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International Re-licensing Models of Older Drivers

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Re-licensing of older drivers

Many countries have age-based mandatory assessment programmes for older drivers, presumably based on the simplistic notion that increasing multi-morbidity of later life is associated with an increased crash risk. However, research over the last decade has not only shown older drivers to be among the safest group of drivers on the road but it has also shown that jurisdictions conducting medical screening on older drivers have higher rates of fatalities of older road users compared to similar jurisdictions which do not. Additionally, there is increasing evidence that driving cessation is often associated with loss of independence, isolation and even death. This evolving knowledge base is a prompt to countries like Ireland, which currently demand medical screening of drivers over the age of 70 at regular intervals, to rethink their approach to this issue as has been recommended by the National Programme Office for Traffic Medicine (NPOTM) to the Road Safety Authority (RSA).

Given that the current system is one which may be harmful to older road users, it is a good point to consider whether the abolition of this requirement should be accompanied by any other system of scrutiny of older drivers or not. In the interim, more comprehensive self-report of illnesses has been incorporated to driver licence renewal at all ages in Ireland.

Key issues for consideration are not only road fatalities and injuries among older drivers but unprotected (pedestrian and cyclist) road users and those involved in non-collision public transport injuries, as well as the impact on personal mobility.

Currently there is no uniform approach to renewal in later life, however, processes include reduction in duration of licence, self-declaration of medical illness, renewal in person, vision screening, medical screening and on-road testing. Yet as will be examined in this report, studies in literature show that their effectiveness is uncertain. This article consists of the following:

A. Current international standards for re-licensing of older drivers:
- **Comparison of re-licensing procedures in Europe and beyond**
- **A rising population of older drivers**
- **Older drivers and evidence-based accident trends**

B. Evidence of age-based re-licensing of older drivers:
- **Evidence suggesting that age-based re-licensing may not be beneficial**
- **Comparisons of re-licensing procedures to road death data**
- **Discussion/Recommendations**

Part A: Current international standards for re-licensing of older drivers

Comparison of re-licensing procedures in Europe and beyond

There is great variation in driving licence renewal procedures between different jurisdictions. These differences are usually in terms of age of re-licensing and the duration of the renewal cycle. Countries such as France and Sweden have the least demanding procedures and effectively have a 'driving licence for life' policy. Germany adopts a similar approach with authorities only carrying out licence assessments after multiple violations or on community referral. The literature supports the fact that older German drivers are generally considered not to be a problem in terms of the number of crashes they are involved in and are considered for the most part, to practice safe driving strategies, such as driving off-peak and preferentially in good weather conditions.[1] Countries such as Finland, Spain and Italy are more stringent and require regular medical examinations (see Table 1).

In Ireland, 10-year licences are issued to drivers under 60 except for specific medical conditions where a longer licence term cannot be granted and instead a 3 or 1-year licences are possible. Licences are re-issued periodically and screening for driving fitness is practiced through driver self-declaration. In older age, however, self-declaration is no longer used as a means for screening for driving fitness and at age 70 all drivers must obtain a certificate declaring them medically fit to drive. Older drivers are re-licenced every 1-3 years depending on the length recommended in their certification.[2]

In Ireland, licences are issued according to age as follows:

- **Under 60: 10-year for cars and motorcycles, or 5 year for buses and HGVs**
- **60-66: a licence that will expire when 70 is reached**
- **67-69: 3-year licence**
- **70 or over: 3-year or 1-year licence (subject to certification of fitness to drive)**

Laws and practices can also vary internally across states as is the case with Australia and the US (Table 1) with age-based licence renewal varying between 70-80 years in Australia while it begins in some US states at age 60.

Table 1: Re-licensing of older drivers in various jurisdictions (OECD, 2001 and other)[3-12]

Country	Renewal Procedure	Age of Re-Licensing	Renewal Interval	Medical Requirements for Renewal
Austria	No	-	-	-
Belgium	No	-	-	-
France	No	-	-	-
Germany	No	-	Not age-dependent.	-
Sweden	No	-	-	-
Australia	Yes/No	State-dependent. Typically 70, 75 or 80.	State-dependent. Typically 5-years.	State-dependent. Ranges from none to medical examinations and/or on-road assessments.
USA	Yes	State-dependent. Ranges from 60-80 but typically, 65 or 70.	State-dependent. Varies between 4-10 years.	State-dependent. Depending on driving fitness, driver may undergo physical or mental examinations or retake the standard licensing tests (vision, written and road).
Canada	Yes	80	2-years	Doctor must complete Driver Medical Examination Report.
Denmark	Yes	70 71 72-79 80+	4-years 3-years 2-years 1-year Shorter terms possible if ill.	Medical check is performed and doctor's certificate is issued. If physician is undecided about driving fitness, driver must undergo a practical driving test.
Netherlands	Yes	70	5-years	Depending on physical condition, medical review may be more frequent, vision test required.
Portugal	Yes	70	2-years	At 70, medical exam is required every 2 years.
Switzerland	Yes	70	2-years	Renewal requires medical test.
Ireland	Yes	70	3-years or 1-year	Renewal requires a certificate of medical fitness.
UK	Yes	70	3-years	Self-declaration of ability to meet vision standard required. Any medical condition must be reported to DVLA.
Finland	Yes	45 70	5-years Physician-dependent.	At 45, medical review is conducted and every 5 years afterwards. Renewal requires medical examination and verification of ability by 2 people.
Italy	Yes	50 70	5-years 3-years	Renewal requires medical test.
Spain	Yes	45-67 67-68 68-69 70	5-years 4-years 3-years 2-years	Medical-psychological evaluation is evaluated in Medical Driving Test Centres by an ophthalmologist, psychologist and general practitioner.

A rising population of older drivers

In most countries, there is an increase in the number of older people in any given population. In Ireland, the 2011 Census showed the number of those aged 65 and over increased by 14.4% on the 2006 Census from 467,926 to 535,393. This trend is set to continue with forecasts estimating that by 2041, 1.4 million people will be in this age group.[13] This is supported by the Organisation for Economic Co-operation and Development (OECD) 'Ageing and Transport' report which estimates that 1 out of 4 drivers will be aged 65 or over by 2030.[3]

Table 2: Percentage of older drivers in the Irish population as a whole in 2010 (CSO Ireland)[14]

Age Group	Men	Women
60-69	13.4	11.5
70-79	6.6	5.2
80 and over	1.9	1.4

Summary 1:

- **Driving licence renewal procedures vary across different jurisdictions.**
- **Countries such as France have adopted a 'driving for life' policy.**
- **Countries such as Finland require regular medical examinations.**
- **In Ireland, at 70, drivers must obtain a certificate of medical fitness to drive and licences are renewed every 3 or 1 years.**
- **In most populations there is an increase of older drivers.**

Older drivers and evidence-based accident trends

Possession of a driving licence promotes a higher degree of mobility and freedom[8] even if alternatives such as public transport are available. Studies show that cessation of driving impacts greatly on wellbeing and can lead to a loss of independence, isolation, immobility, depression and even death.

There has been an over-emphasis in traditional literature on ageing and levels of decline in sensory, physical and cognitive function; increasingly, it is now recognised that there are also compensatory gains in areas such as wisdom and strategic thinking.[15] It is also important to realise that one of the hallmarks of ageing is an increase in inter-individual variability, so that there is a huge diversity in the presence of deterioration among older age groups.[16,17] As a result, there has been a significant rethink on the impact of age on driver

risk and the assertion that "***…age is not the reliable index of functional impairment that society has customarily taken it to be***" should be considered.[18]

The majority of studies suggest that age-based mandatory assessments are unlikely to produce safety benefits and the only investigations associated with decreasing risk are vision testing and licence renewal in person (Table 4, Section B). However, some studies do give insight into road accidents caused by older drivers and provide perspectives on injury and crash prevention which are relevant in the wider context of traffic safety.

It is also important to note that isolated incidents, such as a disorientated older US driver who caused the death of ten people and many more to be injured[19] can feed into a wider negativity about older drivers.[20] A study a year later also shows that although they are a group with low annual average mileage, older drivers pose some risk to occupants of other vehicles and pose the most serious risk to themselves and to other passengers.[21] One of the most significant paradoxes is despite less crashes, older people are more likely to die in these crashes, generally regarded a reflection of their fragility,[22] as well as a failure for in-car protection measures to be adapted to this more frail population.

Age-related impairments which may lead to loss of sensory, cognitive and/or motor skills[23] include declines in visual acuity and/or contrast sensitivity, visual field loss, reduced dark adaptation and glare recovery, loss of auditory capacity, reduced perceptual performance, reductions in motion perception, declines in attention capacity and/or cognitive processing, neuromuscular strength loss and slowed reaction time all impede driving and may pose a threat to road safety (Table 3).[24]

Table 3: Age-related impairments and possible associated driving problems (Suen, 1998)[24]

Age-related impairments	Potential driving problems
Increased reaction time. Difficulty dividing attention between tasks.	Difficulty driving in unfamiliar or congested areas.
Deteorating vision, particularly at night.	Difficulty seeing pedestrians and other objects at night, reading signs. Difficulty with wet weather driving.
Difficulty judging speed and distance.	Failure to perceive conflicting vehicles. Accidents at intersections.
Difficulty perceiving and analysing situations.	Failure to comply with Give Way signs, traffic signals and railway crossing signals. Slow to appreciate hazards.
Difficulty turning head, reduced peripheral vision.	Failure to notice obstacles while maneuvering. Failure to observe nearby traffic when merging and changing lanes.
More prone to fatigue.	Get tired on long journeys, run-off road single vehicle crashes.
General effects of ageing.	Worries over inability to cope with a breakdown, driving to unfamiliar places, at night, in heavy traffic.
Some impairments vary in severity from day to day. Tiredness, symptoms of dementia.	Concern over fitness to drive.

If the strategic and tactical adjustments of older drivers are not taken into consideration, some would argue that regular assessment of older drivers' fitness to drive is a necessary precaution. However, these studies rarely factor in the positive gains of cognitive ageing including wisdom and better strategic and tactical decision-making.

Nevertheless, as will be demonstrated by evidence found in the literature (Part B), older drivers are often misrepresented and are actually among the statistically safest groups in terms of crash rates. So while in 2002, the British Medical Association predicted an increase of 155% in the number of older drivers involved in fatal crashes,[25] in reality, the Insurance Institute for Highway Safety (IIHS) found that in actuality 22% fewer people 70 and over died in 2007 compared to 1997, even as the population grew by 10%.[26]

Indeed, a study of older driver behaviour from 2011 shows that what are perceived as being problems or errors made by older drivers are actually "normal driver behaviours" or "bad habits" habituated in years of driving.[27] In fact, crash rates for older drivers are lower per capita than for drivers of other ages (Figure 1).

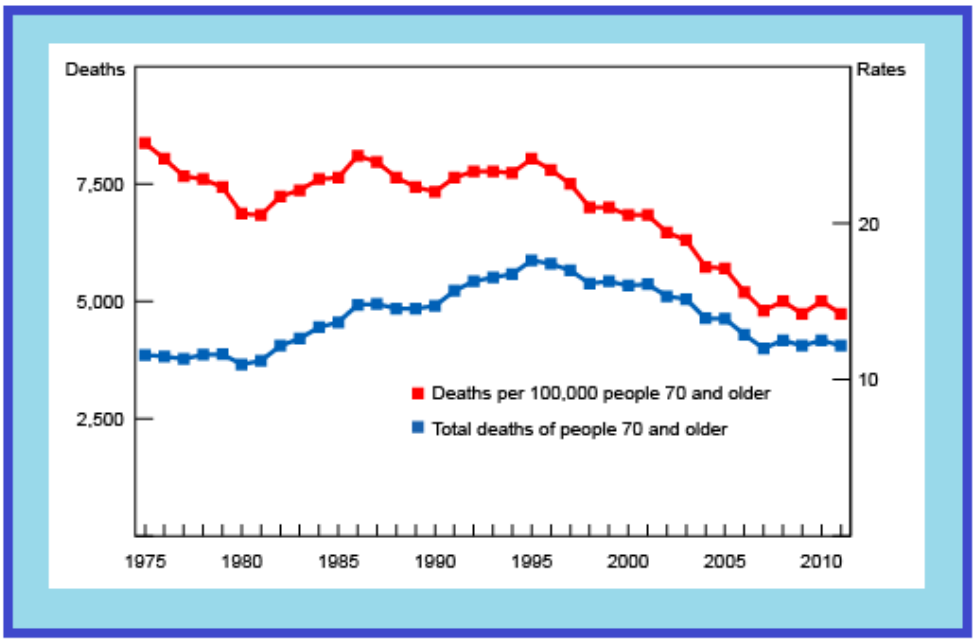

Figure 1: Motor vehicle crash deaths and deaths per 100,000 people 70 and over, 1975-2011 (IIHS)[28]

Furthermore, a 2002 Transportation Research study of 19 European countries shows that as drivers age, they tend to be more law abiding and less risk taking compared to younger drivers. The study suggests that drivers over 55 drive distinctly more carefully than younger drivers, while those below 25 seem to exert a distinctly less law abiding approach to driving.[29] Data from a 2008 USA study published in the Journal of Safety Research indicates that with increasing age, reported self-regulation of driving increases and that this is especially true for drivers 70 and over.[30] Many older drivers limit the time they spend

driving especially during peak travel times and night-time driving.[31] However, the older driver population outside of the car is at risk because of their fragility. Therefore, policies maintaining an active mobile older population are supported by statistics showing older drivers are no greater threat to themselves or other road users than are younger drivers. In fact, a study published in 2011 in the USA suggests that risk of serious injury to children is halved if driven by grandparents instead of parents.[32]

In addition, studies have shown that the casualty and fatality rates for older drivers are often lower than those of younger drivers. One aspect which bedevils the literature is the inappropriate reference to crash risk per mile/kilometer. This is an artifact of low mileage and disappears with appropriate adjustment for low mileage. One such study was carried out in the UK where since 1996 the car driver casualty rate per mile driven was shown to be reducing steadily for all driver groups aged fifty and over and was lowest for those aged 60-69. In fact, for drivers aged 70 and over, the casualty rate per mile driven mirrors that of the younger age groups 30-39 and 40-49 (Figure 2).[10]

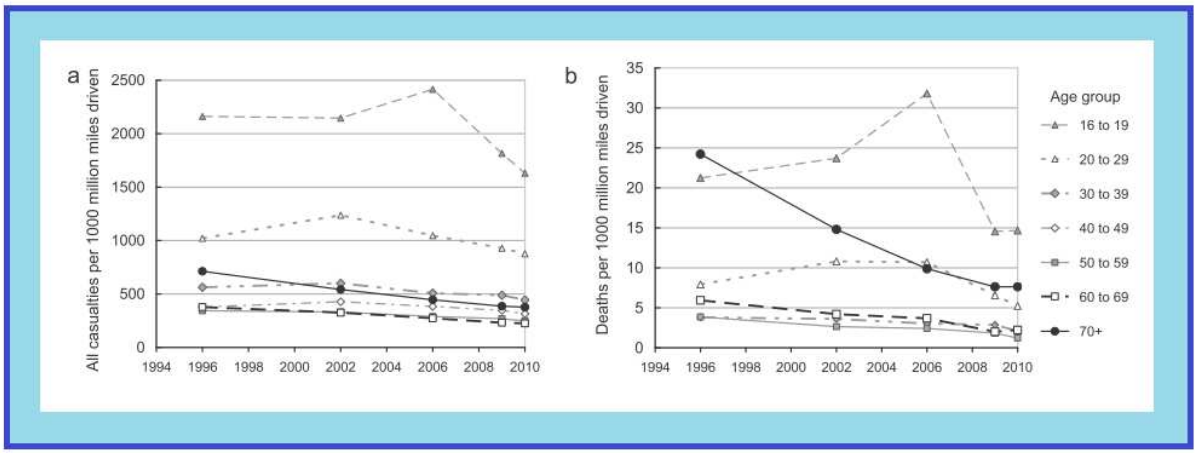

Figure 2: Casualty (a) and fatality (b) rates for car drivers per 1000 million miles in UK (Mitchell, 2013)[10]

In Ireland, similar trends can be observed. Data from a 2002 report by the National Roads Authority (NRA) showed that drivers aged 65 and over had the second lowest number of road traffic accidents that year compared to other groups. Results show that in this age group, 22 were killed and 228 were injured, a total of 6.1% of the figures overall. In comparison, younger drivers in the 35-44 and 45-54 age groups accounted for 782 (19.0%) and 551 (13.4%) injuries or fatalities that year (Figure 3). Interestingly, most accidents occurred in the 25-34 age group with a total figure of 1103 (28.8%) overall.[33]

In Ireland, a 2002 report by the National Roads Authority (NRA) showed that drivers 65 and over had the second lowest numbers killed or injured in road traffic accidents that year when compared to younger age groups.

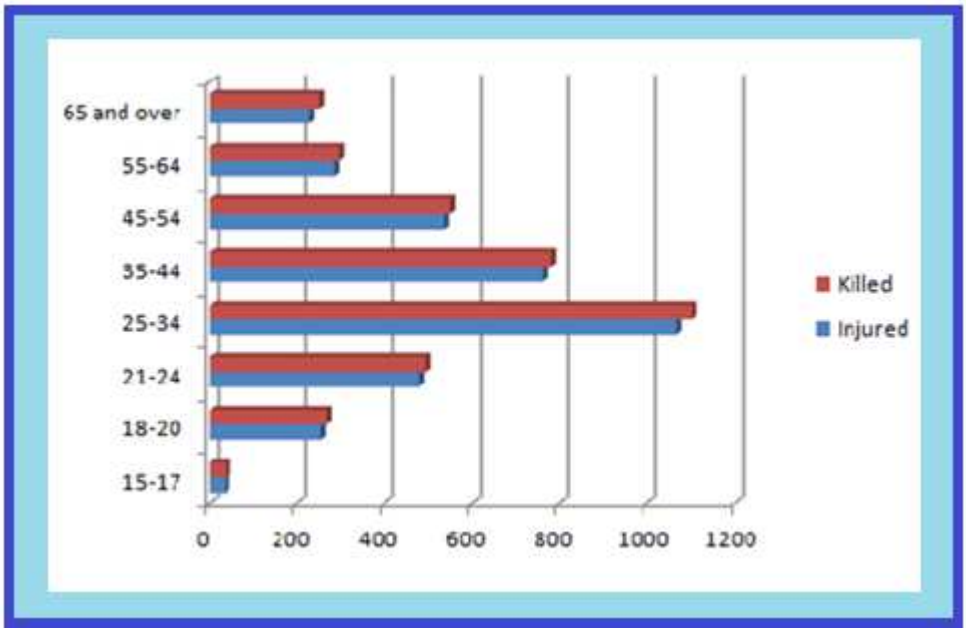

Figure 3: Casualties in Ireland by age group in 2002 (data from report by NRA)[33]

Summary 2:

- **Cessation of driving has serious consequences for older drivers such as loss of independence and isolation.**
- **Ageing is associated with functional decline, however, rates of deterioration vary among individuals and as a result, age is not a useful index for determining medical fitness to drive.**
- **Statistically, crash rates of older drivers are often lower than that of younger drivers.**
- **In Ireland, a 2002 report showed that older drivers had the second lowest number of accidents compared to younger age groups.**

Part B. Is there evidence to suggest that mandatory age-based re-licensing is beneficial?

Evidence largely suggests that age-based re-licensing may not be beneficial

There have been several studies carried out in the literature that question the efficacy of mandatory age-based assessment programmes. Increasingly, findings have shown that targeting older drivers in this way produces no demonstrable safety benefits and may actually have counterproductive effects such as negative stereotyping of older drivers.

In fact, comparisons between various jurisdictions have shown that often countries with more relaxed licensing procedures have the lowest fatality rates. A UK study by Mitchell *et al*. in 2008 compared different older driver licensing procedures of France, the Netherlands, the UK, Denmark, Finland, Norway and Sweden and showed that the Netherlands and the UK, which were among the less stringent countries, had the lowest fatality rates among older drivers.[34] The study also suggests that stringent renewal procedures reduce the level of car driving licences among older people and that subsequent reduced mobility of older drivers has safety implications: in about half the European countries for which road accident fatality data have been analysed, older people are at a greater risk of death as pedestrians than as car drivers.

The study by Mitchell and other similar works[9,35-39] which question age-based mandatory assessments are presented in Table 4 below. As can be seen, most show that countries with stringent renewal procedures of older drivers have no safety benefit when compared to jurisdictions that do.

Table 4: Evidence which suggests that age-based re-licensing is not beneficial

Country	Year	Study	Result
Australia	**2004**[9]	Older driver re-licensing in **Victoria** (no age-based assessment programmes) was compared to **West/South Australia** (with assessment programmes).	Older drivers in **West/South Australia could not be shown to be safer** than drivers in **Victoria.** Some evidence shows drivers in **Victoria** may have a **safer record.**
	2004[35]	Older drivers (age 80+) in **Melbourne** (no age-based screening procedures) and **Sydney** (medical test and driving test at 80) were compared.	**No safety benefit** could be observed for older drivers in **Sydney** (no age-based screening procedures).
Denmark	**2012**[11]	A cognitive test as an age-based screening tool in **Denmark** was evaluated by comparison to the number of fatal accidents before/after its implementation.	**No effect on the safety of older drivers.** The process produced a **modal shift** among older persons from driving to less safe modes of transportation and so the number of fatalities in this group increased.
Europe	**2008**[34]	**France**, **the Netherlands, the UK**, **Denmark**, **Finland**, **Norway** and **Sweden** were compared in terms of their older driver licensing procedures.	**No evidence was found** suggesting that licence renewal procedures have an effect on road safety of older drivers. The **Netherlands** and the **UK** (less stringent) had **the lowest fatality rate** for older car drivers.
Sweden/ Finland	**1996**[37]	**Finland** (medical review at 45 and every 5 years) was compared to **Sweden** (no age-related screening) and both were compared to rates in other more stringent jurisdictions.	**Age-related trends in accident rates were similar in both countries.** **No benefits** of **Finland's screening system** suggesting that screening may lead to **higher fatality rates of older pedestrians.**
USA	**1996**[38]	Per-driver crash rates of older drivers in **Illinois** and **Indiana** (require vision, knowledge and on-road testing at 75) were compared to **Ohio** and **Michigan** (no assessment programmes).	Older drivers in the states **requiring age-based testing were less likely to be involved in crashes and states with age-based testing had a higher proportion of older driver single-vehicle crashes.**
	1998[39]	A study on **Illinois** where licence duration was shortened (4 to 2 years for ages 81-86 and 1 year for 87 and older). Also, the on-road test for those aged 69 and over was eliminated for those younger than 75.	The elimination of the on-road test for ages 69-74 **did not result in an increase in overall crash/fatal crash** rates, relative to the control group of ages 75-80 required to take the test.

Comparisons of re-licensing procedures to road death data

Taking the evidence displayed in Table 4 into consideration, it is interesting to compare the different countries in terms of their overall road death figures. Although not specifically focusing on the re-licensing of older drivers, the figures may provide information on national road safety strategies, policies and re-licensing procedures.

Figure 4 presents the European road-death figures compiled by the RSA Road Safety Strategy for 2013-2020 with the countries mentioned in this article being highlighted.[40] Analysis of the data shows that the top three countries with the safest roads in 2011 were the **UK, the Netherlands** and **Sweden** respectively. Interestingly, Sweden has a relaxed policy towards re-licensing with no compulsory assessments while both the UK and the Netherlands require medical assessments at 70. On the contrary, Italy's death figures are more than double the figures of the UK, despite having a more stringent policy of re-licensing. The figures for Spain, which is the only country in Europe that has specialised Medical Driving Test Centers, and Finland, which requires licence renewal at age 45, are considerably higher in comparison. In contrast, **Ireland** which was the **fifth safest country in Europe in 2011**, requires drivers from 70 to be medically assessed for re-licensing every 1-3 years which is less stringent in comparison to more rigorous countries such as Spain and Finland.

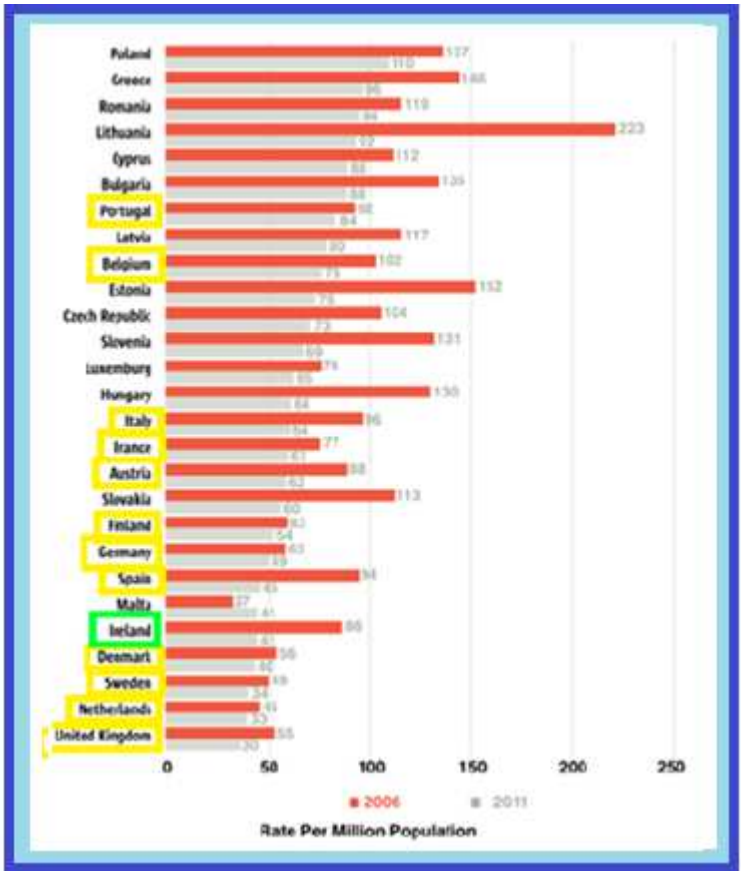

Figure 4: Road deaths for 2011 v 2006 (RSA, 2013)[40] (relevant countries are highlighted)

The analysis of road death figures in comparison to age-based requirements suggests that current policies of re-licensing need to be re-evaluated if the safety of our roads is to be ensured. In addition, older driver research and countermeasure approaches must be devised.

A recent approach undertaken by the RSA in modernising driver training and licensing is the Graduated Driver Licensing System.[41]Although not specifically aimed at older drivers, the programme which was based on international systems, aims to improve driving skills of novice drivers, significantly decrease fatal accidents and hence improve road safety for all road users. Some of the measures of the approach include the introduction of mandatory lessons, the reduction of the legal blood-alcohol concentration, the design of 'N' plates for novice drivers, steeper penalty points and the implementation of the hazard protection tests (HPT). In this way, by encouraging novice drivers to gain experience, skills and maturity, the strategy will hopefully reduce the incidence of accidents on the road and may particularly be beneficial to older road users who are often limited by their frailty.

Proposed model for managing older driver mobility and safety

An approach based on opportunistic case-finding at a clinical level developed to enhance safety for older drivers with conditions relevant to driving fitness includes a model by Austroads (Australia). The model which mirrors the stance taken by the OECD Group, concerns the proposed national licensing model for managing older driver safety and assumes that a targeted approach, using valid instruments, will be a more effective and efficient approach to licence re-assessment and one that will be more acceptable to older drivers generally (Table 5).[42]

Table 5: Proposed model for managing older driver mobility and safety (Austroads)

Action	Outcome
Community referral sources	High crash risk drivers can be identified and referred for assessment.
Assessment model	The government and private agencies can be incorporated in the assessment process.
Identification of older drivers' fitness to drive	Medical/health care specialists will be involved in assessment and providing possible remediation/re-training
Case-officer	Case-office will have responsibility for referred drivers and professionals.
Assessment instruments	Instruments of known validity will test safe driving.
Provision of outcomes	Outcomes will be provided for unfit drivers/in need of rehabilitation.
Provision of alternatives	Alternative transport/mobility options, counseling services for restricted licence drivers will be provided.
Specialist referral sources	Identification for those with particular health conditions that put them at high risk.

Interestingly, this approach is analogous to the present work being carried out by the National Programme Office for Traffic Medicine and the RSA as part of the Road Safety Strategy for 2013-2020.[40] The joint initiative not only aims to develop and implement national medical fitness to drive guidelines for medical practitioners, but also plans to establish a network of accredited specialist driver trainer/assessors to support medical fitness to drive clinical decision making.

Other re-licensing procedures

As is evident so far in this article, jurisdictions that have mandatory age-based re-licensing procedures almost always consist of some form of medical reviews or medical assessments.

It is important to realise that there are other re-licensing strategies that are in place across various jurisdictions. These approaches include vision screening, on-road testing, the reduction of the duration of licence, self-declaration of medical illness and licence renewal in person. Like the medical assessments, the benefit of these strategies towards older drivers is in question and research is being carried out to determine which approach is most effective. The different strategies along with evidence-based literature studies are presented in Table 6.

Table 6: Other re-licensing procedures

Strategy	Where applicable	Research
Reduction in Duration of Licence	• Most jurisdictions reduce the licence to **2-5 years** (Table 1). • **The Netherlands**: Reduce to **5 years**. • **Ireland:** Reduce to **1-3 years.** • **Denmark:** Durations of ≤ **a year** are possible.	• **Study**: Rock *et al*. (1998)[39] consider **Illinois** where licence duration for ages 81-86 and 87+ were reduced from 4 to 2 years and 1 year respectively. • **Result**: More frequent renewal for ages 81+ produced **no benefit compared to the control group.**
Self-declaration of medical illness	• **UK:** Drivers self-declare their **vision** standards. • **Australia:** Drivers self-declare their driving fitness. • **Ireland:** Self-declaration until 70, medical certificate thereafter.	• Literature on self-declaration is sparse. • RSA figures (Figure 4): UK had fewest road deaths in 2011, **self-declaration may contribute positively to road safety.**[40]
Renewal in person	• **US:** 45 states require their licence to be renewed in person.	• **Study**: Grabowksi *et al.* (2004)[43] analysed the efficacy of in-person renewal, vision tests, road tests and the frequency of licence renewal. • **Result: In-person renewal reduced older (>85) driver deaths by 17% and alternatives such as eye tests/ road tests were not as effective.**
Vision screening	• **The Netherlands**[3] and **US**[44]: The Netherlands and nine states in US require vision screening. • **Maryland (US)**: Vision testing starts for drivers as young as **40**.[45]	• **Study (US)**: Lange *et al.* (1996)[38] considered **Illinois/Indiana** (require vision testing/other tests) versus **Ohio/ Michigan** (no assessment). • **Result:** Older drivers were **less likely to be involved in crashes in Illinois/Indiana indicating that vision testing was beneficial**. However, these also had a higher proportion of older driver single-vehicle crashes. *Continued on next page*

Strategy	Where applicable	Research
Vision screening		• **Study (the Netherlands):** Mitchell (2008)[34] evaluated re-licensing standards of older drivers in Europe. • **Result: The Netherlands** was among the top countries with the **lowest fatality rate of car drivers aged 65+.** • RSA figures (Fig. 4): **The Netherlands had the safest roads following the UK in 2011**.[40]
Cognitive testing	• **Maryland:** One of the only states in the US with research-based cognitive testing for older drivers. • Police officers suspecting a driver to have cognitive disabilities notify them to the state's medical advisory board. The patient is then assessed for mental/physical abilities.[43]	• **Study (Denmark)**: Siren *et al*. (2012)[11] investigated the efficacy of cognitive testing on older drivers. • **Result: No significant difference in** the numbers involved in fatal accidents before/after cognitive screening, suggesting that **screening had no positive effect on older driver safety**. • There was an increase in the number of unprotected older road users killed between periods of observation, indicating that **the screening process produced a modal shift among older persons to less safe modes of transportation.**
On-road testing	• **Denmark:** Performed if the physician is undecided about the driver's fitness to drive. • **Australia and the US**: Various states in both require on-road assessments.	• Studies **(Australia)**[9] have shown that **older drivers from New South Wales, Tasmania, Western/South Australia (on-road testing required) are no safer than drivers from the State of Victoria (no testing)**. Some evidence suggests that older drivers in Victoria may have a safer record.

Summary

We conducted a thorough literature search of age-based re-licensing studies across various jurisdictions. Evidence for and against age-based assessment programmes can be summarised as follows:

For	Against
➢ An ageing population means there are older drivers on the roads. ➢ Ageing may cause declines in sensory/ physical/cognitive areas and decreases road safety. ➢ Some studies (e.g. Braver) show that older drivers are responsible for many road accidents and are a threat to themselves and other road users.	➢ The safety of older drivers is improving faster than that of younger drivers. ➢ Reports show that older drivers are no greater risk to themselves or other road users than younger drivers. ➢ Numerous studies show that age-based mandatory assessment is unlikely to produce safety benefits. ➢ There is evidence for counterproductive results of premature driving cessation such as immobility, poorer health and death.

Following this, we specifically considered the benefits of specific investigations listed below and how they may influence procedures in Ireland:

- **No mandatory assessment**
- **Medical screening**
- **Self-declaration**
- **Licence renewal in person**
- **Vision**
- **On-road testing**

Our findings show that age-based mandatory assessments often do not produce safety benefits in reducing crash risk with the exception of **vision testing** and **licence renewal in person**, and the evidence for these are based on a limited number of studies and reports**.** Based on these findings, we suggest that in person licence renewal and vision testing be considered as appropriate interventions in the re-licensing of older drivers in Ireland. This is in line with the Irish Medical Organisation which submitted a report to the RSA calling for the development of medical fitness to drive guidelines and also recommended that current practice of screening older drivers be ceased and replaced with vision tests and renewal of licence in person.[46] It is relatively clear that medical certification of all older drivers is not a positive public health measure and should cease. In its place, Ireland now has a much improved and more comprehensive self-report form than previously, which should in the first instance require a significant proportion of older drivers to provide a medical certificate on the basis of specific medical condition(s). In our opinion, it would be premature to institute an extra step of introducing vision screening or in-person renewal until the impact of the change had been studied for a number of years by scrutiny of crash statistics, an operation facilitated by the unitary National Driver Licence Service (NDLS).

Taking our findings into consideration, policies and strategies concerning older driver screening need to be re-evaluated and efforts must be made by all jurisdictions to research and develop a common re-licensing procedure.

Recommendation 1:

Replacement of routine medical certification of all older drivers with self-declaration at time of licence renewal.

As the safety profile of older drivers has been increasingly recognised as relatively positive, the duration of driver licence should be extended up to 5 years between the ages of 70 and 85, with the option of 1, 3 or 5 year licence recommendation.

Recommendation 2:

The duration of the licence between 70 and 85 should be increased up to 5 years.

It is vital to recognise the heterogeneity of older drivers and that age alone as explained earlier, is often found not to be a '***reliable index of functional impairment that society has customarily taken it to be***'.[18] Similar to the general public, the majority of older drivers are in fact capable and safe drivers with a small proportion being 'at-risk' or unfit to drive.

Therefore, individuals who pose a risk and are truly unfit to drive should be targeted and identified while ensuring that other safe older drivers maintain their mobility.

Recommendation 3:

Opportunistic case-finding of older drivers should be encouraged and assessment and referral mechanisms developed to improve road safety for all road users.

Identification of older unsafe drivers does not have to rely on age-based mandatory assessments but perhaps a more strategic approach across the population identifying drivers with medical conditions causing their driving to be unsafe. Adopting and broadening access to options such as restricted licensing will promote safe mobility.

Recommendation 4:

A more strategic approach to driving with certain illnesses should be adopted such as the introduction of restricted licensing.

In order to ensure the safe mobility of older drivers in the future other precautions may be implemented such as rehabilitation strategies by direct referral from a health care professional. Precautions may include Intelligent Transportation System (ITS) in-vehicle applications that serve to warn the driver of a potential critical situation. An example includes an alternative to visual and auditory warning modalities such as haptic or kinesthethic warning displays such as seat shakers, accelerator or break pulsing (or push back methods) and torque enhanced steering wheels.[47]

Recommendation 5:

The introduction of Intelligent Transportation System (ITS) in-vehicle applications for warning drivers of potential critical situations.

In Ireland, the current arrangements for on-road testing are not yet standardised: the NPOTM is currently undertaking a review of the competencies and requirements for Driver Assessment Specialists. In line with a recommendation by the Irish Medical Organisation (IMO) the driver assessment centres are required for further referral whose focus would be to accommodate drivers with licence conditions, vehicle adaptation and rehabilitation.[46] We recommend that further work be carried out by relevant statutory and voluntary bodies to

develop protocols and resources, such as Driver Assessment Centres which would in the assessment not only of older drivers, but also drivers of all ages with complex disability.

Recommendation 6:

Development of protocols and resources, such as Driver Assessment Centres, to assist in determining medical fitness to drive.

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