

IR T A D

SPECIAL REPORT

DEFINITIONS AND DATA AVAILABILITY

- **COMPILATION AND EVALUATION OF
A-LEVEL ROADS AND HOSPITALISED
VICTIMS IN OECD COUNTRIES**
- **ACCIDENT AND INJURY DEFINITIONS**

**OECD - RTR
Road Transport
Research Programme**

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FOREWORD

This document is part of a series of special reports concerning road traffic and accident data. These special reports are one result of the international co-operation in the OECD Road Transport Research Programme with respect to the International Road Traffic and Accident Database (IRTAD). IRTAD has already become an indispensable tool for comparative analysis of road safety developments in different countries. It is the only international database that explicitly looks at historical consistency and international comparability of data on roads, traffic and accidents. Even if national definitions differ, comparability is sometimes induced by internationally agreed correction factors. Thus, this first special report of IRTAD deals with the availability of comparable data on an enlarged set of roads and accidents. It contains up-to-date information on national definitions and comparability.

Since IRTAD also contains annual data on age classes of the population, kilometrage and number of registered vehicles for different countries, the database is a valuable source for general and specific risk comparisons between countries. Online or remote queries to the database by national users is the main IRTAD service, but the Operational Committee of IRTAD also produces special reports on other topics related to IRTAD and comparative road safety and traffic developments.

International harmonisation of definitions is difficult to achieve. Joint action, which is also nationally beneficial, is needed. The OECD Road Transport Research Programme and IRTAD activities are an environment for such joint action. The Steering Committee of the OECD/RTR acknowledges for the work done by the members of the IRTAD Operational Committee. The different Special Reports produced by members of the IRTAD Operational Committee are a valuable source of information.

M.J. Koornstra
President of the IRTAD Management Bureau
on behalf of the OECD/RTR Steering Committee

PREFACE

In 1992 the first IRTAD Special Report was published. It dealt with compilation and availability of the variables "A-level roads" and "Hospitalised" which were introduced at that time. In addition, it summarised OECD country responses to a survey on national definitions of accident and injury.

In view of the growing need for reliable international comparisons of road safety, the members of the IRTAD Operational Committee Meeting decided, five years later, to update this survey in order to take account of the changes in definition.

The current review includes more countries and also describes also the main problems involved in making international comparisons of injured road users. The aim was not only to give an overview but also to show how the IRTAD user group is trying to improve the situation.

As the report should not duplicate the work commissioned by the EU within the framework of CARE PLUS, the survey, as well as its evaluation, focuses on the basic criteria of the definitions. The report calls for international efforts to standardise definitions in order to base international comparisons on better statistical information.

The report has been surveyed and updated by Ms. Berns and Dr. Brühning (BASt).

Sven Krarup Nielsen
Chairman of the IRTAD Operational Committee

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A. A-LEVEL ROADS

Background

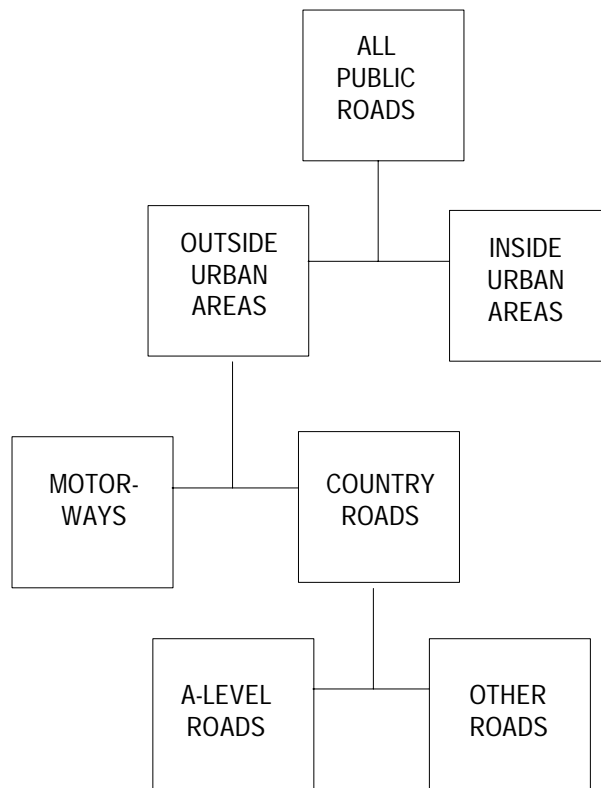
In summer 1990 it was decided to extend IRTAD by a further subdivision of the road network outside urban areas. This new category has been defined as follows: A-level roads are roads outside urban areas that are not motorways but belong to the top-level road network.

In order to determine the national denominations for this category and to allocate the corresponding road type, a more detailed description was agreed: "A-level roads are characterised by a comparatively high quality standard, either non-divided roads with oncoming traffic or similar to motorways. In most countries, these roads are financed by the federal or national governments. In most European countries, about one-third of all fatalities occurs on A-level roads."

In order to examine the nature of traffic accidents on A-level roads, the tabulated overview gives some percentages of overall network for the year 1996. For example, A-level roads account for 21 per cent of all fatalities in France up to 47 per cent in Finland. Accidents on A-level roads tend to have greater severity, as only 7 per cent (France) to 21 per cent (Portugal) of all injury accidents occur on such roads. The figures provide evidence of the importance of this road class for traffic safety.

In IRTAD A-level road data is being compiled for the years 1970, 1980, 1985 and 1989 onwards.

The **break-down of road locations** according to the IRTAD definitions is illustrated by the following diagram:



TOTAL = OUTSIDE URBAN AREAS + INSIDE URBAN AREAS
 OUTSIDE URBAN AREAS = MOTORWAYS + COUNTRY ROADS
 COUNTRY ROADS = A-LEVEL ROADS OUTSIDE URBAN AREAS
 + OTHER ROADS OUTSIDE URBAN AREAS
 INSIDE URBAN AREAS: excl. all MOTORWAYS
 OUTSIDE URBAN AREAS: incl. all MOTORWAYS
 A-LEVEL ROADS: roads OUTSIDE URBAN AREAS that are not MOTORWAYS
 but belong to the top-level road network

The following section presents the agreed replies from each responding country (see Appendices I and II), and shows details of data availability.

A-Level Road Data Availability

| | |
|--|--------------------|
| | Data not available |
| | Data available |

Percentages (%) of overall road network/ Accidents per 1 million veh-km/ Death rate per 1 billion veh-km for 1996 or latest year available

| | AUSTRALIA | AUSTRIA | BELGIUM | CANADA | CZECH REPUBLIC | DENMARK | FINLAND | FRANCE | GERMANY |
|------------------|-----------|---|-------------------------|---|--|-----------------------------------|---|--|-----------------------|
| Denomination | | <i>Bundesstrassen incl. Schnellstrassen</i> | <i>Routes de l'Etat</i> | Federal and municipal plus provincial paved roads | State roads class I incl. semi-motorways | State roads incl. semi-motorways* | Main roads classes I+II, incl. semi-motorways | Routes nationales incl. Routes express | <i>Bundesstrassen</i> |
| INJURY ACCIDENTS | | 18% | | | 12% | 12% 0.14 | 19% 0.10 | 7% 0.12 | 11% 0.37 |
| FATALITIES | | 38% | 44% 22 | | 26% | 26% 22 | 47% 14 | 21% 23 | 26% 22 |
| KILOMETRAGE | | | 36% | | | 17% | 32% | 16% | 18% |
| NETWORK LENGTH | | | 8% | | 6% | 5% | | 2% | |

* From 1998 onwards change in Danish state road authorities: extended to country roads in the major route network and E-routes, but covering a smaller part of the network.

A-Level Road Data Availability

| | |
|--|--------------------|
| | Data not available |
| | Data available |

Percentages (%) of overall road network/ Accidents per 1 million veh-km/ Death rate per 1 billion veh-km for 1996 or latest year available

| | GREAT BRITAIN | GREECE | HUNGARY | ITALY | ICELAND | IRELAND | JAPAN | KOREA | LUXEMBOURG |
|------------------|---------------|----------------|--|-----------------------|---------|--------------------------------------|-------|-------|------------|
| Denomination | A-Roads | National roads | Motor roads (semi-motorways) and main category roads outside urban areas | <i>Strade statali</i> | | National primary and secondary roads | | | |
| INJURY ACCIDENTS | 15% 0.27 | | 16% 0.28 | 10% | | 17% 0.13 | | | |
| FATALITIES | 37% 11 | 40% | 32% 43 | 25% | | 32% 13 | | | |
| KILOMETRAGE | 28% | | | | | 33% | | | |
| NETWORK LENGTH | 9% | 9% | 5% | | | 5% | | | |

A-Level Road Data Availability

| | |
|--|--------------------|
| | Data not available |
| | Data available |

Percentages (%) of overall road network/ Accidents per 1 million veh-km/ Death rate per 1 billion veh-km for 1996 or latest year available

| | NETHERLANDS | NEW ZEALAND | NORWAY | POLAND | PORTUGAL | SPAIN | SWEDEN | SWITZERLAND | UNITED KINGDOM | UNITED STATES |
|------------------|---------------------------------------|----------------------|--------|----------------|---------------------------|---|--------|---|----------------|-------------------------|
| Denomination | <i>Provinciale wegen and N-routes</i> | Rural state highways | | National roads | <i>Estradas nacionais</i> | <i>Carreteras nacionales and autovias</i> | | <i>Hauptstrassen incl. Autostrassen</i> | A-Roads | Non-Interstate Arteries |
| INJURY ACCIDENTS | | 21% | | | 21% | | | 18% | | 10% 0.41 |
| FATALITIES | 31% | 43% | | | 37% | | | 34% | | 22% 16 |
| KILOMETRAGE | | | | | | | | | 28% | 15% |
| NETWORK LENGTH | 6% | | | | | | | | 9% | 6% |

B: NATIONAL ACCIDENT AND INJURY DEFINITIONS

Background

"In road traffic, so many accidents occur that statistics about accidents are the most significant source of information for policy development and decisions.

- Statistical information is needed to identify where and how accidents occur, which type of road users are most vulnerable (motorcyclists, cyclists, young drivers etc.), conditions under which accidents occur (adverse weather conditions, darkness, fatigue, alcohol consumption of road users, etc.).
- Reliable data are also needed to assess and evaluate (specific) policy, countermeasures, legislation.
- In order to make international comparisons, a similar level of registration of accidents is needed, as well as the use of the same definitions (died within 30 days, serious injury means hospitalisation etc.)."¹

ACCIDENTS

The definitions of "traffic accident" and "injury accident" vary in some countries. As far as the traffic accident definition is concerned the UN/ECE² gives a basic definition comprising the main criteria applied in the national definitions. The ECE definition, however, makes a distinction between fatal and non-fatal accidents, whereas most countries define injury accidents as both fatal and non-fatal.

In IRTAD data is compiled only for accidents involving bodily injury. However, international comparability of these data is very limited as they are based on widely differing national injury definitions. A further complicating factor is the different level of under-reporting depending on the accident type and national characteristics (see section "Injured").

The following section presents the agreed summaries of the detailed replies from each responding country (see Appendices I and II), and shows details of data definitions.

¹ "Reliability of Road Traffic Accidents Data", NTSB Home Page, 1998

² *Statistics of Road Traffic Accidents in Europe and North America*, Annex I, United Nations, Economic Commission for Europe, Geneva, 1995

Country Response: Traffic Accidents

| | |
|----------------|--|
| Australia | No definition available. |
| Austria | An accident occurring on public roads where at least one moving vehicle is involved and which is reported to the police. Material damage only accidents are not registered by the authorities since 1995. |
| Belgium | Accidents that occurred on a public road, which are reported to the police and which lead to casualties. Accidents involving material damage only have not been included in the accident statistics since 1973. |
| Canada | A traffic collision which occurs on a public roadway that involves at least one motorised vehicle and results in death or injury to at least one involved person, or property damage exceeding a monetary amount (specified by law in each province or territory). |
| Czech Republic | The traffic accident is an event in a road traffic (crash, collision etc.), which involves human injury or death and/or which results in material damage and which is in direct connection with vehicle operation. |
| Denmark | Accidents which originated on a road or square open to public traffic; which resulted in one or more persons being killed or injured or material damage only, and in which at least one moving vehicle was involved. These accidents therefore include collisions between vehicles and pedestrians and between vehicles and animals or fixed obstacles. |
| Finland | Accident which occurred or originated on a way or street open to public traffic; which resulted in one or more persons being killed or injured, in which at least one moving vehicle was involved. These accidents therefore include collisions between vehicles, between vehicles and pedestrians, and between vehicles and animals or fixed obstacles (ECE). |
| France | Data on accidents leading to material damage only are not compiled. Therefore, there is no official definition. |
| Germany | Accidents occurring on public roads or squares involving at least one moving vehicle and resulting in human injury or death and/or in material damage. Accidents involving material damage only are registered if the cause of accident is an offence such as driving while under the influence of alcohol. |
| Great Britain | Accidents on public roads involving at least one vehicle and resulting in human injury or death. Damage-only accidents are not compiled. |
| Greece | Accidents occurring on public roads or squares open to public traffic, which resulted in one or more persons being killed or injured and in which at least one moving vehicle was involved. Material damage only accidents are not included. |
| Hungary | Any unexpected, unintentionally caused traffic event which results in fatality or personal injury or some material damage. |
| Ireland | Collision involving one or more vehicles, on a public road, reported to the police and where personal injury or material damage occurred and where the exact location of the accident can be determined. |
| Italy | The traffic accident is an event where at least one circulating vehicle is involved and where the persons involved are injured or killed. |
| Japan | An accident resulting in death and/or injury which is caused by the traffic of vehicles or street car running on a road. |
| Korea | Accidents accompanied with by loss of life occurring on account of road traffic. (Traffic accident accompanied by the loss of property until 1983). |

| | |
|---------------|---|
| Luxembourg | Collision between one vehicle and one or more other vehicles or between one vehicle and a person or any obstacle (tree, column, etc.). |
| Netherlands | Accident on a public road involving at least one moving vehicle and resulting in at least one injured person. |
| New Zealand | Any accident involving a motor vehicle that occurs on a public road (and is reported to the Land Transport Safety Authority). |
| Norway | Accident on public or private road, street or square open to general traffic, involving at least one moving vehicle and resulting in human injury or death and / or in material damage. |
| Poland | Accident which is reported to the police, occurred on a public road or which has its origins on a public road and involves at least one moving vehicle and resulted in one or more persons being killed or injured or material damage only. |
| Portugal | Any accident that a) occurred on a public road or has its origins on a public road ; b) involves one or more injured or killed road users or material damage and ; c) in which at least one moving vehicle was involved. |
| Spain | Accident on a public road involving at least one moving vehicle and resulting in at least one injured person. Damage-only accidents are not compiled. |
| Sweden | Accident occurring on a road in which at least one moving vehicle is involved leading to material damage or personal injury. |
| Switzerland | Accident occurring on a public road or square causing injury or death to road users or material damage. |
| United States | An event that produces injury and/or damage, involves a motor vehicle in transport, and occurs on a trafficway or while the vehicle is still in motion after running off the trafficway. "Within the U.S. DOT/NHTSA the word "accident" will no longer be used ... Continuous use of the word "accident" promotes the concept that these events are outside of human influence or control. ... "Crash", "collision", "incident"... are more appropriate terms and should be encouraged as substitute for the word "accident". ³ |
| UN/ECE | Accidents which occurred or originated on a way or street open to public traffic; which resulted in one or more persons being killed or injured and in which at least one moving vehicle was involved. These accidents therefore include collisions between vehicles, between vehicles and pedestrians, and between vehicles and animals or fixed obstacles. Single vehicle accidents, in which one vehicle alone (and no other road user) was involved, are included. |

³ "Crashes aren't accidents", Campaign, NHTSA Home Page, 1997

Country Response: Injury Accidents

| | |
|----------------|--|
| IRTAD | No definition: Data of fatal and non-fatal injury accidents are compiled as provided by the individual countries. |
| Australia | Non-fatal road vehicle crash on a public road in which at least one person was injured as a result of the crash (involving at least one vehicle that must be moving). |
| Austria | Accident occurring on public roads where at least one moving vehicle is involved leading to injuries, fatalities or other kinds of deterioration of health. |
| Belgium | Accident occurring on a public road recorded by the police and leading to one or more persons being injured (involving at least one moving vehicle). |
| Canada | A traffic collision which occurs on a public roadway that involves at least one motorised vehicle and results in non-fatal injuries to one or more involved persons. |
| Czech Republic | Accidents with personal injury in which persons were killed or injured (involving at least one moving vehicle). |
| Denmark | Accidents with personal injury in which persons were killed or injured irrespective of the amount of the material damage. |
| Finland | Accident with one or more persons killed or injured. |
| France | Accident occurring on a public road directly involving at least one vehicle and causing death (including those persons that die within 6 days as a result of the accident) of one or more victims or leading to slight or serious injuries of one or more persons involved. |
| Germany | Accidents with personal injury involving at least one moving vehicle and in which persons were killed or injured irrespective of the amount of the material damage. |
| Great Britain | Accidents on public roads involving at least one vehicle and resulting in human injury or death. |
| Greece | Traffic accident causing injuries to one or several of the road users involved. |
| Hungary | Any traffic event is considered a road traffic accident with personal injury if it occurs on the road or originates from a road open to public traffic and involves at least one moving vehicle or a draft animal and results in the death or injury of at least one person. |
| Ireland | Where there are no deaths but a person or persons are injured. |
| Italy | An event where at least one circulating vehicle is involved and results in the injury of a person or persons. |
| Japan | An accident resulting in death and/or injury which is caused by the traffic of vehicles or street car running on a road. |
| Korea | A traffic accident in which one or more persons is killed or injured by a vehicle in motion on a road. |
| Luxembourg | Traffic accident where one or more persons was injured. |
| Netherlands | Traffic accident in which at least one person involved was injured (judged by the police officer). |
| New Zealand | Traffic accident involving at least one person receiving minor, serious or fatal injury. |
| Norway | Accident on public or private road, street or square open to general traffic, involving at least one moving vehicle and resulting in human injury or death. |

| | |
|---------------|--|
| Poland | Accident occurring on a public road or which has its origin on a public road, recorded by the police and involving at least one moving vehicle and leading to personal injury. |
| Portugal | Any collision involving at least one vehicle and occurring on a public road and leading to at least one victim. |
| Spain | Accident on a public road involving at least one moving vehicle and resulting in at least one injured person. |
| Sweden | An event which has occurred on a road where at least one moving vehicle has been involved leading to personal injury. |
| Switzerland | Accidents occurring on public roads and squares leading to personal injuries or fatalities. |
| United States | A traffic accident that results in at least one person receiving an injury as reported by the police as killed, incapacitating, non-incapacitating, but evident, possible injury, or other injury, severity unknown. |
| UN/ECE | Non-fatal accidents involving bodily injury. Any accident in which no person was killed but in which one or more persons were seriously or slightly injured. |

Common Definition Characteristics For Injury Accidents

Not applied
 Applied

| | Australia | Austria | Belgium | Canada | Czech Republic | Denmark | Finland | France | Germany |
|---|-----------|---------|---------|-----------|----------------|---------|---------|--------|---------|
| INVOLVING AT LEAST ONE VEHICLE | moving | moving | moving | motorised | moving | moving | moving | | moving |
| NON-FATAL INJURY TO ONE OR MORE PERSONS INVOLVED | | | | | | | | | |
| (FATAL OR NON-FATAL) INJURY TO ONE OR MORE PERSONS INVOLVED | | | | | | | | | |

| | Great Britain | Greece | Hungary | Italy | Iceland | Ireland | Japan | Korea | Luxembourg |
|---|---------------|--------|---------|-------------|---------|---------|---------|-----------|------------|
| INVOLVING AT LEAST ONE VEHICLE | | moving | moving | circulating | | | running | in motion | |
| NON-FATAL INJURY TO ONE OR MORE PERSONS INVOLVED | | | | | | | | | |
| (FATAL OR NON-FATAL) INJURY TO ONE OR MORE PERSONS INVOLVED | | | | | | | | | |

Common Definition Characteristics For Injury Accidents

Not applied
 Applied

| | Netherlands | New Zealand | Norway | Poland | Portugal | Spain | Sweden | Switzerland | United States | IRTAD | ECE |
|---|-------------|-------------|--------|--------|----------|--------|--------|-------------|-------------------------|-------|--------|
| INVOLVING AT LEAST ONE VEHICLE | moving | | moving | moving | moving | moving | moving | | motor vehicle in motion | | moving |
| NON-FATAL INJURY TO ONE OR MORE PERSONS INVOLVED | | | | | | | | | | | |
| (FATAL OR NON-FATAL) INJURY TO ONE OR MORE PERSONS INVOLVED | | | | | | | | | | | |

INJURIES

Background

Fatal Injury

Today the only reliable category for international comparisons of injuries is fatal injury, as most of the countries use the standard definition given by UN/ECE⁴: "Any person who was killed outright or who died within 30 days as a result of the accident". A few countries have a different standard. A correction factor has been developed to adapt these data to the 30 days definition. In 1997 only France, Italy, Portugal, Turkey and Korea do not adhere to the "30 days" definition. For Japan and Spain, a correction factor is applied by the national administration from 1993 onwards.

CORRECTION FACTORS applied in the IRTAD database:

Italy: (7 days) +8%

France: 1965 (3 days) +15%, 1970-92 (6 days) +9%, since 1993 +5.7%

Spain: before 1993 (24 hours) +30%

Germany (East): until 1977 (3 days) +15%

Portugal: (24 hours) +30%

Greece: before 1996 (3 days) +15%

Austria: (3 days) 1966 to 1982 +15%, 1983 to 1991 +12%

Switzerland: before 1992 (more than 30 days) -3%

Turkey: (24 hours) +30%

Japan: before 1993 (24 hours) +30%

Hungary: before 1976 (48 hours) +20%

Czech Republic: before 1980 (24 hours) +30%

Korea: (3 days) +15%

"It should nevertheless be borne in mind that, while the correction factor used for each country gives a more or less accurate figure for the total killed (all road users), for complete accuracy a correction factor would be needed for each type of road user (pedestrians, cyclists, car occupants, etc.)."⁵

The problems involved in the follow-up of traffic victims during the 30-days period after the accident are dealt with in a dedicated IRTAD Special Report.⁶

⁴ *Statistics of Road Traffic Accidents in Europe and North America, Annex I*, United Nations, Economic Commission for Europe, Geneva, 1995

⁵ Statistical Report on Road Accidents 1993/1994, ECMT, 1998

⁶ "Follow-up of traffic victims during the 30-day period after the accident", IRTAD Special Report, Dirección General de Tráfico, Spain, 1996

Injured

Terms commonly used in accident statistics such as "Injured", "Slightly Injured" and "Seriously Injured", refer to differing national definitions. For example, a seriously injured person in Austria is hospitalised and is not able to work for at least 24 days whereas some countries do not even require hospitalisation in their definition of a serious injury.

A complicating factor is that there is no accepted single international classification of injury levels. The UN/ECE definitions of "Slightly Injured" and "Seriously Injured" are rather complex, because they are based on the type of injury and the medical characteristics.

In addition, the registration of injured accident victims constitutes a large problem. The under-reporting of traffic accidents depends very much on the type of accident. In general, serious injuries are more often reported to the police than slight injuries. The level of under-reporting depends on a number of factors. It can also vary from one country to another owing to national factors: how accidents are defined, how serious the least reportable injury is, etc. Differences in the local tradition for reporting accidents to the police and how the recording procedure is organised are other important factors explaining differences among countries. In particular, single vehicle accidents involving bicyclists are underrepresented in official accident statistics. The topic of under-reporting is dealt with in an IRTAD Special Report.⁷

Due to the above problems, the injury severity level is not considered in IRTAD. As hospitalisation (see section "Hospitalised") seems to be a reasonable and feasible common criterion for a serious injury, data on hospitalised accident victims are compiled in IRTAD.

The following section presents the agreed summaries of the detailed replies from each responding country (see Appendices I and II) and gives details of definitions.

⁷ "Under-reporting of road traffic accidents, recorded by the police, at the international level", IRTAD Special Report, Public Roads Administration, Norway, 1994

Country Response: Injured

| | |
|----------------|--|
| IRTAD | No definition: Data on slightly and seriously injured are compiled as provided by the individual countries. |
| Australia | Slight or serious injury to any person resulting from a road vehicle crash on a public road. |
| Belgium | Slightly and seriously injured. |
| Canada | A person involved in a traffic collision that occurs on a public roadway, who suffers a non-fatal injury. |
| Czech Republic | Slightly or seriously injured. |
| Denmark | Persons with injuries for which medical treatment or hospitalisation (even if only for observation) is normally required. Persons with lesser wounds, minor cuts and bruises are not recorded as injured. |
| Finland | Any person who was not killed but sustained injuries requiring treatment in hospital (incl. persons under observation) or at home. Very slight injuries (bruises, scratches etc.) requiring no treatment are excluded. |
| France | Slightly or seriously injured. |
| Germany | Slightly or seriously injured. |
| Great Britain | Slightly or seriously injured. |
| Greece | Any victim that was injured or whose health was affected as a result of an accident. |
| Hungary | See definition of slightly and seriously injured. |
| Ireland | Slightly or seriously injured. |
| Italy | Persons who have suffered personal injury as a result of an accident. |
| Japan | Seriously and slightly injured. |
| Korea | Seriously injured, slightly injured and minor injury. |
| Luxembourg | Person receiving injuries |
| Netherlands | A person involved in a traffic accident who is injured. |
| New Zealand | Person slightly or seriously injured. |
| Norway | A person who is slightly, seriously or dangerously injured in a traffic accident. |
| Poland | Slightly or seriously injured. |
| Portugal | Victim receiving injuries, with or without hospitalisation. |
| Spain | Any person who does not die as a result of the accident but is slightly or seriously injured. |
| Sweden | Slightly or seriously injured. |
| United States | Someone killed or receiving an incapacitating, non-incapacitating, possible or unknown injury. |
| UN/ECE | Any person, who was not killed, but sustained one or more serious or slight injuries as result of the accident. |

Country Response: Slightly Injured

| | |
|----------------|--|
| Australia | Required medical treatment but not admitted to hospital as a result of injuries resulting from a road crash. |
| Belgium | Any person injured in an accident who is not fatally or seriously injured. |
| Canada | A person involved in a traffic collision that occurs on a public roadway, who suffers non-fatal injuries that do not result in hospitalisation of a period of at least 24 hours. |
| Czech Republic | All injured road users who are not seriously injured. |
| Denmark | All injured road users that are not seriously injured. |
| Finland | Seriously and slightly injured are not separated in Finland. |
| France | Victim of an accident who needs medical treatment with or without hospitalisation. If there is hospitalisation, it is no longer than 6 days. |
| Germany | All injured road users who are not seriously injured. |
| Great Britain | Minor injury such as sprains, bruises or cuts which do not necessarily require roadside attention. Includes slight shock requiring roadside attention. |
| Greece | Injury of minor character such as sprains, bruises or cuts. Probable outpatient treatment in a hospital or by a doctor. |
| Hungary | Secondary injuries such as sprains or bruises. |
| Ireland | Injury of a minor character such as a sprain or bruise. |
| Italy | No definition available. |
| Japan | Persons who require medical treatment for up to 30 days. |
| Korea | Injuries that require medical treatment for less than 3 weeks to more than 5 days. (Minor injured: Injuries that require medical treatment for less than 5 days.) |
| Luxembourg | Person receiving injuries and in need of medical out-patient treatment. |
| Netherlands | An injured person not admitted to hospital as an in-patient (possibly as out-patient). |
| New Zealand | Injuries of minor nature such as sprains or bruises. |
| Norway | A person who has suffered minor injuries in a traffic accident, normally requiring only minor medical treatment and not leading to permanent medical disablement (negligible injuries such as bruises or scratches, etc., are not included). |
| Poland | A person injured in a traffic accident; injury of minor character, <i>e.g.</i> sprains, bruises that make the victim unable to work for a period of less than 7 days. |
| Portugal | Any person needing medical treatment after an accident, without hospitalisation. |
| Spain | A person injured in a traffic accident to whom the "seriously injured" definition cannot be applied. |
| Sweden | Injured person who is not seriously injured. |
| Switzerland | Injuries with small effect on personal mobility, so as able to leave the site of the accident without help. Probable outpatient treatment in hospital or by doctor (for example abrasions without substantial loss of blood.). |
| United States | A police-reported non-incapacitating injury or possible injury. |

UN/ECE

Secondary injuries such as sprains or bruises. Persons complaining of shock, but who have not sustained other injuries, should not be considered in the statistics as having been injured unless they show very clear symptoms of shock and have received medical treatment or appeared to require medical attention.

Common Definition Characteristics For Slightly Injured

Not applied
 Applied

| | Australia | Austria | Belgium | Canada | Czech Republic | Denmark | Finland | France | Germany |
|---|---------------|---------|---------|----------------------------|----------------|---------|---------|--------------------------|------------|
| INJURED WHO ARE NOT SERIOUSLY INJURED | | | | | | | | | |
| HOSPITALISATION EXCLUDED (explicitly by definition) | | | | Except: less than 24 hours | | | | Except: less than 6 days | |
| TYPE OF INJURY | | | | | | | | | |
| MEDICAL TREATMENT | | | | | | | | | |
| DISABILITY TO WORK/ MEDICAL DISABLEMENT EXCLUDED | | | | | | | | | |
| | Great Britain | Greece | Hungary | Italy | Iceland | Ireland | Japan | Korea | Luxembourg |

| | | | | | | | | | |
|---|--|--------------------------|--|--|--|--|---------------|--|-------------|
| INJURED WHO ARE NOT SERIOUSLY INJURED | | | | | | | | | |
| HOSPITALISATION EXCLUDED (explicitly by definition) | | | | | | | | | |
| TYPE OF INJURY | | | | | | | | | |
| MEDICAL TREATMENT | | out-patient or by doctor | | | | | up to 30 days | | out-patient |
| DISABILITY TO WORK/ MEDICAL DISABILITY EXCLUDED | | | | | | | | | |

| | Netherlands | New Zealand | Norway | Poland | Portugal | Spain | Sweden | Switzerland | United States | ECE |
|---|-------------|-------------|--------|--------|----------|-------|--------|-------------|---------------|-----|
| INJURED WHO ARE NOT SERIOUSLY INJURED | | | | | | | | | | |
| HOSPITALISATION EXCLUDED (explicitly by definition) | | | | | | | | | | |
| TYPE OF INJURY | | | minor | | | | | | | |

| | | | | | | | | | | |
|---|----------------------|--|-------|--------------------------|--|--|--|----------------------|--|-------|
| MEDICAL TREATMENT | possibly out-patient | | minor | | | | | possibly out-patient | | shock |
| DISABILITY TO WORK/ MEDICAL DISABILITY EXCLUDED | | | | except: less than 7 days | | | | | | |

Country Response: Seriously Injured

| | |
|----------------|--|
| Australia | Admitted to hospital as a result of injuries from a road crash. |
| Austria | Injury leading to a deterioration of health and the inability to work for a period of more than 24 days. There is always admission to hospital. |
| Belgium | Hospitalisation of at least 24 hours. |
| Canada | A person involved in a traffic collision that occurs on a public roadway, who suffers non-fatal injuries that result in hospitalisation, including for observation only, for a period of at least 24 hours. |
| Czech Republic | Serious failure of health or serious illness, judged by attending physician. |
| Denmark | Intracranial injury, skull fracture, face or eye injury; injury of trunk (chest and/or abdomen); injury of spine and/or pelvis; fracture/dislocation or severe sprain of shoulder, arm or hand; fracture/dislocation or severe sprain of hip, leg or foot; serious injuries in more than one main region, burn. |
| Finland | Seriously and slightly injured are not separated in Finland. |
| France | Victim of an accident needing hospitalisation for more than 6 days. |
| Germany | All persons who were taken to hospital for in-patient treatment (of at least 24 hours). |
| Great Britain | An injury for which a person is detained in hospital as an inpatient or any of the following injuries whether or not detained in hospital: fractures, concussion, internal injuries, crushings, severe cuts and lacerations, severe general shock requiring medical treatment, injuries causing death 30 or more days after the accident. |
| Greece | Any person suffering from serious injuries like <i>e.g.</i> head injuries, multiple wounding, mutilation, resulting in the person feeling dazed; in danger of life. |
| Hungary | Fractures, concussions, internal lesions, crushing, severe cuts and laceration, severe general shocks requiring medical treatment and any other serious lesion entailing detention in hospital, in general requiring more than 8 days healing, are considered as serious injuries. |
| Ireland | Injury for which the victim is detained in hospital as an in-patient or any of the following injuries whether or not detained in hospital: fractures, concussion, internal injury, crushings, severe cuts and lacerations, severe general shock requiring medical treatment. |
| Italy | No definition available. |
| Japan | Persons who require medical treatment for more than 30 days. |
| Luxembourg | Hospitalisation of more than 24 hours. |
| Korea | Injuries that require medical treatment for more than 3 weeks. |
| Netherlands | An injured person admitted to hospital as in-patient. |
| New Zealand | Fractures, concussion, internal injuries, crushings, severe cuts and lacerations, severe general shock necessitating medical treatment and any other injury involving removal to a hospital. |
| Norway | <p>A person who has been involved in a traffic accident, leading to injuries which require at least one day of hospitalisation and/or leading to 0-30% medical disablement. The person has, however, not been in danger of death.</p> <p>In addition there are those who have been "dangerously injured". They are persons who have suffered injuries in traffic accidents, leading to 30-100%</p> |

medical disablement, or who have been in real danger of death, including those who die 30 or more days after the accident.

| | |
|---------------|---|
| Poland | A person suffering from serious injuries <i>e.g.</i> fractures, concussion, internal injuries, severe general shock requiring hospitalisation for more than 7 days. |
| Portugal | Any person injured in an accident who needs hospitalisation. |
| Spain | A person who remains hospitalised for over 24 hours resulting from injuries caused by a traffic accident. |
| Sweden | See Standard Definition by ECE |
| Switzerland | Persons with severe visible injuries, disabling normal activities at home for at least 24 hours (loss of consciousness, fractures, hospitalisation lasting more than 1 day). |
| United States | A police-reported incapacitating injury. |
| ECE | Fractures, concussion, internal lesions, crushing, severe cuts and laceration, severe general shock requiring medical treatment and any other serious lesion entailing hospitalisation. |

Common Definition Characteristics For Seriously Injured

Not applied
 Applied

| | Australia | Austria | Belgium | Canada | Czech Republic | Denmark | Finland | France | Germany |
|---|-----------|--------------|---------------|---------------|----------------|---------|---------|------------------|---------------|
| HOSPITALI-SATION | | | 24 hours min. | 24 hours min. | | | | more than 6 days | 24 hours min. |
| TYPE OF INJURY | | | | | | | | | |
| MEDICAL TREATMENT | | | | | | | | | |
| DISABILITY TO WORK (Time)/ MEDICAL DISABLE-MENT (%) | | 24 days min. | | | | | | | |

| | Great Britain | Greece | Hungary | Italy | Iceland | Ireland | Japan | Korea | Luxembo-urg |
|------------------|---------------|----------------------------------|--------------------------|-------|---------|---------|-------|-------|---------------|
| HOSPITALI-SATION | | | | | | | | | 24 hours min. |
| TYPE OF INJURY | | serious injuries, danger of life | more than 8 days healing | | | | | | |

| | | | | | | | | | |
|--|--|--|--|--|--|--|-------------------|--|--|
| MEDICAL TREATMENT | | | | | | | more than 30 days | | |
| DISABILITY TO WORK (Time)/ MEDICAL DISABLEMENT (%) | | | | | | | | | |

| | Netherlands | New Zealand | Norway | Poland | Portugal | Spain | Sweden | Switzerland | United States | ECE |
|--|-------------|-------------|---------------------------------------|-------------|----------|---------------|--------|-------------|---------------|-----|
| HOSPITALISATION | | | 1 day min. | 7 days min. | | 24 hours min. | | 1 day min. | | |
| TYPE OF INJURY | | | | | | | | | | |
| MEDICAL TREATMENT | | | | | | | | | | |
| DISABILITY TO WORK (Time)/ MEDICAL DISABLEMENT (%) | | | 0-30% (dangerously injured: 30-10 0%) | | | | | | | |

HOSPITALISED

Background

In response to the need for international comparisons of data on severely injured road users, the IRTAD group decided to introduce a new variable in summer 1990 following the recommendation of the OECD Scientific Expert Group T8. This newly integrated category named "Hospitalised" is defined as: "Non-fatal accident victims admitted to hospital as in-patients". Due to the lack of an international classification of injury levels [see section "Injured"], hospitalisation seems to be a reliable criterion for a serious injury. The only problem is to get reliable information on hospitalised accident victims in the individual countries.

In the field of data compilation new possibilities are emerging from the linkage of different data sources by means of advanced communication technologies. However, the use of such data as well as data quality constitutes new problems when comparing accident registration forms to hospital data. Police registration give the most reliable and detailed data about the accident. However, at the time of accident registration it is not always known whether the victim will be hospitalised. In order to get a more correct picture of the magnitude of the total road traffic safety problem, the official accident figures based on police reports could be adjusted by using a set of correction factors. However, these factors ought to be developed by each country, because the rate of reporting can vary considerably from one country to another due to national factors. The topic of under-reporting is dealt with in a dedicated IRTAD Special Report.⁸

For example, the situation in Sweden illustrates the scope of the problem. When comparing the hospital-recorded data with the police-recorded figures, the hospital data are twice as high. However, the problem involved in hospital recording is the low quality of classification by road user category. In fact, only the total number of hospitalised is available from this data source. Therefore, the Swedish hospitalised data provided for IRTAD are based on police reporting instead of the hospital discharge register.

It is under discussion to include a kind of "best estimate" variable for "realistic" total number of hospitalised in the IRTAD database that will indicate the level of underreporting compared to the police-recorded data.

Several OECD countries are not able to provide hospitalised data for the time being. For example, in the UK data on those hospitalised are included within the seriously injured category and are not available separately although research indicates that about one-half of serious injuries are hospitalised.

⁸ "Under-reporting of road traffic accidents, recorded by the police, at the international level", IRTAD Special Report, Public Roads Administration, Norway, 1994

The following section presents the agreed summaries of the detailed replies from each responding country (see Appendices I and II), and shows details of data availability.

Hospitalised Data Availability

| | |
|--|--------------------|
| | Data not available |
| | Data available |

| | Australia | Austria | Belgium | Canada | Czech Republic | Denmark | Finland * | France | Germany |
|---------------|-----------|---------|---------|--------|----------------|---------|-----------|--------|---------|
| TOTALS | | | | | | | | | |
| AGE GROUPS | | | | | | | | | |
| ROAD LOCATION | | | | | | | | | |
| ROAD USAGE | | | | | | | | | |

* Finland: Supply of hospitalised figures stopped in 1996 due to change in classification method.

| | Great Britain | Greece | Hungary | Italy | Iceland | Ireland | Japan | Korea | Luxembourg |
|---------------|---------------|--------|---------|-------|---------|---------|-------|-------|------------|
| TOTALS | | | | | | | | | |
| AGE GROUPS | | | | | | | | | |
| ROAD LOCATION | | | | | | | | | |

| | | | | | | | | | |
|---------------|--|--|--|--|--|--|--|--|--|
| ROAD USAGE | | | | | | | | | |
|---------------|--|--|--|--|--|--|--|--|--|

| | Netherlands | New Zealand | Norway | Portugal | Spain | Sweden | Switzerland | United States |
|------------------|-------------|-------------|--------|----------|-------|--------|-------------|---------------|
| TOTALS | | | | | | | | |
| AGE GROUPS | | | | | | | | |
| ROAD LOCATION | | | | | | | | |
| ROAD USAGE | | | | | | | | |

Country Response: Hospitalised

| | |
|-------------|--|
| IRTAD | Accident victims admitted to hospital as in-patients, excluding all killed. |
| Australia | Any person involved in a road vehicle accident resulting in the injured person being admitted to hospital as in-patient. |
| Belgium | Hospitalisation for at least 24 hrs. |
| Canada | A person involved in a traffic collision that occurs on a public roadway, who suffers non-fatal injuries that result in hospitalisation, including for observation only, for a period of at least 24 hours. |
| Denmark | Hospitalised for at least 24 hours. |
| Finland | Admitted to hospital for at least one day. Their number is calculated on the basis of the Hospital Discharge Register of Finland. In principle (but not in practice) hospitalised are a subgroup of the injured. The number of hospitalised is in many cases higher than the number of injured. The reason for this is the low coverage of the police data for injured persons, especially regarding injured cyclists in single accidents. |
| Germany | All persons who were taken to hospital for in-patient treatment (of at least 24 hours). |
| Luxembourg | Hospitalised for at least 24 hours. |
| Netherlands | Admitted to hospital for at least one day. |
| New Zealand | Admitted to hospital for at least one night. |
| Norway | Persons who have spent at least one day in hospital as the result of a traffic accident. The figure covers all seriously and dangerously injured (people who die within 30 days of the accident, but who have spent some time in hospital before dying are not included). |
| Portugal | Victims of an accident that are hospitalised. |
| Spain | All persons injured in a traffic accident and whose condition requires hospitalisation. A hospital census is made every 24 hours. |
| Sweden | Admitted to hospital for at least one night. Statistics are based on the date when the patient leaves the hospital. (The problem is that some patients come to the hospital in one year and leave the following year.) One patient can be treated in several clinics/hospitals and sometimes on different occasions. Foreigners are not included. Hospital data: Low quality of classification by road user category. |

CONCLUSIONS

International comparisons of road safety situations between countries are not very reliable, as long as different countries have different standards and levels of accident registration.

To improve this situation, IRTAD has introduced the variable "Hospitalised" to allow for meaningful international comparisons of severely injured accident victims. However, international comparability of hospitalised victims is not as reliable as that of fatalities where most countries have high coverage and use the same definition. The linkage of hospital and police information on the severely injured needs investigation into the national linkage efficiency.

Nevertheless, by linking together data routinely collected by various authorities, more comprehensive information can be assembled for accident analysis.

Standardisation of definitions of accident data, as well as methods to obtain fully reliable quantitative and qualitative accident data, involving casualties, should be one of the major tasks in the field of traffic policy and accident research.

APPENDIX I: SURVEY RESPONSE

Out of 27 OECD countries, responses were received from 24 countries. For Luxembourg and the United States the results of the 1991 survey are indicated.

| Country | Institute | Correspondent |
|----------------------|----------------------------------|----------------------------------|
| Australia | FORS | Natasha Ryan |
| Austria | KfV | Robert Esberger |
| Belgium | Institut National de Statistique | Roland Nardi |
| Canada | Transport Canada | Paul Gutoskie |
| Czech Rep. | CDV | Ladislav Skácal, Josef Mikulík |
| Denmark | Road Directorate | Sven Krarup Nielsen |
| Finland | FinnRA | Auli Forsberg |
| France | ONISR | Yves Page |
| Germany | BASt | Ekkehard Brühning |
| Great Britain | DETR | Peter Wilding |
| Greece | N.S.S.G. | A. Papakyriakou, A. Rousta |
| Hungary | KTI | Péter Holló |
| Iceland | | No response |
| Ireland | NRA | Cyril Connoly |
| Italy | ISTAT | Carlo Putignano |
| Japan | NPA | Hiroshi Kurauchi |
| Republic of Korea | TSI | Ki-Hong Kim, Won-Sang Eum |
| <i>Luxembourg</i> | <i>Ministère des Transports</i> | <i>Results as of 1991 survey</i> |
| Netherlands | SWOV | Ragnhild Davidse |
| New Zealand | Land Transport | Wayne Jones |
| Norway | Public Roads Administration | Guro Ranæs |
| Poland | ITS | Justyna Wacowska |
| Portugal | DGV | J. Aníbal Xavier Pereira |
| Spain | DGT | A. Mónica Colás Pozuelo |
| Sweden | National Road Administration | Thomas Lekander |
| Switzerland | bfu | Paul Reichardt |
| <i>United States</i> | <i>FHWA</i> | <i>Results as of 1991 survey</i> |

APPENDIX II: QUESTIONNAIRE

BASt

July 23, 1997

INTERNATIONAL ROAD TRAFFIC AND ACCIDENT DATABASE IRTAD

Road Traffic Accident Definitions Used in OECD Countries

Country:
Correspondent:
Institute:
Address:
.....

National Definitions

Traffic Accident:
.....

Injury Accident:
.....

Injured:
.....

Slightly injured:
.....

Seriously injured:
.....

Hospitalised:
.....

Data according to IRTAD
definition* available: Yes:..... No:.....

Killed:
Correction factor:

DENOMINATION

A-Level Roads:
Data according to IRTAD
definition** available: Yes:..... No:.....

* Admitted to hospital as in-patient for at least one day.

** Characterised by a comparatively high quality standard, either non-divided roads with oncoming traffic or similar to motorways. In most countries financed by the Federal or National Governments. In most European countries about one third of all fatalities occur on A-Level roads. Only rural.