04, V09.2, V80, V89.2 ICD-9: E-Codes 810-825 (traffic and non-traffic)	(Ec_24 if fN/Population)x100000	Ec_24 if fN: Number of eligible HDD that are motor vehicle (Traffic and non-traffic)
Rate of eligible HDD that are poisonings		
ICD-10: X40-X49, X60-X69, X85-X90, Y10-Y19, Y35.2 ICD-9: E-Codes 850-869, 950-952, 962, 972, 980-982	(Ec_33 if fN/Population)x100000	Ec_33 if fN: Number of eligible HDD that are poisonings
Rate of eligible HDD that are suicide and suicide attempts		
ICD-10: X60-X84, Y87.0 ICD-9: E-Codes 950-959	(Ec_48 if fN/Population)x100000	Ec_48 if fN: Number of eligible HDD that are suicide and suicide attempts
Rate of eligible HDD related to all injury, Homicide		
ICD-10: X85-Y09, Y87.1 ICD-9: E960-E969	(MEC_4 if fN/Population)x100000	MEC_4 if fN: Number of eligible HDD related to all injury, Homicide
Percent eligible HDD with length of stay < 7 days		
Excludes unknown length of stay	(LOS7-/fNlos)x100	LOS7-: Number of eligible HDD with length of stay < 7 days fNlos: Known duration of hospital stay

Injury-related Hospitalizations in Europe 2004

ECIP