



SUPPORTING SAFE DRIVING INTO OLD AGE – AN UPDATE

TECHNICAL REPORT

OCTOBER 2021

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Executive Summary

The Older Drivers Task Force developed a National Older Drivers Strategy in 2016¹ to improve the framework of advice, self-help and technology available to support the fast-growing number of older drivers. This Review, supported by the Department for Transport (DfT), looks at the original recommendations, developments and progress in the last five years.

Current position

The number of car driver casualties have been increasing in the 70 or over age groups in recent years – the number of car driver fatalities since 2006 are shown in Figure 1 and the number of car drivers who are killed or seriously injured (KSI) are shown in Figure 2. Results are provided for the 60-69, 70-79, and 80 and over age groups; results are also shown for the 21-29 age group for comparison.

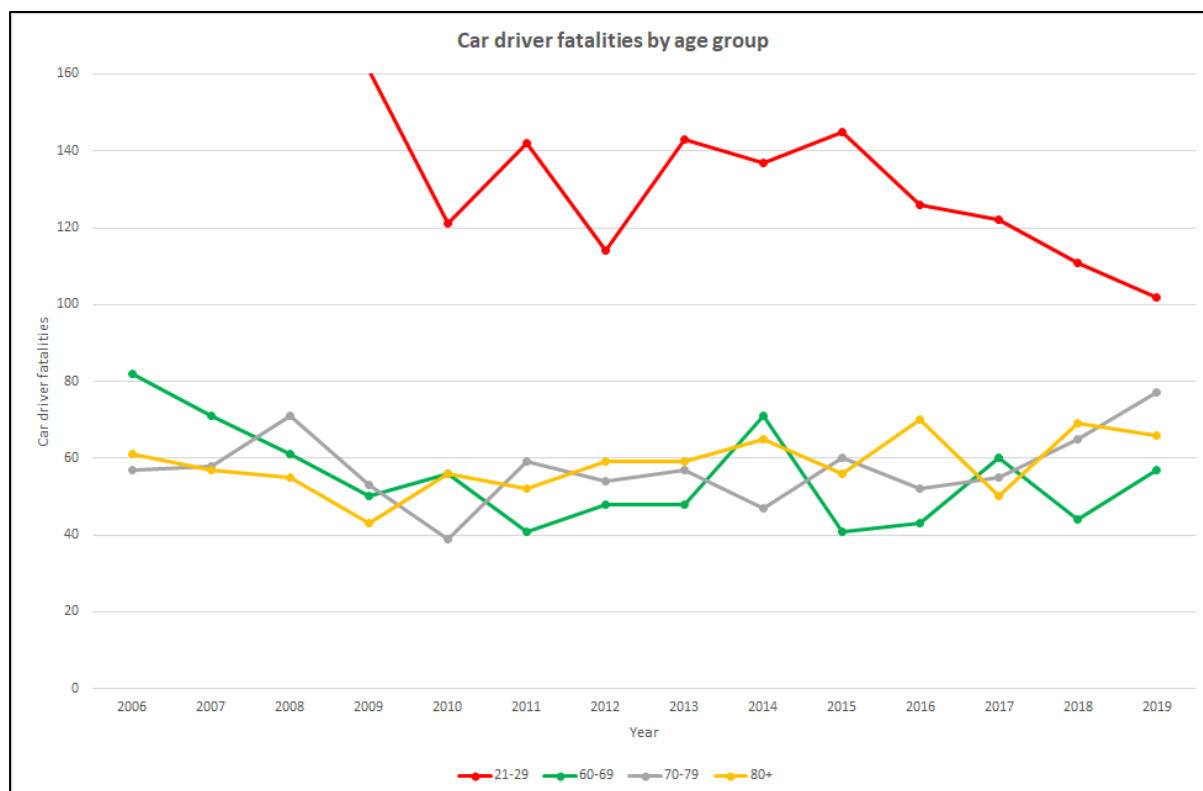


Figure 1: Car driver fatalities by age group (Source: STATS19)

¹ <https://roadsafetyfoundation.org/project/making-older-drivers-safer-longer/>

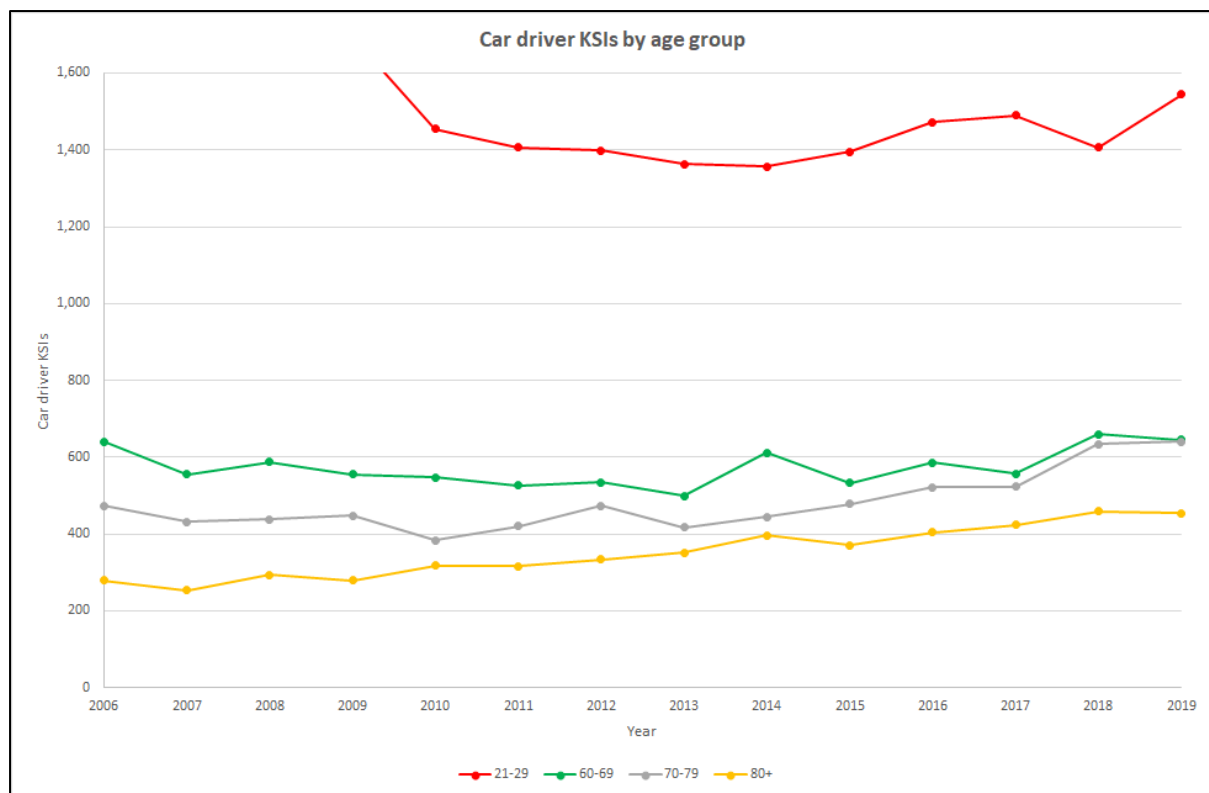


Figure 2: Car driver KSIs by age group (Source: STATS19)

The number of car driver fatalities amongst the 70 or over age groups, and the number of car driver KSIs in these age groups, have both increased by more than half between 2010 and 2019, with the number of car driver fatalities in the 70-79 age group almost doubling in that time.

The increases in car driver casualties among the 70 or over age groups correlate with an increase in the numbers of licences held by people of this age (and, presumably therefore, an increase in the total amount of driving by people in these age groups).

The proportion of people aged 70 or over who hold a licence and the projected increase in population in these age groups suggests that the numbers of fatalities and serious injuries among these age groups will increase in the foreseeable future without significant action. Although the number of car driver deaths per licence held is falling, it is not doing so sufficiently quickly to offset the projected increase in the number of people with a licence who are aged 70-79.

Recommendations

The Task Force has considered the original recommendations (detailed in Section 4) and, additionally, has highlighted several practical measures which will help achieve the aim of supporting the most senior drivers to stay on the road as long as they are safely able to do so. The measures identified should also benefit drivers in general irrespective of their age.

The key recommendations (detailed in Section 1.1) from this review relate to:

- safe road infrastructure;
- eyesight;
- diabetes and driving;
- voluntary driving appraisals and fitness to drive assessments; and
- vehicle technology and regulation.

There are also important recommendations made on key research priorities.

Targets

Our overarching recommendation is that government should set a goal to reduce deaths and serious injuries for drivers over 70 by 50% by 2030 and to have a longer-term aspiration for zero deaths by 2050. The 50% reduction target would accord with the Sustainable Development Goal 3.6 relating to all road deaths set by the United Nations. Although stretching and unlikely to be met with the current trajectory, we believe that with the recommendations of this report and further investment, it could be achieved.

It will require concentrated effort on the part of all responsible organisations to change the current trend, and to achieve the proposed goal within this timescale. Much would be dependent on major infrastructure improvements, enforced and effective speed control, vehicle safety innovations and the widespread introduction of Advanced Driver Assistance Systems (ADAS) and automated vehicles.

Safe Road Infrastructure (Section 5)

Safe road design is fundamental to the risk of road trauma faced by all drivers. Even on major roads, Britain's safest roads are up to 40 times safer than the riskiest. The lack of progress in reducing overall trauma in the decade to 2020 has brought renewed focus on infrastructure with the World Health Organisation (WHO) leading the way, setting of the requirements for infrastructure safety performance of new and existing roads in the decade to 2030.

The UK has been a leader in this field. National Highways had adopted a goal that by 2020 more than 90% of travel on its network should be on roads which achieve a 3-Star safety rating based on the 5-star scale set by the International Road Assessment Programme (iRAP). Welsh Government are commencing an iRAP survey of their strategic roads and DfT's Safer Road Fund used the iRAP proactive risk management methodology to address the 50 riskiest local authority A roads in England, demonstrating a benefit-cost ratio of more than 4 from remedial measures.

The iRAP system provides a measure of risk by road user and for different primary crash types. As major conflict points on roads, junctions are scored with greater risk being attributed to T or staggered at grade junctions in comparison to roundabouts or merges.

The proportion of car driver fatalities and serious injuries at T or staggered junctions increases substantially amongst drivers aged 70 or over. Similarly, the proportion of car driver casualties who are turning right increases dramatically amongst drivers aged 70 or over, with other manoeuvres, such as moving off, exhibiting a similar incline.

The combination of right turns at T or staggered junctions appears to be particularly problematic as drivers age: around 4% of car driver casualties aged 60-69 are turning right at a T or staggered junction, but this figure increases thereafter, particularly in the case of fatalities – more than 14% of car driver fatalities amongst those aged 80 or more are turning right at a T or staggered junction.

The proportions of serious and slight injuries to car drivers who are turning right where the speed limit is 30mph appears to fall as drivers age, with increases in the proportions where the speed limit is 60mph.

It is recommended that the UK commences a safer junction programme in the decade to 2030 in line with best practice recommendations made by the iRAP programme.

An effective Safer Junction programme is likely to have a focus on junctions on the Major Road Network (MRN) in England. One in every seven English road deaths take place on the MRN. European programmes are seeking to inspect their equivalent primary road networks by 2024 and it is recommended that DfT now enable an inspection of the MRN by end-2022 to complement National

Highway's inspection programme. An MRN inspection will enable a systematic evidence-base on the relatively short network of all significant roads (SRN and MRN) capturing one in three of all deaths in England. This will enable inter alia a high return safer junctions priority programme to be defined which will benefit all drivers. The programme can be further enhanced on other local authority roads where inspections are already taking place in leading authorities.

Eyesight (Section 6.1)

There is considerable evidence that vision changes with age and that there are significant changes to both visual and cognitive function and also to driving performance.

Our previous report recommended that the DVLA should require evidence of a recent eyesight test. We have reviewed evidence alongside the most recent data from Hampshire Constabulary which showed 51% of drivers 70 and above offered assessment as an alternative to prosecution after an offence² required eyesight correction. A recent study of Police data by the College of Optometrists found that 77% of a large sample of crash reports involving the over 60s had 'Uncorrected, defective eyesight' as a contributory factor. It is noteworthy that the government offers free eyesight testing for this age group.

Evidence from DVLA revocations due to eyesight failures from reading a number plate increase significantly from the age of 70.

Currently drivers are required to self-certify that they meet eyesight standards when renewing their licence at age 70. Research has shown that eyesight requirements are not generally known and therefore likely to be unintentionally false.

This report strongly recommends that consideration should be given to introducing mandatory eyesight testing with an optometrist or ophthalmic/medical practitioner providing a driver 'MOT' of eyesight at licence renewal at the age of 70 and at subsequent renewals.

This is the age at which drivers are required to renew their driving licence. Setting this requirement at the current age of renewal will not affect the current licence expiry date for all drivers and therefore will only be an additional requirement from the age of 70³. There is public support⁴ for taking this approach amongst drivers, including those that would be affected by the change. There is also support for all drivers to prove they can achieve the current eyesight requirements. In addition, eyesight testing serves as a general health marker.

This review also recommends prioritisation of best practice regarding eyesight requirements for driving - given the number plate test was introduced nearly a century ago.

Diabetes (Section 6.2)

Peripheral neuropathy is a complication of type two diabetes. It introduces two distinct problems. Firstly, a loss of sense of touch, such as the lack of awareness that the foot is on the pedal or how hard the pedal is being pressed. Secondly, proprioception (your body's ability to sense movement, action, and location), for example, not knowing where or at what angle the foot is.

Medical research in both the UK and USA⁵ suggests a link between increasing type two diabetes, peripheral neuropathy and driving.

² Driving without due care and consideration

³ This is subject to a review of the administrative implications by DVLA

⁴ IAM Road Smart report <https://www.iamroadsmart.com/media-policy/research-and-policy/older-drivers-2021>

⁵ <https://www.google.com/search?q=US+NHTSA+Pedal+Application+Errors&oq=US+NHTSA+Pedal+Application+Errors&aqs=chrome..69j57.13980j0j15&sourceid=chrome&ie=UTF-8>

There are now around two million UK drivers, including 6% of all older drivers, who are estimated to experience this complication⁶. There are currently just under 570,000 UK drivers who have type 2 diabetes that requires notification to the DVLA, including 4% of all older drivers⁷.

There are however solutions which mitigate such lower limb issues including coaching, visual feedback on-screen as well as the use of Automatic Emergency Braking (AEB) in emergencies (as seen in Japan).

We recommend the government and insurers should, without delay, support research into the impact of physical and cognitive medical conditions, including diabetic peripheral neuropathy, that may contribute to pedal confusion events to which older drivers seem particularly vulnerable.

There is a suggestion that a high proportion of catastrophic crashes arise from pedal confusion aggravated by the switch older drivers commonly make to automatic vehicles that use one foot for brake and accelerator. If data shows a high level of risk of pedal confusion at driving speeds (at 35mph+), then a change to Euro NCAP should be promoted.

Voluntary Driving Appraisals (Section 6.3)

Our first report found non-threatening, voluntary driving appraisal courses run by trusted organisations (such as RoSPA, IAM and local authorities) held great promise to become a new (and enjoyable) social norm. These personal courses do not have pass/fail outcomes nor requirements to notify DVLA or insurers. They help older drivers maintain their confidence, learn tips and tricks (e.g. to increase cognitive skills) and to keep up to date with fast changing vehicle technologies.

Since our first report, we have found growing consensus on the value of having a recognised national scheme with core content. An accredited national scheme can enable much higher awareness by older drivers that consistent and high-quality courses exist to provide support. Accreditation also reduces entry costs for local authorities and others willing to provide the service. It enables benchmarking and a foundation on which to build evidence-based continuous improvement. The sheer variety of current offerings mean there are only a few good quality evaluations, if any.

This report therefore recommends that the principal organisations agree a core content for Driving Appraisals and that the Older Driver training course for Approved Driving Instructors be extended to create a larger pool of certified and trained instructors to assist older drivers. Providers of such courses may require additional funding to train and certify the instructors to be part of this pool.

Fitness to Drive Assessments (Section 6.3)

There is a need for Driving Assessments to support those of any age with a permanent or temporary medical condition which affects safe driving. Driving Mobility, an organisation that reviews driving safety amongst older and disabled drivers is recognised by the DVLA, DVA (NI), DfT, NHS and Motability to accredit organisations nationally to undertake such clinical fitness to drive assessments. Driving Mobility centres also advise motorists on how best to keep mobile safely, depending on their needs, by recommending suitable vehicle adaptations such as larger mirrors or a steering wheel 'spinner' support ball.

Drivers are now being referred to Driving Mobility Centres by a number of Police Forces across the country as an alternative to prosecution following a 'careless driving' traffic offence. Those referred are over 70 or with an adapted vehicle or underlying medical condition. This scheme has been reviewed annually by Hampshire Constabulary and is being adopted by other forces. Around two thirds of attendees achieve a safe outcome after assessment, sometimes after on-road refresher

⁶ This estimate comes from Perazzolo M, Reeves ND, Bowling FL, Boulton AJM, Raffi M, Marple-Horvat DE. (2020) A new approach to identifying the effect of diabetic peripheral neuropathy on the ability to drive safely. *Transportation Research Part F: Traffic Psychology and Behaviour* 69:324-334.

⁷ Information provided in a Freedom of Information Request to DVLA

training. A third of the attendees are initially assessed as ‘marginal’ and are required to take some further training before re-assessment. Of these, just over a half of those aged under 85 are re-assessed as safe, showing the value of refresher training for drivers up to the age of 85.

We recommend that the alternative to prosecution scheme for careless driving offences should be rolled out nationally for certain vulnerable road users (one category being drivers aged 70 and above).

Vehicle Technology (Section 7)

In our first report we concluded that the prospect of driverless vehicles assisting mobility was not on the immediate horizon. The European Union General Safety Regulation (further discussed in Section 7.1) which was reviewed and updated in 2019 aimed to ensure that promising vehicle safety technologies which could save lives were adopted as soon as practicable. Examples of these technologies are AEB and Intelligent Speed Assistance (ISA). A result is that ISA will likely be fitted to every new car sold in the EU by the end of 2024. However, this has not yet been incorporated into UK law. AEB systems operating at lower speeds are already fitted to many new vehicles. Over time, these will become mandatory and include increasingly sophisticated developments such as pedestrian and junction detection.

The Japanese government has taken the lead internationally in supporting their large and growing population of older drivers. The country requires over 70s to attend lectures and discussions with the use of simulators which include field of vision and night vision testing. Vehicles sold in Japan must also have autonomous emergency braking which overrides the accelerator so as to prevent ‘pedal confusion’ crashes. We recommend that the UK government takes a proactive role in the formulation of domestic and international policy to maximize the lifesaving potential of AEB for the benefit of all road users.

This Report recommends that the government incorporates the standards of the EU General Safety Regulation into UK law, which includes AEB, ISA and other important safety technologies. It also recommends further progress towards the introduction of advanced occupant restraint systems (that move beyond a conventional three-point seat belt and airbag – and balance better the loads from the belt and bag) as a means of reducing risk particularly to older drivers and passengers. This would ensure that restraints cater properly for diversity in age and size.

1 Introduction

In the Road Safety Statement 2019⁸, the Department for Transport (DfT) included an action to “Assess the recommendations from the Older Drivers’ Task Force”. The Road Safety Foundation with support from the DfT invited the Older Drivers Task Force to bring its 2016 report “Supporting Safe Driving into Old Age – A National Older Driver Strategy” up to date.

The Task Force’s original goal was:

“As Britons live longer, healthier lives, to develop a National Older Drivers Strategy which will improve the framework, advice, self-help and technology available to support the fast-growing number of older drivers.”

The purpose of this report is to assess the original recommendations of the 2016 publication and review progress since then.

As before, the Task Force identified a number of strands of work:

- The Evidence Base - The statistics for older drivers have been brought up to date. We have looked at the risk to different age groups in different settings where crashes occur to pinpoint some of the types of crashes that will become more common, without further action, as the elderly driving population increases
- Vehicle, road and information technology - A review of vehicle technologies at or near market to assist and protect older drivers, including international developments; revisiting what the data say about how road infrastructure might be improved to protect older drivers
- Support and self-help - A review of the framework governing the licensing of older drivers together with driving assessment schemes and advice available to drivers

In addition to taking an evidence-based approach, the Task Force sought proportionate means of achieving aims, affordability and minimum regulation where change through consent could be achieved.

This review provides an opportunity to apply the Safe System approach to road safety management for older drivers, understanding key risks and vulnerabilities and designing solutions to counter these. Adopting the Safe System means setting out a precise aim and long-term vision for older driver safety. Our aim is to reduce the death and injury of older people on our roads without restricting their mobility and connectivity within society.

1.1 Summary of Key Recommendations

The key recommendations arising from this report are:

1.1.1 Targets

Our overarching recommendation is that government should set a goal to reduce deaths and serious injuries for drivers over 70 by 50% by 2030 and to have a longer-term aspiration for zero deaths by 2050. The 50% reduction target would accord with the Sustainable Development Goal 3.6 relating to all road deaths set by the United Nations. Although stretching and unlikely to be met with the current trajectory, we believe that with the recommendations of this report and further investment, it could be achieved.

⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817695/road-safety-statement-2019.pdf

It will require concentrated effort on the part of all responsible organisations to change the current trend, and to achieve the proposed goal within this timescale. Much would be dependent on major infrastructure improvements, enforced and effective speed control, vehicle safety innovations and the widespread introduction of Advanced Driver Assistance Systems (ADAS) and automated vehicles.

1.1.2 Safe Road Infrastructure

It is recommended that a survey of the Major Road Network in England and strategic roads in Scotland and Northern Ireland are undertaken, and that the UK commences a safer junction programme in the decade to 2030, in line with best practice recommendations made by the iRAP programme. Further research into the type of junctions and conditions that are particularly problematic for older drivers could be undertaken by marrying collision data with iRAP road attribute coding.

1.1.3 Eyesight

Consideration should be given to introducing mandatory eyesight testing with an optometrist or ophthalmic/medical practitioner providing a driver 'MOT' of eyesight at licence renewal at the age of 70 and at subsequent renewals. If this is implemented then the NHS contract for free eyesight tests for 60 and above would need to be amended so that drivers 70 and above could have a more detailed 'MOT' eyesight test.

1.1.4 Diabetes

We recommend the government and insurers should without delay support research into the impact of physical and cognitive medical conditions, including diabetic peripheral neuropathy, that may contribute to pedal confusion events to which older drivers seem particularly vulnerable.

1.1.5 Voluntary Driving Appraisals/ Assessments

We recommend that the principal organisations⁹ agree a core content for Driving Appraisals and that the Older Driver training course for Approved Driving Instructors should be extended to create a large pool of certified and trained instructors to assist older drivers. The providers of these courses may require additional funding to train and certify the instructors to be part of this pool.

1.1.6 Fitness to Drive

We recommend that the alternative to prosecution scheme for careless driving offences should be rolled out nationally for certain vulnerable road users (one being drivers aged 70 and above).

1.1.7 Vehicle Technology

We recommend that the government incorporates the standards of the EU General Safety Regulation into UK law, which includes AEB, ISA and other important safety technologies. We also recommend further progress towards the introduction of advanced occupant restraint systems such as split buckle or crisscross seat belts as a means of reducing risk particularly to older drivers and passengers. This would ensure that restraints cater properly for diversity in age and size.

1.1.8 Additional Recommendations from the Previous Report

The recommendations raised in the 2016 report are discussed in Section 4.

A list of supplementary recommendations, which provide a more detailed set of suggested changes raised in this Report is contained in Section 8.

⁹ Principal Organisations relates to those that are already running such schemes.

2 Vision and Aim for Older Drivers

2.1 Context

The United Kingdom has had an enviable record in reducing death and injury on our roads. This has been achieved through a combination of, for example, effective policy and leadership, improved road engineering, active and passive vehicle safety measures, better education and training, speed control, tighter legislation and effective enforcement. Implementation has depended on close cooperation between the various authorities and agencies, the public, private and third sectors and above all the people who use our roads.

Though much has been achieved, more needs to be done now. As the DfT's Road Safety Statement of 2019 makes clear, our casualty rates are still comparatively low but in the past decade the reductions have stagnated. This is especially true of deaths of older people: amongst those aged 70 or over, the numbers of road deaths have been increasing over the last decade.

For some time, the consensus among road safety professionals is that "setting challenging but achievable targets is a sign of responsible road safety management"¹⁰. More recently there is widespread agreement that our plans should be guided by Safe System principles, the most important of which is that, given current knowledge, death and serious injury are largely preventable on our roads - they are not an inevitable or acceptable price to be paid for mobility. The Safe System provides a framework for coordinating action and a clear goal and strategy. The goal is to eliminate death and injury in the long term, supported by interim targets.

As the United Nations Development Programme stated in 2010, road safety performance can be improved by setting ambitious reduction targets and adopting a Safe System approach. This means creating a shared responsibility for the management of all elements of the road traffic system so that common user error and human vulnerability do not result in death or serious injury.

Against this background, the key parts of the road safety management system in the United Kingdom including the DfT have adopted the Safe System and most have set ambitious targets for death and serious casualty reductions, including the Devolved Administrations, National Highways and Transport for London. Abroad, developed administrations in the Organisation for Economic Cooperation and Development (OECD), led by Sweden and the Netherlands (with comparable road safety records to our own) have signed up to a long term aspiration for zero deaths and injuries. A number of key states and cities in the US have followed the lead of the US's Department of Transportation's National Highway Traffic Safety Administration (NHTSA) who said in 2016 "Our vision is simple: zero fatalities on our roads."

Our overarching recommendation is that government should set a goal to reduce deaths and serious injuries for drivers over 70 by 50% by 2030 and to have a longer-term aspiration for zero deaths by 2050. The 50% reduction target would accord with the Sustainable Development Goal 3.6 relating to all road deaths set by the United Nations. Although stretching and unlikely to be met with the current trajectory, we believe that with the recommendations of this report and further investment, it could be achieved.

It will require concentrated effort on the part of all responsible organisations to change the current trend, and to achieve the proposed goal within this timescale. Much would be dependent on major

¹⁰ World Report on Traffic Injury Reduction 2004

infrastructure improvements, enforced and effective speed control, vehicle safety innovations and the widespread introduction of automated vehicles.

2.2 The Older Drivers Task Force Vision and Aim

Our vision and aim is:

Vision - To improve safety for older drivers so that there is no death or serious injury on our roads

Aim - The aim of the Older Drivers Task Force is to aspire to achieving zero deaths by 2050 with an interim target of reducing deaths by 50% by 2030. These targets are challenging and will require determined action in many areas if the necessary progress is to be made

3 Older Drivers – Data Trends

Some of the data which informed our 2016 report have been revisited to see whether there were any significant changes.

Compared with most other age groups, older drivers who are 70+ appear not to be of a particular risk to other road users.

For example, pedestrians are much less likely to be killed or seriously injured in a crash with a car driven by an older driver than in a crash with a car driven by a young driver – per licence held, only car drivers aged 50-69 are associated with fewer pedestrian deaths and serious injuries than those aged 70 or over, as shown in Figure 3. However, those aged 80+ appear to be a slightly greater risk to others than those aged 70-79, with risk being lowest for those aged 60-69.

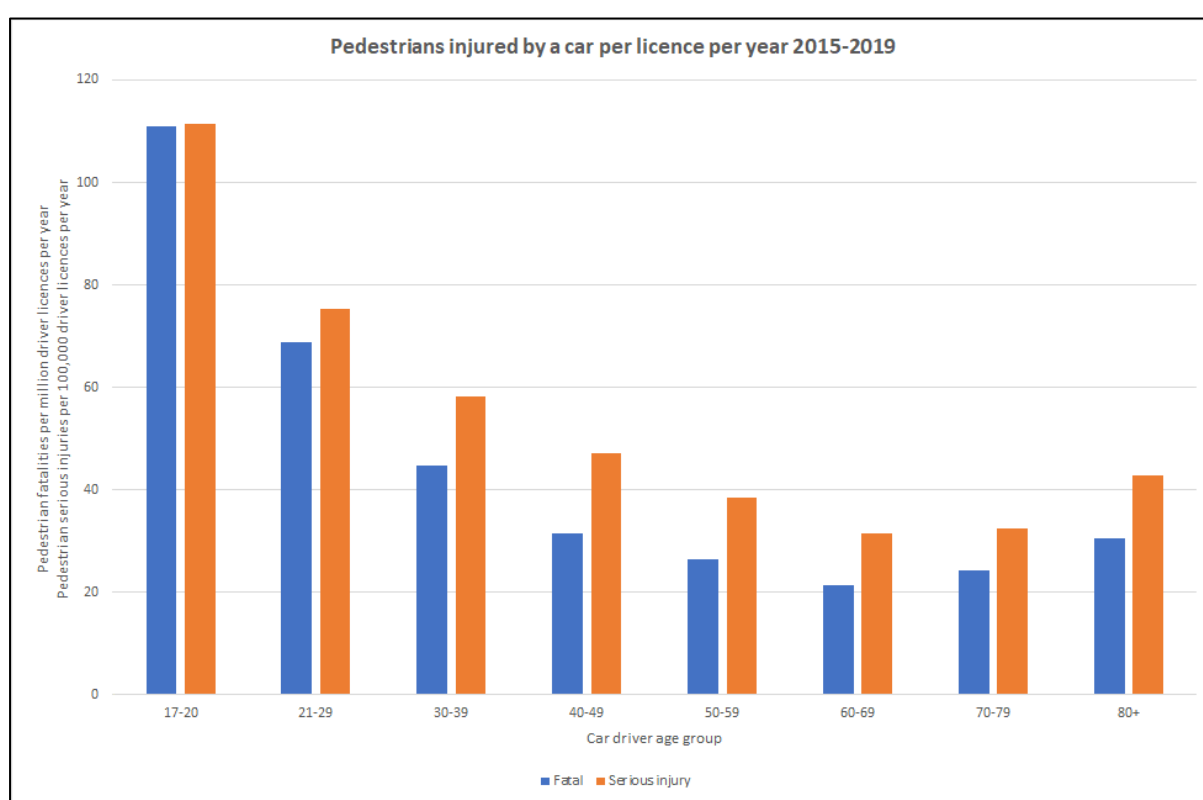


Figure 3: Pedestrians injured by a car per licence per year 2015-2019 (Crash data source: STATS19; licence data source: NTS)

However, older car drivers themselves are more likely to be killed or seriously injured per licence held, at least in part due to their frailty. Moreover, licences are increasing in these older age groups and therefore car driver fatalities and serious injuries in these age groups are also rising.

The numbers of car driver casualties have been increasing in the 70 or over age groups in recent years – the numbers of car driver fatalities since 2006 are shown in Figure 4 and the numbers of car drivers who are killed or seriously injured (KSIs) are shown in Figure 5. Results are provided for the 60-69, 70-79, and 80 and over age groups; results are also shown for the 21-29 age group for comparison.

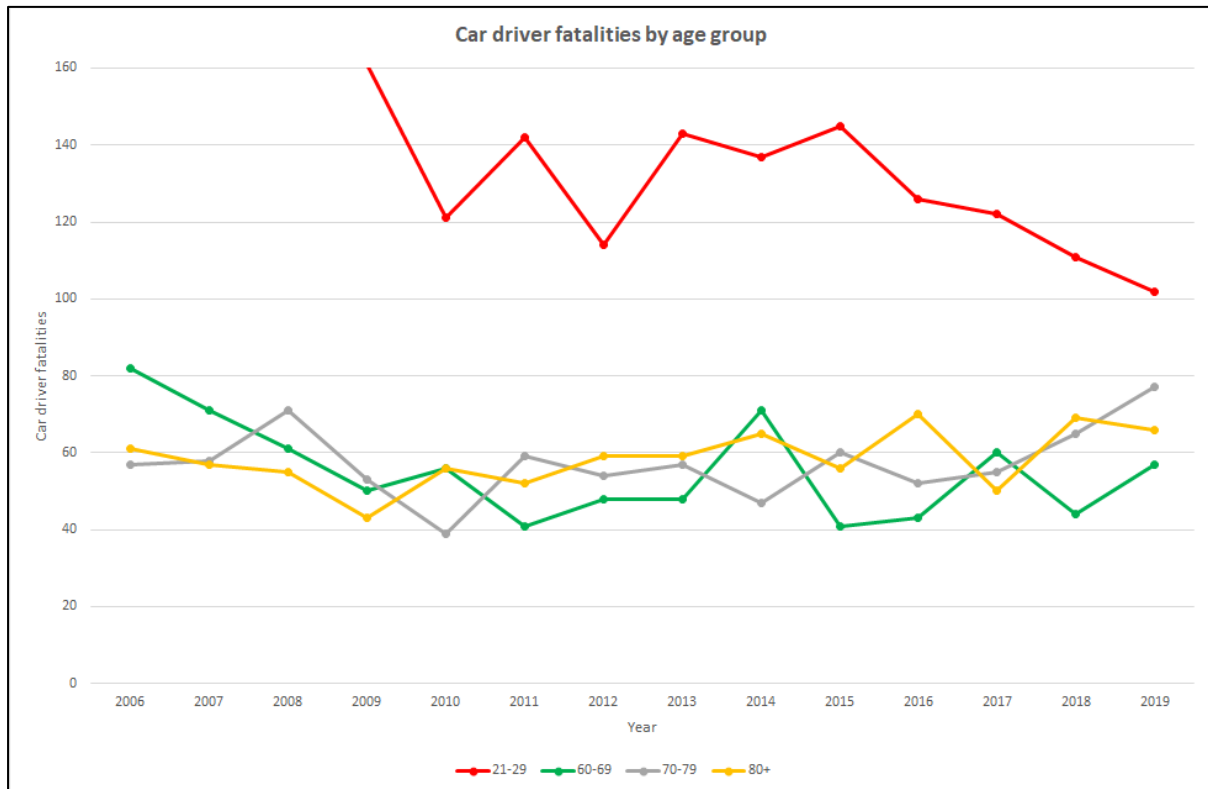


Figure 4: Car driver fatalities by age group (Source: STATS19)

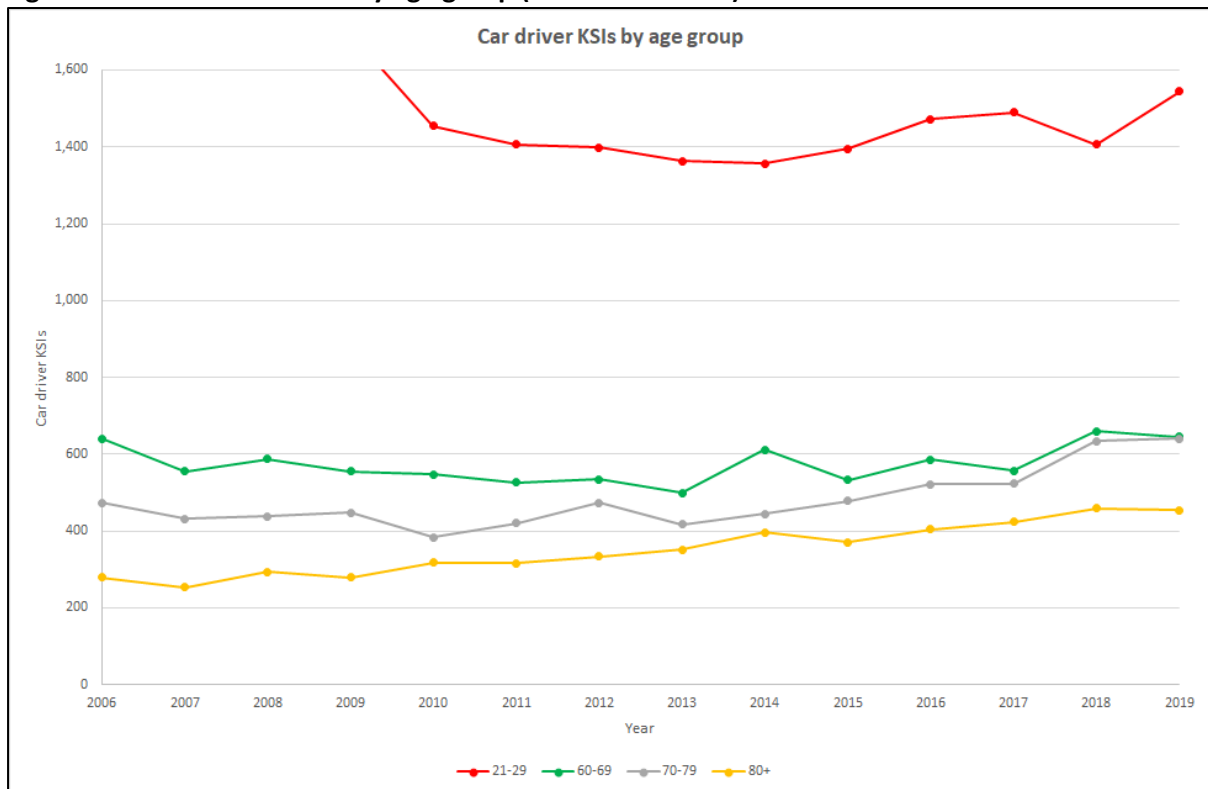


Figure 5: Car driver KSIs by age group (Source: STATS19)

The number of car driver fatalities amongst the 70 or over age groups, and the number of car driver KSIs in these age groups, have both increased by more than half between 2010 and 2019, with the number of car driver fatalities specifically in the 70-79 age group almost doubling in that time.

The increases in car driver casualties among the 70 or over age groups correlates with an increase in the numbers of licences held by people of this age (and, presumably therefore, an increase in the total amount of driving by people in these age groups), shown in Figure 6.

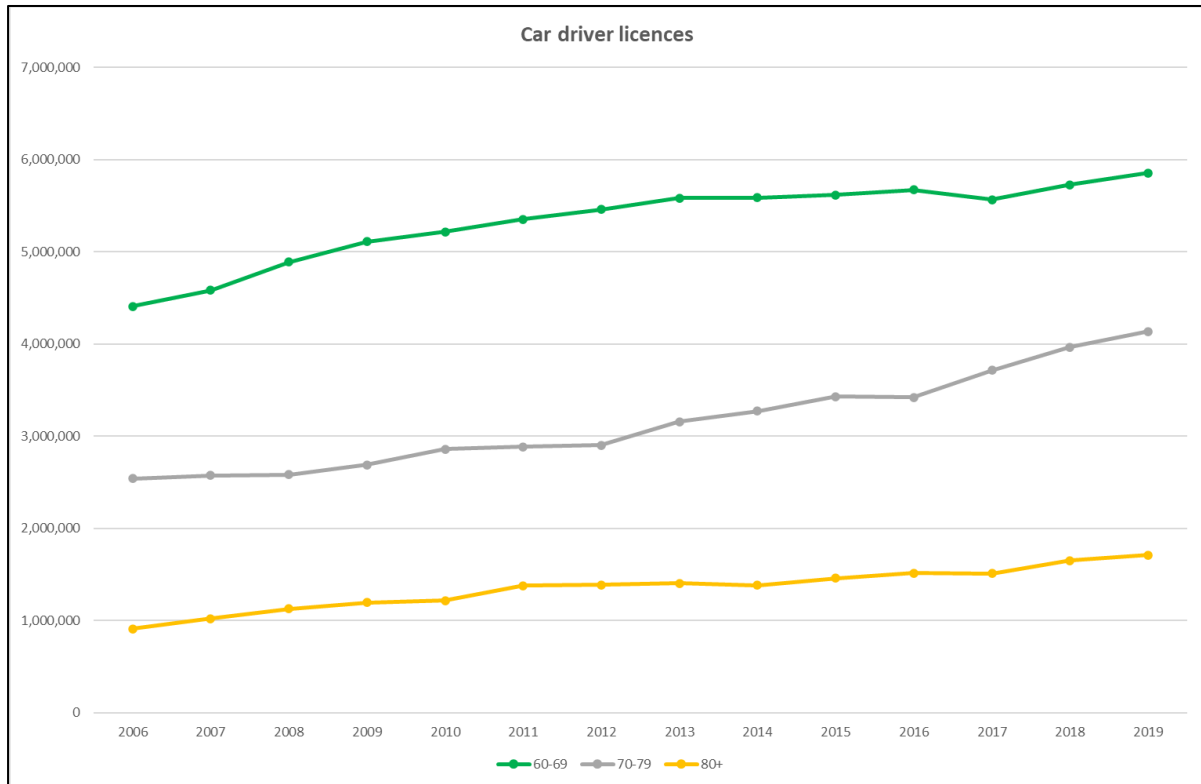


Figure 6: Car driver licences held by those aged 60-69, those aged 70-79 and those aged 80 or over (Source: NTS)

Figure 7 and Figure 8 therefore show the numbers of car driver fatalities per million driving licences and the numbers of car driver KSIs per million driving licences for the 21-29, 60-69, 70-79 and 80 or over age groups.

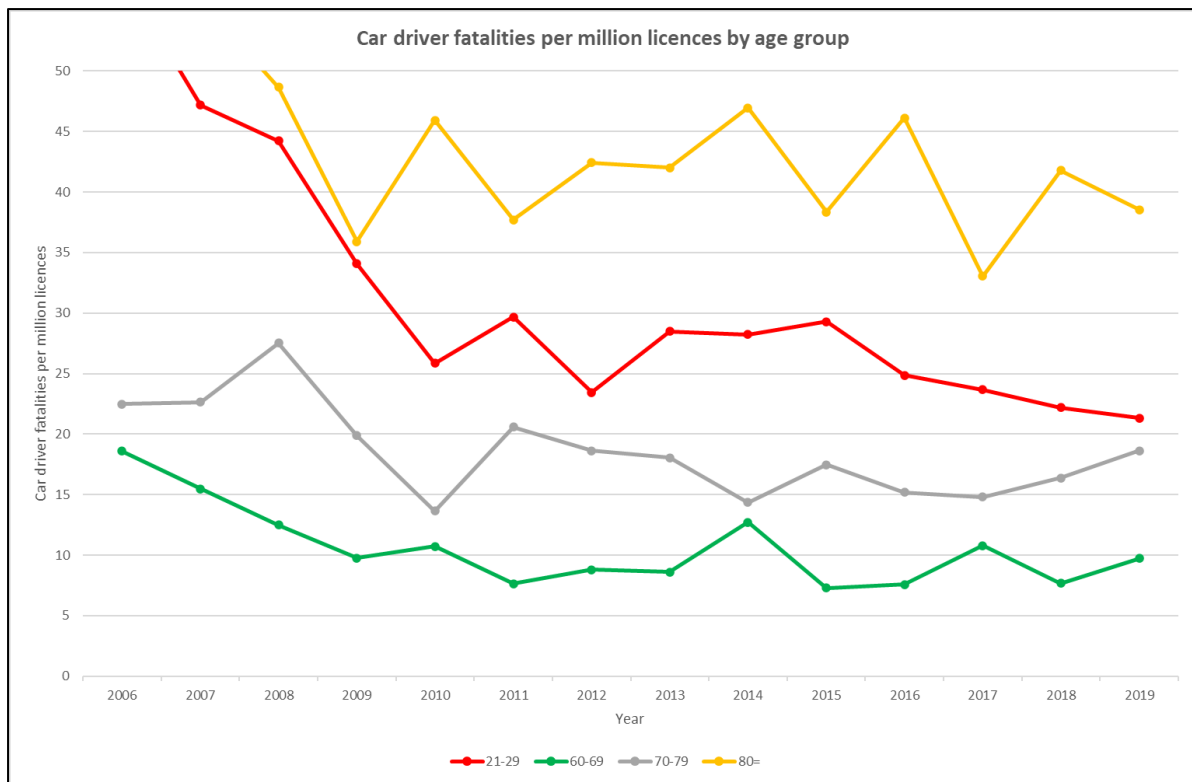


Figure 7: Car driver fatalities per million licences by age group (Crash data source: STATS19; licence data source: NTS)

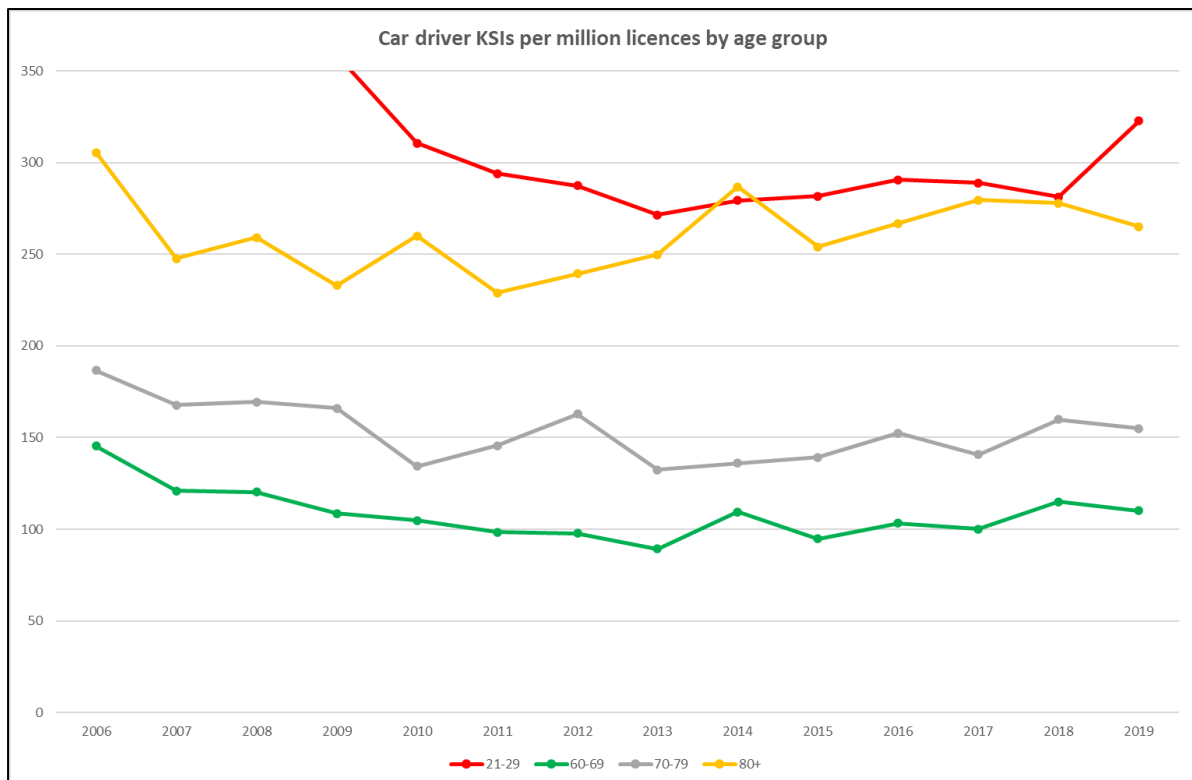


Figure 8: Car driver KSIs per million licences by age group (Crash data source: STATS19; licence data source: NTS)

The number of car driver fatalities per million licences for the 70 or over age groups since 2010 has been falling by approximately 1% per year. On the other hand, the number of car driver KSIs per million licences for all age groups shown has been slightly increasing since 2010, though this is likely to be partly attributable to a decrease in the level of under-reporting of serious crashes as CRASH has been adopted by an increasing number of police forces.

While the number of KSIs per million licences is higher for the 21-29 age group than for the older age groups due to inexperience, the number of KSIs per million licences for the 80+ age group is almost as high primarily due to the frailty of this age group. Similarly, the number of KSIs per million licences is higher for the 70-79 age group than for the 60-69 age group, but lower than that for the 80+ age group, primarily because frailty increases with age.

Figure 9 highlights the frailty issue by showing how the number of fatalities as a percentage of the total numbers of KSI casualties varies by age.

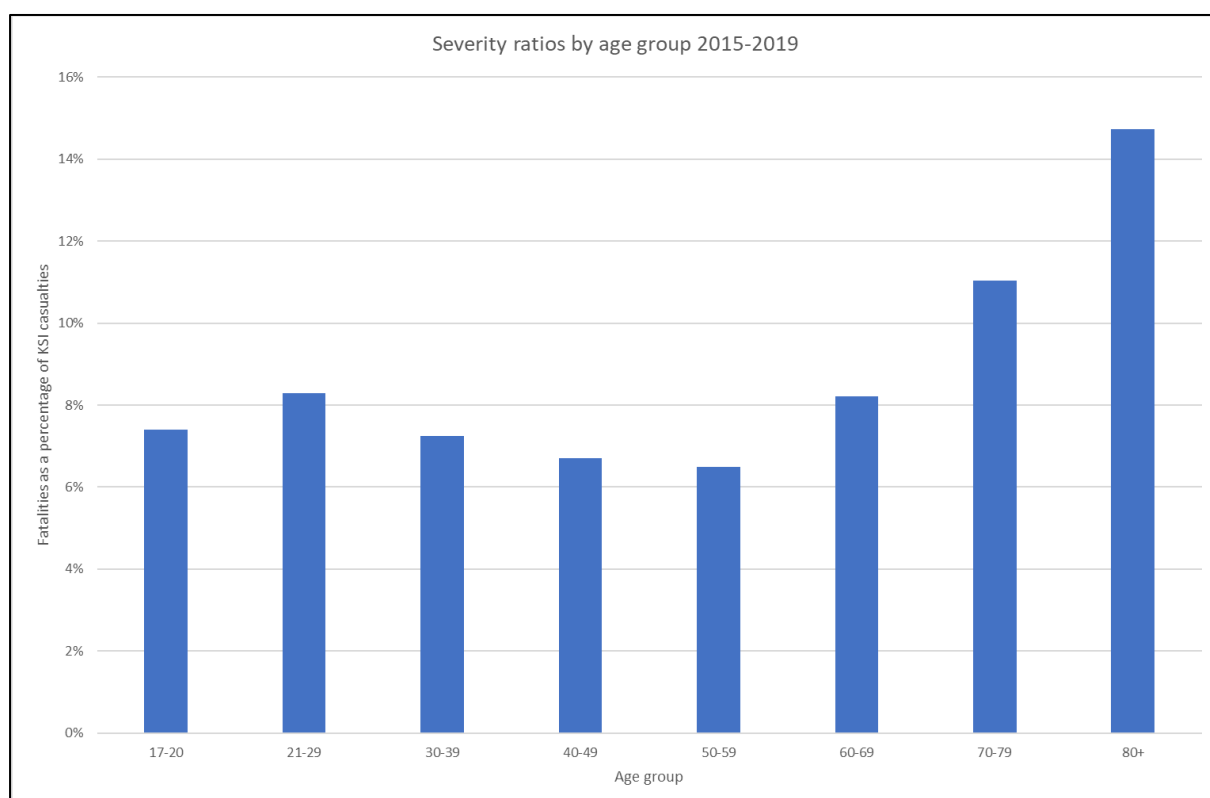


Figure 9: Number of fatalities as a percentage of the total numbers of KSI casualties by age

Below the age of 60, around 6-8% of KSI casualties are fatal; however, this proportion increases rapidly with age thereafter: a casualty becomes more likely to be killed rather than seriously injured in a serious crash in later years, due to their increasing frailty. This rapidly increasing frailty in old age is similar for both men and women.

Implications for future casualties

Alongside the historic numbers of licences data presented, Figure 10 shows forecasts in these figures going up to 2040, taking population projections into account.

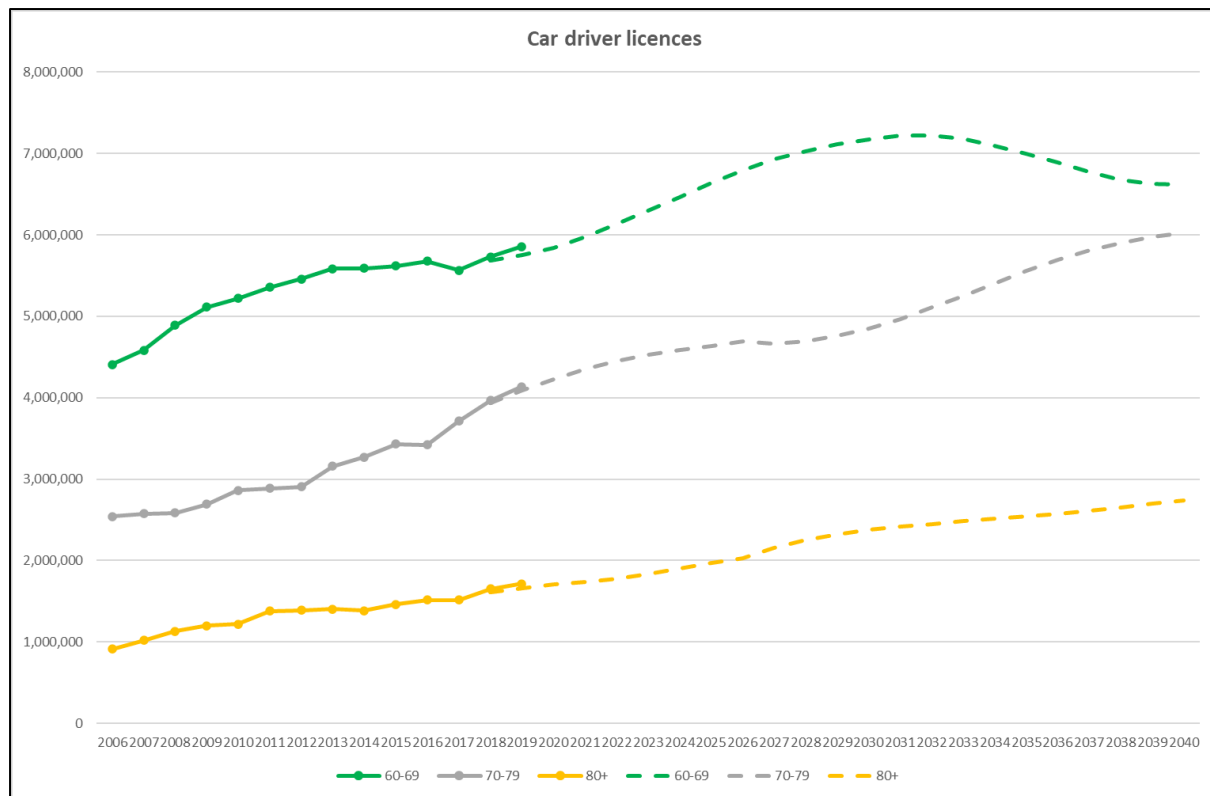


Figure 10: Car driver licence trends

Combining these figures with forecasts of the numbers of fatalities per licence held by people in each age group enables trends in the numbers of car driver fatalities to be estimated, and these are shown in Figure 11.

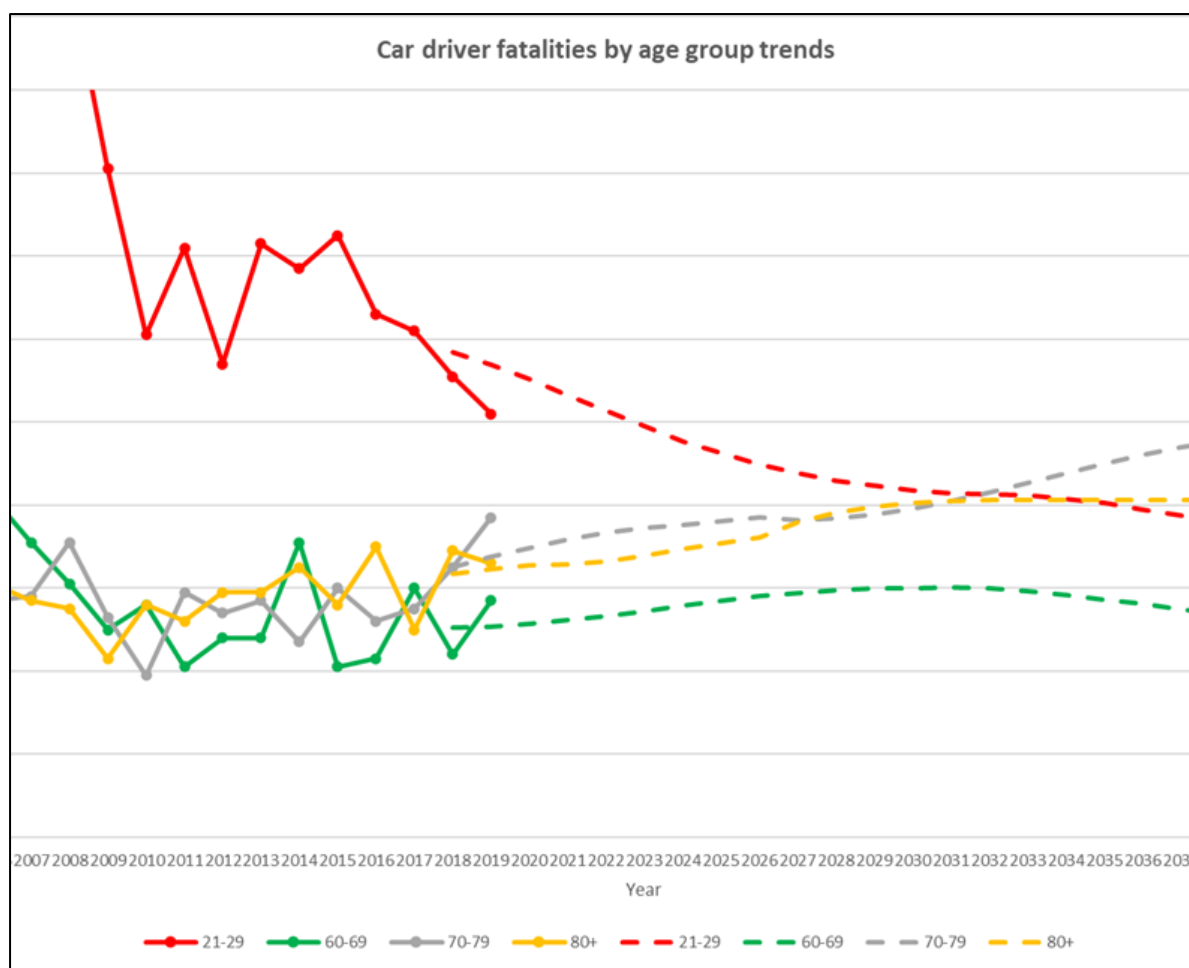


Figure 11: Car driver fatalities by age group trends

Car driver fatalities amongst the 70-79 age group are forecast to increase by 40% over the next 20 years, while the number of car driver fatalities amongst the 80+ age group is forecast to increase by more than a quarter. Similar increases would be expected in the number of serious injuries amongst these age groups.

More details relating to licencing can be found at Annex 1.

3.1 Conclusions

Older drivers do not pose a particular risk to other road users: the numbers of pedestrians injured by older drivers are very low relative to the number of older driver licence holders.

However, the numbers of car driver fatalities are as high for older drivers, relative to the number of driver licence holders, as numbers among young drivers. The numbers for young drivers reflect driving inexperience, whereas those for older drivers reflect their fragility.

The proportion of people aged 70 or over who hold a licence and the projected increase in population in these age groups suggests that the numbers of fatalities and serious injuries among these age groups will increase throughout the foreseeable future. Although the number of car driver deaths per licence held is falling, it is not doing so sufficiently quickly to offset the projected increase in the numbers of people with a licence who are aged 70-79.

4 Review of Previous Report Recommendations

In the 2016 report there were seven overarching report recommendations, the progress of which are discussed below.

It should be noted that many of the recommendations have not progressed during the last five-year period.

4.1 Recommendation 1: Research on Catastrophic Claims

The report's recommendation was *"An industry body should be mandated to ensure motor insurers pool research on a set of catastrophic claims data covering a limited time period to enable clear evidence to be obtained on catastrophic claims involving older drivers and the causes"*.

Background: Research, both in Britain and internationally, consistently shows that older drivers pose no greater risk on the roads to third parties than other age groups. However, in the 2016 report, the research reports published by the Task Force showed there is reasonable concern from insurance catastrophic claims data (claims over £50,000) that older drivers, possibly those over 80, may pose a higher risk of very serious bodily injuries to third parties.

The number of catastrophic claims involving older drivers is small for any one insurer and so difficult to be certain about. The size and frequency of the claims however adversely affects both the willingness of insurers to insure older drivers at all and the premiums charged. It is in the interests of older drivers, insurers and the public that this issue is openly researched and the reasons for higher claims costs identified. It is recommended that an industry body should be mandated to ensure motor insurers pool research on a set of catastrophic claims data covering a limited time period to enable clear evidence to be obtained on catastrophic claims involving older drivers and the cause.

The existence of a Road Investigation Collision Investigation branch could assist with better understanding this area. There is currently a project which is being undertaken which is looking at building the business case for a different approach to collision investigation.¹¹

Progress: The Road Safety Statement in 2019, recognized this recommendation and stated *"The Task Force's report, published in 2016, contained seven recommendations in total. One of these was to collect data on catastrophic claims involving older drivers to carry out research to understand the causes of these most serious collisions involving older drivers and how to prevent them. We will work with the insurance industry to take forward this recommendation too."*

The recommendation is still relevant and the Task Force has made enquires with the Association of British Insurers (ABI) unfortunately they are unable to assist with up-to-date data.

4.2 Recommendation 2: Raise Mandatory Self-Declaration Age to 75

The report's recommendation was *"The automatic requirement for drivers to notify the DVLA at age 70 of any medical condition that may affect safe driving should be raised to 75."*

Background: The 2016 report stated that *"the automatic requirement for drivers to notify the DVLA at age 70 of any medical condition that may affect safe driving should be raised to 75. This recommendation should only be introduced with the next recommendation on eyesight which should prove more relevant in practice than the current self-notification requirement. The medical condition notification requirement was introduced more than 50 years ago when life spans were a decade shorter. There is no convincing evidence today that drivers in the 70-75 age group present a special*

¹¹ <https://www.racfoundation.org/collaborations/road-collision-investigation-project>

general risk justifying this requirement. There is evidence that the risk rate to drivers per mile driven rises more steeply after age 75.”

Progress: This requires further consideration in light of emerging evidence and consideration of other related issues (for example, the recommendation in this report of a compulsory eye test at age 70 and other mechanisms associated with renewal such as for those intending to continue driving vehicles over 3.5 tonnes or vehicles with more than eight passenger seats needing to undergo a medical test which may be beneficial at age 70).

4.3 Recommendation 3: The DVLA Should Require Evidence of a Recent Eyesight Test

The report’s recommendation stated *“The DVLA should require evidence of an eyesight test at age 75. The DVLA insurers and others should encourage vision checks every two years, particularly from age 60”*.

Background: The 2016 report stated that *“the DVLA should require evidence of an eyesight test at age 75. The DVLA, insurers, and others should encourage vision checks every two years, particularly from age 60. There is as yet no general “marker” providing warning that an individual may not be fit to drive. Poor eyesight is a high-risk medical condition associated with driving. Eyesight deteriorates with age and the Government offers free eyesight tests to those over 60. There is evidence that when the Police offer driving assessments as an alternative to prosecution nearly 70% of those assessed require eyesight correction. More frequent eye tests would have significant wider health benefits for older people.”*

Progress: It is a recommendation of this report that “evidence of a recent eyesight test should be a requirement included in all driving licence applications and renewals for drivers aged 70 and above”.

The recommendation from the 2016 report has not been enacted. The recommendation detailed in Section 6.1.6 supersedes this.

Eyesight is discussed in more detail in Section 6.1.

4.4 Recommendation 4: Development of Alternatives to Self-Drive

The report’s recommendation was *“The piloting of new products should be encouraged by the Government.”*

Background: The previous report stated *“the growing market of older drivers with purchasing power offers opportunities to develop new products which offer alternatives to self-drive. The market should be encouraged to consider piloting new products, such as bundles of taxi rides with quality providers, where the cost of owning and running a car no longer makes financial sense or is the best solution for those with a medical condition. The costs to the public sector of accelerating decline when mobility is lost are clear. The piloting of new products should be encouraged by the Government.”*

Progress: This has not been achieved, but is still a highly relevant recommendation.

4.5 Recommendation 5: Safer Road Design

The report’s recommendation stated, *“The UK should develop similar guidance on designing roads for older drivers along the lines already in place in the USA, Australia and New Zealand.”*

Background: The 2016 report stated, *“Road authorities should more rigorously adhere to existing standards of road design and maintenance where flaws are likely to place older drivers at greater risk of involvement in serious crashes.”*

Progress: This has not been achieved, but is still a highly relevant recommendation.

4.6 Recommendation 6: Safer Vehicles

The report's recommendation was *"Specific advice on modern in-car safety features that are of special significance to older drivers should be prepared by an appropriate consumer body."*

Background: The previous report stated *"Recognising that developing a 'silver NCAP' would be a complex and time-consuming project, specific advice on modern in-car safety features that are of special significance to older drivers should be prepared by an appropriate consumer body. Manufacturers should accelerate the development of improved crash protection standards for frailer people, particularly older women, which could help older drivers in manoeuvres they find especially difficult."*

Progress: This has not been achieved, but is still a highly relevant recommendation .

4.7 Recommendation 7: Driver Appraisal Schemes

The report's recommendation stated, *"As a priority, the DfT research programme should support an evaluation of existing driving appraisal courses offered by the public sector and those in the private sector who wish to participate."*

Background: The 2016 report said *"As a priority, the DfT research programme should support an evaluation of existing driving appraisal courses offered by the public sector and those in the private sector who wish to participate. Driver appraisal schemes hold enormous promise for the future. Unthreatening, voluntary courses run by trusted organisations have the potential to become a new (and enjoyable) social norm which any responsible older driver would wish to take to refresh skills and knowledge to support their safe driving into old age. Today there are very many courses of varying content and quality. The aim must be to quickly develop an understanding of the core content that a recognised course should offer."*

Progress: This has not been enacted but is still relevant and is discussed in more detail in Section 6.3.

5 Safer Roads

5.1 The Evidence Base

5.1.1 Junction Types

The majority of car driver fatalities and serious injuries result from crashes which are not at junctions, and this is also the most common location in almost half of crashes in which a car driver is slightly injured. However, as Figure 12 and Figure 13 show, the proportion of car driver fatalities and serious injuries which are not at junctions declines with age, from around 80% of fatalities and 60% of serious injuries for those under 50 to less than 60% of fatalities and 50% of serious injuries amongst those aged 80 or over. Figure 14 provides details of the proportion of car driver slight injuries by junction type and age group 2015 – 2019.

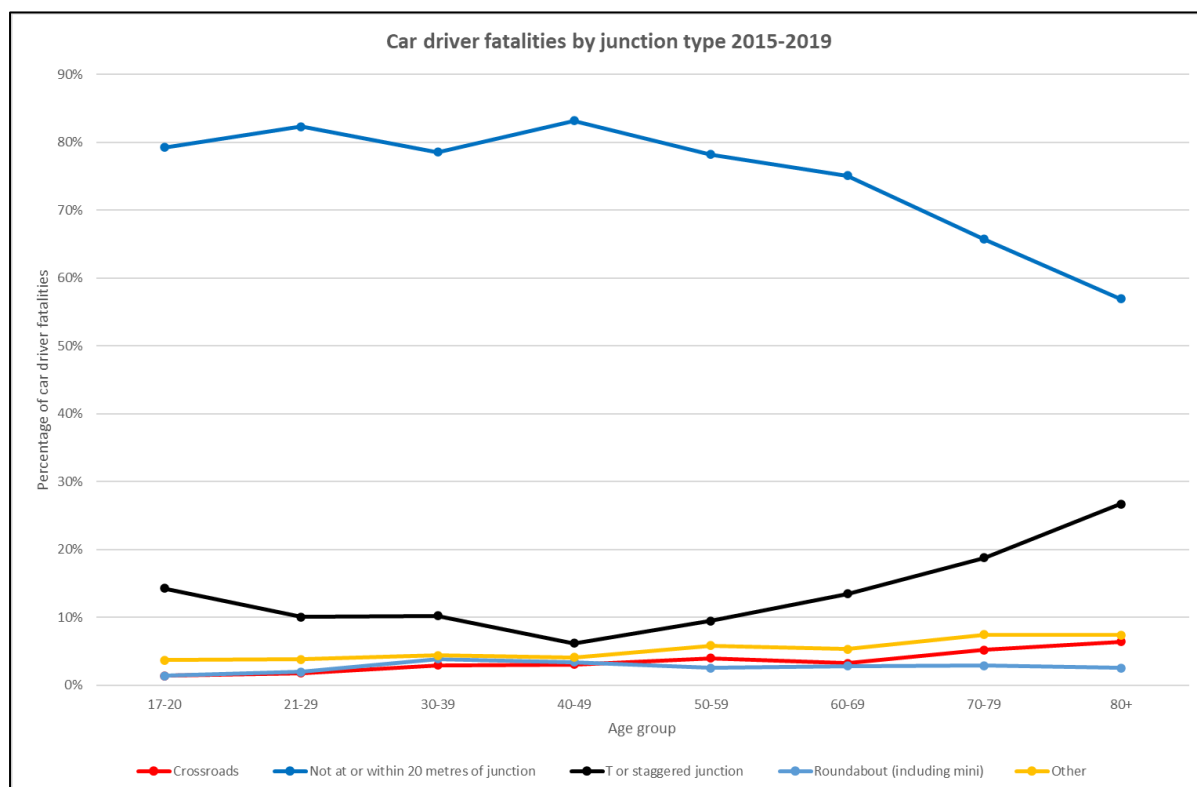


Figure 12: Proportion of car driver fatalities by junction type and age group 2015-2019 (Source: STATS19)

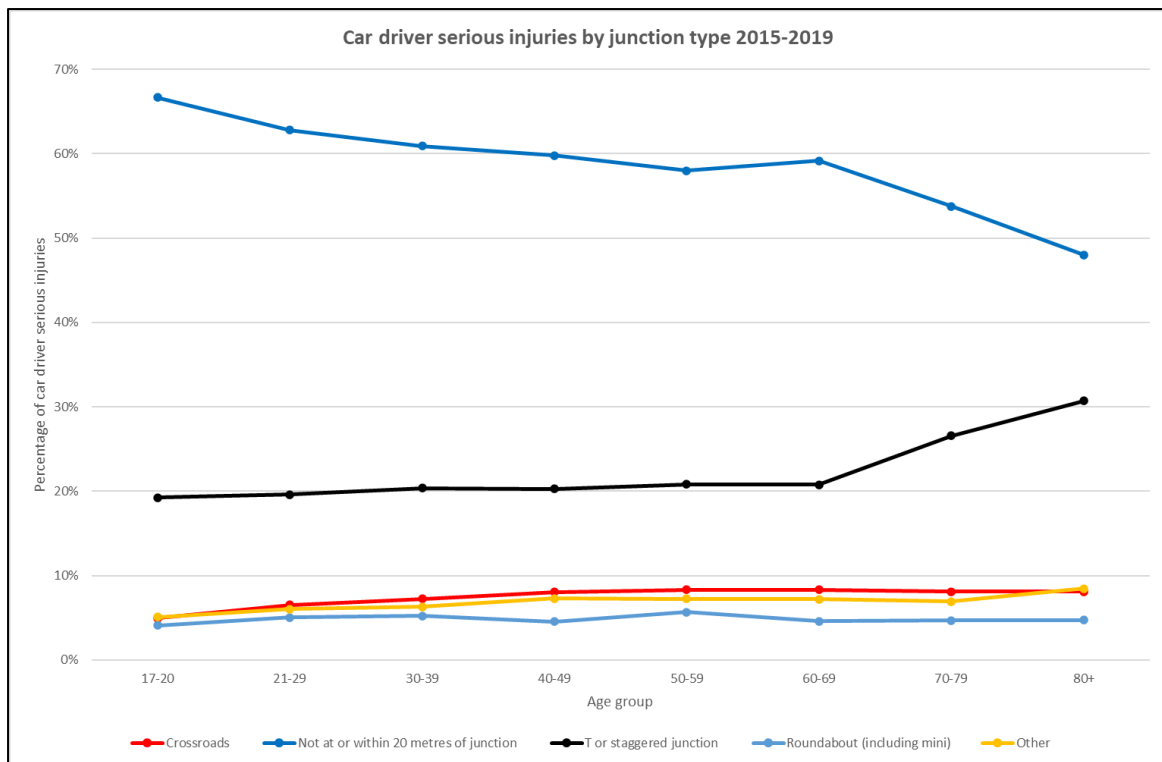


Figure 13: Proportion of car driver serious injuries by junction type and age group 2015-2019 (Source: STATS19)

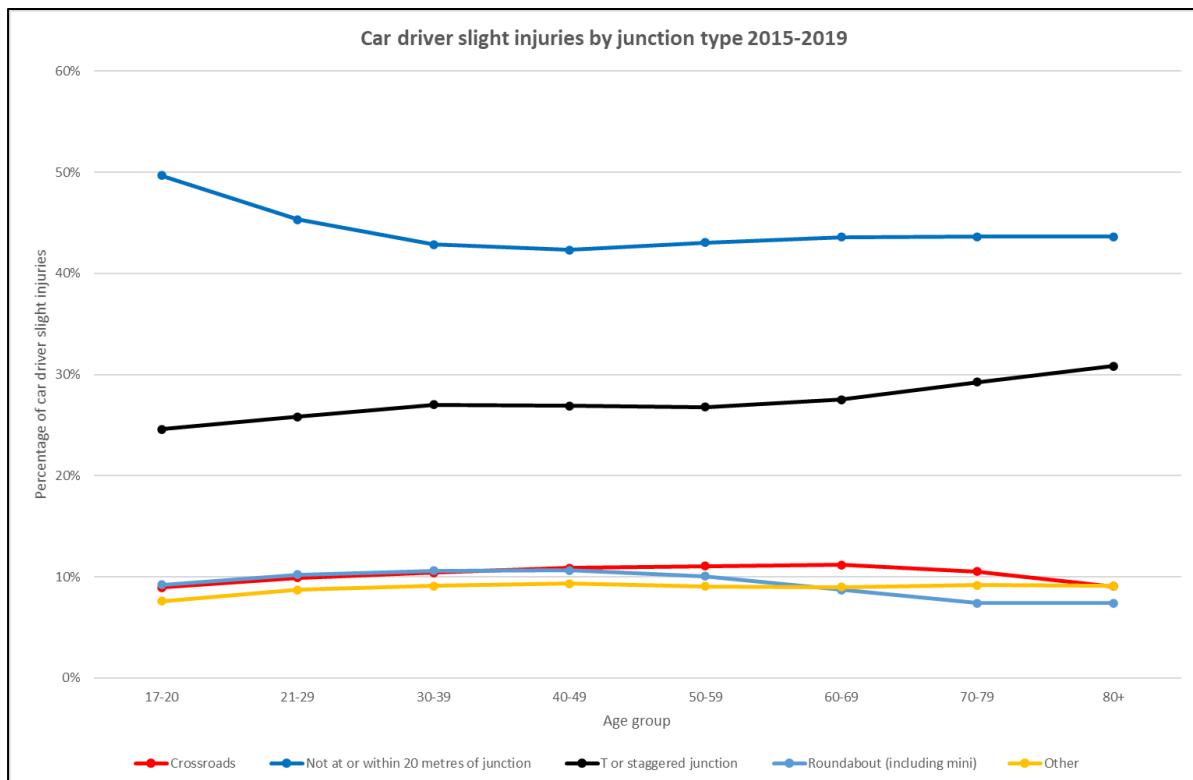


Figure 14: Proportion of car driver slight injuries by junction type and age group 2015-2019 (Source: STATS19)

The most common junction type at all levels of severity is T or staggered junctions, but the proportion of car driver fatalities at T or staggered junctions increases from around 5% for those in the 40-49 age group to 19% for those in the 70-79 age group, and to 27% for those in the 80 or over age group. There is a similar increase for those aged 70 or over for serious injuries with a smaller incline with age for slight injuries. There also appear to be smaller inclines with age in the proportions of car driver fatalities at crossroads and other junctions, though the numbers are quite small and thus less statistically robust, with these trends not mirrored in the numbers of serious or slight injuries.

The proportion of crashes at junctions at which there are traffic lights appears to decrease slightly among older drivers, suggesting that traffic lights might help make older drivers. However, this may simply reflect the way in which drivers of different ages use the roads; for example, a smaller proportion of driving by those who are retired may be in busy town centres where traffic lights are most common.

5.1.2 Manoeuvres Being Undertaken in Car Crashes

In the majority of crashes in which a car driver is killed or seriously injured, the driver/vehicle is going straight ahead at the time of the crash, and this is also the manoeuvre in almost half of crashes in which a car driver is slightly injured. The next most common manoeuvre amongst killed or seriously injured car drivers is going ahead on a bend, though this is not the case for slightly injured car drivers. Figure 15, Figure 16 and Figure 17 show the proportions of fatally injured, seriously injured and slightly injured car drivers by the manoeuvre they are undertaking at the time of the crash, by age group, for 2015-2019, excluding those in which the driver/vehicle is going straight ahead. For example, almost 8% of 21-29 year old car drivers who are killed are overtaking at the time of the crash, with overtaking becoming less common as drivers age.

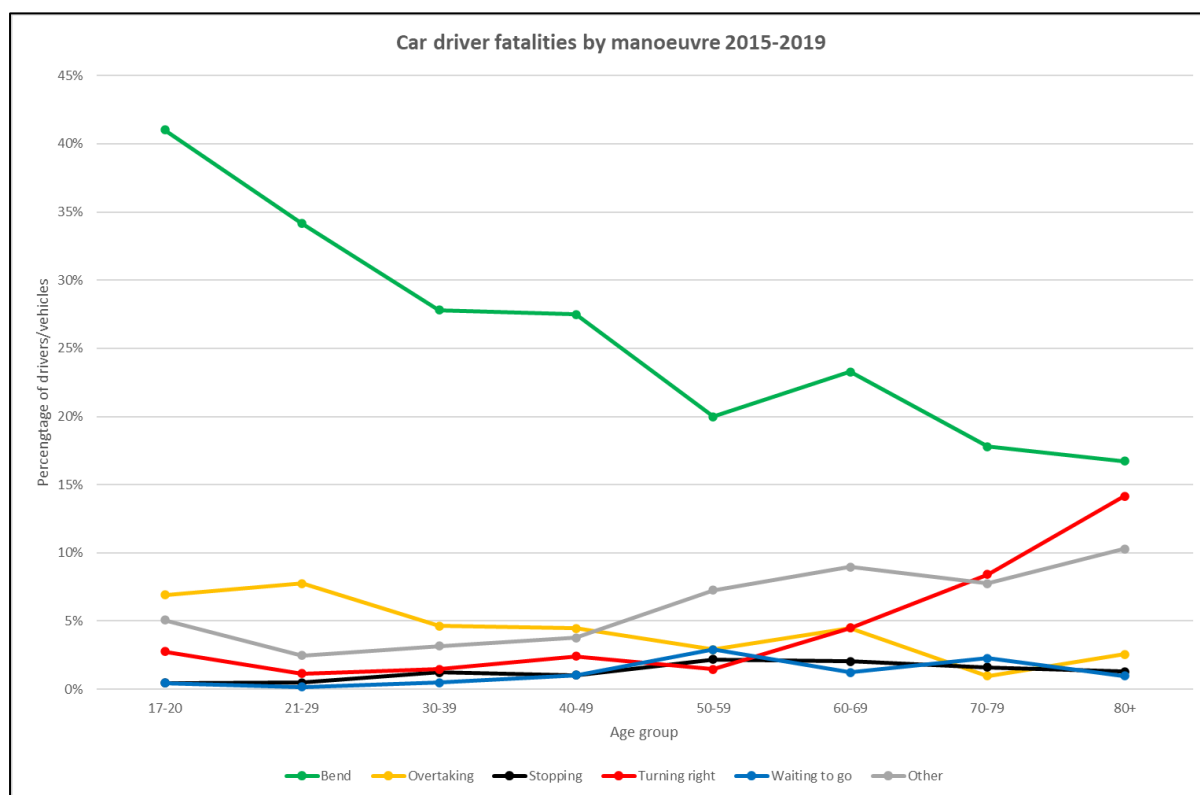


Figure 15: Proportion of car driver fatalities by manoeuvre and age group 2015-2019 (Source: STATS19)

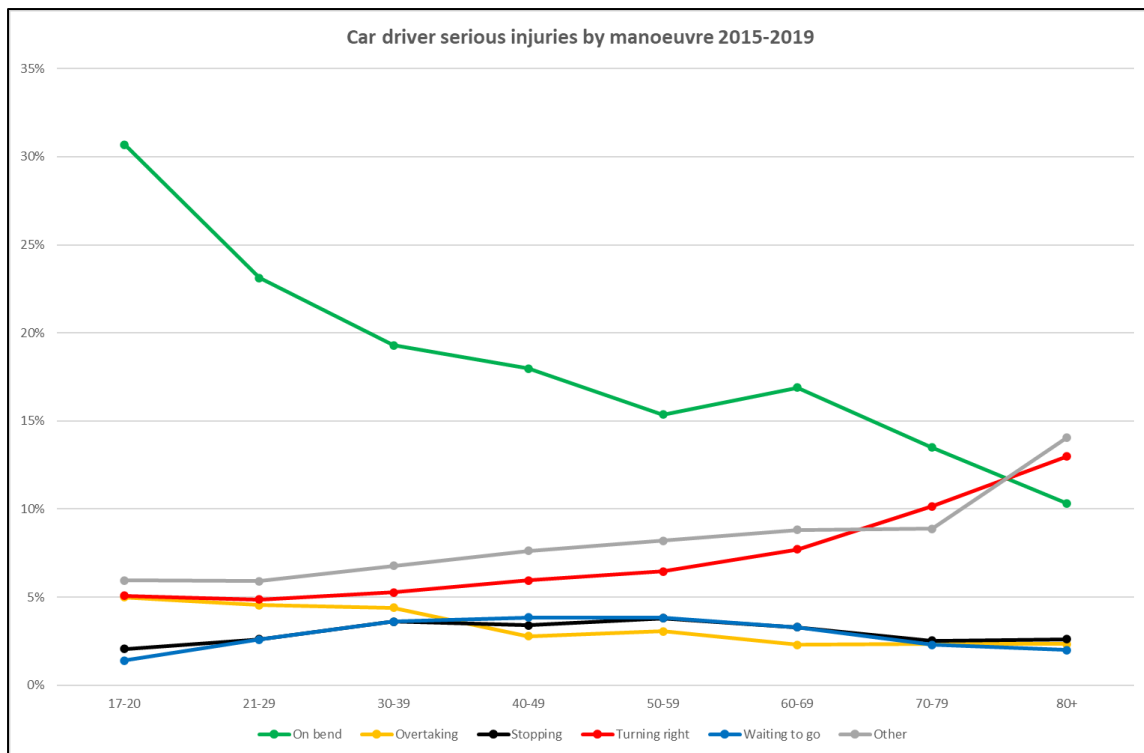


Figure 16: Proportion of car driver serious injuries by manoeuvre and age group 2015-2019 (Source: STATS19)

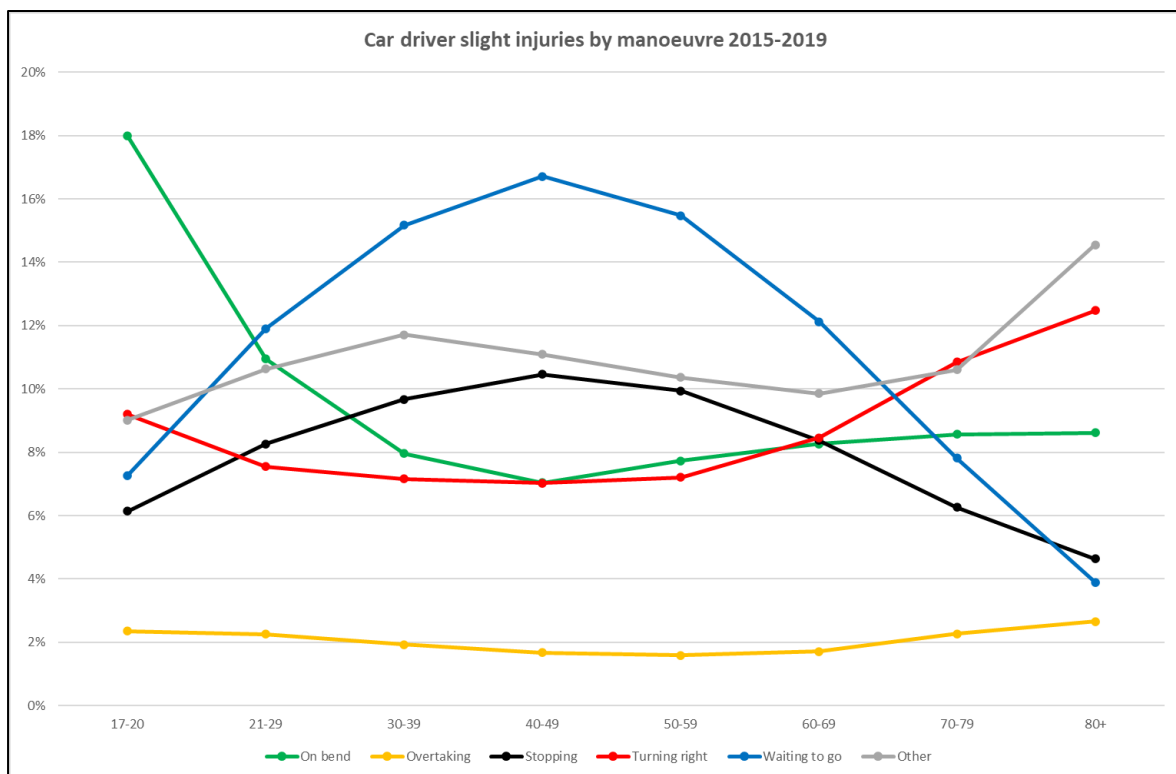


Figure 17: Proportion of car driver slight injuries by manoeuvre and age group 2015-2019 (Source: STATS19)

The proportion of fatal and seriously injured car drivers going ahead on a bend declines dramatically with age. For example, this falls from more than a third of car driver fatalities amongst those aged under 30, to less than half of this among those aged 70 or over.

On the other hand, the proportions of car drivers who are turning right at the time of the crash increases dramatically among the eldest age groups. For example, up to and including the 50-59 age group, less than 3% of fatal car drivers are turning right; this increases to 4½% for those aged 60-69, then to 8½% for those aged 70-79, and to 14% for those aged 80 or over.

There is a similar incline with age in the proportion of crashes where the manoeuvre is categorised in the above as 'Other'. The most common manoeuvre in this category is 'moving off' but this category also includes 'changing lane', 'performing a U turn' and 'reversing' amongst many other manoeuvres so the numbers for any given manoeuvre can be quite small and thus less statistically robust.

Given the above analysis, the combination of right turns at T or staggered junctions warrants further investigation. Figure 18 therefore shows the proportions of car driver casualties in which the car is turning right at a T or staggered junction, over the longer 2006-2019 period to increase statistical robustness. While less than 2% of car driver fatalities amongst those aged under 40 involve the car turning right at a T or staggered junction, this percentage increases markedly amongst older age groups, from 4% amongst those aged 60-69 to 8½% for those aged 70-79, and to more than 14% amongst those aged 80 or over. The same trend is present – though to a lesser extent – amongst both serious and slight casualties.

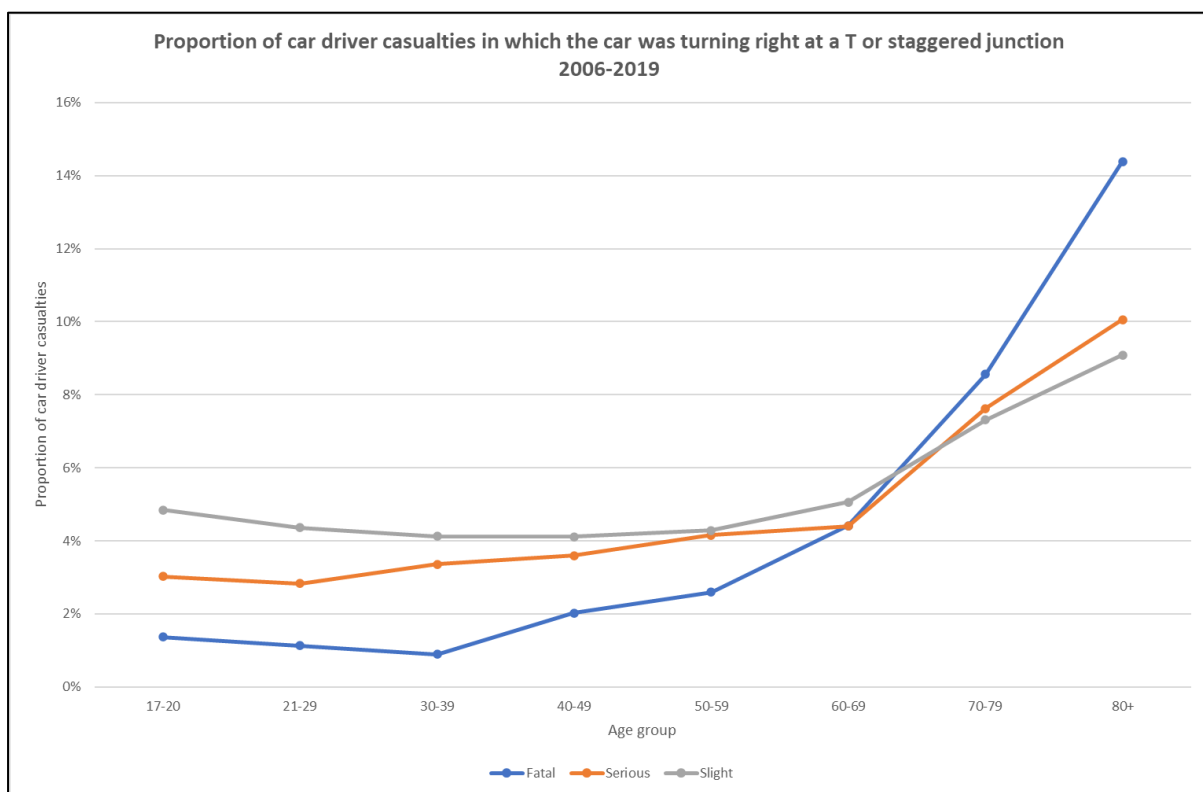


Figure 18: Proportion of car driver casualties in which the car is turning right at a T or staggered junction 2006-2019 (Source: STATS19)

A similar analysis for right turns at crossroads suggests the same trend, as shown in Figure 19, though the numbers are much smaller and therefore less statistically robust.

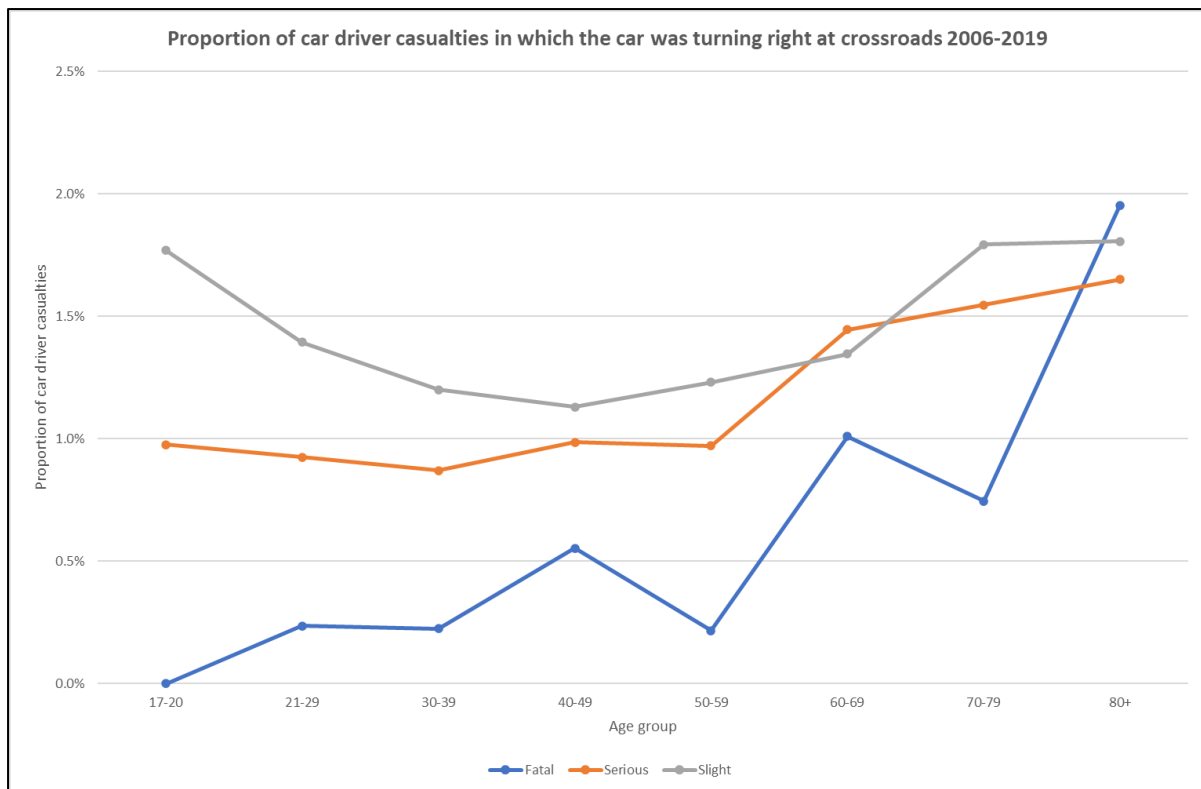


Figure 19: Proportion of car driver casualties in which the car is turning right at crossroads 2006-2019 (Source: STATS19)

5.1.3 Speed Limits of Car Crashes Involving Right Turns

Car driver fatalities in crashes in which the car is turning right occur most frequently where the speed limit is 60mph regardless of age, with around half of right-turning car driver fatalities occurring where the speed limit is 60mph, as Figure 20 shows. The figures for other speed limits are less statistically robust.

For serious and slight injuries to car drivers who are turning right, on the other hand, the most frequent speed limit is 30mph, followed by 60mph, again regardless of driver age, as Figure 21 and Figure 22 show. As drivers age, however, there appears to be a shift in these proportions, away from 30mph speed limits, towards 60mph speed limits.

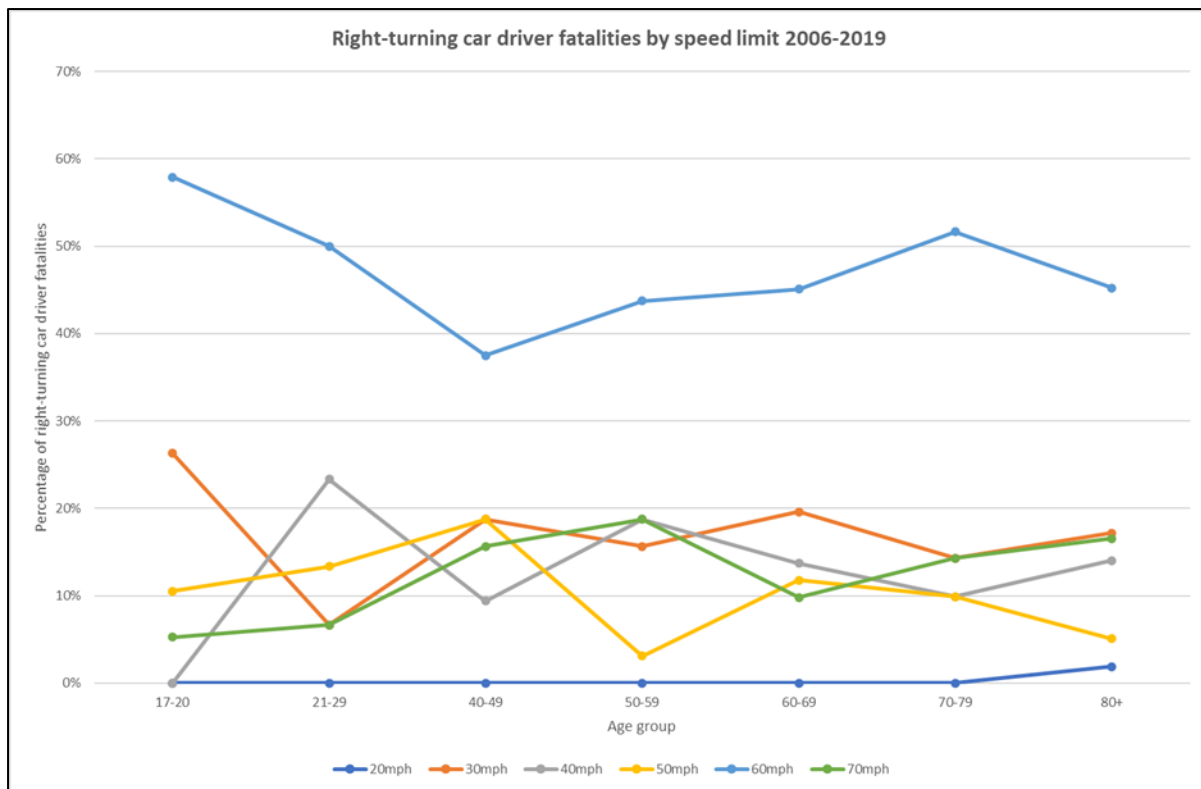


Figure 20: Proportion of right-turning car driver fatalities by speed limit and age group 2006-2019 (Source: STATS19)

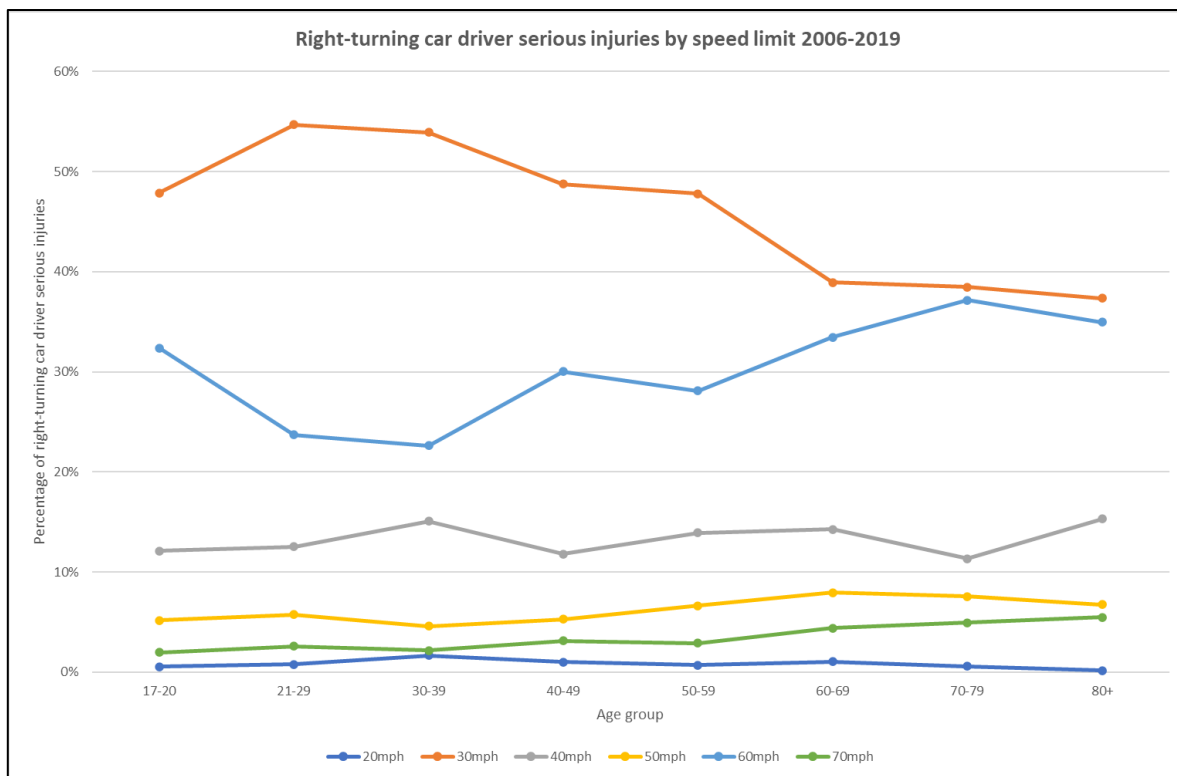


Figure 21: Proportion of right-turning car driver serious injuries by speed limit and age group 2006-2019 (Source: STATS19)

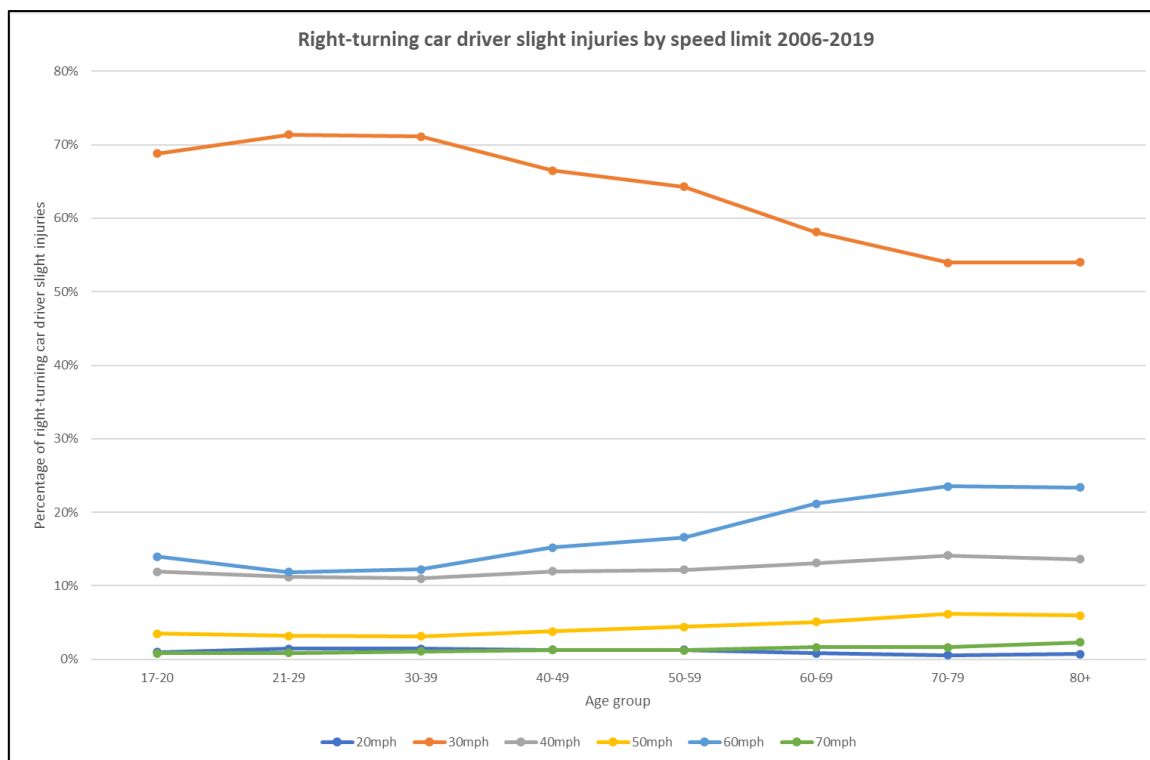


Figure 22: Proportion of right-turning car driver slight injuries by speed limit and age group 2006-2019 (Source: STATS19)

5.1.4 Conclusions

The proportion of car driver fatalities and serious injuries at T or staggered junctions increases substantially amongst drivers aged 70 or over.

Similarly, the proportion of car driver casualties who are turning right increases dramatically amongst drivers aged 70 or over, with other manoeuvres, such as moving off, exhibiting a similar incline.

The combination of right turns at T or staggered junctions appears to be particularly problematic as drivers age: around 4% of car driver casualties aged 60-69 are turning right at a T or staggered junction, but this figure increases thereafter, particularly in the case of fatalities – more than 14% of car driver fatalities amongst those aged 80 or more are turning right at a T or staggered junction.

The proportions of serious and slight injuries to car drivers who are turning right where the speed limit is 30mph appears to fall as drivers age, with increases in the proportions where the speed limit is 60mph.

5.2 Safe Road Design

Safe road design is fundamental to the risk of road trauma faced by all drivers. Even on major roads, Britain's safest roads are up to 40 times safer than the riskiest. The in-built risk of road infrastructure is now measurable. The lack of progress in reducing overall trauma in the decade to 2020 has brought renewed focus on infrastructure with the WHO leading the way, setting of standards the requirements for infrastructure safety performance of new and existing roads in the decade to 2030.

The UK has been a leader in this field. National Highways had adopted a goal that by 2020 more than 90% of travel on its network should be on roads which achieve a 3-Star safety rating based on the 5-star scale set by the International Road Assessment Programme (iRAP). The Welsh Government are commencing an iRAP survey of their strategic roads and DfT's Safer Roads Fund used the iRAP

proactive risk management methodology to address the 50 riskiest local authority A roads in England, demonstrating a benefit-cost ratio of more than four from remedial measures.

There are four main crash types – crashes at junctions, run-off road crashes, head-on crashes and crashes involving vulnerable road users. These crash types can be tackled with simple and cost-effective road safety engineering interventions. Priority junctions (T- junctions and cross-roads without traffic lights) present a high risk, for both younger and older drivers who are disproportionately involved in collisions at these locations. The crashes that occur at these locations largely involve side impacts which result in severe high-cost injuries because of the energies involved and the fact that the protection afforded by vehicles is at its weakest when side impacts occur. NCAP tests are carried out at just 19 mph which is sufficient, for example, to absorb glancing blows between two vehicles involved in a roundabout collision, but not the kind of crashes that can and do occur at priority junctions.

As can be seen in Section 5.1.2, the proportion of car driver fatalities and serious injuries at T or staggered junctions increases substantially amongst drivers aged 70 or over. Similarly, the proportion of car driver casualties who are turning right increases dramatically amongst drivers aged 70 or over, with other manoeuvres, such as moving off, exhibiting a similar incline.

The combination of right turns at T or staggered junctions appears to be particularly problematic as drivers age: around 4% of car driver casualties aged 60-69 are turning right at a T or staggered junction, but this figure increases thereafter, particularly in the case of fatalities – more than 14% of car driver fatalities amongst those aged 80 or more are turning right at a T or staggered junction. The proportions of serious and slight injuries to car drivers who are turning right where the speed limit is 30mph appears to fall as drivers age, with increases in the proportions where the speed limit is 60mph.

It is recommended that the UK commences a safer junction programme in the decade to 2030. The State of Victoria has had substantial success with a well evaluated programme for more than a decade. France has improved more than 1,000 junctions each year for more than two decades particularly by replacing T-junctions with well-designed modern roundabouts or providing sheltered turning lanes.

An effective Safer Junction programme is likely to have a focus on junctions on the Major Road Network (MRN) in England. One in every seven English road deaths take place on the MRN. European programmes are seeking to inspect their equivalent primary road networks by 2024 and it is recommended that DfT now enable an inspection of the MRN by end-2022 to complement National Highway's inspection programme. An MRN inspection will enable a systematic evidence-base on the relatively short network of all significant roads (SRN and MRN) capturing one in three of all deaths in England. This will enable inter alia a high return safer junctions priority programme to be defined which will benefit all drivers. The programme can be further enhanced on other local authority roads where inspections are already taking place in leading authorities.

5.3 Recommendations

Number	Recommendations - Safer Roads (SR)
SR1	It is recommended that the UK commences a safer junction programme in the decade to 2030 in line with best practice recommendations made by the iRAP programme.
SR2	An iRAP survey of the Major Road Network (MRN) in England would, combined with the SRN programme, provide an evidence base that accounts for 1 in 3 of English road deaths.
SR3	An iRAP survey of strategic roads in Scotland and Northern Ireland would provide a consistent evidence base for treatment of roads.

Number	Recommendations - Safer Roads (SR)
SR4	iRAP surveys provide a potential source of data (since the presence of junctions and junction type are recorded) to provide additional insight into junction collisions involving older drivers and the particular junction types and configurations that are problematic.

6 Safer People

In this part of the report, we review evidence on three main health and fitness to drive issues relevant to older drivers:

1. Eyesight
2. Diabetes
3. Driving assessments

6.1 Eyesight

6.1.1 What is the Current Law in Relation to Driving and Eyesight?

The GOV.UK website gives the following regulations on driving and eyesight¹²

- Glasses or contact lenses must be worn every time an individual drives if they need them to meet the ‘standards of vision for driving’
- DVLA must be informed if an individual has got any problem with their eyesight that affects both of their eyes, or the remaining eye if they only have one eye
- This does not include being short or long sighted or colour blind. An individual also does not need to say if they have had surgery to correct short sightedness and can meet the eyesight standards

The ‘Standards of Vision for driving’ for Group 1 licence holders (Motor car and Motorcycle) in the UK are:

- An individual must be able to read (with glasses or contact lenses, if necessary) a car number plate made after 1 September 2001 from 20 metres
- An individual must also meet the minimum eyesight standard for driving by having a visual acuity of at least decimal 0.5 (6/12) measured on the Snellen scale (with glasses or contact lenses, if necessary) using both eyes together or, if they have sight in one eye only, in that eye
- An individual must also have an adequate field of vision

The regulations for Lorry and Bus drivers (Group 2 licence holders) require a higher standard for eyesight and drivers are required to have a Vision assessment by either a doctor or optician / optometrist and complete a D4 form¹³. This must be done at first application and renewal.

NHS eyesight tests

An NHS eye test is available at no cost to the recipient if an individual:

- Is aged 60 or over
- Has diabetes or glaucoma
- Is aged 40 or over, and their mother, father, brother, sister, son or daughter has glaucoma.
- Is advised by an ophthalmologist that they are at risk of glaucoma.
- Is eligible for an NHS contact lens voucher

¹² <https://www.gov.uk/driving-eyesight-rules>

¹³ <https://www.gov.uk/government/publications/d4-medical-examiner-report-for-a-lorry-or-bus-driving-licence>

An individual is also eligible if they or their partner (including civil partner) receive:

- Income Support
- Income-related Employment and Support Allowance
- Income-based Jobseeker's Allowance
- Pension Credit Guarantee Credit
- Universal Credit and meet the criteria

The NHS eyesight test will provide an accurate Snellen assessment of a patient's best corrected Visual Acuity and where patients have a condition that may impact on visual field will assist in a visual field review.

6.1.2 Review of the Previous Older Drivers Task Force Report 2016

In the 2016 report the task force recommended that:

"The DVLA should require evidence of an eyesight test at age 75. The DVLA, insurers and others should encourage vision checks every two years, particularly from age 60. The Government should commission research into visual tests to establish ones that are fit for purpose."

As mentioned in the 2016 report, research on visual impairment and road safety concluded inter alia that:

- Drivers should have a vision check every five years and every two years for drivers over 60
- Drivers aged 70 and over should have a mandatory sight test on renewal of their driving licence
- Research is needed to gain consensus on the best combination of visual tests for driver licensing, and the intervals between sight tests

Adding a tick box to the licence renewal form, requiring drivers to certify that they have had a satisfactory vision test in the previous 12 months, could provide a useful prompt to drivers to get their vision checked.

Apart from some additional research (mentioned in Annex 2), eyesight requirements remain unchanged.

6.1.3 When is Eyesight Legally Checked?

For drivers with no notifiable eyesight medical condition there are only two occasions when their eyesight will be legally checked, those are:

1. **Taking the Driving Test** – an individual must be able to read a number plate at 20 metres and a Snellen chart. This is conducted before the driving test and an inability to do so will result in a failure
2. **Required by the Police** – a Police Officer can require a person to read a number plate. This must be done in good daylight conditions and the number plate needs to be at 20 metres and affixed to a vehicle. Those who fail now can potentially have their licence revoked within hours. This will be discussed further later in this report

Note.

- Group 1 Drivers who have not informed the DVLA of any notifiable eyesight condition are not required to undertake any formal optician's eyesight test at any time in their driving career. This is the case for first application or renewal of a licence at any age
- An individual can apply for a provisional car driving licence from the age of 17 and start driving for their whole life on a provisional licence without any check on their eyesight

Provisional licence holders need to be accompanied by a fully licensed supervising driver. Many people will start driving with lessons from an approved Driving Instructor who would be aware of the eyesight requirements and thus would conduct a number plate test prior to the first lesson with a student. Unfortunately, this potentially only picks up those who can afford driving lessons and start driving with an approved Driving Instructor

Driving Licence Application / Renewal

When an individual applies for a licence they will be asked:

- a) Can they read a car number plate (with glasses or corrective lenses if necessary) from 20.5 metres (67 feet) or 20 metres (65 feet) where narrower characters (50 mm wide) are displayed? – Tick Yes or No
- b) Does the individual need to wear glasses or corrective lenses when driving? Tick Yes or No

Points to note:

- If an individual ticks 'Yes' that they need to wear glasses or corrective lenses to drive, then they will have a code '01' restriction added to the rear of their licence. If a driver is stopped by the Police and found they are not wearing their glasses or contact lenses, the DVLA or police could issue a £100 fine and 3-6 points on their driver's licence. The driver should report to DVLA any change to eye conditions including having laser surgery to correct eyesight as the '01' restriction code will need to be removed. This is rarely done
- There is no legal requirement to inform the DVLA an individual has developed a need for corrected vision for driving. This can cause confusion to the Police when stopping and checking a driver
- The recommendation given by the Task Force in 2016 to add a tick box to the licence renewal form, requiring drivers to certify that they have had a satisfactory vision test in the previous 12 months has not been acted on

The number plate test

One of the current 'Standards of Vision' for driving is that an individual must be able to read (with glasses or contact lenses, if necessary) a car number plate made after 1 September 2001 from a distance of 20 metres. Additionally, these standards state that an individual must have an adequate field of vision; however, this is not something which can be checked by a number plate test alone. For some individuals, just reading a number plate will be the only test they will have on their eyesight throughout their driving licence history.

Evidence suggests that this test alone is inadequate in identifying if an individual's eyesight is safe for driving or not. The number plate test is not necessarily a reliable indicator of whether someone can drive safely because it does not check all the relevant aspects of visual function, such as peripheral vision or contrast sensitivity. This means an individual may pass the number plate test without having good enough vision to drive safely. In addition, the results of the number plate test cannot be checked in a test environment with consistent results. This is highlighted in a report by Keil, Butler and Alwitary

in 2003 titled 'Visual acuity and legal visual requirement to drive a passenger vehicle' which concluded that the current test protocol used to obtain a driving licence and, moreover, the test the police employ to assess visual competence to drive, is highly variable and is unlikely to give consistent repeatable results.

Evidence shown in Annex 2 of that report highlights that from the age of 70 years and over, some drivers have an increased risk of not even being able to read a number plate at 20 metres when checked by the Police. This highlights the issue on relying on a number plate test alone and how it is even more of an issue when dealing with drivers aged 70 and over.

Whilst the number plate test may be more convenient, the solution is to consider replacing the number plate test with a more modern and reliable evaluation process, as is the case in other parts of Europe. Optometrists are ideally placed to offer this in the UK utilising an agreed driver 'MOT' for eyesight standards.

6.1.4 Eyesight Considerations

Evidence shows that as we get older our eyesight deteriorates in acuity, field of vision and recovery from glare. This sometimes occurs slowly allowing adaption and without us being aware - without correction or treatment this can lead to increased risk to ourselves and others when driving.

In March 2021 the Older Drivers Forum ran a series of webinars for Older Drivers and during these they ran a series of Polls. Over 700 people took part in the webinars, 98% of those being aged 70 or above. When asked 'Have you had an optician's eyesight test in the last 2 years?', 92% said Yes. When asked 'Would you be in favour of it being compulsory to have an optician's eyesight test at licence renewal at 70 years?', 95% said Yes.

Surveys and their analyses show that drivers do undertake more frequent voluntary eyesight tests as they get older. However, it can be seen from the data presented that the number of drivers with eyesight outside the standards required and identified by the Police increases greatly after the age of 70. This would tend to suggest that those who have an eyesight issue are either complacent about having their sight checked or avoid having their sight checked, perhaps with the fear of not having suitable vision for driving and their licence withdrawn. Without mandatory eyesight testing by an Optometrist or Ophthalmic medical/practitioner these drivers will not be identified and will continue to be a risk to themselves and others.

There is strong support from the older age group for compulsory eyesight testing at licence renewal. As sight testing is available at no cost to the individual via the NHS for anyone over the age of 60, requiring a test at least at licence renewal could be an acceptable and sensible road safety measure.

Regular eyesight testing can also be a very effective way of detecting various medical conditions and eye diseases at an early stage. Earlier detection means that treatments can be implemented sooner and are likely to have a better outcome and should enable drivers to meet the required driving standards for longer than if left undetected and untreated. This has financial implications for long term health and social care.

6.1.5 Tightening up Police Enforcement

The Task Force's work on driving assessments has shown the important part some police forces play in identifying drivers with defective eyesight and offering driving assessments which together with corrective glasses and /or remedial training for drivers can help them make the improvements necessary to return to driving safely. This is discussed in detail in Annex 3 of this report, but is summarised in the following paragraphs.

Evidence shows that as we get older our eyesight deteriorates, sometimes without us being aware of it. Without correction or treatment this can lead to increased risk. Polls and analysis show that older drivers in particular have more frequent voluntary eyesight tests as they get older. However, the number of eyesight failures identified in Police checks increases greatly after the age of 70. This suggests that those who have an eyesight issue are either complacent about having their sight checked or avoid having it checked, perhaps for fear of failure.

The National Police Chiefs Council (NPCC) should be encouraged to run a national Police eyesight campaign with partners, perhaps to coincide with National Eye Health week every year. This will help raise awareness as well as develop further data for analysis.

In 2013 a new procedure was created called 'Cassie's Law'¹⁴. This procedure enables the Police to notify the DVLA electronically with details of eyesight test failures allowing a notice of revocation of the licence to be issued to the motorist within hours. Once revoked, a licence will not be returned until a driver can demonstrate that their eyesight meets the required standard and they re-apply for their licence with the DVLA. Consideration should be given by the DVLA and NPCC to improve awareness to all Police Forces to raise their awareness in relation to the 'Cassie's Law' procedure.

6.1.6 Recommendations

Number	Recommendations - Safer People (SP) and Police Enforcement (PE)
SP1	Applicants should certify at licence renewal (by tick box) that they have had a satisfactory vision test in the previous 12 months. This should prompt to drivers to get their vision checked.
SP2	Consideration should be given to making it a legal requirement that drivers (at any age) inform the DVLA that they have corrected vision to drive using glasses or contact lenses. Consideration should be given to make it a legal requirement to notify the DVLA when this is no longer the case, for example after laser eye surgery.
SP3	Applicants should have a vision assessment as part of the process for acquiring a provisional driving licence.
SP4	Consideration should be given to introducing mandatory eyesight testing with an optometrist or ophthalmic/medical practitioner providing a driver 'MOT' of eyesight at licence renewal at the age of 70 and at subsequent renewals. If this was implemented then the NHS contract for free eyesight tests for 60 and above would need to be amended so that drivers 70 and above could have a more detailed 'MOT' eyesight test.
SP5	Once a mandatory eyesight test has been introduced then consideration should be given to the creation of a national database which Optometrists and Ophthalmic/medical practitioners could complete online against a person's driving licence number showing: <ul style="list-style-type: none"> Suitable Standard of vision for driving for Group 1 licence holders – YES / NO Driver has corrected vision for driving through glasses or contact lenses – YES / NO¹⁵

¹⁴ Cassie McCord (16 years old) from Chichester was killed on her way to school by an 87-year-old driver, just three days after he had failed an eyesight test and refused to surrender his licence.

¹⁵ By creating such a scheme it would be easier and simpler to record checks and for the DVLA and Police at the roadside to check a person's eyesight standard quickly, efficiently and in line with data protection. This database on eyesight would run

Number	Recommendations - Safer People (SP) and Police Enforcement (PE)
SP6	Consideration should be given to carrying out further research to gain consensus on the best combination of visual tests for driver licensing, and the intervals between sight tests.
PE1	The National Police Chiefs Council (NPCC) should be encouraged to run a national Police eyesight campaign with partners, perhaps to coincide with National Eye Health week every year. This will help raise awareness as well as develop further data for analysis.
PE2	Consideration should be given by the DVLA and NPCC to improve awareness to all Police Forces to raise their awareness in relation to the 'Cassies Law' procedure.

6.2 Diabetes

In a report from 2010¹⁶ Diabetes UK state there are two main types of diabetes:

- Type 1 diabetes develops if the body cannot produce insulin. This usually appears before the age of 40. It is the less common type of diabetes and accounts for around 10% of all people with diabetes
- Type 2 diabetes develops when the body can still make some insulin, but not enough, or when the insulin that is produced does not work properly. This type usually appears in people over the age of 40, although in South Asian and African-Caribbean people it can appear after the age of 25. Type 2 diabetes is the more common of the two main types and accounts for around 90 percent of people with diabetes

Since 1996 the number of people diagnosed with diabetes has increased from 1.4 million to 2.6 million, though it is estimated that around ½ million more are undiagnosed. It is thought that around 1 in 20 people have diabetes in England. By 2025 it is estimated that over four million people will have diabetes. Most of these cases will be Type 2 diabetes, because of our ageing population and rapidly rising numbers of overweight and obese people.

A Health Survey for England in 2006 talked about the prevalence of diabetes by age group in England and showed that for the 75 plus age group 13.5% men had diabetes and 10.6% women had diabetes.

If an individual treats their diabetes with lifestyle changes and are not prescribed diabetes medication, then they do not need to inform the DVLA unless there is a complication of diabetes or another condition that affects the individual's ability to drive.

A freedom of information request to the DVLA in May 2021 showed the number of Group 1 licence holders who are recorded by the DVLA as having notifiable diabetes is just under 570,000 people. 4% of these are drivers aged 70 and above, the highest is in the 70 to 79 year age bracket, 73% of which are male as shown in Figure 23.

in a similar way to that currently in place to record Driving licences, Insurance, MOT and Vehicle Excise licence information, together with its safeguards. It is recognised that this would require additional cost and effort to set up. However, the ultimate benefits of making safer drivers and reducing risk to others on the road would outweigh this.

Consideration should be given to offer a remuneration to Optometrists and Ophthalmic/medical practitioners for conducting this additional work. The Association of Optometrists, whose members make up 80% of optometrists in the UK, said that if drivers were legally required to undergo a proper evaluation and sufficient funding was in place, they believe their membership would be happy to support such a mandatory scheme.

¹⁶ https://www.diabetes.org.uk/resources-s3/2017-11/diabetes_in_the_uk_2010.pdf

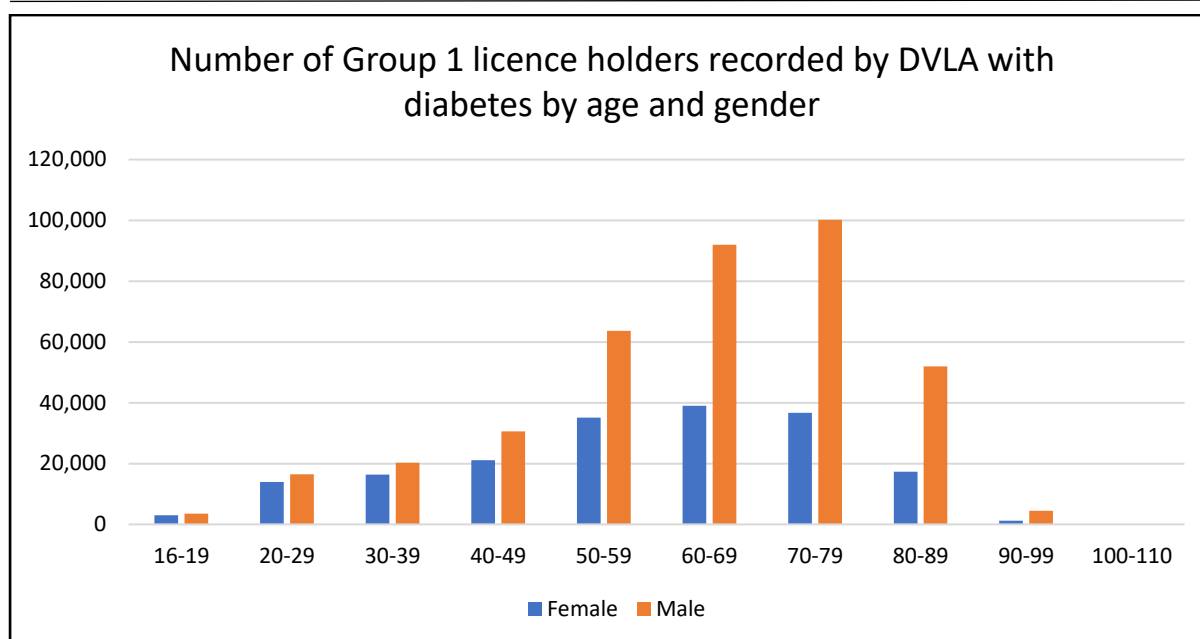


Figure 23: Number of Group 1 licence holders recorded by DVLA with diabetes

When compared with GB licence data from March 2021¹⁷ this shows that for drivers 70 and above, 5.32% of male full licence holders have notifiable diabetes, whereas 2.43% for female full licence holders have notifiable diabetes. For all full licence holders under 70 years of age it is 1.2% for males and 0.78% for females. This shows that males aged 70 and above are four times more likely to have notifiable diabetes than those under 70 years of age.

Good diabetes management has shown to reduce the risk of complications, but when diabetes is not well managed, it is associated with serious complications including heart disease, stroke, blindness, kidney disease, nerve damage and amputations leading to disability and premature mortality. Some diabetes complications may affect an individual's ability to drive. These complications may include, but are not limited to, eye problems, nerve problems (neuropathy) or circulation problems.

Peripheral neuropathy is a complication of Type 2 diabetes. Neuropathy causes damage to the nerves that transmit impulses to and from the brain and spinal cord to the muscles, skin, blood vessels and other organs. It introduces two distinct problems; firstly, a loss of sense of touch which could result in a lack of feel of a foot on a pedal or how hard the pedal is being pressed. Secondly, proprioception – for example, not knowing where or at what angle the foot is at.

Medical research in both the UK and USA¹⁸ is suggesting a link between increasing Type 2 diabetes, peripheral neuropathy and driving¹⁹. There are now around 2 million UK drivers, including 6% of all older drivers, who are estimated to have the complication. There are however solutions which mitigate such lower limb issues including coaching, visual feedback on-screen as well as the extended AEB seen in Japan in emergencies (as described further in Section 7).

¹⁷ GB Driving licence data for March 2021 - <https://data.gov.uk/dataset/d0be1ed2-9907-4ec4-b552-c048f6aec16a/gb-driving-licence-data>

¹⁸ <https://www.google.com/search?q=US+NHTSA+Pedal+Application+Errors&oq=US+NHTSA+Pedal+Application+Errors&aq=s=chrome..69i57.13980j0j15&sourceid=chrome&ie=UTF-8>

¹⁹ Perazzolo M, Reeves ND, Bowling FL, Boulton AJM, Raffi M, Marple-Horvat DE. (2020) Altered accelerator pedal control in a driving simulator in people with diabetic peripheral neuropathy. *Diabetic Medicine* 37(2):335-342

Number	Recommendation - Safer People (SP)
SP7	We recommend the government and insurers should without delay support research into the impact of physical and cognitive medical conditions (including diabetic peripheral neuropathy) that may contribute to pedal confusion events to which older drivers seem particularly vulnerable.

6.3 Voluntary Driving Appraisals/ Assessments

In the 2016 report the task force had ‘Driver Appraisal Schemes’ as its seventh recommendation:

“As a priority, the DfT research programme should support an evaluation of existing driving appraisal courses offered by the public sector and those in the private sector who wish to participate. Driver appraisal schemes hold enormous promise for the future. Unthreatening, voluntary courses run by trusted organisations have the potential to become a new (and enjoyable) social norm which any responsible older driver would wish to take to refresh skills and knowledge to support their safe driving into old age.

Today there are very many courses of varying content and quality. The aim must be to quickly develop an understanding of the core content that a recognised course should offer.”

In July 2019 the Department for Transport published the ‘Road Safety Statement 2019: a lifetime of road safety’, within this report they covered third age adults: safety as you get older said “Road users’ knowledge, experience and skills develop with experience over time. But they can also deteriorate based on age, experience and declining cognitive and physical capability. As the UK’s population ages, it is crucial that older people are able to maintain the skills and confidence required to remain safe and effective drivers²⁰. They added ‘Information and education are just as important for the old as they are for the young, and sometimes it can be a lack of confidence that inhibits older people from driving²¹.’

In January 2020 the RAC Foundation published a report by Dr Julie Gandolfi of Driving Research Ltd titled ‘Supporting older driver mobility and effective self-regulation’²²

This research states in relation to older driver safety that driving requires strength, co-ordination, good eyesight, flexibility, attention, memory, decision making and judgement, all of which can be affected by age-related decline, hence increasing risk.

The report focuses on in-car telematics and driver-assist technologies predominantly. The report says that international evidence shows that that it is extremely difficult to devise a system of mass retesting which produces meaningful road safety gains.

In Japan drivers reaching the age of 70 must take part in:

- A lecture
- Aptitude tests involving simulator driving, field of vision checks and night vision capability
- A discussion session

²⁰ Page 29, point d) Third-age adults

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817695/road-safety-statement-2019.pdf

²¹ Page 32, point 2.70

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817695/road-safety-statement-2019.pdf

²² RAC Foundation, Supporting older drivers mobility and effective self-regulation https://www.racfoundation.org/wp-content/uploads/Supporting_older_driver_mobility_Gandolfi_January_2020.pdf

- An on-road driving assessment

Yet despite all this, the report says that *“research has failed to find overwhelming support for the effectiveness of these measures in reducing at-fault collisions among older drivers.”*

However, the report does state (Item 2.8.2) that *“On-road assessments are regarded as the gold standard, but these require standardisation in order to provide an objective measurement”*. The report does go on to say (Item 4.1) that there are challenges in creating a standardised, objective assessment that facilitates targeted interventions capable of helping older drivers to self-regulate effectively and that it is necessary turn attention to the resources that are readily available to assist older drivers in calibrating their own self-awareness and implementing appropriate self-regulatory behaviours.

In 2015 IAM Road Smart published a report titled *‘Keeping Older Drivers Safe and Mobile’*²³. This report surveyed more than 2,600 drivers, with an age range between 55 to 101 years, approximately 50% were under 70 and 50% over 70 years of age.

The report stated that *‘Poor health was the most important factor in deciding to give up driving, followed by the cost of motoring and lack of confidence. Women were more likely to believe they had given up driving too early, whereas more men thought they may have left it too late. It is likely that older drivers would benefit from driver training aimed at building confidence and driving competence.’*

There are still a large number of entry level assessment / appraisal schemes for the mature motorist running nationally by trusted bodies such as RoSPA, IAM Road Smart and Local Authorities. These vary in standard, length, cost and input given. They concentrate on education and training interventions which seek to change mobility behaviour and / or driving behaviour. However, there are few good quality evaluations which have demonstrated their effectiveness on behaviour, skills and awareness²⁴.

There are more detailed assessments available at Driving Mobility centres for those with a medical condition or disability. These such assessments have been well evaluated and shown to be fit for purpose.

Groups who are involved in this area are detailed in the following paragraphs.

Driving Mobility

Driving Mobility is a registered charity and accredits a network of 20 driving assessment centres and 79 outreach centres covering the whole UK. They provide assessments, advice and information on all aspects of personal mobility. The centres used include independent charities and the NHS which offer professional information and assessment to enable disabled and elderly people to gain or retain independence. No one should need to travel for more than 30 minutes or 30 miles to attend a centre.

Road Safety GB

Since the 2016 report, Road Safety GB has created a certified training course for Approved Driving Instructors (ADIs) which will assist them with a detailed understanding of the needs of the older driver and how best to support them. Road Safety GB has said *“The training will be delivered at locations across England and Wales, with 300 subsidised places available to ADIs. Ultimately, the project will provide Local Authorities with access to a pool of driving instructors who will have the insight required to better support the wide range of local authority older driver schemes being delivered across the country”*²⁵.

²³ IAM Road Smart report <https://www.iamroadsmart.com/media-policy/research-and-policy/older-drivers-2021>

²⁴ Page 21, <http://oldermobility.com/landscape-review/>

²⁵ <https://roadsafetygb.org.uk/news/training-will-provide-detailed-understanding-of-older-drivers-needs/>

The scheme is currently a research project, but so far has received positive feedback from the ADIs undertaking the course. Due to Covid 19 there has been delay in running the courses and then the ADIs being able to utilise the skills trained when instructing older drivers. Once the 300 people have been trained, no more ADIs will be trained. It is hoped the course will receive additional funding and be available to more ADIs for free or at a discounted cost.

6.3.1 Options

The Task Force still believes there is a good framework of potentially three options for older drivers requiring or wanting an appraisal / assessment. These options depend on the needs and requirements of the older driver involved, as well as the circumstances that brought about the appraisal or assessment.

The three options could be:

- **Option 1 - A light touch appraisal.** These are commonly undertaken by Local Authorities and other organisations. They are for older drivers who have volunteered or have been persuaded by a family member and sometimes a GP to attend. Currently no standardisation of such schemes exists, and they vary greatly. An individual would choose this option if they wished to refresh their skills
- **Option 2 – Medical / Driving Assessment.** Following involvement with the DVLA, GP or other medical professional, the older driver could be referred to a Driving Mobility Centre. These referrals may be voluntary, by recommendation of the GP or directed by the DVLA. These assessments are considered for those who suffer from a medical condition or disability which may affect their ability to drive. These assessments are more detailed and use the skills of Occupational Therapists, Approved Driving Instructors (ADIs) and Clinicians to tailor advice and support to individual requirements to keep mobile and remain safe. These assessments are already accredited and approved and need no further standardisation or review. An individual would choose this option if they had a medical condition that may affect their ability to drive or if directed by the DVLA to check if they are indeed safe to continue driving.
- **Option 3 - Alternative to Prosecution.** A driver involved in a careless driving offence could be diverted from prosecution to a 'Option 2' type of driving assessment at a Driving Mobility Centre to undertake a Fitness to Drive Assessment. These such diversions are running in only a few Police Forces nationally and consideration needs to be given to expanding this concept. An individual would be given the choice to undertake this option as an alternative to prosecution for the offence of careless driving

Option 1 and Option 3 are discussed further below with recommendations on what additional work is required. Option 2 is not discussed any further as this option is fit for purpose, regularly reviewed by Driving Mobility and as detailed in this report, requires no further action.

Option 1 – A light touch appraisal.

As noted, the 'Option 1' appraisals vary in standard, length, cost and input given. Going forward we consider that a standardised driving appraisal would be beneficial. This would require guidance and direction from a national body to those undertaking such schemes. Elements of such a standard are provided in Annex 4 to this report.

Option 1 appraisals often attract older drivers who are already happy about their driving, and just want reassurance or to build their confidence. The appraisal may not have an impact on the short-term road safety risk of an individual, however they may well have an effect in the long term by encouraging drivers to get into the mindset of reviewing their driving regularly so that when the day comes to retire from driving it is less of a shock and more planned. These schemes have also, on many

occasions, assisted drivers (and families of older drivers) by providing the evidence and support to retire from driving before a measurable incident has occurred. That being the case these schemes are invaluable often as a first step for reviewing ones driving from an independent qualified person.

In the 2015 evaluation of the Dorset Driver Gold scheme, it said that it had achieved its objectives of successfully training a group of senior drivers and improving their driving skills and confidence as drivers. It was not possible to measure the impact on road safety outcomes, but most participants felt that they were better or safer drivers as a result of the on-road driving sessions.

In the light of this analysis our conclusion is that the Older Driver training course for Approved Driving instructors has potential value and should be extended so that we have a large pool of certified and trained ADIs to help older drivers. Road Safety GB support this but it may require further funding.

We conclude that standardising and evaluating a national 'Option 1' scheme will help raise awareness of such schemes and thus encourage more people to undertake an appraisal, which in turn will assist in building confidence and prepare people by undertaking regular appraisals to establish the right time to retire from driving. This will allow people to plan and come to terms with using other mobility solutions.

Without a national standardised scheme, an older driver may receive varying advice, potentially from untrained and inappropriate assessors, allowing the older driver to continue to drive when they may no longer be fit to do so.

By the creation of a national evaluated standardised 'Option 1' appraisal, this may allow the insurance sector to offer financial incentives for the older road user to participate in such an appraisal.

Number	Recommendations - Safer People (SP)
SP8	It is recommended that the principal organisations agree a core content for Driving Appraisals and that the Older Driver training course for Approved Driving Instructors should be extended to create a large pool of certified and trained instructors to assist older drivers. The providers of these courses may require additional funding to train and certify the instructors to be part of this pool.
SP9	To create a standardised 'Option 1' light touch Older Drivers' appraisal it is suggested that a focus group be created with representatives from various organisations currently running such schemes. Annex 4 in this report gives key elements to be considered. Once an outline of a scheme is identified, then it should be created in one region to trial and then evaluated against agreed criteria.

Alternative to Prosecution (Fitness to Drive)

Some drivers continue driving when they are no longer safe to do so. This might be without their awareness, or could be caused by complacency or an underlying medical condition. These drivers sometimes come to the attention of the Police.

Hampshire Constabulary and a number of other Forces across the country have been successfully trialling an 'Option 3' alternative to prosecution, called 'Fitness to Drive' Assessment for certain vulnerable road user groups, with drivers aged 70 and above being one such group. Details of this scheme are provided in Annex 4.

The Task Force fully support a roll out of this scheme nationally and have funded the creation of a 'Guide to Police Fitness to Drive Assessments' to help Police Forces and Driving Mobility Centres easily

set the scheme up with all the required forms, letters and documents. The cost of the assessments is part funded by the DfT and further financial support from the DfT would be required for this scheme to be rolled out nationally.

Number	Recommendation - Safer People (SP)
SP10	We recommend that the alternative to prosecution scheme for careless driving offences should be rolled out nationally for certain vulnerable road users (one being drivers aged 70 and above).

7 Safer Vehicles and Technology

7.1 The Global Context

Vehicle safety in the UK has for the last 40 years closely followed that of the European Union and has been regulated mainly by international standards, regulations and directives devised by the European Union (EU) and the United Nations Economic Commission for Europe (UN ECE). The UK is unlikely to diverge significantly from either. Through the additional 1998 agreement, the United Nations also provides a framework for other countries to enact Global Technical Regulations complementing the 1958 UN ECE agreement and to aid harmonisation of requirements across all world regions. As in Europe, the same is true for vehicle safety in the UK currently; until such time as there is a deviation from the EU requirements (noting that the UK is still a contracting party to the UN ECE and UN agreements).

The European General Safety Regulation (EC Regulation No. 661/2009) was published on 31 July 2009 and provided "type approval requirements for the general safety of motor vehicles". This Regulation repealed a large number of old EC Directives and replaced them with references to the corresponding United Nations Regulations. It also mandated the fitment of a number of "new technology" systems, such as electronic stability control (ESC) systems, and both lane departure warning systems (LDWS) and advanced emergency braking systems (AEB) for heavy vehicles.

Ten years later, a revised General Safety Regulation was adopted on 27 November 2019. Regulation (EU) 2019/2144 "on type-approval requirements for motor vehicles... as regards their general safety and the protection of vehicle occupants and vulnerable road users" makes a further list of safety features mandatory, for example:

- For cars, vans, trucks and buses: warning of driver drowsiness and distraction (e.g. smartphone use while driving), intelligent speed assistance, reversing safety with camera or sensors, and fitment of a data recorder in case of a crash ('black box')
- For cars and vans: lane-keeping assistance, advanced emergency braking, the pole side impact test and a crash-test for restraint system performance

These new safety features will start to become mandatory from 2022, although, at the time of writing, they had not been included in UK law.

For older drivers many of the technologies covered by the regulations referred to above will help. For instance, AEB will follow the requirements of UN Regulation No. 152, bringing AEB systems that detect cars and pedestrians in a first step and then adding cyclist detection and improved braking for pedestrians in a second step.

The frontal crash test with a focus on restraint system performance is the full-width test of UN Regulation No. 137. Note that the General Safety Regulation promotes switching from the Hybrid III crash test dummy to the THOR when that becomes available in Regulation No. 137.

The pole side impact test is included through reference to UN Regulation No. 135. This type of testing, with a stiff narrow object loading the occupant compartment, is responsible for much of the innovation around airbag technologies that protect the head in side impacts. Now it becomes mandatory for new cars in Europe.

To facilitate the implementation of requirements for information systems that tell a driver about the presence of a vulnerable road user in close proximity, when moving off or reversing, the European Commission is jointly chairing with Japan an informal working group under the auspices of GRSG (the United Nations Working Group on General Safety Provisions). This will lead to a UN Regulation on the topic.

eCall is not included within the General Safety Regulation requirements as it has already been specified for vehicles through Regulation 2015/758 on eCall type-approval and the corresponding Commission Implementing Regulation (EU) 2017/78 and Commission Delegated Regulation (EU) 2017/79 which contain administrative provisions and detailed technical requirements.

Number	Recommendation - Safer Vehicles (SV)
SV1	The Task Force recommends that the government incorporates the standards of the EU General Safety Regulation into UK law, which includes AEB, ISA and other important safety technologies.

7.2 Crash Severity and Older Drivers

Due to their frailty and fragility, older people tend to exhibit a lower threshold to sustaining injury. As a result, we have significant concern about safety for the elderly even in lower severity crashes, which by far exceed the frequency of higher severity crashes. A typical distribution of collisions by severity is shown in Figure 24. There is an initial rise as not all very minor collisions are reported, then the number of cases decreases exponentially with increasing severity²⁶⁻²⁷

Most of the collisions that are reported to the police or for insurance purposes will be ‘damage-only’ with no injury sustained. Importantly, many of the lower severity crashes might result in no injuries or only minor injuries for a younger person. However, the increase in risk of injury with increasing crash severity happens at lower severities for the older population than for the younger (Figure 25 gives an indication of injury risk). The problem is not made visible through many field data studies as injuries to the elderly in these lower severity crashes is seldom of a nature considered to be immediately life-threatening (according to conventional rating, such as with the Abbreviated Injury Scale, AIS) and they result in only a few fatalities. However, because the elderly are generally frailer, even a rib fracture (considered ‘moderate’, by definition) may result in death from medical complications such as pneumonia.

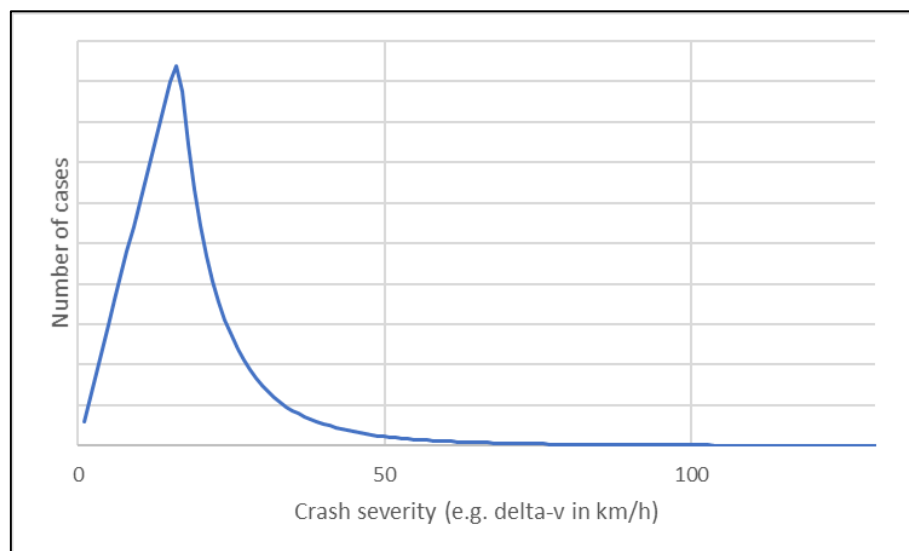


Figure 24: Distribution of crashes according to a severity metric such as delta-v (the change in velocity for the car)

²⁶ Andricevic, N., Junge, M. & Krampe, J. (2018) Injury risk functions for frontal oblique collisions. *Traffic Injury Prevention*, 19:5, pp. 518-522.

²⁷ Bálint, B., Fagerlind, H. & Kullgren, A. (2013) A test-based method for the assessment of pre-crash warning and braking systems. *Accident Analysis and Prevention* 59 (2013) pp. 192-199.

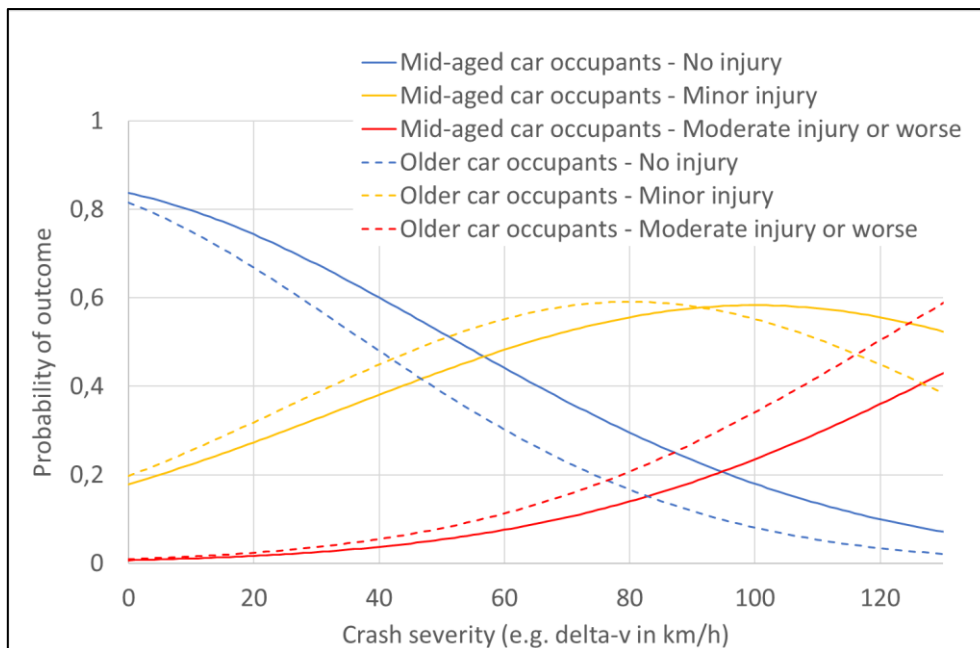


Figure 25: Schematic representation of the probability of injury over the collision speed of the car for mid-aged and older car occupants in frontal collisions [6]

7.2.1 Crash Test Dummies

In current frontal regulation and consumer tests, crash test dummies such as the Hybrid III (HIII) 5th female and 50th percentile male are used to evaluate occupant injury risk. The evaluation includes the risk for sustaining chest injuries, which is assessed by dummy chest deflection measurement. A new dummy, the “Test Device for Human Occupant Restraint” (THOR), has been introduced in Euro NCAP starting in 2020, and is proposed to be introduced in US-NCAP (at a date yet to be determined). Previous studies have shown that the THOR shows a more human-like response to frontal and frontal oblique loading compared with the HIII^{28, 29 & 30}. When comparing the two dummies, it was also shown that THOR can distinguish between a stiff and a soft restraint system with regards to chest injury³¹⁻³². As the most frequent injury to the elderly is to the thoracic (chest) region, specifically rib fracture, restraint systems that provide softer restraint during lower severity crashes will be particularly beneficial for older persons.

Within the European Horizon 2020 Framework Project SENIORS a new frontal impact dummy was developed to reflect the anthropometry of an elderly 70-year-old small female driver³³. At 1.61 m in

²⁸ Lemmen, P., et al. (2012) Development of an advanced frontal dummy thorax demonstrator. Proceedings of the IRCOBI Conference, Dublin, Ireland, 2012 pp.828–842.

²⁹ Parent, D. P., Ridella, S. A. and Mcfadden, J. D. (2013) Thoracic biofidelity assessment of the THOR mod kit ATD. The 23rd International Technical Conference on the Enhanced Safety of Vehicles, 2013.

³⁰ Sunnevång, C., et al. (2014) Evaluation of Near-Side Oblique Frontal Impacts Using THOR with SD3 Shoulder. Traffic Injury Prevention 15 pp. S96–S102.

³¹ Sunnevång, C., Hynd, D., Carroll, J. and Dahlgren, M. (2014) Comparison of the THORAX Demonstrator and HIII sensitivity to crash severity and occupant restraint variation. Proceedings of the IRCOBI Conference, Berlin, Germany, 2014, pp.332–346.

³² Eggers, A., Eickhoff, B., Dobberstein, J., Zellmer, H. and Adolph, T. (2014) Effects of Variations in Belt Geometry, Double Pretensioning and Adaptive Load Limiting on Advanced Chest Measurements of THOR and Hybrid III. Proceedings of the IRCOBI Conference, Berlin, Germany 2014, pp.347–358.

³³ Mroz, K., Melloncelli, A. and Burleigh, M. (2018). Elderly overweight dummy test and validation. SENIORS Project Deliverable D3.2a.

height, 73 kg in weight and with a BMI of 29, the dummy represents the average traits of the older people most commonly injured in road crashes. Overall, the dummy showed that it could discriminate between the baseline restraint system (3-point belt) and the advanced restraint systems used in the SENIORS study.

Differences in chest loading and response to lap belt pre-tensioning indicated that the elderly anthropometric test device (EATD) has potential as a tool for the development of safety systems which can improve the protection for the overweight population. However, results also showed that the elderly, overweight dummy has room for improvement. An important area for improvement was in its biofidelity, the ability of the dummy to accurately predict injury is crucial; and it was suggested that the overweight dummy was too stiff in the thorax, abdomen and pelvis areas. Since this project the idea around such a dummy has been quiet.

A reason why crash test applications may not have picked up the idea of testing with an elderly obese dummy is that variation within the human population is becoming a topic where simulation could aid safety developments instead of physical testing. For example, the effort required in making a variety of physical dummies to represent the diversity in older drivers' body sizes and shapes would be large. A human body model that can be morphed could accommodate this need instead, without such practical limitations. The use of human body models in consumer information testing programs is being discussed with trial load cases being launched in Euro NCAP. However, research still needs to be completed to give confidence that the human body model can indeed represent an older driver and provide a viable and valuable alternative to making physical representations for use in testing. Not only that, but there is also still a need to convince evaluation groups that protection for older occupants should take equal or greater precedence than the mid-sized, mid-age baseline.

Conclusion

The development of crash testing models suggest that the way forward is through digital modelling rather than the creation of physical models. These need to accommodate the physical characteristics of older people.

Number	Recommendation - Safer Vehicles (SV)
SV2	In any discussion of future test dummies, the Government should ensure that we press for crash test dummies whether physical or digital that properly reflect the characteristics of older people.

7.3 Passive Safety Provision in Vehicles

There is a general consensus among safety experts that vehicle characteristics and protective safety features that benefit elderly occupants in higher severity crashes also benefit younger occupants.

Current vehicle safety features that are effective in protecting older occupants include³⁴:

- Side airbags: Side airbags with head and torso protection have been estimated to reduce fatalities in nearside impacts by 45 percent for front seat occupants ages 70 and older, which is significantly larger than the 30 percent reduction estimated for front seat occupants ages 13-49
- Safety belts with load-limiters and pre-tensioners
- Crash avoidance systems

³⁴ Older Drivers, Insurance Institute for Highway Safety <https://www.iihs.org/topics/older-drivers>

- Rearview cameras and rear parking sensors which have been shown to be especially effective for drivers 70 and older in preventing reversing crashes

In addition to the safety features provided, occupant safety is also a function of crash severity – which is determined by the actual crash environment (collision mode, collision partner, road environment, relative speed, etc.) and how the vehicle structure responds to that environment. Though not included explicitly in any certification or vehicle rating, the ability of the vehicle structure to effectively manage crash energy has an important influence on the design of the protective safety systems. Generally speaking, vehicles with favorable structural crash characteristics require less energy absorption from the restraint system, resulting in lower forces to the occupant. This is of particular benefit to older, more frail occupants.

Conclusion

There is no doubt that vehicle safety features and structural integrity are playing an increasingly important role in reducing death and injury on our roads for all age groups. These factors should be emphasized at every opportunity.

Number	Recommendation – Safer Vehicles (SV)
SV3	<p>Where market intervention is necessary to achieve more rapid or extensive take up of particularly beneficial safety features, the Government should consider what can be done to achieve this.</p> <p>Communications to older drivers should emphasise the benefits of vehicle safety features and the importance of sound vehicle structural integrity.</p>

7.3.1 Seatbelts

As well as introducing the EATD, the SENIORS Project also provided a demonstration of how effective advanced occupant restraint systems could be – particularly when targeting injuries of moderate severity in frontal impact collisions. As concept ideas, the project tested the Split Buckle and Criss-Cross seatbelts.

In order to reduce the thorax compression due to the lower part of the diagonal belt, the Split Buckle concept separated the buckle anchorage into two separate belt systems upon impact, moving the diagonal belt lower anchorage forward to reduce thorax loading.

The Criss-Cross concept consisted of a standard three-point lap and diagonal belt system plus a secondary (separate) diagonal belt across the in-board shoulder. The second belt had its own pretensioner, load limiter and lower anchorage, and the upper anchorage would likely be seat mounted (similar to the sort of outboard seat-mounted upper anchorage often used in convertible cars). The second diagonal belt meant that the load limiter on both belts could be reduced considerably to 1 kN in the testing performed in SENIORS.

Researchers calculated the benefit for car occupants of regulating each design in 2020 with mandatory fitting in 2022³⁵ They noted that it was not expected that such a regulation would be implemented; but used that scenario as a way to explore the potential casualty savings and the societal cost reductions that could be delivered by these systems.

The analysis showed that such future seat-belt systems had the potential to prevent between 800 and 1,200 car occupant fatalities among the 65+ age group over a ten-year period. There was also the potential to prevent between 6,500 and 10,500 serious occupant injuries and have an economic benefit in the range of €4,700-8,100 million, again over the period 2020-2030.

³⁵ Thomas, A., Hynd, D., Kent, J., Appleby, J. & Zander, O. (2018). Benefit Analysis. SENIORS Project Deliverable D4.3.

The breakeven costs were between € 33 for the Split-Buckle system and AIS 2+ injury savings (of moderate or higher severity) to € 58 for the Criss-Cross system and only AIS 3+ injury prevention (of serious or higher severity). However, generic costs for providing such a system have never been derived. Therefore, a benefit-to-cost ratio for such interventions is not available.

Whilst promising from a research perspective, issues still remain in getting these concepts into production vehicles. For instance, hurdles remain regarding how to comply with existing frameworks for belt systems (unbuckling in a single action and load limit penalties in NCAP ratings) as well as packaging for a vehicle interior. Lastly, and perhaps most importantly, there is a reluctance to introduce any novel belt system that could degrade current wearing rates, so a big limitation is making concepts look and feel to the user like any other seat belt.

Conclusion

This seat belt development offers scope for substantially reducing crash death and injury despite the many obstacles in the way of its introduction. We believe that we should support further efforts, research included, to seek its introduction.

Number	Recommendation - Safer Vehicles (SV)
SV4	The Task Force actively supports further progress towards the introduction of the split buckle seat belt system (or other advanced occupant restraint systems) as a means of reducing risk particularly to older drivers and passengers.

7.4 Active Safety Provision in Vehicles

Some Advanced Driver-Assistance Systems (ADAS) are available in most newer cars sold in high income countries. Anti-lock brakes and cruise control are two well-known examples. Many newer ADAS features are also available to the public, but are often sold as options, or included in more expensive upgrade packages.

Some common examples are:

- Advanced Emergency Braking (AEB) (for frontal crash, for backup crash, and for pedestrians and other VRUs) - common now in many vehicles
- Intelligent Speed Assistance (ISA) - ISA uses a speed sign-recognition video camera and/or GPS-linked speed limit data to advise drivers of the current speed limit and automatically limit the speed of the vehicle as needed. ISA systems do not automatically apply the brakes, but simply limit engine power preventing the vehicle from accelerating past the current speed limit unless overridden. Available in some vehicles
- Brake assist (adds brake pressure as needed if driver is not applying enough for conditions) – available on some cars, mandatory for all in Europe since 2011
- Lane Keeping Assist (LKA) – common on some higher end cars and/or with luxury upgrades
- Blind Spot Warning – common on many cars
- Driver monitoring – protection from drowsy and or drugged (prescription) driving – very limited availability in current model-year vehicles

Some of these are now required by regulation and must meet minimum performance requirements. Others are included in new vehicle rating systems such as Euro NCAP and subject to assessment criteria as required by the rating agency. The remaining features are provided by manufacturers as

safety and/or convenience features they feel customers will pay for. It has been difficult to assess accurately the effect of these technologies, for older drivers in particular.

The experiences of ADAS amongst older drivers has been reviewed³⁶. That review indicated a willingness to use and preference towards information and warning systems rather than automated functions. This acceptance of ADAS is encouraging and a crucial aspect to avoid the situation where drivers find a feature unhelpful or annoying and disable it for normal driving – thereby offering no potential for benefit. However, care should be taken with conclusions regarding experience of emergency response systems as such systems should be unobtrusive during normal driving, activating only in emergency scenarios. It is a concern that automated functions are perceived by older drivers to be least important and untrustworthy.

e-Call is another feature available to many that can help reduce the time before critical care is administered, and the quality of that care. Like other safety features it will benefit all following a serious crash but may have particular benefit for the elderly. Though now required by regulation in Europe, this feature is offered only as a subscribed service in some countries, to be paid by the vehicle owner once an initial free trial expires.

Conclusion

In our vision for reducing crash risk for older drivers and therefore death and serious injury, it is clear that the contribution of driver assistance schemes to reducing crash risk and severity makes it important that their fitment and use by older drivers should be actively encouraged.

Number	Recommendation - Safer Vehicles (SV)
SV5	Take every opportunity to support the fitment and use of driver assistance systems for older drivers.

7.5 A Silver NCAP?

High level suggestions for an NCAP (New Car Assessment Programme) rating to focus of the requirements of older users include pre-crash technology, improving crash protection for the chest, avoiding distraction whilst driving e.g. simple ways of turning windscreen wipers on or providing navigation information.

The idea of a “Silver NCAP” has been considered by governments, rating agencies, and OEMs for several years, but no such program has been developed. There are several reasons for this:

- Labeling a car as an “old persons” car is not a good marketing strategy
- Automated vehicle technology is expected to improve safety for the elderly, and ultimately eliminate the need for them to drive
- Improved vehicle safety, combined with other factors may be reducing the need for special protection for the elderly. A recent publication by the U.S. Insurance Institute for Highway Safety (IIHS) concluded that “seniors” are in better physical shape, due at least in part to improvements in healthcare, so are less likely to exhibit poor eyesight and impaired cognitive skills. They are also more likely to survive if they do crash. IIHS President David Harkey

³⁶ NatCen Social Research ‘Experiences of Advanced Driver Assistance Systems amongst older drivers’ [Perceptions and experiences of driver assistance features amongst older drivers - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/614442/Perceptions_and_experiences_of_driver_assistance_features_amongst_older_drivers.pdf)

commented, “although efforts to address the ‘silver tsunami’ were largely ad hoc, in hindsight what we ended up with was a systems approach, and it worked.”³⁷

Car manufacturers, like others, must be sensitive to the emotional aspect of a personal automobile purchase. Elderly who are able and allowed to drive do not like to consider themselves as old, so are not favorable toward products or features marketed specifically at older persons. It is fortunate that protective safety features that are beneficial for the elderly, are generally good for younger adult occupants too.

Conclusion

Instead of a “Silver NCAP” rating, it would be beneficial to update the NCAP to include features or even tests (such as a low-speed crash with AIS 2+ (moderate or higher severity) injury risk assessment) as a means to improve safety for all, while primarily targeting safety risks for the elderly.

Other features could be:

- Additional weighting for ADAS most advantageous for elderly (AEB, LKA, Backup Camera, etc.)
- Maybe have a crash pulse severity score for the occupant (already in place for the mobile barrier opponent)
- A new balance criterion, where a car should score at least 4-stars in normal NCAP to be eligible for a Silver NCAP rating – to ensure robust performance in higher severity crash?
- A usability assessment of controls and displays
- eCall – already standard in many places – but not all subscription services are equal

Number	Recommendation - Safer Vehicles (SV)
SV6	The Task Force recommends that every opportunity should be taken in negotiations around Euro NCAP updates to target safety risks for the elderly.

7.6 Pedal Confusion

Pedal confusion happens when the driver of a car presses the accelerator mistaking it for the brake and the car accelerates out of control.

As introduced in Section 6.2 regarding sequelae associated with Type 2 Diabetes, a lack of sensitivity to touch and decreased proprioception have been proposed as contributory factors in the incidence of pedal confusion.

However, it should be noted that there are many other cognitive and physical health conditions older drivers may have that could make pedal confusion more likely, diabetes is but one among many (albeit significant one), others include: dementia and memory disorders, multiple sclerosis, proprioceptive/kinaesthetic deficits, spinal cord injury, spinal stenosis, Parkinson’s disease (and other movement disorders), anxiety, Asperger’s, cerebral palsy, multiple sclerosis, traumatic brain injury (TBI), stroke (CVA; right hemisphere/left hemiplegia) and anoxia.

There is a need to research whether dementia leads to pedal confusion as it may be a common condition that older drivers develop.

³⁷ Young, J., Crash Rates for Drivers in Their 70s Drop Below Those of Middle-aged Drivers, Insurance Institute for Highway Safety, October 1, 2020. <https://www.iihs.org/news/detail/crash-rates-for-drivers-in-their-70s-drop-below-those-of-middle-aged-drivers>

From the perspective of providing potential solutions, Japan already has a test encouraging a vehicle technology countermeasure to resolve the problem of pedal confusion.

The Japanese NCAP score is calculated based on the economic impact by fatality (man-power loss: highest impact) and injury (medical service fees). The potential for the pedal mis-application requirement to significantly reduce fatalities and serious injuries is actually very small. Therefore, the weighting for this in the JNCAP is accordingly small (not likely to affect the vehicle's star rating), but fitment is mandatory to get 5-stars.

It should be noted that the pedal mis-application evaluation in JNCAP is based on crash data for:

- Moving from stop (0 km/h), and
- Impact against something (wall, shop, etc.) at low speed (e.g. 10 km/h)

Such crash data reveals few fatalities. If data were available for pedal misapplication at driving speeds (e.g. 60 km/h), it would probably show a much higher risk.

The Test Protocol is detailed in Annex 5.

In the UK, pedal confusion remains a concern and a paper titled *"The fatal consequences of pedal error driving an automatic transmission car"*³⁸ looked into the incidences of pedal error fatalities. More research in this area is required.

At present there is little data on pedal confusion crashes, because 'pedal confusion' is not a crash cause recorded on the STATS 19 form used by police at the site of crashes, nor is the type of transmission (automatic or manual) recorded. Further, many pedal confusion crashes occur in car parks or other locations off the highway, and so do not get included in road casualty statistics.

The first step is understanding where and why pedal error crashes happen, and how many. Adding pedal error to the cause codes on the national crash recording form (STATS19) will identify and quantify the drivers who are most vulnerable. At the same time older drivers and the NHS medical professionals in daily contact with them should be made aware that pedal confusion can happen, how and why it can happen, how to stop it happening, and how to recover if it does happen.

Number	Recommendation - Safer Vehicles (SV)
SV7	<p>We recommend the government and insurers should particularly support research into the incidence of serious crashes resulting from pedal confusion.</p> <p>There is a suggestion that a high proportion of catastrophic crashes arise from pedal confusion. Unlike manual cars, the full speed of the vehicle is available by pressing the accelerator in an automatic, it is possible that this could aggravate the pedal confusion issue for older drivers driving automatic cars.</p> <p>If data shows a high level of risk of pedal confusion at driving speeds (at 35mph+), then a change to NCAP should be pressed for.</p>

7.7 Telematics

Usage-based car insurance is not a new concept. It is usual to declare an expected level of use for a vehicle when taking out insurance, and the idea of measuring use through a telematics 'black-box' is a logical extension of this. This could be highly relevant for older drivers if they are covering very low distances or driving times. However, the 'pay-as-you-drive' implementations are also being adapted to 'pay-HOW-you-drive' for young drivers, where premiums will be higher for harsh acceleration or

³⁸ "The fatal consequences of pedal error driving an automatic transmission car" by Bert Morris

braking, how often the vehicle is driven and where and when (if it is at night, for instance). Typically marketed at the novice or younger driver, it is possible to imagine how the pay-how-you-drive approach could be applied to older drivers – where parameters or the premium rewards/penalties could be tailored for specific older driver risks and opportunities.

However, The Times reported (23rd January 2021) that according to the company Insure the Box the Black Box and app. revolution have not been the success expected, having after 15 years only some 5% of the whole market. For older drivers the financial benefits are small. Furthermore, usage-based insurance has been shown to decrease hard braking events (as a proxy for increased safety), but with limited improvements compared with young drivers³⁹

We would prefer to see “nudging” rather than a penalty system – i.e. to motivate, inform and support drivers in making better decisions for safe driving rather than use telematics as way to penalise unsafe driving. By preference, the nudge would be provided during the drive, in addition to coaching provided pre/post-drive. We see that bespoke telematics devices, ‘black boxes,’ may still be needed in the future, particularly for providing nudges at a specific moment during a drive; but they are likely to connect to the car and will not look like big black boxes anymore. Alternatively, ubiquitous mobile phones could help provide a limited range of functionality, recording certain data from drives. Insurance providers are already investigating this possibility – though there is a balance between easy access to data and its scope, quality and reliability.

Furthermore, stepping out from the research setting, it is entirely possible that coaching can be provided in other settings too. Immersive driving simulators are increasingly prevalent within research groups and perhaps these will be used more in the future as a safe way to assess driving – maybe as a necessary part of training and/or rehabilitation from illness or injury, before allowing someone to return to driving, or before taking away permanently someone’s ability to drive following a stroke (for instance).

Conclusion

Telematics offer an opportunity to ‘nudge’ drivers towards better driving. This is better than penalizing drivers which may well deter them from driving even though they may potentially be able to drive safely.

Number	Recommendation - Safer Vehicles (SV)
SV8	The Task Force supports the use of telematics to motivate, inform and support older drivers in making better decisions rather than penalise them.

³⁹ Soleymanian, M., Weinberg, C. and Zhu, T (2017). Sensor data, privacy, and behavioural tracking: Does usage-based auto insurance benefit drivers? The University of British Columbia; https://news.ubc.ca/wp-content/uploads/2017/06/UBI_Paper_Latex_Marketing_Science-with-name.pdf

8 Recommendations

The recommendations from this Report are listed below.

Number	Recommendations - Safer Roads (SR)
SR1	It is recommended that the UK commences a safer junction programme in the decade to 2030 in line with best practice recommendations made by the iRAP programme.
SR2	An iRAP survey of the Major Road Network (MRN) in England would, combined with the SRN programme, provide an evidence base that accounts for 1 in 3 of English road deaths.
SR3	An iRAP survey of strategic roads in Scotland and Northern Ireland would provide a consistent evidence base for treatment of roads
SR4	iRAP surveys provide a potential source of data (since the presence of junctions and junction type are recorded) to provide additional insight into junction collisions involving older drivers and the particular junction types and configurations that are problematic.

Number	Recommendations- Safer People (SP)
SP1	Applicants should certify at licence renewal (by tick box) that they have had a satisfactory vision test in the previous 12 months. This should prompt to drivers to get their vision checked.
SP2	Consideration should be given to making it a legal requirement that drivers (at any age) inform the DVLA that they have corrected vision to drive using glasses or contact lenses. Consideration should be given to make it a legal requirement to notify the DVLA when this is no longer the case, for example after laser eye surgery.
SP3	Applicants should have a vision assessment as part of the process for acquiring a provisional driving licence.
SP4	Consideration should be given to introducing mandatory eyesight testing with an optometrist or ophthalmic/medical practitioner providing a driver 'MOT' of eyesight at licence renewal at the age of 70 and at subsequent renewals. If this is implemented then the NHS contract for free eyesight tests for 60 and above would need to be amended so that drivers 70 and above could have a more detailed 'MOT' eyesight test.
SP5	Once a mandatory eyesight test has been introduced then consideration should be given to the creation of a national database which Optometrists and Ophthalmic/medical practitioners could complete online against a person's driving licence number showing: <ul style="list-style-type: none"> Suitable Standard of vision for driving for Group 1 licence holders – YES / NO Driver has corrected vision for driving through glasses or contact lenses – YES / NO⁴⁰

⁴⁰ By creating such a scheme it would be easier and simpler to record checks and for the DVLA and Police at the roadside to check a person's eyesight standard quickly, efficiently and in line with data protection. This database on eyesight would run

Number	Recommendations- Safer People (SP)
SP6	Consideration should be given to carrying out further research to gain consensus on the best combination of visual tests for driver licensing, and the intervals between sight tests.
SP7	We recommend the government and insurers should without delay support research into the impact of physical and cognitive medical conditions (including diabetic peripheral neuropathy) that may contribute to pedal confusion events to which older drivers seem particularly vulnerable.
SP8	It is recommended that the principal organisations agree a core content for Driving Appraisals and that the Older Driver training course for Approved Driving Instructors should be extended to create a large pool of certified and trained instructors to assist older drivers. The providers of these courses may require additional funding to train and certify the instructors to be part of this pool.
SP9	To create a standardised 'Option 1' light touch Older Drivers' appraisal it is suggested that a focus group be created with representatives from various organisations currently running such schemes. Annex 4 in this report gives key elements to be considered. Once an outline of a scheme is identified, then it should be created in one region to trial and then evaluated against agreed criteria.
SP10	We recommend that the alternative to prosecution scheme for careless driving offences should be rolled out nationally for certain vulnerable road users (one being drivers aged 70 and above).

Number	Recommendations – Police Enforcement (PE)
PE1	The National Police Chiefs Council (NPCC) should be encouraged to run a national Police eyesight campaign with partners, perhaps to coincide with National Eye Health week every year. This will help raise awareness as well as develop further data for analysis.
PE2	Consideration should be given by the DVLA and NPCC to improve awareness to all Police Forces to raise their awareness in relation to the 'Cassies Law' procedure.

Number	Recommendation - Safer Vehicles (SV)
SV1	The Task Force recommends that the government incorporates the standards of the EU General Safety Regulation into UK law, which includes AEB, ISA and other important safety technologies.

in a similar way to that currently in place to record Driving licences, Insurance, MOT and Vehicle Excise licence information, together with its safeguards. It is recognised that this would require additional cost and effort to set up. However, the ultimate benefits of making safer drivers and reducing risk to others on the road would outweigh this.

Consideration should be given to offer a remuneration to Optometrists and Ophthalmic/medical practitioners for conducting this additional work. The Association of Optometrists, whose members make up 80% of optometrists in the UK, said that if drivers were legally required to undergo a proper evaluation and sufficient funding was in place, they believe their membership would be happy to support such a mandatory scheme.

Number	Recommendation - Safer Vehicles (SV)
SV2	In any discussion of future test dummies, the Government should ensure that we press for crash test dummies whether physical or digital that properly reflect the characteristics of older people.
SV3	<p>Where market intervention is necessary to achieve more rapid or extensive take up of particularly beneficial safety features, the Government should consider what can be done to achieve this.</p> <p>Communications to older drivers should emphasise the benefits of vehicle safety features and the importance of sound vehicle structural integrity.</p>
SV4	The Task Force actively supports further progress towards the introduction of the split buckle seat belt system (or other advanced occupant restraint systems) as a means of reducing risk particularly to older drivers and passengers.
SV5	Take every opportunity to support the fitment and use of driver assistance systems for older drivers.
SV6	The Task Force recommends that every opportunity should be taken in negotiations around Euro NCAP updates to target safety risks for the elderly.
SV7	<p>We recommend the government and insurers should particularly support research into the incidence of serious crashes resulting from pedal confusion.</p> <p>There is a suggestion that a high proportion of catastrophic crashes arise from pedal confusion. Unlike manual cars, the full speed of the vehicle is available by pressing the accelerator in an automatic, it is possible that this could aggravate the pedal confusion issue for older drivers driving automatic cars.</p> <p>If data shows a high level of risk of pedal confusion at driving speeds (at 35mph+), then a change to NCAP should be pressed for.</p>
SV8	The Task Force supports the use of telematics to motivate, inform and support older drivers in making better decisions rather than penalise them.

9 Annex 1 - Licencing and Miles Driven

1. Introduction

The analysis of driving licence holding undertaken for the 2016 Older Driver Task Force report has been repeated, and the forecast of future licence holding has been extended to 2040, using the principal population projection based on 2018 data. Licencing data comes from NTS 2019, table NTS0201. In addition, some material is provided from a study for the RAC Foundation showing how licence holding varies by type of area.

Also, the distance driven has been updated using NTS to 2019. Unfortunately, the table giving data on miles travelled, mode, age and gender is not available for 2019, so these data end in 2018.

2. Licence acquisition and surrender

2.1 Licence acquisition

Data is available for 1965 to 2019, so it is possible to follow cohorts born between 1920-24 and 1965-75 and observe them gaining and losing licences (Figure 26 and Figure 27). From these it is possible to estimate the percentage of people who gain a licence in the previous decade (Figure 28), and also the percentage of people who have held a licence who have given it up at any age.

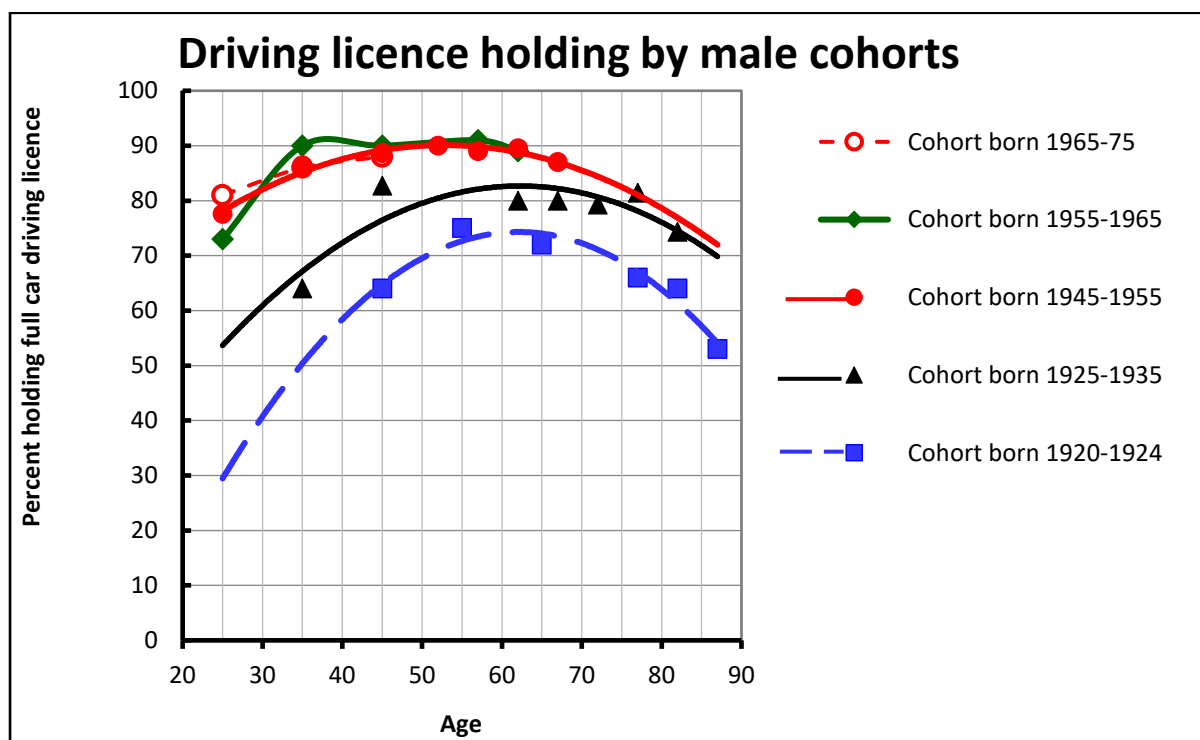


Figure 26: Car driving licence holding by five cohorts of men

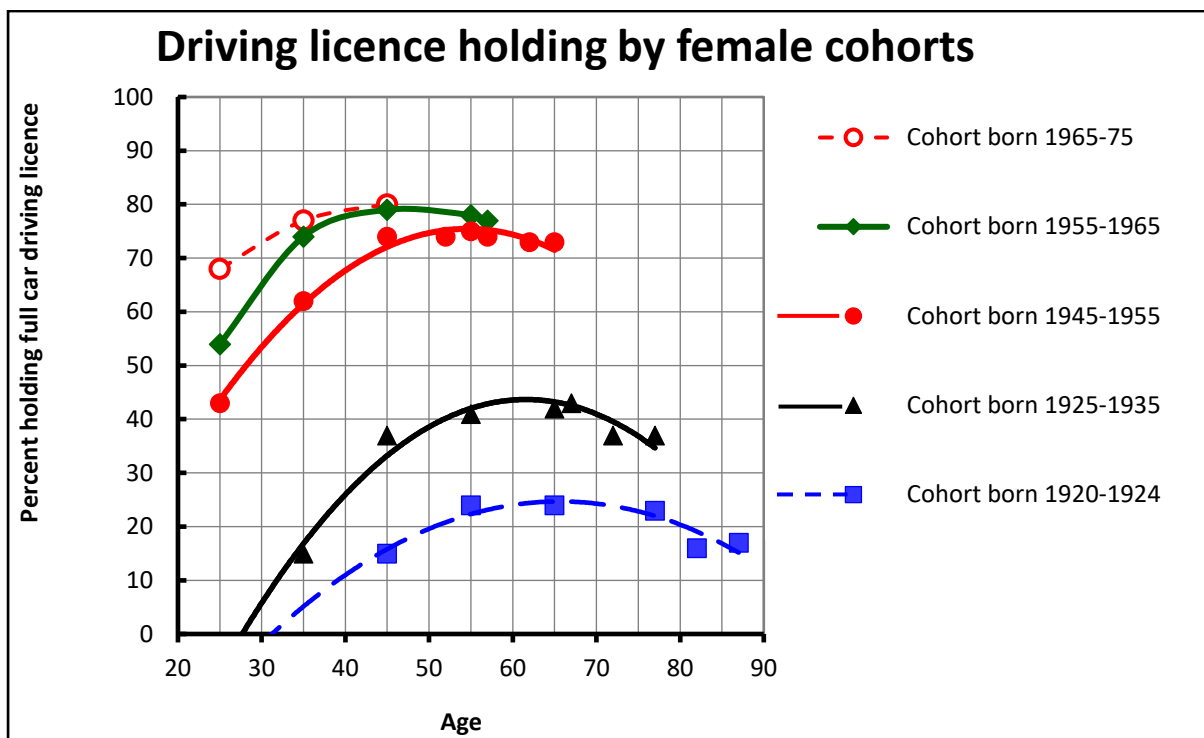


Figure 27: Car driving licence holding by five cohorts of women

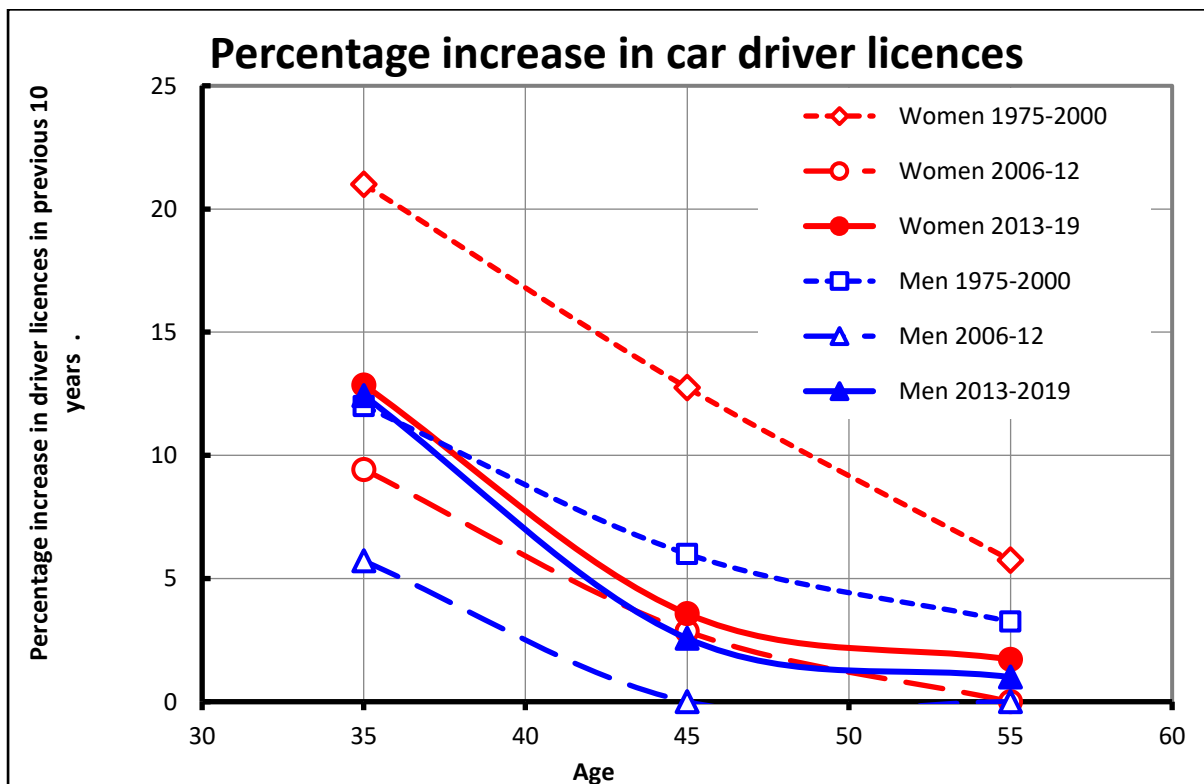


Figure 28: Percentage absolute increase in car driving licence holding in previous decade

Figure 28 shows the high level of licence acquisition by middle-aged people in 1975-2000, when licence holding had started quite low. It drops in 2006-12, when the people aged 30 – 50 would have been in their teens and early twenties around 1990, when there was a surge of licence increase by young people, and has regrown to an intermediate level for people in their thirties since 2013, when

some are getting licences they failed to get at a younger age. The curves for 2013-19 are used for predictions of future levels of driving licence holding.

2.2 Licence surrender

A similar analysis, but aimed at determining the percentage of licence holders who give up their licence by a given age, starts by determining the peak licence holding for cohorts of male and females licence holders. Reduction in licence holding from the peak is expressed as a percentage reduction, whenever it occurs. Figure 29 shows this reduction separately for the periods 2003-12 and 2010-19. Random variations between surveys gives an apparent surrender rate of some 2 – 3% for younger drivers which is erroneous.

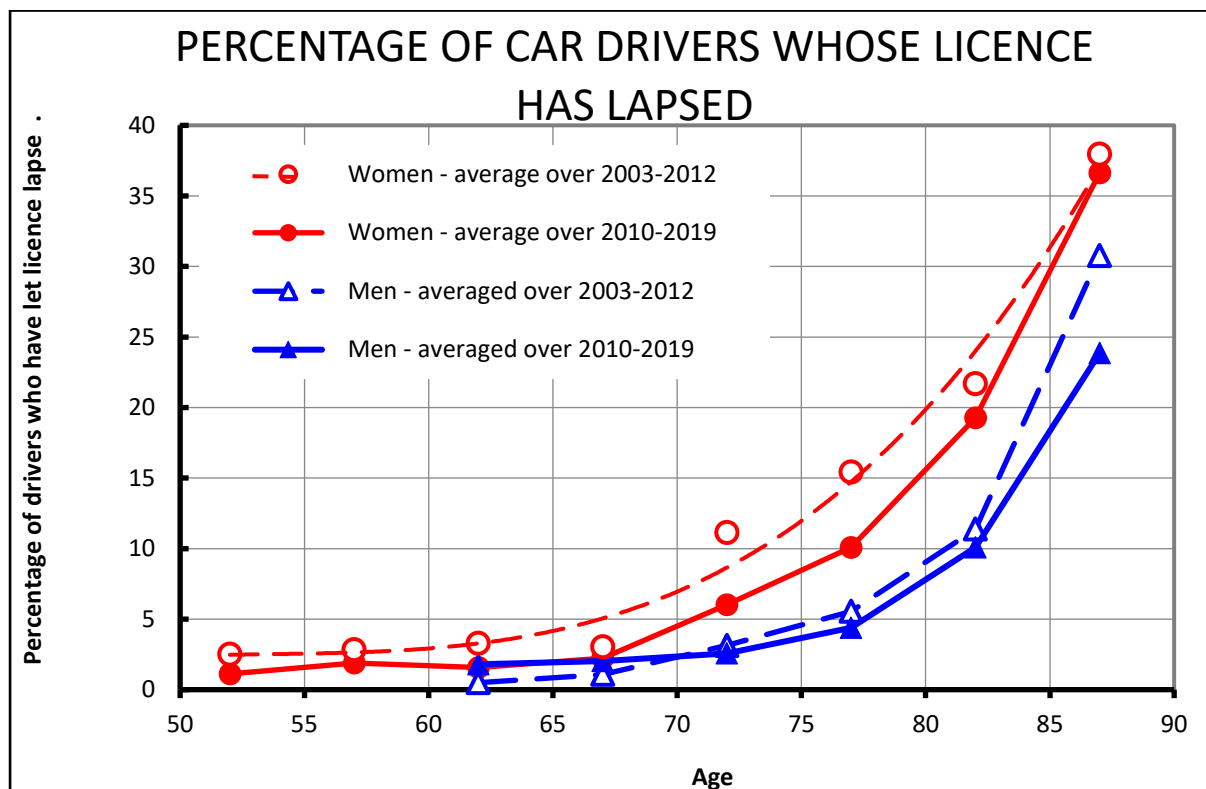


Figure 29: Percentage of car drivers who have given up their licence.

Between the two periods women have increased the time they keep their licences by about 3 years, men by about 1 year. The curves for 2010-19 are used in forecasting future licence holding.

3. Forecast of future licence holding

The forecast of future licence holding is largely a matter of moving licence holders into older age. Corrections are applied for drivers up to 60 years old to allow for learners who acquire licences, and for people over 70 years old who let them lapse.

Figure 30 and Figure 31 show the percentage licence holdings for men and women and the forecast levels to 2040. Future licence holdings for teenagers are assumed to be 32% for men and 33% for women. For drivers aged 21-29 they are assumed to be 67% for men and 62% for women, and for those aged 30-39 they are 74% and 80%.

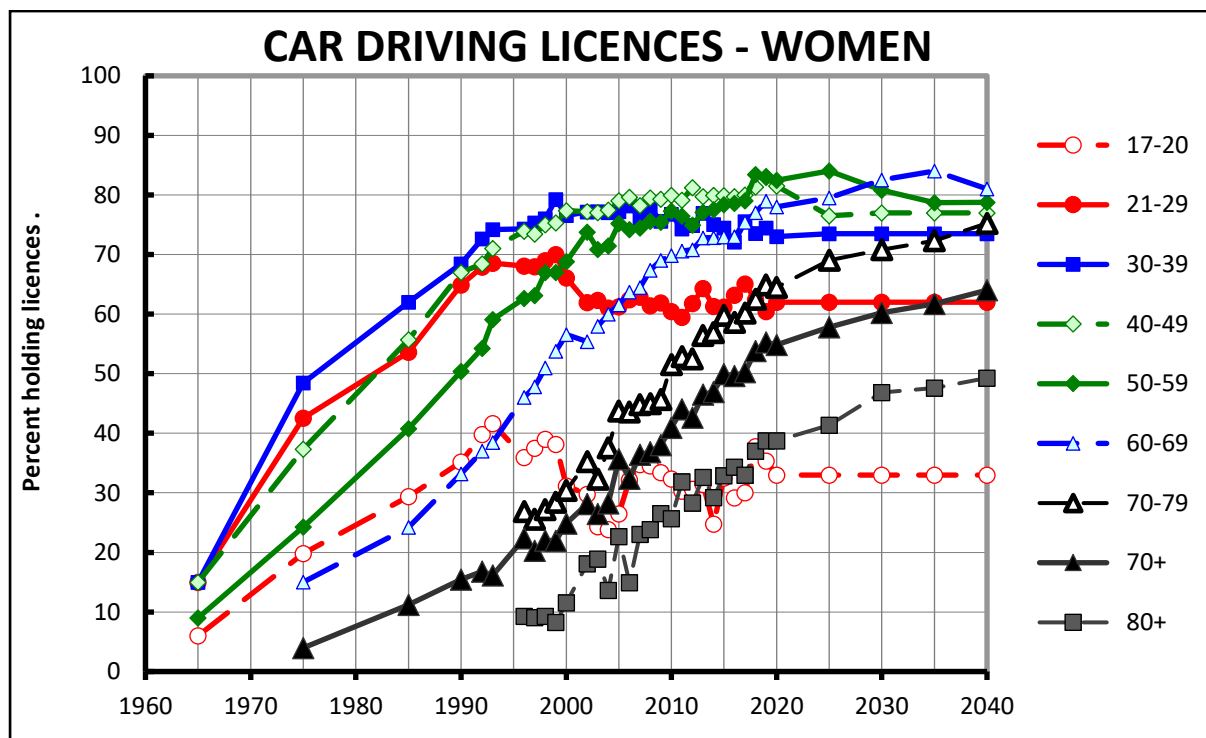


Figure 30: Car driving licence percentage holding - women

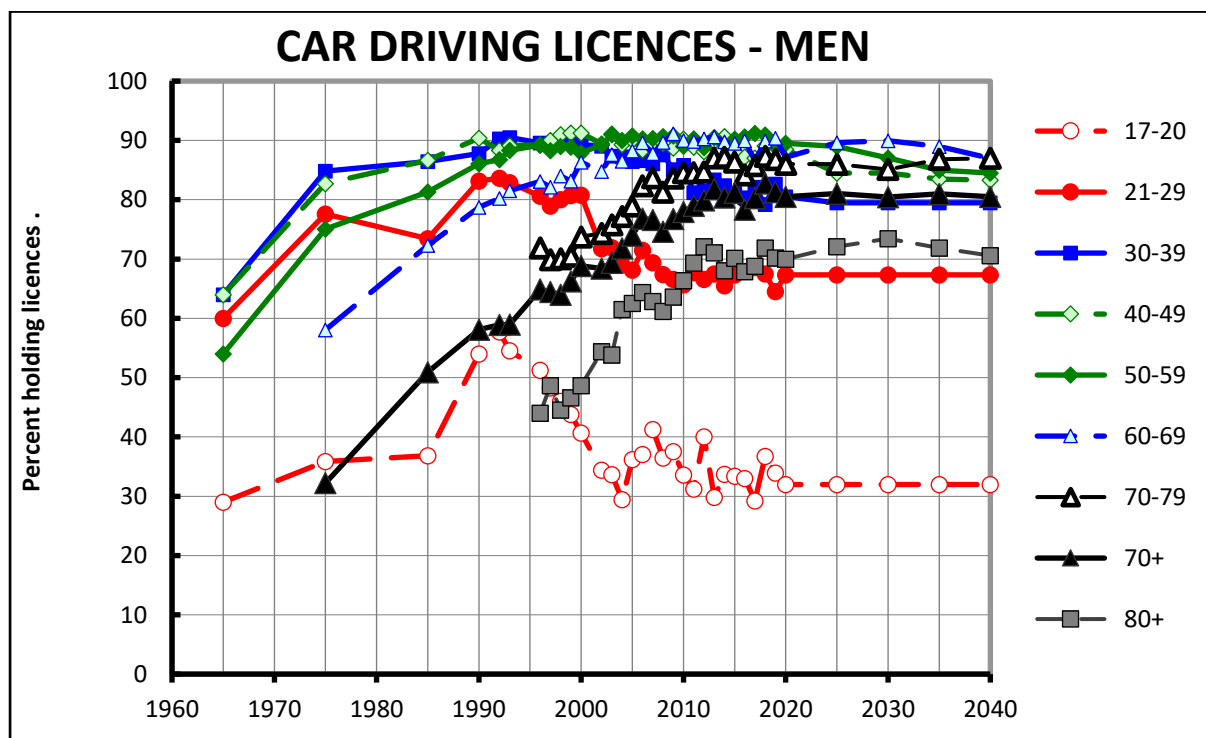


Figure 31: Car driving licence percentage holding - men

These are converted into numbers of licences, using either mid-year population estimates to 2019 or the 2018-based Principal Population Projection for future years (Figure 32, Figure 33 and Figure 34). By 2040 there will be the same number of male and female teenage drivers; for all other groups, there will still be slightly more men than women holding licences.

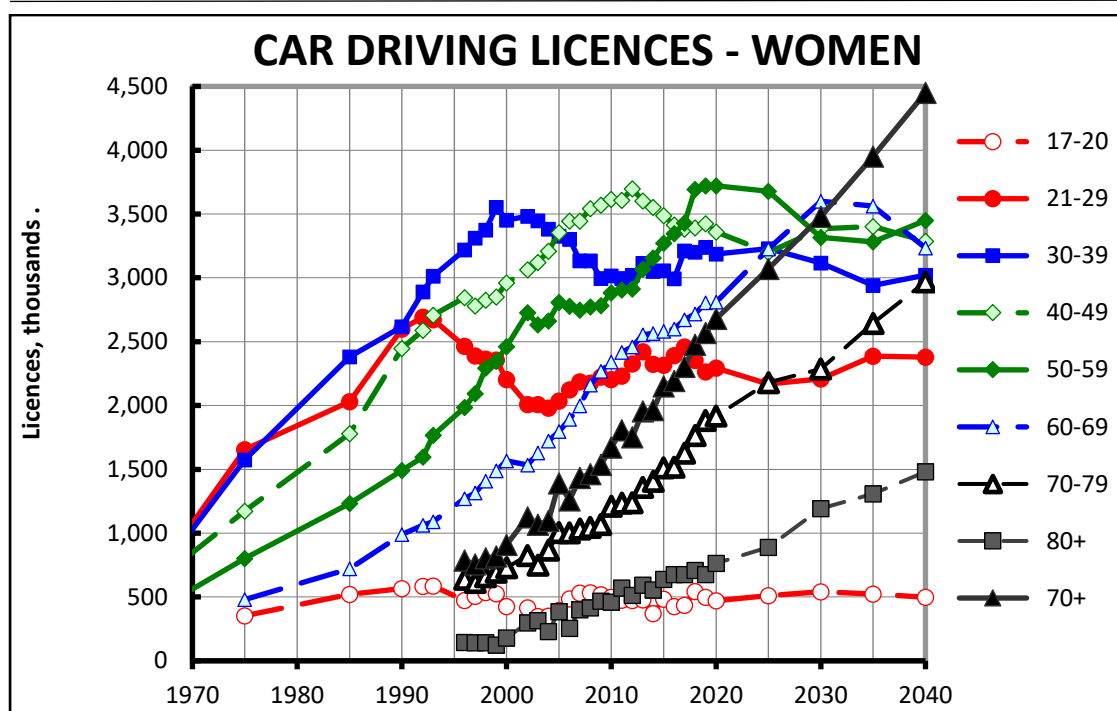


Figure 32: Car driving licences - women

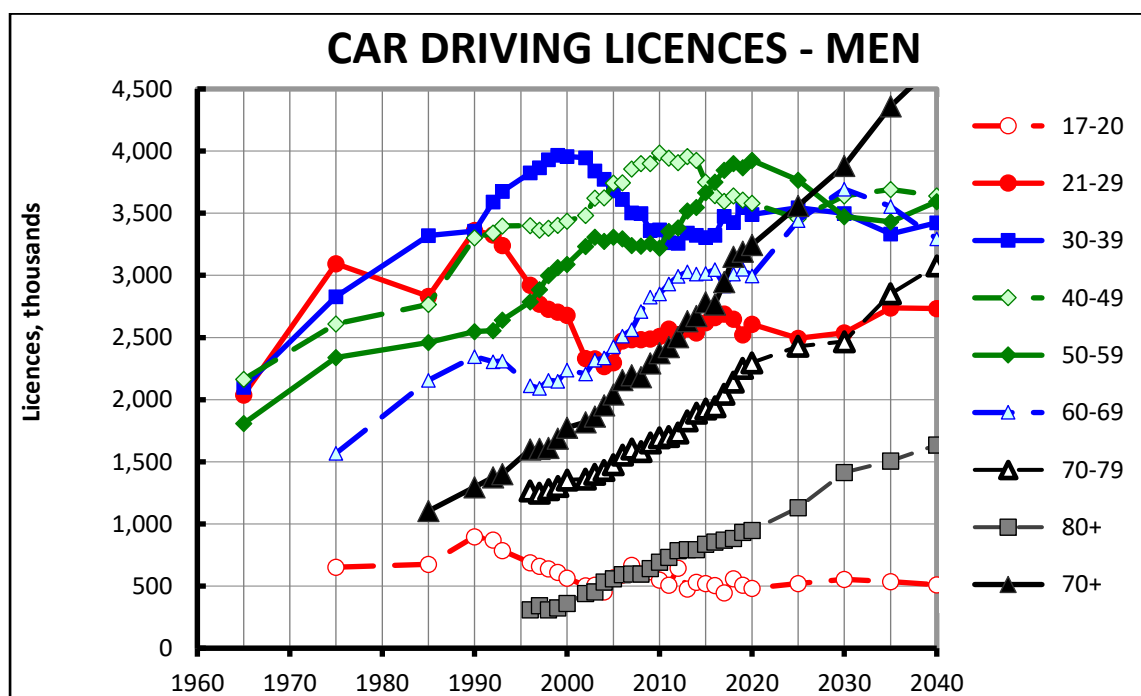


Figure 33: Car driving licences - men

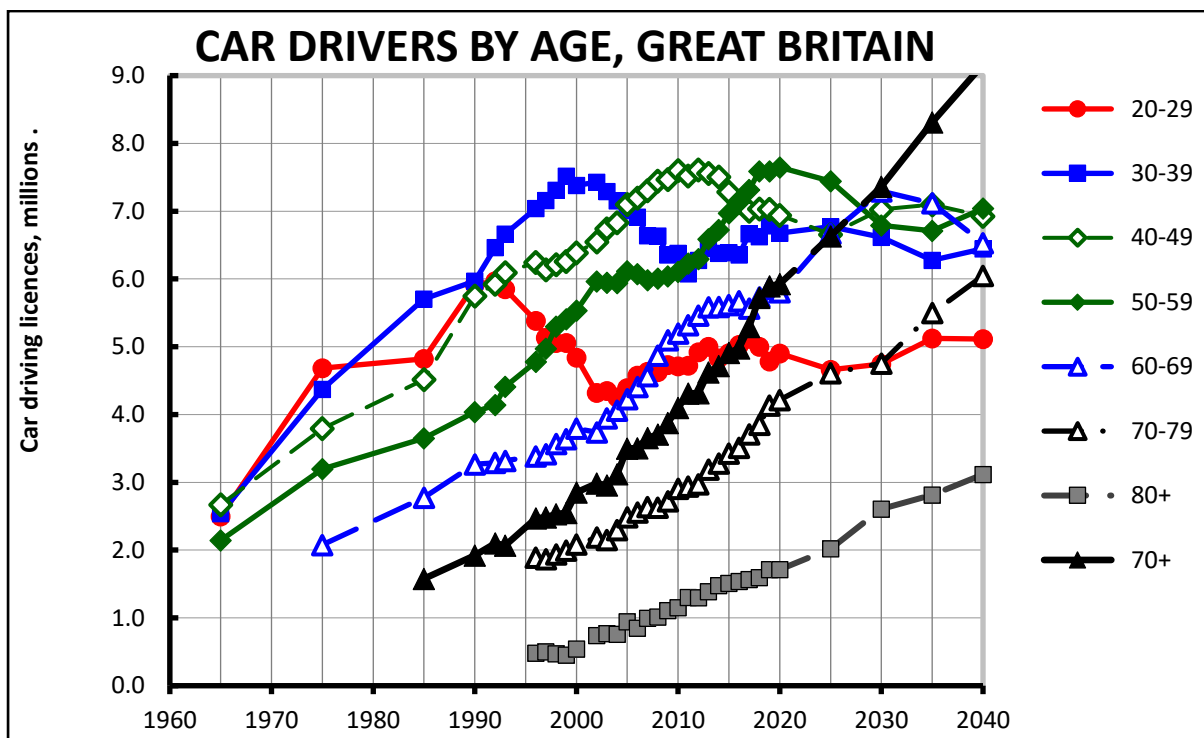


Figure 34: Car driving licences - persons

3.1 Effect of type of area

As part of a study for the RAC Foundation, licence holding was analysed by age and gender for people living in four types of area, from conurbations to deep rural areas (Figure 35 and Figure 36). Licence holding increases the more rural an area is, and is retained into older age. Women have lower percentage licence holding than men, except in the deepest rural areas where they are similar. But even in these areas, women surrender licences somewhat younger than men.

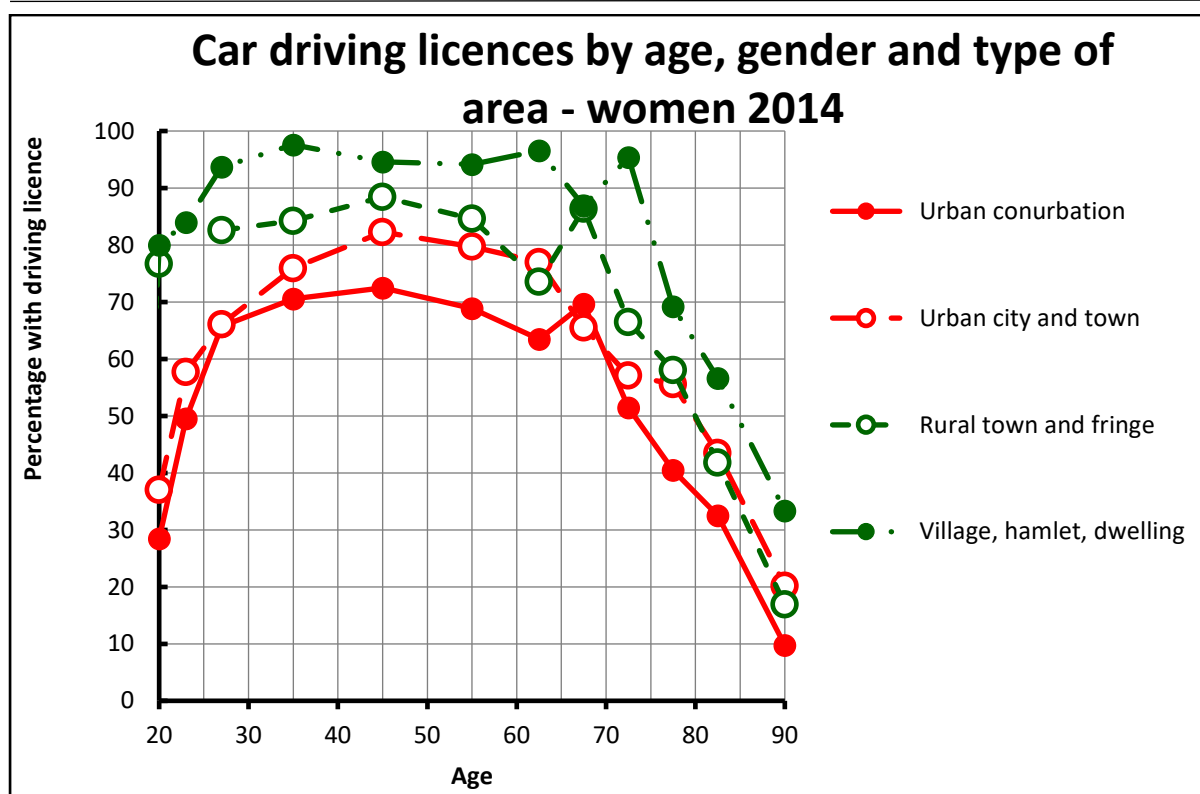


Figure 35: Licence holding by women in different types of area

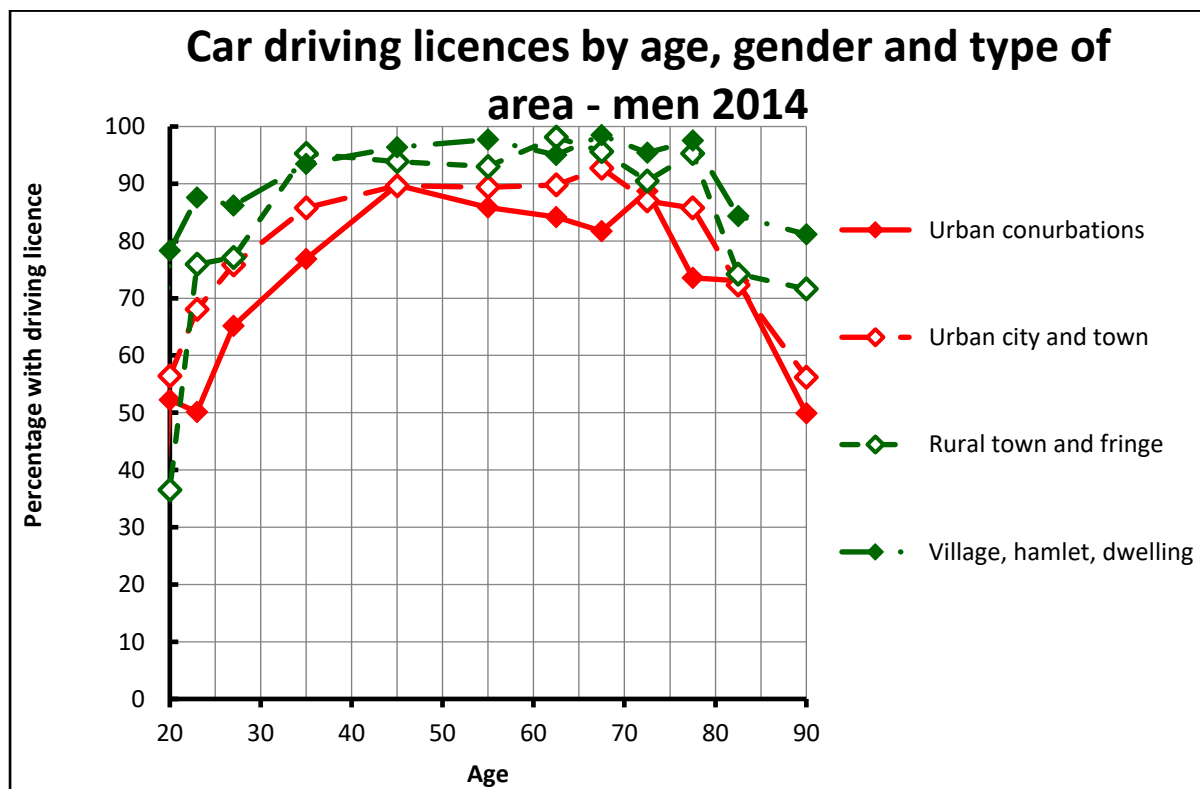


Figure 36: Licence holding by men in different types of area

4. Car use

Miles driven per car driver comes from the National Travel Survey, table NTS0605. This gives the distance driven, averaged over all people in age groups, regardless of whether they have a driving licence. These figures need to be scaled by the proportion having a licence to get the miles driven per driver (Figure 37 and Figure 38). Table NTS0605 was not produced in 2019, so the series currently runs to 2018.

Women have largely maintained a steady mileage driven since 2000, although women aged 60-69 have increased a little. Men younger than 70 have reduced the mileage they drive since 2000; men aged 21-29 and 70+ have slightly increased their mileage in recent years. Overall, the increase in mileage driven by older drivers is a result of the number of older drivers, not an increase in mileage per driver. The changes in mileage per driver per year are mainly due to changes in the number of car driver trips (Figure 39 and Figure 40), not changes in average trip lengths (Figure 41 and Figure 42), which have remained rather steady since 2005.

No analysis was made of trip purposes for this study, but an earlier study for the RAC Foundation provides some information (C G B Mitchell Gender Differences in the Behaviour of Older Drivers: Maintaining mobility and safety RAC Foundation, 2018). The original report described car driver trips per person, and this has been re-worked to car driver trips per licence. Between 2002-04 and 2014-16 car driving trips for shopping reduced substantially for women aged under 70 and for men aged under 80 (Figure 43). Women aged over 55 and men over 65 made fewer car driver trips to visit friends in their homes (Figure 44). For women aged under 55 and men aged under 65 there has been a reduction in the number of car driver trips for commuting (Figure 45).

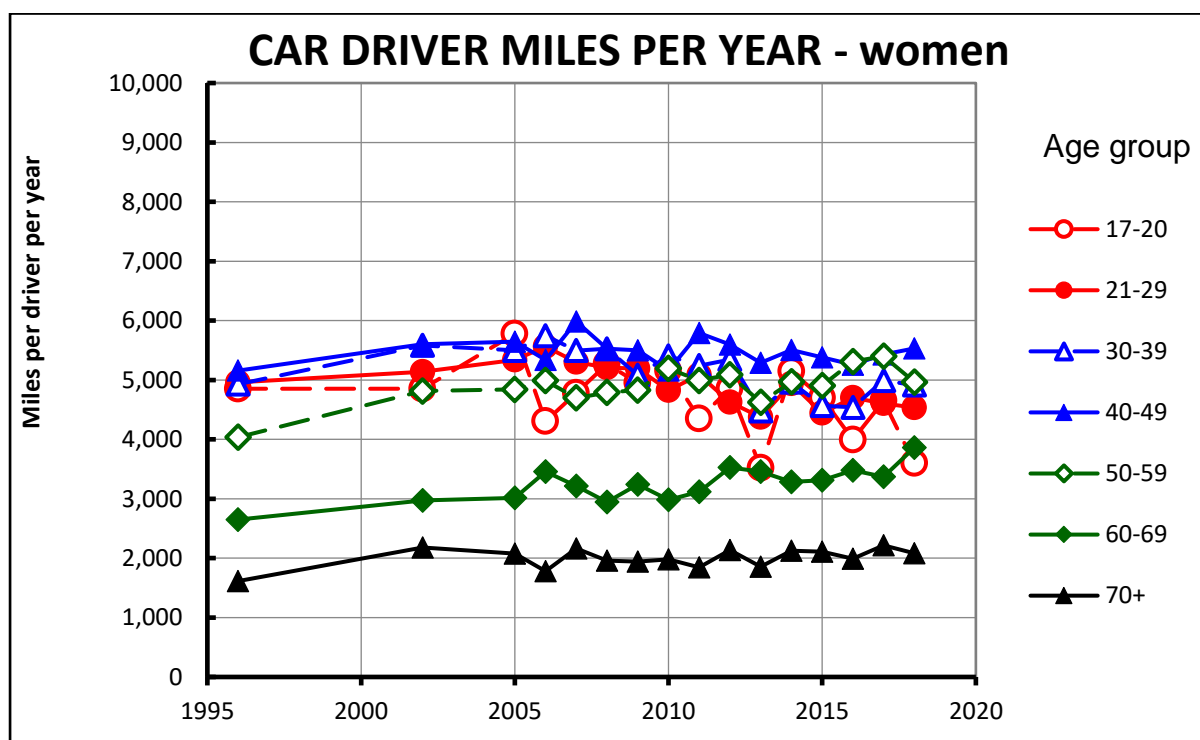


Figure 37: Miles driven per year by car drivers – women

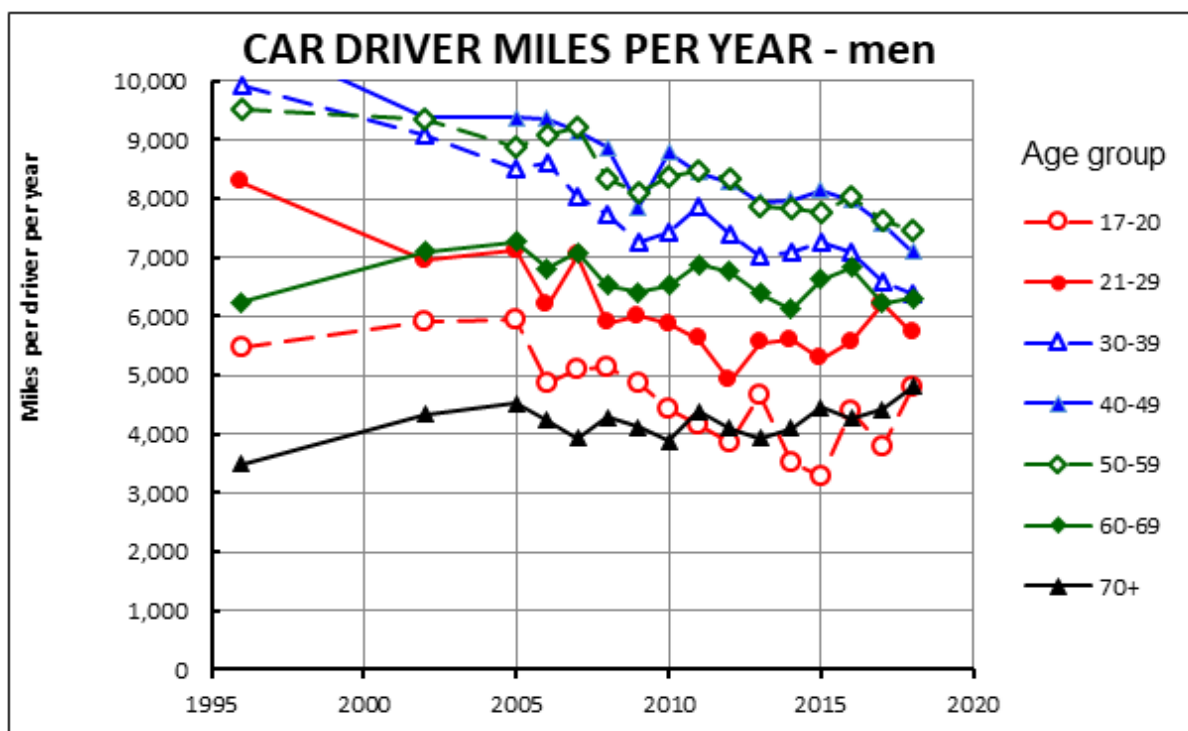


Figure 38: Miles driven per year by car drivers – men

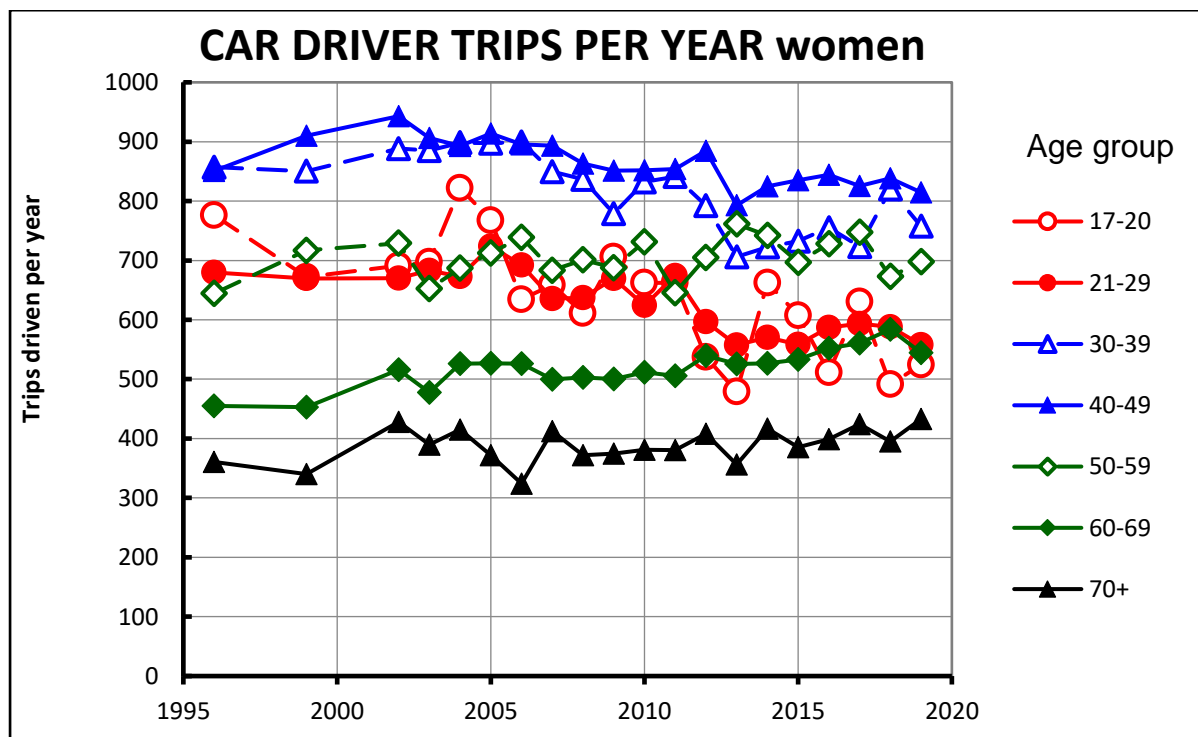


Figure 39: Trips driven per year by car drivers – women

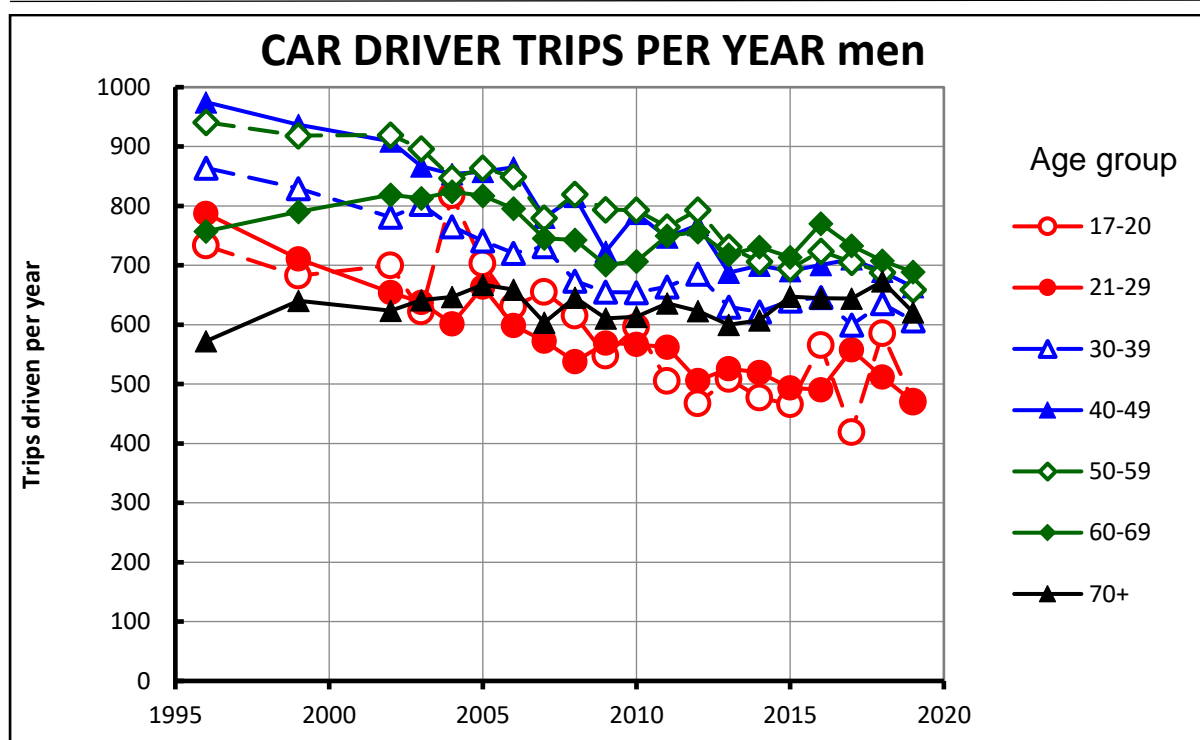


Figure 40: Trips driven per year by car drivers – men

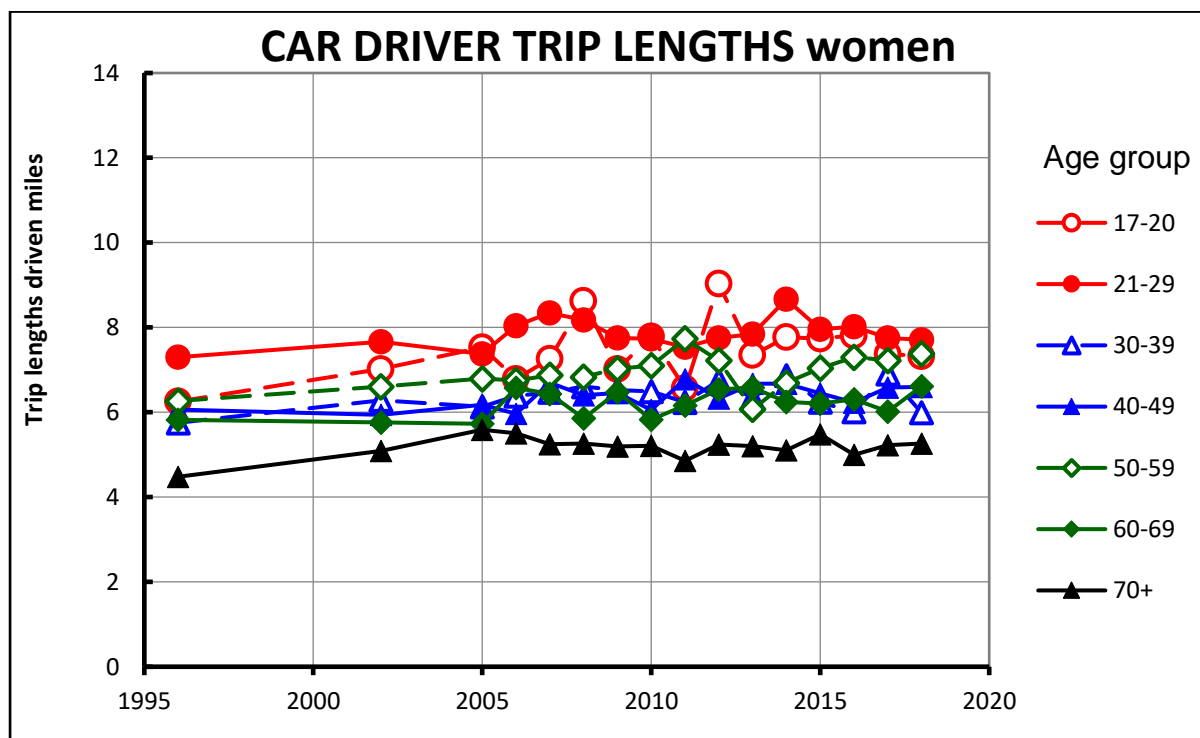


Figure 41: Average trip length driven by car drivers – women

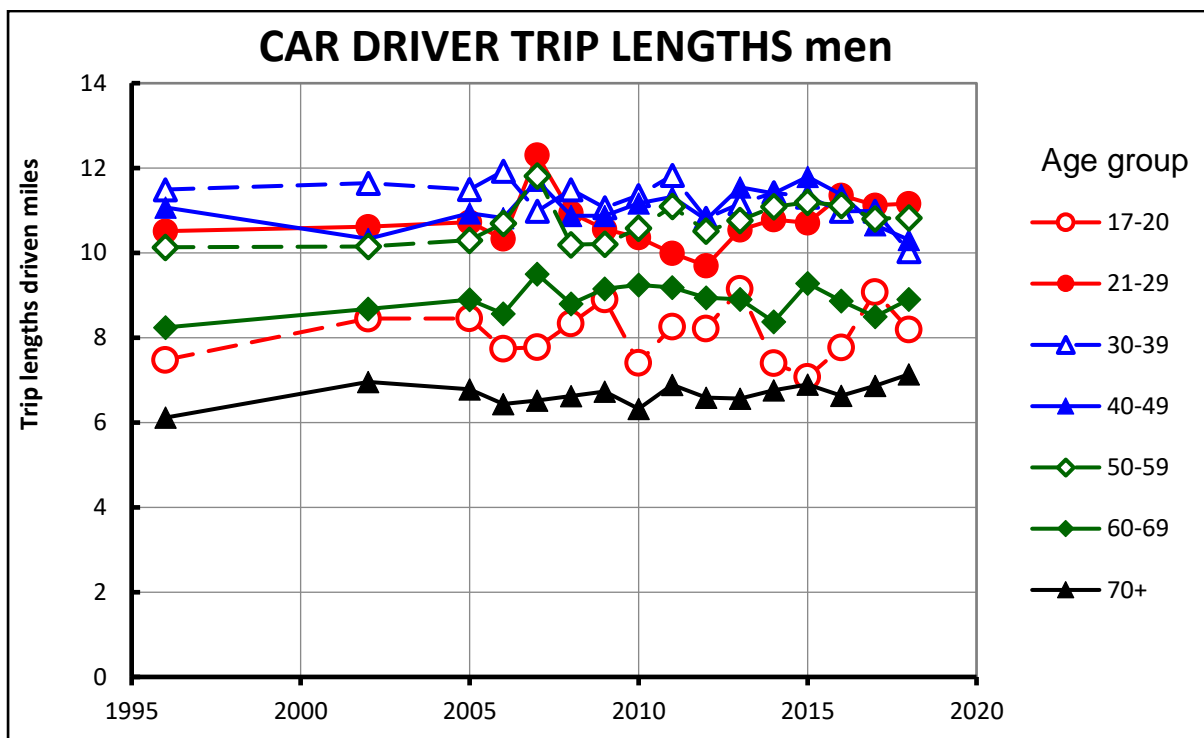


Figure 42: Average trip length driven by car drivers – men

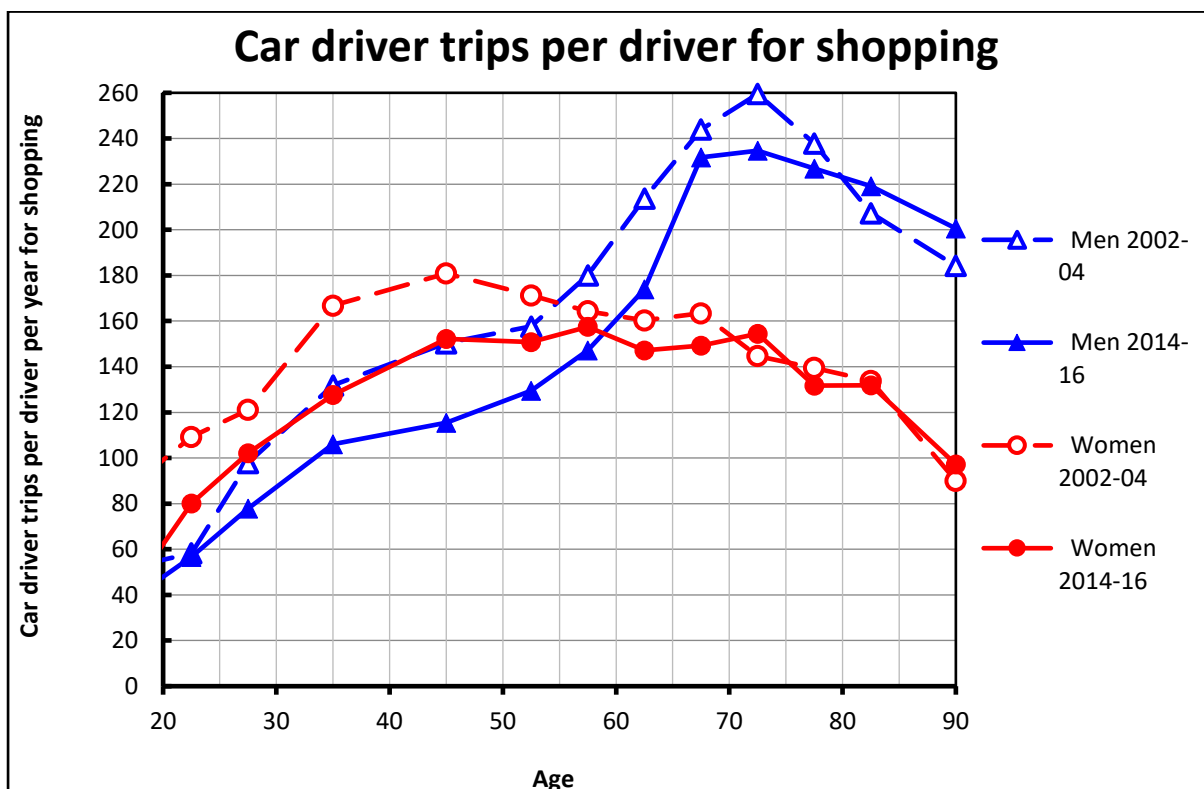


Figure 43: Trips per driver for shopping by car drivers

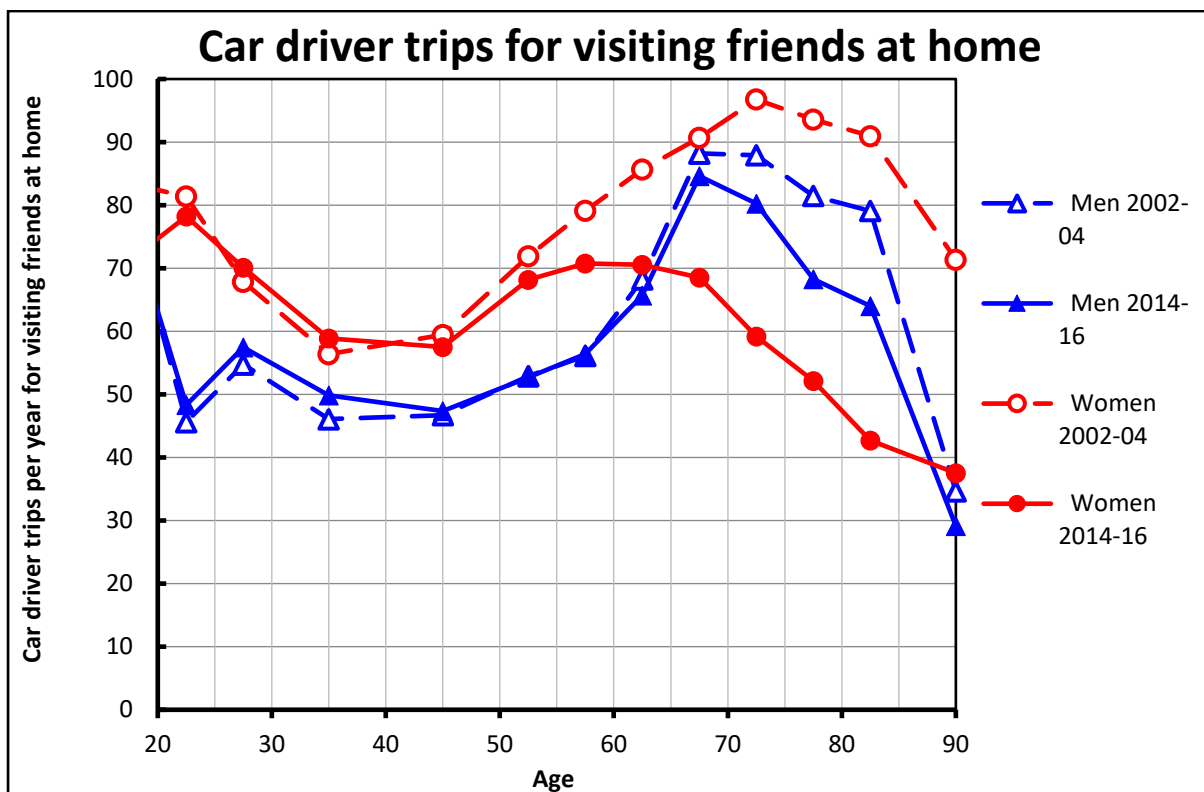


Figure 44: Trips to visit friends in their homes driven by car drivers

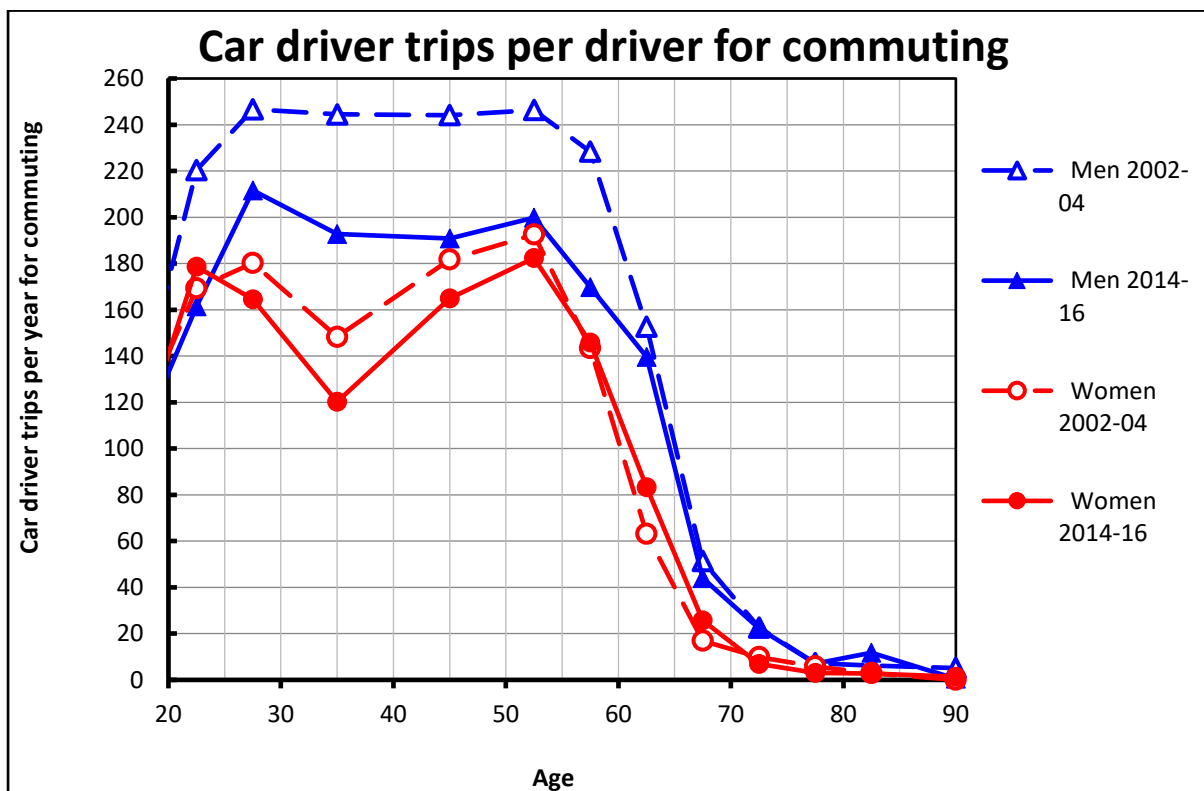


Figure 45: Trips per driver for commuting by car drivers

10 Annex 2 – Research into Eyesight undertaken since 2016

This annex provides details of projects relevant to eyesight tests.

College of Optometrists

In July 2019 the Department for Transport published the Road Safety Statement 2019 ‘A Lifetime of Road Safety’⁴¹, and commissioned research on the risk that driver vision issues pose to Older Drivers.

This research project was being led by the College of Optometrists and titled ‘*Visual impairment and road casualties among older road users and the role of Optometrists in promoting road safety*’.

The Project’s aims are:

- To investigate the relationship between visual impairment and road collisions using contributory factor data collected as part of the STATS19 Casualty statistics from 2006 to 2018 completed by the Police
- To investigate the attitudes, knowledge, behaviour and confidence of Optometrists in offering advice on driving so that recommendations can be made in terms of support needed for Optometrists to do this more effectively

Other benefits in the project include:

1. Identification of how vision and health contribute to injury-collisions for older and younger road users
2. Examination of the current attitudes, knowledge, behaviour and confidence of optometrists regarding advising patients about their visual fitness to drive
3. The development of recommendations for ways in which optometrists can improve their approach to advising patients who do not meet the driving standards
4. To provide evidence for the need for regular eyesight testing to improve road safety

This report was submitted to the Department for Transport in April 2021. The report highlights that visual impairment is most prevalent among older adults and that the driving licensing system in the UK relies on drivers to check that their eyesight conforms to visual standards, with no requirement to have a sight test even at license renewal at the age of 70.

The report focussed on the drivers of Group 1 vehicles and the differences between older drivers (60 and above) and younger drivers (below 60 years). The age of 60 was selected for older drivers as this is the age that NHS funds eyesight testing and also the age that the College of Optometrists recommend increasing the frequency of sight tests. Early analysis of the STATS 19 data has shown some interesting results in relation to drivers aged over 60. The STATS19⁴² database is a collection of all road traffic collisions that resulted in a personal injury and were reported to the police within 30 days of the collision. The data are collected by the police at the roadside or when the collision is reported to them by a member of the public in a police station. When the Police complete this form, they also record Contributory Factors for the collision.

The College of Optometrists on analysing this data between 2006 and 2018 found that the Contributory Factor for ‘Uncorrected, defective eyesight’ (CF504) featured 2,700 times. Interestingly 2,079 (77%) of these were recorded for drivers over the age of 60. This does show a strong correlation

⁴¹ Page 33

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817695/road-safety-statement-2019.pdf

⁴² <https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>

of collisions where eyesight was judged by the reporting Police officer to be a factor in the older driver generation (60+) compared with other age groups. This was shown to be particularly prevalent in low light conditions, particularly at night with lights lit and winter months.

When analysing other contributory factors there was a significant difference between drivers 60 and over compared with drivers under 60 years old. Older drivers were shown more likely to receive a contributory factor for 'Failed to look properly' (CF405) and 'Failed to judge the other person's path or speed' (CF 406). For both 'Dazzling headlights' (CF705) and 'Dazzling Sun' (CF706) the percentages of drivers receiving these factors rises with age.

Part of the research captured information on the attitudes, knowledge, behaviour and confidence of optometrists regarding advising patients on their vision in relation to fitness to drive and this was captured by surveying just under 1000 Optometrists. Respondents to the survey said that drivers 60 and above made up 50% of their patients. 53% of the respondents said the DVLA standards were 'about right' and 46% said they were 'too lenient'.

The vast majority of optometrists said they were confident in giving advice on fitness to drive. 82% respondents said they had advised patients to stop driving in the last 12 months, however, three quarters advised this was only 1 to 5 patients. 94% said they had never notified the DVLA about a patient's fitness to drive and 63% respondents said there was a need for clearer guidelines.

When asked '*What would make it easier for optometrists to give advice to patients on fitness to drive?*' 52.1% provided comments and the most frequent suggestions were more training; a formal protocol for reporting to DVLA; leaflets for patients; mandatory sight tests for drivers at licence renewal; education of the public; clearer visual standards; and a visual fitness to drive assessment when a driving licence is first applied for.

The report concluded that the results of this study show an association between injury-collisions and visual impairment and health. The hypothesis that older drivers 60 and above are more likely to be involved in an injury- collision where visual impairment or illness and disability is a contributory factor was proven.

Association of Optometrists - In November 2019 the Association of Optometrists (AOP) launched their annual '*Don't swerve a sight test*' campaign⁴³. The AOP are the leading representative membership organisation for optometrists in the UK and support over 82% of all optometrists. As part of the campaign, the AOP cited 2012 research from RSA Insurance⁴⁴ and utilised information from 'The Voice of Optometry', a panel set up in 2017 by the AOP and conducted by Alpha research⁴⁵. The survey was open to all member Optometrists of the AOP (over 80% of all in the UK). The survey received 1246 responses from these members.

The campaign, research and survey highlighted a number of worrying issues :

- Optometrists see as many as two patients a month who continue to drive despite being told their vision is below the legal standard – a rise on 2018 figures. The survey showed that the percentage of optometrists who reported having seen a patient within the past month with vision below the legal standard whilst continuing to drive had increased from 35% in 2017 to

⁴³ AOP 'Don't swerve a sight test campaign' <https://www.aop.org.uk/dontswerve>

⁴⁴ Fit to Drive: a cost benefit analysis of more frequent eyesight testing for UK drivers
<https://www.roadafetyobservatory.com/Evidence/Details/10808>

⁴⁵ <https://www.aop.org.uk/our-voice/media-centre/press-releases/2017/02/07/voice-of-the-profession-panel-launch>

44% in 2018. Practitioners in this group reported having seen an average of 2.2 cases in the past month

- The RSA Insurance study cited estimated that over 2,000 drivers in the UK were involved in collisions due to poor vision, causing nearly 3,000 injuries on UK roads each year
- One in 10 (12%) motorists surveyed said they would continue driving as normal if told their vision could not be corrected to meet the legal standard, while 42% would continue to drive in some capacity, such as cutting back on journeys or only driving locally
- One in 20 (30%) UK motorists surveyed admit they have doubted their own vision yet done nothing about it
- 16% surveyed admit to knowing a driver whose sight they believe to be below the legal vision standard

The AOP position statement on driving and vision⁴⁶ is calling for the following:

- All drivers should get their sight tested at least every two years, or more often if their optometrist recommends
- As a fall-back, all drivers should be legally required to have their vision checked when they first apply for a licence, and when renewing their driving licence – every ten years for most people, and every three years for those over 70
- That check should involve standardised reliable tests, rather than the inadequate number plate test
- Unless and until the law changes, drivers should remain responsible for notifying the DVLA if they fail to meet the current driving standards. Without universal vision checks, requiring optometrists to notify the DVLA automatically would deter drivers from getting their sight tested at all, making the roads more dangerous

Opticians/optometrists can inform the DVLA if they are concerned about a patient driving and the General Optical Council supports this (The General Optical Council (GOC) offers clear guidance⁴⁷ about notifying the DVLA if it is considered that a patient is unfit to drive, posing a potential risk to road safety, when the person cannot or will not exercise their own legal duty to do so. The AOP survey showed 5% of optometrists confirmed having reported a patient to the DVLA because they felt the patient was unfit to drive.

The AOP noted:

“Sight loss can often be gradual, and can go unnoticed, so the best way to ensure you meet the legal standard is to have regular checks, at least every two years, by your optometrist.

UK laws are among the most relaxed in Europe. The AOP is calling for a change that requires all UK drivers to have a comprehensive vision check to prove they meet the legal standard when they first apply for their licence, and then every 10 years thereafter, or more frequently after 70.”

⁴⁶ AOP position on Driving and Vision <https://www.aop.org.uk/our-voice/policy/position-statements/2017/06/16/driving-and-vision>

⁴⁷ General Optical Council Standards - <https://standards.optical.org/vision-and-safe-driving-what-to-do-if-a-patients-vision-means-they-may-not-be-fit-to-drive/>

Visual Standards for Driving in Europe

A report in 2017⁴⁸ by the European Council for Optometry and Optics showed that eyesight rules for driving in the UK are weaker than those in many countries; for instance, most European countries require a proper eyesight test carried out by an eye health professional. Interestingly out of the 25 EU and 4 non-EU countries considered, 21 have requirement for Visual assessment with an optician at the age of 70 or earlier and then regularly; the UK is not one of these.

Consideration for Visual requirements to be reviewed

Consideration needs to be given to the current eyesight standards for driving and whether they are still fit for purpose. The vision standard required to hold a driving licence for domestic use in the UK has not changed since its introduction in 1935.

Consideration should be given to current guidelines in relation to:

- Vision Acuity
- Field of Vision
- Contrast sensitivity

Professor Steve Taylor has looked at these issues in a number of articles on this in the Optician on-line titled 'Driving and Vision' and below are his conclusions:

- **Vision Acuity** – The case for a visual acuity standard⁴⁹ - The use of crash statistics alone has considerable limitation in evaluating the relationship between visual acuity and safety to drive. Consideration has been given to alternatives methods of assessing a relationship between visual acuity and driving performance.

Overall there is support for the need for a visual acuity standard but less evidence to identify a suitable acuity level. The EU has issued a Directive and has identified that, in the absence of alternative measures, a Snellen acuity of 6/12 (0.5) is a suitable standard.

For the present, the UK is retaining the number plate test as its required acuity standard. However, the Optical Confederation is working with the Eye Health Alliance to put pressure on the government to replace it with a screening programme that would provide a more consistent assessment of drivers' acuity and visual fields when they apply for and renew licences.

- **Field of Vision – The case for visual fields assessment**⁵⁰ - Visual field requirements have been included in the EU regulation relating to driving standards as there is evidence of a link between visual field loss and crash rate and driving performance. There is in the UK, however, no routine process in place for screening of a driver's visual fields.

As there is evidence that people with field loss are frequently unaware of a visual problem it would make sense for a process to be put in place that assesses the visual fields of drivers at specified points through their driving lifetime that would ensure the licensing requirements were fully met, particularly as drivers are unable to self-assess their visual field status.

⁴⁸ European Council for Optometry and Optics (2017) <https://www.ecoo.info/wp-content/uploads/2017/01/Visual-Standards-for-Driving-in-Europe-Consensus-Paper-January-2017....pdf>

⁴⁹ The case for. Visual acuity standard, Prof S.Taylor <http://assets.markallengroup.com/article-images/image-library/147/uploads/importedimages/driving-part-2.pdf>

⁵⁰ The case for visual fields assessment Prof S.Taylor <http://assets.markallengroup.com/article-images/image-library/147/uploads/importedimages/c16547-driving-and-vision-part-7.pdf>

- **Contrast sensitivity** - Contrast sensitivity is a measure of the threshold contrast for seeing a target. Today the most common methods for measuring contrast sensitivity are chart-based systems that can be mounted on the wall. Contrast-sensitivity tests can provide useful information by revealing in some conditions visual loss not identifiable through visual acuity tests, by providing another method of monitoring treatments, and by providing a better understanding of visual performance problems faced by persons with vision impairment.

There is evidence suggesting that the addition of a contrast sensitivity test or a mesopic visual acuity test would increase the accuracy of detecting unsafe drivers.

Currently drivers are required to self-confirm that they meet eyesight standards at licence renewal at 70. It has been shown that the requirements are not generally known⁵¹ and therefore reporting is likely to be unintentionally false. In fact a DVLA Survey in 2018 suggested 50% of motorists were not aware of the minimum standards required for eyesight needed for a licence⁵². There is considerable evidence that corrected vision changes with age and that there are significant changes to visual function and cognitive function with age and to driving performance.

Brake

In 2014 Brake carried out a 'sharpen up' campaign supported by RSA and Specsavers to call on all drivers to ensure their vision is at a safe standard for driving. They surveyed⁵³ 1000 UK drivers, with an even representation of genders and 99% were below the age of 65 years, on their eyesight and opinions on compulsory testing. This showed:

- Of the 54% who say they do not need glasses or lenses for driving, one in three (33%) hasn't had an eye test in the past two years, so cannot be sure that they are safe to drive without corrective lenses
- One in four (25%) drivers has not had a vision test in the past two years. One in eight (12%) admit not visiting the optician for five years or more, or never, and 4% (the equivalent to more than 1.5 million UK drivers) have never had their eyes tested
- One in five (19%) drivers have put off visiting an optician when noticing problems with their vision
- Nearly nine in 10 (87%) agree that drivers should be required to produce evidence of recent sight tests when renewing licences

Following these results Brake called for Government action on the following:

- Brake calls on the government to introduce a requirement for drivers to provide proof of a recent, professional eye test when applying for their provisional licence, to ensure all new drivers meet appropriate standards
- Brake is also campaigning for compulsory regular eye tests for drivers throughout their driving career. Brake proposes that drivers should have to produce evidence of a recent eye test when renewing their licence photocard every 10 years. It has been estimated this would save the public purse at least £6.7 million a year by preventing crashes
- The government should also raise awareness among drivers about the importance and benefits of getting eyes tested at least every two years or straight away if you notice a

⁵¹ Taylor SP (1997) Accuracy of recall of the legal number plate testing distance by U.K. drivers, *Ophthalmic and Physiological Optics*, 17 473-477 <https://pubmed.ncbi.nlm.nih.gov/9666920/>

⁵² BBC Article on DVLA survey <https://www.bbc.co.uk/news/uk-44918423>

⁵³ Survey conducted by Surveygoo <https://surveygoo.com>

problem. This could include reminders in communications from the DVLA, such as tax disc renewal letters

Brake are requesting these actions as sight loss can develop slowly and can be barely noticeable. Many vision changes caused by disease occur gradually and may not be noticed by a driver, especially if they are not receiving routine eye care. Common ocular diseases include cataracts, glaucoma, and age-related macular degeneration (wet and dry). Other diseases such as diabetes, hypertension, cardiovascular disease and sleep apnoea can also cause vision loss. Professional eye tests may pick up vision loss before the driver themselves notices it.

RAC Foundation

In January 2020 the RAC Foundation published a report titled '*Supporting older driver mobility and effective self-regulation*'⁵⁴

The review for the RAC Foundation was carried out by Dr Julie Gandolfi of Driving Research Ltd and looked at global research. This research says in relation to older driver safety that driving requires strength, co-ordination, good eyesight, flexibility, attention, memory, decision making and judgement, all of which can be affected by age-related decline, hence increasing risk.

Under 2.5 of the report it covers visual problems and states that static visual acuity, contrast sensitivity and the extent of visual fields all decline with age and may affect driving ability⁵⁵. This was backed up by a recent Australian study in 2017⁵⁶ reporting that declining contrast sensitivity and lower driving confidence were both associated with higher frequencies of rapid deceleration events in older drivers, this report concluded that deficits in visual function can affect driving safety.

The report quotes from a report by TRIP in 2018 titled '*Preserving the Mobility and Safety of Older Americans*'⁵⁷ that with every 13 years that passes from the age of 20, drivers require twice as much light to drive safely, so a 72-year-old needs 16 times as much as a 20-year-old and a 65-year-old's eye may let in just a third as much light as that of a 20-year-old under low-light conditions⁵⁸; in combination with declines in cognitive processes which optimise dark and light adaptation, and higher rates of age-related eye diseases (such as cataracts, glaucoma, diabetic retinopathy and macular degeneration), this poses significant challenges for older drivers.

IAM Road Smart

In 2015 IAM Road Smart published a report titled '*Keeping Older Drivers Safe and Mobile*'⁵⁹. This report surveyed more than 2,600 drivers, with an age range between 55 to 101 years, approximately 50% were under 70 and 50% over 70 years of age.

When polling the drivers on various methods to increase road safety on older drivers, 85% said that drivers should pass an eyesight test every 5 years after the age of 70 and 84% agreed that drivers should pass an eyesight test every 10 years after first passing their driving test.

The report added that health, and particularly visual health, was found to be very important to fitness to drive. Most respondents said that after age 70, drivers should pass an eyesight test and have a

⁵⁴ RAC Foundation, Supporting older drivers mobility and effective self-regulation https://www.racfoundation.org/wp-content/uploads/Supporting_older_driver_mobility_Gandolfi_January_2020.pdf

⁵⁵ Owsley, C., Wood, J. M. & McGwin, G. (2015). A Roadmap for Interpreting the Literature on Vision and Driving. Survey of Ophthalmology, 60(3): 250–262.

⁵⁶ Chevalier, A., Coxon, K., Chevalier, A. J., Clarke, E., Rogers, K., Brown, J. et al. (2017). Predictors of Older Drivers' Involvement in Rapid Deceleration Events. Accident Analysis & Prevention, 98: 312–319

⁵⁷ TRIP 2018 report on Preserving the Mobility and Safety of Older Americans <https://www.roadsafeseniors.org/sites/default/files/resources/document/2018TRIPReport.pdf>

⁵⁸ Improving the Safety of Aging Road Users: A mini-review <https://www.karger.com/Article/FullText/354212>

⁵⁹ IAM Road Smart report <https://www.iamroadsmart.com/media-policy/research-and-policy/older-drivers-2021>

medical examination in order to renew their driving licence. The results of this survey indicate widespread support for a change from the current system of self-certification for driver licence renewal at age 70 to a system which requires either an eye test, medical examination or both.

When polled about how often they had an eyesight test, there was a significant difference between the age groups, with older drivers having more frequent sight tests. The age group of 55 to 59 years showed that 29% had an eyesight every year whereas with the 70 to 79 years it was 61% and 80 and over being 70%.

This report has been updated and due to be released during 2021. The updated report recruited 3062 people aged 60 and over. Of these, 2668 were currently driving and 394 had stopped driving (ex-drivers). All respondents were asked about their health and vision and their views on road safety interventions.

Secretary of State for Transport's Honorary Medical Advisory panel for driving and visual disorders

Medical standards are regularly reviewed and considered by the Secretary of State's honorary medical panels. There are six panels and one is on driving and vision disorders⁶⁰. This panel appear to meet every 6 months. In March 2020 the Department for Transport gave a presentation on the impact of visual impairment on road safety. This report titled '*The impact of visual impairment on road safety: Rapid evidence review*' is due to be released in the near future.

Within the report they have the following findings:

- The only clear evidence on a link between a visual impairment and a higher rate of motor vehicle collisions was in relation to cataract
 - However, international evidence indicated that drivers with a visual impairment, in particular glaucoma, cataract and age-related macular degeneration, may choose to moderate their risk of motor vehicle collisions by changing their driving behaviour, such as avoiding driving at night
 - There was also some evidence that drivers compensate for their visual impairments by employing different patterns of eye movement and increased scanning behaviour.
- There were three visual impairments identified for which there was some limited evidence of an association with increased risk of road traffic collision and which are not currently routinely tested for in the GB national vision standard for driving. These were impaired contrast sensitivity, visual field loss and age-related macular degeneration
 - Changes suggested to the existing GB national vision standards for driving to accommodate these conditions included: introducing a measure of contrast sensitivity, a measure of visual field, and expanding the test for visual acuity to include both dynamic and static visual acuity
 - There was discussion on the relative validity of the tests for visual acuity, with several studies concluding that the Snellen chart is a poor measure of visual acuity and one study from the UK recommending the use of the ETDRS (Early Treatment Diabetic Retinopathy Study) test as a better alternative

⁶⁰ Medical advisory panel on driving and vision disorders <https://www.gov.uk/government/groups/secretary-of-state-for-transport-honorary-medical-advisory-panel-on-driving-and-visual-disorders>

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- Age-based screening for licence renewal was not widely recommended as there was no conclusive evidence that this reduced the risk of collision and would have the associated impact of reducing the mobility of older people

11 Annex 3 – Police Enforcement

Police Notifications of drivers with defective eyesight

In 2013 a new procedure was created called ‘Cassies Law’. [Cassie McCord (16 years) from Chichester was killed on her way to school by an 87-year-old driver, just three days after he had failed an eyesight test and refused to surrender his licence.]

This procedure enables the Police to notify the DVLA electronically (via form D751E) with details of eyesight test failures allowing a notice of revocation of the licence to be issued to the motorist within hours. Once revoked, a licence will not be returned until a driver can demonstrate that their eyesight meets the required standard and they re-apply for their licence with the DVLA.

D751E

The D751E⁶¹ is the form used by Police to notify the DVLA of someone who has failed to read a number plate eyesight test.

A freedom of information request has been submitted to DVLA to requesting details of the number of D751E that have been submitted to the DVLA by Police in the last 5 years, together with record of revocations, sex and age. These results cover from 1st January 2015 up 24th September 2020, so not a full year for 2020.

The results are shown in Table 1.

Table 1: Number of D751E submitted to DVLA

Year	Total Submitted	Total Revocations	Male	Female
2013	238	231	184	54
2014	251	237	192	59
2015	261	261	191	70
2016	320	317	234	86
2017	291	273	223	68
2018	325	316	235	90
2019	309	297	236	73
2020	153	152	122	31
Total	2148	2084	1617	531

⁶¹ Editable PDF version <https://olderdriversforum.files.wordpress.com/2020/10/d751e.pdf>

When these numbers are split down into age groups (Table 2), it can be seen that the number of notifications and therefore subsequent revocations sharply increase from the age of 70. This can clearly be seen when shown in a graph form (Figure 46 and Figure 47).

Table 2: Licence revocations due to defective eyesight by age

Year	16-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-110
2013		7	5	5	8	16	52	108	35	
2014		c	c	7	7	18	61	120	28	
2015	c	c	c	6	7	16	62	134	29	
2016		c	5	c	9	17	76	169	37	c
2017	c	6	c	8	8	11	59	150	46	
2018		5	c	7	12	14	81	145	57	c
2019		c	7	c	9	23	76	136	53	
2020		c	c	c	6	15	47	65	13	
Total	0	18	17	34	66	130	514	1027	298	0

The figure 'c' relates to numbers less than 5

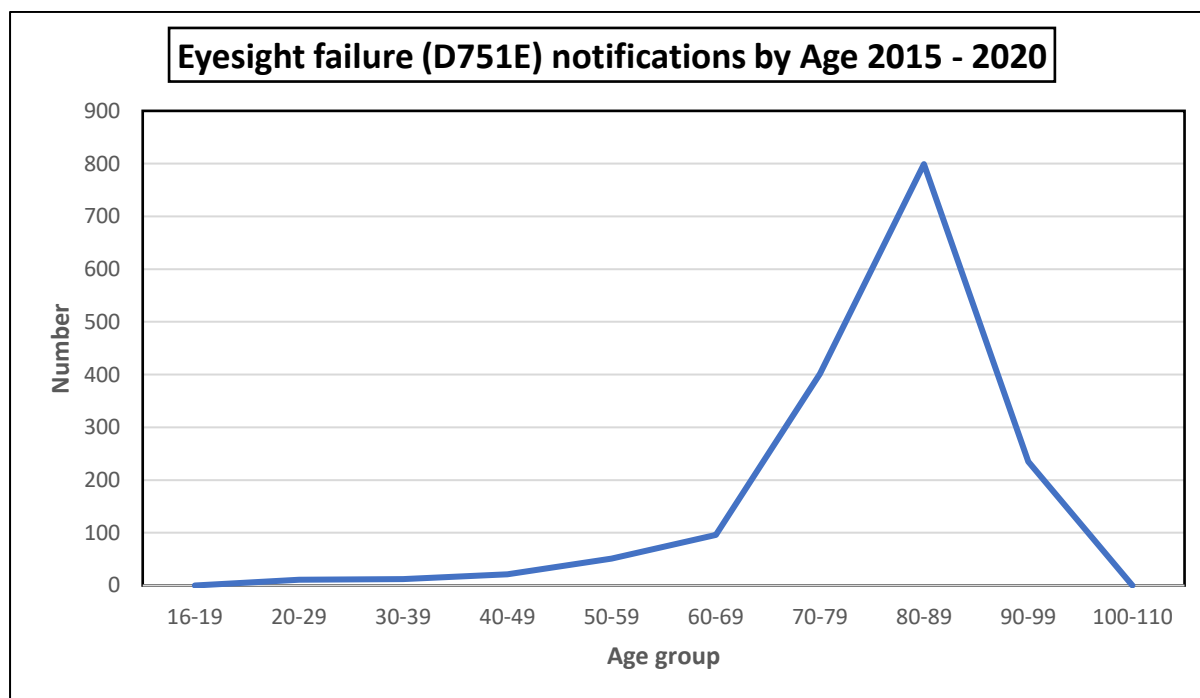


Figure 46: Eyesight failure notifications by age 2015 – 2020

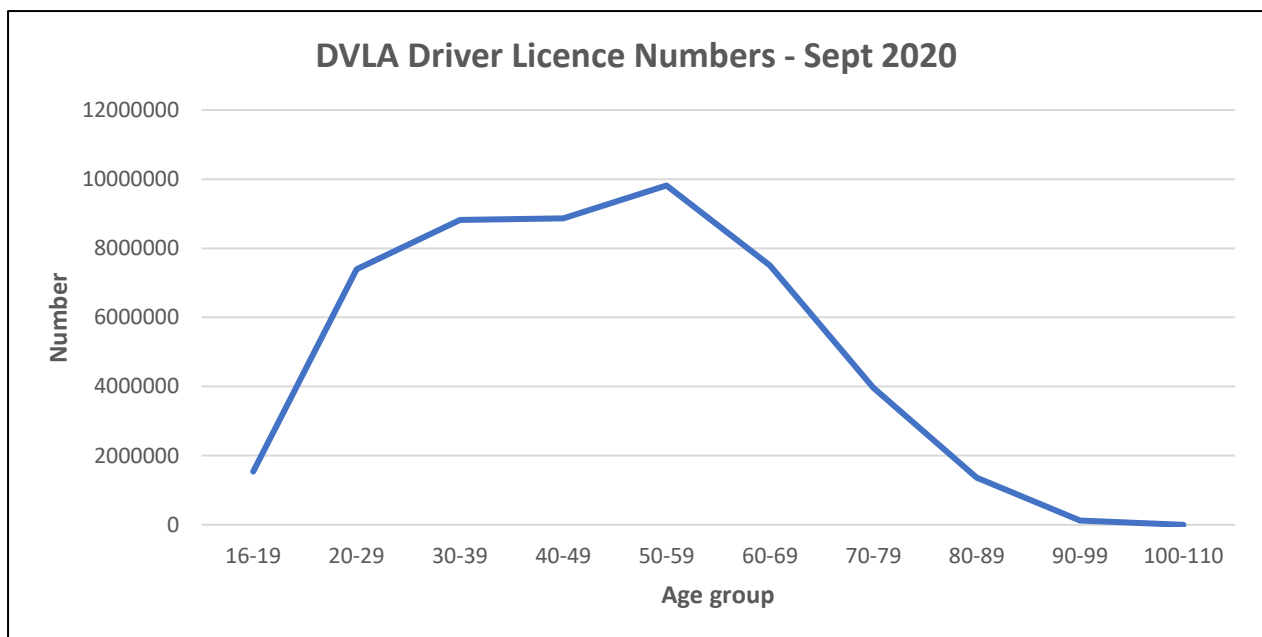


Figure 47: DVLA driver licence numbers

These two graphs allow us to conclude that eyesight certainly does become a problem for driving when we reach the age of 70 and over, as shown in the sharp increase of failures. If we compare this against driver licence numbers from the DVLA from September 2020⁶² at certain age groups, this clearly shows a decrease from the age of 70 of driver numbers. If we correspond this with the increase in failures over the age of 70 this makes the increase even more as there are less numbers of drivers of this age and therefore a bigger issue (Figure 48 refers.)

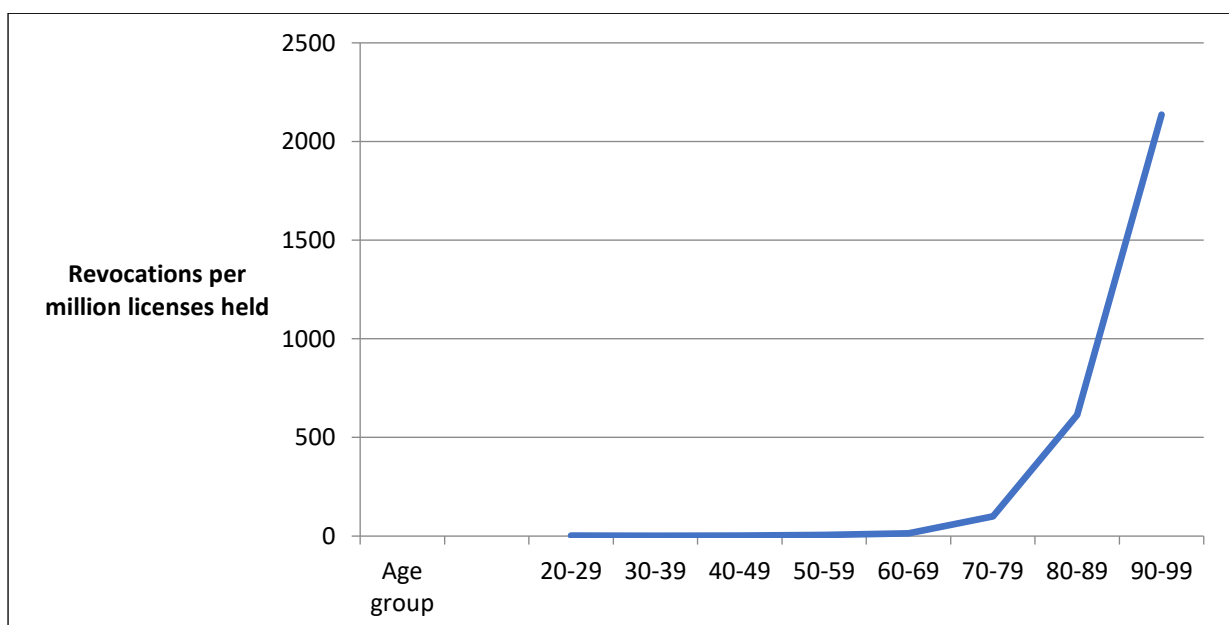


Figure 48: Revocations per million licences held

⁶² DVLA GB Licence Data <https://data.gov.uk/dataset/d0be1ed2-9907-4ec4-b552-c048f6aec16a/gb-driving-licence-data>

Police eyesight Campaign 2018

In September 2018, police forces in Thames Valley, Hampshire and West Midlands teamed up with road safety charity, Brake, to run a month-long campaign on driver vision. Throughout the month, anyone stopped by Road Policing Officers on suspicion of a traffic offence in these areas was required to take the 20-metre number plate test⁶³, with those who failed having their licence immediately revoked, using Cassie's Law.

The aim of the pilot, alongside removing drivers with defective eyesight from the roads, was to raise awareness of the issue of driver eyesight and to collect data to gain an improved understanding of the prevalence of this issue in the UK. Current data on this issue is poor and crashes from defective driver eyesight are thought to be vastly underreported in government statistics.

For each driver stopped, the following data was recorded: the reason for the stop; their gender; their age; whether they require corrected vision (glasses/contact lenses) and, if so, whether they were utilising this when stopped; whether they passed or failed the 20-metre number plate test; and whether they had had an eye test in the last 5 years.

Results for the campaign

Following the month-long pilot (1-30 September) the data from the three forces was compiled to provide the following results:

- Total number of stops = 1084
 - 802 males, 282 females
- Total number of test failures = 8
 - The youngest of these was 55, the rest aged between 69 and 89 years of age
 - 6 of the failures had corrected vision, 3 of whom were not wearing glasses/contacts at the time of the stop
 - 6 drivers had their licences immediately revoked in liaison with the DVLA
 - 2 drivers were found to not be wearing their glasses when stopped, but after putting their glasses on they were able to read the number plate at 20 metres
- Number of drivers stopped with corrected vision = 349 (32%)
 - Number of these drivers not wearing glasses/contacts = 21 (6%)
 - Out of these 18 passed and 3 failed (14% failure)
- 421 drivers (39%) had NOT had an eye test in last 5 years
 - Of these only 1 failed

Further analysis of the results, broken down by age group is shown in Table 3.

⁶³ Where safe and fair to do so. For example, the test had to be conducted in daylight conditions and could not take place when there was a potential safety risk to the participant (for example, on a motorway).

Table 3: Number of people who passed/ failed 20 metre numberplate test

Age group	Total stops	Number pass/fail	% failure rate	Number who had not had an eye test in the last five years
17 – 19	22	All pass	0%	12 (55%)
20 – 29	197	All pass	0%	106 (54%)
30 – 39	195	All pass	0%	89 (46%)
40 – 49	207	All pass	0%	82 (40%)
50 – 59	179	1 fail	0.6%	48 (27%)
60 – 69	110	1 fail	1%	16 (15%)
70 – 79	84	2 fail	2%	12 (14%)
80+	34	4 fail	12%	1 (3%)

The campaign attracted a vast amount of national media coverage. At the end of the month campaign, 30 opticians were contacted, all stated they had around a 300% increase in people booking in to have an eyesight test as they were worried they may get stopped and lose their licence.

Even though the ‘Cassies Law’ procedure is available to all Police Forces nationally, a large number contacted the three Forces running the campaign asking how they had obtained this new procedure.

Conclusions for the campaign

From the results of the pilot across the three police forces there are a few conclusions that can be drawn about poor driver vision on our roads, detailed below. It should be noted that this pilot was not designed to be academically robust and that those who were stopped were not a random sample of the driving population, as the Roads Policing Officer required a legitimate reason to stop them:

- Defective eyesight is more prevalent amongst older drivers. 5% of all drivers stopped over 70+ years of age had defective eyesight and in the 80+ age group this more than doubles to 12%
- The younger the driver, the less likely they were to have had an eye test in the last 5 years, with the majority (54%) of young drivers (17 – 29) not doing so and the percentage decreasing through each age group

Both these findings indicate that there would be safety benefits derived from the introduction of mandatory eye tests for drivers. For younger drivers, it is likely the only way to ensure that young people who drive will have a professional eye test, as the above evidence demonstrates that they are unlikely to go for one on their own initiative. For older drivers, defective eyesight is more prevalent and therefore mandatory eye tests will ensure that there is a regular check on their eyesight.

The pilot also produced strong anecdotal evidence that increased awareness of the issue of driver vision, via the pilot’s profile in the media, leads to an increase in those voluntarily submitting to an eye test. This indicates that an increased government focus on driver vision, through the introduction of mandatory eye tests, will increase the public awareness of this issue and therefore result in safer outcomes.

Police Fitness to Drive Assessment – Opticians’ results

In Hampshire and a number of other Police Forces across the country the Police have been trialling an alternative to prosecution assessment as alternative to prosecution for the offence of Careless Driving offence. This assessment is called a Fitness to Drive (FTD) assessment and has been utilised as an alternative to prosecution for the following specific groups:

- Drivers aged 70 and over
- Drivers using specially adapted vehicles, any age
- Drivers who are involved in a collision/ incident where an underlying medical condition is stated to be the likely cause of the collision, any age

The trial has been running for since 2013 and has now assessed just under 600 people (up to March 2020).

Everyone who attends the FTD assessment is required to provide an optician’s eyesight test certificate (including field of vision check) which has been undertaken since the collision / incident and before the FTD assessment. Surprisingly **50%** were recommended to have their eyesight corrected or prescription change and **1%** (6) were referred to the eye hospital (Figure 49 refers).

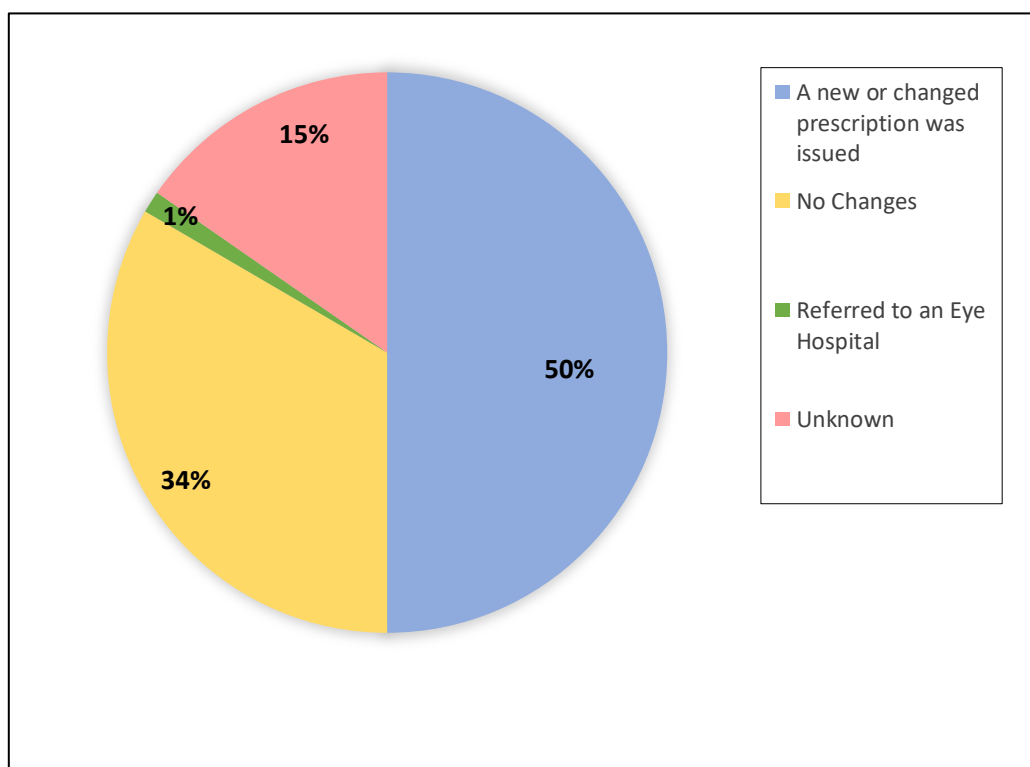


Figure 49: Results of opticians’ eyesight test certificates

This again gives strong evidence that there is a correlation between poor driving and having some form of deficient eyesight. It also needs to be noted that all these drivers would have previously passed a 20 metres number plate test, showing again that undertaking a detailed opticians eyesight test is far more necessary for safe driving to occur.

Conclusion

Evidence shows that as we get older our eyesight deteriorates, sometimes without us being aware of it. Without correction or treatment this can lead to increased risk. Polls and analysis show that older

drivers in particular have more frequent voluntary eyesight tests as they get older. However, the number of eyesight failures judging from Police checks increases greatly after the age of 70. This suggests that those who have an eyesight issue are either complacent about having their sight checked or avoid having it checked, perhaps for fear of failure.

There is some evidence of strong support from the older age groups for compulsory eyesight testing at licence renewal. Eyesight checks are free over the age of 60 so there would be no financial burden from such a requirement.

12 Annex 4 - Driver Appraisals

Option 1, A light touch appraisal – Elements to be considered

The scheme must be enticing and beneficial to the older driver to undertake

Confidentiality would be ideal; however, a duty of care issue may conflict with this. Any service provider agreement would have to cover issues where a referral to DVLA or 'Option 2' assessment deemed to be necessary.

Consideration should be given to running the appraisal from the person's home address on roads that they use and perhaps in their own vehicle. For example, consideration should be given to the environment that the driver normally driver in, there are great variations in a rural to an urban location.

An important consideration is voluntary attendance to such an appraisal. Whilst some 'volunteers' may have been persuaded by a family member or medical professional they should still attend of their own volition. To appeal to the target audience, the onward referral to a more formal 'Option 2' assessment would need to be seen as a possibility, in a small number of cases, and not a probability in the majority.

The appraisal should be conducted by a trained Approved Driving Instructor, ideally one who has undertaken additional training on the needs of the ageing motorist such as those run by Road Safety GB. Although this instructor will be an expert in the area of driving, they are likely to have limited knowledge of medical issues, so care should be taken if the assessment is at the persuasion of a GP or medical professional.

The use of a disclaimer should be considered and ideally signed during the pre-appraisal briefing. This needs to include a question in relation to medical fitness (difficult if dementia is suspected), a question in relation to onward referral and since the demise of the counterpart a question in relation to driving licences.

The duration of the test could be flexible but needs to be long enough to be a meaningful assessment, but short enough not to cause undue pressure. Under appraisal conditions driving for 45 minutes could start to cause concentration problems, advanced drivers are only assessed over 60 minutes. As the appraisal is being conducted by an ADI, then it is standard to break after 30 minutes with re-assurance or guidance given to be considered.

As all of the participants in the appraisal would be voluntary no matter which route of referral, it is unlikely that the assessor would have any information to conduct a targeted assessment. Thus, such an appraisal would need to be in a standard format. A scoring system should be simple and fit for purpose, with a qualified text box to identify any safety concerns that need to be qualified. A one-off incident which may happen on any test needs to be clearly identified from a trait which is ongoing. An ongoing trait may trigger the next option of assessment.

Measurement of risk to themselves and others should be considered in all evaluations from perhaps Low to High.

Alternative to Prosecution

Hampshire Constabulary and a number of other Forces across the country have been successfully trialling an 'Option 3' alternative to prosecution, called 'Fitness to Drive' Assessment.

This 'Fitness to Drive' (FTD) assessment is as an alternative to prosecution for careless driving offence for the following groups instead of the national Safe and Considerate Driving course (SCD) run by National Driver Offending Retraining Schemes (NDORS):

1. Drivers aged 70 and over
2. Drivers using specially adapted vehicles, any age
3. Drivers who are involved in a collision/ incident where an underlying medical condition is stated to be the likely cause of the collision, any age.

It needs to be noted that this scheme replaces the current SCD for this offence and vulnerable group only. Although the national course is very good, it is conducted in large groups of all age groups and lasts seven hours. This can be very tiring, and we feel does not take in to account this vulnerable groups individual needs which can help them drive safely. The National scheme also does not cater for the needs of drivers of any age who may have a medical condition or need to use a specially adapted vehicle.

The FTD scheme recognises the needs and support for these vulnerable motorists to help them carry on driving safely for longer. The assessment lasts around two and half hours and is tailored to the needs of the of the individual and requirements rather than a large classroom full of all different ages course with one course fits all approach. The assessment is conducted by specially qualified Occupational therapists and specially trained Approved Driving Instructors. The cost to the client of the FTD is set at the same price as the local SCD course.

The scheme utilises the National Driving Mobility accredited centres to undertake the assessments. Driving Mobility is recognised by the DVLA, DVA (NI), DfT, the NHS and Motability as being the Accrediting Body responsible for organisations wishing to undertake clinical fitness to drive assessments. These centres are also adaption centres, who can advise motorists on various adaptations to keep them mobile and safe depending on their needs. This again supports these vulnerable motorists by giving advice on adaptations to fit to their vehicles to make driving safer and easier like, larger mirrors or even a ball on the steering wheel. This advice is not offered on the national SCD course. There are 20 mobility centres across the UK, with many outreach centres ideally ensuring no client has to travel more than 30 miles or 30 minutes from their home address.

The FTD assessment identifies those who are shown as safe drivers, those who are unsafe and need to stop immediately and develops those who need retraining to make them safe drivers again. It educates a person on safe driving and hazard awareness, but also, unlike any other referral scheme, identifies where a person is safe or unsafe to continue driving and identifies those who just need further driving instruction.

The scheme is reviewed yearly⁶⁴. Evidence from review of the assessments is that about two thirds achieve a safe outcome either at the assessment or following some further instruction. The remainder are notified to DVLA as unsafe or stop driving.

Unlike the national SCD for all ages, the FTD assessment scheme allows people to undertake a referral every 12 months, rather than 36 months with the national SCD. This is because it is recognised that this group of driver's medical condition can deteriorate over 12 months quickly.

The Fitness to Drive (FTD) scheme in Hampshire has referred over 580 people so far (up to March 2020). Initially 49% of those attending are shown as Safe, 18% Unsafe, and 33% Driver Skills Review who were sent away for additional training. When these people returned after training, 46% were now classified Safe, and for those aged up to age 85, 55% demonstrating the value of refresher training for older drivers. Ultimately after completion of all assessments 70% of people are shown to be Safe, whilst 30% have been shown to be Unsafe and they need to retire from driving (Figure 50 refers). Around 80% of those found to be Unsafe subsequently have their licences revoked by DVLA.

⁶⁴ <https://olderdriversforum.files.wordpress.com/2020/09/ftd-assessment-overview-upto-march-2020.pdf>

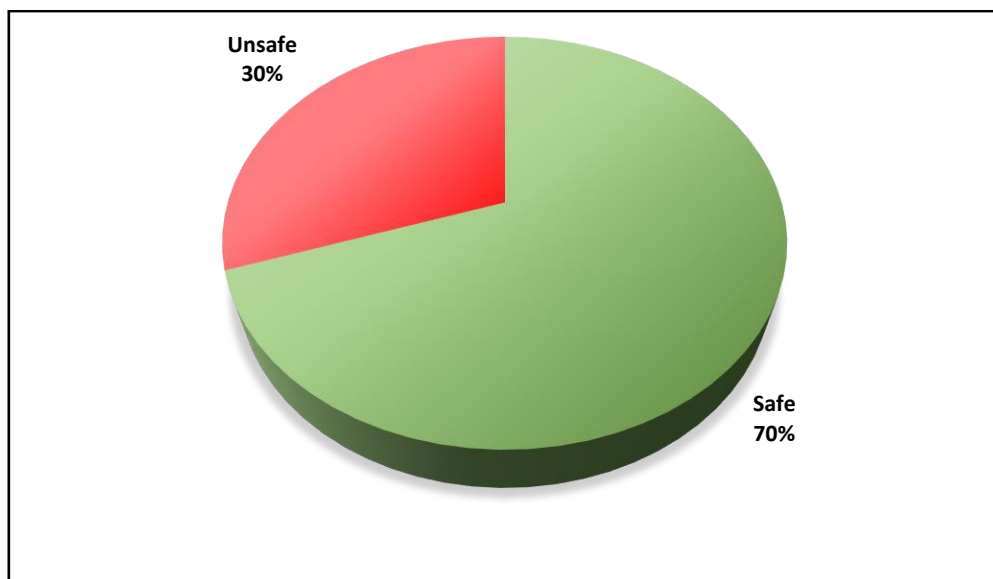


Figure 50: Ultimate outcome after an FTD assessment

Everyone who undertakes the FTD also has to have an optician's test before attending. Around 51% have had to have a serious prescription change or start to wear glasses. This additionally helps make sure people are safer on the roads as well as a great way to pick up medical conditions not previously known or aware by the driver, thus keeping them safe.

This scheme has been independently reviewed with a number of recommendations for any organisation wishing to take on such a scheme. It is seen as fair, proportionate and appropriate⁶⁵.

In the creation of this scheme due regard was given to the Police's public sector equality duty under the Equality act of 2010. Throughout the scheme this duty was considered and reviewed regularly. Hampshire Constabulary feel the scheme is fit for purpose and feel that it is a legitimate means of obtaining a legitimate aim, that is to ensure that the group of vulnerable road users drive safely and there are fewer collisions. Hampshire Constabulary also believe that the scheme supports those with different need and to address this issue the FTD scheme was set up which Hampshire Constabulary believe is Positive Action⁶⁶.

However, the scheme requires full Police support as well as recognition of the extra workload, extra time needed and careful and compassionate handling of this often-vulnerable group.

⁶⁵ <https://olderdriversforum.files.wordpress.com/2020/08/fitness-to-drive-hampshire-pilot-final.pdf>

⁶⁶ <https://olderdriversforum.files.wordpress.com/2020/10/public-sector-equality-duty-considerations-2020.pdf>

13 Annex 5 – Japanese NCAP

Japanese NCAP Test protocol of Pedal misapplication

Pedal misapplication is managed through application of the AEB sensors (ultrasonic sonar and/or camera) and an algorithm to prevent motion if there is no safe clear path for travel. It must be evaluated as follows to receive credit within the rating:

- The balloon target which is used for AEB (the same one as Euro NCAP's) is located in front or to the rear of an ego-vehicle with 1 m clearance
- The driver pushes the accelerator pedal at a speed of 400%/sec (100%=full stroke).
- When the vehicle avoids the collision (normally it does not move at all), 1 point is to be applied for each end (front and rear setup, total 2 points). If the collision occurs, the points are scaled depending on the extent to which speed was decreased
- The 2-points award is a very small percentage of the total score, but it is mandatory to get an overall 5-star rating for the car. Therefore, it is a crucial requirement for the vehicle manufacturers in Japan

14 Acknowledgements and Contributors

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