

WHAT KILLS MOST ON THE ROADS?

NEW ANALYSIS FOR THE NEW TRANSPORT AGENDA

PACTS

PARLIAMENTARY
ADVISORY COUNCIL
FOR TRANSPORT SAFETY



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Responsibility for the contents of the report lies with PACTS.

About PACTS

The Parliamentary Advisory Council for Transport Safety (PACTS) was formed in 1982 by parliamentarians and experts from a range of disciplines who had amended what became the Transport Act 1981 which made seat belt wearing compulsory in Great Britain.

Our vision is *safe transport for all*.

PACTS is the only NGO which combines all the following:

- addresses transport safety (road, rail and air) across the UK;
- focuses on parliament, government and stakeholders;
- provides the secretariat to the All-Party Parliamentary Group for Transport Safety;
- believes strongly in evidence-based policy;
- has no commercial or sectional interests.

PACTS has over 100 member organisations from across the modes and the public, private and third sectors. We welcome new members.

Further details about PACTS can found at <http://www.pacts.org.uk/about/>

This 2nd edition of this report, published December 2020, now includes Figure 10a on page 21.



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Executive Summary

The coronavirus pandemic and the climate crisis have shown the need, the possibility and the public desire to reset the transport agenda. The government has shown strong support for active travel while also spending considerable sums to maintain public transport services.

Making road users safer – and feeling safer – is a crucial part of delivering this new transport agenda.

Traditional analysis emphasises the victims of road collisions, particularly vulnerable road users – pedestrians, cyclists, motorcyclists and horse riders. It can lead to the simple conclusion that these road users are “dangerous” and “the problem” and that road safety relates predominantly to these users.

This analysis by PACTS, of road deaths in Great Britain in 2019, shows the danger associated with different modes of transport and the total deaths involved with travel by each mode. This gives a different picture. It shows that, by distance travelled, vans and light goods vehicles, followed by HGVs, have the highest rate of deaths of *other* road users.

It emphasises that most people who die on the roads do so in cars, or in collisions with cars.

It is already known that, by distance travelled, motorcycles have the highest rates of death. These are predominantly the motorcyclist and 21% involve no other vehicle.

This type of analysis is more in keeping with the road danger reduction strategies being adopted in pursuit of Vision Zero in London and elsewhere. PACTS recommends that the Department for Transport and other lead agencies adopt it in official publications.



Foreword

Barry Sheerman MP, Chair of PACTS



Road safety in the UK has come a long way in the 40 years since I helped to make it compulsory to wear a seat belt in cars. In 1979 over 6,000 people were killed on Britain's roads; in 2019 it was below 2,000. Unfortunately, some take this as "job done". It is not. This level of death plus 30,000 serious injuries is still an unacceptable annual toll for using the roads. As the road safety minister Baroness Vere so honestly said at the Department for Transport's international road safety conference in September last year 2019, *it doesn't always feel safe*. Many road users and bereaved families would go a lot further.

I know that to bring about change we need good research, delivered with passion in a language that connects with people, politicians and pundits. We must not be afraid to talk in plain terms about the dangers on the road and who is affected most.

I know too that today we face multiple challenges, the greatest of which is sustainability – for our communities, our economy and our planet. We must show that road safety and danger reduction are critical to these other agendas and can be integrated with them.

The coronavirus pandemic has had terrible consequences. But it has also shown that change is possible, necessary and desirable. It has reset the policy agenda. I am determined that PACTS will make a major contribution to this new agenda.

A handwritten signature in black ink that reads "Barry Sheerman".

Barry Sheerman MP

Chair, Parliamentary Advisory Council for Transport Safety





1

Introduction

The new transport agenda – the new normal

The Covid-19 pandemic has fundamentally changed the transport agenda, perhaps irreversibly. Promoting healthy, sustainable active travel (walking, cycling and public transport) is now a priority for governments and city mayors in many parts of the world. In the UK, it was important before the pandemic but now there is a far greater imperative, unprecedented government support and public appetite for change.¹ When Covid-19 is defeated, it will remain important because the climate crisis imperative will come to the fore.² The new transport agenda will become the new normal.

Safety – an integral part, not an optional extra

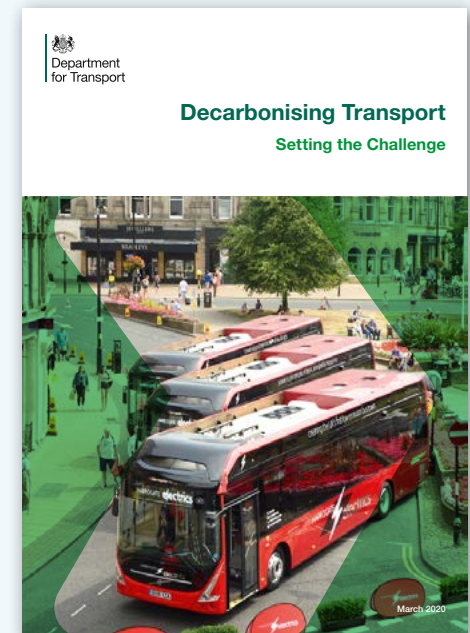
The new transport agenda must also deliver on safety. Safety is crucial to encouraging more people to walk and cycle. Pedestrians and cyclists have not seen the same level of safety benefits that the improved roads and vehicles have delivered for drivers and passengers. The new normal must be safe transport for all.

Active, sustainable transport is a key part of tackling obesity, mental health, air quality, climate change and much more. Safety is therefore integral to these wider agendas.

Safety is also a matter of equity, justice and human rights. The 2020 UN resolution *Improving global road safety*, stated that

- more than 1.35 million people are killed and as many as 50 million injured a year in road traffic collisions globally;
- 90 per cent of these casualties occur in developing countries;
- the poor and the vulnerable are disproportionately affected by road death and injury.³

This is also true in the UK. Those people who live in the most deprived areas are more likely to be killed on the roads than those living in more affluent areas.



Road danger

Whilst the profession will talk about “road safety”, the public and the media are more inclined to talk about “dangerous” driving, vehicles or junctions. Road users, particularly vulnerable road users, are well aware of the dangers they face. However, “road danger” is a term that the road safety profession has been reluctant to embrace, perhaps because it can be ambiguous and perhaps fearing that it implies judgement or blame. The profession has preferred to talk of road safety, casualty rates and vulnerability. This may also reflect differences in approach and focus.

Dr Robert Davis⁴ and others have long sought to distinguish those activities which are “hazardous” (risking death/injury to the user) from those which are “dangerous” (risking danger to others). Some activity may be both. They argue that the thrust of policy should be to reduce danger at source. Those promoting active travel know full-well that, if more people are to take up walking and cycling, danger needs to be reduced so that people feel safe. This is not simply a matter of casualty statistics.

This type of thinking is becoming more mainstream.

- The London mayor has adopted a Vision Zero action plan to eliminate all deaths and serious injuries in London’s transport system. Transport for London is implementing this through a road danger reduction strategy.⁵ It is part of the Mayor’s Transport Strategy which also aims to substantially increase active travel while reducing private car use.
- The safe system is now international best practice in road safety. At its heart is the recognition of human frailty and the principle that the system should be designed to eliminate the possibility of death or life-changing injury. A key component of the safe system is to set and monitor indicators, such as compliance with safe speeds.⁶ In many respects, it is consistent with a road danger reduction approach.

Warning – dangerous terminology

Terminology in this area can be confusing and sometimes contentious.

- **Casualty rate:** user casualties normalised by exposure (eg distance travelled);
- **Casualty risk:** user casualties normalised by population;
- **Danger:** danger to others but sometimes confused with vulnerability;
- **Aggressivity:** likely harm to others – used in vehicle safety tests;
- **Other vehicle involved:** avoids judgement – widely used in road safety profession;
- **Third party casualty:** the other road user injured - mainly an insurance term.

This report

Delivering safety for all means looking at the whole picture – not only the vulnerability of particular road user groups but also the dangers posed by some vehicle types to other road users. It is the overall safety of the system that matters, not just some individual parts.

The aim of this report is to show the total casualties associated with each major travel mode and the level of danger imposed on other road users. This is a complementary analysis to the conventional presentation of road casualty data where this information is not easily found. We are not suggesting that conventional analysis is wrong but that it does not tell the whole picture and may sometimes be misinterpreted. We hope that the Department for Transport and others will adopt this type of analysis into mainstream analysis and reporting.

Using the official road casualty statistics, those reported by the police for Great Britain in 2019 and published as National Statistics by the Department for Transport,⁷ we analyse them to show “What kills whom” – in absolute numbers, in relation to distance travelled and other criteria.

The results are a reflection of vehicle speed, weight, protection, human tolerance and other factors. They do not imply liability, blame or responsibility. Beyond this simple physics, we do not attempt to explain the results. The underlying reasons for particular levels of casualties or rates are many and complex.

We have analysed the data for road deaths. This is because deaths are the cause of most concern, the records are most reliable, and the information is most likely to be complete. It would be possible to do similar analysis on data for non-fatal casualties. The conclusions would probably be similar.

User groups – more terminology

Pedestrians, cyclists and other active/vulnerable/sustainable road users are described in various overlapping but not synonymous groups. Different terminology applies in different contexts.

- **Vulnerable road users:** pedestrians, pedal cyclists, horse riders and similar road users. It may include motorcyclists as they have limited physical protection in the event of a collision. There is good case for including moped riders etc. (under 50cc). Riders of larger motorcycles are vulnerable but also present a danger to others.
- **Non-motorised users:** pedestrians, pedal cyclists, horse riders, etc.
- **Active travel:** pedestrians and pedal cyclists (including electrically-assisted pedal cycles). There is a good case for including public transport as these trips nearly always involve walking or cycling at one or both trip ends. (Flying can also involve considerable walking at airports, but that would not be included!)
- **Sustainable mobility:** a looser term – walking, cycling and public transport would be included
- **Micro-mobility:** a new, generic term referring to lightweight, low-powered wheeled vehicles, including e-scooters.



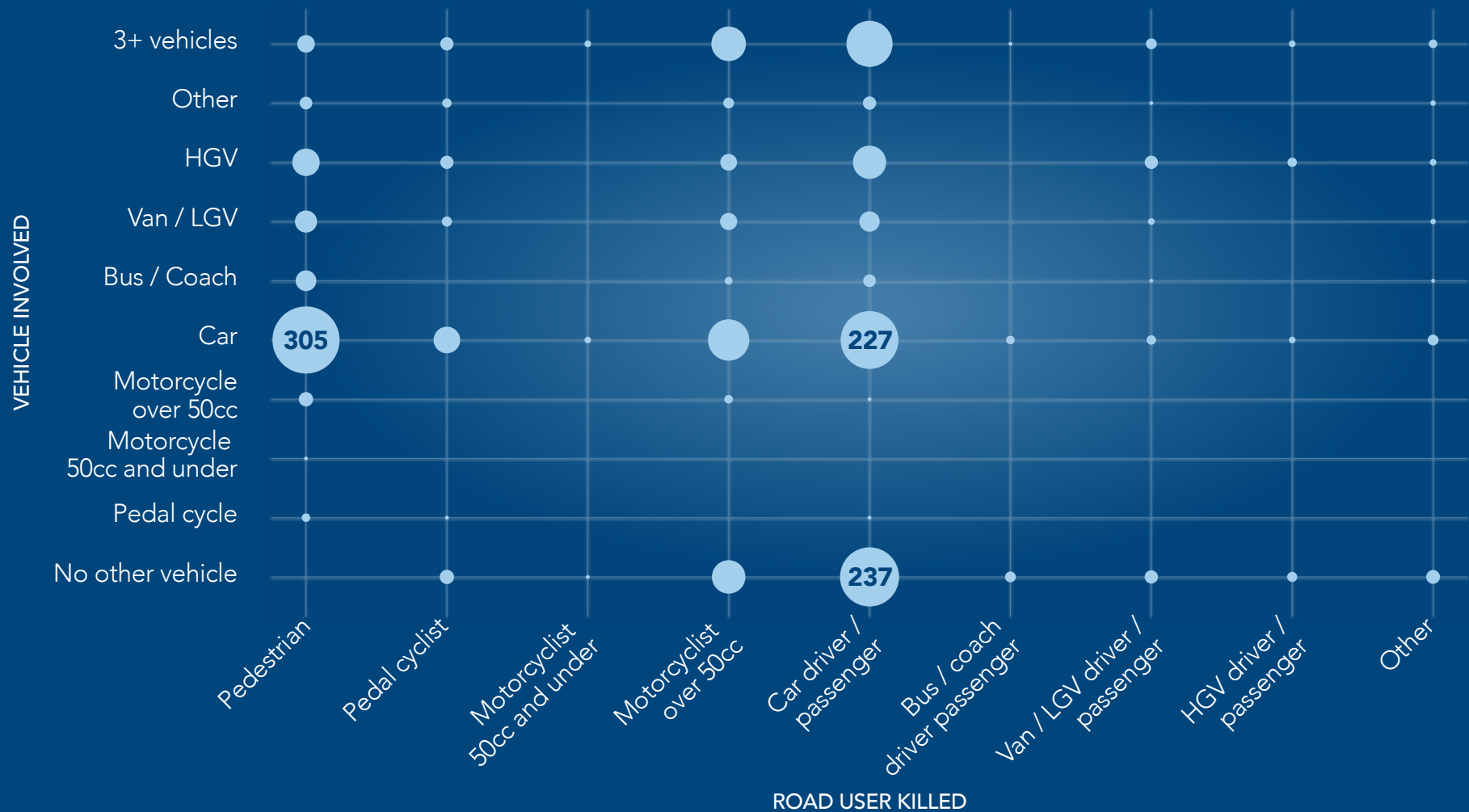
2 A new analysis of road casualty data

FIGURE 1

What kills whom

Deaths by **road user** and **vehicle involved**

- Cars are by far the mode most frequently involved in fatal collisions
- More people are killed in car-pedestrian (305), car-car (227), single car (237), and cars in 3+ vehicle collisions than in any other collision types



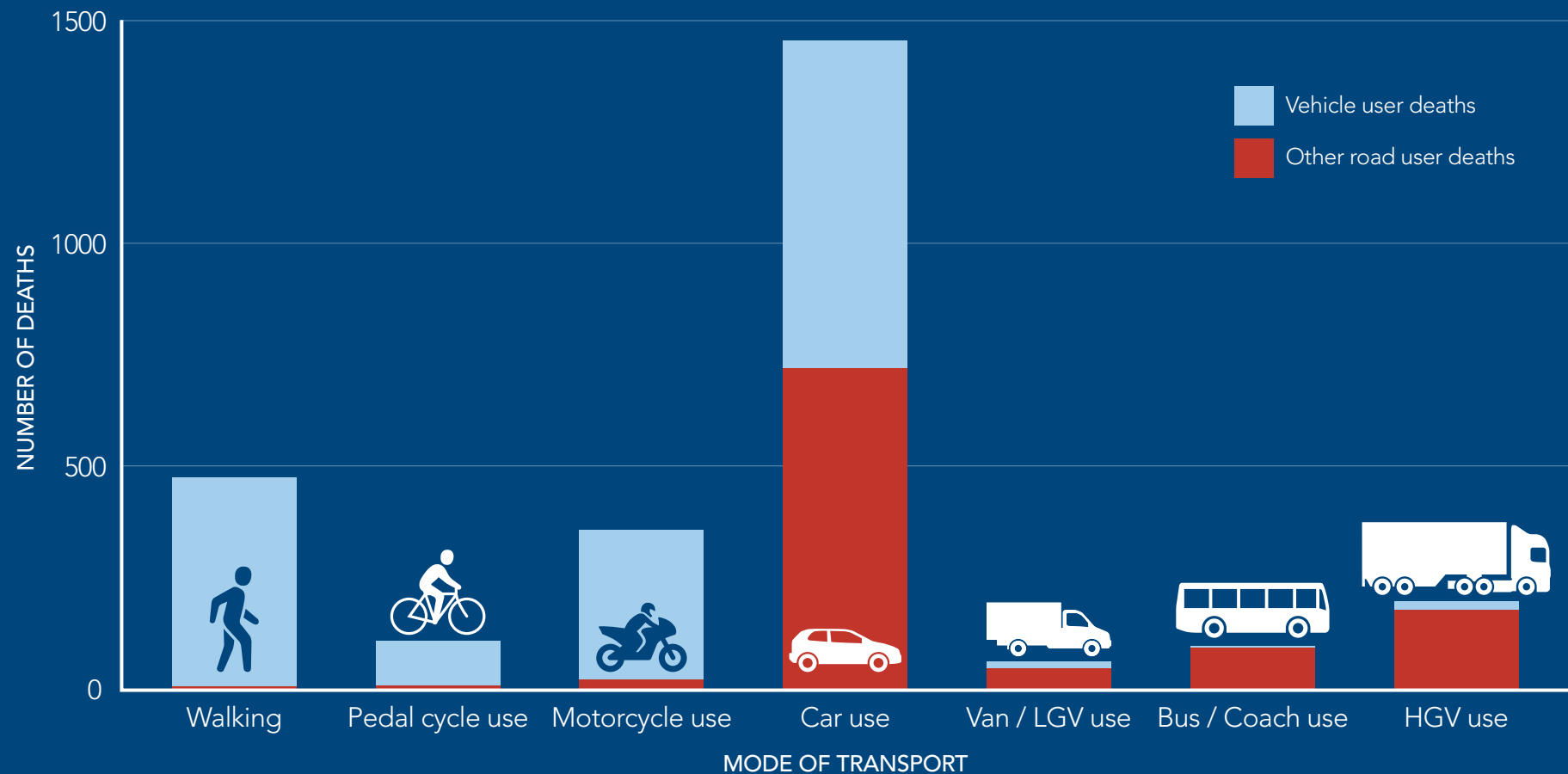
Source: Road deaths in Great Britain in 2019 (DfT, 2020)

FIGURE 2

Total deaths involved in each mode of transport

All deaths involved with each mode, showing **vehicle user deaths** and **other road user deaths**

- Figure 2 shows how the deaths associated with each mode are split between the user and other road users
- The majority of road deaths involving HGVs, buses/coaches and vans are deaths of other road users
- Most deaths associated with walking, cycling or motorcycling are of the pedestrians or riders themselves



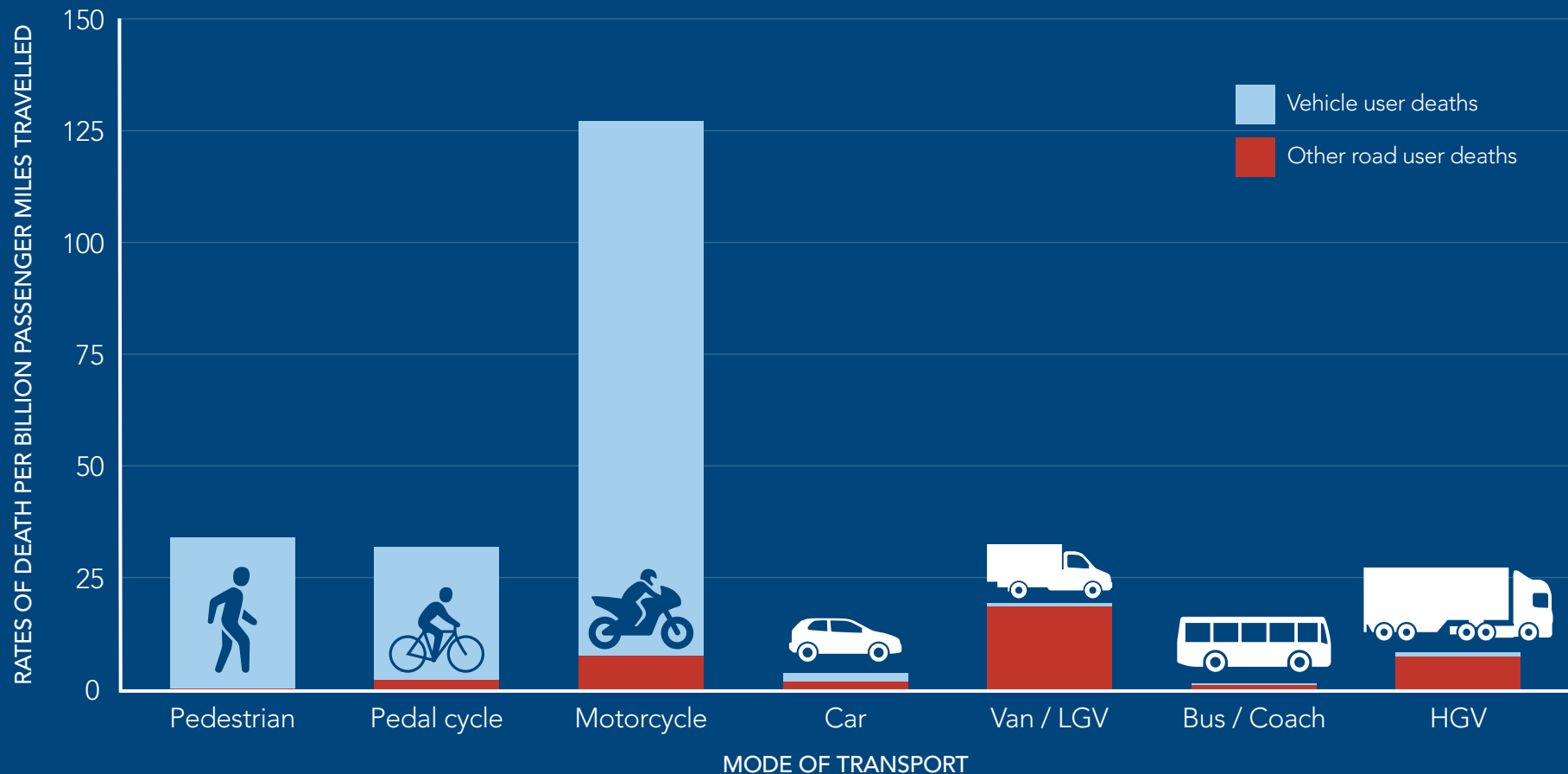
Source: Road deaths in Great Britain in 2019 (DfT, 2020)

FIGURE 3

Total deaths involved in each mode of transport by distance travelled

All deaths by mode **per billion passenger miles travelled** (vehicle user and other road user deaths)

- Figure 3 also shows the risks to the user and to others, but relative to distance travelled
- Motorcyclists are very vulnerable; per mile travelled they are also relatively dangerous for pedestrians
- Vans/LGVs and HGVs stand out as most dangerous to other road users – see Figure 4



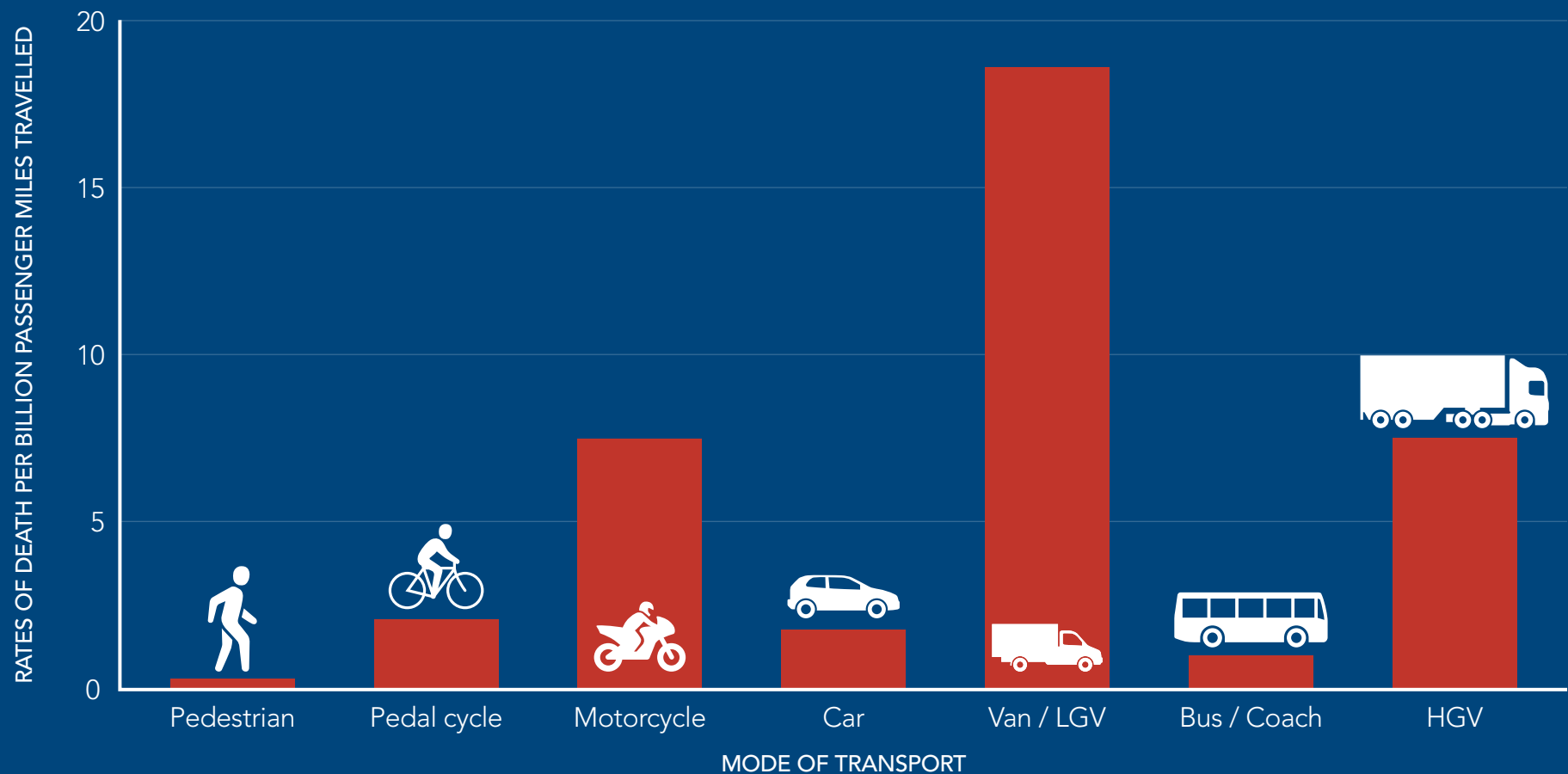
Source: Road deaths in Great Britain in 2019 (DfT, 2020)

FIGURE 4

The risks to other road users from each mode, by distance travelled

Rates of road user death, by **other vehicle involved**, per billion passenger miles travelled

- Figure 4 shows only the deaths of other road users
- Vans have the highest rate of other road user deaths per mile travelled.
- HGVs are the second most dangerous vehicle type for other road users, per mile travelled



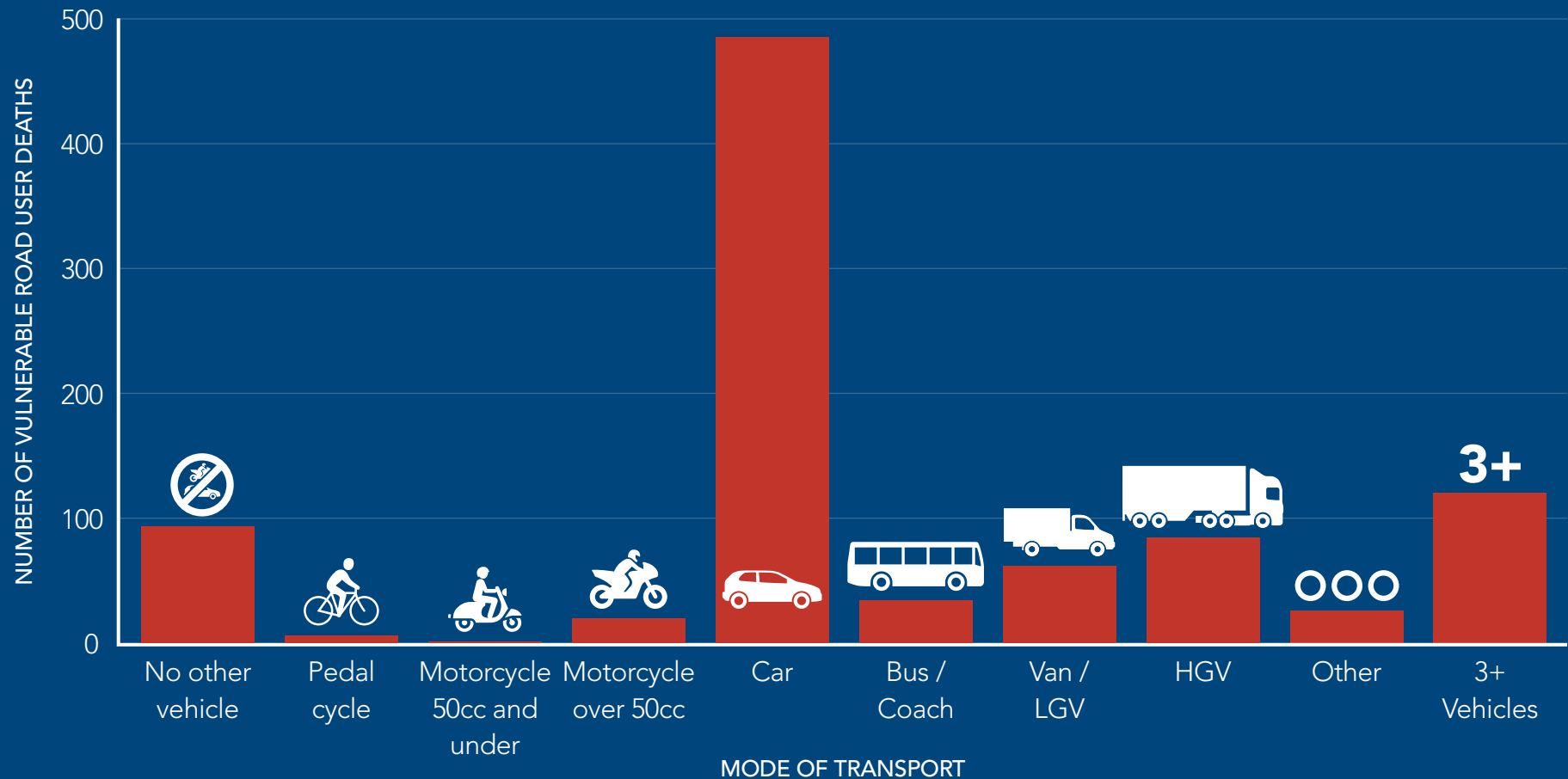
Source: Road deaths in Great Britain in 2019 (DfT, 2020)

FIGURE 5

What kills vulnerable road users

Number of **pedestrians, cyclists** and **motorcyclists** killed, by other vehicle involved

- Cars are involved in the majority of vulnerable road user deaths
- 3+ vehicle collisions, single vehicle collisions and collisions with HGVs are also involved in a large number of vulnerable road user deaths
- Very few vulnerable road user deaths resulted from collisions with pedal cycles or motorcycles 50cc and under



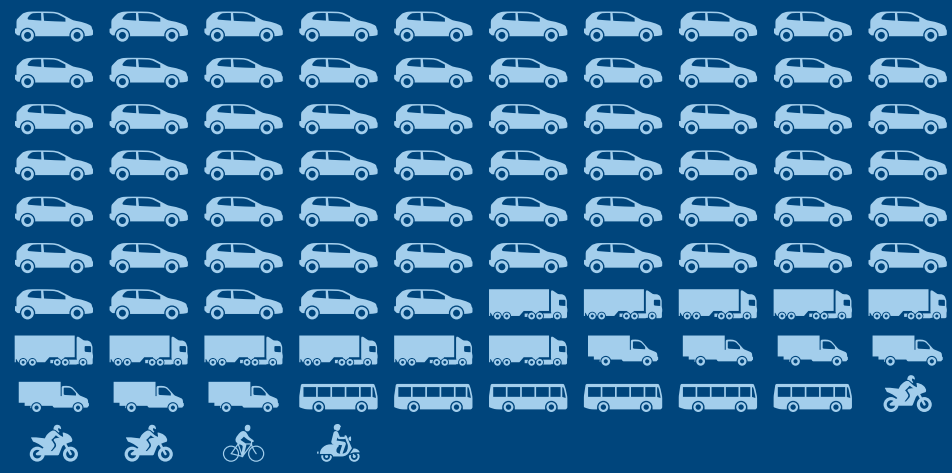
Source: Road deaths in Great Britain in 2019 (DfT, 2020)

- Cars were involved in the vast majority of pedestrian deaths in 2019
- HGVs were involved in the second highest number of collisions in which pedestrians were killed
- Pedal cyclists and small motorcycles were involved in very few collisions where pedestrians were killed

FIGURE 6

What kills pedestrians

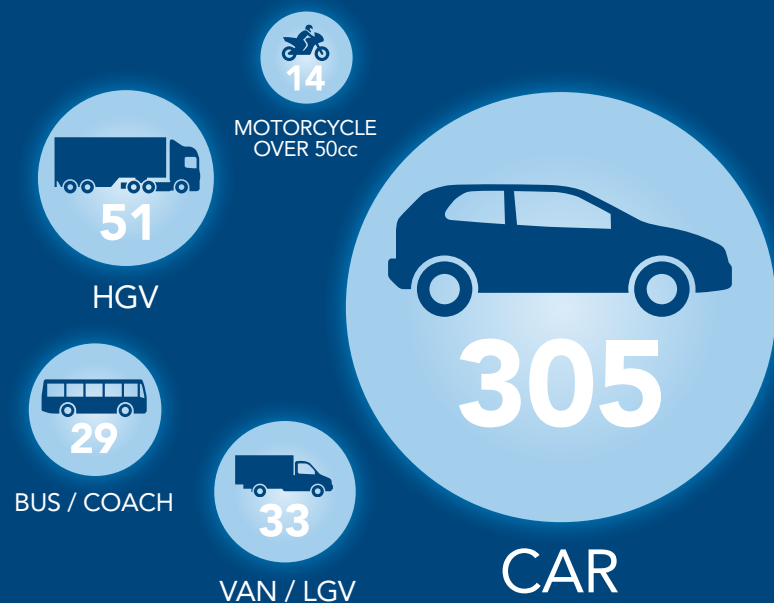
In **every 100 crashes** where a pedestrian is killed, the **other vehicle involved** was a



2% involve other vehicles not included above

4% involved 3 or more vehicles

Number of deaths in 2019



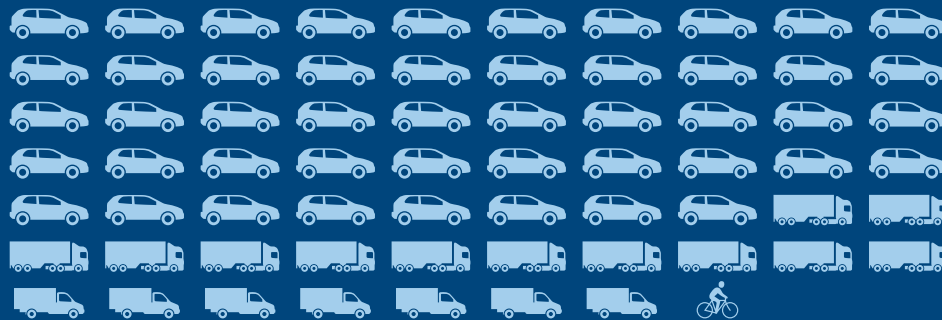
Source: Road deaths in Great Britain in 2019 (DfT, 2020)

- Cars were involved in at least half of the pedal cyclist deaths in 2019
- HGVs were involved in the second highest number of collisions in which a pedal cyclist was killed
- 14% of pedal cyclist deaths involved no other vehicle

FIGURE 7

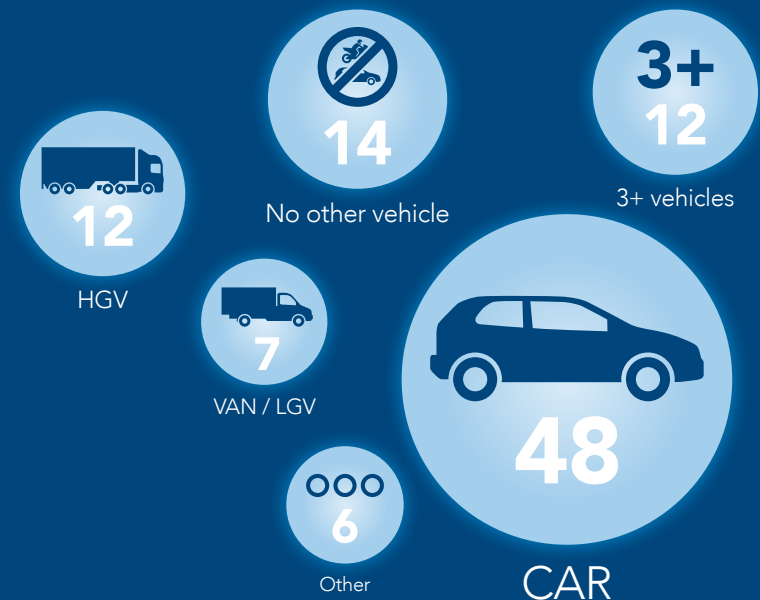
What kills cyclists

In **every 100 crashes** where a cyclist is killed, the **other vehicle involved** was a



- 14% involve no other vehicle
- 6% involve other vehicles not included above
- 12% involved 3 or more vehicles

Number of deaths in 2019



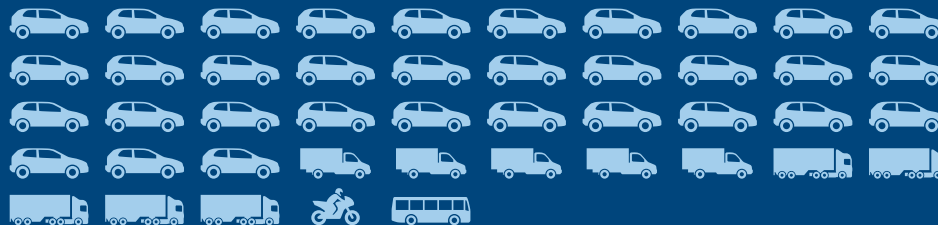
Source: Road deaths in Great Britain in 2019 (DfT, 2020)

- More cars are involved in collisions in which motorcyclists are killed than any other single vehicle type
- 21% of motorcyclist deaths involve no other vehicle (77 deaths in 2019)

FIGURE 8

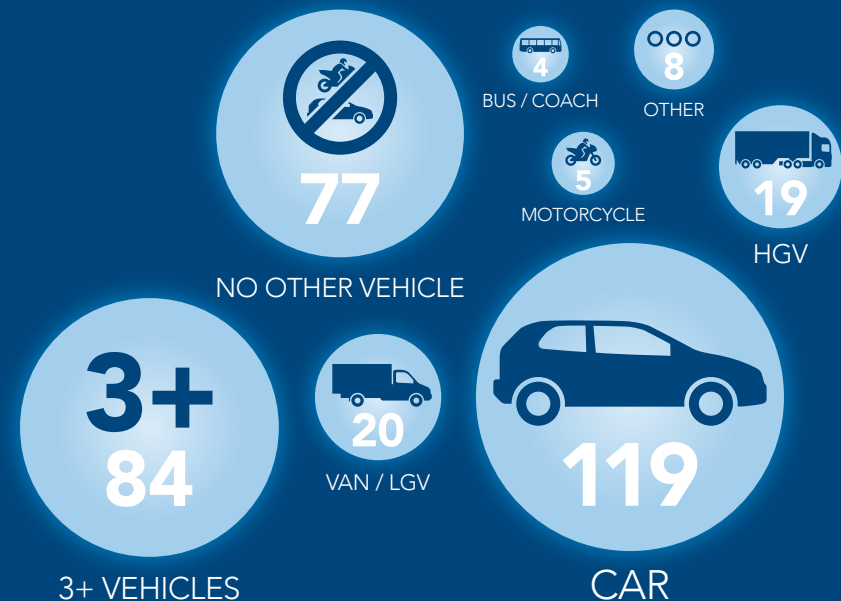
What kills motorcyclists

In **every 100 crashes** where a motorcyclist is killed, the **other vehicle involved** was a



- 21% involve no other vehicle
- 2% involve other vehicles not included above
- 23% involved 3 or more vehicles

Number of deaths in 2019

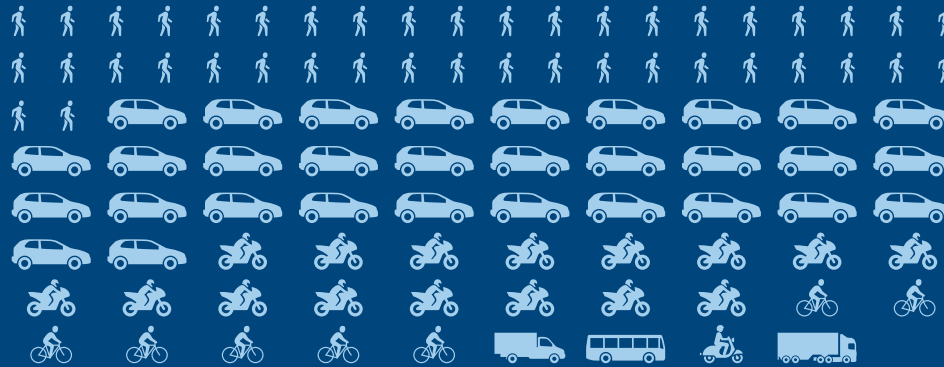


Source: Road deaths in Great Britain in 2019 (DfT, 2020)

FIGURE 9

Who is killed by cars?

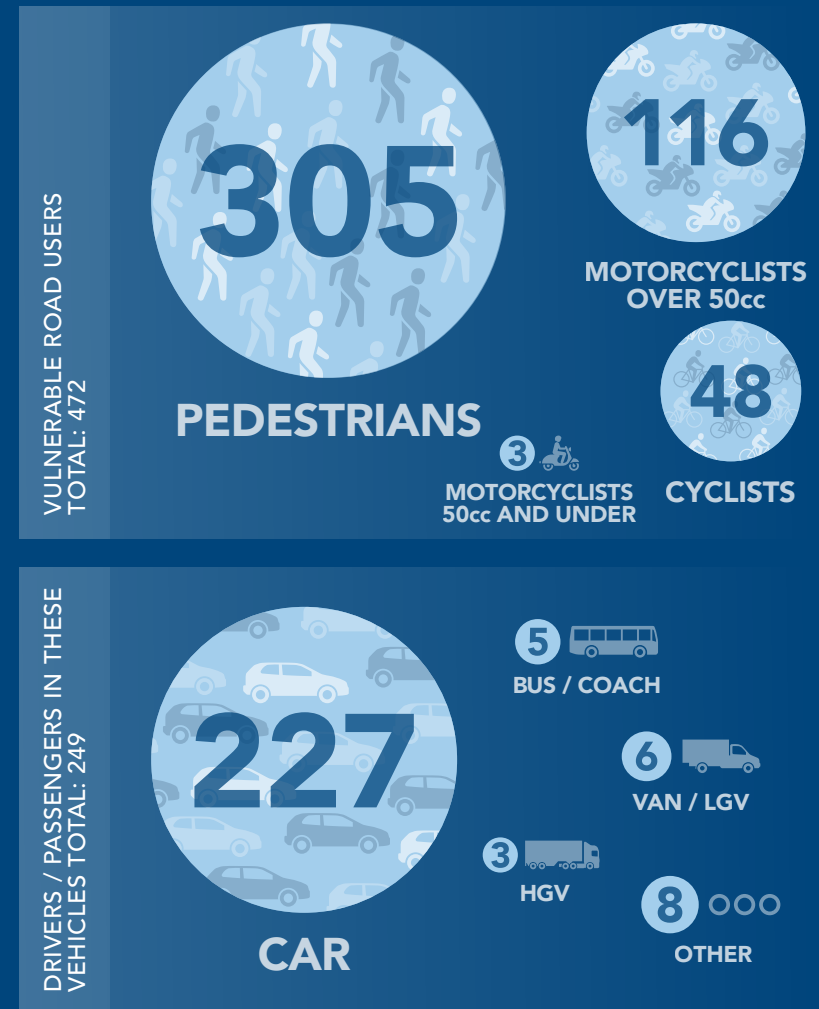
In **every 100 crashes** those who were killed by a car were **travelling by**



1% occupant in other mode of transport

- More pedestrians were killed in collisions with cars than any other road user
- Other car drivers/passengers are the second largest group killed in collisions with cars
- Very few HGV, Van/LGV and Bus/Coach drivers and passengers are killed in collisions with cars

Number of deaths in 2019

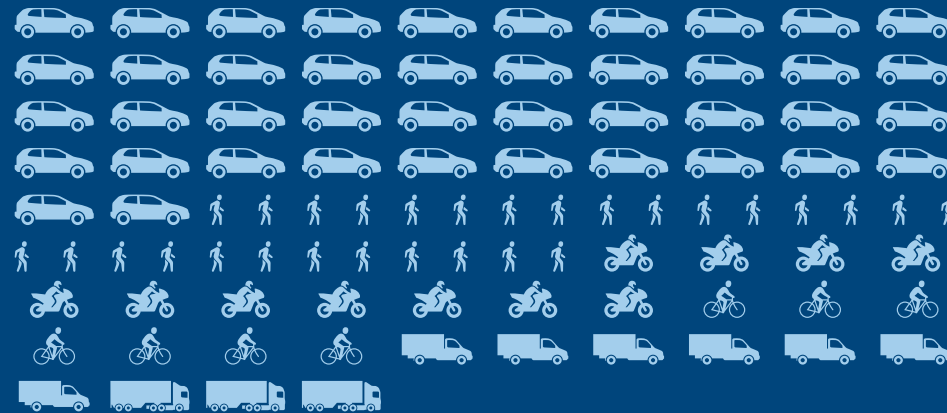


Source: Road deaths in Great Britain in 2019 (DfT, 2020)

FIGURE 10

Who is killed by HGVs?

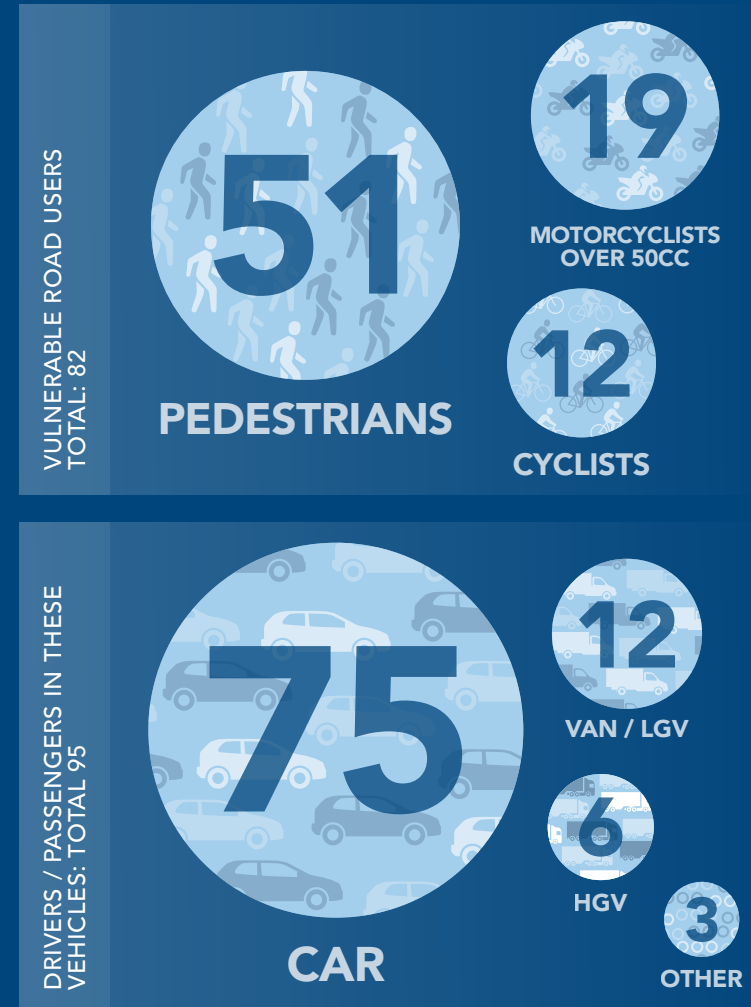
In **every 100 crashes** those who were killed by an HGV were **travelling by**



2% occupant in other mode of transport

- Car drivers/passengers were the road user type most often killed in collisions involving HGVs
- Pedestrians are the second largest group who are killed in collisions with HGVs
- Far more pedestrians, motorcycle riders and car drivers/passenger are killed in collisions with HGVs than cyclists

Number of deaths in 2019

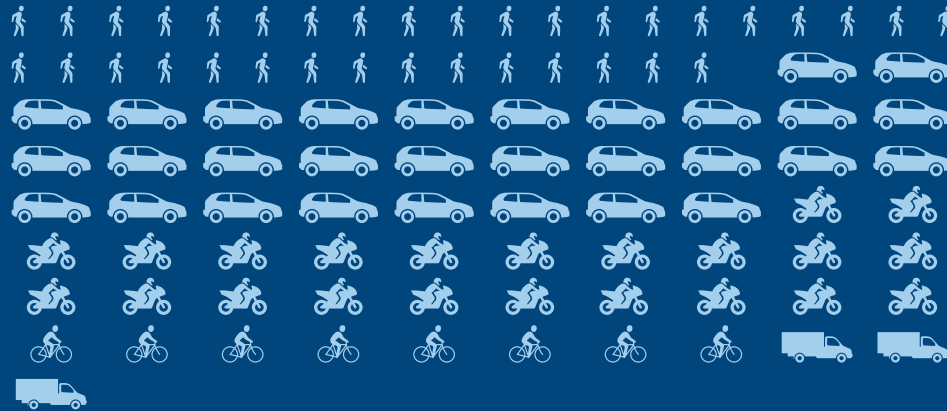


Source: Road deaths in Great Britain in 2019 (DfT, 2020)

FIGURE 10a

Who is killed by vans?

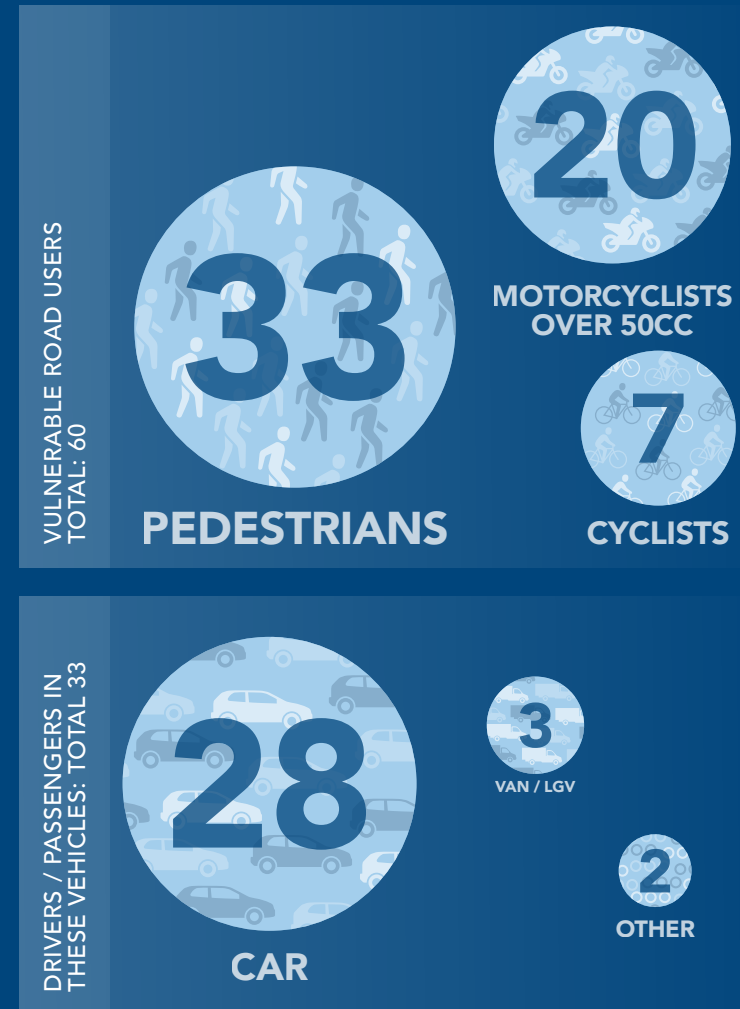
In **every 100 crashes** those who were killed by a van were **travelling by**



2% occupant in other mode of transport

- More pedestrians were killed in collisions with vans than any other road user group.
- Nearly two thirds (64%) of those killed by vans were vulnerable road users.

Number of deaths in 2019



Source: Road deaths in Great Britain in 2019 (DfT, 2020)

TABLE 1

Road users killed, by other vehicle involved (number and percentage)

	OTHER VEHICLE INVOLVED										Total
	No Other Vehicle	Pedal cycle	Motorcycle 50cc and under	Motorcycle over 50cc	Car	Bus/Coach	Van/LGV	HGV	Other	3+ vehicles	
Pedestrian	0 (0%)	5 (1%)	1 (0%)	14 (3%)	305 (65%)	29 (6%)	33 (7%)	51 (11%)	11 (2%)	21 (4%)	470 (100%)
Pedal cyclist	14 (14%)	1 (1%)	0 (0%)	0 (0%)	48 (48%)	0 (0%)	7 (7%)	12 (12%)	6 (6%)	12 (12%)	100 (100%)
Motorcyclist 50cc and under	1 (14%)	0 (0%)	0 (0%)	0 (0%)	3 (43%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (43%)	7 (100%)
Motorcyclist over 50cc	76 (23%)	0 (0%)	0 (0%)	5 (2%)	116 (35%)	4 (1%)	20 (6%)	19 (6%)	8 (2%)	81 (25%)	329 (100%)
Car driver/passenger	237 (32%)	1 (0%)	0 (0%)	1 (0%)	227 (31%)	11 (1%)	28 (4%)	75 (10%)	12 (2%)	144 (20%)	736 (100%)
Bus/Coach driver/passenger	8 (57%)	0 (0%)	0 (0%)	0 (0%)	5 (36%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (7%)	14 (100%)
Van/LGV driver/passenger	12 (28%)	0 (0%)	0 (0%)	0 (0%)	6 (14%)	1 (2%)	3 (7%)	12 (28%)	1 (2%)	8 (19%)	43 (100%)
HGV driver/passenger	7 (37%)	0 (0%)	0 (0%)	0 (0%)	3 (16%)	0 (0%)	0 (0%)	6 (32%)	0 (0%)	3 (16%)	19 (100%)
Other	13 (38%)	0 (0%)	0 (0%)	0 (0%)	8 (24%)	1 (3%)	2 (6%)	3 (9%)	2 (6%)	5 (15%)	34 (100%)
Total	368 (21%)	7 (0%)	1 (0%)	20 (1%)	721 (41%)	46 (3%)	93 (5%)	178 (10%)	40 (2%)	278 (16%)	1,752 (100%)
Vulnerable Road Users	91 (10%)	6 (1%)	1 (0%)	19 (2%)	472 (52%)	33 (4%)	60 (7%)	82 (9%)	25 (3%)	117 (13%)	906 (100%)

Key Statistics and Conclusions

These figures and tables analyse reported road deaths in Great Britain in 2019 in relation to who was killed, whether this was the vehicle user or another road user, and the vehicles involved. The aim is to distinguish vulnerability from danger.

Cars are the mode by far the most frequently involved in fatal collisions:

- There were 736 collisions where a car driver/passenger was killed and 721 collisions where the car was the 'other vehicle' in a fatal collision.
- Cars are also likely to be involved in a significant proportion of multiple ('3+') vehicle collisions.

Pedestrians and cyclists, sometimes viewed as "unsafe", pose very little risk to other road users. In fatal collisions between motor vehicles and pedestrians or cyclists, it is almost always the pedestrian or the cyclist who dies, not the occupants of the motor vehicle. There were 3 people in motorised vehicles killed in collisions with pedestrians and cyclists in 2019. By contrast, 517 pedestrians and cyclists were killed by motorised vehicles.

By contrast, some modes which may be seen as comparatively 'safe' to travel in, are disproportionately dangerous to other road users relative to passenger miles travelled:

- Vans/LGVs are the other vehicle in 10 times more collisions than cars or pedestrians, (18.6 collisions per billion passenger miles travelled, compared to 1.8 and 0.3 respectively). Motorcycles are not only the most vulnerable road user but also the third most dangerous vehicle type (119.7 vehicle user deaths and 7.5 other road user deaths, per billion passenger miles travelled).
- Buses and coaches are the safest mode for users and the second least dangerous mode for other road users, per passenger miles travelled, (0.3 vehicle user deaths and 1 other road user death per billion passenger miles travelled).



Cars are involved in the majority of vulnerable road user deaths (472). HGVs are also involved in a large number of vulnerable road user deaths (82). Small motorcycles (50cc and under) are involved in very few vulnerable road user deaths (1).

While HGV/cyclist collisions receive a significant amount of media attention, HGVs are involved in almost five times the number of pedestrian deaths than cyclist deaths (51 compared to 12).

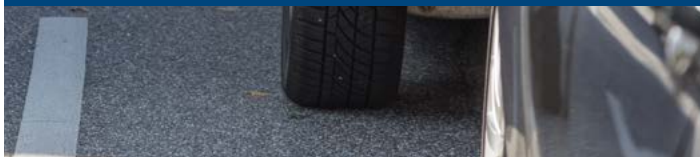
Cars were involved in 305 (65%) pedestrian deaths, 227 (31%) car user deaths (not including single vehicle collisions) and 119 (43%) motorcyclist deaths. HGVs were involved in 75 car user deaths, 51 pedestrian deaths and 19 motorcyclist deaths. Dangerous motorised vehicles are involved in a very high number of collisions in which road users who pose little danger to other road users are killed.





3

Are rates rubbish?



Always use appropriately

The Department for Transport notes that “there are two key ways of looking at casualty numbers, in terms of absolute counts or in terms of rates taking into account distance travelled.” Rates show casualties in relation to the level of exposure. Rates per trip, per hour of exposure or per head of population may also be insightful – when the data are available.

UK transport ministers often preface road safety speeches with the statement that our roads are among the safest in the world. This is based on a comparison of international rates of road deaths per billion population.⁸

The Global Burden of Disease study assesses the risk of death from road traffic and other major causes. It enables comparisons between countries age groups. Globally, it shows that road traffic injury is the leading cause of death for young people in the 5-29 years age group⁹

As with any statistic, they need to be used appropriately.

Some rates are useful

Casualty rates can be helpful in considering the safety of a particular mode. For example,

- Are there differences in motorcyclist casualty rates in different areas, by speed limits, or road types etc.?
- Has motorcycling become safer or less safe over time?

Figure 11 show that, over this period, safety has improved for all road users, but to a greater extent for car occupants.

These data (but not the graph) can be found in *Reported Road Casualties Great Britain, Annual Report: 2019*, table RAS30013 Reported casualty rates by road user type and severity, Great Britain, 2009 – 2019 – p132.

Safe or unsafe?

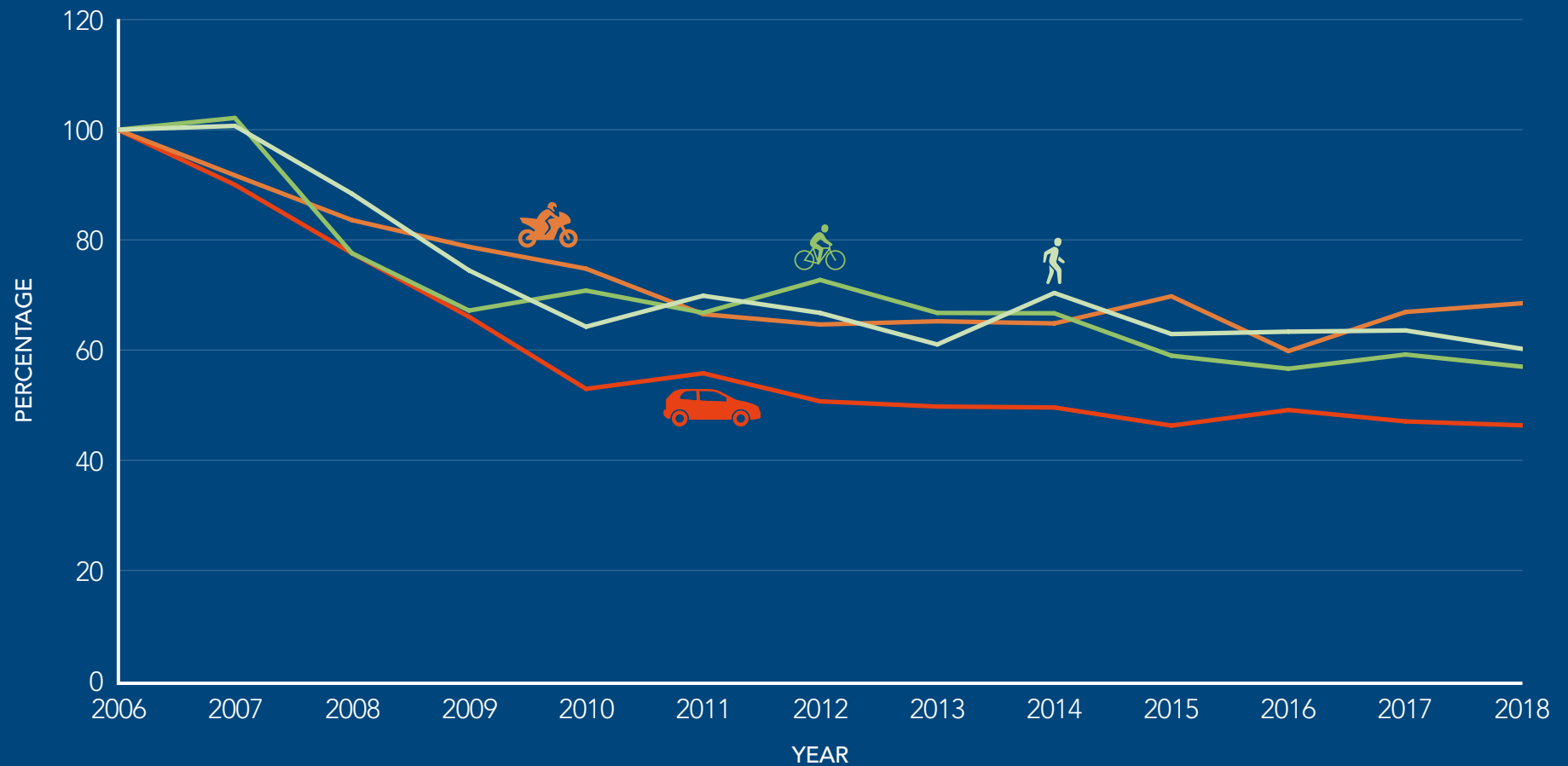
The USA Space Shuttle is the mode of transport with the *lowest rate of deaths per billion miles travelled*; it is also the mode with the *highest rate of deaths per trip*.



FIGURE 11

Which modes have got safer fastest?

Deaths by mode, **per billion passenger kilometres**, indexed to 2006



Source: Road deaths in Great Britain in 2019 (DfT, 2020)

While some rates are open to misinterpretation

Comparisons *between* modes, however, need to be made with care to avoid comparing “apples and oranges”. It is questionable just how valid or useful it is to compare casualty rates for very different road user groups, particularly comparisons between motorised and non-motorised groups.

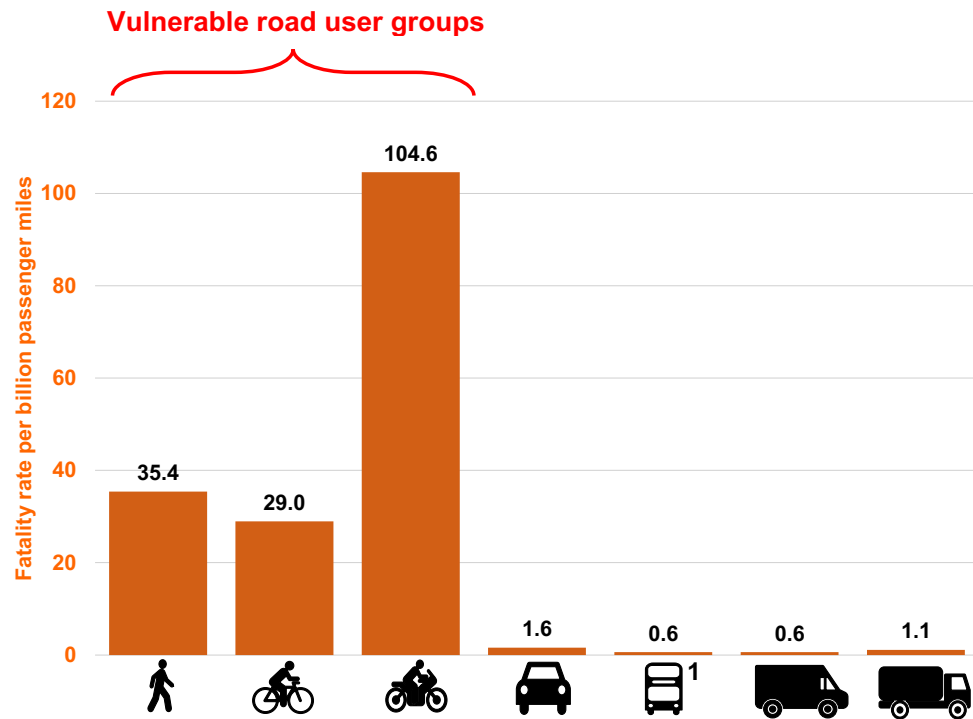
There are a number of reasons for caution:

- The trip lengths and total mileage travelled are very different for motorised and non-motorised groups. As such, the casualty rate may be a poor indicator of the overall risk faced by the user.
- In many cases there will be little interchangeability between the modes: an HGV driver is unlikely to make his trip on foot; and only a minority of car drivers own a motorcycle.
- Where one mode is swapped for another, the trip destination and distance may change.¹⁰ A 40-mile shopping trip by car is more likely to be swapped for a much shorter cycle trip to the local shops.

Comparison of casualty rates across the modes is a prominent feature of the DfT’s reporting. We reproduce one of the main figures below.



Chart 7: Fatality rate per billion passenger miles by road user type: GB, 2019



Source: [DfT, RRCGB Annual Report 2019](#).

Chart 7 sends a message – at least to the lay reader – that walking and cycling are much more “dangerous” than travel by car etc. It also gives the impression that cars, vans and HGVs are safe and not relevant to the safety problem. The rate of total fatalities associated with each mode gives a quite different message, as we have shown earlier.

This is problematic, both for road safety and for transport planning. It can too easily lead to the conclusion that an increase in walking and cycling will lead to a disproportionate increase in casualties and therefore should not be encouraged.



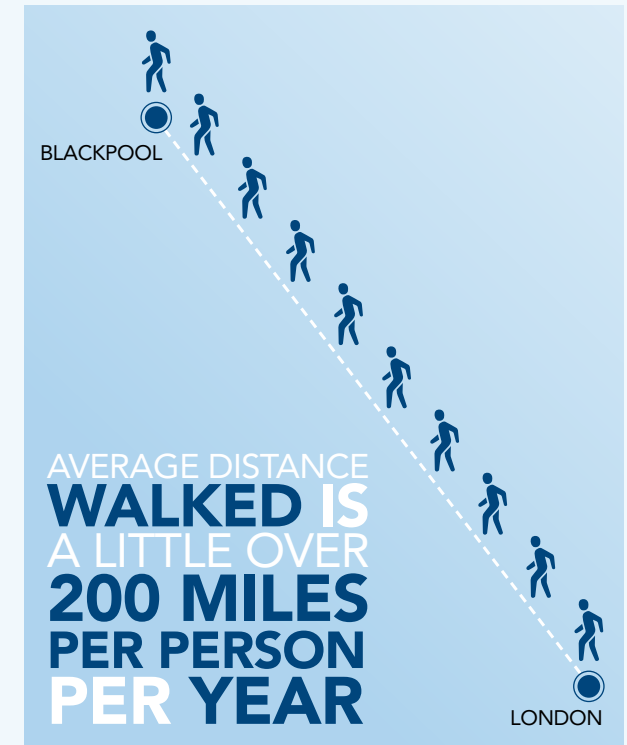
Does more walking and cycling mean more casualties?

There is no question that safety for pedestrians and cyclists should be greatly improved. However, PACTS does not believe that realistic increases in walking and cycling will have a significant impact on overall fatality numbers. Experience shows:

- The scale of modal shift, in mileage terms, is likely to be quite small. The typical car driver is not going to switch 5,000 miles a year by car for 5,000 miles on a bike or on foot. Short trips might be swapped but where the switch is for a longer car trip, it is likely that the trip on foot or by cycle will be a much shorter than the previous car trip.
- The National Travel Survey shows that, over the past fifteen years, the average distance walked has remained broadly stable at a little over 200 miles per person per year.¹¹ Despite the increase in the UK population, the number of pedestrian fatalities has fallen during this period by around one third.
- To one degree or another, central government and local authorities have been promoting cycling for decades while also attempting to improve safety for cyclists.¹² Over this period cycling has increased marginally while fatalities have gone down. There were 99 cyclist fatalities in Great Britain in 2018 – the lowest number on record.¹³
- Over the past decade, cycling in the UK has probably increased most in London where cyclist fatalities have been reduced to single figures – five in 2019.¹⁴ TfL has invested considerably in policies and infrastructure to improve cyclist safety, but much remains to be done.

We have already shown that pedestrians and cyclists rarely kill other road users whereas, unfortunately, motor vehicles do, in large numbers.

“As cities promote walking and cycling, one might wonder if such a modal shift could have negative consequences in terms of casualty numbers. ... people walking and cycling are about ten times as likely as car occupants to be killed in traffic, for a given distance travelled. Yet in dense urban areas, once the risk of killing third parties is fully taken into account, the relative risk of various transport modes is fundamentally different.”¹⁵



Reported Road Casualties Great Britain: 2019 Annual Report

Moving Britain Ahead



September 2020

4 For the anoraks

UK road casualty data

Good data and analysis are essential to understanding any public policy issue.

The UK has some of the most complete and robust road collision and casualty data of any country, stretching back over many years. As more police forces switch from STATS19 to the CRaSH reporting system, the records should improve further.

The full results for the previous year are published annually in September by the Department for Transport in *Reported Road Casualties Great Britain*. This is a detailed (300+ page) publication of tables, graphs and analysis, which qualifies as National Statistics. Data for Northern Ireland are published separately by the Police Service Northern Ireland.

DfT statisticians have improved its content and presentation considerably over recent years, for example, by adding statistical significance testing, checking the police data against other casualty data sets, assessing the impact of weather on casualty numbers and introducing new graphics and factsheets.

There are limitations to the data; for example, it relies largely on road users to report collisions to the police so inevitably there is underreporting. These limitations are well known and acknowledged in the Department for Transport's annual report *Reported Road Casualties Great Britain*. In spite of these limitations, it remains a comprehensive and vital basis for decisions on policy and practice.

The missing analysis

Despite its strengths, the annual report from the DfT does not provide sufficient analysis to help those delivering road danger reduction or active travel agendas. The data are there, but not clearly presented. In particular,

- It does not distinguish vulnerability from danger.
- It does not clearly convey that UK road users are much more likely to be killed in a car, or by a car, than any other mode.
- There is no presentation of total fatalities by mode, as we have done in this report.



- DfT's Chart 7 highlights vulnerable road user fatalities and is shown prominently in the main report and summary. It is repeated in a table (RAS30070 at p196) with the title "Relative risk of different forms of transport" and with more details in Table RAS30013 (p132).
- By contrast, there is only table (RAS40004 on p202) which shows casualties and the "combinations of vehicles involved". Although detailed, it is not a simple table to interpret. RAS10012 provides the similar information for pedestrians and single vehicles only.

We are not suggesting that the analysis is in any way incorrect. Rather that additional analysis of data already collected would provide a more balanced and helpful picture.

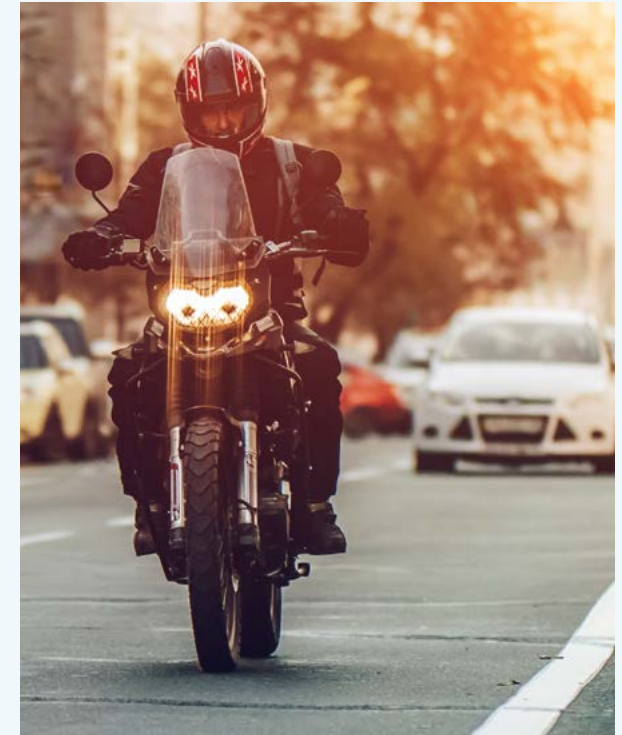
Some others have also recognised the need for additional analysis.

"Most analysis of road injuries examines the risk experienced by people using different modes of transport... A small but growing field analyses the impact that the use of different transport modes has on other road users." Their paper provides a detailed analysis of risks posed to others in terms of different vehicle modes, road types and sex.¹⁶

Data limitations

In relation to understanding the safety aspects of active travel and to road safety operations there are some additional limitations.

- Pedestrian falls are not reportable within the STATS19/CRaSH system, where no road vehicle was involved in the incident.
- For various reasons, including delays in reporting by the police and the need to meet the standards for National Statistics, the results are not released until nine months after the year end. Some data take even longer. In terms of impact, and for some purposes, this is unhelpful. For example, the lack of UK data on road casualties during the spring 2020 coronavirus lockdown meant that this demand on the NHS could not be monitored. Other countries produce results more quickly. Australia, for example, publishes within two months. More immediate, interim data may be sufficient for these purposes.



- There appears to be a rapid growth in micro-mobility vehicles – e-scooters, electric “bicycles” (distinct from electrically assisted pedal cycles), motorised skateboards etc. Most of these are currently illegal to use on UK roads but some may be legalised in future. Even where casualties are reported, they cannot be identified in the data currently. As they may have quite different safety characteristics, more differentiation would be helpful.





5

Conclusions and recommendations



Conclusions

There has been very little reduction in UK road deaths or serious casualties since 2010 when national targets for casualty reduction were abandoned. The UK government needs to step up its ambition and actions in line with its recent endorsement of the UN resolution *Improving global road safety*, and the target to reduce global road deaths by 50% by 2030.

Improving safety is important not only in its own right but also in relation to delivering other agendas, particularly active travel, public health, and reducing emissions from transport.

This report seeks to show road danger as well as vulnerability. It presents an analysis which assesses the overall risks involved with different modes of transport, including the risks posed to others. This can provide additional insights into the nature of road safety and the priorities in relation to danger reduction and promoting active travel.

We hope the DfT will include this form of analysis in its mainstream publications, such as *Reported Road Casualties Great Britain*. This would lead to a better understanding not only by experts but also by politicians and media of the sources of road danger and how forward-thinking policies on active travel can be achieved in parallel with ambitious road safety Vision Zero objectives. In most cases, the data are already there: it just needs additional analysis and clearer presentation.

We hope that others will also adopt this type of analysis into their work, including the governments of Scotland, Wales and Northern Ireland and local highways authorities, as well as independent researchers and data analysts.

**REDUCE
GLOBAL
ROAD
DEATHS
BY 50%
BY 2030**

**VISION
ZERO**

Recommendations

The Department for Transport should

- Adopt national targets to reduce the numbers of people fatally and seriously injured, in line with the global “50 by 30” target endorsed by the UK government. Trends in the casualty rates for individual road user groups should be monitored and targets considered.
- Adopt safe system indicators. These would support road danger reduction strategies and actions.
- Provide an analysis, of the type in this report, in official casualty reporting, including *Reported Road Casualties Great Britain*. In particular, the risks posed by different transport modes to others should be presented.
- Ensure that the current review of STATS19 by the Standing Committee on Road Accident Statistics (SCRAS) take account of this report in relation to additional data collection requirements.



Notes to figures

- The casualty data for all figures in this report are taken from *Reported Road Casualties Great Britain, Annual Report: 2019*, published by the Department for Transport, September 2020. Further details are available in Table RAS 40004 "Reported accidents, vehicle user and pedestrian casualties by severity and combination of vehicles involved, Great Britain, 2019" p202.
- This report includes only data on road deaths.
- In Stats 19 "vans/goods vehicle up to 3.5 tonnes", includes vans (including car based vans) and small goods vehicles licensed for Private and Light Goods use, regardless if they are being used as a good vehicle or carrying passengers. For more information on vehicle definitions, please see [Stats 20: Instructions for the Completion of Road Accident Reports from non-CRASH Sources](#)
- The 3+ vehicle category represents collisions which involved the person who was killed and at least two other vehicles e.g. a collision involving: 1) a car in which a passenger was killed, 2) an HGV, 3) a motorcyclist.
- 'Other vehicle' casualties include some who could be considered vulnerable road users, such as horse riders and those on mobility scooters. However, not all 'Other vehicle' casualties are vulnerable.
- Horse riders, 4 of whom were killed on the roads in 2019, are included in 'other vehicle' because of the small number of collisions involving this group, and the lack of data on miles travelled by horse riders.
- Motorcycles are split into two categories 50cc and under and over 50cc. It was not possible to use these two categories for all graphs because distance travelled is only recorded for all motorcycles and not broken down by motorcycle size. 50cc and under and over 50cc are user where possible because there are significant differences in the danger and crash involvement of small and large motorcycles.
- All rates included in this report are per passenger mile/kilometre travelled. They are not per vehicle mile/kilometre travelled. This means a bus which travelled 20 miles while carrying 10 passengers would have travelled 200 passenger miles. The term "passenger" refers all road users, including pedestrians, riders, drivers and passengers.
- Aldred et al (2020) use vehicle miles in their paper. This explains some differences, particularly in relation to casualty rates for buses.

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- ¹ Department for Transport, [Gear Change. A bold vision for walking and cycling](#), August 2020
- ² Department for Transport, [Transport Decarbonisation. Setting the Challenge](#). 2020
- ³ UN General Assembly, Resolution 74/299 [Improving global road safety](#), adopted 31 August 2020, p2
- ⁴ Robert Davis, [Death on the Streets: Cars and the mythology of road safety](#), 1993
- ⁵ Mayor of London and Transport for London, [Vision Zero action plan](#), 2018
- ⁶ PACTS, [Developing safe system road safety indicators for the UK](#), 2018
- ⁷ Department for Transport, [Reported Road Casualties Great Britain, Annual Report: 2019](#), September 2020
- ⁸ ETSC, [14th Annual Road Safety Performance Index \(PIN\) Report](#), 2020
- ⁹ [World Health Organisation, Global Burden of Disease, 2020](#)
- ¹⁰ Santacreu, A. "[Safer City Streets Global Benchmarking for Urban Road Safety](#)" International Transport Forum Working Document, OECD Publishing, Paris, 2018, p 19
- ¹¹ Department for Transport, [National Travel Survey 2017](#), 2018
- ¹² For example, the Greater London Council established a Cycling Project Team in 1981.
- ¹³ Department for Transport, [Reported Road Casualties Great Britain, Annual Report 2019](#), Table RAS 30064
- ¹⁴ In 2019 there were 5 cyclist fatalities in London, compared to an average of 17 in the period 2005-2009. Transport for London, [Casualties in Greater London during 2019](#), September 2020
- ¹⁵ ITF, [Road Safety in European Cities. Performance Indicators and Governance Solutions](#), p35
- ¹⁶ Rachel Aldred, Rob Johnson, Christopher Jackson and James Woodcock, [How does mode of travel affect risks posed to other road users? An analysis of English road fatality data, incorporating gender and road type](#), Injury Prevention, BMJ Journals, March 2020
- ¹⁷ For example, no UK data are included in the ITF report on the road safety impacts of the 2020 Covid-19 lockdown, [Road Safety Annual Report 2020](#), OECD/ITF 2020, p11



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