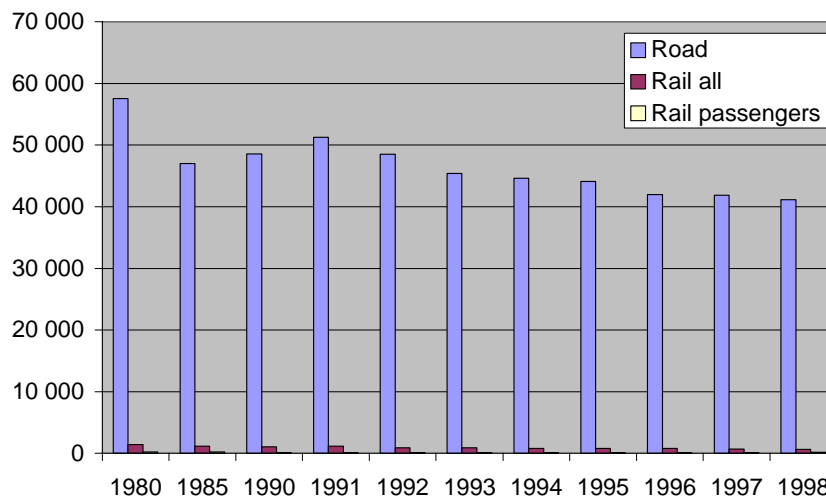


Traffic accident fatalities

Even though road transport fatalities per year have fallen by 28 % since 1980, they still numbered 41 000 in 1998. Road accidents represent the main cause of death for persons under 40. The number of injured (which is about 40 times the number of fatalities) has also fallen in the past two decades, but at a slower rate than road fatalities. Aviation is the safest transport mode, both absolutely and in terms of passenger-km, followed by rail.

Figure 1: Road and rail transport fatalities per year (EU)



Source: Eurostat, 2001

Note: Rail includes passengers and fatalities registered in accidents occurring at railway level crossings, accidents during shunting procedures and track maintenance works. The victims of accidents at railway level crossings are also included in the road accident statistics. Rail fatalities is the sum of all rail fatalities counted in the Member States, even though not all Member States have fatality figures for all years. This means that the actual number of deaths by rail accidents could be somewhat higher.

Objective

Reduce substantially the annual number of transport fatalities and injuries.

Definition

Number of persons killed or injured each year in transport accidents by mode.

Note: The fatality rate is defined by dividing the number of fatalities per transport mode by the corresponding number of passenger-km (generally expressed as the number of deaths per billion passenger-km). Persons killed are all persons who die within 30 days of the accident in which they were involved.

Policy and targets

During recent decades, a considerable effort has been made to reduce the number and severity of transport accidents, including educational programmes, limitation of permitted blood alcohol level, speed limits, technical measures such as safety belts and air bags, and traffic control measures.

Road safety strategy The Commission's road safety strategy aims to reduce the annual number of fatalities to a maximum of 27 000 by 2010. The strategy led to the

(European Commission, 1997)	<p>development of an Action Programme 1997-2001. A recent evaluation of progress on this programme (European Commission, 2000) described it as “as a successful on-going process”, in which the following priorities in road safety are defined:</p> <ul style="list-style-type: none"> • continuation of work with and development of the European New Car Assessment Programme (EuroNCAP); • campaigns and legislation on seat belts and child seats; • recommendation to the Member States on maximum blood/alcohol levels in traffic; • legislation on speed limiters for light commercial vehicles; • development of guidelines for ‘Black Spot’ management (places with a concentration of accidents) and the design of ‘forgiving’ road edges (that are less likely to cause serious injury in the event of an accident); • legislation on safer car front ends for pedestrians and cyclists.
	<p>The CARE accidents statistics database, an integrated information system and research into vehicle standards and telematics, will also receive high priority.</p>
<p>At Member State level:</p>	
Sweden	<p>Sweden aims to reduce road accident fatalities by at least 50 % by 2007 (from 1996 levels), and to halve accidents from private aviation between 1998 and 2007. The long-term objective is that no one should die or be seriously injured as a result of a traffic accident (SNRA, 2000).</p>
Finland	<p>Finland has set traffic targets for a five-year period. The new plan for 2001 to 2005 has just been adopted. The aim is for fewer than 250 deaths in traffic accidents in 2005 (compared with 391 in 1999) (Ministry of Transport and Communications Finland).</p>
The Netherlands	<p>The government’s policy plan for traffic and transportation has set a target of a 25 % reduction by 2010 in the number of road transport accident fatalities and injuries compared to 2000. Accident rates for rail and waterways should not exceed the current level. The options to achieve these targets are in the field of legislation and enforcement (mainly regarding alcohol, drugs and transportation of dangerous goods), education (aiming at changing driving behaviour and introducing a beginners’ driving licence), safe roads and railways and technological improvements in vehicles (V&W, 2000).</p>
The United Kingdom	<p>In March 2000 the United Kingdom government launched a new road safety strategy (DETR, 2000). Reductions to be achieved by 2010 (compared to the average 1994-98 level) are:</p> <ul style="list-style-type: none"> • 40 % in the number of people killed or seriously injured in road accidents; • 50 % in the number of children killed or seriously injured; • 10 % in the number lightly injured, expressed as the number of people slightly injured per 100 million vehicle-km.

Findings

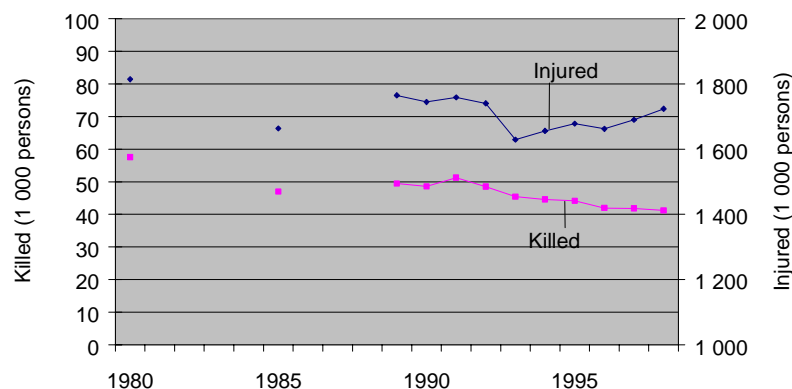
Even though the number of deaths or injured due to road accidents fell significantly during the past two decades, road traffic still makes heavy demands on society. Significant effort will be needed to reach the target (a maximum of 27 000 fatalities from road transport in 2010).

Road fatalities The annual number of road fatalities in the EU is gradually falling, despite the increase in passenger and freight transport (see Figure 2). This reduction is attributed to improved road design, changes in legislation on drinking and driving, higher vehicle safety standards, introduction of speed limits, stricter rules on truck and bus driving times and reduced truck load capacities.

- The number of road accident fatalities in the EU fell by 28 % between 1980 and 1998, from 57 500 to about 41 000;
- The largest reductions (more than 40 %) were in Germany, Luxembourg, the Netherlands, Austria and the United Kingdom, while the numbers increased in Greece and Spain, where the number of passenger-km grew rapidly. However, the number of passenger-km by road grew most rapidly in Portugal, where the number of death by road accidents fell by 18 % (see #Passenger transport);
- Road traffic accidents represent the main cause of death for persons under 40 (Eurostat, 2000).

Road injured The number of people injured in road accidents in the EU is also falling (see Figure 2). In 1998 the number of injuries was around 43 times the number of deaths. This number has increased markedly in the past two decades (33 in 1980), due to improved safety standards for road vehicles.

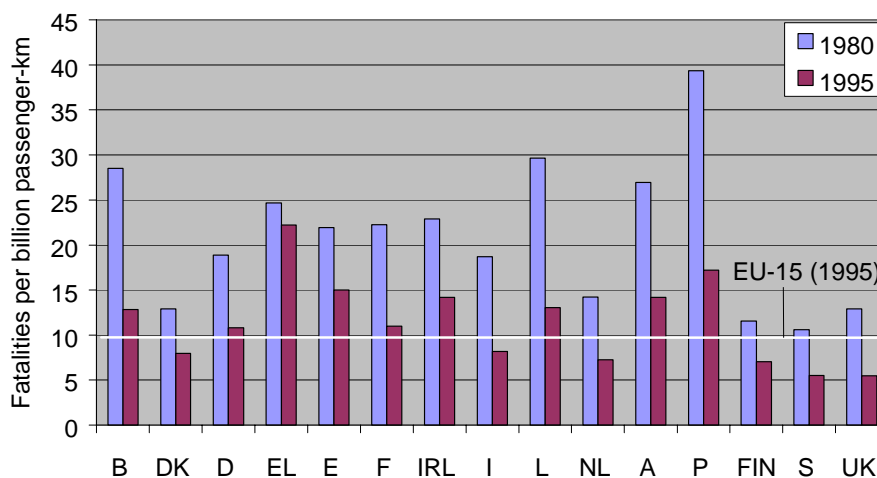
Figure 2: Fatalities and injuries from road transport in the EU, 1980-1998



Source: Eurostat, 2001

Road fatality rates The road fatality rate in the EU more than halved between 1980 and 1998. The differences between Member States are quite significant, as can be seen in Figure 3. In 1995, Greece, Portugal and Spain had the highest fatality rates.

Figure 3: Fatalities per billion passenger-km in the EU, 1980 and 1995



Source: Eurostat, 2001

Rail fatalities Far fewer deaths are caused by rail (829 in the EU in 1996) than by road transport (EEA, 2000). The decrease of around 40 % between 1980 and 1996 was due partly to the general decline in rail transport demand. The percentage of passengers in the total number of rail fatalities fell in the same period from 23 to 11 %. Most fatalities are registered in accidents occurring at railway level crossings, during shunting procedures and track maintenance work.

Shipping fatalities Waterborne transport resulted in several major accidents in the past two decades:

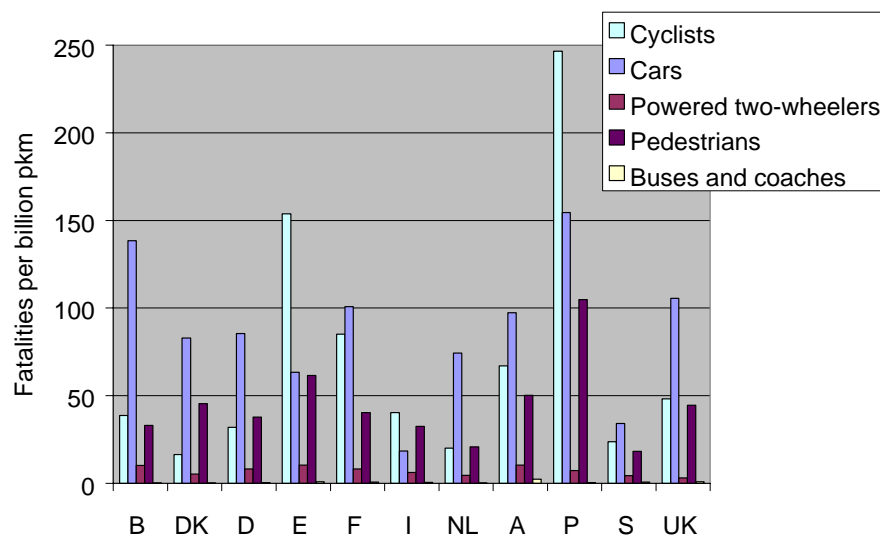
- Capsizing of the Herald of Free Enterprise off Zeebrugge (1987) - 193 lives lost
- Collision of the Marchioness and the Bowbelle on the River Thames (1989) - 51 lives lost
- Sinking of the Estonia off the Finish coast (1994) - 852 lives lost;
- Sinking of the Express Samina in the Aegean Sea (2000) - 80 lives lost.

Air fatalities Aircraft fatalities within the EU territory peaked in 1992 (143) and increased again in 1995 (73) after dropping dramatically in 1993.

Comparing modes The safest mode of transport appears to be aviation. The incident including Pan Am flight 101, in which 270 people died over the Scottish town Lockerbie in 1988, is not classified as an accident, since accident analyses exclude acts or suspected acts of terrorism. Water transport is also relatively safe, despite the severe accidents that occurred in the past two decades.

In most Member States, the majority of fatalities involve cars or bicycles (Figure 4). Motorcycles are also a relatively dangerous transportation mode. It is stressed out, however, that there is great discussion between experts about the applicability of comparing fatality rates of modes, especially regarding bicycles (see Box 1).

Figure 4: Road fatalities by transport mode for some Member States, 1995



Source: Eurostat, 2001

Box 1: The myth about the danger of cycling

Cyclists are amongst the most vulnerable road users. Conventional statistics show that most fatalities and injuries per passenger-km are among bicycle users. However, these statistics do not take into account the following factors:

- Cyclists never ride on motorways. When comparing safety of cars and bicycles, the share of passenger-km driven by car on motorways should be taken into account, because motorway kilometres are generally much safer;
- The most vulnerable group of cyclists is below 18 years old and car drivers are 17 or 18 years or older. When comparing the corrected statistics, riding a bicycle is much less dangerous than conventional statistics suggest and for some age groups even less dangerous than driving a car (see Table 1).
- Cycling also has great benefits for health. According to WHO, half an hour of moderate physical activity (e.g. walking or cycling) per day would lead to a 50% reduction in the risk of heart disease, adult diabetes and obesity, and a 30% reduction in the risk of developing hypertension, with a reduction in blood pressure similar to that obtained with pharmacological therapies. It has also been demonstrated that car drivers in their cars are exposed to higher air pollution levels than cyclists.

Source: European Commission, 1999; WHO/UN-ECE 2001

Table 1: Risk of accident per million kilometres

Age group	Motorists (drivers)	Cyclists
12-14	-	16.8
15-17	-	18.2
18-24	33.5	7.7
25-29	17.0	8.2
30-39	9.7	7.0
40-49	9.7	9.2

50-59	5.9	17.2
60-64	10.4	32.1
> 64	39.9	79.1
Total	20.8	21.0

Future work

- Comparisons of fatality rates of different modes depends on whether they are expressed as deaths per passenger-km or tonne-km. More work is needed to establish reasonable coefficients for rates per passenger-km and tonne-km for each vehicle type.
- Further development of this indicator requires a more detailed analysis of individual means of transport, including data on deaths and injuries caused by all modes of transport and for all Member States, along the lines of the comparison of modes shown above. Ideally, these should be reported per passenger-km, and should include information on accidents resulting in serious environmental pollution.
- There is no agreed methodology for reporting on injuries and hence datasets are not comparable across Member States. While some general information on trends can be given, regular reporting on injuries is unlikely to be possible in the near future.

Data

Table 2: Number of people killed in road accidents

Unit: 1 000 persons

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
1980	57.5	2.4	0.7	13.0	1.2	5.0	12.4	0.6	8.5	0.1	2.0	1.7	2.3	0.6	0.8	6.2
1985	47.0	1.8	0.8	8.4	1.7	4.9	10.4	0.4	7.1	0.1	1.4	1.4	1.9	0.5	0.8	5.3
1990	48.6	2.0	0.6	7.9	1.7	6.9	10.3	0.5	6.6	0.1	1.4	1.4	2.3	0.6	0.8	5.4
1991	51.3	1.9	0.6	11.3	1.8	6.8	9.6	0.4	7.5	0.1	1.3	1.4	2.5	0.6	0.7	4.8
1992	48.5	1.7	0.6	10.6	1.8	6.0	9.1	0.4	7.4	0.1	1.3	1.4	2.4	0.6	0.8	4.4
1993	45.4	1.7	0.6	9.9	1.8	5.5	9.1	0.4	6.6	0.1	1.3	1.3	2.1	0.5	0.6	4.0
1994	44.6	1.7	0.5	9.8	1.9	5.6	8.5	0.4	6.6	0.1	1.3	1.3	1.9	0.5	0.6	3.8
1995	44.1	1.4	0.6	9.5	2.0	5.8	8.4	0.4	6.5	0.1	1.3	1.2	2.1	0.4	0.6	3.8
1996	42.0	1.4	0.5	8.8	2.1	5.5	8.1	0.5	6.2	0.1	1.2	1.0	2.1	0.4	0.5	3.7
1997	41.8	1.4	0.5	8.5	2.2	5.6	8.0	0.4	6.2	0.1	1.2	1.1	1.9	0.4	0.5	3.7
1998	41.2	1.5	0.5	7.8	2.2	6.0	8.4	0.4	5.9	0.1	1.1	1.0	1.9	0.4	0.5	3.6

Source: Eurostat, 2001

Table 3: Number of people killed in rail accidents

Units: persons

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
1980	1 400	38	49	297	38	74	203	20	228	1	126	75	171	24	49	7
1985	1 137	34	:	211	45	27	305	7	226	3	102	:	171	:	:	6
1990	1 029	20	6	182	:	30	188	14	204	2	43	69	139	36	18	78
1991	1 159	18	18	319	:	31	222	11	230	4	:	85	150	34	26	11
1992	901	20	16	340	:	30	203	11	:	1	:	80	133	31	31	5
1993	864	23	8	292	61	32	171	3	:	:	:	98	132	20	19	5
1994	774	30	9	286	42	31	150	11	:	:	:	5	149	30	19	12
1995	786	20	:	291	49	22	129	7	120	:	:	10	95	17	19	7

1996	778	26	:	284	42	21	136	8	106	:	:	4	122	12	16	1
1997	716	:	:	275	:	:	117	14	100	:	:	49	119	21	11	10
1998	653	:	:	363	:	:	:	:	97	:	:	55	97	24	17	:

Source: Eurostat, 2001

Table 4: Fatality rates for different modes per country, 1995

Units: fatalities per billion passenger-km

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Cars	138.5	82.9	85.5	62.4	63.4	100.9	219.2	18.4	:	74.3	97.4	154.4	36.7	34.2	105.6
Powered two-wheelers	10.2	5.3	8.1	:	10.3	8.1	8.3	6.1	:	4.5	10.4	7.4	4.6	4.3	3.0
Buses and coaches	0.08	0.19	0.28	0.59	0.88	0.70	:	0.40	:	0.07	2.29	0.31	:	0.57	0.79
Cyclists	38.8	16.4	32.0	96.7	153.8	85.0	41.8	40.3	:	20.1	67.0	246.7	56.9	23.8	48.2
Pedestrians	33.0	45.4	37.7	100.7	61.5	40.3	75.8	32.6	44.4	20.8	50.3	104.8	30.6	18.3	44.6

Source: Eurostat, 2001

Meta data

Technical information

Data sources:

Road fatalities and fatality rates from Eurostat Statistical Compendium (Eurostat, 2001);

Rail fatalities from Eurostat Statistical Compendium (Eurostat, 2001).

Description of data:

- Road fatalities and injuries for passenger cars, powered two-wheelers, buses and coaches, cyclists and pedestrians;
- Rail fatalities and injuries for passengers, rail-employees and others.

File: Transport accident fatalities.xls

Original measure units:

Number of people killed or injured in road or rail transport accidents.

Original purpose:

-

Geographical coverage:

EU-15 (Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden and the United Kingdom).

Temporal coverage:

1980-1998

Methodology and frequency of data collection:

Yearly by Eurostat

Methodology of data manipulation:

Data on rail fatalities at the EU level has been composed by using TERM 2000 (EEA, 2000), Eurostat - Statistics in focus (Eurostat, 2000) and Eurostat Statistical Compendium (Eurostat);

Qualitative information

Strength and weakness (at data level):

-

Reliability, accuracy, robustness, uncertainty (at data level):

-

Further work required (for data level and indicator level):

Comparing the fatality rates of the different transportation modes is currently under

discussion with respect to how to compare the fatality rates when expressed as deaths per passenger-km or tonne-km. More work needs to be done on establishing reasonable coefficients between passenger-km and tonne-km for each vehicle type.

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