

2ND EDITION

SUPPORTING SAFE DRIVING INTO OLD AGE

SUMMARY REPORT

NOVEMBER 2021

FOREWORD

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Chairman of the Older Drivers Task Force



We have an opportunity to support drivers into old age as long as they are safe to drive.

In the Road Safety Statement 2019¹, 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 has now completed this work.

I am grateful for the contributions of Task Force members in following up the review and to the Road Safety Foundation for their support throughout our work.

There has been some progress across road infrastructure, vehicle safety and drivers since the previous review but some issues require attention if we are to make roads safer for older people. These include:

- Road infrastructure, particularly non-signalised T junctions and crossroads
- Uncorrected eyesight
- Pedal confusion especially with the growth in automatic vehicles
- Insufficient take-up of driver improvement schemes and variable quality
- A need for better vehicle design, notably seat belts.

One way forward would be for the Department for Transport to decide in the light of their planned strategy which of the recommendations they wish to support and over what timescale. This would help to give a much-needed sense of direction to which all actors can subscribe and contribute.

The Task Force has done all it can for now. But we are ready to help in whatever way we can to support the action now needed to make driving safer for older drivers, a vulnerable and growing sector of our community.

¹. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817695/road-safety-statement-2019.pdf

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INTRODUCTION



INTRODUCTION

The Older Drivers Task Force developed a National Older Drivers Strategy in 2016² to improve the framework of advice, self-help and technology available to support the fast-growing number of older drivers.

A review, supported by the Department for Transport (DfT), has been undertaken and looks at the original recommendations, developments and progress in the last five years. This ‘Summary Report’ provides a high-level overview and reports the findings of the Review. An associated ‘Technical Report’ provides much more background detail to that contained within this Report and can be found on the Road Safety Foundation [website](https://roadsafetyfoundation.org/project/making-older-drivers-safer-longer/).

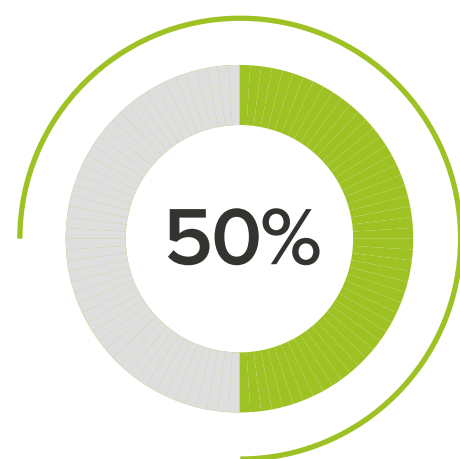
2. <https://roadsafetyfoundation.org/project/making-older-drivers-safer-longer/>

SUMMARY OF KEY RECOMMENDATIONS



SUMMARY OF KEY RECOMMENDATIONS

The following are just some of the most important recommendations that are proposed by the Older Drivers Task Force, others are described in the sections that follow.



50% reduction target to reduce deaths and serious injuries for drivers over 70 by 50% by 2030

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

We recommend 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.

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.



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.

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).

Voluntary Driving Appraisals/ Assessments

We recommend that the principal organisations³ 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.

Vehicle Technology

We recommend that the government incorporates the standards of the EU General Safety Regulation into UK law, which includes Advanced Emergency Braking (AEB), Intelligent Speed Assistance (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.



³. Principal Organisations are those that are already running such schemes.

OLDER DRIVERS TASK FORCE - VISION AND AIM

OLDER DRIVERS TASK FORCE - VISION AND AIM

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”⁴. 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.



4. World Report on Traffic Injury Reduction 2004

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 for 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 infrastructure improvements, enforced and effective speed control, vehicle safety innovations and the widespread introduction of Advanced Driver Assistance Systems (ADAS) and automated vehicles.

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



DATA TRENDS



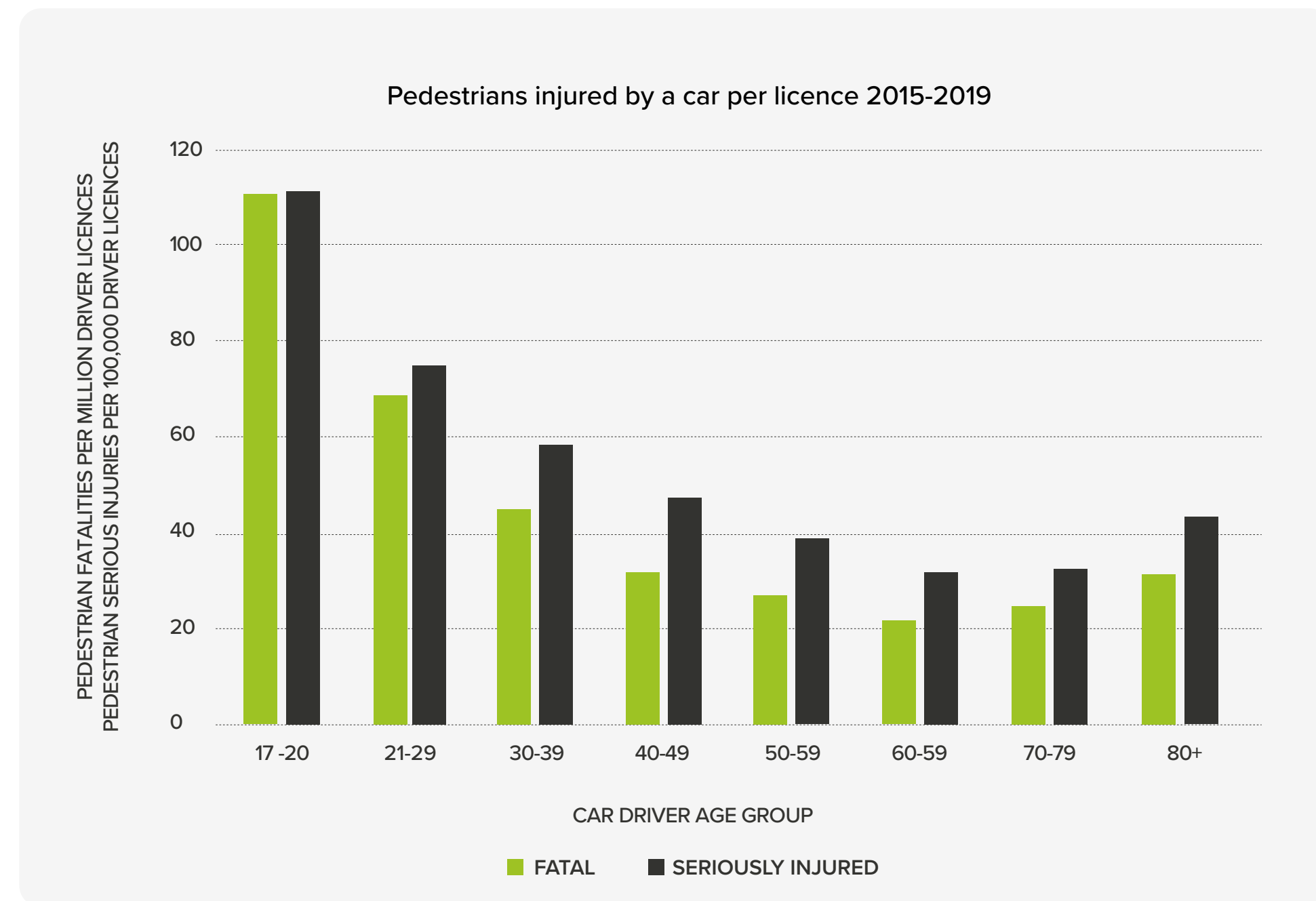
DATA TRENDS

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 1.

Figure 1: Pedestrians injured by a car licence per year 2015-2019
(Crash data source: STATS19; licence data source: NTS)



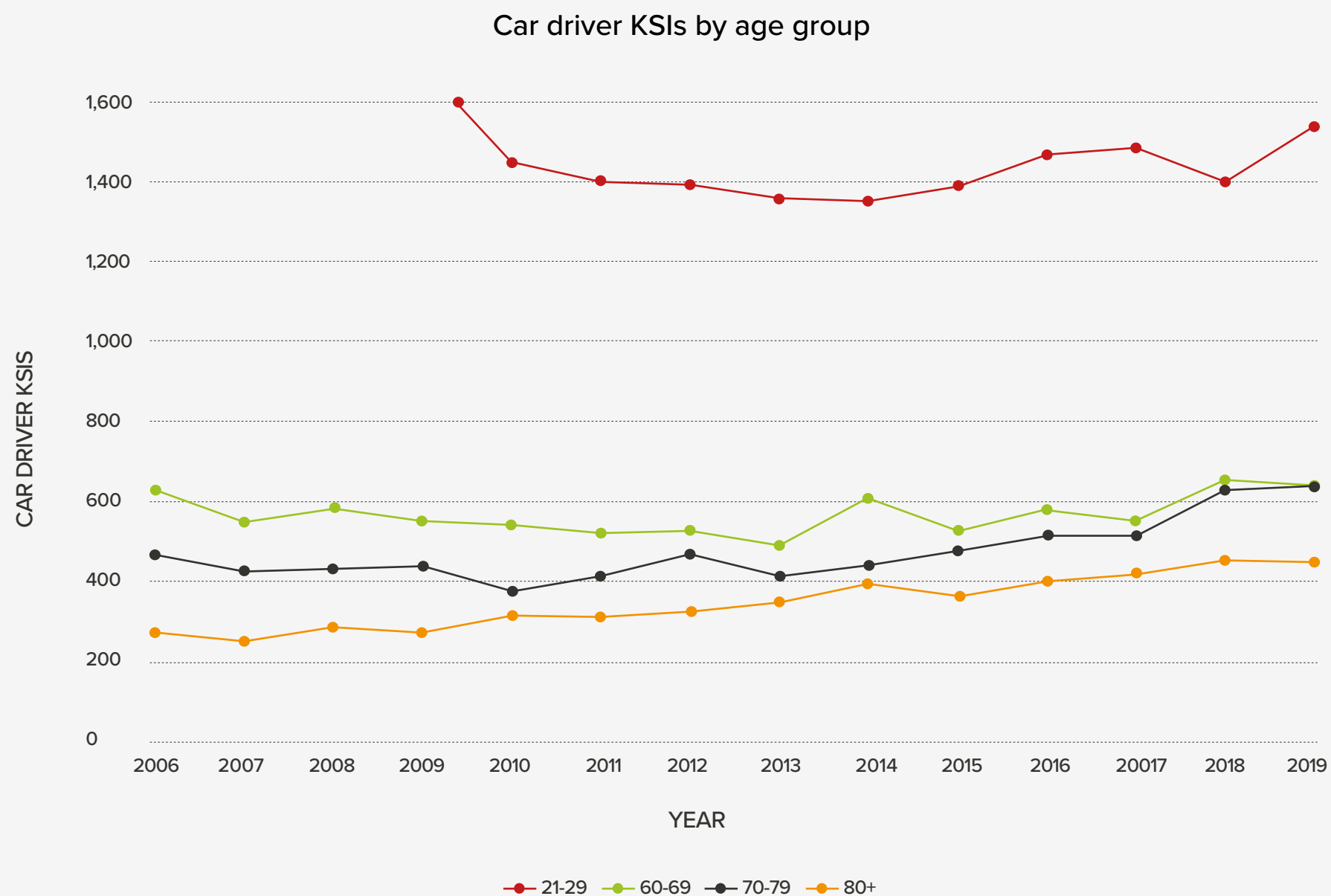


However, older car drivers themselves are more likely to be killed or seriously injured per licence held, at least in part due to their frailty. Moreover, licences are increasing in these older age groups and therefore car driver fatalities and serious injuries in these age groups are also rising.

The numbers of car driver casualties have been increasing in the 70 or over age groups in recent years – the numbers of car drivers who are killed or seriously injured (KSIs) 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.

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.

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





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), shown in Figure 3.



Figure 3: Car driver licences held by those aged 60-69, those aged 70-79 and those aged 80 or over (Source: NTS)

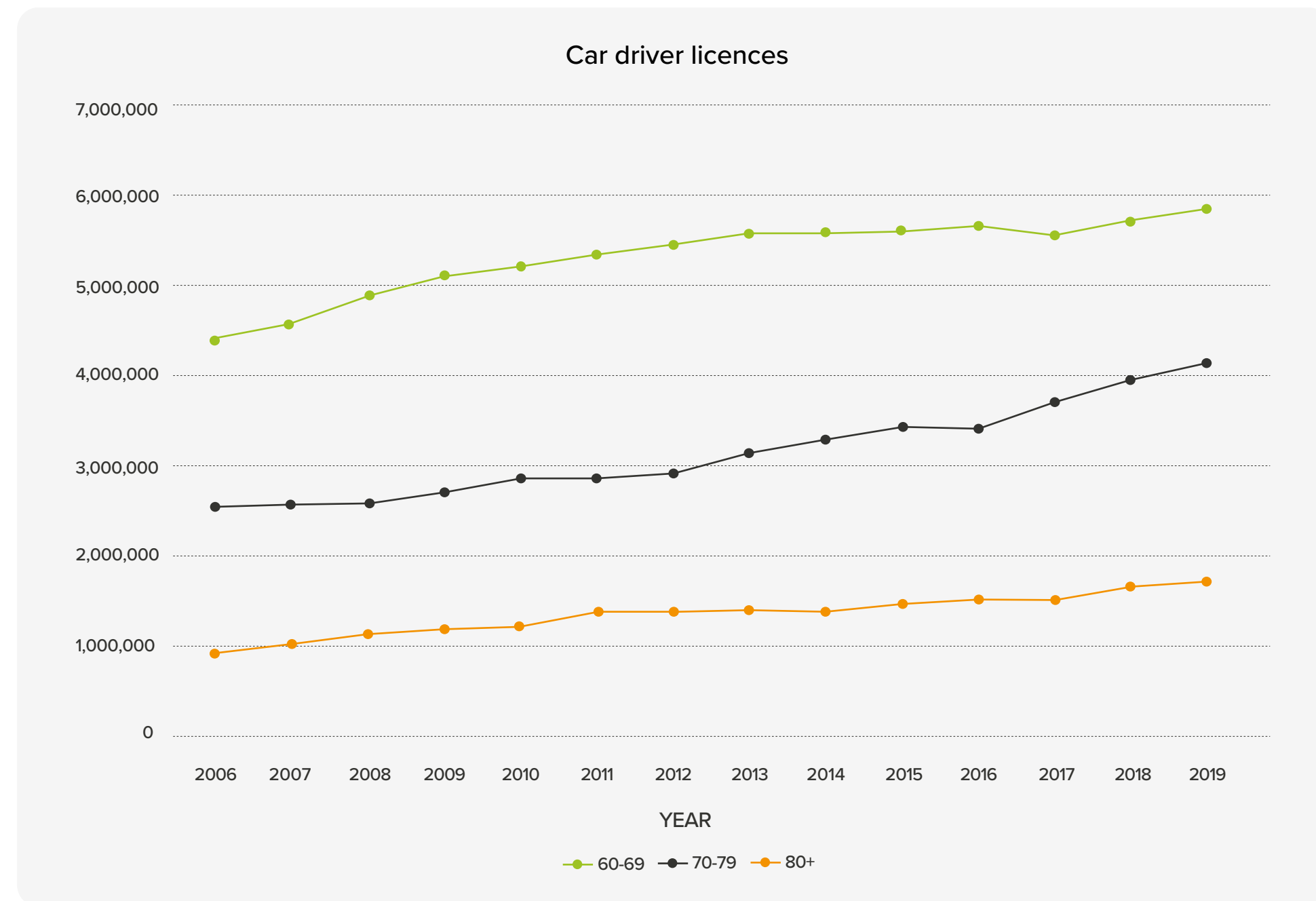




Figure 4 shows the numbers of car driver KSIs per million driving licences for the 21-29, 60-69, 70-79 and 80 or over age groups.

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

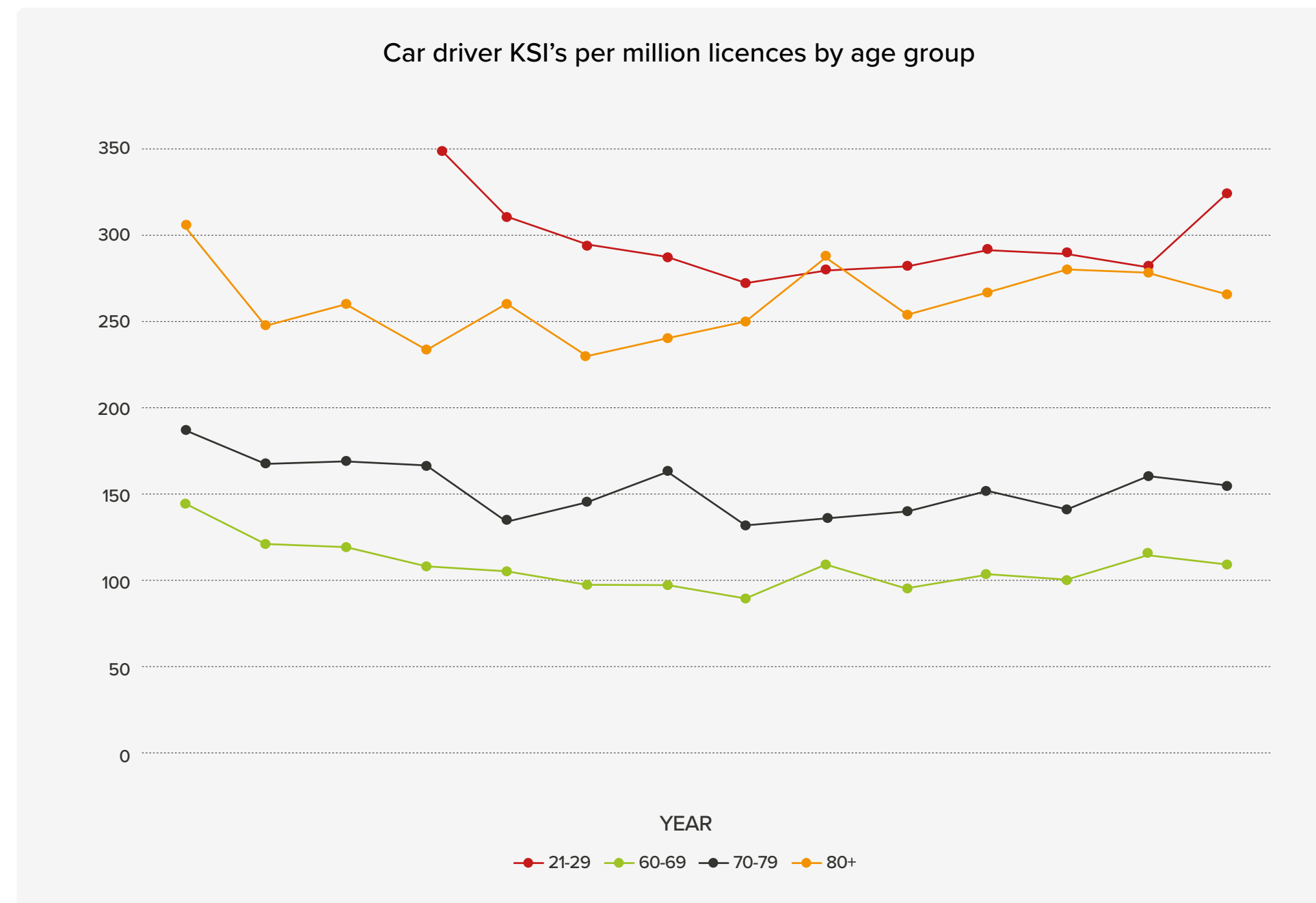
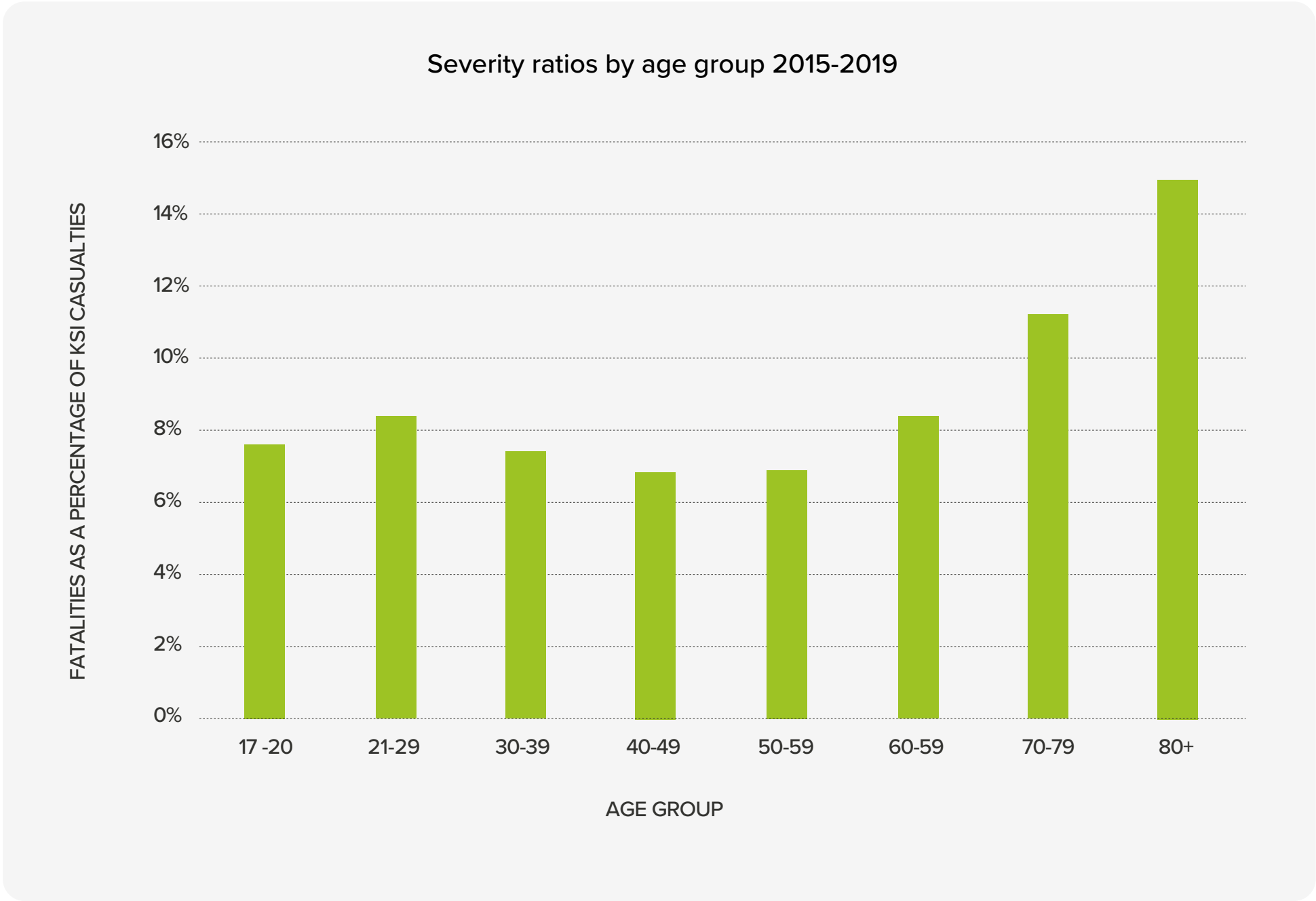


Figure 5: Number of fatalities as a percentage of the total numbers of KSI casualties by age

Figure 5 highlights the frailty issue by showing how the number of fatalities as a percentage of the total numbers of KSI casualties varies 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 6 shows forecasts in these figures going up to 2040, taking population projections into account.



Figure 6: Car driver licence trends

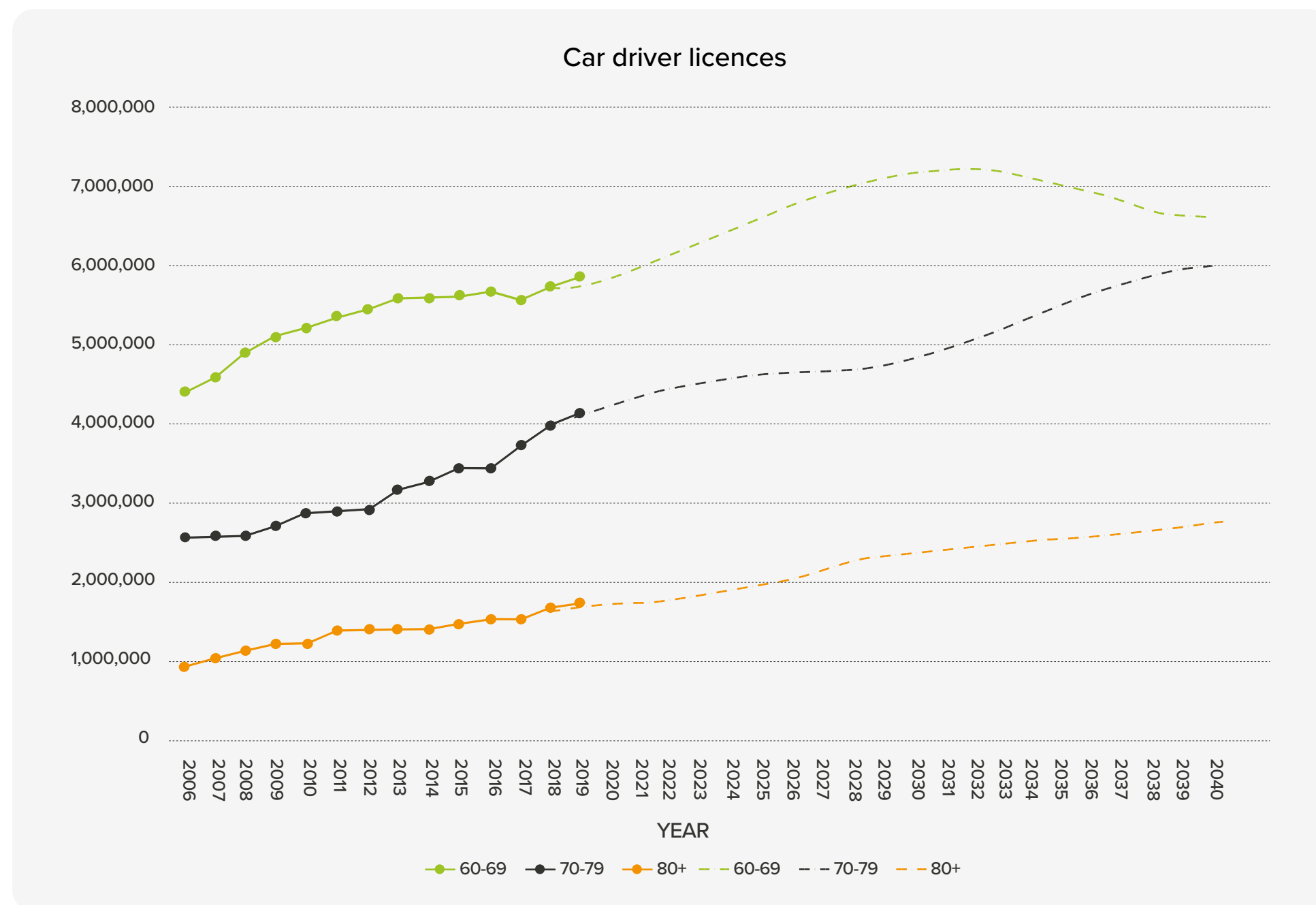
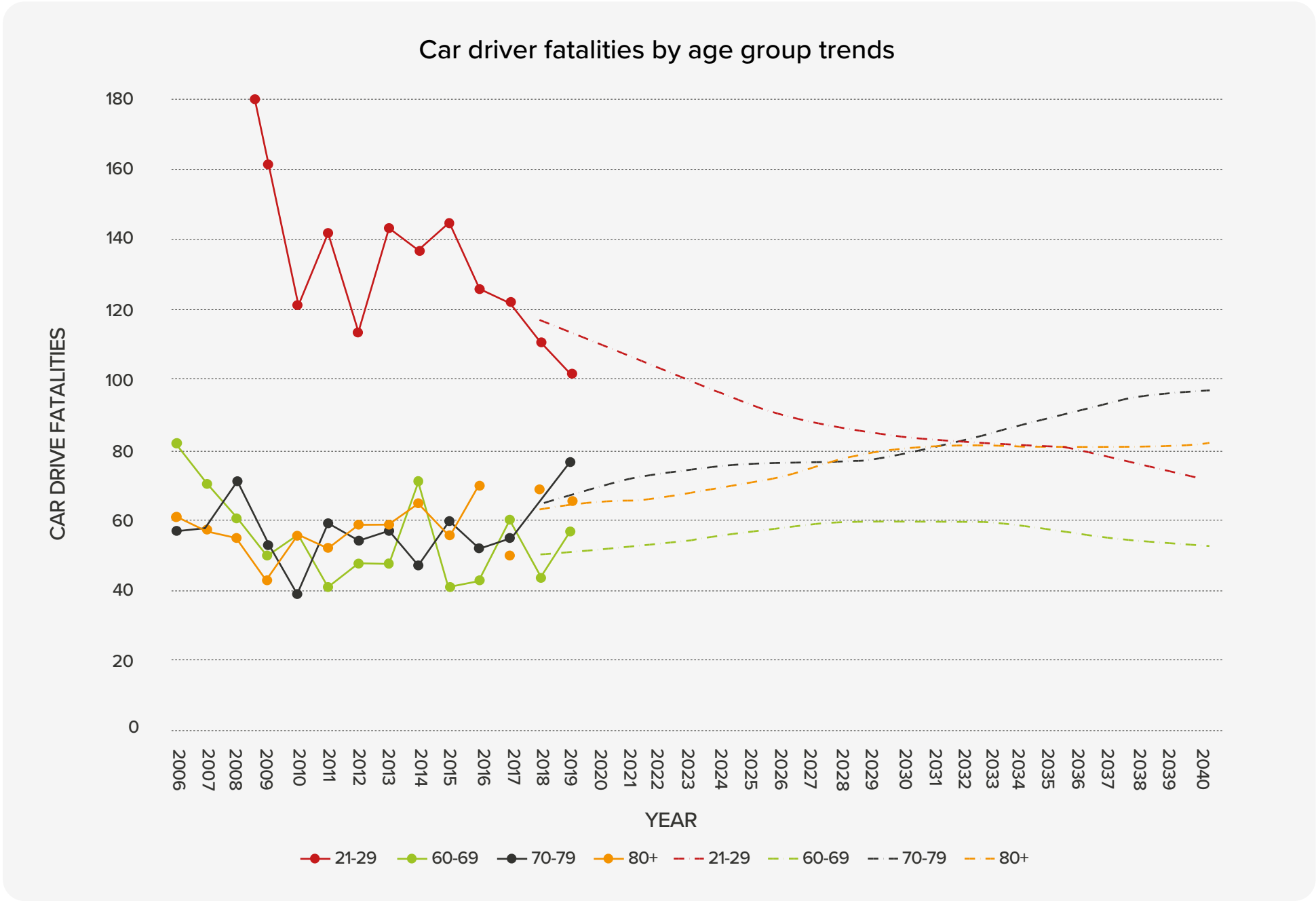


Figure 7: Car driver fatalities by age group trends

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 7.

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.



Summary

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.



SAFER ROADS

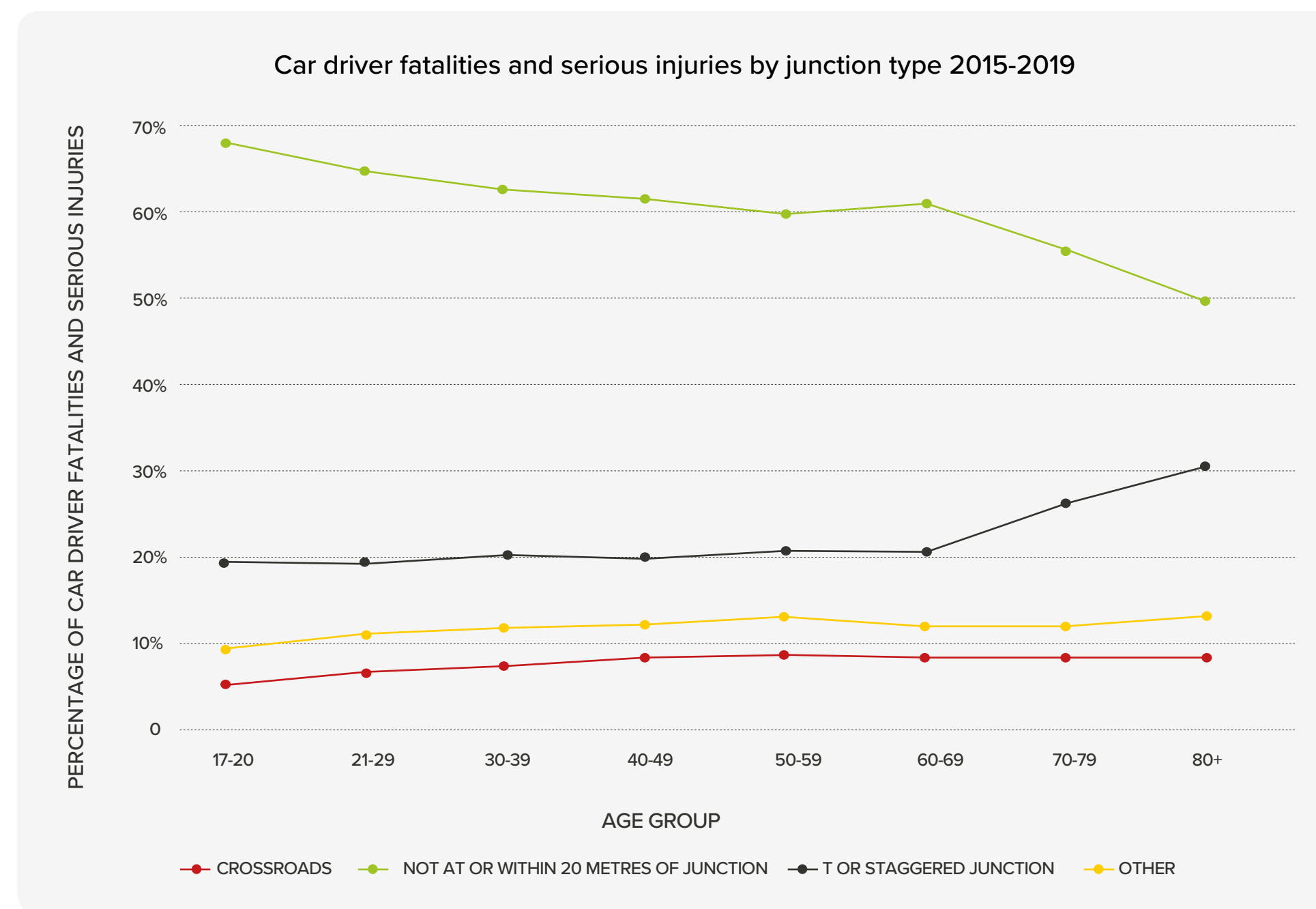
SAFER ROADS

Crashes at Junctions

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 8 shows, the proportion of car driver fatalities and serious injuries which are not at junctions declines with age, from around 60% of fatalities and serious injuries for those under 70 to less than 50% of fatalities and serious injuries for those aged 80 or over.

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.

Figure 8: Proportion of car driver fatalities and serious injuries by junction type and age group 2015-2019
(Source: STATS19)



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 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.

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 9 shows the proportion of fatally 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.

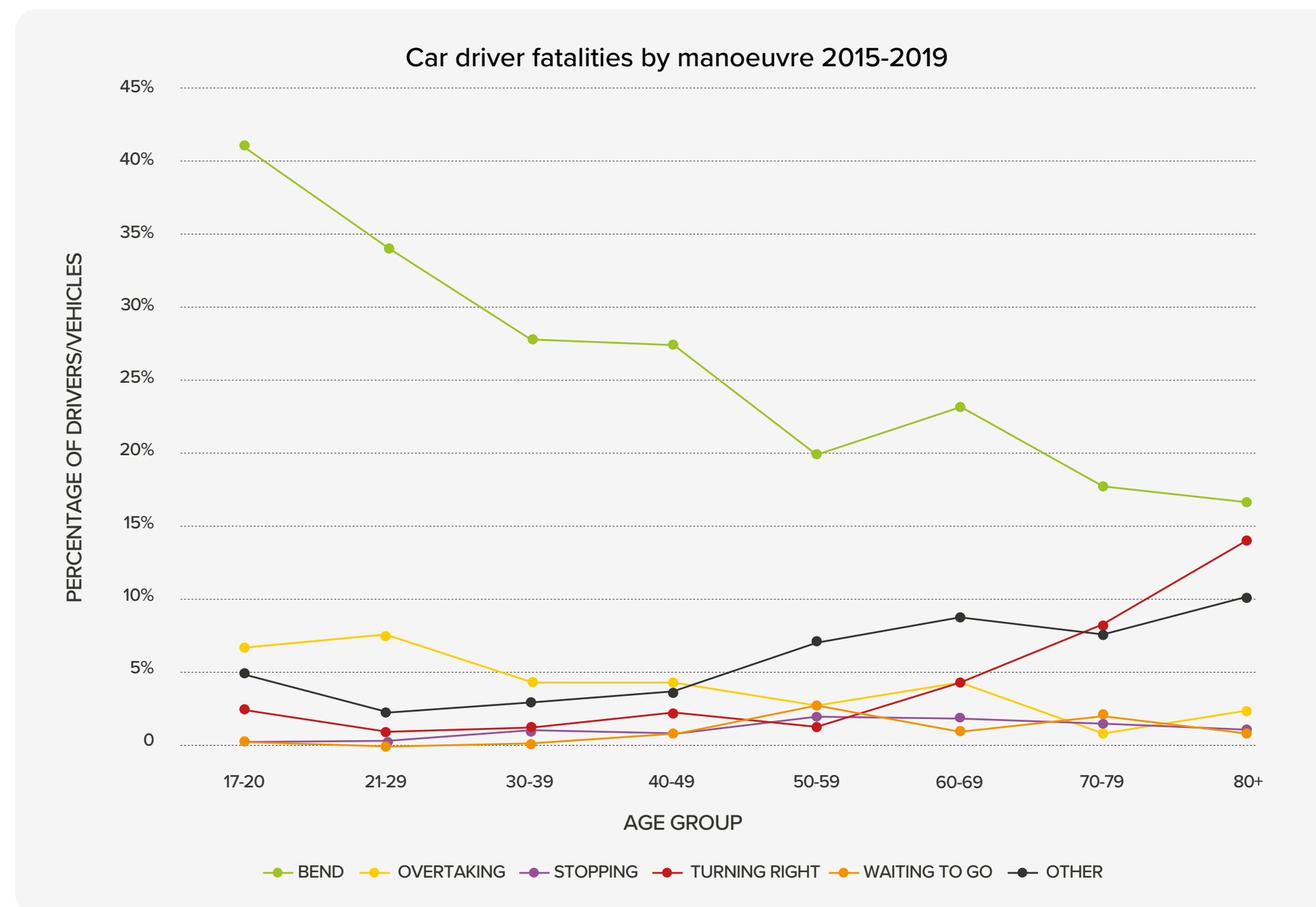


The proportion of fatal and seriously injured car drivers going ahead on a bend declines dramatically with age. For example, this falls from more than a third of car driver fatalities amongst those aged under 30, to less than half of this among those aged 70 or over.

The proportions of car drivers who are turning right at the time of the crash, on the other hand, 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.

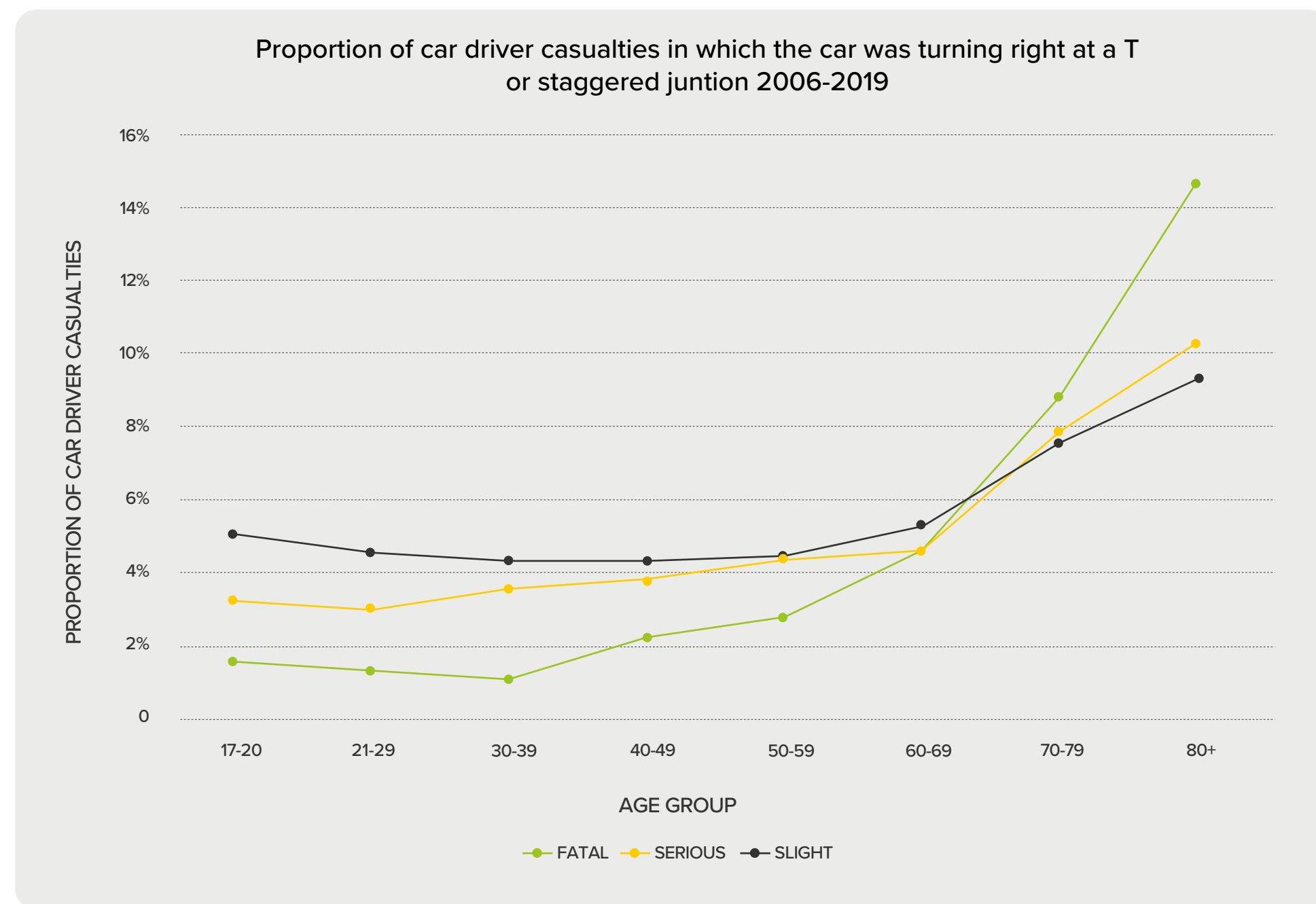
Figure 9: Proportion of car driver fatalities by manoeuvre and age group 2015-2019 (Source: STATS19)



Given the above analysis, the combination of right turns at T or staggered junctions warrants further investigation. Figure 10 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.

A similar analysis for right turns at crossroads suggests the same trend.

Figure 10: Proportion of car driver casualties in which the car is turning right at a T or staggered junction 2006-2019 (Source: STATS19)

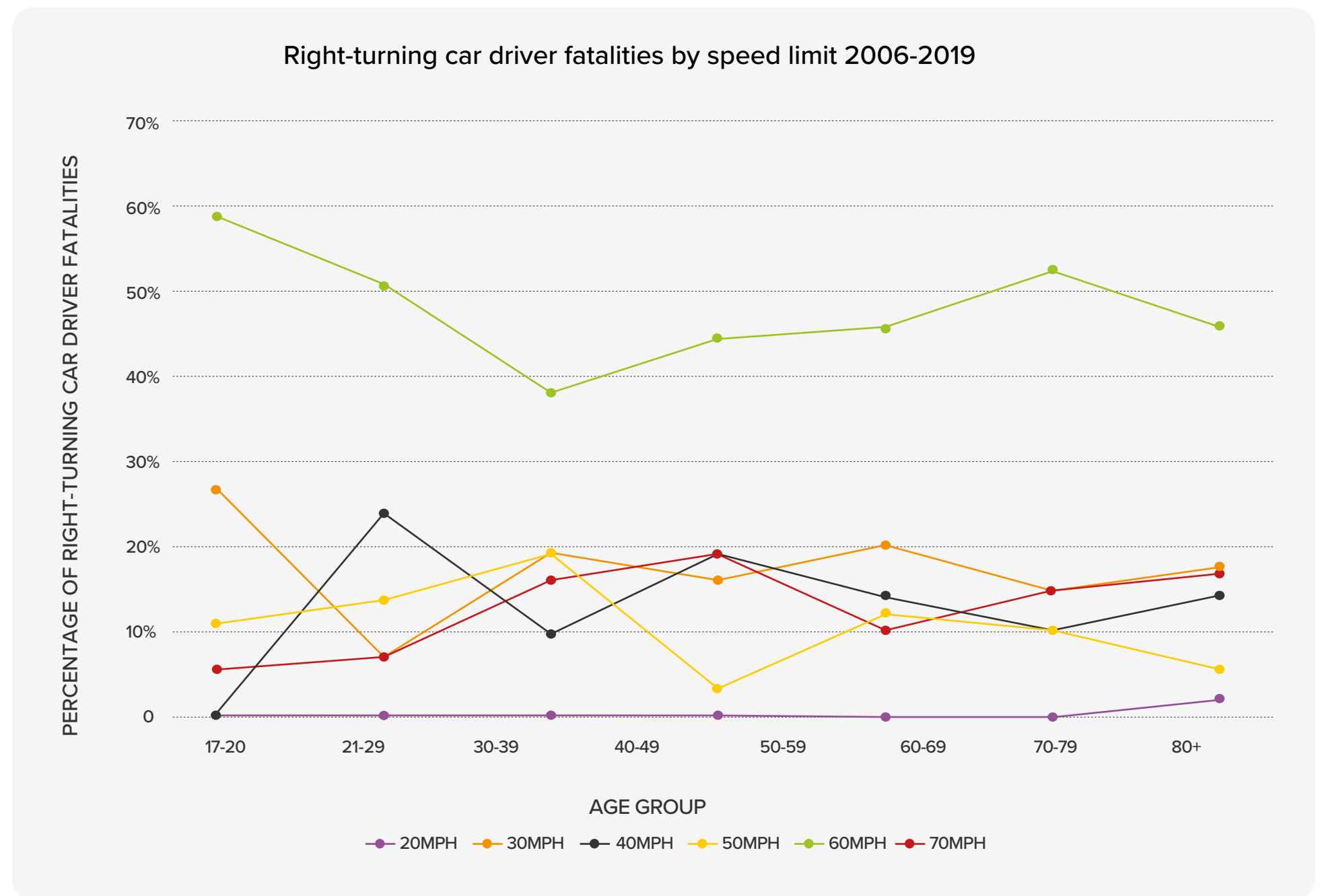


Speed Limits of Car Crashes Involving Right Turns

Car driver fatalities in crashes in which the car is turning right occur most frequently where the speed limit is 60 mph regardless of age, with around half of right-turning car driver fatalities occurring where the speed limit is 60 mph, as Figure 11 shows. The figures for other speed limits are less statistically robust.

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

Figure 11: Proportion of right-turning car driver fatalities by speed limit and age group 2006-2019
(Source: STATS19)



Summary

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.

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 World Health Organisation (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.

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Safer Roads – Recommendations

- 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 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.
- An iRAP survey of strategic roads in Scotland and Northern Ireland would provide a consistent evidence base for treatment of roads.
- 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.

Recommendations made in the Previous Report to be retained

- 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.

SAFER PEOPLE

SAFER PEOPLE

Eyesight

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.

Surveys and their analyses show that drivers do undertake more frequent voluntary eyesight tests as they get older. However, 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.



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.

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'⁵. 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.

Diabetes

In a report from 2010⁶ Diabetes UK state there are two main types of diabetes:

- Type 1 diabetes develops if the body cannot produce insulin.
- 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.

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.

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 USA⁷ is suggesting a link between increasing Type 2 diabetes, peripheral neuropathy and driving⁸. 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 Advanced Emergency Braking.

5. 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.

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

7. <https://www.google.com/search?q=US+NHTSA+Pedal+Application+Errors&oq=US+NHTSA+Pedal+Application+Errors&aqs=chrome..69i57j3980j0j15&sourceid=chrome&ie=UTF-8>

8. 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

Voluntary Driving Appraisals/Assessments

In the 2016 report the Task Force included a recommendation for ‘Driver Appraisal Schemes’ and still believes there is a good framework of 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 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 skill
- **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 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

The Task Force 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.

Safer People – Recommendations

- 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.
- 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.
- Applicants should have a vision assessment as part of the process for acquiring a provisional driving licence.
- 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 for drivers 70 and above to have the more detailed ‘MOT’ eyesight test.
- 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:
 - 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 / NO
- 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.
- The Task Force recommends that 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.
- The Task Force recommends 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.
- 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. Once an outline of a scheme is identified, then it should be created in one region to trial and then evaluated against agreed criteria.
- The Task Force recommends 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).



- 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.
- 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.

Recommendations made in the Previous Report to be retained

- 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.

Recommendations made in the Previous Report to be considered further

- The previous report suggested that licence renewal at age 70 could be delayed until age 75. 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).





SAFER VEHICLES AND TECHNOLOGY

SAFER VEHICLES AND TECHNOLOGY

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 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 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 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, 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.

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.



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.

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. 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 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.

Crash Test Dummies

In current frontal regulation and consumer tests, crash test dummies are used to evaluate occupant injury risk. The evaluation includes the risk for sustaining chest injuries, which is assessed by dummy chest deflection measurement.

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.





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 include⁹:

- Side airbags
- Safety belts with load-limiters and pre-tensioners
- Crash avoidance systems
- 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. 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.

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.

Seatbelts

The European Horizon 2020 Framework Project SENIORS 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.

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.

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

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

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.

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.



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.

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.

A Silver NCAP?

High level suggestions for an NCAP 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
- Improved vehicle safety, combined with other factors may be reducing the need for special protection for the elderly. A recent publication by the 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 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.”*¹⁰

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.

10. 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>

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. A lack of sensitivity to touch and decreased proprioception have been proposed as contributory factors in the incidence of pedal confusion, these can be associated with Type 2 Diabetes.

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 a 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.

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. In the UK, pedal confusion remains a concern and a paper titled “*The fatal consequences of pedal error driving an automatic transmission car*”¹¹ has looked into the incidences of pedal error fatalities. More research in this area is required.

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.

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.

¹¹ The fatal consequences of pedal error driving an automatic transmission car” by Bert Morris

Safer Vehicles - Recommendations

- 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 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.
- 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. Communications to older drivers should emphasise the benefits of vehicle safety features and the importance of sound vehicle structural integrity.
- 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.

- The Task Force recommends that every opportunity to support the fitment and use of driver assistance systems for older drivers is taken.
- The Task Force recommends that every opportunity should be taken in negotiations around Euro NCAP updates to target safety risks for the elderly.
- We recommend the government and insurers should particularly support research into the incidence of serious crashes resulting from pedal confusion.
- 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.
- 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.
- The Task Force supports the use of telematics to motivate, inform and support older drivers in making better decisions rather than penalise them.

Recommendations made in the Previous Report to be retained

- 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.
- The piloting of new products should be encouraged by the Government.
- Specific advice on modern in-car safety features that are of special significance to older drivers should be prepared by an appropriate consumer body.



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