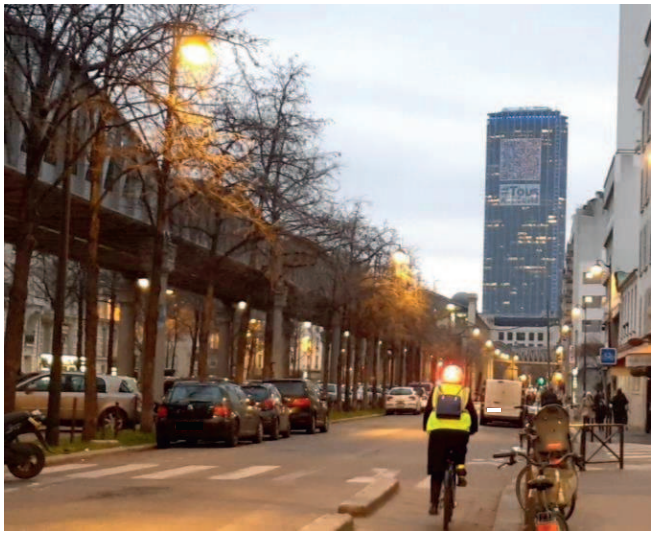
ROAD SAFETY OBSERVATORY

2021

FRENCH

Road safety in France

Report for the year 2021



Observatoire national interministériel de la sécurité routière

ONISR

September 2022

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Report for the year **2021**

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ONISR

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The French Road Safety Observatory (ONISR) is a statistical and research organization reporting to Marie Gautier-Melleray, Interministerial Director for Road Safety. Its role is to collect, format, interpret and disseminate French statistical data on road safety at the national and international levels. It leads the study, research and evaluation program of the Road Safety Directorate.

The main indicators produced by the ONISR and relating to road accidents recorded by law enforcement agencies have been labeled by the French Public Statistics Authority since 2013; the renewal for 5 years occurred by notice of November 21, 2019 published in the JORF n° 0275 of November 27, 2019.

The corresponding tables are marked with the official statistics logo.

In the document, non-labelled data are distinguished by an asterisk and italicized.

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Constitution of the national road accident file (called BAAC files):

- Directorate General of National Gendarmerie (DGGN) ;
- Directorate General of National Police (DGPN)
  for the field collection of data on road accidents ;
- Prefectures of departments,
  for the collection and the transmission to the ONISR of quick feedback on accident data and the activity of the forces of law and order ;
- ONISR and Cerema South-West
  for the centralization and quality control of the national BAAC file ;
- Departmental road safety observatories, local authority observatories and road managers for the consolidation of data BAAC ;
- Project team for the information system TRAxy: Assistance to the project owner Sopra-Steria and Cerema, Project Management Digital Department of the Interior Ministry (DNUM), Project Management Assistance Cap Gemini.

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- Gustave Eiffel University (formerly Ifsttar) ;
- Centre for studies and expertise on risks, environment, mobility and planning (Cerema) ;
- Data and statistical studies department (SDES) of the General Commission for Sustainable Development (CGDD) ;
- Statistic service of the Law Ministry;
- Association Vélo et Territoires ;
- Kantar TNS, IFOP ;
- Motorway concession companies (Asfa, Sanef) ;
- Technical Union of the Automotive, motorcycle and Cycle – Central Technical Organization (Utac-OTC).

Summary

The national file of road accidents recorded by police forces (known as BAAC file) – definitions and labelling

Traffic Accident Analysis Bulletins

An injury (fatal and non-fatal) **road traffic accident**:

- involves at least one victim,
- occurs on a public or private road open to public traffic,
- involves at least one vehicle.

An injury accident involves a number of users. Among these, we distinguish:

- uninjured persons: involved but not deceased and whose condition does not require medical attention as a result of the accident ;
- victims: involved not unharmed.

Among the victims, we distinguish:

- persons **killed**: persons who die as a result of the accident, either immediately or within **thirty days** of the accident;
- injured persons: victims not killed.

Among the injured persons, it is necessary to differentiate:

- the so-called "**hospitalized**" injured: victims hospitalized for **more than 24 hours**;
- Minor injuries: victims who have received medical attention but have not been admitted to hospital as patients for more than 24 hours.

References:

Law of August 9, 2004 on public health policy and the order of March 27, 2007.

Decision of the Council of the European Union 93/704/EC of November 30, 1993 creating the European statistical database on accidents (called "CARE" for Community road accident database) and specifying the obligations of the Member States regarding the transmission of road accident statistics.

Ministerial Instruction INTS1711116J of April 18, 2017 validating and disseminating the latest version of the BAAC technical writing guide.

Labelling of the main indicators by the French Public Statistics Authority: initial notice of June 4, 2013, published in the OJ on June 18, 2013; renewal by notice of November 21, 2019, published in the OJ on November 27, 2019.

More information and reference documents: https://www.onisr.securite-routiere.gouv.fr/en/data-tools

Panorama

Key figures on road traffic accidents in France

	Number of people killed in 2021	Share in mortality in 2021	Variation of mortality 2021/2019		Variation of mortality 2019/2010	Variation of mortality 2021/2010	Variation of mortality 2010/2000
			Number	%			
France mainland	**2 944**	**91,5%**	**- 300**	**- 9,2%**	**- 18,7%**	**- 26,3%**	**- 51,1%**
Overseas territories (OT) *	***275***	***8,5%***	***+ 21***	***+ 8,3%***	***- 9,6%***	***- 2,1%***	***ND***
France mainland + OT *	***3 219***	***100%***	***- 279***	***- 8,0%***	***- 18,1%***	***- 24,7%***	***ND***
France mainland indicators							
Users category :							
Pedestrians	414	14,1%	- 69	- 14,3%	- 0,4%	- 14,6%	- 42,8%
Cyclists	227	7,7%	+ 40	+ 21,4%	+ 27,2%	+ 54,4%	- 46,2%
Motorized personal mobility devices	24	0,8%	+ 14	+ 140,0%	ND	ND	ND
Moped riders	96	3,3%	- 38	- 28,4%	- 46,0%	- 61,3%	- 46,2%
Motorcyclists	572	19,4%	- 43	- 7,0%	- 12,6%	- 18,8%	- 25,7%
Passenger vehicle users	1 414	48,0%	- 208	- 12,8%	- 23,4%	- 33,2%	- 60,4%
Utility vehicle users	103	3,5%	+ 5	+ 5,1%	- 32,9%	- 29,5%	+ 82,5%
Heavy goods vehicles users	44	1,5%	+ 8	+ 22,2%	- 44,6%	- 32,3%	- 47,6%
Public transport	4	0,1%	0	+ 0,0%	+ 0,0%	+ 0,0%	- 80,0%
Cart	14	0,5%	- 3	- 17,6%	- 43,3%	- 53,3%	+ 7,1%
Other	32	1,1%	- 6	- 15,8%	- 17,4%	- 30,4%	+ 21,1%
Age group :							
0-13 y.o.	85	2,9%	+ 24	+ 39,3%	- 45,0%	- 23,4%	- 69,8%
14-17 y.o.	101	3,4%	+ 9	+ 9,8%	- 48,9%	- 43,9%	- 49,2%
18-24 y.o.	505	17,2%	- 44	- 8,0%	- 33,9%	- 39,2%	- 52,4%
25-34 y.o.	398	13,5%	- 118	- 22,9%	- 26,7%	- 43,5%	- 56,1%
35-44 y.o.	366	12,4%	- 17	- 4,4%	- 29,7%	- 32,8%	- 50,0%
45-54 y.o.	353	12,0%	- 29	- 7,6%	- 24,4%	- 30,1%	- 45,1%
55-64 y.o.	366	12,4%	- 46	- 11,2%	+ 17,4%	+ 4,3%	- 40,3%
65- 74 y.o.	321	10,9%	+ 4	+ 1,3%	+ 20,1%	+ 21,6%	- 58,2%
75 y.o. and over	449	15,3%	- 83	- 15,6%	+ 6,4%	- 10,2%	- 31,2%
Type of road :							
Motorway	248	8,4%	- 15	- 5,7%	+ 2,7%	- 3,1%	- 56,2%
Roads outside urban areas	1 733	58,9%	- 211	- 10,9%	- 25,3%	- 33,4%	- 50,9%
Urban areas	963	32,7%	- 74	- 7,1%	- 8,5%	- 15,0%	- 50,4%
Gender :							
Men	2 292	77,9%	- 217	- 8,6%	- 17,4%	- 24,6%	- 51,0%
Women	652	22,1%	- 83	- 11,3%	- 22,9%	- 31,6%	- 51,7%
Type of occupant :							
Drivers	2 106	71,5%	- 196	- 8,5%	- 18,8%	- 25,7%	- 49,0%
Passengers	424	14,4%	- 35	- 7,6%	- 31,7%	- 36,9%	- 62,0%
Novice drivers	248	8,4%	- 40	- 13,9%	- 33,9%	- 43,1%	ND
Users not or poorly belted	280	9,5%	- 67	- 19,3%	- 28,5%	- 42,3%	ND
Type of accident :							
With pedestrians	426	14,5%	- 69	- 13,9%	+ 0,8%	- 13,2%	ND
Vehicle alone without pedestrians	1 177	40,0%	- 119	- 9,2%	- 15,7%	- 23,4%	ND
2 vehicles, without pedestrians	1 149	39,0%	- 94	- 7,6%	- 25,1%	- 30,8%	ND
3 vehicles or +, without pedestrian	192	6,5%	- 18	- 8,6%	- 30,9%	- 36,8%	ND
In an accident involving a driver :							
novice (license under 2 years old)	562	19,1%	- 38	- 6,3%	- 38,3%	- 42,2%	- 51,7%
with alcohol > 0,5g/l or drug-positive	867	29,4%	- 149	- 14,7%	- 17,3%	- 29,5%	ND
with alcohol levels above 0,5g/l	652	22,1%	- 147	- 18,4%	- 17,0%	- 32,3%	- 40,4%
with positive drug test	436	14,8%	- 58	- 11,7%	- 5,4%	- 16,5%	ND
with disturbed attention	338	11,5%	- 53	- 13,6%	+ 23,7%	+ 7,0%	ND
tired or having had an illness	414	14,1%	+ 38	+ 10,1%	+ 20,5%	+ 32,7%	ND
of heavy goods vehicles	392	13,3%	+ 2	+ 0,5%	- 30,0%	- 29,6%	- 47,8%
Estimation of overall mortality based on percentage of positive tests/known test result :							
with alcohol > 0,5g/l or positive for narcotics	1172	39,8%	- 270	- 18,7%	- 36,6%	- 48,5%	ND
with an alcohol level higher than 0,5g/l	840	28,5%	- 212	- 20,1%	- 20,2%	- 36,2%	- 47,5%
with positive drug test	605	20,5%	- 127	- 17,3%	- 33,9%	- 45,4%	ND

Source: National database of accidents involving injuries recorded by the police, ONISR.
* Data not labelled.

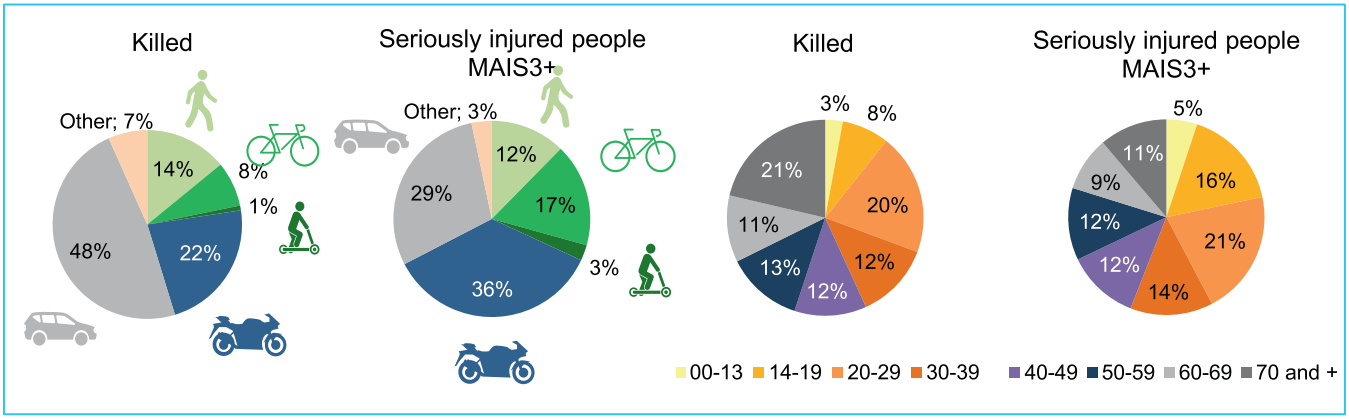
Drivers age	Bicycle		Moped riders		Motorcycle		Passenger vehicle		HGV		other vehicle	All drivers		Pedestrians age	
	Nb**	% 0,5 g/l***	Nb**	% 0,5 g/l***	Nb**	% 0,5 g/l***	Nb**	% 0,5 g/l***	Nb**	% 0,5 g/l***	Nb**	Nb**	% 0,5 g/l***	Nb**	% 0,5 g/l***
0-13 y.o.	8	0%	0	0%	1	0%	1	0%	0	0%	3	13	0%	27	0%
14-17 y.o.	6	0%	37	23%	14	10%	11	33%	0	0%	8	76	19%	7	0%
18-24 y.o.	12	0%	23	28%	111	14%	515	26%	26	0%	75	762	22%	41	32%
25-34 y.o.	18	0%	7	33%	131	27%	437	30%	70	0%	111	774	24%	49	41%
35-44 y.o.	17	0%	17	38%	116	30%	364	23%	83	0%	113	710	20%	37	10%
45-54 y.o.	23	7%	13	64%	96	33%	289	15%	121	2%	101	643	14%	50	42%
55-64 y.o.	53	0%	7	33%	96	10%	260	14%	77	4%	68	561	11%	49	17%
65-74 y.o.	63	3%	1	0%	32	8%	244	8%	7	0%	24	371	8%	65	9%
75 y.o.and over	45	0%	1	0%	8	17%	278	4%	1	0%	13	346	4%	165	2%
N/C (fleeing)	1	0%	1	0%	0	0%	18	0%	3	0%	11	34	0%		
Total	**246**	**1%**	**107**	**33%**	**605**	**22%**	**2 417**	**19%**	**388**	**1%**	**527**	**4 290**	**17%**	**490**	**16%**

** Nb: Total number of drivers (or pedestrians) involved in a fatal accident.
*** 0,5 g/l: Share of drivers (or pedestrians) with a level above 0.5 g/l among tested drivers (or tested pedestrians) involved in a fatal accident.

	Number of injured people (MAIS1+) in 2021	Share in total MAIS1+ of injuried people in 2021	Variation of the number of injuried people MAIS1+ 2021/2019	Variation of the number of injuried people MAIS1+ 2019/2010 2019/2010	Variation of the number of injuried people MAIS1+ 2021/2010 2021/2010
France mainland	**239 986**	**100%**	**+ 0,4%**	**- 19,5%**	**- 19,1%**
Category of users:					
Pedestrians	17 151	7,1%	- 14,3%	- 20,7%	- 32,1%
Cyclists	44 148	18,4%	+ 17,0%	- 5,1%	+ 11,0%
Motorized personal mobility devices	11 256	4,7%	+ 154,7%	ND	ND
PTW users	59 808	24,9%	- 3,5%	- 33,6%	- 35,9%
Users of passenger vehicles	100 906	42,0%	- 6,0%	- 17,3%	- 22,3%
Other	6 717	2,8%	- 11,0%	- 12,9%	- 22,4%
Age group:					
0-13 y.o.	15 548	6,5%	+ 3,9%	- 38,3%	- 35,9%
14-19 y.o.	42 349	17,6%	+ 8,0%	- 28,8%	- 23,1%
20-29 y.o.	64 687	27,0%	+ 3,9%	- 22,4%	- 19,3%
30-39 y.o.	37 626	15,7%	- 0,4%	- 16,4%	- 16,8%
40-49 y.o.	29 679	12,4%	- 3,3%	- 18,9%	- 21,6%
50-59 y.o.	24 153	10,1%	- 6,6%	- 4,9%	- 11,2%
60-69 y.o.	13 663	5,7%	- 6,7%	+ 6,1%	- 1,0%
70 y.o. and over	12 280	5,1%	- 10,0%	+ 2,8%	- 7,5%
Type of road:					
Motorw ays	22 342	9,3%	- 8,1%	ND	ND
Roads outside urban areas	76 906	32,0%	- 0,7%	ND	ND
Urban areas	140 738	58,6%	+ 2,5%	ND	ND
Gender:					
Men	156 064	65,0%	+ 2,0%	- 18,1%	- 16,4%
Women	83 922	35,0%	- 2,4%	- 21,8%	- 23,8%

	Number of seriously injured people (MAIS3+) in 2021	Share in total MAIS3+ injuried people in 2021	Share of seriously injured MAIS3+ among injuried people MAIS1+	Variation of the number of injuried people MAIS3+ 2021/2019	Variation of the number of injuried people MAIS3+ 2019/2010
France mainland	**15 944**	**100%**	**6,6%**	**- 1,9%**	**- 15,3%**
Category of users:					
Pedestrians	1 967	12,3%	11,5%	- 15,0%	- 15,5%
Cyclists	2 709	17,0%	6,1%	+ 17,1%	+ 8,7%
Motorized personal mobility devices	413	2,6%	3,7%	+ 161,6%	ND
PTW users	5 653	35,5%	9,5%	- 1,5%	- 26,3%
Users of passenger vehicles	4 670	29,3%	4,6%	- 9,7%	- 11,6%
Other	531	3,3%	7,9%	- 2,8%	- 19,9%
Age group:					
0-13 y.o.	810	5,1%	5,2%	+ 2,8%	- 38,7%
14-19 y.o.	2 646	16,6%	6,2%	+ 7,2%	- 29,9%
20-29 y.o.	3 286	20,6%	5,1%	+ 1,0%	- 24,0%
30-39 y.o.	2 174	13,6%	5,8%	- 2,5%	- 16,0%
40-49 y.o.	1 908	12,0%	6,4%	- 4,0%	- 20,0%
50-59 y.o.	1 903	11,9%	7,9%	- 7,6%	+ 9,7%
60-69 y.o.	1 429	9,0%	10,5%	- 3,3%	+ 24,4%
70 y.o. and over	1 787	11,2%	14,6%	- 9,8%	+ 4,3%
Type of road:					
Motorw ays	1 080	6,8%	4,8%	- 5,6%	ND
Roads outside urban areas	7 516	47,1%	9,8%	- 0,4%	ND
Urban areas	7 348	46,1%	5,2%	- 2,8%	ND
Gender					
Men	12 085	75,8%	7,7%	- 0,1%	- 15,1%
Women	3 859	24,2%	4,6%	- 7,0%	- 16,0%

Source: G. Eiffel Univ. estimation for 2010 and ONISR for 2019 and 2021 based on BAAC data and the Rhône Registry (see p168)



Overview

In terms of road accidents, 2021 was much less affected than 2020 by the pandemic, although the effects of the latter were still being felt. 2021 was therefore both down sharply from 2019 and up sharply from 2020.

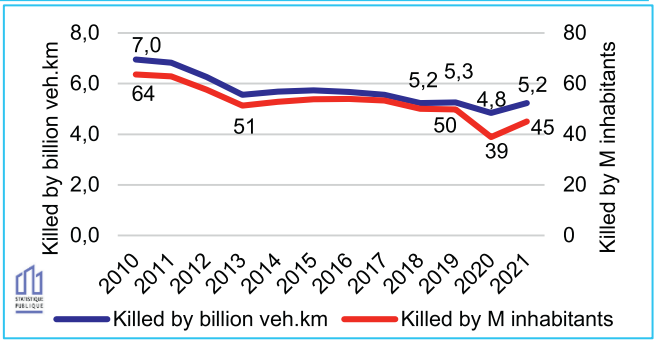
Report of accidents in France mainland

	Injury accidents		Injured people (all severities)		Seriously injured (MAIS3+)	Killed within 30 days
	BAAC	Estimated	BAAC	Estimated	Estimated	
2021	53 540	185 804	67 057	239 986	15 944	2 944
2019	56 016	184 068	70 490	239 045	16 248	3 244
2010	67 288	228 823	84 461	296 806	19 193	3 992
Evolution	- 13 748	- 43 019	- 17 404	- 56 820	- 3 249	- 1 048
2021 / 2010	- 20,4%	- 18,8%	- 20,6%	- 19,1%	- 16,9%	- 26,3%
Evolution	- 2 476	+ 1 736	- 3 433	+ 941	- 303	- 300
2021 / 2019	- 4,4%	+ 0,9%	- 4,9%	+ 0,4%	- 1,9%	- 9,2%

Report of accidents in Overseas Territories

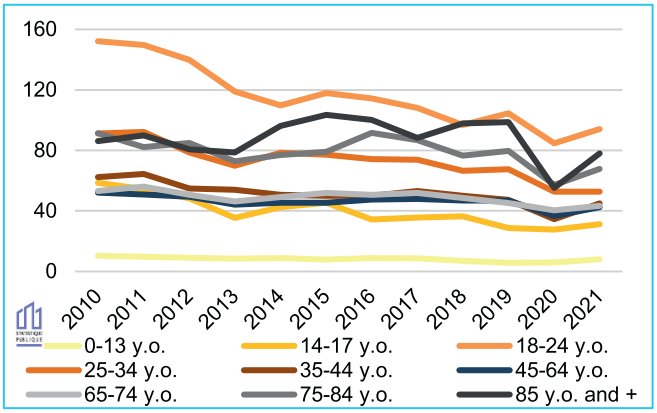
	Injury accidents		Injured people (all severities)		Killed within 30 days
	BAAC	Estimated	BAAC	Estimated	
2021	2 978	ND	3 769	ND	275
2019	2 824	ND	3 675	ND	254
2010	2 853	ND	3 706	ND	281
Evolution	+ 125	ND	+ 63	ND	- 6
2021 / 2010	+ 4,4%	ND	+ 1,7%	ND	- 2,1%
Evolution	+ 154	ND	+ 94	ND	+ 21
2021 / 2019	+ 5,5%	ND	+ 2,6%	ND	+ 8,3%

Variation in annual number of people killed per million population and per billion vehicle kilometers –France mainland



Sources: ONISR, Insee – population estimated, SDES – traffic estimated, interim for 2021

Variation in deaths per population by age group, 2010-2021 (fatalities/million population)



In 2021, 3,219 people lost their lives on France's roads (+ 15.8 % compared to 2020 and - 8.0 % compared to 2019), including 2,944 in France mainland (+ 15.9 % and - 9.2 %) and 275 in the French overseas territories (+ 15.1 % and + 8.3 %). This number is up from 2020, a record year due to traffic restrictions related to the fight against the COVID-19 pandemic, but down compared to 2019, the last reference year, as it was not affected by the health crisis Comparisons are therefore made between 2021 and 2019.

Since 2010, fatalities have decreased more (- 26.3 %) than the number of accidents in the BAAC (- 20.4 %).

In 2021, France mainland ranked 14th in the European Union (27) in terms of road deaths per population: 45 people were killed per million inhabitants in 2021. This ratio is higher than in 2020 (39 fatalities per million inhabitants) but remains lower than in 2019 (50 fatalities per million inhabitants). In the French Overseas Departments and Territories, this rate is more than double that of France mainland and reaches 99 fatalities per capita (84 in the DOM and 151 in the COM-NC).

Mortality in relation to traffic (in billions of km driven by vehicles) increased in 2021 in France mainland compared to 2020 with 5.2 fatalities per billion km driven by vehicles, which is slightly lower than in 2019. Traffic thus increased by + 7 % in 2021 compared to 2020, after a decrease of - 15 % compared to 2019 that year.

The following chapters concern France mainland, unless otherwise stated.

Road networks

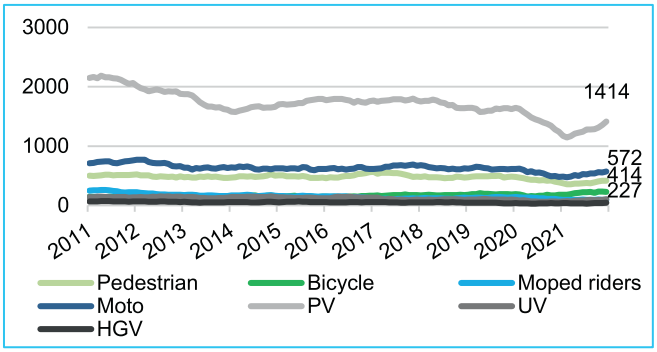
59 % of the people killed in 2021 were killed on a road outside urban areas. This represents 1,733 people, a decrease of 11 % compared to 2019. Urban areas account for one third of fatalities with 963 people killed in 2021 (- 7 % compared to 2019). The number of fatalities on motorways (248) is 6 % lower than in 2019.

Age group

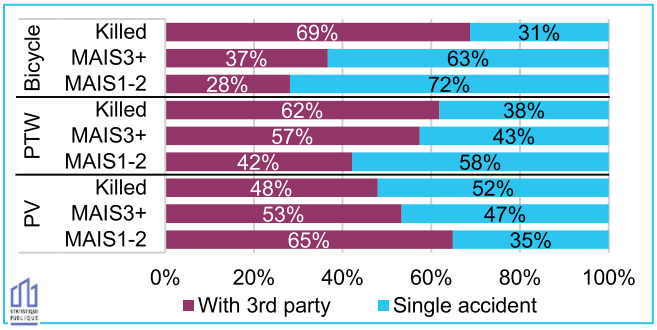
In 2021, 85 children aged 0-13 (+ 39.3 %) and 101 adolescents aged 14-17 (+ 9.8 %) died. However, their risk remains the lowest (13 fatalities/million population under 18). 18-24 years old have the most fatalities: 505 in 2021 (down 8.0 % from 2019). Their risk is the highest (94 fatalities/Minhab). Deaths among 25-34 years old (398) decline the most compared to 2019 (- 22.9 %).

Among seniors, the number of people killed aged 65-74 increased slightly (+ 1.3 %) with 321 killed, while the number of people aged 75 and over decreased by 15.6 % with 449 killed. This last category is the second in terms of mortality per million inhabitants with 71 fatalities per capita (up to 78 fatalities per capita for those aged 85 and over).

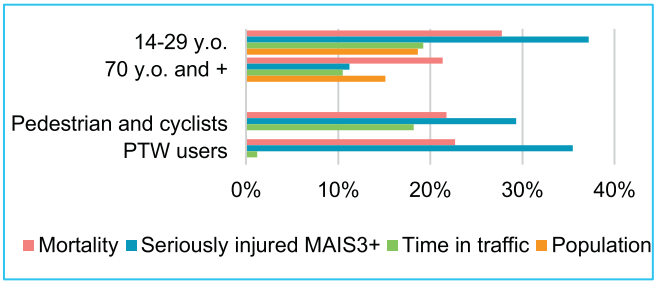
Mortality trends by type of user 2010-2021 (cumulative 12 months)



Breakdown of victims according to the presence of a third party in the accident and to the mode of travel



Share of different categories of problem users in mortality, morbidity, traffic and population



Factors in fatal accidents

Accidents are multifactorial and in France, the FLAM study on the triggers of fatal accidents concluded that traffic conditions contribute to 18 % of fatal accidents, infrastructure factors to 30 %, vehicle factors to 20 % and human factors to 92 %. In 2021, the primary human factors identified among presumed responsible (PR) fatalities are: Excessive or inappropriate speed is cited for 30 % of PRs, alcohol for 22 %, and illegal drug use for 13 %. (29 % of fatalities occur when at least one of the drivers involved was over the BAC level and 40 % in a crash with at least one driver under the influence of alcohol, drugs, or both Failure to obey other traffic laws was cited by 24 % of PRs and inattention by 13 %.

Mortality and injury estimated[1] by mode of travel

In 2021, 1,414 **passenger vehicle users** were killed, 208 fewer fatalities than in 2019. This represents 48 % of all roadway fatalities. This is the first time this share has been so low. The number of seriously injured (MAIS3+) is estimated at 4,700 (29 % of MAIS3+).

PTW users account for 23 % of road fatalities, with 572 motorcyclists and 96 moped riders killed in 2021. Compared to 2019, this represents a decrease of - 7 % and - 28 % respectively. The number of seriously injured (MAIS3+) is estimated at 5,700 (35 % of MAIS3+).

With 414 pedestrian fatalities, **walking** is the third most common mode of travel with fatalities, accounting for nearly 14 % of fatalities. The number of serious injuries (MAIS3+) is estimated at 2,000 (35 % of MAIS3+).

For the first time since 2002, the number of **cyclists** killed exceeds 200 with 227 deaths (including 25 on E-pedelec), 40 more than in 2019. This represents 8 % of fatalities, up from 4 % in 2010. 24 **motorized PMD users** also lost their lives compared to 10 in 2019. There was a number of serious injuries (MAIS3+) estimated at 2,700 cyclists and 400 motorized PMD, or 17 % and 3 % of MAIS3+ respectively.

Utility vehicle and **heavy goods vehicles** fatalities increase in 2021 to 103 fatalities and 44 fatalities, respectively (5 and 8 more than in 2019). For cyclists and PTW users, the severity is higher when another third party user is present in the accident, contrary to passenger vehicle users.

Issues in France mainland

In 2021, 2,944 people died. An estimated 16,000 people were seriously injured and 224,000 injured slightly or moderately. The goal for 2021-2030 is to reduce the number of fatalities and serious injuries by 50 %. Priority targets include:

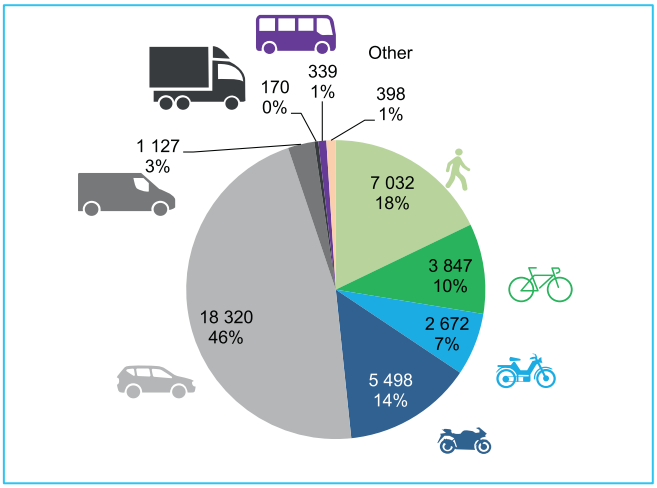
- 38 % of fatalities occur while at least one user is on a work-related trip ;
- PTW users account for 23 % of deaths, but 35 % of serious injuries, with a share of traffic of less than 2 % ;
- young people aged 14-29 account for 19 % of the population, 28 % of those killed and 37 % of those seriously injured ;
- Seniors aged 70 and over already account for more than 20 % of deaths, and the French population is aging ;
- In a context of development of active modes, pedestrians and cyclists account for 14 % and 8 % of deaths and 12 % and 17 % of serious injuries respectively.

[1] As an extension of the modelling carried out by the Gustave Eiffel University using the BAAC files and the register of victims of the Rhône hospitals, the ONISR produces an estimate of the number of injuries in 2021 (see methodology on page 168).

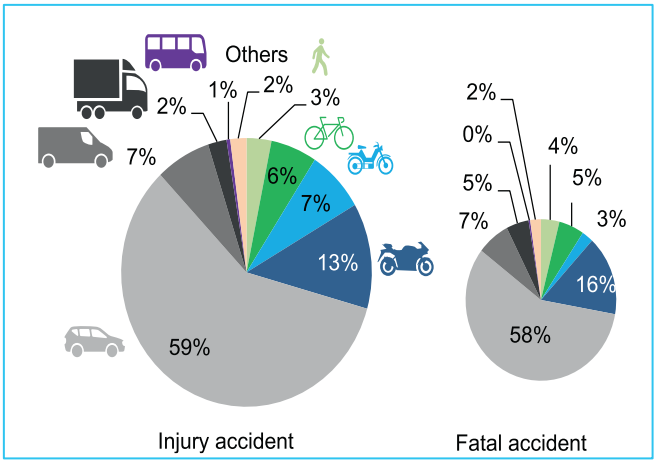
Non-responsible victims

When recording an injury accident, law enforcement defines a "presumed responsible" (PR) for that accident (driver or pedestrian). Non-responsible victims are defined as those killed or injured in the accident and not "presumed responsible": non-PR drivers, all passengers, and non-PR pedestrians.

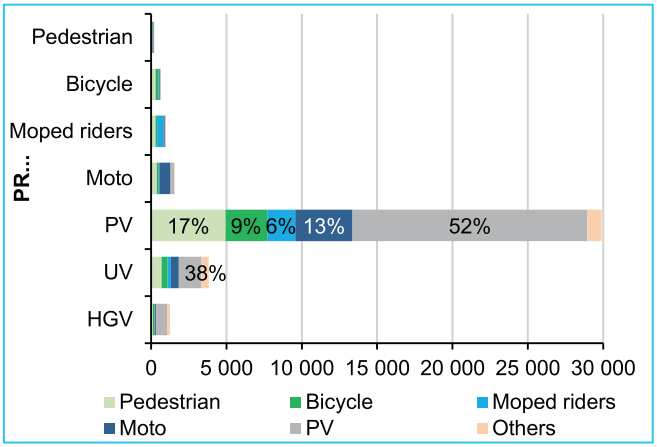
Victims (killed + injured) of the "non-responsible" sample by mode of travel



Distribution of "presumed responsible" by mode of travel



Mode of transport for victims of a "presumed responsible" by mode of travel



In 2021, 53,540 injury crashes had 67,057 injuries and 2,944 fatalities. Of these 70,001 victims, 41,515 were identified as not "presumed responsible" (PR) and 28,486 as "presumed responsible."

Victims killed or injured

In 2021, 48,135 crashes had a single PR with known age and at least one non-PR casualty. These crashes resulted in 26,457 presumed responsible victims and 39,403 non-presumed responsible victims.

Of these 39,403 victims, nearly half (46 %) of those killed or injured in an injury accident were in a passenger vehicle (PV).

7,032 victims (18 %) were pedestrians and 5,498 victims (14 %) were motorcyclists.

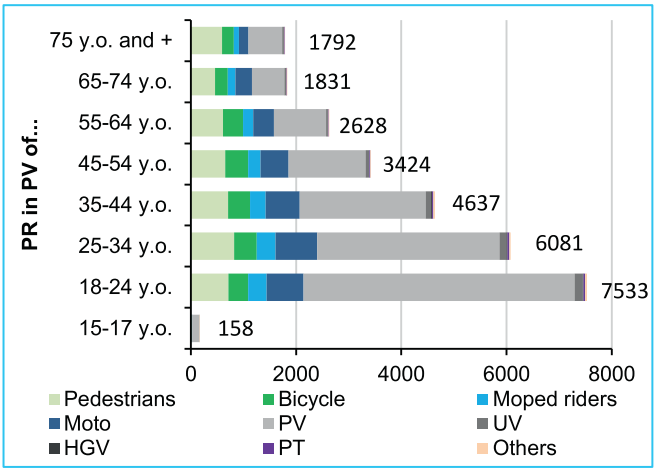
The proportion of PR drivers on motorcycles is higher in fatal accidents; motorcycle PR drivers are often killed. The proportion of PRs driving HGVs is more important in fatal accidents; the victims of the latter are often killed.

Victim of whom?

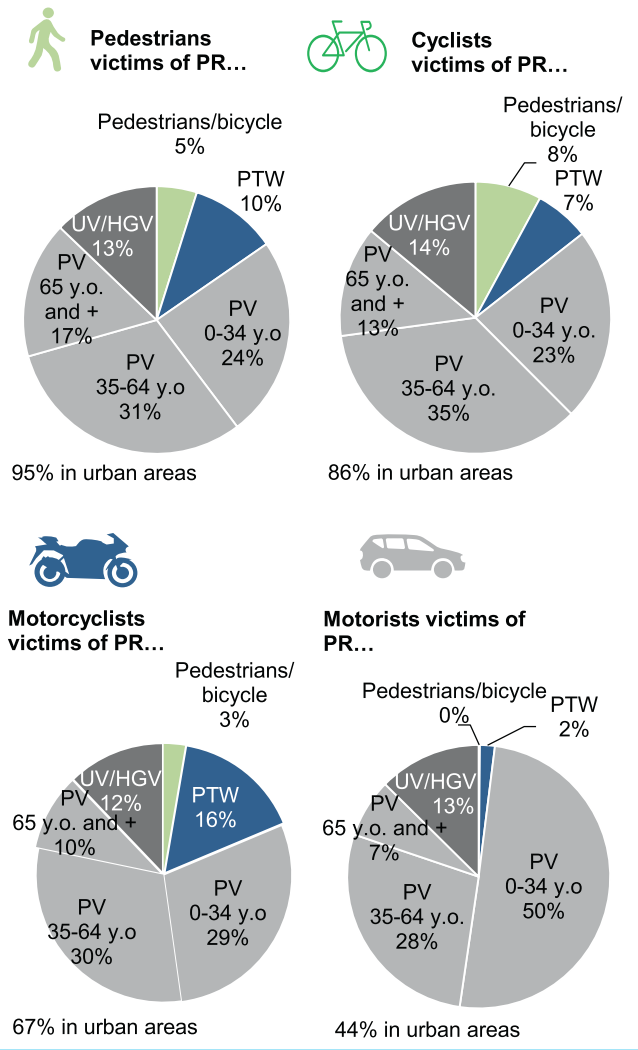
Nearly 30,000 people are victims of a "presumed responsible" driving a PV. 52 % of these victims are occupants of motor vehicles (more than 15,500, or 85 % of the 18,320 motor vehicle victims), 17 % are pedestrians (4,900 victims, or 70 % of the 7,032 pedestrian victims), and 13 % are motorcyclists (nearly 3,800 victims, or 69 % of the 5,498 motorbike victims).Motorist victims are killed or injured by "presumed responsible" aged 18-34: 27 % by those aged 18-24 and 22 % by those aged 25-34. Nearly two-thirds of the victims of these PRs are motorists.

While the number of pedestrian victims is stable, their share increases with the age of the PV in PR. Pedestrian victims account for 9 % of those killed or injured by a PV PR aged 18-24 compared to one-third of those of a PV PR aged 75 and older.

Mode of transport of victims by age of the PR in PV

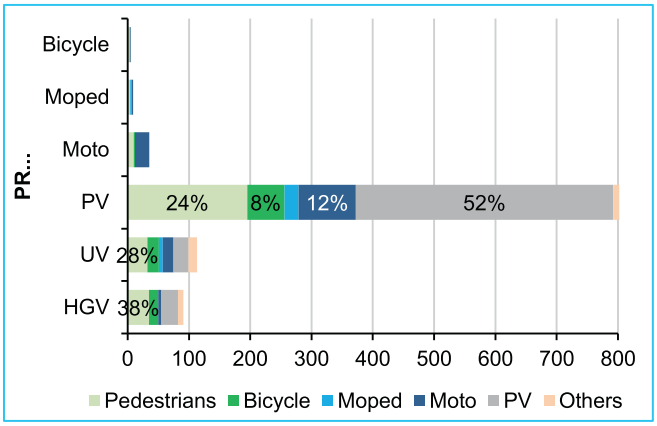


Distribution of "presumed responsible" for victims Pedestrians, Bicycles, Motorcycles and PV



Reading: Of all cyclists injured or killed who were non-PR, 35 % were victims of a presumed responsible passenger vehicle (PV) driver between the ages of 35 and 64.
86 % of cyclists are victims of a PR in urban areas.
Note: By convention, the first age range for PV PRs is 0-34 years old and there may be instances where a PV PR driver is a minor. In 2021, in single-vehicle PR crashes, the youngest PV driver PR is 11 years old.

Mode of travel of those killed by a "presumed-responsible", by mode of travel



The victims and their antagonists

The graph opposite shows the profile of the person considered "presumed responsible" for the accident for each category of victims (pedestrians, cyclists, motorcyclists and motorists).

Pedestrians and cyclists in urban areas are **mainly victims** of "presumed responsible" motorists aged 35-64 years old (31 % and 35 % respectively) or under 35 years old (24 % and 23 % respectively).

10 % of pedestrians are victims of powered-two/three wheelers (PTW) compared to 7 % of cyclist victims.

69 % of **motorcyclists** are victims of a "presumed responsible" driver of a **PV**. 16 % are victims of a "presumed responsible" motorcycle rider (the passenger is considered the victim of the driver, especially if the driver is "presumed responsible" for the accident).

Motorists are victims of other motorists 85 % of the time. Nearly half (49 %) of motorist victims are killed or injured by a "presumed responsible" motorist **under the age of 35**.

Utility vehicles (UV) victims are killed or injured by "presumed responsible" UV drivers. More and more UVs are used to transport people, with the victims believed to be passengers of the "presumed responsible" driver.

Heavy goods vehicles (HGV) drivers, protected by the body of the truck, can only be injured when the other driver is in a heavy vehicle, which explains the re-distribution of the "presumed responsible" for them as described below.

Public transport (PT) victims are also primarily passengers of the "presumed responsible" driver operating the bus or coach.

Victims killed

In 2021, of the 2,944 fatalities, 61 % are presumed responsible and 39 % are not.

More than 800 people are killed by a "presumed responsible" driver of a motor vehicle, representing 74 % of non-PR fatalities. 52 % of these fatalities are occupants of motor vehicles, 24 % are pedestrians and 12 % are motorcyclists.

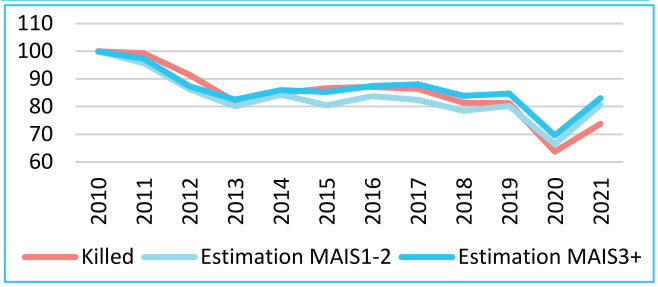
Pedestrians account for 28 % of fatalities by a PR driving a UV and 38 % of fatalities by a PR driving heavy goods vehicles.

Nearly half of the victims are killed by PRs aged 18-34, 80 % of whom are drivers of a PV.

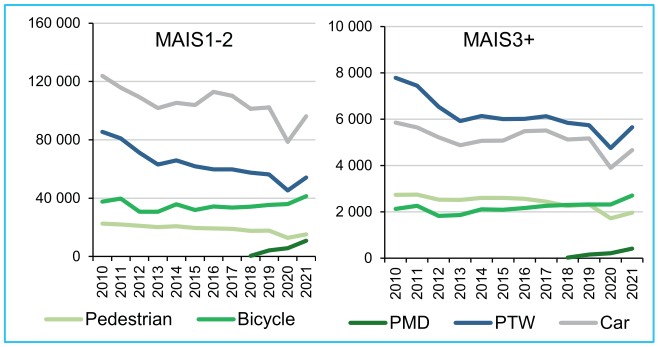
Severity of injuries

The results are given according to the 2005 version of the results are based on the 2005 version of the Abbreviated Injury Scale[1] (AIS1) and not on its previous version. In addition, the adjustment model used by the Rhône Registry has evolved, which has led to a rebasing of the data from 2006 to 2016. In the form and throughout the report, the AIS injury estimates are derived from **Eiffel Univ. over 2010-2016** and from the **ONISR over 2017-2021**[2].

Changes in the number of fatalities according to the BAAC and in the estimated number of injuries (base 100)



Evolution 2010-2021 of the number of MAIS1-2 (light) and MAIS3+ (serious) injured according to the national estimate of the Eiffel U. based on the Registry (2010-2016) and ONISR estimate (2017-2021)



Estimated number of injuries in France mainland in 2021

			MAIS 3+	MAIS 1-2	% MAIS 3+ / MAIS 1+
Type of user	Pedestrian	With 3rd party	1 967	15 184	13,0%
	Bicycle	With 3rd party	994	11 647	8,5%
		Single acc	1 715	29 792	5,8%
	PMD	With 3rd party	161	3 142	5,1%
		Single acc	252	7 701	3,3%
	PTW	With 3rd party	3 244	22 802	14,2%
		Single acc	2 409	31 352	7,7%
	Car	With 3rd party	2 492	62 425	4,0%
		Single acc	2 179	33 810	6,4%
	Other	With 3rd party	229	3 588	6,4%
		Single acc	303	2 598	11,6%
Age		00-13	810	14 738	5,5%
		14-19	2 646	39 703	6,7%
		20-29	3 286	61 401	5,4%
		30-39	2 174	35 452	6,1%
		40-49	1 908	27 771	6,9%
		50-59	1 903	22 250	8,6%
		60-69	1 429	12 234	11,7%
		70+	1 787	10 493	17,0%
Gender		Women	3 859	80 062	4,8%
		Men	12 085	143 980	8,4%

Managed by the Gustave Eiffel University (formerly Ifsttar), the Rhône Registry aims since 1995 to identify all victims of road accidents that occurred in the Rhône department. The data come directly from 245 hospital services that take care of the injured, whether they are hospitalized or only treated in the emergency room. Fatalities at the scene of the accident are also included.

A national estimation of injuries

The number of injuries recorded in the BAAC is underestimated in France because the police are not systematically called to the scene of a road accident if no one is killed. However, the Gustave Eiffel University allows to better estimate the real number of road injuries in France thanks to a model built by comparing the Registry data with the BAAC data for the Rhône area, and by projecting the observed underrecording to the national level. Since the Eiffel University estimate stopped provisionally in 2016, a number of injuries was calculated by ONISR using a simplified methodology for 2017-2021[2].

The number of injured

In 2021, it is estimated that **224,000 people will be slightly injured (MAIS1-2)** and **16,000 seriously injured (MAIS3+)** on the roads of France mainland.

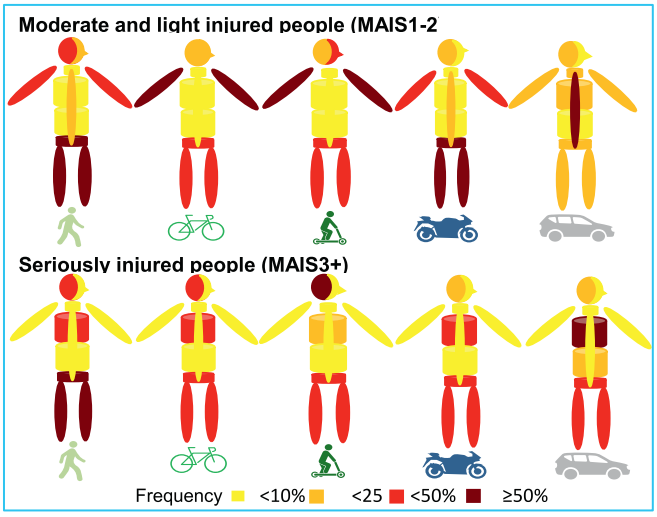
At the national level, **67 % of MAIS3+ injuries were vulnerable road users** (pedestrians, cyclists, moped users and motorcyclists). Powered two-wheeler users, who account for 1.2 % of the total time spent on the road by all modes[3], will have 5,600 serious injuries in 2021, 1,000 more than motorists, who, together with utility vehicle users, account for 72.3 % of total travel time. Serious injuries on bicycles have been higher than on foot since 2018, with 2,700 and 2,000 serious injuries respectively in 2021 for 2.1 % and 16.1 % of the time spent traveling.

Among cyclists, 72 % of slight injuries and 63 % of serious injuries were without third parties involved, compared to 32 % of fatalities. Among moped users, 71 % of the slightly injured and 61 % of the seriously injured were without a third party involved, compared to 33 % of fatalities. Among motorcyclists, 58 % of those slightly injured and 43 % of those seriously injured were without a third party involved, compared to 37 % of those killed. Among motorists, 35 % of minor injuries and 47 % of serious injuries were caused without a third party being involved, compared to 52 % of fatalities.

Cyclists and motorcyclists are more seriously injured when a third party is involved. In contrast, motorists are more seriously injured when no third party is involved in the accident.

[1] Details of the AIS injury scale are available on page 178.
[2] The ONISR estimates are obtained using a simplified methodology based on the Eiffel Univ. adjustment coefficients. Details are presented on page 168.
[3] EMP (Personal Mobility Survey) 2018-2019, SDES 2021

Location of injuries to injured people

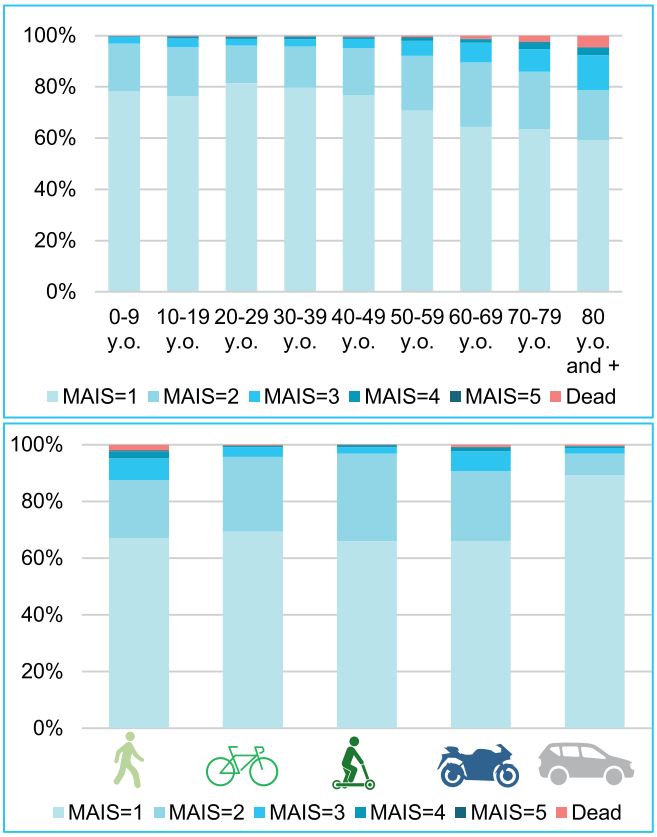


Source: Rhône Registry 2016-2020 (45 133 not-dead victims). *A victim can be affected in several areas.*

Order of magnitude of head injuries

	MAIS1-2 2021	MAIS3+ 2021	Proportion MAIS 1-2 affected at the head Rhone 2016-2020	Proportion MAIS 3+ affected at the head Rhone 2016-2020	Order of magnitude of the number of head injuries in France
Pedestrians	15 184	1 967	26%	36%	4 500
Cyclists	41 439	2 709	18%	26%	8 000
PMD	10 843	413	23%	51%	2 500
PTW	54 154	5 653	11%	14%	7 000
LV	96 236	4 670	21%	22%	21 000

Gravity of injuries depending on age and type of user



Source: Rhône Registry 2016-2020 (45 385 victims).

Location of injuries

Regarding minor or moderate injuries (MAIS1-2), half of the car occupants had spinal injuries (51 %). Powered two-wheeler users were mostly injured in the lower limbs and/or pelvis (65 %), followed by the upper limbs (48 %). Cyclists and moped users had traumatic injuries most often in the upper limbs (56 % and 52 % respectively) and lower limbs (40 % and 37 %). Pedestrians are mostly affected in the lower limbs (65 %) and upper limbs (37 %).

Serious injuries (MAIS3+) are mainly to the lower limbs and pelvis, the thigh and head, and to a lesser extent to the abdomen. More than half of the motorists with serious injuries. More than half of the motorists with serious injuries were injured in the thorax (54 %), followed by the lower limbs and pelvis (25 %), head (22 %) and abdomen (16 %). Serious injuries to pedestrians and cyclists were mainly to the lower limbs and pelvis (50 % and 40 % respectively), followed by the head (36 % and 26 % respectively) and the thorax (26 % and 28 % respectively). Powered two-wheeler users mainly suffer injuries to the lower limbs and pelvis (45 %), the thorax (43 %), and more rarely to the head (14 %). 51 % of seriously injured motorized PMD users have a head injury.

By applying the proportions of head injuries in the Rhône to the national level, it is possible to obtain an order of magnitude of **2,500 head injuries to motorized PMD users, 4,500 pedestrians, 7,000 PTW users, 8,000 cyclists, and 21,000 LV users**. These results should be interpreted with caution, because the proportions for the Rhône are applied to the whole of France, even though it is an urban department.

Detailed severity

The likelihood of a victim suffering serious injury or death increases with age. Only 16 % of children under 5 years of age suffer moderate to severe injuries (MAIS2 or more), while half of those 85 years of age and older do, mainly because of their greater physiological fragility in the event of an impact.

Pedestrians, cyclists, moped users and powered-two wheelers have a high proportion of moderate (MAIS2) and severe (MAIS3+) injuries compared to motorists, showing the vulnerability of these users, due to the lack of bodywork.

Among the survivors, the proportion of victims with severe injuries (MAIS4+) is higher among men (1.2 % vs. 0.7 % among women), pedestrians and motorcyclists (respectively 2.9 % and 1.7 % vs. 0.7 % and 0.6 % among cyclists and motorists). These severely affected patients, generally referred to a life-saving emergency facility, present mostly cranioencephalic, thoracic and abdominal-pelvic injuries.

Traumatic sequelae

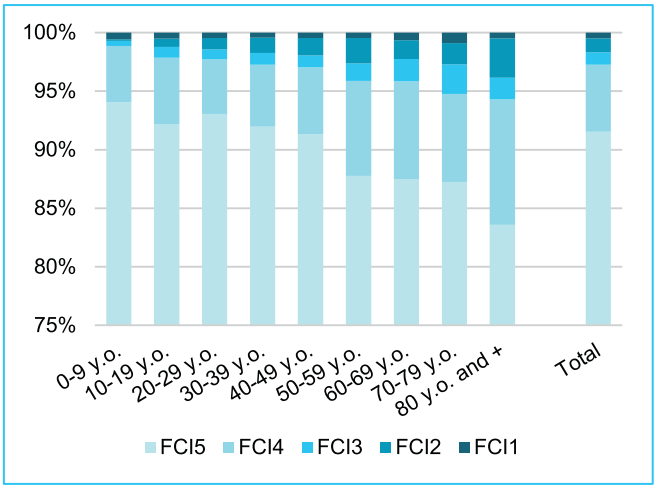
In the Rhône Registry, lesions are coded according to an international severity scale, the Abbreviated Injury Scale (AIS). Each AIS code is associated with a score that allows evaluating the severity of the injury: **functional capacity index (FCI)**. It has 5 levels, **from 1 for major deficiency** to 5 for no deficiency (see details of the FCI scale on page 178).

Functional capacity and gender

	Women	Men
Number	17184	27245
FCI1 : major sequelae	0,2%	0,7%
FCI2 : severe sequelae	1,2%	1,2%
FCI3 : serious sequelae	0,8%	1,2%
FCI4 : moderate sequelae	4,2%	6,7%
FCI5 : no sequelae	93,6%	90,2%

Source: Rhône Registry (2016-2020, non-deceased victims, numbers and % in row column).
Note for the reader: Of the 27245 male victims of a road accident in the Rhône between 2016 and 2020 treated in a hospital and not deceased, 6.7 % had moderate after-effects and 3.1 % had serious after-effects (from serious to major).

After-effects in terms of functional capacity by age of victims



Functional capacity and main user types

	Pedestrian	Bicycle	PTW	Car	Total
Number	3583	9118	8237	18543	39481
FCI1	1,4%	0,4%	0,8%	0,2%	0,5%
FCI2	2,7%	0,7%	2,1%	0,8%	1,2%
FCI3	1,8%	1,0%	2,0%	0,5%	1,0%
FCI4	10,4%	7,9%	10,4%	1,2%	5,5%
FCI5	83,7%	90,0%	84,7%	97,3%	91,8%

Source: Rhône Registry (2016-2020, non-deceased victims, numbers and % in columns).

Pain is not part of the FCI scale. However, according to a study on the ESPARR cohort in the Rhône (see page 169), **two years** after the accident, pain persists in 77 % of the seriously injured (MAIS3+) and 43 % of the slightly injured (MAIS1-2).

Data on the sequelae of road users who have been involved in accidents are scarce, as they require a medical approach and long-term follow-up of patients. The Rhône Registry of road accident victims, which is based on hospital data unlike the BAAC files drawn up by the police, makes it possible to analyse the after-effects of road accident victims more than one year after the accident occurred.

Levels of sequelae

Major sequelae (FCI 1) affect 0.5 % of survivors. These sequelae are mainly secondary to neurological damage (haemorrhage or intracerebral haematoma) and then spinal cord damage leading to tetraplegia (cervical cord section) or paraplegia (dorsal cord section). To a lesser extent, these major sequelae are of orthopaedic origin (complete lesion of the brachial plexus, section of the sciatic nerve).

Severe disabilities (FCI 2) are present in 1.2 % of victims. They are mainly orthopaedic and are the consequences of complex joint fractures, serious knee dislocations or amputations. More rarely, serious damage to the abdomen (pancreatic injury, rupture of the urethra) has been observed.

1.0 % of the injured suffer serious sequelae (FCI 3). The injuries responsible are mainly orthopaedic, resulting from damage to the tibiotarsal, mediotarsal or subtalar joints. Then come the neurological lesions (multiple parenchymatous contusions of the brain) and the attacks of the face (lesions of the inner ear, the eyes).

Victims with moderate after-effects (FCI 4) mainly have orthopaedic injuries. These sequelae concern 5.5 % of the injured. The injuries most frequently responsible are radial head fractures and malleolar fractures.

The vast majority of the injured (91.8 %) will not suffer any functional physiological consequences of the initial injury.

Characteristics of victims with after-effects

Men are more affected by sequelae than women (9.8 % vs. 6.4 % of survivors), regardless of the level of impairment. The proportion of victims who will retain after-effects increases with age: 6 % for those under 10 years of age, 16 % for those aged 80 and over who survive an accident. We can also observe the great vulnerability of pedestrians and motorcyclists, who are more frequently affected by after-effects than other users.

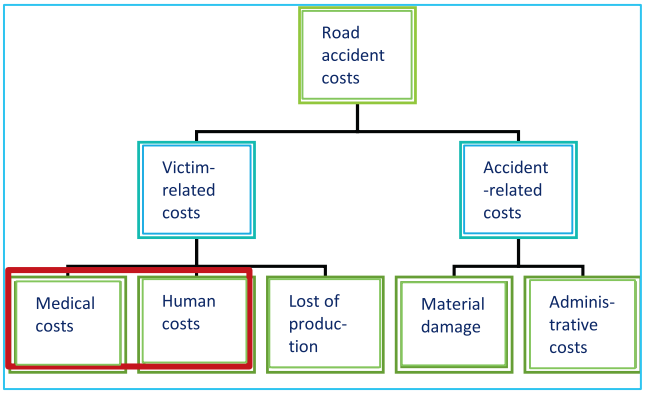
In total, if the **major sequelae** are neurological or spinal, **the most frequent sequelae** are of orthopaedic origin.

Cost of road insecurity

The road safety benchmarks are based on GDP per capita and are updated annually. In 2021, they amount to:
- 3.575 million euros for a person killed,
- 446,887 for an injured person hospitalised for more than 24 hours,
- 17,875 for a slightly injured person,
- 5,482 euros for material damage (property damage or personal injury).

These reference values and evaluation methodologies are specified in **the instruction of 16 June 2014** on the evaluation of transport projects and the methodological note of 1 October 2014, in accordance with the recommendations of the **Quinet** mission report, published in 2013, on the socio-economic evaluation of public investments and inspired by an OCDE report.

Breakdown of road traffic accident costs



Source: European Project "Safetycube", 2017.

Estimated total cost of road insecurity 2021 according to the Quinet report and the VALOR report

2021		Number	Quinet	VALOR
References values (k€)	Killed	-	3 575	5 743
	Seriously injured MAIS3+ *	-	447	891
	Non-seriously injured	-	447	718
	Slightly injured	-	18	29
	Damage	-	5	*5*
Evol. Values	2019-2021	-	0,8%	0,8%
	2010-2021	-	19,2%	19,2%
Cost (billion €)	Killed	2 944	10,5	16,9
	Seriously injured MAIS3+ *	15 944	7,1	14,2
	Non-seriously injured	31 888	14,3	22,9
	Slightly injured	192 154	3,4	5,5
	Injury accident	185 804	1,0	1,0
	Damage-only accident	1 816 807	10,0	*10,0*
Total cost (billion €)	2021	-	46,3	70,5
	2019	-	48,6	73,5
	2010	-	48,2	74,5

*Pending updated modelling by the Gustave Eiffel University, the ONISR has produced provisional estimates for the years 2017-2021 (see p. 168) for MAIS3+ and MAIS1-2 casualties, which are then split into non-serious hospitalised casualties (twice the number of MAIS3+) and light casualties (the rest). The number of bodily injuries is estimated using the ratio of estimated victims to BAAC victims.

Road safety costs were the first to be included in the socio-economic evaluation of transport infrastructure. They correspond to different components: medical and social costs, production losses, emotional damage, etc.
Work by the Gustave Eiffel University on hospital data (Rhône Register) and police data (BAAC file) suggests that the actual number of injuries is at least four times that recorded in the BAAC. Based on the latest modelling of the Register for 2016, the ONISR has developed a method for estimating the number of injuries over the years 2016-2021 (page 168).

In 2021, the cost of injury accidents in France mainland, calculated based on the tutelary values (Quinet) shown opposite, will be €36.4 billion, distributed as follows:
- **10.5 billion for mortality ;**
- **21.4 billion for hospital admissions ;**
- **3.4 billion for minor victims ;**
- **1.0 billion for material damage resulting from these accidents.**

In addition to the cost of accidents involving injuries, there is also the cost of material accidents alone. In 2021, 1.23 million material accidents were reported to insurance companies[1], for third party liability, to which must be added 587,000 vehicle damages estimated for single vehicle accidents. The cost of non-injury accidents corresponding to material damage alone is around €10.0 billion.

The total cost of road insecurity (Quinet values) is therefore €46.3bn, i.e. 1.9 % of GDP, and down by - 4.6 % compared to the cost of road insecurity in 2019.

France has chosen to use "12.5 % of the statistical value of human life" for injuries lasting more than 24 hours and "0.5 %" for minor injuries. These values follow the recommendations of the European HEATCO project (Bickel, P., Friedrich, R., et al. 2006), which suggested taking a percentage of the statistical value of human life when a direct calculation cannot be made.

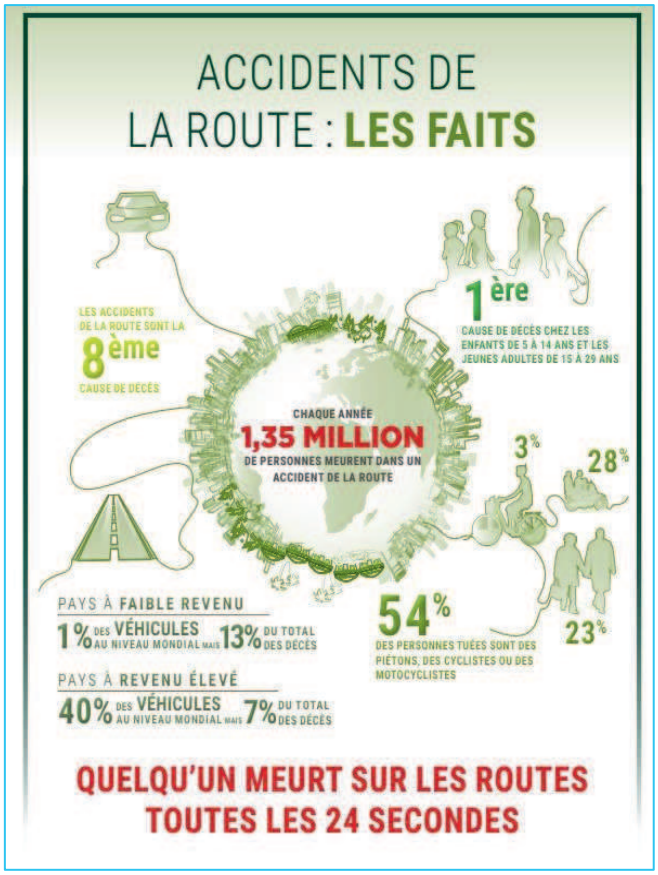
The M-VASEM research project of the Gustave Eiffel University, which is part of the European VALOR project, has produced an estimate of the unit value of a killed or seriously injured person on the basis of all costs incurred. The results give a value of statistical life that is 1.6 times higher, and a value of serious injury that is twice as high as those established by the Quinet report. On the basis of these figures, **the cost of road safety can be estimated at €70.5 billion** in 2021.

In 2019, the last year without a pandemic, the increasing trend in pedestrian values since 2010 offset the decrease in road accidents over the decade.

[1] Source: France Assureurs.

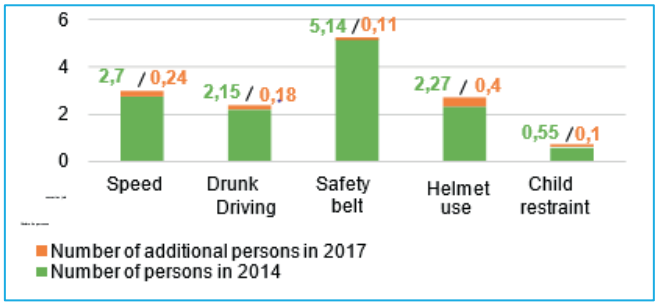
Road safety in the world

Road accidents in the world: facts (2018)



Source: WHO Global Status Report for Road Safety 2018 – WHO

Populations covered by best practice legislation, 2014-2017



Source: WHO Global Status Report for Road Safety 2018 – WHO

Road safety to 2030: securing a decade of action and achievement

"Road safety is an urgent development priority, a major public health issue and a matter of social equity, particularly in low- and middle-income countries, where more than 90 % of road traffic deaths and injuries result from, among other things, increased road traffic, rapidly expanding infrastructure and the heterogeneous composition of traffic.

Source: Political Declaration - UN General Assembly - June 2022

Statistical and legal issues

In many low and middle-income countries, the collection of crash data is the first step in defining a relevant road safety policy.

Currently, 123 countries (representing nearly 6 billion people) have best practice laws for at least one of the top 5 behavioural risk factors.

Since 2014, 22 countries have amended their legislation on one or more risk factors to comply with best practice, covering an additional 1 billion people, or 14 % of the global population.

A global target to reduce road fatalities

Among the **17 Sustainable Development Goals** (SDGs) adopted by 193 United Nations member countries in 2015, target 3.6 sets the ambitious goal of reducing road deaths and injuries and **target 11.2** aims to ensure access to safe, accessible, affordable and sustainable transport systems for all by 2030.

To encourage and monitor progress on the various road safety risk factors, the WHO has developed 12 **voluntary global performance targets**, each with one or more indicators. The document Towards the 12 voluntary global targets for road safety, published in 2020, provides guidance on how to operationalise these targets (definition of relevant indicators, measures to be taken and calculation method).

In 2020, Resolution A/RES/74/299 "Improving global road safety", adopted by the **UN General Assembly**, sets a new target for the international community to **reduce the number of road deaths by 50 % by 2030**. To this end, in 2021, the Global Plan for the Decade of Action for Road Safety 2021-2030 is being developed by WHO and the United Nations to guide and assist countries in implementing the Decade of Action and its goals.

At the end of June 2022, the first meeting on "Road Safety by 2030: Securing a Decade of Action and Achievement" led to the adoption of a United Nations Political Declaration, which reiterates the importance of strengthening international cooperation to raise awareness and address road safety issues. **A further meeting will be held in 2026** to undertake a comprehensive mid-term review of the implementation of the Declaration to identify gaps and possible solutions to accelerate progress towards the achievement of the road safety related sustainable development goals by 2030.

National Road Safety Strategies to 2030

In 2020, the European Commission set out the European Union's road safety policy framework for the 2021-2030 decade of action. In addition, the European Parliament resolution of 6 October 2021 makes recommendations to achieve:

- the long-term strategic goal of moving towards "zero deaths" and "zero serious injuries" on the Union's roads by 2050 ("Vision Zero");
- **and its medium-term objective of halving the number of deaths and serious injuries by 2030 compared to the baseline year of 2019,** in line with 2017 La Vallette Declaration 2017.

The European Transport Safety Council's (ETSC) annual Road Safety Performance Index report, published in June 2021, shows that of the 32 countries surveyed, almost all reported having a new road safety strategy in place or under development for the coming decade (2020-2030). This includes the 27 EU countries, the UK, Switzerland, Israel, Norway and Serbia.

A « safe system » approach

Following on from the Stockholm Declaration of February 2020 in which **the safe system approach** is promoted, the International Transport Forum (ITF) proposes, in the report Road safety in city (2021), 9 groups of measures that have proven to be effective in reducing the number of people killed and injured on roads in cities.

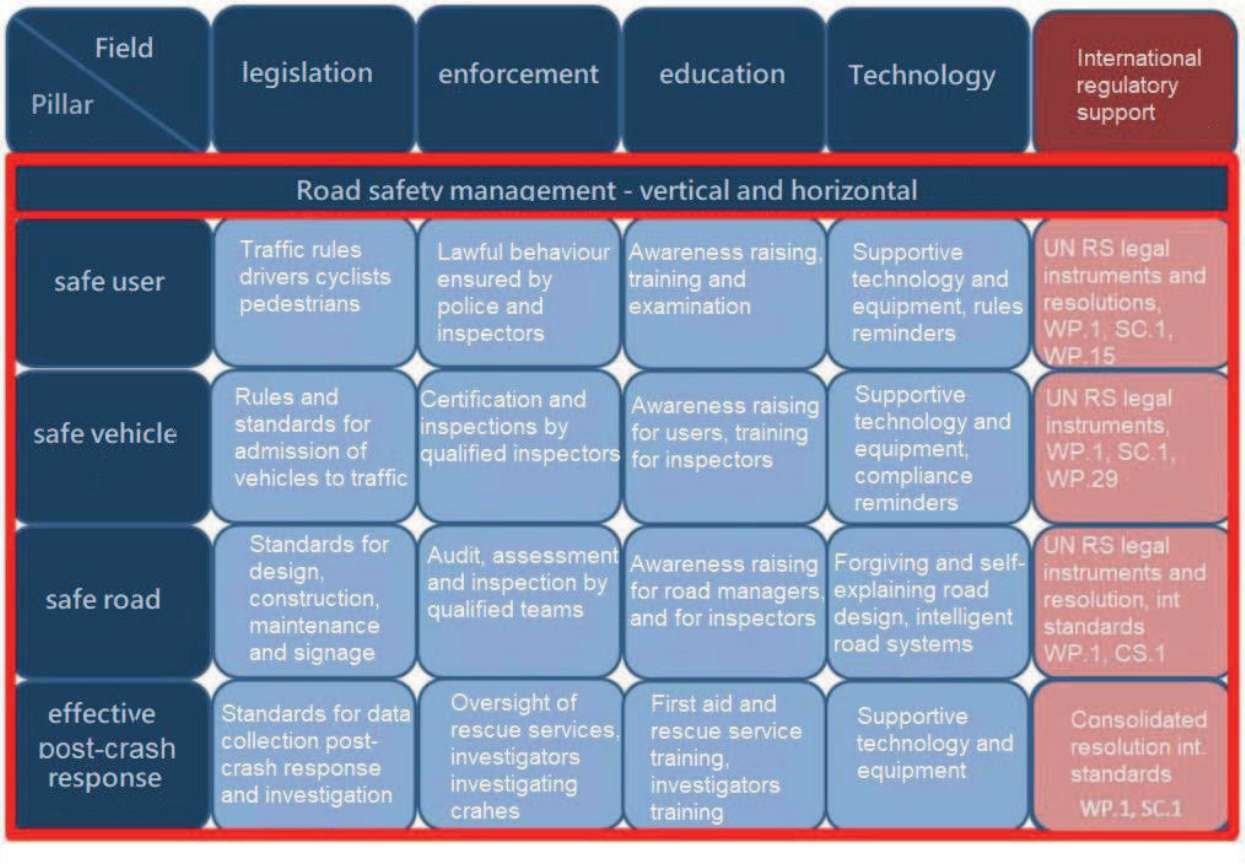
The impact of Covid-19 pandemic

The IRTAD annual report (2021) measuring the impact of Covid-19 on road safety showed an 8.6 % decrease in fatalities in 2020 compared to the 2017-2019 average (of 34 IRTAD countries).

The recommendations focus on four areas: monitoring mobility patterns to better understand crash exposure risks, using data on mobility and crash exposure from the Covid-19 pandemic to plan infrastructure investment, more systematically collecting data on road safety behaviour, and accelerating investment to meet the UN's 2030 target.

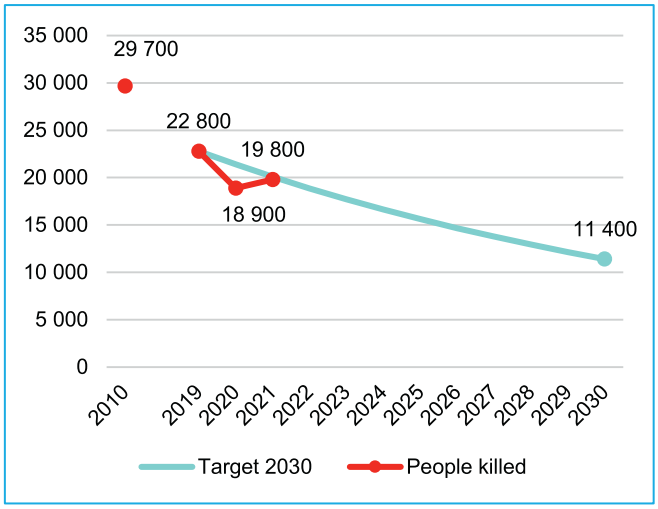
Fields of action

This diagram represents the interconnection of the 5 pillars of the Global Action Plan for the Decade of Action for Road Safety 2011-2020 (management, user, vehicle, infrastructure and emergency response) with the key action areas (legislation, enforcement, education, technology).



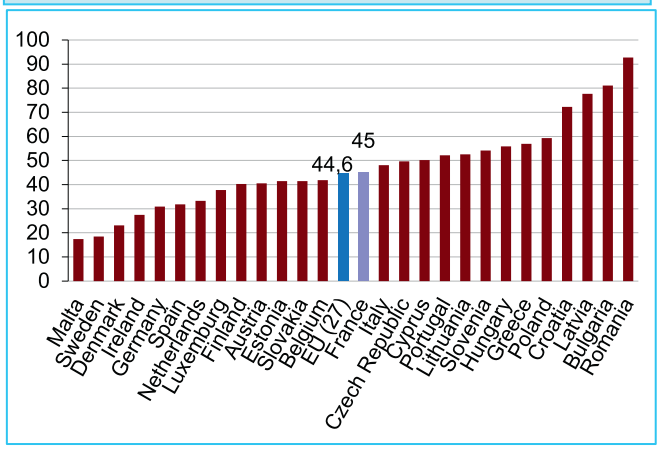
Road safety in France and Europe

Mortality trends in the European Union (results for 27 countries): target 2030



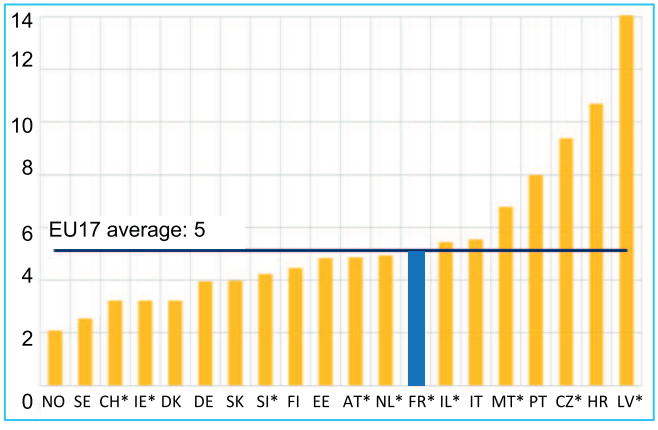
Provisional 2021 data
Source: European Commission, DG-Move, June 2021.

Road deaths per million inhabitants in Europe (provisional data 2021)



Source: ETSC, 16th Annual Road Safety Performance Index (PIN) Report June 2022.

Road deaths per billion vehicle-km in Europe (average 2019-2021)



* Average over 2018-2020
Source: ETSC, 16th Annual Road Safety Performance Index (PIN) Report, June 2022.

Approximately 1.35 million people die each year on the roads worldwide[1], of which 2 % are in the European Union. The provisional balance sheet for 2021 shows **19 800 deaths for the 27 EU Member States**, i.e. an increase of + 5 % compared with 2020, an exceptional year, but a decrease of -13 % compared with 2019. While these trends are in the same direction in France mainland, the orders of magnitude vary (+ 15.9 % and - 9.2 % respectively). With the start of the 2021-2030 decade, a new objective of halving the number of deaths and serious injuries [2] has been set. In terms of morality, the reference year used is 2019, the last year before the health crisis of 2020. The aim is therefore to fall below 11 400 deaths in the EU27 by 2030.

Road mortality in Europe

According to the first estimates for 2021, the largest decreases compared to 2019 are in Malta (- 44 %), Denmark (- 32 %) and Norway (- 26 %). On the other hand, increases have been recorded for some countries, with the largest increases in the three Baltic countries: + 11 % in Latvia, + 9 % in Lithuania and + 6 % in Estonia.

France's share of road deaths in the EU27 is 14.9 % for an almost identical weight (14.7 %) in the population. The number of fatalities per million inhabitants in the EU is 45 in 2021 (identical to France), compared with 42 in 2020 and 51 in 2019. In 2021, the spectrum ranges from 17 fatalities per inhabitant in Malta to 93 in Romania, i.e. 5.4 times more, passing through 31 for Germany, 32 for Spain, or 48 for Italy.

France has a road death rate in relation to traffic equal to the EU average (5 fatalities per billion vehicle kilometres travelled) over the three years 2018, 2019 and 2020.

According to age groups (EU27[3], 2020)

In 2020, in Europe, young people aged between 15 and 24 will represent 10.6 % of the population but 14.4 % of road deaths. In France, whereas in 2010 they accounted for 24.8 % of deaths for 12.4 % of the population, in 2020 they will account for 20.7% of road deaths for 12.0 % of the population. The average mortality rate of senior citizens (aged 65 and over), which until now has been significantly lower in France than the European average, has been approaching it since 2013. Seniors represent 27.4 % of European mortality for 20.8 % of the population. In France, in 2020, they will represent 25.3 % of mortality for 20.7 % of the population, compared with 19.1 % of mortality in 2010.

[1] The proportions of fatalities by age group are calculated without figures for Ireland, Malta and Lithuania, which are not available for 2020.
[2] EU Road Safety Policy Framework 2021-2030
[3] The proportions of fatalities by age group are calculated without the figures for Ireland, Malta and Lithuania, which are unavailable for 2020.

Exposure data

Population (millions inhab) (at 01/01/2020)	83,17	47,33	67,32	59,64	447,32	67,03
Surface area (thousand of km²)	357,1	506,0	551,5	301,3	4 470,6	243,8
Motorway network (km) (2019 data)	13 183	15 585	11 671	6 966	74 009	3 857
Total road network (thousands of km) (2019	230	667	1 104	235	4 467	423
Road traffic (billions veh-km) (2019 data)	902,3	342,0	787,3	732,4	4325,0	737,6
Motorization (LV/1000 inhab) (2019 data)	574	519	569	663	553	491
Parc LV (millions veh) (2019 data)	47,7	24,6	38	39,5	247,4	32,9
Parc PTW (millions veh) (2019 and 2017 data for	4,5	5,5	3,0	9,5	35,2	1,3
Speed limit motorways	130 conseillé	120	110-130	110-130	/	112

Source: The European Commission, Statistical pocketbook year 2021, European transport in numbers, 2022.

Mortality per million inhabitants

In 2000	91	144	137	124	/	61
In 2015	43	36	54	56	55	28
In 2019	37	37	50	53	51	28
In 2020	33	29	39	40	42	24
Estimation 2021	31	32	45	48	45	23

Source: The European Commission, DG-Move, June 2021.

Road fatalities by user category

Motorists	1170	544	1243	1018	8136	618
Motorists killed / Total	43%	40%	49%	43%	43%	42%
PTW	552	345	579	645	3443	285
Killed PTW / Total	20%	25%	23%	27%	18%	20%
Cyclists	426	71	178	175	1849	141
Killed cyclists / Total	16%	5%	7%	7%	10%	10%
Pedestrians	379	260	391	409	3545	346
Killed pedestrians / Total	14%	19%	15%	17%	19%	24%
Total 2018	2719	1370	2541	2395	18834	1460

Source: CARE database, 2020 data.

Road mortality by age

Killed 15-17 y.o.	64	21	77	47	402*	40**
Killed 15-17 y.o. / Total	2,4%	1,5%	3,0%	2,0%	2,2%*	2,2%**
Population 15-17 y.o. / Total	2,7%	3,1%	3,7%	2,9%	3,1%	3,2%
Killed 18-24 y.o.	326	114	449	236	2258*	236
Killed 18-24 y.o. / Total (%)	12,0%	8,3%	17,7%	9,9%	12,2%*	13,1%
Population 18-24 y.o. / Total	7,4%	7,1%	8,2%	6,9%	7,5%	8,5%
Killed 15-24 y.o.	390	135	526	283	2660*	276**
Killed 15-24 y.o. / Total	14,3%	9,9%	20,7%	11,8%	14,4%*	15,3%**
Population 15-24 y.o. / Total	10,1%	10,2%	12,0%	9,8%	10,6%	11,8%
Killed ≥ 65 y.o.	894	362	643	756	5064*	552**
Killed ≥ 65 y.o. / Total	32,9%	26,4%	25,3%	31,6%	27,4%*	30,5%**
Population ≥ 65 y.o. / Total	22,0%	19,8%	20,7%	23,5%	20,8%	18,4%

Source: CARE database, 2020 data.
*Data for EU24 without Ireland, Malta and Sweden, for which data by age group is missing in 2020.
** Estimated for the UK, as details are not available.

Road mortality by network

Roads outside urban areas	1 126	751	1 497	1 139	8 770	846
Killed roads outside urban area / total	41,4%	54,8%	58,9%	47,6%	46,6%	57,9%
Roads in urban areas	696	395	843	1 061	6 578	535
Killed roads in urban areas / total	25,6%	28,8%	33,2%	44,3%	34,9%	36,6%
Motorways	317	224	201	195	1 474	79
Killed motorways / total	11,7%	16,4%	7,9%	8,1%	7,8%	5,4%

Source: CARE database, 2020 data.

Comparative analysis (EU27)

Since 2000, road deaths in France have been in the European average. In 2021, this is still the case with 45 people killed per million inhabitants for France and the EU27, the indicator used for comparisons. Among the neighbouring countries for this year, Germany has 31 people killed per million inhabitants, Spain 32 and Italy 48. The UK, which is no longer part of the EU, has 23. The disparities are even greater when it comes to youth mortality. While mortality in relation to the population aged 65 and over is lower in France than in the other four countries compared, mortality in relation to the population aged 15-24 is much higher, although the gap has narrowed considerably since 2010.

France has territorial specificities that make comparisons difficult. Its population is equivalent to that of Italy and the UK, and smaller than that of Germany. However, the size of France and the length of the French road network are much larger: maintaining and improving such a road network represents a significant cost to the French taxpayer and limits the amount of network that can be upgraded to high service level.

The overall traffic volume in France is lower than in Germany but higher than in the UK. However, the size of the French road network The French road network is better able to absorb it. Traffic is less dense, which favours higher speeds. In Germany and the United Kingdom, despite higher maximum authorised speeds than in France on roads outside urban areas, speeds are often quite constrained in practice by congestion and traffic density. Almost 60 % of deaths in France occur on roads outside urban areas, a higher rate than in the four countries mentioned (Germany, Spain, Italy and the UK). Motorways account for 7.9 % of deaths in France, compared with 11.7 % in Germany: the length of French motorways is only 11.5 % less, but the speed limit is 130 km/h. 24 people died in Germany for every 1,000 km of motorways, compared with 17 in France. In 2020, the share of two-wheeled motorbike users in the death toll in France (23 %) is one of the highest in the EU. It is slightly lower than in Italy (27 %) despite a much smaller number of motorcycles (estimated in 2019 at 4.1 million in France compared to 9.5 million in Italy). Cycling mortality in Germany is more than double that observed in France; it now remains to quantify the practice.

While the issues at stake in France are 15-24 years old, PTW users and roads outside urban areas, the issues in neighbouring countries also serve as an early warning of the societal changes that will emerge in France. Issues in neighbouring countries also serve as an early warning of the societal changes that will emerge in France. Mortality among people aged 65 and over is increasing in all the countries observed, and is a strong trend, probably coupled with pedestrian and cyclist issues.

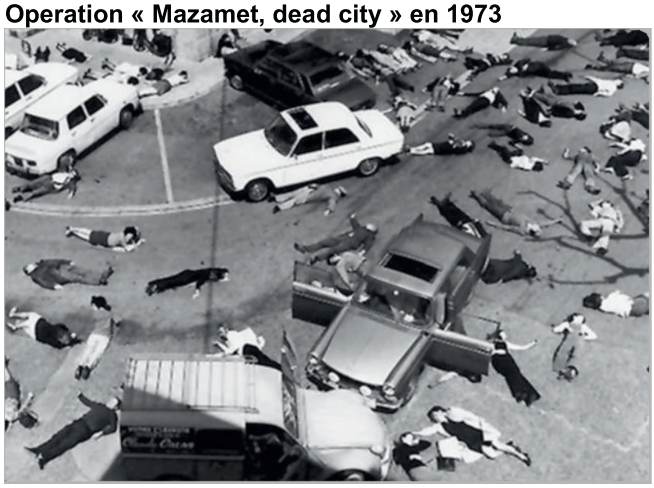
The history of road safety in France

From the post-war period to the present day, almost 700,000 people have been killed on France's road.

Map of black spots on NR treated from 1983 to 1990

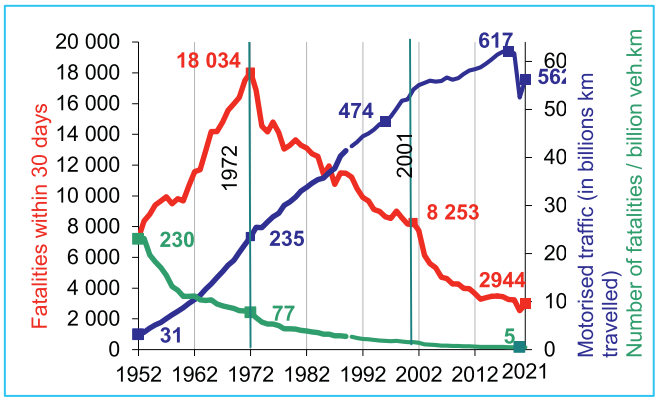
Source: DDM, Road prevention.

Operation « Mazamet, dead city » en 1973



Source: Road prevention.

Comparative evolution of mortality and road traffic between 1952 and 2021*



The traffic data provided by SDES has been rebased in 2021 for the years 1990 to 2020
*2021: provisional data

Long-term improvement in road safety is the result of proactive action on three fundamental and inseparable fronts: infrastructure (design, maintenance, and operation), the vehicle (passive and active safety) and user behaviour (education, prevention, enforcement). Better care for the injured and medical progress complete the system.

From post-war to 1970

The road accident rate exploded after the war with the expansion of the car fleet, inadequate road networks and insufficiently trained drivers. The accident data collection system, which was made reliable in 1954, recorded 7,166 people killed on three days (killed on the spot or in the three days following the accident). Road safety was not yet considered a public policy issue, but from 1960 onwards, the treatment of black spots was launched. Between 1960 and 1970, mortality increased by 56 %, traffic increased by a factor of 2.3 and the number of people killed per billion km travelled fell from 111 to 81.

From 1970 to 1980

Road safety policy was organised: creation of the interministerial road safety committee, appointment of an interministerial delegate. In 1972, the mortality peak was reached: 16,545 deaths recorded in 6 days (equivalent to more than 18,000 deaths in 30 days). This situation was denounced in 1973 by the 16,000 inhabitants of Mazamet lying on the ground. This collective awareness enabled the government to impose speed limits (SL), the wearing of safety belts in the front and helmets for motorcyclists on all networks. During this decade, the death rate fell by 30 % for a 1.6-fold increase in traffic and the number of people killed per billion km fell from 81 to 43.

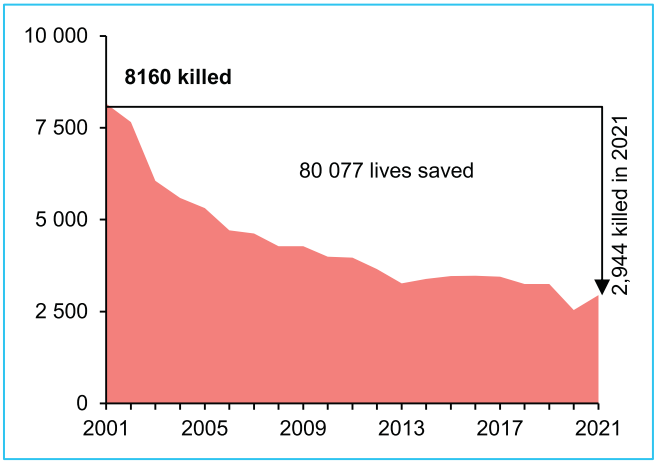
From 1980 to 1990

The decrease in mortality is slowing down. Local road safety policy was implemented with the departmental road safety action plans and the REAGIR[1] programme following the Beaune accident in July 1982 (53 deaths including 44 children). The blood alcohol limit was lowered from 1.2 to 0.8 g/l. Vehicles are now equipped with anti-lock systems. The construction of roundabouts significantly reduces the number of fatal accidents[2]. In the end, the number of deaths fell irregularly by 20 % over the decade, while traffic increased by a factor of 1.4. The number of people killed per billion km-travelled fell from 43 to 27.

[1] REAGIR: Respond with serious accident investigations and remedial initiatives.
[2] Martine Vertet et Thierry Brenac, *Les carrefours giratoires comme aménagements de sécurité routière*, Colloque « La sicurezza stradale », mars 1998.

Source: Road safety, 2006.

Number of lives saved in France mainland compared to 2001 mortality



Evolution in the age distribution of road deaths in France mainland from 2010 to 2030

Year	2010	2021	2030
Mortality	3 992	2 944	projection
Share of			
0-13 y.o.	2,8%	2,9%	0,8%
14-17 y.o.	4,5%	3,4%	0,9%
18-24 y.o.	20,8%	17,2%	14,1%
25-34 y.o.	17,6%	13,5%	12,2%
35-44 y.o.	13,7%	12,4%	10,8%
45-54 y.o.	12,7%	12,0%	8,3%
55-64 y.o.	8,8%	12,4%	22,5%
65-74 y.o.	6,6%	10,9%	7,5%
75 y.o. and +	12,5%	15,3%	22,8%

The projection to 2030 is obtained from the INSEE demographic projection (central scenario); by extending for each age group the 2015-2019 evolution of mortality in relation to the population.

Population distribution by age group in 2030

0-13 y.o.	14-17 y.o.	18-24 y.o.	25-34 y.o.	35-44 y.o.	45-54 y.o.	55-64 y.o.	65-74 y.o.	75 y.o. and +
16,7%	4,9%	8,7%	12,3%	12,7%	12,2%	12,7%	11,6%	12,9%

From 1990 to 2000

In 1989 the White Paper on Road Safety was published[1]. It outlines the main directions of future policies and already identifies the need to improve control/sanctioning. In 1990, the speed limit was set at 50 km/h in urban areas, the blood alcohol level was lowered to 0.5 g/l and the points-based licence was introduced. Most of the motorway network was completed. Vehicles are now equipped with airbags. The educational continuum is being put in place. Despite these measures, the death rate only fell by 20 %. At the same time, overall traffic increased by 20 %. The number of people killed per billion km travelled was 16 in 2000.

From 2000 to 2010

The National Road Safety Council (CNSR) was created in 2001[2]. In July 2002, road safety was made one of the four priorities of the President of the Republic. The first fixed speed cameras were installed. The probationary licence was introduced in 2004. Exceeding the legal alcohol limit now results in the withdrawal of 6 points. There were fewer than 5 000 deaths in 2006 and a 51 % reduction in deaths over the decade. More than 30,000 lives were saved during this period, three quarters of which were due to a reduction in speeding and 11 % due to a reduction in the number and 11 % due to improvements in the safety of the vehicle fleet[3]. The number of deaths per billion km travelled in 2010 was 7.1. Traffic has increased by 7 % since 2000.

Since 2010

Road safety remains a priority policy. The objective set by the European Union to halve road deaths between 2010 and 2020 has been taken up by France, with the aim of falling below 2,000 deaths in 2020. However, like other European countries, France saw its road deaths increase in 2014 and 2015 and then stabilise in 2016 and 2017. With the acceleration of the ageing of the population since 2010, the share of senior citizens in the mortality rate is constantly increasing, while the excess risk of 18-24 years old is decreasing more than that of other adults. In 2021, which is still a special year in terms of the health measures that have had an impact on the mobility of French people, the accident rate has changed in line with changes in behaviour (development of certain modes of travel). There were 5.2 deaths per billion kilometres travelled. France adheres to the European objectives of halving the number of deaths and serious injuries by 2030 (taking 2019 as the reference year, before the pandemic).

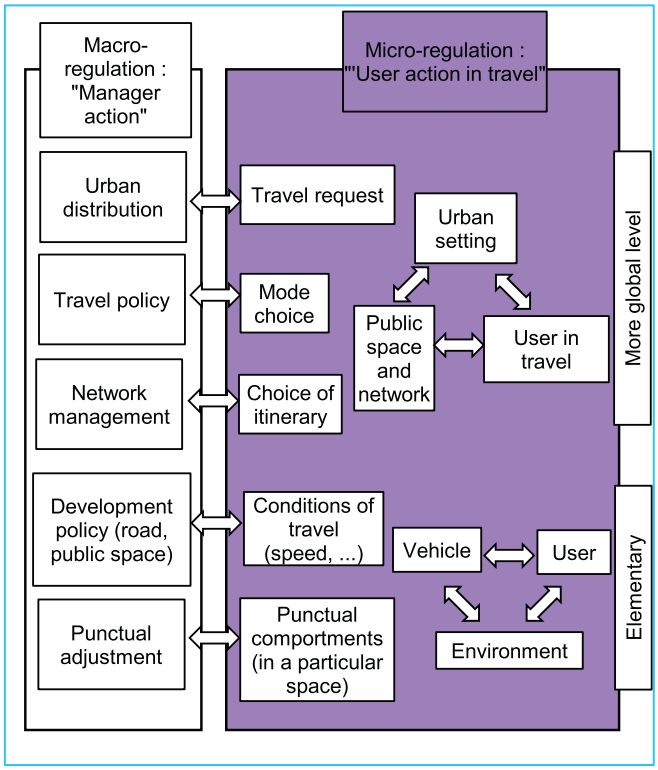
[1] Pierre Giraudet, *Livre blanc de la sécurité routière*, La documentation française, 1989.
[2] 4th mandate 2017-2020, the founding decree of 28/08/2001 was significantly modified by decree n° 2016-1511.
[3] Yves Page & al, *How safe is vehicle safety? The contribution of vehicle technologies to the reduction in road casualties in France from 2000 to 2010*, Conference AAAM, 2011.

The safe System Approach in France

The need for a systemic approach to road safety emerged in France with the creation of the inter-ministerial road safety directorate 50 years ago. The inter-ministerial road safety council and the national road safety council aim to ensure that the national road safety policy addresses all pillars of the safety system and their interactions.

The multi-level approach is also central with the development of general multi-partner policy documents at the local level and the existence of departmental road safety commissions.

Linking with other local mobility policies



Source: Dominique Fleury, guide "étude de sécurité routière en milieu urbain", Cerema.

The 5 United Nations Road Safety pillars

Source: Road Safety Strategy, Partnership for Safer Journeys UN, January 2018

Objectives in France

France signed the Valletta Declaration in 2017 and the Stockholm Declaration in 2020. In this way, it has committed itself to the long-term vision of zero and has taken on board the objective of halving road deaths and serious injuries for the current UN decade of action on road safety. Together with the European Union, France is committed to a "Safe System" approach by pursuing a systemic and multi-level approach to its road safety policy.

A policy that involves all stakeholders

The road safety policy is a voluntary interministerial policy which intervenes in several fields of action and which impacts all the actors of local authorities.

The National Road Safety Council (CNSR) brings together the main road safety stakeholders (67 members), with their respective skills and sensitivities, so that they can debate, exchange and reflect on formulating concrete proposals to the Government to reverse the road mortality curve. It is made up of 7 colleges: qualified personalities, national and local elected representatives, professionals and companies, associations, road managers, representatives of the medical and racing professions, and representatives of the ministries.

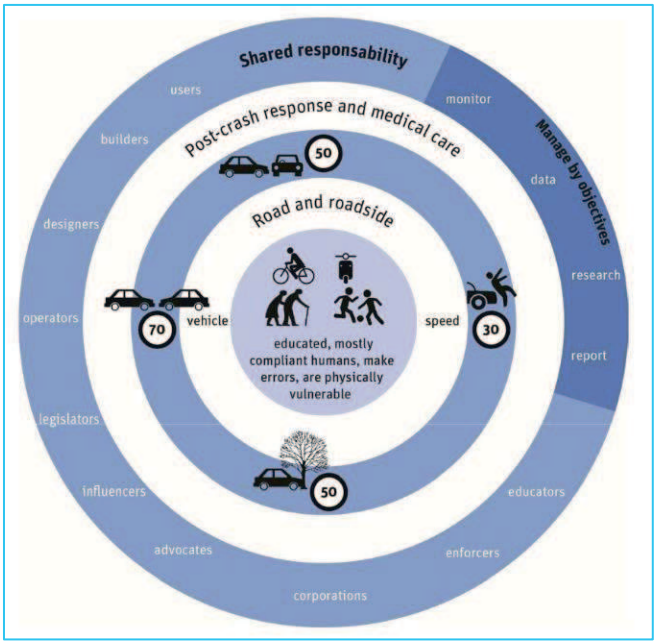
It is supported by a committee of experts. In 2021, this committee published an opinion on the implementation of the 80 km/h speed limit as well as three reports: Occupational road risk, Lifelong mobility periodic e-learning and Safety of motorised two-wheelers: towards a use adapted to their vulnerability.

A policy that mobilises the 5 pillars of the UN

Road safety management

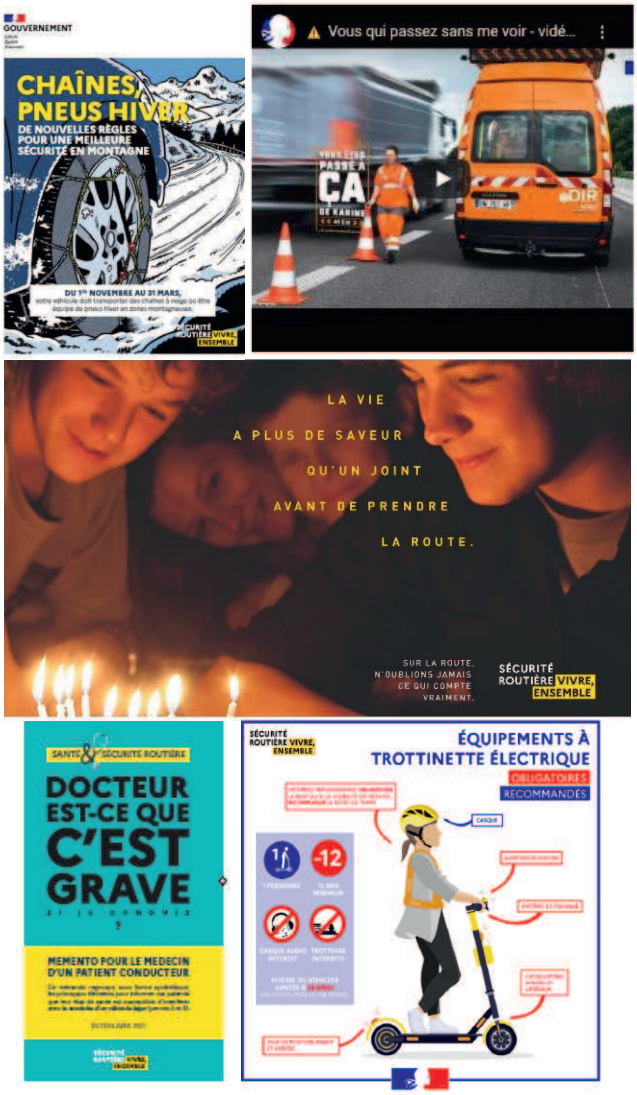
At national level, the political impetus for road safety is given by the interministerial road safety committees, which are based on the one hand on the interministerial delegation for road safety (responsible for coordinating government action), and on the other hand on the national road safety council (which is made up of all the stakeholders). At the local level, departmental commissions aim to bring together the stakeholders around the prefect to lead and coordinate local road safety policy. The drafting of general departmental guidance documents encourages this joint work in order to better adjust road safety actions to the specific characteristics of the territories.

Functioning of a safe system



Source Zero deaths and serious injuries on the roads: leading a paradigm shift to a safe system, IFT, 3 October 2016, P31

A few examples in terms of communication



Travel environment

A range of safety audits and studies are in place both for the construction or development of infrastructure on the national road network and for the improvement of the existing network, with the aim of spreading to other road networks (sharing of good practice, technical documents or webinars between road managers). France is currently reviewing these tools to comply with the new 2019 European directive on road infrastructure management. Parking of motorised vehicles 5 m before pedestrian crossings has just been banned, with an obligation to comply by 2026.

The ageing of the population, more use of active modes of transport, whose vulnerability is well known, and the fight against climate change mean that the travel system is changing, with consequences for road safety.

Vehicles

With the entry into force of the European directive on vehicles, the requirement for safety equipment in these vehicles will progress in stages, from 2022 for new car models, in 2024 for old models sold new; heavy goods vehicles will have their own timetable (prevention of accidents with blind spots, etc.). For example, for cars, after the E-call (automatic warning system in the event of an incident), speed limiters and accident data recorders will become more widespread.

Road user

Education and prevention actions are essential to learn how to move around, for one's own safety and that of others. With the slogan "Living together", the road safety policy aims at a harmonious sharing of roads and streets, thus recognising the diversity of uses and users and the role of each one. Driving instruction is continuously adapted. Learn to ride a bike is introduced in schools as a complement to the training programmes for road safety certificates. To ensure compliance with the rules, roadside checks are being diversified and are based on new technologies: double saliva testing for drugs, or fixed or mobile automated checks, which contribute in particular to the control of traffic speeds and the safety of road networks.

Emergency response and care

The time needed to reach the scene of the accident, the equipment and methods available to intervene and the post-accident treatment play a large role in the type of after-effects the victim will have. As part of the development of automated enforcement, part of the revenue from fines has been directed to better equip hospitals.

Road safety management

Road safety, a public policy, concerns every community, company and citizen.

The National Road Safety Council (CNSR)

Composed of local elected officials, representatives of road managers, companies interested in the subject or associations, the CNSR's main mission is to advise the Government, in particular by issuing opinions and recommendations.

Due to the diversity of profiles and skills, the 67 members are divided into 3 commissions according to their respective areas of expertise and challenges:

Sharing the road, controlling movement

The themes studied by this commission relate to the perception of risk by the various users, the sharing of public space and the protection of vulnerable users. The aim is to propose training, education and awareness-raising actions that will support and guide public thinking.

Health, behaviour for responsible mobility

This commission works more on societal and health issues. She is interested in demographic changes (in particular the aging of the population), new mobility behaviours, the increase in the use of distractors (telephone while driving) and occupational road risk. The recommendations made therefore aim to maintain safe and responsible mobility despite these factors.

Vehicles, innovative technologies, infrastructures

This third and final commission works on future developments in mobility. While the main challenge obviously remains vehicles equipped with driving assistance devices and, in the longer term, automated vehicles, the development of new soft forms of mobility is also a source of reflection. The work of the members also relates to the infrastructures which will have to accommodate these new technologies, while guaranteeing the safety of travel for all.

Finally, the **committee of experts**, made up of 15 members, provides the CNSR with knowledge of the issues and monitors the changes to be anticipated. Some experts are involved in the 3 commissions, their scientific opinion helping to fuel public debate.

The CNSR, created by decree of August 28, 2001 and renewed in 2021[1] for a period of 3 years, organizes the debate of road safety actors (elected officials, companies, associations and administrations).

An interministerial policy

The interministerial road safety committee (CISR), bringing together the various ministers involved, sets the main guidelines for government policy and priority actions [2].

The Interministerial Delegate for Road Safety (IDSR) implements the actions decided by the CISR and coordinates the activity of the ministries devoted to road safety, with the support of ministerial technical advisers.

The National Interministerial Observatory for Road Safety (ONISR), attached to the DISR, collects and analyses data on accident rates and behaviour, manages the study and research program of the Road Safety Delegation (DSR)[3], and disseminate knowledge. It coordinates the local observatories placed with the prefects.

Diversity of ministries involved

The Ministry of the Interior integrates, in addition to the general directorates of the national gendarmerie and police, civil security and crisis management, the DSR. This delegation, placed under the authority of the DISR, prepares and implements the road safety policy. In addition, the UCLIR[4] coordinates the action of the police in their road safety missions.

The Ministry of Ecological Transition (MTE) develops and implements road infrastructure safety, road transport and vehicle regulation policies.

The Ministry of National Education ensures the educational continuum from kindergarten to high school and apprentice training centres. It issues school road safety certificates.

The Ministry of Justice manages road traffic litigation: non-compliance with the rules, involuntary attacks on the person, "paper" offences and those aimed at escaping the control of the police.

The Ministry of Solidarity and Health raises awareness of health risks and organizes the emergency care chain.

The Ministry of Labour coordinates, at the national and local level, the prevention of occupational road risks in partnership with the CNAMTS.

The Overseas Ministry ensures that the specificities of the territories are taken into account in the monitoring of issues and assistance in improving road safety.

[1] Decree n°2001-784 of August 28, 2001 and decree of January 26, 2021 appointing the National Road Safety Council.
[2] Decree No. 75-360 of May 15, 1975 relating to the interministerial road safety committee.
[3] The Road Safety and Traffic Delegation (DSCR) became DSR by decree and reorganization order of 27 April 2017.
[4] Road safety coordination unit created in 2010.

Urbanization from a road safety perspective

The planning and sustainable development projects (PADD) of the local urban plans (LUP) define the general orientations concerning transport and travel. This "road safety" component is part of the broad prism of the PADD (housing, economic development, commercial equipment, etc.) so that the various users (residents, pedestrians) and uses (goods, transit, etc.) or the establishment of new activities or habitats creating new flows of travel and new uses of circulation space are analysed from this angle. They sometimes lead to alternative choices in terms of location, occupation of space, density, and layout.

Secure travel

The Mobility Orientation Law (LOM) of 24 December 2019 redefines local mobility planning around two tools: the mobility plan, formerly the urban travel plan (UTP), for agglomerations of more than 100 000 inhabitants, and the simplified mobility plan for less dense areas. One aspect of these tools relates to improving the safety of all journeys, by operating, for each category of user, a balanced sharing of roads between the different modes of transport.

A defined and organized traffic

The road master plan, national, departmental or at the scale of the urban area, defines the routes of motorized vehicles, bicycles, pedestrians, and prioritizes them. The organization of road networks and their circulation affects the safety of travel by defining the flows and levels of service (reserved lanes, separation of traffic, road sharing, speed, and priority).

Engaged employers

ISO 39001 – road safety management: created in 2012, this non-binding international standard helps organizations to better identify and manage road risks.

ISO 45001 – occupational health and safety management: created in 2018, this standard offers additional recommendations on road safety.

Charter of 7 commitments: “We, business leaders, are committed to promoting the safety of our employees on the roads».

Local road safety policy

The prefect of the department establishes, with the help of the departmental road safety observatory, the General Orientation Document (DGO) for 5 years (2018-2022 for the last edition), and its annual variation, the Plan Department of Road Safety Actions (PDRSA). In addition to these tools, the departmental prefect chairs the **departmental road safety commission**, which can be consulted for any question relating to road safety.

Various road operators

Under the authority of the MTE, the motorway companies and toll structures manage and improve 9,000 km of the motorway network under concession, while the 12,000 km of national road network not under concession fall under the jurisdiction of the inter-departmental road directorates. Departmental councils operate 380,000 km of departmental roads (part of which is now transferred to metropolitan areas), municipalities and intermunicipalities 700,000 km.

Local authorities involved

The different levels of local authorities are responsible for road safety in that the **regions** intervene in the improvement of road safety education and professional training (NOTRe law of 7 August 2015), the **departments** organize the school and interurban transport and manage departmental roads, and the municipalities organize regional development. The **metropolises** exercise enhanced powers instead of the common members. They take over the management of departmental roads on their territory (“Maptam” law of January 27, 2014).

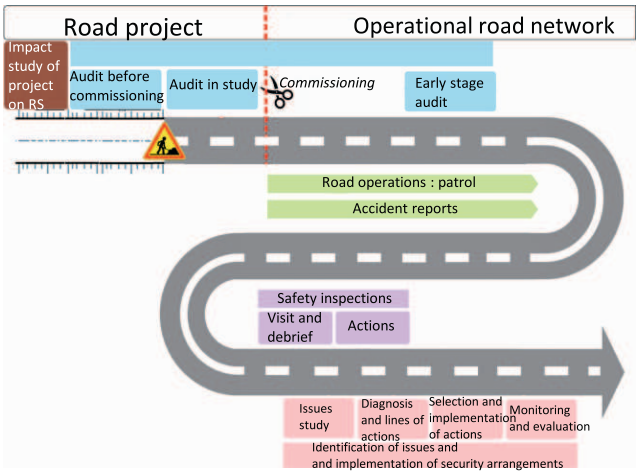
The law of February 21, 2022 relating to differentiation, decentralization, deconcentrating and carrying various measures to simplify local public action, known as "3Ds", allows local authorities who so wish to see national roads transferred. Non-granted contracts that have not been decentralized. The transfer will be made in priority to the departments, in coordination with the regions.

Multiple partners

The partners act in terms of prevention (**insurance and associations**), training (**driving and road safety teaching establishments**), rescue (**firefighters, emergencies in private and public hospitals and first-aid associations**) or further support for accident victims and their families (**associations**). **Companies** also act by developing a road risk prevention plan and by signing the charter of 7 commitments (since 2015, more than 2,000 companies for more than 3.8 million employees). Road safety days have also been offered by the DSR since 2016 in addition to the charter.

Safe infrastructures

Safety procedures resulting from the European directive of November 19, 2008



Impact study (EISR): assess the foreseeable effects on safety of the various options for carrying out a road project.

Safety audit (ETU, PMS, DEX*): check that safety is integrated at each stage of a road project, from its definition in the study phase, before its commissioning, and at its start of operation.

SURE, Safety of Users on Existing Roads aunts: propose security arrangements the most efficient on the network in service.

ISRI, Road Safety Inspection of Routes: identify defects in the network in service.

*ETU: studies; PMS prior to commissioning; DEX: start of operation.

Impact of the new directive on the SURE method: the identification of sections at stake (current study of stakes) is no longer based solely on the analysis of accidents but also on the inherent safety of the infrastructure

Future SURE method

1. **Assessment** of accident risk and severity based on :
   - primarily the **inherent security** of the infrastructure (visual examination of road design features, either on-site or electronically) ;
   - an analysis of sections which have been in operation for more than three years and on which a large number of serious accidents occured in relation to the traffic flow.
2. **Classification** into at least **3 safety categories** of the various sections within it must be possible to evaluate the total number of kilometres travelled (KPI7)
3. Direct safety **diagnosis** or corrective actions
4. **Priority action plan and plan implementation**
5. **Assessment**

Source: Cerema

From the 1950s to 1972, the development of road networks and traffic was accompanied by an increase in the number of road accidents, although at a slower rate than that of the increase in traffic. In response, road safety policies are gradually being put in place, in particular by integrating a section dedicated to infrastructure.

Infrastructure actions

In the 1970s and 1980s, these policies focused on dealing with concentrations of severe accidents and led to a strong reduction in “black spots”. From the 1990s, these curative actions are available on entire itineraries. The notion of a "**forgiving road**" is developing. It aims to limit the consequences of a driving error (creation of shoulders to correct a deviation from the trajectory, separation of flows by direction, removal or isolation of obstacles to reduce the severity of shocks, etc.). Finally, in the 2000s, the notion of a peaceful road appeared, the design and operation of which encouraged moderation of behaviour and the sharing of space. Limitations to 70 km/h are occasionally implemented on interurban roads.

However, these advances mainly affect the design of new infrastructures. On July 1, 2018, the State, on the proposal of the committee of experts of the national road safety council, introduced the 80 km/h speed on bidirectional roads without separators, in line with their level of safety.

In 2019, a new **European directive of 2019/1936 / EC** replaces the 2008 directive. Decree 2021-1689 of December 17, 2021 transposed it into French law: it applies to the motorway network and the national road network (a road transferred to communities under the 3DS law is transferred with its obligations). The 2020 guide to the SURE approach ("safety of users on existing roads") updates the initial method for better consideration of vulnerable users, by the State and by local authorities, but does not yet include the evaluation of the inherent safety of the infrastructure in addition to the study of accidents, required by the new directive.

Roads reserved for bicycles

In interurban traffic, the development of traffic lanes is mostly dedicated to cars. However, the ambition to make cycling a mode of transport in its own right requires planning the adaptation of existing infrastructures, or even the development of dedicated routes. The update of the national cycle route scheme is published by Bike and Territories in 2020. This scheme is introduced into the mobility orientation law (LOM) by the decree of 20 December 2020 as part of the cycle plan.

Evolution of road networks (in thousands of km)

	2001	2006	2011	2016	2021*
Motorways	10,1	10,8	11,4	11,6	12,3
of which motorways granted	7,6	8,2	8,6	9,0	9,0
National and territorial (Corsica) France mainland	26,1	10,4	9,7	9,6	8,9
Departmental France mainland	359,2	377,2	377,9	378,8	374,7
Metropolitan	nd	nd	nd	nd	7,5
Municipalities France mainland	601,7	615,6	651,5	691,0	695,1
Entire France mainland road network	997,1	1 014,0	1 050,5	1 091,0	1 098,5
Railways operated by SNCF	31,4	30,9	30,4	28,4	27,5
Metro, RER, trams	0,61	0,75	0,98	1,77	nd
Cycle routes and greenways	nd	nd	nd	6,9(2)	18,8(1)

*Provisional data
[1] Data 2020
[2] Data 2015
Sources: *Transports report,* SDES, 2022, Cerema, DGCL

Use of networks (traffic)

	2006	2011	2016	2020
Individual transport (billion passenger-km)	**nd**	**760***	**794**	**639**
French passenger cars (PC)	nd	678*	713	576
Foreign light vehicles (PC and LUV)	nd	72*	70	54
Pow ered tw o-w heelers	nd	11*	11	10
Railway network				
Passengers (billion passenger-km)	70	78	75	49
Goods (billion ton.km)	41	34	35	31
Urban Public Transport Network (billion passenger-km)				
Île-de-France				
Train and RER	16	18	19	11
Metro	7	8	8	4
Tramw ay	0	0	1	1
Bus	4	5	5	4
Province				
Tramw ay et bus	6	7	8	6
Metro	2	2	3	2

*Data 2012
Source: *Transports report,* SDES, 2021

Source: Infographic Cerema – Considering public spaces differently
https://publications.cerema.fr/webdcdc/espaces-publics/

Maintenance and exploitation

The management of the road network is exercised at different levels: State (infrastructure granted or not), departments, metropolises and municipalities. Since 2017, the metropolises have taken over the management of all departmental or municipal roads on their territory. To maintain a safe road, road managers put in place a maintenance and operation policy:

- **Exploitation** concerns everyday life: snow removal, surveillance, marking of construction sites for the protection of users and workers;
- **Routine maintenance** includes operations annual: mowing, plugging potholes, sweeping roads, etc.;
- **Periodic maintenance** consists in avoiding the degradation of the heritage and in ensuring the functions minimum safety requirements such as grip, signage, and viability.

Urban and peri-urban environments

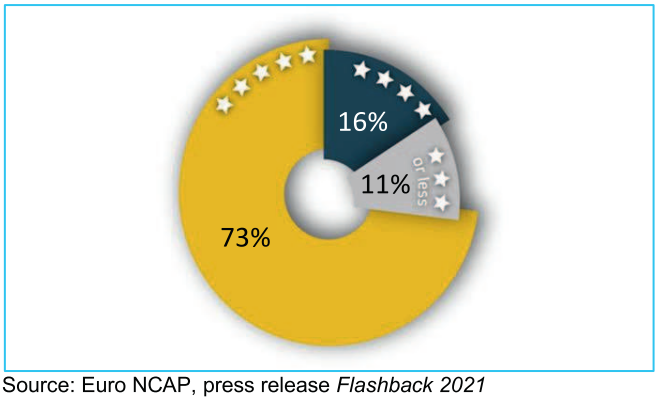
After the all-car period, most towns now favour road sharing. Since the Solidarity and Urban Renewal law in 2000, urban communities of more than 100,000 inhabitants must create an observatory of accidents involving a pedestrian or cyclist. The
The “street code” approach launched in 2008 resulted in the evolution of the Highway Code by decree 2008-754. The orientation law on mobility of 31 December 2019 stipulates that mobility plans aim to improve the safety of all journeys. This translates to:

- Prioritization of routes: differentiated treatment by tween major axes where uses are separated between soft modes and motorized modes, and shared spaces where speed and flows are reduced;
- The deployment of traffic-calming zones (zone 30, meeting zone, and pedestrian area) to build the “city of short distances”;
- The preservation of pedestrian continuity to promote access to structuring facilities and local shops on foot or by bike;
- The reduction in the supply of parking for motorized vehicles to give more space to soft modes, public transport, terraces, etc.

It is a question of putting the pedestrian back at the centre of the project, both in urban and peri-urban areas, with its complements such as bicycles and public transport, deliveries, and carpooling for certain trips. The best consideration of active modes is part of a dual objective of traffic calming and public health.

Safe vehicles

Safety score obtained by vehicles sold in the EU for the first three quarters of 2021



Source: Euro NCAP, press release *Flashback 2021*

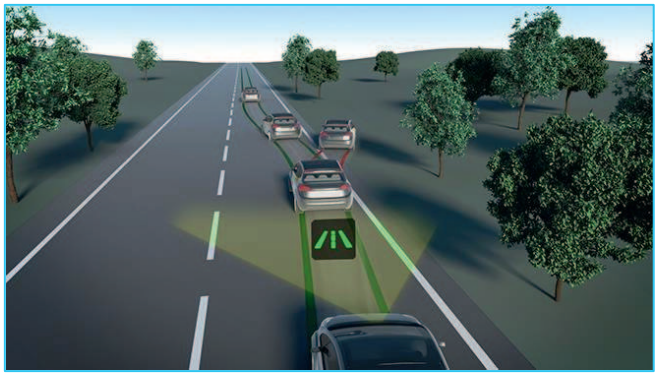
Test carried out for a frontal impact at 50 km/h

Source: Euro NCAP, adult occupant protection

Test carried out on the detection of cyclists by the automatic emergency breaking system (AEB)

Source: Euro NCAP, protection of vulnerable road users

Test carried out on lane keeping assistance



Source: Euro NCAP, help with safety

Progress in active safety

Active safety brings together all the elements that make it possible to avoid an accident. New technologies based on the presence of on-board sensors (cameras, radars, lidars and probes) allow many advanced driver assistance systems (ADAS), such as automatic management of lights and windscreen wipers, ABS (anti-lock braking system), ESP (electronic trajectory correction), cruise control/speed limiter, intelligent cruise control (speed adapted to that of the vehicle in front), crossing warning line, emergency braking assist (EBA), reversing radar and blind spot monitoring. In the future, fatigue or discomfort detectors could alert the driver.

Assess vehicle safety

Euro NCAP, European program for the assessment of new vehicles, is an independent organization created in 1997. It carries out crash tests to provide consumers with an **assessment of the safety of new vehicles**. The evaluation protocol, regularly revised, incorporates the latest innovations and encourages manufacturers to include them in their series production.

The EuroNCAP 5-star safety rating system covers 4 areas. **The protection of the vehicle's adult occupants** is evaluated through various frontal, side and rear collision tests. **The protection of young passengers** is analysed by checking the installation of a child seat in the child restraint system and the performance of the device during frontal and side crash tests. **The protection of vulnerable users** is taken into account by evaluating the potential risks of injury to the head, pelvis and legs of pedestrians in the event of a collision with the front of the vehicle as well as by testing the detection of pedestrians and cyclists by the Autonomous Emergency Braking (AEB) system under different scenarios to avoid the collision. Finally, **safety assistance** is mainly enhanced thanks to the measured performance of driver assistance systems such as AEB for a collision with another vehicle, lane keeping assistance and cruise control of speed.

Euro NCAP carried out 59 safety ratings in 2021, 33 on models following the new protocol and 26 for variants of models already tested. 73 % of the 9 million passenger vehicles sold in the European Union in the first three quarters of 2021 have a rating of 5 stars according to the criteria described, 16 % of vehicles are rated 4 stars and 11 % have a rating of 3 stars or less. Most cars far exceed legal requirements in terms of safety.

SAAC functions have been tested using Euro NCAP Safety Assist protocols on commercial vehicles. This study, conducted in 2021, reveals that SAAC equipment is generally poor, unlike the current situation for passenger cars.

Autonomous shuttle from the Bois de Vincennes as part of the SAM project

Source: https://www.paris.fr/pages/la-navette-autonome-du-bois-de-vincennes-entre-en-ville-16915

The eCall 112 emergency call system has been mandatory in the European Union (EU) on new vehicles since April 2018. In the event of an incident detected by the vehicle or if one of the users presses the "SOS the vehicle calls the PSAP ecall (Public Service Answering Point or emergency call centre) and transmits the GPS coordinates. 85,000 alerts from eCalls were processed in 2021; 3,935 calls were forwarded to PSAP 112 for emergency response. Filtering of alerts is necessary so as not to saturate the normal 112 channels. According to the European Commission, eCall can speed up emergency response times by 40 % in urban areas and 50 % in rural areas and thus mitigating the consequences of accidents. It should prove very effective when exiting the road not visible from the roadway, on roads with light traffic or for victims unable to alert. The fully deployed system in the EU could save 2,500 lives a year.

Source : https://www.europe-consommateurs.eu/fr/quels-sont-vos-droits/vehicules/conduire-en-europe/equipements-obligatoires/systeme-ecall-en-europe/ et comité de pilotage eCall

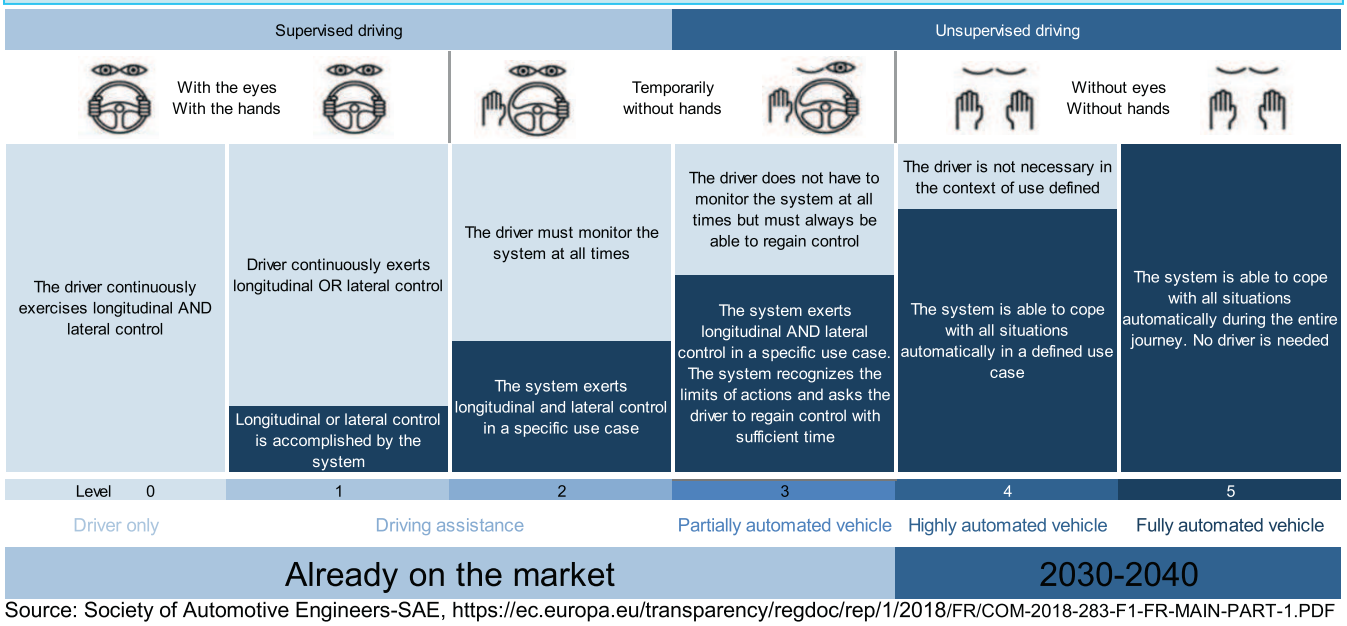
Vehicle with driving delegation

The **national strategy** for vehicles with driver delegation is built around three founding principles: safety, progressiveness and acceptability. It was updated at the end of 2020 for the 2020-2022 period. According to the SURCA study (https://surca.univ-gustave-eiffel.fr), replacing private vehicles with automated vehicles could at best halve injury and fatal accidents.

The **French experimental scheme** is organized around the Autonomous road vehicle experimentation program (EVRA). This includes the Safety and Acceptability of Driving and Autonomous Mobility (SAM) project, which notably includes experiments in driving on separate lanes, transport on demand in urban areas or regular transport and complementary to existing networks, while the Autonomous Shuttle Experiments (ENA) project brings together experiments with autonomous shuttle services that complement the urban transport network and rural services. These experiments aim in particular to assess the reliability and safety of vehicles.

The regulatory framework of the permanent system is supported by the Mobility Orientation Law (LOM) of December 24, 2019. Decree No. 2021-873 of June 29, 2021 specifies the principles of criminal liability set by Ordinance 2021-443 of April 14, 2021 in order to release the driver from liability when the automated driving system operates in accordance with its conditions of use. The decree also sets the conditions for the deployment of automated vehicles. These provisions will enter into force on September 1, 2022, making France the first European country to put in place a complete regulatory framework for the circulation of automated vehicles.

Different levels of automation

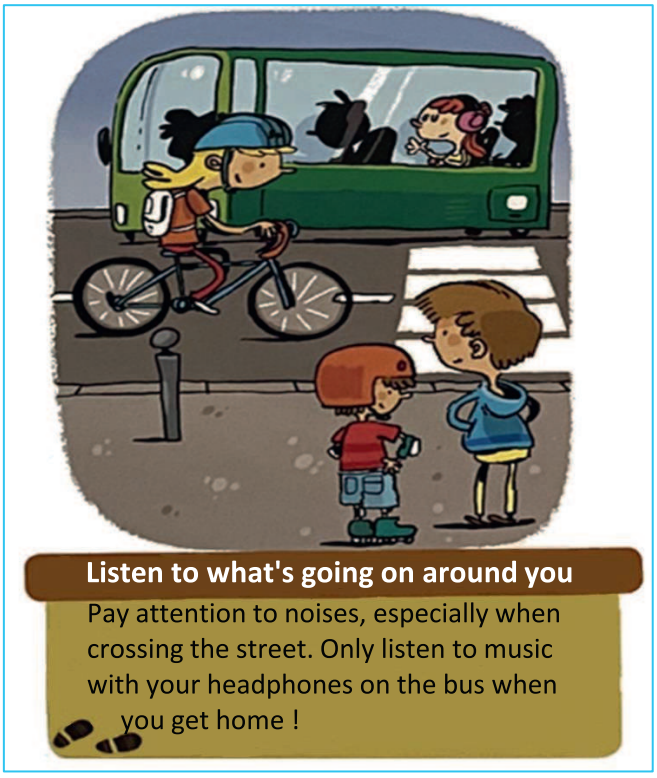


Source: Society of Automotive Engineers-SAE, https://ec.europa.eu/transparency/regdoc/rep/1/2018/FR/COM-2018-283-F1-FR-MAIN-PART-1.PDF

Safe road user behaviours

Pedestrian permit

The program, with the help of the police, is intended for children in CE2 and aims to empower them by making them aware that they are exposed to risk and must develop specific precautionary reflexes.



Source: You can learn to be a pedestrian – road safety

Know how to ride a bike (since April 2019)

10 hours of training for children aged 6-11, 78,775 certificates issued as of 12/31/2021:

1 – Knowing how to pedal = mastering the fundamentals of cycling
2 – Knowing how to get around = discovering mobility by bike in a secure environment
3 – Know how to ride a bike = travel independently on public roads

Source: https://sports.gouv.fr/savoir-rouler-a-velo/

Universal National Service (UNS)

The “on my road” module consists of a road safety presentation and a risk awareness workshop. In 2021, nearly 15,000 young people took this module.

Road education develops a set of knowledge, good practices and behaviours to improve the level of safety in traffic and reduce the factors of fatal accidents related to Humans; which are the cause of 92 % of fatal accidents (FLAM, Cerema, 2019).

The teaching strategy, "the educational continuum for road safety", concerns all road users and provides that knowledge and skills are not limited to preparing for the driving license but must be acquired from an early age and progress continuously throughout life.

School-based training

Road education has been present since 2002 in elementary school throughout the cycles and leads to the issuance of the first road education certificate (APER) at the end of CM2, now supplemented by the programs “Pedestrian permit” and “Knowing how to ride a bike”. Training in the school environment has thus made it possible to reduce the pedestrian mortality of children attending primary school (between 6 and 10 years old) from around twenty deaths per year in the years 2000-2002 to an average of less than 5 killed per year over the period 2017-2019 (6 in 2021).

In college, road safety education has been validated since 1993 at two levels, at the end of 5th and at the end of 3rd, by passing school road safety certificates (ASSR 1 and ASSR 2), one or the other being compulsory to follow the practical training for the road safety certificate (BSR). The BSR is compulsory to drive from the age of 14, in the absence of a driving licence, a moped or a light motorized quadricycle (car or small quad).

Since the start of the 2015-2016 school year, a half-day of road safety education has been introduced in high schools and apprentice training centres (public). In addition, a road safety awareness module is provided during Defence and Citizenship Day (JDC).

Access to driving license

After training, access to a driving license corresponds to the second phase of the educational continuum. Three types of routes are possible:

- advanced driving learning (AAC), from the age of 15, which provides for an accompanied driving phase over at least one year and 3,000 km - the license can be taken from the age of 17 and a half but autonomous driving is not possible only at 18;
- classic training, which involves passing the code from the age of 17 and a half and driving from the age of 18;
- and supervised driving, which allows accompanied driving from the age of 18, with no minimum duration or mileage requirement respect, in order to pass the practical test in more serene conditions.

2021 Campaigns – Highlights

ROAD SAFETY LIVE, TOGETHER

When bars and restaurants reopen at the end of May, Road Safety humorously recalls the definition of the almost extinct "concepts" of "aperitif", "bar" and "terrace". The campaign parallels these festive pleasures with the need to get back into the habit, the reflex, to hold back a friend who has been drinking: "**when you care about someone, you hold them back**".
In September, actor Jean-Pascal Zadi and singer HollySiz offer a telephone conversation between lovers where everyone is struggling to hang up. The television campaign reminds us that on the road, only one reflex: "**if you drive, I hang up**".
At the end of October, a television campaign addresses the effects of cannabis while driving: "**cannabis hurts you, on the road it can be fatal**".
At the beginning of December, the new campaign "**Sam saves today those who tomorrow will save the world**" honours a generation that is committed to great causes. A generation that can continue to engage because Sam is there, to allow him to return home safely after drinking alcohol.
At the end of December, television hosts are looking, around a Christmas Eve table, for the amusing formula to dissuade a person who has drunk too much from taking to the road. One of the guests represents the friend you have to remember; prevent driving. "**To each his own words to say it, the important thing is to remember it**".

Driving License Doctors

They check medical fitness to drive:
- When renewing the driving license of certain professional drivers (passenger transport, taxi-VTC, ambulance, heavy goods vehicles);
- Following an offence (alcohol, illegal drugs) or to extend the validity of the license following an offense (cancelled or invalidated license);
- For health reasons (list of conditions provided for by decree: sight, diabetes, balance disorders, cardiovascular problems, addictions, epilepsy, etc.).

Post-licence training

The driver's license probationary period is considered the third phase of the educational continuum. It is a driver's test novices over a period of three years for the traditional stream and two years for the AAC. The total capital of points is acquired gradually until the end of the probationary period.

The law of 18 November 2016 provides for the implementation of additional post-licence training for volunteer novice drivers. This training must be completed between six and twelve months after obtaining the permit. The probationary period is then reduced to two years instead of three for traditional training and to one and a half years instead of two for accompanied driving situations; subject to not having committed an offense resulting in the loss of points on his license.

Prevention campaigns

Communication on road safety aims to inform users about the evolution of knowledge and regulations. Communication campaigns aim to convince users to adopt better behaviour.

The credibility of the source, the richness of the message and the choice of channel according to the type of public appear as the main determining factors of an "ideal event" for road safety (Coherence study carried out by the University Gustave Eiffel and Ergocentre).

Driving ability

The European Driving License Directive EU Directive 2006/126/EC and its amendments 2009/113/EC, 2014/85/EU, 2016/1106 establish the framework on which the regulations of the Member States are based. In France, approved doctors carry out the medical examinations scheduled for the validity of the driving license (see box opposite). Annex III of the directive lists the minimum physical and mental health conditions for driving a motorized vehicle.

Control and sanction

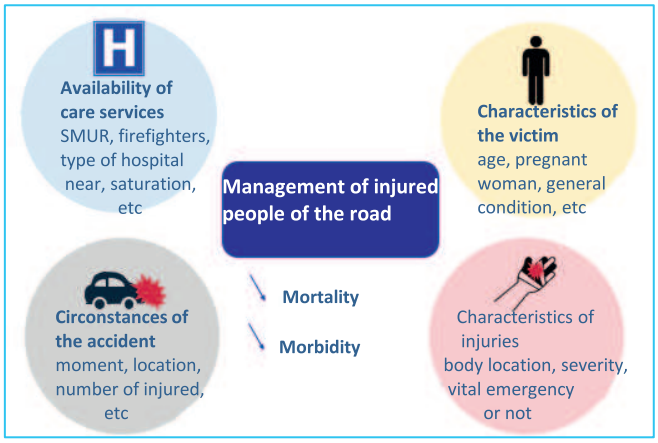
To ensure better compliance with the rules, it is necessary to provide for control and sanctions adapted to the seriousness of the breach, these sanctions being an integral part of the prevention strategy. In 2021, 20 million traffic violations[1] were recorded (excluding municipal police). In addition, the license with points, introduced in 1992, aims to make the driver more responsible. 14.6 million points were withdrawn in 2021 (a similar level to 2018).

[1] *Les infractions au code de la route et l'impact sur le permis à points – Report for the year 2021*, ONISR, 2022.

Post-crash care

50 % of deaths[1] occur in the minutes following the accident, on the spot or in transit to the hospital. Among the victims referred to a hospital, 15 % of those killed die between 1 and 4 hours after the collision, 35 % more than 4 hours after the accident.

Management of injured people of the road



"Play and run" method

In France and in Europe, the method of taking care of seriously traumatized patients has evolved over the past twenty years towards "play and run". The medical team is in charge of practicing gestures but tries to reduce their number in order to transport the victim as quickly as possible while respecting the golden hour (the hour following the accident during which the survival rate is optimal).

ISafe-Virtual-Human study

Led by the University Gustave Eiffel, the University of Strasbourg, doctors and firefighters, the project consists of developing a system for alerting and optimizing assistance for victims of road accidents. This system is based on a set of technological bricks including the event data recorder (EDR) in the vehicle in order to transmit information on the conditions of the impact, which will help to predict potential injuries and the level of emergency. In order to guide the decisions of actors in the rescue chain.

The first phase of the project relating to the virtual demonstrator for the prediction of injury scores by simulation highlighted the feasibility of an injury estimation tool based on the use of numerical models. It appears that the serious injuries were correctly identified in the two reference cases studied, namely the pelvis for the side impact and the left femur for the frontal impact.

In the event of a road accident, from the first aid alert to surgical treatment, saving time is a fundamental variable for the future of the victim. In order to optimize the intervention strategy, speed of action and triage are essential.

Alert

Based on the information collected during the alert, the medical regulator of the SAMU decides on the format of the emergency resources to be dispatched on site. In order to specify the alert and when the vehicle is equipped with it, the eCall system automatically transmits the exact location and the direction of travel of the vehicle during the accident. In addition, the development of the NexSIS 18-112 information system will allow witnesses to send photos and videos to the emergency services during an emergency call.

Accident intervention

Thanks to the territorial network, the firefighters are often the first public forces present on the scene with the police. While the firefighters act locally to prevent risks and provide assistance, the police intervene on all reported bodily accidents, secure the scene of the accident, manage traffic to avoid overcrowding, accident, and make the usual findings as well as interview victims and any witnesses in the context of a judicial investigation. Road managers, often also mobilized on the intervention, participate in the marking of the accident and the restoration of the scene.

In order to make the intervention of the emergency services more efficient when they arrive at the scene of the accident, the ISO 17840 standard standardizes the vehicle information to be known and the Euro Rescue mobile application, developed by Euro NCAP, brings together and offers these accident intervention guides.

Sort and orientation

The orientation of the injured is carried out according to the severity of the injuries towards appropriate care structures: according to the skills of the services (paediatric or neurosurgical for example), the technical platforms required (imaging, etc.) or the level of experience or excellence of these structures.

Access to urgent care in less than 30 minutes must be ensured even though the movements of the population and the concentration of technical platforms, which are inevitable, make it necessary to reflect on the organization of the supply of care at the scale of a health territory, centered on a reference establishment.

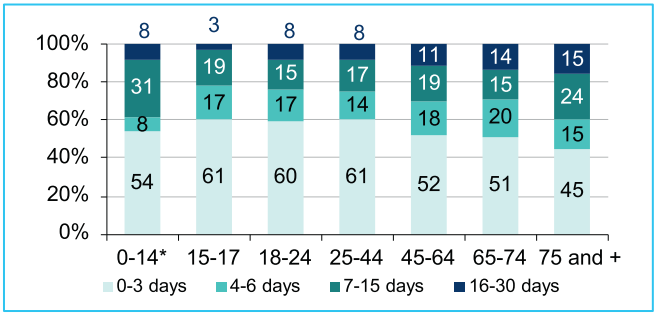
[1] Post-impact care review by medical experts European, piloted by the ETSC (Buylaert, W. ed. (1999) *Reducing injuries from post-impact care - European Transport Safety Council, Working Party on Post Impact Care, Brussels)*

The care pathway for road accident victims – PARCOURS project

Gustave Eiffel University and the Hospices Civils de Lyon, after analysing data from the Register of bodily victims of road traffic accidents in the Rhône department, identified that almost all (95 %) of the population - injured and requiring care in a care facility will go through the emergency room.

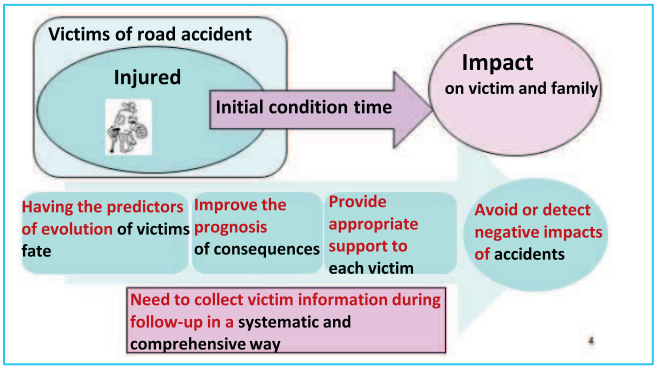
For a majority of victims, the course of care is very simple: a single visit to the emergency room (84 %). These victims are commonly characterized by mild to moderate injuries and by an average lower number of lesions. Conversely, for the other victims (16 %), a great complexity and individuality of the care pathways are observed.

Duration of hospitalization (arrival in Ile-de-France Trauma Centre) of non-deceased injured at 30 days depending on the age of the victim



* Low numbers
Source: Traumabase 2017, wounded arriving via Traumacenter IDF

Why focus on the consequences of trauma?



Source: ESPARR, Rhône register

Emergency services

The care line is activated at the same time as the emergency line. Trauma centres with specialized teams are an example of appropriate structures that improve the quality of life-saving emergency care. The approval levels range from 1 (maximum technical platform) to 5 (minimum technical platform):

- Levels 1 and 2 correspond to university hospitals. Paradoxically, the largest French cities are those that have the most difficulty bringing together all the surgical specialists on the same technical site, due to the multiplicity of hospital sites and sometimes-specialized hospitals. The smaller French cities, headquarters of CHUs, generally concentrate these resources on a single site;
- Levels 3 and 4 correspond to our general hospitals, depending on their size and volume of activity;
- Level 5 is a relay of care especially useful for conditioning the patient with a view to his transfer to the level adapted to his care.

Hospitalization and rehabilitation

The oldest patients[1] tend to have longer lengths of stay compared to younger patients: 14 % of those aged 65 and over remain hospitalized for more than two weeks compared to 9 % of those under 45 years old.

The rate of satisfaction[2] for the care immediate is 92 %. Patients are also satisfied with the care provided during hospitalization but point to the lack of staff and information on the steps to follow, as well as the lack of support upon discharge.

Life after the accident

Six months after the accident, nearly 89 % of the seriously injured and 58 % of the slightly injured declared that they had not regained a medical condition equivalent to that preceding the accident2. 20 % of the injured suffered from medical complications after the accident. The accident was the cause of work stoppage for almost 80 % of the slightly injured and 100 % of the seriously injured, half of whom did not return to work after six months.

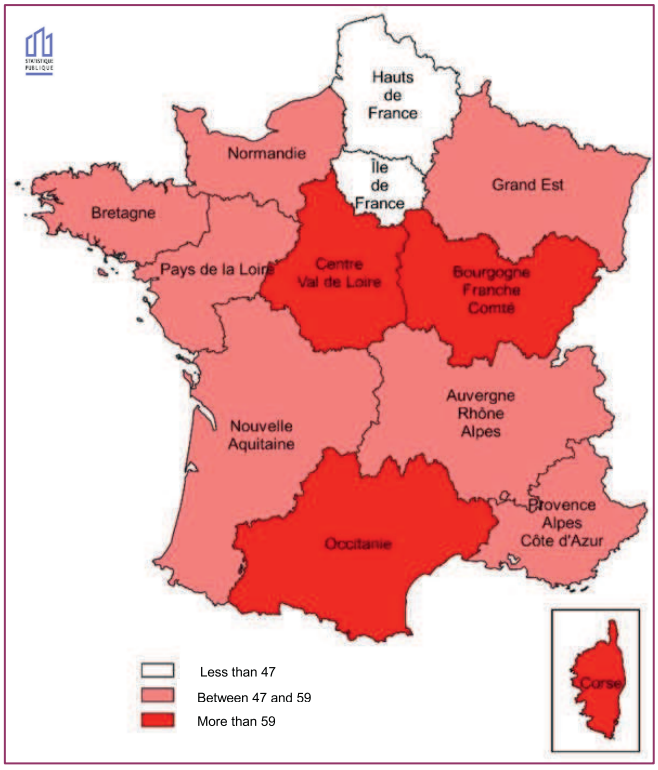
One year after the accident, 16 % of the victims suffered from post-traumatic stress, resulting in a degraded quality of life and a late return to work (32 % of the seriously injured did not recover). The most common symptoms observed in head trauma patients are anxiety (50 % of victims), memory, attention and mood disorders.

[1] Sophie Hamada, Tobias Gauss *Analyse des victimes d'accidents sur voie publique recensées dans la Traumabase® de 2011 à 2015, décembre 2016.*
[2] Martine Hours et al *Etude et suivi d'une population d'accidentés (cohorte ESPARR – Registre du Rhône), 2014.*

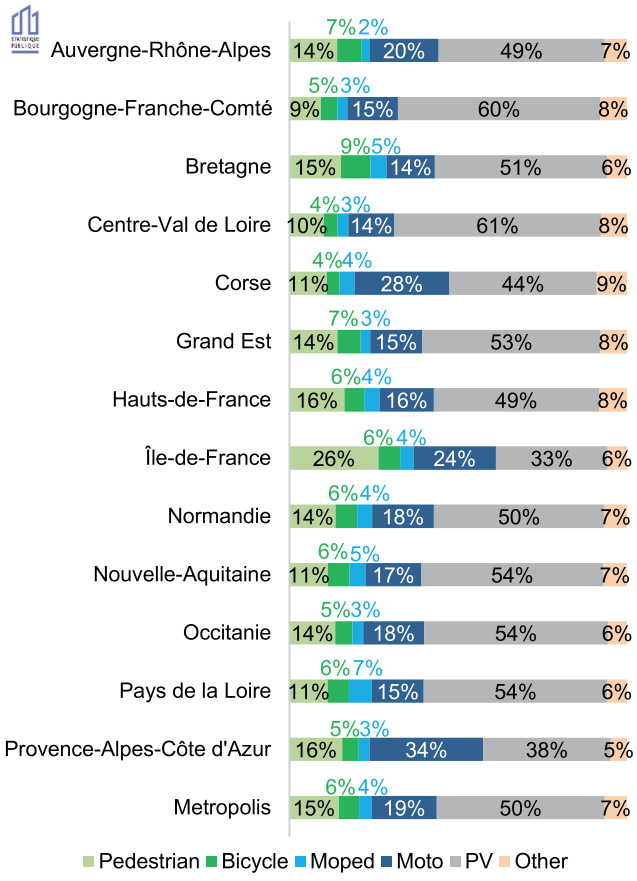
Territorial analysis

Regions of France mainland

Average annual mortality per million inhabitants by region over the period 2017-2021



Distribution of people killed by mode of travel over the period 2017-2021



In 2021, 3 regions recorded around 350 deaths (Occitanie, Auvergne-Rhône-Alpes, and Nouvelle-Aquitaine) and 4 between 240 and 300 deaths (Grand-Est, Hauts-de-France, PACA, Ile-de-France).

The risk, related to the population

In 2017-2021, 47 people per million inhabitants died in France mainland. The Ile-de-France (23) and Hauts-de-France (41) regions present a lower than average risk. The risk is highest in Bourgogne-Franche-Comté (72) and Corsica (78**).**

The risk for **18-24 years old** (96) is twice as high as the average (47). It is highest in Occitanie (127), Nouvelle-Aquitaine (128), PACA (129), Centre-VDL (139), Corsica (148), and Bourgogne-F-C (152).

The risk for **25-34 years old** is 64, but it is 82 in Centre-VDL and New Aquitaine, 84 in Occitanie, 89 in PACA and 109 in Bourgogne-F-C.

Mortality per million inhabitants aged **65 and over** (58) is very high in Bourgogne-F-C (84) and Corsica (99); low in Ile-de-France (34). However, a moderately high risk can hide a very high risk for older seniors.

Varied mobility practices

As mobility practices differ from one region to another, the distribution of people killed according to the mode of travel varies greatly.

- **The share of pedestrians** among those killed is 15 % in France mainland and varies from 9 % in Bourgogne-Franche-Comté to 26 % in Île-de-France**.**
- **The share of cyclists** among those killed is 6 %. It varies from 4 % in Centre-Val de Loire and Corsica to 9 % in Brittany.
- **The share of PTW users** represents 23 % of deaths in 5 years. They are strongly represented among those killed in Corsica and PACA (respectively 33 % and 37 %). The Auvergne-Rhône-Alpes, PACA and Ile-de-France regions represent 39 % of PTW deaths in France mainland**.**

38 % of people killed are in an accident involving a user on a **home-to-work or professional travel**, this is half of the people killed in Ile-de-France. Over the period 2017-2021, **PTWs** are strongly represented (38 %) among people killed during a **home-to-work travel**: 4 people killed out of 10 in Auvergne-Rhône-Alpes, Normandy and Ile-de-France and up to to 6 people killed out of 10 in PACA.

Alcohol and/or illegal drugs are involved in 43 % of deaths in France mainland. Some regions are more strongly affected (47 % in Corsica and Pays-de-la-Loire and 48 % in PACA). Bourgogne-F-C and Centre-VDL have on average a slightly lower share of people killed in accidents with alcohol and/or illegal drugs (39 %).

Regional road safety indicators

	People killed								Share in the mortality of people killed... average over the period 2017-2021			
	Total 2021	evolutions			average rate 2017-2021 per 1 million inhabitants of the age category							
		2019 / 2010	2021 / 2010	2021 / 2019	all age	18-24 y.o.	25-34 y.o.	65 y.o. and over	in PTW	in acc with novice driver under 2 years old*	in acc with known drunk driver / alcohol	in acc with drugged or alcoholic/alcohol drug driver known**
Auvergne-Rhône-Alpes	350	- 8%	- 29%	- 22%	48	95	61	63	23%	19%	29%	40%
Bourgogne-Franche-Comté	182	- 19%	- 28%	- 12%	72	152	109	84	18%	18%	28%	39%
Bretagne	146	- 7%	- 20%	- 15%	48	94	71	56	19%	18%	36%	45%
Centre-Val de Loire	140	- 29%	- 39%	- 14%	61	139	82	69	17%	21%	28%	39%
Corse	29	- 17%	- 19%	- 3%	78	148	75	99	33%	19%	39%	47%
Grand Est	240	- 14%	- 25%	- 13%	47	92	59	57	18%	21%	27%	41%
Hauts-de-France	257	- 13%	- 13%	0	41	79	62	42	21%	17%	34%	46%
Ile-de-France	292	- 25%	- 18%	+ 9%	23	43	30	34	28%	17%	26%	42%
Normandie	156	- 22%	- 30%	- 10%	50	97	65	63	23%	18%	31%	40%
Nouvelle-Aquitaine	347	- 22%	- 25%	- 4%	58	128	82	66	21%	19%	30%	41%
Occitanie	356	- 21%	- 28%	- 9%	60	127	84	68	21%	18%	33%	46%
Pays-de-la-Loire	160	- 25%	- 39%	- 18%	48	107	74	58	22%	20%	36%	47%
Provence-Alpes-Côte d'Azur	289	- 22%	- 25%	- 5%	57	129	89	59	37%	20%	31%	48%
Metropolis	**2 944**	**- 19%**	**- 26%**	**- 9%**	**47**	**96**	**64**	**58**	**23%**	**19%**	**31%**	**43%**

* Data over 4 years 2018, 2019, 2020 and 2021.
** Unlabelled data
Population 2021: source INSEE
Example of reading, for the Auvergne-Rhône-Alpes region:
- there were 350 people killed in 2021. The change compared to 2010 is a decrease of - 29 %. The change compared to 2019 is a decrease of – 22 %;
- over the years 2017-2021, there are on average 48 people killed per million inhabitants, 95 young people aged 18 to 24 reduced to their population;
- over the years 2017-2021, 23 % of people killed were in PTW;
- over the years 2017-2021 (except 2017), 19 % of people killed were in an accident with a novice driver;
- over the years 2017-2021, among the accidents where the alcohol level of the drivers is known, 29 % of people killed were killed in an accident where at least one driver had a level above 0.5 g/l.

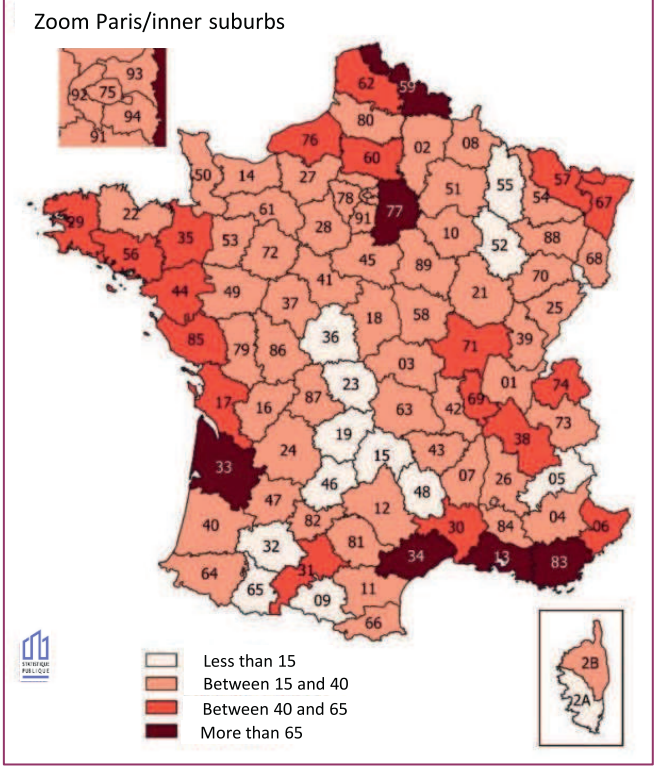
Work-related accidents

	People killed in 2021 ...			Share of people killed over the period 2017-2021 ...				
	in an acc with user on a home-to-work or professional travel (%)	in home-to-work travel	in professio-nal travel	in home-to-work travel	in PTW among those killed on the home-to-work travel	in professio-nal travel	in UV among kills on a professionnal travel	in HGV among the killed on a professionnal travel
Auvergne-Rhône-Alpes	38%	46	12	10%	41%	3%	21%	35%
Bourgogne-Franche-Comté	35%	15	9	9%	27%	6%	24%	31%
Bretagne	34%	12	8	8%	35%	4%	22%	8%
Centre-Val de Loire	37%	15	7	11%	29%	4%	26%	44%
Corse	17%	0	1	9%	0%	3%	50%	25%
Grand Est	41%	24	21	11%	20%	5%	30%	33%
Hauts-de-France	42%	25	14	9%	36%	5%	21%	28%
Ile-de-France	48%	36	14	11%	42%	3%	22%	20%
Normandie	39%	16	9	10%	41%	4%	14%	31%
Nouvelle-Aquitaine	37%	39	22	11%	36%	5%	22%	39%
Occitanie	30%	33	11	9%	38%	3%	21%	28%
Pays-de-la-Loire	41%	18	6	12%	38%	4%	16%	19%
Provence-Alpes-Côte d'Azur	37%	29	12	10%	59%	3%	20%	24%
Metropolis	**38%**	**308**	**146**	**10%**	**38%**	**4%**	**22%**	**29%**

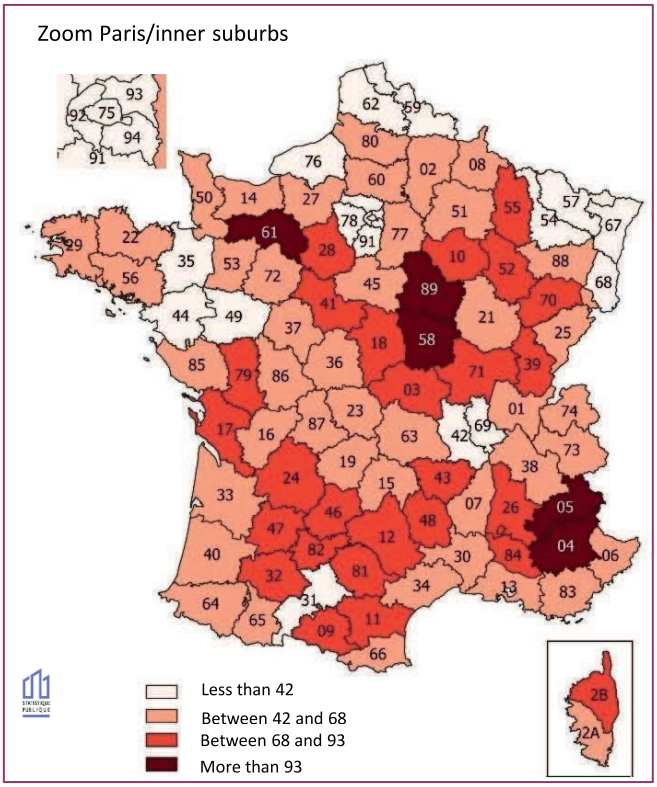
Example of reading, for the Auvergne-Rhône-Alpes region:
- in 2021, 38 % of people killed were killed in an accident involving at least one user on a home-to-work or professional travel;
- in 2021, 46 people were killed on their home-to-work travel and 12 on their professional travel;
- over the period 2017-2021, people killed on the home-to-work travel represent 10 % of people killed. Of these, 41 % were in PTW;
- over the period 2017-2021, people killed on a professional travel represent 3 % of people killed. Among them, 21 % were in a commercial vehicle and 35 % in a heavy goods vehicle.

Departments of France mainland

Number of people killed per year and per department on average over the period 2017-2021



Average annual mortality per million inhabitants per department over the period 2017-2021



On an annual average between 2017 and 2021, **the number of people killed by department** varies in a ratio of 1 to 19 (5 in Lozère and 102 in Bouches-du-Rhône), with an average in France mainland of 32 and a median to 29. For 37 departments, the number of deaths is between 15 and 30. Among the extreme values, **12 departments have a mortality lower than 15 people killed** (sparsely populated departments). On the other hand, **24 departments recorded more than 40 people killed**; these are departments with a strong urban component. A third of the departments accounts for half of the total number of killed.

The risk, related to the population

Over the period 2017-2021, **the number of people killed per million inhabitants and per year** in France mainland area is 47. By department, the rate varies from 17 in Hauts-de-Seine, Seine-Saint-Denis and Val-de-Marne to 119 in Alpes-de-Haute-Provence. The lowest rates are observed in departments of Ile-de-France (except Seine-et-Marne).

The **mortality of 18-24 years old** per million young people of this age varies from 21 in Paris to 322 in the Gers: 50 % of the departments are located between 100 and 200, 17 % above 200 and 33 % below 100.

The **mortality of people aged 65 and over** per million inhabitants of this age has a lower variability, ranging from 20 to 134. For 70 departments, this indicator is between 50 and 100.

Type of accidents (2017-2021)

While **the share of pedestrians** in mortality is **15** % in France mainland, it exceeds a third in Val-de-Marne, Seine-Saint-Denis and Paris. It is below 10 % in 33 departments.

A quarter of **cyclists** killed are concentrated in 10 departments.

Users of powered two-wheelers represent more than a quarter of users killed in 26 departments. These are both highly urban departments and others that are more rural. 5 departments register more than 20 deaths in PTW on average per year (Bouches du Rhône, Alpes Maritimes, Hérault, Nord, and Var).

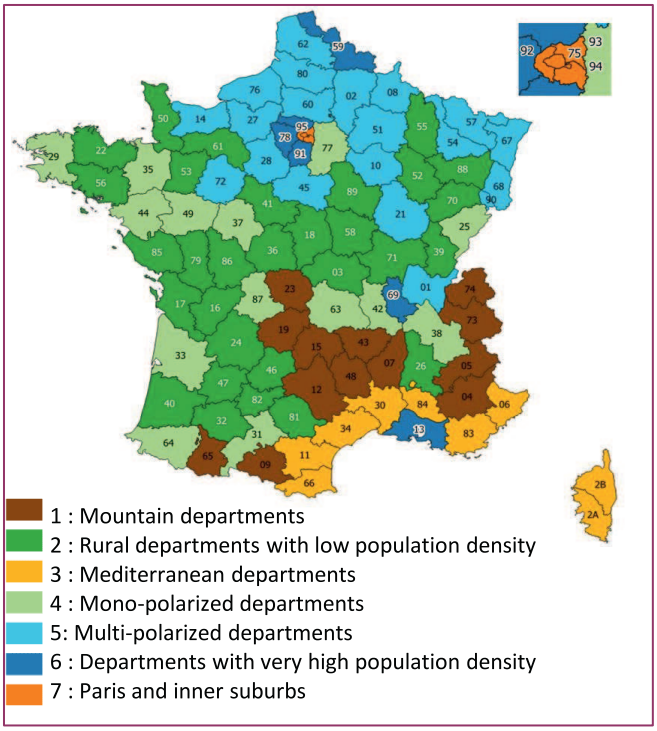
43 % of people killed are in an accident involving a driver under the influence of alcohol and/or illegal drugs. For 9 departments, half of the people killed are in an accident involving an **alcoholic and/or drugged driver.**

17 % of those killed are aged between **18 and 24**; and for 15 departments, this rate is over 20 %, mainly in the southern half of France.

On average, people aged **75 and over** make up 58 % of those aged 65 or over. Depending on the departments, the weight of people aged 75 or over in those killed aged 65 or over can be much higher (up to 93 %).

In 2022, Cerema1 updated the zoning carried out in 2012 and divided the departments into 7 families of homogeneous departments in France mainland. The statistical study integrated 21 variables relating to the population, traffic, the road network, the socio-economic context and the climate. These families of departments make it possible to compare the performance indicators with the results of **departments presenting common characteristics (see pages 162-163).**
A description of the families is available:
-on the ONISR website: *https://www.onisr.securite-routiere.gouv.fr/en*
-on the Cerema website: *https://doc.cerema.fr/*

Families of departments[1]



Families of departments[1]

In the **mountain departments**, the mortality reported per million inhabitants is the 2nd highest, on average for all ages (65), but also for 18-24 years old (138) and 25-34 years old (93); it is highest for those aged 65 or over (79).

Rural departments with low population density concentrate 24 % of mortality in France mainland in 2021. Over 5 years, they experience the highest mortality per million inhabitants (69 people killed per million inhabitants). The rate is also the highest for the mortality of young people aged 18-24 (172) or 25-34 (104) compared to the population of these ages.

In the **Mediterranean departments**, 18-24 years old (133 killed/million inhab) and 25-34 years old (87 killed/Minhab) are particularly at risk. The proportion of PTWs in mortality is 30 % against 23 % on average, and the proportion of people killed in an accident with an alcoholic driver and/or under the influence of illegal drugs is higher than the average (48 % against 43 %).

The two families of **mono-polarized departments and multi-polarized departments** each represent a fifth of road mortality in 2021. Over 5 years, the indicators for these two families of departments are very close to the national average.

Only 6 departments make up the family of **departments with very high density**, but this family represents 12 % of mortality in 2021. Mortality in relation to the population in the departments of the family remains below the national average. The share of pedestrians in fatalities is 20 % (compared to 15 % for the national average).

The departments of **Paris and the inner suburbs** are characterized by a low mortality rate (three times lower than the average for France mainland between 2017 and 2021). The share of **pedestrians, cyclists and PTWs** among the fatalities is the highest there (83 %).

	People killed								On average 2017-2021, share in the mortality of people killed...			
	2021		evolution		average rate 2017-2021							
	total by family	on average per family dept	2021/ 2019	2021/ 2010	all age for 1 million inhabitants (pop. 2021)	18-24 year old for 1 million of 18-24 y.o. (pop. 2021)	25-34 years old for 1 million of 25-34 y.o. (pop. 2021)	65 years and over for 1 million of 65 y.o. and over (pop. 2021)	PTW	in an accident with a novice driver under 2 years old **	in an accident with drunk driver / known alcohol	*in an accident with drug or alcoholic driver / known alcohol drug* *
1 - Of Mountain	205	16	-14%	-18%	65	138	93	79	26%	18%	29%	*40%*
2 - Low density rural	696	23	-16%	-36%	69	172	104	78	19%	18%	31%	*41%*
3 - Mediterranean	346	38	-10%	-28%	61	133	87	69	30%	18%	34%	*48%*
4 - Monopolarized	587	42	-11%	-22%	44	86	59	62	22%	20%	32%	*44%*
5 - Multi-polarized	612	31	-10%	-27%	48	93	68	60	19%	19%	30%	*42%*
6 - Very high density	364	61	9%	-19%	32	65	48	44	28%	19%	28%	*44%*
7 - Paris and inner suburbs	134	34	16%	-2%	17	28	22	31	36%	17%	24%	*43%*
Metropolis	**2 944**	**31**	**-9%**	**-26%**	**47**	**96**	**64**	**62**	**23%**	**19%**	**31%**	***43%***

Population 2021: Source Insee

* Unlabelled data
** Data over 4 years 2018, 2019, 2020 and 2021

[1] More information on the indicators calculated for the department families is available on pages 162-163

Departmental road safety indicators

		People killed							on average 2017-2021 share in the mortality of people killed…			
					average rate 2017-2021							
		total 2021	total 2019	Evolution 2021/2019	all ages for 1 million inhabitants (pop. 2021)	of 18-24 years old for 1 million 18-24 years old (pop. 2021)	of 25-34 years old for 1 million 25-34 years old (pop. 2021)	of 65 and over per 1 million 65 and over (pop. 2021)	in PTW	in an accident with a novice driver less than 2 years old***	in an accident with drunk driver / known alcohol	in an accident with drug or alcoholic driver / alcohol known drug
1	Ain	35	34	3%	58	103	82	78	19%	12%	28%	39%
2	Aisne	39	31	26%	66	146	87	58	21%	11%	30%	41%
3	Allier	26	23	13%	76	163	89	82	17%	17%	29%	37%
4	Alpes-de-Haute-Provence	17	17	0%	119	268	177	133	37%	18%	25%	43%
5	Hautes-Alpes	16	18	-11%	96	184	226	94	25%	27%	25%	36%
6	Alpes-Maritimes	52	58	-10%	48	106	72	53	52%	16%	30%	47%
7	Ardèche	21	33	-36%	64	113	109	75	32%	19%	50%	62%
8	Ardennes	12	22	-45%	58	163	65	92	15%	22%	25%	38%
9	Ariège	12	11	9%	81	207	113	134	6%	13%	33%	45%
10	Aube	22	22	0%	69	133	71	67	18%	13%	48%	63%
11	Aude	30	36	-17%	81	180	117	78	18%	18%	39%	53%
12	Aveyron	16	18	-11%	70	149	72	89	24%	17%	23%	42%
13	Bouches-du-Rhône	100	103	-3%	49	121	89	49	36%	23%	30%	46%
14	Calvados	28	38	-26%	50	81	53	59	24%	15%	31%	39%
15	Cantal	5	10	-50%	60	178	66	48	28%	10%	14%	19%
16	Charente	21	15	40%	52	107	93	63	12%	24%	20%	32%
17	Charente-Maritime	31	57	-46%	72	180	149	70	17%	16%	35%	45%
18	Cher	14	22	-36%	70	169	105	75	13%	20%	40%	46%
19	Corrèze	20	5	300%	63	85	134	56	21%	19%	24%	29%
2A	Corse-du-Sud	13	9	44%	62	22	73	79	40%	20%	39%	52%
2B	Haute-Corse	16	21	-24%	92	234	77	118	28%	18%	38%	44%
21	Côte-d'Or	34	30	13%	58	95	86	83	13%	17%	26%	38%
22	Côtes-d'Armor	23	38	-39%	55	154	81	67	15%	18%	26%	37%
23	Creuse	4	7	-43%	56	119	87	72	25%	13%	42%	50%
24	Dordogne	31	24	29%	71	204	82	72	20%	20%	30%	40%
25	Doubs	25	30	-17%	56	96	94	65	21%	14%	24%	43%
26	Drôme	32	34	-6%	69	185	93	76	23%	21%	25%	33%
27	Eure	41	33	24%	56	132	75	59	20%	20%	31%	40%
28	Eure-et-Loir	24	32	-25%	69	135	97	96	16%	25%	13%	37%
29	Finistère	43	38	13%	46	112	66	47	21%	22%	39%	48%
30	Gard	30	54	-44%	65	194	106	70	17%	19%	28%	38%
31	Haute-Garonne	64	63	2%	40	62	48	59	26%	23%	29%	45%
32	Gers	10	21	-52%	78	322	176	69	12%	20%	27%	42%
33	Gironde	72	78	-8%	44	85	53	55	27%	22%	35%	50%
34	Hérault	75	69	9%	57	102	90	62	27%	17%	34%	47%
35	Ille-et-Vilaine	40	42	-5%	40	50	52	63	18%	10%	37%	46%
36	Indre	11	17	-35%	61	83	53	64	23%	19%	26%	31%
37	Indre-et-Loire	32	26	23%	48	106	60	66	16%	25%	32%	41%
38	Isère	44	78	-44%	44	76	65	60	19%	24%	31%	49%
39	Jura	17	15	13%	69	121	130	63	17%	16%	23%	35%
40	Landes	23	28	-18%	68	267	96	65	19%	8%	28%	43%
41	Loir-et-Cher	22	31	-29%	84	254	131	66	17%	18%	25%	35%
42	Loire	33	24	38%	34	72	52	40	19%	21%	30%	41%
43	Haute-Loire	16	15	7%	73	203	87	91	18%	20%	19%	27%
44	Loire-Atlantique	56	71	-21%	40	87	65	44	24%	20%	38%	52%
45	Loiret	37	35	6%	54	131	73	54	19%	19%	32%	42%
46	Lot	18	16	13%	69	140	96	55	28%	20%	31%	46%
47	Lot-et-Garonne	24	23	4%	76	202	131	83	17%	20%	29%	46%
48	Lozère	8	4	100%	70	264	85	69	22%	26%	29%	32%
49	Maine-et-Loire	26	32	-19%	41	103	59	52	19%	23%	33%	43%
50	Manche	27	37	-27%	63	125	67	78	21%	18%	30%	37%
51	Marne	24	39	-38%	58	90	77	59	16%	30%	31%	49%
52	Haute-Marne	21	12	75%	88	191	151	96	7%	24%	20%	29%
53	Mayenne	25	8	213%	56	100	108	86	14%	13%	29%	32%
54	Meurthe-et-Moselle	33	29	14%	42	71	38	65	15%	16%	21%	39%
55	Meuse	10	17	-41%	80	139	100	93	24%	14%	31%	42%
56	Morbihan	40	53	-25%	55	108	105	52	21%	21%	39%	48%
57	Moselle	24	46	-48%	40	93	58	47	17%	23%	34%	47%

		People killed							on average 2017-2021 share in the mortality of people killed…			
					average rate 2017-2021							
		total 2021	total 2019	Evolution 2021/2019	all ages for 1 million inhabitants (pop. 2021)	of 18-24 years old for 1 million 18-24 years old (pop. 2021)	of 25-34 years old for 1 million 25-34 years old (pop. 2021)	of 65 and over per 1 million 65 and over (pop. 2021)	in PTW	in an accident with a novice driver less than 2 years old***	in an accident with drunk driver / known alcohol	in an accident with drug or alcoholic driver / alcohol known drug
58	Nièvre	24	18	33%	104	244	143	84	17%	17%	37%	43%
59	Nord	97	91	7%	32	58	44	35	25%	17%	30%	43%
60	Oise	31	41	-24%	51	102	98	52	20%	19%	35%	42%
61	Orne	19	30	-37%	97	253	155	113	17%	20%	31%	40%
62	Pas-de-Calais	47	61	-23%	36	77	54	34	15%	17%	39%	53%
63	Puy-de-Dôme	28	45	-38%	50	100	51	70	20%	18%	28%	38%
64	Pyrénées-Atlantiques	41	46	-11%	53	78	66	66	27%	17%	27%	33%
65	Hautes-Pyrénées	20	7	186%	53	71	57	63	20%	15%	39%	46%
66	Pyrénées-Orientales	26	30	-13%	54	118	84	52	22%	14%	34%	50%
67	Bas-Rhin	42	42	0%	36	64	48	45	23%	24%	17%	31%
68	Haut-Rhin	29	25	16%	38	79	52	45	19%	14%	14%	28%
69	Rhône	60	61	-2%	29	56	33	49	23%	20%	26%	44%
70	Haute-Saône	20	16	25%	91	269	139	106	13%	14%	35%	44%
71	Saône-et-Loire	33	48	-31%	74	213	111	75	22%	21%	26%	39%
72	Sarthe	20	41	-51%	62	117	107	76	22%	18%	32%	39%
73	Savoie	21	31	-32%	61	149	77	72	27%	20%	26%	35%
74	Haute-Savoie	29	63	-54%	49	99	74	69	31%	17%	27%	40%
75	Paris	45	34	32%	18	21	21	33	30%	11%	25%	44%
76	Seine-Maritime	41	35	17%	33	53	51	44	29%	17%	30%	46%
77	Seine-et-Marne	51	71	-28%	47	103	56	63	19%	18%	29%	42%
78	Yvelines	41	28	46%	26	46	32	33	21%	21%	24%	46%
79	Deux-Sèvres	23	37	-38%	70	159	85	101	17%	23%	29%	37%
80	Somme	43	33	30%	62	103	99	66	18%	20%	39%	49%
81	Tarn	28	35	-20%	71	187	119	71	20%	14%	34%	49%
82	Tarn-et-Garonne	19	26	-27%	80	227	136	83	16%	17%	47%	58%
83	Var	62	73	-15%	61	144	68	63	38%	17%	37%	54%
84	Vaucluse	42	34	24%	69	132	107	59	22%	22%	32%	50%
85	Vendée	33	43	-23%	59	161	76	61	25%	21%	41%	57%
86	Vienne	25	23	9%	51	100	80	60	22%	13%	33%	47%
87	Haute-Vienne	32	18	78%	59	156	76	55	21%	21%	21%	28%
88	Vosges	23	22	5%	57	117	64	55	24%	21%	30%	41%
89	Yonne	23	41	-44%	97	245	115	128	16%	22%	28%	38%
90	Territoire de Belfort	6	9	-33%	48	51	141	70	36%	12%	17%	24%
91	Essonne	42	30	40%	28	50	49	33	31%	13%	27%	38%
92	Hauts-de-Seine	30	25	20%	17	29	21	32	38%	17%	21%	42%
93	Seine-Saint-Denis	35	30	17%	17	37	25	20	33%	21%	32%	49%
94	Val-de-Marne	24	27	-11%	17	25	25	26	44%	22%	19%	38%
95	Val-d'Oise	24	22	9%	22	50	32	28	27%	16%	26%	40%
France mainland		**2 944**	**3 244**	**-9%**	**47**	**96**	**64**	**58**	**23%**	**19%**	**31%**	**43%**
971	Guadeloupe	65	47	38%	125	364	266	106	32%	16%	45%	61%
972	Martinique	29	27	7%	76	238	208	35	43%	8%	46%	67%
973	Guyane	35	35	0%	114	161	226	118	36%	19%	49%	62%
974	La Réunion	42	39	8%	51	97	102	44	38%	19%	41%	53%
976	Mayotte	12	14	-14%	34	40	56	130	41%	10%	23%	38%
DOMs overall		**183**	**162**	**13%**	**74**	**158**	**152**	**65**	**37%**	**16%**	**44%**	**59%**
975	*Saint-Pierre-et-Miquelon**	*1*	*0*	*ND*	*33*	*0*	*0*	*0*	*0%*	*0%*	*0%*	*0%*
977	*Saint-Barthélemy*,***	*3*	*0*	*ND*	*191*	*274*	*348*	*225*	*144%*	*0%*	*56%*	*89%*
978	*Saint-Martin*,***	*4*	*10*	*-60%*	*142*	*1190*	*260*	*0*	*48%*	*5%*	*50%*	*94%*
986	*Wallis-et-Futuna*,***	*4*	*1*	*NS*	*115*	*381*	*0*	*174*	*0%*	*0%*	*83%*	*83%*
987	*Polynésie française*,***	*30*	*29*	*3%*	*111*	*124*	*353*	*100*	*30%*	*10%*	*57%*	*69%*
988	*Nouvelle-Calédonie*,***	*50*	*52*	*-4%*	*184*	*413*	*377*	*181*	*25%*	*6%*	*61%*	*76%*
All COM-NC*		***92***	***92***	***0%***	***146***	***298***	***354***	***140***	***50%***	***7%***	***59%***	***75%***
Total OT*		***275***	***254***	***8%***	***90***	***193***	***196***	***74***	***21%***	***13%***	***49%***	***65%***
France (mainland+DOM)		**3 127**	**3 406**	**-8%**	**48**	**98**	**66**	**58**	**24%**	**19%**	**31%**	**44%**
France (mainland+OT)*		***3 219***	***3 498***	***-8%***	***49***	***100***	***69***	***58***	***24%***	***18%***	***32%***	***45%***

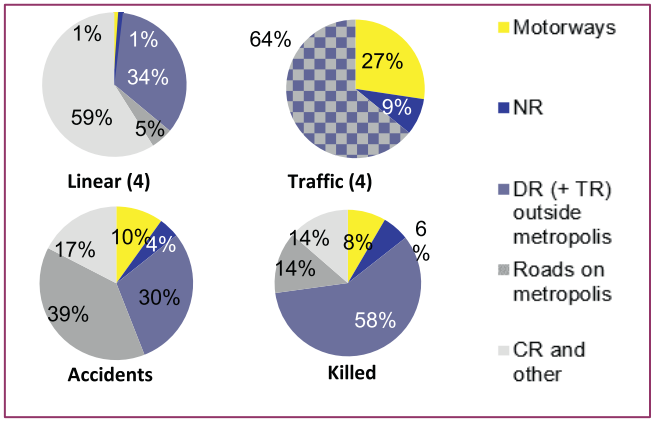
Population 2021: Source Insee
Remarks: some departments or COMs have a low number of people killed. The conclusions will therefore have to be qualified, in particular for Mayotte, Saint-Barthélemy, Saint-Martin, Saint-Pierre-et-Miquelon and Wallis-et-Futuna
* Data not labelled on COM-NC
** Population 2012, 2013 or 2014 at the last INSEE census
*** Over 4 years 2018, 2019, 2020 and 2021

Road network

	Network length (km) at 01/01/2021	
National Road Network	**Motorways, including:**	**12 341**
	Motorways granted	9 027
	Interurban motorways	1 923
	Motorways and urban expressways	1 391
	National roads, including:	**8 366**
	National interurban roads with motorway characteristics	2 803
	Other national roads	5 563
	Departmental and territorial roads	**375 265**
	Roads on the territory of urban metropolises, including: (1)	**54 646**
	Metropolitan roads (2)	7 474
	Communal roads (3)	47 172
	Communal roads outside the territory of urban metropolises	**647 880**
	Total	**1 098 498**

(1) Excluding R&D not transferred to metropolitan areas as of January 1, 2020
(2) Figures as of 01/01/2020 except for the metropolis of Lyon
(3) Figures from 2018 to 2021 according to the information available by municipality
(4) Linear: RD = All RDs including metropolises; Circulation: RN = RN without RT, provisional SDES data.
Sources: Memento of transports, SDES, 2020, Cerema, DGCL

Distribution (%) of linear, traffic (veh.km), injury accidents and fatalities according to the network



Accidents by road category in France mainland in 2021

BAAC 2021	Injury accidents	Killed
MOTORWAYS		
Motorways	5 316	248
Total	**5 316**	**248**
Urban areas outside Motorways		
National roads	*507*	*19*
Departmental roads outside the territory of urban metropolises and territorial roads of Corsica	*6 267*	*360*
Roads on the territory of urban metropolises	*19 545*	*320*
Communal roads outside the territory of urban metropolises	*7 490*	*241*
Other routes	*580*	*23*
Total	**34 389**	**963**
OUTSIDE URBAN AREAS outside Motorways		
National roads	*1 830*	*157*
Departmental roads outside the territory of urban metropolises and territorial roads of Corsica	*9 652*	*1 360*
Roads on the territory of urban metropolises	*1 091*	*79*
Communal roads outside the territory of urban metropolises	*1 109*	*129*
Other routes	*153*	*8*
Total	**13 835**	**1 733**
ALL NETWORKS		
Motorways	*5 316*	*248*
National (or territorial) roads	*2 337*	*176*
Departmental roads outside the territory of urban metropolises and territorial roads of Corsica	*15 919*	*1 720*
Roads on the territory of urban metropolises	*20 636*	*399*
Communal roads (outside urban metropolises)	*8 599*	*370*
Other routes	*733*	*31*
All networks	**53 540**	**2 944**

In 2021, the road network in France mainland represents nearly 1.1 million kilometres. The management of the various types of tracks is changing. The concession of motorways intervenes either at the stage of the construction of a new motorway, or to implement the transformation of a national road into a motorway such as recently the NR 10 or certain sections of the RCEA (Route Centre Europe Atlantic). With regard to national roads, Act I of decentralization transferred 53,000 km of secondary national roads to the departments in 1972, then Act II, 15,000 km from 2006. Since the MAPTAM law in 2014, the urban metropolises were able to take over the management of the departmental roads on their territory as well as the municipal roads of the municipalities in their territory. On January 1, 2021, the European Community of Alsace and the Eurometropolis of Strasbourg took over the management throughout Alsace of the national roads (now renamed D…) and the unconcessioned motorways A35, A352 and A36 which retain their highway status (the State retains the power to police traffic), and therefore their denomination. The 3DS law voted in 2021 allows wider transfers of roads, between communities, or of the non-conceded national network to communities.

The traffic or accident rate of a network is not correlated to the linear share. Motorways are the safest network, with a central separation between traffic flows and uneven junctions. They constitute only 1 % of the road network but carry 27 % of road traffic (prov.) and record only 8 % of fatalities. In general, the national road network (motorways and national roads) represents 2 % of the network for 36 % (prov.) of traffic and 15 % of fatalities. The traffic modelling carried out by the MTE does not provide for a breakdown of the national estimate of kilometres travelled according to the road networks, beyond the breakdown on the national network. Departmental roads represent 34 % of the linear network, for 58 % of fatalities. The network managed by the metropolises has the most accidents recorded by the police.

The urban metropolises mentioned in this sheet are the 22 metropolises of Aix-Marseille, Bordeaux, Brest, Clermont, Dijon, Grenoble, Lille, Lyon, Metz, Montpellier, Nancy, Nantes Metropole, Nice Côte d'Azur Metropolis, Rennes, Rouen, Saint-Etienne, Strasbourg, Toulon, Toulouse, Tours and the City of Paris (the Greater Paris Metropolis is not a road manager).

The length of roads on the territory of urban metropolises corresponds to the only roads managed by the metropolises (excluding non-transferred departmental ones). The figures for injury accident rate correspond to all accidents on the territory of metropolitan areas outside the national network; therefore include accidents on non-transferred departmental.

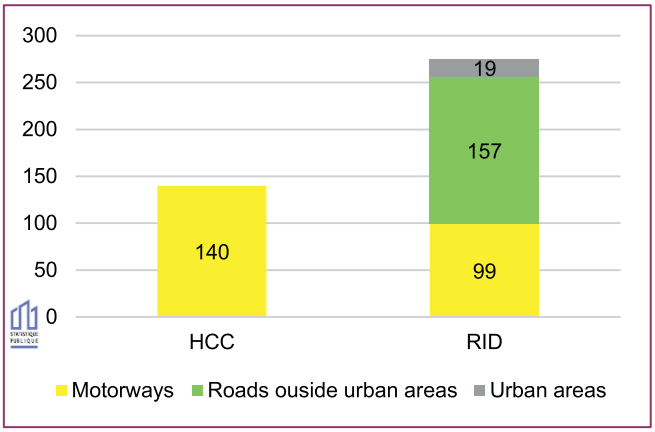
Road networks indicators

Managers	Inter-departmental road directorates (DIR)		Motorway concession companies (MCC)		Departmental Councils (DC) and Territorial Councils (TC, Corsica)		Public inter-municipal cooperation establishments (EPCI)		Communes	
2021	Number of people killed	Share in mortality	Number of people killed	Share in mortality	Number of people killed	Share in mortality	Number of people killed	Share in mortality	Number of people killed	Share in mortality
	275		140		1 746		290		433	
User category										
Pedestrians	31	11,3%	12	8,6%	159	9,0%	72	25,0%	122	29,1%
Cyclists	2	0,7%	0	0,0%	139	7,8%	29	9,9%	56	12,6%
PMD users	1	0,4%			9	0,5%	1	0,3%	13	2,9%
Moped riders	5	1,8%	1	0,7%	51	2,9%	11	3,8%	27	6,1%
Motocyclists	64	23,3%	13	9,3%	353	19,9%	73	25,3%	68	15,3%
Motorists	141	51,3%	91	65,0%	960	54,2%	96	32,9%	118	27,5%
UV users	19	6,9%	10	7,1%	58	3,3%	6	2,1%	9	2,0%
HGV users	9	3,3%	13	9,3%	19	1,1%	2	0,7%	1	0,2%
Public transport (PT)	1	0,4%	0	0,0%	2	0,1%	0	0,0%	1	0,2%
Cart	1	0,4%	0	0,0%	12	0,7%	0	0,0%	1	0,2%
Others	1	0,4%	0	0,0%	13	0,7%	0	0,0%	17	3,8%
Age group										
0-13 y.o.	11	4,0%	4	2,9%	37	2,1%	8	2,7%	22	5,4%
14-17 y.o.	5	1,8%	1	0,7%	61	3,4%	8	2,7%	26	5,9%
18-24 y.o.	39	14,2%	34	24,3%	315	17,8%	59	20,2%	57	12,8%
25-34 y.o.	55	20,0%	22	15,7%	236	13,3%	38	13,4%	43	10,1%
35-44 y.o.	48	17,5%	18	12,9%	228	12,9%	34	11,6%	35	8,1%
45-54 y.o.	46	16,7%	18	12,9%	203	11,5%	45	15,4%	39	8,8%
55-64 y.o.	30	10,9%	20	14,3%	233	13,1%	29	9,9%	51	11,5%
65-74 y.o.	22	8,0%	14	10,0%	204	11,5%	17	5,8%	59	14,0%
75 y.o. and over	19	6,9%	9	6,4%	258	14,6%	52	18,2%	101	23,4%
Type of road										
Motorway	99	36,0%	140	100,0%	9	0,5%				
Roads outside urban areas	157	57,1%	0	0,0%	1 362	76,9%	76	26,0%	130	29,3%
Urban areas	19	6,9%			404	22,8%	214	74,0%	303	70,7%
Gender :										
Men	218	79,3%	111	79,3%	1 369	77,3%	234	80,8%	342	78,2%
Women	57	20,7%	29	20,7%	406	22,9%	56	19,2%	91	21,8%
Type of occupant										
Drivers	193	70,2%	88	62,9%	1 350	76,2%	191	65,8%	275	62,4%
Passengers	51	18,5%	40	28,6%	266	15,0%	27	9,2%	36	8,6%
Novice drivers	27	9,8%	6	4,3%	162	9,1%	29	9,9%	24	5,4%
Users not or poorly belted	21	7,6%	19	13,6%	178	10,0%	28	9,6%	34	7,7%
Type of accident										
With pedestrians	33	12,0%	13	9,3%	160	9,0%	74	25,7%	127	30,2%
Vehicle alone without pedestrians	82	29,8%	51	36,4%	732	41,3%	107	36,6%	194	44,4%
2 vehicles, without pedestrians	123	44,7%	53	37,9%	783	44,2%	84	29,1%	105	23,9%
3 vehicles or +, without pedestrian	37	13,5%	23	16,4%	100	5,6%	25	8,6%	7	1,6%
In an accident involving a driver…										
novice	61	22,2%	29	20,7%	359	20,3%	59	20,2%	51	11,7%
with illegal alcohol or drug-positive	71	25,8%	29	20,7%	562	31,7%	80	27,4%	118	27,3%
with illegal alcohol	52	18,9%	15	10,7%	423	23,9%	60	20,5%	99	22,3%
with positive drug test	32	11,6%	17	12,1%	277	15,6%	45	15,4%	59	14,0%
with disturbed attention	29	10,5%	10	7,1%	194	10,9%	40	14,0%	56	12,8%
tired or having had an illness	49	17,8%	35	25,0%	237	13,4%	32	11,0%	58	13,3%
of heavy goods vehicles	82	29,8%	52	37,1%	202	11,4%	20	6,8%	34	7,7%

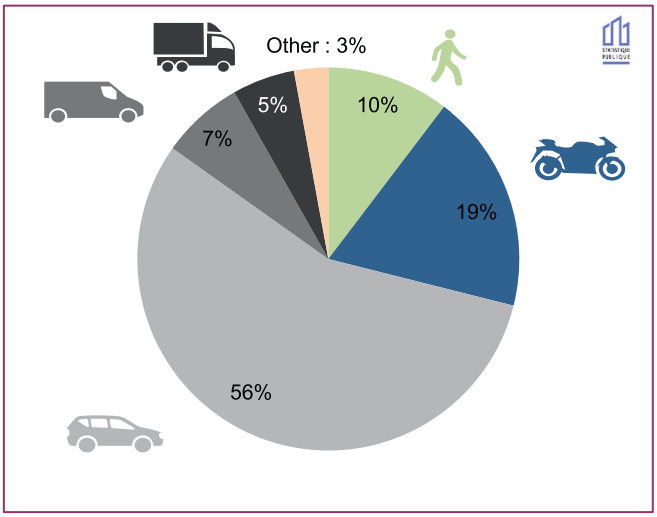
The national road network

The national road network (RRN) is made up of motorways and national roads managed or conceded by the State[1], the RRN represents nearly 2 % of the French road length on January 1, 2021.

Distribution of fatalities on the RRN according to the environment and the road manager



Distribution of users killed on the national road network in 2021 by mode of travel



Factors of the presumed responsible for fatal accidents on the national road network in 2021

Factor	Distribution
Excessive speed	24%
Alcohol	19%
Illegal drug	11%
Drow siness	10%
Faintness	10%
Distraction	10%
Non-respect of safety distances	6%
Misdirection	4%
Dangerous overtaking	4%
Lane change	4%
Priority	4%
Medications	1%
Phone	1%
Other cause	11%
Undetermined cause	19%

In 2021, 380 fatal accidents were counted on the RRN. These accidents account for 14 % of people killed on the roads of France mainland. A total of 415 people were killed on the national road network, including 140 on the conceded motorways (MCC) and 275 on the RID network.

On the RRN, 57 % of fatal accidents took place on a motorway, conceded or not. Note that these channels represent 60 % of the RRN as of January 1, 2021.

Victims and accident factors

Men aged 18 to 24 and 25 to 34 are the most subject to mortality on the RRN (respectively 62 and 61 killed). Among women, the age groups most affected are 25-34 years old (16 killed) and 55-64 years old (15 killed).

The drivers killed on the RRN are 281 in 2021, and 86 % of men. The passengers killed represent 22 % of the deaths on the RRN.

The accident factors most often mentioned on the RRN are speed (24 %) followed by the consumption of prohibited substances such as alcohol (19 %) and narcotics (11 %). The 4th most common factor concerns sleepiness at 10 %, specific to this type of network, compared to 4 % for all fatal accidents in France mainland.

Mortality close to cities

9 out of 10 RRN fatal accidents took place in the catchment area of a city[2]. Attraction areas with more than 700,000 inhabitants account for 42 % of fatal accidents in the RRN. Among them, the Paris attraction area concentrates a larger number of people killed, with 74 fatal accidents recorded on the RRN, i.e. approximately 20 % of the national workforce.

The large urban areas defined according to the typology of employment zones concentrate more than half of the fatal accidents in the RRN, which underlines the importance of the urban character of the environment in which people were killed on the RRN: a higher traffic, frequent and complex I/O.

Temporality

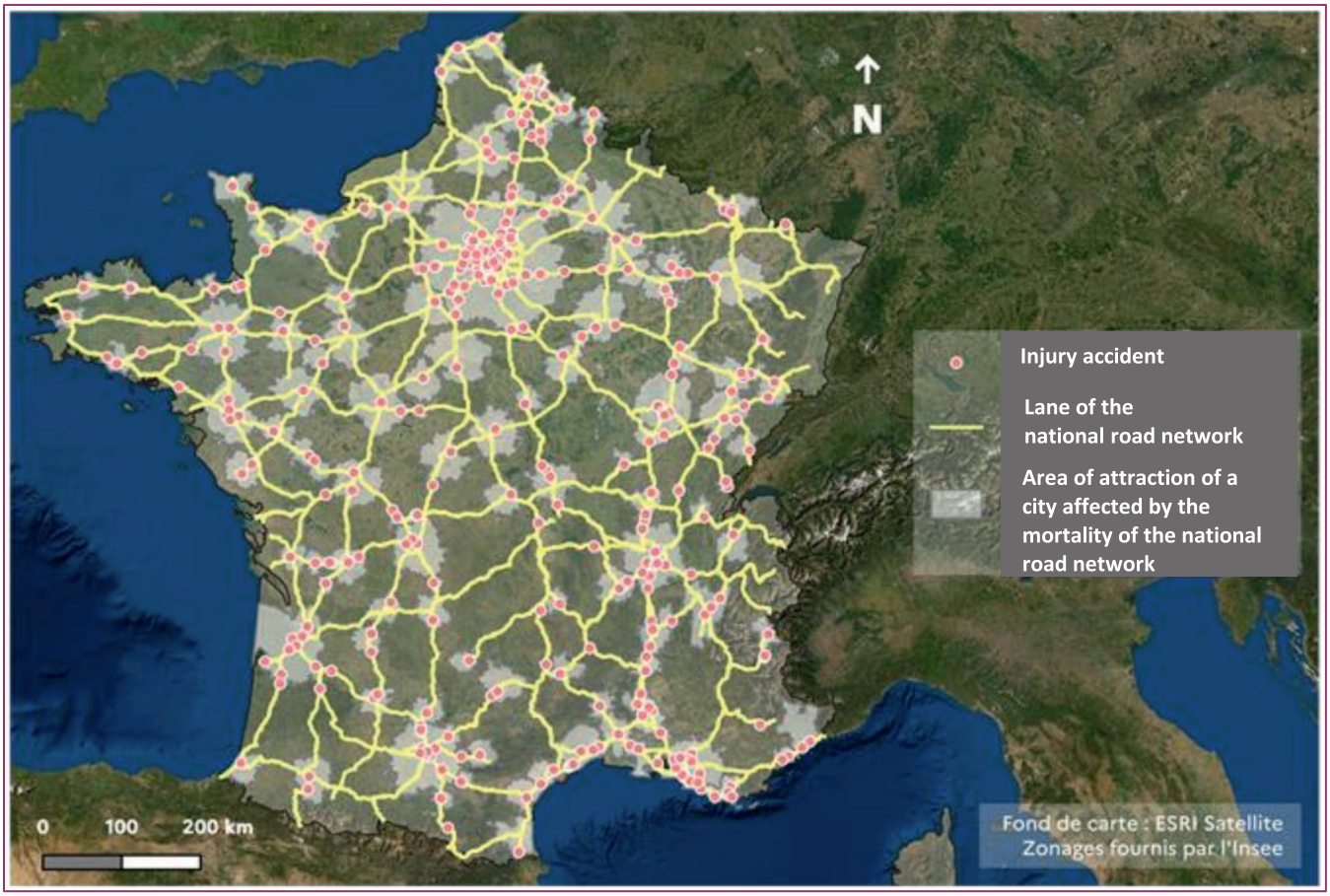
Fatal accidents on the RRN most often take place during the morning and evening rush hours but also in the evening, especially around 10 pm.

July and December are the months most affected by RRN mortality in 2021, each with more than double the number of fatal accidents occurring in March.

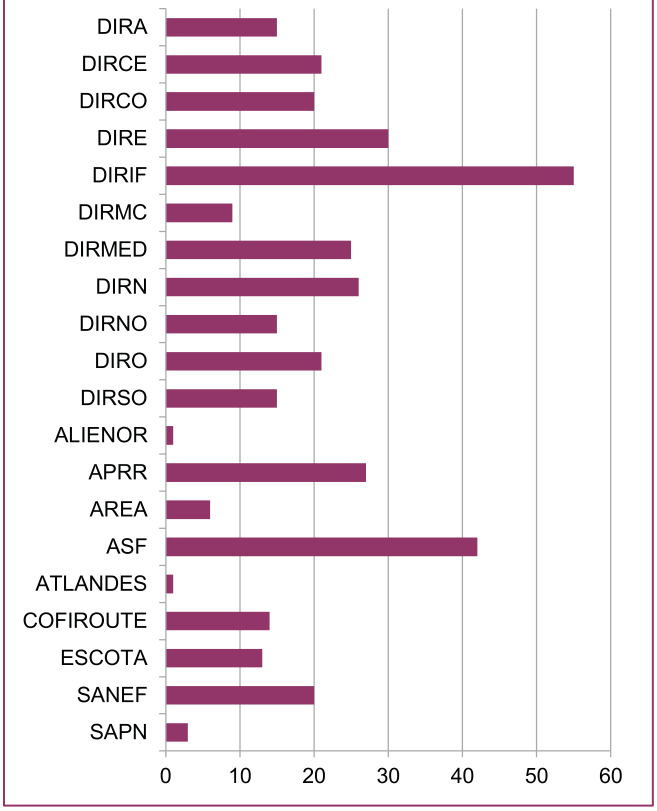
[1] The territorial roads of Corsica and the non-conceded motorways managed by the European Community of Alsace are excluded from the scope of the sheet.

2 De Bellefon, M.-P., Eusebio, P., Forest, J., Pégaz-Blanc, O., Warnod, R. (2020, October 10). In France, nine out of ten people live in the catchment area of a city. *Insee Focus, 211*. https://www.insee.fr/fr/statistiques/4806694

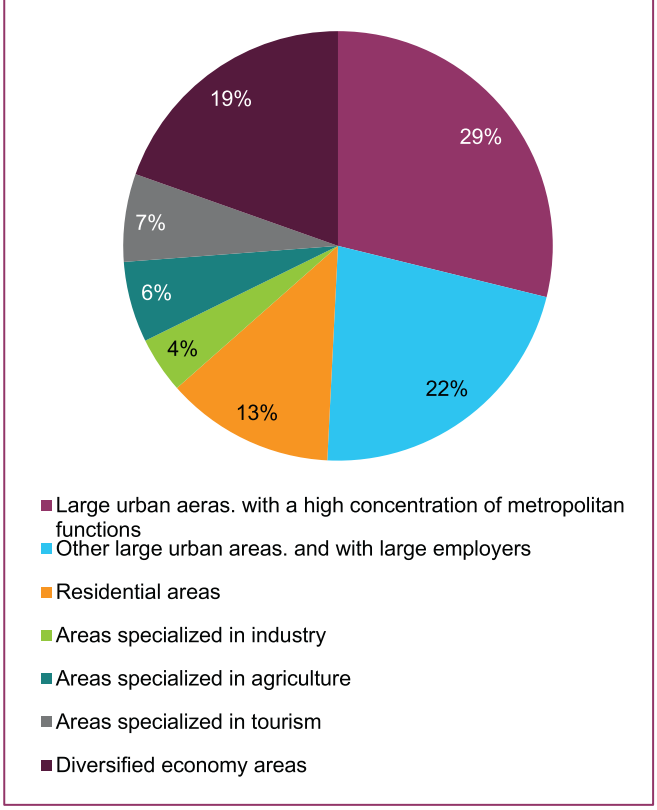
Spatial distribution of fatal accidents on the French national road network in 2021



Distribution of fatal accidents on the RRN in 2021 according to road managers



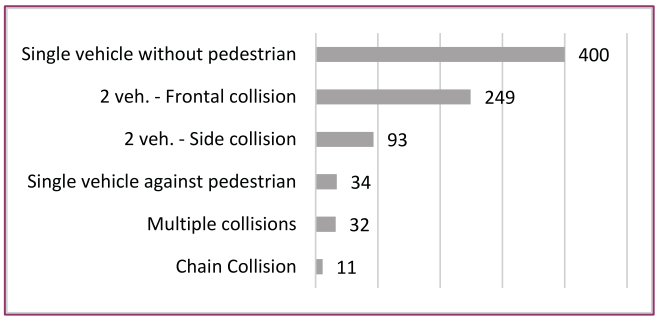
Distribution of RRN fatal accidents in 2021 according to the economic orientation of the employment zones



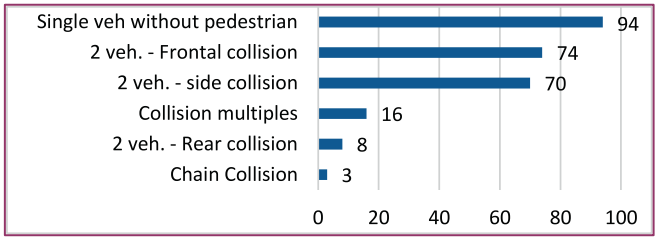
The road network managed by departments

In 2021, accidents on departmental roads (DR) outside the territory of the 21 French metropolises and Paris account for 58 % of fatalities, while departmental roads represent less than 34 % of the total road length.

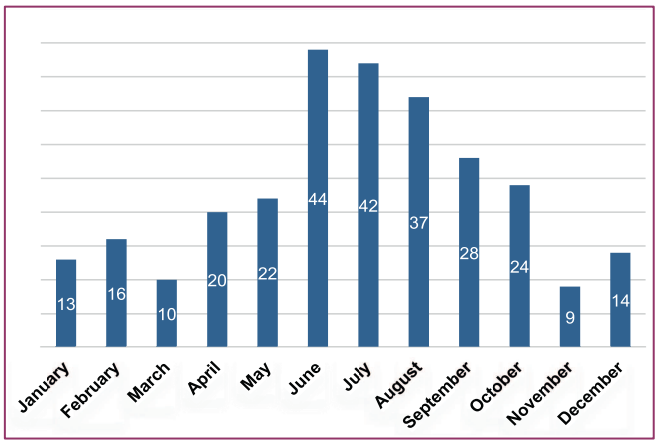
Number of motorists killed on DR outside urban areas by type of collision



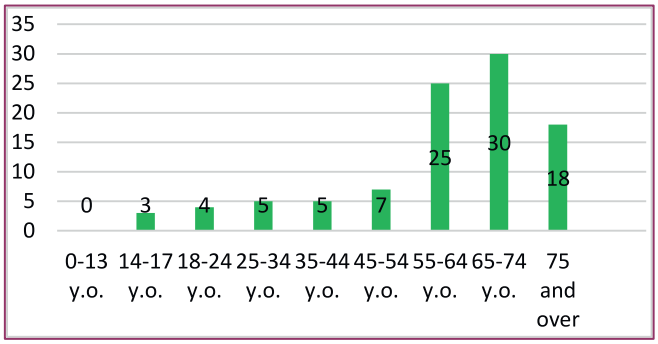
Number of motorcyclists killed on DR outside urban areas by type of collision



Number of motorcyclists killed on DR outside urban areas by month



Number of cyclists killed on DR outside urban areas by age



This sheet relates to accidents where the departmental road is the main road. Only accidents that took place on a departmental road located outside the perimeter of the 21 French metropolises and Paris are studied here (DRs in the Greater Paris Metropolis, not road managers, are indeed included here).

The number of people killed in this new DR perimeter stands at **1,746 in 2021. 77 % of those killed are outside urban areas.**

Depending on the mode of travel

In urban areas, motorists represent 49 % of people killed, pedestrians 26 %, motorcyclists 18 % and cyclists 11 %.

Outside urban areas, those killed are mainly motorists or motorcyclists (respectively 62 % and 21 % of deaths).

Among the 1,033 motorists killed on DR in 2021, 838 were killed outside urban areas (81 %). They represent 35 % of all road deaths. 36 % of motorists killed on DR outside urban areas are between 18 and 34 years old and 15 % are over 75 years old. 48 % died in an accident without a third party, 17 % in a frontal collision with another PV, 8 % in a frontal collision with a HGV. 8 out of 10 fatalities die on a two-way road. 188 killed themselves against a tree and 101 in a ditch or embankment.

Among the 351 motorcyclists killed on DR in 2021, 279 were killed outside urban areas (79 %). Among them, 9 out of 10 are men, 38 % are between 18 and 34 years old. 80 % of motorcyclists killed on DR outside urban areas are killed outside intersections; 34 % die in an accident without a third party and 47 % in a collision involving at least one passenger vehicle.

Among the 141 cyclists killed on DR in 2021, 97 are outside urban areas (69 %). Outside urban areas, 92 % of cyclists killed are men and 75 % are over 55 years old. 69 are killed during the week.

Among the 156 pedestrians killed on the DR in 2021, 102 are in urban areas and 54 outside urban areas. Outside urban areas, 28 % of pedestrians killed are over 65, 74 % are men, and 9 out of 10 are killed while walking alone. These pedestrians are mostly struck by a motorist (63 %) or a utility vehicle (15 %).

In 2021, 8 agricultural tractor drivers were killed, including 7 outside urban areas. Agricultural tractor accidents caused 23 deaths in other mode in rural areas: 9 motorcyclists, 10 motorists, 1 cyclist, 1 utility vehicle driver. As well as a cyclist and a motorcyclist in urban areas.

Road safety indicators on DR

In 2021		Acc[1]	K[1]	As a function of lineair[2]		
				Lin. Tot. (Km)	Acc / 100 Km	K/ 100 Km
1	Ain	292	29	4 453	6,6	0,7
2	Aisne	115	29	5 431	2,1	0,5
3	Allier	157	17	5 282	3,0	0,3
4	Alpes-de-Haute-Provence	148	16	2 545	5,8	0,6
5	Hautes-Alpes	118	10	1 933	6,1	0,5
6	Alpes-Maritimes	277	20	798	34,7	2,5
7	Ardèche	193	17	3 801	5,1	0,4
8	Ardennes	75	10	3 376	2,2	0,3
9	Ariège	103	10	2 669	3,9	0,4
10	Aube	164	17	4 497	3,6	0,4
11	Aude	215	25	4 300	5,0	0,6
12	Aveyron	125	13	5 910	2,1	0,2
13	Bouches-du-Rhône	81	12	2 948	2,7	0,4
14	Calvados	321	22	5 742	5,6	0,4
15	Cantal	45	2	3 970	1,1	0,1
16	Charente	88	12	5 142	1,7	0,2
17	Charente-Maritime	207	22	6 080	3,4	0,4
18	Cher	89	11	4 604	1,9	0,2
19	Corrèze	105	13	4 754	2,2	0,3
2A	Corse-du-Sud	100	3	1 999	5,0	0,2
2B	Haute-Corse	106	8	2 467	4,3	0,3
21	Côte-d'Or	104	18	5 813	1,8	0,3
22	Côtes-d'Armor	188	16	4 499	4,2	0,4
23	Creuse	34	4	4 395	0,8	0,1
24	Dordogne	152	25	4 990	3,0	0,5
25	Doubs	131	11	3 690	3,6	0,3
26	Drôme	150	22	4 213	3,6	0,5
27	Eure	224	32	4 328	5,2	0,7
28	Eure-et-Loir	166	15	7 440	2,2	0,2
29	Finistère	251	24	3 458	7,3	0,7
30	Gard	254	18	4 727	5,4	0,4
31	Haute-Garonne	203	35	5 671	3,6	0,6
32	Gers	82	9	3 558	2,3	0,3
33	Gironde	292	34	6 080	4,8	0,6
34	Hérault	225	40	4 265	5,3	0,9
35	Ille-et-Vilaine	142	23	4 157	3,4	0,6
36	Indre	54	9	4 982	1,1	0,2
37	Indre-et-Loire	109	19	3 367	3,2	0,6
38	Isère	357	25	4 217	8,5	0,6
39	Jura	84	8	3 543	2,4	0,2
40	Landes	127	21	4 294	3,0	0,5
41	Loir-et-Cher	118	15	3 424	3,4	0,4
42	Loire	161	21	3 799	4,2	0,6
43	Haute-Loire	99	12	3 411	2,9	0,4
44	Loire-Atlantique	192	36	3 977	4,8	0,9
45	Loiret	129	20	3 568	3,6	0,6
46	Lot	80	13	4 017	2,0	0,3
47	Lot-et-Garonne	132	16	2 956	4,5	0,5
48	Lozère	48	6	2 262	2,1	0,3
49	Maine-et-Loire	192	18	4 771	4,0	0,4
50	Manche	275	17	7 762	3,5	0,2
51	Marne	227	15	4 172	5,4	0,4
52	Haute-Marne	75	11	3 893	1,9	0,3
53	Mayenne	91	17	3 675	2,5	0,5
54	Meurthe-et-Moselle	148	23	3 102	4,8	0,7
55	Meuse	75	6	3 529	2,1	0,2
56	Morbihan	246	26	4 175	5,9	0,6
57	Moselle	153	13	4 299	3,6	0,3
58	Nièvre	118	18	4 359	2,7	0,4
59	Nord	260	45	3 629	7,2	1,2
60	Oise	298	21	4 267	7,0	0,5
61	Orne	199	17	5 861	3,4	0,3
62	Pas-de-Calais	261	28	6 207	4,2	0,5
63	Puy-de-Dôme	168	19	6 722	2,5	0,3
64	Pyrénées-Atlantiques	376	23	4 447	8,5	0,5
65	Hautes-Pyrénées	157	17	2 961	5,3	0,6
66	Pyrénées-Orientales	149	18	2 154	6,9	0,8
67	Bas-Rhin	183	24	3 224	5,7	0,7
68	Haut-Rhin	251	17	2 602	9,6	0,7
69	Rhône	207	7	2 231	9,3	0,3
70	Haute-Saône	67	13	3 423	2,0	0,4
71	Saône-et-Loire	237	19	5 479	4,3	0,3
72	Sarthe	157	14	4 267	3,7	0,3
73	Savoie	161	18	3 121	5,2	0,6
74	Haute-Savoie	277	19	2 983	9,3	0,6
75	Paris	-	-	-	-	-
76	Seine-Maritime	234	19	5 089	4,6	0,4
77	Seine-et-Marne	340	32	4 321	7,9	0,7
78	Yvelines	206	24	1 579	13,0	1,5
79	Deux-Sèvres	136	19	4 010	3,4	0,5
80	Somme	194	27	4 523	4,3	0,6
81	Tarn	134	21	4 154	3,2	0,5
82	Tarn-et-Garonne	83	14	2 528	3,3	0,6
83	Var	304	35	2 966	10,3	1,2
84	Vaucluse	150	29	2 322	6,5	1,2
85	Vendée	216	23	4 680	4,6	0,5
86	Vienne	135	22	4 780	2,8	0,5
87	Haute-Vienne	105	15	3 998	2,6	0,4
88	Vosges	123	18	3 240	3,8	0,6
89	Yonne	130	16	4 860	2,7	0,3
90	Territoire de Belfort	29	5	547	5,3	0,9
91	Essonne	525	23	1 490	35,2	1,5
92	Hauts-de-Seine	1260	20	332	379,9	6,0
93	Seine-Saint-Denis	1317	15	344	382,8	4,4
94	Val-de-Marne	1093	9	407	268,9	2,2
95	Val-d'Oise	334	12	1 080	30,9	1,1

[1] Figures obtained on the DR network not including roads on the perimeter of major cities.
[2] Linear as of January 1, 2020. Departmental roads on metropolitan areas not transferred are included in the total linear.

The road network managed by urban metropolises

56 % of people killed in metropolitan areas are killed in urban areas, compared to 44 % outside urban areas.

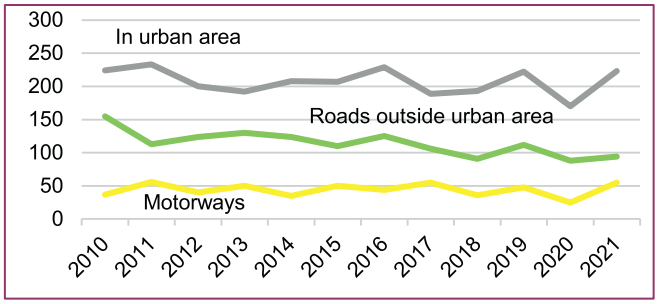
Evolution of mortality since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
372	382	416	-10,6%	-8,2%

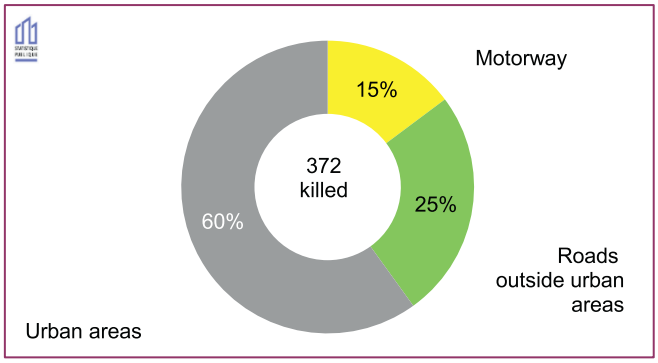
Average annual change*	2019 to 2021	2010 to 2019
Killed in the Metropolises	-1,3%	-0,9%
Killed outside the Metropolises	-5,2%	-2,4%
All killed	-4,7%	-2,3%

*Reading: between 2010 and 2019, the number of people killed in metropolitan areas decreased by an average of 0.9 % per year.

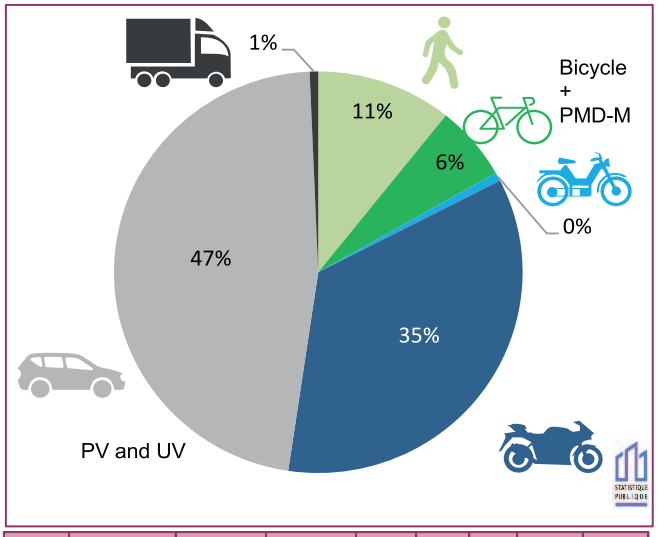
Evolution of the number of people killed in metropolitan areas since 2010



Distribution of people killed in metropolitan areas by environment



Distribution of people killed outside urban areas (motorway included) by mode of travel



	Pedestrian	Bicycle + PMDm	Moped riders	Moto	PV	HGV	Other	Total
Killed	16	9	1	52	70	1	0	**149**

This page presents the accident rate in 2021 within the scope of the Metropolises. On January 1, 2021, there were 21 metropolises outside Greater Paris, constituting a total population of 11,029,122 people.

With 372 people killed in 2021, metropolitan areas account for 13 % of national road deaths. At the same time, metropolitan areas account for 17 % of the population. The decline in average annual mortality for metropolitan areas is lower than the national average between 2010 and 2019 (- 0.8 % vs - 2.3 %). This trend is confirmed between 2019 and 2021 (- 1.3 % vs - 4.7 %).

The assessment over the last decade concludes with a drop of - 10.6 % between 2010 and 2021 in the number of people killed, two thirds of which relate to the specific evolution of 2020. The drop was greater outside urban areas where drops from 155 killed in 2010 to 94 killed in 2021 (- 39 %). In urban areas outside motorway, there is almost no reduction in mortality (224 killed in 2010 vs 223 killed in 2021). These latest figures show that the majority of deaths are in urban areas (60 %), unlike EPCIs with more than 100,000 inhabitants.

Outside urban areas

Outside urban areas (motorways included), more than half of the people killed are vulnerable users (52 %). The proportion of motorcyclists reaches 35 % of mortality. It should be noted that one in six people killed is a pedestrian or cyclist**.**

The age groups most affected **are 18-24, 45-54 and 25-34** (each group comprising 27 %, 18 % and 15 % of people killed respectively). The 0-17 years old and the over 75s are the least represented (4 % and 3 %). The distribution has changed slightly between 2019 and 2021 (slight decrease with a drop from 21 % to 15 % for 25-34 years old and from 14 % to 10 % for 55-64 years old).

40 % of people killed are in an accident without third party and 34 % in an accident with two vehicles. In 2019, these proportions were 33 % and 46 % respectively.

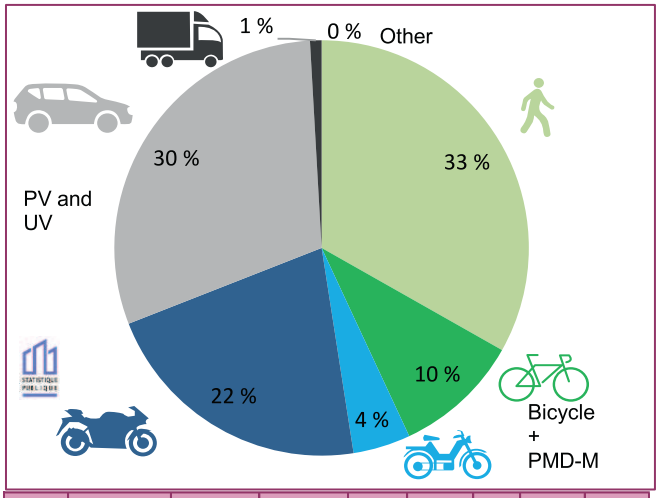
In urban areas

The distribution by mode shows the challenges of vulnerable users:

- One in three people killed is a **pedestrian**;
- One in four people killed is a **PTW**;
- One in ten people killed is a **cyclist.**

This distribution of mortality is substantially the same as in 2019. It is PTWs that have experienced the greatest drop in mortality (- 14 killed, i.e. - 19 %), pedestrians to a lesser extent (- 4 killed) while that there is an increase on the other modes.

Distribution of people killed in urban areas in metropolitan areas by age



	Pedestrian	Bicycle+ PMDm	Moped riders	Moto	PV+UV	HGV	Other	Total
Killed	74	22	10	48	67	2	0	**223**

The stakes are higher for those aged 18-24 and those aged 75 and over (respectively 39 and 55 killed in 2021).

Seniors (over 65) are particularly affected by mortality in urban areas with 30 % of cases.

Among accidents without a pedestrian, **48 % of people killed are in an accident without a third party**.

Vulnerable users

The table shows the differences between metropolitan areas (figures excluding motorways). Vulnerable users (pedestrians, cyclists and PTWs) made up **62 % of people killed in 2021**, while the 2017-2021 average is 67 %.

Among the 21 cities mentioned, over the period 2017-2021, 7 have a share of pedestrian deaths greater than 30 % and 4 a share of PTW deaths greater than 40 %.

Urban road safety indicators (excluding motorways)

		People killed...					Killed per million inha-bitants annual average 2017-2021	On average 2017-2021 share in the mortality of people killed...				
Metropolis label (population 2018)	Population 2018	in 2021	in 2020	in 2019	in 2018	in 2017		pedes-trians 2017 - 2021	by bike 2017 - 2021	by PTW 2017 - 2021	in an accident with a novice driver less than 2 years license 2018-2021	in an accident with drunk driver / known alcohol 2017-2021
Paris	2 165 423	45	45	34	36	30	18	44%	13%	30%	11%	24%
Inner suburbs of Paris*	4 676 384	66	54	64	66	64	13	38%	7%	36%	19%	21%
Outer suburbs of Paris*	5 420 737	140	121	132	156	183	27	19%	6%	25%	16%	25%
Métropole d'Aix-Marseille-Provence	1 911 657	66	64	71	72	76	37	20%	3%	41%	21%	23%
Métropole de Lyon	1 415 357	37	24	42	29	25	22	34%	9%	19%	21%	20%
Métropole Européenne de Lille	1 160 691	25	17	29	21	30	21	26%	7%	29%	10%	20%
Bordeaux Métropole	811 377	14	18	18	17	22	22	25%	9%	36%	21%	15%
Toulouse Métropole	793 243	13	18	12	16	6	16	29%	12%	32%	29%	38%
Nantes Métropole	668 162	13	10	20	11	11	19	29%	5%	37%	13%	24%
Métropole Nice Côte d'Azur	545 730	20	22	22	25	17	39	26%	8%	49%	15%	23%
Eurométropole de Strasbourg	505 916	12	9	11	9	6	19	23%	11%	32%	20%	19%
Métropole Rouen Normandie	499 830	14	5	9	8	15	20	31%	10%	16%	16%	24%
Montpellier Méditerranée Métropole	487 519	17	11	19	12	16	31	24%	3%	43%	17%	30%
Rennes Métropole	461 166	13	12	12	8	14	26	20%	17%	19%	13%	36%
Grenoble-Alpes-Métropole	451 107	13	2	15	4	11	20	24%	16%	24%	25%	28%
Métropole Toulon-Provence-Méditerranée	444 828	12	12	8	7	12	23	29%	8%	45%	18%	34%
Saint-Etienne Métropole	409 771	9	2	7	6	7	15	39%	13%	26%	23%	9%
Clermont Auvergne Métropole	300 131	9	8	10	6	5	25	24%	11%	29%	14%	22%
Tours Métropole Val de Loire	300 045	6	4	4	8	3	17	48%	0%	24%	21%	16%
Orléans Métropole	292 874	8	5	6	9	7	24	26%	14%	31%	15%	13%
Métropole du Grand Nancy	261 638	4	2	4	2	3	11	33%	13%	13%	9%	7%
Dijon Métropole	259 087	7	7	2	5	2	18	35%	4%	22%	19%	29%
Metz Métropole	225 374	0	3	6	4	4	15	35%	6%	0%	12%	33%
Brest Métropole	214 290	5	3	7	5	3	21	22%	0%	26%	22%	45%
Average (21 cities outside Greater Paris)		**15**	**12**	**16**	**14**	**14**	**24**	**26%**	**8%**	**33%**	**18%**	**24%**

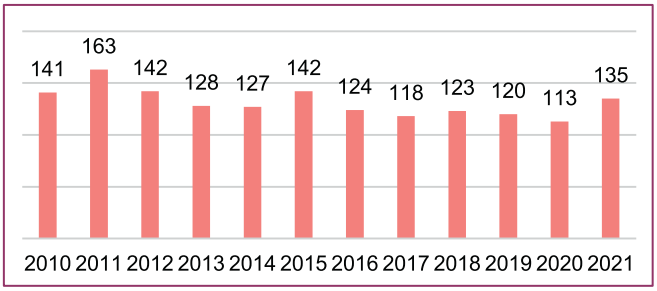
* Inner suburbs of Paris: departments 92, 93, 94. Outer suburbs of Paris: departments 77, 78, 91, 95.

Accidents in the Greater Paris metropolis

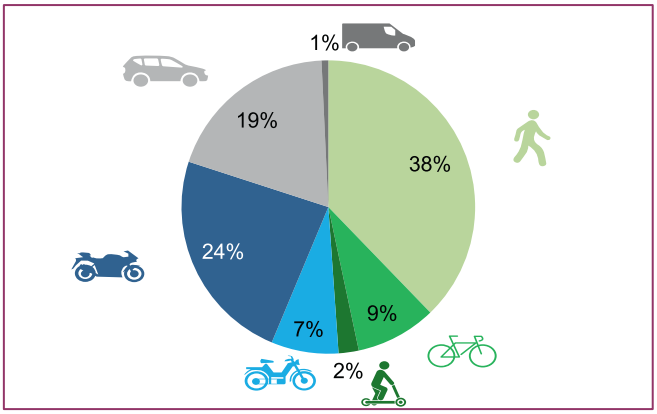
Since 2010, road fatalities within the Greater Paris Metropolis (GPM) have fluctuated around 131 people killed per year, out of the 131 municipalities (division on January 1, 2022).

With motorways, national roads, departmental roads and municipal roads on its territory, this metropolis with a special status, without road management skills, is the second largest metropolis in France (7.2 Minhab), after the Nice-Côte-d'Azur Metropolis.
The GPM notably exercises competences in economic, social and cultural development and planning; Protection and enhancement of the environment and living environment policy; Development of the metropolitan space.

Report of people killed on the tracks in the Greater Paris Metropolis since 2010



Breakdown of people killed by mode of travel in 2021



Distribution of the factors of the 132 users presumed responsible for fatal accidents

Factor	Distribution
Excessive or inappropriate speed	23%
Alcohol	21%
Priority	18%
Inattention	18%
Illegal drugs	14%
Dangerous overtaking	8%
Lane change	6%
Misdirection	4%
Other cause	18%
Undetermined cause	17%

In 2021, 131 fatal accidents were counted in the GPM. These accidents account for approximately 4 % of deaths on the roads in France. A total of 135 individuals were killed on the roads within the GPM, an increase of + 13 % compared to 2019.

The profile of the killed

With a total of 45 fatalities, men aged 21 to 40 are the most subject to road fatalities in the GPM. Among women, 1 person killed in 2 is over 60 years old.

72 people killed were driving at the time of the accident (89 % of the men). Passengers killed represent 10 % of deaths on the roads within the GPM.

The factors explaining this mortality are more or less informed according to the fatal accidents recorded by the police. Excessive or inappropriate speed, alcohol, refusal of priority and inattention remain the most mentioned in the BAAC file.

The territories of the Metropolis

Capital of France and the most populous municipality in the country and in the GPM, the city of Paris is also the territory of the GPM, which has seen the most fatal road accidents: 45 in 2021.

Paris also has the highest density of fatal accidents, with approximately one accident per 2 km², according to the municipal division as of January 1, 2022.

However, the Boucle-Nord-de-Seine and Paris-Terre-d'Envol has higher road fatality rates than the capital, with approximately one accident per 30,000 inhabitants compared to 1 per 50,000 in the city of Paris, according to the populations established in 2019.

According to users

Active modes and powered two-wheelers (PTW) are the most subject to road fatalities in the GPM in 2021..

Among the active modes, walking dominates the ranking, concentrating 38 % of people killed. The most affected pedestrian user remains the octogenarian man.

PTWs represent 31 % of deaths on the roads within the GPM. The 38 PTW users killed are mostly drivers.

Depending on the time of year

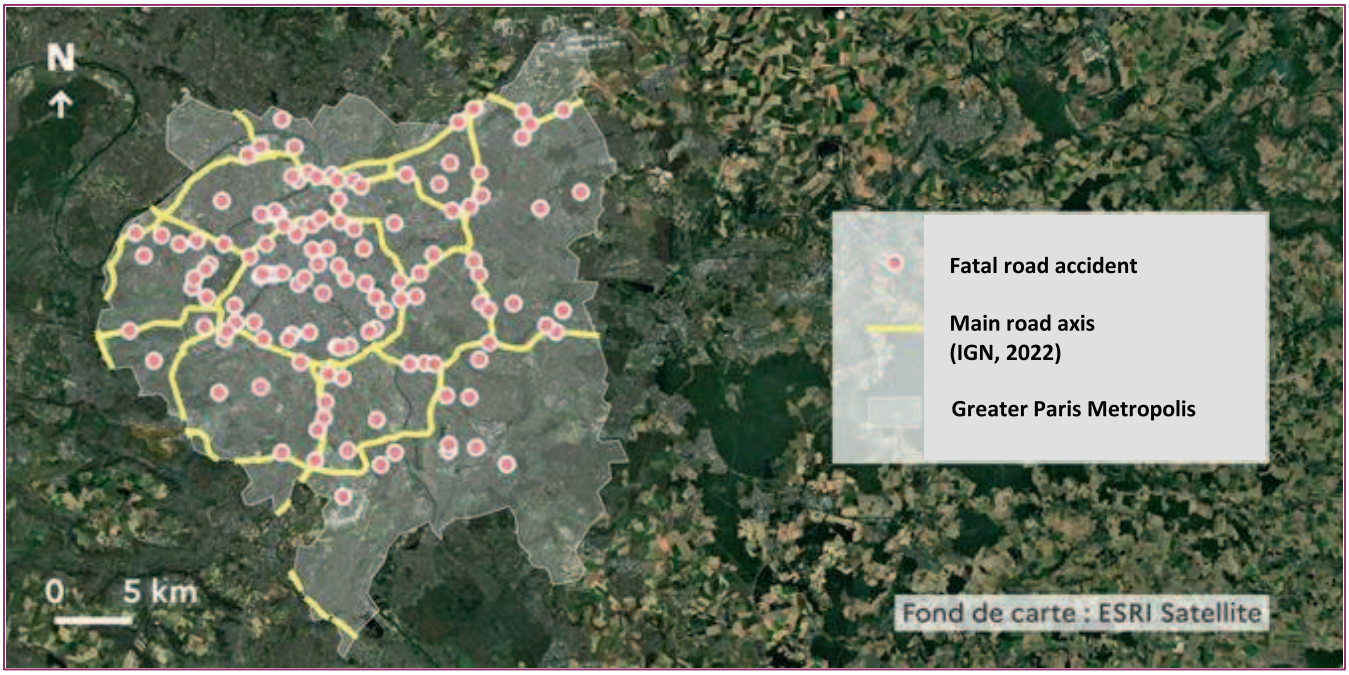
Fatal road accidents within the GPM most often took place during evening rush hours: 38 fatal accidents were recorded between 4 p.m. and 5 p.m., and 39 between 6 p.m. and 7 p.m.

With 19 fatal accidents, October is the worst month on the roads within the GPM in 2021, accumulating almost three times as many fatal accidents as in March or August.

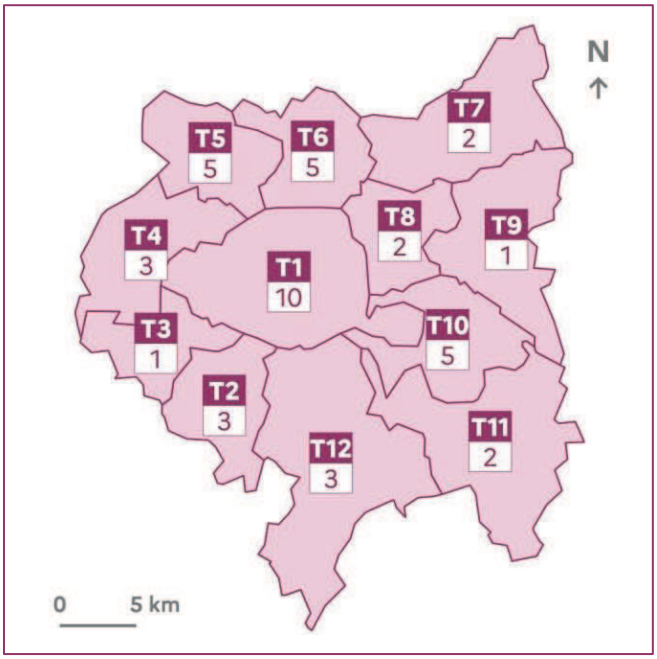
Spatial distribution of fatal accidents in the Parisian geographical repositories in 2021

Geographic level	Paris (municipality)	Metropolis of Greater Paris	Urban unit of Paris	Paris attraction area	
				main pole	Whole
Number of fatal accidents	45	131	206	190	327
Number of people killed	45	135	213	196	342

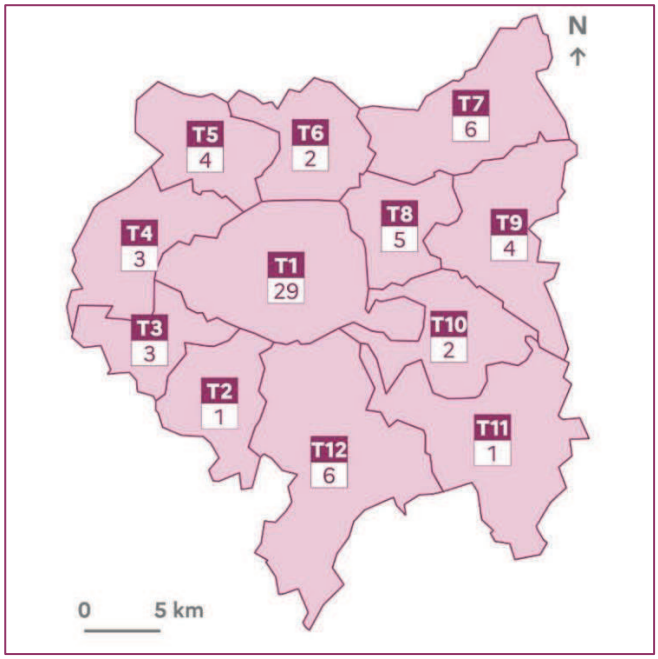
Spatial distribution of fatal accidents in the Greater Paris Metropolis in 2021



Road mortality of powered two-wheelers in the Greater Paris Metropolis in 2021



Road mortality of active mobility in the Greater Paris Metropolis in 2021



GPM territories							
	T1 Ville-de-Paris	**T2** Vallée-Sud-Grand-Paris	**T3** Grand-Paris Seine-Ouest	**T4** Paris-Ouest-La Défense
	T5 Boucle-Nord-de-Seine	**T6** Plaine Commune	**T7** Paris-Terres-d'Envol	**T8** Est-Ensemble
	T9 Grand-Paris-Grand-Est	**T10** Paris-Est-Marne-et-Bois	**T11** Grand-Paris-Sud-Est-Avenir	**T12** Grand-Orly-Seine-Bièvre

Accidents in highly urbanized areas

572 people died on the territory of EPCIs with more than 100,000 inhabitants (excluding urban metropolises), including 40 % in urban areas.

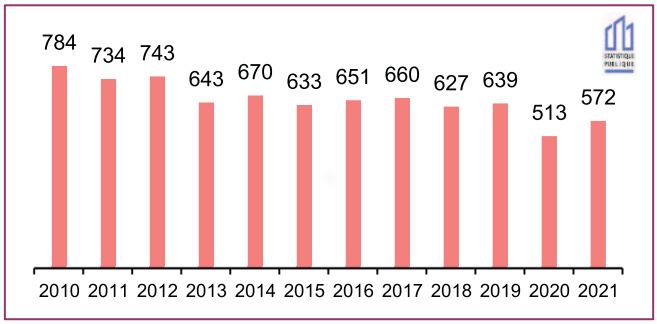
Evolution of mortality since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
572	639	784	- 27,0 %	- 18,5 %

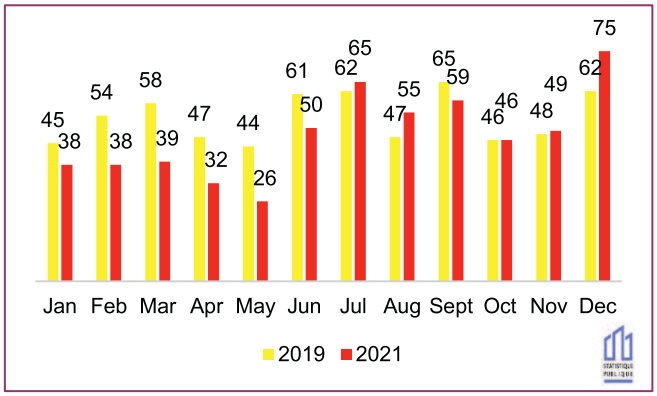
Average annual change*	2019 to 2021	2010 to 2019
Killed EPCI + 100 000	- 5,4 %	-2,2%
Killed EPCI - 100 000	- 5,8 %	- 2,5 %
All killed	- 4,7 %	- 2,3 %

*Reading: between 2010 and 2019, the number of killed in EPCIs with more than 100,000 inhabitants fell by 2.2 % per year.

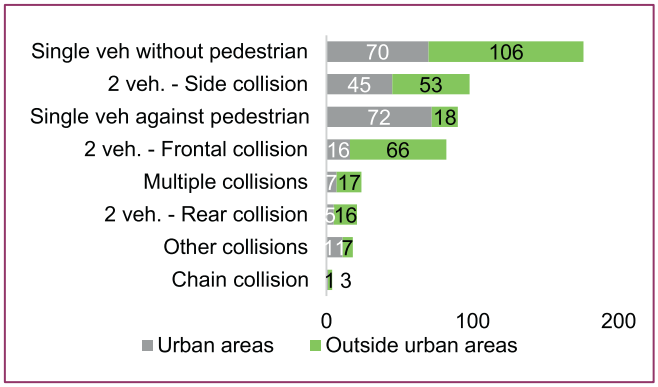
Evolution of the number of people killed since 2010 in EPCIs with more than 100,000 inhabitants



Number of people killed in EPCIs with more than 100,000 inhabitants by month in 2019 and 2021



Breakdown of people killed by type of collision in 2021 (excluding motorways)



This page presents accidents in 2021 within the scope of public inter-municipal cooperation establishments (EPCIs) with more than 100,000 inhabitants, outside metropolitan areas. On January 1, 2021, there were 98 EPCIs with more than 100,000 inhabitants, constituting a total population of 16,638,862 people.

With 572 people killed in 2021, the territory of EPCIs with more than 100,000 inhabitants records **19 % of road deaths for 25 % of the population of France mainland**. In general, the speeds practiced are lower in urbanized areas, which explains a lower share of mortality in EPCIs with more than 100,000 inhabitants, particularly in comparison with rural areas (EPCIs of less than 100,000 inhabitants).

From 2010 to 2019, the decline in mortality in the territory of EPCIs with more than 100,000 inhabitants followed a trend close to the national trend with an average annual decline of - 2.2 %.

Specific developments 2021

The year 2021 has 67 fewer people killed than in 2019. This drop (- 10 %) is slightly higher than that of the whole of France mainland (- 9 %). This drop is twice as great in urban areas (- 16 %) as outside urban areas (- 8 %). It globally affects all modes of travel with in particular:

- Moderate decrease for users of passenger vehicles (- 6 %);
- More pronounced decrease for cyclists and pedestrians (respectively - 11 % and - 12 %);
- Also marked drop for users of utility vehicles (- 17 %);
- Sharp drop for moped riders (- 53 %).

Depending on the environment and the road network

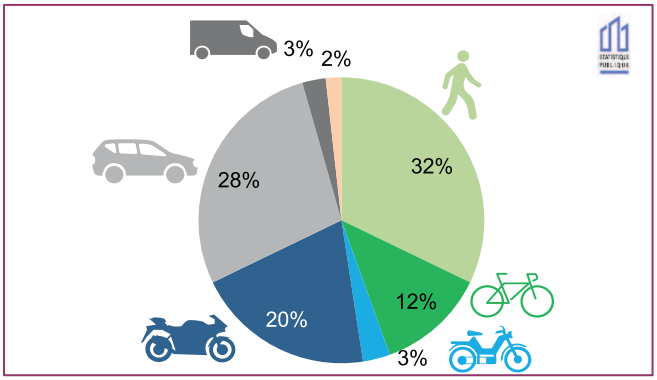
The distribution of mortality according to road environment is stable between 2019 and 2021: 50 % of people killed are outside urban areas off-road, 10 % on motorways and 40 % in urban areas.

The breakdown by road network shows that **58 % of people killed are on departmental roads (339 killed), including 67 % outside urban areas**. 22 % of deaths are on municipal roads (128 killed), 80 % in urban areas.

Types of fatal accidents

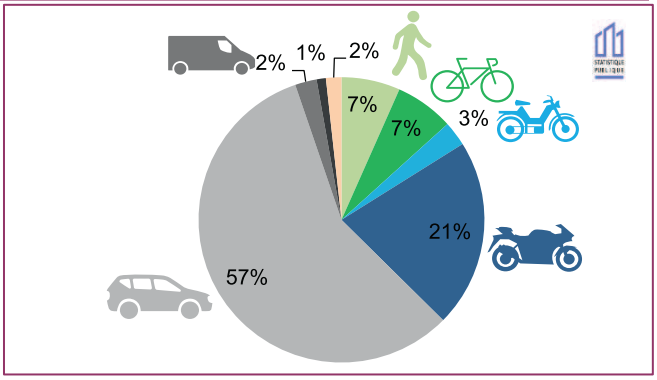
A third of fatal accidents off motorways concern single vehicles without pedestrians (176 killed) and a third of collisions between two vehicles from the side or frontally (180 killed), mainly on departmental roads. 80 % of frontal collisions occur outside urban areas, while 80 % of accidents against pedestrians occur in urban areas.

Breakdown of people killed in urban areas by mode of travel in EPCIs with more than 100,000 inhabitants



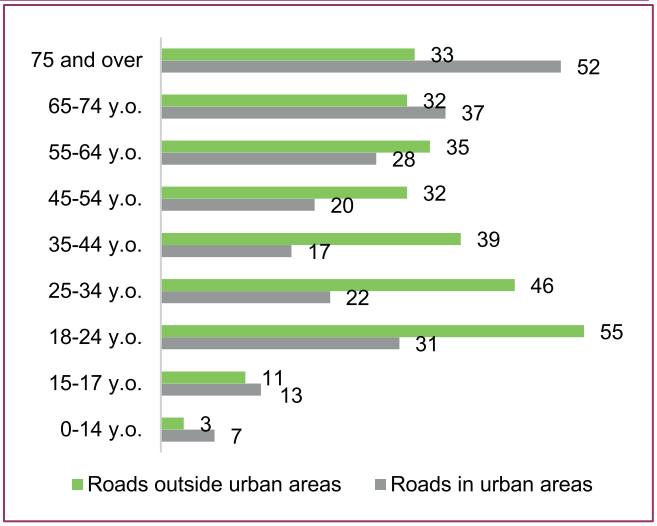
	Walking	Bicycle+ PMDm	Moped riders	Moto	PV	UV	HGV	Other	Total
Killed	73	28	7	46	63	6	0	4	**227**

Breakdown of people killed outside urban areas off the motorway by mode of travel in EPCIs with more than 100,000 inhabitants



	Walking	Bicycle+ PMDm	Moped riders	Moto	PV	UV	HGV	Other	Total
Killed	19	19	8	61	164	7	3	5	**286**

Breakdown of people killed in EPCIs with more than 100,000 inhabitants by age and area, excluding motorways



According to the environment and the mode

In urban areas, fatalities are distributed between four main modes: passenger vehicles, motorcycles, bicycles and walking.

Soft modes total 101 deaths in urban areas and thus constitute 44 % of mortality in urban areas. Among pedestrians in urban areas, seniors are the first victims of accidents with 51 killed (70 % of pedestrian deaths in urban areas). 6 people died in motorized PMD, all in urban areas.

Passenger vehicles and motorcycles account for most of the deaths among motorized modes with 109 deaths (48 % of deaths in urban areas). 18-44 years old are particularly affected by motorcycle mortality with 31 killed and 67 % of mortality for this mode. For passenger vehicles, the 65-years old and over (35 %) stand out with 22 killed and the 18-34 years old (33 %) with 21 killed.

On roads outside urban areas, off the motorway, mechanized modes become very predominant, primarily passenger vehicles (164 fatalities, 57 %) and motorcycles (61 fatalities, 21 %). For motorcycles, the 18-44 age group is the most represented with 42 deaths (69 % of mortality). For the car, the 18-24 years old are the first concerned (43 killed, 26 %) followed by the over 65s (41 killed, 25 %) then finally the over 25-44 years old (40 killed, 24 %).

On the motorway, there are notably among the 59 killed: 37 users of passenger vehicles and 11 pedestrians.

According to road environment and age

Very logically, the elderly tend to be more victims in urban areas, especially for those aged 75 and more often pedestrian victims, while the active age groups are more often killed outside urban areas.

26 % of those killed in PV are between 18 and 24 years old and 16 % are 75 or older. 52 % of motorcycle fatalities are between 25 and 44 years old and 22 % between 45 and 64 years old. 55 % of pedestrian fatalities are 65 or older and 70 % of bicycle fatalities are 55 or older.

Accidents in/outside intersection

The vast majority of fatalities die in an accident outside an intersection (415 killed, or 73 % and even 81 % off the motorway). These include users of passenger vehicles (201 killed), pedestrians (77 killed), motorcyclists (77 killed) and cyclists (23 killed).

There were 133 users killed at intersections, including users of passenger vehicles (50 killed), motorcyclists (28 killed) and cyclists (17 killed). 8 people died at a level crossing, 4 motorists, 3 pedestrians and 1 cyclist.

Accidents in rural areas

In rural areas, 1 in 5 people killed is in urban areas.

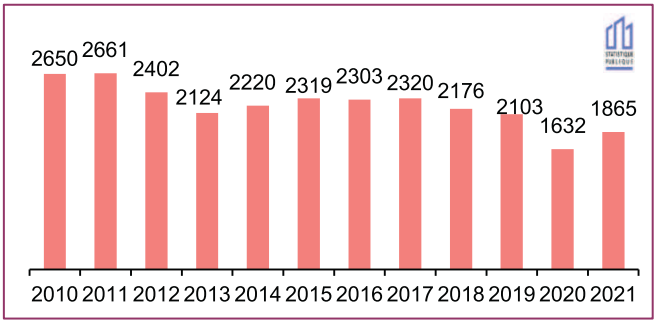
Evolution of mortality since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
1 865	2 103	2 650	-29,6 %	-20,6 %

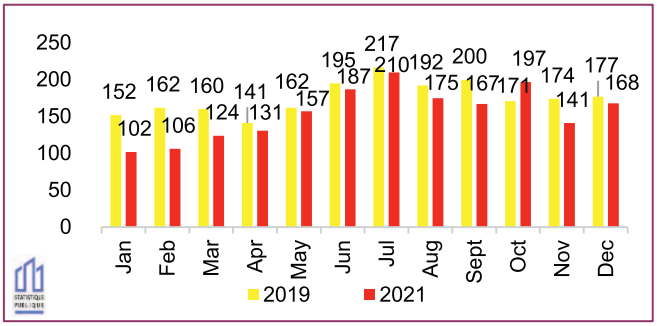
Average annual change*	2019 to 2021	2010 to 2019
Killed in rural areas	- 5,8 %	- 2,5 %
Killed outside rural areas	- 2,8 %	- 1,8 %
Killed in France mainland	- 4,7 %	- 2,3 %

*Reading: between 2010 and 2019, the number of people killed fell by an average of - 2.5 % per year in rural areas.

Evolution of the number of people killed in rural areas since 2010



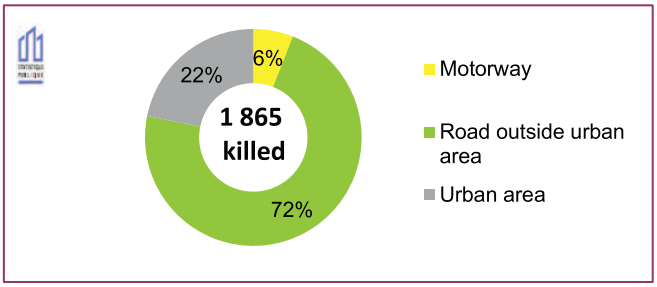
Number of people killed in rural areas by month in 2019 and 2021



Breakdown of people killed in rural areas by type of road

	Urban area	Outside urban area	Motorway	All environment
Motorway	/	/	6%	**6%**
NR	1%	6%		**7%**
DR	13%	60%	/	**73%**
Communal road	7%	6%	/	**13%**
Other	1%	0%	/	**1%**
All networks	**22%**	**72%**	**6%**	**100%**

Breakdown of people killed in rural areas by environment



This page presents accidents in 2021 in so-called "rural" areas. **Its definition has changed** compared to previous years: rural areas are **EPCIs with less than 100,000 inhabitants (the threshold was 150,000), excluding the greater Paris suburbs**. A quarter of French departments fall entirely into this category. These areas are therefore not only open country areas.

With 1,865 people killed in 2021, rural areas concentrate **63 % of road deaths for 46 % of the French population**. In connection with the speeds used, and therefore, with the increased violence of the shocks, **the severity is clearly greater in rural areas than in non-rural areas**: there are 2.6 times more people killed compared to the number of wounded.

From 2010 to 2019, the decline in mortality in rural areas was 1.4 times greater than in non-rural areas with an overall change of - 21 % in 10 years.

The year 2021 has 238 fewer people killed in rural areas than 2019. This drop is very marked in the first quarter: 142 fewer people killed than in the first quarter of 2019. The drop was also sharp in September and November (- 33 killed per month). However, the month of October saw an increase (+ 26 people killed).

Depending on the environment and road category

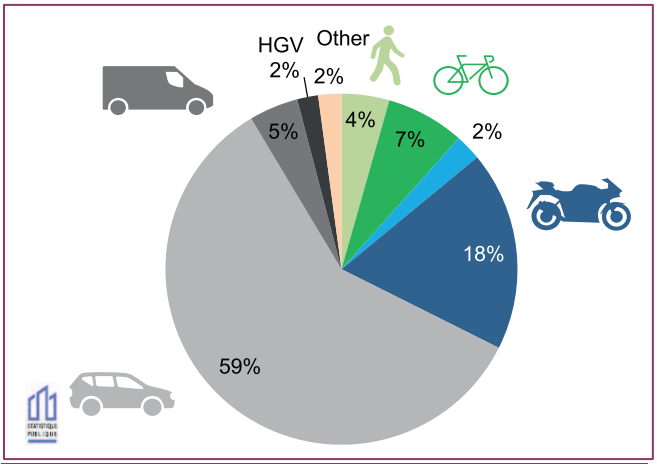
The distribution of mortality by environment is stable between 2019 and 2021: three-quarters of people killed in rural areas are outside urban areas, with a stable share of motorways at 6 %. With 11 killed per 100 injured, the severity of accidents outside urban areas is twice as high as that observed in urban areas (5 per 100).

73 % of people killed are on departmental roads, mainly outside urban areas. It should be noted that **among the 407 deaths in urban areas, 59 % are on departmental roads**. 13 % of people killed are on municipal roads, i.e. as many as on national roads and motorways combined. This share is higher in urban areas than outside urban areas: 34 % compared to 8 **%**.

Deaths (1,363) on departmental roads in rural areas represent 46 % of national mortality.

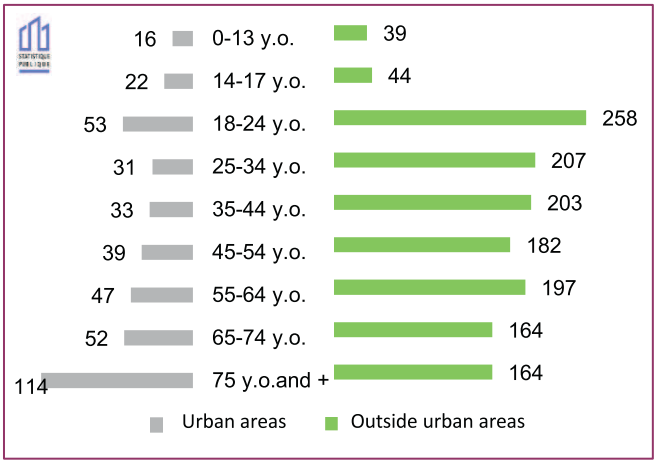
The breakdown of accidents by mode of travel is very different depending on the environment. Thus, accidents in urban areas concentrate 62 % of pedestrians killed, 34 % of cyclists killed and 14 % of motorists killed.

Breakdown of people killed outside urban areas by mode of travel in rural areas (1,458 killed)

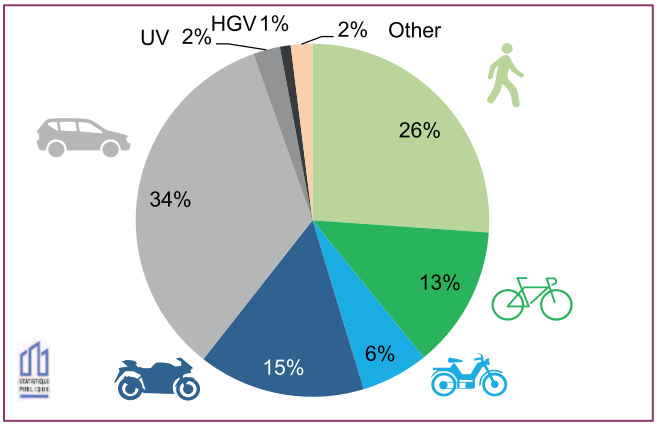


	Pedestrian	Bicycle + PMDm	Moped riders	Moto	PV	UV	HGV	Other	Total
Killed	64	105	35	268	860	66	28	32	**1 458**

Breakdown of people killed in rural areas by age, in or outside urban areas



Breakdown of people killed in urban areas by mode in rural areas (407 killed)



	Pedestrian	Bicycle + PMDm	Moped riders	Moto	PV	UV	HGV	Other	Total
Killed	106	53	25	62	138	10	4	9	407

Outside urban areas

The breakdown by mode of travel of victims killed outside urban areas in rural areas in 2021 is similar to that of 2019. The main issue concerns passenger vehicles, then PTWs: **59 % of users killed are motorists and 18 % of bikers**. Pedestrians and cyclists remain in smaller proportions (4 % and 7 %).

Pedestrian accidents are very serious: 23% of pedestrian victims are killed, while this proportion is 9 % for all modes (from 5 % for moped riders to 14 % for cyclists). Motorcycle accidents are more serious than motorist accidents (12 versus 9 people killed for every 100 injured).

In rural areas outside urban areas, 18-24 years old account for 18 % of deaths; 25-34 years old, 35-44 years old, 45-54 years old and 55-64 years old account for 14 % respectively; 65-74 year old and the over 75 years old: 11 %.

On roads outside urban areas, 1 in 7 fatalities occurs at intersections. This share is 1.6 times higher for users of powered two-wheelers.

36 % of deaths are at night. The severity (12 people killed per 100 injured) is higher at night than during the day (9 per 100).

44 % of people killed are in an accident without a third party (1 single vehicle without a pedestrian). This proportion is lower for powered two-wheeler accidents without a third party (36 %).

In urban areas

Soft modes are more affected in urban areas, with **39 % of people killed pedestrians or cyclists**. More people are killed on foot or by bicycle (169 killed) than by car (138). The proportion of “vulnerable users” (soft modes + powered two-wheelers) killed is twice as high in urban areas (60 %) as outside urban areas.

In urban areas, the severity (number of killed per 100 injured) is twice as low as outside urban areas. The maximum severity concerns pedestrians and cyclists (6 killed per 100 injured).

One in four people killed is over 75 year old. Young adults (18-24 years old) and 65-74 years old then remain the most affected age groups: 13 % of deaths.

Accidents involving a **vehicle without a pedestrian remain preponderant**. In accidents without a pedestrian, 3 out of 5 people killed are in an accident without a third party.

Daytime mortality remains the highest: two out of three people killed are during the day.

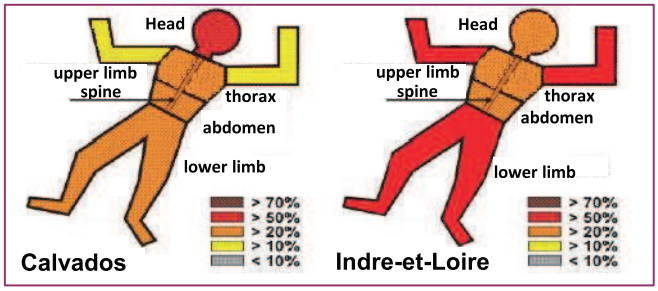
Two studies of cyclists accidents : DDTM14/DDT37

Team	CEREMA Normandie-Centre Céline MACQUET, Team GSAM
Completion	November 2021
Methodology	BAAC file statistical analysis Exploitation of accident reports
Perimeter	Departments of Calvados and of l'Indre-et-Loire, 5 years of analysis (respectively over 2014 - 2018 and over 2015-2019) with report reading
Key-words	Accidents, cyclist

Families of departments (Cerema)

In 2012, statistical studies divided the departments into 9 families. Calvados and Indre-et-Loire then belonged to the family of “multipolar departments”. Since the 2022 update (pages 41 and 162-163), Calvados has come under the “multi-polarised departments”, Indre-et-Loire under the “mono-polarised departments”.

Localization of cyclist injuries



Occurrence of the different families of accidents according to the department

Families of accidents	Calvados	Indre-et-Loire
Single cyclist	10%	5%
Bicycle-pedestrian accident	9%	7%
Failure to respect a priority by the cyclist	11%	16%
Dangerous cyclist maneuver	11%	3%
Failure to respect a priority by the antagonist	23%	34%
Overtaking by the antagonist	11%	11%
Other antagonist error (loss of control, inattention, dazzled...)	9%	20%
Antagonist vehicle parked	6%	3%
Cause and missing information	9%	-

Profile of injured cyclists

	Calvados		Indre et Loire	
	Men	Women	Men	Women
0-17 y.o.	18%	2%	13%	2%
18-24 y.o.	7%	3%	11%	6%
25-44 y.o.	16%	7%	22%	10%
45-64 y.o.	26%	4%	17%	6%
65 and+	13%	4%	10%	3%
responsibles	29%	3%	25%	12%
home-w ork/school	14%	8%	18%	10%
leisure	59%	11%	37%	2%
shopping	3%	1%	1%	4%

The 2019 mobility orientation law and the cycling plan, the objective of which is to triple the cycling modal share by 2024, have prompted the Departmental Directorates of the Territories to identify cycling practices and the associated accident rate at the scale of their territories.

Between 2017 and 2021, 8 cyclists were killed in Calvados and 2 in Indre-et-Loire, results close to the results achieved during the studies presented here. On the other hand, the number of injuries recorded is twice as high in Indre-et-Loire, a difference essentially linked to the urban area of Tours.

According to the road environment

In Calvados, 32 % of accidents occur **outside urban areas**, a percentage higher than the regional values and twice the national values. While towns with 2,000 to 5,000 inhabitants represent only 9.1 % of Calvados urban areas, they concentrate 37.9 % of cyclist accidents in urban areas.

Conversely, 91 % of accidents recorded in Indre-et-Loire occur **in urban areas**, which is well above the regional and national averages; an effect of the presence of a large urban area.

Typology of accidents

Cyclists in **Calvados** mainly have accidents on leisure travels (68 %), there are many cycling clubs in this department with practice on racing bikes. **While** 98 % of accidents occur on the road, **22 % of cyclists were riding on the sidewalk** just before the accident.

Cyclists in **Indre-et-Loire** are more often involved in accidents on a home-work/school travel (28 %) than in Calvados; 88 % of these accidents occurred in the metropolis of Tours.

It is an impact against **a light vehicle in 68 % of cases in Calvados and 54 % of cases in Indre et Loire**. Failure to respect priority by the car driver is the most common situation (respectively at 23 % and 34 %).

Injuries to cyclists are mainly localized to the head in Calvados; on lower and upper limbs in Indre-et-Loire.

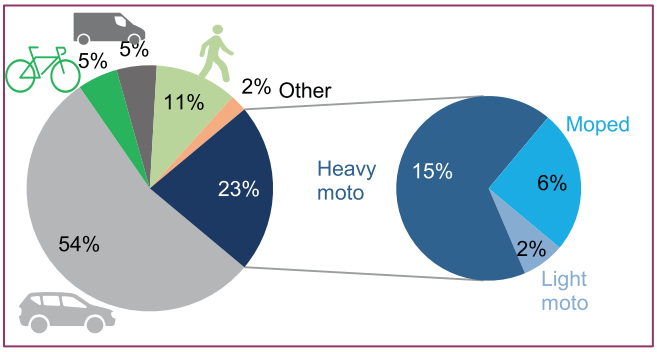
Profile of injured cyclists

The injured **cyclists** are mainly men (80 % in Calvados, 73 % in Indre-et-Loire). The latter are also more seriously injured than women. The age group most concerned differs according to the department: it is 45-64 years old in Calvados (30 % of accident victims), while it is 25-44 years old in Indre-et-Loire (32 %). This age distribution plays on the most represented socio-professional categories. These are retired (30 %) and students (30 %) in Calvados; working people (31 %) and students (21 %) in Indre-et-Loire.

2019 accidents of PTW in New Aquitaine

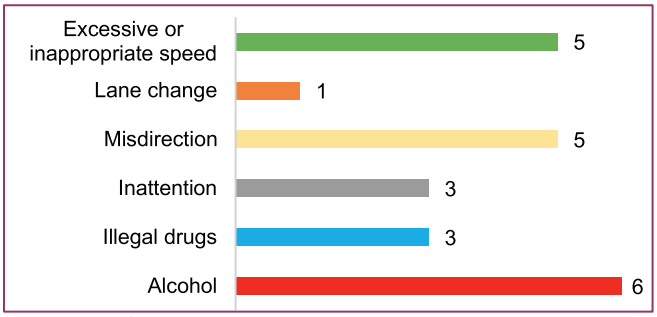
Team	CEREMA Normandie-Centre Céline MACQUET, team GSAM
Completion	November 2021
Methodology	BAAC file statistical analysis Exploitation of accident reports
Perimeter	Departments of Calvados and Indre-et-Loire, 5 years of analysis (respectively over 2014 - 2018 and over 2015 - 2019) with report read
Key-words	Accidents, cyclist

Breakdown of road fatalities by mode of travel in New Aquitaine



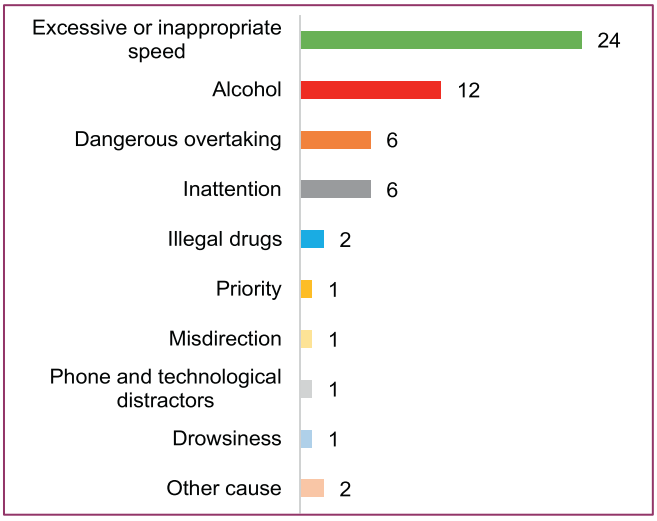
Source: BAAC 2019 – New Aquitaine data

Causal human factors found in accidents involving a moped rider killed



Source: BAAC 2019 – New Aquitaine data

Causal human factors found in crashes involving a motorcyclist killed



Source: BAAC 2019 – New Aquitaine data

In 2019, powered two-wheeler mortality in New Aquitaine represented **10.7 % of** PTW **mortality in France mainland**, with 60 motorcyclists (9.8 %) and 20 moped riders (14.9 %) killed.

Users of powered two-wheeler accounted for **more than a fifth of road deaths in New Aquitaine (23 %)** (17 % for motorcyclists and 6 % for mopeds).

While PTW accidents fell between 2010 and 2016, there was then a recovery in accident rates. Accidents increased particularly **between 2018 and 2019** with a **significant increase in moped rider and motorcyclist injuries, moped rider fatalities** (+ 43 %), while the number of **motorcycle rider fatalities** remained **stable**.

Typical scenario of the moped driver's fatal accident

In 2019, the profile of the moped rider killed (20) is a moped driver (95 %) (76 %), male (90 %), helmeted (88 %), aged 14-24 (80 %), realizing a leisure travel (75 %) in his department of residence.

The fatal accident occurs either alone (33 %) or during a frontal collision with a passenger vehicle (33 %).

It takes place in broad daylight (65 %), in urban areas (83 %) and outside intersections (75 %). It is located on a municipal road (55 %) bidirectional (95 %), on a flat road (65 %) and straight (65 %), in normal weather (85 %) but on a wet road (55 %).

The circumstances of the accident, on the base of the accidents reported, combine at least two human factors (59 %), the two main ones being alcohol (50 %) and excessive or inappropriate speed (40 %).

Typical motorcyclist fatal accident scenario

In 2019, the profile of the motorcyclist killed (60) is a driver (95 %) of a heavy motorcycle (93 %), a man (98 %) with an A license (88 %), wearing a helmet (98 %), aged 45-64 (45 %), making a leisure travel (67 %) in his department of residence (92 %).

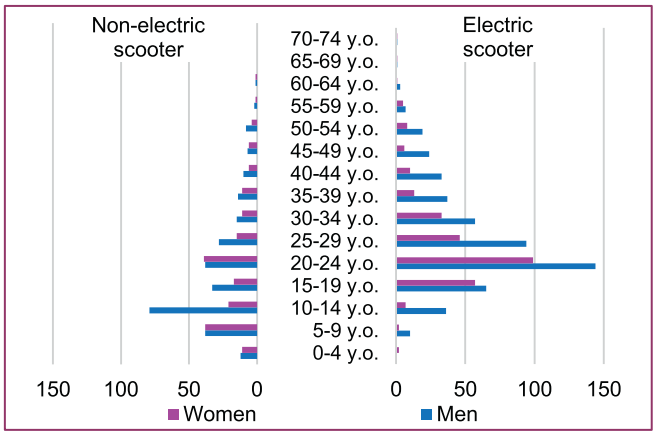
The fatal accident occurs alone (55 %), in broad daylight (55 %), outside urban areas (56 %) and outside intersections (72 %). It takes place on a departmental (68 %) bidirectional (48 %), on a flat (70 %) and straight road (64 %), in normal weather (83 %) and on dry pavement (87 %).

In 62 % of the fatal accidents reported (39), a single human factor is assigned to the drivers. The main factor in the accident is excessive or inappropriate speed (60 %).

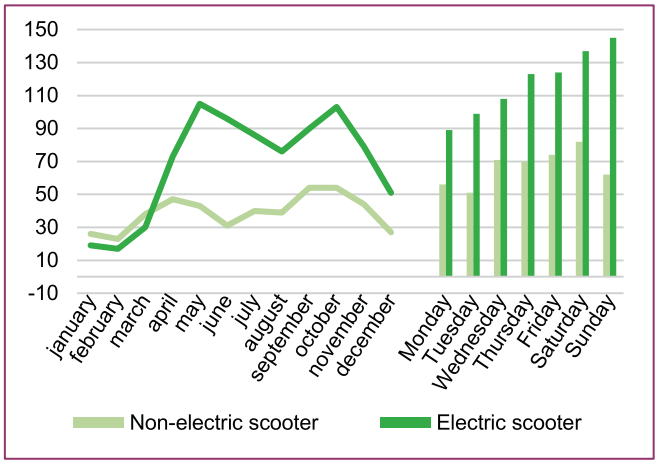
Injuries of e-scooterists in the Rhône

Teams	Céline Vernet, Amina Ndiaye (Gustave Eiffel University, TS2, UMRESTTE)
Completion	2022
Methodology	Analysis of data from the Rhône Registry
Perimeter	Department of Rhône
Key-words	E-scooter, hospital data, lesions, Rhône

Number of injuries by electric and non-electric scooters by age and gender (2019)



Number of injuries in electric and non-electric scooters by month and day of the week (2019)



Comparison of body regions affected between bicycle and scooter injuries

Body region affected	Bicycle	Scooter
Head	11%	15%
Face	15%	21%
Neck	2%	2%
Thorax	5%	3%
Abdomen	2%	2%
Spine	4%	3%
Upper members	33%	29%
Low er limbs and pelvis	23%	23%
Skin only	4%	2%

The Rhône register[1] carries out precise monitoring of injuries in road accidents in the Rhône based on information transmitted by hospitals.

In 2019, 1,291 scooter injuries and 1,952 bicycle injuries were recorded in the register. 65 % of scooter injuries were on an electric scooter.

User profile

Nearly 2/3 of the injured in the Rhône on scooters (electric or not) are men, a proportion equivalent to the average of the injured in the registry. 73 % of scooter-injured people fall alone.

The peak of injuries is around 10-14 years old for non-electric scooters, while it is around 15-29 years old for electric scooters.

The timing of accidents is quite different between the two categories of scooters. If the month of the year and the day of the week have little impact on the frequency of accidents for non-electric scooters, these two variables have more impact for motorized ones. Indeed, a significant peak is emerging for the non-winter months. In addition, the second part of the week is more affected, with the majority of accidents occurring from Thursday to Sunday, and more particularly at weekends. Electric scooter accidents are evenly distributed over the time slots 7 a.m.-1 p.m., 1 p.m.-6 p.m., 6 p.m.-midnight, midnight-7 a.m. Half of the accidents therefore correspond to outings in the evening and returning in the early morning. Conversely, 80 % of those injured on non-electric scooters had their accident between 7 a.m. and 8 p.m.

Injuries to cyclists and scooter users

The data available from the Rhône Registry makes it possible to compare the bodily areas affected in the injured according to the different modes of travel. By comparing injured cyclists and scooter users, we note that the latter are more often affected **at the cephalic extremity (head or face)**: **37 % of injuries described against 27 % in cyclists. 6 % of injured scooter riders wore a helmet, compared to 29.5 % of injured cyclists**. Conversely, cyclists are more affected in the upper limbs (33 %) than scooter users. This reflects configurations of falls that may differ between the two modes of travel. Due to the reduced size of their wheels, scooters can tip forward more easily, leading to head and face injuries.

44 % of injured cyclists had a hospital stay of 4 days or more, compared to 37 % for electric scooter users and 17 % for non electric scooter users.

[1] More information on the Rhône Register is available on pages 14 to 16.

Urban road safety policies (PUSER)

Team	**Cerema** (F.Vanco, V.Ledoux, B.Hiron, G.Saint Pierre, C.Fourrel de Frettes) ; **Eiffel Univ.** (L.Carnis)
Completion	December 2021
Perimeter	70 central cities of France mainland, between 1987 and 2017
Key-words	Urban environment, mobility plan, determining factors of performance

Methodology

70 central cities of France mainland (cities of at least 50,000 inhabitants and 1st ring) covered by a mobility plan.

3 categories of variables to measure the performance of road safety devices: the temporal effect, measures related to mobility plan and demographic and socio-economic variables.
Generalized linear models (Poisson and quasi-Poisson) to test the correlations between these variables and road accidents.

The Solidarity and Urban Renewal (SRU) law of 2000 requires that the road safety aspect be taken into account in the mobility plans of urban areas. However, while mobility policies are regularly assessed, this is not the case for local road safety policies.

The objective of the project was to identify good practices in urban road safety policy by analysing the performance of around 70 central cities and determining the factors associated with good or less good road safety performance.

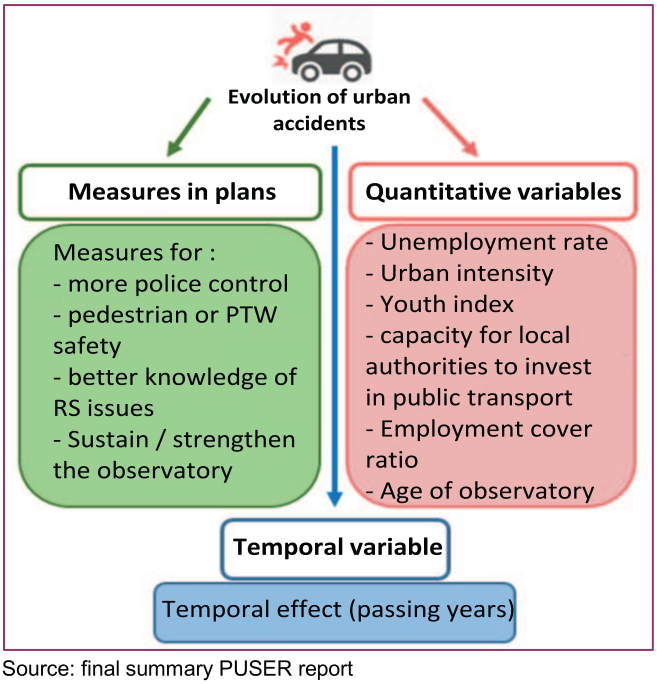
Evolution between 1987 and 2017

The research studied the evolution of the accidents of 70 cities over a period of 30 years. Several typologies of central cities have been identified according to the different performances observed. The typologies relate both the performance of the city in relation to the average performance of other cities, the evolution of its performance over the period studied, but also its evolution in relation to the average evolution of other cities.

Group A: **Became worse than average in 2017**	Cherbourg-en-Cotentin ; Angers ; Lorient ; Pau ; Limoges ; Tours ; Rennes ; Lyon.	↘ - **quick than the average between 1987 and 2017**
Group B: **Remained better than average in 2017**	Strasbourg ; Saint-Etienne ; Arles.	
	Nantes ; Villeurbanne ; Annecy ; Reims ; Mulhouse ; Calais ; Metz ; Saint-Quentin ; Tourcoing ; Hyères.	↘+ fast than the average between 1987 and 2017
Group C: **Remained worse than average in 2017**	Marseille	↘ - quick than the average between 1987 and 2017
	Nîmes ; Ajaccio ; Cannes	↘ **+ fast than the average between 1987 and 2017**
Group D: **Became better than average in 2017**	Toulouse ; Toulon ; Rouen ; Troyes ; Aix-en-Provence ; Montauban ; La Seyne-sur-Mer	

Key to reading: Toulouse (group D) has seen a sharp drop in accident rates and its results are now better than the average for other central cities. Marseille (group C) remained less efficient than the average, with a drop in accident rates even slower than the average.

Examples of variables used to feed the models



Source: final summary PUSER report

Performance factors

Different models have been estimated. The results obtained show that each past year leads to an average reduction of 5 to 6 % in road mortality within cities. This is the time variable.

All other things being equal, the measures in favour of pedestrians have made it possible to obtain a 20 % reduction in accident figures over the period studied compared to city centres that have not taken these measures. Mobility plans that incorporate measures to sustain local observatories are associated with 23 % lower mortality. In addition, the measures to strengthen the controls carried out by the police lead to a 12 % lower mortality rate.

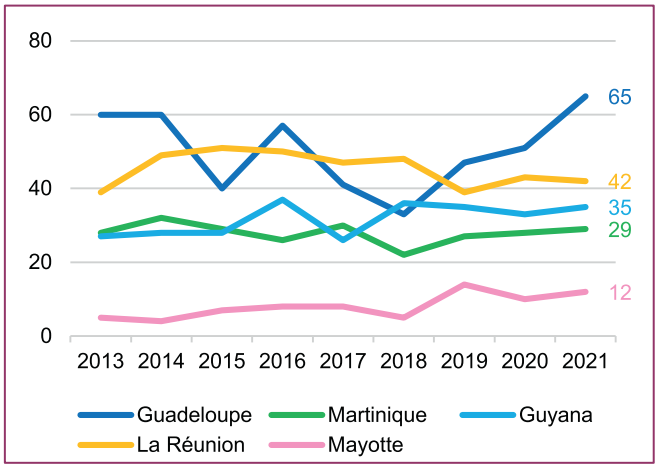
Finally, a younger population, better employment coverage or even a greater investment capacity of the mobility organizing authority in public transport are associated with a drop in road fatalities. Conversely, a higher unemployment rate is associated with increased mortality (+ 8.5 % for 10 additional points of unemployment).

Overseas Territories

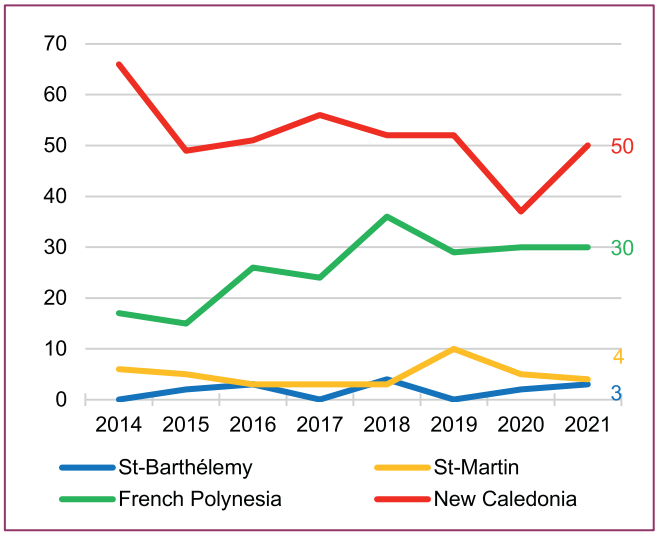
Accident statistics in Overseas Territories in 2021

	Population (thousands of inhabitants)	Accidents	Killed	Injured
Guadeloupe	378	455	65	563
Martinique	356	488	29	640
Guyana	291	530	35	699
La Réunion	866	814	42	966
Mayotte	288	174	12	227
St-Pierre-et-Miquelon	6	3	0	3
St-Barthélemy	10	22	3	25
St-Martin	34	40	4	44
Wallis-et-Futuna	12	13	4	12
French Polynesia	276	126	30	136
New Caledonia	271	269	50	397
All of Overseas	**2 788**	**2 978**	**275**	**3 769**

Evolution of the number of deaths in the overseas departments between 2013 and 2021



Evolution of the number of deaths in COM-NC between 2014 and 2021



Overseas-inhabited territories include:
- overseas departments and regions (DOM and DROM): Guadeloupe, Martinique, Guyana, La Réunion and Mayotte;
- overseas communities (COM): Saint-Barthélemy, Saint-Martin, Saint-Pierre-et-Miquelon, the French Polynesia and the Wallis and Futuna Islands;
- New Caledonia (NC).

In 2021, the accident figures in Overseas Territories, which represents 4 % of the French population, are:
- 2,978 injury accidents, i.e. 5 % of injury accidents in France;
- 275 people killed, i.e. 9 % of road fatalities in France;
- 3,769 injured, i.e. 5 % of injuries in France.

Mortality in the Overseas Territories increases by + 15 % between 2020 and 2021.

In the context of the end of the health crisis and the resumption of travel, accident rates in 2021 increased in Overseas Territories (+ 13.5 %), but less than in France mainland (+ 18.7 %).

The COMs (excluding Saint-Pierre-et-Miquelon) and New Caledonia are solely responsible for road traffic and road transport, the State remaining competent in matters of freedoms public, criminal law and criminal procedure.

Accidents in DOM

The results for the year 2021 of the five overseas departments, which represent 3 % of the French population, are as follows:
- 2,503 injury accidents, i.e. 4 % of injury accidents in France;
- 183 people killed, i.e. 6 % of road fatalities for France;
- 3,150 people injured, i.e. 4 % of injuries in France.

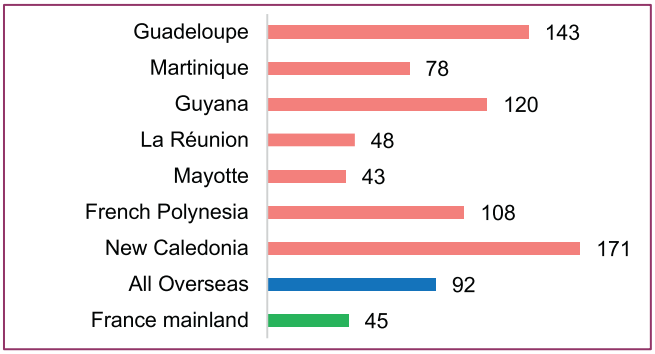
The + 18 % increase in the number of accidents in the overseas departments between 2020 and 2021 is less marked than that of mortality (183 killed in 2021 compared to 165 killed in 2020, i.e. + 11 %), but these aggregated data mask disparities between the departments with a significant increase in the number of accidents in Guyana (+ 35 %) and Mayotte (+ 24 %) and fatalities in Guadeloupe (+ 27 %).

Accidents in COM and in NC

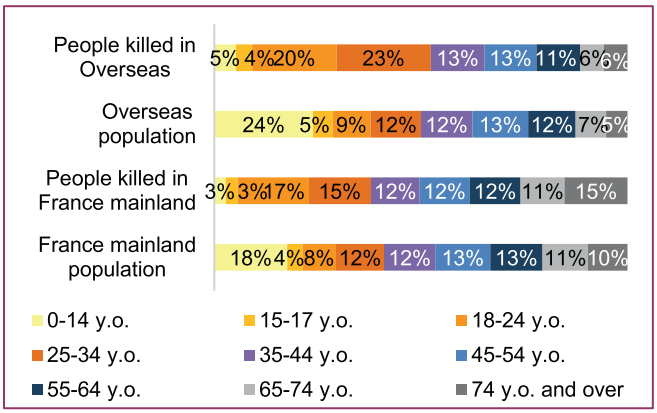
In 2021, the results of the 5 COMs and New Caledonia, which together represent 1 % of the French population, are as follows:
- 475 injury accidents;
- 92 people killed;
- 619 injured people.

In COM and NC, between 2020 and 2021, there is a drop of - 6 % in the number of accidents but a rise of + 24 % in the number of fatalities (+ 18 fatalities). The number of people killed in French Polynesia does not change but increases by 13 in New Caledonia.

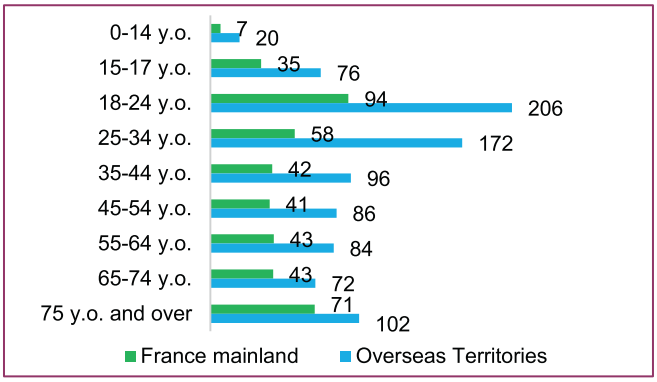
Average annual mortality per million inhabitants in Overseas Territories (period 2019-2021)



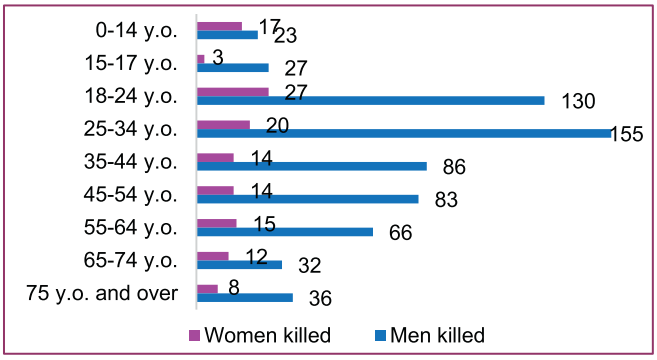
Breakdown of population (2021) and people killed (total 2019-2021) by age in Overseas Territories



Annual mortality per million inhabitants in Overseas Territories by age (average 2019-2021)



Breakdown of people killed in Overseas Territories by age and gender (2019 to 2021)



Risk

The annual average of the number of people **killed per million inhabitants** over 2019-2021 is generally **higher in Overseas territories**. While it is of 45 in France mainland, it is 48 in La Réunion and 78 in Martinique. This rate is of 143 in Guadeloupe, 108 in French Polynesia and of 120 in Guyana, i.e. higher than the highest rate in the countries of the European Union (92 in Romania[1]) but comparable to the United States (127[2]). With 171 killed per million inhabitants, New Caledonia has a rate that is significantly higher than that observed in the European Union (46). For Mayotte, it is now of 43, with increasingly systematic recording of accident statistics. The rates observed in Saint-Pierre-et-Miquelon, Saint-Barthélemy, Saint-Martin and Wallis-et-Futuna are not significant.

A young population

38 % of the overseas population is under 25 years old, compared to 29 % in France mainland. Half of the overseas population is under the age of 35, while in France mainland the median age is close to 41.

The calculation of mortality per million inhabitants for each age group shows, as in France mainland, an overrepresentation of young people aged 18 to 24 in road accidents.

More particularly in Overseas Territories, there is an **over-representation of 25-34 years old, whose mortality rate per million inhabitants is 3 times higher than that observed in France mainland**. The mortality rate relative to the number of inhabitants for 25-34 years old is particularly high in New Caledonia (308) and to a lesser extent in Guadeloupe (257) and Guyana (232). The mortality rate for people aged 25 to 34 is up to twice as high as that of the entire population in Overseas territories, while the ratio is only of 1.3 in France mainland.

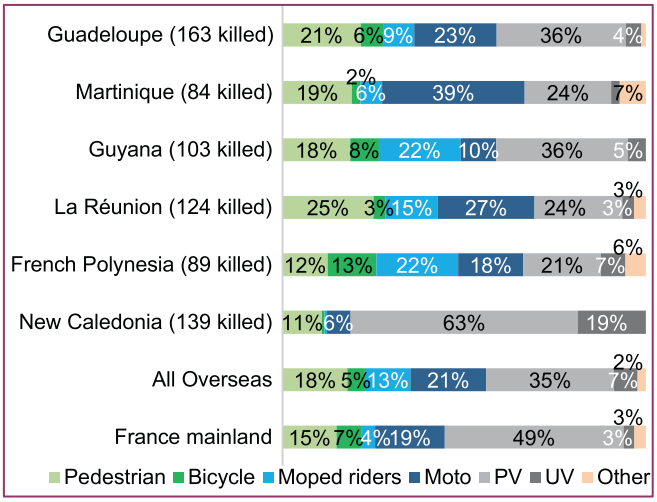
For those under 18, the mortality rate observed in overseas territories is of 29 people killed per million inhabitants, i.e. 2.5 times higher than that of France mainland where it is of 12. It reaches 53 in French Polynesia, 87 in New Caledonia and 34 in Guyana.

Men and women

With 83 % of people killed, men are particularly represented among the victims in Overseas Territories. In France mainland, from 2019 to 2021, men represent 78 % of deaths. Guyana and Martinique (89 %) have the highest proportions of males killed.

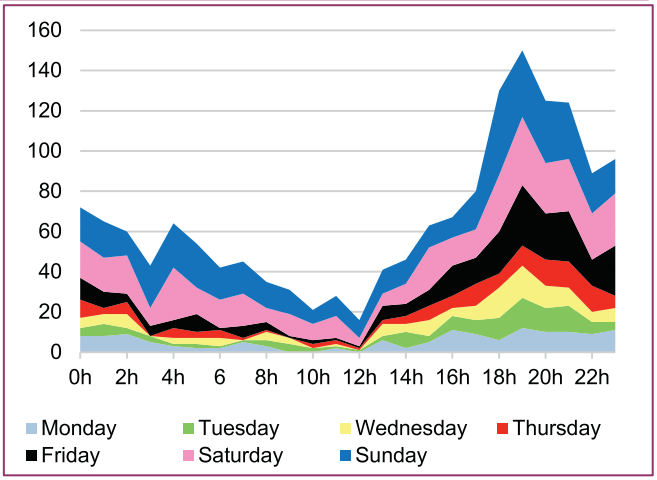
[1] Source: ETSC, PIN Annual Report, 2022
[2] Source: OMS, Global status report on road safety, 2019

Breakdown of people killed in Overseas Territories* by mode of travel (2019 to 2021)

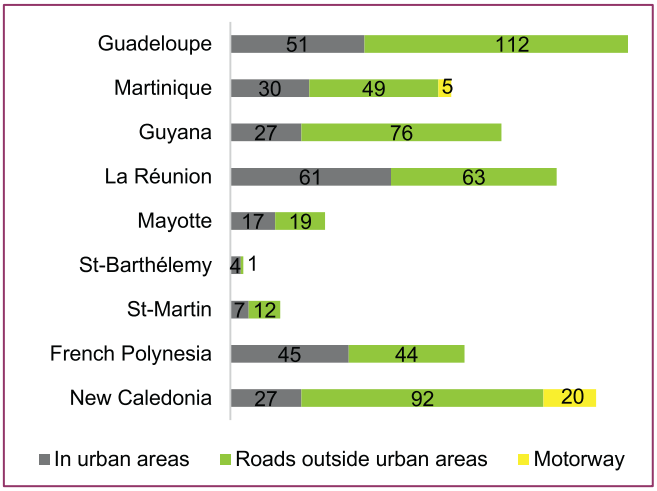


*The territories detailed count at least 84 people killed, against less than 36 for those not mentioned.

Breakdown of accidents in Overseas Territories involving an alcohol-impaired driver or pedestrian by day and time (2019 to 2021)



Breakdown of fatalities in Overseas Territories by environment (2019 to 2021)



Vulnerable users

In Overseas Territories, vulnerable users (pedestrians, cyclists and users of powered-two wheelers) represent 57 % of road deaths over the 2019-2021 period. This proportion is higher than in France mainland where it is 45 % over the same period. It is particularly high in St-Martin (79 %), Mayotte (72 %), La Réunion (69 %), Martinique (67 %) and French Polynesia (66 %).

Between 2019 and 2021, we observe in particular:

- A high proportion of pedestrians killed in Reunion (25 %);
- A significant proportion of moped riders killed in Guyana and French Polynesia (22 %);
- A significant proportion of motorcyclists killed in Martinique and Reunion (respectively 39 % and 27 %).

We observe a lower mortality of vulnerable users in New Caledonia compared to France mainland, but a higher proportion of deaths in UV and PV.

Seasonality, days and hours

In Overseas Territories, accidents are distributed between relatively evenly over the 12 months of the year.

Accidents are evenly distributed from Monday to Friday, and are more frequent from Saturday to Sunday (30 % for the period 2019-2021, compared to 26 % in France mainland).

In Overseas Territories, 61 % of accidents involving an alcohol-impaired driver or pedestrian occur between 6:00 p.m. Friday and 11:00 p.m. Sunday. This proportion is 54 % in France mainland.

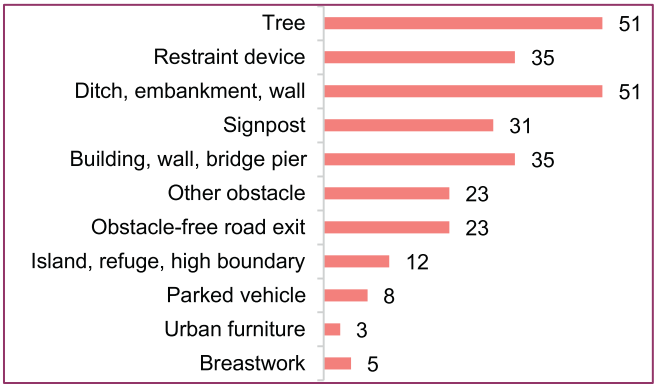
Accidents are slightly more frequent at night in Overseas Territories than in France mainland (37 % of accidents occur at night in Overseas Territories compared to 32 % in France mainland These accidents represent 57 % of people killed (compared to 42 % of deaths in France mainland).

According to the road environment

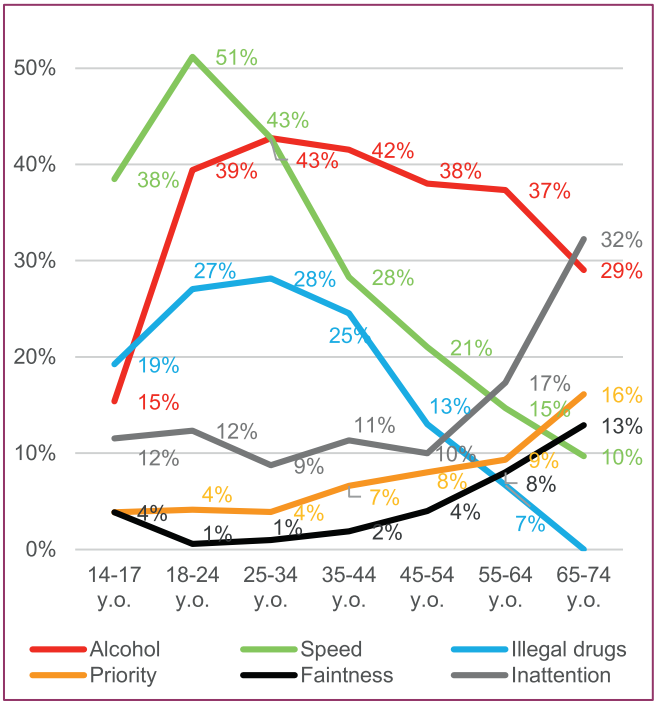
At a level comparable to France mainland, there is a road safety issue in the Overseas Territories located mainly outside urban areas (motorways included), with 40 % of accidents but 65 % of fatalities. With 7 killed per 100 injured, the average severity of accidents is significantly higher in Overseas Territories (5 killed per 100 injured in France mainland), and particularly in urban areas (4 killed per 100 injured overseas against 2 in France mainland).

The proportion of deaths in urban areas is higher in French Polynesia (51 %), La Réunion (49 %) and Mayotte (47 %), while the proportion of deaths outside urban areas is higher in New Caledonia (81 %) and Guyana (74 %).

Number of people killed after an impact against a fixed obstacle in Overseas Territories between 2019 and 2021



Factors of fatal accidents according to the age of those presumed responsible in the Overseas Territories over the period 2019-2021



The age groups 0-13 years and 75 years and over were not taken into account because the numbers are too low to be interpreted (respectively 1 and 27 presumed perpetrators of fatal accidents).

Driver's license:

25 % of people killed between 2019 and 2021 were killed when one of the drivers involved was driving without a valid license. This rate is only 8 % in France mainland.

It is in New Caledonia (45 %), Saint-Martin (33 %) and Martinique (31 %) that we observe the highest proportions of fatalities in accidents with a driver traveling without a valid license.

Collisions

One in four accidents involves a single vehicle involved.

Accidents involving impact **against a tree, a ditch, or a pole** represent 7 % of all accidents in Overseas Territories between 2019 and 2021, but caused **17 % of all deaths**. Impacts against restraint devices (metal or concrete slides or other types of slides) were recorded in 4 % of accidents and 5 % of deaths. Although they themselves constitute obstacles, restraint systems protect users from impact on more dangerous obstacles. As in France mainland, the principle of forgiving road remains an important issue in accidents in Overseas Territories.

Speed, alcohol and illegal drugs

In 36 % of fatal accidents, **excessive or inappropriate speed** is among the causes; this is more than in France mainland (30 %). Nearly half (43 %) of those allegedly responsible for fatal accidents aged 18 to 44 were driving at excessive or inappropriate speed.

During the 2019-2021 period, 69 % of deaths occurred while a driver or pedestrian involved in the accident was under the influence of **alcohol or illegal drugs**. This rate is 63 % in the overseas departments, 79 % in the COM-NC, and 47 % in France mainland. It is in New Caledonia (86 %), French Polynesia and Martinique (68 %) that we observe the highest proportions of people killed in accidents involving a driver or pedestrian drunk or under the influence of illegal drugs.

Safety belt and helmet

Considering only the victims for whom the wearing of safety equipment is indicated, in 2019-2021, 55 % of people killed in bodied vehicles (PVs, UVs, HGVs and coaches) in Overseas Territories were not wearing a safety belt, compared to 23 % in France mainland. This rate is over 65 % in three territories: New Caledonia (82 out of 102), Martinique (16 out of 22) and French Polynesia (14 out of 21). On lower volumes, the 4 users killed in bodied vehicles in Wallis-and-Futuna were not wearing safety belts.

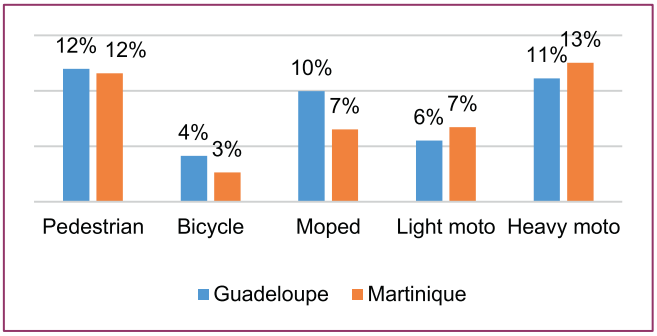
In Overseas Territories, 27 % of PTW users killed were not wearing a helmet, compared to only 4 % in France mainland. This proportion is higher in Saint-Martin (10 out of 15, or 67 %) and in Martinique (16 out of 38, or 42 %).

Accident study in Guadeloupe and in Martinique

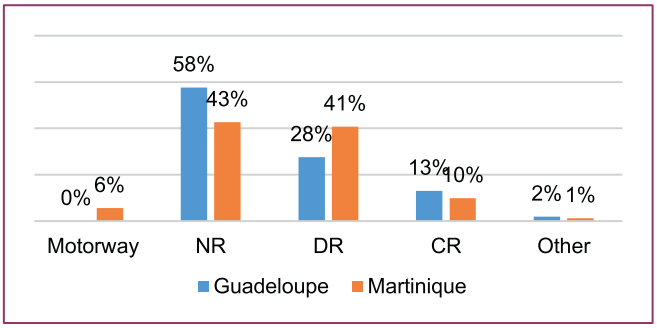
Team	Nicolas Dubos (Cerema), Laurent Dodet (Cerema)
Completion	July 2022
Methodology	Comparative analysis of accidents in Guadeloupe and Martinique – 2015/2020
Perimeter	Guadeloupe, Martinique
Key-words	Accidents, BAAC file

The comparative analysis between Guadeloupe and Martinique was carried out over 2015-2020, in two separate periods (2015/2018 and 2019/2020). These territories, similar in terms of demographic characteristics and composition of the road network, present different road mortality results.

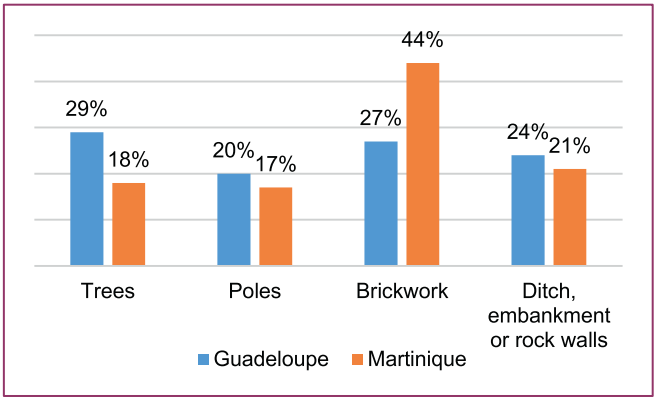
Breakdown of vulnerable users involved in injury accidents from 2015 to 2020



Breakdown of fatalities by road category, 2015-2020



Breakdown by type of obstacle encountered, accidents 2015/2020



From 2015 to 2020, 269 people died on the roads of Guadeloupe compared to 162 on those of Martinique. Guadeloupe has 384,239 inhabitants at the start of 2019 according to INSEE, i.e. 5 % more than Martinique (364,508 inhabitants). In both cases, men represent 45.5 % of the population. On the other hand, the population is a little younger in Guadeloupe, where those under 25 make up 28.6 % of the population, compared to 25.6 % in Martinique.

Vulnerable users

Powered two-wheelers represent 27 % of accident users in the two territories. However, moped riders, unlike motorcyclists, suffer more accidents in Guadeloupe than in Martinique. Wearing a helmet is more common in Guadeloupe than in Martinique, but much less than in France mainland.

Pedestrians are proportionally more killed in Guadeloupe (61 pedestrians killed, against 28 in Martinique), and in particular in urban areas. It was possible to observe a high rate of Guadeloupe pedestrians who were victims while walking outside urban areas, in the same direction as the vehicle hitting (63 %) – a practice contrary to the rules of travel. In Guadeloupe, a recent mobility survey (EMC2) identified that 72 % of trips are made by car, including 52 % as a driver; 8 % in PT; 18 % in active modes (1 % for cycling).

A strong challenge on the national network

The network typology of the two territories is quite similar. However, the national road network (NR) in Guadeloupe represents a major challenge, with 18 % of the linear (compared to 13 % in Martinique), 46 % of accidents and 58 % of fatalities. There are 3.9 killed there for 10 km of NR, against 2.4 in Martinique.

Speed outside urban areas

70 % of those killed in Guadeloupe are outside the urban area, compared to 65 % in Martinique. It seems that Martinique lowers the speed limit more often in diffuse housing areas outside urban area.

Impacts against side obstacles

Guadeloupe is distinguished in proportion by fewer shocks against slide, which can translate lower level of equipment than in Martinique: collisions against trees are more frequent in Guadeloupe, where they concern more than 7 % of deaths. The NR is concerned by 50 % of deaths against obstacles against 20 % in Martinique. In Guadeloupe, obstacles outside urban areas are a significant issue.

The specific challenge of lighting

77 % of pedestrian accidents in Guadeloupe are road crossings. However, among these accidents at intersections at night, the rate of public lighting on was only around 60 %.

SaNuiT-Trauma: socio-territorial disparities and road risk in Overseas Territories

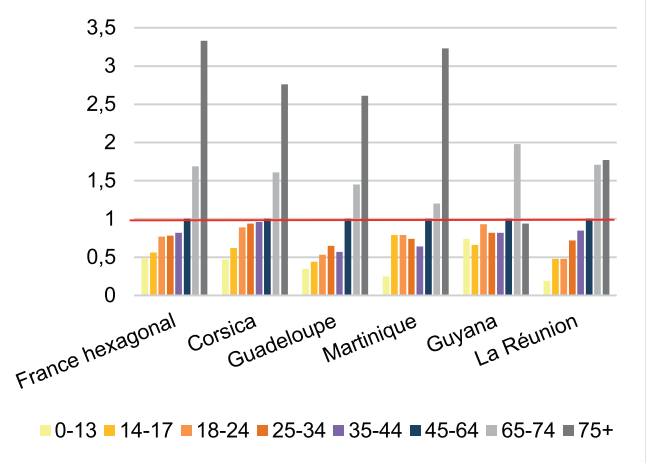
Team	Mohamed Mouloud Haddak, Charlotte Guerineau, Emmanuel Fort, Barbara Charbotel (Gustave Eiffel University)
Completion	February 2022
Methodology	Comparison of accident figures, socio-economic and socio-territorial data and use of logistic models
Perimeter	Whole of France (in France mainland and overseas) Years from 2012 to 2018
Key-words	Overseas, road risk, socio-territorial inequalities

Main socio-economic and demographic characteristics of the various Overseas Territories

	Population density (inhabitants/km 2)	Unemployment rate (%)	Monthly median standard of living (€)	Household motorization rate (%)
France hexagonal	120	8	1 750	81
Corsica	39	9	1 670	88
Guadeloupe	240	21	1 310	70
Martinique	330	15	1 360	73
Guyana	3	20	920	58
La Réunion	341	21	1 160	72
Mayotte	667	30	260	29
French Polynesia	66	15	850	78
New Caledonia	15	12	1 185	78

Data: unemployment rate (2019, 2018 for NC and PF), median standard of living (2017, 2008 for NC and PF), motorization rate (2017, 2014 for NC)

Mortality risk in relation to the 45-64 y.o. age group according to age group and territory



Reading: Compared to a reference taken from people aged 45 to 64 for each territory, the risk of being killed compared to the risk of being injured in a road accident is 2.6 times greater in Guadeloupe for the over 75s and 0.53 times lower for the 18-24 years old.

The SaNuiT-Trauma project aims to quantify the impact of socio-territorial inequalities on road risk and identify the differences between France mainland and the Overseas Territories in terms of accident rates, accident severity and socio-economic and demographic characteristics.

Socio-economic characteristics

The unemployment rate is around 8 % in France mainland, while it is a little higher in overseas communities (11.90 % in New Caledonia and 14.70 % in French Polynesia), and nearly twice as high in overseas regions (14.90 in Martinique, 21.30 in La Réunion). The median standard of living is similar between overseas regions and communities, and is lower than in France mainland: the median monthly standard of living in France mainland is €1,750,while it is €1 360 in Martinique and goes down to €850 in French Polynesia. Finally, the motorization rate is slightly lower in the overseas regions than in France mainland and its overseas communities. Mayotte is the most differentiated territory of the metropolis (high unemployment, low motorization).

Severity and Mortality risk

The statistical model built for the study makes it possible to compare the severity of accidents according to different variables and between territories to identify risk factors.

Age has a major impact on the risk of mortality, with a particularly significant increase from the age of 65. The risk is also higher for men compared to women. As far as modes of travel are concerned, the increased severity of road risks is particularly significant for pedestrians and motorized two-wheeler users. This accidental profile of the Overseas Territories seems to be situated between that of low- and middle-income countries and territories and that of France mainland. LV passengers are more at risk than in France mainland.

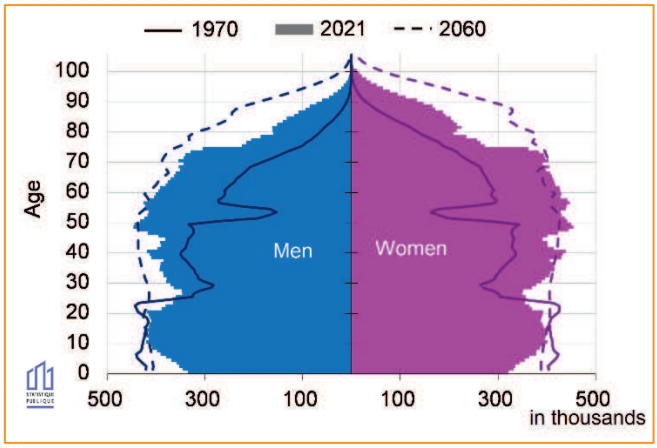
These risks can also vary according to the territories: the difference in severity between accidents occurring during weekends or public holidays and those occurring on a normal weekday is greater in Guadeloupe, French Guyana and La Reunion than in France mainland or Corsica. Severity is generally greater on roads with higher maximum permitted speeds.

La Réunion is the overseas department whose accentological profile is closest to France mainland, as opposed to Guadeloupe, Martinique and especially Guyana. Tourism probably has an impact on accident rates in the Antilles. The data concerning Mayotte do not allow detailed analyses, the numbers being low.

Road users

Demographics

Age pyramid in 2021, compared to 1970 and 2060, in France mainland



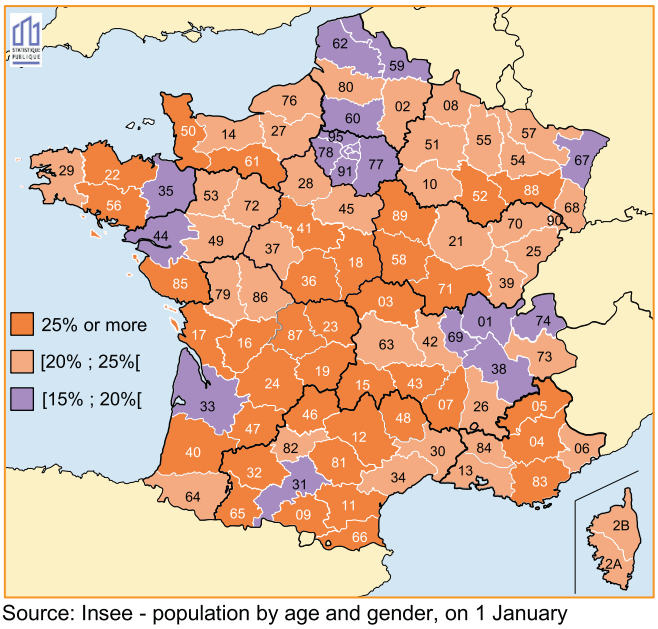
Source: Insee - population by age and gender, on 1 January, population projection 2007-2060 central scenario

Distribution of the population by age group in 2021, 1970 and 2060, in France mainland

	1970		2021		2060	
	%	Millions	%	Millions	%	Millions
0-13 y.o.	23%	11,8	16%	10,6	15%	11,3
14-17 y.o.	7%	3,3	5%	3,2	4%	3,3
18-24 y.o.	11%	5,8	8%	5,4	8%	5,8
25-34 y.o.	12%	6,0	12%	7,5	11%	8,3
35-44 y.o.	13%	6,7	12%	8,1	11%	8,6
45-54 y.o.	10%	5,1	13%	8,6	11%	8,6
55-64 y.o.	11%	5,4	13%	8,3	11%	8,1
65-74 y.o.	8%	4,1	11%	7,4	11%	7,7
75-84 y.o.	4%	1,9	6%	4,0	9%	6,5
85 and +	1%	0,4	3%	2,2	9%	5,4
Total		**50,5**		**65,4**		**73,6**

Source: Insee - population by age, on 1 January, population projection 2007-2060 central scenario

Share of the population aged 65 or over in 2021 by department in France mainland



Source: Insee - population by age and gender, on 1 January

An aging population …

In 50 years, we observe an aging of the population. The large proportion of people under 20 in 1970 explains the high proportion of people between 50 and 70 in 2021; these are the “baby boomers” who have aged. The average age of the population was 34 in 1970, it is 42 in 2021.

In 2021, nearly half of people are over 45 and 21 % are 65 or over, compared to 34 % and 13 % respectively in 1970.

According to the central scenario proposed by INSEE, the number of people aged 65 or over would increase, on its own, by nearly 6 million between 2021 and 2060. In 2060, 19.6 million people will thus be aged 65 or older, an increase of + 43 % in 39 years. The proportion of people aged 85 or over will more than double by 2060, to reach 5.4 million people. The average age of the population will be 45 years old.

The share of people under 18 represented 30 % of the population in 1970. In 2021, this share is 21 % and it will only represent 19 % in 2060.

The age pyramid of France mainland in 2060 reflects the image of a very balanced distribution of the population by age. The imprint of the great demographic shocks of the past (World War II and baby boom) will have disappeared. The projections do not include shocks of this type for the future.

… in the center of France

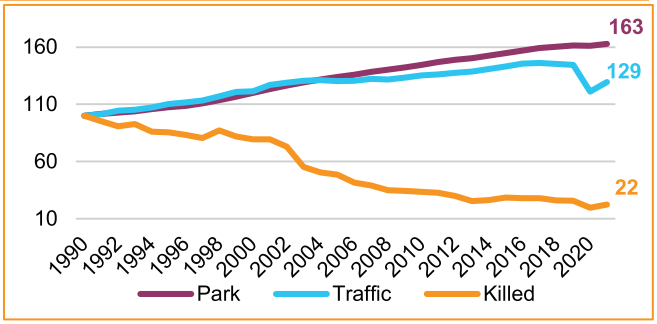
In 2021, in France mainland, the share of the population aged 65 or over is 21 %.

In more than a third of metropolitan departments, the proportion of people aged 65 or over constitutes a quarter or more of the population, in particular the departments of central France, the South and part of Brittany. In Creuse, Dordogne, Lot and Nièvre, people aged 65 or over represent more than 30 % of the population.

20 metropolitan departments have a proportion of people aged 65 or over of less than 20 %. These are all the departments of Ile-de-France and departments whose total population exceeds one million inhabitants, with the exception Oise and Haute-Savoie which are close to major cities (respectively Paris and Geneva). In 4 of these 20 departments, Essonne, Seine-et-Marne, Seine-Saint-Denis and Val-de-Marne, the population includes a quarter of young people under the age of 18.

Road traffic

Evolution of the circulation (veh.km) of passenger vehicles (PV), the number of PVs, and the number of deaths in PV per year, base 100 in 1990 (1)



All the data in the sheet comes from the Annual Transport Reports published each year by the SDES. Only the data on fatalities (Graph 1, source: ONISR) and the estimate of the PTW fleet (Table 2, see note (4) below) are not taken from these reports. The 2021 data from the SDES are provisional.

In 2021, 562.4 billion kilometres travelled by vehicles in France mainland. This represents an increase of 7 % compared to the particular year 2020 and a decrease of - 3 % over 10 years. The figure remains well below 2019 (615.4 billion veh.km). Over the same period (2011-2021), the fleet of standard vehicles (excluding PTW) increased by + 11 %, and road fatalities fell by - 31.4 %.

The kilometres travelled by passenger vehicles represent 77 % of the total of usual vehicles (PV, UV, heavy goods vehicles and PTW); the kilometres travelled by utility vehicles represent 14 %. Heavy goods vehicles represent 7 % of road traffic for only 1 % of the fleet (excluding PTW).

36 % of the kilometres travelled by vehicles are on the national road network and 27 % on motorways alone, conceded or not.

In 2021, 44.5 million vehicles (PVs, UVs, HGVs, buses and coaches) are registered in France. Of these, 37.8 million, or 85 %, are passenger vehicles. Vehicles using engines alternative to petrol and diesel alone now represent 3.5 % of the total fleet (excluding PTWs) compared to 0.7 % in 2012 (first year of availability of figures) and 3.9 % of the fleet of passenger vehicles.

(1) PV registered in France only, except for the figures for fatalities.
(2) Foreign light commercial vehicles are counted with passenger vehicles.
(3) Includes electric, hybrid, hydrogen, compressed air, LPG and CNG vehicles.
(4) Estimate of the fleet based on the KANTAR Park Auto survey and SDES data.
(5) Breakdown of traffic taking into account the new national road network: the network transferred to local authorities in 2006 is included in "other roads" since 1990 (series homogeneous over the entire period).
(6) Territorial roads (Corsica), departmental, metropolitan, and municipal roads, calculation by balance.

Estimated annual traffic by type of vehicle in billions of vehicle-kilometres

	1990	2005	2015	2020	2021
Passenger veh. (2)	**327,0**	**430,4**	**474,7**	**405,6**	**434,0**
inculding gasoline	248,4	174,9	115,5	123,3	134,8
including diesel	78,6	255,5	354,0	271,9	281,6
including others (3)	-	-	5,3	10,4	17,6
including foreign PV and UV	*16,1*	*25,6*	*29,5*	*29,1*	*31,7*
Utility veh. (2)	**61,8**	**78,4**	**80,4**	**72,8**	**79,2**
inculding gasoline	22,6	4,9	1,3	1,2	1,4
including diesel	39,2	73,5	78,8	71,1	77,2
including others (3)	-	-	0,3	0,5	0,7
Heavy vehicles	**28,0**	**38,0**	**37,6**	**36,6**	**39,4**
including HGV	25,7	35,2	34,4	34,2	36,6
including buses and coaches	2,3	2,8	3,3	2,4	2,8
including foreign heavy veh.	*3,3*	*9,2*	*10,0*	*10,3*	*10,8*
PTW	**6,2**	**10,8**	**11,1**	**9,6**	**9,8**
Total	**423,1**	**557,6**	**603,8**	**524,5**	**562,4**

Average annual fleet (vehicles registered in France), in thousands of vehicles

	1990	2005	2015	2020	2021
Passenger vehicle	**23 280**	**31 157**	**36 021**	**37 492**	**37 880**
including gasoline	19 760	16 381	12 579	14 663	15 037
including diesel	3 520	14 776	23 058	21 861	21 366
including others (3)	-	-	384	969	1 476
Utility vehicles	**4 223**	**5 044**	**5 676**	**5 857**	**5 977**
including gasoline	2 279	828	242	200	203
including diesel	1 944	4 216	5 399	5 593	5 695
including others (3)	-	-	35	64	79
Heavy veh.	**603**	**665**	**657**	**681**	**689**
including HGV	535	583	569	590	596
including bus and coach	68	83	88	91	93
PTW (4)	**-**	**-**	***3 100***	***3 211***	***3 010***
Total (without PTW)	**28 106**	**36 866**	**42 355**	**44 030**	**44 546**

Annual estimate of traffic by network (5) in billion vehicle-kilometres in France mainland

		1990	1995	2000	2005	2010	2015	2017	2019	2020	2021
National road network	**Motorways, including:**	**-**	**-**	**-**	**133,0**	**143,3**	**150,8**	**156,8**	**160,0**	**129,1**	**154,0**
	Motorways granted	42,5	54,0	65,8	77,3	84,1	89,6	93,9	97,0	75,8	91,5
	Intercity motorways	-	-	-	21,1	23,4	25,3	25,9	26,3	21,1	24,6
	Motorways and urban expressways	-	-	-	34,6	35,8	35,8	37,0	36,7	32,2	37,8
	National roads, including:	**-**	**-**	**-**	**45,7**	**48,1**	**50,0**	**51,4**	**51,4**	**41,1**	**47,9**
	Interurban NR with motorway characteristics	-	-	-	22,2	24,8	27,6	28,6	29,2	23,7	28,1
	Other national roads	18,9	20,2	22,1	23,4	23,3	22,4	22,8	22,2	17,4	19,8
	Whole national network	**105,6**	**131,2**	**161,2**	**178,7**	**191,4**	**200,8**	**208,2**	**211,4**	**170,2**	**201,9**
	Other roads (6)	**317,4**	**338,0**	**359,4**	**378,9**	**382,5**	**403,1**	**411,7**	**404,0**	**354,2**	**360,5**
	Total	**423,1**	**469,2**	**520,6**	**557,6**	**573,9**	**603,9**	**619,9**	**615,4**	**524,5**	**562,4**

Mobility and travel

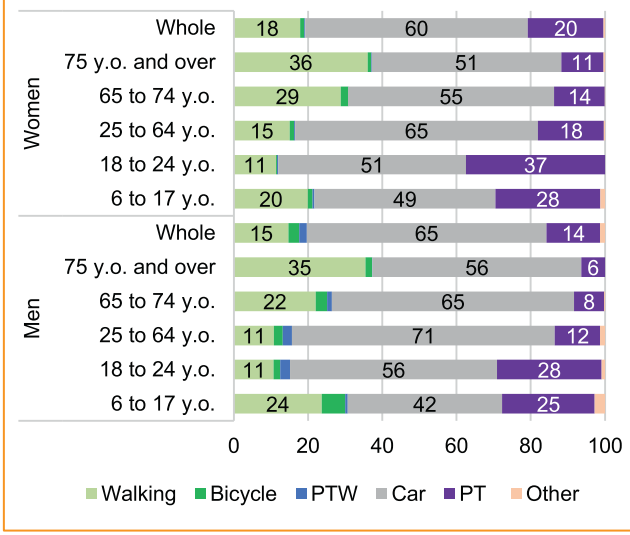
For all individuals in France mainland in 2019, in local mobility, an individual travelled an average of 3 times a day, travelled an average distance of 25 km and spent 61 minutes moving.

The definition of travel modes

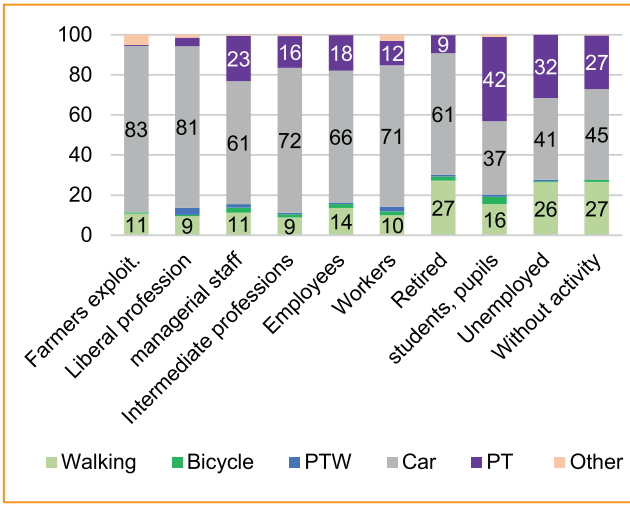
The modes mentioned in the EMP 2019 relate to the main modes used during the journey, according to a categorization giving more weight to motorized modes of transport. The modes defined in the survey are not identical to those of the BAAC, so for this sheet as well as the “Risks” sheet, on page 73, the modes of the EMP will refer to:

- Walking: excluding no motorized PMD
- Car: PV, UV, and cart
- PT : buses, trolleybuses, coaches and trams
- PTW : including quadricycles

Distribution of travel time according to gender and age of the individual



Distribution of travel time according to the socio-professional category of the individual



Source: EMP 2019, SDES, 2021

The mobility survey of people 2018-2019

The 2018-2019 "Mobility of people" survey (EMP) is a national survey on the movement of people, which is carried out approximately every ten years. It makes it possible to have unique information on the mobility of people and to measure its evolutions. This survey, carried out by the Department of Data and Statistical Studies (SDES) of the Ministry of Ecological Transition and INSEE, was carried out face to face on a sample of more than 21,000 dwellings randomly drawn in order to obtain results representative of all households. Only the figures for **daily weekday mobility** (travel as the crow flies less than 80 km from home) **in terms of travel time** are presented here.

According to age and gender

Car use is greater among men in terms of time spent, across all age groups from 18 years (differences ranging from 5 to 10 points). It remains predominant in all age categories compared to other modes. Public transport is used slightly more by women in all age groups, especially among 18-24 years old (9 points difference). The use of 2 wheels (motorized or not) is a more masculine practice in all age categories. The overall shares of bicycles and PTWs remain very low (2 % and 0.3 %). Finally, walking constitutes overall between 18 % for women and 15 % for men in terms of time spent.

According to the SPC

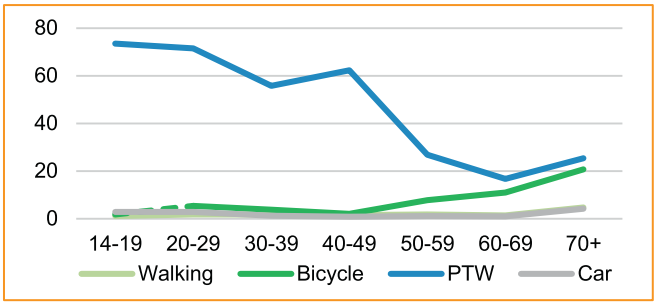
We observe a great diversity of use of the modes according to the SPC of the individual. The use of the car is particularly important among farmers and operators, liberal professions, intermediate professions and workers. This is explained both by the constraints of work leading to many complex and therefore motorized journeys, but also by income conditions (workers) which do not favour the proximity of the place of residence to public transport. Conversely, the least use of the car is observed among students, unemployed and without activities who for the most part are not motorized. They fall back mainly on public transport and walking.

According to the density of the municipality of residence

The density of the place of residence promotes proximity to public transport services as well as short distances. Thus, in densely populated municipalities, walking, cycling and public transport have a 55 % modal share (in number of trips). In sparsely populated municipalities, these modes barely exceed 18 %.

Risks

Risk of being killed in relation to travel time by mode of travel* and age group in 2019 (Killed/bn min)

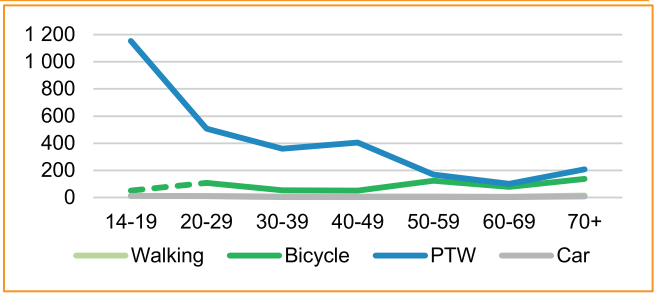


*The Car curve hiding the Walk curve, see figures below

	Walking	Bicycle	PTW	Car	Whole*
14-19 y.o.	1,1	*1,7*	73,5	2,9	**2,6**
20-29 y.o.	1,7	5,4	71,5	2,9	**3,7**
30-39 y.o.	1,8	3,7	55,8	1,2	**2,0**
40-49 y.o.	1,5	2,0	62,2	0,7	**1,4**
50-59 y.o.	1,7	7,7	26,8	1,1	**2,0**
60-69 y.o.	1,3	11,0	16,7	0,9	**1,5**
70 y.o. and +	4,7	20,6	25,3	4,1	**4,5**
Whole	**2,2**	**6,5**	**43,2**	**1,6**	**2,4**

*All modes, 14 years old and over / in italics: less than 10 kills in 2019

Risk of being seriously injured (MAIS3+) in relation to travel time by mode of travel and age group in 2019 (MAIS3+/bn min)



*The Car curve hiding the Walk curve, see figures below

	Walking	Bicycle	PTW	Car	Whole*
14-19 y.o.	9,8	*51,7*	1154,0	13,1	**23,9**
20-29 y.o.	9,6	107,6	506,9	9,8	**18,3**
30-39 y.o.	6,8	52,7	359,4	4,2	**10,0**
40-49 y.o.	7,1	49,9	406,0	2,6	**7,7**
50-59 y.o.	8,4	124,5	168,9	3,2	**9,9**
60-69 y.o.	6,4	77,5	101,0	2,8	**6,8**
70 y.o. and +	15,4	136,4	207,9	7,8	**12,9**
Whole	**9,4**	**76,9**	**329,0**	**5,0**	**11,5**

Estimation based on BAAC and Rhône Register data.
*All modes, 14 years old and over

Risk of being injured MAIS 1-2 relative to travel time by mode of travel and age group in 2019 (MAIS1-2/bn min)

	Walking	Bicycle	PTW	Car	Whole*
14-19 y.o.	111	*1 154*	12 348	277	**354**
20-29 y.o.	113	2 926	5 988	234	**330**
30-39 y.o.	66	1 067	3 701	96	**159**
40-49 y.o.	65	805	3 667	61	**110**
50-59 y.o.	67	1 522	1 271	62	**113**
60-69 y.o.	38	667	574	39	**61**
70 y.o. and +	55	772	983	65	**76**
Whole	**67**	**1 131**	**3 216**	**98**	**155**

The risks displayed in this sheet use the BAAC classification of travel modes for accident rate and that of the **EMP2019** for exposure, **namely**:

- Car: includes PV, UV and carts;
- Walking: includes pedestrians without PMD-NM;
- Bicycle: including E-pedelec;
- PTW: including quads.

It is considered that the difference in results related to this approximation is negligible.

The risk related to travel time

Those aged 70 and over represent the age group with the greatest risk of being killed in relation to travel time (4.5 killed per billion minutes of travel). This represents 2.2 times more than for the rest of users aged 14 to 69. The risk of cycling is particularly high in this age group (20.6 deaths/bn min).

The 20-29 age group represents the second most affected age group with 3.7 deaths per billion minutes of travel, a figure notably reinforced by a very high PTW risk (71.5 deaths/bn min).

Regarding the modes, it is **the risk of being killed in PTW, which** is **by far the highest**, 7 times higher than the risk of cycling and **27 times higher than the risk of car**. This risk is particularly high for the age groups from 14 to 49 years (from 55.8 to 73.5).

The cycling risk is 4 times greater than the car risk, and increases with age. The car risk is higher among those aged 70 and over and those aged 14-29.

In terms of serious injuries (MAIS3+), **the risk will decrease overall until the age of 69**, dropping from 23.9 serious injuries per billion minutes for 14-19 years old to 6.8 for those aged 70 or over. **It then rises** to 12.9 **among those aged 70 and over**. This pattern is confirmed in all the modes observed apart from cycling, for which the risk will be greatest in those aged 70 and over (136) then in those aged 50-59 (124), the age group for how close the risk is to that observed in PTWs (169 MAIS3+/bn min).

The risk related to the distance travelled

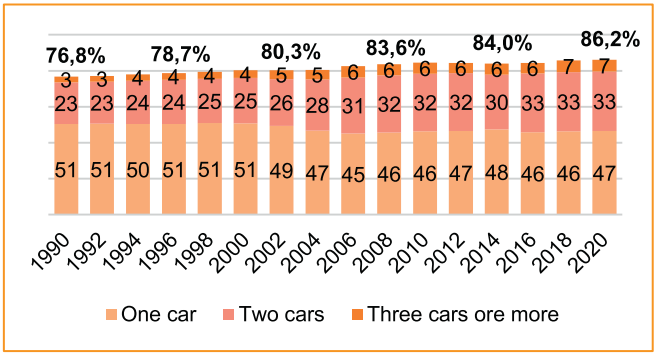
By relating the risk to the distance travelled, **so-called vulnerable users are confirmed (soft and PTW modes)**. The cycling and walking risks are similar at around 33 fatalities/bn km travelled, the PTW risk being 81 fatalities/bn km, i.e. 2.5 times the soft mode risk. However, from the age of 60, the risks associated with walking and cycling exceed the risk in PTW (resp. 52 and 67 against 38 killed/bn km).

The risk in a car (2 fatalities/bn km) is 38 times lower than that in PTW and 15 times lower than walking or cycling.

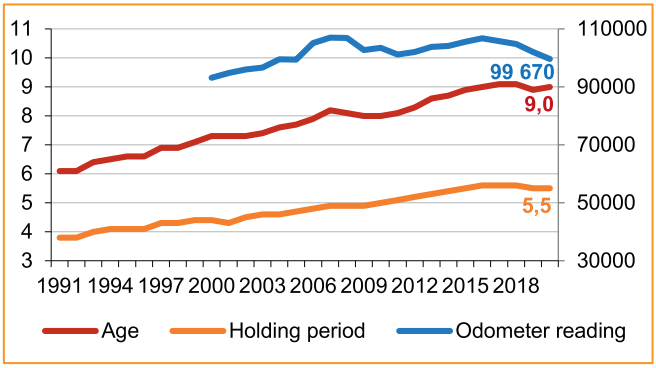
Household car fleet

In 2020, the household motorization rate is the highest ever recorded. The Covid-19 pandemic has affected certain uses of vehicles.

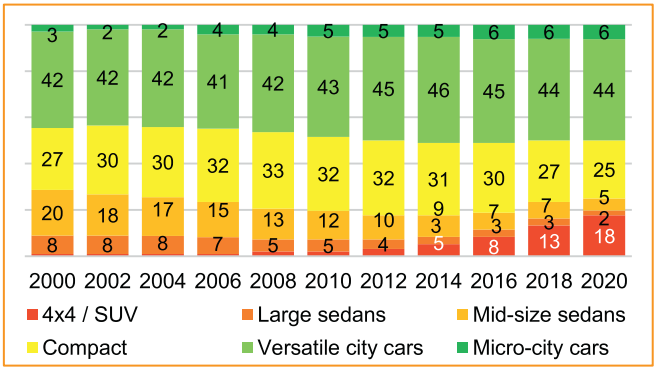
Share of households (%) owning one or more vehicles by year



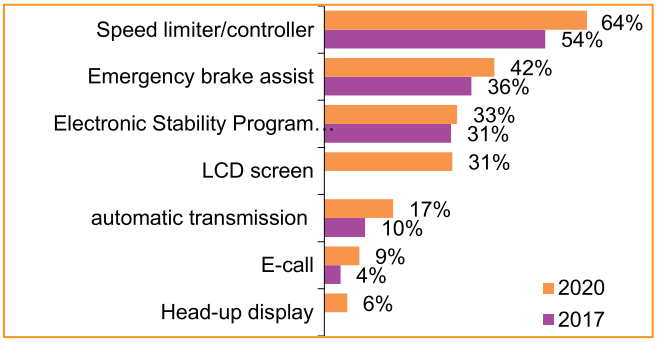
Change in age, length of ownership (years old), and average odometer reading of the household car fleet



Weight of range levels in the PV fleet (%)



Equipment rate of the fleet by system according to the year



Source: Vehicle fleet survey, Kantar, 2021.

Vehicle Fleet survey has been the benchmark annual study for more than 30 years old on the car fleet of French households. Kantar thus carried out, between February and April 2021, two questionnaires ("Your home and the car" and "You and the car") with 10,000 households representative of the French population.

Household motorization rate

In 2020, the household motorization rate is estimated at 86.2 %, the highest ever recorded. This figure has been on the rise since 2015 and especially driven by multi-motorized households (owning at least 2 cars), up 2 points over the same period.

Car ownership peaks in households with the highest incomes. In 2020, the rate is 94 % in households with an annual income of more than €38,000 per year, compared to 59 % in households for which it is less than €7,500.

The smaller the size of the urban area, the higher the motorization rate. Multi-motorisation in particular goes from simple (31 %) to double (60 %) between rural areas and towns of more than 100,000 inhabitants.

For non-motorized households, the reasons mentioned remain essentially the lack of a driving license and the absence of real need. The rate of non-motorized households drops for the fifth consecutive year to reach 13.8 %.

Vehicle characteristics

Since 2015, the average age of the park has stabilized around 9 years old. One out of 3 vehicle is over 10 years old, 2 out of 3 are over 5 years old. The average holding period remains stable (5.5 years old) but the average odometer reading (99,670 km) has been on a downward trend since 2016.

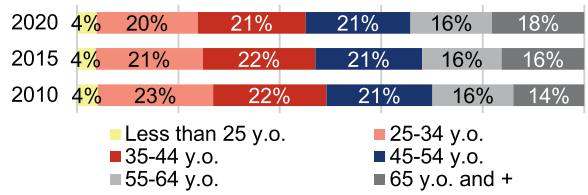
Used vehicles represent 59 % of the car fleet and 69 % of cars purchased in 2020.

Among the range levels, the share of the 4x4 SUV (Sport Utility Vehicle) segment continued to increase in 2020 (+ 2 points). Its weight in the fleet has increased from 2 % to 18 % in 10 years old. This increase has led to a significant drop in the weight of the M2 (Medium Sedans), H (Large Sedans) and now M1 (Compact).

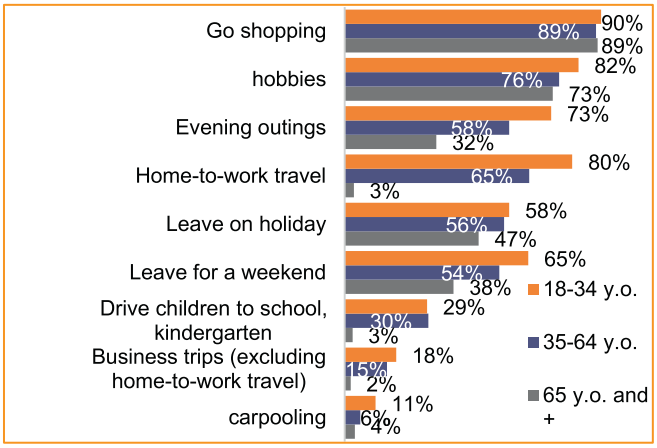
Since 2017, the share of vehicles equipped with automatic gearboxes has gained 7 points, and that of vehicles equipped with e-Call 5 points to now represent 9 % of the fleet. Among the equipment surveyed, the speed limiter/regulator has experienced the greatest increase in 4 years old (+ 10 points, 64 % of vehicles).

French brands remain quite largely in the majority in the French car fleet (62 %), despite a drop of 5 points in 10 years old. Electric or hybrid vehicles represent 4 % of the fleet.

Breakdown of kilometres travelled by vehicles by age of main user and year

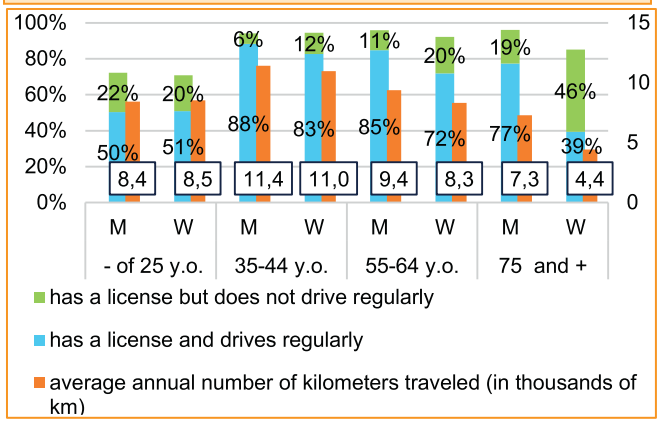


Reasons for use in 2020 by age group (in % of respondents*)

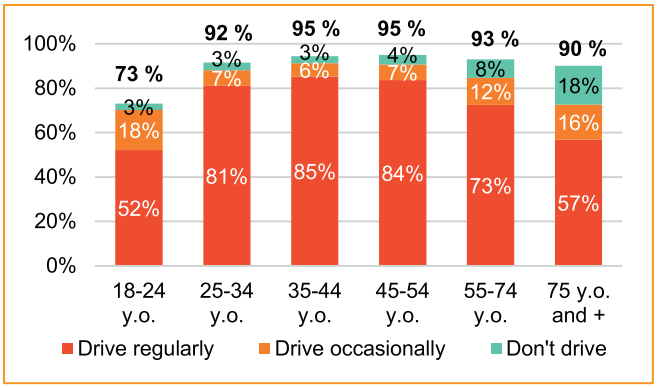


*Question: "Is this car used for?" »

Percentage of license holders driving regularly or not; average annual mileage travelled by vehicles - by gender (M/F) and age of the main user



Breakdown by age group of individuals with driving licenses whom…



Source: Vehicle fleet survey, Kantar, 2021.

Usage behaviours

The average annual mileage per vehicle drops in 2020 due to the Covid-19 pandemic. Vehicles less than 10 years old travel more than 2,000 km more per year than those more than 10 years old.

The share of vehicles being used daily remains at 35 %, compared to 42 % before the pandemic. Most households make a single daily round trip (34 %) for the home-to-work/study travel. These are trips of 34 km per trip on average, i.e. a duration of 36 minutes.

Vehicles of main users (MU) aged 25 to 54 account for 61 % of kilometres travelled, down since 2010 (-5 points). This decline is mainly attributable to the age group of 65 years and over, falling from 14 to 18 % over the same period. MU vehicles less than 25 years old represent 4 % of kilometres travelled.

The year 2020 does not show any major differences in the reasons for using vehicles compared to previous years. The main motives are still shopping (89 %) and leisure (76 %).

People aged 65 and over are less represented in most travel reasons. The main differences are logically found in commuting or driving children to school, but also in evening outings (73 % of 18-34 years old compared to 32 % of 65 years old and over).

User profile

The share of female main users (MU) of vehicles is 44 % (knowing that women represent 52 % of the population aged 18 and over); the kilometres travelled by these vehicles represent only 42 % of the total. The proportion of MU women has increased by 2.3 points since 2010.

More than a quarter of main users are aged 65 or over, while vehicles in this category represent only 18 % of kilometres travelled.

Occasional drivers use 39 % of vehicles but nearly 3 out of 4 achieve less than a quarter of the vehicle's total mileage.

A quarter of secondary users are under 35 and 53 % are women.

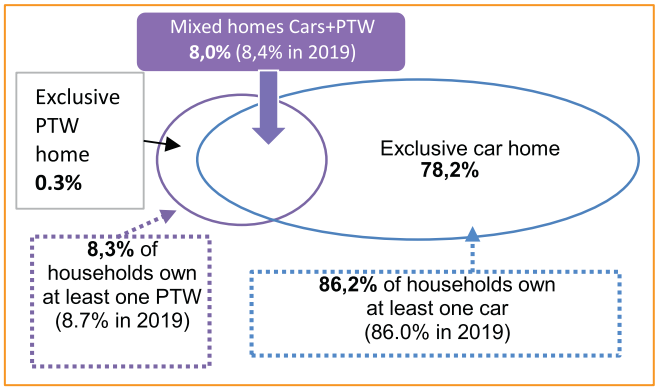
Possession of a driving license is almost universal among 35-54 years old (95 %). In this age group, only 3 to 4 % do not drive. 73 % of 18-24 years old have a driving license but only 52 % drive regularly. The highest age groups have a high rate of non-driving license holders, rising to 18 % among those aged 75 and over.

Permit holders represent 10 points more in rural areas than in urban areas of more than 100,000 inhabitants (93 % against 83 %).

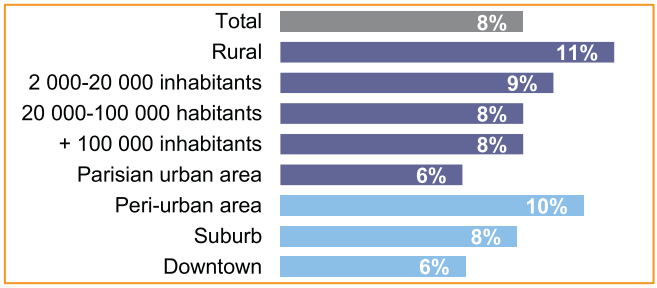
Household powered two-wheeler fleet

In 2020, the use of PTWs has changed little in view of the impact of Covid-19. The PTW fleet is experiencing a slight downward trend.

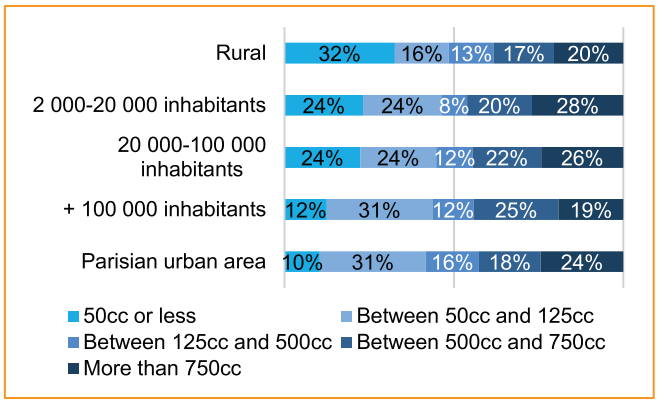
Mix of PTW fleet and household light vehicles (%)



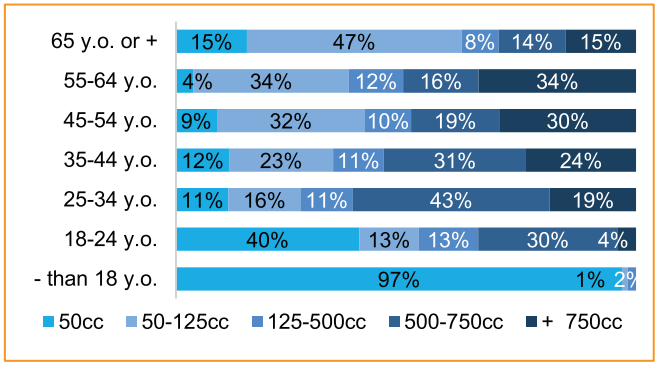
Household PTW equipment rate according to the size of the urban area



Distribution of the PTW fleet according to engine capacity and size of the urban area



Breakdown of the PTW fleet according to cubic capacity and age of the main user



Source: Vehicle fleet survey, Kantar TNS, 2021.

Published each year by KANTAR, the "Vehicle fleet" survey includes a section devoted to powered two-wheelers (PTW). The 2020 edition was carried out from February to April 2021 on a panel of 10,000 households representative of the French population, with a reinforced PTW sample for the relevance of the analyses.

Park and rate of equipment in PTW

In 2020, the PTW fleet is estimated at more than 2.7 million vehicles, a figure that has remained stable for ten years. 8.3 % of households are equipped with at least one powered two-wheeler in 2020, of which 1.5 points have 2 or more.

The vast majority of households with a PTW are also equipped with a car. The proportion of exclusive PTW households remains very marginal and will not change, around 0.3 % in 2020. Mixed households (car + PTW) represent 8.0 % of all households.

The PTW equipment rate increases with annual household income. When this is greater than €38,000 per year, the equipment rate rises to 14 %, whereas it is between 4 and 5 % for households whose income is less than € 11,000 per year. Conversely, the larger the size of the conurbation, the lower the PTW equipment rate will be (11 % equipment in rural areas compared to 6 % in the Paris conurbation)

Characteristics of the PTW fleet

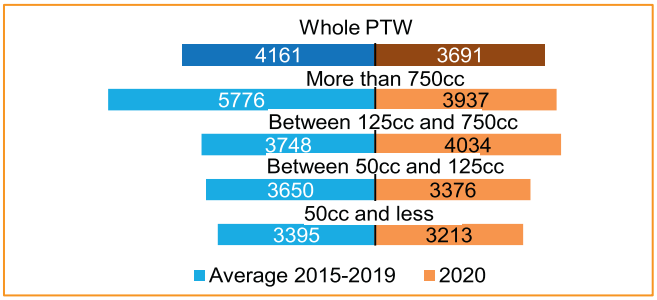
Heavy motorcycles (more than 125 cc) represent more than half of the fleet in 2020 (55 % including 43 points for more than 500cc) but the upward trend observed seems to have eased since 2013 (53 % of the park). The share of mopeds (less than 50 cm³) in the fleet has risen slightly in recent years and that of light motorcycles (50 to 125 cm³) remains stable.

The average age of the PTW fleet is stable at 12.2 years in 2020. There are no notable differences by category, but motorcycle fleets have a greater share of vehicles over 10 years old (48 % vs. 32 % for mopeds). The average holding period of a PTW is 6.5 years in 2020.

The distribution of the park differs according to the size of the urban area. The less dense the area, the more the fleet includes a large proportion of mopeds (32 % in rural areas compared to 10 % in the Paris area). Conversely, light motorcycles are more represented in towns of more than 100,000 inhabitants (31 %).

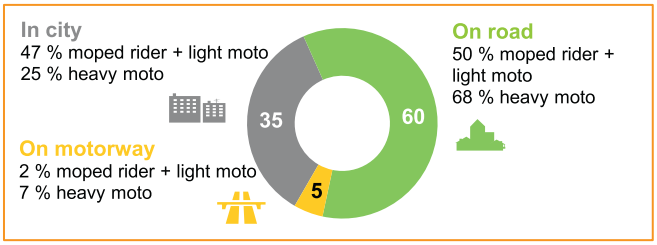
40 % of 18-24 years old in PTW use mopeds. Between the ages of 25 and 64, the initially large share of 500cc-750cc decreases with age (43 % of PTWs for 25-34 years old then 16 % for 55-64 years old) to give way to motorcycles of more than 750cc (34 % of PTWs of 55-64 years old compared to 19 % for 25-34). People aged 65 and over prefer mopeds or light motorcycles for 62 % of them.

Average mileage travelled by the PTW vehicle fleet* according to cubic capacity and period

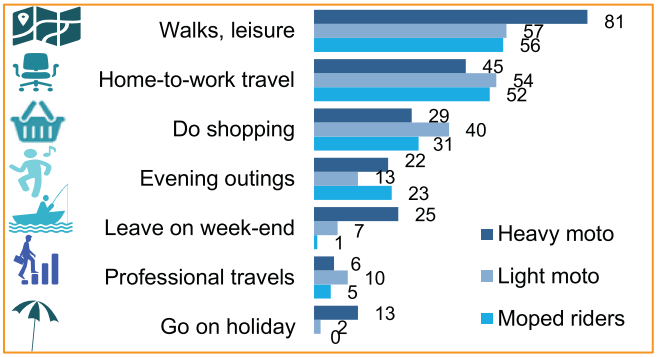


*Averages excluding 0km

Breakdown of kilometres travelled by main users (%)

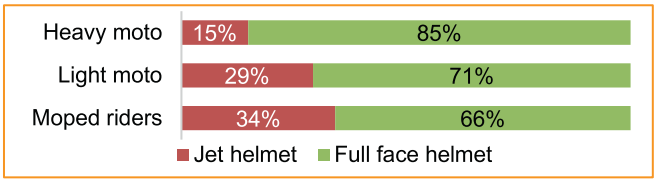


Reasons for use according to PTW category (in % of respondents*)

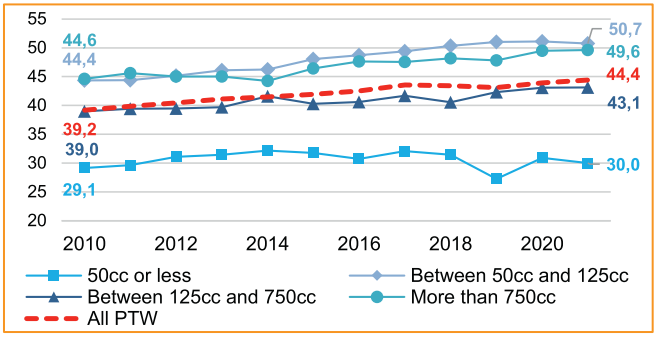


*Question: “Generally, for what type(s) of travel is this PTW used? »

Type of helmet worn by the PU according to the type of PTW



Annual evolution of the average age of the main user (UP) according to the type of PTW



Source: Vehicle fleet survey, Kantar TNS, 2021.

Use of PTW

In 2020, 75 % of respondents indicated that they had limited their travel in connection with the Covid-19 crisis. The impact on the use of PTWs has nevertheless remained measured. The average mileage of a PTW in the rolling stock was 3,691 km in 2020 compared to 4,161 km over the 5 years 2015-2019. The kilometres travelled therefore remained stable, except for cylinder capacities greater than 750cc for which they fell sharply (from 5,776 to 3,937 km).

The dormant (non-driving) fleet represents on average 21 % of PTWs, stable compared to last year. Among them, 11 % are no longer in working order. Concerning the rolling PTW fleet, half is used in the summer only.

The breakdown of kilometres travelled by location has not changed significantly in 2020. PTWs are used more on roads outside urban areas and fast or expressways (60 %), especially for heavy motorcycles. The kilometres travelled in urban areas, (35 %) are mainly by mopeds and light motorcycles. Motorway use (5 %) remains marginal.

The reasons for use also remain similar to those observed in previous years, the main difference being the drop in the reason "outings, evenings" reflecting the different periods of confinement and curfew. The reasons for using PTW are closely linked to its category. The difference is particularly marked in the use of heavy motorcycles, widely used for outings or leisure (81 % against 57 % for light motorcycles, and 56 % for mopeds), or even for weekend departures (25 % versus 7 % and 1 %).

In 2020, wearing a helmet is almost universal in France (see Observatory of behaviours 2020). The full-face helmet is nevertheless much more used among motorcyclists (29 to 34 %) than among moped riders (15 %) although it is more protective.

Profile of PTW users

The profile of PTW users is mainly male (85 % of main users). Women generally own less powerful PTWs than men (69 % of 125cc or less, compared to 41 % for men).

The average age of PTW drivers has been on an upward trend for 10 years (+ 4.7 years compared to 2010). The average age of the main users of light motorcycles is the highest (51.1 years on average). The lowest is that of the main users of mopeds (30.9 years). Under 18s represent 8 % of primary PTW users, but 37 % of primary moped users.

Of those who have taken the training course or have a motorcycle license, 39 % obtained it more than 20 years ago.

Pedestrians

Four out of 10 pedestrians killed are 75 or older. 9 out of 10 senior pedestrians are killed in urban areas. Half of pedestrians aged 18 to 54 are killed at night outside urban areas.

Evolution of pedestrian mortality since 2010

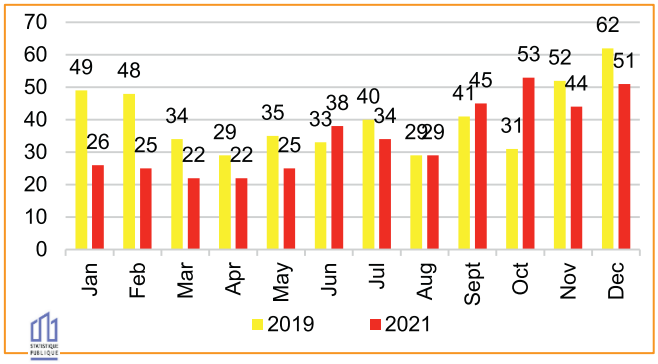
2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
414	483	485	-14,6%	-0,4%

Annual average evolution*	2019 to 2020	2010 to 2019
Killed pedestrians	-7,4%	stable
Killed non-pedestrians	-4,3%	-2,6%
All killed	-4,7%	-2,3%

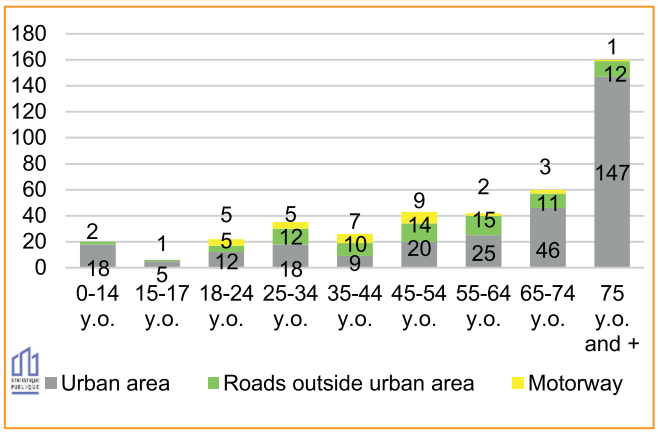
*Reading: between 2010 and 2019, the number of non-pedestrian fatalities decreased by an average of 2.6 % per year.

No motorized personal mobility devices (PMD-NM) include non-electric scooters, rollerblades, skateboards, etc. Within the meaning of the Highway Code, they are considered as pedestrians and are therefore considered as such in the whole of this document, and this sheet in particular.
Of the 8,588 pedestrian accidents in 2021, 232 involve a PMD-NM. They caused the death of 3 PMD-NM users, the injury of 226 PMD-NM users, 8 pedestrians (excluding PMD-NM) and 15 other users. 69 % of these accidents involve a passenger vehicle or utility vehicle.

Number of pedestrians killed per month by year



Breakdown of pedestrians killed in each age group by environment in 2021



In 2021, 8,588 injury accidents involved a pedestrian, i.e. **16 % of all accidents**. These accidents caused the death of 425 people, including 414 pedestrians, or 14 % of road fatalities.

From 2010 to 2019, the annual number of pedestrians killed was stable (slightly below 500 - except in 2016). This stability is to be contrasted with the number of non-pedestrian fatalities, which from 2010 to 2019 fell by - 2.6 % annually. This leads to an increase in the share of pedestrians in mortality: it went from 12 % in 2010 to 15 % in 2019.

The risk

In 2019[1], the pedestrian risk was 2.0 fatalities per billion minutes of travel, compared to 1.5 for the car. This is almost 3 times less than by bicycle and below the overall risk, which is 2.2 killed per billion minutes. Those aged 75 and over are the most affected (6.4 killed/bn min) followed by those aged 18-24 (4.2).

The risk of being injured is more measured with 77 injuries per billion minutes compared to 167 for all users in 2019.

The profile of the victims

Reduced to their share in the population, **seniors are over-represented in pedestrian mortality**: 53 % of pedestrians killed are aged 65 or over, for a share in the French population of 21 %.

Of the 114 pedestrians killed outside urban areas, three-quarters were between **18 and 64 years old** – a similar proportion to non-pedestrian deaths – and three-quarters were **men**.

In urban areas, the oldest are the most affected. Among the **300 pedestrians killed in the city, half are aged 75 or over**, and 24 % are between 55 and 74 years old. For people aged 75 or over, BAAC data show a **severity** (number of fatalities per 100 injured) **six times greater** than that of pedestrians under 75.

In urban areas, the distribution **by gender is more balanced** (55 % of men among those killed) than for other modes or than for pedestrians outside urban areas. However, it differs according to age: 50 % of men for pedestrians killed aged 55 or over.

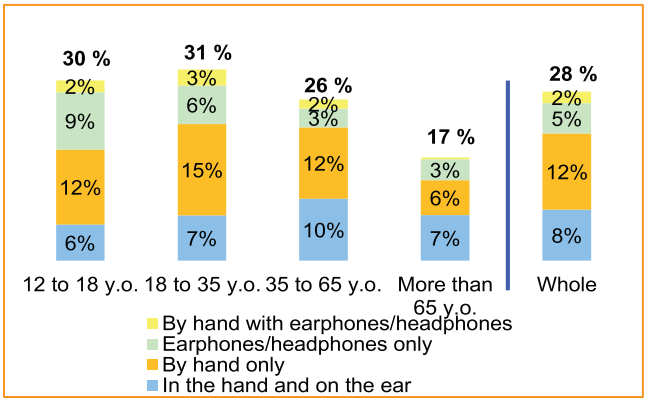
Presumed causes

In 2021, the alcohol level is known for only 217 of the 414 pedestrians killed (55 %). It is higher than 0.5 g/l for 39 of them (37 of whom are between 18 and 64 years old). **The rate measured is greater than 2 g/l for 14 of these 39 pedestrians**. The issue is particularly significant outside urban areas: 26 pedestrians killed.

In urban areas, 3 out of 10 pedestrians aged 12 to 35 cross using their phone; this proportion decreases as they age, down to 17 % for those over 65.

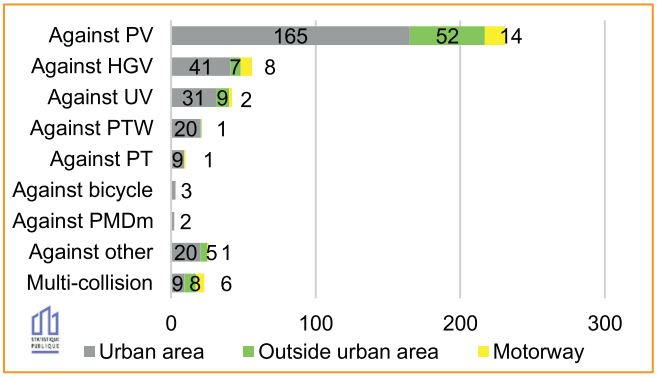
[1] Source: EMP 2019, i.e. page 73

Rate of use of a distractor by type during pedestrian crossings in urban areas according to age

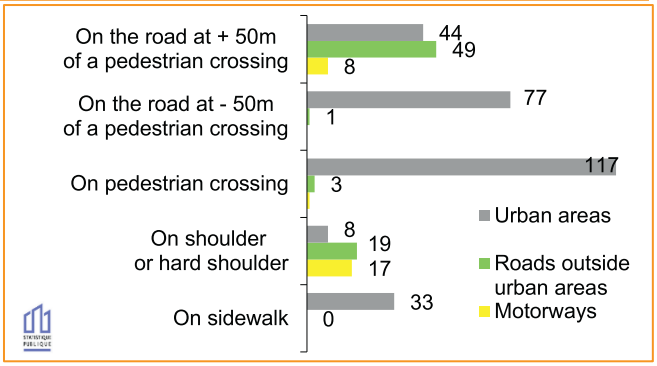


Source: Observatory of behaviours - Results for the year 2021, ONISR, 2022

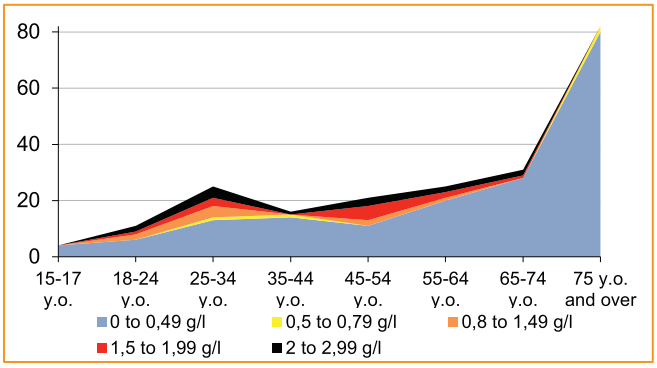
Breakdown of pedestrians killed by vehicle involved and environment



Distribution of pedestrians killed by the known position of the accident according to the environment



Number of pedestrians killed with known blood alcohol level according to age and alcohol level



According to the road environment

Due to the health context in 2020 and 2021 with a lifting of restrictions in the second half of 2021, the number of pedestrians killed fell by - 7 % per year over the period 2019-2021. This drop is greater than for fatalities non-pedestrians (- 4 % per year) and varies according to the environment:

– **Outside urban areas, steeper decline** (- 11 % per year);
– **Urban area**, smaller decline (- 6 % per year).

The decline in mortality observed in 2021 **is concentrated in the first half** (- 31 % compared to 2019). The second semesters were similar.

In 2021**, 72 % of pedestrians killed and 94 % of pedestrians injured are concentrated in urban areas** (compared to 26 % and 57 % respectively for other users). Among the 114 killed outside urban areas, 32 are on motorways.

In connection with the speeds used, **the severity of pedestrian accidents is particularly high outside urban areas**. The number of fatalities per 100 injured is 2 in urban areas, 9 on roads outside urban areas and 22 on motorways (according to the ONISR estimate of injuries pages 168 and 198).

Accident patterns

Outside urban areas, the main issue is **at night**: 77 % of pedestrians killed on roads outside urban areas are killed at night; in particular, on the motorway, out of a total of 32 pedestrians killed, 27 were killed at night.

In urban areas, the majority (57 %) of pedestrians killed are killed **by passenger vehicles**. The number of fatalities struck by a bicycle or a PMDm is four times lower than that of fatalities struck by a PTW (respectively 5 killed against 20 killed).

Outside urban areas, **the main conflict is also with a passenger vehicle** (68 % of pedestrians killed), then to a lesser extent with a **heavy goods vehicle**.

In 2021, in urban areas, of the 279 cases for which the information is known, pedestrians are mainly killed **on the roadway on a pedestrian crossing** (117 cases, or 42 %) **or less than 50 meters from a crossing. pedestrian** (77 cases, i.e. 28 %)**.**

Outside urban areas, in 58 % of cases, pedestrians are killed on the road outside a pedestrian crossing and in 32 % of cases on a shoulder or hard shoulder.

The alcohol factor in pedestrians

In 2021, the alcohol level is unknown for 45 % of pedestrians killed (not shown in the graph). Among the pedestrians killed with a rate above the legal rate, 2/3 had a blood alcohol level above 1.5 g/L.

Cyclists

Cycling is one of the modes of transport recording the highest increase in mortality compared to 2019 (+ 21 %). By bicycle, 7 out of 10 killed are aged 55 or over, 9 out of 10 killed are men, and 57 % die outside urban areas. When the reason for the movement of the cyclists killed is known, it is 80 % for walking / leisure.

In 2021, **25 cyclists** died (11 % of bicycle fatalities) while using an **Electrically Assisted Bicycle (E-pedelec).** 48 % of them had their accident in urban areas. Almost all of those killed are over 40 years old, nearly two-thirds are aged 65 or over (10 are 75 or over). 72 % of those killed are men.

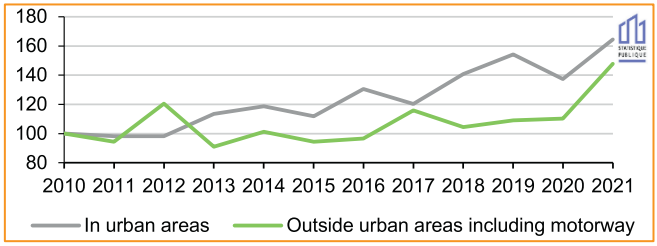
Evolution of cyclist mortality since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
227	187	147	4,0%	2,7%

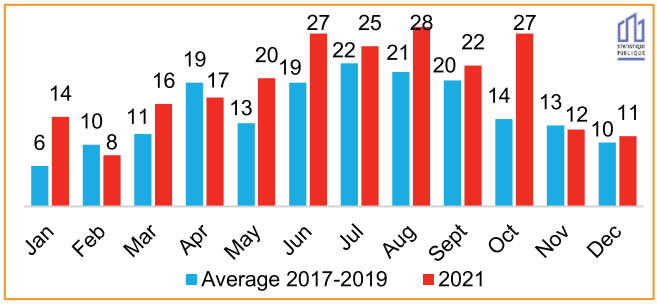
Average annual change*	2019 to 2021	2010 to 2019
Cyclists killed	+10,2%	+2,7%
Non-cyclist fatalities	-5,7%	-2,5%
All killed	-4,7%	-2,3%

*Reading: between 2010 and 2019, the number of cyclists killed increased by an average of 2.7 % per year.

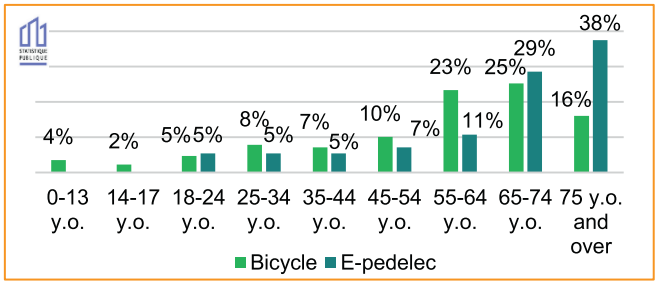
Evolution of the number of cyclists killed per year according to the environment (base 100 in 2010)



Evolution of the number of cyclists killed by month



Weight of the age group in the mortality of cyclists and E-pedelec users (2019-2021)



In 2021, **227 cyclists were killed.** This figure is **up by + 21 %** compared to 2019 (+ 40 fatalities) and by + 27 % compared to the 2017-2019 average. Cyclists account for 7.7 % of road deaths.

This year, an estimated 44,000 cyclists were injured (MAIS1+[1]), broken down into 41,000 minor or moderate injuries (MAIS1-2) and 3,000 seriously injured MAIS3+. Compared to 2019, this represents an increase of + 17 %.

Specific evolution according to the environment

The pandemic has led to an increase in cycling in all areas: + 31 % in urban areas, + 20 % in peri-urban areas and + 14 % in rural areas[2] compared to 2019. If mortality in urban areas (+ 7 %) increases 4 times slower than the increase in practice, outside urban areas this is much more marked (+ 37 %). It seems that the increase in the density of cyclists in urban areas and dedicated spaces moderates the increase in accidents; this is not the case outside urban areas, probably due to a dispersed practice over an extensive network, and the lack of facilities for soft modes.

Risk

Cycling accounted for 2.7 % of trips according to the 2019 People Mobility Survey, for a share of road fatalities of 5.7 % that year. The risk on a bicycle (14 years and over) is **6.5 killed** and 1,208 injured **per billion minutes of travel**. The risk of mortality is 4 times greater than in a car but remains 7 times less than in PTW.

The big trends

The proportion of cyclists killed is higher on working days than weekends: 78 % in urban areas and 69 % outside urban areas. **85 % of accidents occur during the day**.

9 out of 10 killed are **men.** However**, female accident rates increased in the BAAC file** by + 36 % compared to the 2017-2019 average compared to + 18 % for men. This increase is especially observed among working women, mainly in urban areas for shopping/shopping and home-to-work travels.

7 out of 10 killed are 55 or older. People aged 65 and over are over-represented in cycling deaths: they make up **44 % of cyclists killed** but only 21 % of the population. The change in mortality observed among people aged 55 and over in 2021 is + 35 % compared to the average mortality rate for 2017-2019 (+ 40 deaths). An increase is also observable for 25-34 years old with 7 more deaths in 2021 compared to the 2017-2019 average.

[1] The AIS injury scale is available on page 178 and the injured estimation method on page 168

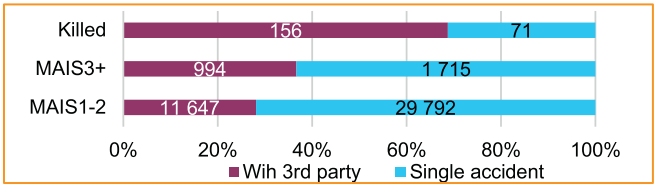
[2] Vélo et Territoires – *Bulletin Fréquentation n°9*

Factors of the presumed responsible (PR) for fatal accidents (cyclist or antagonist) in 2021

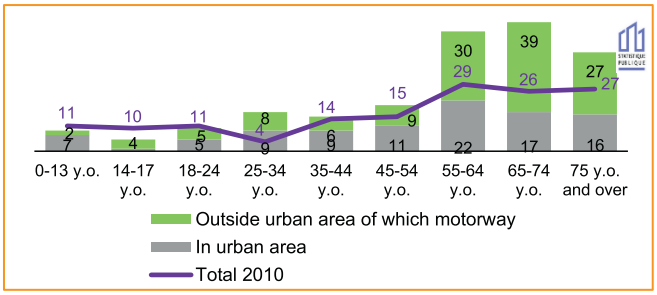
Factors	Cyclist	Antagonist
Inattention	13%	32%
Faintness	33%	0%
Priority	13%	9%
Excessive or inappropriate speed	7%	13%
Dangerous overtaking	3%	13%
dazzle	1%	11%
Illegal drugs	1%	9%
Lane change	5%	3%
Alcohol	1%	6%
Misdirection	4%	2%
Failure to respect safety distances	1%	4%
Drowsiness - fatigue	0%	2%
Phone and technological distractors	1%	0%
Other cause	13%	7%
Undetermined cause	21%	17%
Number of PR	**136**	**103**

NB: There may be several PRs per accident and several factors per PR

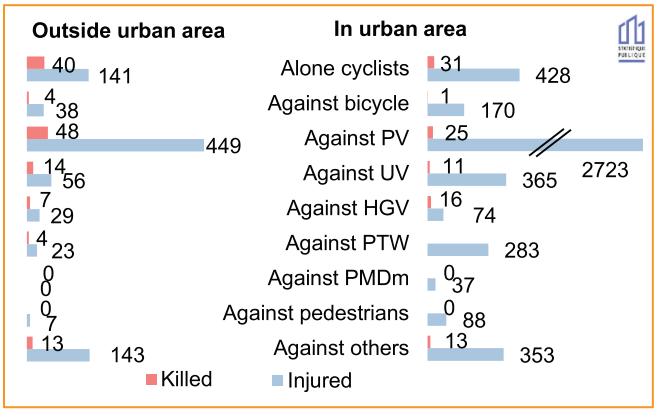
Distribution of victims according to the presence of a third party in the accident in 2021



Breakdown of cyclists killed in each age group by environment in 2021 and total 2010



Breakdown of cyclists killed and injured (BAAC) by vehicle involved and environment in 2021



Example of reading: 48 cyclists were killed in a collision with a passenger car outside a urban area.
Note: The "Other" category includes other users and accidents involving more than two vehicles.

Fatal accident factors

When the cyclist is responsible for the accident, the factors mentioned are faintness (33 %, and even 58 % when the cyclist is the only one involved), inattention (13 %), or failure to respect the priority rules (13 %). When the antagonist is responsible, the main factors are inattention (32 %), excessive speed (13 %), dangerous overtaking (13 %) and dazzle (11 %). The conspicuity of the cyclist (his visual salience) is an issue, including during the day.

Single accidents

71 cyclists (31 %) are killed in accidents without a third party, an increase of 78 % compared to the average number of fatalities in 2017-2019. 56 % of these accidents take place outside urban areas.

People aged **55 and over** represent **82 % of these deaths**. 94 % of those whose travel is given (69) take a **walk-leisure travel**. 32 % of those for whom the information is known (68) do not wear a helmet.

It is estimated that 63 % of serious MAIS3+ injuries and 72 % of minor or moderate MAIS1-2 injuries are in accidents involving no third party.

In urban areas

The **majority of accidents** in urban areas take place **on the roadway, only 8 % of fatalities** occur on a **cycle track or lane.**

Although people aged **55 or over** represent slightly more than half of those killed (**55 killed out of 97**), there are **more people under 35 than outside urban areas** (23 % against 15 %). The share of women in mortality is higher (20 % against 8 % outside urban areas).

1 in 10 killed in a home-to-work or home-to-school travel and 7 out of 10 in a **leisure/walking travel**.

In urban areas, cyclists killed against a third party are mainly killed against a passenger vehicle (25 killed). The other conflicts noted are essentially against a heavy goods vehicle (16 killed) or a utility vehicle (11 killed). There is a concentration of victims during morning and evening rush hour.

Outside urban areas

Of the 130 cyclists killed, 94 were killed on a **departmental road** (outside the 22 metropolitan areas) and 28 on municipal roads. For 84 % of cyclists killed, the accident takes place **outside an intersection**.

People aged **55 or over** are particularly affected: they represent **74 % of mortality**. Half of the 130 cyclists killed outside urban areas are 65 or older. 92 % of those killed are men. The **"leasure" motive of travel is** are overrepresented, with 9 out of 10 killed.

Motorized personal mobility devices users

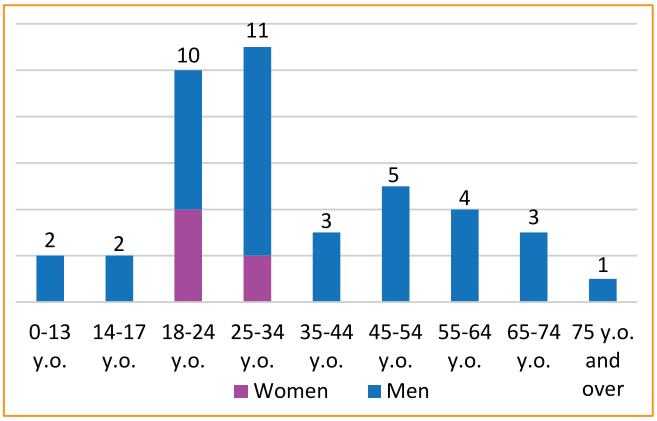
The number of fatalities and injuries in motorized personal transport devices (PMDm) was multiplied by 2.4 compared to 2019.

32 % of victims are women.

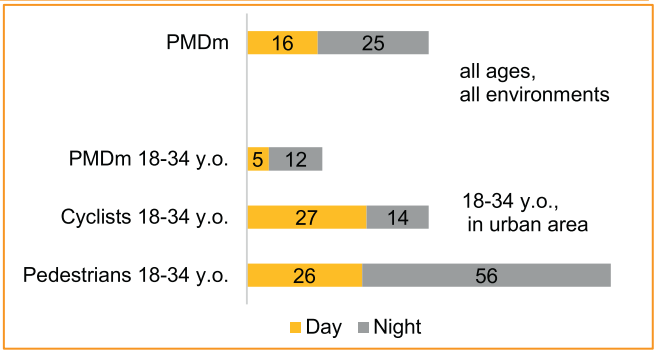
Motorized personal transport devices include electric scooters, gyro-pods, hover boards, mono-wheels, electric wheelchairs, etc.
This category is only available since 2019.

	2021	2020	2019	Evolution 2019-2021
Killed in motorized PMD	24	7	10	+ 14
Accidents with motorized PMD	1 478	870	630	+ 848

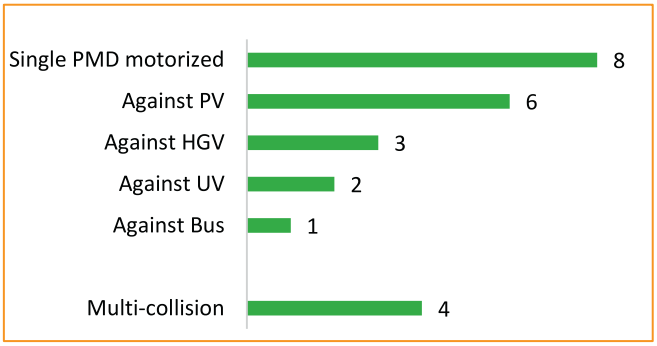
Number of motorized PMD users killed by age from 2019 to 2021



Number of motorized PMD users killed according to the dayed night in of 2019-2021, compared to other modes for 18-34 years old in urban areas



Number of motorized PMD users killed by type of collision in 2021



In 2021, 24 people died in motorized PMD (PMDm). **Compared to 2019**, the increase is therefore particularly significant since the figures have been **multiplied by 2.4**. Thus, the number of accidents with motorized PMD reaches 1,478 in 2021.

In an accident involving a motorized PMD, the victim is, in 87 % of cases, the PMDm user himself. **2 pedestrians died** (32 years old and 70 years old). Among the 203 injured outside PMDm, there are 122 pedestrians, 38 cyclists and 29 PTW users.

The motorized PMD category of the accident file used also includes electric wheelchairs for disabled people. However, these cases remain occasional: among the 24 deaths, 2 are on a vehicle adapted to the handicap.

By age and gender

Over the period 2019-2021**, half of motorized PMD deaths concern a person aged 18 to 34**. The distribution of the injured according to age is similar to that of the killed except for 35-44 years old. They are overrepresented there with 17 % of the injured against 7 % in the number of killed.

Among the 41 people who died in 2019-2021, 6 were women, aged between 20 and 30.

In 2021, in the city, the number of victims aged 18-34 in motorized PMD (9 killed and 716 injured) reaches half that of cyclists of the same age.

Depending on location

The accident rate of motorized PMD **is concentrated in urban areas**. Among the 41 deaths over the past 3 years old, 35 have taken place in the city. For the injured, 98 % of the injured in motorized PMD recorded by the police took place in urban areas. Motorized PMD users are mainly killed **on the road** (31 of the 41 deaths).

The 41 deaths are spread over 29 departments and half of the French departments have more than five victims in motorized PMD in 2019-2021.

Depending on the time

The **night period is particularly** accidental since 25 of the 41 killed in motorized PMD are at night. The injured in motorized PMD are mostly injured during the day (70 %).

Collisions

Of the 24 motorized PMD users killed in 2021, **8 were accidents without a third party** and 6 were accidents against a car. There are no fatal accidents against a bicycle or a PTW, but 6 deaths against a heavy goods vehicle, bus or utility vehicle.

Powered two-wheelers: moped riders

One in two moped riders killed is between 14 and 24 years old

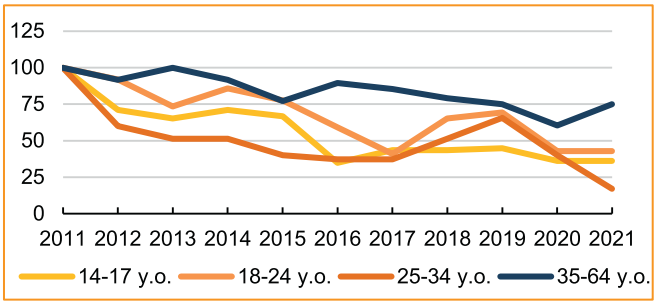
Evolution of the mortality of moped riders since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
96	134	248	- 61,3 %	- 46,0 %

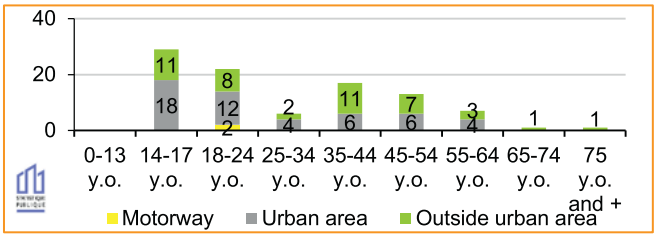
Average annual change*	2019 to 2021	2010 to 2019
Moped riders killed	- 15,4 %	- 6,6 %
Non-moped riders killed	- 4,3 %	- 2,0 %
All killed	- 4,7 %	- 2,3 %

*Reading: Between 2010 and 2019, the number of moped riders killed decreased by an average of - 6.6 % per year.

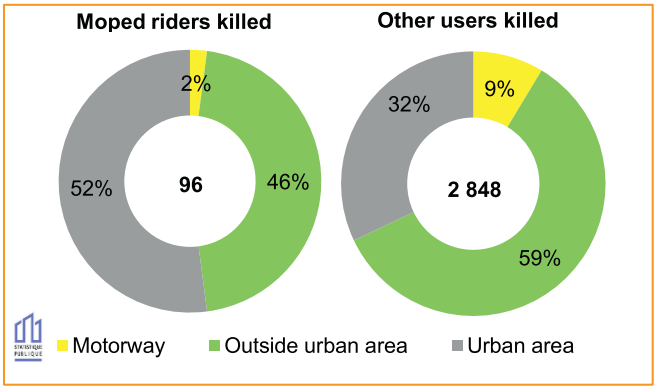
Evolution of the number of moped riders killed according to age



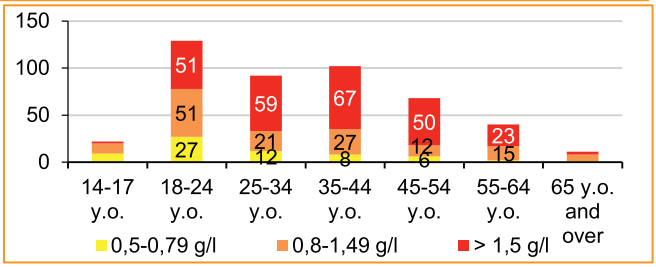
Number of moped riders killed by age and environment in 2021



Breakdown of people killed by road environment



Number of moped drivers involved in an alcohol-positive injury accident by age and measured alcohol level



In 2021, 96 moped riders were killed (users of a powered two-wheeler with a cylinder capacity of less than 50 cm3), i.e. 3 % of road deaths. This share rises to 5 % in urban areas. Of these 96 moped riders killed, 90 were drivers and 6 passengers. In total, 12 % of injury accidents involve a moped.

Between 2019 and 2021, the number of moped riders killed decreased more than that of other users (- 28.4 % against - 8.4 %).

43 % of moped riders killed are killed in an accident during collisions with a passenger vehicle; 31 % are in an accident without a third party.

49 % of moped riders killed are killed at night compared to 39 % for the others killed. This share rises to 57 % for moped riders killed outside urban areas.

By age and gender

The number of moped fatalities decreases with age. **More than half of moped riders killed are between 14 and 24 years old** and 14-17 years old alone represent 30 % of moped riders killed. However, the number of moped riders killed under 35 has fallen more in 10 years than those older.

96 % of moped riders killed are men, while the latter account for 80 % of deaths in other modes of travel.

According to the road environment

The stakes in urban areas are higher than for other modes: more than half of moped riders killed are in urban areas. For other users, this share is 32 %.

46 % of moped riders killed in urban areas are killed at intersections compared to 35 % for others users.

Outside urban areas, the proportion of people killed at intersections is also higher among moped riders (36 % compared to 15 % for other users).

Accident factors

In fatal accidents between 2019 and 2021, the alcohol factor for the driver of a moped is involved in 27 % of cases. The speed and narcotic factors are each present in 17 % of the cases.

In fatal accidents in 2021, 33 % of moped drivers involved with known alcohol levels had blood alcohol levels above the legal limit. This is 14 points more than for drivers of passenger vehicles. Among these 28 alcoholic moped riders, 25 exceeded the criminal rate (0.8 g/l).

In 2021, 28 % of alcohol-impaired moped drivers involved in an injury accident were between 18 and 24 years old.

Of the 96 moped riders killed in 2021, 2 were not wearing their helmets.

Powered two-wheelers: motorcyclists

97 % of motorcycle riders killed are men. 80 % of alcohol-ridden motorcyclists have an alcohol level above 0.8 g/L.

Outside urban areas, 70 % of motorcyclists were killed between April and September.

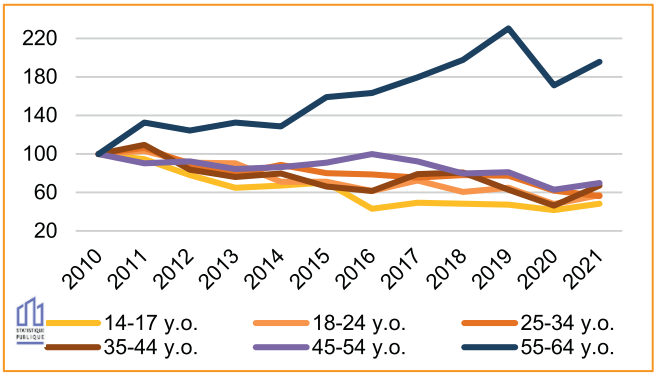
Evolution of motorcyclist mortality since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
572	615	704	- 18,8 %	- 12,6 %

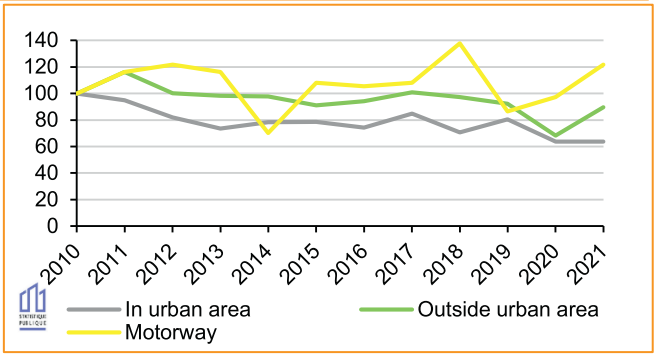
Average annual change*	2019 to 2021	2010 to 2019
Motorcyclists killed	- 3,6 %	- 1,5 %
Non-motorcyclist fatalities	- 5,0 %	- 2,5 %
All killed	- 4,7 %	- 2,3 %

*Reading: between 2010 and 2019, the number of motorcyclists killed decreased on average by - 1.5 % per year.

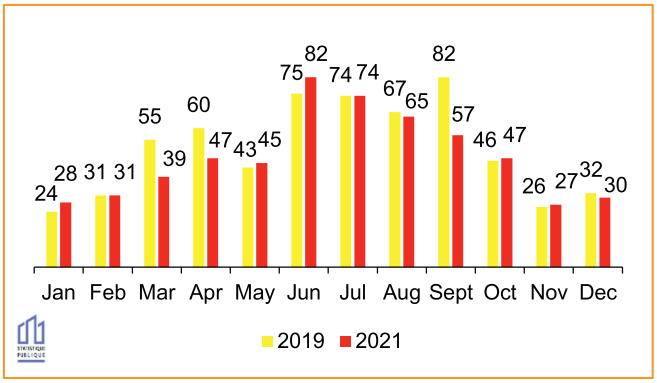
Evolution of the number of PTW fatalities according to age, base 100 in 2010



Evolution of the number of motorcyclists killed per year according to the environment (base 100 in 2010).



Evolution of the number of motorcyclists killed according to the month of the year



In 2021, 572 motorcyclists (users of a powered two-wheeler with a cylinder capacity greater than 50 cm³) were killed; this represents 19 % of road fatalities. 22 % of all four injury accidents involve at least one motorcycle.

Between 2010 and 2021, **the number of motorcyclists killed fell less than that of other users** (- 19 % against - 28 %). **In urban areas, it is the opposite**: - 36% for motorcycles against - 8 % for other users killed. All PTW combined; the number of fatalities has exploded among 55-64 years old, with in particular a return to motorcycling.

This decrease between 2010 and 2021 is greater for light motorcycles (with a cylinder capacity of less than 125 cm3) than for heavy motorcycles (- 24 % versus - 18 %).

Depending on the time of year

The number of motorcyclists killed decreases in winter and then rises gradually with fine weather (with one exception in May), because **the use of motorcycles is linked to the weather**. In 2021, 65 % of motorcyclists were killed between April and September. This period even concentrates 69 % of motorcyclist deaths outside urban areas.

Presumed responsibility

In 2021, 76 % of motorcyclists are presumed responsible for the fatal accidents in which they are involved (63 % for drivers of other types of vehicles).

Protective equipment

Failure to wear protective equipment for a motorcyclist (helmet, gloves, boots, etc.) is an aggravating factor, including at low speeds. The absence of a helmet affects 18 motorcyclists killed (3 % of motorcyclists killed), including 12 in urban areas (7 % of motorcyclists killed in urban areas).

According to the age of the license

In 2021, 20 % of drivers killed on motorcycles over 125 cm3 are novices, for a ratio of 12 % among motorists. This ratio rises to 23 % for heavy motorcycles in urban areas.

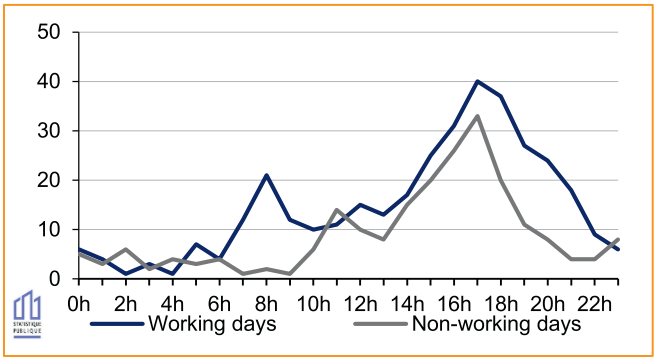
According to the road environment

Motorcyclists are more often killed outside urban areas (354 killed, i.e. 62 %) than other users (58 %).

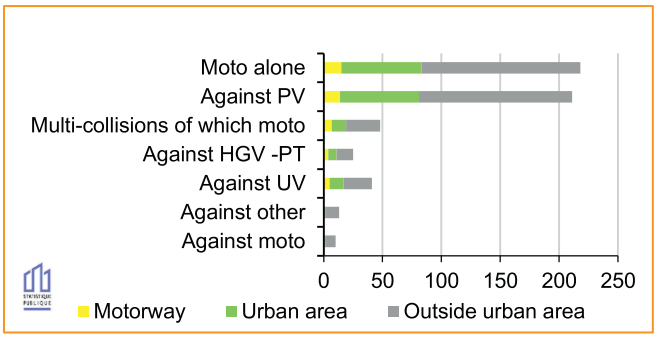
Outside urban areas, 21 % of motorcyclists killed are killed at intersections, compared to 14 % for other users.

Motorcyclists die more often in bends than other users (40 % of cases against 26 %). Outside urban areas, deaths on the curve even amount to 47 %.

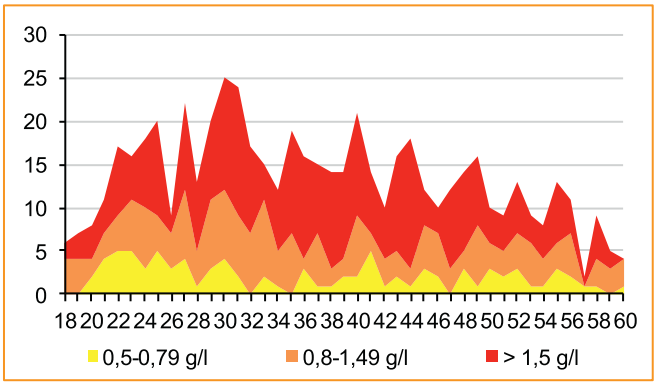
Number of motorcyclists killed by time and type of day



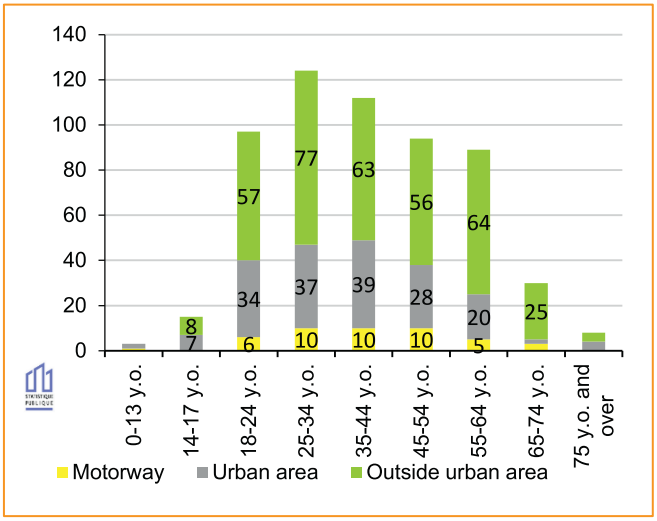
Number of motorcyclists killed by type of collision and environment



Number of alcohol-positive motorcycle drivers in injury crashes by age and alcohol level



Number of motorcyclists killed by age and environment



Depending on the time and type of day

38 % of motorcyclist deaths occurred at the weekend or on a public holiday (32 % for other road users killed). Whether on a working day or not, motorcycle mortality is low at night and high in the afternoon. On working days, there is a peak in mortality around 8 a.m.

When the type of travel is known, 73 % of motorcycle drivers killed **outside urban areas** were on a leisure journey (62 % for other users killed). **In urban areas**, 29 % made a home-to-work travel (10 % for other users killed).

According to types of collision

In 2021, **38 % of motorcyclists were killed in an accident without a collision with a third party** and 37 % in a collision with a passenger vehicle.

27 non-motorcyclists died in an accident involving a motorcycle, including 16 pedestrians.

51 motorcyclists (9 %) were killed when their vehicle hit a tree or a pole (18 % for other road users killed) and 52 (9 %) a slide (5 % for other road users killed).

Fatal accident factors

In fatal accidents between 2019 and 2021, the speed factor for the driver of a motorcycle intervenes in 38 % of cases. Stunning factors and dangerous overtaking are each present in 11 % of cases.

In 2021, 101 motorcycle drivers involved in a fatal accident and whose alcohol level is known have a blood alcohol level above the legal level, i.e. 22 % of drivers. This share is 42 % in 2021 on the motorway. **Among these 101 alcoholic motorcyclists, 81 exceeded the criminal rate (0.8 g/L), i.e. 80 %.**

For injury accidents, the proportion of motorcycle drivers with a blood alcohol level above the legal rate (among those with a known rate) is 6 %.

The number of alcohol-positive motorcyclists varies little with age between 21 and 44 years. 66 % of alcohol-impaired motorcyclists between the ages of 35 and 44 have an alcohol level above 1.5 g/L, compared to 50 % or less for the other age groups.

By age and gender

The 25-34 age group is the most affected: it represents 12 % of the French population, but 22 % of motorcyclists killed. Similarly, the 18-24 age group represents 8 % of the population, but 17 % of motorcyclists killed. Over the past 10 years old, the number of motorcycle fatalities aged 55-64 has jumped (see page 167 for the study on people returning to driving).

97 % of motorcycle riders killed are men. This share is 81 % for non-motorcyclists killed users.

Passenger vehicle users

80 % of motorists[1] killed are outside urban areas. The speed factor is predominant here. In 2021, the number of PV users killed was lower in the first semester than in the second, particularly outside urban areas.

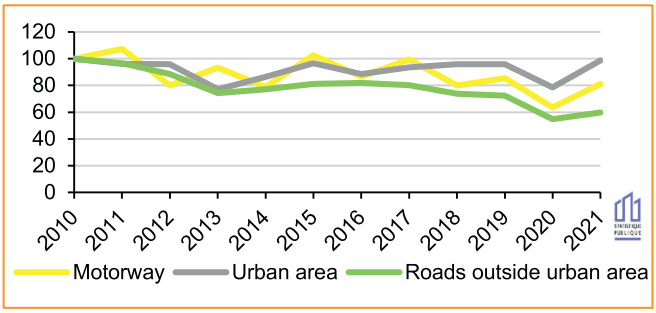
Evolution of motorist mortality since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
1 414	1 622	2 117	- 33,2 %	- 23,4 %

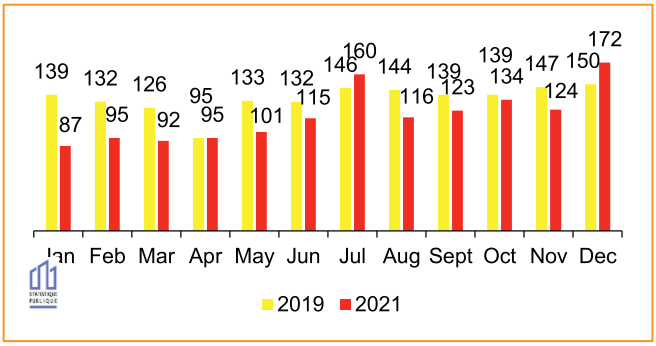
Average annual change*	2019 to 2021	2010 to 2019
Motorists killed	- 6,6 %	- 2,9 %
Non-motorist killed	- 2,9 %	- 1,6 %
All killed	- 4,7 %	- 2,3 %

*Reading: between 2010 and 2019, the number of PV users killed decreased on average by - 2.9 % per year.

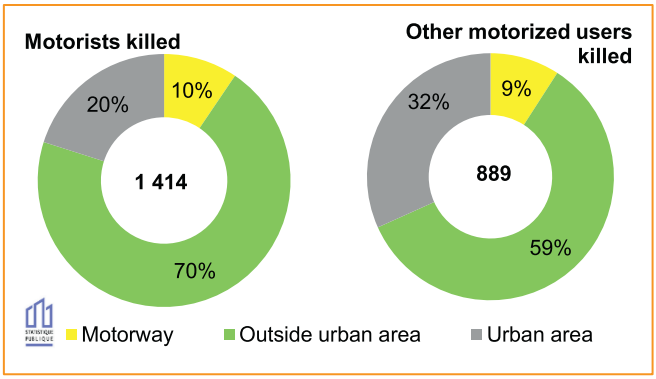
Evolution of the number of motorists killed per year according to the environment (base 100 in 2010).



Evolution of the number of motorists killed according to the month of the year



Breakdown of people killed by road environment



1,414 motorists were killed in 2021; they represent half of road fatalities. Three-quarters of accidents involve a passenger vehicle (PV).

Until 2017, the mortality of PV users had already fallen a little more outside urban areas than in urban areas. In 2018, this gap increased (phenomenon probably partly linked to the drop in speeds practiced from July 1, 2018 resulting from the new speed limit of 80 km/h on two-way roads). **In 2021, this gap has widened further.**

Depending on the time of year

The first half of 2021, a curfew period, accounts for 41 % of motorists killed for the year (compared to 47 % in 2019). **This difference is mainly due to motorists killed outside urban areas**, because in urban areas the distribution is comparable between the two semesters.

45 % of motorists killed are at night compared to 34 % for other people killed.

According to the road environment

996 motorists were killed in 2021 on roads outside urban areas and 134 on motorways; this represents 80 % of motorists killed.

In urban areas, 284 motorists were killed in 2021. This share is lower than for other motorized users (one in three). Motorists who are killed are less often killed at intersections than other motorized users. This is true on roads outside urban areas (14 % against 19 %) and even more so in urban areas (28 % against 39 %).

In urban areas, motorists killed are more often killed on bends than other motorized users (29 % versus 24 %). On the other hand, it is the opposite outside urban area (32 % against 40 %).

Safety belt

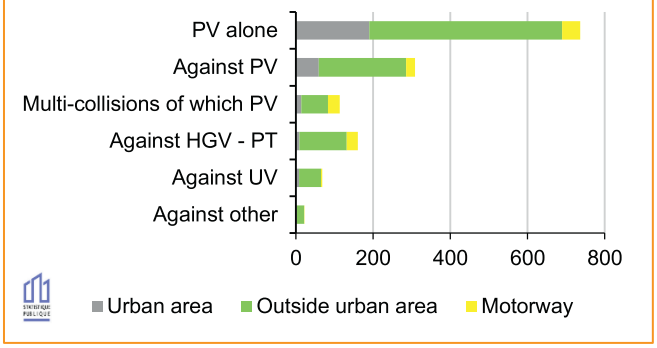
246 motorists killed in 2021 were not wearing their safety belts, i.e. 20 % of motorists killed whose wearing of safety belts is entered in the BAAC file (entered in 87 % of cases). This proportion is higher for passengers (23 %) than for drivers (19 %: 12 % during the day and 28 % at night). In urban areas, **this proportion rises to 39 % for passengers**.

Novice drivers

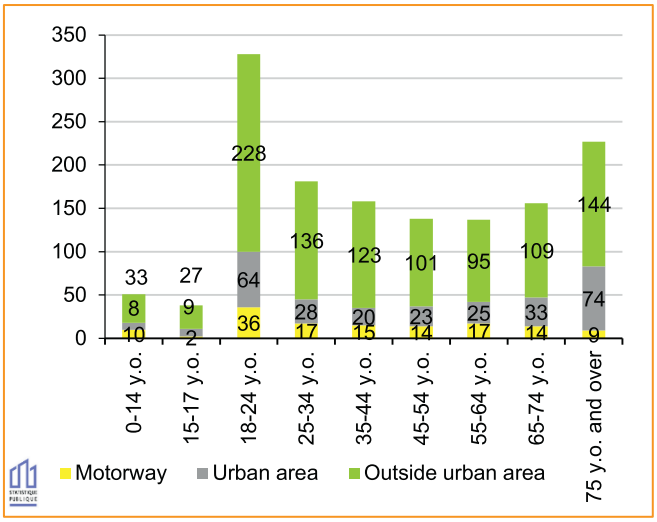
In 2021, novice drivers[2] represent 12 % of PV drivers killed. This is the same proportion as for drivers of other types of vehicles. They are more numerous on roads outside urban areas (13 % against 11 % in urban areas).

[1] The term motorist refers to PV users, whether they are drivers or passengers.
[2] Novice drivers here refer to drivers whose seniority of the driving license is less than 2 years.

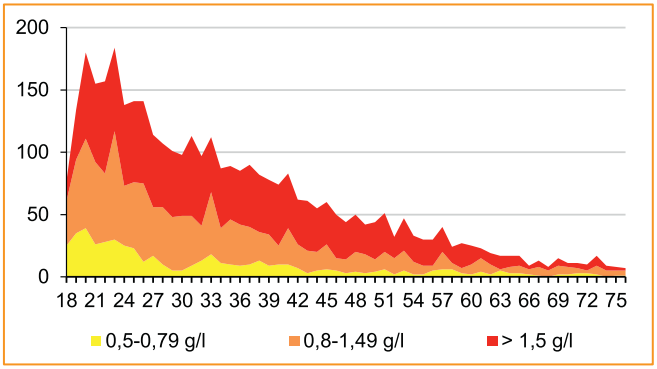
Number of motorists killed by type of collision and road environment



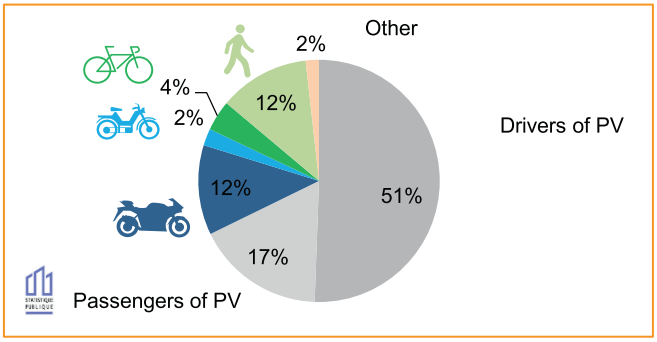
Number of motorists killed by age group and road environment



Number of alcohol-positive PV drivers in injury crashes by age and rate



Breakdown of users killed in an accident involving a passenger vehicle (PV) by mode of travel



According to the type of collision

Half of motorists killed (736) die in an accident without a third party. **This share rises to 67 % in urban areas**. The collision against another passenger vehicle comes second with 308 motorists killed, 80 % of them outside urban areas.

Among the 1,414 motorists who died in 2021, 746 were killed when their vehicle hit a fixed obstacle, including 255 against a tree, 131 in a ditch or against an embankment and 78 against a guardrail. A quarter of motorists killed (357) die in a head-on collision. This share is only 14 % in urban areas

According to age

Regardless of the road environment, a quarter of motorists killed in 2021 are between 18 and 24 years old, while they represent only 12 % of the others killed and 8 % of the population. There are thus 328 young people killed over the year. **People aged 65 or over make up 27 % of motorists killed, or 383**, even though they represent only 20 % of the population.

According to presumed responsibility

In fatal accidents in 2021, car drivers are more often presumed responsible than other drivers (69 % against 59 %). This is true both outside urban area and in urban area, but not on the motorway.

Accident factors

In fatal accidents between 2019 and 2021, the speed factor and the alcohol factor for the PV driver are involved in one in five accidents. **The speed factor is more often present outside urban areas**. Illegal drugs, inattention and faintness are factors that are involved one time out of ten.

In 2021, for all PV drivers involved in an injury accident and whose alcohol level is known, 8 % of them have a level greater than or equal to 0.5 g/l of blood. Excluding urban area off the motorway, this share rises to 13 %. **For fatal accidents, this share rises to 19 %. Among alcoholic PV drivers, 9 out of 10 have a blood alcohol level above 0.8 g/l of blood (offence).**

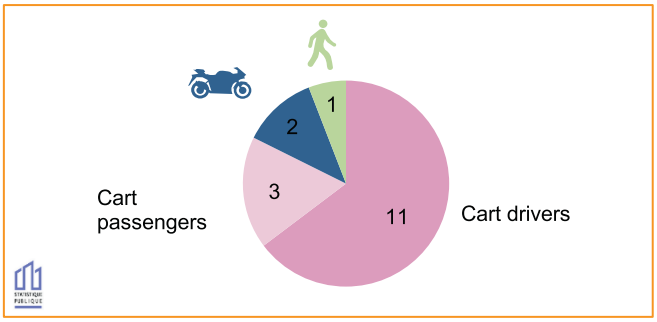
The highest alcohol levels are found in the 19-32 y.o. age group and to a lesser extent between 33 and 42 years old.

Victims outside of PV

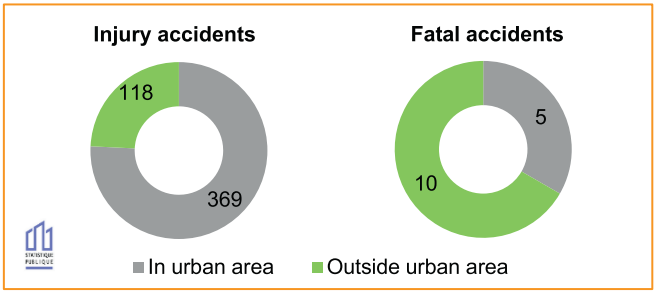
In accidents involving a PV, to the 1,414 motorists killed are added **672 non-motorist users killed**. Among these users, **38 % are pedestrians**, mostly killed in urban areas, and **37 % are motorcyclists**, mostly killed outside urban areas.

Users of carts, taxis, agricultural tractors and ambulances

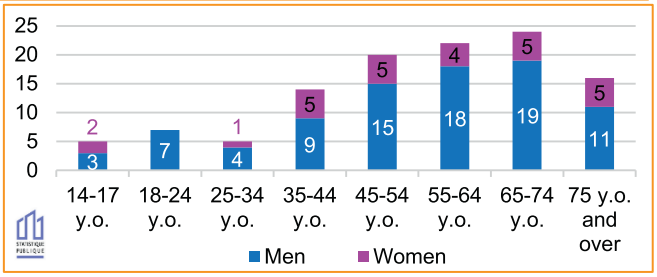
Breakdown of road users killed in accidents involving a cart by mode of travel for the year 2021



Breakdown of injury and fatal accidents involving a cart by location (2021)



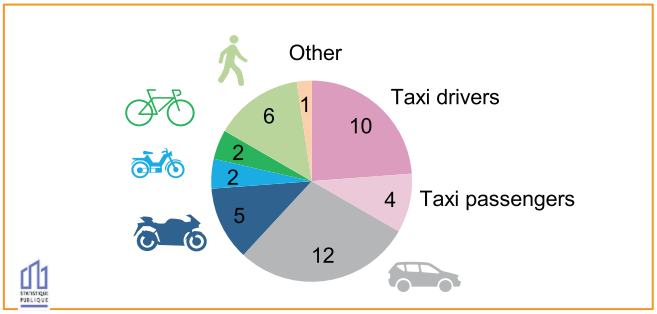
Distribution of cart drivers involved in fatal accidents according to their age and gender, over the 2017-2021 period



Number of accidents involving a PV taxi and number of fatalities in these accidents by location in 2021

	Injury accidents	People killed
Paris	197	3
Inner suburbs	24	0
Outer suburbs	14	1
Mainland France outside Ile-de-France	75	6
Mainland France	**310**	**10**

Breakdown of users killed in accidents involving a taxi by mode of travel, over the 2017-2021 period



Carts

In 2021, 487 accidents involved a cart. 17 people died, including 14 cart users. Among these cart users killed, 11 are in two-vehicle accidents and 3 in accidents without a third party.

If three quarters of injury accidents involving a cart take place in urban areas, 12 people out of the 17 who died are outside urban areas. These out-of-town kills are all out-of-intersection.

Of the 511 cart drivers involved in an injury accident, almost a quarter were between 14 and 24 years old, 17 % between 35 and 44 years old and 15 % between 25 and 34 years old. Two-thirds of these drivers are men. In fatal crashes, 5 of the 11 cart drivers who died were between the ages of 65 and 74.

In injury accidents, while drivers of carts are more often drunk than drivers of passenger vehicles (10 % compared to 8 % of drivers tested in 2021), the proportion of drivers testing positive for illegal drugs is identical for these two modes of travel (5 % of drivers tested).

Non-wearing of safety belts is more frequent among users of carts than among users of passenger vehicles involved in injury accidents (respectively 9 % and 6 % of drivers whose wearing of safety belts is reported). This proportion is even higher for passengers (15 % against 8 %).

Passenger vehicle taxis (PV)

In 2021, 343 vehicles involved in road accidents are listed as taxis. 93 % of these taxis are passenger vehicles (PV). In the following, taxis refer to PV taxis only.

310 accidents involved a taxi in 2021 (408 in 2019). In these accidents, 10 people died, including 3 taxi users. Among these road users killed, 8 are killed in accidents with two or more vehicles.

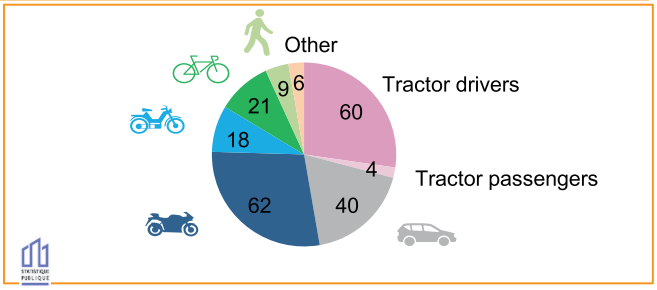
64 % of accidents involving a taxi took place in Paris (197 accidents including 3 fatalities). The departments of the inner and outer suburbs concentrate respectively 8 % and 5 % of these accidents.

In personal injury accidents in 2021, no taxi driver tested positive for illegal drugs. The share of drunk taxi drivers (among those tested) is 1 %.

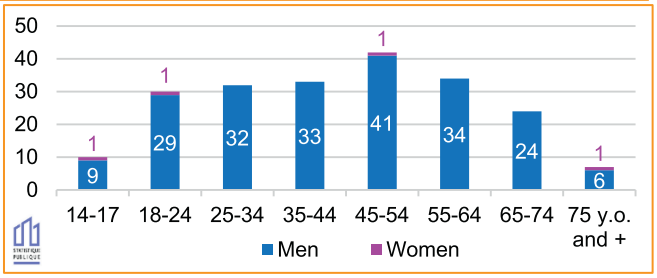
According to article R412-1 of the Highway Code, wearing a safety belt is not compulsory for any taxi driver in service. In 2021 in injury accidents, the proportion of taxi drivers and passengers not wearing safety belts is identical to that of PVs (6 % of drivers and 8 % of passengers whose safety belts are known).

	2021	2019	2010	Evolution 2010-2021	Evolution 2010-2019
Accidents with tractor	262	243	237	+25	+6
Killed in tractors acc.	44	57	43	+1	+14
Killed in the tractor	13	14	13	0	+1

Breakdown of users killed in accidents involving an agricultural tractor by mode of travel, over the 2017-2021 period

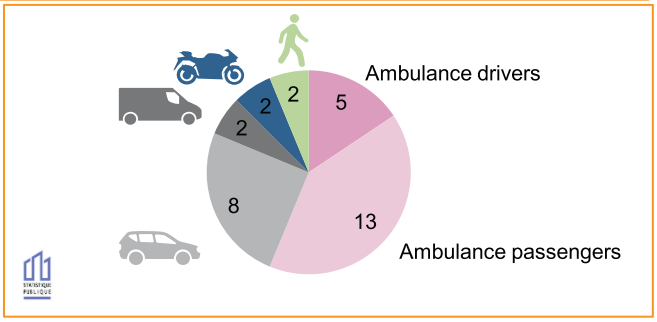


Distribution of agricultural tractor drivers involved in fatal accidents according to their age and gender, over the 2017-2021 period

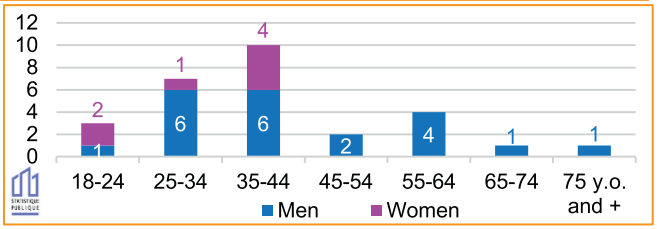


	2021	2019	2010	Evolution 2010-2021	Evolution 2010-2019
Accidents with ambulance	115	120	197	-82	-77
Kiled in ambulance acc.	9	8	12	-3	-4
Killed in the ambulance	5	4	9	-4	-5

Breakdown of users killed in accidents involving an ambulance by mode of travel, over the 2017-2021 period



Distribution of ambulance drivers involved in fatal accidents according to their age and gender, over the 2017-2021 period



Agricultural tractors

In 2021, 262 accidents involved an agricultural tractor (243 in 2019), leading to the death of 44 people, including 13 in a tractor. Among the users who died, 31 died in a two-vehicle accident and 12 in an accident without a third party.

8 out of 10 accidents involving an agricultural tractor take place outside urban areas and 7 out of 10 people killed are killed outside urban areas and intersections.

DR account for 71 % of agricultural tractor accidents (186) and caused 29 deaths (8 agricultural tractor users and 21 other users).

The months from July to October concentrate half of the injury accidents involving an agricultural tractor and 57 % of users killed.

Among the 43 agricultural tractor drivers involved in a fatal accident, 14 were between 14 and 24 years old and 10 between 45 and 54 years old. 98 % of these drivers are men.

In injury accidents, agricultural tractor drivers are less often drunk than PV drivers (5 % compared to 8 % of drivers tested in 2021) and very few-tested positive for illegal drugs (less than 1 % compared to 5 % for PVs)

In 2021, 78 % of tractor drivers involved in an injury accident do not wear safety belts (among drivers for whom the wearing of safety belts is indicated) compared to 6 % of PV drivers. Nevertheless, the BAAC does not make it possible to know if the safety belt was available.

Ambulances

115 accidents involved an ambulance in 2021 (120 in 2019). 9 people died, including 5 ambulance users (1 driver and 4 passengers, 3 of whom were aged 75 or over). Among these 9 killed, 8 are in accidents with two or more vehicles.

While 64 % of injury accidents involving an ambulance take place in urban areas, 5 out of the 9 people killed are outside urban areas and intersections.

In 2021, 48 % of ambulances involved in injury accidents do not change direction before the accident. Half of these vehicles listed as ambulances are PVs and 46 % of UVs.

Among the 125 ambulance drivers involved in an injury accident, half are between 25 and 44 years old and two thirds are men.

If none of these drivers is alcoholic, 8 % of them tested positive for illegal drugs (among the 63 drivers tested) against 5 % for PV drivers.

The share of ambulance drivers not wearing safety belts is identical to that of PV drivers (between 5 and 6 %).

Accidents involving a utility vehicle

42 % of people killed in accidents involving utility vehicles (UVs) are vulnerable users (pedestrians, cyclists, users of powered two-wheelers). 30 % are utility vehicle occupants.

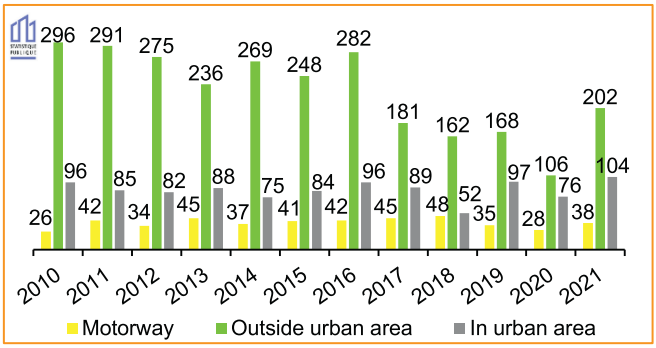
Evolution of mortality in accidents involving a UV since 2010

	Killed			Evolution	
	2021	2019	2010	Evol 2010-2021	Evol 2010-2019
In UV acc	344	300	418	- 17,7 %	- 28,2 %
In the UV	103	98	146	- 29,5 %	- 32,9 %

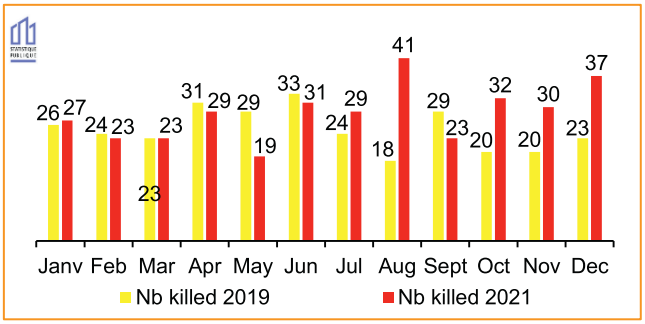
Average annual change*	2019 to 2021	2010 to 2019
UV killed	+ 2,5 %	- 4,3 %
Non UV killed	- 5,0 %	- 2,2 %
All killed	- 4,7 %	- 2,3 %

* Reading: between 2010 and 2019, the number of UV users killed decreased by an average of - 4.3 % per year.

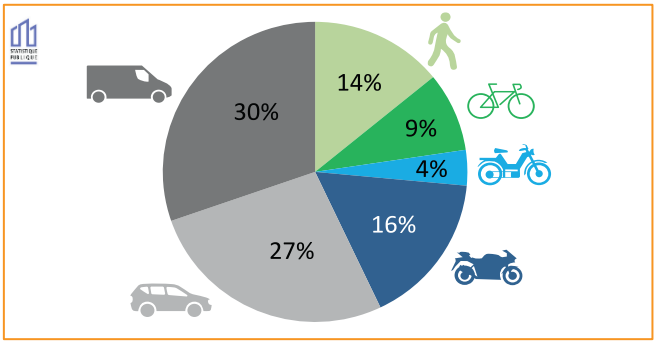
Number of people killed in accidents involving a UV by road environment



Number of people killed in an accident involving a UV by month



Breakdown of users killed in accidents involving an UV by mode of travel



	Walking	Bicycle	Moped riders	Moto	PV	UV	HGV	Other
Killed	48	29	13	56	91	103	1	3

In 2021, the number of people killed in an accident involving a utility vehicle (UV) is 344 (including 241 outside-UVs), or 12 % of road fatalities. Fatality in accidents involving a UV increased by 15 % compared to 2019 and the number of UV accidents increased by 6 %. The increase in the mortality of utility vehicle users is 5 % compared to 2019. They represent 3.5 % of deaths.
Since 2010, the number of UV users killed has fallen twice as fast as that of other users (- 4.3 % on average per year against - 2.2 %).

Risk exposure

Between 2016 and 2019, the number of kilometres travelled by UVs increased by 1.9 %, a more measured increase than for heavy goods vehicles (4.8 %). Between 2019 and 2021 the drop in traffic was - 4.7 % where HGV traffic remained stable. The utility vehicle fleet increased[1] by 3.6 % between 2016 and 2021 (4.3 % for HGVs).

In 2021, 7.0 % of vehicles involved in an injury accident are light utility vehicles, while these vehicles cover 14 % of the kilometres travelled in France.

Depending on the time of year

The first half of 2021, a curfew period, accounts for 44 % of deaths in utility vehicle accidents (compared to 55 % in 2019).

Victims outside the UV

In 2021, 70 % of people killed in accidents involving a UV are **outside the UV**. Among these 241 people killed, 61 % are **vulnerable users** (48 pedestrians, 29 cyclists and 69 users of powered two-wheelers) and 38 % motorists.

In fatal accidents involving an UV, 59 % of UV drivers are presumed to be responsible (compared to 36 % for HGV drivers and 69 % for motorists).

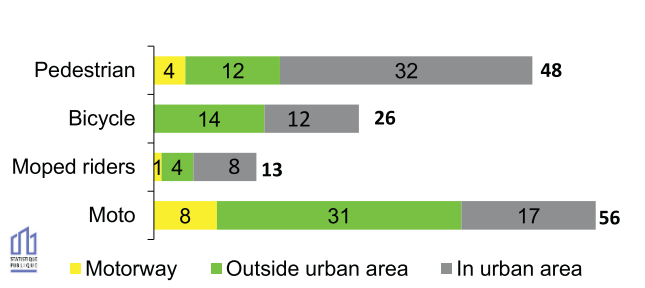
Depending on the type of collision and the obstacles hit

51 % of the 103 utility vehicle users died in an accident with a third party (53). These accidents are the result of an impact against another vehicle, mainly against a heavy goods vehicle (28 UV users killed), a passenger vehicle (9) or a multiple collision (7).

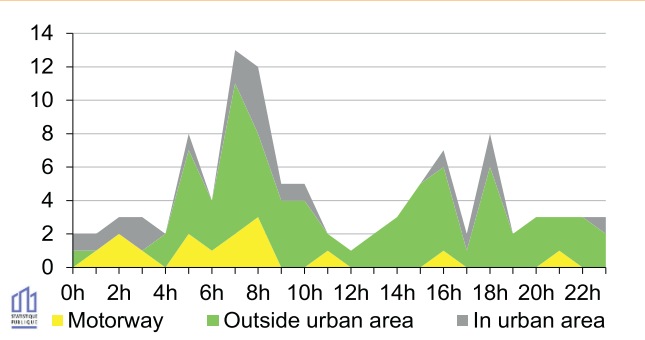
Among the 50 fatal accidents of UVs without a third party (vehicle alone), 16 occurred with an impact against a tree, 7 against a ditch, an embankment or a rock wall, 5 against a building or a wall and 3 against a pole.

[1] Transport accounts in 2021, CGDD/SDES, 2022, provisional data.

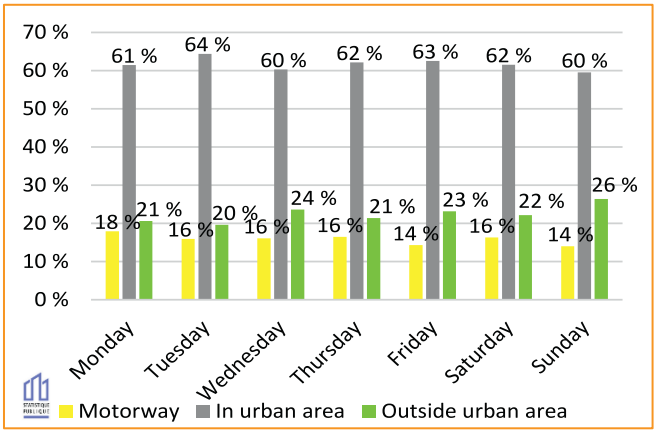
Number of vulnerable road users killed in utility vehicle accidents by area



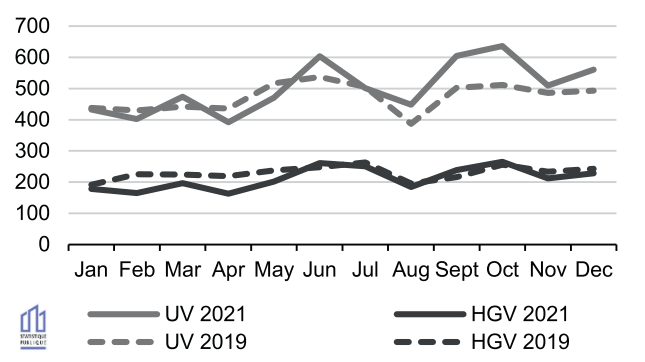
Number of people killed in utility vehicle accidents by time and environment



Breakdown of utility vehicle accidents by day and place



Number of utility vehicle and heavy goods vehicle accidents by month



According to the road environment

The **victims of accidents** involving a UV are mainly **outside urban areas**: 67 % of UV user fatalities and 55 % of other users, compared to 18 % and 35 % respectively in urban areas and 15 % and 10 % on the motorway.

Concerning vulnerable users, 67 % of **pedestrians** killed in an accident involving a UV are killed in urban areas. The number of **cyclists** killed in an accident involving a UV is equivalent on **roads outside urban areas** and on roads in **urban areas**. The mortality rate for **users of powered two-wheelers** compared to an UV is higher outside urban areas (**51** % on roads **outside urban areas** and **36 %** on roads **in urban areas)**.

Hour, day and month

72 % of UV users killed on roads in urban areas are killed during the day; they are 73 % on motorways and 88 % on roads outside urban areas.

84 % of accidents with UVs take place from **Monday to Friday**, compared to 93 % for accidents with heavy goods vehicles and 74 % for accidents with passenger vehicles. This is consistent with the different uses of these types of vehicles.

The breakdown of accidents involving a commercial vehicle by month is close to that of accidents involving a HGV in 2021. In particular, we observe a drop in accident rates during the months of April and August and a slight increase during the months of June and October.

Utility vehicle users

Among the 103 UV users killed, 61 % are between 25 and 54 years old, 16 % are between 18 and 24 years old, 12 % are over 65 year old and 11 % are between 55 and 64 years old; 89 are drivers and 97 are men.

325 of the 345 UV drivers involved in a fatal accident are **men** and **2 out of 3** are between **25 and 54 years old.**

When the reason for the travel is known (84 % of cases), **51 %** of UV drivers involved in a fatal accident are on a **professional travel** and 11 % on a leisure/leisure travel.

Utility vehicle drivers

Among the 345 UV drivers involved in a fatal accident and for whom the alcohol level is known (90 % of cases), **12 %** had a **blood alcohol level above 0.5 g/l,** compared to 17 % on average for set of conductors.

Among the 345 UV drivers involved in a fatal accident and for whom the result of an illegal drugs screening test is provided (84 % of cases), **9 % tested positive**, compared to 12 % for all drivers.

Accidents involving heavy goods vehicles

89 % of people killed in accidents involving a heavy goods vehicle (HGV) are not HGV users.

Accidents involving a truck are three times more fatal than accidents without a HGV.

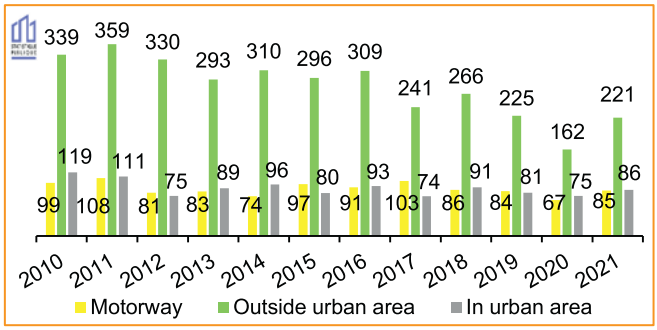
Evolution of mortality in accidents involving HGV since 2010

	Killed			Evolution	
	2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
In HGV acc.	392	390	557	- 29,6 %	- 30,0 %
In the HGV	44	36	65	- 32,3 %	- 44,6 %

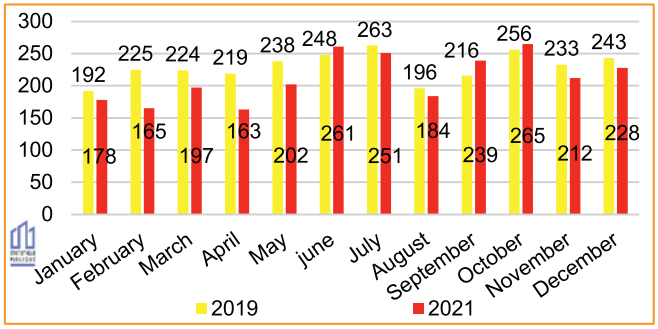
Average annual change*	2019 to 2021	2010 to 2019
Killed in HGV acc.	+ 0,3 %	- 3,9 %
Killed outside HGV acc.	- 5,4 %	- 2,0 %
All killed	- 4,7 %	- 2,3 %

* Reading: between 2010 and 2019, the number of fatalities in an accident involving a HGV decreased on average by - 3.9 % per year.

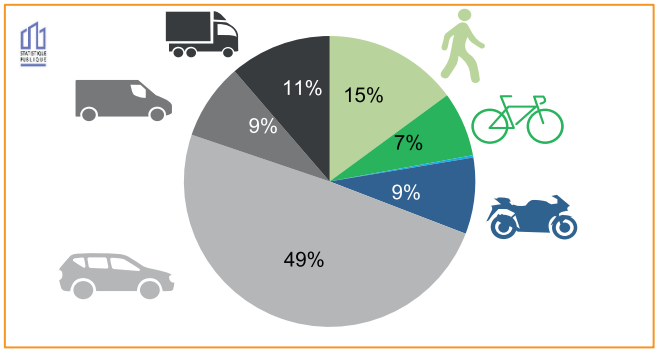
Evolution of the number of people killed in accidents involving heavy goods vehicles, by area



Number of accidents involving a HGV by month



Breakdown of people killed in heavy goods vehicle accidents by mode of travel



	Walking	Bicycle	Moped riders	Moto	PV	UV	HGV	PT	Other
Killed	58	28	1	33	192	33	44	1	2

In 2021, 392 people were killed in an accident involving a heavy goods vehicle (13 % of road fatalities); 348 of them were not HGV users.

The number of HGV users killed increased by + 22 % between 2019 and 2021. By comparison between 2010 and 2019, the number of fatalities in accidents involving HGVs decreased annually by - 3.9 %, which is more than the mortality from accidents without HGV (average annual decrease of - 2.0 %).

In 2021, the number of HGV accidents amounted to 2,545 (2,753 in 2019, a decrease of - 7.6 %). Over the same years, the number of fatalities in HGV accidents is stable (392 in 2021 and 390 in 2019), on the other hand, the number of fatalities in HGVs increased by + 22 % between 2019 and 2021 (from 36 to 44 killed).

Risk exposure

HGVs represent 3 % of vehicles involved in bodily accidents, and 7 % of kilometres travelled in France [1].

Foreign HGVs are under-involved in fatal accidents: in 2021, they perform 29 % of HGV travels in France, but constitute 23 % of HGVs involved in fatal accidents whose registration is recorded in the BAAC. 49 % of HGVs involved in a fatal accident on the motorway are foreigners compared to 16 % on roads outside urban areas and 14 % in urban areas. One in two foreign HGVs involved in a fatal accident is on the motorway.

Depending on the time of year

The first half of 2021 totalled 46 % of HGV accidents (compared to 49 % in 2019). This difference is mainly because a curfew was in place in mainland France during this period.

Victims outside the HGV

Accidents involving a HGV are **particularly serious**: they are fatal in 14 % of cases compared to 5 % for accidents without a truck.

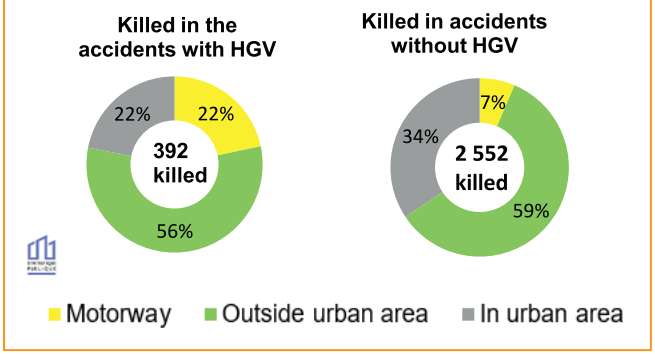
348 people killed in accidents involving HGVs are not HGV users. Among these:

- The share of motorists killed (49 %) is the same as in accidents without HGVs (48 %);
- The share of pedestrians (15 %) is similar with and without HGV (14 %);
- The share of cyclists (7%) is lower than in accidents without heavy goods vehicles (9 %);
- The share of motorcyclists (8 %) for accidents with heavy goods vehicles is lower (21 % of accidents without heavy goods vehicles).

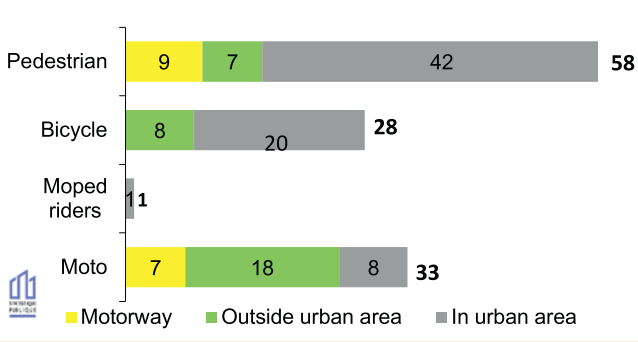
HGV drivers are presumed to be responsible for 36 % of fatal accidents involving them, which is much less often than other drivers (80 % for motorcyclists, 66 % for UV drivers and 65 % for motorists).

[1] *Les comptes des transports en 2021*, CGDD/SDES, 2022, 2021 prov.

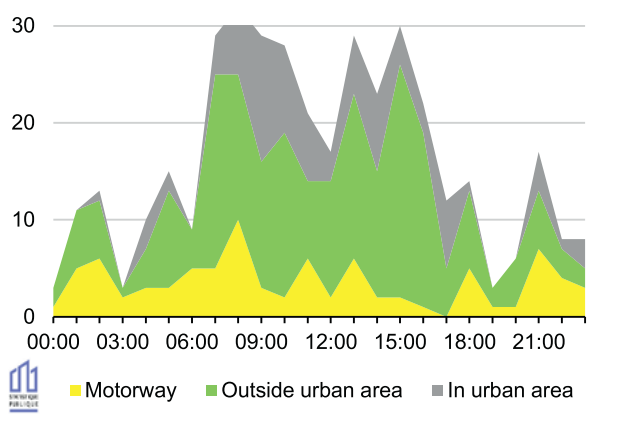
Breakdown of people killed in accidents involving a HGV or not according to the road environment



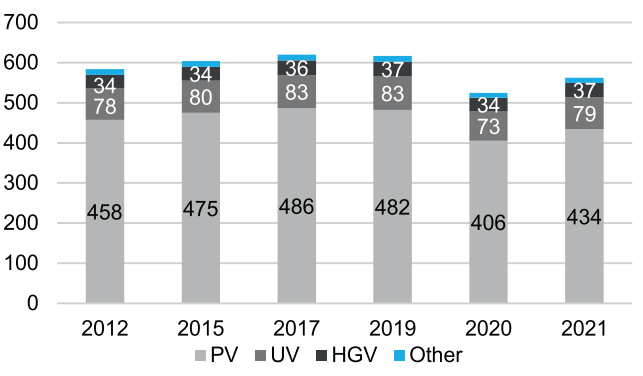
Number of vulnerable users killed in heavy goods vehicle accidents by road environment



Number of fatal accidents involving a HGV according to time and environment



Evolution of road traffic by type of vehicle (billion veh.km)



(1) Foreign utility vehicles are classified with PVs.
Source: SDES 2022, traffic report
Others: Coaches, buses and PTW.

According to the road environment

56 % of fatalities in accidents involving a HGV are on roads **outside urban areas** (slightly less than for accidents without HGVs, 59 % of fatalities). Motorcyclists killed in heavy goods vehicles accidents are mostly killed on roads outside urban areas (18 out of 33).

22 % are on the motorway, a much larger share than for accidents without HGVs (6 %).

The **urban area** is concerned by only 22 % of deaths in an accident involving a HGV (compared to 34 % of deaths in general). However, the majority of pedestrians, **cyclists and moped riders** killed in an accident involving a HGV are killed in urban areas (respectively 42 out of 58, 20 out of 28 and 1 out of 1).

8h00, 13h00, 18h00 et 21h00 are the times when the accident peaks common to the three road environments are observed.

Accidents involving a HGV contribute for:
- 13 % of general mortality outside urban areas;
- 34 % of general mortality on motorway;
- 9 % of general mortality in urban areas.

According to HGV category

Among the different types of HGV involved in fatal accidents, three are in the majority:
- HGVs with a trailer (causing 155 deaths);
- road tractors with semi-trailer (130);
- HGVs over 7.5 tonnes without a trailer (110).

HGV user victims

Of the 44 HGV users killed in 2021:
- 40 are drivers and 4 passengers;
- 28 are in accidents without a third party;
- 19 are on the motorway, 19 on the road outside urban areas and 6 in urban areas;
- 26 are between 25 and 54 years old (i.e. 59 %, compared to 70 % among users of utility vehicles and 53 % among motorists).

Among the 38 truck users killed whose seat belt use is recorded in the BAAC, 25 wore safety belts (i.e. 66 %, compared to 89 % among utility vehicle users and 93 % among motorists).

Alcohol and illegal drugs

HGV drivers involved in a fatal accident **are less often drunk or under the influence of illegal drugs** than motorists:
- 1 % of HGV drivers whose blood alcohol level is known have a rate above 0.5 g/l (compared to 12 % among UV users and 19 % for PV drivers);
- 3 % of HGV drivers whose illegal drugs screening test result is known are positive (compared to 9 % among UV users and 13 % for PV drivers).

Accidents involving a coach

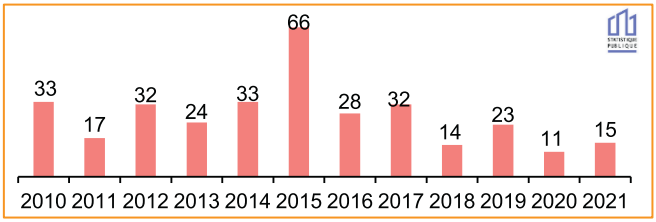
A person killed in an accident involving one in three coaches is a vulnerable user.

	Killed		
	2021	2019	2010
In a coach accident	15	23	33
In the coach	3	2	1

Annual average change *	2019 to 2021	2010 to 2019
Killed in coach acc	- 19,2 %	- 3,9 %
Killed outside coach acc	- 4,6 %	- 2,3 %
All killed	- 4,7 %	- 2,3 %

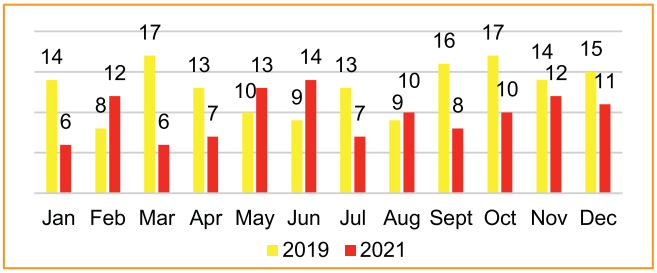
* Reading: between 2010 and 2019, the number of deaths in a coach accident decreased on average by - 3.9 % per year.

Report of people killed in coach accidents since 2010

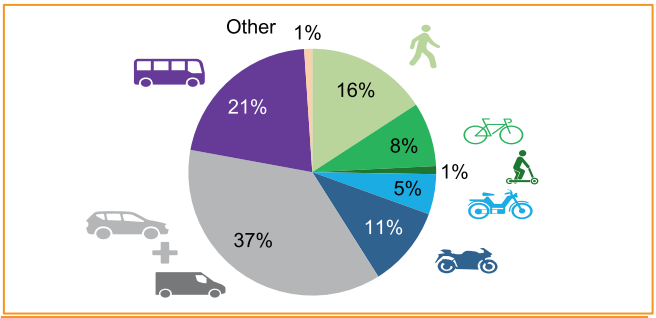


23/10/2015 Puisseguin (heavy goods vehicles collision and fire in the coach - 41 killed in the coach, 2 in the heavy truck);
02/11/2016 Rochefort (HGV collision - 6 teenagers killed in the coach);
14/12/2017 Millas (train collision - 6 schoolchildren killed in the coach).

Evolution of the number of coach accidents per month



Breakdown of fatalities in a coach accident by mode of travel 2017-2021



	Walking	Bicycle	PMDm	Moped riders	Moto	PV and UV	Bus	Other	Total
Killed	15	8	1	5	10	35	20	1	95

In 2021, 116 injury accidents involved a coach [1], i.e. 0.2 % of injury accidents. Fifteen people were killed in these accidents, including five motorists, a PTW user, a cyclist and 3 pedestrians.

178 people were injured in accidents involving a coach. Three-quarters are either coach occupants (85) or motorists (44). The remaining quarter is divided between vulnerable users: 10 cyclists, 14 pedestrians, 3 motorized PMD users, 19 PTW users and 3 occupants of another type of vehicle.

Since 2010, the number of fatalities in an accident involving a coach has fallen more than for all accidents. Between 2010 and 2021, the number of coach accidents recorded by the police fell by 45 % from 213 to 116 (20 % drop for all accidents); 40 % of this decrease took place between 2019 and 2021 (from 155 to 116).

50 % of accidents involving a coach took place during the first half of 2021, the curfew period, (compared to 46 % in 2019).

Depending on the environment, the day of the week

67 % of people killed in an accident with a car are on roads outside urban areas off the motorway, a result above the average (59 %). The share of deaths in the city is 27 % and on the motorway 6 %.

52 % of coach accidents recorded by law enforcement are found in urban areas.

90 % of coach accidents happened on a weekday (83 % in 2019), compared to 65 % for all accidents. More than half of coach accidents (59 %) took place during peak hours (between 7 a.m. and 10 a.m. or 4 p.m. and 7 p.m.).

Depending on the vehicles involved

Among the 95 killed in a coach accident from 2017 to 2021:

- **60 killed** are in a **vehicle other** than the coach; 35 in a passenger vehicle or utility vehicle, 15 in a powered two-wheels and 8 in a bicycle;
- **15 killed** are **pedestrians**;
- **20 killed** are **coach users**, including 12 in 2017 alone.

The coach is a very safe mode of transport.
Since 01/01/2015, coaches must be fitted with approved safety belts, which are compulsory and, since 01/09/2015, an EAD (alcohol ignition interlock device).

[1] Vehicle assigned to the transport of people over long distances and allowing the transport of the occupants of the vehicle mainly or exclusively in seats.

Accidents involving a bus

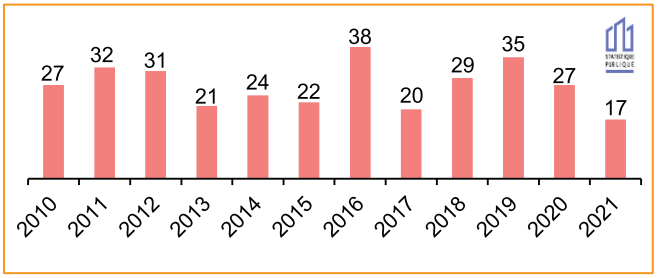
39 % of victims (persons killed or injured) of bus accidents are bus drivers or occupants, 32 % vulnerable users (pedestrians, cyclists, PTW), and 24 % motorists.

	Killed		
	2021	2019	2010
In a bus accident	17	35	27
In the bus	1	2	3

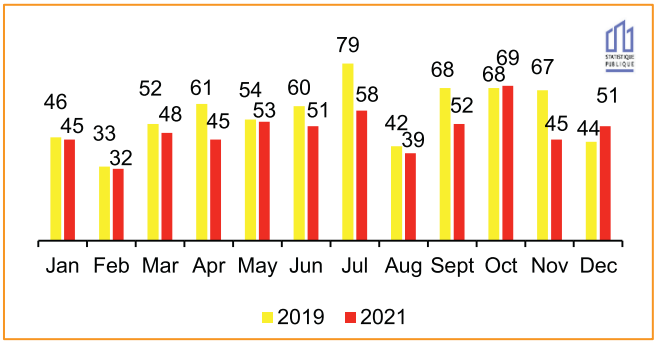
Annual average evolution*	2019 to 2021	2010 to 2019
Killed in bus acc	-30,31%	+2,93%
Killed outside bus acc	-4,49%	-2,32%
All killed	-4,74%	-2,28%

*Reading: between 2010 and 2019, the number of fatalities in a bus accident increased by an average of 2.93 % per year.

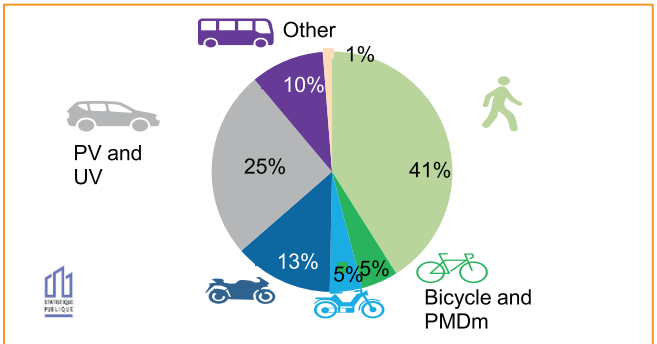
Report of people killed in bus accidents since 2010



Evolution of the number of accidents involving a bus according to the month of the year



Breakdown of fatalities in bus accidents by mode of travel between 2017 and 2021



	Walking	Bicycle +PMDm	PTW	PV and UV	Bus	Other	Total
Killed	133	16	57	82	32	4	**324**

In 2021, 588 accidents involved a bus[1], i.e. **1.1 % of BAAC injury accidents**.

17 people died, a decrease of - 51 % compared to 2019: 9 pedestrians, 4 motorists, 2 PMD-m users, 1 motorcyclist and 1 bus.

The number of victims (killed or injured) increased by + 18 % in 2021 compared to **2020 marked by periods of lock-down,** but is **down by - 13 % compared to 2019.**

According to the environment and the moment

90 % of injury accidents involving a bus occur **in urban areas**. However, 3 of the 17 people killed were outside urban areas.

In 2021, 75 % of bus accidents occurred during the day and 84 % took place on a weekday, which is in line with the bus service offer.

In 2021, 45 % of bus accidents were concentrated during peak traffic hours (between 7 a.m. and 10 a.m. or 4 p.m. and 7 p.m.).

Victims

In 2021, among the 852 victims (killed or injured) in bus accidents, 39 % are **bus users. Outside-bus victims** are split between 24 % motorists, 16 % pedestrians and 16 % cyclists or PTWs.

Among the **133 pedestrians killed or injured** in a bus accident, 39 % are between 0 and 24 years old, 29 % between 25 and 54 years old, 11 % between 55 and 64 years old and 20 % are 65 years old or older. 58 % of pedestrian victims are men.

Pedestrian victims in an accident with a bus **are injured on the road outside the pedestrian crossing in 41 % of cases**, 30 % **on the pedestrian crossing** and 17 % **on the sidewalk**.

Among the **335 victim bus occupants**, 77 are drivers, 258 passengers.

The age of the passenger victims is spread over all age groups: 20 % are between 18 and 34 years old, 33 % are between 35-54 years old. People aged 75 and over are however poorly represented with 7 % of victims.

The type of collision

Among the **accidents with buses**, 5 % are accidents with a bus alone, 22 % with a bus and a pedestrian and 73 % between a bus and another vehicle.

Of the **third-party vehicles involved** in bus accidents, 56 % are passenger vehicles, 15 % are PTWs, and 13 % are bicycles.

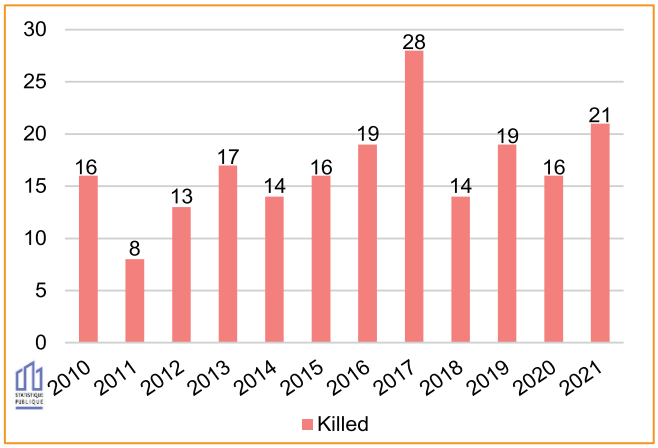
[1] Public transport vehicles, urban or interurban, designed and fitted out to be operated mainly in urban areas. They have seats and places intended for standing passengers.

Accidents involving a train

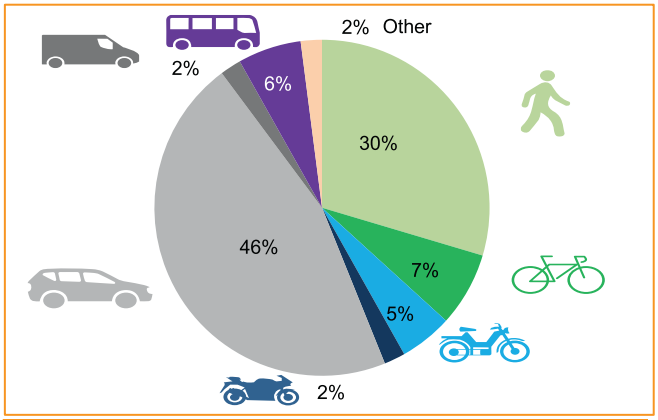
51 % of accidents involving a train recorded by police forces are fatal.

Accidents involving a train	Killed in an accident with a train	Injured in an accident with a train
41	21	22

Evolution of the number of people killed in an accident with a train

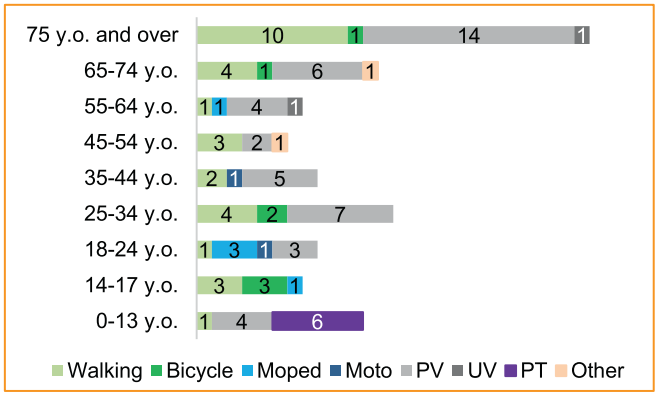


Number of people killed in an accident with a train over 5 years (2017-2021) by mode of travel



	Walking	Bicycle	Moped riders	Moto	PV	UV	PT	Other	Total
Killed	29	7	5	2	45	2	6	2	98

Number of people killed in an accident with a train over 5 years (2017-2021) by age and mode of travel



In 2021, 41 accidents involving a train were recorded in the BAAC file. They are particularly serious since among them, 21 were fatal (i.e. 51 %, against 5 % for all accidents). In these 41 accidents, 21 people were killed and 22 recorded in the BAAC as injured.

Motorists and pedestrians are the most frequent victims:

Over the past 5 years, 46 % of people who died in an accident with a train were motorists, 30 % pedestrians, 7 % cyclists and 7 % motorized two-wheeler users. 6 children were killed in school transport during the Millas accident on 14/12/2017.

People aged 65 and over are more concerned:

Over the past 5 years, 36 % of people who died in an accident with a train were aged 65 or over. In 2021, this ratio is even 52 % (compared to 26 % for all deaths). Over 5 years, people aged 75 and over represent 34 % of pedestrians killed (10 killed out of 29) compared to 1 % for all killed and 31 % of motorists killed (14 killed out of 45) in accidents involving a train compared to 8 % for all road fatalities.

The 21 deaths in 2021 break down as follows:
- 13 pedestrians killed (including 9 aged 65 or over),
- 4 motorists killed (4 drivers),
- 3 cyclists killed,
- 1 moped rider killed.

A PMDm user had died in 2020 in a collision with a train.

Level crossings in France [1]

Among the 15,000 level crossings in France (railway and road crossing at level), 60 % are equipped with automatic devices (lights and/or barriers). 1 % are on the NR, 32 % on the DR and 67 % on municipal roads.

The mobility orientation law (LOM) of 24 December 2019 makes it compulsory for road safety diagnostics to be carried out at all level crossings (except in specific cases) by the road manager, in coordination with the rail infrastructure manager. The decree of April 6, 2021 specifies the content of this diagnosis, which will be integrated into a database accessible to the public[2], and its periodicity (5 years). As of March 31, 2021, 147 level crossings deemed to be priorities are registered in the national safety intervention program.

Some accidents, specific to the railway environment, are not recorded in the BAAC file (suicides, victims in the station). Look for more at: *https://securite-ferroviaire.fr/*

[1] www.prevention-ferroviaire.fr
www.ecologie.gouv.fr/passages-niveau
[2] www.diagnostic-pn.cerema.fr

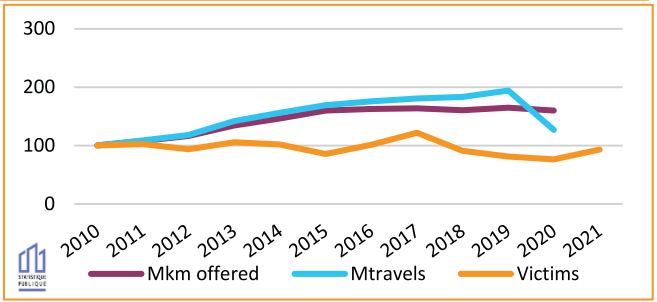
Accidents involving a tram

46 % of victims (killed or injured) in an accident involving a tram are pedestrians or cyclists.

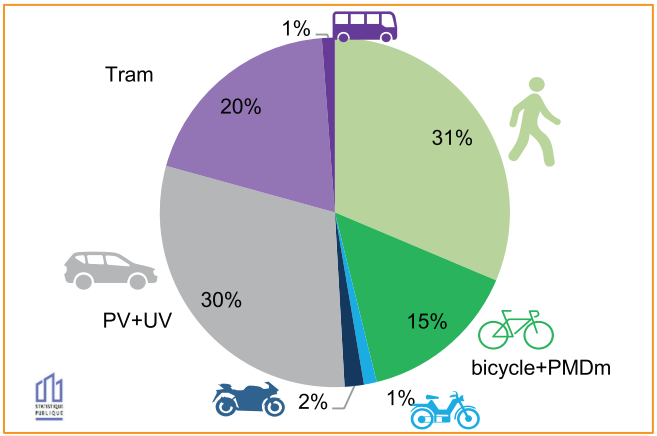
Accidents involving a tram	Killed in accident with tram	Injured in accident with tram
133	4	164

As of December 31, 2019, 83 tramlines were present in 31 cities, representing more than 900 km of linear.

Evolution of the number of victims, km travelled and number of trips (base 100 in 2010)

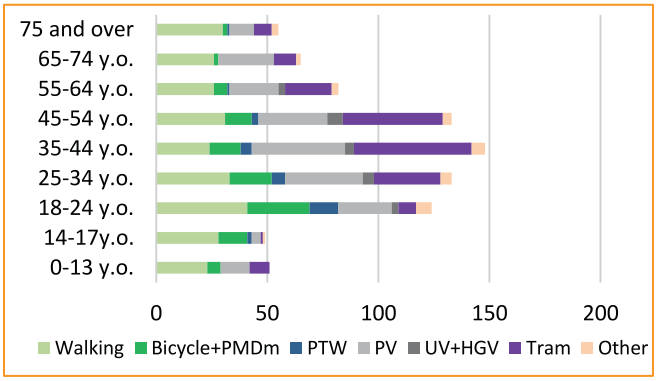


Number of victims in a tram accident by mode of travel (2021)



	Walking	Bicycle +PMDm	Moped riders	Moto	PV and UV	Tram	PT	Other
Killed	4	0	0	0	0	0	0	0

Number of victims in a tram accident by mode of travel and age 2017-2021



Risks

In 2021, 133 accidents involving a tram are recorded in the BAAC file. The **4 people killed in an accident with a tram are pedestrians** (4 men aged 15, 43, 45 and 78).

Compared to 2019, the numbers of victims and accidents are increasing. This increase is concentrated in the months of January, June and September to December, the other months are stable or down.

Given the development of the network of tramway, **the number of accidents involving a tramway in relation to the kilometres travelled[1] by trams continues to fall in 2020, 1.4 compared to 1.5 in 2019 (2021 data not available**).

In 2021, 62 % of tram accidents take place in the urban areas of Paris, Lyon, Bordeaux and Strasbourg (respectively 28, 28, 15 and 11 accidents). The rest is spread over 19 urban areas.

Among the 169 victims of tram accidents, 4 pedestrians died and 49 were injured, 50 motorists (PV or UV), 33 tram users, 16 cyclists and 9 motor PMD users were injured.

Among the **49 pedestrians injured** in the accidents involving a tram (including 2 in PMD without engine), 21 were between 18 and 64 years old, 15 were under 18 and 13 were 65 or older. 9 of the 16 injured cyclists are between the ages of 18 and 44 and 4 are under 18.

Over 5 years, we observe that the number of pedestrian victims is distributed over all ages, while those injured by bicycle are more in the active age groups with a peak of 18-24 years old. The injured in the tram are concentrated in the 25-54 age group.

Presumed causes

The main pedestrian accident scenario[2] in direct conflict with a **tram involves pedestrians crossing the entire street, struck on the first tramline encountered**. In indirect conflict (not addressed in the figures), the main scenario concerns pedestrians rushing to get on or off public transport and being hit by a road vehicle on the adjacent lanes.

The figures in the BAAC file differ from those in the database managed by the technical service for ski lifts and guided transport (STRMTG), filled in from operators' declarations. The latter contains all the events related to the tramway: collisions with third parties, passenger accidents including falls during emergency braking, etc.

[1] http://www.strmtg.developpement-durable.gouv.fr/rapport-annuel-sur-le-parc-le-trafic-et-les-a708.html

[2] Study of pedestrian accidents on streets with development of public transport sites (phase 2), Cerema, 2016.

Accidents involving a foreign vehicle

Half of foreign vehicles involved in fatal accident are heavy goods vehicles.

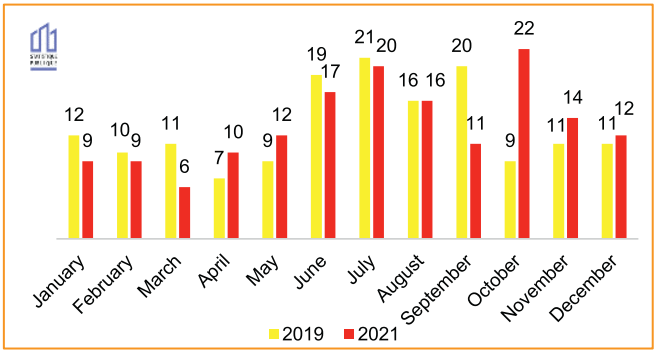
Killed in accidents involving a foreign vehicle	Killed in foreign vehicle involved
179	71
Average annual change in the number of fatalities with a foreign vehicle between…	
2019 and 2021	2012-2016 and 2021
- 12 %	- 6 %

Registration of foreign vehicles involved in an injury accident

	2021						2012-2016 (by year)
	PV	HGV+PT	UV	Moto	Other	Total	
Poland	92	78	30	3	8	211	115
Spain	68	117	7	10	5	207	216
Belgium	120	35	19	15	8	197	220
Germany	126	18	11	18	10	183	217
Switzerland	88	2	6	21	4	121	98
Portugal	33	52	7	7	4	103	124
Italy	46	19	7	19	2	93	124
Romania	32	47	14	0	0	93	32
Netherlands	51	17	4	13	7	92	95
Lithuania	5	65	4	0	0	74	25
Luxemburg	31	11	7	4	0	53	82
Bulgaria	8	29	7	0	0	44	47
UK	24	7	4	5	2	42	116
Monaco	17	2	3	11	2	35	28
Other countries*	43	0	16	0	6	65	147
Total	**784**	**499****	**146**	**126**	**58*****	**1613**	**1 686**

* « Other countries » includes 31 different countries
** Distribution: 494 HGV and 5 PT
*** Including 16 moped riders

Number of fatal accidents with a foreign vehicle per month in 2019 and 2021



6% of drivers of foreign vehicles had a positive blood alcohol level, a level comparable to that of drivers of vehicles registered in France (7%).

179 people were killed in 2021 in an accident involving a vehicle registered abroad[1], i.e. 6 % of fatalities. Among the 179 deaths, 40 % (71 people) were drivers or passengers of the foreign vehicle. In 2021, foreign vehicles accounted for 7 % of passenger transport in light vehicles in France[2]. 29 % of the transport of goods is carried out by foreign vehicles.

Fatal accidents involving a foreign vehicle are often more serious than others. There are 1.13 killed per fatal accident involving a foreign vehicle against 1.06 for the rest of the fatal accidents. Indeed, the share of **heavy vehicles** in foreign vehicles is significant.

According to the country of origin

In 2021, half of the foreign vehicles involved are registered in four countries:

- **Poland:** 21 % of foreign **utility vehicles** involved in an accident are there registered;
- **Spain,** 23 % of **foreign heavy goods vehicles** involved in an accident are registered there;
- **Germany and Belgium,** which are the most common registrations for passenger vehicles and motorcycles.

Among the vehicles involved registered in Italy, Switzerland or Germany, 15 % are motorcycles.

According to the type of vehicles

The share of heavy goods vehicles among the 1,613 foreign vehicles involved is 31 %. It is significantly higher than among French vehicles (3 %). On the other hand, the share of foreign passenger cars involved is lower: 49 % against 59 % for French vehicles.

Specific evolution 2021

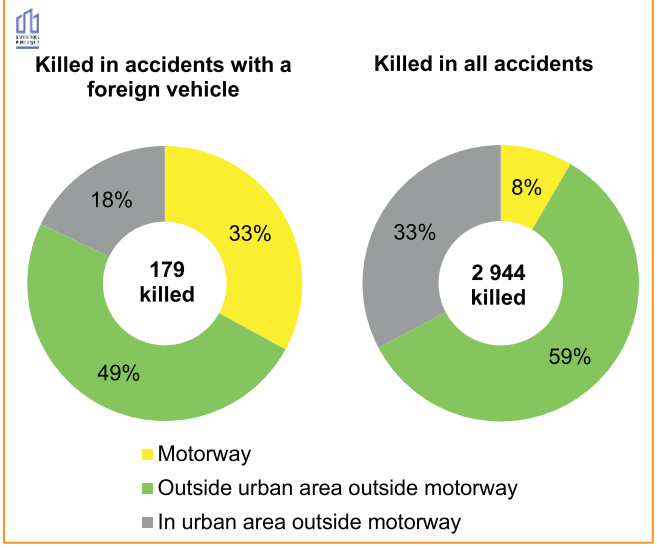
A drop in accident figures was observed in the first half of 2021 compared to 2019, when traffic restrictions were in force (lock-down and curfew). The accident rate involving foreign vehicles during the second half of the year is broadly similar in 2021 to that of 2019 with respectively 158 and 156 fatal accidents.

According to the accident department

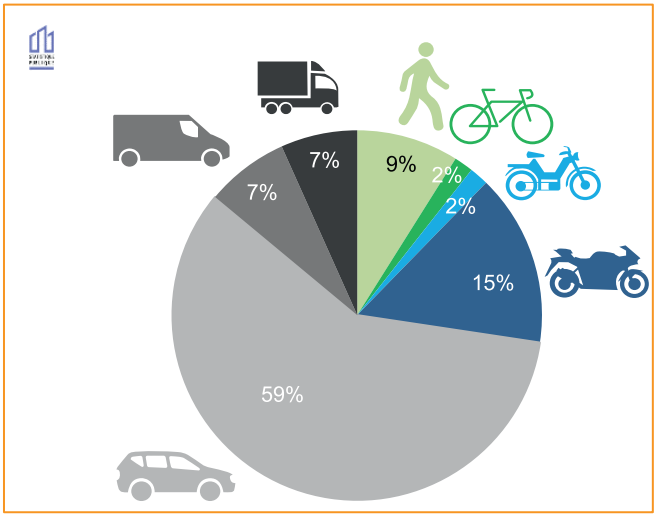
The 22 border departments accounted for 27 % of accidents involving a foreign vehicle and 34 % of the corresponding mortality (60 people killed). 28 % of accidents involving a foreign vehicle occurred in Île-de-France but are rarely fatal (11 killed).

[1] In the rest of the text, the term “foreign vehicle” designates a vehicle registered abroad, and “French vehicle” a vehicle registered in France.
[2] *Bilan des transports 2021*, SDES, 2022, provisional 2021 data.

Breakdown of people killed by road environment in accidents involving a foreign vehicle and in all accidents

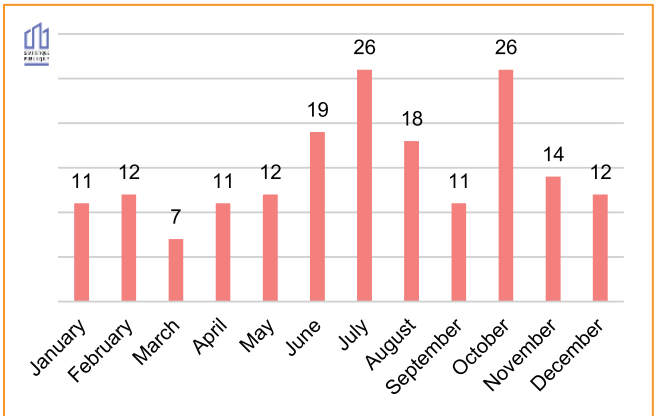


Breakdown of people killed in accidents involving a foreign vehicle by mode of travel



	Walking	Bicycle+ PMDm	Moped riders	Moto	PV	UV	HGV	Other	Total
Killed	16	3	3	27	105	13	12	0	179
Accidents	99	64	73	318	1 223	281	554	49	1 587

Number of people killed in accidents with a foreign vehicle by month in 2021



According to the road environment

Fatal accidents with a **foreign vehicle occur more often on the motorway** (32 %) than all accidents (8 %).

On the other hand, the proportion of accidents in urban areas is lower for accidents with a foreign vehicle (19 %) than for all accidents (34 %).

According to mode of travel

59 % of people killed in accidents involving a foreign vehicle are motorists, which is close to the rate observed for all accidents (48 %). While drivers and passengers of heavy goods vehicles represent 1 % of fatalities in all accidents, they represent 7% of fatalities in accidents with a foreign vehicle. This is linked to the high proportion of heavy goods vehicles among the foreign vehicles involved (31 % against 3 % for vehicles registered in France).

The 71 users killed occupants (drivers or passengers) of a vehicle registered abroad are:
- 39 motorists;
- 15 motorcyclists;
- 11 HGV users;
- 5 utility vehicle users.

By month

As in 2019, **the month of July saw a high number of accidents** with foreign vehicles: 26 of the 179 killed (15 %) were killed in July, compared to 10 % for all accidents. There is a greater involvement of foreign passenger vehicles in July (13 %, compared to 9 % for all passenger vehicles involved in mainland France). For foreign motorcycles, 73 % of them were involved in an accident during the months of June to September (43 % for all motorcycles in mainland France).

Offences

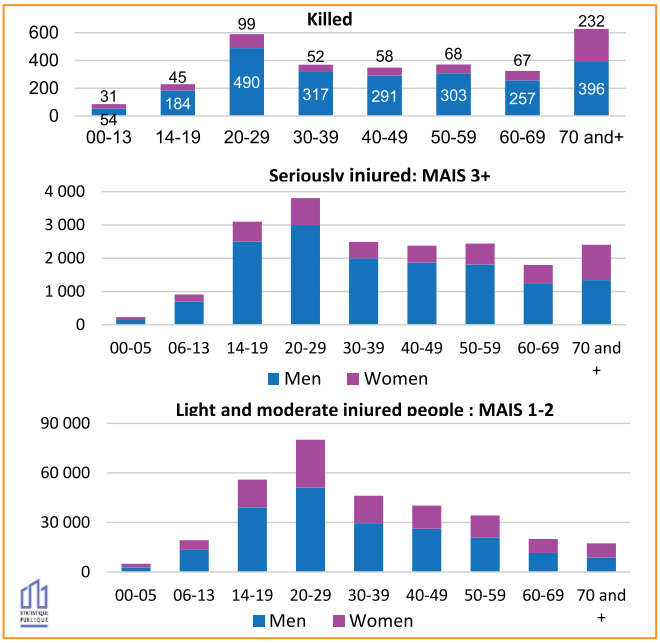
In 2021, of the 15.1 million fine notices sent for offences detected by automated control, 2 million were sent abroad, an increase of 3 % compared to 2020. This represents 13 % of contravention notices, a decrease of 2 points compared to 2020 (15 %). Of these 2 million, 1.5 million, or 79 %, live in one of the following seven countries: Germany, Belgium, Spain, Italy, the Netherlands, Poland and Romania. Agreements exist with 19 countries of the European Union, as well as with Switzerland.

Road users by gender

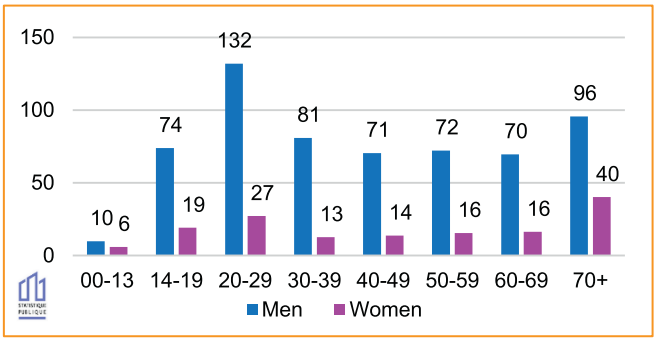
In 2021, mortality per million inhabitants is almost 4 times higher among men than among women (according to age, 6 times higher).

84 % of those presumed responsible for fatal accidents are men.

People killed and injured by age group in 2021



Mortality per million people of each age group and gender



Factors of presumed responsible (PR) of fatal accidents in 2021

Factors	Men	Women
Excessive or inappropriate speed	33%	16%
Alcohol	25%	9%
Illegal drugs	14%	7%
Inattention	12%	17%
Faintness	10%	10%
Priority	9%	17%
Dangerous overtaking	7%	4%
Drowsiness -fatigue	4%	3%
Lane change	4%	3%
Misdirection	4%	5%
Dazzle	2%	5%
Failure to respect safety distances	2%	1%
Phone and technological distractors	1%	2%
Medications	1%	0%
Other cause	8%	9%
Undetermined cause	12%	15%
Number of PRs	**2379**	**464**

Risk and severity by gender and age

In 2021, 3.5 times more men (2,292) than women (652) died on the road.

Men are overrepresented in mortality for all age groups. On the other hand, even if they remain a minority compared to men, the proportion of women in mortality is highest among those over 70 (37 %). This can be explained by the demographic distribution of this age group (5.8M women for 4.1M men).

The distribution of the number of seriously injured (M.AIS3+) according to gender is similar to that of fatalities (76 % men versus 78 %). These proportions of men vary according to age: they are lower for those over 60 (65 % versus 69 %).

On the other hand, the distribution of minor and moderate injuries (MAIS1 and MAIS2) is different: the proportion of men is lower (66 %). This difference is more marked for those aged 20-59 (57 % of men against 83 % for those killed).

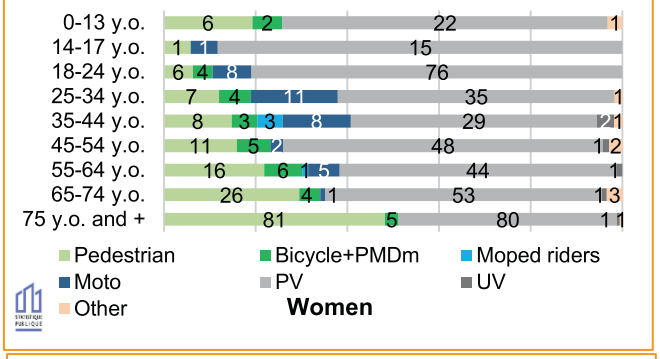
In terms of ratio for men, it is estimated at 19 killed for 100 serious injuries M.AIS3+, and 8 serious injuries for 100 minor injuries for the year 2021 higher than for women, with respective ratios of 17 and 5 Only 0-19 year old have an unfavourable ratio killed per 100 seriously injured MAIS3+ for women (11 for women against 9 for men).

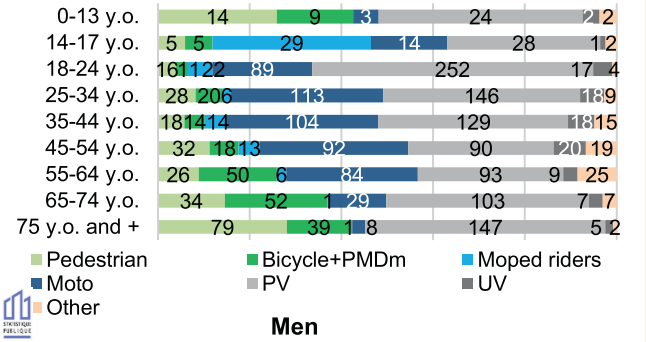
In 2021, in terms of mortality per million inhabitants, the average is 45 killed/Minhab. It is 3.8 times higher in men than in women (72 against 19). Among men, the age groups most at risk are those aged 18-29 (130) and those aged 75 and over (114). Among women, it is 18-24 years old (36) and 70 years and over (40). The men at increased risk are the 25-44 years old (6 times more deaths/Minhab than for women) and the 65-69 years old (5.6).

Presumed responsible for fatal accidents

84 % of those presumed responsible for fatal accidents are men. 65 % of male drivers are presumed to be responsible for fatal accidents compared to 58 % of female drivers. The five main factors of accidents among **male drivers** (presumed to be responsible with at least one factor noted) are identified: excessive or inappropriate **speed** (33 %), **alcohol** (25 %), illegal drugs (14 %), inattention (12 %), and faintness (10 %). Other factors are involved in less than 10 % of cases. Among female drivers, 4 main factors were identified: inattention, equally with failure to respect priorities (17 %), excessive or inappropriate speed (16 %) and faintness (10 %). The other factors are involved in less than 10 % of cases.

Breakdown of people killed in each age group by mode of travel





Gender and mode of travel

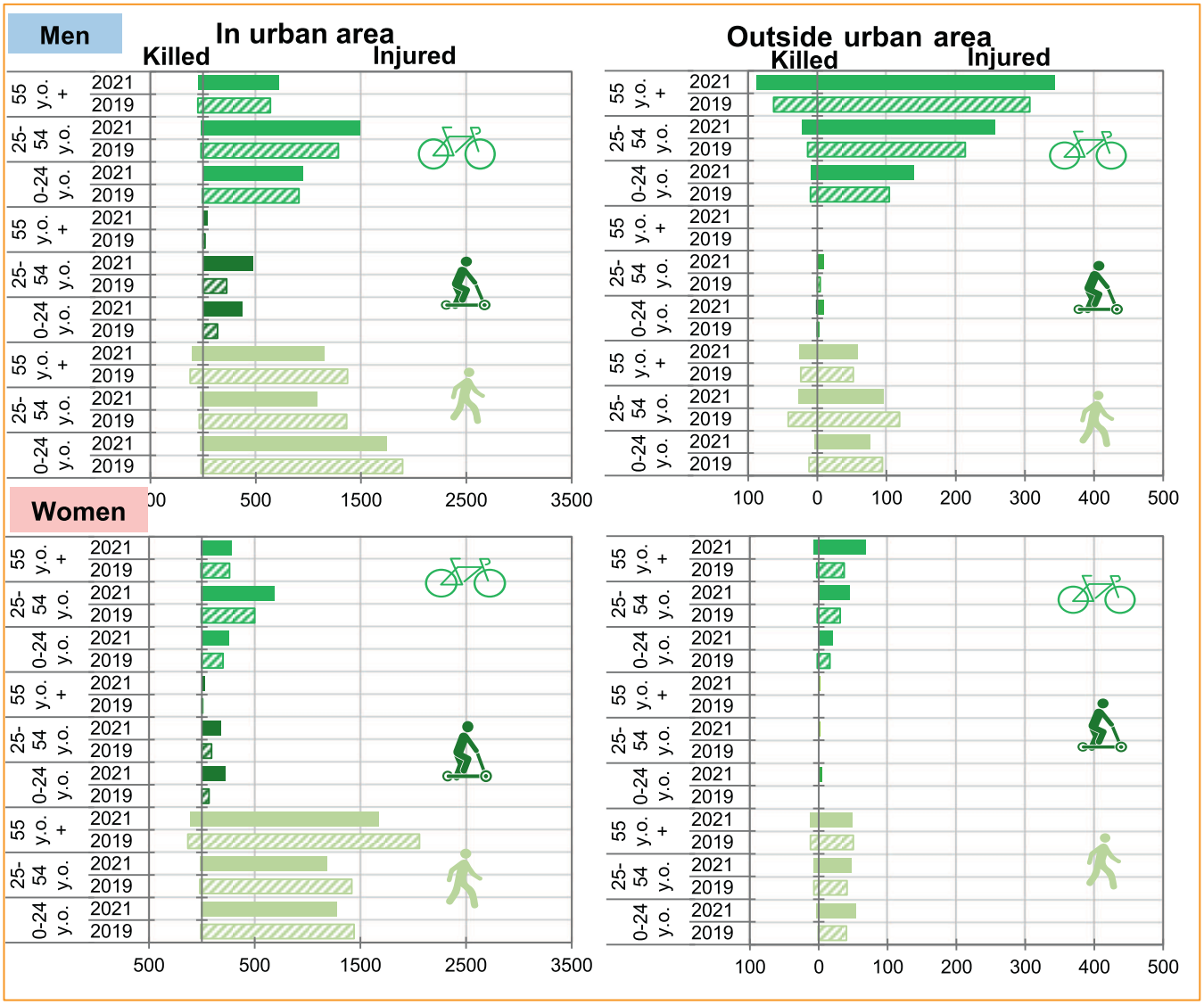
62 % of women killed are motorists and 25 % pedestrians. Among those aged 75 and over, 48 % are pedestrians.

44 % of men killed are motorists; this rises to 62 % for 18-24 years old. 23 % of men killed are motorcyclists; this rises to 33 % for 25-44 years old.

Accident rate in soft modes

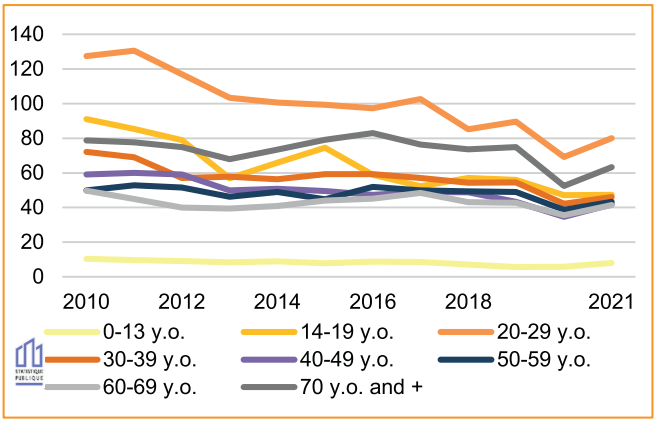
In urban areas, between 2019 and 2021, the decline in the mortality of pedestrians aged 55 or over was greater (- 16 %) than that of all pedestrians (- 11 %). The number of injuries in PMD-m was multiplied by 2.4 in the BAAC file between 2019 and 2021: by 3.4 for women and 2.7 for men under 25; by 1.9 for women and 2.1 for men aged 25-54. Among women aged 25-54, the number of injured cyclists increased by + 38 %.

Outside urban areas between 2019 and 2021, the number of male cyclists aged 55 or over killed increased very sharply (+ 40 %) and to a lesser extent that of injuries (+ 12 %).

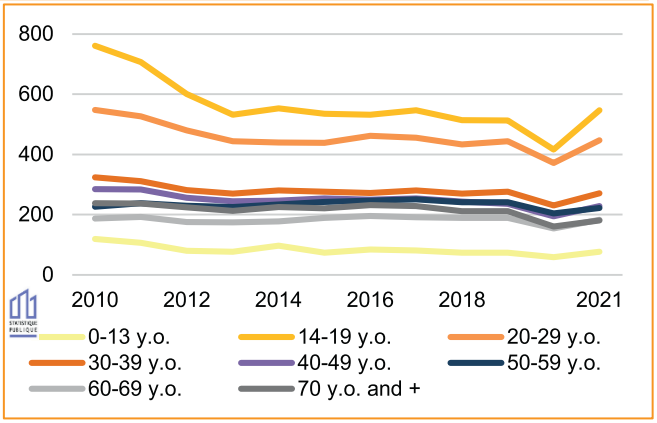


Road users by age

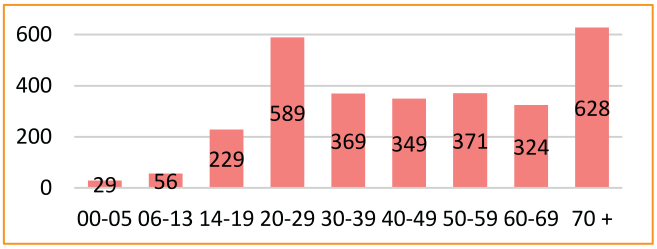
Evolution of the number of people killed per million inhabitants and per age group from 2010 to 2021



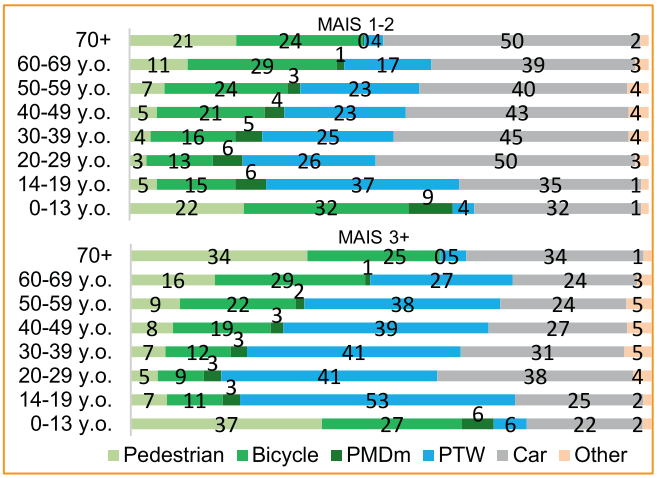
Evolution of the number of people seriously injured MAIS3+ per million inhabitants and per age group from 2010 to 2021



People killed by age group in 2021



Breakdown of estimated injuries by mode of travel according to age and severity in 2021



Evolution by age

The evolution of the number of people killed per million inhabitants over the 2010-2020 period presents:

- from 2010 to 2013: decline for all age categories, less marked for those aged 50 and over;
- from 2014 to 2017: increase for those aged 50 and over; fluctuations for other categories;
- 2018-2020: a decrease for all age groups.

Between 2019 and 2021, the number of fatalities decreased for 25-34 years old (- 23 %), 75 years old and over (- 16 %), 55-64 years old (- 11 %), 45-54 years old (- 8 %) as well as 18-24 years old (- 8 %). It is stable for 65-74 years old (+ 1 %). On the other hand, it increases for 0-13 years old (+ 39 %) and 14-17 years old (+ 10 %). If the evolution of the number of seriously injured MAIS3+ per million inhabitants between 2010 and 2019 shows a sharp drop for 0-13 years old, 14-19 years old, 20-29 years old, 30-39 years old and 40-49 years old (of - 39 %, - 30 %, - 24 %, - 16 % and - 20 % respectively), the situation is more contrasted for those aged 50 and over: increases of + 10 % for those aged 50-59, + 24 % for 60-69 y.o., + 4 % over 70 years old. Between 2019 and 2021, the number of seriously injured MAIS3+ increased for those under 30 y.o., with in particular + 7 % for 14-19 years old, while it decreased for the rest of the population.

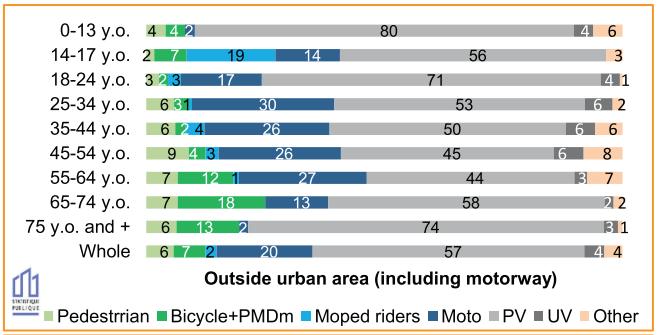
Risk and severity by age

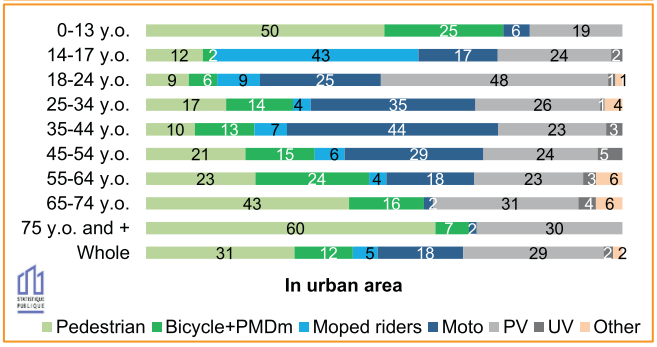
In 2021, people aged 20-29 and over 70 are the most affected by the risk of death on the road. This trend differs for the seriously injured (MAIS 3+). The 14-19 years old are the most at risk, ahead of 20-29 years old. At a much lower level then, the ages most at risk of serious injury are 30-39 years old, 40-49 years old and then 50-59 years old, whose risk has continued to increase in recent years. The 14-39 years old represent 61 % of the slightly injured and half of the seriously injured. There is also a higher proportion of people aged 50 and over who are killed and seriously injured compared to those who are slightly injured, a sign of more serious consequences on average. In 2021, the number of deaths per million inhabitants of all ages is 45 deaths/Minhab. The age group of 18-24 years old is the most at risk with 94 killed/Minhab. Those over 75 also have a very high mortality rate with 71 killed/Minhab. The least exposed age group is that of children from 0 to 13 years old, with 8 killed/Minhab. Between 2019 and 2021, 25-34 years old and 75 years old and over benefit from the largest reductions in mortality per million inhabitants: - 15 points. Vulnerable users are logically more exposed to serious injuries, particularly those over 60 years old (43 % of slightly injured people are pedestrians or cyclists compared to 53 % of seriously injured people). In addition, PTWs are the cause of greater severity: while they only account for 24 % of minor injuries, they represent 35 % of serious injuries (all age groups combined, excluding 0-13 years old).

Number of people killed or injured per million inhabitants and people killed per 100 injured by age group

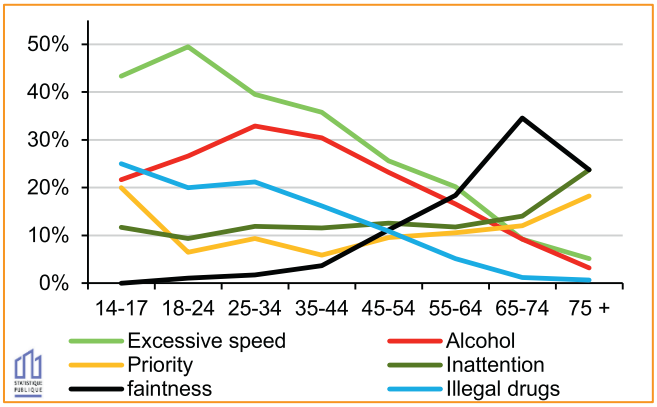
2021	Number of victims per million inhabitants of the age group			Number of fatalities for 100 MAIS3+	Nb of MAIS3+ for 100 MAIS1-2
	Killed	MAIS3+	MAIS1-2		
00-13 y.o.	8	76	1 389	10	5
14-19 y.o.	47	547	8 205	9	7
20-29 y.o.	80	447	8 343	18	5
30-39 y.o.	46	271	4 416	17	6
40-49 y.o.	42	229	3 327	18	7
50-59 y.o.	43	222	2 600	19	9
60-69 y.o.	42	183	1 568	23	12
70 y.o. and+	63	180	1 059	35	17
Whole	**45**	**244**	**3 423**	**18**	**7**

Share of people killed by mode of travel in each age group





Factors of presumed responsible for fatal accidents according to age



Mode of travel and backgrounds

The breakdown of people killed by mode of travel varies greatly by age. Are particularly over-represented in mortality:

- Of 0-13 years old, pedestrians and cyclists in urban areas, passengers in passenger vehicles outside urban areas;
- Of 14-17 years old, moped riders, regardless of background;
- Of 18-24 years old, motorists, whatever their environment, and motorcyclists in urban areas;
- Of 25-54 years old, and even more strongly among 35-44 years old, motorcyclists, regardless of background;
- Of 55-64 years old, motorcyclists outside urban areas and cyclists for both environments;
- Of 65-74 years old, cyclists outside urban areas and pedestrians in urban areas;
- People aged 75 or over, motorists, outside urban areas, and pedestrians in particular, in urban areas.

Fatal accident factors

In 2021, **39** % of drivers presumed responsible for fatal accidents are **between 18 and 34 years old and 27 %** are **between 35 and 54 years old**. Those aged 18-24 and those over 75 have the highest rate of presumed responsibility: in an accident involving an individual over 75, the latter is presumed responsible in 78 % of cases (77 % for 18-24 years old). The main factors of accidents among drivers presumed responsible with at least one identified factor (excessive or inappropriate speed, alcohol, inattention, faintness, non-respect of priorities and illegal drugs) vary greatly according to age.

Excessive or inappropriate speed is mentioned in 49 % of cases for **18-24 years old**, 39 % for 25-34 years old, 20 % for 55-64 years old, 9 % for 65-74 years old and finally 5 % for those over 75. Alcohol is mentioned in 30 % of cases for 18-44 years old, and then this percentage decreases with advancing age: 23 % for 45-54 years old, 17 % for 55-64 years old, 9 % for those aged 65-74 and 3 % for those aged 75 and over. The same phenomenon is observable for **illegal drugs**: 21 % for 18-34 years old, 11 % for 45-54 years old, 5 % for 55-64 years old and 1 % for over 65 years old.

On the other hand, the **faintness** factor is present in **29 %** of cases for people aged **65 and over** compared to 10 % for all age groups combined; non-respect of **priorities and inattention** are respectively present in 18 % and 24 % of cases for people aged 75 and over, compared to 10 % and 13 % for all age groups combined.

Children (0-13 y.o.) and teenagers (14-17 y.o.)

More than half of the children who died were passengers in a passenger vehicle.

Four out of ten teenagers killed died while riding a powered two-wheeler.

Evolution of mortality among 0-17 years old since 2010

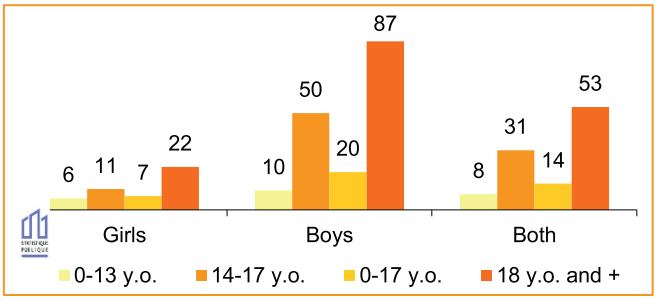
2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
186	151	291	-36,1%	-47,4%

Average annual change*	2019 to 2021	2010 to 2019
killed 0-17 y.o.	10,30%	-6,90%
Killed 18 y.o. and +	- 5,5 %	- 2,0 %
All killed	- 4,7 %	- 2,3 %

*

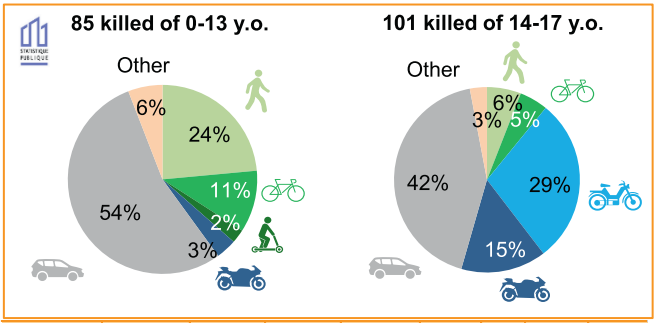
Reading: between 2010 and 2019, the number of 0-17 years old killed fell by an average of - 6.9 % per year.

Number of children and teenagers killed per million population weighted by age and gender



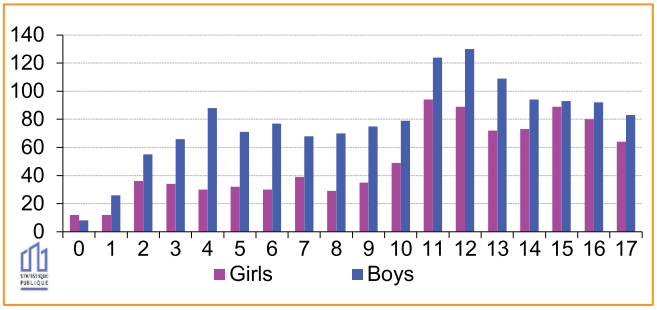
Values weighted respectively by “killed per million girls”, “killed per million boys” and “killed per million of both”.

Breakdown of children and teenagers killed by mode of travel



	Walking	Bicycle	PMDm	Moped riders	Moto	PV	Other	Total
0-13 y.o.	20	9	2	0	3	46	5	85
14-17 y.o.	6	5	0	29	15	43	3	101

Number of pedestrians killed and injured by age and gender



In 2021, 13.5 % of injury accidents involved a child (0-13 years old) or a teenager (14-17 years old), i.e. 9,154 accidents. 186 young people aged 0 to 17 lost their lives, i.e. **6 % of road deaths**. Considering that 0-17 years old represent 21 % of the French population, they are under-represented in total road deaths. Of the young people who died, **85 were children and 101 were teenagers.**

Compared to 2019, there are 14 more deaths among children and 9 more deaths among adolescents. **From 2010 to 2019**, the number of deceased 0-17 years old **fell by 6.9 %** per year on average, while between **2019 and 2021** this share **increased by + 10 %**.

Risk and severity

In 2021, there are **14 deaths per million inhabitants among 0-17 years old** (8 for children and 31 for teenagers) **compared to 53 for adults**. Among 0-13 years old, the number of fatalities per 100 MAIS3+ injuries is estimated at 10 in 2021, and that of the number of MAIS3+ injuries per 100 MAIS1-2 injuries at 5, compared to 19 and 7 respectively for those aged 14 and over.

From the age of 14, the number of **victims increases rapidly** (14 being the legal age in France to drive a moped). **Boys represent 83 % of teenagers killed**. This share is the same as adult mortality.

According to mode of travel

Among the **186 children or teenagers killed,** there are 26 pedestrians (including 2 in no motorized PMD), 62 drivers and 98 passengers. 30 % of victims between 0 and 17 years old are **users of PV (48 % for deaths**). A peak is observed at age 17 with 19 teenagers killed. Many victims (2,197) in the 14-17 age group are moped riders.

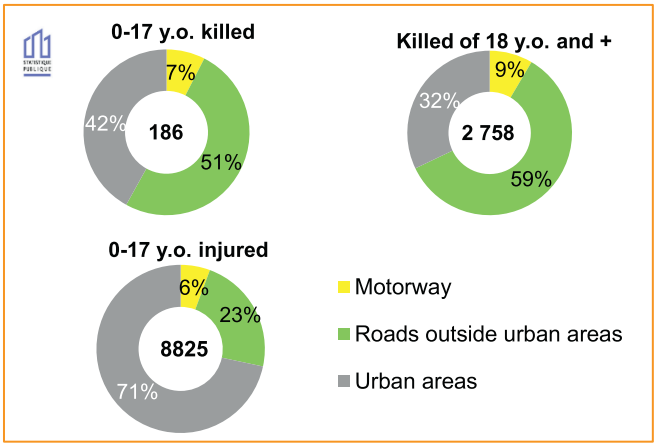
54 % of deaths and 44 % of injuries are child passengers in passenger vehicles. The number of pedestrian victims represents 41 % of 0-13 years old. Among teenagers, PV users represent 42 % of deaths and 21 % of injuries, moped riders 29 % of deaths and 45 % of injuries. **83 % of moped victims are boys**.

Among the **26 pedestrians** killed, 19 were hit by a car, 2 by an HGV, 1 by a utility vehicle, 1 by a motorcycle, 1 by a train, 1 by a tram and 1 fell from a trailer towed by two horses.

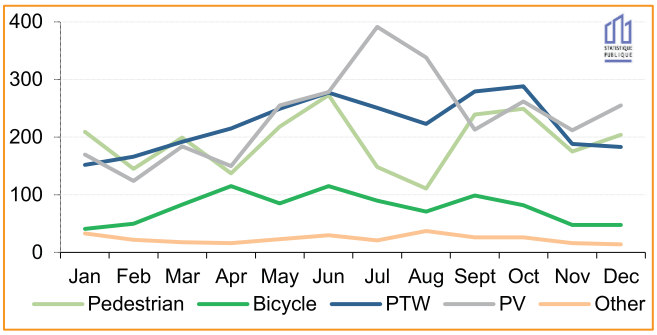
Safety belt or helmet missing

23 of the 89 children and teenagers killed in a passenger vehicle **did not have their safety belts fastened** (among them 17 teenagers), 8 were not in a child-restraint device and the information is not known for 12 others. One of the 29 moped riders killed was not wearing his helmet and 2 of the 18 motorcyclists killed did not have a helmet.

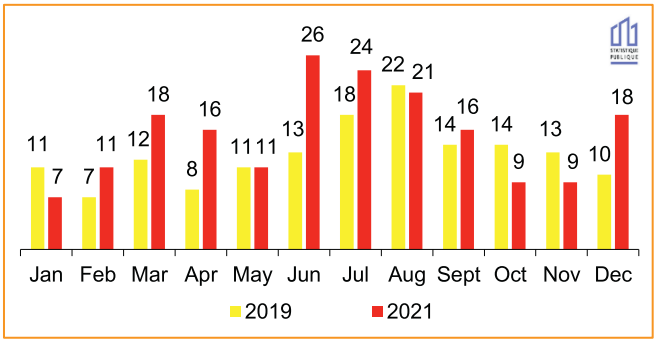
Breakdown of the number of children and adolescents killed and injured by road environment



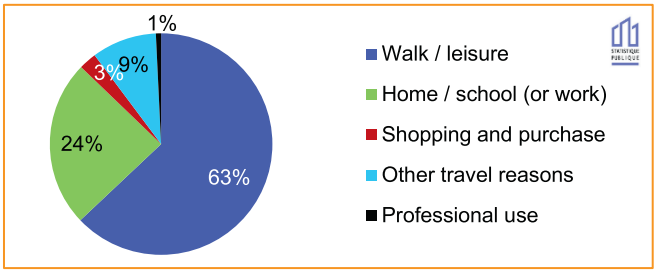
Breakdown of victims aged 0-17 in 2021 by month and mode of travel



Evolution of the number of young people aged 0-17 killed according to the month of the year



Breakdown of 0-17 years old killed or injured by type of travel made



According to the road environment

Half of those aged 0-17 killed were on roads outside urban areas. This proportion is lower than that observed for adults (59 %). The share of fatalities among 0-17 years old (7 %) and adults (9 %) is quite similar on the motorway.

71 % of injured children or teenagers recorded in the BAAC file were injured in urban areas, compared to 58 % of adults.

According to the month and the school period

June, July and August are the deadliest months for 0-17 years old (71 killed). **June** is the month when there are the most victims among young people aged 0-17 (**973 victims**) due in particular to a large number of pedestrian victims (273 victims). The months of July and August bring together the greatest number of victims in passenger vehicles.

Compared to **2019, the number of deaths in the first six months of 2021 is higher** (89 compared to 62 deaths) despite the implementation of health restrictions. There was a significant increase in the number of fatalities **in April and June 2021 (+ 100 %) as well as in December 2021 (+ 80 %)** compared to 2019.

Type of travel

Most of the victims between the ages of 0 and 17 were on a walk/leisure travel (two thirds of the victims) or a home-to-work or home-to-school travel (a quarter of the victims).

A study conducted on the health of apprentices in New Aquitaine[1] shows that accidents on the way to the company are 2.7 times more numerous than towards their training centre.

A study by Ifsttar[2] shows that accidents among pedestrians **aged 10-15** mainly occur on the home-school travel, mainly during the day, with a peak on Wednesdays: the child often makes a **hasty crossing** (generally outside the pedestrian crossing) which surprises the driver of the vehicle (39 % of cases). An obstacle to visibility (vehicle parked or stopped) is present in 31 % of cases. In 17 % of cases, the child crosses with confidence on a pedestrian crossing and is detected too late by the driver. In three-quarters of cases, the accident took place **less than 500 m from the secondary school** in areas with high traffic density, more often when crossing main roads. Public transport and the fact that teenagers are alone, among themselves, or with an adult, influence, directly or indirectly, the occurrence of accidents.

[1] *La santé des apprentis de Nouvelle-Aquitaine – Ressentis, attitudes* Observatoire régional de la santé de Nouvelle-Aquitaine, mars 2019.
[2] *Projet PAAM, Piétons et adolescents : accidentologie et mobilité*, Ifsttar, 2015.

Novice drivers (license under 2 years old)

In 2021, 64 % of novice drivers killed are between 18 and 24 years old. 82 % of novice drivers killed in passenger vehicles were presumed responsible.

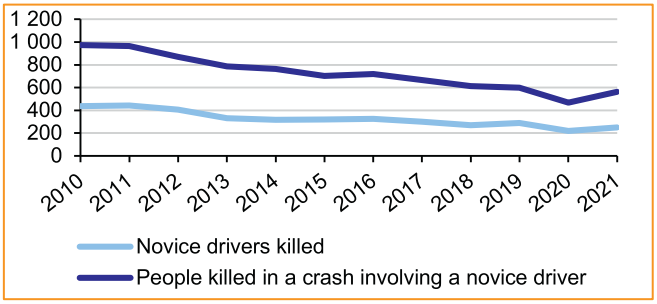
Evolution of fatalities in accidents involving a novice driver since 2010

	Killed			Evolution	
	2021	2019	2010	2010-2021	2010-2019
In acc. involving a novice	562	600	973	-42,2%	-38,3%
Novice	248	288	436	-43,1%	-33,9%

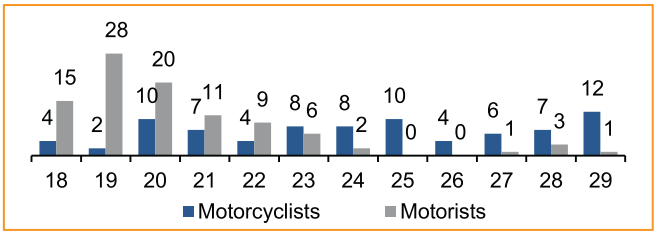
Annual average change*	2019 to 2021	2010 to 2019
Killed in accidents involving a novice driver	- 3,2 %	- 5,2 %
Fatalities excluding accidents involving a novice driver	- 5,1 %	- 1,5 %
All killed	- 4,7 %	- 2,3 %

*Reading: between 2010 and 2019, the number of fatalities in an accident involving a novice driver decreased on average by - 5.2 % per year.

Evolution of the number of people killed in an accident involving a novice driver



Number of novice drivers killed (motorcyclists or motorists) by age



Number of novice drivers involved in a fatal accident according to the seniority of the license

License trimesters	1er	2è	3e	4e	5e	6e	7e	8e	Total
Novice drivers involved	74	94	90	66	69	51	41	66	**551**

Novice drivers here refer to drivers whose driving license seniority is under two years old[1].

In 2021, a novice driver is involved in 10,311 accidents, i.e. 18 % of all accidents. 562 people were killed in an accident involving a novice driver, representing 19 % of road fatalities. Among these 562 people killed, 248 are novice drivers and 314 other users.

Between 2010 and 2019, the number of people killed in an accident involving a novice driver fell by - 5.2 % per year. This drop is four times greater than that of other users. In 2021, there was a drop of - 6.3 % compared to 2019, which is lower than the drop for all users (- 9.2 %).

According to the environment

70 % of novice drivers are killed outside urban areas and off the motorway, compared to 68 % for experienced drivers.

According to experience

The number of novice drivers involved in fatal accidents is **higher in the first year of obtaining the license** (324 drivers involved, against 227 in the second year).

By mode of travel and age

Motorists constitute 51 % of novice drivers killed and motorcyclists 41 %, compared to 62 % and 34 % respectively in 2019.

Of the 248 novice drivers killed, 64 % were between 18 and 24 years old and 10 % between 25 and 29 years old.

88 % of novices killed are men compared to 86 % in 2019.

We observe a peak of novice drivers killed at 18-20 years old **for motorists** and at **29 years old for motorcyclists**.

Number of drivers killed by mode and age, for novices and experienced

	Novice drivers killed			Experienced drivers killed		
	18-24 y.o.	25-29 y.o.	30-34 y.o.	18-24 y.o.	25-29 y.o.	30-34 y.o.
Motorcycles	43 (31%)	16(73%)	11 (55%)	33 (21%)	32 (28%)	42 (42%)
Passenger vehicles	91 (65%)	5 (23%)	9 (45%)	113 (71%)	71 (62%)	49 (49%)
Utility vehicles	6 (4%)	1 (5%)	0 (0%)	6 (4%)	8 (7%)	5 (5%)
HGV + PT	0 (0%)	0(0%)	0 (0%)	8 (5%)	4 (3%)	4 (4%)
Total	**140 (100%)**	**22 (100%)**	**20 (100%)**	**160 (100%)**	**115 (100%**	**100 (100%)**

[1] The categories considered are motorcycles, PVs, UVs, HGVs, PTs, heavy quads and special machines, because these vehicles necessarily require obtaining a permit to use them on a road open to public traffic.

Number of novice drivers according to their presumed responsibility in fatal accidents

	Novice drivers Presumed responsability			Experienced drivers 20-34 y.o.
	Yes	No	Share of presumed responsibles	Share of presumed responsible
Motorcycles	99	22	82%	74%
Passenger vehicles	248	54	82%	70%
Utility vehicles	25	20	56%	56%
HGV + PT + other	26	57	31%	43%
TOTAL	**398**	**153**	**72%**	**66%**

Number of Novice Drivers by Excessive Speed Factor in Fatal Crashes

	Novice drivers			Experienced drivers 20-34 y.o.
	Identified speed factor	Unidentified speed factor	Speed factor share	Speed factor share
Motorcycles	58	63	48%	51%
Passenger vehicles	125	177	41%	30%
Utility vehicles	5	40	11%	15%
HGV + PT + other	3	80	4%	5%
TOTAL	**191**	**360**	**35%**	**29%**

Number of Novice Drivers by Blood Alcohol Level in Fatal Crashes

	Novice drivers by blood alcohol level			Experienced drivers 20-34 y.o.
	positive	known	Positive part	Positive part
Motorcycles	20	90	22%	19%
Passenger vehicles	73	274	27%	27%
Utility vehicles	4	40	10%	12%
HGV + PT + other	2	77	3%	1%
TOTAL	**99**	**481**	**21%**	**22%**

Number of novice drivers according to the presence of narcotics in fatal accidents

	Novice pilots under narcotics control			Experienced drivers 20-34 y.o.
	positive	known	Positive part	Positive part
Motorcycles	15	84	18%	18%
Passenger vehicles	55	253	22%	16%
Utility vehicles	4	36	11%	9%
HGV + PT + other	1	73	1%	8%
TOTAL	**75**	**446**	**17%**	**15%**

According to responsibility

Inexperience in driving results in presumed responsibility of **motorists and novice motorcyclists** in fatal accidents higher than among experienced motorists aged 20 to 34 (82 % each against 70 % and 74 % respectively).

Speed

In fatal accidents, excessive speed is identified in 35 % of novice drivers, compared to 29 % of experienced drivers aged between 20 and 34.

Alcohol and illegal drugs

Alcohol is more present in 2021 among novice drivers involved in fatal accidents (21 %), with this year a ratio **equivalent to that of experienced drivers aged 20 to 34 (22 %); illegal drugs** are also a factor for novice drivers (17 %), slightly higher than the rate for **experienced drivers aged 20 to 34 (15 %).** There is a strong gap between motorists and motorcyclists involved in fatal accidents:

- For **motorists, illegal drugs are present** for a quarter of novice drivers, while the proportion of alcohol is the same for both types of drivers;
- For **motorcyclists**, alcohol is more prevalent among novice drivers than among experienced drivers aged 20 to 34, while the proportion of illegal drugs is the same for both types of drivers.

Proportion of novice drivers testing positive for narcotics involved in a fatal accident decreases as a function of age: 39 % among 20-24 years old, 9 % among 25-29 years old with a slight rebound to 12 % among 30-34 years old and then falling again.

Socio-Professional Category (SPC)

Four SPCs make up 83 % of drivers novices involved in fatal accidents:
- Intermediate professions and employees (26 %),
- Workers (21 %),
- Professional drivers (20 %),
- Students (16 %).

The proportion of students is the same as in 2019.

Depending on the weather, day or night

In 2021, 46 % of people killed in an accident involving a novice driver are killed at night and 10 % in rainy weather, compared to 35 % and 13 % respectively in accidents involving no novice driver.

Young adults (18-24 y.o.)

Young adults are more often killed at night and on non-working days than other road users.

Young adult drivers are more often presumed responsible than other drivers, especially in fatal accidents.

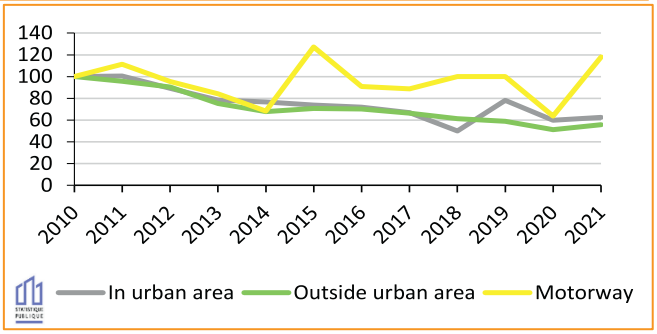
Evolution of young adult mortality since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
505	549	831	- 39,2 %	- 33,9 %

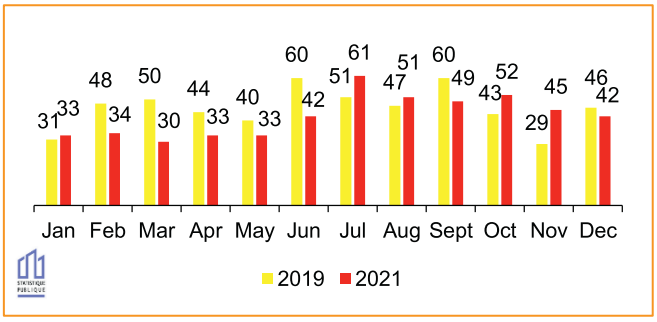
Average annual change*	2019 to 2021	2010 to 2019
Killed young adults	- 4,1 %	- 4,5 %
Non-young adult deaths	- 4,9 %	- 1,8 %
All killed	- 4,7 %	- 2,3 %

* Reading: between 2010 and 2019, the number of young adults killed decreased by an average of 4.5 % per year

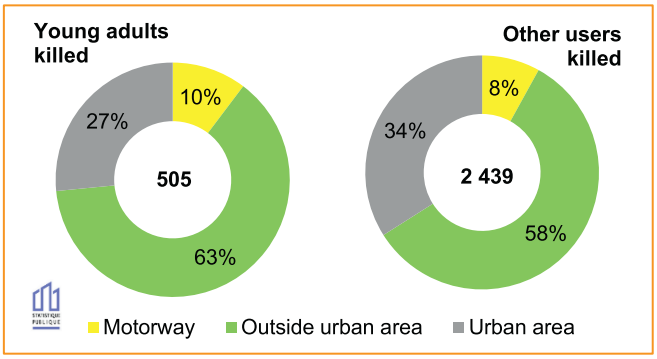
Evolution of the number of young adults killed per year according to the road environment (base 100 in 2010).



Breakdown of the number of young adults killed according to the month of the year



Breakdown of young adults killed by road environment



505 young adults (aged 18 to 24) were killed in 2021 in road accidents, i.e. 17 % of all people killed, while they represent 8 % of the French population. This ratio is 14 % in urban areas and 19 % outside urban areas. A young adult is involved in one in three accidents.

Between 2010 and 2019, the mortality of young adults decreased more than that of other users, both urban areas and on roads outside urban areas. However, it has not diminished on the motorway.

Between 2019 and 2021, the declines continue but with no significant difference between young adults and other users, except on the motorway where the number of young adults killed increases and reaches 52 killed.

However, the number of young adults killed per million inhabitants (94) is still twice as high as the average for all ages (45).

Road deaths are the leading cause of death among young adults, far ahead of other accidental deaths[1].

According to the months of the year

The first half of 2021, a period of travel restrictions linked to the pandemic, accounts for 41 % of young adults killed for the year (compared to 50 % in 2019). This under-representation of the first semester is even more marked for young adults killed outside urban areas.

According to the road environment

There are 319 young adults killed on roads outside urban areas in 2021, or 63 %. This is 5 points more than for other users killed (58 %). In particular, 228 of them were killed in PV (passenger vehicle), 57 in motorcycle, 8 in moped and 5 on foot, 4 on bicycle and 2 in motorized PMD.

134 young adults were killed in urban areas, including 64 in PV, 34 on a motorcycle, 12 on a moped, 12 on foot, 5 on a bicycle and 3 in motorized PMD. Young adults are more often killed outside the intersection than other road users. (73 % versus 63 %).

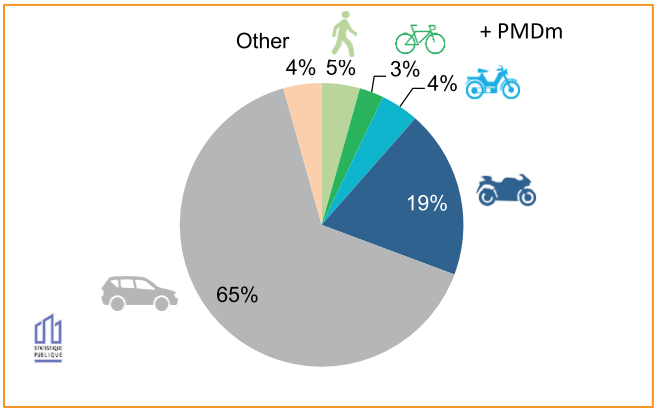
Of the 52 young adults killed on the motorway, 36 were killed in PV and 6 on a motorcycle.

Safety equipment

Of the 119 young adults killed in PTWs, 5 were not wearing a helmet, including 4 in urban areas.
The rate of not wearing a safety belt among young adult drivers killed is 23 % (30 % when the driver is alcohol positive) and 30 % among young adult passengers killed. This rate is 20 % for all users killed in PV.

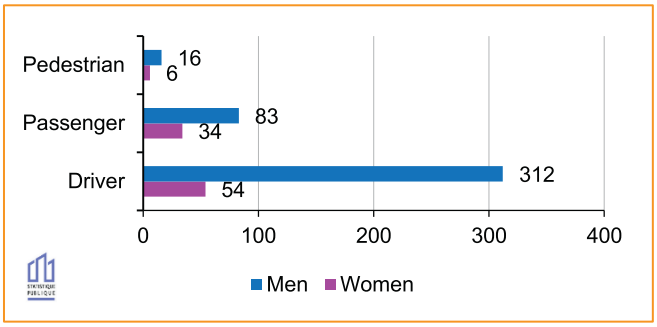
[1] *Main causes of death of young people and children in 2014*, Inserm-CépiDc.

Breakdown of young adults killed by mode of travel

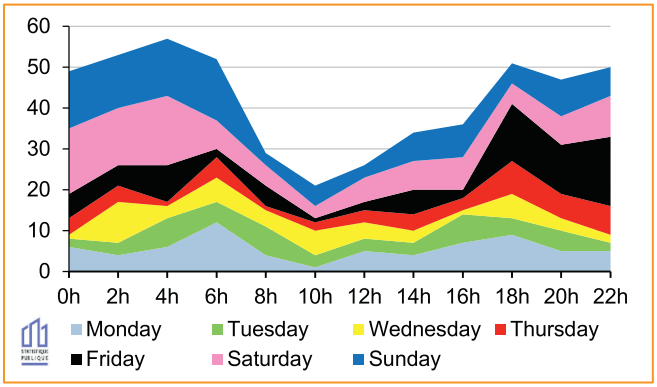


	Walking	Bicycle+ PMDm	Moped riders	Moto	PV	Other	Total
Killed	22	14	22	97	328	22	505

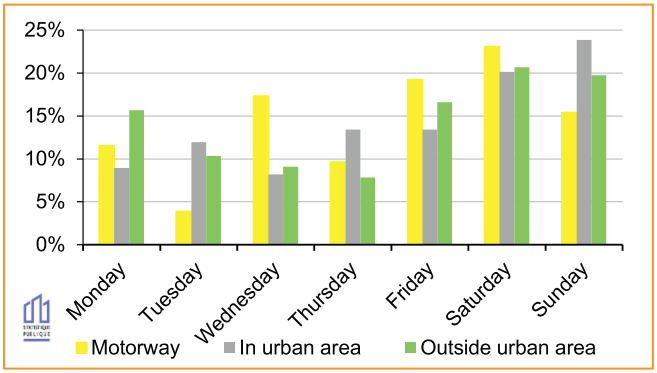
Number of young adults killed by gender and seat in the vehicle



Number of young adults killed by day and time



Breakdown of young adults killed by day and road environment



According to the mode of travel

65 % of young adults die in a passenger vehicle. This share rises to 71 % outside urban areas, whereas it is only 48 % in urban areas.

19 % of young adults killed are on motorcycles. This share rises to 25 % in urban areas.

8 % of young adults killed are in active modes (walking, cycling, PMD motorized). This share is 4 % outside urban areas and rises to 15 % in urban areas.

The category of users

The 366 young adult drivers killed are overwhelmingly men (85 %). This is even more marked in urban areas (92 %).

This over-representation is less significant for young adult pedestrians or passengers killed, of whom 73 % and 71 % respectively are men.

Temporality

62 % of road deaths among young adults occur at night, compared to 35 % for other road users killed. This ratio rises to 69 % in urban areas. A total of 311 young adults died overnight. Young adults account for 27 % of night-time mortality, but only 11 % of daytime mortality.

The mortality of young adults is **particularly marked on non-working days.** Thus, 42 % of young adults were killed on a non-working day compared to 32 % for other users killed. Half of this excess mortality occurs between midnight and 7 a.m., while this time slot only concentrates 18 % of deaths for other age groups.

Young adult drivers

In urban areas, young adult drivers killed more often make a leisure-type travel than other road users killed (71 % versus 57 %).

Young adult drivers are more frequently presumed responsible for injury accidents than other driver: the proportion of drivers **presumed responsible** is 66 % among young adults compared to 55 % among others. The difference increases to 15 points for fatal accidents (77 % against 62 %).

In fatal accidents between 2019 and 2021, the speed factor in a young adult driver involved is present in 33 % of accidents, alcohol in 19 % of accidents and illegal drugs in 14 % of accidents.

21 % of young adult drivers involved in a fatal accident in 2021 have a blood alcohol level above 0.5 g/L of blood. They are mostly motorists and they are very often in a situation of crime (alcohol level greater than 0.8 g/L of blood). These accidents mainly take place between 7 p.m. and 7 a.m.

Seniors (65 y.o. and over)

Seniors are particularly affected by road accidents over the age of 75: with 68 killed/Minhab for those aged 75-84 and 78 killed/Minhab for those aged 85 and over, their risk is just behind those aged 18-24.

Senior pedestrians and in particular those aged 75 and over are a specific issue in the city.

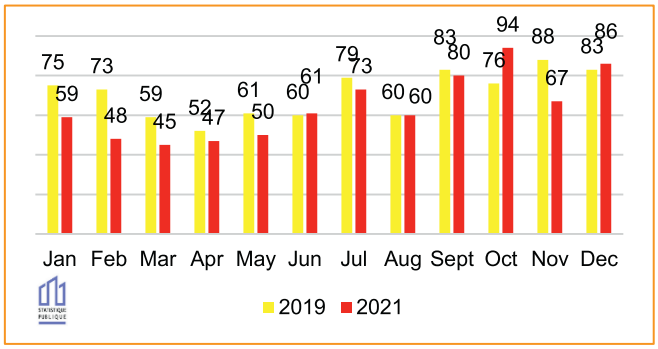
Evolution of senior mortality since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
770	849	764	+1%	+11%

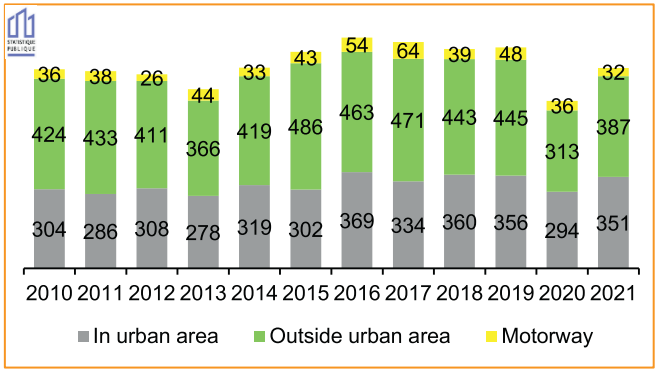
Average annual change*	2019 to 2021	2010 to 2019
Senior killed over 65	-4,8%	+1,2%
Killed under 65	-4,7%	-3,3%
All killed	-4,7%	-2,3%

*Reading: between 2010 and 2019, the number of seniors killed increased by an average of 1.2 % per year.

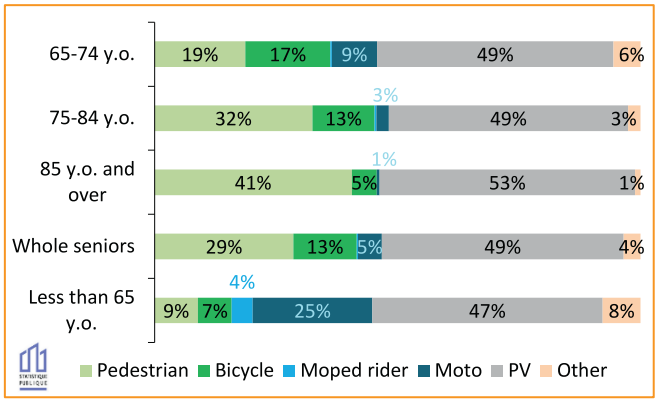
Evolution of the number of seniors (65 years and over) killed according to the month of the year



Evolution of the number of seniors (65 years old and over) killed by road environment



Breakdown of seniors killed by mode of travel



In 2021, 770 seniors died in road accidents, including 321 aged 65 to 74, 274 aged 75 to 84 and 175 aged 85 or over. Seniors thus represent 26 % of people killed, even though they make up 21 % of the population. They also represent 10 % of those injured.

Overall, senior mortality fell by - 9 % between 2019 and 2021: with a drop in the first half (- 18 %), period of health restrictions and stability in the second half (- 2 %).

Between 2019 and 2021, the number of seniors aged 65-74 killed is stable (+ 1 %). The mortality rate for people aged 75 and over is decreasing outside urban areas (- 30 %) but remains stable on roads in urban areas (+ 2 %).

Severity

A **high severity** marks the accident rate of seniors and the older they get, the greater the severity. In 2021, the number of deaths is estimated at 23 for 100 serious MAIS3+ injuries for 60-69 year old and 12 serious MAIS3+ injuries for 100 light and moderate MAIS1-2 injuries. For those aged 70 and over, the severity increases further with 35 and 17 respectively, while for the rest of the population these proportions are 16 and 6 respectively.

Risk

In 2021, the number of people killed related to the population of the age group shows **an increased risk for seniors** aged 75 and over: 68 people aged **75-84** killed per million inhabitants of this class of age and 78 for those aged **85 and over**, against 42 for those under 65.

Seniors aged 65-74 present a higher risk in urban areas (15 people aged 65-74 killed per million inhabitants of this age group compared to 12 for those under 65).

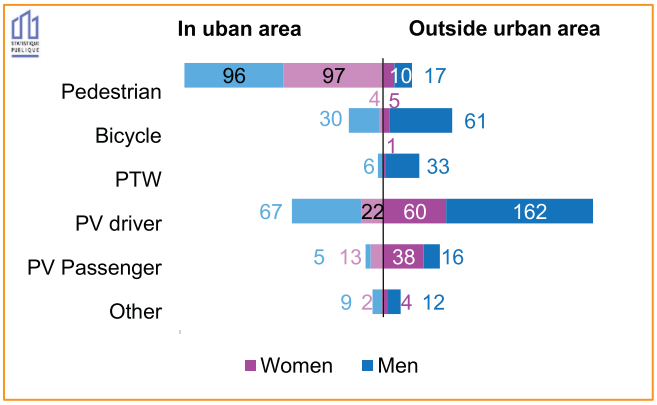
According to the mode of travel

In urban areas, **the proportion of pedestrian deaths is significantly higher among seniors** (55 %) than among pedestrians under 65 killed (17 %). **It is even higher for seniors aged 75 or over** (60 %) than for those aged 65-74 (43 %). 80 % of senior pedestrians killed were struck by a vehicle whose driver is under 65.

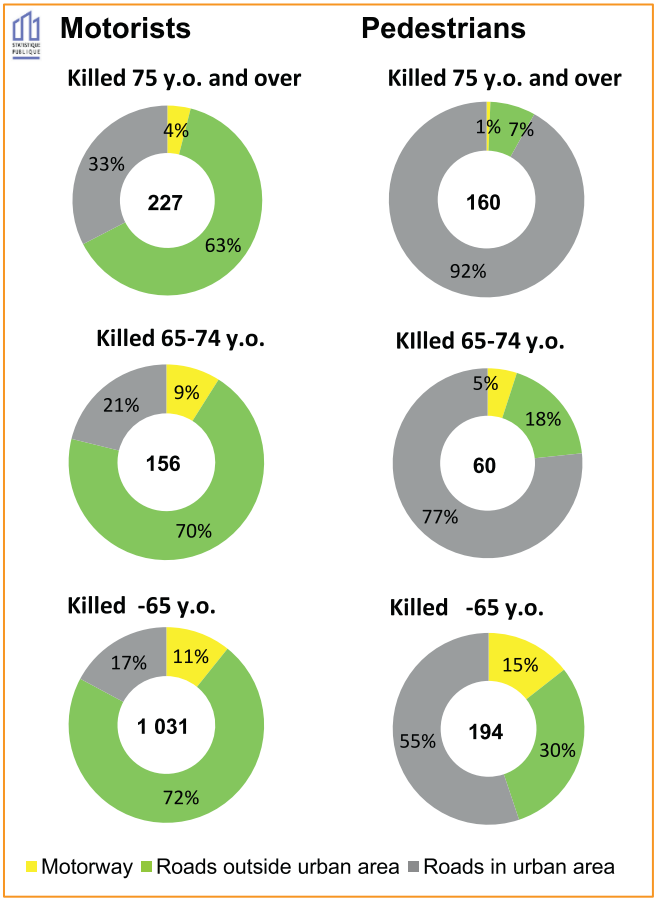
On roads outside urban areas (excluding motorways), **bicycle** fatalities account for 17 % of deaths among those aged 65 and over, whereas this share is only 5 % among those under 65. Among the 65-74 year old, the share of bicycle deaths is 20 % and among the 75 and over 14 %.

Outside urban areas, the share of **motorists** in the mortality of seniors (65 %) is higher than that of those under 65 (55 %). In urban areas, it is similar (around 30 %).

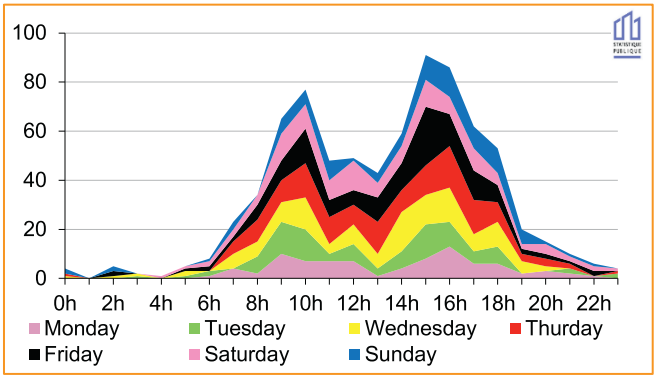
Breakdown of seniors killed by gender and mode of travel



Breakdown of motorists and pedestrians killed by road environment and age group



Breakdown of seniors killed by day and time



Men and women

Although men remain the majority in the mortality of seniors the proportion of women is higher (33 %) than among those under 65 (18 %). This is partly explained by the greater proportion of women in the senior population (57 % of women against 50 % among those under 65). Half of senior pedestrians killed are women compared to a third for those under 65 (43 % for 65-74 years old, 56 % for 75-84 years old and 44 % for 85 years old and over).

Among the **senior passengers of passenger vehicles killed, 7 out of 10 are women** compared to 3 out of 10 for people under 65, regardless of background.

According to the road environment

In urban areas, 36 % of the deceased are seniors. **Seniors are more often killed in urban areas than those under 65:** 46 % of people aged 65 and over are killed in urban areas (34 % for those aged 65-74 and 54 % for those aged 75 and over) compared to 28 % for those under 65. This difference is above all linked to the pedestrian mode, over-represented (29 %) in the mortality of seniors.

The gaps observed between seniors and those under 65 vary according to the mode of travel:

- senior motorists killed are killed in 72 % of cases outside urban areas (including motorways), compared to 83 % for those under 65;
- conversely, **senior pedestrians are killed 9 times out of 10 in urban areas (77 % of 65-74 years old and 92 % of 75 and over),** compared to half for pedestrians under 65;
- among senior **cyclists** killed, 67 % are killed on roads outside urban areas (70 % for 65-74 years old, 66 % for 75-84 years old and 50 % for 85 years old and over); while 49 % of cyclists under the age of 65 die outside urban areas.

Depending on the day and time

The days with the most seniors killed are during the week (16 % of seniors died on Wednesdays, 18 % on Thursdays and 17 % on Fridays), while the days with the most people under 65 killed are at the end of the week (16 % on Friday, 18 % on Saturday and 17 % on Sunday).

The proportion of people killed at night is lower for seniors (18 %) than for those under 65 (47 %): 94 % of seniors are killed between 7 a.m. and 9 p.m., compared to 66 % for those under 65.

The number of seniors killed by time shows **marked peaks from 9 a.m. to 11 a.m. and from 2 p.m. to 6 p.m**. These peaks are observed for both senior pedestrians and senior motorists, regardless of the road network. For those under 65, the peaks are less marked and over different periods: from 7 a.m. to 9 a.m. and from 3 p.m. to 8 p.m.

Work-related accidents

In 2021, 38 % of people who died in a road accident were in an accident involving a person on a work-related travel.

The people who died during a work-related journey are often men (90 % on a professional travel and 81 % on a home-to-work travel).

Evolution of user mortality on home-to-work travels since 2010

2021	2019	2010	Evol. 2010-2021	Evol. 2010-2019
308	295	476	- 35,3 %	- 38,0 %

Annual average change*	2019 to 2021	2010 to 2019
Killed in home-to-w ork travels	2,2 %	- 5,2 %
Killed not home-to-w ork travels	- 5,5 %	- 1,9 %
All killed	- 4,7 %	- 2,3 %

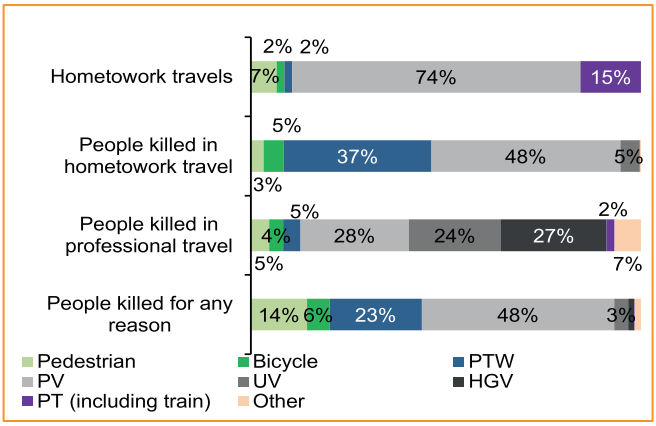
* Reading: between 2010 and 2019, the number of people killed on the home-to-work travel fell by an average of 5.2 % per year.

Evolution of user mortality on home-to-work travels since 2010

Annual average change*	2019 to 2021	2010 to 2019
Professional travels killed	14,7 %	- 4,0 %
Not-professional travels killed	- 5,5 %	- 2,2 %
All killed	- 4,7 %	- 2,3 %

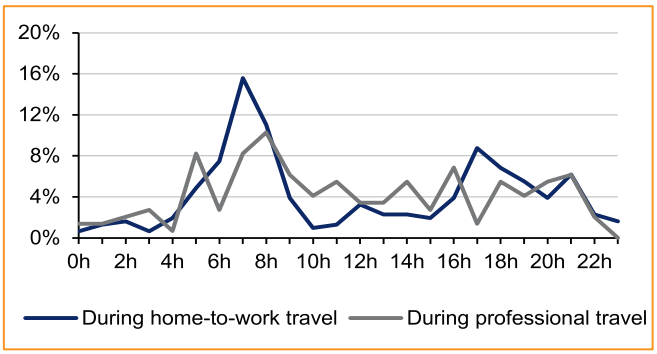
*Reading: between 2010 and 2019, the number of people killed while traveling for work fell by an average of 4.0 % per year.

Home-to-work travels and people killed by type of travel, by mode



Sources: BAAC files and Insee[2]

Breakdown of people killed in work-related accidents by time



In 2021, **454 people** were killed during a work-related trip (and 1,117 if we count all those killed in these accidents), i.e. 15 % of road fatalities (more precisely, 19 % of fatalities where the reason for travel is filled in):

- **Two-thirds (308) during a home-to-work travel** (travel between the place of residence or meal and the place of work), i.e. 13 % of road fatalities for which the reason for travel is given;
- **A third (146) during a professional travel** (travel carried out in the exercise of a professional mission), i.e. 6 % of road fatalities for which the reason for travel is indicated.

Compared to 2010, the number of people killed on a professional travel fell by - 19 % outside urban areas, but conversely, this number rose from 16 to 29 in urban areas (i.e. an increase of + 81 %).

Regarding employees covered by the CNAMTS[1], in 2019, 283 people were killed on a home-to-work travel and 57 on a professional travel, i.e. 19 % of occupational deaths with an identified risk.

According to mode of travel

Powered two-wheelers represent a significant share of mortality in commuting: 50 % in urban areas with 39 people killed and 33 % outside urban areas with 68 people killed, whereas this mode is only used **in 2 % of home-to-work** travels[2]. Users of heavy motorcycles are the most numerous among those killed.
Outside urban areas (including motorways), people killed on a home-to-work travel are mainly killed in passenger vehicles (57 % of cases, i.e. 130 people killed).
In urban areas, pedestrians and cyclists are heavily affected (8 % and 17 % of people killed). Although public transport (including the train) represent 15 % of home-to-work travels, no user was killed in 2021 during these travels.

Half of the 146 people killed during a professional travel were killed in heavy goods vehicles (40 people) or utility vehicles (35 people).

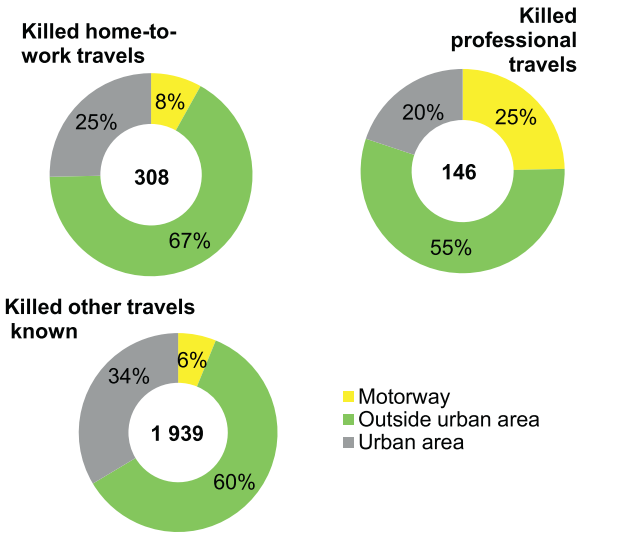
Depending on the day and time

Deaths in a work-related journey occur more often during **working days** (90 % for home-to-work travels, 88 % for professional travels).

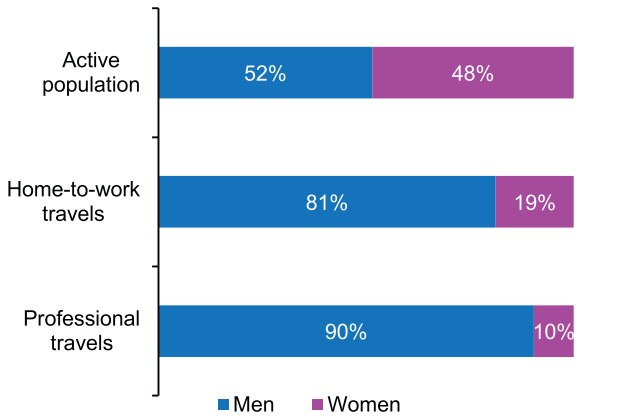
People killed while in **home-to-work travels** are concentrated in the morning and evening **rush hours**. Fatalities in **professional** use occur **throughout the day**.

[1] *Rapport annuel 2019 de l'Assurance maladie Risques professionnels*, CNAMTS. The CNAMTS notably manages the industrial accident branch of the general social security scheme. It covers employees in industry, commerce and services.
[2] *Partir de bon matin, à bicyclette…*, Insee Première n° 1629, Insee, January 2017.

Breakdown of deaths during work-related travel and for other travel reasons, by area



Breakdown of persons killed during a work-related journey by gender



Sources: BAAC and Insee files, active population as defined by BIT.

Source: extract from « L'essentiel du risque routier professionnel » Ministry of Labor, Ministry de l'intérieur, Caisse nationale d'assurance maladie, Mutualité social Agricole, Santé publique France, Umrestte, https://travail-emploi.gouv.fr/actualites/l-actualite-du-ministere/article/risque-routier-professionnel-des-chiffres-cles-pour-sensibiliser-a-la-premiere, numbers of 2020, February 2022

According to the road environment

The share of deaths in urban areas is lower during work-related travels than during other types of travels. **The proportion of deaths on the motorway is much higher during professional travels** (25 %) than during other types of travels (6 %). Among the 36 people killed on the motorway during a professional travels, 18 were traveling in heavy goods vehicles.

By age and gender

During home-to-work travels, **15-24 years old represent 20 % of those killed**, whereas their share in the active population is 10 %. During professional travels, half of the people killed (71 out of 146) are 45 years old or over, while this age group represents 43 % of the working population.

Those killed are **mostly men**. They represent 90 % of deaths during a professional travel and 81 % of deaths during a home-to-work travel, even though they represent only three-quarters of jobs in the transport and warehousing sectors (which include many drivers) and 52 % of the working population.

Accident factors

For fatal accidents between 2019 and 2021 on the **home-to-work travel**, the "speed" factor is present in 26 % of cases and the "inattention" factor is present in 20 % of cases in urban areas.

For fatal accidents between 2019 and 2021 on **professional** travels, the “inattention” factor is present in 21 % of cases. This share rises to 30 % in urban areas. For these same accidents, when a factor related to the vehicle is informed, in 20 % of cases it is a problem of visibility from the passenger compartment.

Alcohol seems to be **less present** in work-related accidents than in all accidents. The share of drivers with a blood alcohol level above 0.5 g/l among those whose level is known is 2 % for home-to-work travels and 1 % for professional travels, whereas it is 7 % for all drivers in injury accidents. However, it is possible that the return travel from work, if not direct, is no longer recorded as a home-to-work travel, thus underestimating the alcohol factor.

Presumed responsibility

In fatal accidents, drivers on a professional travel are less often presumed responsible than other drivers (41 % against 69 %). This gap increases to 35 points on roads outside urban areas (34 % against 69 %).

For home-to-work travels, we observe the same phenomenon but with a lesser amplitude (60 % against 65 %).

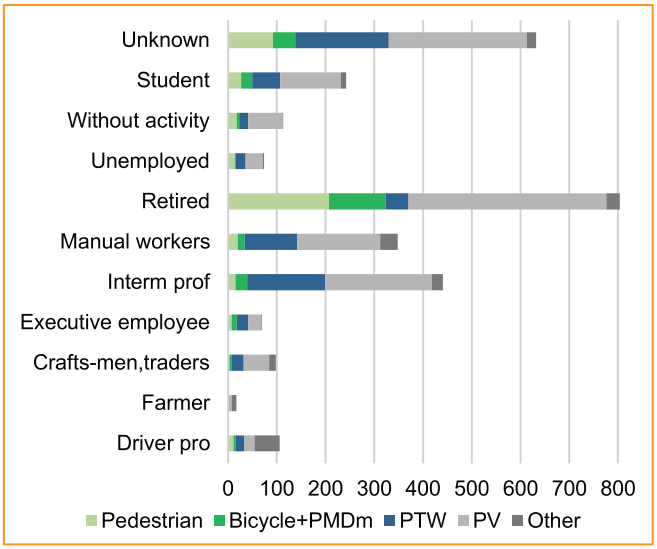
Accidents by socio-professional category

In 2021, nearly a third of fatal accidents involved at least one retired driver or pedestrian and a quarter involved a user in an intermediate profession or employee.

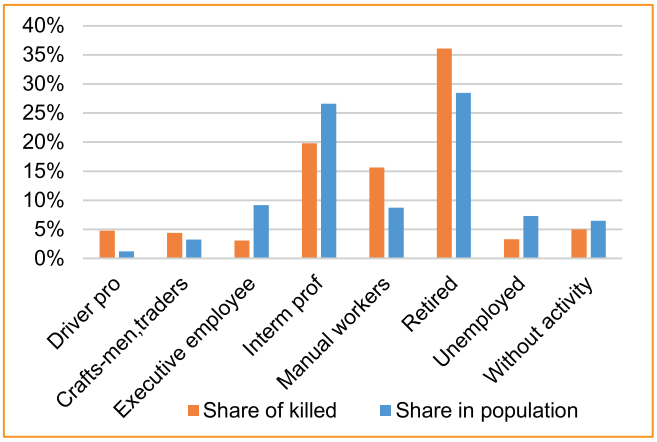
	Killed	Share of killed	Number of fatal acc with..	Share on all fatal accidents
Professional driver	106	5%	452	16%
Farmers	17	1%	51	2%
Crafts-men,traders	98	4%	206	7%
Executive employee	69	3%	140	5%
Intermediate prof.	441	19%	685	25%
Manual w orkers	348	15%	533	19%
Retired	804	35%	851	31%
Unemployed	74	3%	117	4%
Without activity	113	5%	143	5%
Students	242	10%	230	8%

NB: The police record the socio-professional category (SPC) of people involved in bodily accidents in road traffic according to methods that are slightly different from INSEE. For example, the category "retired" is used here.

Number of people killed by SPC by mode of travel in 2021



Breakdown of deaths and population in 2021 according to SPC for people aged 15 and over



Source: INSEE and BAAC data

In 2021, the socio-professional category (SPC) of the people involved in the road accidents of the BAAC files is **unknown** for **21 % of the killed** and for **38 % of the injured**.

Among the 2,312 people killed whose SPC is known, 804 people are retired (35 %), 441 of intermediate profession or employees (19 %), 348 manual workers (15 %), 242 students (10 %), 113 without professional activity (5 %), 106 professional drivers (5 %), 98 crafts-men, traders or head of company (4 %), 74 unemployed people (3 %), 69 executive employees or professionals higher intellectual level (3 %), 17 of farmers (less than 1 %).

General risks

Of all users, **half of pedestrians killed and just under half of cyclists killed are retired**. Workers and the category of intermediate professions and employees constitute more than half of the PTW fatalities with an informed SPC. **Retired represent a third of deaths in PV whose SPC is known.**

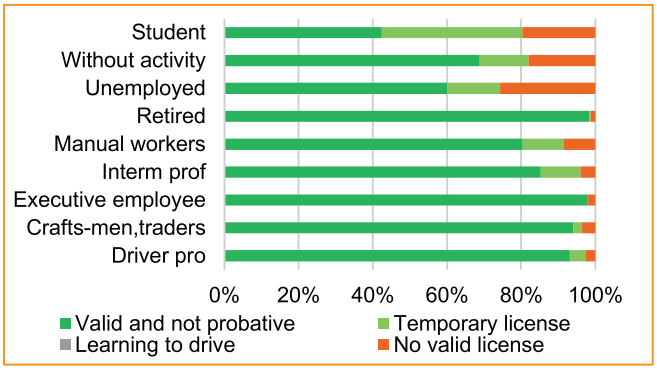
Professional drivers have a high excess risk related to their activity: they represent only 1.2 % of the population over 15 years of age for 4.8 % of deaths over 15 years of known SPC. For these users, the professional use of the vehicle as the reason for the journey is present for 61 % of the fatalities, which contrasts sharply with the other people who have a professional activity and for whom this reason only represents 10 % of the fatalities.

Workers, crafts-men, traders and head of company, as well as retired are affected by an increased risk with a share of 8.7 %, 3.2 % and 28.5 % respectively in the population over 15 years, for a share of 15.6 %, 4.4 % and 36.1 % in road deaths for people over 15 with an informed SPC. On the other hand, executive employees and higher intellectual professions as well as the unemployed are under-represented in mortality (3.1 % and 3.3 % respectively) compared to their numbers in the population (9.2 % and 7.3 % respectively).

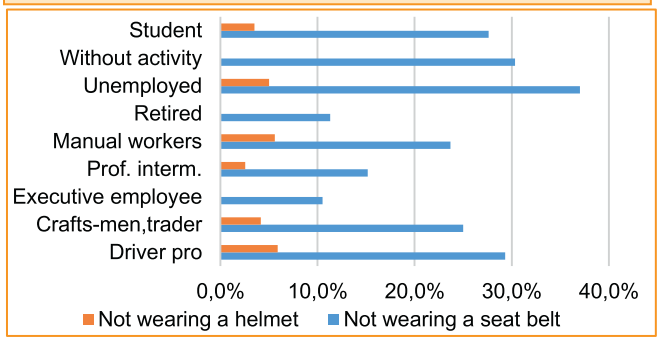
Whatever the SPC, **the vast majority** (85 %) of **drivers killed are men**. Only retired are approaching parity between men and women (33 % of women killed) due to the large share of walking as a mode of travel, where half of the pedestrians killed are women, and the fact that three quarters of the passengers killed are women.

The share of deaths during the day is particularly high for retired, with 83 %, well above the average of 60 %. On the other hand, it is significantly lower for the unemployed and people without professional activity with respectively 41 % and 48 % of deaths during the day.

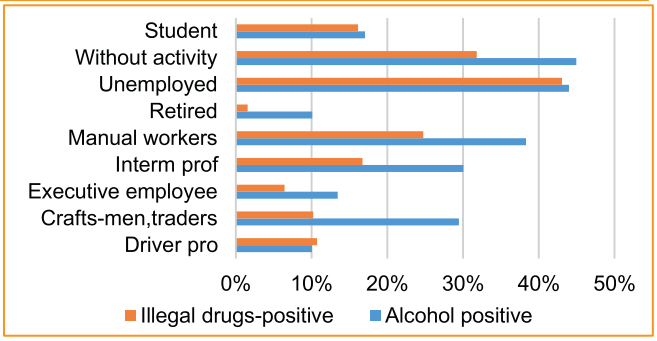
Breakdown of drivers killed by SPC according to driving license



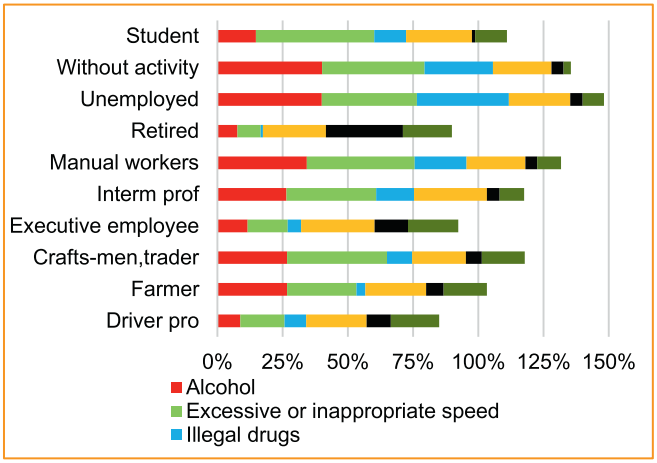
Non-wearing of helmets for killed PTW users and non-wearing of safety belts for killed users of bodied vehicles



Positive for alcohol or illegal drugs when the test was carried out for drivers presumed responsible for fatal accidents



Main factors for those presumed responsible for fatal accidents according to the SPC



Reading: the alcohol factor is present for 15% of students, drivers or pedestrians, presumed responsible for fatal accidents.
NB: an alleged responsible person can have several factors

License, helmet and safety belt

Among the drivers killed of vehicles requiring a driving license and when the information is known, **26 % of unemployed people, 20 % of students and 18 % of people without professional activity do not have a valid license.**

The wearing of safety belts for people killed in vehicles with bodywork (PV, UV, and HGV) is very disparate depending on the SPC provided. The safety belt is not fastened for 37 % of the unemployed, 30 % of people without professional activity, 29 % of professional drivers, 28 % of students, 25 % of crafts-men, traders and head of company, 24 % of manual workers , 15 % of people in intermediate professions or employees, 11 % of retired, 11 % of executive employees and higher intellectual professions.

The number of PTW users killed not respecting the wearing of a helmet does not exceed 6 % whatever the SPC considered.

Fatal accident factors

For those presumed responsible (PR) for fatal accidents, the **alcohol level is higher than the legal rate for 45 % of people without professional activity whose alcohol level is informed, 44 % of the unemployed, 38 % manual workers, but** 10 % of professional drivers, 10 % of retired, 13 % of executive employees and 17 % of students.

The control is **positive for illegal drugs for 43 % of the unemployed** who are PR of fatal accidents and **whose screening result is known, 32 % of people without professional activity, 25 % of manual workers, but** 2 % of retired and 6 % of managers.

The factors observed for those presumed responsible for fatal accidents are similar for the **unemployed**, people without professional activity and **manual workers** with an alcohol factor present in 34 to 40 % of PRs, a speed factor present in 36 to 41 % of PR and an illegal drug factor present in 20 and 35 % of PRs. Intermediate professions and **employees** as well as crafts-men, traders and head of company have similar results with a lower presence of alcohol or illegal drugs than the previous categories (respectively 26 and 27 % for alcohol and 14 and 10 % for narcotics). **Students** stand out from these two categories with a less frequent presence of alcohol (15 %) but a greater presence of the speed factor (45 %). With similarities in the presence of the alcohol factor on PR (9 and 12 %) and the speed factor (17 and 15 %), **professional drivers, executive employees,** and higher intellectual professions have relatively similar profiles. Despite certain points in common with these two categories, **retired** are characterized by the presence of the faintness factor much higher, with 30 % against 13 % for executive employees.


PRO LASER III

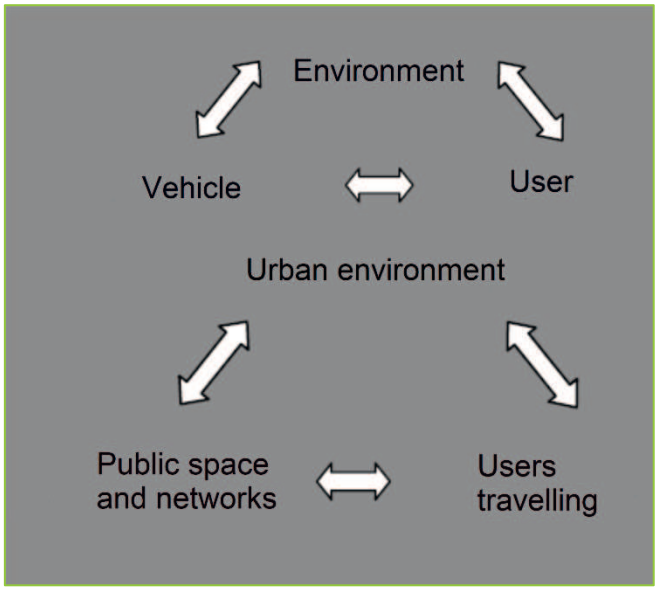
Accident Factors

Risk factors

The analysis of accidents in France is based on the principle that the accident is the conjunction of a number of simultaneous events, which come under various policies (education, mobility, town planning, infrastructure, control, justice, health, etc.).

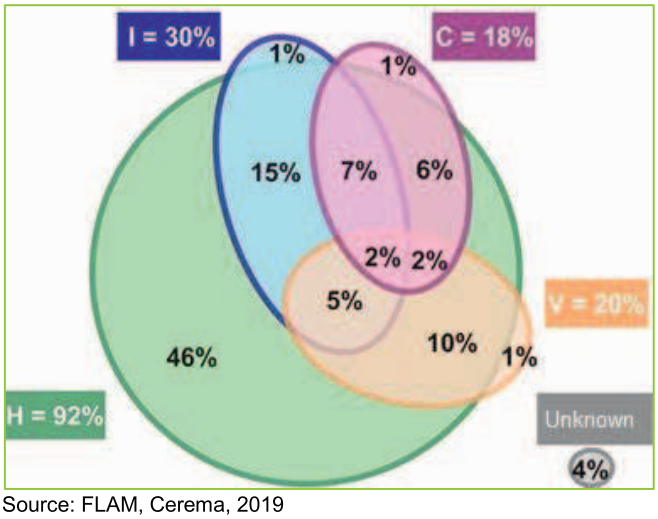
The multifactorial aspect of the accident is central to the analysis of accidents.

System components



Source: Safety of urban development, methodological guide, CERTU, 2007

2015 Fatal Accident Causal Factors (HVIC)



Source: FLAM, Cerema, 2019
Legend: H = human factors; V = vehicle factors; I = infrastructure factors; C = traffic conditions factors; Unknown = unidentifiable causes

Understanding the accident: the notion of system

The analysis of travel insecurity calls on the notion of the system, and not on causal approaches that are not very effective in helping to understand the accident. The notion of system makes it possible to represent the accident through a set of three interacting components: the driver, their vehicle and the environment in which they are moving.

However, this representation must be interpreted in a much broader sense, taking into account the global level. More specifically, it is about the interactions between users on the move, the public space, and the infrastructures, supports of their movements, and the organizational framework of the territory in the broad sense.

At this scale, the notion of system leads in particular to considering that the insecurity of movements does not result from simple "causes" that one could attribute, for example, to the forms of the territory or to the design of the public space and infrastructure. The problems are at the level of the interactions between these different elements, in the difficult mutual adaptation between the territory and the design of the public space and the infrastructures.

Understanding the accident: accident factors

By taking this frame of reference, it is thus possible to identify the triggering or contributing factors that participate in the course of the accident. These factors correspond to an element (presence or absence) or a specific state of one of the components of the Man/Vehicle/Environment (HVE) system that played a role in the occurrence of the accident and without which the accident would not have taken place or its probability of occurrence would have been greatly reduced.

The identification of these factors is based on the reconstruction of the sequential course of the accident: driving situation, accident, emergency and shock.

The factors are associated with the components of the HVE traffic system; some of these components can be subdivided into sub-families, distinguishing for example from the Environment the elements relating to the Infrastructure from those relating to traffic conditions (traffic, weather, etc.).

This approach is sometimes supplemented by the search for aggravating factors, which relate to the elements that have contributed to accentuating the severity of the shocks.

In France, the FLAM study on the triggering factors of fatal accidents concluded that traffic conditions contribute to **18 % of fatal accidents, infrastructure factors for 30 %, vehicle factors for 20 % and human factors for 92 %.**

Average speeds practiced by vehicles by network, type and period, France mainland, 2021

Network	PV			HGV		
	SL (km/h)	Day	Night	SL (km/h)	Day	Night
Connecting motorways	130	118,0	116,3	90	82,6	83,2
2 or 3 lane roads outside urban areas	80-90	80,6	84,9	80	73,3	76,5
Arteries in the city center of medium-sized urban areas	50	41,0	48,8	50	38,4	

Source: Observatory of speeds - Results for the year 2021, ONISR, 2022.

Share of vehicle occupants with safety belts fastened by mode, network, age, and seat in the vehicle, mainland France, 2021

Network	PV			HGV (front)
	Front	Rear		
		Adults	Children	
Connecting motorways	98,2%	91,8%	96,6%	94,1%
2 or 3 lane roads outside urban areas	98,4%			96,9%
large cities	99,1%	89,7%	95,6%	95,6%

Source: Observatory of behaviours - Results for the year 2021, ONISR, 2022.

Share of two-wheeler users wearing a helmet by mode and network, France mainland, 2021

Network	PTW	Cyclists
2 or 3 lane roads outside urban areas	98,5%	
large cities	97,9%	31,8%

Source: Observatory of behaviours - Results for the year 2021, ONISR, 2022.

Share of drivers not using a telephone by mode and network, France mainland, 2021

Network	Cyclists	PV	UV	HGV
2 or 3 lane roads outside urban areas		96,3%	86,9%	93,9%*
large cities**	85,8%	94,1%	78,7%	92,0%*

*Low numbers
**Headsets and hands-free kits included
Source: Observatory of behaviours - Results for the year 2021, ONISR, 2022.

Results of the "Alcohol", "Vehicle safety" and "Infrastructure" indicators, 2021

Alcohol	Infrastructure	Vehicle*
% positive drivers	% of veh.km above safety threshold	Average grade EuroNCAP
3,19%	25,26%	4,64

* 2020 figure, vehicle fleet since 2011
Sources: ONISR, Report on offenses for the year 2021, 2022; SDES, Transport report, 2022; UTAC

Performance indicators

KPIs (Key Performance Indicators) are indicators used to objectively assess the performance of a road safety system at the scale of a territory. They are an integral part of the "safe system" approach to road safety.

As part of the Baseline project led by the VIAS institute, 8 KPIs are requested at European level concerning the following aspects:

- **Speed** ;
- **Safety belt** ;
- **protective equipment for two-wheelers**;
- **alcohol** ;
- **distraction** (using the phone while driving) ;
- **vehicle** safety;
- **infrastructure** quality;
- **Post-crash care**.

They highlight the predominance of human factors (5 KPIs) and the presence of infrastructure (1 KPI) and vehicle (1 KPI) factors in proportions equivalent to those found in accidents (FLAM, 2015). The last KPI completes the systemic approach to road safety by adding victim care to the user-vehicle-environment triptych.

The collection of indicators

The data concerning the "Speed", "Safety belt", "Protective equipment" and "Distraction" indicators are all produced by ONISR as part of its speed and behaviour observatory[1], via automatic or visual data collection several times a year in the field.

The "Alcohol" indicator corresponds to the proportion of drivers checked above the legal threshold by the police.

The "Vehicle Safety" indicator is determined as the "average star rating" given by EuroNCAP to vehicles circulating[2].

The "Infrastructure" indicator is the share of kilometres travelled by vehicles on roads respecting a certain safety threshold. By approximation, we consider for the moment the motorways as the only roads respecting this threshold[3].

Finally, the post-crash care indicator corresponds to the average response time for emergency services at the site of an accident (between the call and the arrival of emergency services on the site). It is not determined at this time but could soon be determined using information related to the e-Call.

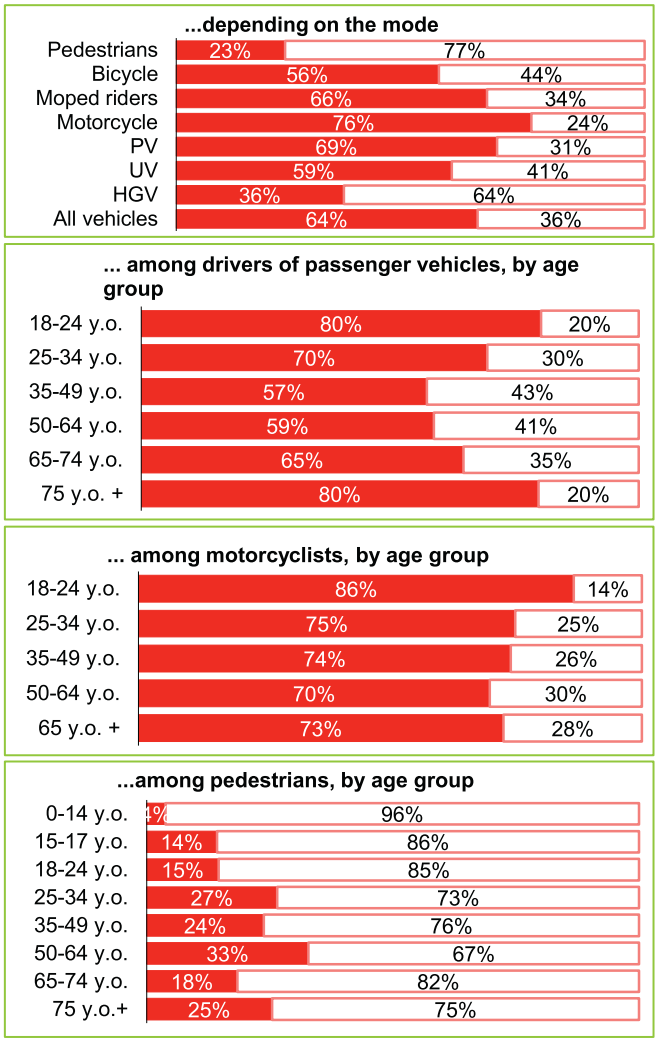
[1] Observatory of behaviours, Observatory of speeds - Results for the year 2021, ONISR, 2022.
[2] See Fleet Safety, page 157.
[3] See "Road traffic", page 71.

Presumed responsible (PR)

In 2021, of the 2,944 people who died on the road, 1,807 were responsible for their accident. 39 % of people killed, i.e. 1,137 people, were killed by the fault of another user involved in the accident.

For each injury accident, the presumed responsibility of the people involved is assessed during the investigation carried out by the police and mentioned in the BAAC files.

Proportion of drivers and pedestrians presumed responsible in fatal accidents …



Victims killed and presumed responsible (PR)

	Total	Men	Women	% Men
Killed	2 944	2 292	652	78%
Total PR	2 843	2 379	464	84%
PR dead	1 807	1 539	268	85%
PR alive	1 036	840	196	81%
Victims killed …	1 137	753	384	66%
by an alive PR…	985	650	335	66%
Men	800	543	257	68%
Women	185	107	78	58%
by a dead PR…	122	78	44	64%
Men	96	62	34	65%
Women	26	16	10	62%
in an accident without PR	30	25	5	83%

Reading: 335 women are killed by a presumed responsible alive

The analysis of the presumed responsibility of a driver or pedestrian refers to the mention made in the BAAC file by the police.

Users of soft modes are the least often presumed responsible in the fatal accidents in which they are involved: pedestrians in 23 % of their fatal accidents (stable since 2018) and cyclists in 56 %. On the other hand, users of UVs, mopeds, PVs and motorcycles are very often presumed to be responsible in the fatal accidents in which they are involved (respectively at 59 %, 66 %, 69 % and 76 %). HGV drivers remain the least presumed drivers responsible for fatal accidents with 36 %.

Motorists

Drivers of passenger vehicles aged 35 to 64 are less often presumed responsible (57 % for those aged 35-49 and 59 % for those aged 50-64). Drivers aged 18 to 24 and aged 75 or over are significantly more often thought to be responsible, with rates exceeding 80%. The 25-34 confirm their high level of responsibility with 70 %.

Motorcyclists

The presumed responsibility of motorcycle drivers in the fatal accidents in which they are involved varies less with age than among motorists. It decreases by around 16 points between the youngest age groups (18-24 and 25-34 years old) and the oldest (35 years and over). The age group of 65 and over is not sufficiently represented (29 responsible motorcyclists out of a total of 40) for this proportion of responsible motorcyclists to give rise to an analysis.

Pedestrians

The presumed share of responsibility of pedestrians in injury accidents represents 19 %. In fatal accidents, it represents 23 %. People aged 65 or over are less responsible for fatal accidents (between 18 % and 25 %). On the other hand, they are responsible for around a third of fatal accidents among pedestrians aged 25 to 64.

Women are often victims

In 2021, 2,875 presumed responsible are identified, including 32, on the run, where the gender is not given.

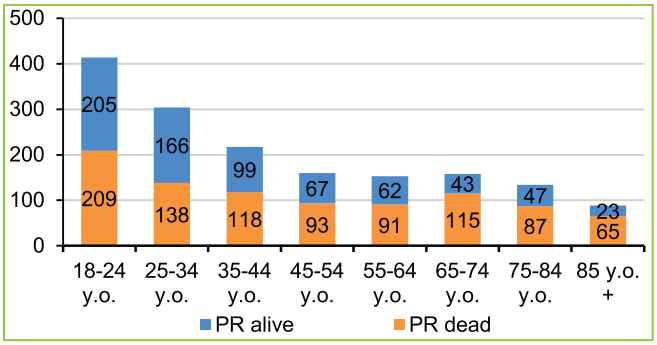
Among the 652 women who died in a road accident, 268 were themselves responsible for the accident, i.e. 41 %. The 1,539 men killed responsible represent 67 % of the men who died.

985 non-responsible victims are killed by a presumed responsible alive, i.e. 33 %.

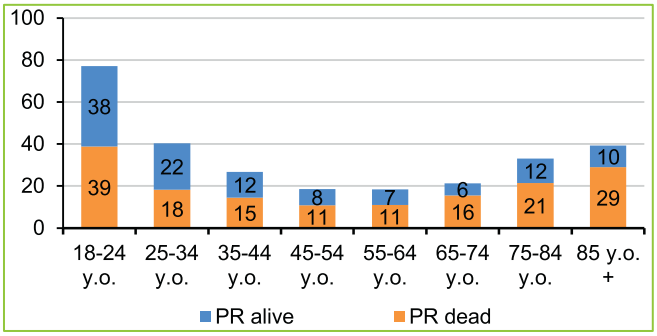
Women represent 16 % of those presumed responsible, even though they represent 34 % victims killed by a presumed responsible.

More than half of those presumed responsible (PR) die (64 %), but almost a quarter (23 %) are unharmed after the accident.

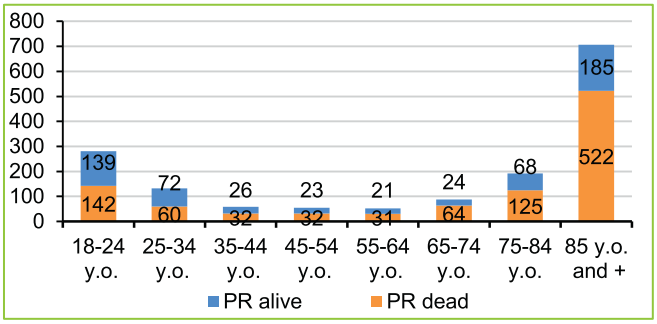
Number of presumed responsible PV drivers



Number of presumed responsible drivers of PV, per 1 million inhabitants for each age group



Number of presumed responsible PV drivers, per billion hours spent in the car



Source: SDES - 2019 People Mobility Survey

84 % of those presumed responsible are men, a third are aged between 18 and 30, 92 % are of French nationality. 79 % live in the department where the accident occurred, 60 % drive on a departmental road, 58 % drive a passenger vehicle and 48 % travel for leisure.

The presumed responsible motorists

The first graph shows that the proportion of presumed responsible who die increases with age, even though the number of presumed responsible in an age group decreases in absolute terms, with less and less risky behaviour. The 18-24 have the highest number of PR (414), 85 and over, the lowest (88).

Among the presumed responsible in relation to their population, the ratio of PR who die is higher between 18-24 years old and the oldest. On the other hand, the share of 25-34 years old and 75-84 years old remains almost similar. However, the survival rate is much higher for those under 35.

Finally, compared to the driving time calculated from the 2019 SDES People's Mobility Survey, only people aged 85 or over are more at risk than young people aged 18-24, although the rate of survivors of 18-24 years old (50 %) is higher than that of the over 85s (26 %).

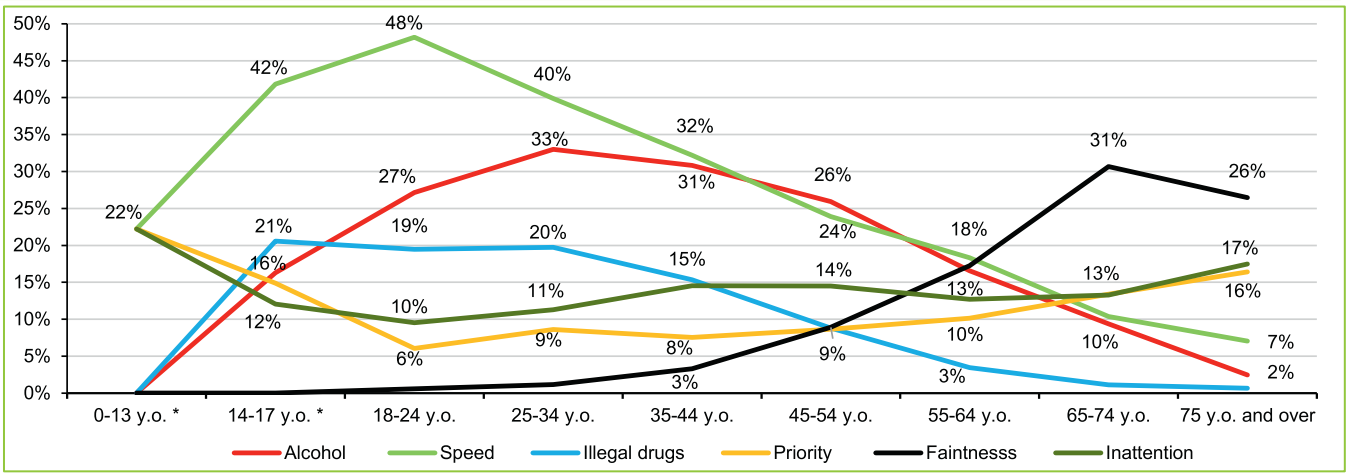
Fatal accident factors

The graph below is based on at least 700 presumed responsible per age group (except for those under 18 whose presumed responsibility remains exceptional).

Speeding is the main cause of fatal accidents among presumed responsible aged 18 to 44, the share of this cause decreases with age.

PRs aged 65 or older most often have the faintness factor, followed by inattention and non-respect of priorities.

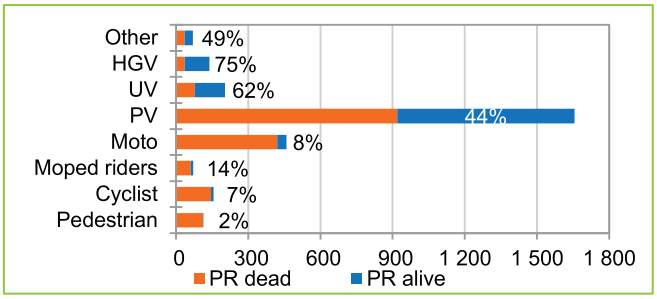
Factors of fatal accidents (multiple causes) according to the age of the presumed responsible regardless of the mode of travel for the years 2019 to 2021 in France mainland (source BAAC now)



*: low numbers, results to be used with caution.

The main behavioural factors of presumed responsible

Breakdown of presumed responsible alive or dead in 2021

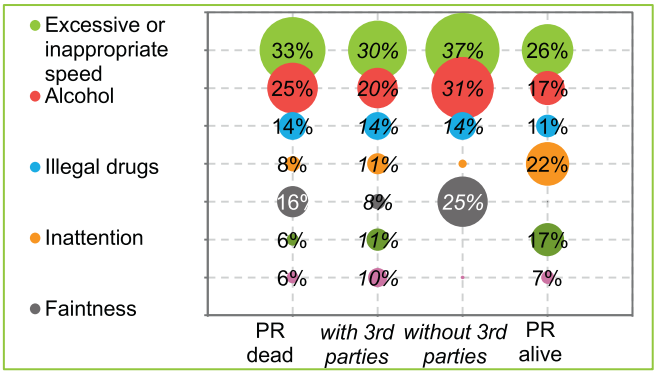


Main causes of fatal accidents in 2021 and on average 2019-2021

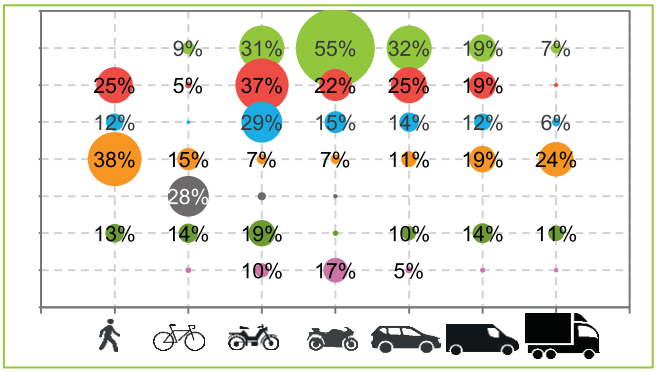
Causes identified in a fatal accident	2021	2019-2021
Excessive or inappropriate speed	30%	30%
Alcohol	22%	23%
Illegal drugs	13%	12%
Inattention	13%	13%
Faintness	10%	9%
Priority *	10%	9%
Dangerous overtaking *	6%	5%
Misdirection *	4%	3%
Drowsiness -fatigue	4%	3%
Lane change *	4%	4%
Dazzle	2%	2%
Failure to respect safety distances *	2%	1%
Phone and technological distractors	1%	1%
Medications	1%	1%
Other cause	8%	9%
Undetermined cause	13%	13%
Number of PR	**2 875**	**8 416**

* At least one cause of non-compliance with traffic rules in 24 % of fatal accidents in 2021 and 22 % in 2019-2021.

Main causes of fatal accidents according to PR survival in 2021



Main causes of fatal accidents according to the mode of transport of the PR in 2021



The BAAC file includes 2,771 fatal accidents in 2021. 2,875 people have been identified as presumed responsible (PR) by law enforcement.

More than half are by car

More than 1,600 PRs (58 % of PRs) are passenger vehicle (PV) drivers, more than 450 PRs (16 %) are motorcycle drivers and more than 200 PRs (7 %) are UV drivers.

Of these 2,875 PRs, 1,807 died in the accident, 48 % of them in an accident without a third party. Killed PRs account for 61 % of mortality. This share varies according to the mode of travel, among vulnerable users (pedestrians, cyclists and PTW users) the share of living PR is quite low, the larger the vehicle, the higher the share of living PR. However, the majority of living PRs are in PV, i.e. nearly 750 living PRs responsible for a fatal accident.

Speed, main cause

In 2021, among those presumed responsible for fatal accidents, **speed** is the main factor identified for almost a third of cases, and **alcohol** for almost a quarter of cases. Then, in more than one out of ten cases, driving under the influence of illegal drugs and inattention respectively are identified. In one out of ten cases, the main cause of fatal accidents is faintness or refusal of priority.

The survival or not of PR

Regardless of whether PR survives or not, the main cause is excessive or inappropriate speed.

Apart from this cause, among PRs killed in accidents without a third party, the other main causes are a blood alcohol level above the legal limit (31 % against 25 % of PRs killed) and feeling unwell (25 % against 16 % of PRs you are).

Among living PRs, speed is the main cause to a lesser extent (26 %). However, inattention represents almost a quarter of fatal accidents for which a living PR is involved. Refusal of priority represents the same weight as alcohol, i.e. 17 % of fatal accidents.

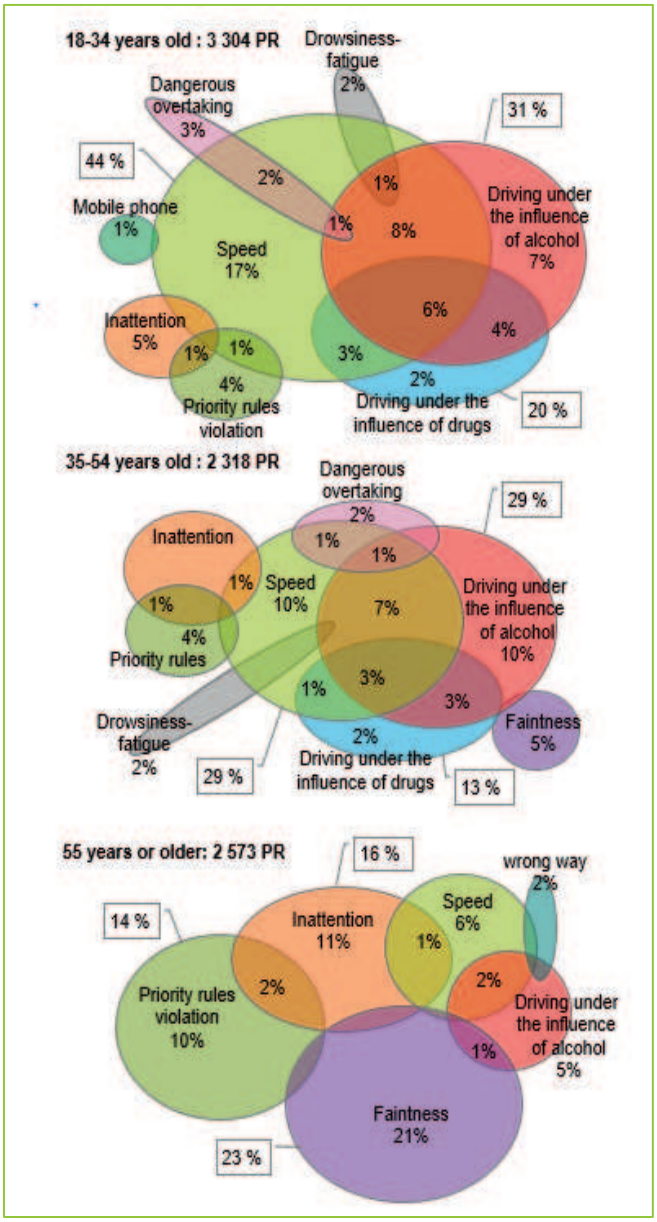
According to mode of travel

However, the main causes of fatal accidents vary according to the mode of travel of the PR involved.

In more than half of the fatal accidents in which the PR is a motorcyclist, speed is the main cause, it is also the main cause in 32 % of fatal accidents in which the PR is a motorist.

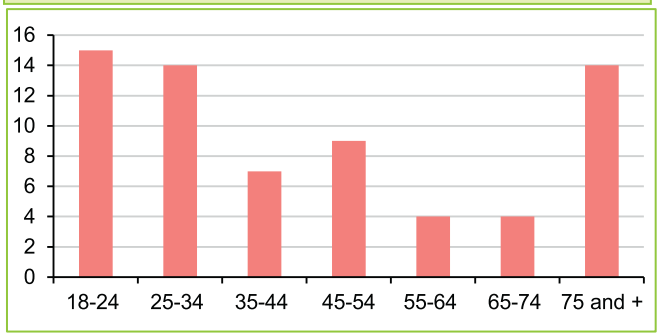
Inattention is the main cause of fatal accidents where the PR is a pedestrian (38 %) and where the PR is a HGV driver (24 %). Faintness is the main cause of just over a quarter of fatal accidents where the PR is a cyclist.

Main causes in fatal accidents according to the age of the PR for the years 2019 to 2021



Only the main combinations are represented.

Number of drivers of passenger vehicles in the wrong direction involved in accidents by age group in 2021.



Only accidents on motorways and roads with dual carriageways are taken into account.

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The BAAC file allows ^police forces to record up to three causes of accidents.

The "undetermined cause" is unique in 14 % of fatal accidents, it is respectively 11 %, 12 % and 16 % for presumed responsible aged 18-34, 35-54 and 55 or over.

Other specified causes account for 81 % of fatal accidents. Only the most significant are shown in the graph opposite for all fatal accidents between 2019 and 2021.

18-34 y.o.

In 44 % of fatal accidents where the PR is a young person aged 18-34, excessive or inappropriate speed is cited as the cause, alone or combined with others; alcohol is cited as the cause in 31 % of cases. The causes "speed" and "alcohol" are associated in 16 % of fatal accidents. The causes "alcohol" and "illegal drugs" are associated in 10 % of fatal accidents. The “alcohol” cause combined with other causes is more important in young PRs: in nearly a quarter of fatal accidents there are at least 2 causes including alcohol.

35-54 y.o.

In fatal accidents where the PR is between 35 and 54 years old, “speeding” and “alcohol” are the main causes, individually or associated with others (respectively 29 %). In 11 % of fatal accidents there are at least two causes including “alcohol” and “speed”.

55 y.o. and over

In 23 % of fatal accidents where the PR is at least 55 years old, one of the causes is faintness; in 21 % of fatal accidents, it is the sole cause. In fatal accidents where the PR is at least 55 years old, the “inattention” and “priority” causes are the main causes in 16 % and 14 % of fatal accidents respectively. They are the sole causes in respectively 11 % and 10 % of fatal accidents.

Misdirection and wrong direction

On a motorway or a road with central reserve, 105 injury accidents, including 17 fatalities, were due in 2021 to a vehicle traveling in the opposite direction. They caused 25 deaths.

In 2021, drivers aged 18-34 and aged 75 or over are the most represented in passenger vehicle accidents driving in the wrong direction.

Speed

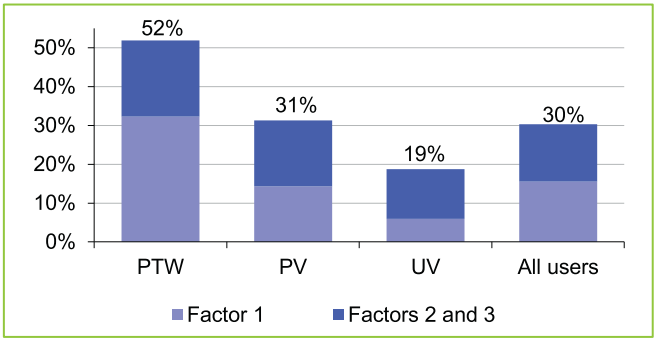
The penalties for exceeding the speed limit

Exceeding the speed limit(SL)	Loss of points	Penalty
Less than 20 km/h, SL > at 50 km/h	1	€68, or €45 if payed within 3 days
Less than 20 km/h, SL ≤ at 50 km/h	1	€135, or €90 if payed within 3 days
From 20 to 29 km/h	2	
From 30 to 39 km/h	3	€135, or €90 if payed within 3 days
From 40 to 49 km/h	4	
More than 50 km/h	6*	up to €1500 and 3 years suspension
Recidivism	6*	€3750, prison sentence and 3 years suspension

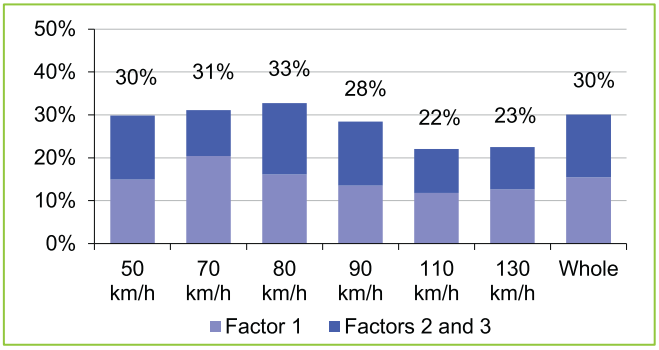
* Retention of license and summons to court.

On December 23, 2019, the **mobility orientation law (LOM)** was enacted, which introduces the possibility of raising the speed limit to **90 km/h on two-way roads outside urban areas** "for sections of roads outside urban areas falling within [the] jurisdiction [of] the president of the departmental council or, when he is the authority holding the power of traffic police, the mayor or the president of the public establishment for inter-municipal cooperation and not comprising at least 2 lanes assigned to the same direction traffic."

Proportion of the speed factor by vehicle category in fatal accidents*



Proportion of the speed factor according to the authorized speed limit in fatal accidents*



* In the BAAC file, the police have the possibility of mentioning 3 factors per presumed responsible. These graphs distinguish when the speed is mentioned in Factor 1 or in Factor 2 or 3.

Speed limit[1]

The speed limit in urban areas was set at 60 km/h in 1954, then 50 km/h in 1990. The speed limit outside urban areas was set in 1973-1974 at 130 km/h on the motorway, 110 km/h on divided roads and 90 km/h on other roads. This last value was lowered to 80 km/h on July 1, 2018[2], except on sections of these roads with at least two lanes assigned to the same direction of traffic. Since December 2019, the departmental councils have been able to raise this speed limit on certain sections (see box). For novice drivers or in the event of precipitation, the limits are lowered to 110 km/h on the motorway, 100 km/h on roads with divided carriageways and 80 km/h on the sections of roads authorized again at 90 km/h. The police authority (prefect, president of the county council or mayor) can lower the speed limit for safety reasons, or increase it to 70 km/h in urban areas under certain conditions. Article L2213-1-1 of the general code of local authorities authorizes the mayor to set, for all or part of the roads of the urban area open to public traffic, a speed limit lower than that provided for by the code of the road, having regard to a need for road safety and traffic, mobility or environmental protection.

Speed in accidents

Speed influences both the driver's ability to adapt to the situations encountered, the genesis of the accident and its injury severity. Despite technical progress, vehicles are not designed to withstand high-speed shocks (over 55 km/h upon impact). The equipment, belts or airbags, and the absorption of energy by the deformation of the vehicle, are not enough to protect the internal organs of the human body. Most fatal accidents for occupants of passenger vehicles occur at residual speeds (after braking) between 40 and 80 km/h.

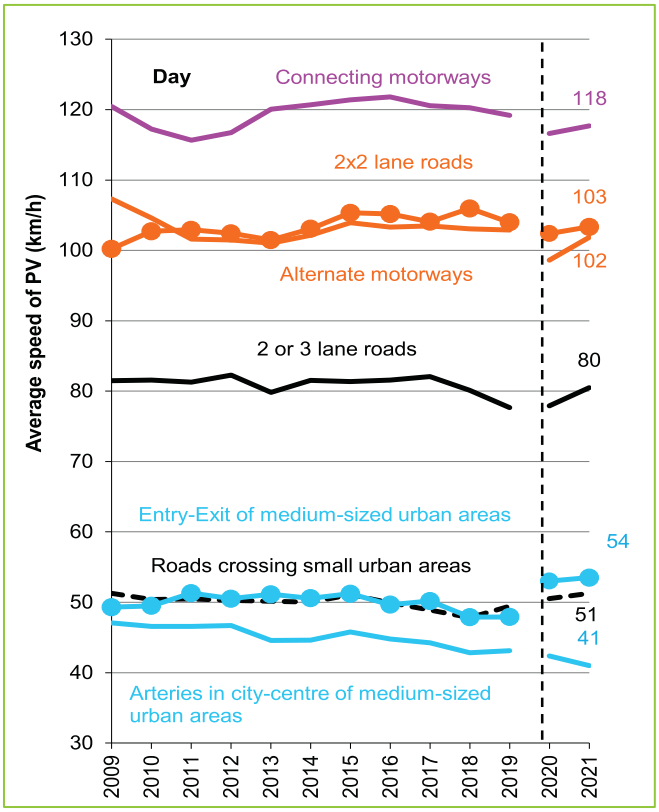
Fatal accidents

According to information relating to presumed responsibility in fatal accidents in the BAAC file[3], excessive or inappropriate speed for the circumstances is present in 2021 in 30 % of fatal accidents (multiple causes). This proportion is higher than the average among powered two-wheeler drivers (52 %).

The factor "excessive or inappropriate speed for the circumstances" occurs more often than average on roads limited to 80 km/h (33 % of multiple causes). It is less present on networks limited to 110 km/h (22 %) and 130 km/h (23 %).

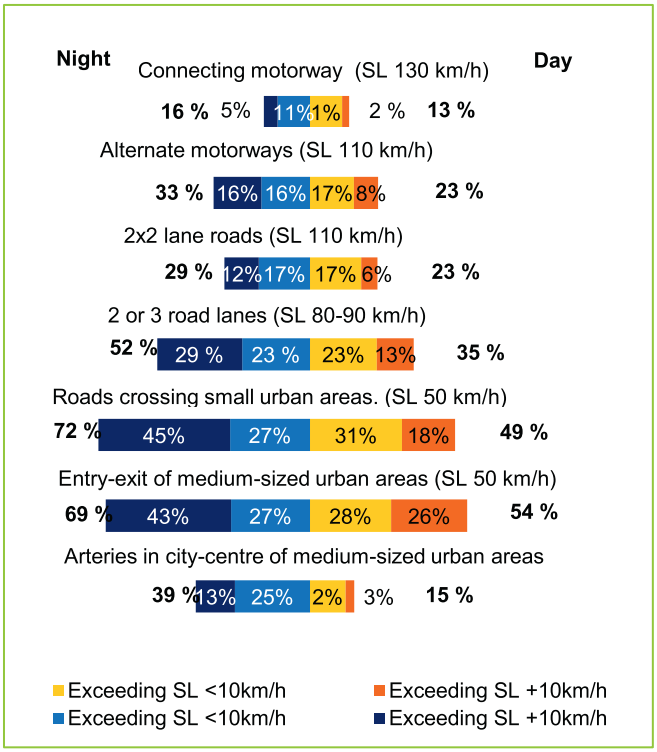
[1] Highway Code, articles R413-1 to R413-19.
[2] Décret n°2018-487 du 15 juin 2018 relatif aux vitesses limites des véhicules
[3] Files « Presumed responsible », and *Traffic violations and the impact on the points license, Report for the year 2021,* ONISR, 2022.

Average speeds practiced during the day by passenger vehicles (PV), by road network



Source: Observatory of speeds 2021, ONISR 2022.

Rate of exceeding the speed limit and the speed limit + 10 km/h by PVs, day and night



Average speeds practiced

The observations of the speeds practiced in 2020 were disrupted on the one hand by the Covid-19 pandemic, which affected the calendar, and on the other hand, by the change in methodology made, creating certain breaks in the series.

In 2021, the average speeds practiced increased on all the networks, except on the arteries in the city centre of medium-sized urban areas for which the difference is widening with the other networks in the urban areas. The latter have the highest speed limit exceedance rates for daytime (49 % and 54 %) and nighttime (72 % and 69 %) PVs. On bi-directional roads in particular, the evaluation of the average speed leads to an increase of 2.6 km/h compared to 2020 by day for PVs.

Apart from the connecting motorways limited to 130 km/h, the average speed is higher at night on all networks. In particular, we observe a much higher share of speeding compared to daytime periods.

Links between the speed limit, the speeds practiced and accidents

According to various international experiences reported by the OCDE[1], a drop of 10 km/h in the speed limit generally induces a drop in the speeds practiced by 2 to 5 km/h, depending on the communication and control actions. In France, the lowering of the speed limit from 90 to 80 km/h on July 1, 2018 generated an average reduction of - 3.5 km/h for PV and - 1.8 km/h for HGVs[2].

The work of researchers Nilsson and Elvik has produced models estimating the relative variation in the number of accidents or victims observed on a given network as a function of the variation in the average speed practiced by the vehicles, if all the other factors do not vary. Based on a detailed analysis of 115 international studies, Elvik[3] concluded that for a decrease in average speed of 1 %, the reduction in mortality would be 4.6 % on roads outside urban areas and motorways, and 3 % in urban areas.

In France, the implementation of automated control made it possible to reduce the average speeds practiced by PVs on roads limited to 90 km/h from 92 km/h (2002) to 85 km/h (2005). On the same period, mortality on two-way roads outside urban areas fell by 37 %. Thus, for 1 % decrease in speed, mortality decreased by 4.9 %, which confirms the results of Elvik.

[1] International Transport Forum (OCDE), *Speed and Crash risk*, 2018.
[2] Cerema, *Abaissement de la vitesse maximale autorisée à 80 km/h - Rapport final d'évaluation*, 2020.
[3] Elvik R., *The Power Model of the relationship between speed and road safety: update and new analyses*, TØI Report 1034/2009, Institute of Transport Economics TØI, Oslo, 2009.

Alcohol

In 28 % of fatal accidents, a driver is drunk. This share has been stable since 2010 and stands at 45 % at night.

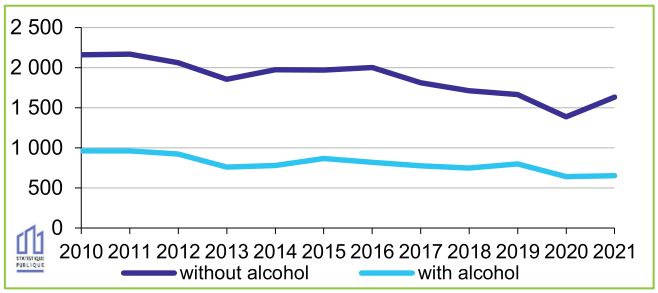
Acci-dents with alcool	Driver alcoho-lic	Killed in acc. with alco-hol	Of which Killed driver with alco-hol	Injured in acc. with alcohol	Of which Injured driver with alcohol	K/ 100I*
5 366	5 421	652	428	7 278	3 419	9

* Number of people killed (K) per 100 injured (I) in accidents involving alcohol

Average annual evolution **	2019 to 2021	2010 et 2019
Killed in acc. with alcohol	- 9,7 %	- 2,1 %
Killed in acc. without alcohol	- 1,0 %	- 2,9 %
All killed	- 4,7 %	- 2,3 %

**Reading: between 2010 and 2019, the number of people killed in accidents involving alcohol fell by an average of 2.1 % per year.

Evolution of the number of people killed per year in an accident with or without alcohol



Number of people killed in accidents …

	2010	2015	2017	2018	2019	2020	2021
w ith alcohol	963	866	778	747	799	642	652
w ithout alcohol	2 160	1 971	1 814	1 715	1 665	1 387	1 633
Total know n alcohol level	3 123	2 837	2 592	2 462	2 464	2 029	2 285
Whole of mortality	3 992	3 461	3 448	3 248	3 244	2 541	2 944

Share of fatalities from alcohol-related accidents…

	2010	2015	2017	2018	2019	2020	2021
among accidents w ith know n alcohol content	31%	31%	30%	30%	32%	32%	29%
among all fatal accidents	24%	25%	23%	23%	25%	25%	22%

Reading: in 2021, 2,285 people were killed in an accident where the alcohol level was known. Among them, 652 were in an accident with alcohol. 652/2285 = 29 %.
Among all the 2,944 people killed in 2021, the 652 who were killed in an accident with alcohol represent: 652/2,944 = 22 %.

Alcohol consumption in the general population
3.4 million People have a risky consumption (*MILDECA 2019*).

The risk of being responsible for a fatal accident is multiplied on average by 18 in alcohol-impaired drivers, with a marked dose effect. According to ACTUSAM results[1], the risk is multiplied:
- By 6,4 between 0,5 and 0,8 g/l,
- By 8,3 between 0,8 and 1,2 g/l,
- By 24,4 between 1,2 and 2 g/l,
- Up to 44.4 above 2 g/l.

In 2021, 652 people were killed in an accident with alcohol [2]. They represent **29 % of people killed** in accidents with known alcohol (see box below), a relatively stable share since 2010. By extrapolating this percentage to all accidents, it is estimated that **840 people were killed in 2021 in an accident with alcohol against 1052 in 2019.**

In 2021, 5,366 accidents involve a drunk driver, i.e. 13 % of accidents with known alcohol levels. Accidents with a drunk driver are **much more serious than others**. 11 % are fatal compared to 4 % for those without alcohol.

Driving under influence

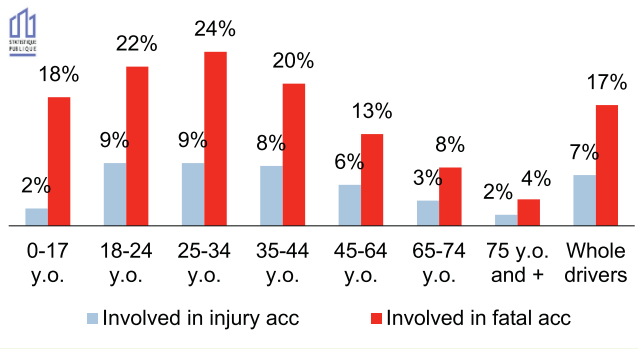
867 people were killed in an accident involving a driver under the influence of a psychoactive substance, alcohol or illegal drugs, i.e. **40 % of people killed** in an accident involving alcohol or known illegal drugs. By extrapolating this percentage over all accidents, it is estimated that **1,172 people were killed in 2021 in an accident involving a driver under the influence** of substances, compared to 1,442 in 2019:
- 48 % of the drivers concerned are only drunk;
- 26 % are under the influence of illegal drugs alone;
- 26 % combine both.

These shares vary according to age: the share of alcohol alone goes from 38 % for 18-24 years old, to 41 % for 25-34 years old, to 54 % for 35-44 years old, to 59 % for 45-54 years old and to 66 % for 55-64 years old. Conversely, the share of drivers combining the two is respectively 30 %, 25 %, 17 % and 12 %.

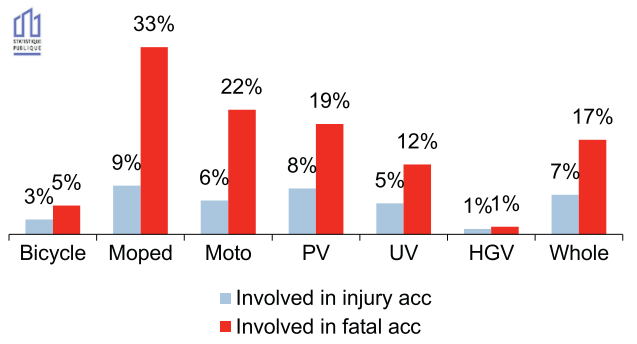
In 2021, 78 % of injury accidents in the BAAC file (77 % for fatalities) have alcohol information. The analyses are therefore carried out on accidents where the alcohol level is known, distinguishing:
- **accidents with alcohol:** at least one driver involved has an illegal blood alcohol level;
- **accidents with alcohol:** all drivers have an informed and legal blood alcohol level;
- **accidents with unknown alcohol level:** no driver involved has an illegal blood alcohol level, but at least one driver with an unknown blood alcohol level.

[1] Jean-Louis MARTIN *et al.*, *Update of the main results of the SAM study - Narcotics and Fatal Accidents (ActuSAM)*, DSR/Ifsttar **n°** 2200868646, Final report, October 2016.
[2] A driver is considered here as alcoholic if his level is greater than 0.5 g/l. The BAAC file does not currently allow the specific case (0.2 g/l) of drivers on a “probationary licence” and coach and bus drivers to be studied.

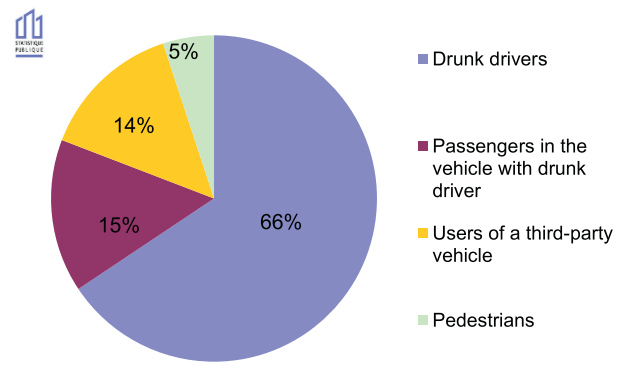
Proportion of drunk drivers among those with a known blood alcohol level, by age group



Proportion of alcohol-impaired drivers among those with a known blood alcohol level, by user category



Breakdown of people killed in accidents with drunk drivers



Percentage of drink-driving/pedestrians among those tested of the same age involved in a fatal accident

	pedestrian	Bicycle	Moped	moto	PV
15-17 y.o.	*	*		*	*
18-24 y.o.		*	*		
25-34 y.o.		*	*		
35-44 y.o.		*	*		
45-54 y.o.		*	*		
55-64 y.o.			*		
65-74 y.o.			*		
75 y.o. and +	*		*	*	

<10% | 10-20% | 20-30% | 30-40% | 40% and +

17% (average all ages, all modes)

Reading: among motorcyclists aged 25 to 34 involved in a known fatal alcohol accident, between 20 and 30 % test positive for alcohol.
* Low numbers (= known alcohol level for less than 20 people).

Drunk drivers

In fatal accidents for which blood alcohol levels are known, 17 % of drivers are under the influence of alcohol. Drunk driving affects all generations and particularly people aged **18 to 44**.

Depending on the mode of travel, the proportion of alcohol-driving drivers varies: **33 % of moped drivers** involved in a fatal accident are alcoholic, but only 1 % of HGV drivers involved in a fatal accident are.

Of the 598 alcohol-impaired drivers involved in fatal accidents, 72 % were motorists, 15 % motorcyclists and 5 % mopeds.

The alcohol level is often well above the legal threshold since **nearly half of the alcohol-impaired drivers involved have a level above 1.5 g/L**. This number rises to 56 % for fatal accidents.

Alcoholic pedestrians

The alcohol level of the pedestrians killed is known for 53 % of them. Of the 217 pedestrians killed in 2021 with a known blood alcohol level, 39 pedestrians of all ages had an alcohol level above 0.5 g/L (i.e. 18 % of them). For 14 of them, aged 18 to 54, it is more than 2 g/L.

26 of the 39 drunken pedestrians killed were killed outside urban areas, i.e. 2 out of 3 against 1 out of 4 for non-alcoholic pedestrians.

Victims of accidents with alcohol

81 % of people killed in an accident involving a drunk driver are in the latter's vehicle.

Fatal accidents with alcohol are 3 times out of 5 without a third party (a single vehicle without a pedestrian), i.e. double the number of accidents without alcohol. In addition, **35 % of PV drivers killed under alcohol** were **not wearing a safety belt (**and 45 % of men aged 25 to 34) and 44 % of passengers of PV drivers under alcohol (among users whose seat is provided), compared to 12 % of non-alcoholic PV drivers killed.

Night and weekend

65 % of fatal accidents involving alcohol take place at night (against 30 % for accidents without alcohol). At night, alcohol is present in 46 % of fatal accidents (and reaches 59 % at weekends). During the day, alcohol is present in 16 % of fatal accidents. Weekends account for 46 % of fatal accidents involving alcohol (day and night). From Monday to Friday, the hourly frequency of fatal accidents with alcohol (average number of accidents per hour) is twice as high between 4 p.m. and 1 a.m. as during the rest of the day. On weekends (Friday evening to Sunday evening 7 p.m.), the peak of accidents is shifted later in the night, from 7 p.m. to 7 a.m., with a frequency twice as high as the rest of the daytime.

Illegal drugs

In 1 in 5 fatal accidents, a driver tests positive for illegal drugs. This share reaches 1 in 3 fatal accidents at night during weekends.

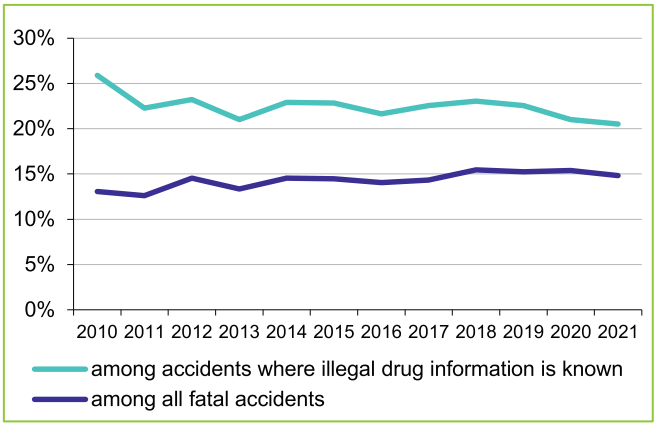
Accidents with Illegal drugs	Driver positive to drugs.	Killed in acc. with drugs.	Of which Killed driver with drugs.	Injured in acc. with drugs	Of which Injured driver with drugs	K/ 100I
2 448	2 477	436	267	3 374	1 634	13

* Number of people killed per 100 injured (B) in accidents with illegal drugs

Average annual evolution **	2019 to 2021	2010 to 2019
Killed in acc with illegal drugs.	- 6,1 %	- 0,6 %
Killed in acc without illegal drugs.	- 0,3 %	+ 1,4 %
All killed	- 4,7 %	- 2,3 %

**Reading: between 2010 and 2019, the number of people killed in an accident with narcotics decreased by an average of 0.6 % per year.

Evolution of the proportion of people killed in an accident with illegal drugs



Number of people killed in accidents …

	2010	2015	2017	2018	2019	2020	2021
... With illegal drugs	522	501	494	502	494	391	436
... Without illegal drugs	1 494	1 694	1 694	1 675	1 697	1 469	1 687
Total info. Illegal drugs know n	2 016	2 195	2 188	2 177	2 191	1 860	2 123
Whole mortality	3 992	3 461	3 448	3 248	3 244	2 541	2 944

Share of mortality in accidents with illegal drugs…

	2010	2015	2017	2018	2019	2020	2021
... among accidents w here illegal drugs information is know n	26%	23%	23%	23%	23%	21%	21%
... among all fatal accidents	13%	14%	14%	15%	15%	15%	15%

Reading: in 2021, 2,123 people were killed in an accident where information on illegal drugs consumption was known. Among them, 436 were in an accident with the presence of illegal drugs. 436/2123 = 21 %.
Among all the 2,944 people killed in 2021, the 436 who were killed in an accident with the presence of illegal drugs represent: 436/2944 = 15 %.

A driver who tests positive for cannabis increases their risk of being responsible for a fatal accident by 1.65 [1]. Cannabis is the illicit narcotic product (excluding medical use) most often detected in people involved in fatal accidents and positive for illegal drugs. The proportion of fatal accidents that would be avoided if no driver tested positive for cannabis is estimated at 4 %.

In 2021, according to the BAAC file, 436 people were killed in an accident with illegal drugs. They represent **21 % of people killed** in fatal accidents for which the test result is known. By extrapolating this percentage to all accidents, **it is estimated that 605 people were killed in 2021 in an accident involving a driver under the influence of illegal drugs, compared to 731 in 2019.**

Alcoholic drivers testing positive for at least one narcotic product

Among the 405 drug-positive drivers involved in a fatal accident in 2021, **almost half (195) also had an alcohol level above 0.5 g/L**. A similar proportion is also found in injury accidents.

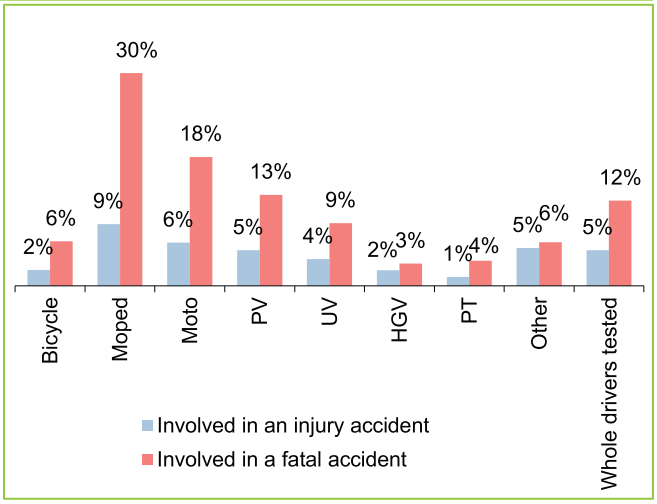
In fatal accidents, the proportion of alcohol-impaired drivers among those positive for illegal drugs achieved:
- 52 % for drivers aged 35-44;
- 58 % for drivers aged 25-34;
- 56 % for drivers of passenger cars regardless of age.

Of the 598 drink-driving drivers involved in fatal crashes whose illegal drug test results are known, a third are also positive for at least one narcotic.

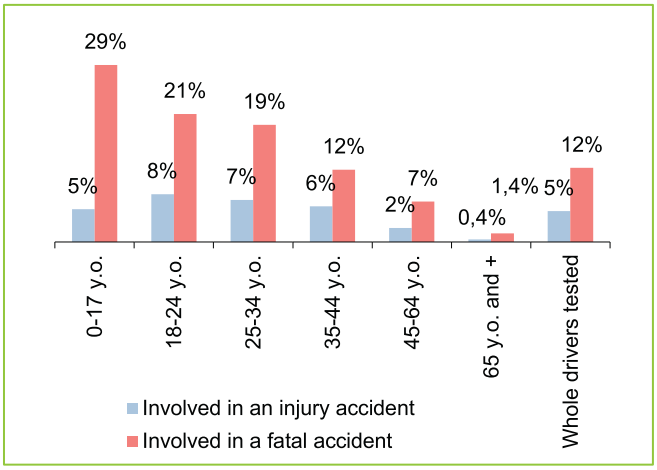
In 2021, 49 % of non-fatal accidents in the BAAC file contain illegal drug information, compared to 71 % for fatal accidents (50 % in 2010). The analyses are therefore mainly carried out on fatal accidents in distinguishing:
- **Accidents with illegal drugs**, i.e. those where at least one driver involved has tested positive,
- **Accidents without illegal drugs**, i.e. those where all the drivers involved tested negative for illegal drugs,
- **Accidents where the "illegal drug" information is not known**, i.e. those without a positive driver but with at least one uncontrolled driver or with an unknown test result.

[1] Jean-Louis MARTIN *et al.*, *Update of the main results of the SAM study - Narcotics and Fatal Accidents (ActuSAM)*, DSR/Ifsttar n° 2200868646, Final report, October 2016.

Proportion of drivers positive for at least one illegal drug among those checked, by user category



Proportion of drivers positive for at least one illegal drug among those checked, by age group



Example of lecture: Among drivers, aged 18 to 24 involved in a fatal accident and tested, 21 % are positive for at least one illegal drug.

Drugs and addictions, key figures 2022. *OFDT May 2022*

Cannabis:
18 million people between the ages of 11 and 75 have smoked it at least once in their lifetime (experimenters),
of which 5 million smoked during the year,
of which 1.5 million smoke it at least 10 times per month,
of which 850,000 daily users.

Cocaine:
2.1 million Experimenters,
Of which 600,000 users during the year.

MDMA / Ecstasy:
1.9 million Experimenters,
Of which 400,000 users during the year.

Heroin:
500,000 Experimenters.

Positive drivers for at least one illegal drug

In fatal accidents, 12 % of drivers checked are positive for illegal drugs (almost the same proportion as in 2019). This proportion varies according to the mode of transport: it is 30 % for moped riders, 18 % for motorcyclists and 3 % for HGV drivers.

Drivers who tested positive for narcotics in fatal crashes are:
- 61 % of passenger vehicle drivers and 20 % of motorcycle drivers,
- 91 % of men,
- 31 % aged 18 to 24, 30 % aged 25 to 34 and 17 % aged 35 to 44.

Among 18-24 years old, 21 % of drivers tested in fatal accidents are positive. This proportion is equivalent for 25-34 years old (19 %) and falls sharply from the age of 45 (7 % for 45-64 years old).

An analysis[1] on fatal accidents in 2011 where information on illegal drugs was present showed that of the 12 % of users who tested positive, 80 % were on cannabis, usually alone. Half of the users who tested positive for illegal drugs were between 20 and 29 years old.

Pedestrians testing positive for at least one illegal drug product

In 2021, an illegal drug test result is provided for 44 % of pedestrians killed (181 people out of 414).

26 pedestrians killed out of the 181 checked tested positive for illegal drugs. 22 of those pedestrians killed are between the ages of 25 and 54.

Night, day and type of day

At night, 27 % of fatal accidents (for which illegal drug information is given) involve a drug-positive driver; when this share drops to 15 % during the day. They are also more often present in fatal accidents on weekends than on working days (24 % against 18 %).

Proportion of accidents with driver positive for illegal drugs among the fatal accidents reported

	Open days	Weekend	Whole
Day	14%	17%	**15%**
Night	24%	33%	**27%**
Whole	**18%**	**24%**	**20%**

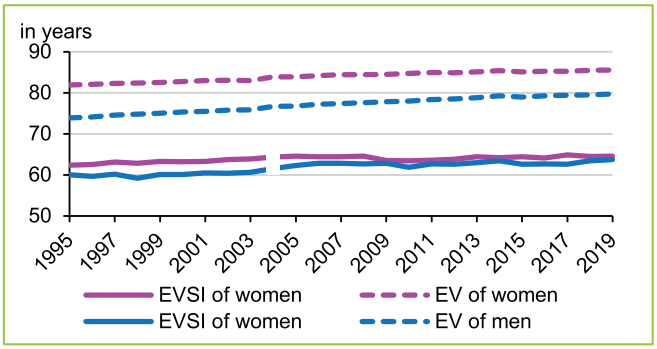
Example of Reading: on weekends, at night, in 33 % of fatal accidents, at least one driver tested positive for illegal drugs.

[1] Analysis carried out by Cerema on the database VOIESUR.

Health

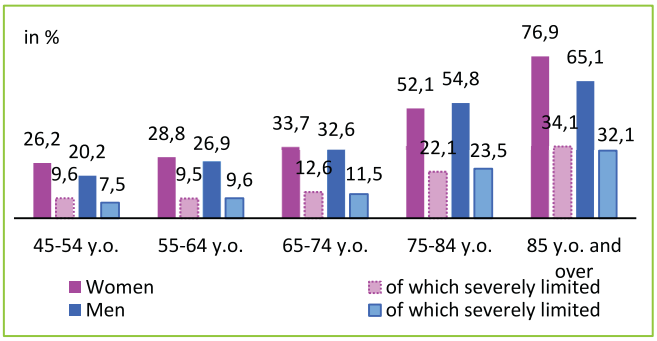
Between 2019 and 2021, one in five drivers killed suffered from faintness or drowsiness at the wheel, and almost half are 65 years of age or older. These seniors killed in these circumstances represent 37 % of the total road mortality of PV drivers over this period.

Life expectancy (EV) and disability-free life expectancy (EVSI) between 1995 and 2019 by gender



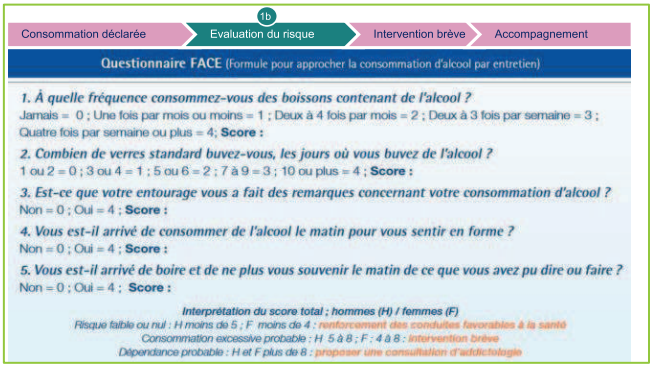
Note: break in the series concerning disability-free life expectancy: before 2004, it was estimated from the community panel of households; since then it has been calculated from EU-SILC.
Sources: Eurostat (data extracted July 2021); INSEE, population estimates and vital statistics.

Share of people declaring a limitation in their usual activities in 2019



Reading: 26.2 % of women aged 45 to 54 report being limited in their usual activities in 2019. Coverage: France mainland, people aged 16 or over residing in a private household.
Source: Insee, survey on resources and living conditions (SRCV) 2019, DREES calculations.

Early identification and brief intervention



Between 1995 and 2019, life expectancy has increased 5.8 years for men and 3.7 years for women. But not all years are lived in good health. Women would spend nearly a quarter of their lives (21 years) with moderate disabilities. For men, it would be a fifth of their life (16 years).

From the age of 75, a majority of people declare to be permanently limited (more than 6 months) in usual activities, due to health problems. This proportion changes with age, going from 28 % among those aged 55-64 to 71 % among those aged 85 or over (men and women).

The rules governing **the right to drive for people with certain pathologies** are defined in the decree of March 28, 2022 (which repeals the decree of December 21, 2005). This decree sets the list of conditions that require medical supervision, and specifies whether there is permanent or temporary incompatibility, or conversely, definitive compatibility subject to preventive treatment or restriction on the circumstances of conduct (of day for example). The conditions are available in ophthalmic, ORL, neurological, psychiatric, cardiovascular, pulmonary, renal pathologies, ORL or musculoskeletal deficits, diabetes. Any candidate for a driving license or any driver suffering from one of the medical conditions mentioned must seek the opinion of a certified doctor **on his medical fitness to drive**.

Identify addictions

41.6 % of road deaths in France mainland in 2021 occur in an accident where a driver is under the influence of alcohol or illegal drugs.

According to the OFDT [1], **daily alcohol use in France** concerns 10 % of adults aged 18 to 75, 15.2 % of men and 5.1 % of women (2017) and alcohol is the **leading cause of hospitalization**. Daily cannabis use in France concerns 2.1 % of 18-64 years old, 2.8 % of men and 1.4 % of women in 2020. An OCDE[2] report estimates that putting an end to the **harmful consumption of alcohol**[3] and the diseases and injuries it causes, would reduce by about a fifth the mortality due to preventable causes. This would reduce health expenditure by around €2.8 billion per year on average over the period 2020-2050 (i.e. 1.7 % of the total health budget).

Questionnaires proposed by the High Authority for Health help health professionals to assess alcohol (FACE) or cannabis (CAST) consumption in adults at an early stage.

[1] Drugs, key figures 9th edition. OFDT May 2022.
[2] Final Report on the International Harmful Alcohol Policy Simulation Model, OECD 2021.
[3] Do not consume more than 10 glasses per week, 2 glasses per day, not every day (health experts and public authorities).

Pandemic and mental suffering

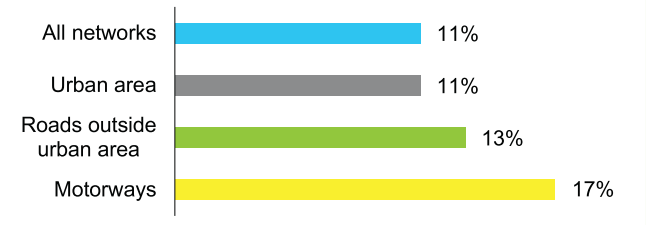
According to the Epi-phare report (ANSM-CNAM of May 27, 2021), the introduction of antidepressants (+ 23 %), anxiolytics (+ 15 %) and hypnotics (+ 26 %) for new patients is in progress. very strong growth in 2021 compared to 2018-2019.

In the BAAC file, the frequency of the "**faintness**" and "**drowsiness/fatigue**" **factors increases with age** and becomes significant after 50 years. These factors concern **37 % of drivers of passenger vehicles killed aged 65 and over**. They are present in **12 % of road deaths between 2019 and 2021** (19 % on motorways), i.e. 1078 people killed over 3 years.

Percentage of passenger vehicle drivers killed with the "faintness" or "drowsiness/fatigue" factor, by age (over 3 years 2019-2021)

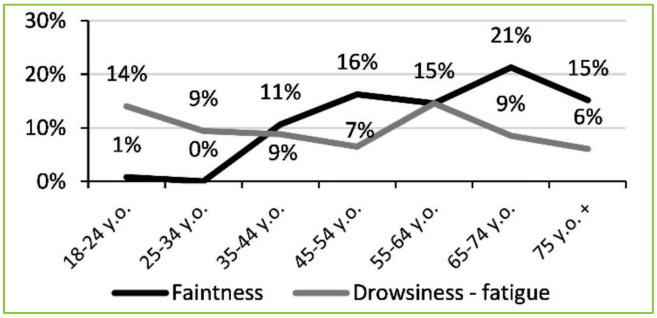
Age class	PV drivers killed with sickness or drowsiness/fatigue factor	Total PV drivers killed	Proportion of PV drivers killed with faintness or drowsiness/fatigue factor
0-17 y.o.	0	12	0%
18-24 y.o.	35	667	5%
25-44 y.o.	67	902	7%
45-64 y.o.	171	720	24%
65-74 y.o.	166	391	42%
75 y.o. +	179	539	33%
Whole	**618**	**3 231**	**19%**

Proportion of people killed in an accident with the "faintness" or "drowsiness/fatigue" factor present in at least one driver involved, by environment (over 5 years 2017-2021)



Example of reading: in urban areas, 11 % of people killed are killed in an accident where the "faintness" or "drowsiness / fatigue" factor is highlighted in at least one driver.

Multiple causes of faintness and drowsiness/fatigue factors in fatal motorway accidents according to the age of the presumed responsible (over 3 years 2019-2021)



Medication

Nearly 3 % of accidents[1] in France are attributable to drugs. This risk factor, lower than for speed or alcohol, must however be taken into consideration**.**

The impact of a drug on driving ability depends on the nature of the active molecule, adverse effects it may cause (on alertness, coordination, behaviour or vision), the dosage, the duration of the treatment, the pathology targeted by the treatment, and possible interactions with other medications, alcohol or illegal drugs. **Since 2005, medicines presenting risks for driving** (approximately a third of the products marketed) have been classified into **3 levels (yellow, orange or red pictogram** affixed to the box, supplemented by a text guard). **The list of medicinal products** concerned was updated by order of March 13, 2017. The level of risk was notably raised from level 2 to level 3 (driving a car is formally inadvisable) for **benzodiazepines** (hypnotics and anxiolytics) causing half of fatal accidents attributable to drugs. According to the ANSM[2], 13.4 % of the French population used benzodiazepines at least once in 2015.

Hypo-vigilance

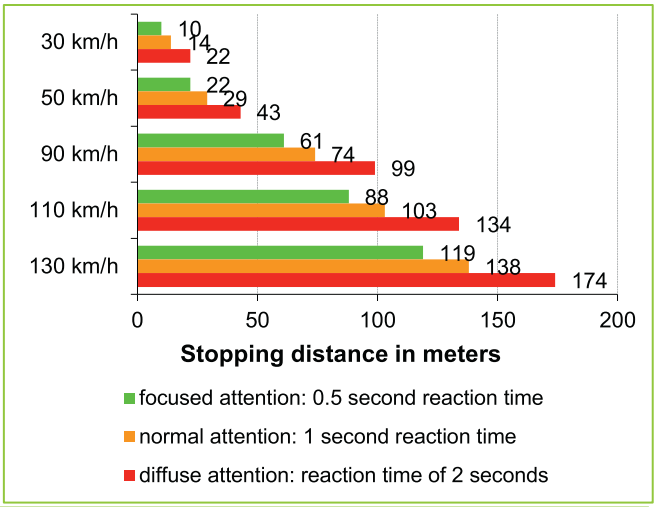
Hypo-vigilance is the intermediate state between wakefulness and sleep in which the organism's faculties of observation and analysis are greatly reduced. Attention is diverted for a variety of reasons ranging from distraction to drowsiness. **The causes of reduced alertness** can be multiple: long and monotonous journey, chronic sleep deprivation, lack of sleep in the 24 hours preceding driving, alcohol consumption, narcotics or psychotropic drugs. **The risk of postprandial drowsiness**, a sudden desire to sleep felt very shortly after eating (phase during which the food absorbed is synthesized to be transformed into energy) is significant. **Sleep pathologies** may also be involved; the most common, sleep Apnea syndrome, affects at least 5 % of the adult population according to INSERM. If you almost systematically feel a need to take a nap after meals, a consultation with your doctor becomes necessary. According to a study[3], **drowsiness at the wheel** is a phenomenon that affects 10 to 15 % of professional drivers and **one of the main causes of fatal accidents on the motorway (a third of cases)**.

[1] *CESIR-IV - Combinaison d'Études sur la Santé et l'Insécurité Routière*, phase 4, Interim Report INSERM, 2020.
[2] *Consommation des benzodiazépines en France*, ANSM, avril 2017.
[3] Léger D., Ement P., *Somnolence et risque accidentel*, La Presse Médicale, 2015.

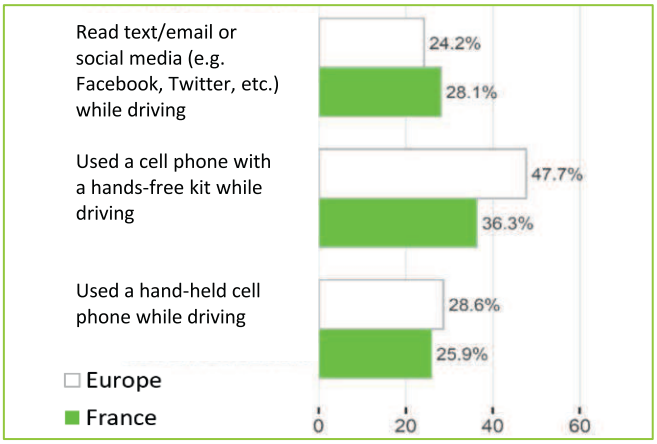
Inattention

In 2021, a lack of attention (inattention or use of the telephone or technological distractors) is noted in a driver in 23 % of injury accidents, costing the lives of 369 people in France.

Stopping distance of a passenger vehicle on dry pavement according to the speed and the driver's level of attention (deceleration hypothesis: 6 m/s²)

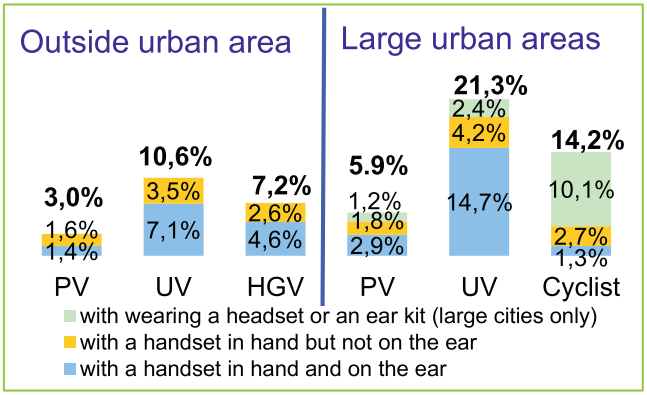


Share of respondents having, during the last 30 days, at least once …



Source: *E-Survey of Road user's Attitudes (ESRA2)*, VIAS Institute, 2019

Phone use while driving by type of network and users in 2021



Source: *Observatory of behaviours - Results for the year 2020, ONISR, 2021.*

Driving requires constant concentration: Taking good information throughout a travel reduces the risk of an accident. But the driver's attention is occasionally diverted to other tasks or distractors (visual, manual, auditory or cognitive), coming from inside or outside the vehicle, and reducing his ability to detect traffic events and anticipate. Inattention is quite often manifested by "mind wandering", being lost in thought).

The results of various studies converge:

- An analysis between 2016 and 2020 of the causes of accidents[1] on concession motorways in France, shows that **inattention is involved in 15 % of fatal accidents**;
- For the World Health Organization, the **use of the telephone while driving quadruples the risk of accident.**

A **novice driver** has a reduced attentional availability compared to an experienced driver, the gestures of driving monopolizing him more. This attention deficit can affect the management of an unprecedented /complex driving situation.

Phone and earpieces/headset

According to Gustave Eiffel University and Inserm[2], one in ten injury accidents is linked to using the telephone while driving. Telephoning with or without a hands-free kit leads to the same level of risk, due to the cognitive and auditory component of the action.

In 2021, 430 426 offences[3] (407 463 in 2019) concerned the use of the telephone/headset while driving.

Observations[4] of vehicles in daytime traffic revealed that, **outside urban areas**, 3.0 % of PV drivers, 10.6 % of UV drivers and 7.2 % of HGV drivers used a hand-held or ear-held phone.

In large urban areas, Phone use is most pronounced among UV drivers (21.3 %), while manoeuvres in town already put vulnerable users in particular danger. 14.2 % of **cyclists** observed use the telephone or wear headsets/helmets and 5.9 % of PV drivers. 28 % of **pedestrians** use a distractor when crossing (17 % among seniors, 26 % among 35-65 years old, 31 % among 18-35 years old and 30 % among teenagers). The average rate of use of distractors by pedestrians is 29 % at intersections with lights, whether the lights are red or green, and 25 % at pedestrian crossings without lights.

[1] *2021 key figures*, ASFA
[2] *Phone and road safety, collective expertise*, Ifsttar-Inserm, April 2011.
[3] *File of traffic offences, statistical report 2021,* ONISR, 2022
[4] *Observatory of behaviours, results for the year 2021*, ONISR, 2022.

The safety belt

In 2021, of all those killed, 21 % were unbelted; much higher than observed non-wearing rates.

Rate of unbelted riders among road users killed, whose wearing is known, by type of vehicle and seat occupied

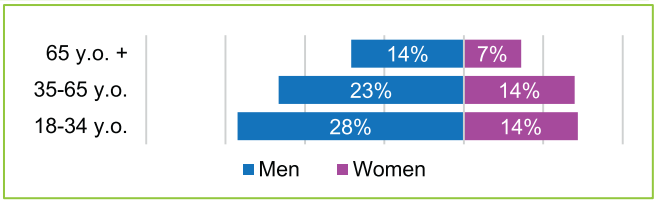
	PV	UV
Drivers	19%	27%
Passengers	22%	-
of which front pass.	13%	-
of which back pass.	34%	-
All users	**20%**	**27%**

Rate of unbelted people among killed PV drivers who's wearing is known, for passenger vehicles, by gender and age group

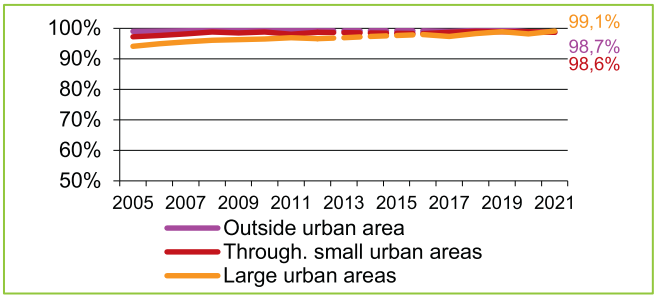
		With alcohol	Without alcohol
18-24 y.o.	Women	*25%*	16%
	Men	31%	20%
25-34 y.o.	Women	*33%*	21%
	Men	45%	24%
35-64 y.o.	Women	*44%*	4%
	Men	30%	13%
65 y.o. and over	Women	*25%*	2%
	Men	39%	10%

Italics: total < 10

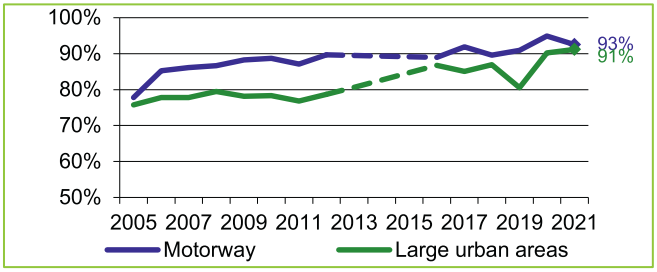
Non-wearing rate among drivers killed in PV whose wearing is known over the period 2019-2021



Evolution of the wearing of safety belts in the front seat of passenger vehicles, by network[2] (2005 to 2021)



Evolution of the wearing of safety belts in the rear seat of passenger vehicles, by network[2] (2005 to 2021)



* No observations for the years 2013, 2014 and 2015, values interpolated for line continuity

Source: Observatory of behaviours - Results for the year 2021, ONISR, 2022.

Wearing a safety belt in France

The decree of June 28, 1973 made it compulsory, outside urban areas, to wear safety belts for occupants seated in the front of passenger cars put into service on April 1, 1970. This measure is extended to the entire network on the road from 1979. At the end of 1991, the wearing of safety belts was extended to all passengers, including the use of a restraint system for children. In 2002, failure to wear a safety belt was penalized by a 4th class fine and by a withdrawal of three points from the licence. In 2003, the use of safety belts became compulsory in coaches and heavy goods vehicles.

129,032 offences (including 33,282 against passengers) were recorded in 2021[1].

Failure to wear a safety belt

Wearing a seat belt remains an important issue. In 2021, **280 people killed** in passenger vehicles (PVs), utility vehicles (UVs), heavy goods vehicles (HGVs) or coaches **were not wearing their safety belts**, i.e. 21 % of people killed for whom safety belts were worn. This rate is 20 % for users of passenger vehicles and 27 % for utility vehicles.

Failure to wear a safety belt, among the cases where this is reported, is particularly high:

- **In alcoholic drivers: 35 % of drivers killed,** compared to 12 % when the driver is not alcoholic;
- **Among users killed at night: 29 %,** compared to 13 % during the day.

Of the fatal accidents for the period 2019-2021, for passenger vehicles, for drivers killed and whose wearing is known, the rate of non-wearing is 16 % on motorways, 20 % on roads outside urban areas, and 22 % on roads in urban areas. In passenger vehicles whose driver is alcoholic, the non-wearing rate for drivers is 37 %, and it is 44 % for passengers in these same vehicles.

The graph opposite relating to the age and sex of drivers killed in passenger vehicles shows a male/female imbalance. In addition, the rate of non-wearing is better in older age groups, probably due to better compliance with the rule, but perhaps also due to less physical resistance to shocks.

Observations[2] of passenger vehicles in circulation show that the **failure to wear** safety belts **in the front seats is marginal**: 1.3 % outside urban areas and 0.9 % in large urban areas. 7 % of **rear** passengers do not wear their safety belts on the motorway, and 9 % in large cities.

[1] *Offences file – Reminder for the year 2021, ONISR, 2022.*
[2] *Behavioural Observatory - Results for the year 2021, ONISR, 2022.*

The cyclist's equipment

Mandatory equipment for cycling

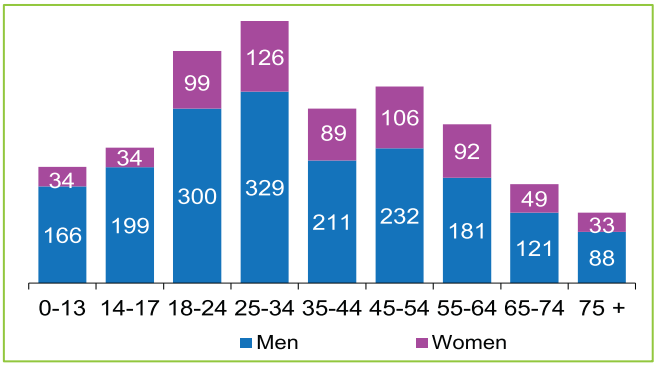
The bicycle must have:
- two brakes, front and rear,
- a yellow or white front light,
- a red taillight,
- a buzzer,
- Reflectors (retro-reflective devices) in red at the rear, white at the front, orange on the sides (optional when the cycle is fitted with tires with reflective strips) and on the pedals.

Wearing certified high-visibility clothing is compulsory for cyclists outside urban areas, at night, or when visibility is insufficient.

Wearing a helmet has been compulsory since March 22, 2017 for children under 12 years old.

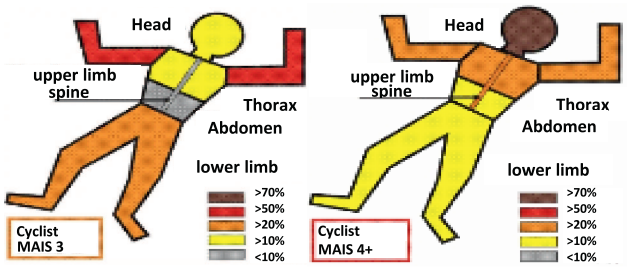
	With helmet	Without helmet	Unknown	Total
In urban area				
Cyclists killed	39	50	8	97
Cyclists injured	1 871	2 135	390	4 396
Outside urban area				
Cyclists killed	77	47	6	130
Cyclists injured	574	257	48	879

Victims (killed or injured) of cyclists without helmet by age and gender



Serious injuries to cyclists (see definition p178)

MAIS 3: users with at least one lesion of level 3, lesions of levels 1 and 2 are represented.
MAIS 4+: users with at least one level 4 or 5 injury, level 1, 2 and 3 injuries are represented.
Victim usually has several lesions.



76 % of MAIS 4+ cyclists are injured in the head, 40 % in the thorax, 37 % in the face and 34 % in the upper limbs.

Source: Rhône Registry, 2006-2012

Protection provided by the helmet

Several studies show a reduction in the risk of skull injury[1] when wearing a helmet and an effect on the reduction in mortality in countries regulating the wearing of helmets for certain users and certain uses [2].

The wearing of helmets is progressing in large urban areas [3] : 27 % on weekdays and 36 % on weekends in 2021 compared to 17 % and 28 % respectively in 2016.

Not wearing a helmet in accidents

In 2021, **half of the cyclists** killed or injured recorded in the BAAC were **not wearing a helmet**[4]. It is estimated that 8,000 cyclists suffered head injuries in 2021 (see page 15).

For children under 12, where wearing a helmet is compulsory, there is one killed and 101 injured without a helmet, 1 killed and 63 injured wearing a helmet. The 25-34 age group is the most affected among unhelmet cyclist victims: 455 victims, 72 % of whom are men. It is followed by 18-24 years old with 399 victims (75 % men).

In urban areas, cyclist victims[5] wear helmets less often (47 %) than outside urban areas (68 %). These proportions are identical during the week and at weekends in the city, while outside urban areas, the wearing of helmets reaches 72 % at weekends.

The severity calculated according to the number of deaths per 100 injuries in the BAAC is higher for cyclists not wearing a helmet than for those wearing it, regardless of the environment:
- In urban areas, the ratio is 2.3 for cyclists not wearing a helmet compared to 2.1 for cyclists wearing a helmet. This difference is well observed in accidents against PV (1.2 against 0.6). Against heavy vehicles (UV, HGV, PT), we cannot conclude because of the low numbers ;
- Outside urban areas, the ratio is 18 for those without helmets compared to 13 for people wearing helmets. Respectively, 16 and 8 for accidents against a passenger vehicle.

Despite the additional protection provided by the helmet, there are 116 deaths of cyclists wearing a helmet (two-thirds outside urban areas). 46 of them killed themselves without third parties involved.

Reflective vest

Outside urban areas, at night, 8 killed out of 9 and 34 injured out of 41 where the information is known did not wear a reflective vest.

[1] Rémy Willinger et Caroline Deck, *Note de synthèse sur les traumatismes crâniens et leurs séquelles,* TEVU, Université de Strasbourg, CNRS, mai 2017
[2] http://www.internationaltransportforum.org/Pub/pdf/13IrtadReport.pdf
[3] *Behavioural Observatory – Results for the year 2021, ONISR 2022.*
[4] Wearing a helmet is known for 95 % of fatalities and 96 % of injuries.
[5] Shares calculated on the victims whose wearing of a helmet is known

Powered two-wheeler's equipment

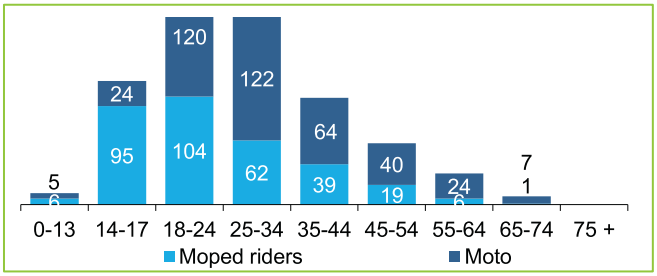
Mandatory equipment for PTW users

Wearing a helmet was gradually made compulsory for PTW drivers, first by a decree of 1961 for drivers of motorcycle (125 cm3 or more) traveling outside urban area. Then, for all motorcyclists, drivers and passengers, the wearing of helmets homologated becomes mandatory in 1973 on all networks. Finally, for moped riders, it became compulsory outside urban areas in 1976 and then in all circumstances since 1980.

To improve their visibility in traffic, PTWs are required to drive with their dipped or daytime running lights on (art. R416-17 of the Highway Code). In the event of an emergency stop, they must have a high visibility vest since January 1, 2016.

Since 2016, wearing CE-certified motorcycling gloves has been compulsory for PTW users in order to limit hand injuries.

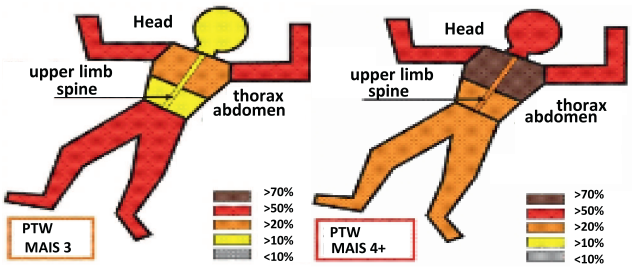
Number of PTW victims (killed or injured) without helmet, by age



Serious injuries to PTW users

MAIS 3: users with at least one lesion of level 3, lesions of levels 1 and 2 are re-presented.
MAIS 4+: users with at least one lesion of level 4 or 5, lesions of levels 1, 2 and 3 are represented.

A victim usually has several lesions.



72 % of PTW MAIS 4+ are injured in the thorax, 52 % in the head, 51 % in the upper limbs.

Source: Rhône register, 2006-2012.

In the BAAC file, wearing gloves is known in 77 % of cases and wearing an airbag vest in 27 % of cases.

Wearing a PTW helmet

In 2021, 5 % of moped rider victims were not wearing a helmet, i.e. 2 killed and 330 injured (BAAC). It is 3 % for motorcyclists, or 19 killed and 387 injured. Not wearing a helmet is slightly less common among 14-17 years old moped victims than among the oldest. 60 % of motorcycle victims without a helmet are between 18 and 34 years old, whereas they represent only 46 % of motorcycle victims.

The victims mentioned as not wearing in moped are first in Île-de-France (39 %), Pays de la Loire (12 %), PACA (11 %) Auvergne-Rhône-Alpes (9 %). By motorbike, they are first in Île-de-France (46 %), PACA (19 %), Auvergne-Rhône-Alpes (8 %), Occitanie and Nouvelle-Aquitaine (7 % each of them).

A study[1], conducted using data from the Rhône register confirms the effectiveness of the helmet, and underlines that head injuries remain a major cause of serious sequelae and death (page 15).

According to a survey[2] conducted with injured PTW users who had accidents between 2010 and 2014 (951 respondents), injuries of all seriousness were mainly to the lower limbs (63 %), upper limbs (49 %) or to the head/face/neck region (17 %). Injured persons are 4.5 times more likely to suffer an injury to the face (particularly to the jaw) when wearing a non-integral helmet rather than a full-face helmet. According to the KANTAR Park Auto/PTW study, the full-face helmet is preferred when the power of the PTW increases: it is 66 % for moped riders, 71 % for light motorcyclists and 85 % for heavy motorcyclists.

Protective clothing

The rate of wearing gloves is much lower among moped victims than among motorcyclist victims: 59 % versus 78 %.

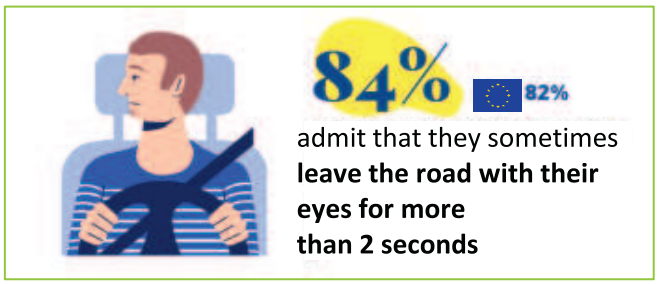
In addition to the compulsory equipment, the DSR recommends wearing CE certified equipment: jacket (preferably with airbag vest) or long-sleeved jacket, trousers or overalls, boots or high shoes. Wearing reinforced boots or high-top shoes divides the risk of ankle or foot fracture by 2.3[3].

The motorcycle airbag, wired or electronic, provides protection equivalent to that of the helmet on all the vital parts of the trunk/thorax/abdomen[4]. Among the victims recorded in the BAAC, 1 killed and 41 injured on a motorbike were mentioned with an airbag vest, and 1 injured on a moped.

[1] Amandine Coquillat *et al.*, *Bilans lésionnels subis par les usagers de deux-roues motorisés, SECU2RM*, IFSTTAR, UCB Lyon1, July 2016
[2] Wu, D. *et al.*, 2019, *Does a full-face helmet effectively protect against facial injuries ?* Inj. Epidemiol. 6 1, 19.doi: 10.1186/s40621-019-0197-8
[3] Wu, D. *et al.*, 2019. *Effectiveness of protective clothing for motorized 2-wheeler riders*. Traffic Inj. Prev. 20 2, 196–203. doi:10.1080/15389588.2018.1545090
[4] Thierry Serre *et al.*, *EFFIGAM*, Convention DSR n°2200792115 : Final report, March 2017.

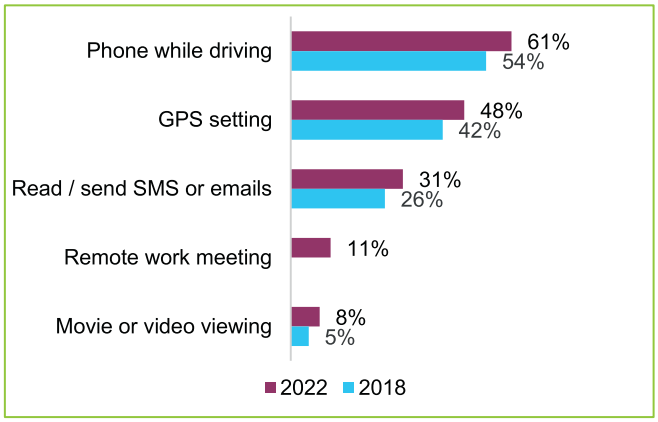
Reported drivers behaviours

Knowing the behaviour and reactions of users via opinion polls or "focus groups" (groups of about ten people who discuss the subject) makes it possible to better target actions, develop prevention campaigns and monitor their effectiveness.



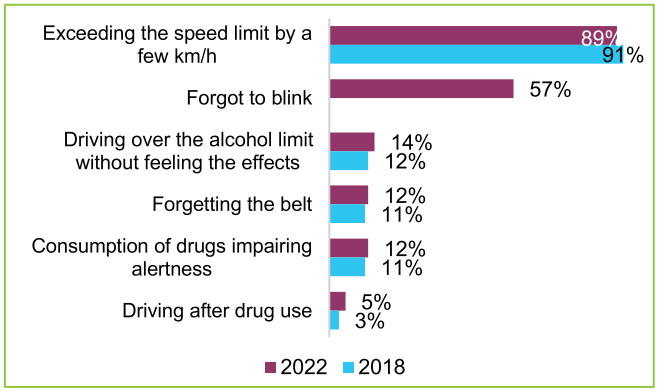
Source: 12th barometer of responsible conduct from the Vinci foundation, 2022

Sources of inattentive driving by year



Source: 12th barometer of responsible conduct from the Vinci foundation, 2022

The evolution of risky behaviours



Source: 12th barometer of responsible conduct from the Vinci foundation, 2022

Inattention while driving

The sources of inattention while driving are numerous and can be **conscious** (use of the telephone or other distractors, discussions, etc.) or **unconscious** (natural phenomenon of **wandering of the mind**). Drivers are not unaware of these risks since 44 % of respondents to the 12th barometer of the Vinci foundation place inattention among the main causes of fatal accidents.

Nevertheless, there are more risky behaviours than before, such as the **phone**, for which **61** % say they use it for **calls while driving**, including 42 % regularly. If half of them use a loudspeaker system, they are 20 % to hold the phone in their hand (17 % in 2018). Finally, **11 % declare that they sometimes take part in a work meeting remotely** (a new question in 2022).

Drowsiness on motorway

Respondents to the Vinci Foundation barometer identify **drowsiness** as the 2nd cause of fatal accidents on the motorway, behind **speed**. The French are well aware of the risks on the motorway, as **16 %** have **already had** or **failed to have an accident** due to drowsiness (9 % in 2018) and **1 in 3 French people** have already had the impression of having **asleep at the wheel.**

Effective reflexes to prevent drowsiness are, however, gradually being adopted by drivers: 82 % of respondents **schedule their departure** at times when they are less prone to fatigue, **73 % change drivers** en route, **65 %** stop **for a nap** on the way.

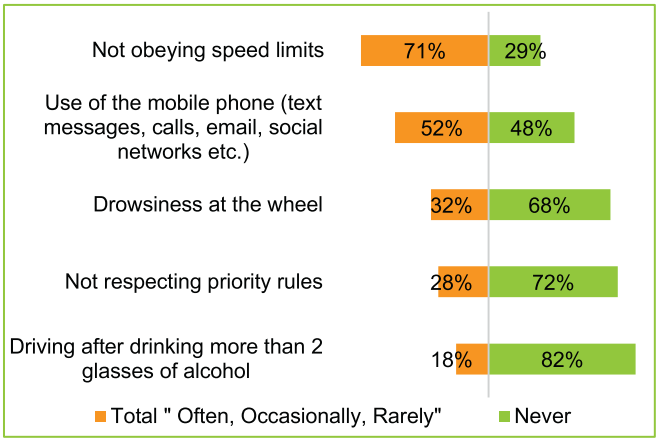
Incivility still ubiquitous

As before the health crisis, the French consider themselves to be good drivers and identify others as bad drivers: they consider themselves to be **vigilant** (74 %) and **calm** (54 %) but consider others **irresponsible** (43%) or **dangerous** (54 %). The result is a **feeling of insecurity** since 88 % have already been afraid of the aggressive behaviour of another driver.

Paradoxically, 21 % of respondents recognize the negative influence of the car on their behaviour and notice **increased nervousness and aggressiveness** at the wheel compared to everyday life. In fact, 65 % of French people say they insult other users and a third deliberately stick to the vehicle in front of them.

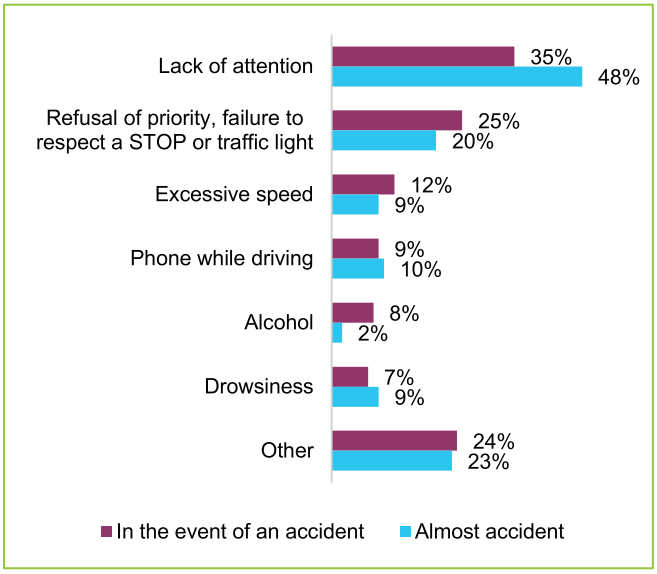
Risky behaviour is also on the **rise**, with in particular 9 French people out of 10 declaring that they exceed the speed limit by a few kilometres per hour. 57 % forget to put on their indicators on when necessary and 14 % admit to driving when they are over the legal alcohol limit.

Risky behaviours of workers in the context of professional travels



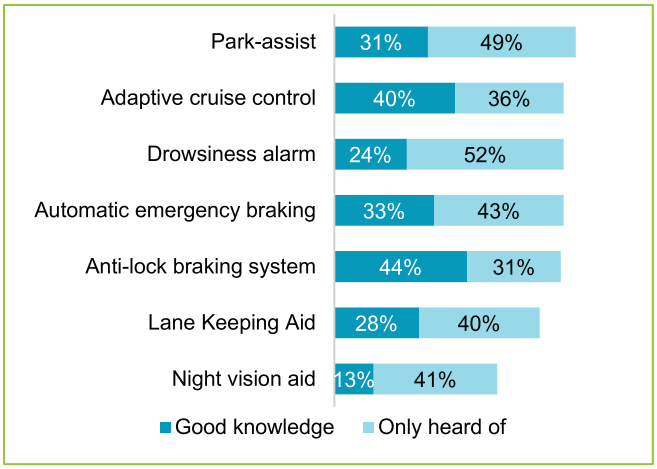
Source: IFOP survey for MMA on work-related road risk, 2022

Causal factors of accidents and "near accident" in the context of professional travels



Source: IFOP survey for MMA on work-related road risk, 2022

Share of spontaneous knowledge (without prior presentation) of ADAS (non-exhaustive)



Source: 2021 Barometer on uses and attitudes towards ADAS, Allianz/CSA

Work-related road risk

The IFOP survey for MMA on work-related road risk reports a lack of knowledge of this risk, since 83 % of managers and 67 % of employees are **unaware** that it is the leading factor in accidents at work (stable since 2015). However, 6 managers out of 10 consider themselves sufficiently informed about the issues and rules of professional road risk in companies, but only 18 % declare that they have implemented preventive actions for employees.

Business trips concern 42 % of employed workers surveyed a stable figure since 2015. Among them, half report at least 1 daily business trip. 82 % have already adopted a risky behaviour, so that half say they have just missed an accident and 19 % say they have had an accident. The causes mentioned are mainly **lack of attention** (35 % of accidents), **refusal of priority** or **non-respect of a stop sign or traffic light** (25 %), or **excessive speed** (12 %).

Alcohol and mobility on New Year's Day

According to the national survey conducted by the Association Prévention Routière on "The French, New Year's Eve and drunk driving" before New Year's Eve, almost **83 %** of the population surveyed **planned to consume alcohol** during this evening (down 3.8 points compared to 2019).

The **health context** in particular **deterred reunions with friends** since only 27 % planned to meet friends, i.e. 12 points less than in 2019. However, 35 % planned to travel, including 25 % by personal vehicle. Finally, despite knowing the risk to road safety, only **15 % say they take steps to prevent road accidents** related to alcohol consumption.

Driving assistance systems

Driving assistance systems (ADAS, Advanced Driver Assistance Systems) are designed as technical assistance for drivers and are gradually becoming more widespread within the vehicle fleet. However, the Allianz/CSA "Road Prevention" barometer indicates that the French still have a **mixed knowledge** of ADAS: only 25 % of respondents are able to name one. These are generally men, under 30 years old and living in large urban areas.

An issue associated with the development of ADAS concerns a good understanding of their operation: **1 driver out of 2** equipped with ADAS declares having **received no explanation** when the vehicle was purchased.

Traffic offences

Nearly 27 million traffic violations were recorded in 2021 (+ 8 % compared to 2019).

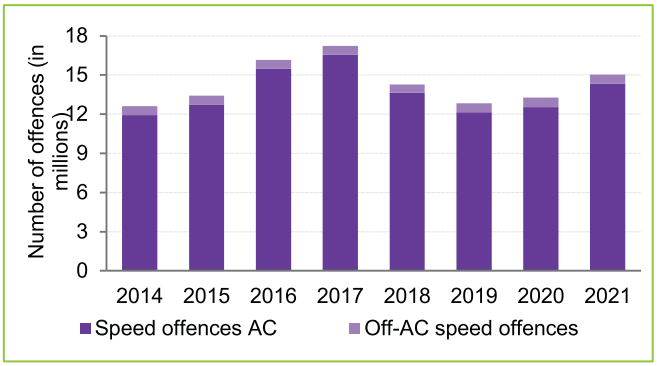
Municipal police recorded 7.2 million violations, of which 5.8 million relate to dangerous parking.

Number of offences in 2021

	Misdemeanour	Fine
Speed	218	15 041 597
Administrative rules*	236 146	995 343
Parking		1 212 869
Driving Rules		1 053 348
Priority rules		688 317
User equipment		249 539
Hit and run after an accident	181 894	
Lighting and signals		156 087
Alcohol level	104 292	34 342
Illegal drugs	105 582	
Exceeding		58 078
Refusals and hindrances	35 026	
Truck transport	1 467	27 052
Alcohol and illegal drugs	11 757	
Unintentional homicides or injuries	2 689	
Other	167	6 943
Total	**679 238**	**19 523 515**

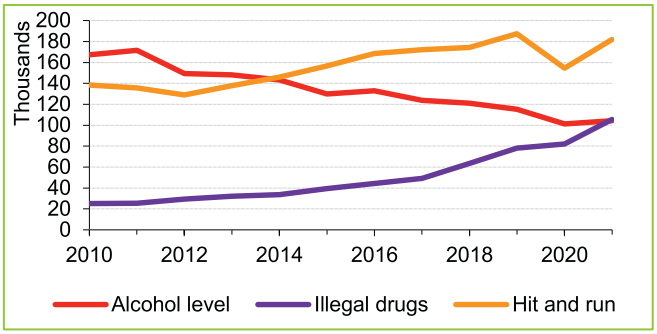
Source: *Traffic offences and the impact on the license*, Statistical report for the year 2021, ONISR, 2022.
* Lack of driver's license, non-insurance and false plates for misdemeanours.

Evolution of speeding offences



Source: *Traffic offences and the impact on the license*, Statistical report for the year 2021, ONISR, 2022.

Evolution of offences related to alcohol, illegal drugs and hit-and-runs



Source: *Traffic offences and the impact on the license*, Statistical report for the year 2021, ONISR, 2022.

N.B.: In 2021, the families of tickets (excluding speeding and red lights), containing more categories of offences, are not comparable to those of the 2020 report.

Offences - excluding municipal police

20.2 million offences were recorded in 2021. They include 97 % fines (19.5 million) and 3 % misdemeanours (679,238).

74 % are **speeding** offences, i.e. 15 million offences, including 218 misdemeanours.

1.2 million offences for **dangerous parking**, i.e. 6 % of offences.

1.2 million breaches of **administrative rules**, i.e. 6 % of breaches including 132,765 offences for lack of a driving license (20 % of offences), 77,649 for non-insurance (11 % of offences) and 25 732 for false license plates (4 % of offences).

1.1 million non-criminal breaches of the **driving rules (**including 395,943 use of mobile **phones**, 34,483 wearing of headsets).

688,317 non-criminal breaches of **priority rules**, including 373,822 “red lights” recorded by automated control (CA). 131,838 violations of crossing red lights outside CA and 116,032 violations of not respecting the panel « stop ».

249,539 non-criminal offences for defects in user equipment, including 129,032 for **failure to wear safety belts**, 32,178 for **failure to wear helmets** and 47,250 for **failure to wear gloves on powered two-wheelers**.

156,087 offences concerning the **condition of vehicles.** 138,634 alcohol-driving violations, of which 104,292 are misdemeanours (75 %).

Some offences are only made up of misdemeanours. These are 181,894 **hit and run offences** after an accident (27 % of offences), 105,582 offences related to the use of **illegal drugs** (16 % of offences), 35,026 offences for refusal and obstruction of checks (5 % of offences).

Alcohol and illegal drugs controls

7 million blood alcohol screenings were carried out in 2021, of which 3.2 % were positive. 97 % of these checks are preventive (at the initiative of law enforcement) or in the event of violations, 3 % are positive.

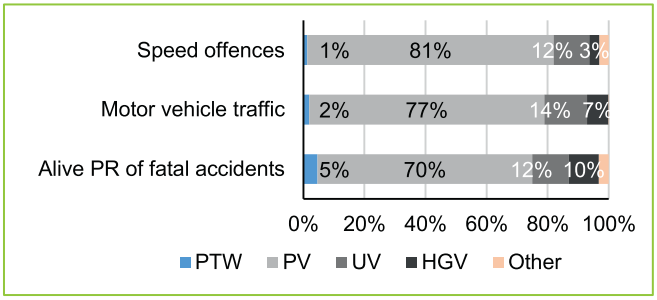
77,166 checks were carried out during injury accidents (including fatalities), 8.5 % of users tested had a blood alcohol level above the legal limit, a steady increase since 2016. 115,532 screenings took place during accidents materials. They are positive in 10 % of cases. 630,957 illegal drugs tests were carried out in 2021, of which 17 % were positive. 86 % of these checks are preventive or in the event of infringements, 19 % are positive. 46,660 screenings were carried out in the event of injury accidents (including fatalities), 6.5 % of the drivers tested involved in the injury accidents were positive for illegal drugs.

Automated control device

Radars	AC fixed speed (including turret)	AC mobile speed	AC speed radar autonomous	AC red lights
2014	2 511	841		770
2015	2 541	787	22	788
2016	2 525	884	202	786
2017	2 509	884	275	778
2018	2 499	904	262	763
2019	2 137	950	249	758
2020	2 326	905	249	744
2021	2 393	973	312	710

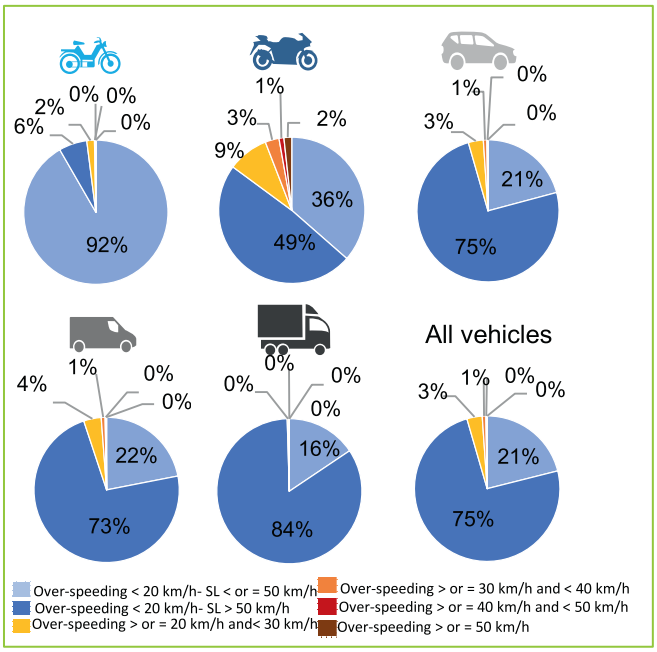
Source: DSR-DCA

Breakdown of fines, traffic and PR of fatal accidents by type of vehicle in 2021



Source: Traffic offences and the impact on the license, Statistical report for the year 2021, ONISR, 2022
Vehicle traffic, MTE-SDES.

Speeding offences according to the value of the excess, for certain modes of travel in 2021



Source: Traffic offences and the impact on the license, Statistical report for the year 2021, ONISR, 2022.

4,388 automatic radars

24 % of fixed automatic **speed radars** are on motorways, 69 % on national or departmental roads, 7 % on municipal roads.

4 % of **red light radars** are in urban areas of 500,000 inhabitants or more, 28 % between 100,000 and 500,000 inhabitants, 50 % between 10,000 and 100,000 inhabitants and 18 % in urban areas of less than 100,000 inhabitants.

As of 12/31/2021, the fleet of radar cars is made up of 385 vehicles, of which 150 have been transferred from law enforcement to outsourced driving operators (out of 38 departments, see page 171).

Speed control

In 2021, with more than 11 million offences, passenger vehicles (PV) represent 81 % of speeding offences detected by automated enforcement. This share is equivalent to that of traffic (77 %) whereas the share of light vehicles is only of 70 % among the presumed responsible (PR) for fatal accidents who are alive. For utility vehicles (UVs), the second largest volume with nearly 1.7 million speeding offences recorded by the turnover, i.e. 12 %, is a share close to that of traffic (14 %) and that of the PRs of fatal accidents who are alive (12 %).

With 0.5 million fines, HGVs account for 3 % of speeding offences recorded by the automated control, while they represent 7 % of traffic. Nevertheless, with 10 %, the share of alive PRs in fatal accidents in heavy goods vehicles is more than three times that of offences.

Powered two-wheelers (PTW) represent 5 % of alive PRs but represent only 2 % of traffic and 1.3 % of speeding violations, noted by the AC. The overrepresentation of alive PRs in PTW is also due to their high vulnerability in the event of an accident.

Powered two-wheelers differ from other vehicles, the share of speeding less than 20 km/h in town (for a speed limit < 50 km/h) is higher for moped riders (92 %) and motorcyclists (36 %) than for all vehicles (21 %). The share of excessive speed over 20 km/h is higher for motorcyclists (15 %) than for all vehicles (5 %). More specifically, the share of excessive speed over 50 km/h is 2 %, whereas it is 0.1 % for all vehicles.

The data is provided by the police for class 5 offences and fines and by the national agency for the automated processing of offences (ANTAI) for fines recorded by electronic report (PVe) or by automated control.

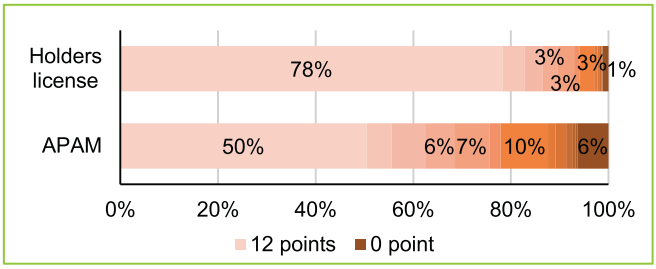
Demerit point system

The number of points withdrawn in 2021 stands at 14.6 million for 10.2 million offences processed generating point withdrawals.

	2019	2020	2021
Offences handled	8 510 521	7 780 737	10 243 098
Points withdrawals	12 699 438	11 440 727	14 638 107
Number of zero balance licenses	62 315	46 390	74 902
Of which probationary license with zero balance	*13 197*	*9 183*	*13 988*
Initial capital restored after 2 or 3 years	3 613 105	4 005 128	3 608 452
Recovery of one point after 6 months / 1 year *	5 707 046	4 659 038	6 285 268

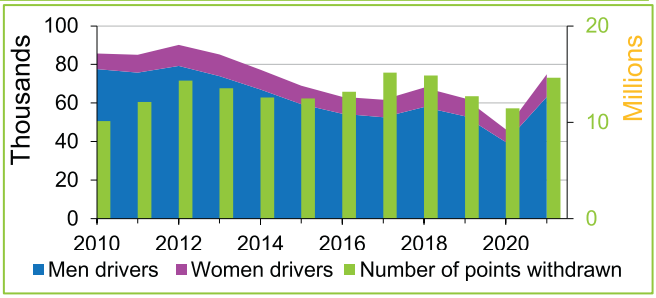
* Without a new infraction leading to a withdrawal of 1 point.
Source: *Violations of the traffic code, the impact on the license points* - Report 2021, ONISR, 2022.

Comparison between the number of points held by APAMs and the number of points for all drivers



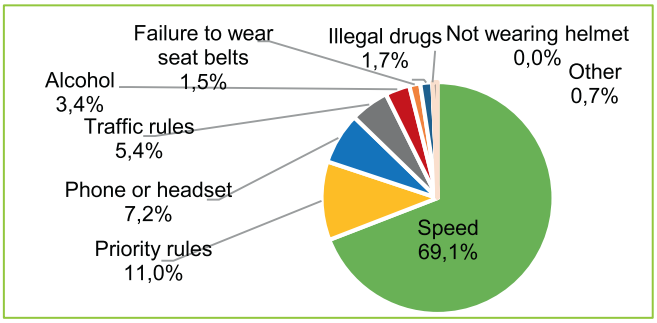
Source: Violations of the traffic code, the impact on the license points - Report 2021, ONISR, 2022.

Evolution of the number of licenses invalidated for nil balance of points, compared to that of the number of points withdrawn



Source: Violations of the traffic code, the impact on the license points - Report 2021, ONISR, 2022.

Distribution of the number of points withdrawn by family



Source: *Offences against the traffic code, the impact on the driving license* - 2021 report, ONISR, 2022.

In 2021, 14.6 million points were withdrawn:
10.1 million for speeding
1.6 million for non-compliance with priorities
1.0 million for phone/headset use
850,000 for traffic rules (excluding phone)
507,000 for alcohol level
250 000 for illegal drugs use
220,000 for not wearing a safety belt.
56.3 % of points are deducted for **1-point** offences
6.1 % for **6-point** offences.

8 out of 10 drivers still have 12 points on their license but only 50 % of presumed responsible of fatal accidents (APAM) still have these 12 points on their license.

Driver's license invalidated for zero points balance

In 2021, 74,902 licenses were invalidated for lack of points. In 84 % of cases, the driver is a man.

Licenses invalidated for a single reason for the offense concern 4,034 people, among them:

- 1 403 people for the single offence of drunken driving or alcohol (6 points),
- 760 people for the sole reason of driving despite the use of illegal drugs (6 points) ;
- 947 people for the sole reason of not respecting the stop sign or a red light (4 points) ;
- 129 people for the sole reason of excessive speed of at least 50 km/h (6 points) ;
- 219 people got their driver's license invalidated for the sole reason of speeding less than 20 km/h (1 point), against 121 in 2019.

Restitution of points

3.6 million drivers saw their initial capital restored by 12 points after 2 or 3 years without a new offence, down from - 9.9 %.

6.3 million drivers have recovered a point after 6 months without a new offence, i.e. + 37.9 %.

In 2021 (provisional data), 25,907 internships were organized for the benefit of 360,198 interns, i.e.:
336,169 trainees for reconstitution of the capital of points (so-called « points license »),
24,029 trainees in alternatives to legal proceedings or in penal composition (known as « justice »).

In 2021, 904,999 B permits were issued as well as 7,251 A1 permits and 108,799 A2 permits.

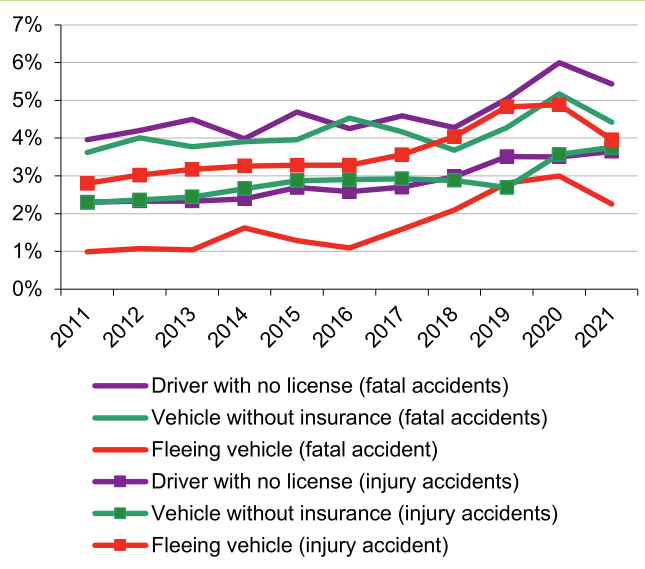
N.B: Data on offences reported by the police are recorded within one month of the offence. The points are actually withdrawn several months later: for fines, upon payment of the fine or when all administrative remedies have been exhausted; for misdemeanours, when the judgment is pronounced.

License, insurance and hit and run in accidents

License status for drivers involved in injury accidents

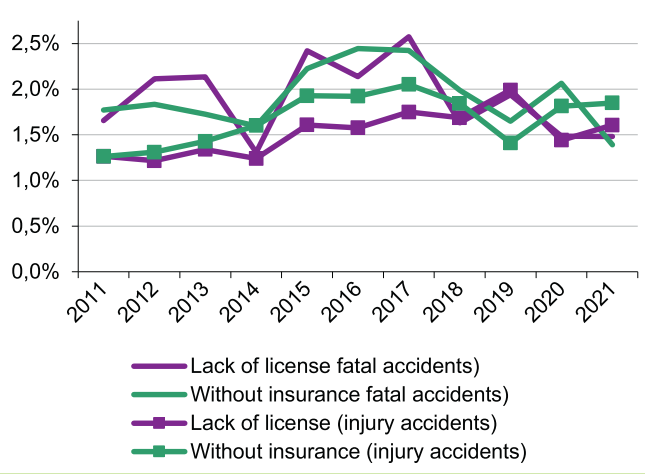
	Valid license	License invalid suspended	No license	Total
Motorcycle	10 761	196	606	11 563
passenger vehicle	48 632	688	833	50 153
Utility vehicle	5 687	102	102	5 891
Heavy goods vehicles	2 475	22	11	2 508
Public transport	681	0	2	683
Other vehicle	195	10	19	224
Total	**68 431**	**1 018**	**1 573**	**71 022**

Lack of license, vehicle without insurance, fleeing vehicle: evolution of offences recorded during injury and fatal accidents



Example of reading for the year 2021:
- In fatal accidents, 5.4 % of drivers have a license defect. This proportion is 3.6 % in all accidents.
- In fatal accidents, 4.4 % of vehicles are uninsured. This share is 3.8 % of all accidents.
- In fatal accidents, 2.3 % of vehicles are on the run. This share is 4 % of all accidents.

Evolution of the share of drivers without a license or without insurance among the presumed not responsible



Driving without a license

In 2021, 5 % of drivers involved in a fatal accident and 4 % of those involved in an injury accident were driving without a valid license. These proportions have increased by 1.5 points and 1.3 points respectively in 10 years. **233 people were killed** in an accident with a driver without a valid license, representing 8 % of all people killed.

The proportion of drivers without a license among the drivers involved in fatal accidents **is higher for young adults**: it is 8 % for 25-34 years old, 7 % for 18-24 years old, 6 % for 35-44 years old, and between 0 % and 3 % over 44 years old.

62 % of drivers without a valid license involved in a fatal accident drive a passenger vehicle and 29 % a motorcycle.

In fatal accidents, 47 % of unlicensed drivers are **over the BAC limit**[1]. In injury accidents, this share is 29 %.

Among drivers presumed not responsible for injury accidents, the share of those without a valid license is 1.6 %. Assuming that this share is representative of all drivers, it can be estimated that 620,500 people drive without a license in France (for a number of valid licenses of around 38 million).

Vehicles without insurance

In 6 % of fatal accidents and 6 % of injury accidents, one of the vehicles is not insured. **191 people were killed** in these accidents in 2021. 71 % of these users killed were in the vehicle without insurance (95 % of those killed in powered two-wheelers and 60 % in passenger vehicles).

The proportion of uninsured vehicles among all motorized vehicles involved in injury accidents is 4 %. This ratio is **10 % for mopeds**, 6 % for motorcycles and 3 % for passenger vehicles.

Among drivers presumed non-responsible involved in injury accidents, the share of those driving a vehicle without insurance is 1.8 %. A calculation principle analogous to the lack of a license makes it possible to estimate the number of drivers with a vehicle without insurance at nearly 716,000.

Hit and run

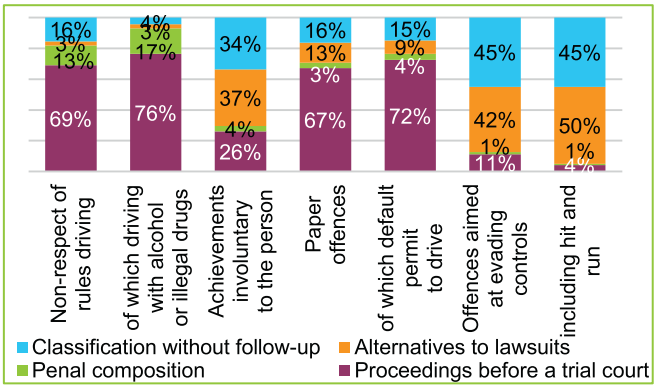
A vehicle is on the run in 3 % of fatal accidents and 7 % of injury accidents. These proportions are up on 2011 (+ 2 points for fatal and injury accidents). **98 people were killed in 2021 in a hit-and-run accident**, 104 in 2020. The share of hit-and-run accidents is higher at night (9 %) than during the day (6 %).

[1] Among drivers whose blood alcohol content (BAC) level is known.

Convictions

4 out of 10 convictions handed down by the courts in 2019 and 2020 relate to road safety offences. 411,317 perpetrators of road safety offences were referred by public prosecutors in 2019 (364,656 in 2020).

The orientations of the perpetrators to the prosecution in 2020 of the main families or offences



Source: Ministry of Justice/SG/SEM/SDSE – Cassiopée statistical file.
Scope: France mainland and DOM Convictions according to the main offence

Convictions as per the primary offence

	2019	2020
All road safety offences	**351 253**	**292 119**
Violation of rules of conduct	***176 169***	***144 893***
Driving while intoxicated	116 031	87 943
including recidivism of driving under the influence of alcohol	18 939	12 485
including driving while intoxicated and under the influence of narcotics	7 429	6 412
Driving while using illegal drugs	56 304	53 013
Great overspeeding	3 834	3 937
Unintentional personal injury	***9 234***	***7 052***
Injuries per driver without aggravating circumstance	3 601	2 611
Injuries per driver with aggravating circumstances or recurrence	4 826	3 784
including BI with ITT <= 3 months in an alcoholic state or under the influence of narcotics	1 809	1 416
of which BI with ITT > 3 month in an alcoholic state or under the influence of narcotics	179	127
Manslaughter by driver without aggravating circumstance	400	336
Manslaughter by driver with aggravating	407	321
including manslaughter in an alcoholic state or under the influence of illegal drugs	127	109
"Paper" offences	***133 062***	***111 846***
Driving a vehicle without a license	49 739	40 457
Driving while suspended	35 626	32 413
Lack of insurance	45 564	37 249
Faulty plates or false plates	2 133	1 727
Offences aimed at escaping control	***28 883***	***25 014***
Hit and run	5 989	5 006
Refusal to comply	17 239	15 237
Refusal of verification of alcoholic status	5 645	4 763
Use of police instrument disruptive devices	10	8
Other road traffic offences	***3 905***	***3 314***
All types of offences (violations + offences)	**965 324**	**798 492**

Source: Ministry of Justice/SG/SEM/SDSE – national criminal records statistical file. Scope: Mainland France and DOM

The **Cassiopé statistical database**, derived from extracts from the criminal proceedings management application of the Ministry of Justice, provides statistics on the orientations of the prosecu-

This summary is based on semi-definitive 2019 data (mainly used below) and provisional 2020 data provided by the Ministry of Justice.

Overview of Road Safety Litigation

At the beginning of the 2000s, simplified procedures were created to speed up the judicial processing of offences: the penal composition and the penal order[1]. Thus, of the 261,000 proceedings in 2019, 107,600 were court judgments, 121,700 penal orders and 31,700 penal compositions.

For offences related to **violation of driving rules**, the penal response very little takes the form of alternatives to prosecution. For example, driving under the influence of alcohol (107,000 convictions in 2019) is penalised at 18 % by penal composition, 46 % by penal order, and 36 % by judgment in court hearing.

"**Paper**" offences (driving a vehicle without a license, driving despite license suspension, lack of insurance and lack of plates or false registration plates) often give rise to a prosecution, in particular for defects in permits, where nearly seven out of ten perpetrators are prosecuted. 27 % of convictions result in prison sentences, for an average amount of firm imprisonment of 4.0 months in 2019.

69 % of **involuntary injury** harm and 50 % of offences aimed at escaping control (hit and run, refusal to comply, refusal to verify alcoholic status as well as the use of devices that interfere with police) are sanctioned by court judgments in 2019.

Multiple offences or recidivism

In the event of multiple offences, including **alcohol**, a prison sentence is imposed in 63 % of cases (compared to 19 % for a single offence). In 83 % of recidivism situations, there is a prison sentence.

6 "**paper**" offences out of 10 are associated with other offences, noted during a check.

Offences aimed at **escaping control** are often associated with other traffic offences. The sentences handed down are more severe: in 43 % of cases, imprisonment is handed down.

In the event of **involuntary manslaughter** (805 convictions in 2019), imprisonment, with or without a fixed term, is pronounced in 96 % of cases.

[1]Criminal composition, an alternative to "reinforced" prosecution and which allows the public prosecutor to propose, under the control of a judge, to the perpetrator who acknowledges the facts, to carry out one or more measures listed in article 41-2 of the Code of Criminal Procedure in exchange for the termination of the public action.
The penal order, a procedure without an authorized hearing for certain offenses and contraventions listed in article 295 of the Code of Criminal Procedure

Characteristics of persons convicted for "paper" offences in 2019

	Driving vehicle without license		Driving while suspended		Lack of insurance	
	Number	%	Number	%	Number	%
Total	**31 473**	**100**	**28 156**	**100**	**15 305**	**100**
By gender						
Men	28 517	90,6	26 066	92,6	13 259	86,6
Women	2 956	9,4	2 090	7,4	2 046	13,4
By age						
less than 18	896	2,8	-	-	66	0,4
from 18 to 19	4 021	12,8	503	1,8	923	6,0
from 20 to 24	7352	23,4	5188	18,4	3239	21,2
from 25 to 29	5 385	17,1	5 225	18,6	2 992	19,5
from 31 to 39	7 351	23,4	8 119	28,8	4 152	27,1
from 40 to 59	5 737	18,2	7 768	27,6	3 547	23,2
60 and over	731	2,3	1 353	4,8	386	2,5

Source: Ministry of Justice/SG/SEM/SDSE – national criminal records statistical file. Scope: France mainland and DOM.

Characteristics of convicts for driving under the influence of alcohol or illegal drugs in 2019

	Driving under the influence of alcohol	Driving under the influence of illegal drugs
Total	**107 428**	**50 971**
in %	*100*	*100*
By gender		
Men	87,9	93,1
Women	12,1	6,9
By age		
less than 18 y.o.	0,1	0,7
from 18 to 19 y.o.	2,5	9,6
from 20 to 24 y.o.	13,6	28,8
from 25 to 29 y.o.	14,1	21,4
from 30 to 39 y.o.	26,0	28,7
from 40 to 59 y.o.	36,1	10,6
60 y.o. and over	7,6	0,2

Source: Ministry of Justice/SG/SEM/SDSE – national criminal records statistical file. Scope: France mainland and DOM.

Characteristics of convicts for involuntary harm to the person

	Unintentional injuries per driver...		Manslaughter by driver...	
	without agg. circ.	with agg. circ. o recidivis	with agg. circ.	without agg. circ. or
Total	**3 242**	**4 383**	**401**	**404**
in %	*100*	*100*	*100*	*100*
By gender				
Men	71,3	87,3	74,8	89,4
Women	28,7	12,7	25,2	10,6
By age				
less than 18 y.o.	0,8	1,5	0,7	0,7
from 18 to 19 y.o.	6,9	6,7	6,2	8,2
from 20 to 24 y.o.	15,9	18,8	14,2	21,5
from 25 to 29 y.o.	11,5	16,3	10,7	17,1
from 30 to 39 y.o.	18,6	24,5	15,7	22,8
from 40 to 59 y.o.	26,1	25,0	29,7	22,3
60 y.o. and other	20,1	7,1	22,7	7,4

Source: Ministry of Justice/SG/SEM/SDSE – national criminal records statistical file. Scope: Mainland France and DOM

Convicts for "paper" offences are young

The perpetrators of driving without a license are very young (39% were under 25 in 2019). Young people are also very represented among those sentenced for lack of insurance (28% under 25 in 2019).

On the other hand, those convicted of driving despite license suspension are older: those under 25 represent only 20% of those convicted in 2019, their average age being 36 (compared to 30 for driving without a license and 33 for lack of insurance). This is explained by the fact that this offence implies having already been sentenced to a measure of license suspension before.

These convicts are nine times out of ten men.

Significantly older drink-driving offenders

Convicts for drunk-driving are significantly older than those for “paper” offences: 39 years on average.

Drivers in an alcoholic state or under the influence of illegal drugs responsible for manslaughter are young: 47% were under 30 in 2019.

The proportion of women has increased in recent years in drinking and driving, rising from 6% in 2000 to 12% in 2020.

Injury, manslaughter

Among those sentenced for involuntary bodily harm, there are two populations: those who were alcoholic or had the influence of illegal drugs are young (47% are under 30); those with no aggravating circumstances are much older (52% are 40 or older).

A third of those sentenced for involuntary injuries with aggravating circumstances or recidivism are in an alcoholic state or under the influence of illegal drugs.

The tort fixed fine

Since November 2018, certain "paper" traffic offences are likely to benefit from a fixed tort fine (AFD). Currently, the AFDs are neither registered in the Criminal Record nor entered in Cassiopée, but have recently been available in the information system of the National Agency for the Automated Processing of Offenses (ANTAI).

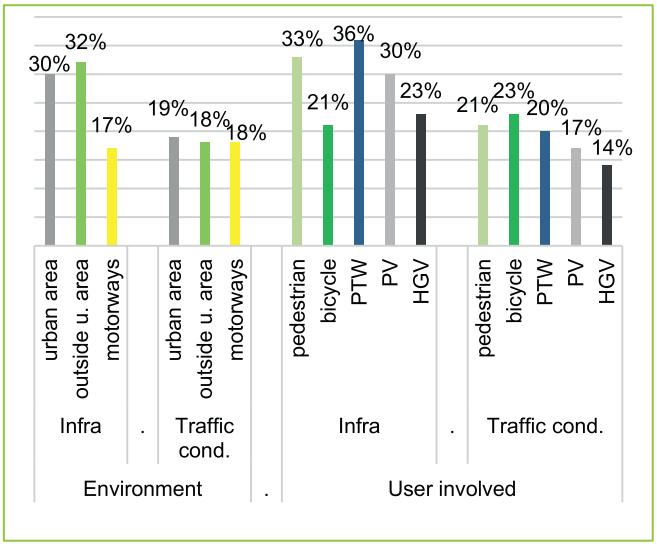
In 2020 were issued: 72,319 AFD for driving a land motor vehicle without insurance, 17,741 AFD for driving a vehicle without a license, 2,013 AFD for driving a vehicle with a license to drive in a category that does not allow driving.

Accident factors related to location, infrastructure and environment

The FLAM database

The FLAM database, created from the reading, analysis and coding of all the records of fatal accidents in 2015, makes it possible to study the factors of fatal accidents. The FLAM database ultimately contains 85 % of fatal accidents in 2015.

Proportion of accidents with the presence of factor(s) relating to the Infrastructure or Traffic conditions by environment and users involved in fatal accidents in 2015 (FLAM)



Causal factors related to the Infrastructure or Traffic Conditions, in fatal accidents in 2015 according to the FLAM database

Aggregated factors	Percentage
Lack of visibility	10%
poor adequacy of the infrastructure to the dynamic constraints *	10%
lack of possibility of avoidance and recovery	9%
lack of readability **	6%
inconsistency of the elements of the track and its environment	3%
road obstacles	3%
failure to take into account all flow s for a security purpose ***	2%
environmental conditions (w eather, glare)	7%

* Ability of the infra (slope, profile, grip...) to avoid breaks in dynamic balance (skidding, overturning...)
** Capacity of the tracks to give a fair image of the environment and the behaviour expected of the user.
*** Absence of pedestrian crossings, pedestrian refuges, or even no distinction of turning movements in intersection
Source: FLAM database on fatal accidents in 2015, Cerema, 2020.
The percentages relate to the 2,878 fatal accidents present in the database.

If the causal factors[1] of fatal accidents have a strong human-related component (92 %), the proportion of those associated with Infrastructure is estimated at 30 %. Adding the Traffic Conditions factors (18 %), the resulting Environment category is present in 39 % of these accidents. Fatal accidents attributable solely to an infrastructure or traffic conditions factor are rare (1 % for each component).

Accidents with animal

14 people were killed in 2021 in an accident involving an animal. In 11 cases, it is a wild animal. Over the period 2019-2021, this represents 48 deaths (including 41 with a wild animal).

According to the modes of transport

The share of accidents with factors related to the Infrastructure or Traffic Conditions varies significantly with the categories of users involved.

Accidents with pedestrians are particularly affected by visibility problems (23 %) caused by masks and public lighting problems, lack of consistency in the layout (8 %) or poor consideration of pedestrian flows (8 %). Environmental conditions also play a significant role in the occurrence of these accidents (13 %), particularly in connection with situations of natural glare (8 %).

Cyclists are also very affected by poor visibility (18 % of accidents) - especially those created by the environment (walls, vegetation) (10 %) - and environmental conditions (13 %) including glare situations (10 %).

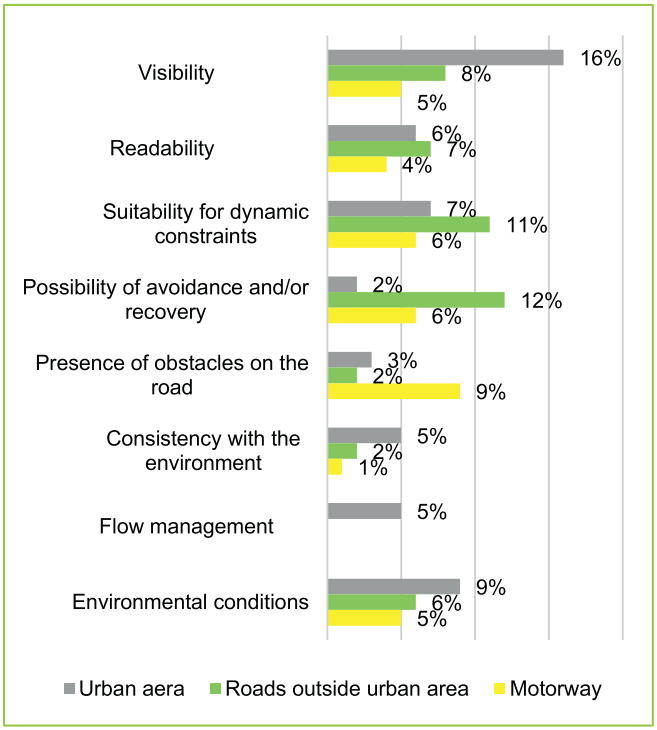
Accidents involving PTW are those with sensitive to Infrastructure factors. Although they are often due to visibility defects (16 %), they stand out for problems relating to defects in road readability (13 %), particularly in curves (7 %), and poor adequacy of the infrastructure to dynamic constraints (11 %).

Poor visibility (11 %) is also the main cause of accidents involving a car and attributable to the Infrastructure. The lack of possibility of avoidance and/or recovery as well as the inability of the characteristics of the infrastructure to avoid breaks in the dynamic balances are implicated in 9 % of these accidents.

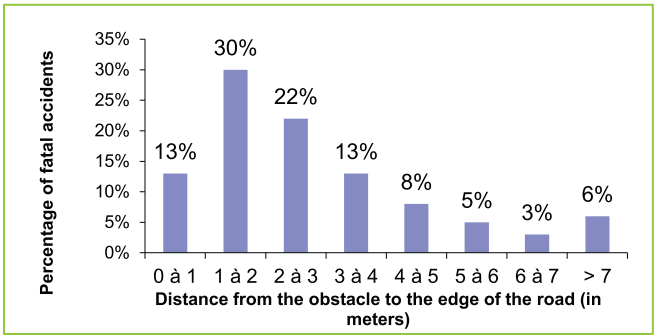
Only 14 % of accidents involving a HGV are related to the Infrastructure; the main factor identified relating to the poor adequacy of the infrastructure to the dynamic constraints (9 %).

[1] Percentages relate to triggers identified as near certain or likely by coders.

Causal factors related to the Infrastructure or Traffic conditions depending on the environment



Distribution of fatal accidents against fixed obstacles according to the distance between the obstacle and the edge of the road



Source: Fatal accidents against fixed obstacles – CETE Normandy-Centre; CEESAR - Setra - March 1999.

Importance of accident-prone configurations on roads with separate or single carriageways having been the subject of a route diagnosis as part of the SURE approach

At the scale of all routes		
Accident-prone configuration	Divided carriageways	Single carriageway
Loss of adhesion	13%	7%
Drowsiness/Hypovigilance	6%	17%
Curve readability	6%	4%
Lateral barriers	9%	12%
Intersections	0%	24%
Verge	3%	14%
Frontal impacts	0%	19%
Sudden slowdown	16%	0%

Key of reading: on all the routes diagnosed, the percentage of accidents affected by the loss of grip is 13 % on roads with divided carriageways, 7 % on roads with single carriageways.
Source: European Directive on the safety of road infrastructures – analysis of SURE diagnostics – April 2021 (Cerema)

According to the road environment

Infrastructure factors are more present in urban areas (30 %) and interurban areas (32 %) than on motorways (17 %). The proportion of fatal accidents linked to traffic conditions is, however, similar depending on the environment.

Accidents in **urban areas** are distinguished by a significant prevalence of visibility problems (16 %), due to visibility masks (11 %) whether fixed (8 %) or mobile (4 %), or public lighting (4 %). Infrastructure developments that do not sufficiently take pedestrians into account (walkways, wide roads) have also been identified.

In **interurban** areas, the impossibility of implementing and/or succeeding in avoidance or recovery manoeuvres is identified in 12 % of cases. It is mainly explained by an insufficient width of the shoulders or their non-existence, and the inadequacy of the road to the dynamic constraints (11 %) due to the surface condition of the roadway (wet, presence of foreign bodies, bad condition…).

On **motorways**, the main issue relates to traffic conditions: obstacles on the road (9 %), whether mobile (animals) or not fixed (vehicle stopped in the middle of the road or on the hard shoulder).

Side obstacles

A side obstacle, or “fixed obstacle”, designates any object on the side of the road likely to aggravate, in the event of an impact, the consequences of a vehicle leaving the road. Nearly half of fatal accidents against fixed obstacles are less than 2 m from the edge of the road.

The five types of fixed obstacles hit the most in fatal accidents are: trees (27 %), ditches, embankments or rock faces (16 %), walls or buildings (10 %), poles (9 %), and safety barriers (15 %).

Installed to protect against an impact against an obstacle, restraint devices (slides) are themselves obstacles. While the metal sliders struck at a certain angle deform and put the vehicle back on the track, the concrete sliders, which do not deform, better protect against crossings of the central reservation (impacts with vehicles arriving in the opposite direction) but send the vehicles in circulation according to the initial angle of impact.

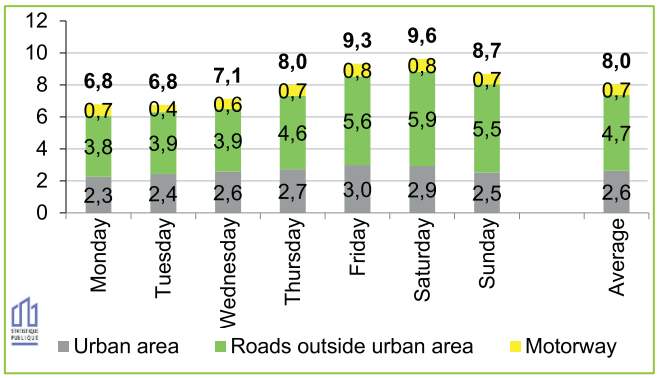
Route diagnostics

The SURE method (see page 28) provides for the analysis of accidents by route. The analysis of the diagnostics carried out shows a significant difference in the accident-prone configurations between the types of roads, highlighting the lower level of road safety without central separation: frontal impacts, intersections, shoulders, and side obstacles.

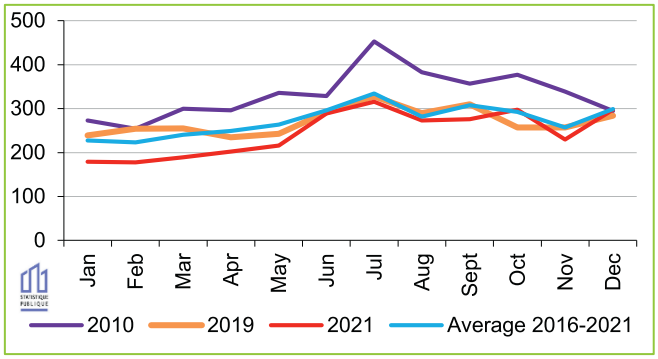
High accident periods and weather conditions

Half of the people who die do so on weekends, bank holidays and the eves of bank holidays. 79 % of accidents occur in normal weather conditions.

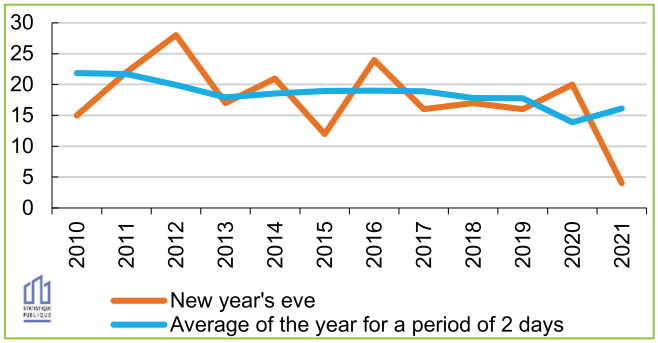
Average number of people killed by day of the week and road environment



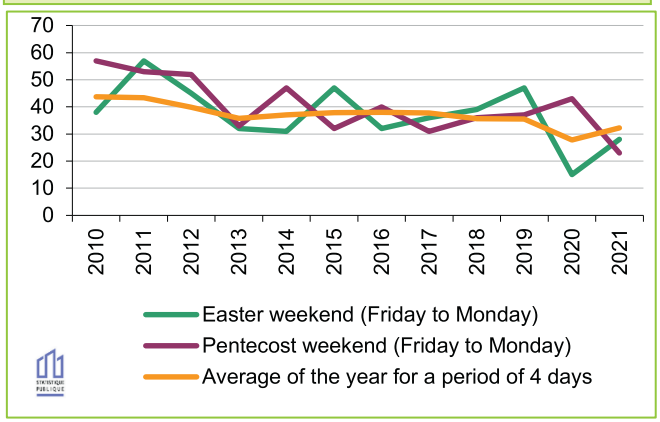
Number of people killed by month



Number of people killed on New Year's Eve (December 31 and January 1)



Evolution of the number of people killed during Easter and Pentecost weekends



Day-to-day mortality

On average, **8 people were killed every day in 2021** compared to 6.9 in 2020 and 8.9 in 2019. The daily average varies depending on the day. It is lower from Monday to Thursday (7.2 people killed) than from Friday to Sunday (9.2 people killed), when trips are more focused on leisure.

Moreover, in 2021, out of the 365 days, there has not been a day without at least one person being killed.

On average, 57 users are killed each week. The weekly variability is however strong: from 38 deaths (week of January 25, 2021) to 82 deaths (week of May 30, 2021).

In 2021, the average monthly mortality is 245 deaths. It varies from 178 people killed in February to 316 in July. The usual peak in July remains present in 2021.

Pedestrian mortality is usually higher in the winter months, especially since pedestrians are less visible at night. However, the curfew had a protective effect on pedestrians in the 1st quarter of 2021. In addition, in November and December 2021, pedestrian mortality was - 17 % lower than in 2019.

Long weekends

8 people died on the roads during the long weekend from December 31, 2020 to January 2, 2021, extremely low value due to traffic restrictions linked to the health crisis.

The Easter weekend sees an increase in mortality due to a less strict lockdown in 2021 than in 2020. However, excluding the year 2020, this mortality is lower than the average mortality between 2010 and 2021.

For the same reasons, the Pentecost weekend saw a particularly low mortality in 2021: with 23 killed, it is the least deadly Pentecost weekend in 20 years.

The weekends concentrating the highest mortality in 2021

On average, on weekends (Saturday-Sunday), 18 users are killed on the roads. Weekends with the highest mortality are:

- October 9-10: 34 killed,
- July 10-11 and August 28-29: 30 killed,
- June 12-13: 29 killed.

Most serious accidents in 2021

Of the 2,771 fatal accidents that occurred in 2021:

- 1 accounts 5 people killed;
- 7 (0.3 %) have 4 people killed;
- 18 (0.6 %) have 3 people killed;
- 112 (4 %) have 2 people killed.
- 2,633 (95 %) have 1 person killed.

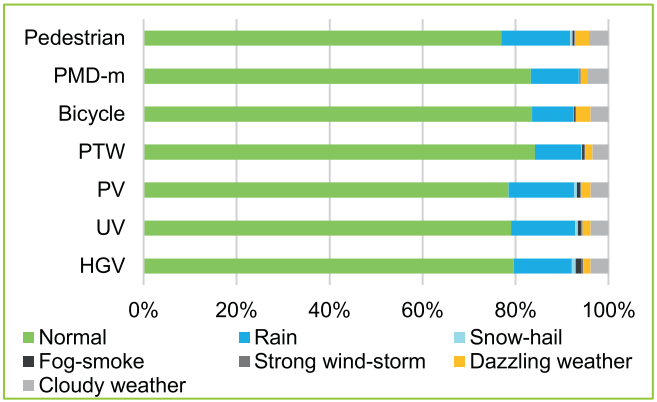
Weather conditions influence accidents

Thus, in rainy weather, and even more so in foggy weather, **visibility** between users and on road elements is reduced.
Similarly, on wet or snowy roads, braking distances are longer due to less **grip**.

Persons killed or injured (BAAC) according to atmospheric conditions (annual averages for 2018, 2019 and 2021)

	Killed		Injured		K/100 I
	Nb	%	Nb	%	Nb
Normal	2 514	77%	56 075	79%	4
Light rain	312	10%	7849	11%	4
heavy rain	78	2%	1 634	2%	5
Snow - hail	22	11%	364	7%	6
Fog - smoke	63		602		11
Strong w ind - storm	18		185		10
dazzling time	80		1 097		7
Cloudy w eather	149		2485		6
Other	37		403		9
Total	**3 272**	**100%**	**70 693**	**100%**	**5**

Modal shares of accidents according to certain meteorological conditions (2018, 2019 and 2021)



People killed by weather and road type (annual averages for 2018, 2019 and 2021)

	Day			Night		
	Motor-way	Outside urban area	In urban area	Motor-way	Outside urban area	In urban area
Normal	103	898	479	110	512	315
light rain	4	95	34	12	104	48
heavy rain	3	25	7	4	23	14
Snow - hail	3	8	1	1	6	2
Fog - smoke	1	10	0	1	32	8
Strong w ind - storm	0	6	2	1	7	0
Dazzling w eather	1	45	25	1	4	3
Cloudy w eather	5	51	22	7	47	16
Other	0	5	2	1	9	4
Total	**122**	**1 142**	**573**	**137**	**745**	**410**

Weather conditions

This page presents the average accident rate over the three years 2018, 2019 and 2021. This makes it possible to smooth out specific weather effects and not to introduce bias linked to travel restrictions in 2020.

Over the three years, 16 % of accidents took place during poor weather conditions, three-quarters of which in rainy weather. Accidents in snow, hail or fog remain marginal, but have a higher severity.

Bad weather has an impact on accidents through the combination of reduced mobility for certain modes and an increase in the risk linked to reduced visibility and grip.

Rain

Rain is mentioned in 12 % of accidents.

For **motorcyclists, cyclists and PMD-m**, the impact of the weather is visible, in connection with **reduced mobility** in bad weather: 16 % of accidents in normal weather were caused by a motorcycle, compared to 10 % in rainy weather. Similarly, in normal weather, 7 % of accidents were caused by a bicycle or a motorized PMD compared to 5 % in rainy weather.

In rainy weather, the share of accidents at night is higher than usual: in normal weather, 29 % of accidents take place at night, but in rainy weather, **half of accidents take place at night**.

Fog

Over these three years, **accidents in foggy weather** are **2.4 times more serious than in normal weather (10.6 killed per 100 injured against 4.4 in normal weather)**. This is partly because accidents in foggy weather occur more frequently (59 %) outside urban areas, where the severity is greater, than those occurring in normal weather (25 % of accidents).

In 2021, **18-34 years old** represent **44 % of deaths** in foggy weather, compared to 31 % in normal weather.

Bad weather and travel[1]

The number of daily trips is little influenced by the weather, except in extreme conditions (very heavy rain, snow, extreme cold). Travel by bicycle or motorbike decreases in rainy weather, but is especially sensitive to strong winds. In rainy weather, accompanying trips increase, those by bike decrease.

[1] Christian B. et *al, How the weather can influence your data collection ?,* European Transport Conference, 2016. Marchal A. *Etude de la fréquentation vélo selon différents facteurs,* Villes cyclables, 2017. Rabaud M. *Parlons de la pluie et du beau temps,* 2020, JTD Cerema.

Accident factors in the motorway environment

On the motorway, one in two people killed is a passenger vehicle user and 9 out of 10 are men. A third of those killed were in an accident involving a single vehicle without a pedestrian.

2021	2019	2010	Evolution 2010-2021	Evolution 2010-2019
248	263	256	- 3%	+ 3%

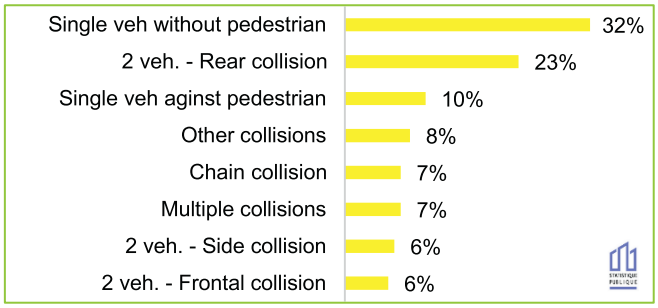
Annual average change*	2019 and 2021	2010 and 2019
Killed on the motorway	- 2,9%	+ 0,3%
Killed other environments	- 4,9%	- 2,5%
Whole killed	- 4,7%	- 2,3%

* Reading: between 2019 and 2021, the number of fatalities on the motorway has decreased on average by - 2.9 % per year.

Motorway risk estimation

Mortality on the motorway is lower than on all networks, with **1.6 killed per billion km travelled** against 5.2. In addition to the ban on bicycles, tractors and pedestrians, the characteristics of this type of infrastructure, in particular the materialized separation between the two lanes and the fences, prevent, as far as possible, frontal collisions and accidents related to wildlife crossings.

Percentage of road users killed by type of collision on the motorway



In 2021, **248 people were killed on the motorway**, i.e. 15 fewer deaths compared to 2019. This network accounts for 8 % of total mortality, a share that has fluctuated between 6 and 9 % since 2010.

A **third** of road users killed are between **18 and 34 years old**, and half are between **35 and 64 years old**. Compared to 2019, the proportion of fatalities aged 18 to 24 increased by + 18 % while that of those aged 75 and over decreased by - 60 %.

Compared to 2019, the number of users killed has decreased by nearly - 6 %. The effect of the confinement from March 17 to May 3, 2021 is visible and highlights a decrease in the number of motorway fatalities during this period. The month of December 2021 records 8 more people killed than in December 2019.

In 2021, on the motorway three quarters of fatalities (excluding pedestrians) are drivers, and **a quarter are passengers**. The latter represent only 14 % of deaths in urban areas, 16 % on roads outside urban areas.

Typology of collisions

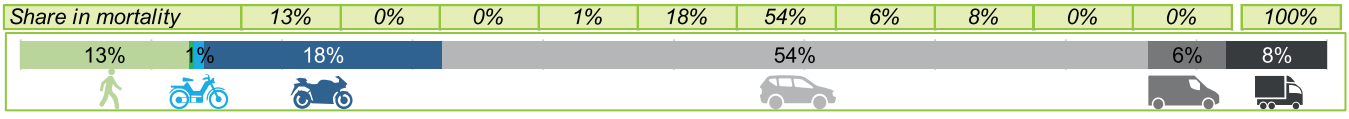
In 2021, three out of ten accidents involve a rear-collision between two vehicles. A quarter of personal injury accidents involve a **single vehicle**, without a pedestrian. These accidents caused **the death of a third of the users** on this network.

According to the mode of travel

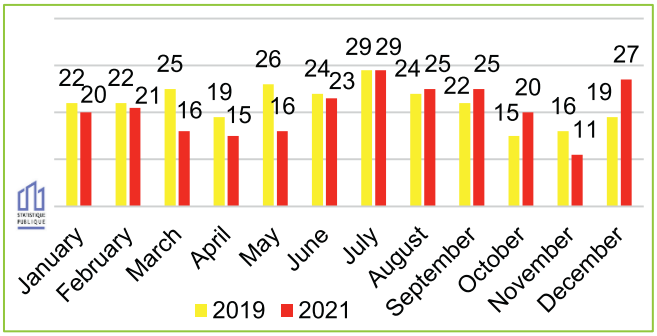
In 2021, **motorists** represent half of motorway fatalities with 134 PV users killed. Despite a lower number of fatal accidents in 2021 than the 2019 result, 13 **motorcyclists** were killed, an increase of + 40.5 %. The proportion of **pedestrians among the fatalities (13 %)** reached a level lower than that observed since 2014. 15 fewer pedestrians were killed in 2021 compared to 2019. **16 %** of injury accidents on the motorway **involve a HGV** while **one-third of motorway fatalities** occur in accidents involving HGV.

Number of people killed on the motorway by mode of travel and user hit

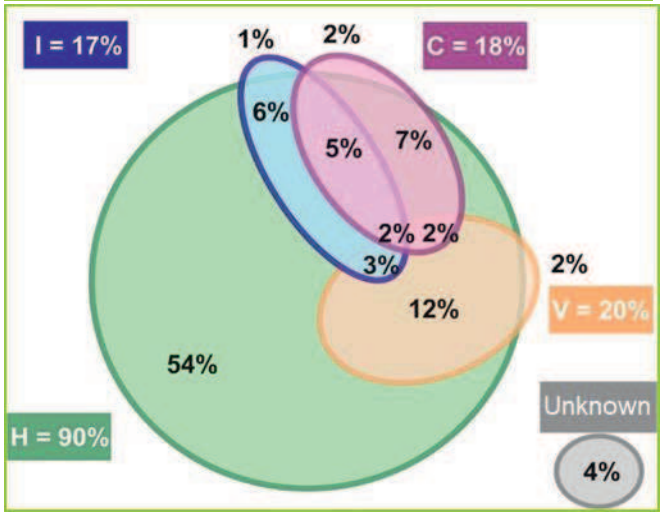
										Other	Total
SINGLE ACCIDENT	0	0	0	0	15	47	5	12	0	0	79
COLLISION WITH											
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	1	0	0	0	0	1
	14	1	0	0	14	23	1	3	0	0	56
	2	0	0	1	5	3	1	0	0	0	12
	8	0	0	0	4	29	5	3	0	0	49
	1	0	0	0	0	0	0	0	0	0	1
Other	1	0	0	0	0	0	0	0	0	0	1
MULTICOLLISION	6	0	0	1	7	31	3	1	0	0	49
TOTAL	32	1	0	2	45	134	15	19	0	0	248
Share in mortality	*13%*	*0%*	*0%*	*1%*	*18%*	*54%*	*6%*	*8%*	*0%*	*0%*	*100%*



Number of people killed on the motorway per month in 2019 and 2021

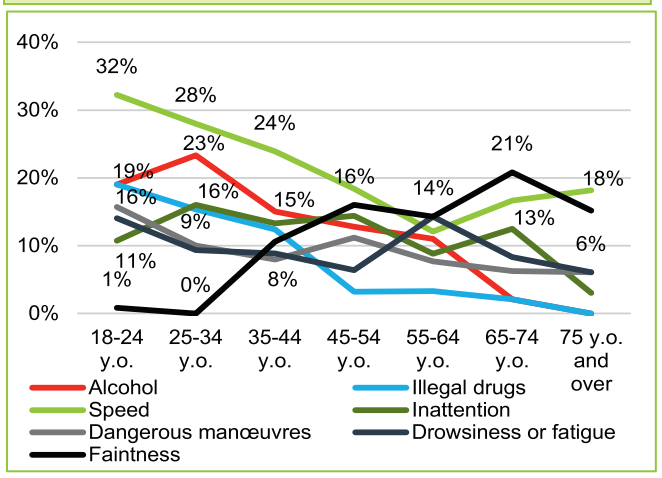


Causal factors of fatal motorway accidents in 2015



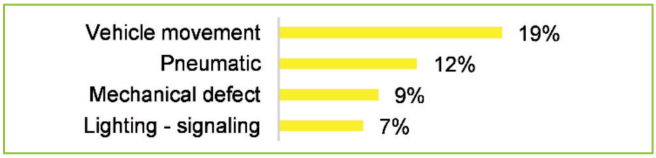
Legend of factors: H = Humans; V = Vehicle; I = Infrastructure; C = Traffic conditions; Unknown = unidentifiable causes. Source: FLAM study, Cerema, 2021

Factors of those presumed responsible for fatal accidents on motorways in 2019-2021



"Dangerous manoeuvres" includes the user factors of changing lanes, dangerous overtaking and non-respect of safety distances.

Proportion of main vehicle-related factors among the factors identified in fatal accidents



Location factors

In 2019-2021, fatal accidents (660) occurred in 81 % of cases on a **straight** section, and in 20 % of cases on **wet** pavement. 19 fatal accidents occurred during **road works**, 9 in tunnels and 6 in toll payment zones.

In 2021, 56 % of people killed on motorways were killed in an accident where the vehicle hit an **obstacle** bordering the road. In 61 % of cases it is a slide (2/3 metal, 1/3 concrete). The slides being used to protect from more aggressive obstacles and the unprotected obstacles being far from the edge of the roadway on the motorway, the trees represent only 7 % of the fatalities on obstacle, the ditches 6 %, the walls or piles of bridge 4 %; but parked vehicles 9 %.

Human factors

On the motorway from 2019 to 2021, the main reason for travel by those presumed responsible for fatal accidents is the "leisure walk" reason (4 out of 10 cases). The trip reason "professional activity" is identified in a third of cases on the motorway compared to a quarter of cases on other road networks.

Among the factors listed among those presumed responsible for fatal accidents are **speed** (1/4), **alcohol** (15 %) and then **inattention** (12 %). In one out of ten cases, illegal drugs and dangerous manoeuvers (changing lanes, dangerous overtaking and non-respect of safety distances) are listed respectively, then drowsiness or fatigue (9 %) and faintness (9 %).

The “excessive or inappropriate speed” factor particularly concerns young people, and decreases with age. The same applies to the alcohol factor, which practically does not concern people over 65. The illegal drug factor concern more particularly 18-44 years old. Conversely, the “drowsiness and fatigue or faintness” factor increases from the age of 35-45 to reach a peak around the age of 65-75. Apart from people aged 75 or over, the “inattention” factor affects all age groups.

Vehicle factors

In 2021, the most represented vehicle-related fatal accident factor among the identified factors is the movement of the vehicle. The vehicle's pneumatic factors and mechanical defect together represent 21 % of the factors identified.

In 2021 on the motorway network under **concession**, 12 injury accidents involving **motorway staff in intervention** were recorded (figure identical to the average for 2010-2019), 7 accidents out of 10 occur on the hard shoulder or the lane of right.

Source: Safety report for staff working on concession motorways in 2021, ASFA, 2022

Accident factors on roads outside urban area

59 % of people killed in France are on roads outside urban areas. A speed factor is noted in one out of three fatal accidents.

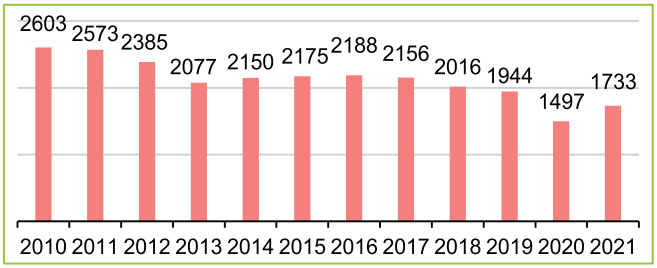
2021	2019	2010	Evolution 2010-2021	Evolution 2010-2019
1 733	1 944	2 603	- 33.4 %	- 25.3 %

Annual average change*	2019 and 2021	2010 and 2019
Killed outside urban area	- 5.6 %	- 3,2 %
Killed other environments	- 3.5 %	- 0.7 %
Whole killed	- 4,7 %	- 2,3 %

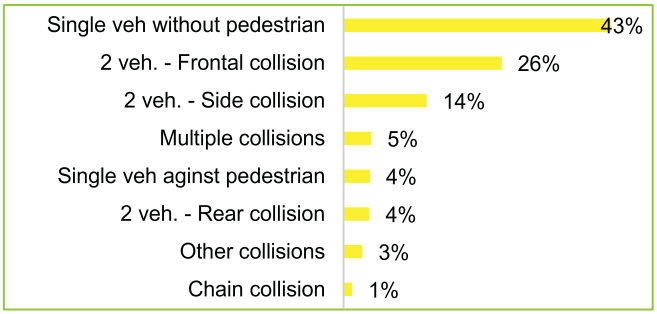
* Reading: between 2010 and 2019, the number of deaths outside urban areas decreased on average by - 3.2 % per year.

These pages concern roads outside urban areas within the meaning of article R110-2 of the Highway Code, i.e. outside the areas delimited by the entry (EB10) and exit (EB20) signs of urban areas. Motorways are excluded.

Evolution of the number of people killed per year on roads outside urban areas since 2010



Share of road users killed by type of collision on roads outside urban areas



In 2021, 1,733 people were killed in an accident outside urban areas, representing 59 % of road fatalities. 211 lives were saved compared to 2019, a decrease of - 11 %.

Since 2010, the proportion of deaths outside urban areas decreases compared to deaths in other areas, from 65 % in 2010 to 59 % in 2021.Those killed are overwhelmingly men. They represent a total of 79 % of those killed. In 2021, the populations at risk for fatal accidents remain 18-24 years old (18 % of fatalities), 25-44 year olds (28 %) and 45-64 years old (25 %).

Saturday is the day of the week with the most users killed (18 % of deaths). Friday, Saturday and Sunday together account for 51 % of fatalities. Fatal accidents occur more during the day than at night, with 63 % of accidents during the day and 37 % at night, compared to 56 % and 44 % respectively in 2020.

Typology of collisions

Accidents without a third party represent 43 % of people killed (32 % on motorways), accidents with frontal collisions 26 % (6 % on motorways), collisions from the side 14 % (7 % on motorways) and rear-end collisions (4 % versus 23 % on motorways)

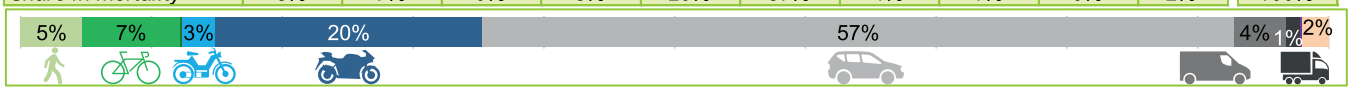
According to mode of travel

On roads outside urban areas, **80 % of people killed are motorists or motorcyclists**. Compared to 2019, the number of fatalities fell for all modes of travel except HGVs (19 killed in 2021 compared to 13 in 2019) and especially bicycles. **The number of cyclists killed increases by 36 % from 95 in 2019 to 132 in 2021.**

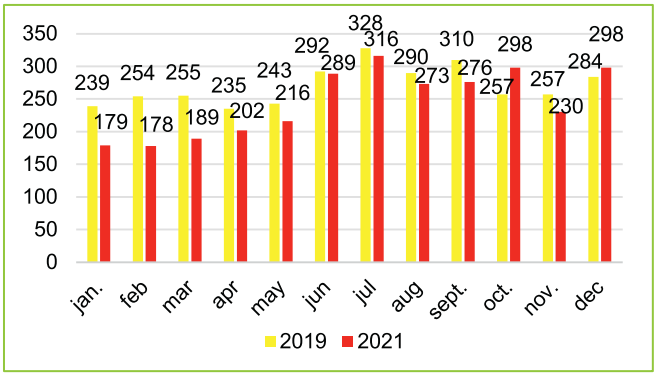
According to ONISR estimates (see page 191), in 2021 there would have been 7,500 serious injuries (MAIS3+), including 200 pedestrians, 1,200 cyclists, 400 PMD-m users (therefore 19 % of soft modes); 2,800 PTW users (37 %). 57,000 people would have light or moderate injuries (MAIS1-2).

Number of people killed on roads outside urban areas by mode of travel and user hit

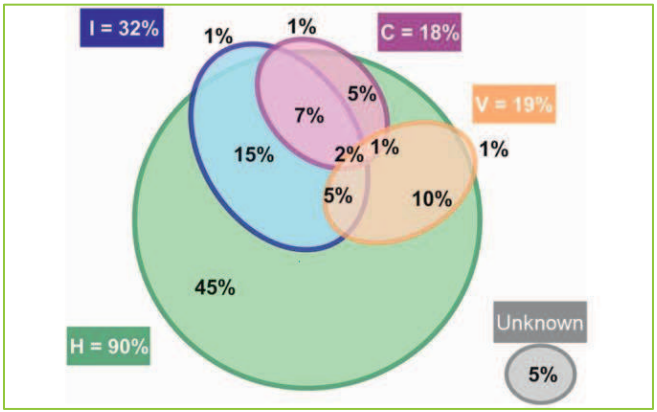
										Other	Total
SINGLE ACCIDENT	0	40	1	13	135	499	30	10	1	23	752
COLLISION WITH											
	0	0	0	0	0	0	0	0	0	0	0
	0	4	0	0	1	0	0	0	0	0	5
	0	0	0	0	0	0	0	0	0	0	0
	0	1	0	0	2	0	0	0	0	0	3
	1	3	0	1	8	4	0	0	0	0	17
	52	47	1	23	130	226	7	2	0	6	494
	9	14	0	4	24	57	3	0	0	2	113
	7	7	1	0	13	116	22	5	1	2	174
	0	0	0	0	1	6	1	0	0	1	9
Other	5	4	0	0	11	18	2	0	0	1	41
MULTICOLLISION	8	9	0	3	29	70	4	2	0	0	125
TOTAL	82	129	3	44	354	996	69	19	2	35	1733
Share in mortality	*5%*	*7%*	*0%*	*3%*	*20%*	*57%*	*4%*	*1%*	*0%*	*2%*	*100%*



Number of people killed outside urban areas, each month, in 2019 and 2021

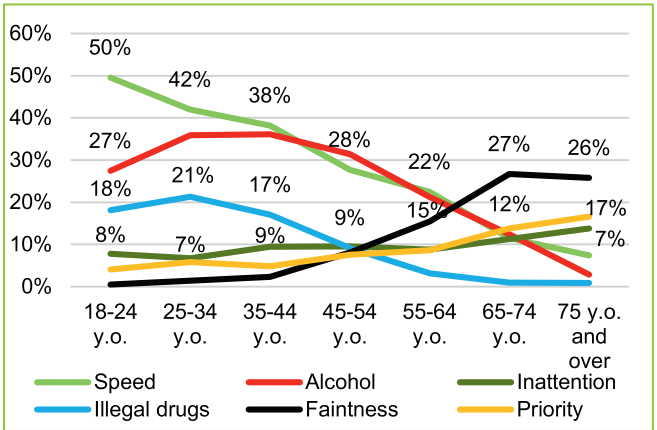


Causal factors of fatal accidents outside urban areas in 2015

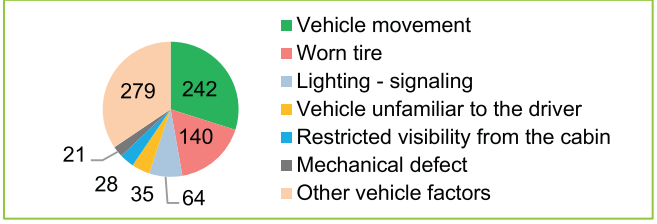


Legend of factors: H = Human; V = Vehicle; I = Infrastructure; C = Traffic conditions; Unknown = unidentifiable causes.
Source: FLAM study, Cerema, 2020.

Factors of those presumed responsible for fatal accidents outside urban areas in 2019-2021



The main drivers of fatal vehicle-related accidents from 2019 to 2021



Speed limit

On July 1, 2018, the speed limit was lowered on roads outside urban areas without central separation, which represent the bulk of the network of roads outside urban areas. The number of deaths averted is estimated at more than 200 in a normal year (Cerema, *Rapport final d'évaluation du 80 km/h*, 2020). Travel restrictions linked to the management of the COVID pandemic had a moderating effect on accident rates in 2020 and 2021, which makes them difficult to compare. In 2021, the number of fatalities on the network outside urban areas of the 39 departments that have opted to raise the speed limit to 90 km/h in 2020 and 2021 on all or part of their network returned to a level similar to 2019 (672 killed in 2021 compared to 684 killed in 2019, i.e. - 1.8 %). By comparison, mortality on the network outside urban areas in the rest of the departments is - 16.0 % lower compared to 2019.

Location factors

78 % of fatal accidents occur on departmental roads, 12 % on municipal or metropolitan roads and 10 % on national roads. Outside urban areas, infrastructure-related factors are more frequent than on motorways (FLAM).

In 2021, 46 % of people killed were in an accident where the vehicle hit an **obstacle** bordering the road. In 37 % the impact is against a tree and in 22 % of cases it is a ditch, embankment or rock wall. In 12 % of cases the vehicle hit a barrier, usually metallic.

Human factors

Human factors, present in 90 % of accidents, remain predominant (FLAM). The most frequent factors (3/4 of fatal accidents) are, in order of importance, speed, alcohol, inattention, illegal drugs, priority and faintness.

Speed is the first factor outside urban areas with 33 % of those presumed responsible, and even 50 % for 18-24 years old. **Alcohol is the second** factor with 26 %. This is a factor present between 27 % and 36 % for presumed responsible (PR) aged 18 to 54.

For age groups over 65, the two most prevalent factors are faintness and non-compliance with priority rules, with 26 % and 17 % respectively of PR aged 75 and over.

Vehicle factors

Outside urban areas in 2021, vehicle-related factors are identified in 11 % of accidents. The two that stand out are the movement of a vehicle and the worn tire, which together represent half of the factors, and then comes the factor of lighting or signalling of the vehicle.

Accident factors in urban areas

Accidents in urban areas represent two out of three injury accidents and one person killed in three.

In urban areas, two-thirds of people killed are vulnerable road users. A third of those killed are seniors aged 65 and over.

2021	2019	2010	Evolution 2010-2021	Evolution 2010-2019
963	1 037	1 133	- 15 %	- 8,5 %

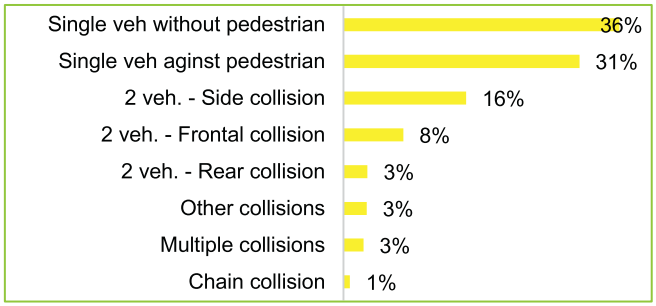
Annual average change*	2019 and 2021	2010 and 2019
Killed in urban areas	- 3,6 %	- 1,0 %
Killed other environments	- 5,3 %	- 2,8 %
Whole killed	- 4,6 %	- 2,3 %

* Reading: between 2019 and 2021, the number of victims killed in urban areas decreased by an average of 3.6 % per year.

Seniors

With 351 people killed, people aged 65 and over represent 36 % of deaths in urban areas (compared to 22 % on roads outside urban areas). In addition, this age class is the only one whose mortality has not decreased since 2010, with + 1.4 % increase in average annual mortality.
Half of the pedestrians who died in urban areas were aged 75 or over; this share is much higher than on the other networks (15 %).

Share of road users killed by type of collision on roads in urban areas



In 2021, 963 people were killed in an accident in urban areas (within the meaning of article R110-2 of the Highway Code, motorways are excluded). This represents a third of road deaths.

Between 2019 and 2021, the number of fatalities fell less in urban areas (- 3.6 %) than in other areas (- 5.3 %). This trend is also observed between 2010 and 2019.

Typology of collisions

300 pedestrians died in 2021 (32 % of people killed in urban areas). Accidents without a third party represent 36 % of people killed (43 % on roads outside urban areas) and side collisions 16 % (14 % on roads outside urban areas). Head-on collisions (8 %) and rear-end collisions (3 %) are rarer.

According to the mode of travel

In 2021, **vulnerable users represent two-thirds of people killed** in urban areas compared to 35 % outside urban areas. Their mortality decreased by - 20 % between 2010 and 2021 (but only - 9 % between 2010 and 2019). The decrease of - 12 % between 2019 and 2021 (84 fewer deaths) contrasts with the increase observed for non-vulnerable users (10 additional deaths).

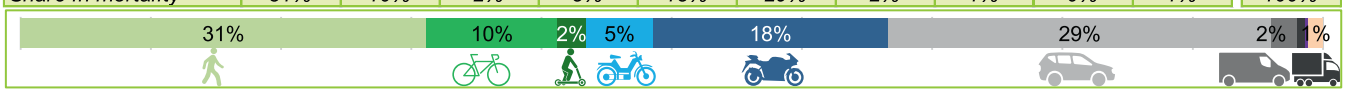
Motorists still represent nearly a third of victims despite the protection provided by the vehicle body at low speeds.

The injured in urban areas

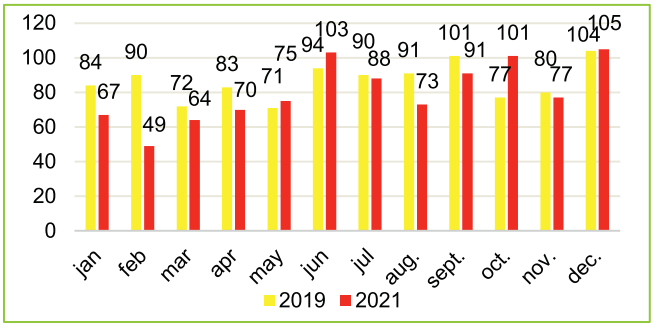
For the first time, ONISR has produced an estimate (adjusted BAAC) of the number of people injured by environment (see page 191 and methodology page 168). In urban areas in 2021, there would have been 7,300 serious injuries (MAIS3+), including 1,700 pedestrians, 1,500 cyclists, 400 users of motorized PMD (therefore 49 % of soft modes) and 2,500 users of PTW. 133,000 people would have minor or moderate injuries (MAIS1-2).

Number of people killed in urban areas by mode of travel and user hit

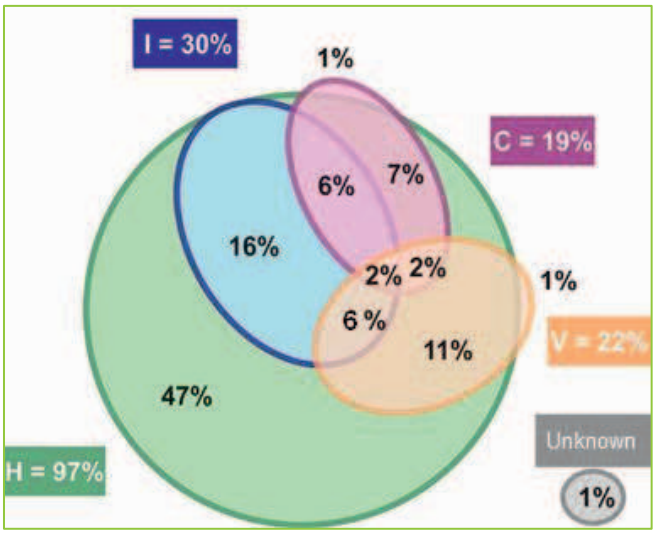
										Other	Total
SINGLE ACCIDENT	0	31	7	17	68	190	15	6	2	10	346
COLLISION WITH											
	0	0	0	0	2	2	1	0	0	0	5
	3	1	0	0	1	0	0	0	0	0	5
	2	0	0	0	0	0	0	0	0	0	2
	5	0	0	2	0	0	0	0	0	0	7
	15	0	0	0	2	0	0	0	0	0	17
	165	25	5	18	67	59	1	0	0	0	340
	31	11	2	7	12	8	0	0	0	1	72
	41	16	2	1	6	8	1	0	0	0	75
	9	1	1	0	1	1	0	0	0	0	13
Other	20	6	0	3	2	2	0	0	0	0	33
MULTICOLLISION	9	6	4	2	12	14	1	0	0	0	48
TOTAL	300	97	21	50	173	284	19	6	2	11	963
Share in mortality	*31%*	*10%*	*2%*	*5%*	*18%*	*29%*	*2%*	*1%*	*0%*	*1%*	*100%*



Number of people killed in urban areas, each month, in 2019 and 2021

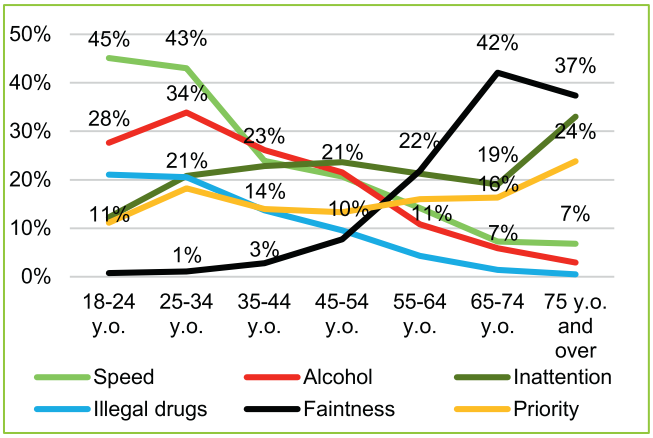


Causal factors of fatal accidents in urban areas, in 2015

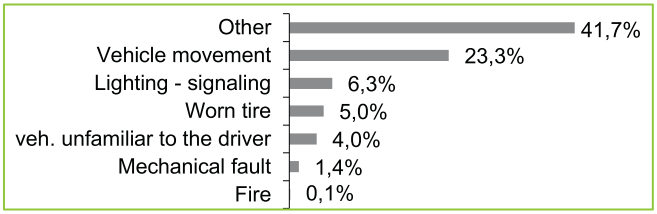


Legend of factors: H = Humans, V = Vehicle, I = Infrastructure, C = Traffic conditions, Unknown = unidentifiable causes. Source: FLAM study, Cerema, 2020

Factors of those presumed responsible for fatal accidents in urban areas in 2019-2021



Vehicle-related accident factors in fatal accidents in urban areas, in 2021



Location factors

In 2021, 39 % of people killed in urban areas were killed in an accident where the vehicle hit an **obstacle** bordering the road. In 21 % the impact is against a wall or a pile of bridge, in 17 % of the cases it is a pole, and in 14 % of the cases of a tree and in 11 % of the cases of a vehicle in parking. In 6 % of cases the vehicle hit a barrier, usually metallic.

Human factors

In urban areas, these main factors are noted:

- speed with 28 % of all vehicles combined, a share that rises to 54 % among motorcyclists;
- alcohol (20 %) including for pedestrians, rate which rises to 41 % among moped riders;
- Driving under illegal drugs, higher among users of powered two-wheelers (22 %) than for the average user (12 %);
- inattention is present in 31 % of accidents with utility or heavy vehicles (UV, HGV, PT) ;

Pedestrians have two major factors, inattention (45 %) and priority rules (23 %).

There is a strong predominance of the speed factor among young drivers, with a rate that even reaches 45 % among 18–24 years old. Its presence decreases with the age of the users but is still present at 43 % among young adults (25-34 years old).

The *alcohol* and *illegal drugs* factors follow a similar trend, with levels of 30 % and 20 % respectively between 18 and 34 years old.

On the other hand, the non-respect of the priorities of passage and the lack of attention are factors, which increase slightly with age, reaching proportions of respectively 24 % and 37 % among those presumed responsible for 75 and over.

Finally, *faintness* strongly affects the oldest populations. Present in 8 % of cases among 45–54 years old, they peak at 42 % among drivers aged 65 to 74.

Vehicle factors

Only 21 % of vehicles involved in a fatal accident have an identified factor. Many of these factors do not benefit from a particular classification. We note that the first clearly established factor is the *movement* of the vehicle, reflecting a vehicle that has escaped the action of its driver, due for example to incorrect application of the parking brake. Mechanical faults represent only 1.4 % of factors; on the other hand faulty tire maintenance and bad lighting reach 5 % and 6.3 % respectively. Finally, lack of knowledge of the vehicle by its driver represents 4 % of the factors.

Accident factors related to the vehicle

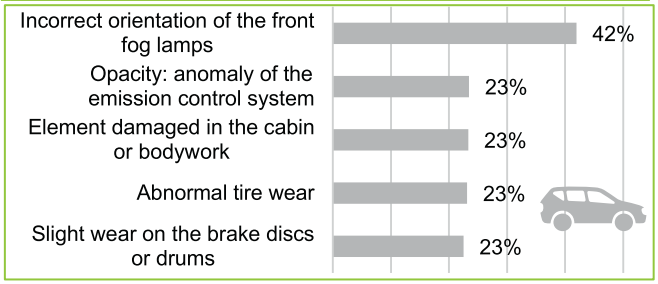
Main causal factors linked to vehicles in fatal accidents in 2015 according to the FLAM database

Aggregated factors	Percentage
low visibility of two wheels	4%
tire condition	4%
powerful vehicle	4%
vehicle condition	3%
blind spot or field of vision of vehicles	3%
mass and configuration of HGV	2%

Source: FLAM, Cerema, August 2021.

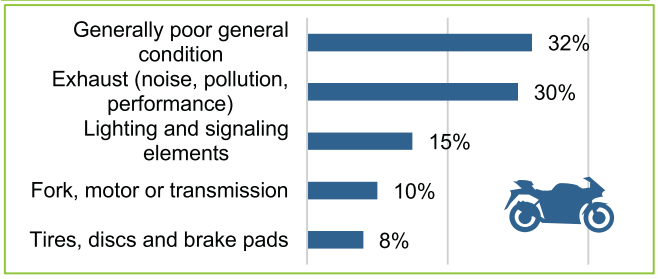
Proportion of vehicles with a factor highlighted according to the road environment

Main faults observed during a technical inspection carried out in 2021 on the 89.3 % of PVs showing at least one fault



Source: *Periodic technical inspection of light vehicles - Annual activity report* 2021, UTAC/OTC, January 2022

Deficiencies pre-existing the accident noted in the 26 % of PTWs considered dangerous and with previous damage



Source: BCA Expertise

FLAM[1] study

Reading the 2015, Fatal Accident Reports helped establish a Fatal Accident Factors (FLAM) database, with factors determined as near certain or probable. The analysis of all the factors identified makes it possible to estimate **the involvement of a vehicle-related factor in 20 % of fatal accidents**.

Among the vehicle-related factors noted, factors related to **vehicle design and/or specific size** are most often implicated in fatal accidents (11 %): poor perception of two-wheelers (4 %), use of a powerful vehicle favouring unsuitable driving behaviour (4 %). We also note the **condition of the vehicles** (8 %): malfunctions related to the tires (4 %), general condition of the vehicle or absence of signalling (3 %).

Factors noted in the BAACs

In traffic accidents in 2021, 15 % of vehicles have a vehicle-related factor (regardless of mode). A vehicle factor is more often noted for uninsured vehicles (23 %).

Vehicles involved in accidents in urban areas more often present a vehicle-related factor (17 %). This is also the case for vehicles involved in accidents at night (17 % compared to 14 % of vehicles involved in daytime accidents).

The factor most often noted, whatever the category of vehicle, is **"vehicle movement"**, corresponding to vehicles that have escaped the action of the driver (example: under the action of a gust of wind, break-loosening hand…).

Restricted visibility from the passenger compartment is evident for HGVs (28 % of HGVs with a declared factor) but also for UVs (18 %) and for PVs (13 %). **The lack of lighting or signalling** is specific to bicycles (12 % of bicycles with a factor highlighted).

Number of vehicles with a vehicle-related factor in traffic injury accidents by vehicle category and number of people killed in these vehicles

	Cyclist		PTW		PV		UV		HGV	
	Nb veh.	Nb killed in vehicle	Nb veh.	Nb killed in vehicle	Nb veh.	Nb killed in vehicle	Nb veh.	Nb killed in vehicle	Nb veh.	Nb killed in vehicle
Mechanical defect	58	4	93	0	171	1	24	0	30	1
Lighting - signaling	87	6	144	8	326	4	38	1	7	0
Worn tire	7	0	92	8	286	42	24	4	6	1
Tire burst	2	1	5	0	35	3	9	0	13	1
Loading	0	0	3	0	9	1	20	1	26	0
Vehicle movement	218	5	1 012	37	2 316	40	318	1	87	2
Vehicle fire	0	0	0	0	7	4	1	1	0	0
Vehicle unfamiliar to the driver	10	2	133	11	155	7	9	0	2	0
Other	333	7	1 261	46	3 673	73	393	7	148	4
Faulty driver assistance	0	0	6	0	17	0	1	0	1	0
Restricted visibility from the cabin	34	0	107	1	1 075	0	180	0	123	0
Sum	**749**	**25**	**2 856**	**111**	**8 070**	**175**	**1 017**	**15**	**443**	**9**

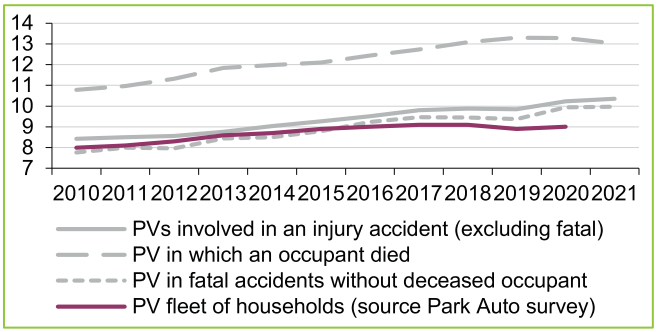
[1] Source: Fatal accident factors in 2015, use of the FLAM database, Cerema, August 2021.

Age of vehicles

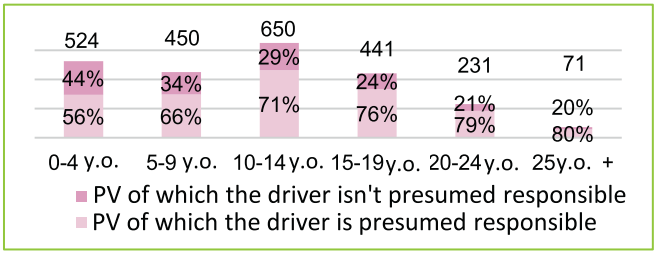
The average age of the PVs in which an occupant died is higher than that of the PV fleet. In fatal accidents, young people have older PVs.

The average age of PTWs involved in fatal accidents is lower than that of the household PTW fleet. In fatal accidents, young people have more recent motorcycles than the average.

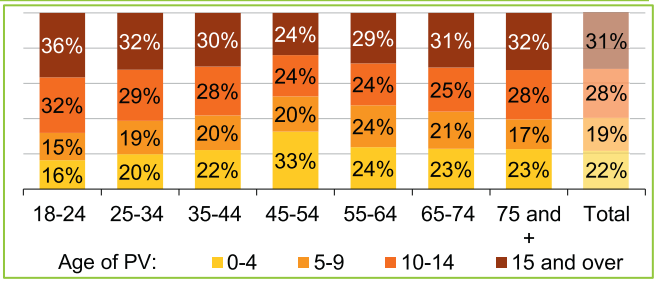
Evolution of the average age of passenger vehicles (PV) since 2010



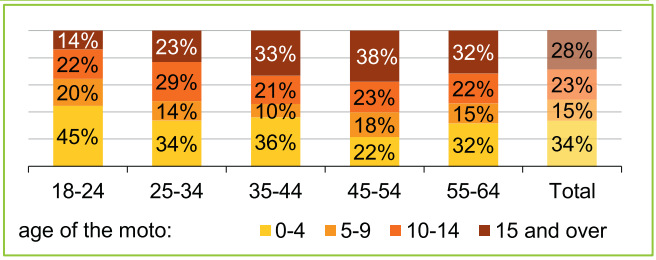
Number of PVs involved in a fatal accident in 2021 according to their seniority



Distribution of PVs involved in a fatal accident in 2021 according to their seniority and the age of the driver (18 years old or more)



Distribution of motorcycles involved in a fatal accident in 2021 according to their age and the age of the driver (between 18 and 64 years old)



Age of the vehicle fleet

In France mainland, the average age of the household car fleet[1] is stable (9 years old in 2020). Half of this fleet consists of vehicles over 8 years old, 39 % are over 10 years old and 20 % are over 14 years old. The average age of the household PTW fleet is 12.2 years old.

Seniority of PVs, UVs and HGVs involved in fatal accidents

The average age of passenger vehicles (PV) in which a user died is significantly higher than the age of the vehicle fleet (13 years old for PVs involved in fatal accidents in which a user died in 2021 compared to 9 years old in the park in 2020). While PVs aged 14 and over represent 20 % of the fleet, they are 44 % of PVs whose user is killed.

The distribution of the age of PVs according to the age of the driver shows that **young drivers are most often involved in fatal accidents in older cars**: more than a third of young people drove a PV of 15 years old or more at the time of the fatal accident (this is a quarter of 45-54 years old). Conversely, only 16 % of drivers aged 18-24 involved in a fatal accident are at the wheel of a PV less than 5 years old, against twice that for 45-54 years old.

The oldest PVs are mainly driven by young people aged 18-24: 25 % of PVs aged 10 or more are driven by young people.

The more the seniority of the PVs increases, the greater the proportion of drivers presumed responsible for the fatal accident: 60 % of PVs less than 10 years old have a driver presumed responsible against 79 % for PVs aged 20 years old or more.

The seniority of the HGVs involved in the accidents is 6 years old, globally constant for 10 years. That of utility vehicles (UV) peaked at 8 years old between 2016 and 2018 then returned to the 2010 level around 7 years old.

Age of PTW involved in fatal accidents

In fatal accidents in 2021, the **average age of PTWs involved is lower than that of PVs** (8 years old for mopeds and 11 years old for motorcycles, compared to 12 years old for all PVs involved in fatal accidents).

Contrary to the observations on PVs**, the motorcycles involved in a fatal accident and driven by 18-24 years old are more recent:** 45 % are less than 5 years old. Older motorcycles in fatal crashes are driven by 45-64 years old: 40 % of motorcycles 15 years old or older have a driver aged 45-64.

[1] Vehicle fleet survey, KANTAR, 2021.

Technical characteristics of vehicles

Damaged passenger vehicles (PV) have a higher average power than that of the French car fleet.

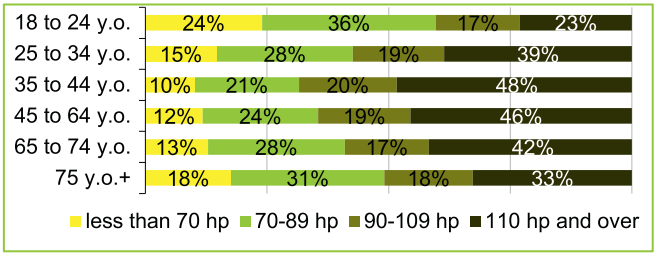
The average cylinder capacity of damaged motorcycles is greater than that of the fleet, and even more so when a motorcycle user has been killed. Outside urban areas, the average cylinder capacity of damaged motorcycles is higher than in urban areas or on the motorway.

National Type Identification Code

The national traffic injury accident file includes a field on the CNIT of the vehicle. This field is not always filled in.

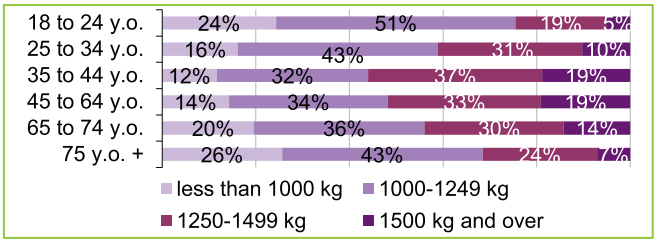
The CNIT makes it possible to know a certain amount of information on the vehicles (make, model, power, mass, cubic capacity, etc.). Only serial information is available. The CNIT is indicated on the vehicle registration document.

Power of accident PVs according to the age of the driver

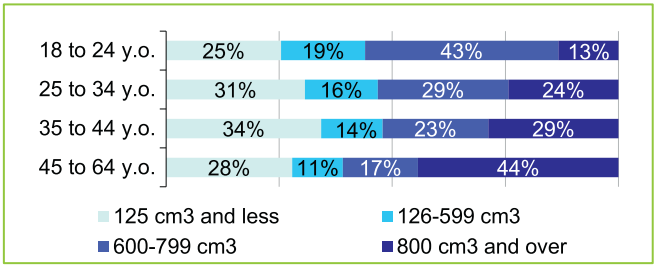


Example of reading: among damaged passenger vehicles (PV) driven by a user aged 18 to 24, 24 % of vehicles have a power of less than 70 horsepower.

Mass of injured PVs by age of driver



Engine capacity of accident motorcycles according to the age of the driver



Damaged passenger vehicles

In 2021, 54,000 PV were involved in an injury accident. 76 % of PVs have an informed CNIT (similar proportion for PVs in which a user is killed).

The average power of PVs in accidents in 2021 is 107 horsepower (it is similar for PVs in which a user is killed or when the driver is presumed to be responsible). **This value is higher than the average power of the French PV fleet**[1] (81 hp). PVs crashed on the highway and in which a person is killed are even more powerful (116 hp).

In injury accidents, **young people drive less powerful PVs than other age groups and 35-44 years old more powerful PVs**. Two thirds of 18-24 years old drive a PV of less than 90 hp compared to one third of 35-44 years old. Only one young person in four drives a vehicle with more than 110 hp in accidents, this is double for 35-64 years old.

The average mass of the injured PVs is 1,230 kg, a value close to that of the PVs in which a person died (1,205 kg). It is higher than that of PVs in the national park (1,070 kg).

In injury accidents, **young people and seniors aged 75 and over drive lighter vehicles** (respectively 1,140 kg and 1,160 kg on average) compared to 35-44 years old driving larger models (1,300 kg on average).

Damaged motorcycles

In 2021, 71 % of the 11,500 motorcycles involved in an injury accident have a CNIT entered in the BAAC (similar proportion for motorcycles on which a person died).

The average engine capacity of crashed motorcycles is 600 cc, which is significantly higher than the average displacement of the national park[1] (398 cm^3). It increases slightly when the driver is presumed responsible for the accident (610 cm3) and significantly more for motorcycles on which a user has died (770 cm3). A clear difference is also observed depending on the road environment (515 cm3 in urban areas, 670 cm3 on motorways and 755 cm3 outside urban areas).

In injury accidents, young people aged 18-24 frequently have a motorcycle with an intermediate engine capacity (61 % between 126 cm3 and 799 cm3) while motorcycles aged 45-64 show a more contrasting distribution, with both a high proportion of small and large cylinders (28 % of 125 cm3 and less, and 44 % of 800 cm3 and more), the intermediate category being much less represented.

[1] Data on the national fleet comes from the Vehicle Registration System, managed by the National Agency for Secure Titles as of June 27, 2022.

Vehicle safety indicators as per EuroNCAP

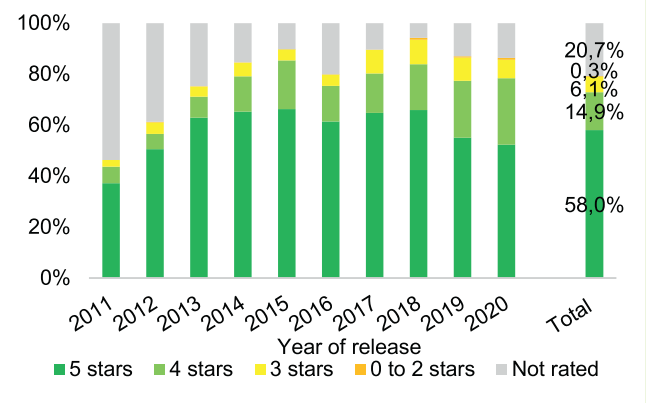
In a European context aiming to halve the number of road casualties by 2030, key indicators (KPIs) have been defined to monitor the progress of the strategic orientations. The indicator relating to the safety of rolling vehicles in France in 2020 is determined according to the EuroNCAP classification.

Volume of private vehicles in use in 2019 and 2020 by year of entry into service

Year of release	Estimated fleet in circulation as of 12/31/2019	Estimated fleet in circulation as of 12/31/2020
2011	2 261 233	2 245 106
2012	2 007 446	1 975 525
2013	1 904 032	1 904 566
2014	1 917 251	1 893 400
2015	1 998 586	2 049 584
2016	1 971 093	2 132 950
2017	2 167 933	2 085 094
2018	2 233 337	2 233 337
2019	2 279 193	2 279 193
2020	/	1 702 712
Total	18 740 104	20 501 467

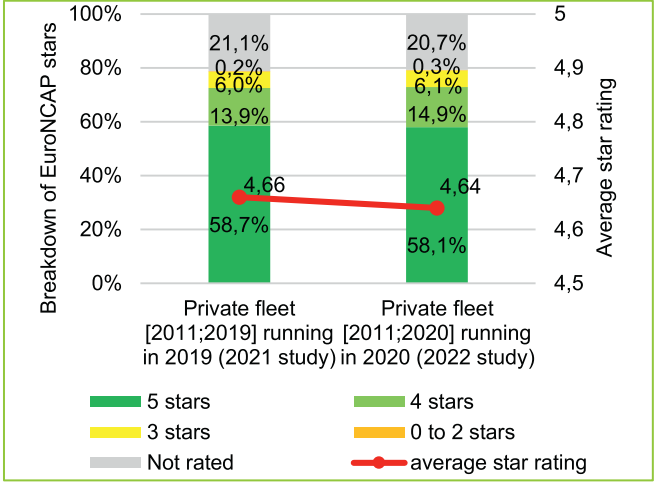
Source: UTAC

Distribution of star ratings of passenger cars estimated to be in circulation in 2020 by year of entry into circulation



Source: UTAC

Evolution of the individual rolling stock KPI in 2019 and 2020



The fleet in traffic end of 2020

The Central Technical Organization has data on new registrations and technical inspections. The European organization EuroNCAP rates cars on their level of safety. The combination of these different data makes it possible to estimate the **EuroNCAP** rating of the fleet of private vehicles less than ten years old in circulation in 2020.

In 2020, **20.5 million** private vehicles put into circulation from 2011 are estimated to be in circulation on French territory.

Vehicles put into circulation in 2018 or later are not yet subject to technical control (the 1st control is 4 years old). Any new registration after 2017 is assumed to be rolling in 2020. Exits from the fleet and second-hand imports less than 4 years old are not considered. A vehicle put into circulation between 2011 and 2017 is considered to be running in 2020 if a technical inspection was carried out in 2021 or 2022, or if the technical inspection was valid on the date of 31/12/2020.

The rating of the French fleet

EuroNCAP publishes global safety ratings each year for the majority of models marketed in Europe. **The score obtained is valid for 6 years** from publication.

58 % of private vehicles estimated to be on the road in 2020 obtained the best rating when they were put into circulation, **5 stars**. 21 % of the fleet is not rated, because either the model has not been the subject of a file, or the year of entry into circulation is not covered by the 6 years of validity of the rating. Few vehicles do not get the 3 stars (under 1 %).

The grading scale is regularly revised to take technological developments into account. Therefore, a car rated 5 stars in 2011 would not get that rating today if it were re-rated. Across the entire [2011; 2020] fleet in circulation in 2020, rated cars have an average of 4.64 stars, cars in circulation in 2019 had an average of **4.66 stars**. The "average star rating" KPI is therefore rather stable over the first two years of study. A follow-up of the KPI in the future years will make it possible to cover more the particular park. Indeed, on January 1, 2021, the private fleet had 38 million cars, aged on average 10 years[1]; **only half of the park is therefore covered by this study**.

It would be interesting to complete the methodology in order to assign vehicles already rated by an old EuroNCAP scale a new rating on the current scale of the rating organization. This would allow better comparability of vehicles whose models were not rated in the same year.

[1] Source: SDES, "data on the French car fleet as of January 1, 2021"


SÉCURITÉ ROUTIÈRE
TOUS RESPONSABLES
SÉCURITÉ ROUTIÈRE
TOUS RESPONSABLES

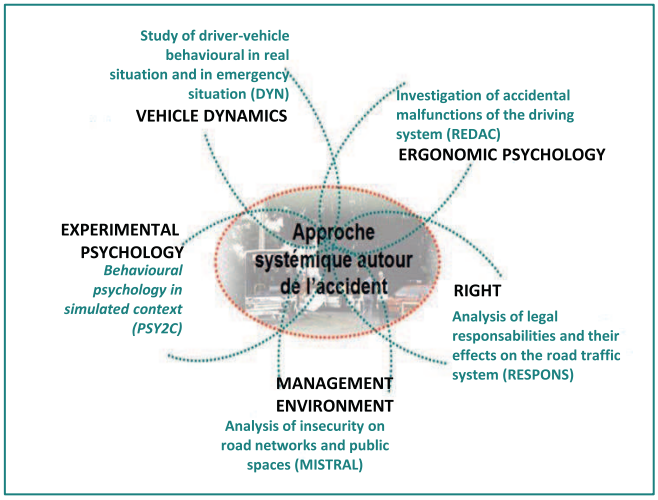
Studies

Research and studies

Primary safety	Secondary safety	Tertiary safety
User		
Risk exposure indicators related to mobility Ranking of risk factors: alcohol, drugs, medication, speed, phone w hile driving, w ork, social inequalities, behaviors	Severity indicators, risk factors: age, mode of travel, PTW clothing, bicycle helmet, light / reflective equipment	Becoming victims (reintegration, compensation, disabilities) Prevention socio-economic costs of road insecurity SMUR Sanctions
Vehicle		
Vehicle category 4R, PTW, ITS technologies, LAVIA devices, alcohol interlocks	Belt, airbag, crash test, age of the vehicle	Hazard lights
Environment		
Radar signals, traffic conditions, w eather, transport offer, territorial inequalities	Netw ork category, security barriers	Emergency lanes

Source: Cerema, COTITA, https://www.cerema.fr/fr/regions

Systemic approach around the accident (Approche systémique autour de l'accident)



Source: Gustave Eiffel University (LMA laboratory)

University Degrees (UD)

Gustave Eiffel University created in 2021:
- The **"Road Safety in Africa" UD**, with Cerema, which allows transport and safety professionals in French-speaking Africa to acquire road safety concepts through issues specific to their country;
- The **"Expertise in accidentology and traumatology" UD**, with Aix-Marseille University, which allows professionals working in accidentology and traumatology to complete or strengthen their skills in accident analysis.

From 1910, the field of accidentology was invested and associated with traumatology. It was not until 1968 that the term "accidentology" entered the vocabulary to define the scientific study of accidents. Public research is organized with the private sector (manufacturers and insurers), already engaged, and develops its concepts and objects of research around 3 axes: "infrastructures", "behaviours" and "vehicles". This science integrates fields relating to techniques and technologies (automotive, control), engineering (roads, kinetics, detection), health sciences (including neurosciences) and clinical pharmacology. The interdisciplinarily of accidentology also extends to the fields of economics and human sciences, with preventive and educational content.

Strengthening a discipline

In 1958, the first Emergency Medical Service (SMUR) was set up in Salon-de-Provence. In 1967, the national road safety-training centre was opened by the national gendarmerie to reinforce the road safety culture in its units. In 1995, the Rhône Register was set up to identify injuries due to road accidents. Subsequently, the driving instructor diploma was created and road education became compulsory at school. In 1993, a certificate recognized this discipline and in 2000, an educational continuum was established. Big schools provide training according to a multidisciplinary approach and universities integrate this subject, in particular through the sciences of education or psychology in Aix-Marseille and Angers. This creates complementary cognitive-behavioural approaches to research. New university degrees (UD) were created in 2021 by Gustave Eiffel University.

Diversity of organizations involved

Gustave Eiffel University[1] and Cerema are the main players in the scientific and technical network in the field of road accidents. In addition, Inserr, CNRS laboratories or even Inserm and ISPEDD[2] teams and academics. In addition, the UTAC[3] is approved to carry out certification tests on vehicles and their equipment. At the same time, R&D (manufacturers, equipment manufacturers) is present in particular through the LAB and the Caesar. The incentive for research also comes from the calls for projects proposed by the ANR, the MAIF foundation, the VINCI foundation or even the DSR (https://www.onisr.securite-routiere.gouv.fr).

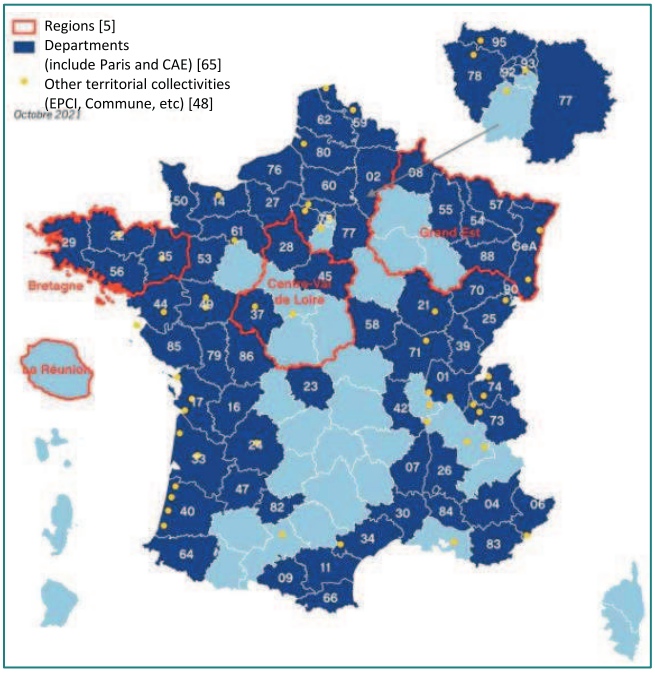
[1] Gustave Eiffel University was born on 01/01/2020 from the merger of Paris-Est Marne-la-Vallée University (UPEM), the Ifsttar research institute and the schools of architecture (Éav&t) and engineers (EIVP, ENSG and ESIEE Paris).
[2] Institute of Public Health, Epidemiology and Development
[3] UTAC Ceram Millbrook approved to carry out all the regulatory tests of vehicles and their equipment, is designated by the French authorities to international bodies to carry out regulatory tests at the request of manufacturers in order to obtain their European approvals and international.

Public decision support

Research helps guide public decision-making, as demonstrated by the European study “Prevention of driving under the influence of alcohol and drugs”. Conducted in 2021, this study aims to provide the European Commission with updated information with the aim of reassessing the recommendation adopted in 2001 on the maximum authorized blood alcohol level. The recommendations point to the need for further research on the effect of alcohol on driving; and to develop research on drugs in relation to driving disorders and accident risk, in particular psychoactive drugs and new psychoactive substances.

Source: https://road-safety.transport.ec.europa.eu/statistics-and-analysis/methodology-and-research/studies_en

National attendance platform[2] (PNF): breakdown of contributors as of 10/14/2021



Source: association Vélo & Territoires

In 2021, the Rhône Registry is 25 years old.
A quarter of a century at the service of knowledge and surveillance of victims of road traffic accidents.
The anniversary conference was held on 18/11/2021.
Source: http://www.revarrhone.org/

International cooperations

European and international research organizations make it possible to capitalize on scientific knowledge. The Club of Associated Research Organizations (CLORA) forms a bridge between French public research and the European Union, while European (FERSI, CARE, ETSC) and international (Irtad[1]) are the places where expertise is shared. The OCDE International Transport Forum (ITF/OCDE) and the Safer City Streets network approach road safety through the prism of artificial intelligence in the proactive management of road infrastructure safety, or even from the perspective of inclusive societies (summit in May 2022). Finally, as part of the ESRA project (E-Survey of Road users' Attitudes); surveys are carried out at the international level on citizens' relationship to road safety and their behaviour in traffic.

Priority research areas

The research priorities of the DSR call for projects continue on the themes of vulnerable users, pedestrians, cyclists, powered two-wheelers, who represent 67 % of serious road injuries in France. Road sharing remains at the heart of research in order to overcome usage conflicts. Analysing the accident rate of young adults is still a priority, as is that of people aged 65 and over. According to INSEE, in 2050, one inhabitant in three will be over 60 years old. The improvement of knowledge of behaviour in a driving situation (speed, alcoholism, drugs, distractors, helmet, etc.) continues: they are now recognized as KPIs at European level (Key performance Indicator: indicator for monitoring performance) for the decade 2020-2030 (see page 119).

New challenges

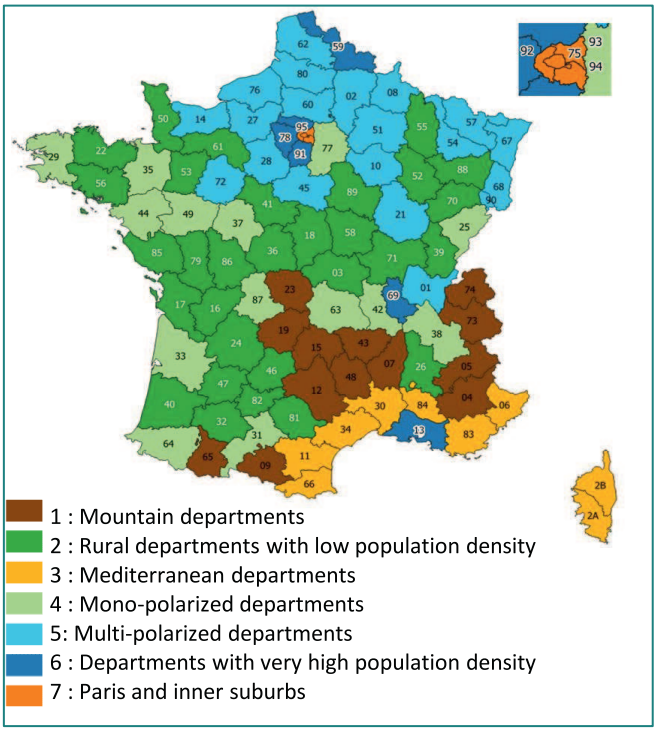
The pandemic has heightened the enthusiasm for soft modes of transport (walking, PMD, cycling), which makes it even more important to improve the monitoring of these practices. The Vélo & Territoires association collects traffic counts for cyclists from communities[2] and publishes a periodic bulletin indicating trends, the rate of use and comparisons by environment. The development of soft transport modes also raises questions about road sharing, the problem of which is increasingly significant. Moreover, automating vehicles requires adapting the infrastructure and anticipating the interactions between the different vehicles, man and machine. The safety of the occupants of these future vehicles as well as other road users is a priority with a central training challenge to be adapted in parallel with technological advances.

[1] Within the OECD, Irtad brings together 70 members in 35 countries.
[2] More information on Vélo et Territoires and the PNF at page 165

Calculation of department families and LRSI

Team	Anne-Sarah Bernagaud, Nicolas Pelé (Cerema Centre Est)
Completion	May 2022
Methodology	Correlation study, principal component analysis, ascending hierarchical classification
Perimeter	France
Key-words	Classification, typology, departments

Typology of departments in France mainland



21 variables to design the typology

- Population of the department
- Percentage of the population aged 18-24
- Unemployment rate
- Sale of fuel per person
- Number of vehicles per person
- Number of PTW per person
- Share of public transport fleet
- Share of R&D among the linear road
- Proportion of motorway among the linear road
- Share of the population living in an urban unit
- Share of the number of municipalities with more than 100,000 inhabitants
- Share of the area of the department classified as being a peri-urban municipality
- Share of the area of the department classified as being a multipolar municipality
- Population density
- Mountain area
- Average altitude of residences
- Precipitation
- Sunshine
- Minimum temperature
- Hotel nights per person
- Percentage of secondary residences

Cerema has constructed a typology of French departments to allow **departments with common characteristics** to be compared with each other in order to identify points of strength or improvement via performance indicators.

Methodology

The classification of departments into families follows the following principle:

– The departments of the same family have similar characteristics;
– The departments of different families have distant characteristics.

Proximity is established statistically according to all the variables.

The method used consists in finding the most discriminating variables to differentiate the departments. **21 variables** were selected after initial work on the correlations between 72 initial variables. These variables represent **demography, economy, meteorology, mobility, urban/rural distribution, relief** or even **tourism**.

Statistical methods of analysis into main components, then hierarchical ascending classification led to retain a classification into 6 metropolitan families, to which must be added Paris and the inner suburbs which were not taken into account for the classification into due to methodological issues, as well as the overseas departments which constitute two specific classes. The most discriminating variables observed are the population, the proportion of secondary residences, sunshine, minimum temperatures and the number of PTWs reduced to the population.

Results

The main result is the classification itself. The map on the left shows the distribution between the **seven families** of departments identified in metropolitan France. This typology can be used in many areas, particularly in terms of travel and road safety.

Local road safety indicators (LRSI)

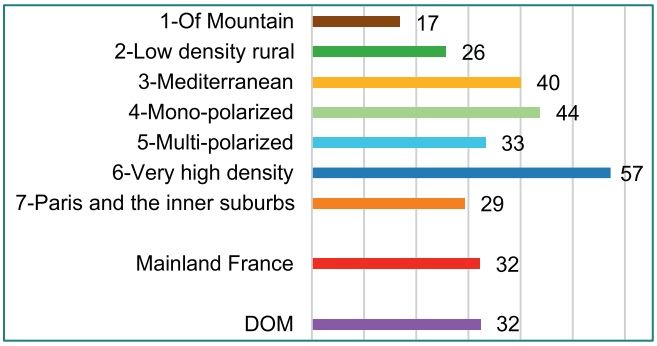
As part of the study, many local road safety indicators (**LRSI**) were calculated in order to allow each department to have references related to its family. We observe that the families of departments with a low number of deaths present, on the contrary, a number of death people related to the population among the highest.

Regarding the modal distribution of the people killed, the differences are marked. The specificities of Paris and the inner suburbs are clearly identified, where 12 % of fatalities are motorists and 42 % pedestrians. On the other hand, departments with low population density are characterized by 59 % motorist deaths and 11 % pedestrians.

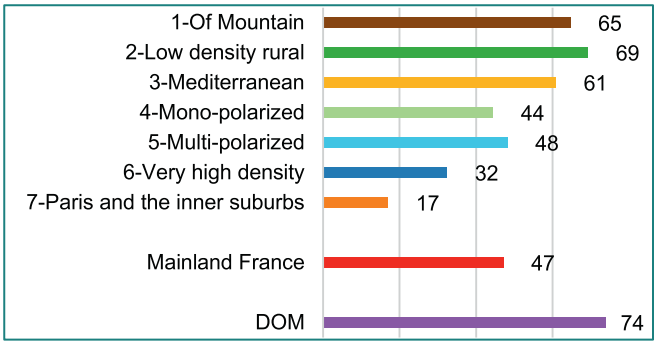
Breakdown of people killed 2017-2021	Family 1	Family 2	Family 3	Family 4	Family 5	Family 6	Family 7	DOM	COM-NC	Mainland France
Pedestrians	11%	11%	16%	13%	13%	20%	38%	23%	11%	15%
Cyclists	8%	7%	5%	7%	5%	6%	8%	5%	4%	6%
PMD motorized	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Moped riders	3%	4%	4%	4%	4%	3%	6%	13%	10%	4%
Motorcyclists	24%	15%	26%	18%	16%	25%	30%	24%	16%	19%
Motorists	49%	57%	45%	52%	54%	40%	15%	30%	45%	50%
UV users	2%	3%	3%	3%	3%	3%	1%	3%	12%	3%
HGV users	1%	1%	1%	1%	2%	1%	0%	0%	1%	1%
Public transport	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Carts	0%	1%	0%	1%	1%	0%	0%	1%	1%	1%
Others	1%	1%	1%	1%	1%	1%	1%	1%	0%	1%
0-13 y.o.	2%	2%	2%	3%	3%	2%	3%	4%	6%	2%
14-17 y.o.	4%	3%	3%	3%	3%	3%	2%	4%	5%	3%
18-24 y.o.	15%	17%	16%	17%	16%	18%	15%	19%	22%	17%
25-34 y.o.	14%	14%	15%	15%	16%	18%	21%	23%	28%	16%
35-44 y.o.	11%	11%	13%	12%	13%	12%	12%	15%	11%	12%
45-54 y.o.	12%	12%	12%	12%	13%	12%	11%	12%	13%	12%
55-64 y.o.	12%	12%	12%	12%	12%	12%	11%	11%	9%	12%
65-74 y.o.	13%	11%	10%	10%	10%	9%	9%	7%	5%	10%
75 and over	17%	17%	16%	15%	14%	13%	17%	5%	3%	15%
Motorw ays	4%	5%	8%	8%	10%	15%	14%	1%	6%	8%
Roads outside urban areas	71%	74%	58%	64%	61%	40%	3%	63%	63%	61%
Urban area	25%	22%	34%	29%	29%	45%	83%	36%	31%	31%
Men	78%	77%	77%	77%	78%	80%	78%	85%	81%	77%
Women	22%	23%	23%	23%	22%	20%	22%	15%	19%	23%
Drivers	74%	74%	68%	72%	72%	68%	54%	63%	58%	71%
Passengers	15%	15%	16%	14%	15%	12%	9%	14%	31%	14%
With pedestrian	11%	11%	16%	14%	14%	21%	40%	24%	12%	15%
Single veh w ithout pedestrian	44%	43%	40%	41%	39%	34%	23%	31%	54%	40%
2 veh, w ithout pedestrian	38%	40%	36%	39%	41%	37%	31%	38%	30%	39%
3 veh +, w ithout pedestrian	7%	6%	8%	6%	7%	8%	6%	8%	4%	7%
Indicators (per year)										
Killed by dep	17	26	40	44	33	57	29	32	15	32
Injured by dep, in u. area	106	124	373	471	279	1 205	3 255	327	62	426
Injured by dep, outside u.area	129	151	239	291	190	402	73	227	47	197
Killed per million inhabitants	65	69	61	44	48	32	17	74	144	47

Source: BAAC data 2017-2021 and INSEE data for the population

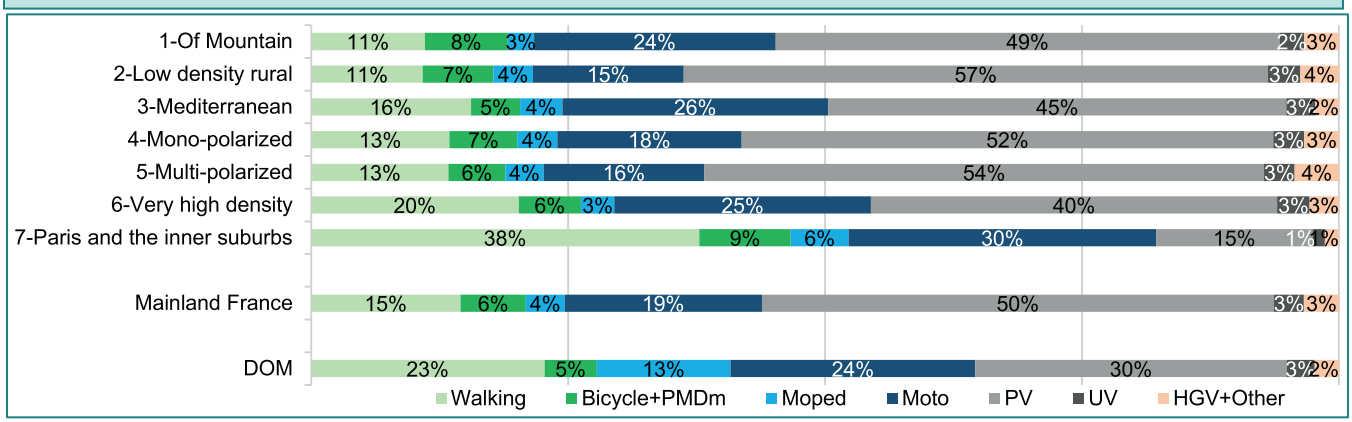
Killed by department and by year (2017-2021)



Killed per million inhabitants per year (2017-2021)



Breakdown of people killed by mode of travel and family of departments (2017-2021)

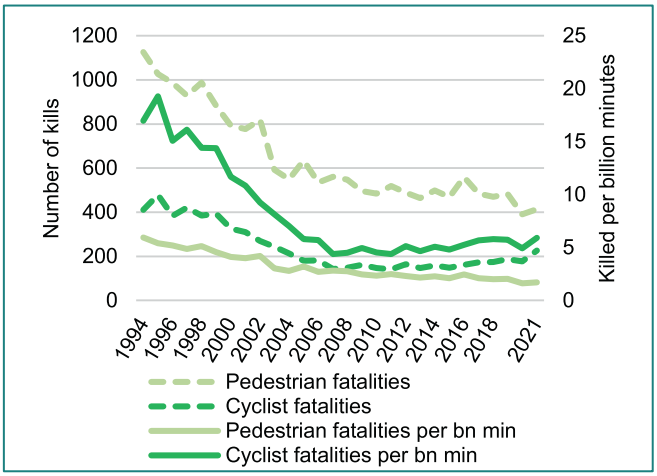


The mobility of cyclists and pedestrians

Department of Transport travel surveys

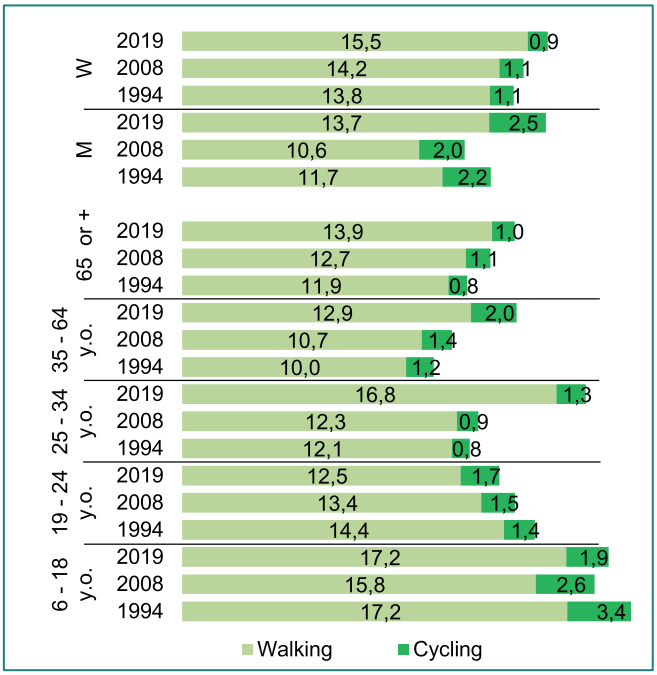
Approximately every 10 years, national reference surveys are carried out on the movements of French people aged 6 or over. The methodology of these surveys remains constant over time to ensure their comparability. They are based on questionnaires sent to nearly 20,000 households. The latest survey is the mobility of people survey (EMP 2019), which succeeds the national transport and travel survey (ENTD 2008) and the transport and communications survey (ETC 1994).

Evolution of mortality and road risk for pedestrians and cyclists since 1994



Sources: BAAC data and travel survey data 1994, 2008 and 2019
Since the mobility surveys are carried out more than 10 years apart, a constant percentage evolution hypothesis has been adopted to complete the missing years.

Number of minutes of walking and cycling on a weekday by gender, age, and year



Source: SDES, EMP2019, ENTD2008, ETC1994.

Announced in 2018, the **cycling plan** set ambitious **goals** for this mode of travel. Among these, the desire to greatly develop the cycling network in France and to increase **the modal share of cycling** from 3 % to 9 % **by 2024**.

With the arrival of the health crisis in 2020, a process of modal shift has accentuated the shift taken in terms of soft mobility, and the use of bicycles has increased during this period. It will be necessary to see if this turning point holds true over time.

If soft mobility has a positive impact in terms of public health, CO2 emissions or air pollution, it can also have a positive impact on road safety by reducing motorized traffic and reducing the speeds practiced. The vast majority of deaths occur with motorized vehicles.

Evolution of mobility, mortality and risk

Between 1994 and 2019, the **practice** of walking and cycling is generally quite constant. Modal shares for weekday trips remained around 3 % for walking and close to 3 % for cycling.

Since 1994, the number of pedestrians and cyclists who **died** on the roads of mainland France fell significantly until 2008. It stands at – 63 % for pedestrians in 2021 compared to 1994. For cyclists, after a very sharp drop of - 65 % between 1994 and 2007 to reach 142 cyclists killed that year, mortality has never fallen below 140 since then, and the trend has since reversed with in particular 227 cyclists killed in 2021.

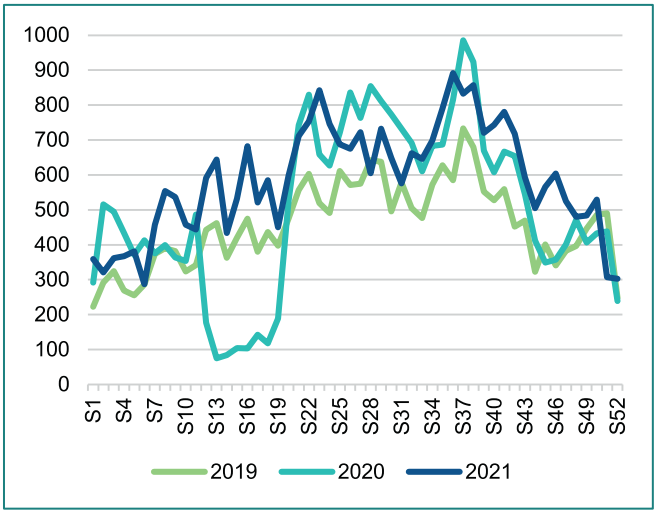
The **risk of being killed** per billion minutes spent traveling generally follows the same trends, the changes in the modal shares of these two modes of travel having been quite limited over the period. It fell from 17 to 6 for cyclists and from 6 to 2 for pedestrians between 1994 and 2021. The risk of cycling today is therefore similar to the risk of walking in 1994.

Practice according to age and gender

In terms of minutes travelled per person on a weekday, the various surveys have shed light on changes since 1994. Walking time has increased for both women and men on the period. Cycling time has decreased slightly for women and increased slightly for men.

Depending on the age group, those aged 25 and over generally increased their walking time, while those aged 19-24 decreased it. For cycling, the practice time of 6-18 years old has decreased significantly, while that of 24-64 years old has increased.

Average number of cyclists recorded by traffic courts per day in meter in 2019, 2020 and 2021



Source: Bulletin n°9 cycling frequentation in France of Vélo & Territoires of 05/01/2022, provisional results 2021

Evolution of cycle traffic in several towns and cities

Communities	Number of counters (of which used for the evol calculation)	Average day 2021	Evol 2021 / 2019	Evol 2021 / 2020	Evol 21/20* off lock-down
Dunkerque Grand Littoral Agglomération	25 (19)	145	+74%	+13%	0%
Grand Annecy	3 (3)	1 977	+21%	+23%	7%
Grand Chambéry	10 (10)	728	+11%	+13%	0%
Grand Lyon	58 (58)	1 577	+31%	+26%	8%
Métropole Européenne de Lille	29 (25)	271	+28%	+18%	3%
Rennes Métropole	2 (2)	1 674	+33%	+16%	1%
Tours Métropole Val de Loire	15 (15)	489	+16%	+22%	8%
Ville de Paris	65 (54)	2 167	+53%	+9%	-7%
Nantes Métropole	55 (20)	653	+44%	+13%	3%
Grenoble Alpes Métropole	17 (3)	1 395	+16%	+23%	5%
Eurométropole de Strasbourg	42 (36)	1 343	+7%	+20%	7%
Bordeaux Métropole	16 (14)	1 394	+8%	+23%	8%

Source: bulletin n°9 cycling frequentation in France from Vélo & Territoires, provisional results.

Creation of regional cycle route plans

Regions	Total target km of cycle route	km of cycle route completed	% realized
Auvergne-Rhône-Alpes	2 655	2 043	77%
Bourgogne-Franche-Comté	1 939	1 833	95%
Bretagne	2 662	1 965	74%
Centre-Val de Loire	2 315	1 642	71%
Corse	1 344	624	46%
Grand Est	3 349	2 183	65%
Hauts-de-France*	-	-	-
Île-de-France	798	582	73%
La Réunion	229	122	53%
Normandie	2 706	2 145	79%
Nouvelle-Aquitaine	6 917	4 650	67%
Occitanie*	-	-	-
Pays de la Loire	3 312	2 898	88%
Provence-Alpes-Côte d'Azur	2 019	902	45%
Whole France	**37 638**	**25 318**	**67%**

Data as of 06/30/2022
* Information not available
Source : https://www.velo-territoires.org/observatoires/donnees-velo/atlas-regionaux/

Recent developments in cycling

The association Vélo et Territoires, with the Platform National Office of Attendance, has made it possible to follow precisely the evolutions of cycling practice over the past two years strongly impacted by the pandemic and the changes in mobility induced.

According to V&T[1], cycling practice increased in 2021 by + 31 % in urban areas, + 20 % in peri-urban areas and by + 14 % in rural areas compared to 2019. Some cities and urban metropolises share the data of their bicycle traffic counts, it is also possible to provide changes in practice on this scale. In 2021, compared to 2019, strong increases were observed in Dunkirk (+ 74 %), Paris (+ 53 %) and Nantes (+ 44 %). Along with Paris and Nantes, Lyon is also one of the cities that shares the most metering data. The developments presented here are, however, to be qualified. They show the evolution of the practice on specific axes, and are not necessarily representative of the evolution on the whole of the urban area, whereas the use of alternative routes becomes possible if the conditions of safety improve.

Cycling infrastructure

A change in the practice of mobility towards an increase in the practice of cycling implies the development of infrastructures intended for this mode of travel. As part of the cycling plan, the French government is providing €350 million, to which is added €100 million from the recovery plan, to help local authorities develop their cycling network. Following the NOTRe law (2016), regional cycle route plans (SRV) have been put in place. As of 06/30/2022, 67 % of the planned network is achieved.

The PNF: national frequentation platform

Managed by the association Vélo & Territoires (V&T), the national frequentation platform brings together data from more than 1,400 counters managed by more than a hundred local authorities. It makes it possible to follow the evolutions of the practice of cycling and the drafting of periodic bulletins since 2019. The more the number of communities sharing the data of their meters increases, the more the conclusions of the PNF can be precise and translate the evolutions of the practice.

In 2021, 400 pedestrian meters will also be shared on the platform. More information is available on the V&T website at the following link: https://www.velo-territoires.org/

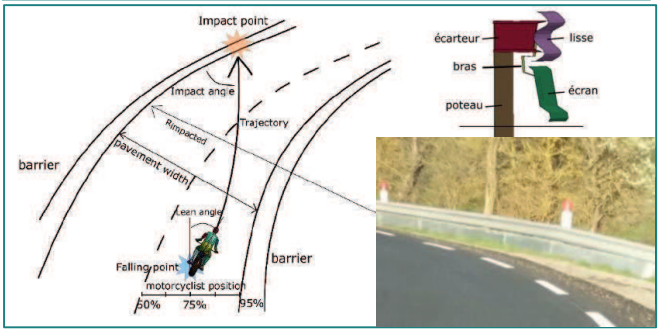
[1] Bulletin n°9 cycling frequentation in France of Vélo and territories of 05/01/2022, provisional results 2021

Impact of motorcyclists on special bikers safety barriers

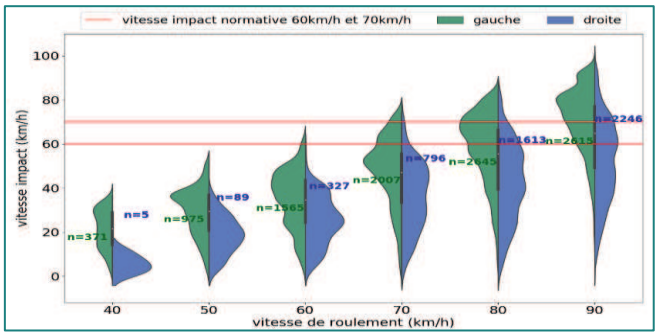
Team	Li Peng, Denis Brizard, Michel Massenzio, Gustave Eiffel University, Biomechanics and Shock Mechanics Laboratory, UMR_T 9406.
Completion	2021
Methodology	Numerical simulations Validation crash test
Key-words	Biker, barrier, screen, impact conditions

A digital rigid body model of the motorcycle, combined with a passive shock dummy model, allows the simulation of the rider's fall in a cornering situation. In addition, tests on a dummy sliding track have validated the digital fall model and according to non-normative impact configurations.

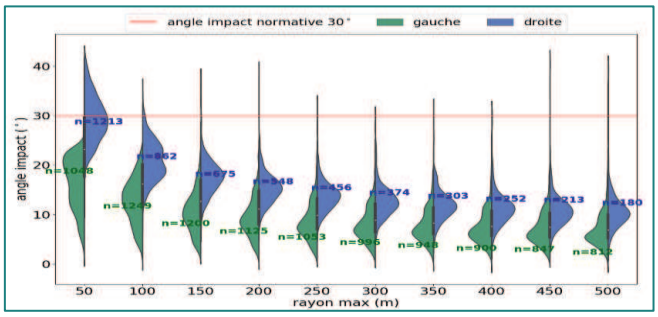
Turning drop model (left) and screen model biker with image (r.)



Distribution of impact velocities as a function of traffic velocities



Distribution of the angles of impact according to the radii of turn



37 % of PTW fatalities and 42 % of MAIS3+ serious injuries are victims of an accident alone. The most common cause of single rider accidents is loss of control in a turn. Injuries are 5 times more severe in the event of an impact on a barrier without a motorcycle screen (GIDAS, 2002). The objective here is to look at the efficiency limits of motorcycle runners according to the impact conditions.

Numerical simulation of impact conditions against the motorcycle screen

The crash simulations are carried out for traffic speeds between 40 km/h and 90 km/h, angles of inclination of the motorcycle from 20° to 50° and with a variable coefficient of friction of the rear tire (0.05 to 0.25). The post-processing of the motorcyclist's fall trajectories then distinguishes left or right turn, position of the motorcyclist on the road, width of roadway, radius of gyration between 50 m and 500 m. The position of the motorcyclist is determined at the moment when he hits the motorcyclist screen on the outside of the bend.

The angle of impact of the rider on the screen can be very varied, so that **the biker can hit the screen with his head or with his feet. Impact speed** is lower than traffic speed, **but greater in left than right turns**. There are more accidents in left turns than in right turns, and predominance of impact by the feet in left turns. The angle of impact is less than 30° (angle of the 1317-8 standard) in the vast majority of configurations, and decreases when the radius of the turn increases.

Influence on injury criteria

We study the influence of impact conditions on injury criteria with the Morris method. To do this, a digital model of a road restraint device equipped with a motorcyclist screen (Figure 1) and a crash dummy equipped with a helmet are used. The parameters studied are: the speed and the angle of impact, the angle of the motorcyclist in relation to the barrier, the height of impact and the position of the impact in relation to the post.

The most influential parameters on head injury criteria (HIC: head injury criterion) and neck injury (compression force) **are impact speed, impact angle and biker angle**. The height and position of the impact have little influence. Small variations in impact conditions can have significant consequences on the performance of motorcycle displays.

The **efforts on the neck** are greater in the event of a head impact than a foot impact.

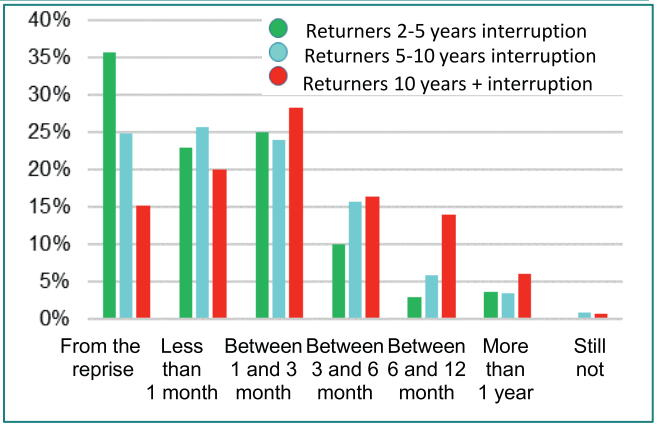
But the foot impact seems to generate more serious **head** injuries.

Back to PTW riding

Team	Stéphane Espié, Isabelle Ragot-Court, Cécile Coquelet, Jean-Yves Fournier (Gustave Eiffel Univerity), Samuel Aupetit, Audrey Faurre, Sara Escaich (Ergo-Centre), Vanessa Cucurullo (AMDM)
Completion	Ongoing (completion Dec. 2022)
Methodology	**Comparative study** of "returners" and "continuers" via a study **in natural driving conditions and a psychosocial survey**.
Key-words	Interruption of driving, motorcyclist, natural study, questionnaire, uses, behaviours, skills, risky situations.

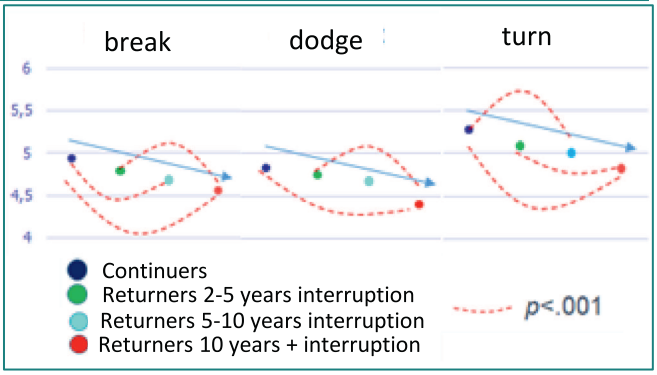
Real driving observations : 20 motorcyclists, 10 having driven without interruption since their license (known as "continuers"), and 10 having interrupted their "motorcycle" driving for a period of more than 10 years (known as "returners") were observed in their daily trips for 4 weeks. Video recordings, logbooks and interviews were made and analysed.

Duration self-reported by motorcyclists for regain their ease of driving according to the duration of the break



Question: According to you, after how long did you regain your ease of driving a motorized 2-3 wheel?

Self-assessment by "continuers" and by "returners" according to the break duration (when they resume) of their riding skills



On a 6-point Likert-type scale (1 = "Very difficult" to 6 = "Very easily")
Interpretation: the longer the break duration, the more motorcyclists declare that their skills are declining

In 2019, motorcycling accidents show a peak for the 45-54 years old population: could this be linked to the return to riding a powered two-wheeler (PTW) after a more or less long break?

Observed risk situations

20 motorcyclists were observed in real driving for a month. 10 of them had stopped riding motorcycles for more than 10 years old. Over a month of study, the continuators encountered an average of 5.5 risky situations, the returners 7.5 situations, and the novices 16 (according to a previous study).

- Among continuations, the most frequently encountered risky situations are with a car (29 %), alone (5 %), with a HGV (2 %).
- Among returners, these are situations alone (27 %), with a car (15 %), with a HGV (4 %).

Returners are aware of a loss of physical and cognitive abilities during their motorcycle break.

There were more near misses among returnees and more avoidance manoeuvres. It seems that the loss of experience related to the motorcycle break leads to problems of control of the vehicle, a loss of anticipation and monitoring of the environment. Continuers are more in permanent anticipation.

Study according to the duration of the interruption

A psycho-social questionnaire on 1,598 motorcyclists made it possible to collect elements and group them according to the possible break duration of motorcycle riding (without, 1 month to 2 years, 2 to 5 years, 10 years and +):

- Riders returning to moto riding typically change the type of motorcycle from the one they were using before the break;
- The longer their break time, the more their driving is for leisure, in a group and/or with a passenger;
- All declared driving skills of returnees decrease in relation to those of continuations as the break is long, and this regardless of age (age is a cumulative factor) ;
- The main failing skills identified relate to cornering, speed and braking management, handling of the motorcycle at low speed, and perception of the driving context. These failing skills are comparable to those identified for novices in a previous study (ANR SIM2CO+).

In order to overcome their difficulties, returnees use avoidance strategies: they avoid riding in unfavourable weather conditions (rain, etc.) and in the centre of large cities. Finally, they feel the need for support when resuming motorcycle riding, support which could take the form of a refresher course.

Method for estimating the number of injured[1]

Project team	ONISR
Partners	Emmanuelle Amoros (Univ. Eiffel)
Methodology	Define simple correction coefficients between the BAAC and the estimate of injuries modelled by the Univ. Eiffel
Key-words	Estimate, recovery, Rhône Register, number of injured

Ratios between the total number of BAAC injuries and the Gustave Eiffel University estimate for MAIS1-2 and MAIS3+ on average over 2012-2016

MAIS1-2 NG	Pedestrian	Cyclist	PMDm	PTW	PV	Other
0-13 y.o.	2,82	17,56	17,56	7,48	3,35	2,29
14-19 y.o.	2,47	15,60	15,60	5,75	5,40	2,84
20-29 y.o.	2,19	10,45	10,45	3,76	4,44	2,31
30-39 y.o.	1,88	10,68	10,68	2,82	3,89	1,96
40-49 y.o.	1,99	11,26	11,26	2,89	3,84	1,91
50-59 y.o.	1,98	8,94	8,94	2,54	3,39	1,78
60-69 y.o.	1,67	7,22	7,22	2,32	2,89	1,43
70 and+	1,38	6,26	6,26	2,31	2,58	1,19

MAIS1-2 NP	Pedestrian	Cyclist	PMDm	PTW	PV	Other
0-13 y.o.	1,89	12,61	12,61	3,66	2,33	1,29
14-19 y.o.	2,04	8,81	8,81	2,99	3,09	1,09
20-29 y.o.	1,94	7,57	7,57	2,86	2,89	1,40
30-39 y.o.	1,79	6,71	6,71	2,56	2,64	1,41
40-49 y.o.	1,79	6,57	6,57	2,56	2,65	1,38
50-59 y.o.	1,70	5,88	5,88	2,47	2,54	1,32
60-69 y.o.	1,53	5,17	5,17	2,28	2,29	1,23
70 and +	1,32	4,35	4,35	2,31	2,21	1,08

MAIS3+ NG	Pedestrian	Cyclist	PMDm	PTW	PV	Other
0-13 y.o.	0,39	1,09	1,09	0,89	0,22	0,20
14-19 y.o.	0,39	1,11	1,11	0,71	0,34	0,26
20-29 y.o.	0,39	1,04	1,04	0,62	0,30	0,27
30-39 y.o.	0,41	1,19	1,19	0,59	0,29	0,27
40-49 y.o.	0,41	1,24	1,24	0,61	0,28	0,26
50-59 y.o.	0,42	1,19	1,19	0,60	0,29	0,29
60-69 y.o.	0,46	1,15	1,15	0,69	0,31	0,28
70 and +	0,56	1,37	1,37	0,78	0,43	0,36

MAIS3+ NP	Pedestrian	Cyclist	PMDm	PTW	PV	Other
0-13 y.o.	0,15	0,42	0,42	0,19	0,04	0,03
14-19 y.o.	0,15	0,27	0,27	0,17	0,06	0,04
20-29 y.o.	0,14	0,20	0,20	0,16	0,05	0,04
30-39 y.o.	0,15	0,22	0,22	0,16	0,05	0,05
40-49 y.o.	0,16	0,25	0,25	0,17	0,05	0,05
50-59 y.o.	0,18	0,27	0,27	0,19	0,05	0,05
60-69 y.o.	0,21	0,35	0,35	0,22	0,06	0,05
70 and +	0,32	0,50	0,50	0,31	0,11	0,06

Reading: for the category of pedestrians aged 00-13 in the gendarmerie zone, the number of light or moderate injuries MAIS1-2 estimated by the Univ. Eiffel is 2.82 times greater than the total number of BAAC injuries (all severities combined). The number of MAIS3+ serious injuries in this category is 0.39 times less than the total number of BAAC injuries (all severities combined).

The accident data in the BAAC file come from the police. If they are exhaustive concerning the killed, they include an under-recording of the wounded.

Gustave Eiffel University, by comparing data from the Rhône Register[2] and the BAACs, produces a national estimate of the number of injuries in order to give the order of magnitude of road morbidity. However, due to the complexity of the method and the time lag in entering the Register data, the estimate does not allow real-time monitoring of changes in the number of injured. A simplified method based on the differences between the results of the Univ. Eiffel and the BAAC files were compiled by ONISR in order to produce provisional estimates concerning the injured in recent years, pending a more precise estimate from the Gustave Eiffel Univ.

Estimation principles

The under-recording of injured people differs greatly depending on the type of accident, the road environment and the police: national police (NP) or national gendarmerie (NG). For example, it is very high for accidents involving cyclists outside urban areas without any other third party involved and quite low for serious accidents involving two motorized vehicles in an urban environment.

Due to the coexistence of two data sources in the Rhône department (BAAC and Registry) and thanks to a capture-recapture method, the Univ. Eiffel can make a national estimate of the number of injured. The latest estimate provisionally stops at 2016. By comparing the results for 2012-2016 broken down according to modes of travel, gravity, force of order and age of the user with the results of the BAACs on the same period, we obtain ratios between BAAC injuries and the estimate of the Univ. Eiffel from MAIS1-2 and MAIS3+.

Using these ratios calculated over 2012-2016, we can multiply the numbers of BAAC injuries for each year from 2017 to 2021 and obtain an estimate of injuries broken down according to mode, age, severity and forces of order. For the PMDm, little used before 2018, the Univ. Eiffel identified in 2019 levels of under-registration comparable to bicycles. In the last step, we redistribute the estimated injuries according to gender thanks to the distribution of the Registry estimate, and according to the environment based on the distributions observed in the BAACs.

In 2017, the implementation of the Pulsar BAAC software in the gendarmerie led to less under-recording of certain types of accident. The ratios calculated for the gendarmerie have therefore been adapted for 2017-2021.

[1] Details of the complete method are available on the ONISR website: https://www.onisr.securite-routiere.gouv.fr/

[2] Register of road accident victims according to hospital sources (see pages 14 to 16).

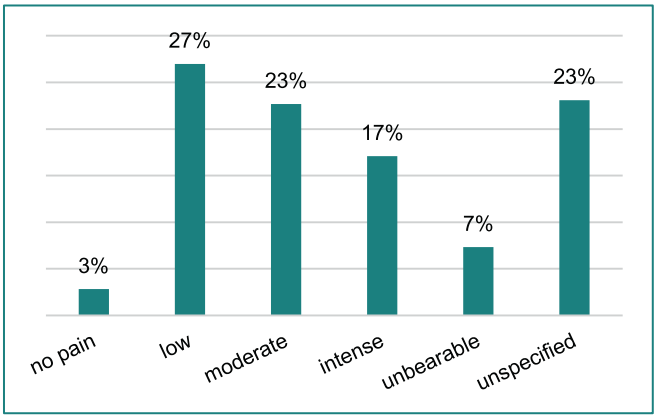
The pain of the injured of the road

Team	UMRESTTE
Completion	2021
Methodology	Study of **sharp pain** in 1879 road accident victims treated in the emergency room. Study of **chronic pain** in 1071 victims of a road accident, of all ages and all severities
Perimeter	Acute pain: emergency department in Lyon (2018) / Chronic pain: ESPARR - Rhône
Key words	Sharp pain, chronic pain

Intensity of pain and analgesics

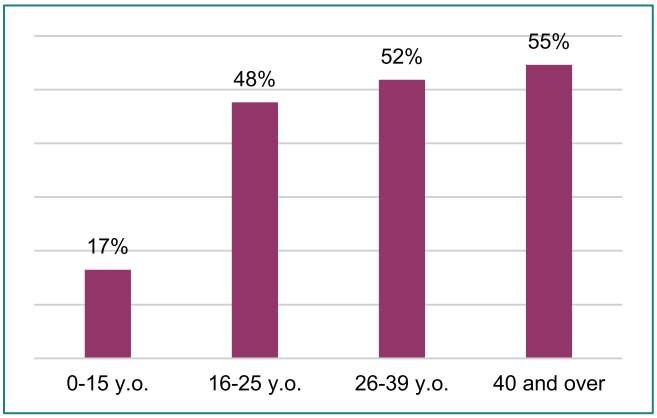
The intensity of the pain is evaluated by the people on a scale from 0 to 10, then classified according to the grid of the High Authority of Health in absent pain (0), weak (1-3), moderate (4- 5), intense (6-7), or unbearable (8-10).
Analgesic treatments are divided into 3 levels by the WHO: non-opioids (level 1), weak opioids (level 2), and powerful opioids (level 3).

Intensity of sharp pain in the emergency room



Source: Rhône register

Presence of pain 2 years after the accident according to age



Source: ESPARR cohort (Pilet, Galinski and Lafont 2022)

Not necessarily leading to a functional deficit, pain is not always considered as a traumatic sequelae in international coding scales. However, it can persist over time and have negative effects on the well-being and psychology of individuals. It is therefore necessary to take it into account.

Pain in the emergency room (known as sharp pain)

1,879 victims of a road accident were questioned about the intensity of their pain just after being treated in the emergency room by the reception and orientation nurse. 24 % reported **intense or unbearable** pain and 23 % **moderate** pain. 23 % did not provide this assessment.

The intensity of the pain is relatively comparable regardless of the mode of travel at the time of the accident. It is **intense or unbearable** in 22 % of cyclists, 23 % of motorists, and 29 % of pedestrians or users of powered two-wheelers**.**

The pain is more often intense or unbearable in the **seriously injured** MAIS 3+ (36 %), than in the slightly or moderately injured MAIS 1-2 (24 %).

During their stay in the **emergency room**, 60 % of victims received an analgesic, non-morphine for 33 % of victims, weak opioid for 20 %, and strong opioid for 7 %. For 19 % of victims, the name of the treatment was not specified, and 21 % did not receive painkillers during their stay in the emergency room.

On **leaving the emergency room**, 87 % were prescribed analgesics, 44 % non-morphine, 43 % a weak opioid and 0.6 % a strong opioid. 1.5 % of victims did have a prescription but the treatment is not specified; 11 % of victims did not have a prescription for painkillers when they left the emergency room.

Pain 2 years after the accident (known as chronic pain)

Two years after the road accident, the pain is still present in **45** % of the 1,071 victims of the ESPARR cohort interviewed.
Users who most often still have pain 2 years after their accident are users of **powered two-wheelers** (54 %), while cyclists report pain less often (38 %). Pedestrians or users of personal transport vehicles and motorists are around the average of victims (46 % and 42 % respectively). The persistence of pain 2 years after the accident is much more frequent in the **seriously injured** (77 %). It nevertheless remains very present among the slightly or moderately injured (43 %).

Those under 16 are less often affected by this persistent pain (17 %) than the oldest (51 %). Finally, men and women report the same level of persistent pain.

USCOMA - Smartphone usage scenarii

Team	CEESAR LESCOT (Gustave Eiffel University)
Completion	May 2022
Methodology	Behavioural study based on driving data collected in real situations
Perimeter	Mainland France, 18 months
Key words	Driving in real life - Database - smartphone - AI

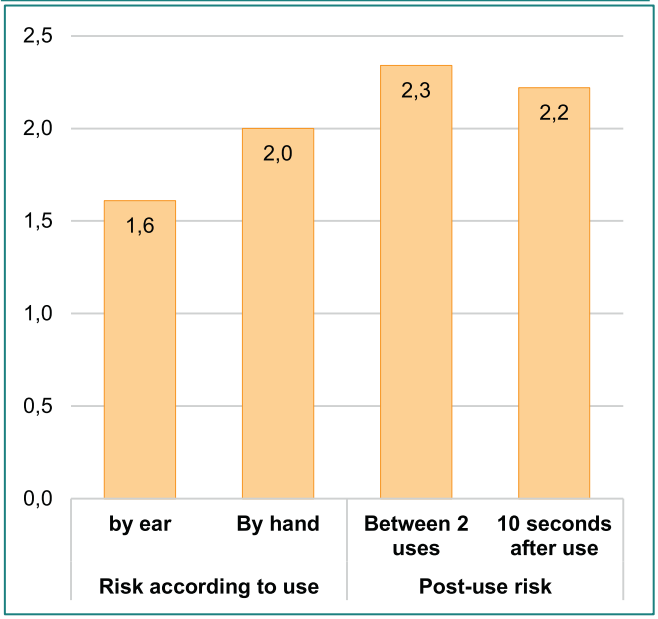
Methodology for analysing smartphone use while driving

Detection by artificial intelligence of the use of the smartphone "by hand" or "by ear" on 12,500 hours of videos collected from 43 French drivers.

Frequency of use and share of travel time spent with the phone in hand, moving or stopped

Stopping methods	Frequency of use by hand (uses/h)	Proportion of travel time spent in manual use (%)
Moving	0,77	0,53
In distress	5,41	5,42
Traffic lights	4,5	2,48
In a cap	5,26	4,08
Start/end of trip	8,57	7,98
Parked	6,34	9,02
Free stop (parked)	5,71	5,27

Increased risk of frontal collision when the smartphone is used while driving compared to phases without use



A variety of behaviours depending on the driving situation

The frequency of smartphone use while driving is very heterogeneous within the population of 43 drivers participating in the study**. Less than half of the drivers observed contribute to 80 % of hand-held** smartphone use detected on recorded videos (respectively **19** % for ear-held smartphone use). Nearly three-quarters of drivers who most often use their smartphone by hand also use it by ear.

The driving environment is also decisive in terms of the frequency of use, with the use of hand-held smartphones **twice as frequent in town than on rural roads**. On the motorway, the use is 43 % more frequent.

Drivers are much more likely to use their smartphone when stationary:

- On the motorway**, use is 16 times more frequent in traffic jams than when traffic is flowing**;
- In town this use is 7.5 times more frequent at a traffic light than while driving.

Smartphone handling scenario while driving

A driver who has used his smartphone in the near past will use it again. **25 % of uses are followed by a new manipulation within one minute**, 40 % within 5 minutes. In addition, a driver who has just used his smartphone is **46 times more likely to use it again within a minute.**

Using your phone when stationary also increases the chances of using it while driving, since **20 % of uses in motion were initiated when stationary**.

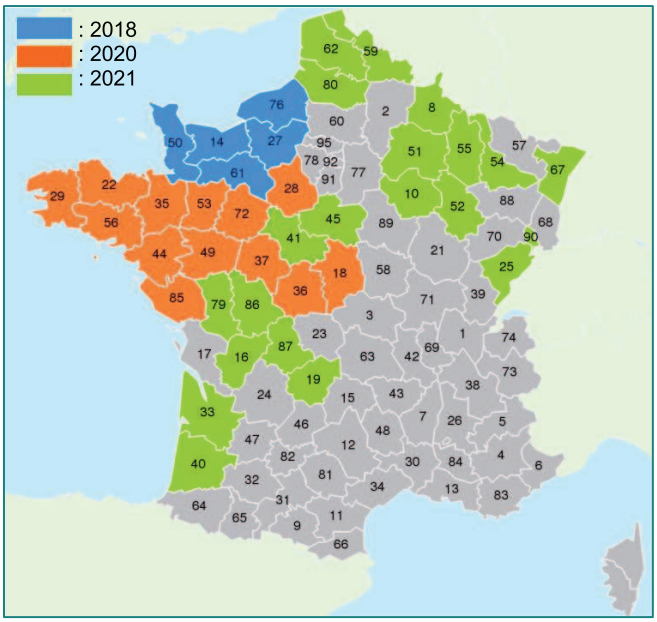
Impact of smartphones while driving on driving quality

The use of the smartphone by hand leads to difficulties in managing safety distances and direction. Indeed, **frontal collision** warnings **are twice as frequent** while the frequency of **line crossing** warnings is 1.6 higher compared to phases when the smartphone is not used. When used by **ear**, **frontal collision** warnings are also **1.6** times more frequent.

Without being used, the smartphone influences driving: between 2 uses or within 10 seconds after use, the frequency of frontal **collision warnings** increases sharply, being respectively **2.3** and **2.2** times higher.

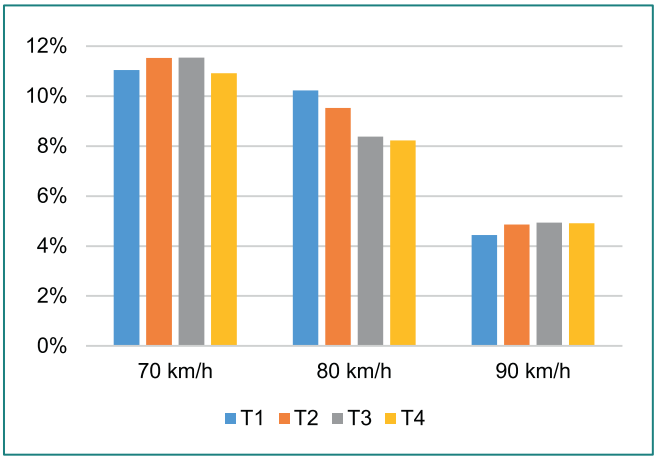
Outsourced driving the radar cars

Map of the deployment of outsourced driving radar cars according to the year of implementation



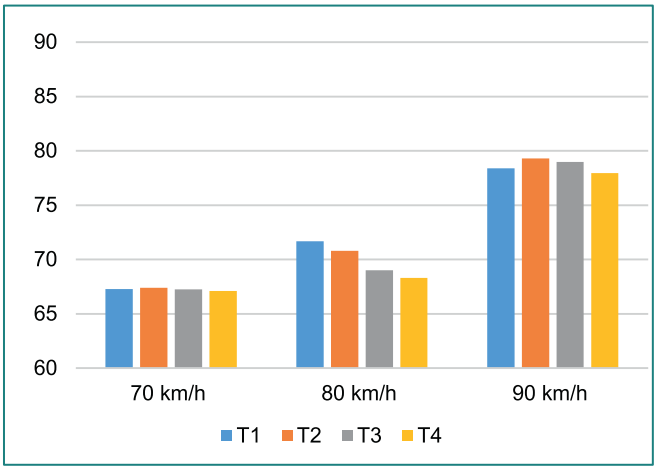
Source: DSR/Department of Automated Control (DCA)

Offence rate per quarter according to the speed limit in 2021



Source: DSR/DCA

Vehicle speeds recorded by radar car checks by quarter according to the speed limit in 2021



Source: DSR/DCA

As of 12/31/2021, the total fleet of radar cars is made up of 385 vehicles which, since 2018, have been gradually transferred from law enforcement to outsourced driving operators. At the end of 2021, the outsourced checks concerned 150 radar cars (compared to 83 at the end of 2020), in 39 departments – the following analyses relate only to these checks.

Number of checks carried out

The number of checks carried out by outsourced driving radar cars increased sharply in 2021, from 758,000 in the first quarter (Q1) to 2,886,000 in the last quarter (Q4) of 2021, for a total of 6,650,000 checks in 2021.

Almost all (96 %) of the checks take place on roads where speed limit (SL) is 80 or 90 km/h, often corresponding to two-way roads outside urban areas. 166,000 checks were carried out on sections limited to 70 km/h, and 77,000 checks on lanes limited to 110 or 130 km/h.

Violation rate

The violation rate during speed control by radar cars at the national level has gradually decreased, from 8.8 % to 7.5 % between Q1 and Q4 2021. The situations are heterogeneous depending on the departments and the overall reduction in the violation rate is not observed everywhere. The lowest violation rates are around 3 %, while the highest rates exceed 12 % in certain departments and certain quarters.

On roads limited to 80 km/h, the violation rate fell sharply from 10.2 % to 8.2 % between Q1 and Q4 2021. For the SL of 90 km/h, the violation rate decreased slightly increased from 4.4% in Q1 to 4.9 % in Q4. For lanes limited to 70 km/h, the average violation rate is 11.2 % in 2021.

The number of offences recorded by outsourced driving radar cars represents 38 % of all offences recorded by radar cars in 2021.

Average speeds

The overall trend in average speeds of by controlled vehicles is down over the year 2021 (- 3.3 %). This decrease is particularly marked on roads limited to 80 km/h, the speeds of which have decreased each quarter, going from an average of 71.7 km/h in Q1 to 68.3 km/h in Q4 2021 (- 4.7 %). On the sections limited to 90 km/h, after an increase from 78.4 to 79.3 km/h between T1 and T2, the trend is down slightly. For the SL of 70 km/h, the trend is stable around 67.2 km/h.

The average speeds practiced have a smaller difference in proportion with the SL 70 km/h (- 4 %) than with the SL 80 and 90 km/h (- 13.4 % and - 12,8 %).

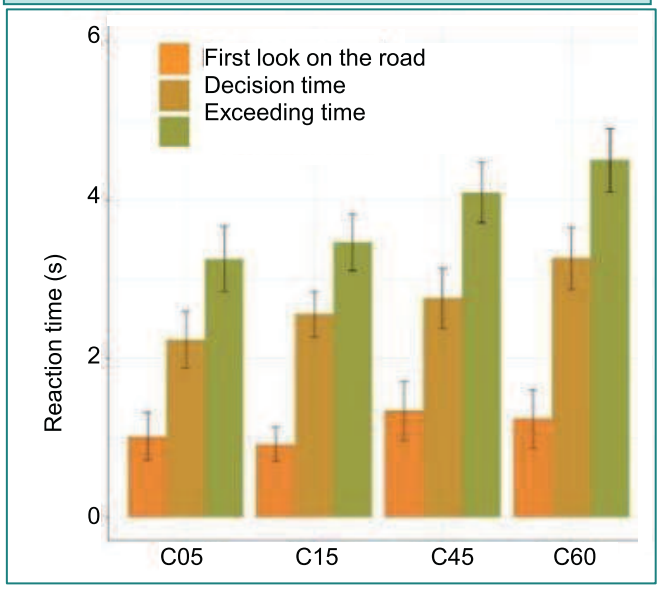
Back into the loop, taking over an automated vehicle

Organizations	Institute of Movement Sciences (ISM), UMR7287 CNRS and Aix-Marseille Université Open Lab Automotive Motion
Completion	March 2021
Funding	MAIF Foundation (grant)
Key words	Autonomous driving, drowsiness

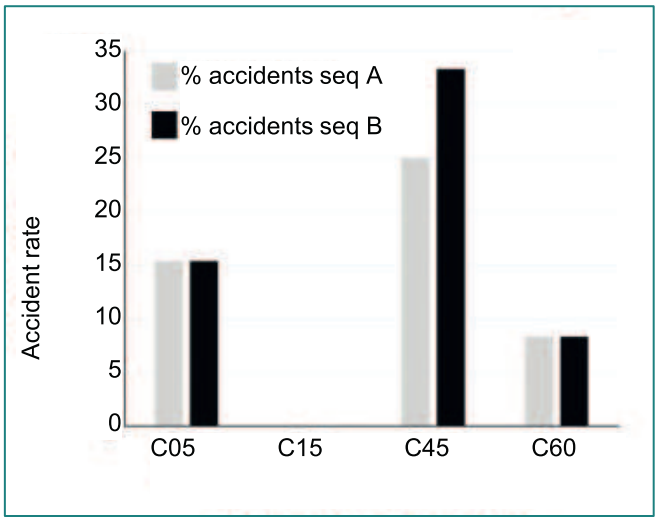
Methodology

Several experiments have been carried out, including one studying the impact of the duration of driving delegation on taking control of the vehicle. 52 participants divided into 4 groups were placed in an automated driving simulator: 5, 15, 45 and 60 minutes. At the end of this phase, a signal asked the driver to take control of the vehicle.

Average time needed for the takeover steps according to the delegation time (5, 15, 45 and 60 minutes)



Collision rate between the 2 simulation sequences and according to the delegation time



This project aims to analyse, on a simulator, the performance of taking control of a vehicle **after an automated driving phase** by considering **the state of the driver**. The **reaction time**, the **quality of the takeover** action (on the steering wheel, on the pedals) and **cinematic variables** of the driving action (the trajectory of the vehicle for example) offer a fidelity representation. -dele of the road behaviour of the driver. The state of the latter is observed using sensors, and evaluated from **physiological parameters** such as heart or respiratory rate.

The duration of delegation has little influence on the ability to resume driving …

The main hypothesis was the following: the ability to identify the action to be taken and to manage the re-handling is deteriorated with the increase in the duration of the delegation phase, due to the change of state of the driver (appearance of signs of drowsiness, in particular).

If the duration of the delegation increases the risk of the appearance of risky behaviours, the inter-individual variations in regaining control are significant, suggesting that other factors explain performance. Moreover, **no linear effect** between the **duration of delegation** and the **ability to regain control** of the vehicle is observed.

… Except in some drivers when it reduces alertness

Nevertheless, the duration of delegation has an effect on the cognitive functions of the driver. As it increases, it can lead to **attentional drift** (phenomena of "mind-wandering", "mind-blanking"), and even **drowsiness**, which is only the extreme stage of a loss of vigilance by the driver.

The quality of vehicle recovery therefore in reality depends **more on the individuals** than on the duration of the delegation of driving. The **level of attention** thus turns out to be a more relevant evaluation criterion than the duration. It is also important to consider the nature of the **secondary tasks** carried out by the driver (reading, watching video, gaming, etc.), likely to influence his ability to return to the control loop.

The role of simulator rehearsal

The research team finally analysed the effect of **repetition** on the **quality of the takeover**. Of the 52 subjects, each having carried out 2 simulations, none experienced 2 collisions. If the quality of recovery is improved by repetition for some subjects, this is however not a guarantee of risk reduction since the number of collisions is stable in the 2 sequences on average.

The impact of the equipment level of utility vehicles

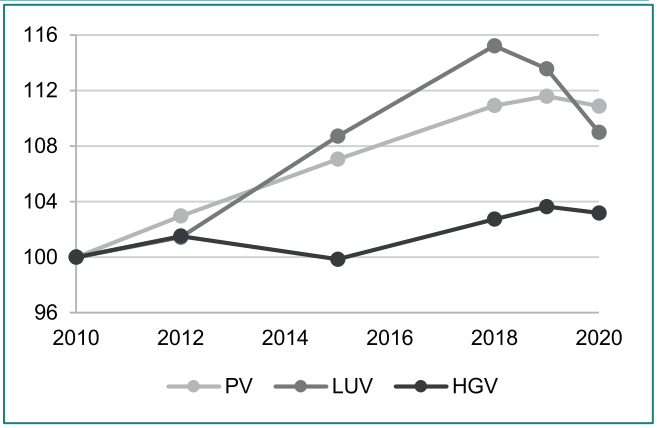
Team	Pierre-Marie Damon, Aurélien Garcia - UTAC
Completion	End of 2020
Methodology	Study of the accident rate of UVs; Study of the level of equipment in ADAS
Perimeter	Mainland France
Key words	ADAS, Light utility vehicles, Active safety

Regulatory developments

The European GSR 2 regulation (General Safety Regulation II) comes into force in July 2022 and obliges manufacturers to equip new types of vehicles intended for the European market, including LUVs, with a set of ADAS.

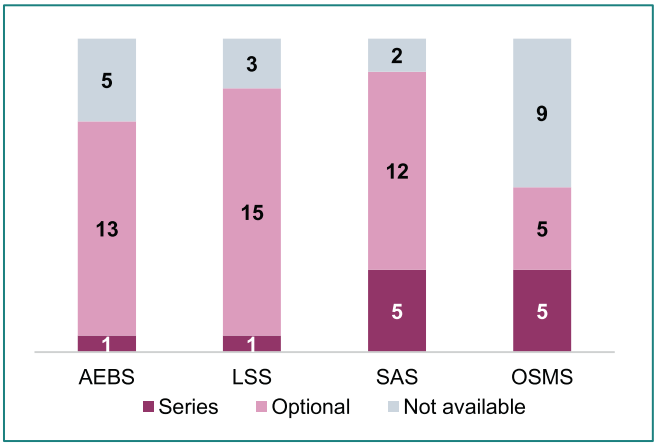
Information collected during this study was used by Euro NCAP to prepare its first official campaign to promote active safety specific to UV.

Evolution of car fleets (PV), light utility vehicles (LUV) and heavy goods vehicles (HGV), in base 100 compared to 2010



Source: Final study report, UTAC

Rate of ADAS equipment (standard, optional or not available) of the 19 best-selling LUVs in Europe



Source: Final report of the study, UTAC

The number of accidents involving light commercial vehicles (LUVs) in recent years has decreased less than that of most other modes of travel. These accidents mainly occur in urban areas and during professional travels, and half of the victims of accidents involving LUVs are vulnerable users.

This study also makes it possible to analyse the degree of **introduction** by manufacturers of **driver assistance systems** (ADAS: Advanced Driver Assistance Systems) and their democratization for LUV.

Driving aids

ADAS are designed to **improve the safety** of vehicle occupants on the one hand, and other road users on the other. There are 4 main categories of ADAS:

- **Autonomous emergency braking systems** (**AEBS** – anti-locking of the wheels, safety distances, etc.);
- **Lane keeping aids** (**LSS**: Lane Support Systems – trajectory correctors, etc.);
- **Speed aids** (**SAS**: Speed Assistance Systems – limiter, adaptive cruise control) ;
- **Driver monitoring systems** (**OSMS**: Occupant Status Monitoring Systems – detectors of fatigue, inattention, distraction …).

While ADAS have become widely available for passenger vehicles (PVs) in recent years, the level of equipment in UV remains relatively low. This study focused on the 19 best-selling LUV in Europe and it appears that **very few** are equipped with **ADAS as standard**. Only one of the 19 vehicles is fitted with the 4 types of ADAS as standard, while 13 LUV (nearly 70 %) have no ADAS fitted as standard. A large part is therefore only offered as an option.

Towards a democratization of ADAS for LUVs

By analogy with PVs, LUV manufacturers do not yet equip their vehicles with high-performance driving aids and **above all in line** with the **accident configurations** actually observed.

The optional ADAS catalogues are certainly provided, but the variations of the systems remain basic and are not adapted to the accident rate of LUVs. For example, the AEBS is mainly offered in its LUV version against PV, while accidentology shows that collisions mainly occur against vulnerable users.

In addition, the average level of ADAS equipment in LUVs remains lower than that of conventional passenger vehicles.


SAPEURS
POMPIERS

Appendix

ROAD TRAFFIC INJURY ACCIDENT - BAAC FORMAT 2017

IDENTIFIER

UNIT CODE (3–9) | REPORT NUMBER (10–14) | N° FILE (15) | CREATED BY (17)

1 - National Gendarmerie
2 - Paris police headquarters
3 - C.R.S
4 - P.A.F
5 - Public Security

1 – CHARACTERISTICS

LIGHT
Full day - 1
Dusk or dawn - 2
Night without public lighting - Unlit - 4
Night with public lighting : Alight - 5

LOCALIZATION
Outside urban areas - 1
In urban areas - 2

OUTSIDE INTERSECTION
1 - Out of intersection
At an intersection or immediate vicinity
2 - In X
3 - In T
4 - In Y
5 - Has more than 4 branches
6 - Roundabount
7 - Square
8 - Level crossing
9 - Other

ATMOSPHERIC CONDITIONS
Normal - 1
Light rain - 2
Heavy rain- 3
Snow - hail - 4
Fog - Smoke - 5
Strong wind - storm - 6
Dazzling time - 7
Cloudy weather- 8
Other - 9

TYPE OF COLLISION
Accident involving:
- two vehicles
1 - Frontal
2 - Rear
3 - By the side
- three or more vehicles
4 - In chain
5 - Multiple Collisions
6 - Other Collision
7 - Collision-free

GPS CODING
Source indicator
Latitude | Longitude

Party eve 1
Celebration day 2

DATE (day, month, year) | HOUR (hour, minute) (18–29)

INSEE CODE PLACE ACCIDENT (30–36): Department | Commune

Postal address - Indicate the number, nature and name of the street (40–63)

2 – LOCATION

CODE ROUTE

CATEGORY
1 - Motorway
2 - National (or territorial) road
3 - Departmental (or provincial) road
4 - Communal road
5 - Outside public network
6 - Parking lot open to public traffic
7 - Urban metropolitan road
9 - Other

ROAD INFRASTRUTURE
ROAD : One-way road - 1
Single carriageway road - 2
Dual carriageway road - 3
With variable lane allocation - 4

WAY: Index letter A / no object- 0 / B / Bis - 2 / C / Ter - 3 / etc / …
Number or Finato

Number of traffic lanes for all users in all directions (off hard shoulder)

PRIORITY REGIME
1 - Light
2 - Priority right
3 - Stop
4 - Yield
5 - Priority road or one-time priority
6 - Roundabout
7 - Other

SPECIAL ROUTE
1 - Bicycle path
2 - Cycle lane
3 - Reserved lane

LONG PROFILE
1 - Thin
2 - Slope
3 - Coast Summit
4 - Bottom of the coast

PLAN TRACE (sens du 1er véhicule décrit)
Straight part - 1
Left-hand curve - 2
Right-hand curve - 3
In S - 4

KILOMETER POINT OR MARK (find your bearings to the upstream terminal)
Terminal no. | Meters

SURFACE STATE
1 - Normal
2 - Wet
3 - Puddles
4 - Flooded
5 - Snowy
6 - Mud
7 - Icy
8 - Greasy - Oil
9 - Other

PLANNING - INFRASTRUCT
1- Underground - tunnel
2 - Bridge - Flyover
3 - Interchange ramp or connection
4 - Track
5 -Landscaped crossroads
6 - Pedestrian zone
7 - Toll zone
8 - Worksite
9 - Other

STATUS OF ACCIDENT
1- On pavement
2 - On emergency lane
3 - Hand shoulder
4 - On sidewalk
5 - On a cycle track or lane
6 - On another special lane
8 - Other

LOCATION FACTOR
S - No factor identified
T - Degraded pavement
U - Ground markings erased
V - Route Setup
W - Speed bumps / baffles
X - Vertical signage
Y - Impediment to visibility
Z - recently redone pavement

SPEED LIMIT

3 - VEHICLES

01 - Bicycle
02 - Moped <=50 cm3
03 - Cart
07 - Single P.V.
10 - Single U.V. (1,5T < GVW<= 3,5T
13 - Single HGV (3,5T <GVW<= 7,5T
14 - Single HGV (GVW>7,5T)
15 - HGV (GVW>3,5T) + trailer
16 - Road tractor alone
17 - Truck tractor + semi-trailer
20 - Special gear
21 - Tractor
30 - Scooter <=50 cm3
31 -Moto or sidecar >50 <=125 cm3
32 - Scooter >50 <=125 cm3
33 - Moto or sidecar >125 cm3
34 - Scooter >125 cm3
35 - Light quad <=50cm3
36 - Heavy quad >50cm3
37 - Bus
38 - Coach
39 - Train
40 - Tram
41 - PTW <=50 cm3
42 - PTW >50 <=125cm3
43 - PTW >125 cm3
50 - Motorized PMD
60 - Non motorized PMD
99 - Other

ADMINISTRATIVE CATEGORY

CONVENTIONAL LETTER

ROAD CODE
1 - Veh. on the run not found
2 - Runaway driver not found
4 - Runaway driver found

FLOW DIRECTION
1 - K.P. or addresses increasing
decreasing
3 - lack of landmark

REGISTRATION Depart- ment or country

DATE of registration (Month | Year)

BELONGING TO
1 - Driver
2 - Stolen vehicle
3 - Consenting owner
4 - Administration
5 - Company
6 - short term rental
7 - self-service rental
9 - Other

VEHICULE SPECIAL
1- Taxi
2 - Ambulance
3 - Firefighter
4 - Police - Gendarmerie
5 - School transportation
6 - Dangerous Material
7 - Disabled friendly
8 - Vehi. with system
A - Armed forces
B - Manager's vehicle
9 - Other

VEHICLE FACTOR
1 - Mechanical defect
2 - Lighting - signaling
3 - Worn tire
4 - Tire burst
5 - Loading
6 - Vehicle movement
7 - Vehicle fire
8 - Vehi. unfamiliar to the driver
A - Faulty driver assistance
B - Restricted visibility
9 - Other

TYPE OF MOTORIZATION
1 - hydrocarbons
2 - electric hybrid
3 - electric
5 - human
6 - other

INSURANCE
1 - Yes
2 - No
3 - Not shown
4 - Insurance not required

FIXED OBSACLE HIT
01- Stationary vehicle
02 - Tree on shoulder
03 - Metal slide
04 - Concrete slide
05 - Other slide
06 - Building, wall, bridge pier
07 - Vertical signage support or Emergency call station
08 - Pole
09 - Urban furniture
10 - Parapet
11 - Island, refuge, upper limit
12 -sidewalk curb
13 - Ditch, embankment, rock wall
14 - Other obs. fixed on the road
15 - Other obs. fixed on sidewalk
16 - Obstacle-free road exit
17 - nozzle - aqueduct head

MOBILE OBSTACLE HIT
1 - Pedestrian
2 - Vehicle
4 - Rail vehicle
5 - Pet
6 - Wild animal
9 - Other

INITIAL SHOCK POINT
1 - Front
2 - Front right
3 - Front left
4 - Rear
5 - Rear right
6 - Rear lesft
7 - Right side
9 - Multiple shock (roll over)

MAIN MANEUVER BEFORE THE ACCIDENT
CIRCULATING
01 - Without change of direction
02 - Same direction, same line
03 - Between 2 lines
04 - Backwards
05 - Misdirection
06 - Crossing the central reservation
07 - In the bus lane - in the same direction
08 - In the bus lane - in the opposite direction
09 - By inserting
10 - By making 1/2 turn On Pavement
CHANGING LINES: 11 - To the left / 12 -To the right
DEPORTED: 13 - To the left / 14 - To the right
TURNING: 15 - To the left / 16 - To the right
EXCEEDING: 17 - To the left / 18 - To the right
19 - Crossing the road
20 - Parking maneuver
21 - Avoidance maneuver
22 - Door opening
23 - Stopped (excluding parking)
25 - Driving on sidewalk
26 - Other maneuvers
CNIT code: copy"type" entered on the vehicle registration document

NB OF OCCUPANTS IN THE P.T.

4 - ROAD USERS

CONVENTIONAL LETTER

PLACE IN THE VEHICLE
2 wheels : 1 / 2 / 3
4 - wheels : 1 4 7 / 2 5 8 / 6 3 9
1 - Presumed responsible

CATEGORY
1 - Driver
2 - Passenger
3 - Pedestrian

SEVERITY
1 - Unhurt
2 - Killed (30d)
3 - Injured hosp. more than 24 h
4 - Slightly injured

NATIONALITY

SOCIO-PROFESSIONAL CATEGORY
1 - professional driver
2 - farmer
3 - craftsman, merchant, entrepreneur
4 - management and higher intellectual professions
5 - intermediate professions and employee
6 - workman
7 - retired
8 - unemployed
9 - other without activity
A - student, school
B - unknown

GENDER
1 - Masculine
2 - Feminine

USER NUMBER

RESIDENCY DEPARTMENT OR COUNTRY

BIRTH (Month | Year)

ALCOHOL LEVEL
1 - Impossible
2 - Refused
3 - Positive by blood test
4 - Positive to breathalyzer
6 - Negative

ALCOHOL LEVEL

DRIVER'S LICENSE
1- Valid and not probative
2 - Expired
3 - Suspended, held
4 - Driving school
5 - Invalid category
6 - Lack of license
7 - Accompanied driving or supervised
8 - Unknown
9 - Lice. cancelled, invalidated
A - Probationary license 2 years
B - Probationary license 3 years

DATE OBTAINMENT THE LICENSE (Month | Year)

PATH
1 - Home-to-work
2 - Home - school
3 - Shopping - purchase
4 - Professional use.
5 - Recreation - leisure
9 - Other

SECURITY EQUIPMENT

(USE)
Safety belt - 1
Protective helmet - 2
Child restraint - 3
Not determinable - 8

USE (continued)
0 - No equipment
4 - reflective vest
5 - Airbag (2/3RM)
6 - Gloves (P2W/P3W)
7 - Gloves + Airbag (2/3 RM)
9 - Other

NUMBER OFFENCE
1st offence | 2nd offence

PEDESTRIAN MANEUVER

PEDESTRIAN LOCATION
ON ROAD
1-At +50m. of the pedestrian crossi
2 - At - 50m. of the pedestrian cross
ON PEDESTRIAN CROSSING
3 - Without light signaling
4 -With light signaling
VARIOUS
5 - On sidewalk
6 - On shoulder or BAU
7 - On shelter
8 - On counter aisle
9 - Unknown

ACTION
Moving
1- Direction vehi. hitting
2 - Reverse vehi. direction
Various
3 - Crossing
4 - Masked
5 - Playing, running
6 - With animal
7 - Exit PT stop
8 - Go to PT stop
9 - Other
A - boarding/descent vehi
B - Unknown
1 - Single
2 - Accompanied
3 - In Group

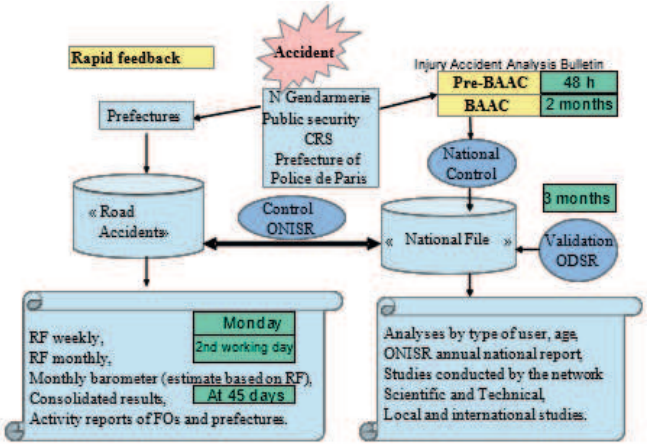
USER-RELATED FACTOR
A - Alcohol
B - Excessive speed or inappropriate
C - Illegal Drugs
D - Priority
E - Phone and distractors
F - Faintness
G - Drowsiness/Fatigue
H - Inattention
I- Mis direction
J - Dangerous overtaking
K - Lane change
L - no respect safe distances
M - Medications
N - Infirmity
O - Suicide
P - Dazzle
Q - Other
R - Undetermined

I. DRUGS
1 - Not done
2 - Impossible
3 - Refused
4 - Positive
5 - Negative

Identified product
B -cannabis alone
C - other product only
D - cannabis +other
E - several products excluding cannabis

The national accident file

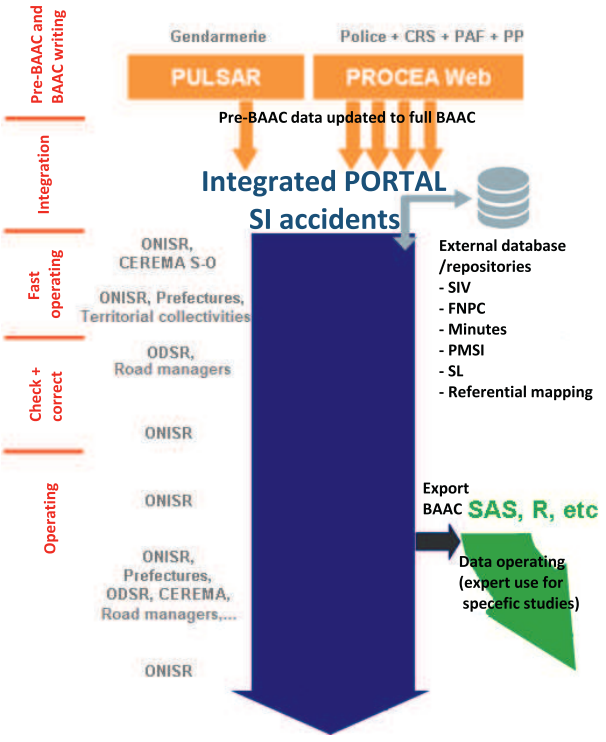
Organization of the collection and use of accident data in 2021



Evolution of information systems

The ministerial instruction of April 18, 2017 organizes the reconciliation of the two chains of data uploads. The procedures for sending BAAC files have been modified as follows: since January 1, 2018, a pre-BAAC (start of BAAC recording) must be written within 48 hours of an accident and updated by the forces of the order until becoming a BAAC within two months after the accident.

Since February 2018 for the National Gendarmerie, April 2018 for the CRS and Public Security, and August 2018 for the Paris Police Prefecture, a synchronization of information systems allows the daily sending of pre BAAC-BAAC in TRAxy, ONISR's new information system.



ONISR administers the national file of road accidents recorded by law enforcement (FO). Its missions are governed by Decree No. 75-360 of May 15, 1975 relating to the Interministerial Committee for Road Safety and Decree No. 2013-728 of August 12, 2013 on the organization of the central administration of the Ministry of inside. It works completely independently, guaranteeing the statistical quality of the data, some indicators of which are labelled by the French Authority for Public Statistics (see page 6). Unlabelled data is marked with an asterisk (*). As part of the opening of digital data, data that is not of a confidential nature related to the survey is accessible on the website. www.data.gouv.fr/en.

Accident registration

The security forces intervening in traffic bodily accidents send “rapid feedback” (RF) via the prefectures. The ONISR thus provides weekly and monthly monitoring by department and publishes the monthly accident rate barometer, the first estimate of accident rate based on the differences between the RF and the data from the BAAC (Injury Accident Analysis Bulletin) of the previous year.

Any injury accident in road traffic known to the police is the subject of a BAAC file, entered at the local level in PROCEA Web for the police services, and PULSAR BAAC for the national gendarmerie. This software sends the updates of the pre-BAAC then BAAC files every night to the national information system **TRAxy** (Traffic Road Accident, xy coordinates). Software developments improve the efficiency of the collection chain and the geolocation of accidents, but during the running-in phase of the new software, the quality of certain fields may have been affected in certain years. The BAAC file describes the situation of the accident, the vehicles and the users involved. It does not include the identities of the people involved in the accidents.

The Guide to the production of the national file of road traffic injury accidents can be consulted on the website www.onisr.securite-routiere.gouv.fr/en.

Data consolidation

At the national level, Cerema Sud-Ouest carries out a 1st level of quality control: verification of the formats and the completeness of the headings making it possible to identify each accident (municipality, organization, date of the accident, etc.). The departmental road safety observatories (ODSR) and certain road managers provide a 2nd level of verification and the correction of data entry anomalies, fields not filled in, etc.

The national file is validated by ONISR in April of the following year and becomes the source of official accident statistics, communicated to the public and institutions (supply of international databases WHO, CARE and IRTAD).

The severity of injuries and sequelae

Injury severity scale

The AIS scale (Abbreviated Injury Scale, 2005 version) is an international classification used in traumatology. It makes it possible to code each lesion according to its site and its nature and to assign it a severity score ranging from 1 (minor lesion) to **6 (fatal lesion).** This **immediate severity** score, called the AIS score, takes into account various parameters such as vital risk, speed, complexity and expected duration of care. Thanks to this classification, we can calculate the maximum AIS (MAIS), the score of the most serious injury in a victim with several injuries. People considered **seriously injured have a score greater than or equal to 3 (MAIS 3+)**[1].

AIS (Abbreviated Injury Scale) coding: most common injuries by AIS severity level and body region.

AIS	Severity	Head	Face	Neck	Thorax	Abdomen	Column	Upper members	Lower limbs, pelvis	Skin
1	Minor	Head trauma without loss of consciousness	Minor skin wounds	Cervical contusion	Rib bruise	Parietal contusion	Cervical sprain	Contusion	Contusion	dermabrasions
2	Moderate	Head trauma with loss of consciousness	Maxillary fracture	Hyoid bone fracture	Breastbone fracture	Spleen bruise	Lumbar vertebrae transverse process fractures	Clavicle fracture	Fibula fracture	2nd degree burns
3	Serious	Skull base fracture	Lefort III type fracture	Minor carotid artery wound	Fractures of 3 or more ribs	Hepatic contusion	Lumbar vertebral body fractures	Complex radius fracture	Femur fracture	2-3rd degree burns
4	Strict	Complex skull base fracture	Hemorrhagic Lefort III	Major carotid artery wound	Severe bilateral pulmonary contusion	Liver wound	tetraparesis	arm amputation	Pelvis fracture	3rd degree burns
5	Critical	Severe cerebral edema		Vertebral artery wound with thrombosis	Bilateral costal flap	Rupture spleen	Paraplegia		Complex pelvis fracture	
6	Maximum	Massive destruction skull and brain		larynx fracture	Ruptured thoracic aorta	Liver rupture	Complete section of cervical cord			Total carbonization

Sequelae severity scale

Backed by the 2005 version of the AIS, the Functional Capacity Index (FCI), defined by an iterative process with a panel of experts, makes it possible to determine the lesions responsible for **functional impairments probable at 1 year**, and the class according to a level ranging from **1** (**total deficit**) to 5 (absence of deficit). The FCI is based on ten dimensions[2] : feeding, excretion, sexuality, walking, grasping, bending and lifting, vision, hearing, speech, and cognition. **Pain is not one of them** (i.e. page 169).

FCI coding (Functional Capacity Index): the most frequent lesions responsible for sequelae by level of FCI deficiency and body region.

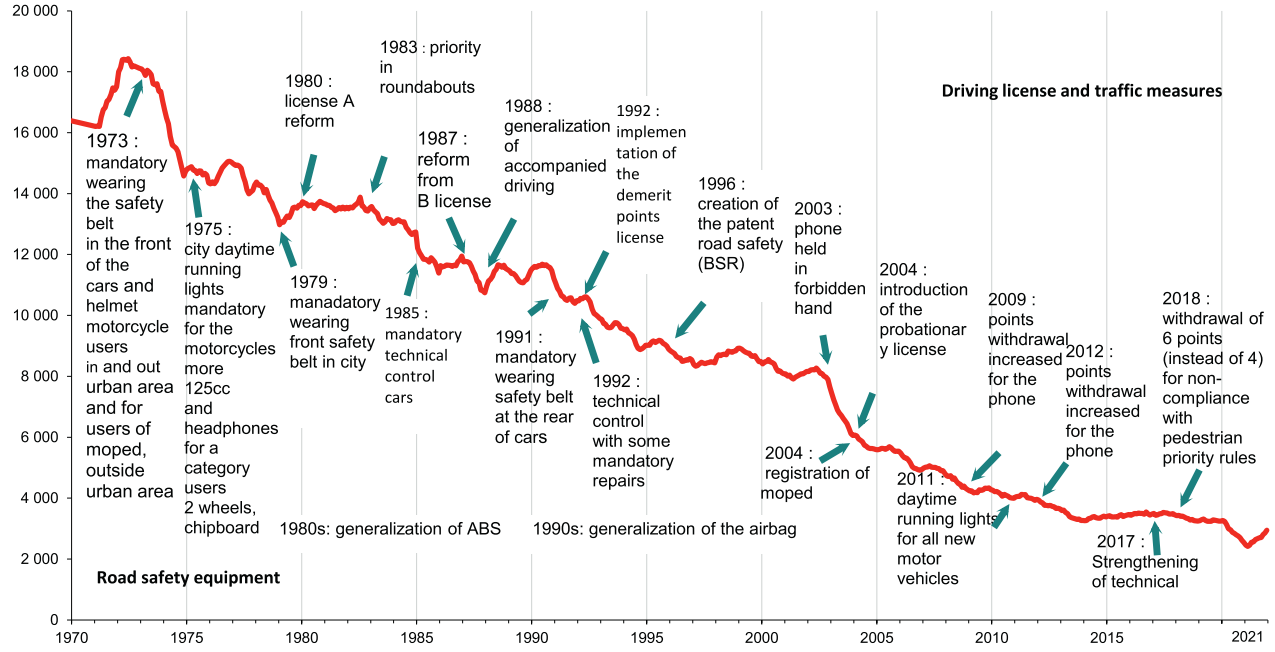
FCI	Functional deficit	Head	Face	Neck	Abdomen	Column	Upper members	Lower limbs, pelvis
1	Strict	Pneumoencephaly	Inner ear injury	Carotid artery thrombosis	Rupture urethra	tetraplegia	arm amputation	Sciatic nerve section
2	Serious	cerebral edema	Eye injury	Vertebral artery dissection	Colon rupture	Brachial plexus contusion	Hand tendon ruptures	Tibial plateau fracture
3	Moderate	Multiple cerebral contusions		Vocal cord lesions	Pancreas wound	Brachial plexus rupture	Olecranon fracture	Acetabulum joint fracture
4	Light						Radial head fracture	Neck or head fibula fracture

Source: Rhône Registry

[1] Concerning the 2005 version of the AIS: a certain number of injuries which were AIS3 in the 1990 version have changed to AIS2, leading to a reduction in the proportion of MAIS3+ injuries according to this new definition.
[2] The scale of sequelae backed by the AIS version 1990, the Injury Impairment Scale (IIS), took into account different elements such as aesthetic damage or pain. In particular for road accidents, the most frequent lesion among motorists, "whiplash", does not present any functional deficit (FCI=5) although it is a source of pain (IIS=1, minor sequelae).

Important dates in road safety

Evolution of road fatalities in France mainland and the measures taken in terms of safety 1970 - 2021 (moving average over 12 months)



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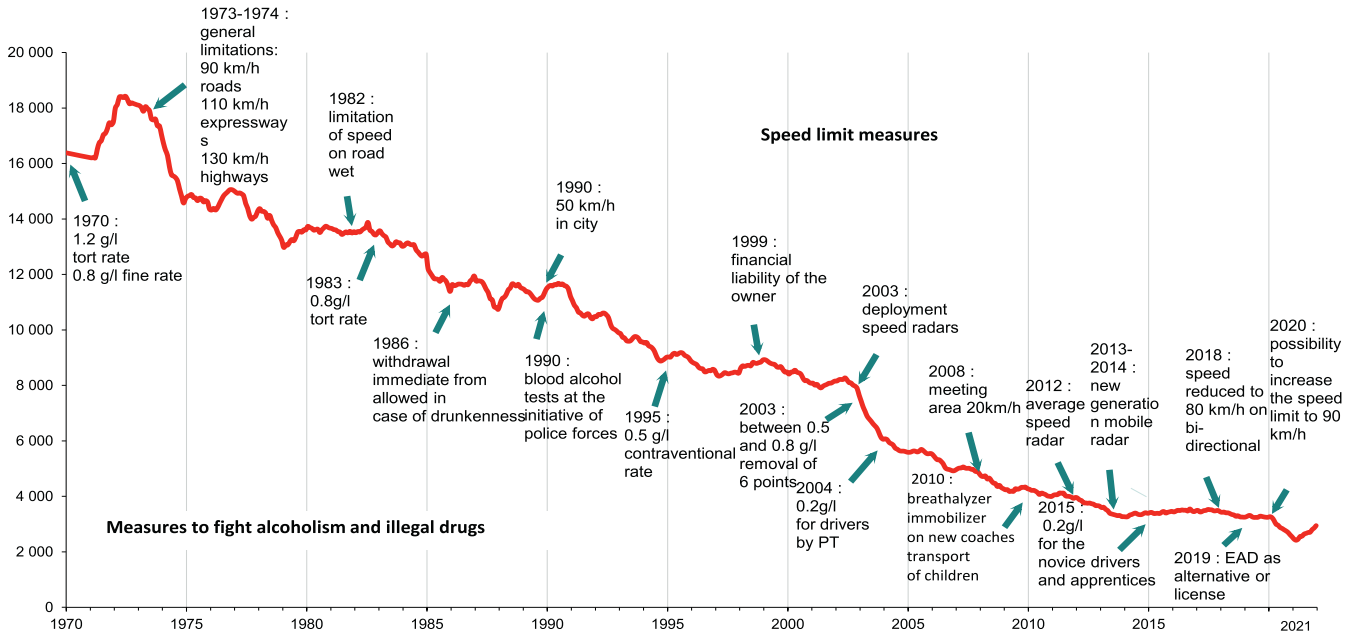

1893: Ministerial circular of August 14 defining the certificate of capacity valid for driving vehicles.

1899: Decree of March 10 regulating automobile traffic:
- Speed limit of 30 km/h in open country, 20 km/h in urban areas;
- Receipt of declaration of circulation (grey card);
- Certificate of competency for driving vehicles.

1917: Creation of the first driving schools.

1921: Decree of May 27 establishing the Highway Code.

1922: The 'capacity certificate' becomes a 'driver's licence'.

1949: September 19 in Geneva: international convention on road traffic and road signs.

1954: Decree of July 10 relating to the traffic police and setting the SL at 60 km/h in urban areas (50 km/h for heavy goods vehicles).
• Law authorizing the determination of the blood alcohol level of the driver in the event of a serious accident.

1959: Ordinance of December 15 allowing the sanction of driving while intoxicated or under the influence of an alcoholic state.

1962: Decree of October 12 limiting speed to 60 km/h in u. areas with possible raising to 80 km/h in certain crossings on major routes.

196: Law of 18 May authorizing the detection by exhaled air of the alcoholic impregnation of drivers during serious offences (alcohol-test).

1969: SL at 90 km/h for license holders < 1 year.

1970: Interministerial mission for road safety.
• Law of July 9 making it compulsory on Oct. 1 to control blood alcohol after an offence or accident, with the thresholds:
– 0.80 g/l of blood for the fine;
– 1, 20 g/l of blood for the offence. 80 km/h for vehicles over 19 tonnes and public transport;
– 100 km/h for vehicles fitted with an anti-lock braking system;
– 90 km/h for other vehicles not equipped.
• Law of December 8 fixing at 0.80 g/l of blood, 0.40 mg/l of air expired the authorized blood alcohol limit for driving a vehicle.
• Compulsory equipment of three-point safety belts in the front seats of new vehicles.

1972: Decree of 5 July establishing the Interministerial Committee for Road Safety (**CISR**) and the Interministerial Delegate for Road Safety (**DISR**).

1973: Decree of June 28 setting the SL at 110 km/h on busy roads and 100 km/h on other roads.
• Order on the obligation to wear a helmet for motorcyclists /outside urban areas and drivers of moped outside urban areas.
• Order requiring the wearing of safety belts outside of urban areas in recent motor vehicles (>1970).
• December 1: SL at 120 km/h on motorways, and lowering to 90 km/h on all roads outside urban areas.

1974: Decree of November 6 setting the SL at 130 km/h on motorways, 110 km/h on roads with separate carriageways, and 90 km/h on other roads from November 9.

1975: Compulsory wearing of a helmet on a moped in u. areas.
• Wearing of safety belts compulsory at the front of vehicles on urban expressways, and in urban areas from 10 p.m. to 6 a.m.
• SL 45 km/h imposed on moped manufacturers.

1976: Compulsory wearing of a helmet outside u. area on a moped.

1979: Compulsory wearing of the safety belt in the front (vehicle> 1967).

1980: Compulsory wearing of a helmet on a moped.

1982: Directorate of Road Safety and Traffic.
• July 13: CISR decision to launch the programs:
– RÉAGIR : Respond with serious accident investigations and remediation initiatives;
– GOAL 10 %: subsidies granted to local authorities committed to reducing the number of road accidents by 10% in one year and having achieved the set target.

1983: SL in rainy weather and other precipitation: 110 km/h on motorways, 100 km/h on roads with separate carriageways, 80 km/h on other roads.
• Compulsory speed limiters for HGVs > 1 Oct. 1983:
– 90 km/h for vehicles from 10 to 19 tonnes;
– 80 km/h for vehicles over 19 tonnes and PT;
– 100 km/h for vehicles with anti-lock braking system;
– 90 km/h for other vehicles not equipped.
• Law of 8 Dec. setting at 0.80 g/l of blood or 0.40 mg/l of exhaled air the maximum alcohol level authorized for driving a vehicle. Offence reduced to 0.80 g/l instead of 1.20 g/l of blood.

1985: Law of July 5 to improve the situation of victims of traffic accidents and speed up compensation.
• Minimum speed of 80 km/h on the left lane of the motorway.

1986: Technical control for vehicles> 5 years if transaction.
• Law of 17 January instituting the possibility of immediate withdrawal of the driving license in the event of driving under the influence of alcohol.

1989: Law of July 10 instituting the license with points with effective implementation from July 1, 1992.
• December 14: Order establishing the obligation, as of December 30, 1990 of compulsory wearing of seat belts in the front of utility vehicles under 3.5 tonnes which are fitted with them

1990: SL in urban areas at 50 km/h.

1991: Order relating to the use of child restraint systems in automobiles and extension for passengers of the safety belt in the rear.

1992: Compulsory technical inspection for PV and UV < 3.5 t
• July 1: Implementation of the demerit points license.
• SL 50km/h all networks if visibility is less than 50m.

1993: Decree of 24 November creating the National Interministerial Road Safety Observatory placed with the DISR.

1994: Specific SL for novice drivers at 80, 100 or 110 km/h depending on the roads.

1995: Decree of August 29 lowering the contravention blood alcohol level while driving from 0.7 g/l to 0.5 g/l.

1996: Decree of July 4 on access to PTW driving:
– progressive motorcycle access from 16 to 21 y.o.;
– Authorization to drive a 125 cm3 motorcycle if you have had a B license for at least two years.
– Road safety certificate (young people > 14 y.o.) for cycling.

1999: Decree of May 3 to affix a pictogram concerning the risks induced by the use of certain drugs.

2000: Road safety is a major national cause.

2001: Decree of August 27 to screen drivers involved in a fatal accident for narcotics.
• Decree of August 28 creating the National Road Safety Council (**CNSR**).

2002: February 18: CISR meeting.
• Decree of April 30: the driver of a light motor quadricycle must be at least 16 y.o. and have a road safety certificate.

2003: July 9: CISR meeting
• Law of February 3: drug screening for any driver involved in a traffic accident.
• March 31: Decree on the aggravation of penalties for not wearing a safety belt and a helmet.
• June 12: Law strengthening the fight against road violence: increased penalties and introduction of the probationary license.
• July 11: Decree providing for the withdrawal of 6 points from the driving license for driving with a blood alcohol level between 0.5 and 0.8 g/l of blood.

• October 27: Inauguration of the first automatic radar.
• October 31: Implementation of automated control.

2004: January 13 and July 7: CISR meetings.
• March 1: Application of the probationary license.
• Threshold of alcohol level of PT drivers at 0.2 g/l of blood.
• Decree of December 6 increasing the penalties for SL>50 km/h, reducing them for SL less than 20 km/h outside u. areas.

2005: January 24 and July 1: CISR meetings.
• March 30: Decree implementing the offence of driving without a license and lack of insurance (Perben II law of March 9, 2004).

2006: November 9: CISR meeting
• Law of January 5: increased penalties for speeding by 50 km/h and more by increasing the effectiveness of the vehicle confiscation penalty.

2007: Decree of May 9 on the driving license allowing - the progressive acquisition of the capital of 12 points during the probationary period of the driving license;
- The simplification of the procedure for informing the driver whose license is invalidated for lack of points;
- The possibility of obtaining, after a period of six months of invalidation, a new license;
- The possibility of knowing your capital of points at any time through secure access on the Internet.

2008: February 13: CISR meeting. Decree of July 30:
- Special circulation zones in urban areas (zones 30...);
- Increased driver caution towards the most vulnerable;
- SL for passenger of public transport vehicles;
- The obligation for cyclists off urban areas to wear a retro-reflective vest at night and in event of insufficient visibility.

2009: January 13: CISR meeting.
• Deployment of the first red light radars.
• Order establishing supervised learning to drive.

2010: February 18: CISR meeting.
• 25 November: transfer to the Minister of the Interior of the road safety and education policy.

2011: May 11: CISR meeting

• Law of March 14 of Orientation and Programming for the Performance of Homeland Security (**LOPPSI 2**):
– Extension of the drug screening framework;
– Additional penalty of confiscation of the vehicle
– The prefect can immobilize and impound a vehicle
– The judicial authority may condition the maintenance of the right to drive, for the perpetrator of an alcohol offence, on the installation in the vehicle of an alcohol interlock device (EAD).
• Deployment of the first discriminating radars.

2012: radars « Railroad Crossing» and « average speed ».
• 27 Nov: Installation of the CNSR for the period 2012-2015.

2013: Decree 17 Jan lifts the obligation to drive a motorcycle < 35 kW for 2 years for drivers aged 21 with license A.
First mobile radars allowing traffic control.
• European directive facilitating cross-border exchanges.

2014: Order of 4 August supplementing the list of restrictive notices that may appear on the driving license and allowing driving for medical reasons to be limited.
• Accompanied driving from 15 y.o. instead of 16 with practical test at 17 1/2 y.o., autonomous driving at 18 y.o.
• First « double-sides » radars.

2015: October 2: CISR meeting
• January 26 action plan of the Minister of the Interior.
• Decree of June 24 lowering the legal alcohol level to 0.2 g/l of blood for drivers on a probationary or apprenticeship license, and prohibiting all drivers from wearing a device in their ear that could cause emit sound, except deafness.
• 2-year SL experiment at 80 km/h over 81 km of NR.
• Possibility for mayors to lower the SL to less than 50 km/h over a large part of their urban area.

2016: law of 26 Jan: illegal drugs screening possible for any driver, student guide even outside of an accident.
• February 1: experimentation with inter-lane traffic of PTWs in Ile-de-France, Gironde, Rhône and Bouches-du-Rhône.
• Removal of the restriction of the power of new motorcycles, authorization of the unlocking of motorcycles equipped with ABS.
• May 31: obligation for those 18 and over to hold the A2 license for at least 2 years and follow a 7-hour training course to obtain the A license (motorcycle with a power greater than 35 kW).
• Immobilization of the vehicle and impoundment by the police in the event of excessive speeding.
• November 18: creation of the fixed tort fine applicable to driving offenses without a pc and without insurance.
• December 31: extension of offenses that can be observed without interception (speed radars or video verbalization).

2017: Obligation for business managers to report the driver who has committed an offence with a company vehicle, under penalty of a fine.
• January 23: Installation of the CNSR for the period 2017-2020.
• Experimentation with automated license plate reading to combat insurance default.

2018: January 9: CISR meeting
• July 1: SL at 80 km/h on two-way roads outside urban areas (90 km/h for overtaking slots).
• Decree of September 17 relating in particular to:
- The prefect can restrict the conduct of an alcohol offender-offender if he is not equipped with an EAD.
- Communicable information to companies on their employees (category and validity of the driving license) in the public road transport of passengers or goods,
- Increase from 4 to 6 points deducted in the event of non-compliance with the rules of priority of passage granted to pedestrians.

2019: Implementation of cross-border exchanges of information on traffic offences with Ireland, Sweden and Monaco.
• Decree of August 21 on the right to drive with EAD.
• Launch of the file of insured vehicles (FVA).
• Law of December 24 on the orientation of mobility (LOM): local authorities can raise the SL to 90 km/h after obtaining the opinion of the dep. road safety.

2020: Withholding of driver's license for drivers holding a phone and committing another traffic violation at the same time.
• Extension from 6 months to 1 year of the maximum duration of the right to drive with an EAD alternative to the suspension of the license.
• Possibility of immobilizing and impounding for 7 days, with the authorization of the Prefect, vehicles whose driver has committed an offence
• Drivers with a repeat offence of driving under the influence of alcohol can only drive a vehicle equipped with an EAD, with medico-psychological monitoring.
• Prohibition of parking less than 5m upstream of pedestrian crossings: road managers must carry out compliance work by the end of 2026 at the latest.
• December 15: national strategy for the development of automated road mobility 2020-2022

2021: Trucks and public transport vehicles must be equipped with visible stickers indicating the blind spots of heavy vehicles.
• March 30: obligation to sell breathalysers alongside alcoholic beverages over the counter or on the internet.
• August 02: Launch of a new Circulation Inter-Files (CIF) experiment for motorcyclists
• November 1: Mountain Law makes it compulsory to fit vehicles with winter tires between 01/11 and 01/03 in certain mountainous areas. 34 departments concerned.

International comparisons –IRTAD tables

Speed Limit (SL)

Country	In urban area	Roads outside urban areas	Motorways
South Africa	60 km/h	100 km/h	120 km/h
Germany	50 km/h	100 km/h	No limit, but 130 km/h recommended
Argentina	40 – 60 km/h Buenos Aires : 20 – 70 km/h	110 km/h	120 – 130 km/h
Australia	50 km/h (by default) 60-80 (main arteries) 40 km/h or less if many pedestrians	100 or 110 km/h	100 km/h by default, but often increased to 110 km/h (even 130 km/h in the Northern Territory)
Austria	50 km/h	100 km/h	130 km/h
Belgium	30 – 50 km/h	70 – 90 km/h	120 km/h
Bosnia Herzegovina	50 km/h	80 or 100 km/h	130 km/h
Cambodia	30 – 40 km/h PTW, tricycles) 40 km/h (passenger vehicle, HGV)	60-70 (PTW) 90 km/h	no motorw ays
Canada	40 – 70 km/h	80 – 90 km/h	100 – 110 km/h
Chile	50 km/h (or less depending on the route) 30 km/h near schools	90 km/h (coaches in rural areas, HGVs, school transport) 100 km/h (PV and coaches in intercity)	120 km/h by default, varies up to 100 km/h on certain sections
Colombia	60 km/h	80 km/h	120 km/h
South Korea	50 km/h	60 – 80 km/h	110 km/h (100 km/h in urban areas)
Costa Rica	50 km/h	50 - 100 km/h	no motorw ays
Denmark	50 km/h (30, 40 or 60 km/h sections)	70-80 km/h (exceptions at 90km/h)	110 or 130 km/h
Spain	50 km/h	80 or 90 km/h	120 km/h
United States	Defined by each State	Defined by each State	55 – 80 mph (88 – 129 km/h) Defined by each State
Finland	30 to 60 km/h	80 or 100 km/h	100 or 120 km/h
France	30 – 50 km/h	80 km/h or 90 km/h (90 km/h on overtaking slots) 110 km/h on 2x2 lanes	130 km/h (110 km/h in rainy w eather or for novice drivers)
Greece	50 km/h	90 km/h	130 km/h
Hungary	50 km/h (sections at 30, 40, 60 or 70 km/h)	90 km/h	130 km/h (110 km/h on express roads)
Ireland	<=60 km/h (60 km/h on main arteries, 30 km/h in urban areas)	80 km/h or 100 km/h	120 km/h
Iceland	50 km/h	90 km/h paved roads 80 km/h gravel roads	no motorw ays
Israel	50 or 70 km/h (main arteries)	80, 90, 100 km/h	100, 110, 120 km/h
Italy	50 km/h	70 – 90 km/h (110 km/h on some 2x2 lanes)	130 km/h ; 110 km/h in rainy w eather; 100 km/h for novice drivers; up to 150 km/h if constraints fulfilled
Jamaica	50 km/h	50 km/h or 80 km/h	70 km/h, 80 km/h or 110 km/h
Japan	40, 50 or 60 km/h	50 or 60 km/h	100 km/h
Lithuania	50 km/h	90 km/h (70 km/h on gravel road and for novice drivers)	120 or 130 km/h (110 km/h in w inter, 90 km/h for novice drivers)
Luxemburg	50 km/h	90 km/h	130 km/h (110 km/h in rainy w eather)
Malaysia	50 km/h	90 km/h	110 km/h
Morocco	60 km/h (30 km/h in residential area)	70, 80, 90, 100 km/h depending on the type of vehicle	120 km/h maximum, varies by vehicle type
Mexico	10 – 80 km/h (20 km/h near schools)	60-110 km/h(60 on secondary netw ork)	110 km/h
Moldova	50 km/h	90 km/h	no motorw ays
Nigeria	50 km/h (45 km/h for trailers and tank trucks)	80 km/h (distinctions according to the type of vehicle)	100 km/h (distinctions according to the type of vehicle)
Norw ay	50 km/h (30 km/h residential streets)	80 km/h	90,100 or 110 km/h
New Zealand	50 km/h (the SL can be low er or higher on certain axes)	100 km/h (SL may be low er on certain specific axes)	100 km/h (110 km/h on certain sections)
Netherlands	30 – 50 km/h	60 – 80 km/h	100 – 130 km/h
Poland	50 km/h (60 km/h by night)	90, 100 or 120 km/h	140 km/h
Portugal	50 km/h	90 km/h	120 km/h
Czech Republic	50 km/h	90 km/h	130 km/h
United Kingdom	30 mph (48 km/h)	60 or 70 mph (96 or 113km/h)	70 mph (113 km/h)
Serbia	50 km/h	80 or 100 km/h	130 km/h
Slovenia	50 km/h	90 km/h (110 km/h on express roads)	130 km/h (110 km/h on express roads)
Sw eden	30, 40 or 50 km/h	60, 70, 80, 90 or 100 km/h	110 km/h or 120 km/h
Sw iss	50 km/h	80 km/h	120 km/h (100 km/h on express roads)
Uruguay	45 km/h	90 km/h	no motorw ays

Source: IRTAD, *Road Safety Annual Report*, 2020.

Alcohol and driving – Thresholds

Country	Blood Alcohol Limit - General	Blood Alcohol Limit - Novice Drivers and Professional Drivers
South Africa	0.5 g/l	0.2 g/l for professional drivers
Germany	0.5 g/l Drivers with a blood alcohol level between 0.3 and 0.5 g/l may have their license revoked if their ability to drive is reduced	0.0 g/l for drivers under 21, novice drivers, professional drivers transporting passengers or dangerous goods
Argentina	0.5 g/l	0.0 g/l for professional drivers 0.2 g/l for PTW
Australia	0.5 g/l	0.0 g/l for novice drivers 0.2 g/l for professional drivers
Austria	0.5 g/l	0.1 g/l for moped riders under 20; novice drivers (under 3 years old), bus drivers (>9 seats) and heavy goods vehicles (>7.5 tonnes)
Belgium	0.5 g/l	0.2 g/l for professional drivers
Bosnia Herzegovina	0,3 g/l	0.0 g/l for professional drivers and PT, learner drivers and instructors, under 21, novice or less than 3 years of experience
Cambodia	0.5 g/l	n.a.
Canada	0.8 g/l	In most provinces: 0.4 g/l or 0.5 g/l sanction admin. and 0.0 g/l admin sanction. under 21 and novice
Chile	0.3 g/l	n.a.
Colombia	0,2 g/l	n.a.
South Korea	0.5 g/l	n.a.
Denmark	0.5 g/l	n.a.
Spain	0.5 g/l	0.3 g/l for novice drivers and professional drivers
United States	0.8 g/l	0.4 g/l for professional drivers 0.0 to 0.2 g/l for drivers < 21 y.o.
Finland	0.5 g/l	n.a.
France	0.5 g/l	0.2 g/l for bus and coach drivers and novice drivers
Greece	0.5 g/l	0.2 g/l for professional drivers, PTW, novice drivers
Hungary	0.0 g/l	n.a.
Ireland	0.5 g/l	0.2 g/l for learner drivers, professional or novice drivers
Iceland	0.5 g/l	n.a.
Israel	0.5 g/l	0.1 g/l for drivers under 24, professional or novice drivers
Italy	0.5 g/l	0.0 g/l for young, professional or novice drivers
Jamaica	0.8 g/l	n.a.
Japan	0.3 g/l	n.a.
Lithuania	0.4 g/l	0.0 g/l for novice, professional and PTW drivers
Luxemburg	0.5 g/l	0.2 g/l for novice drivers and professional drivers
Malaysia	0.8 g/l	n.a.
Morocco	0.2 g/l	n.a.
Mexico	0.8 g/l (may vary from state to state in urban area)	0.3 g/l for professional drivers (may vary by state)
Moldova	0.3 g/l	n.a.
Nigeria	0.5 g/l	0.2 g/l for novices and 0.0 g/l for professional drivers
Norway	0.2 g/l	n.a.
New Zealand	0.5 g/l	0.0 g/l for drivers under 20
Netherlands	0.5 g/l (including for cyclists)	0.2 g/l for novice drivers (first 5 years)
Poland	0.2 g/l	n.a.
Portugal	0.5 g/l	0.2 g/l for novice drivers (first 3 years) and professional drivers
Czech Republic	0.0 g/l	n.a.
United Kingdom	0.8 g/l (except Scotland) and 0.5g/l in Scotland	n.a.
Serbia	0.2 g/l	0.0 g/l for novice drivers and professional drivers and PTW
Slovenia	0.5 g/l	0.0 g/l for novices (first 3 years) and professional drivers
Sweden	0.2 g/l	n.a.
Swiss	0.5 g/l	0.0 g/l for novices (first 3 years) and professional drivers
Uruguay	0.0 g/l	n.a.

Source: IRTAD, *Road Safety Annual Report*, 2020.

Safety belt wearing

Country	Front seats		Rear seats	
	Date of application	Rate of wearing in traffic (2019)	Date of application	Rate of wearing in traffic (2019)
South Africa	2005 (registered vehicles after 01/01/2006)	4.5% (driver), 5% (passengers) (estimates given 2010)	2005 (vehicles registered after 01/01/2006)	--
Germany	1976	99% (driver), 99% (passengers)	1984	98,5%
Argentina	1995	55% (driver) (2018 data)	1995	20% (2018 data)
Australia	Years 1970	97% (2018 data)	Years 1970	96%
Austria	1984	97% (driver), 98% (passengers)	1990	96%
Belgium	1975	95% (driver and passengers) (2017 data)	1991	86% (2015 data)
Bosnia Herzegovina	2006	---	2006	---
Cambodia	2007	28% (2016 data)	Bill in progress	---
Canada	1976-1988	97,5%	1976-1988	95% (2015 data)
Chile	1985	75% (driver), 64% (passengers) (2017 data)	2006	17% (2017 data)
Colombia	2002	75%	2004	2%
Costa Rica	2018	73.3% (2018 data)	2018	37.6% (2018 data)
South Korea	1990	94% (driver) and 87% (passengers) on motorway	2008 on motorways, all networks since 09/2018	56% on the motorway (2018 data)
Denmark	Years 1970	97% (2018 data)	Years 1980	93% (2018 data)
Spain	1974 outside urban area 1992 in urban area	90% (2012 data)	1992	81% (2012 data)
United States	Yes except 1 State (primary law in 34 States, sec. law in 15 States)	90.9% (driver), 89.8% (passengers)	Varies by state	76.1% (2018 data)
Finland	1975	95%	1987	87%
France*	1973 outside urban area 1975 urban area by night 1979 all time	98,7% (off urban area) 98,6% (crossing little urban areas) 99,1% (large urban areas)	1991	On motorway: 92% (adults) 97% (children) Large urban areas: 90% (adults) 96% (children)
Greece	1979	77% (driver), 74% (passengers) (2009 data)	1993	23% (2009 data)
Hungary	1976	95% (driver and passengers)	1993 outside urban area, 2001 in urban area	71% all passengers, 59% adults
Ireland	1979	96% (driver and passengers, 2018 data)	1992	90% (2018 data)
Iceland	---	79% in urban areas, 92% outside urban areas (2017 data)	---	80% (2017 data)
Israel	1975	93%	1995	71%
Italy	1988	63% (driver), 64% (passengers) (2018 data)	1994	11% (2018)
Jamaica	1999	---	1999	---
Japan	1985	99% (driver), 96% (passengers)	2008	39%
Lithuania	---	98% (2018 data)	---	26% (2018 data)
Luxemburg	1975	90% (2015 data)	1992	76% (2015 data)
Malaysia	1978	87% (driver), 74% (passengers) (2016 data)	2009	15% (2016 data)
Morocco	1977 outside urban area 2005 in urban area	69% driver (motorways), 59-73% driver and 55-65% passengers (u.area/off u. area) (2018 data)	2005 outside urban area	36% (2018 data)
Mexico	2018	56% drivers, 48% passengers (2018 data)	2016	19% (2018 data)
Moldova	2009	---	2009	---
Nigeria	1997 (applied since 2002)	85% (2017 data)	1997 (applied since 2016)	3% (2017 data)
Norway	1975	97% (driver) (2017 data)	1985	---
New Zealand	1972	97% (driver), 96% (passengers) (2016 data)	1979	92% (2014 data)
Netherlands	1975	>95% (2010 data)	1992	82% (2010 data)
Poland	1983	97% (driver), 98% (passengers)	1991	86%
Portugal	1978	96% (pass. drivers, 2017 data)	1994	77% (2017 data)
Czech Republic	1966	95% (2015 data)	1975	95% (2015 data)
United Kingdom	1983	99% (driver), 97% (passengers) (2017 Great Britain data)	1989 (children); 1991 (adults)	93% (2017 Great Britain data)
Serbia	1982	84.3% (total), 85.4% (drivers), 82.1% (passengers)	2009	19%
Slovenia	1977	95% (driver), 96% (passengers) (2018 data)	1998	78% adults (2018 data)
Sweden	1975	99% (driver), 98% (passengers)	1986, 1988 children devices	95% (children), 90% (adults)
Swiss	1981	96% (driver), 95% (passengers)	1994	77%
Uruguay	2007	69% (driver) (2016 data)	2007	33% (2016 data)

Source: IRTAD, *Road Safety Annual Report*, 2020. / *ONISR, Observatory of behaviours of the year 2021 (France mainland), 2022

Wearing a protective helmet

Country	Powerered two-wheelers		Cyclists	
	Helmet wearing law	Rate of wearing in traffic (2019)	Helmet wearing law	Rate of wearing in traffic (2019)
South Africa	Yes	---	Yes	---
Germany	Yes	98% (driver), 97.5% (passengers) in urban areas	No	22,8% in urban area
Argentina	Yes	69% (driver), 42% (first passenger), 21% (additional passengers) (2018 data)	Yes	8% (2018 data)
Australia	Yes	99% drivers (estimated)	Yes	---
Austria	Yes	99,9%	Yes for children up to 12 y.o.	31% ; 81% (childen)
Belgium	Yes	No national data, 99.3% (Brussels 2013)	No	---
Bosnia Herzegovina	Yes	---	Yes	---
Cambodia	Yes for PTW > 49cm³, motorcycles towing a trailer and motorized tricycles	---	No	---
Canada	Yes	---	In some jurisdictions	---
Chile	Yes	99% (driver), 100% (passengers) (2017 data)	Yes in urban area	---
Colombia	Yes	---	No	---
South Korea	Yes	84%	No	---
Denmark	Yes	95% moped in urban area) 99% (motorcycles) (2018 data)	No	46% in urban area 78% (school traffic)
Spain	Yes	Almost 100%	Yes, except in urban area Compulsory for children < 16 y.o.	---
United States	No national law Yes all PTW for 19 States, Yes some PTW for 28 States, No for 3 States	65% (2016 data)	Yes for certain ages in 21 states and the District of Columbia	---
Finland	Yes	99.7% (moped riders)	No	43% (2018 data)
France*	Yes (motorcycles in 1961 outside urban area and in 1973 in urban area, moped in 1976 outside urban area and 1980 in urban area)	97% outside urban area 98% in urban area	Yes, for children < 12 y.o. since 03/22/2017	Large urban areas: 27% working days, 36% on weekends
Greece	Yes since 1977	75% drivers 46% passengers (2009 data)	No	---
Hungary	Yes (motorcycles in 1965, moped in 1997 outside urban area and 1998 in urban area)	99% (Budapest), 97% outside urban area	No	18% (Budapest), 4.5% outside urban area
Ireland	Yes since 1978	Almost 100%	No	47%
Iceland	Yes	n.a	Yes, for children up to 14 y.o.	---
Israel	Yes	Almost 100%	Yes, for children up to 18 y.o., and for everyone outside urban areas	90% outside urban area (2013), 21% in urban area (2015)
Italy	Yes since 2000 for all (1986 for motorcyclists and moped under 18)	98% (2015-2016)	No	---
Jamaica	Yes, since 1999	---	Yes, since 2019	---
Japan	Yes	Estimated at 100%	No	---
Lithuania	Yes	n.a.	Yes, for children up to 18 y.o.	---
Luxemburg	Yes, since 1976	Estimated at 100%	---	---
Malaysia	Yes, since 1973	About 77% (2015 data)	No	---
Morocco	Yes, since 1976	60% driver, 35% passenger (2018 data)	No	---
Mexico	Yes	85% driver, 69% passenger (2018 data)	No	11% (2017 data)
Moldova	Yes	---	No	---
Nigeria	Yes	Estimated at 20%	Yes	---
Norway	Yes	Almost 100%	No	59% (all ages), 57% (>12 y.o.), 79% (<12 y.o.)
New Zealand	Yes (1956 at speed>30mph, 1973 otherwise)	Almost 100%	Yes since 1994	92% (2012 data)
Netherlands	Yes (1972 motorcycles, 1975 moped)	Moped riders: 96% (2008) Motorcyclists: nearly 100%	No	---
Poland	Yes, since 1997	Almost 100%	No	---
Portugal	Yes	Moped riders : 94-92% (2013) Motorcyclists : 97,6-100% (drivers-passengers)	No	---
Czech Republic	Yes	Almost 100%	Yes, for children up to 18 y.o.	---
United Kingdom	Yes, motorcyclists since 1973, moped riders since 1977	---	No	---
Serbia	Yes	87.6% for motorcyclists 67.9% for moped riders	No	---
Slovenia	Yes	n.a	Yes, for children up to 18 y.o.	15%, 66% (children), 6% (youth) (2017 data)
Sweden	Yes	96-99%, 94% (Moped)	Yes, for children up to 15 y.o.	47% (all); 65-83% (children); 40-43% (adults)
Swiss	Yes, motorcyclists since 1981, moped riders since 1990	Almost 100%	No for "regular" bikes Yes for electric bikes > 25 km/h	50% (cyclists), 65% (e-bikes <25 km/h), 92% (>25 km/h)
Uruguay	Yes	92.6% driver, 81.8% passengers (2016 data)	Yes	---

Source: IRTAD, *Road Safety Annual Report*, 2020. / *ONISR, Observatory of behaviours of the year 2021 (France mainland), 2022

Accidents by department or territory (BAAC file)

France mainland and Overseas Territories

		Injury accidents	People	
			Killed	Injured
1	Ain	422	35	586
2	Aisne	199	39	238
3	Allier	230	26	271
4	Alpes-de-Haute-Provence	202	17	268
5	Hautes-Alpes	250	16	332
6	Alpes-Maritimes	941	52	1 175
7	Ardèche	278	21	343
8	Ardennes	104	12	111
9	Ariège	155	12	218
10	Aube	382	22	470
11	Aude	350	30	456
12	Aveyron	179	16	237
13	Bouches-du-Rhône	2 779	100	3 994
14	Calvados	541	28	666
15	Cantal	115	5	138
16	Charente	134	21	187
17	Charente-Maritime	513	31	641
18	Cher	162	14	208
19	Corrèze	169	20	214
2A	Corse-du-Sud	245	13	320
2B	Haute-Corse	296	16	428
21	Côte-d'Or	210	34	276
22	Côtes-d'Armor	326	23	433
23	Creuse	45	4	52
24	Dordogne	217	31	286
25	Doubs	289	25	353
26	Drôme	340	32	466
27	Eure	487	41	646
28	Eure-et-Loir	263	24	350
29	Finistère	741	43	927
30	Gard	446	30	591
31	Haute-Garonne	668	64	845
32	Gers	142	10	177
33	Gironde	1 401	72	1 755
34	Hérault	589	75	817
35	Ille-et-Vilaine	779	40	950
36	Indre	96	11	117
37	Indre-et-Loire	670	32	794
38	Isère	694	44	958
39	Jura	129	17	187
40	Landes	167	23	202
41	Loir-et-Cher	201	22	268
42	Loire	414	33	555
43	Haute-Loire	149	16	193
44	Loire-Atlantique	521	56	620
45	Loiret	434	37	578
46	Lot	100	18	106
47	Lot-et-Garonne	193	24	236
48	Lozère	75	8	91
49	Maine-et-Loire	688	26	825
50	Manche	407	27	485
51	Marne	530	24	643
52	Haute-Marne	121	21	138
53	Mayenne	140	25	149
54	Meurthe-et-Moselle	558	33	679
55	Meuse	118	10	148
56	Morbihan	551	40	680
57	Moselle	287	24	369
58	Nièvre	173	24	193
59	Nord	1 029	97	1 274
60	Oise	516	31	732
61	Orne	257	19	308
62	Pas-de-Calais	452	47	611
63	Puy-de-Dome	548	28	682
64	Pyrénées-Atlantiques	951	41	1 106
65	Hautes-Pyrénées	265	20	345
66	Pyrénées-Orientales	384	26	464
67	Bas-Rhin	622	42	756
68	Haut-Rhin	373	29	448
69	Rhône	2 443	60	3 074
70	Haute-Saône	110	20	145
71	Saône-et-Loire	467	33	613
72	Sarthe	395	20	496
73	Savoie	240	21	298
74	Haute-Savoie	453	29	558
75	Paris	5 069	45	5 801
76	Seine-Maritime	715	41	906
77	Seine-et-Marne	770	51	1 022
78	Yvelines	687	41	905
79	Deux-Sèvres	217	23	281
80	Somme	452	43	572
81	Tarn	204	28	256
82	Tarn-et-Garonne	137	19	173
83	Var	850	62	1 156
84	Vaucluse	267	42	341
85	Vendée	341	33	432
86	Vienne	221	25	292
87	Haute-Vienne	437	32	523
88	Vosges	175	23	202
89	Yonne	198	23	267
90	Territoire-de-Belfort	43	6	47
91	Essonne	1 441	42	1 812
92	Hauts-de-Seine	2 433	30	2 784
93	Seine-Saint-Denis	2 896	35	3 445
94	Val-de-Marne	2 493	24	2 996
95	Val-d'Oise	984	24	1 295
	Total mainland France	**53 540**	**2 944**	**67 057**
971	Guadeloupe	455	65	563
972	Martinique	488	29	640
973	Guyane	530	35	699
974	La Réunion	814	42	966
976	Mayotte	216	12	282
	Total DOM	**2 503**	**183**	**3 150**
975	Saint-Pierre-et-Miquelon*	*5*	*1*	*5*
977	Saint-Barthélemy*	*22*	*3*	*25*
978	Saint-Martin*	*40*	*4*	*44*
986	Wallis-et-Futuna*	*13*	*4*	*12*
987	Polynésie française*	*126*	*30*	*136*
988	Nouvelle-Calédonie*	*269*	*50*	*397*
	Total COM - NC*	***475***	***92***	***619***
	Total Overseas*	***2 978***	***275***	***3 769***
	Total Whole France*	***56 518***	***3 219***	***70 826***

[1] * unlabelled data for Overseas Collectivises and New Caledonia

Gustave Eiffel University has shown that the number of injury accidents recorded by the police and therefore present in the BAAC file corresponds to approximately a quarter of the injury accidents that actually took place. The BAAC file serves as a basis for studies of accidents, and crossed with the register of victims of road accidents in the Rhône department, it makes it possible to produce estimates of the number of injured in France mainland, but it is not possible to break them down by department or territory (see pages 14-16, 168, 178 and 190-191).

The checks carried out on the BAAC file aim to give an accurate account of the number of road deaths.

Source: ONISR - National file of injury accidents recorded by police forces - BAAC 2021.

Raw data of traffic accident victims

According to the mode of travel:

		France mainland		DOM		COM-NC *	
		Killed	Injured	Killed	Injured	Killed	Injured
Walking	Walking afoot	411	8 317	37	421	*11*	*50*
	No motorized PMD	3	226	0	3	*0*	*0*
	Whole	**414**	**8 543**	**37**	**424**	***11***	***50***
Motorized PMD	Drivers	24	1 288	1	13	*0*	*3*
	Passengers	0	72	0	2	*0*	*1*
	Whole	**24**	**1 360**	**1**	**15**	***0***	***4***
Bicycles	Drivers	201	4 795	9	133	*2*	*23*
	Passengers	1	32	0	2	*0*	*0*
	Whole	**202**	**4 827**	**9**	**135**	***2***	***23***
E-pedelec	Drivers	25	447	1	6	*2*	*4*
	Passengers	0	1	0	0	*0*	*0*
	Whole	**25**	**448**	**1**	**6**	***2***	***4***
Moped including scooters <=50 cm3	Drivers	90	5 685	24	523	*11*	*61*
	Passengers	6	597	1	141	*0*	*19*
	Whole	**96**	**6 282**	**25**	**664**	***11***	***80***
Motorcycles including scooters >50cc	Drivers	542	10 538	41	545	*15*	*90*
	Passengers	30	1 045	6	70	*0*	*10*
	Whole	**572**	**11 583**	**47**	**615**	***15***	***100***
Passenger vehicles	Drivers	1 055	20 265	38	745	*19*	*145*
	Passengers	359	9 931	16	449	*16*	*112*
	Whole	**1 414**	**30 196**	**54**	**1 194**	***35***	***257***
Utility vehicles	Drivers	89	1 525	6	30	*9*	*37*
	Passengers	14	506	0	8	*7*	*54*
	Whole	**103**	**2 031**	**6**	**38**	***16***	***91***
Trucks + road tractors only	Drivers	27	301	0	2	*0*	*0*
	Passengers	3	43	0	5	*0*	*1*
	Whole	**30**	**344**	**0**	**7**	***0***	***1***
Road tractors with semi-trailer	Drivers	13	122	0	1	*0*	*0*
	Passengers	1	9	0	0	*0*	*0*
	Whole	**14**	**131**	**0**	**1**	***0***	***0***
Bus	Drivers	0	77	0	2	*0*	*0*
	Passengers	1	257	0	10	*0*	*1*
	Whole	**1**	**334**	**0**	**12**	***0***	***1***
Coaches	Drivers	3	20	0	0	*0*	*0*
	Passengers	0	65	0	3	*0*	*0*
	Whole	**3**	**85**	**0**	**3**	***0***	***0***
Agricultural tractors	Drivers	11	54	0	1	*0*	*0*
	Passengers	2	12	0	0	*0*	*0*
	Whole	**13**	**66**	**0**	**1**	***0***	***0***
Carts	Drivers	11	233	2	1	*0*	*1*
	Passengers	3	73	0	2	*0*	*1*
	Whole	**14**	**306**	**2**	**3**	***0***	***2***
Others (quads, special machines, ...)	Drivers	15	404	1	25	*0*	*4*
	Passengers	4	117	0	7	*0*	*2*
	Whole	**19**	**521**	**1**	**32**	***0***	***6***
Total	**Pedestrians**	**414**	**8 543**	**37**	**424**	***11***	***50***
	Drivers	**2 106**	**45 754**	**123**	**2 027**	***58***	***368***
	Passengers	**424**	**12 760**	**23**	**699**	***23***	***201***
	Whole	**2 944**	**67 057**	**183**	**3 150**	***92***	***619***

** Unlabelled data.*

Source: ONISR, *national file of traffic injuries recorded by police forces*, BAAC 2021.

By age and gender:

	France mainland				DOM				COM-NC *			
	Men		Women		Men		Women		Men		Women	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
0-4 y.o.	16	641	9	417	2	34	1	27	*2*	*4*	*3*	*5*
5-9 y.o.	16	810	10	482	0	52	0	40	*0*	*4*	*1*	*5*
10-14 y.o.	33	1 543	15	845	1	70	1	45	*0*	*7*	*2*	*5*
15-17 y.o.	73	2 977	14	1 110	7	158	3	65	*3*	*32*	*0*	*8*
18-19 y.o.	100	2 794	28	1 451	5	140	2	55	*4*	*22*	*2*	*12*
20-24 y.o.	311	6 648	66	3 260	27	346	2	123	*12*	*71*	*4*	*28*
25-29 y.o.	179	5 128	33	2 433	25	266	0	107	*7*	*63*	*3*	*31*
30-34 y.o.	161	4 324	25	1 907	16	210	1	96	*12*	*58*	*2*	*26*
35-39 y.o.	156	3 444	27	1 667	15	181	4	95	*6*	*31*	*0*	*12*
40-44 y.o.	156	2 922	27	1 409	8	150	1	78	*3*	*28*	*1*	*5*
45-49 y.o.	135	2 885	31	1 464	5	140	1	57	*6*	*31*	*1*	*14*
50-54 y.o.	149	2 559	38	1 423	8	105	2	54	*5*	*22*	*0*	*11*
55-59 y.o.	154	2 196	30	1 259	8	99	0	56	*3*	*16*	*1*	*7*
60-64 y.o.	139	1 593	43	965	7	76	1	36	*1*	*15*	*0*	*4*
65-69 y.o.	118	1 123	24	797	9	58	2	29	*1*	*10*	*2*	*6*
70-74 y.o.	115	911	64	787	5	30	1	22	*1*	*7*	*0*	*5*
75-79 y.o.	96	603	53	594	7	17	1	12	*1*	*7*	*0*	*2*
80-84 y.o.	76	458	49	421	3	5	0	6	*1*	*1*	*1*	*0*
85-89 y.o.	79	285	41	289	1	4	0	4	*1*	*2*	*0*	*2*
90-94 y.o.	24	104	21	100	0	1	1	1	*0*	*0*	*0*	*0*
95 +	6	15	4	14	0	0	0	0	*0*	*0*	*0*	*0*
Undet. Age	0	0	0	0	0	0	0	0	*0*	*0*	*0*	*0*
Total	**2 292**	**43 963**	**652**	**23 094**	**159**	**2 142**	**24**	**1 008**	***69***	***431***	***23***	***188***

Victims all modes of travel including walking (excluding COM-NC *)

	All modes of travel				of which walking							
					Walking				No motorized PMD			
	France mainland		DOM		France mainland		DOM		France mainland		DOM	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
0-4 y.o.	25	1 058	3	61	6	356	3	28	0	5	0	0
5-9 y.o.	26	1 292	0	92	6	499	0	34	1	20	0	0
10-14 y.o.	48	2 388	2	115	6	845	1	39	1	61	0	1
15-17 y.o.	87	4 087	10	223	6	480	3	37	0	15	0	1
18-19 y.o.	128	4 245	7	195	4	317	0	17	0	9	0	0
20-24 y.o.	377	9 908	29	469	18	541	1	24	0	22	0	0
25-29 y.o.	212	7 561	25	373	17	420	2	19	1	15	0	0
30-34 y.o.	186	6 231	17	306	17	386	4	26	0	20	0	1
35-39 y.o.	183	5 111	19	276	13	366	2	22	0	16	0	0
40-44 y.o.	183	4 331	9	228	13	379	0	22	0	10	0	0
45-49 y.o.	166	4 349	6	197	20	400	0	21	0	11	0	0
50-54 y.o.	187	3 982	10	159	23	403	3	16	0	7	0	0
55-59 y.o.	184	3 455	8	155	16	442	2	28	0	5	0	0
60-64 y.o.	182	2 558	8	112	26	419	3	23	0	3	0	0
65-69 y.o.	142	1 920	11	87	21	449	4	22	0	3	0	0
70-74 y.o.	179	1 698	6	52	39	507	1	21	0	3	0	0
75-79 y.o.	149	1 197	8	29	39	398	4	12	0	1	0	0
80-84 y.o.	125	879	3	11	50	334	2	6	0	0	0	0
85-89 y.o.	120	574	1	8	53	257	1	4	0	0	0	0
90-94 y.o.	45	204	1	2	14	104	1	0	0	0	0	0
95 +	10	29	0	0	4	15	0	0	0	0	0	0
Undet. Age	0	0	0	0	0	0	0	0	0	0	0	0
Total	**2 944**	**67 057**	**183**	**3 150**	**411**	**8 317**	**37**	**421**	**3**	**226**	**0**	**3**

** Unlabelled data.*

Source: ONISR, *national file of traffic injuries recorded by police forces*, BAAC 2021.

Victims on a bicycle, E-pedelec or PMDm (excluding COM-NC*)

	Bicycle				E-pedelec				Motorized PMD			
	France mainland		DOM		France mainland		DOM		France mainland		DOM	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
0-4 y.o.	1	29	0	0	0	0	0	0	0	3	0	0
5-9 y.o.	0	66	0	5	0	0	0	0	1	24	0	0
10-14 y.o.	10	309	0	14	0	10	0	0	1	94	1	3
15-17 y.o.	3	265	1	28	0	7	0	2	0	104	0	1
18-19 y.o.	1	185	0	10	0	13	0	0	1	118	0	1
20-24 y.o.	8	447	0	16	1	42	0	0	4	270	0	4
25-29 y.o.	6	470	0	6	0	40	0	1	4	189	0	1
30-34 y.o.	11	403	0	6	0	45	0	0	3	153	0	2
35-39 y.o.	3	330	0	11	0	28	1	1	0	116	0	2
40-44 y.o.	10	306	1	7	2	27	0	1	2	92	0	0
45-49 y.o.	6	383	0	7	1	39	0	1	3	66	0	0
50-54 y.o.	12	379	1	10	1	35	0	0	0	55	0	0
55-59 y.o.	24	317	2	5	2	44	0	0	2	39	0	0
60-64 y.o.	24	271	1	5	2	47	0	0	2	20	0	0
65-69 y.o.	23	236	2	5	3	21	0	0	0	12	0	0
70-74 y.o.	27	200	1	0	3	28	0	0	0	3	0	1
75-79 y.o.	19	131	0	0	4	9	0	0	0	1	0	0
80-84 y.o.	8	62	0	0	4	7	0	0	0	1	0	0
85-89 y.o.	4	29	0	0	1	5	0	0	1	0	0	0
90-94 y.o.	1	6	0	0	1	1	0	0	0	0	0	0
95 +	1	3	0	0	0	0	0	0	0	0	0	0
Undet. Age	0	0	0	0	0	0	0	0	0	0	0	0
Total	**202**	**4 827**	**9**	**135**	**25**	**448**	**1**	**6**	**24**	**1 360**	**1**	**15**

Victims in powered two-wheelers or passenger vehicles (off COM-NC *)

	Moped rider				Motorcycle				Passenger vehicle			
	France mainland		DOM		France mainland		DOM		France mailand		DOM	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
0-4 y.o.	0	2	0	4	0	5	0	0	16	628	0	26
5-9 y.o.	0	9	0	10	0	20	0	2	17	631	0	40
10-14 y.o.	4	282	0	8	5	80	0	6	18	616	0	41
15-17 y.o.	25	1 926	1	86	13	292	2	18	38	868	3	48
18-19 y.o.	13	743	2	69	17	397	1	29	86	2 328	3	61
20-24 y.o.	9	922	5	115	80	1 838	11	88	242	5 334	12	208
25-29 y.o.	2	658	4	80	62	1 725	10	105	103	3 623	8	144
30-34 y.o.	4	528	5	79	62	1 428	5	78	78	2 852	3	103
35-39 y.o.	9	368	2	67	54	1 102	7	78	87	2 365	7	88
40-44 y.o.	8	260	2	52	58	934	4	56	71	1 989	2	86
45-49 y.o.	7	201	1	31	51	1 041	3	46	60	1 871	0	79
50-54 y.o.	6	148	2	15	43	944	1	48	78	1 692	3	66
55-59 y.o.	6	99	0	17	49	847	1	30	68	1 383	1	73
60-64 y.o.	1	70	0	14	40	552	1	17	69	1 022	2	46
65-69 y.o.	0	33	1	10	24	242	0	9	63	834	4	40
70-74 y.o.	1	15	0	4	6	91	0	1	93	791	3	24
75-79 y.o.	1	8	0	2	7	33	1	3	74	581	3	12
80-84 y.o.	0	8	0	0	0	9	0	1	61	430	0	4
85-89 y.o.	0	1	0	1	1	2	0	0	59	261	0	3
90-94 y.o.	0	1	0	0	0	1	0	0	28	88	0	2
95 +	0	0	0	0	0	0	0	0	5	9	0	0
Undet. Age	0	0	0	0	0	0	0	0	0	0	0	0
Total	**96**	**6 282**	**25**	**664**	**572**	**11 583**	**47**	**615**	**1 414**	**30 196**	**54**	**1 194**

** Unlabelled data.*

Source: ONISR, *national file of traffic injuries recorded by police forces*, BAAC 2021.

The estimated data of the number of injured

The casualty data presented in these tables comes initially from modelling work carried out by Gustave Eiffel University until 2016 using data from BAAC and the Rhône Registry.

From 2017 to 2021, the data is estimated by ONISR, based on a simplified methodology compared to that of Gustave Eiffel University. More information on the methodology used is available on page 168 and details of the lesion scale used can be found on page 178.

The data from 2017 to 2021 are therefore provisional estimated data, which will be replaced by the estimate from Gustave Eiffel University when it becomes available. Values are presented here as calculated, but should be rounded when used.

The injured by mode of travel

	MAIS1-2							MAIS3+						
	Walking	Bicycle	PMDm	PTW	Car	Other	Total	Walking	Bicycle	PMDm	PTW	Car	Other	Total
2010	22 514	37 638		85 539	123 946	7 976	**277 613**	2 738	2 129		7 789	5 854	682	**19 193**
2011	22 036	39 750		80 971	115 827	6 995	**265 578**	2 748	2 262		7 443	5 649	580	**18 682**
2012	21 010	30 718		71 208	109 270	7 278	**239 485**	2 529	1 828		6 538	5 215	654	**16 764**
2013	20 189	30 722		63 087	101 708	6 660	**222 365**	2 520	1 864		5 925	4 882	650	**15 841**
2014	20 735	35 805		65 910	105 428	6 138	**234 017**	2 603	2 107		6 138	5 067	580	**16 496**
2015	19 518	31 939		61 883	103 890	6 179	**223 409**	2 602	2 095		6 009	5 080	569	**16 355**
2016	19 336	34 333		59 780	112 962	6 286	**232 698**	2 565	2 166		6 013	5 481	547	**16 773**
2017p	*19 001*	*33 546*	*0*	*59 757*	*110 151*	*6 218*	***228 672***	*2 446*	*2 259*	*0*	*6 131*	*5 511*	*539*	***16 887***
2018p	*17 655*	*34 157*	*459*	*57 533*	*101 268*	*6 968*	***218 041***	*2 253*	*2 302*	*20*	*5 844*	*5 120*	*565*	***16 104***
2019p	*17 705*	*35 411*	*4 261*	*56 231*	*102 190*	*6 999*	***222 797***	*2 315*	*2 314*	*158*	*5 742*	*5 173*	*547*	***16 248***
2020p	*12 842*	*35 986*	*5 785*	*45 336*	*78 672*	*5 463*	***184 084***	*1 720*	*2 314*	*211*	*4 751*	*3 898*	*443*	***13 337***
2021p	*15 184*	*41 439*	*10 843*	*54 154*	*96 236*	*6 186*	***224 042***	*1 967*	*2 709*	*413*	*5 653*	*4 670*	*531*	***15 944***

The injured by age

	MAIS1-2								MAIS3+							
	0-13	14-19	20-29	30-39	40-49	50-59	60-69	70+	0-13	14-19	20-29	30-39	40-49	50-59	60-69	70+
2010	22 965	51 521	75 907	42 569	35 351	25 315	12 614	11 371	1 286	3 520	4 284	2 653	2 483	1 877	1 188	1 900
2011	20 903	47 600	71 475	41 522	35 947	24 113	12 711	11 307	1 157	3 253	4 093	2 542	2 483	1 970	1 274	1 910
2012	15 548	39 809	66 269	37 751	32 897	23 806	12 216	11 189	866	2 741	3 704	2 283	2 249	1 899	1 215	1 806
2013	14 656	35 831	60 052	35 484	31 425	22 791	12 063	10 063	839	2 423	3 401	2 174	2 153	1 872	1 251	1 729
2014	19 247	37 833	60 609	36 416	32 098	24 029	12 736	11 048	1 068	2 546	3 346	2 236	2 173	1 955	1 311	1 859
2015	13 437	36 030	59 939	34 505	31 484	24 158	13 132	10 725	803	2 491	3 312	2 194	2 221	2 045	1 439	1 849
2016	16 237	36 983	61 779	35 404	31 818	24 780	14 006	11 692	925	2 498	3 455	2 162	2 163	2 087	1 529	1 954
2017p	*15 368*	*37 328*	*59 913*	*35 834*	*30 269*	*24 819*	*13 359*	*11 782*	*886*	*2 584*	*3 374*	*2 248*	*2 172*	*2 128*	*1 495*	*2 001*
2018p	*14 045*	*35 878*	*56 353*	*34 484*	*29 417*	*23 611*	*13 020*	*11 232*	*792*	*2 451*	*3 193*	*2 173*	*2 057*	*2 053*	*1 474*	*1 910*
2019p	*14 173*	*36 729*	*58 997*	*35 563*	*28 697*	*23 805*	*13 165*	*11 667*	*788*	*2 469*	*3 255*	*2 230*	*1 987*	*2 059*	*1 478*	*1 981*
2020p	*11 527*	*30 335*	*49 483*	*29 821*	*23 611*	*20 010*	*10 341*	*8 957*	*624*	*2 013*	*2 724*	*1 857*	*1 628*	*1 742*	*1 199*	*1 550*
2021p	*14 738*	*39 703*	*61 401*	*35 452*	*27 771*	*22 250*	*12 234*	*10 493*	*810*	*2 646*	*3 286*	*2 174*	*1 908*	*1 903*	*1 429*	*1 787*

The injured according to the environment

MAIS1-2	Walking			Bicycle		PMDm		PTW			Car			Other			Total		
	A	HAHA	EAHA	HAHA	EAHA	HAHA	EAHA	A	HAHA	EAHA	A	HAHA	EAHA	A	HAHA	EAHA	A	HAHA	EAHA
2017p	*76*	*895*	*18 030*	*6 993*	*26 553*	*0*	*0*	*4 059*	*15 501*	*40 196*	*17 379*	*50 966*	*41 806*	*1 110*	*2 675*	*2 433*	*22 624*	*77 030*	*129 018*
2018p	*68*	*749*	*16 839*	*7 062*	*27 095*	*17*	*442*	*4 176*	*14 154*	*39 203*	*16 330*	*45 959*	*38 980*	*1 494*	*2 649*	*2 825*	*22 068*	*70 589*	*125 384*
2019p	*92*	*736*	*16 877*	*6 753*	*28 658*	*72*	*4 189*	*4 091*	*13 779*	*38 362*	*17 677*	*46 015*	*38 498*	*1 320*	*2 532*	*3 146*	*23 180*	*69 887*	*129 730*
2020p	*52*	*540*	*12 249*	*7 096*	*28 891*	*134*	*5 651*	*3 085*	*12 000*	*30 251*	*12 959*	*35 282*	*30 431*	*934*	*2 226*	*2 303*	*17 030*	*57 278*	*109 776*
2021p	*63*	*711*	*14 410*	*8 429*	*33 009*	*288*	*10 555*	*3 799*	*14 508*	*35 847*	*16 324*	*42 851*	*37 062*	*1 077*	*2 602*	*2 507*	*21 262*	*69 390*	*133 390*

MAIS3+	Walking			Bicycle		PMDm		PTW			Car			Other			Total		
	A	HAHA	EAHA	HAHA	EAHA	HAHA	EAHA	A	HAHA	EAHA	A	HAHA	EAHA	A	HAHA	EAHA	A	HAHA	EAHA
2017p	*99*	*316*	*2 031*	*1 001*	*1 257*	*0*	*0*	*333*	*2 832*	*2 966*	*625*	*3 763*	*1 124*	*86*	*326*	*127*	*1 143*	*8 238*	*7 506*
2018p	*86*	*300*	*1 867*	*950*	*1 352*	*1*	*19*	*373*	*2 734*	*2 737*	*563*	*3 459*	*1 098*	*124*	*321*	*120*	*1 146*	*7 766*	*7 193*
2019p	*118*	*275*	*1 922*	*897*	*1 417*	*11*	*147*	*304*	*2 600*	*2 838*	*614*	*3 455*	*1 103*	*108*	*308*	*131*	*1 144*	*7 545*	*7 558*
2020p	*67*	*231*	*1 421*	*962*	*1 352*	*32*	*179*	*279*	*2 197*	*2 275*	*434*	*2 588*	*876*	*77*	*243*	*123*	*857*	*6 254*	*6 226*
2021p	*82*	*228*	*1 657*	*1 163*	*1 546*	*23*	*390*	*356*	*2 760*	*2 538*	*552*	*3 020*	*1 098*	*90*	*323*	*119*	*1 080*	*7 516*	*7 348*

A: motorway; HAHA: Roads outside urban area (excluding motorway); EAHA: roads in urban area (excluding motorway);

The injured according to the presence of another mode of transport (3rd p)

MAIS 1-2	Pedestrian	Bicycle		PMDm		PTW		PV		Other		Total	
	With 3rd part	With 3rd part	Single acc	With 3rd part	Single acc	With 3rd part	Single acc	With 3rd part	Single acc	With 3rd part	Single acc	With 3rd part	Single acc
2010	22 514	9 405	28 233			36 676	48 863	79 859	44 087	3 952	4 024	152 405	125 208
2011	22 036	10 097	29 653			34 982	45 989	73 377	42 450	3 853	3 142	144 345	121 233
2012	21 010	9 214	21 504			30 956	40 252	70 655	38 615	3 783	3 495	135 619	103 866
2013	20 189	9 026	21 697			27 405	35 682	66 210	35 498	3 744	2 915	126 573	95 792
2014	20 735	9 444	26 361			28 452	37 458	69 646	35 781	3 595	2 543	131 873	102 144
2015	19 518	9 233	22 705			26 660	35 223	66 915	36 976	3 589	2 591	125 914	97 495
2016	19 336	9 302	25 031			25 777	34 003	73 750	39 212	3 703	2 584	131 868	100 830
2017p	*19 001*	*9 401*	*24 144*	*0*	*0*	*25 327*	*34 430*	*71 188*	*38 963*	*3 590*	*2 628*	*128 507*	*100 165*
2018p	*17 655*	*9 583*	*24 574*	*133*	*327*	*24 491*	*33 043*	*65 323*	*35 945*	*4 117*	*2 850*	*121 302*	*96 739*
2019p	*17 705*	*9 965*	*25 447*	*1 239*	*3 022*	*23 938*	*32 294*	*65 859*	*36 330*	*4 188*	*2 810*	*122 894*	*99 903*
2020p	*12 842*	*10 135*	*25 852*	*1 687*	*4 099*	*19 126*	*26 210*	*50 841*	*27 831*	*3 223*	*2 239*	*97 854*	*86 230*
2021p	*15 184*	*11 647*	*29 792*	*3 142*	*7 701*	*22 802*	*31 352*	*62 425*	*33 810*	*3 588*	*2 598*	*118 789*	*105 253*

MAIS 3+	Pedestrian	Bicycle		PMDm		PTW		PV		Other		Total	
	With 3rd part	With 3rd part	Single acc	With 3rd part	Single acc	With 3rd part	Single acc	With 3rd part	Single acc	With 3rd part	Single acc	With 3rd part	Single acc
2010	2 738	712	1 418			4 546	3 243	3 061	2 794	276	406	11 333	7 860
2011	2 748	758	1 504			4 366	3 077	2 876	2 773	248	332	10 996	7 686
2012	2 529	723	1 105			3 849	2 689	2 749	2 466	256	398	10 106	6 658
2013	2 520	718	1 146			3 490	2 435	2 618	2 264	268	383	9 614	6 227
2014	2 603	737	1 370			3 597	2 541	2 746	2 321	263	317	9 947	6 549
2015	2 602	784	1 311			3 526	2 482	2 663	2 417	250	319	9 825	6 529
2016	2 565	762	1 404			3 514	2 499	2 972	2 509	238	308	10 052	6 720
2017p	*2 446*	*825*	*1 433*	*0*	*0*	*3 537*	*2 594*	*2 933*	*2 579*	*232*	*308*	*9 973*	*6 914*
2018p	*2 253*	*842*	*1 460*	*8*	*13*	*3 381*	*2 462*	*2 721*	*2 399*	*246*	*319*	*9 451*	*6 653*
2019p	*2 315*	*850*	*1 464*	*62*	*96*	*3 323*	*2 419*	*2 749*	*2 424*	*239*	*307*	*9 537*	*6 710*
2020p	*1 720*	*851*	*1 463*	*83*	*128*	*2 729*	*2 022*	*2 075*	*1 823*	*192*	*250*	*7 651*	*5 686*
2021p	*1 967*	*994*	*1 715*	*161*	*252*	*3 244*	*2 409*	*2 492*	*2 179*	*229*	*303*	*9 086*	*6 858*

Injuries by gender and age

MAIS1-2	00-13		14-19		20-29		30-39		40-49		50-59		60-69		70+	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M
2010	8 359	14 606	15 791	35 730	28 335	47 572	16 139	26 430	13 999	21 352	10 898	14 417	5 836	6 778	5 775	5 596
2011	7 637	13 266	14 284	33 316	25 933	45 542	15 576	25 947	13 763	22 184	10 478	13 635	5 903	6 807	5 865	5 442
2012	6 158	9 390	12 816	26 993	24 153	42 116	13 828	23 923	12 832	20 065	9 790	14 016	5 767	6 450	5 941	5 248
2013	5 703	8 953	11 599	24 232	22 814	37 238	13 242	22 242	12 082	19 342	9 277	13 515	5 610	6 452	5 232	4 831
2014	6 644	12 603	11 592	26 241	22 960	37 649	13 702	22 714	12 268	19 829	9 976	14 053	5 543	7 193	5 760	5 288
2015	4 966	8 471	9 843	26 187	19 946	39 993	11 100	23 405	10 494	20 989	8 858	15 300	5 516	7 616	5 136	5 588
2016	5 203	11 034	10 742	26 241	21 168	40 611	12 343	23 061	11 073	20 745	9 678	15 101	5 900	8 106	5 643	6 049
2017p	*5 677*	*9 691*	*11 498*	*25 830*	*21 989*	*37 924*	*13 254*	*22 580*	*11 251*	*19 018*	*9 841*	*14 978*	*5 807*	*7 553*	*5 846*	*5 936*
2018p	*5 289*	*8 756*	*10 981*	*24 896*	*20 352*	*36 001*	*12 477*	*22 007*	*10 875*	*18 542*	*9 227*	*14 384*	*5 536*	*7 484*	*5 478*	*5 755*
2019p	*5 222*	*8 951*	*11 311*	*25 418*	*21 505*	*37 492*	*12 745*	*22 818*	*10 574*	*18 122*	*9 304*	*14 501*	*5 527*	*7 639*	*5 688*	*5 979*
2020p	*3 902*	*7 625*	*8 989*	*21 346*	*17 898*	*31 585*	*10 547*	*19 274*	*8 540*	*15 071*	*7 640*	*12 369*	*4 165*	*6 177*	*4 240*	*4 716*
2021p	*4 984*	*9 754*	*11 767*	*27 936*	*22 356*	*39 045*	*12 486*	*22 966*	*10 095*	*17 676*	*8 552*	*13 697*	*4 865*	*7 369*	*4 957*	*5 537*

MAIS3+	00-13		14-19		20-29		30-39		40-49		50-59		60-69		70+	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M
2010	361	925	676	2 844	904	3 381	588	2 065	582	1 901	535	1 343	421	767	877	1 023
2011	326	831	636	2 617	840	3 253	543	1 998	555	1 927	578	1 392	462	812	870	1 040
2012	278	587	568	2 173	756	2 948	496	1 788	528	1 721	516	1 384	421	795	856	950
2013	248	591	509	1 914	767	2 633	461	1 713	496	1 657	496	1 375	416	836	800	929
2014	299	769	485	2 062	716	2 630	481	1 755	526	1 648	550	1 404	450	862	871	988
2015	243	560	436	2 055	677	2 635	412	1 782	453	1 768	484	1 561	451	988	781	1 068
2016	231	693	496	2 002	702	2 753	424	1 738	457	1 706	540	1 547	472	1 057	834	1 121
2017p	*259*	*627*	*511*	*2 073*	*721*	*2 653*	*476*	*1 771*	*486*	*1 686*	*548*	*1 580*	*470*	*1 024*	*869*	*1 131*
2018p	*235*	*557*	*481*	*1 970*	*675*	*2 518*	*455*	*1 718*	*463*	*1 595*	*519*	*1 534*	*449*	*1 025*	*810*	*1 100*
2019p	*232*	*557*	*492*	*1 978*	*700*	*2 555*	*466*	*1 764*	*447*	*1 540*	*527*	*1 532*	*447*	*1 031*	*840*	*1 140*
2020p	*168*	*456*	*381*	*1 632*	*573*	*2 151*	*380*	*1 477*	*360*	*1 268*	*429*	*1 314*	*339*	*860*	*636*	*914*
2021p	*218*	*592*	*504*	*2 143*	*693*	*2 593*	*440*	*1 735*	*419*	*1 488*	*467*	*1 436*	*393*	*1 036*	*725*	*1 062*

Raw data of drivers involved in traffic injury accidents, France mainland

Drivers presumed responsible for passenger vehicles

Fatal accidents

Accidents with a PV driver presumed responsible*	Number of fatal accidents	Killed among these drivers presumed responsible*	Other fatalities in the accident by mode of transport (including drivers not presumed responsible)																Total
			In urban area								Outside urban area on motorway								
			Walking	Bicycle /PMDm	Moped	Moto	PV	UV	HGV	Other	Walking	Bicycle /PMDm	Moped	Moto	PV	UV	HGV	Other	
0-13 y.o.	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
14-17 y.o.	11	4	1	0	1	0	1	0	0	0	0	0	0	0	5	0	0	0	12
18-24 y.o.	413	209	26	6	1	7	42	0	0	0	13	11	4	18	125	2	0	0	464
25-34 y.o.	303	138	28	8	2	7	20	2	0	0	17	11	4	16	78	0	0	3	334
35-44 y.o.	217	118	23	1	3	6	7	0	0	0	6	6	5	11	52	0	0	1	239
45-54 y.o.	160	93	23	5	1	2	2	0	0	0	6	1	3	9	24	0	1	0	170
55-64 y.o.	153	91	15	4	1	4	4	0	0	0	3	5	0	7	32	1	1	0	168
65-74 y.o.	158	115	15	1	0	3	1	0	0	0	3	3	0	5	23	0	0	0	169
75 +	222	152	26	2	0	1	9	0	0	0	5	5	0	11	22	1	0	0	234
Undetermined (1)	16	0	0	0	0	0	0	0	0	0	6	1	1	3	5	0	0	0	16

Injury accidents

Accidents with a PV driver presumed responsible*	Number of injury accidents	Injured among these drivers presumed responsible*	Others injured in the accident by mode of travel (including drivers not presumed responsible)																Total
			In urban area								Outside urban area on motorway								
			Walking	Bicycle /PMDm	Moped	Moto	PV	UV	HGV	Other	Walking	Bicycle /PMDm	Moped	Moto	PV	UV	HGV	Other	
0-13 y.o.	5	1	2	0	0	0	3	0	0	0	0	0	0	0	4	0	0	0	10
14-17 y.o.	119	61	8	5	0	4	75	2	0	2	0	1	0	1	62	0	0	0	221
18-24 y.o.	7 405	3 360	658	311	325	506	2341	66	5	47	53	55	43	225	3012	104	16	23	11 150
25-34 y.o.	6 607	2 678	774	383	342	585	1689	63	4	48	45	41	46	264	1975	100	15	12	9 064
35-44 y.o.	4 895	1 713	681	378	261	475	1102	40	1	45	31	47	45	213	1445	72	14	10	6 573
45-54 y.o.	3 841	1 282	629	378	221	414	663	31	3	32	32	61	32	152	943	43	5	4	4 925
55-64 y.o.	2 835	818	598	327	177	250	456	14	3	19	29	66	23	166	596	18	3	5	3 568
65-74 y.o.	2 110	610	441	200	139	207	241	9	0	18	25	40	19	114	427	19	5	3	2 517
75 +	2 022	663	529	166	83	124	220	12	2	14	41	59	22	58	418	22	4	8	2 445
Undetermined (1)	1 916	0	0	0	0	0	0	0	0	0	386	320	244	313	951	34	4	39	2 291

Proportion of drivers presumed responsible by age (all vehicles)

Age class	Fatal accidents			Injury accidents		
	Presumed responsible *	Total drivers	*% presumed responsible* *	*Presumed responsible* *	Total drivers	*% presumed responsible* *
0-14 y.o.	*18*	24	*75%*	*501*	828	*61%*
15-19 y.o.	*208*	251	*83%*	*4 829*	7 133	*68%*
20-24 y.o.	*426*	576	*74%*	*8 429*	13 117	*64%*
25-29 y.o.	*271*	397	*68%*	*6 150*	10 975	*56%*
30-34 y.o.	*230*	377	*61%*	*5 186*	9 803	*53%*
35-39 y.o.	*211*	355	*59%*	*4 395*	8 462	*52%*
40-44 y.o.	*188*	355	*53%*	*3 733*	7 361	*51%*
45-49 y.o.	*161*	311	*52%*	*3 483*	7 046	*49%*
50-54 y.o.	*186*	332	*56%*	*3 270*	6 562	*50%*
55-59 y.o.	*167*	314	*53%*	*2 727*	5 647	*48%*
60-64 y.o.	*155*	247	*63%*	*2 063*	3 915	*53%*
65-69 y.o.	*107*	180	*59%*	*1 458*	2 714	*54%*
70-74 y.o.	*130*	191	*68%*	*1 310*	2 254	*58%*
75-79 y.o.	*103*	144	*72%*	*965*	1 501	*64%*
80-84 y.o.	*71*	94	*76%*	*690*	967	*71%*
85-89 y.o.	*65*	74	*88%*	*447*	590	*76%*
90-94 y.o.	*28*	29	*97%*	*159*	183	*87%*
95 +	*3*	*5*	*60%*	*10*	20	*50%*
Undetermined Age	*32*	34	*94%*	*2 880*	2 911	*99%*
Whole	***2 760***	***4 290***	**64%**	***52 685***	**91 989**	***57%***

(1) Undetermined ages correspond to fleeing users not found

* Unlabelled data

Source: ONISR, *national file of traffic injuries recorded by police forces, BAAC 2021.*

Number of pedestrians and vehicles involved, by environment and by type of accident

	In urban area				Outside urban area				Motorway			Whole networks				
	PMD-NM single with/ without pedest	Single veh.	Single veh. and a pedest	At least 2 veh.	PMD-NM single with/ without pedest	Single veh.	Single veh. and a pedest	At least 2 veh.	Single veh.	Single veh. and a pedest	At least 2 veh.	PMD-NM single with/ without pedest	Single veh.	Single veh. and a pedest	At least 2 veh.	Total pedest and veh.
Pedestrians																
Pedestrian on foot	7	0	8 137	286	0	0	434	45	0	55	17	7	0	8 626	348	8 981
PMD no motorized	33	0	201	3	3	0	4	0	0	0	0	36	0	205	3	244
All pedestrians	40	0	8 338	289	3	0	438	45	0	55	17	43	0	8 831	351	9 225
PMD motorized																
PMD motorized	0	186	125	1 146	0	7	2	25	0	0	1	0	193	127	1 172	1 492
BICYCLES																
Bicycles	0	397	291	3 754	0	167	7	816	0	0	6	0	564	298	4 576	5 438
E-pedelec																
E-pedelec	0	62	42	359	0	14	1	42	0	0	1	0	76	43	402	521
MOPED																
Moped except scooters	0	410	97	2 146	0	244	6	481	0	0	12	0	654	103	2 639	3 396
Scooters ≤ 50 cm³	0	574	262	2 103	0	38	2	100	1	0	11	0	613	264	2 214	3 091
3 wheels ≤ 50 cm³	0	2	1	6	0	0	0	2	0	0	0	0	2	1	8	11
LIGHT MOTOS																
Motos ≤ 125 cm³ except scooter	0	163	48	849	0	137	1	228	23	0	95	0	323	49	1 172	1 544
Scooters > 50 and ≤ 125 cm³	0	244	163	1 364	0	53	1	101	28	0	100	0	325	164	1 565	2 054
3 wheels > 50 and ≤ 125 cm³	0	0	0	2	0	0	0	0	1	0	0	0	1	0	2	3
HEAVY MOTOS																
Motos > 125 cm³ except scooter	0	508	191	2 844	0	1 019	6	1 675	192	0	703	0	1 719	197	5 222	7 138
Scooters > 125 cm³	0	85	70	515	0	30	1	48	14	0	72	0	129	71	635	835
3 wheels > 125 cm³	0	42	42	356	0	16	0	47	22	0	73	0	80	42	476	598
PASSENGER VEHICLE																
Passenger vehicle	0	2 070	5 200	24 585	0	3 128	279	11 497	981	26	6 458	0	6 179	5 505	42 540	54 224
UTILITY VEHICLE																
Utility vehicle	0	112	741	2 815	0	182	43	1 410	68	5	1 041	0	362	789	5 266	6 417
HEAVY GOOD VEHICLES																
HGV 3,5 t < GVW ≤ 7,5 t	0	1	27	152	0	11	4	104	5	0	65	0	17	31	321	369
HGV > 7,5 t	0	10	65	254	0	33	6	208	7	3	130	0	50	74	592	716
HGV with trailers	0	5	33	157	0	35	6	354	26	3	342	0	66	42	853	961
Road tractors	0	1	0	8	0	5	0	5	1	0	16	0	7	0	29	36
Tractors with semi-trailer	0	5	13	62	0	20	8	209	33	7	282	0	58	28	553	639
PUBLIC TRANSPORT																
Bus	0	26	120	392	0	3	1	36	0	0	16	0	29	121	444	594
Coaches	0	6	14	43	0	4	2	38	1	1	10	0	11	17	91	119
OTHER																
Agricultural tractors	0	10	8	40	0	30	5	170	0	0	0	0	40	13	210	263
Carts	0	58	70	258	0	28	2	80	2	0	13	0	88	72	351	511
Quads ≤ 50 cm³	0	3	0	4	0	5	0	5	0	0	0	0	8	0	9	17
Quads > 50 cm³	0	53	0	20	0	75	1	23	0	0	0	0	128	1	43	172
Special gear	0	6	18	36	0	4	0	19	1	0	3	0	11	18	58	87
Trains	0	0	16	12	0	0	2	11	0	0	0	0	0	18	23	41
Tram	0	1	52	79	0	1	0	0	0	0	0	0	2	52	79	133
Other or undetermined(1)	0	45	120	300	0	13	8	69	1	3	46	0	59	131	415	605
All vehicles	0	5 085	7 829	44 661	0	5 302	394	17 803	1 407	48	9 496	0	11 794	8 271	71 960	92 025

(1) Undetermined ages correspond to fleeing users who were not found

Source: ONISR, *national file of traffic injuries recorded by police forces, BAAC 2021*.

The long series of the BAAC file[1]

Injury accidents, people injured and killed in France mainland

1954-2021 (quarterly raw data)

Year	Injury accidents					Injured people					People killed					
	T1	T2	T3	T4	Total	T1	T2	T3	T4	Total	T1	T2	T3	T4	Total	
1954	22 242	32 706	37 201	32 821	124 970	27 075	40 225	47 114	39 980	154 394	1 483	1 919	2 354	1 783	7 539	People who died instantly or within 3 days after the accident
1955	24 788	35 104	43 101	37 239	140 232	30 005	44 553	56 091	45 680	176 329	1 390	1 936	2 437	2 295	8 058	
1956	26 353	38 534	43 956	32 894	141 737	32 497	49 793	57 804	40 520	180 614	1 544	2 071	2 702	1 966	8 283	
1957	27 602	38 316	43 930	33 948	143 796	33 747	45 950	58 538	42 515	180 750	1 559	2 041	2 628	2 289	8 517	
1958	26 589	33 817	40 382	33 925	134 713	33 651	44 089	54 845	43 445	176 030	1 522	1 938	2 431	2 235	8 126	
1959	26 112	34 190	40 956	36 015	137 273	33 132	44 600	55 212	45 849	178 793	1 608	1 867	2 561	2 373	8 409	
1960	26 278	35 904	41 114	38 013	141 309	33 357	46 924	56 091	48 659	185 031	1 559	1 939	2 359	2 438	8 295	
1961	33 346	40 138	45 307	40 744	159 535	43 460	53 268	62 778	54 098	213 604	1 820	2 083	2 680	2 557	9 140	
1962	32 425	42 907	50 677	43 195	169 204	42 385	58 140	71 798	56 999	229 322	1 861	2 293	3 098	2 676	9 928	
1963	30 037	45 718	53 091	47 429	176 275	39 681	61 694	75 808	63 771	240 954	1 644	2 307	3 115	2 961	10 027	
1964	36 833	50 589	56 060	49 517	192 999	49 278	69 254	79 737	65 806	264 075	1 989	2 645	3 431	3 040	11 105	
1965	41 650	54 399	58 557	56 148	210 754	55 476	75 356	84 500	74 924	290 256	2 240	2 850	3 534	3 526	12 150	
1966	42 779	56 014	55 506	55 607	209 906	57 118	78 062	79 910	75 019	290 109	2 419	2 951	3 299	3 489	12 158	
1967	44 717	54 587	60 047	56 119	215 470	60 812	76 263	87 229	77 052	301 356	2 722	3 133	3 987	3 743	13 585	People who died instantly or within 6 days of the accident
1968	44 795	57 362	62 395	55 649	220 201	60 808	81 887	92 906	76 712	312 313	2 678	3 502	4 207	3 887	14 274	
1969	44 555	58 416	219 695	55 931	220 618	60 914	82 622	90 851	76 886	311 273	2 696	3 597	4 379	4 002	14 674	
1970	46 883	57 558	220 510	60 631	228 050	65 086	80 516	92 475	83 479	321 556	3 064	3 340	4 405	4 227	15 036	
1971	47 642	64 130	209 646	63 642	242 464	65 348	92 285	99 193	88 637	345 463	2 896	3 908	4 798	4 459	16 061	
1972	55 590	67 381	199 455	69 491	259 954	77 409	96 650	101 444	96 315	371 818	3 571	3 935	4 568	4 471	16 545	
1973	58 624	69 173	191 083	66 334	261 212	81 236	98 585	96 678	89 811	366 310	3 338	3 962	4 273	3 896	15 469	
1974	53 371	67 012	184 578	65 383	251 378	71 107	92 211	93 345	87 657	344 320	2 647	3 207	3 865	3 608	13 327	
1975	54 405	64 738	66 866	65 183	251 192	73 365	88 941	95 355	88 065	345 726	2 785	3 029	3 807	3 375	12 996	
1976	52 846	68 024	66 712	65 736	253 318	71 121	92 570	95 337	88 717	347 745	2 752	3 423	4 014	3 388	13 577	
1977	54 877	64 065	63 971	67 245	250 158	73 778	88 862	91 863	91 597	346 100	2 653	3 059	3 552	3 697	12 961	
1978	53 014	62 878	59 055	63 868	238 815	71 851	86 814	83 229	85 853	327 747	2 647	2 924	3 143	3 242	11 956	
1979	52 088	64 736	60 829	65 320	242 973	71 380	90 614	86 566	87 339	335 899	2 494	3 067	3 344	3 292	12 197	
1980	53 020	62 907	62 678	63 883	242 488	70 885	86 783	91 750	86 454	335 872	2 549	3 045	3 612	3 308	12 514	
1981	46 338	54 203	58 578	60 576	219 695	63 320	77 907	85 758	85 723	312 708	2 414	2 762	3 475	3 302	11 953	
1982	48 487	57 294	55 232	59 497	220 510	66 990	80 985	80 023	82 616	310 614	2 436	2 980	3 355	3 259	12 030	
1983	46 671	54 106	54 024	54 845	209 646	63 715	76 485	78 442	75 628	294 270	2 333	2 757	3 449	3 136	11 675	
1984	45 643	49 700	48 924	55 188	199 455	63 313	70 528	71 989	76 662	282 492	2 486	2 695	3 141	3 203	11 525	
1985	38 743	49 936	51 653	50 751	191 083	54 192	70 905	75 248	70 385	270 730	1 932	2 568	3 147	2 800	10 447	
1986	38 377	46 572	48 356	51 273	184 578	53 096	65 265	69 664	70 926	258 951	2 139	2 598	3 134	3 088	10 959	
1987	34 700	43 035	44 498	48 766	170 999	47 660	59 494	63 267	67 224	237 645	1 970	2 321	2 789	2 775	9 855	
1988	41 504	45 345	44 128	44 910	175 887	56 479	63 516	62 976	61 071	244 042	2 370	2 629	2 853	2 696	10 548	
1989	39 448	42 915	42 456	45 770	170 589	53 864	59 136	60 301	62 697	235 998	2 275	2 431	2 898	2 924	10 528	
1990	38 709	42 021	40 751	41 086	162 567	52 724	58 358	58 209	56 569	225 860	2 372	2 525	2 820	2 572	10 289	
1991	31 789	38 019	39 554	39 524	148 886	43 229	52 527	56 144	54 068	205 968	1 992	2 275	2 867	2 483	9 617	
1992	33 169	36 897	35 474	37 822	143 362	45 594	50 982	50 126	51 402	198 104	2 053	2 267	2 431	2 332	9 083	
1993	30 118	36 159	36 273	34 950	137 500	40 518	49 867	51 114	47 521	189 020	1 939	2 240	2 644	2 229	9 052	
1994	30 838	33 250	33 079	35 559	132 726	41 336	45 224	46 497	47 775	180 832	1 810	2 039	2 319	2 365	8 533	
1995	30 831	33 524	33 460	35 134	132 949	41 442	45 791	46 859	47 311	181 403	1 909	2 064	2 255	2 184	8 412	
1996	28 253	31 523	32 375	33 255	125 406	37 835	42 812	44 787	44 683	170 117	1 776	1 917	2 204	2 183	8 080	
1997	26 847	31 988	32 273	34 094	125 202	35 898	43 393	44 571	45 716	169 578	1 599	1 993	2 223	2 174	7 989	
1998	28 033	31 947	31 174	33 233	124 387	37 276	43 488	43 142	44 629	168 535	1 825	2 013	2 306	2 293	8 437	
1999	27 336	32 577	32 284	32 327	124 524	36 318	43 914	44 411	42 929	167 572	1 747	1 935	2 237	2 110	8 029	
2000	28 510	30 854	29 783	32 076	121 223	38 012	41 268	40 443	42 394	162 117	1 746	1 903	1 970	2 024	7 643	
2001	28 069	29 481	29 116	30 079	116 745	37 133	38 847	39 300	38 665	153 945	1 710	1 837	2 074	2 099	7 720	
2002	25 469	27 621	26 285	26 095	105 470	33 018	36 147	35 119	33 555	137 839	1 763	1 819	1 896	1 764	7 242	
2003	19 597	24 237	23 716	22 670	90 220	24 846	31 282	31 119	28 682	115 929	1 205	1 483	1 647	1 396	5 731	
2004	18 901	22 424	21 955	22 110	85 390	23 792	28 715	28 342	27 878	108 727	1 084	1 277	1 526	1 345	5 232	
2005	18 691	22 287	21 451	22 096	84 525	24 006	28 132	28 002	27 936	108 076	1 146	1 300	1 527	1 345	5 318	People who died instantly or within 30 days after the accident
2006	17 192	20 652	20 371	22 094	80 309	21 731	26 224	26 529	27 641	102 125	926	1 143	1 316	1 324	4 709	
2007	18 505	20 943	20 563	21 261	81 272	23 310	26 732	26 746	26 413	103 201	999	1 142	1 305	1 174	4 620	
2008	17 476	18 680	18 837	19 494	74 487	21 894	23 493	24 236	24 175	93 798	981	1 017	1 142	1 135	4 275	
2009	15 625	19 416	18 847	18 427	72 315	19 666	24 443	24 014	22 811	90 934	881	1 116	1 192	1 084	4 273	
2010	14 170	18 316	17 843	16 959	67 288	17 718	23 034	22 675	21 034	84 461	827	961	1 193	1 011	3 992	
2011	14 602	17 564	16 139	16 719	65 024	18 056	21 940	20 483	20 772	81 251	894	1 018	1 071	980	3 963	
2012	13 744	15 216	15 358	16 119	60 437	17 044	19 176	19 685	19 946	75 851	777	920	1 046	910	3 653	
2013	11 901	14 299	15 343	15 269	56 812	14 649	17 735	19 511	18 712	70 607	664	753	978	873	3 268	
2014	13 349	15 218	14 193	15 431	58 191	16 508	19 119	18 187	19 234	73 048	721	825	925	913	3 384	
2015	12 259	14 906	14 520	14 918	56 603	15 241	18 596	18 649	18 316	70 802	716	824	942	979	3 461	
2016	13 027	14 442	14 501	15 552	57 522	16 213	18 254	18 615	19 563	72 645	754	822	991	910	3 477	
2017	13 242	15 807	14 527	15 037	58 613	16 362	19 793	18 613	18 616	73 384	726	902	937	883	3 448	
2018	11 541	14 968	14 587	14 670	55 766	14 361	18 854	18 553	18 119	69 887	682	842	896	828	3 248	
2019	12 514	14 246	14 667	14 589	56 016	15 441	17 952	18 724	18 373	70 490	748	770	928	798	3 244	
2020	11 056	8 417	14 543	11 105	45 121	13 676	10 217	18 505	13 438	55 836	633	520	801	587	2 541	
2021	10 512	13 800	14 897	14 331	53 540	12 896	17 153	19 218	17 790	67 057	546	707	865	826	2 944	

[1] Source: *National file of personal accidents recorded by police forces, ONISR and archives of Cerema Nord-Picardie*

Accident rate by age group, France mainland

People killed 1970-2021 (raw data)

Year	Unknown age	0-14 y.o.	15-17 y.o.	18-24 y.o.	25-44 y.o.	45-64 y.o.	65-74 y.o.	75 y.o. +	Total	
1970	0	1 262	756	2 877	3 823	3 841	1 586	891	15 036	People who died instantly or within 6 days of the accident
1971	54	1 334	827	3 346	4 109	3 871	1 612	908	16 061	
1972	42	1 248	915	3 640	4 378	3 759	1 633	930	16 545	
1973	47	1 232	872	3 446	4 072	3 394	1 490	916	15 469	
1974	24	1 015	824	2 906	3 495	2 905	1 330	828	13 327	
1975	24	1 000	746	2 964	3 246	2 888	1 322	806	12 996	
1976	34	918	878	3 147	3 427	2 884	1 399	890	13 577	
1977	114	944	742	3 089	3 331	2 685	1 241	815	12 961	
1978	135	843	714	2 858	2 930	2 473	1 211	792	11 956	
1979	96	866	713	3 084	3 162	2 381	1 117	778	12 197	
1980	109	851	784	3 154	3 222	2 446	1 115	833	12 514	
1981	84	781	614	3 014	3 260	2 384	1 002	814	11 953	
1982	63	766	604	3 008	3 336	2 437	908	908	12 030	
1983	60	715	516	2 932	3 373	2 403	857	819	11 675	
1984	61	688	489	2 852	3 459	2 355	764	857	11 525	
1985	45	633	469	2 494	3 211	2 055	717	823	10 447	
1986	34	636	461	2 723	3 375	2 104	791	835	10 959	
1987	41	566	426	2 337	3 085	1 888	719	793	9 855	
1988	33	550	433	2 551	3 302	1 886	817	976	10 548	
1989	30	532	449	2 536	3 460	1 897	704	920	10 528	
1990	26	501	433	2 520	3 466	1 840	694	809	10 289	
1991	24	483	349	2 377	3 337	1 620	658	769	9 617	
1992	20	418	300	2 315	3 030	1 626	721	653	9 083	
1993	10	421	361	2 173	3 001	1 636	714	736	9 052	
1994	11	431	315	1 971	2 743	1 564	804	694	8 533	
1995	8	414	371	1 857	2 794	1 562	743	663	8 412	
1996	9	392	360	1 666	2 685	1 502	751	715	8 080	
1997	11	381	388	1 673	2 668	1 461	703	704	7 989	
1998	8	366	324	1 825	2 902	1 512	722	778	8 437	
1999	52	333	377	1 746	2 667	1 490	636	728	8 029	
2000	133	343	331	1 633	2 522	1 411	590	680	7 643	
2001	82	284	351	1 726	2 579	1 410	603	685	7 720	
2002	85	246	293	1 562	2 435	1 356	601	664	7 242	
2003	82	210	258	1 218	1 858	1 065	460	580	5 731	
2004	13	179	216	1 227	1 718	981	369	529	5 232	
2005	20	143	260	1 222	1 645	1 034	384	610	5 318	People who died instantly or within 30 days after the accident
2006	65	131	225	1 037	1 404	946	343	558	4 709	
2007	8	164	200	981	1 491	892	356	528	4 620	
2008		125	172	958	1 342	867	282	529	4 275	
2009		122	189	901	1 366	899	288	508	4 273	
2010	1	130	161	831	1 249	856	264	500	3 992	
2011	1	128	144	813	1 272	847	280	478	3 963	
2012		115	131	753	1 082	827	264	481	3 653	
2013		97	102	636	1 005	740	254	434	3 268	
2014	1	112	116	582	1 041	761	283	488	3 384	
2015		101	125	619	1 024	761	312	519	3 461	
2016		108	96	597	994	796	320	566	3 477	
2017		104	101	562	1 008	804	342	527	3 448	
2018		86	106	503	921	790	332	510	3 248	
2019		66	87	549	899	794	317	532	3 244	
2020		74	77	449	679	619	291	352	2 541	
2021		99	87	505	764	719	321	449	2 944	
Var 2021/2020		**33,8%**	**13,0%**	**12,5%**	**12,5%**	**16,2%**	**10,3%**	**27,6%**	**15,9%**	

Accident rate depending on the mode of travel, France mainland

People killed 1954-2021 (raw data)

Year	Walking	Bicycle	PMDm*	Moped	Moto	PV	UV	HGV	PT	Other	Whole	
1954	1 544	1 322		648	1 888	1 970	ND	ND	ND	167	7 539	People who died instantly or within 3 days after the accident
1955	1 790	1 363		862	1 970	1 951	ND	ND	ND	122	8 058	
1956	1 768	1 165		1 143	1 932	2 168	ND	ND	ND	107	8 283	
1957	1 829	1 046		1 384	1 982	1 772	176	161	23	144	8 517	
1958	1 802	827		1 444	1 542	2 072	156	122	28	133	8 126	
1959	1 892	856		1 601	1 291	2 302	178	140	16	133	8 409	
1960	1 889	848		1 625	1 004	2 540	118	110	27	134	8 295	
1961	2 088	905		1 887	770	3 011	185	172	8	114	9 140	
1962	2 372	853		2 020	574	3 567	217	162	25	138	9 928	
1963	2 272	819		1 978	389	4 081	224	135	15	114	10 027	
1964	2 577	843		2 259	279	4 604	238	133	52	120	11 105	
1965	2 874	828		2 362	254	5 329	211	150	11	131	12 150	
1966	2 748	753		2 387	190	5 538	244	169	18	111	12 158	
1967	3 120	838		2 497	184	6 438	200	175	7	126	13 585	People who died instantly or within 6 days of the accident
1968	3 062	822		2 602	188	7 046	202	207	24	121	14 274	
1969	3 117	820		2 598	236	7 285	233	232	16	127	14 664	
1970	3 202	795		2 638	306	7 523	189	226	28	129	15 036	
1971	3 341	738		2 666	549	8 100	246	253	52	116	16 061	
1972	3 180	728		2 647	700	8 627	242	274	32	115	16 545	
1973	2 914	665		2 526	739	7 916	224	260	72	153	15 469	
1974	2 690	574		2 319	721	6 373	243	269	17	121	13 327	
1975	2 517	565		2 131	698	6 431	275	201	47	131	12 996	
1976	2 463	643		2 079	770	7 014	235	251	7	115	13 577	
1977	2 371	577		1 735	842	6 780	277	229	26	124	12 961	
1978	2 125	571		1 618	782	6 233	260	214	35	118	11 956	
1979	2 092	589		1 381	970	6 547	263	202	38	115	12 197	
1980	2 201	659		1 273	1 057	6 701	267	209	34	113	12 514	
1981	1 952	555		1 058	813	6 970	234	215	25	131	11 953	
1982	1 910	501		1 113	807	7 111	214	183	64	127	12 030	
1983	1 879	536		955	846	6 956	152	198	27	126	11 675	
1984	1 760	465		864	820	7 121	193	159	18	125	11 525	
1985	1 557	426		797	810	6 419	161	148	15	114	10 447	
1986	1 639	438		714	790	6 867	171	207	14	119	10 959	
1987	1 479	419		675	793	6 002	174	177	9	127	9 855	
1988	1 592	401		717	862	6 439	216	192	19	110	10 548	
1989	1 472	407		688	930	6 514	217	180	15	105	10 528	
1990	1 407	401		657	946	6 295	238	194	32	119	10 289	
1991	1 327	364		504	980	5 992	188	154	29	79	9 617	
1992	1 165	348		504	945	5 725	187	123	6	80	9 083	
1993	1 131	329		490	861	5 835	159	136	23	88	9 052	
1994	1 126	321		472	816	5 423	154	122	18	81	8 533	
1995	1 027	374		471	780	5 389	126	128	41	76	8 412	
1996	987	300		478	741	5 240	139	113	8	74	8 080	
1997	929	329		471	831	5 069	122	110	34	94	7 989	
1998	988	301		418	901	5 491	143	108	13	74	8 437	
1999	882	307		466	901	5 161	136	104	8	64	8 029	
2000	793	255		431	886	5 006	75	116	19	62	7 643	
2001	778	242		426	1 011	4 998	75	135	13	42	7 720	
2002	819	211		366	973	4 602	76	125	10	60	7 242	
2003	592	190		372	813	3 481	75	107	44	57	5 731	
2004	550	167		321	814	3 186	58	80	20	36	5 232	
2005	635	180		356	881	3 065	56	90	14	41	5 318	People who died instantly or within 30 days after the accident
2006	535	181		317	769	2 626	120	87	6	68	4 709	
2007	561	142		325	830	2 464	131	68	35	64	4 620	
2008	548	148		291	795	2 205	135	76	19	58	4 275	
2009	496	162		299	888	2 160	145	54	5	64	4 273	
2010	485	147		248	704	2 117	146	65	4	76	3 992	
2011	519	141		220	760	2 062	134	67	0	60	3 963	
2012	489	164		179	664	1 882	145	56	6	68	3 653	
2013	465	147		159	631	1 612	133	57	7	57	3 268	
2014	499	159		165	625	1 663	143	56	9	65	3 384	
2015	468	149		155	614	1 796	120	56	43	60	3 461	
2016	559	162		121	613	1 760	130	55	12	65	3 477	
2017	484	173		117	669	1 767	99	51	14	74	3 448	
2018	470	175		133	627	1 637	92	44	3	67	3 248	
2019	483	187	10	134	615	1 622	98	36	4	55	3 244	
2020	391	178	7	100	479	1 243	59	33	3	48	2 541	
2021	414	227	24	96	572	1 414	103	44	4	46	2 944	
Var 2021/2020	**5,9%**	**27,5%**	**242,9%**	**-4,0%**	**19,4%**	**13,8%**	**74,6%**	**33,3%**	**33,3%**	**-4,2%**	**15,9%**	

** Since the year 2019, the BAAC file distinguishes motorized Personal Mobility Devices*

Accidents in the overseas departments (DOM)

Injury accidents by mode of travel, 2005-2021

Year	Walking	Bicycle	PMDm	Moped	Moto	PV	UV	HGV	PT	Other	Whole
2005	475	181		599	464	2 090	76	64	39	44	2 501
2006	462	180		691	474	2 200	134	82	46	67	2 684
2007	439	211		649	545	2 079	161	70	34	50	2 578
2008	421	170		570	511	1 791	173	58	30	38	2 280
2009	359	205		553	435	1 627	171	44	35	32	2 094
2010	397	145		531	446	1 611	156	44	29	29	2 091
2011	357	165		470	416	1 556	127	42	35	20	1 950
2012	386	154		430	408	1 381	140	42	28	26	1 813
2013	339	114		370	376	1 202	135	37	24	22	1 585
2014	334	127		426	371	1 292	135	38	19	24	1 663
2015	420	169		605	442	1 574	115	48	19	23	2 051
2016	403	160		557	432	1 425	124	49	34	19	1 910
2017	375	131		436	613	1 630	92	34	38	31	2 088
2018	413	155		528	493	1 489	174	42	38	42	2 017
2019	463	166	2	463	561	1 733	155	46	44	57	2 273
2020	362	158	7	480	503	1 604	169	47	23	78	2 120
2021	440	156	15	620	630	1 898	211	42	26	47	2 503
Var 2021/2020	**21,5%**	**-1,3%**	**114,3%**	**29,2%**	**25,2%**	**18,3%**	**24,9%**	**-10,6%**	**13,0%**	**-39,7%**	**18,1%**

People killed by mode of travel, 2005-2021

Year	Walking	Bicycle	PMDm	Moped	Moto	PV	UV	HGV	PT	Other	Whole
2005	48	7		37	32	95	3	1	1	1	225
2006	39	9		37	38	99	6	1	0	4	233
2007	33	14		39	52	72	5	0	0	3	218
2008	32	11		22	49	51	2	0	0	1	168
2009	33	6		39	28	57	4	1	0	2	170
2010	28	6		36	46	50	11	0	0	3	180
2011	34	8		34	33	37	1	0	0	1	148
2012	47	17		18	45	50	4	3	2	3	189
2013	40	14		18	32	43	8	1	1	2	159
2014	44	4		27	39	51	6	1	0	1	173
2015	37	10		22	39	42	3	0	0	2	155
2016	42	12		31	35	53	3	1	1	0	178
2017	35	8		20	33	54	0	0	0	2	152
2018	38	8		17	37	35	4	1	0	4	144
2019	43	9		18	32	51	7	0	0	2	162
2020	30	5		25	43	50	5	3	0	4	165
2021	37	10	1	25	47	54	6	0	0	3	183
Var 2021/2020	**23,3%**	**100,0%**	**-**	**0,0%**	**9,3%**	**8,0%**	**20,0%**	**-100,0%**	**0,0%**	**-25,0%**	**10,9%**

People killed by age group, 2005-2021

Year	Unknown age	0-14 y.o.	15-17 y.o.	18-24 y.o.	25-44 y.o.	45-64 y.o.	65-74 y.o.	75 y.o. +	Total
2005	0	8	16	47	78	43	14	19	225
2006	2	6	13	54	84	59	5	10	233
2007	4	10	11	67	58	43	16	9	218
2008	0	6	7	47	65	28	9	6	168
2009	0	6	7	47	53	41	9	7	170
2010	0	8	14	53	61	31	8	5	180
2011	0	6	9	37	53	30	11	2	148
2012	0	7	5	33	79	42	11	12	189
2013	0	5	3	46	47	39	10	9	159
2014	0	3	5	39	77	34	9	6	173
2015	0	8	8	38	53	36	5	7	155
2016	0	8	13	36	67	35	11	8	178
2017	0	9	10	25	59	32	13	4	152
2018	0	11	1	28	62	32	7	3	144
2019	-	9	3	32	54	42	10	12	162
2020	-	5	5	34	59	43	8	11	165
2021	-	4	11	36	70	32	17	13	183
Var 2021/2020	**-**	**-20,0%**	**120,0%**	**5,9%**	**18,6%**	**-25,6%**	**112,5%**	**18,2%**	**10,9%**

Accidents in the Overseas Territories outside DOM*

(Saint-Pierre-et-Miquelon since 2016, Saint-Barthélemy, St-Martin, Wallis-et-Futuna, French Polynesia and New Caledonia) – Data outside the scope of labelling by the French Public Statistics Authority (*)

Injury accidents* according to mode of travel, 2010-2021

Year	Walking	Bicycle	PMDm	Moped	Moto	PV	UV	HGV	PT	Other	Whole
2010	115	38		120	157	552	120	28	4	22	755
2011	135	32		135	150	587	125	21	5	29	787
2012	115	35		145	164	553	138	19	13	16	770
2013	110	34		161	162	487	124	15	11	26	713
2014	85	20		111	130	416	113	13	5	18	577
2015	94	21		97	87	388	112	16	9	13	544
2016	74	30		75	88	343	96	15	7	16	487
2017	81	25		115	117	374	74	8	14	21	523
2018	74	31		117	103	398	122	11	11	20	569
2019	68	27		87	104	374	100	12	9	27	551
2020	53	38	2	76	115	332	112	9	5	13	503
2021	56	30	3	72	108	325	98	5	5	15	475
Var 2021/2020	5,7%	-21,1%	50,0%	-5,3%	-6,1%	-2,1%	-12,5%	-44,4%	0,0%	15,4%	-5,6%

People killed* by mode of travel, 2010-2021

Year	Walking	Bicycle	PMDm	Moped	Moto	PV	UV	HGV	PT	Other	Whole
2010	8	4		10	14	55	7	1	0	1	100
2011	12	4		8	10	42	6	2	0	1	85
2012	21	2		9	7	42	9	2	1	1	94
2013	12	1		8	9	28	8	1	1	0	68
2014	6	2		7	14	41	16	2	0	1	89
2015	13	3		4	5	33	12	0	0	1	71
2016	8	3		6	15	42	6	0	0	3	83
2017	11	3		6	15	42	6	1	0	0	84
2018	11	2		11	16	40	15	0	0	1	96
2019	10	5		8	13	44	9	2	0	1	92
2020	6	4		9	10	36	7	0	0	2	74
2021	11	4		11	15	35	16	0	0	0	92
Var 2021/2020	83,3%	0%	-	22,2%	50,0%	-2,8%	128,6%	0%	0%	-100%	24,3%

People killed* by age group, 2010-2021

Year	Unknown age	0-14 y.o.	15-17 y.o.	18-24 y.o.	25-44 y.o.	45-64 y.o.	65-74 y.o.	75 y.o. +	Total
2010	-	7	6	25	41	18	2	1	100
2011	-	3	3	31	31	13	2	2	85
2012	-	5	3	29	38	13	4	2	94
2013	-	6	1	17	27	11	4	2	68
2014	-	3	8	22	37	15	2	2	89
2015	-	3	4	21	29	11	3	0	71
2016	-	3	5	16	40	16	2	1	83
2017	-	3	2	19	32	18	8	2	84
2018	-	3	5	23	46	14	3	2	96
2019	-	6	5	17	32	26	4	2	92
2020	-	7	4	16	26	18	1	2	74
2021	-	8	3	22	34	17	4	4	92
Var 2021/2020	-	14,3%	-25,0%	37,5%	30,8%	-5,6%	300%	100%	24,3%

Accident rate in France mainland, 2000-2021

Year	Injury accidents		including fatal accidents	People killed at 30 days		Total injured	
	Number	% change		Number	% change	Number	% change
2000*	121 223	-2.7%	-	8 170	-	161 590	-
2001*	116 745	-3,7%	-	8 253	1,0%	153 412	-5,1%
2002*	105 470	-9,7%	-	7 742	-6,2%	137 339	-10,5%
2003*	90 220	-14,5%	-	6 126	-20,9%	115 534	-15,9%
2004*	85 390	-5,4%	-	5 593	-8,7%	108 366	-6,2%
2005	84 525	-1,0%	4 857	5 318	-4,9%	108 076	-0,3%
2006	80 309	-5,0%	4 326	4 709	-11,5%	102 125	-5,5%
2007	81 272	1,2%	4 265	4 620	-1,9%	103 201	1,1%
2008	74 487	-8,3%	3 933	4 275	-7,5%	93 798	-9,1%
2009	72 315	-2,9%	3 956	4 273	0,0%	90 934	-3,1%
2010	67 288	-7,0%	3 706	3 992	-6,6%	84 461	-7,1%
2011	65 024	-3,4%	3 647	3 963	-0,7%	81 251	-3,8%
2012	60 437	-7,1%	3 386	3 653	-7,8%	75 851	-6,6%
2013	56 812	-6,0%	3 020	3 268	-10,5%	70 607	-6,9%
2014	58 191	2,4%	3 146	3 384	3,5%	73 048	3,5%
2015	56 603	-2,7%	3 160	3 461	2,3%	70 802	-3,1%
2016	57 522	1,6%	3 228	3 477	0,5%	72 645	2,6%
2017	58 613	1,9%	3 221	3 448	-0,8%	73 384	1,0%
2018	55 766	-4,9%	3 050	3 248	-5,8%	69 887	-4,8%
2019	56 016	-4,4%	3 050	3 244	-5,9%	70 490	-3,9%
2020	45 121	-19,4%	2 403	2 541	-21,7%	55 836	-20,8%
2021	53 540	18,7%	2 771	2 944	15,9%	67 057	20,1%

* estimate of the number of people killed at 30 days from the number of people killed at 6 days, by application of the increasing coefficient of 1.069 for the years 2000 to 2004, and corresponding deduction of the number of injured.

Accidents in overseas departments, 2005-2021

(Guadeloupe, Martinique, Guyana, Réunion and Mayotte since January 1, 2012)

Year	Injury accidents		including fatal accidents	People killed at 30 days		Total injured	
	Number	% change		Number	% change	Number	% change
2005	2 051	-	211	225	-	3 607	-
2006	2 684	30,9%	204	233	3,6%	3 855	6,9%
2007	2 578	-3,9%	201	218	-6,4%	3 508	-9,0%
2008	2 280	-11,6%	159	168	-22,9%	3 107	-11,4%
2009	2 094	-8,2%	159	170	1,2%	2 779	-10,6%
2010	2 091	-0,1%	164	180	5,9%	2 712	-2,4%
2011	1 950	-6,7%	141	148	-0,2	2 621	-3,4%
2012	1 813	-7,0%	177	189	27,7%	2 358	-10,0%
2013	1 585	-12,6%	151	159	-15,9%	2 038	-13,6%
2014	1 663	4,9%	159	173	8,8%	2 094	2,7%
2015	2 051	23,3%	146	155	-10,4%	2 582	23,3%
2016	1 910	-6,9%	165	178	14,8%	2 482	-3,9%
2017	2 088	9,3%	139	152	-0,1	2 767	11,5%
2018	2 017	-3,4%	136	144	-5,3%	2 642	-4,5%
2019	2 273	12,7%	157	162	12,5%	2 953	11,8%
2020	2 120	-6,7%	153	165	1,9%	2 703	-8,5%
2021	2 503	18,1%	173	183	10,9%	3 150	16,5%

Accidents in the Overseas Territories excluding Overseas Departments, 2010-2021 – unlabelled data

(Saint-Pierre-et-Miquelon since 2016, Saint-Barthélemy, St-Martin, Wallis-et-Futuna, French Polynesia and New Caledonia)

Year	Injury accidents		including fatal accidents	People killed at 30 days		Total injured	
	Number	% change		Number	% change	Number	% change
2010	755	-	93	100	-	986	-
2011	787	4,2%	73	85	-15,0%	1 040	5,5%
2012	770	-2,2%	84	94	10,6%	1 067	2,6%
2013	713	-7,4%	65	68	-27,7%	966	-9,5%
2014	577	-19,1%	77	89	30,9%	791	-18,1%
2015	544	-5,7%	67	71	-20,2%	774	-2,1%
2016	487	-10,5%	75	83	16,9%	692	-10,6%
2017	523	7,4%	70	84	1,2%	689	-0,4%
2018	569	8,8%	81	96	14,3%	724	5,1%
2019	551	-3,2%	77	92	-4,2%	722	-0,3%
2020	503	-8,7%	60	74	-19,6%	709	-1,8%
2021	475	-5,6%	88	92	24,3%	619	-12,7%

Glossary and acronyms

Definitions:

Injury accident: accident with at least one person injured or killed.

Fatal accident: accident with at least one person killed.

Injured: slightly injured or seriously injured (MAIS3+).

Slightly injured: person with at least one injury but none greater than 2 (MAIS1-2).

Seriously injured: person whose at least one bodily injury is qualified as greater than or equal to 3 according to the “Maximum Abbreviated Injury Scale” scale (known as MAIS 3+, see page 178).

Injured with sequelae: person likely to retain major sequelae of all kinds at 1 year, i.e. person for whom the bodily injury with the highest level of expected sequelae has a value between 1 and 3 on the "Functional Capacity" scale Index” (FCI, see page 178).

Person killed: person who died during the accident or within 30 days of the accident.

Presumed responsible (PR): the presumed responsibility of those involved is assessed by the law enforcement authorities behind the investigation.

Personal mobility device (PMD): it can be non-motorized (rollerblade, skateboard, scooter) and moves like a pedestrian; or motorized (electric scooter, gyropod, Segway, etc.) and moves like a bicycle. For the year 2018, the year of transition for the BAAC file, it is included in the category « other ».

Bicycle: bike including electric bike.

Electrically assisted bicycle (E-pedelec): **electric bike** (France): bicycle equipped with a motor and a rechargeable battery. The motor starts automatically when the user pedals, and stops when he stops pedalling or exceeds 25 km/h. An e-bike without pedalling is considered a moped.

Powered two-wheeler (PTW): moped or motorcycle, including 3-wheelers, including scooters.

Scooter: registered motorcycle with 2 wheels of small diameter, fairing, open frame and flat floor.

Moped: powered two-wheelers under 50 cc and having a maximum design speed not exceeding 45 km/h, including scooters.

Motorcycle: powered two-wheelers over 50 cc, including scooters.

Movement between lanes of powered two-wheelers (CIF): the CIF consists for a powered two-wheeler in circulating between the two lines of vehicles circulating in the same direction on the leftmost lanes, at a speed of less than 50 km/h and on a limited divided road network at least 70 km/h. It is legally framed by an experimentation decree until August 01, 2024.

Cart: light car of small size and with a maximum displacement of 50 cm3 and whose speed does not exceed 45 km/h.

Motorist: passenger vehicle user.

Passenger vehicle (PV): motor vehicle designed and constructed for the transport of persons having at least four wheels and having, in addition to the driver, no more than eight seats.

Utility vehicle (UV): utility car or van intended for the transport of goods with a gross vehicle weight (GVW) of less than 3.5 t.

Heavy good vehicles (HGV): motor vehicle intended for the transport of heavy or bulky loads with a GVW greater than 3.5 t.

Public transport (PT): bus or coach: motor vehicle designed and built for the transport of persons having at least four wheels and comprising, in addition to the driver, more than eight seats.

Novice driver: driver whose license is less than 2 years old (the BAAC file does not have the information "probationary license" until 2018).

Senior – 2015 balance sheet modification: person aged 65 or over, unless otherwise stated.

BAC or legal alcohol content: < 0.5 g/l of blood and < 0.2 g/l for novice drivers and public transport drivers.

Alcohol offence rate: ≥ 0.8 g/l of blood

Acronyms:

ADEME: Environment and Energy Management Agency
ANSM: National Agency for the Safety of Medicines and Health Products
APAM: Presumed author of fatal accident (see the glossary of the presumed responsible)
ASFA: Association of French Motorways and Toll Structures Companies
BAAC: Traffic Accident Analysis Bulletins
BEA-TT: Land Transportation Accident Investigation Bureau
AC: Automated Control
CARE: Community database on Accidents on the Roads of Europe (EU accident database)
CCFA: Committee of French Automobile Manufacturers
CEESAR: European Centre for Security Studies and Risk Analysis
CEREMA: Centre for studies and expertise on risks, the environment, mobility and planning
CISR: Interministerial Road Safety Committee
CNAMTS: National health insurance fund for salaried workers
CNSR: National Road Safety Council
COM-NC: Overseas communities and New Caledonia
DARES: Directorate for the coordination of research, studies and statistics of the Ministry of Labour
DGO: General Orientation Document (road safety issues at the departmental level)
DISR: Interministerial Director for Road Safety
DITTT: Directorate of Infrastructure, Topography and Land Transport, New Caledonia
DOM: Overseas departments
DREES: Department of Research, Studies, Evaluation and Statistics
DSR: Road Safety Directorate (called DSCR before April 2017)
FSR: Road Safety Foundation
IFSTTAR: French Institute of Science and Technology for Transport, Planning and Networks.
Since January 1, 2020, IFSTTAR has joined **Gustave Eiffel University**
INSEE: The national institute of statistics and economic studies
INSERM: National Institute of Health and Medical Research
INSERR: National Institute for Road Safety and Research
IRTAD: International Traffic Safety Data and Analysis group
LAB: Accidentology and Biomechanics Laboratory
LESCOT: Ergonomics and Cognitive Sciences for Transport Laboratory
MAIS: Maximum Abbreviated Injury Scale (severity level of the lesion with the greatest severity)
OCDE: Organisation for Economic Co-operation and Development
OFDT: French observatory for drugs and drug addiction
WHO: World Health Organization
ONISR: French Road Safety Observatory
PDASR: Departmental Road Safety Action Plan
PR: Presumed responsible of injury accident
REAGIR: Respond with serious accident investigations and remediation initiatives
SDES: Department of Data and Statistical Studies of the Ministry of Transport (MTE)
STRMTG: Technical Service for Ski Lifts and Guided Transport
UCLIR: Coordination Unit for the Fight against Road Insecurity
UMRESTTE: Joint unit for epidemiological research and surveillance Transport Work Environment
UTAC: Technical Union of Automobile, Motorcycle and Cycle
SL: Speed limit

Bibliography

ANSM	Consumption of benzodiazepines in France, April 2017.
ASFA	Key figures 2021
Cerema	Lowering of the maximum authorized speed to 80 km/h – Final evaluation report, July 2020
Cerema	Classification of departments for road safety, ILSR, methodology and results, 2022
Cerema	Fatal accident factors in 2015, FLAM, 2020
Cerema	Study of pedestrian accidents on streets with development of public transport sites (phase 2), 2016.
Cerema	Studies of pedestrian accidents on streets with development of public transport sites (phase 2), 2016
CERTU	Safety of urban development, methodological guide, 2007
CGDD – SDES	Key transport figures 2022 edition, March 2022
CNAMTS	Health insurance 2019 annual report Occupational risks.
European Commission	EU Road Safety Policy Framework 2021-2030
European Commission	Statistical pocketbook, European transport in figures, 2022.
Christian B. and al.	How the weather can influence your data collection?, European Transport Conference, 2016.
COQUILLAT A. and al.	Injury assessments suffered by powered two-wheeler users, SECU2RM, IFSTTAR, UCB Lyon1, July 2016.
De Bellefon M.-P. and al.	In France, nine out of ten people live in the catchment area of a city. Insee Focus, 211, 2020
DGT	The essentials of occupational road risk, Ministry of Labour, 2020 edition
Elvik R.	The Power Model of the relationship between speed and road safety: update and new analyses, TØI Report 1034/2009, Institute of Transport Economics TØI, Oslo, 2009.
ETSC	16th Annual Road Safety Performance Index (PIN) Report, June 2022.
ETSC	Buylaert, W. ed. Reducing injuries from post-impact care, Working Party on Post Impact Care, Brussels, 1999.
Levy D. and al.	The economic orientation of employment zones: between specialization and diversification of local economies. Insee First, 1814, 2020
Giraudet P.	White paper on road safety, French documentation, 1989.
Hamada S. and Gauss T	Analysis of victims of accidents on public roads recorded in the Traumabase® from 2011 to 2015, December 2016.
Hours M. *and al.*	Study and monitoring of a population of accident victims (ESPAR cohort - Rhône register), 2014.
IFSTTAR	PAAM project, Pedestrians and adolescents: accidentology and mobility, 2015.
IFSTTAR-INSERM	Phone and road safety, collective expertise, April 2011.
INSEE	Leaving early in the morning, by bicycle…, Insee Première n° 1629, January 2017.
INSERM	CESIR-IV - Combination of Studies on Road Health and Insecurity, phase 4, interim report 2020.
INSERM	Main causes of death of young people and children in 2014.
International Transport Forum (ITF) (OCDE)	*Road safety annual report, 2020*
ITF (OCDE)	Zero fatalities and serious injuries on the roads: leading a paradigm shift towards a safe system, 3 October 2016, P31
ITF (OCDE)	*Speed and Crash risk*, 2018.
Léger D., Ement P.	Drowsiness and accidental risk, La Presse Médicale, 2015.
Marchal A.	Study of bicycle use according to different factors, Cycling cities, 2017
Martin J. L. *and al.*	Update of the main results of the SAM study - Narcotics and Fatal Accidents (ActuSAM), DSR/Ifsttar n° 2200868646, Final report, October 2016.
OCDE	Final Report on the International Harmful Alcohol Policy Simulation Model, 2021.
OFDT	Drugs and addictions, key figures 9th edition, May 2022
WHO	Global status report on road safety, 2019
WHO	*Global status report on road safety, 2018*.

ONISR	*File of traffic offenses - Statistical report for the year 2021, 2022*.
ONISR	*Behavioural Observatory - Results for the year 2021, 2022*.
ONISR	*Speed Observatory - Results for the year 2021, 2022*.
ONISR	National personal accident file, BAAC 2021.
UN	Political declaration resulting from the high-level meeting on improving road safety worldwide, A/RES/76/294, , June 2022
UN	Road Safety Strategy, Safer Journeys Partnership UN, January 2018
ORS New-Aquitaine	The health of apprentices in Nouvelle-Aquitaine - Feelings, attitudes, March 2019.
Page Y. *and al.*	*How safe is vehicle safety? The contribution of vehicle technologies to the reduction in road casualties in France from 2000 to 2010*, Conference AAAM, 2011.
Rabaud M.	Let's talk about rain and shine, 2020, JTD Cerema.
Serre T. *and al.*	EFFIGAM, DSR Convention n°2200792115: Final report, March 2017.
SETRA	Fatal accidents against fixed obstacles, 1999
SETRA	Methodological guide – Road safety audits, August 2012.
SETRA	Methodological guide – ISRI approach, October 2008.
SETRA	Methodological guide – SURE approach, October 2006.
SETRA	Treatment of lateral obstacles on main roads outside urban areas, technical guide, 2002.
STRMTG	2020 Urban Guided Transport Networks Annual Fleet, Traffic and Operating Events Report, 2021.
KANTAR	2020 Auto Park survey, motorized two-wheeler volume, June 2020.
KANTAR	2021 Car Park Survey.
European Union	*European project CAST - Communication campaign on road safety - Manual for the development, implementation and evaluation, 2010*.
UTAC/OTC	Periodic technical inspection of light vehicles - Activity report 2021, 01/2022.
Vélo et territoires	Attendance bulletin N°9, provisional results 2021, January 2022
Vertet M. et Brenac T.	*Roundabouts as road safety developments, Colloquium "La sicurezza stradale", March 1998*.
VINCI	Vinci motorway responsible driving barometer, May 2022
Willinger R. and Deck C.	Summary note on head injuries and their sequelae, TEVU, University of Strasbourg, CNRS, May 2017.
Wu D. and al.	Does a full-face helmet effectively protect against facial injuries? Inj. Epidemiol. 6 1, 19.doi: 10.1186/s40621-019-0197-8., 2019
Wu D. and al.	Effectiveness of protective clothing for motorized 2-wheeler riders. Traffic Inj. Prev. 20 2, 196–203. doi:10.1080/15389588.2018.1545090, 2019

Web list

http://www.bea-tt.developpement-durable.gouv.fr/
https://www.cerema.fr/fr
https://www.certimoov.com/
https://conseilnational-securiteroutiere.fr/
https://etsc.eu/projects/pin/
https://www.insee.fr/fr/accueil
https://www.itf-oecd.org/
https://www.nrso.ntua.gr/
https://www.onisr.securite-routiere.gouv.fr/
https://www.revarrhone.org/
https://www.roadsafety-dss.eu/
https://road-safety.transport.ec.europa.eu/statistics-and-analysis_en
https://www.securite-routiere.gouv.fr/
https://www.statistiques.developpement-durable.gouv.fr/transports
https://surca.univ-gustave-eiffel.fr/
https://ts2.univ-gustave-eiffel.fr/ts2
https://www.who.int/health-topics/road-safety#tab=tab_1

FRENCH

ROAD SAFETY OBSERVATORY

The French Road Safety Observatory (ONISR), interministerial since 1993 and placed with the Interministerial director for road safety, ensures under its statistical missions the collection, formatting, the interpretation and dissemination at national or international level of French statistical data relating to road safety. In addition, ONISR steers the study program founded by the Road Safety Directorate: it directs research and monitors studies, of road accidents as well as the evaluation of the road safety measures taken or envisaged. It ensures the valuation of the results. Each year, the publication of the annual report of accidents in France is a highlight of its activity. The report is intended for an audience of specialists and non-specialists.

This annual report, produced with the support of Cerema, aims at raising awareness on road traffic accidents, understand the favourite factors and highlight the major issues of road safety. This year, the architecture of the report was reworked on the one hand to better include the monitoring of injuries, responsibilities and public policy management indicators at national or local level for the 2021-2030 decade; on the other hand, to present all the factors of road accidents, whether they relate to humans, vehicles or the environment.

This edition, the methodologies of the observatory, certain study reports and research mentioned, as well as tables extracted from the national file, in particular relating to indicators labelled by the French Public Statistics Authority, can be viewed and downloaded online from the observatory's web pages:

https://www.onisr.securite-routiere.gouv.fr/en

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