Improving Older Driver Safety
ESHB 1125 Feasibility Study

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EXECUTIVE SUMMARY

This report, prepared by Washington State University's (WSU) Division of Governmental Studies and Services (DGSS), was produced at the request of the Washington State Department of Licensing (DOL) to assist in addressing specific legislative requirements contained in Engrossed Substitute House Bill (ESHB) 1125 Section 208 3a, which called for the DOL "to develop a comprehensive plan aimed at improving older driver safety." DGSS was contracted as an independent research unit to produce a plan for addressing the following:

- A comprehensive review of DOL policies aimed to address issues related to older drivers as well as medically at-risk drivers
- A feasibility analysis for establishing a medical advisory board (MAB) for the purpose of advising on policy surrounding medically at-risk drivers, to include policies for managing driving privileges
- A recommended assessment tool that can be used by the DOL to identify a driver's level of risk to themselves or others
- Guidance on how each component of the comprehensive plan will balance the improvement of driver safety with the preservation of maximal driver independence and privacy

To develop a comprehensive plan for improving older driver safety, DGSS consulted with numerous entities as specified by ESHB 1125, including individuals representing the Washington Traffic Safety Commission, the Department of Health, the Elder Law Section of the Washington State Bar Association, organizations serving older drivers (e.g., AAA, AARP, Washington State Senior Citizens' Lobby, Washington State Council on Aging), and driver rehabilitation specialists. In addition, DGSS conducted a comprehensive review of existing research to provide an assessment of the nature and scope of driver safety as it pertains to age; quantitatively analyzed Washington State crash data; assessed the feasibility of establishing a medical advisory board (MAB) in the state of Washington through evaluation of existing practices in the United States and review of the relevant research MABs; and reviewed existing screening tools and assessments for validity and reliability. Below are key findings and recommendations for a comprehensive plan to improve older driver safety stemming from this analysis.

Key Findings

Background Research
• Nationally, older drivers were at *higher* risk of involvement in fatal and non-fatal crashes *when* they chose to drive (i.e., per mile driven), but their reduced driving exposure meant that their overall contribution to fatal and non-fatal crashes (i.e., per capita) was often *lower* than that of middle-aged and younger drivers. • Research has indicated that the elevated risk for involvement in motor vehicle crashes (per mile driven) has become concentrated among drivers 80 and older. • Washington State data indicated that crash rates (per 10,000 licensed drivers) generally declined with age, and older drivers exhibited the *lowest* crash rates for non-injury crashes, injury crashes, fatal crashes, and all crash types combined. • Fatal injury crash rates in Washington State have increased between 2018 to 2022, but the increase is largely driven by drivers in the youngest age group (i.e., 16- to 17- year-olds).
Comprehensive Review of Department Policies
• DOL uses physical assessment procedures that align with the National Highway Traffic Safety Administration's (NHTSA) recommendations and recent scholarship. • Vision requirements are in-line with policies across the United States. • Research suggests that visual acuity is not the most useful predictor of motor-vehicle crashes; cognitive assessments that involve useful field of view and visual processing speed are more effective. • Washington does not require medical professionals to report to DOL when a patient has difficulty driving due to cognitive decline, unlike other states. Such requirements may lead to symptom concealment by patients and fear of legal repercussions by medical professionals.
Medical Advisory Board (MAB) Feasibility
• MABs are used in more than 30 states and their functions vary greatly, with most advising on medical standards for licensing, reviewing and advising on individual driver cases, reviewing and advising on driver appeals cases, and developing medical forms for guiding driver evaluations by medical professionals. • Best practices include establishing a permanent MAB and providing funding for board members, administrative support, meeting expenses, and expense reimbursement. • Research and consultation suggested that MABs should be composed of approximately 7 to 10 members representing all aspects of driver health and safety, including neurologists, cardiologists, psychiatrists, optometrists, occupational therapists (i.e., driver rehabilitation specialists), legal experts, transportation safety specialists, seniors, and people with disabilities.
Assessment Tool to Determine Drivers' Potential Risk
• There is no single assessment tool that can be applied by DOL to address all driving related risks. • Tools that evaluate cognition and motor skills tend to be the most relevant for driver safety. • Several assessment tools score high in reliability, internal validity, and external validity, including DriveABLE, Maze, TMT-A, TMT-B, DSST, P-Drive, Multi-D, and the Hazard Perception Test. • Self-report based tests do not rank as high in reliability and validity. As new tests become available, their effectiveness should be evaluated as a potential cost-effective option.
Consultation with Interested and Affected Parties
• Participants voiced concern that the legislation and resulting plan may produce age-based discrimination and may also differentially impact drivers in rural areas. • Participants were generally supportive of establishing a medical advisory board, but there was some disagreement on whether an MAB is necessary. • Medical professionals suggested there are few tests that could be implemented at the counter by DOL, and while the Maze test is a possibility, there may be disagreement about its appropriateness/utility.

Key Recommendations for A Comprehensive Safety Plan

Updating DOL Policies and Counter Assessment Processes
• DOL should expand and evaluate the use of licensing restrictions tailored to specific physical impairments (e.g., driving only during daylight hours or within a limited radius) to prolong mobility while ensuring safety. • The Maze Test should be piloted across a diverse set of locations in Washington, and if successful, incorporated by the DOL as a screening tool to identify and refer drivers with potential cognitive deficits for further medical assessment. • DOL should adopt no cost or reduced cost IDs for older drivers who surrender their driver license.
Establishing a Medical Advisory Board
• DOL should seek to establish a permanent Medical Advisory Board with approximately 7-10 members who contribute unique expertise and perspectives. • The MAB should include the following experts, at a minimum: neurologist, cardiologist, psychiatrist, optometrist, occupational therapist specializing in driver rehabilitation, gerontologist, and a transportation safety specialist; the board should also comprise members of the target population including older drivers and those with medical disabilities. • The MAB members should be financially compensated since states with voluntary boards have struggled to keep positions filled. • The MAB should, at minimum, hear appeals for individual driver's cases; provide assessment/consultation on individual driver's cases; advise on general policy surrounding medically at-risk drivers; advise on assessment tools that could be used by physicians for assessing driver fitness; advise on whether counter assessment tools should be adopted by DOL; and advise on the expansion and use of licensing restrictions for medically at-risk drivers.
Establishing an Older and Medically At-Risk Driver Program
• DOL should establish a permanent safety program for older and medically at-risk drivers. • This program should establish a campaign to normalize aging out of driving and should include resources for older drivers to assist in making this transition. • DOL should develop resources to make transitioning out of driving easier, including a resource guide, planning tools, and contact information for transportation options available within communities across Washington. • DOL should improve their website to provide older drivers with resources and information to enhance and promote safe driving practices. • The legislature should provide resources to improve public transit and provide alternative options to driving, especially in more rural areas that lack access to public transit.

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INTRODUCTION

Background

Driver safety in Washington State has been a focus of several different programs within state agencies, including those that address younger driver safety, speeding, impaired driving, and road and vehicle safety, among others. While the state has some policies in place to specifically address the safety of older drivers or medically at-risk drivers, there is currently no active comprehensive older driver program within any state agency in Washington. This is an important consideration since Washington's 65 and older population is projected to increase significantly over the next 25 years—increasing from 16% to 23% of the overall population (Office of Financial Management, 2024). Consequently, as part of the Engrossed Substitute House Bill 1125 that passed in 2023, the Washington State Legislature has directed the Washington State Department of Licensing (DOL) to "develop a comprehensive plan aimed at improving older driver safety," to be submitted to the governor and to the legislative transportation committees by December 1, 2024 (ESHB 1125, 2023). The legislation requires the plan to include at least four primary components:

1. A comprehensive review of department policies surrounding older drivers and medically at-risk drivers that examines both the medical assessment review process and the counter assessment process in Driver Licensing Offices
2. An analysis of the feasibility of establishing a medical advisory board that would advise the DOL on policy related to three elements:
    a. General policy for at-risk drivers
    b. Driving privileges for individual medically at-risk drivers
    c. An appeals process for drivers whose privileges are revoked or restricted due to medical conditions
3. Recommendations for an assessment tool that can be used by the DOL within the older driver program to assess a driver's potential risk to themselves or others
4. Detail on how each component of the comprehensive plan improves older driver safety while preserving the maximum level of older driver independence and privacy

This report presents the comprehensive plan requested by the Washington State Legislature, while addressing each of the four components listed above. The legislation also suggests that the DOL

may use appropriated funds to implement improvements to older driver traffic safety. Accordingly, this report includes some implementation planning for the comprehensive traffic safety plan requested by the Washington State Legislature.

Involvement of the Division of Governmental Studies and Services

The DOL contacted the Division of Governmental Studies and Services (DGSS) in late 2023 to acquire assistance with meeting the requirements of Section 208(3) of ESHB 1125. DGSS is a social science research and outreach unit with 60 years of experience in evaluation research. The DGSS research team acquired policy and traffic safety data from the DOL, reviewed scholarly literature on the safety of older and medically at-risk drivers, and conducted both quantitative and qualitative analyses to develop the comprehensive driver safety plan contained in this report.

EMPIRICAL RESEARCH ON OLDER AND MEDICALLY AT-RISK DRIVERS

As a result of the aging baby-boom cohort, greater attention has recently been placed on the growing population of older drivers and their potential contribution to fatal and non-fatal vehicle crashes. Many states have adopted older driver programs and policies designed to enhance driving safety among this aging cohort, largely due to the perceived safety risk older drivers may pose to themselves as well as other drivers, pedestrians, and cyclists using public roadways. To date, numerous studies have examined the safety risk posed by older drivers, typically by analyzing their involvement in motor vehicle crashes, relative to their younger-driver counterparts. Research has also addressed various interventions and their efficacy in improving safety among older driver populations. In what follows, the literature on the safety risks of older drivers, potential interventions, and the efficacy of these interventions is presented.

Nature and Scope of the Risk Posed by Older Drivers

Involvement in Fatal Crashes

Several studies have examined whether older drivers are at greater risk for involvement in fatal crashes relative to younger drivers. While older drivers do not exhibit the highest crash rates compared to other drivers, especially teenage drivers, the majority of studies indicate that older drivers are at greater risk for crash involvement (see Cheung & McCartt, 2011; Cicchino & McCartt, 2014; Rolison & Moutari, 2018). Recently, Pitta et al. (2021) conducted a meta-analytic review of this

research where the researchers examined 14 studies published between 2001 and 2018 that compared fatal crash involvement rates between older drivers and non-older drivers. Most of the studies reviewed by these researchers were conducted in the United States (n=10) and examined crash rates at the national level, though some were conducted in other countries (n=4; Australia, Japan, New Zealand, and Sweden). With a few exceptions, their collective findings indicated that older drivers posed a greater risk for involvement in fatal crashes relative to non-older drivers.

This conclusion is not universal, however, as some studies have found that older drivers are at lower risk compared to other age groups (Akerstedt & Kecklund, 2001; Eberhard, 2008; Kaimila et al., 2013; Langford et al., 2008). Yet, these differences in findings may be due to how risk is calculated. There are four primary ways studies typically calculate crash risk to understand differences by age groups. As explained by Pitta et al. (2021), these include the following:

- Calculating a fatal crash rate by age per distance driven
- Calculating the number of fatal crashes by age per licensed driver
- Calculating the rate of fatal crashes per age group in the general population
- Calculating the proportion of fatal crashes within each age group compared to the total number of crashes

Using distance traveled to calculate fatal crash rates is considered the least prone to bias since it takes into consideration the fact that older drivers often choose to drive less frequently because of age-related challenges (Langford et al., 2008; Molnar et al., 2018; Tefft, 2008). The other three measures do not account for differences in these driving patterns which can bias age-based risk calculations. These measures, however, do focus on the overall contributions of older drivers to traffic fatalities, sometimes referred to as their overall societal risk (McAndrews et al., 2013).

When accounting for miles driven, studies have found that older drivers were at greater risk for fatal crash involvement (Cicchino & McCartt, 2014; Rolison & Moutari, 2018; Teftt, 2008). The rate of crashes and fatalities per mile driven begins to rise for drivers aged 75 and older, approaching the levels observed in younger drivers (Cox & Cicchino, 2021; Fain, 2003; Regev et al., 2018; Tefft, 2012). Pitta et al. (2021) reported that older drivers' risk ranged from 3 to 20 times higher than non-older drivers.

Researchers that have reported a lower risk of fatal crash involvement among older drivers have suggested the cause was due to older drivers' self-regulatory behavior, which may include driving

shorter distances, limiting nighttime driving, and avoiding highspeed roadways (Cicchino, 2015; Langford et al., 2008; Molnar et al., 2013). When framed this way, evidence suggests that fatal crashes are often not concentrated among the older population, but rather younger populations who typically drive more frequently, drive longer distances, and drive after dark. Thus, the overall contribution to road collisions is frequently lower for older drivers due to self-regulation. This means that older drivers may be at higher risk for fatal crashes *when* they drive, but since they typically choose not to drive as frequently or under the same conditions as their younger counterparts, they often account for a smaller share of fatal crashes. This is particularly relevant to policy makers who seek to enhance the *overall* safety of roadways (i.e., reduce societal harm) and suggests that a focus on older drivers, to the exclusion of middle-aged and younger drivers, is unlikely to produce the desired results. Moreover, so long as the self-regulating behavior of older drivers remains stable over time, the aging baby-boom cohort may help to *reduce* the number of fatal crashes per licensed driver. At the same time, if older drivers increase their frequency of driving, the opposite effect may occur since these drivers exhibit greater risk *per mile driven*.

There is also recent evidence from an assessment of national level trends of fatal crashes per 100,000 licensed drivers indicating that older drivers' involvement in fatal crashes has steadily declined over the past two decades (Cox & Cicchino, 2021). Cox and Cicchino (2021) also reported that older drivers between the ages of 70-79 were found to have *lower* involvement in fatal crashes as compared to middle-aged drivers (35-54 years of age)—a trend that began in 2015. Drivers aged 80 and older have also benefited from the recent decline in fatal crash involvement, but notably have remained at a higher level of risk compared to middle-aged drivers. Again, this trend suggests that taking a strong or exclusive focus on restricting the older driver population may not be as useful for enhancing overall public safety as compared to addressing the causes of fatal crashes among middle-aged and younger populations.

Involvement in Non-Fatal Crashes

Evidence of similar patterns have also emerged when examining older drivers' involvement in non-fatal crashes per mile driven (Cox & Cicchino, 2021; Tefft, 2017). Cox and Cicchino's (2021) national-level assessment of police-reported crashes indicated higher crash involvements per vehicle miles traveled among drivers 80 or older, relative to middle-aged drivers (35-54 years of age). The researchers did, however, note that these differences between age groups have shrunk considerably between 1995 and 2017, and this appears to be largely driven by a reduction in older drivers'

involvement in police-reported crashes. Moreover, the researchers reported that, for the first time, drivers aged 70-79 were *less likely* to be involved in police-reported crashes than drivers aged 35-54. Tefft's (2017) national assessment of non-fatal injury crashes also reported that 70- to 79-year-old drivers exhibited "crash rates similar to or lower than those of drivers ages 30-59" (p. 1); drivers who were 80 years of age or older, on the other hand, exhibited higher rates of non-fatal crash involvements than their middle-aged counterparts (30-59 years of age). So, while older drivers are at greater risk of non-fatal crash involvement, this risk has become concentrated among those who are 80 or more years old.

Other US-based research has reported similar findings of increased risk among older drivers using alternative metrics that account for levels of driving exposure. For example, in the state of Wisconsin, McAndrews et al. (2013) found that the rate of traffic injuries resulting in inpatient hospital admissions was higher among those aged 65 or older, as compared to those aged 25 to 64. This was true when rates were based on person-trips, person-miles driven, and person-minutes driven. These researchers did not, however, separate out adults who were 80 years of age or older, so it is unclear whether the differences were concentrated among this older subgroup, as was reported by Cox and Cicchino (2021) and Tefft (2017).

When examining non-fatal crash metrics that do not account for driving exposure, there is evidence that older drivers are involved in notably fewer crashes as compared to both younger and middle-aged drivers. For example, Tefft's (2012) national-level assessment of vehicle crashes in the United States reported that drivers in the age categories of 60-69, 70-74, 75-79, 80-84, and 85 plus were all involved in fewer crashes per 10,000 licensed drivers when compared to each group of younger drivers examined. Thus, patterns from the study of non-fatal crashes were similar to those coming from the study of fatal crashes; it appears that older drivers are at higher risk of involvement in non-fatal crashes *when* they choose to drive, but their reduced driving exposure means their overall contribution to non-fatal crashes is lower than that of middle-aged and younger drivers. In fact, Tefft's (2012) research indicated that drivers in the oldest age categories (70 and older) exhibited non-fatal crash rates per 10,000 drivers that were approximately half that of the youngest drivers (19 and younger).

Age Thresholds and Older Drivers

There is no universal age definition for what constitutes an older driver within the traffic safety research. It is not uncommon, however, for studies to focus on those adults who are 65 or older

(Åkerstedt & Kecklund, 2001; Eberhard, 2008; McAndrews et al., 2013; Tefft, 2017), and this convention is also adopted by organizations such as the Centers for Disease Control and Prevention (CDC) and the National Highway Traffic Safety Administration (NHTSA). Even so, drivers aged 65 or older represent a heterogeneous group with varied driving capabilities and age-related impediments to driving. That is, significant variability exists in the physical and cognitive abilities of older drivers, with some individuals maintaining high levels of functioning well into later life, while others experience more pronounced declines.

Although research frequently centers on drivers aged 65 and older, evidence suggests that a heightened focus may not be necessary until drivers reach the age of 80. As previously discussed, Cox and Cicchino's (2021) recent national level assessment of fatal and non-fatal crash involvements, accounting for vehicle miles driven, indicated that the risk of crash involvement for those aged 65 to 79 was either similar to or *lower* than that for middle-aged drivers—and middle-aged drivers are typically the safest drivers among all age categories. Within the 80 and older category, however, the risk for fatal crash involvement spiked, and drivers in this category presented the highest risk for such crashes. As described previously, the elevated risk per mile driven should nonetheless be contextualized by the fact that older drivers curtail their driving to the extent that their overall societal risk (crashes per licensed drivers or per capita for the general population) may be reduced *below* that of the youngest drivers.

Risk Factors

Prior research has generally attributed higher crash risk among older drivers to three broad areas that pertain to health—these include cognitive, visual, and physical (motor function) declines that onset with aging (Anstey et al., 2005; Cox & Cicchino, 2021). When examining the nature of driver injuries, particularly fatal injuries, an additional risk factor emerges. That is, older drivers experience increased frailty with age, and this increases their risk of death, as well as serious injury, when involved in vehicle crashes (Ayuso et al., 2020; Clegg et al., 2013; Pecheva et al., 2020). In the sections that follow, emphasis is placed on the three issues that pertain to age-related functional health declines.

Cognitive Function Decline

Researchers have pointed out that healthy cognitive function is critical for numerous driving-related skills, including the "ability to perceive hazards in the road, process visual cues (e.g., stop lights), focus on driving tasks, anticipate other road users' actions, and make quick decisions" (Fraade-

Blanar et al., 2018, p. 1075). Research has also indicated that individuals with dementia may become less likely to self-regulate their driving (Pomidor, 2016). This is critical given that self-regulation is a key reason older drivers, broadly speaking, maintain a low footprint within the area of fatal and non-fatal vehicle crashes (Cox & Cicchino, 2021). For these reasons, reduced cognitive performance is a primary risk factor that has been identified in the study of vehicle crashes. For example, US-based research has found that older drivers who made errors on, and took longer to complete cognitive tests, were more than twice as likely to be involved in an at-fault motor vehicle collision (Ball et al., 2006). Similar findings have been reported outside the US as well; a study of older drivers in Japan found that drivers with motoric cognitive risk syndrome (a pre-dementia state) and subjective memory concerns were associated with increased odds of being involved in motor vehicle collisions and near-miss traffic incidents (Kurita et al., 2023). The increased risk for crash involvement has been attributed to numerous behaviors on the road, including errors regarding lane positioning, speed control, lane changes, and the navigation of intersections and roundabouts (Eramudugolla et al., 2021). Recent research conducted in Washington State has also shown that poorer cognitive function among older drivers is associated with increased crash risk, independent of the driver's age, sex, alcohol use, medications, and comorbidities (Fraade-Blanar et al., 2018).

Physical and Motor Function Decline

Physical and motor functionality are also risk factors associated with motor vehicle collisions. Research has identified several areas of concern that can influence safe driving, including lower limb strength and control, which affect the proper operation of brake and acceleration pedals (Alonso et al., 2016; Silva et al., 2023). One example of this is a history of falls with older adults. A study with older drivers from Maryland found that older adults with a history of falls were associated with at-fault motor vehicle collisions (Ball et al., 2006). Similar findings were also reported in Alabama, where the experience of frequent falls was found to double the likelihood of an at-fault motor vehicle crash among older drivers (Huisingh et al., 2014). Moreover, Park and Bae (2020) found that upper body strength and dynamic balance were associated with how long it took participants to brake in an unpredictable situation while driving. Physical frailty, more generally, has also been associated with car collisions (Doi et al., 2020).

Visual Function Decline

The third broad category of risk factors involves visual and perceptual abilities. Although there is some disagreement among studies regarding the most important visual functions for understanding

crash risk, there is overall agreement that vision itself is a predictor of crashes (Nguyen et al., 2023; Rubin et al., 2007). In a large prospective study of Maryland drivers, Rubin et al. (2007) reported that glare sensitivity, loss of visual fields, particularly in the lower peripheral region, and useful field of view (UFOV) were associated with vehicle crashes. The measure for UFOV, which captures aspects of visual attention (and thus taps into cognitive function as it pertains to visual processing), was the most robust predictor. This latter finding has long been verified by earlier research that both pioneered the UFOV tests and examined them in numerous contexts. Clay et al. (2005) meta-analyzed this body of literature and reported that:

> The data present a relatively clear picture: poor UFOV test performance is associated with poor driving performance in older adults. The effect size obtained when the UFOV assessment was correlated with objective driving performance is large compared with standard assessments of visual acuity, other visual sensory functions, and various cognitive domains (p. 729).

Other studies have reported on behaviors associated with poor vision that may lead to increased crashes. One study found that some visual-based causes of at-fault collisions included misjudging the distance of oncoming cars when at an intersection or merging and failing to see a vehicle at all (Braitman et al., 2007). Likewise, low-contrast sensitivity has been associated with brake time in unpredictable driving situations (Park & Bae, 2020).

Interventions for Enhancing Older Driver Safety

Due to concerns over older drivers and their involvement in crashes, numerous interventions to improve the safety of medically at-risk older drivers have been examined. As pointed out by Fausto et al. (2021), many age-related declines in physical, cognitive, and visual function are amenable to change and thus suitable for targeted interventions. Prior literature has addressed several interventions designed for this purpose, such as physical retraining, visual-perceptual training, cognitive training, educational programs, and context-specific training (i.e., driving simulator, on-the-road training) (Castellucci et al., 2020; Fausto et al., 2021; Korner-Bitensky et al., 2009). Sometimes these different interventions have been combined for a more holistic approach to improving driver safety. Typically, the outcomes of interest within this body of research have included vehicle crashes, driving performance, self-reported crashes and driving errors, driving

simulator performance, driving self-regulation (such as not driving at night), and self-imposed driving cessation (see Fausto et al., 2021).

Effects of Older Driver Interventions

A considerable amount of research has been conducted to examine the efficacy of older driver interventions. To date, there have been several published reviews of this literature, including narrative reviews, systematic reviews, and more robust quantitative, meta-analytic reviews (Desapriya et al., 2008; Fausto et al., 2021; Golisz, 2014; Justiss, 2013; Korner-Bitensky et al., 2009; Kua et al., 2007). While narrative and systematic reviews are useful, meta-analytic reviews are typically the most rigorous way to assess a body of scientific literature. Below are key findings stemming from the two meta-analyses conducted on this subject as it applies specifically to older drivers and interventions to enhance driver safety (Desapriya et al., 2008; Fausto et al., 2021). Of note, both meta-analyses assessed studies that relied on a Randomized Control Trial (RCT) design to ensure conclusions were based on high-quality research. The findings were as follows:

- There was little to no evidence that educational interventions on their own, such as classroom driving refresher courses, reduced crashes or increased safe driving behaviors.
- Context-specific training, including on-road training and driving simulator training, were not effective methods for improving safe driving among older drivers.
- Some types of cognitive training (e.g., UFOV training) may reduce at-fault vehicle crashes, while other types (e.g., memory training) did not show such evidence.
- Visual-perceptual training showed promising evidence of enhancing driving safety, but more evidence is needed.
- Physical retraining, such as exercises aimed to improve older driver's dexterity, range of motion, strength, flexibility, and coordination, was a promising strategy for enhancing safe driving, but more evidence is needed.
- The combination of multiple approaches (such as on-road training and educational training) may be a promising strategy, but more research is needed.

In the end, there are numerous intervention types, and research typically showed greater support for interventions that directly targeted age-related declines that older drivers are more apt to face (e.g., reduced visual processing speed, physical declines in dexterity, and range of motion). Fausto et al. (2021) referred to these approaches as skills-specific interventions. On the other hand,

interventions, such as education or on-road training, do not target specific age-related declines and typically do not work for improving driving safety. This does not, however, mean that education and on-road training have no place for enhancing safety—promising evidence suggested that these approaches may be useful, but *only* in combination with other approaches. Moreover, there is some evidence that education may produce corollary positive outcomes. Kosuge et al. (2021) recently reported that educational intervention improved the self-awareness and accuracy in the ability of older drivers to assess their own driving performance. This is, in turn, may help older drivers to better self-regulate their driving.

Driving Restrictions

In addition to the interventions described above, driving restrictions may provide a means of prolonging older driver independence while simultaneously addressing traffic safety concerns specific to these drivers. Although driving restrictions are not exclusive to older drivers (e.g., corrective lenses for vision impairment are commonplace across age groups), specific restrictions are tailored to address risks that disproportionately affect seniors. Available restrictions vary by state and may include prohibitions on freeway driving (road type restrictions), geographic or distance restrictions, limitations on nighttime driving, speed restrictions, and restrictions from driving alone. Although research is not clear on the actual extent to which driving restrictions prolong driver independence and mobility, it is clear that when restrictions are used in lieu of revocation, some level of independence can be preserved for medically at-risk drivers.

Whether or not driving restrictions enhance safety, however, has only received limited attention. Overall, the impact of driving restrictions on traffic safety outcomes is somewhat mixed. Some research has found that driving restrictions reduce crash rates for drivers after receiving a restriction (Nasvadi & Wister, 2009; Langford & Koppel, 2011). However, Langford & Koppel (2011) found restrictions did not lower crash risk relative to other drivers without restrictions. Similarly, Marshall et al., (2002) found that restricted drivers had higher crash rates than non-restricted drivers. In other words, restrictions may reduce an individual's risk on the roadways, but they may not reduce their risk to levels comparable to drivers who do not need restrictions in the first place.

In terms of fatal crashes, some research suggests that at-fault crash rates were decreased (Marshall et al., 2002; Nasvadi & Wister, 2009) and traffic violations were reduced (Marshall et al., 2002) for drivers with restrictions. Variation in findings may be due to restrictions and conditions considered. For example, the effectiveness of driving restrictions has been found to vary by health condition

(Vernon et al, 2002), type of restriction (Langford & Koppel, 2011), and number of restrictions (Stutts et al., 2000).

Driving Cessation and License Revocation

If interventions are not a reasonable approach for keeping medically at-risk drivers on the road, states universally maintain the option to revoke an individual's driver license. There are also many circumstances under which drivers will voluntarily engage in driving cessation. Since research tends to focus on the consequences of driving cessation and license revocation (an issue returned to below), there is limited evidence regarding the direct safety benefits of removing older drivers from the roads. A recent study conducted in Japan, however, demonstrated that the adoption of a mandatory cognitive test used to screen and revoke driver licenses among older drivers (aged 75 plus) was associated with a reduction in motor vehicle collisions (Inada et al., 2023). While it may not translate to the U.S. context, the authors also noted that the screening policy appeared to displace older individuals from cars to bicycles and pedestrian travel; injuries in both categories appeared rise as a result of this change.

Returning to the consequences of driving cessation, whether it is the result of voluntary choice or formal license revocation, research has indicated several concerns that should be considered. Scholarly literature acknowledges that driving cessation can contribute to a number of challenges to the wellbeing of older adults, such as depression (Chihuri et al., 2016; Missell-Gray & Simning, 2023), physical frailty (Ishii et al., 2021), and isolation (Knoefel et al., 2022; Yano et al., 2023). A Swedish study found that those who had their license revoked due to declining vision felt like they were being betrayed by an unjust system and felt hopeless (Nyberg et al., 2021). Caregivers feel affected, too, as they can be left with the burden of driving and strained relationships (Knoefel et al., 2022). A study of Australian healthcare professionals acknowledged that it is a multifaceted issue that requires clear communication and management of systemic barriers (Liddle et al., 2023). On a positive note, however, research has indicated that the difficult decision to cease driving voluntarily can be made with the assistance of an online driving decision aid, which 97.2% of participants found to be helpful and which was found to decrease decision conflict among participants by 24% (Betz et al., 2022). This issue is further discussed below.

Facilitating Aging Out of Driving

Aging out of driving can be a difficult process for many older adults, as it can produce a loss of freedom and mobility. There are many ways, however, that older adults can be supported through

the transition away from driving. Since the decision to cease driving is often difficult for the individual and their family, it is recommended that the transition be approached as a process rather than a sudden event (Dickerson et al., 2007). If the decision is sudden and the older driver is not involved in the decision, they may feel anger or resentment (Kostyniuk et al., 2009). Given the difficulty of this decision, however, studies indicate that many families often avoid this conversation (Connell et al., 2013). As a result, some researchers have recommended that conversations regarding driving be regularly worked into healthcare appointments to prepare older drivers for the eventual shift (Betz et al., 2016). Information sessions and increasing public awareness through media (e.g., newspaper, TV, radio) may be another way to acclimate older individuals to driving cessation (Levasseur et al., 2016). As mentioned previously, there are, however, risks in giving up driving with older adults, such as increased depressive symptoms (Chihuri et al., 2016; Fenton et al., 2024), so this process should be closely monitored.

The Role of Healthcare Providers

Returning to the potential role of healthcare providers in facilitating driving cessation, research suggests that providers can assist in slowly acclimating older adults to the idea that they will eventually need to give up driving. It is suggested that this form of "preventative counseling" can help individuals make the eventual decision to cease driving, as well as create plans for transportation (Hill et al., 2019). Betz et al. (2016) conducted a meta-analysis of qualitative studies that examined these issues more deeply and revealed important themes. The first theme identified through this study was the difficulty of driving discussions surrounding cessation, as older drivers can have complex feelings on the topic (e.g., especially fear). This could be mitigated by discussing future transportation options, as well as looking into ways they can continue driving where appropriate. The manner in which healthcare providers approach this difficult conversation was the second theme, as it is important in facilitating a positive discussion (Betz et al., 2016). Healthcare providers should ask patients about their driving habits to understand them better and make suggestions specific to the individual's health conditions. The third theme is that healthcare providers often possess a level of authority that others do not, and older drivers may be more willing to accept their recommendation to stop driving (Betz et al., 2016). Discussions leading up to driving cessation constituted the fourth theme, as planning ahead of time with healthcare providers can prepare older drivers for the eventual transition away from driving. Finally, the last theme was that older drivers often felt there was inconsistent messaging around driving cessation and, therefore, should be provided information so they can make their own informed decisions (Betz et al., 2016). Leveraging

the advice provided by Betz et al. (2016), healthcare providers may help bridge the gap between older drivers and their family members, as well as the gap that may exist between older drivers and licensing agencies who are also faced with decisions about license revocation.

Alternatives to Driving

Once individuals cease driving, and in preparation for this decision, it is critical to provide them with resources for transportation alternatives as an effective way to support their driving cessation (Hill et al., 2019). Healthcare providers who assist in this process should be able to tailor these resources to the needs of their patients (Hill et al., 2019). Certainly, there are various alternatives to driving, including reliance on family and friends for transportation, public transit, private shuttles/taxis, volunteer and nonprofit rideshares, and walking. The extent of such resources, however, depends heavily on one's community. Individuals living in urban communities typically have more access to alternative transportation resources (Hansen et al., 2020) and are more likely to walk to their destinations compared to those living in rural areas (Kim, 2011). They are also more likely to voluntarily cease driving due to the number of alternatives available (Choi et al., 2012; Schouten et al., 2022). Women who cease driving, however, are less likely to depend on public transportation or walking (Kim, 2011), but are nonetheless supported by other options commonly available in urban communities.

Rural communities typically have fewer transportation alternatives, and research has indicated that this poses important challenges for older adults who cease driving. In a recent study conducted by Strogatz et al. (2019), the researchers examined the potential impact of driving cessation on rural versus urban older adults. Their findings indicated that older adults residing in rural areas were at much greater risk that driving cessation would have a high impact on what they need to do. In fact, the odds of this occurring were found to be double that of older adults in urban areas. This highlights the strong need for alternative transportation resources in rural areas to support driving cessation among aging populations. This is especially important in Washington, where rural counties generally have the largest aging populations (Office of Financial Management). Moreover, research speaks to the way older adults would prefer to have this concern resolved. Rahman et al. (2016) conducted a national survey of 1,498 older adults and reported that in rural areas, older adults had the greatest preference for volunteer drivers as an alternative form of transportation (a preference that was also true among older drivers in urban areas). More specifically, volunteer drivers were considered the most practical and the most likely alternative to be used by older adults, relative to other alternatives

such as shuttle buses and pre-paid taxi services. Consequently, rural locations should promote the use of volunteer drivers where feasible to help support driving cessation among older drivers.

Key Conclusions

Based on the empirical research, several key conclusions can be drawn about the public safety risk posed by older drivers, the risk factors associated with vehicle crashes involving older drivers, and interventions for enhancing safe driving behaviors among older drivers.

- Older drivers appear to be at *greater* risk for fatal and non-fatal crash involvements per mile driven, relative to non-older drivers.
- Though research is mixed, older drivers appear to be at *lower* risk for fatal and non-fatal crash involvements per capita.
- Thus, it appears that older drivers are at *higher* risk of involvement in fatal and non-fatal crashes *when* they choose to drive (i.e., per mile driven), but their reduced driving exposure means their overall contribution to fatal and non-fatal crashes (i.e., per capita) is often *lower* than that of middle-aged and younger drivers.
- Older drivers are a heterogeneous group, and research indicates that the elevated risk for involvement in vehicle crashes (per mile driven), relative to non-older drivers, has become concentrated in drivers 80 and older.
- Regarding age, the *greatest* risk for involvement in fatal and non-fatal vehicle crashes is concentrated among the youngest drivers, typically 19 years of age or younger.
- Prior research has generally attributed higher crash risk among older drivers to three broad areas that pertain to health declines that onset with age—these include cognitive decline, visual function decline, and physical and motor function decline.
- Evidence indicates that educational interventions on their own, such as classroom driving refresher courses, will not reduce crashes or increase safe driving behaviors.
- On-road, in-vehicle training, and driving simulator training are generally not effective methods for improving safe driving among older drivers.
- Some types of cognitive training (UFOV training), visual perceptual training, and physical retraining (e.g., exercises aimed to improve older driver's dexterity, range of motion, strength, flexibility, and coordination) are promising strategies for enhancing safe driving behaviors and reducing vehicle crashes.

- As a general pattern, research suggests that interventions based on educational approaches and in-car driving lessons fail to address the specific driving deficits faced by older drivers, which entail cognitive, visual, and physical decline.
- There is some evidence showing that driver restrictions enhance traffic safety among drivers with at-risk medical conditions, but the evidence is limited.
- Restrictions may not produce drivers who are equally as safe as otherwise similar drivers who do not require restrictions.
- Driving cessation and/or license revocation may be necessary for some medically at-risk drivers, however, this must be balanced with potential consequences, including depression, isolation, hopelessness, and increased physical frailty.
- Driving cessation should be approached as a process, rather than an abrupt event, to help offset the negative consequences described in the point above.
- Healthcare providers can play an important role in normalizing the eventual need to cease driving and provide resources to those patients faced with such a decision.
- Viable alternatives to driving are critical for supporting medically at-risk individuals who can no longer drive.
- Driving cessation has a larger negative impact on older adults residing in rural areas as opposed to urban areas (where alternatives are more numerous and accessible)
- Older adults who cease driving have a strong preference for voluntary drivers as an alternative form of transportation, and this finding applies to those living in both urban and rural locations.

WASHINGTON CRASH DATA ANALYSIS

The DOL provided data on 546,979 crashes involving 1,326,609 people in Washington State from 2018 to 2022. To examine how crash rates were impacted by age, only drivers involved in crashes were analyzed. To further ensure comparability across drivers, the following were removed:

- Vehicles requiring a Commercial Driver License (CDL)[1]
- Nonroad vehicles and vehicles associated with select employment[2]

[1] If the vehicle likely requires a CDL, they were removed: Bus, Motor Stage, Truck Tractor and Semi Trailor, School Bus, Truck—Double Tractor Combinations, Truck Tractor.
[2] Vehicles removed: Taxi, Farm and/or Farm Equipment, Railway Vehicle, Neighborhood Electronic Vehicle, and Golf Cart.

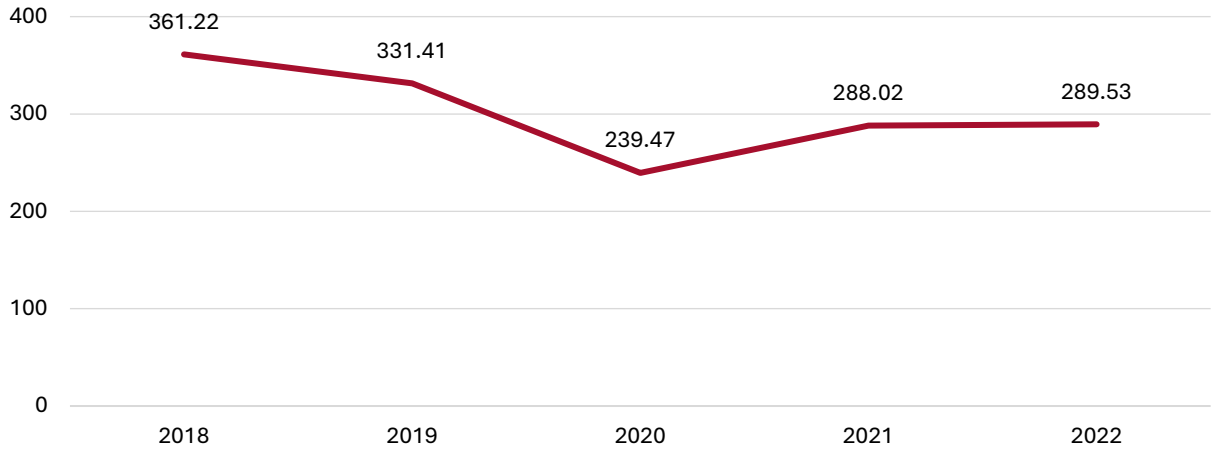
- Individuals under the age of 16 and those over the age of 108[3]

This resulted in an analytic sample of 874,558 drivers involved in 510,830 crashes from 2018 to 2022. These data were used to examine trends in:

1) Total vehicle crashes,
2) Vehicle crashes that resulted in a non-fatal injury, and
3) Vehicle crashes that resulted in a fatality.

When examining total crash rates and injury crash rates per 10,000 licensed drivers,[4] these rates demonstrated a similar pattern to one another—rates decreased from an overall peak in 2018 to a low in 2020, increased from 2020 to 2021, and then increased again slightly from 2021 to 2022 (See Figures 1 and 2). Fatal crash rates per 10,000 licensed drivers were relatively stable from 2018 to 2020, but increased from 2020 to 2022, peaking in 2022 (See Figure 3). This indicates that while total crash rates and injury crash rates have decreased since 2018, crashes may be getting deadlier in Washington State over the same period.

Figure 1: Washington Total Crash Rates per 10,000 Licensed Drivers, 2018 to 2022



[3] Removing individuals over the age of 108 removed 4 individuals: two 118 and two 119-year-olds. These were removed to data quality concerns.
[4] Statewide crash rates per year were calculated by dividing the sum of crashes for each year by total licensed drivers in the state, multiplied by 10,000.

Figure 2: Washington Injury Crash Rates per 10,000 Licensed Drivers, 2018 to 2022

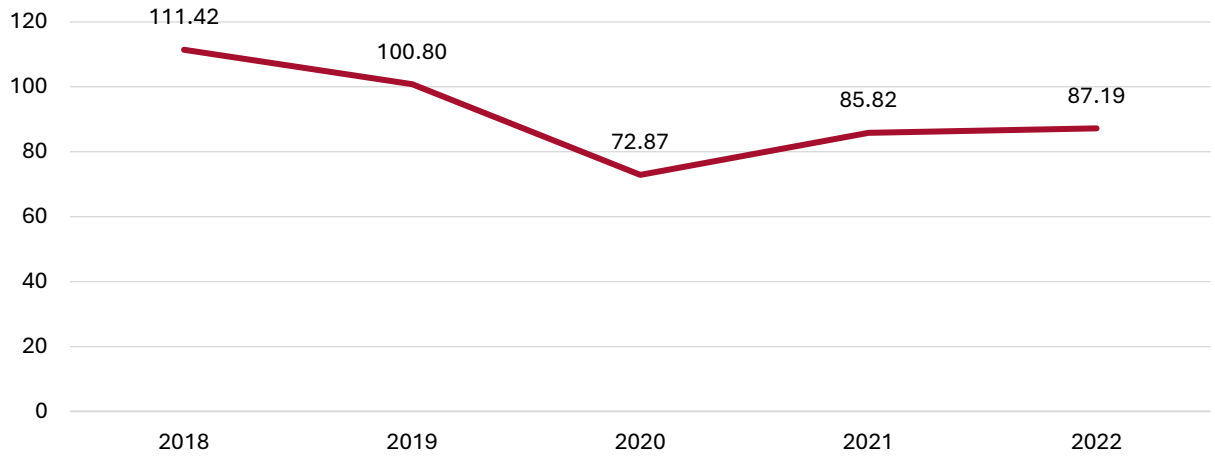
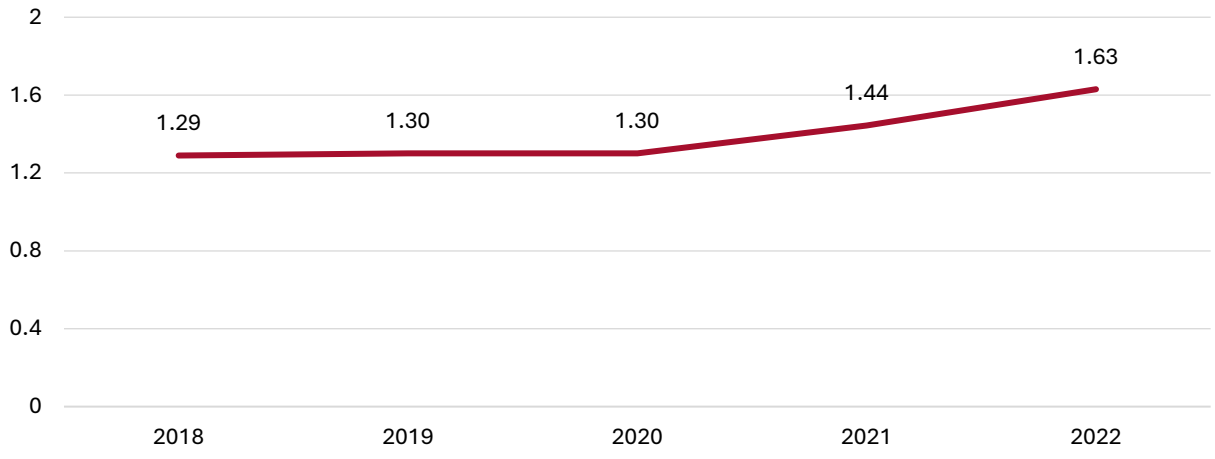


Figure 3: Washington Fatal Crash Rates per 10,000 Licensed Drivers, 2018 to 2022



Total Crash Rates per 10,000 Licensed Drivers by Age

To examine how age impacted crash rates, crash rates by age per 10,000 licensed drivers were calculated for each year.[5] The average crash rate for all licensed drivers from 2018 to 2022 was

[5] Crash rates by age are calculated by dividing the total number of crashes for an age group by total licensed drivers for that age group, multiplied by 10,000.

349.38 crashes per 10,000 licensed drivers. In Table 1, the total crash rates per 10,000 licensed drivers are presented for each age group. Additionally, age groups below the five-year average crash rate are highlighted in green, while those above the average are highlighted in red. While crash rates for most age groups have increased from 2021 to 2022, crash rates for all groups are substantially lower than their 2018 rates. Further, drivers 80 and over have lower rates than all other groups from 2020 to 2022, followed by drivers 70 to 79. With the exception of 2018 and 2019, drivers 30 and over are all below the five-year average crash rate, while those under 30 are above the average crash rate.

Table 1: Total Crash Rates by Age per 10,000 Licensed Drivers, 2018 to 2022

Age	2018	2019	2020	2021	2022
16-17	936.66	879.65	652.31	786.76	823.52
18-24	657.98	599.59	492.97	585.54	555.31
25-29	479.59	432.32	330.29	397.94	387.29
30-39	389.79	358.69	260.96	319.48	319.62
40-49	331.07	312.88	217.82	266.68	275.18
50-59	294.12	278.11	197.01	237.26	243.93
60-69	230.29	213.62	149.33	178.84	181.29
70-79	199.86	177.73	114.93	135.46	137.27
80 and over	192.23	170.75	101.13	113.02	125.94

Injury Crash Rates per 10,000 Licensed Drivers by Age

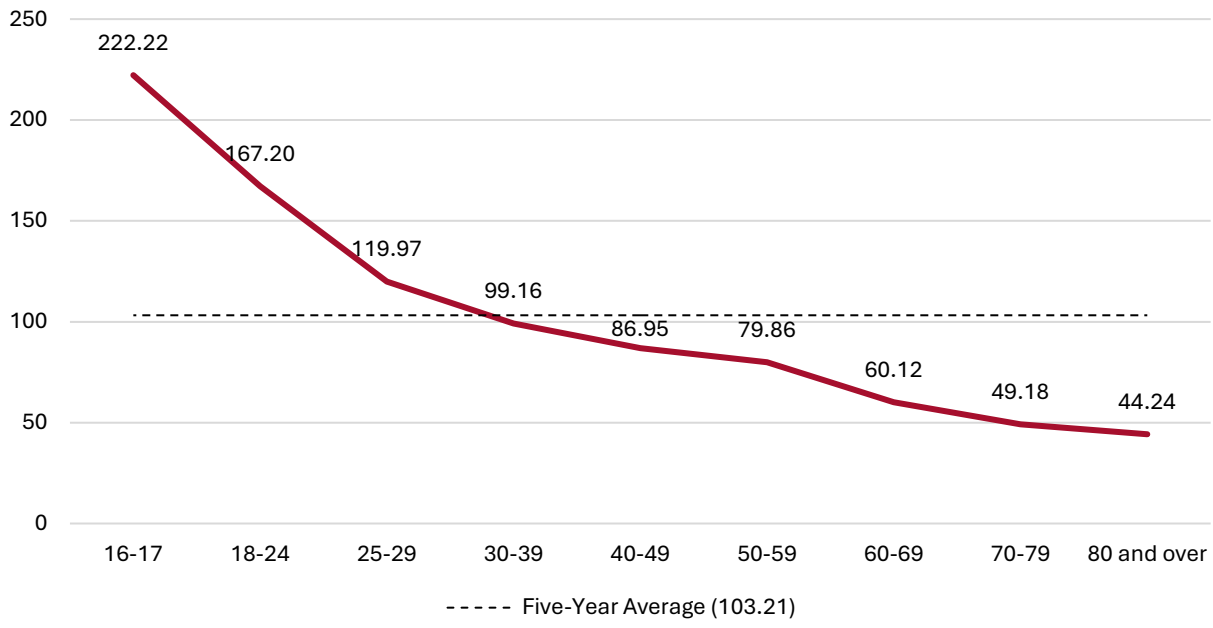
Injury crash rates by age per 10,000 licensed drivers followed a similar pattern to total crash rates, shown in Table 2. Crash rates for all age groups declined from their 2018 rates over the span of years examined. Drivers 80 and over have lower rates than all other groups from 2018 to 2022. With the exception of 2018 and 2019, drivers 30 and over are all below the average injury crash rate (103.21), while those under 30 are above the average injury crash rate per 10,000 drivers.

Table 2: Injury Crash Rates by Age per 10,000 Licensed Drivers, 2018 to 2022

Age	2018	2019	2020	2021	2022
16-17	269.40	238.85	178.72	211.44	212.69
18-24	193.10	176.42	141.53	165.72	159.25
25-29	144.22	127.53	97.77	115.40	114.93
30-39	119.35	107.59	79.37	94.39	95.09
40-49	105.20	96.81	67.28	81.31	84.15
50-59	95.71	87.88	63.61	74.27	77.84
60-69	71.63	68.65	47.47	55.89	56.93
70-79	64.83	56.89	36.98	42.37	44.82
80 and over	61.71	52.95	31.88	36.06	38.59

Figure 4 shows the average injury crash rate per 10,000 licensed drivers across all years (2018 to 2022) for each age group. Older drivers have lower average injury crash rates than other age groups and are below the statewide injury crash rate five-year average (103.21, represented by the dashed line in Figure 4).

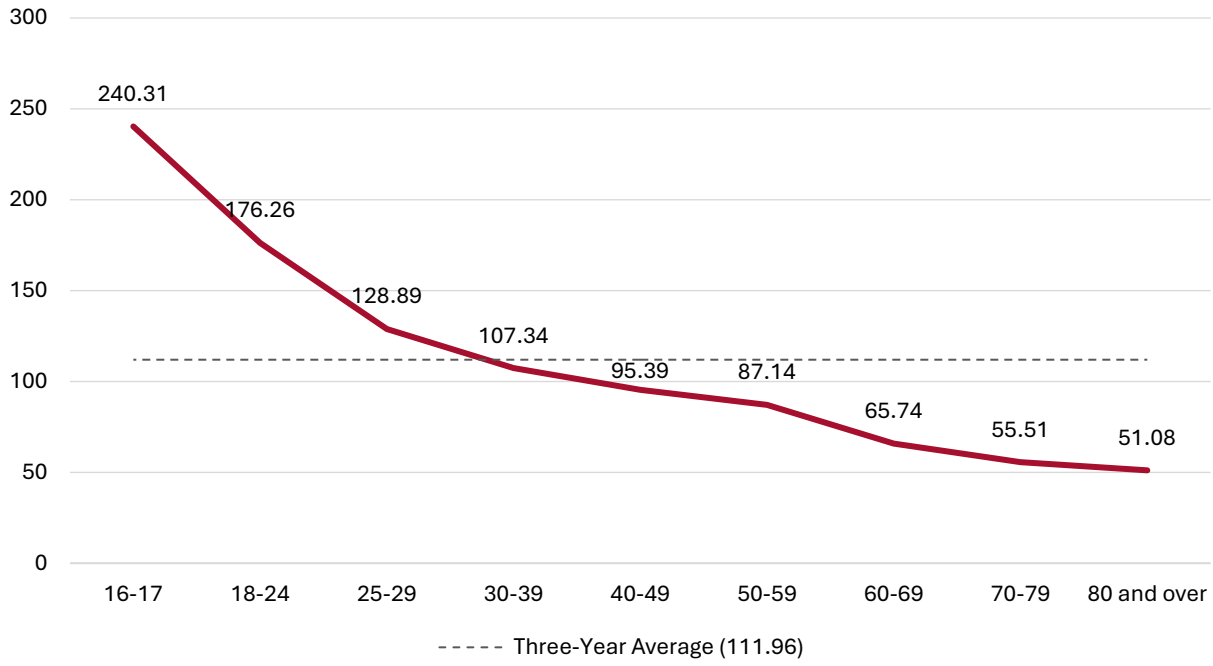
Figure 4: Average Injury Crash Rate per 10,000 Licensed Drivers by Age, 2018 to 2022



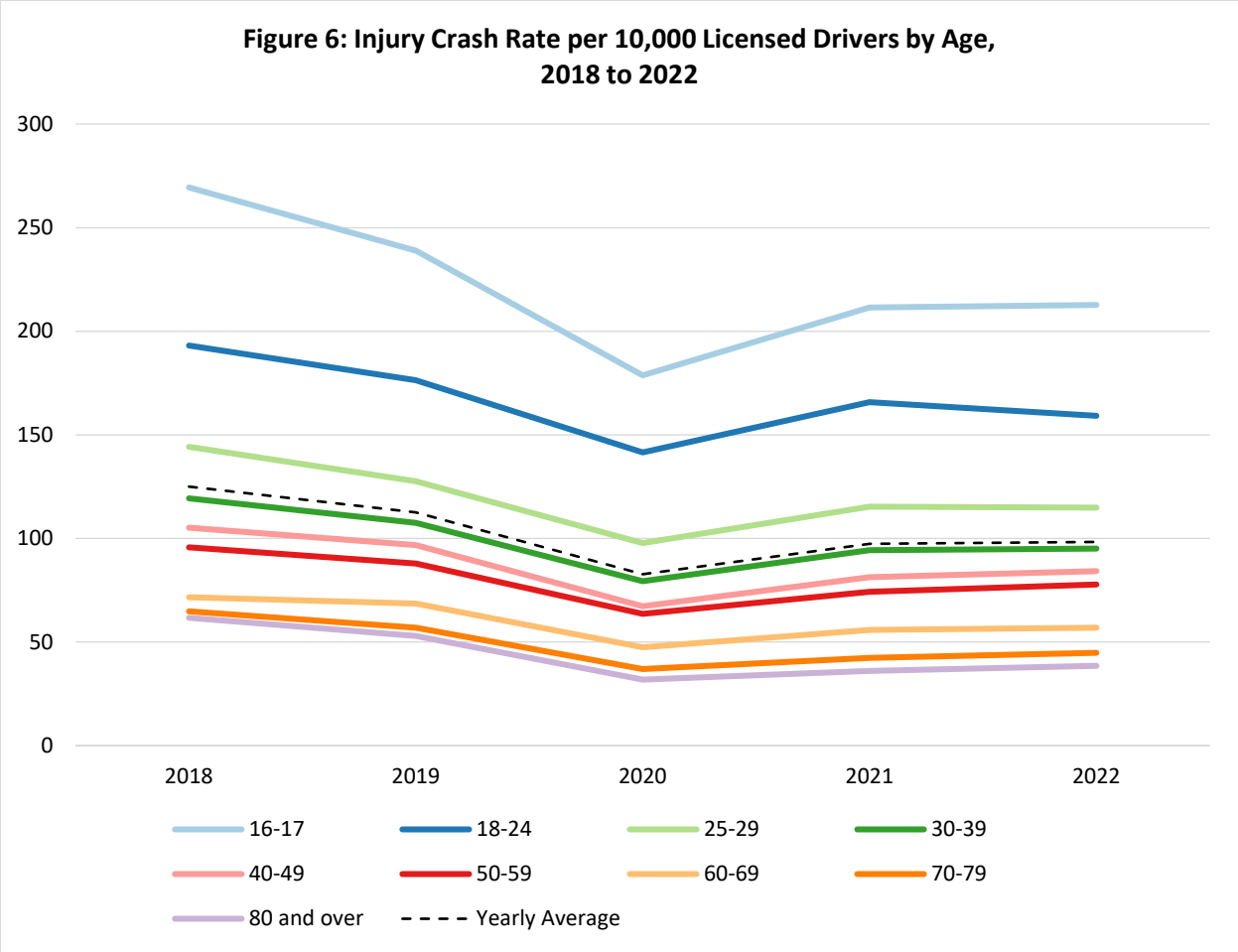
To account for COVID-19 restrictions that temporarily reduced driving behaviors throughout the state, peak pandemic years were removed from the data and the average injury crash rate per 10,000

licensed drivers for each age group for 2018, 2019, and 2022 were also examined (See Figure 5). The average injury crash rate for all age groups for these three years is 111.96 (represented by the dashed line in Figure 5). While removing peak pandemic years from the data raised the injury crash rates for all age groups, older drivers still demonstrated lower rates than other age groups, and their injury crash rates remained significantly below the three-year average for all drivers.

Figure 5: Average Injury Crash Rate per 10,000 Licensed Drivers by Age, 2018, 2019, 2022



The average yearly injury crash rate for each age group from 2018 to 2022 was also examined. As can be seen in Figure 6, drivers 30 and older were below the average injury crash rate for each year. Drivers 16 to 29 were above the yearly average. Drivers 80 and older demonstrated the lowest average injury crash rates for each year.



Fatal Crash Rates per 10,000 Licensed Drivers by Age

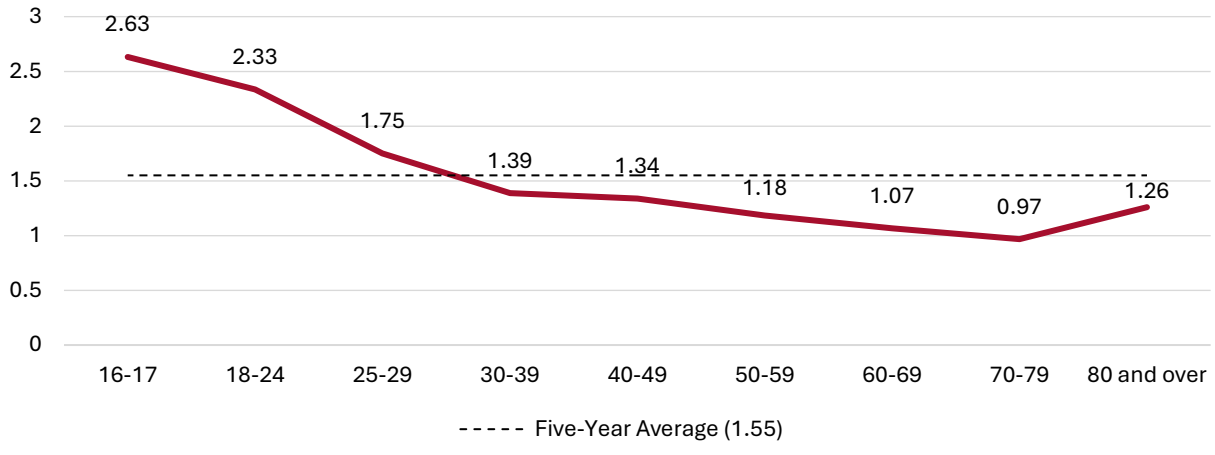
Fatal crash rates by age per 10,000 licensed drivers are presented in Table 3. The average fatal crash rate for all licensed drivers from 2018 to 2022 was 1.55 fatal crashes per 10,000 licensed drivers. As can be seen, drivers 30 and over exhibited fatal crash rates under the average (green), while those 29 and under, except during 2019, exhibited above-average rates (red). In contrast to injury crash rates, 2022 fatal crash rates were higher than 2018 fatal crash rates for all age groups. Aside from during 2020, drivers 70 to 79 had the lowest fatal crash rates each year compared to all other age groups.

Table 3: Fatal Crash Rates by Age per 10,000 Licensed Drivers, 2018 to 2022

Age	2018	2019	2020	2021	2022
16-17	2.50	0.98	2.55	3.17	3.96
18-24	2.14	2.14	2.17	2.78	2.44
25-29	1.63	1.55	1.63	1.78	2.17
30-39	1.30	1.12	1.37	1.43	1.72
40-49	1.14	1.32	1.31	1.42	1.51
50-59	1.06	1.11	1.20	1.24	1.31
60-69	1.02	1.16	0.81	1.01	1.31
70-79	0.94	1.07	0.85	0.80	1.19
80 and over	1.23	1.44	1.11	1.21	1.31

Figure 7 shows the fatal crash rate per 10,000 licensed drivers averaged across all years (2018 to 2022) for each age group. Older drivers had lower fatal crash rates than other age groups and were below the fatal crash rate average of 1.55 (represented by the dashed line in Figure 7). While fatal crash rates declined with age, this downward trend reversed for those 80 and over. However, this age group's average rate was still below the average rates for those 49 and younger, and less than half the rate for those aged 24 and younger.

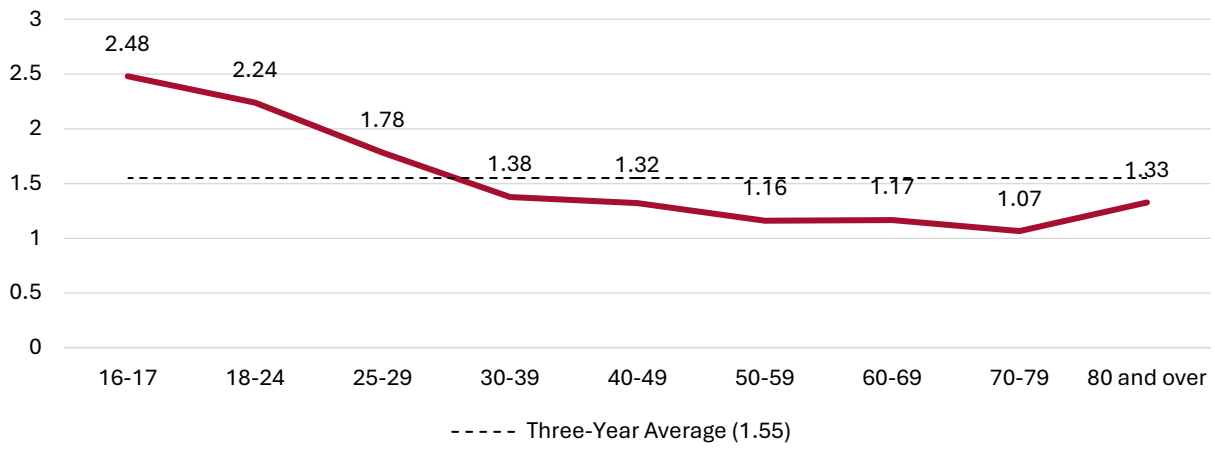
Figure 7: Average Fatal Crash Rate per 10,000 Licensed Drivers by Age, 2018 to 2022



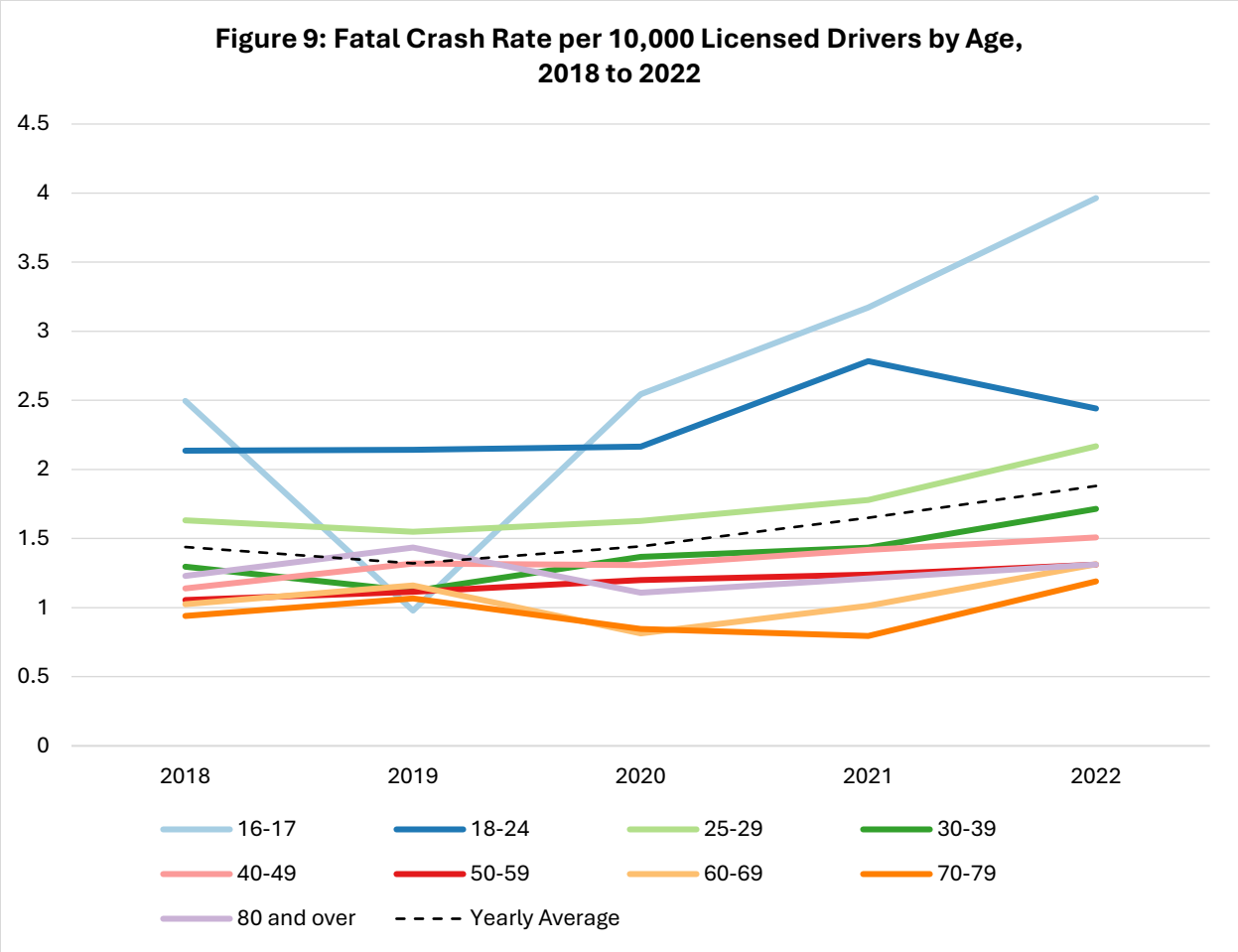
As with injury crash rates, peak pandemic years were also removed from the data to further assess fatal crash rates. When examining the average fatal crash rate per 10,000 licensed drivers for each

age group for 2018, 2019, and 2022 combined (See Figure 8), the average fatal crash rate for all age groups for these three years remained unchanged at 1.55 (represented by the dashed line in Figure 8). Removing peak pandemic years produced slight changes in average fatal crash rates for each age group, but the broad trends were unchanged. Fatal crash rates declined with age, aside from a reversal of this trend among those 80 and older. This age group had average fatal crash rates higher than drivers 40 to 79; they remained below the average fatal crash rates for those 29 and younger; and they also remained below the overall average fatal crash rate for all age groups.

Figure 8: Average Fatal Crash Rate per 10,000 Licensed Drivers by Age, 2018, 2019, 2022



When examining the average yearly fatal crash rate for each age group from 2018 to 2022 (See Figure 9), older drivers were below the average fatal crash rate for most years. Drivers 16 to 29 were above the yearly average, except for 16- to 17-year-olds in 2019. Drivers 70 to 79 had the lowest average crash rates each year except in 2019 and 2020. Drivers 16 and 17 years old saw the greatest increase in fatal crash rates over the same period. While the statewide average fatal crash rate has increased from 2018 to 2022, this increase has been largely driven by younger drivers.



Non-Injury Crash Rates per 10,000 Licensed Drivers by Age

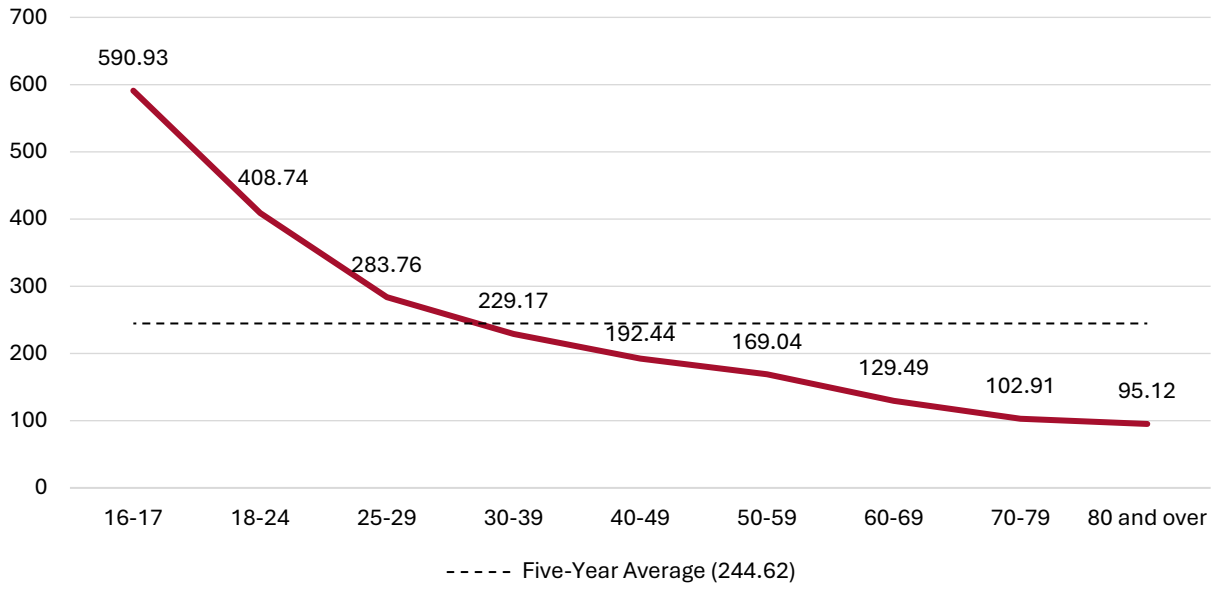
Non-injury crash rates by age per 10,000 licensed drivers followed similar patterns to other crash types (See Table 4). The average non-injury crash rate for all licensed drivers from 2018 to 2022 was 244.62 crashes per 10,000 licensed drivers. Except during 2018 and 2019, age groups 30 years and older were below this average, while drivers 29 and under, except during 2020, were all above this average. For all age groups, the 2022 non-injury crash rate was lower than in 2018. While non-injury crash rates increased for drivers 80 and over from 2020 to 2022, they were lower than the average and the lowest group across the years examined.

Table 4: Non-Injury Crash Rates by Age per 10,000 Licensed Drivers, 2018 to 2022

Age	2018	2019	2020	2021	2022
16-17	664.76	639.82	471.05	572.14	606.86
18-24	462.74	421.03	349.28	417.04	393.62
25-29	333.73	303.25	230.90	280.76	270.19
30-39	269.14	249.98	180.23	223.66	222.82
40-49	224.74	214.75	149.23	183.95	189.52
50-59	197.36	189.12	132.20	161.75	164.78
60-69	157.64	143.81	101.05	121.93	123.04
70-79	134.09	119.78	77.10	92.29	91.26
80 and over	129.28	116.36	68.14	75.75	86.05

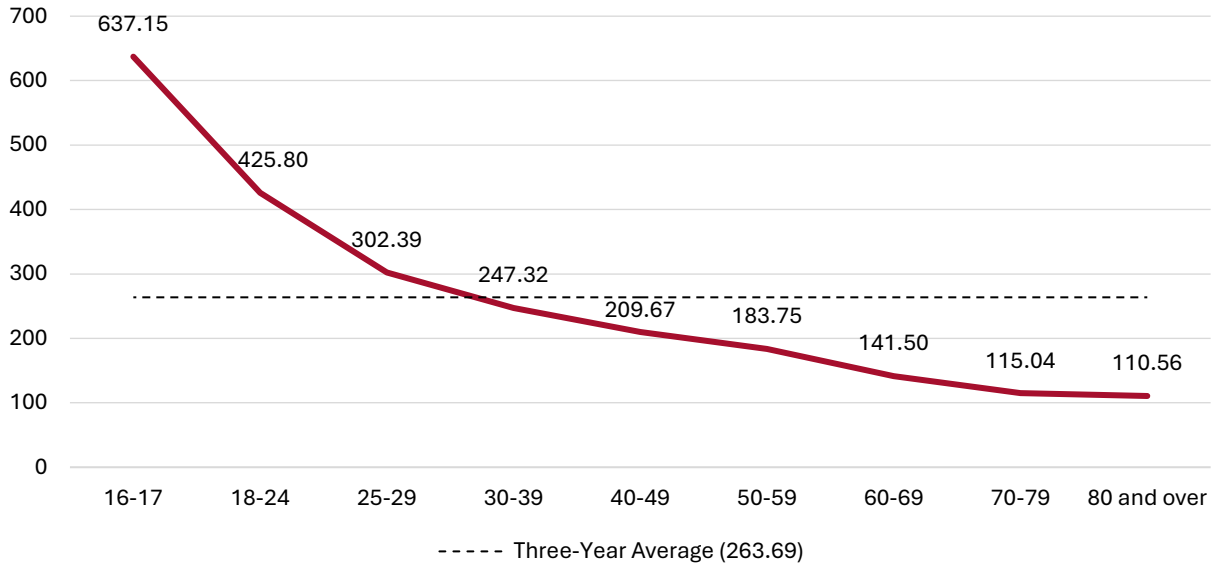
The average non-injury crash rate per 10,000 licensed drivers for each age group from 2018 to 2022 is shown in Figure 10. Older drivers had lower non-injury crash rates than other age groups and were below the injury crash rate average of 244.62 (represented by the dashed line in Figure 10). Drivers 80 and older had the lowest average non-injury crash rates of any age group. Drivers 29 and under, on the other hand, had much higher crash rates and were above the five-year average.

Figure 10: Average Non-Injury Crash Rate per 10,000 Licensed Drivers by Age, 2018 to 2022



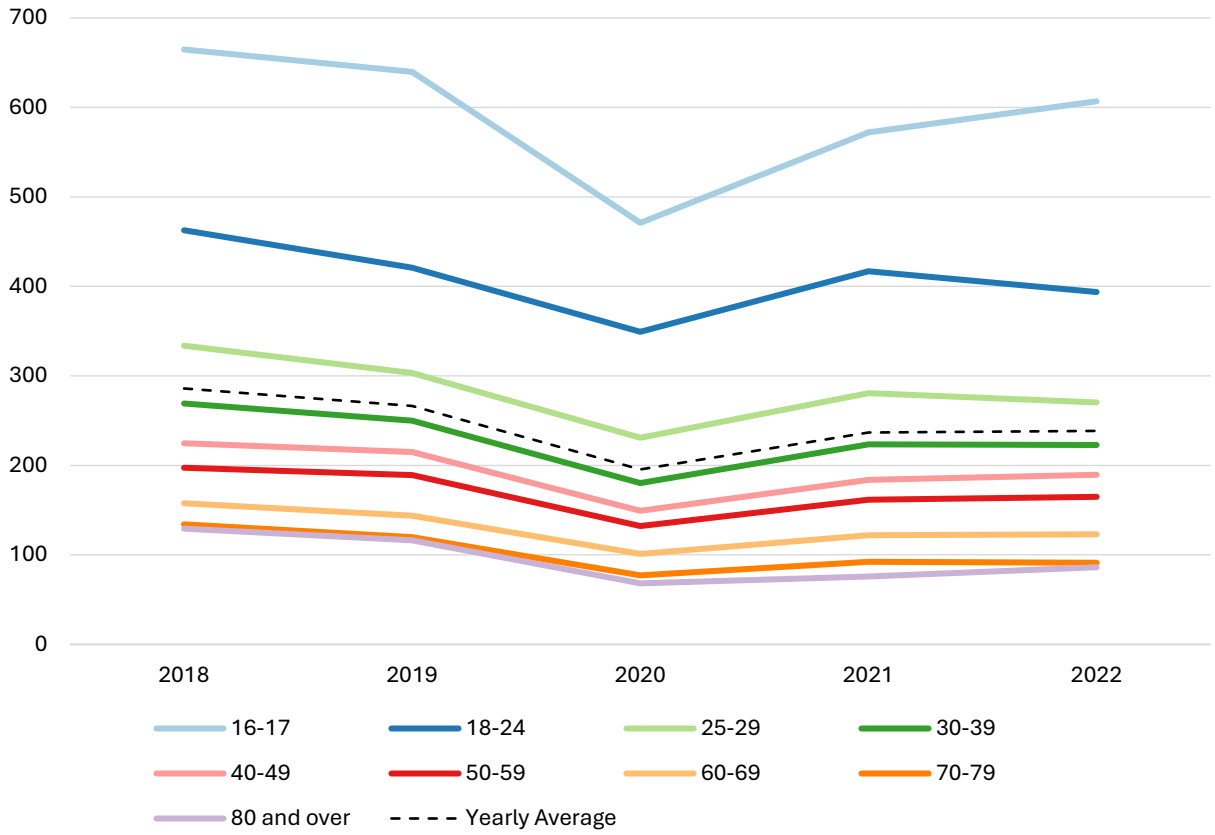
Again, peak pandemic years were removed from the data for non-injury crash rates (See Figure 11). The average non-injury crash rate for all age groups for 2018, 2019, and 2022 combined was 263.69 (represented by the dashed line in Figure 11). While non-injury crash rates slightly increased for all age groups with peak pandemic years removed, crash rates still declined with age.

Figure 11: Average Non-Injury Crash Rate per 10,000 Licensed Drivers by Age, 2018, 2019, 2022



Lastly, the average yearly non-injury crash rate for each age group from 2018 to 2022 was examined in Figure 12. Drivers 30 and older were consistently below the average non-injury crash rate for each year, while drivers 16 to 29 were above the yearly average for each year. Drivers 80 and over had the lowest average non-injury crash rates for each year, followed by drivers 70 to 79.

Figure 12: Non-Injury Crash Rate per 10,000 Licensed Drivers by Age 2018 to 2022



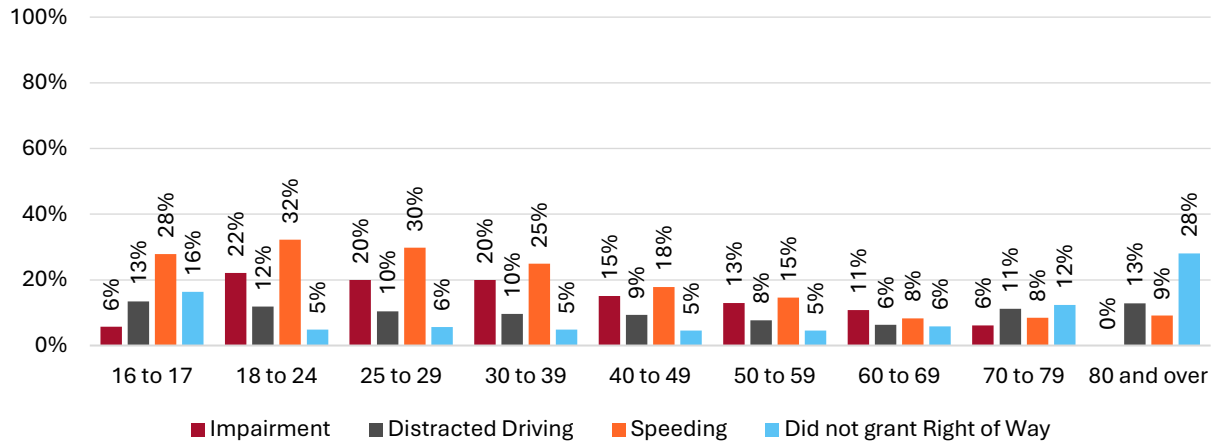
Contributing Circumstances to Fatal Crashes

Contributing circumstances for fatal crashes were also examined by age. While these factors are not indicative of fault, they do provide further context into the circumstances that may have led to a crash. The contributing factors included whether the driver involved in the crash was speeding, impaired, distracted, or did not grant right-of-way.[6] As can be seen in Figure 13, a higher percentage of younger drivers have speeding as a contributing circumstance in fatal crashes, and a higher

[6] Contributing circumstances used to code each category examined: Speeding (exceeding reasonable safe speed, exceeding state speed limit), Impairment (under the influence of alcohol, under the influence of drugs), Distraction (distracted by adjusting vehicle controls, distracted by other occupant, distractions outside of vehicle, driver interacting with passengers, animals or objects inside vehicle, eating or drinking, operating handheld cell phone, operating hands free cell phone, operating other electronic devices, other distractions, unknown distractions), Did not grant right of way (did not grant RW to vehicle, did not grant RW to non-motorist).

percentage of drivers 18 to 39 have impairment as a contributing circumstance in fatal crashes. Distraction while driving was similar across age groups, while not granting right-of-way was highest for drivers 80 and over.

Figure 13: Contributing Circumstances for Drivers Involved in Fatal Crashes by Age (2018-2022)



Key Crash Rate Conclusions

Below are several key conclusions from the analysis of crashes in Washington State between the years 2018 and 2022:

- Total crash rates and injury crash rates sharply increased from 2020 to 2021 and continued to slightly increase in 2022. However, the 2022 crash rates were lower than that reported in 2018.
- Fatal crash rates increased from 2020 to 2022, and rates reported in 2022 were higher than those reported in 2018.
- When examining fatal crash rates by age, older drivers (50 and over) were *below* the average crash rate and had the *lowest* fatal crash rates compared to all other age groups, except in 2019 for drivers 80 and over. For every age group, the fatal crash rate was higher in 2022 than in 2018.

- Younger drivers, especially 16- to 17-year-olds, accounted for the overall increase in fatal crash rates experienced in recent years.
- Younger drivers also accounted for much of the increase in injury crash rates, total crash rates, and non-injury crash rates. Not only are middle and older age groups often below the average crash rate for each crash type, but younger driver crash rates are also up to six times higher than that for older drivers.

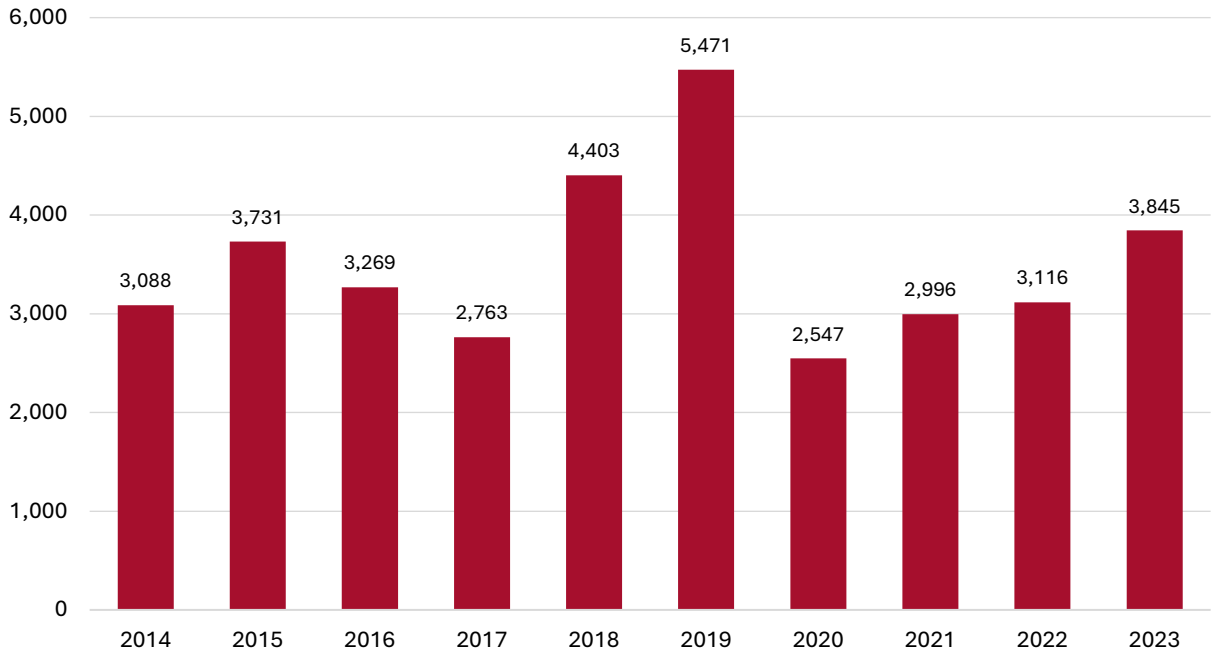
These findings suggest that older drivers were generally not disproportionately involved in vehicle crashes in Washington State. This finding is consistent with prior research that has examined older drivers' involvement in crashes in the U.S. and elsewhere (Akerstedt & Kecklund, 2001; Eberhard, 2008; Kaimila et al., 2013; Langford et al., 2008). The present analysis, however, was not able to adjust for differences in driving exposure across age groups (e.g., miles driven, number of trips taken). Studies that do account for these differences are much more likely to report that older drivers are at greater risk for fatal and non-fatal crash involvement (see Pitta et al., 2021). This may also be the case for older drivers in Washington State. At the same time, however, researchers have demonstrated that older drivers typically engage in self-regulating driving behavior. So, while older drivers may be at higher risk for crash involvement when they choose to drive, their self-regulation reduces their driving exposure such that their overall contribution to crashes (i.e., their societal risk) is lower than that for many other age groups (Cicchino, 2015; Cox & Cicchino, 2021; Langford et al., 2008; Molnar et al., 2013), as was found in the analysis of Washington crash data. The analysis does reveal that average fatal crashes per 10,000 licensed drivers declined with age and then increased for drivers 80 and over, although they remained below the total average across all drivers. To reduce total crash rates across all crash types in Washington, focusing on younger drivers will have a larger impact. Given the tendency of older drivers to self-regulate and their relative lower crash rates, the DOL in Washington may focus on preserving older driver autonomy for as long as possible, while providing resources to enhance their driving as they age. Connecting older drivers with training and educational reminders that specifically emphasize factors that contribute to crashes among their age groups, such as roadway intersections, may also be beneficial.

WASHINGTON RE-EXAM REFERRALS ANALYSIS

From 2014 to 2023, there were 35,229 referrals for a re-exam to assess individuals' fitness to drive. These re-examination assessments included Personal Driver's License (PDL) Skills Tests, PDL Knowledge Tests, Physical Examination Reports (PER) to be completed by a physician, Visual

Examination Reports (VER) to be completed by an ophthalmologist/optometrist, and In-Vehicle Assessments (for more details, see the Policy Review section of this report beginning on page 40). Of these 35,229 referrals, 25,145 were one-time referrals (involving people receiving only one re-exam referral), while 10,084 were for individuals receiving multiple re-exam referrals. A total of 25,145 individuals received exactly one referral, while 4,658 received multiple referrals (29,803 total individuals). During this timeframe, the highest number of re-exam referrals occurred in 2019 (5,471), and the lowest number occurred in 2020 (2,547), largely due to closures, extensions, and waivers associated with the COVID-19 pandemic (See Figure 14). In the sections that follow, descriptive statistics are provided to highlight key characteristics of the population of re-exam referrals.

Figure 14: Re-exam Referrals by Year



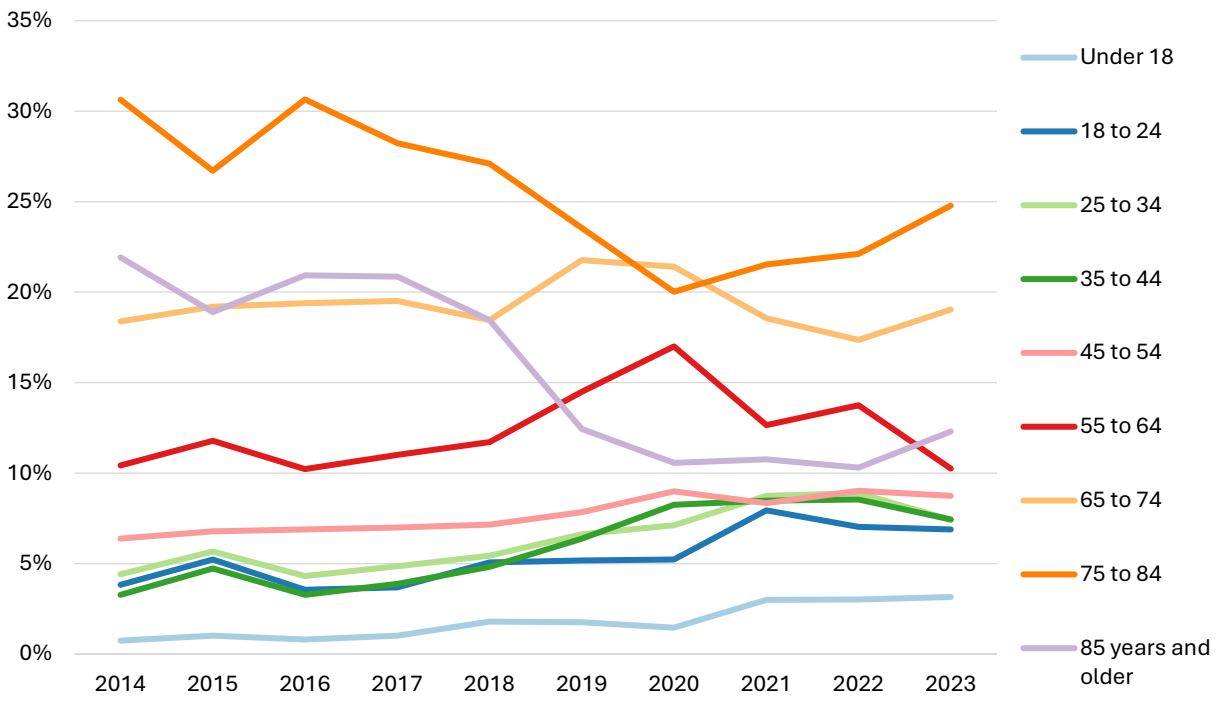
Re-exam Referrals by Age and Year

When examining re-exam referrals by age over time, the highest percentage of re-exam referrals involved 75- to 84-year-olds for each year except 2020 (See Figure 15). From 2014 to 2018,

individuals 85 and over and 65 to 74 were either the second or third highest percentage of re-exam referrals. The 55 to 64 age group replaced 85 and over for the third-highest percentage of re-exam referrals from 2018 to 2022. Individuals 18 and under had the lowest percentage of re-exam referrals during all years examined.

Figure 15: Percentage of Re-exam Referrals by Age and Year*

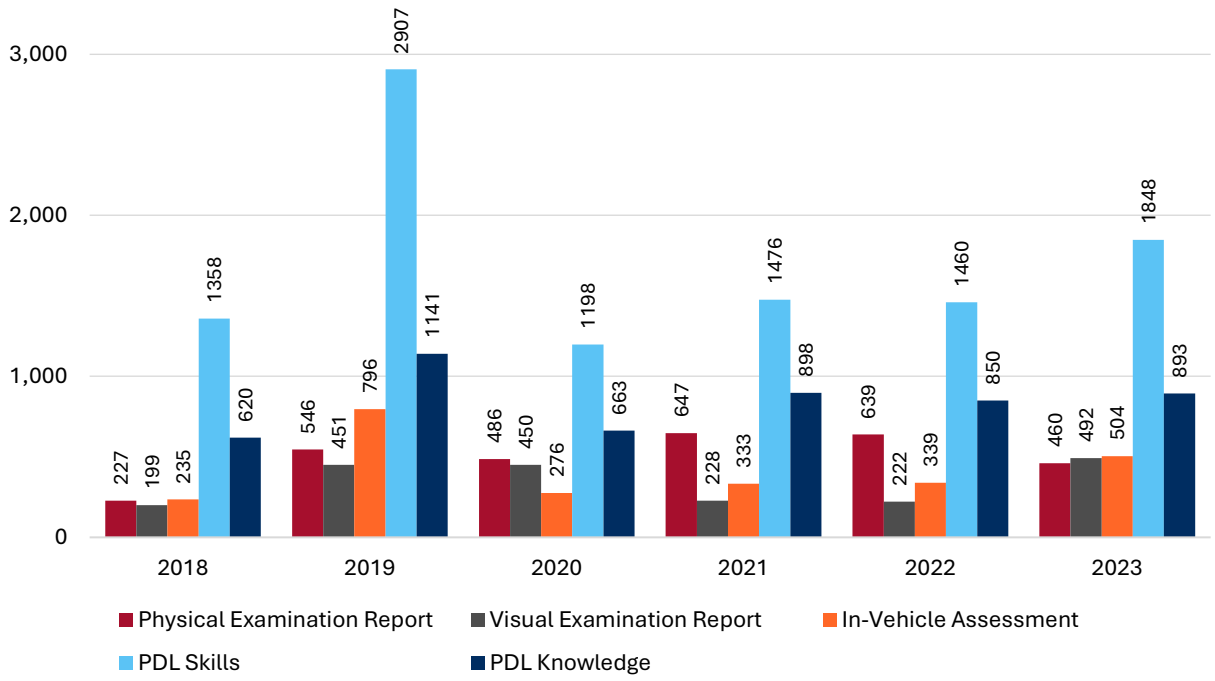
*Axis of graph set lower than 100 to highlight differences



Re-exam Referral Types

For the types of re-exams being referred, data were only available from DOL beginning in 2018. Figure 16 indicates that PDL Skills Tests and PDL Knowledge Tests were the most referred re-exam types from 2018 to 2023. For PERs, VERs, and In-Vehicle Assessments, fewer than 800 referrals were made within each category on an annual basis.

Figure 16: Types of Re-exams Required by Year



Re-exam Referral Types by Age

The data shows that PERs and VERs most commonly involved individuals 75 to 84 years of age, while IVAs most commonly involved individuals 65 to 74 years of age (See Figure 17). PDL Skills and PDL Knowledge test re-exams were most likely to involve individuals in the 75 to 84 age category and least likely to involve the youngest drivers who fell into the 18 and under category (See Figure 18).

Figure 17: Types of Re-exams Required by Age, 2018 to 2023

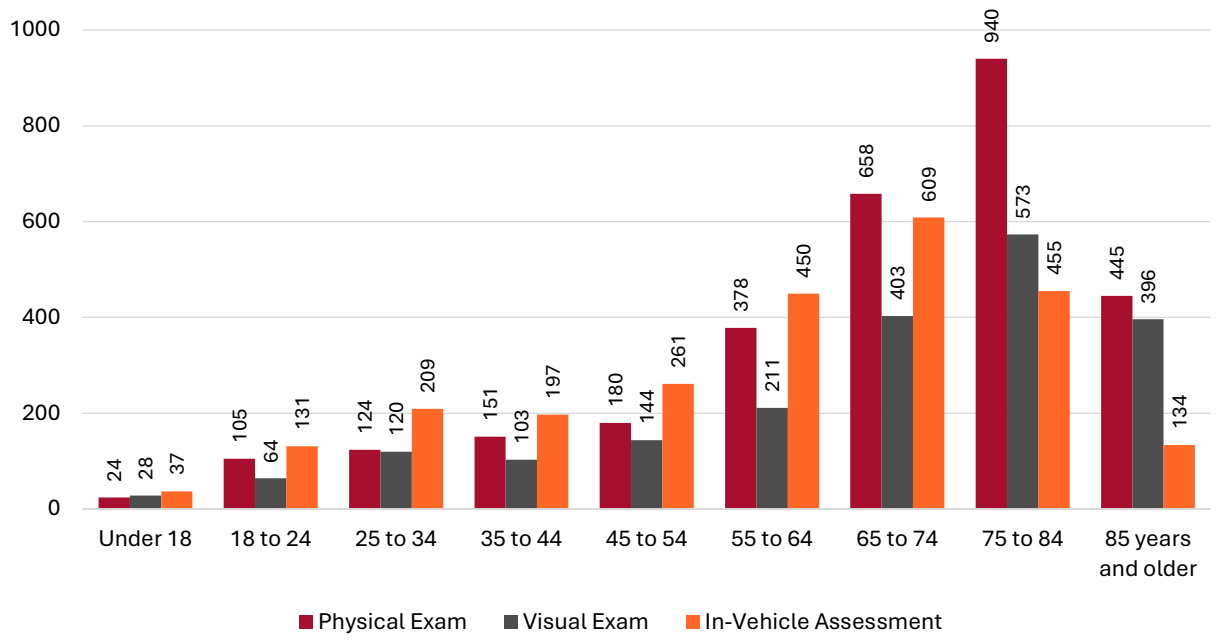
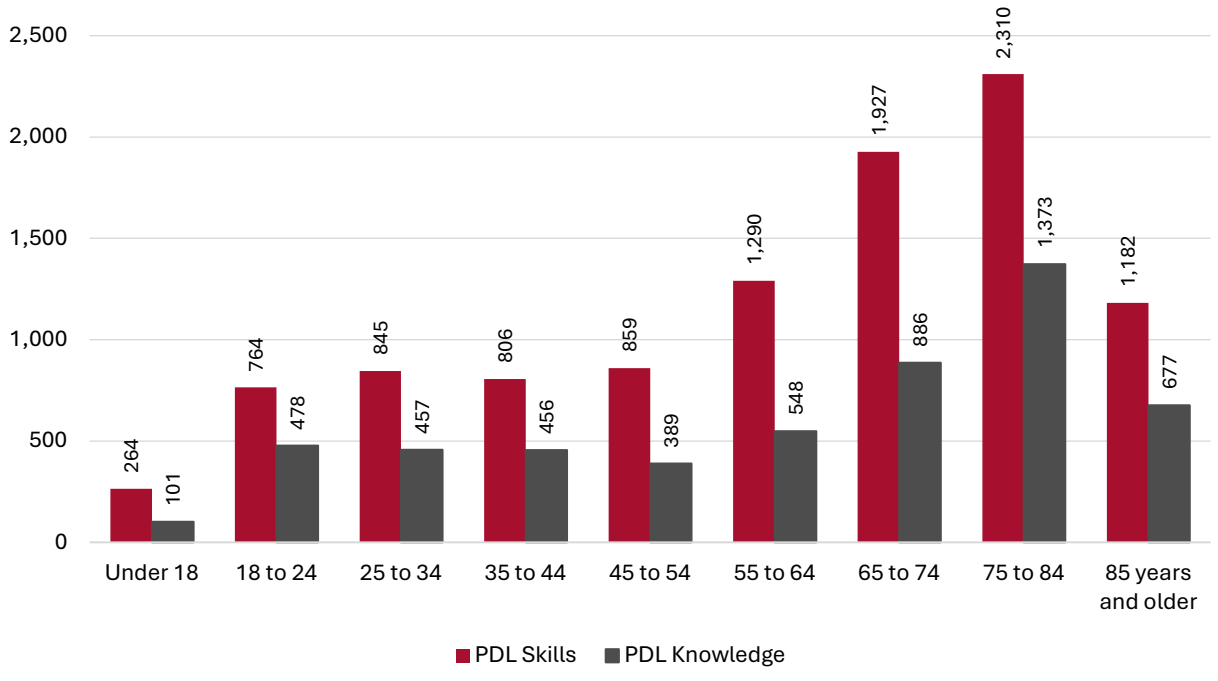


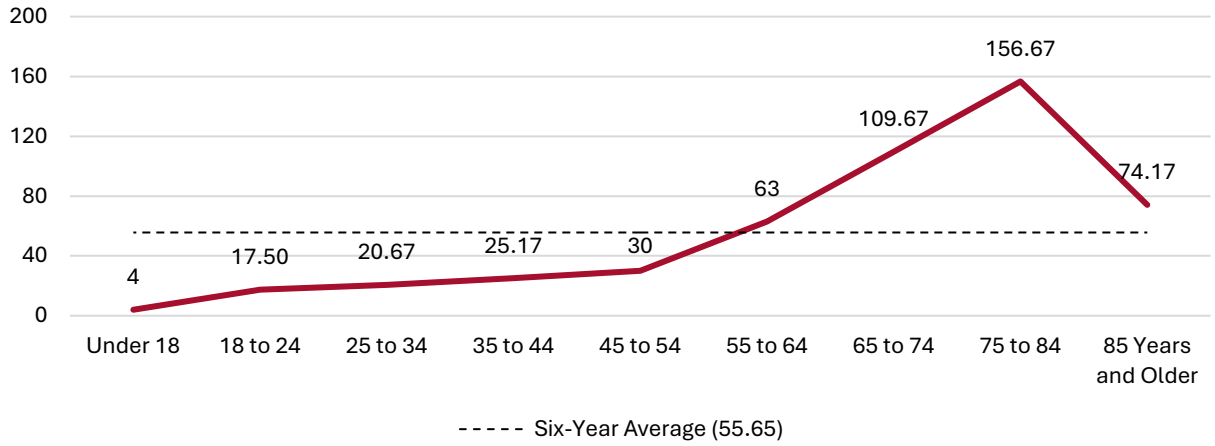
Figure 18: Required Skills and Knowedge Tests by Age, 2018 to 2023



Average Re-exam Referral Types by Age

A six-year average for the total number of re-exam referrals by referral type for all age groups was calculated for 2018 to 2023 (Figures 19 to 23). A six-year average for all age groups combined is also provided for comparison. Beginning with PERs, this category of re-exams was most likely to involve individuals 75 to 84, followed by individuals 65 to 74 years old. The average number of PERs over this six-year period was higher for all age groups 55 and over than the total six-year average for the entire population of 55.65 PER referrals over the same time period (Figure 19).

Figure 19: Average Physical Examination Reports (PERs) Required by Age, 2018 to 2023



As shown in Figure 20, the average number of VERs followed a similar pattern to PERs. Individuals 75 to 84 had the highest average PER exam referrals, followed by individuals 65 to 74 years old. Individuals 65 and over were higher than the total six-year average of 37.81 VER re-exam referrals.

Figure 20: Average Visual Examination Report (VERs) Required by Age, 2018 to 2023

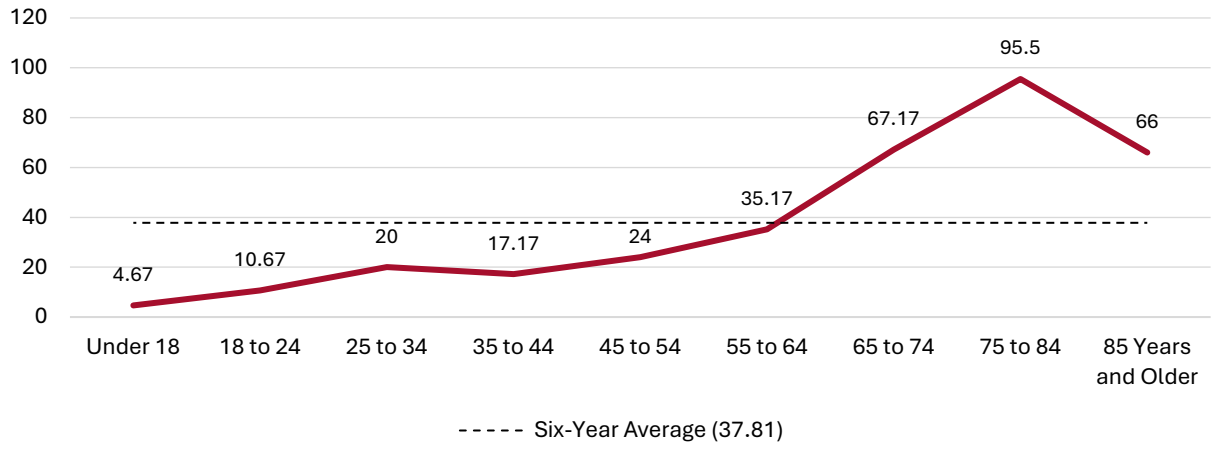
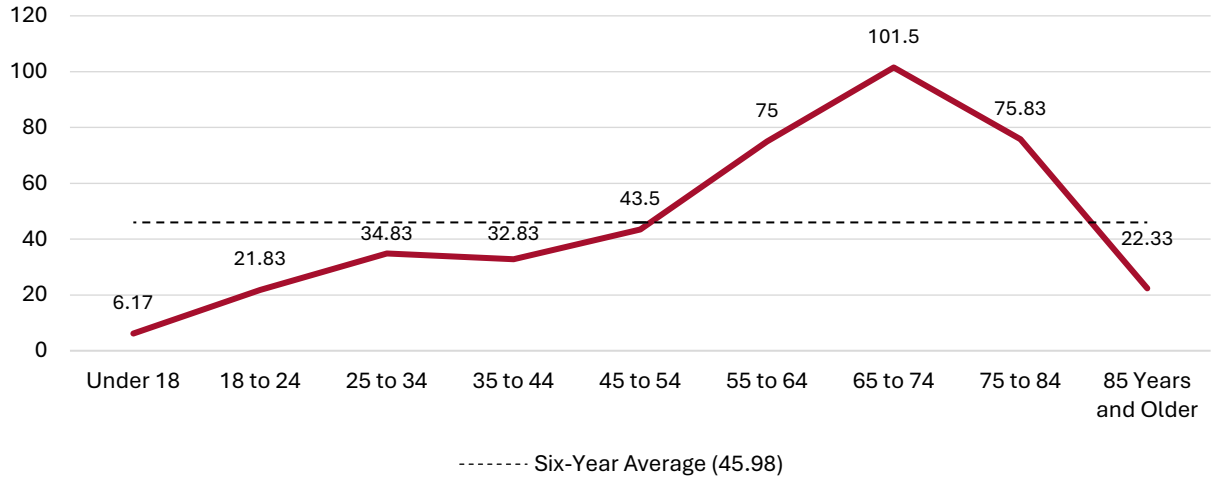


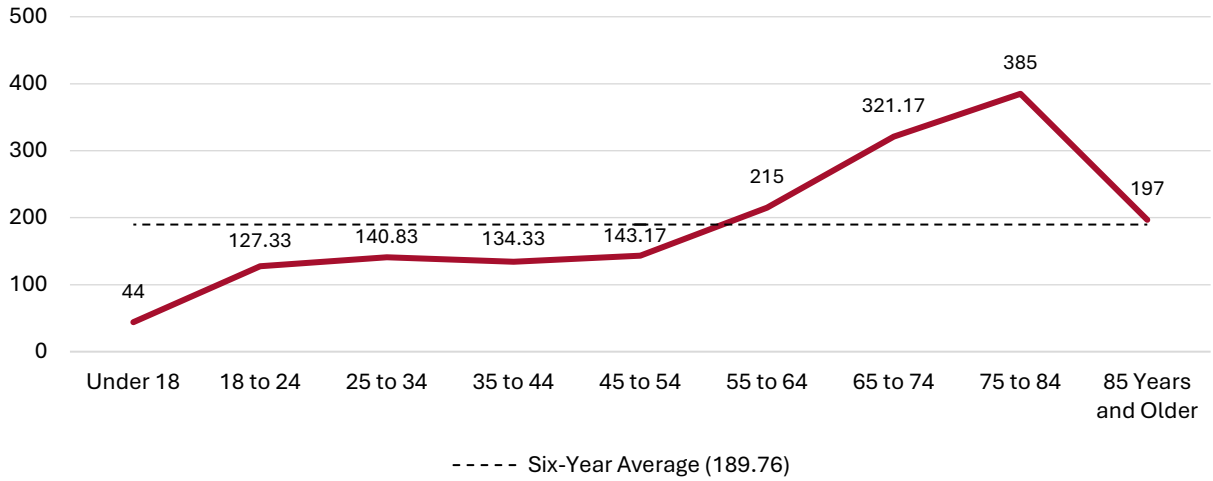
Figure 21 indicates that the average In-Vehicle Assessment referrals differed from PER and VER referrals, as individuals 65 to 74 had higher average referrals from 2018 to 2023, followed by individuals 75 to 84. Unlike the other referrals, only individuals 55 to 84 were higher than the six-year average of 45.98 referrals.

Figure 21: Average In-Vehicle Assessments Required by Age, 2018 to 2023



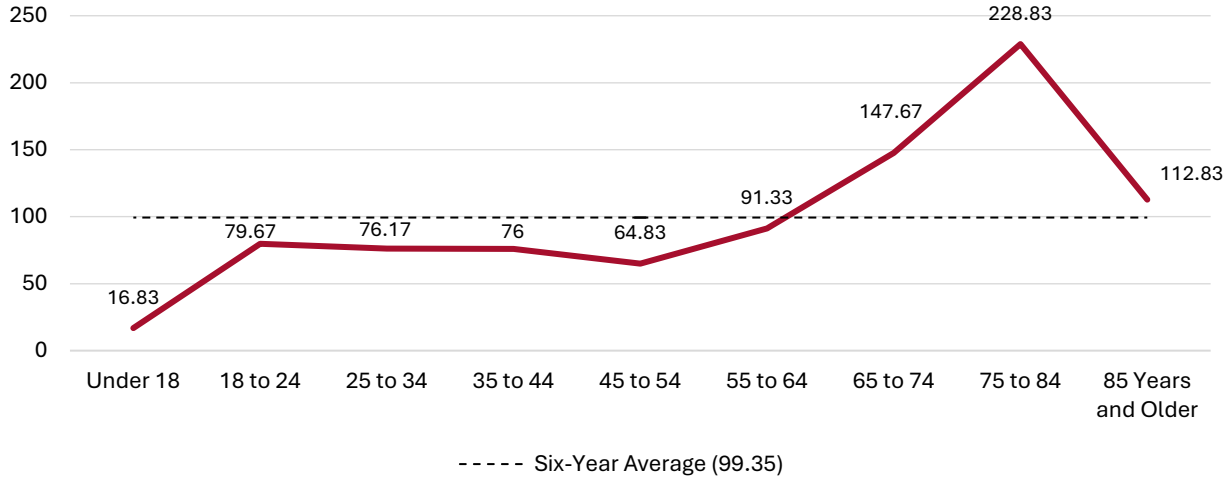
Individuals 75 to 84 had the highest average PDL Skills re-exam referrals, followed by individuals 65 to 74. Individuals 55 and older were above the six-year average of 189.76 PDL Skills re-exam referrals (Figure 22).

Figure 22: Average PDL Skills Tests Required by Age, 2018 to 2023



Finally, Figure 23 indicates that the six-year average for PDL Knowledge Test referrals was 99.35. Individuals 65 and over were higher than this average. Similar to other referral types, individuals 75 to 84 had the highest average referrals.

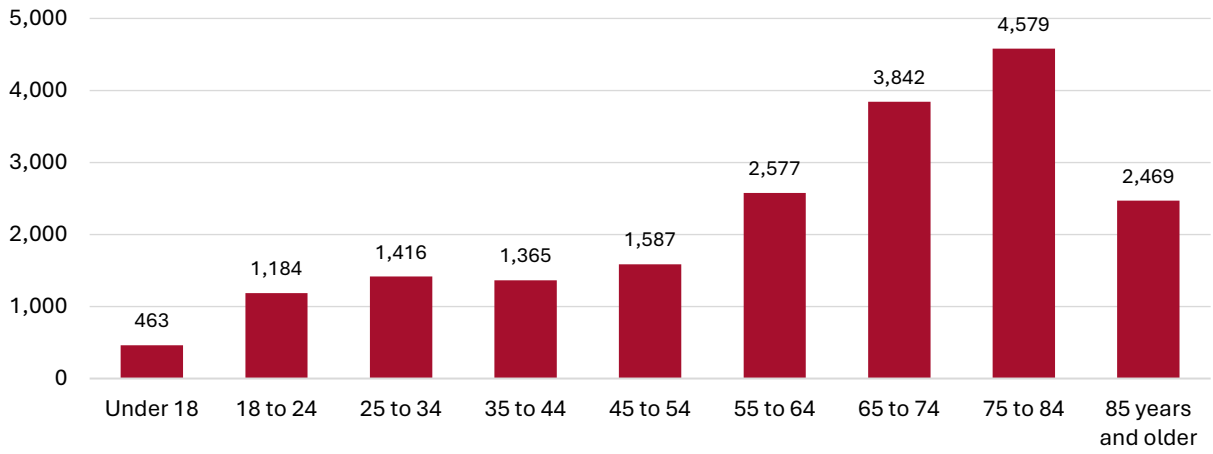
Figure 23: Average PDL Knowledge Required by Age



Referral Rates by Age per Licensed Drivers

In the preceding graphs, it was shown that 75- to 84-year-olds typically made up the largest portion of referrals. On the other hand, referrals were much less likely to involve drivers in the 85 and older group. This pattern is unlikely to be caused by a lesser need for referrals among the oldest age group of drivers. Instead, this is likely driven by the lower absolute number of licensed drivers who are 85 or older in the population. This is reflected in Figure 24, where among all re-exam referrals issued between 2018 and 2023, the most common age group was not the oldest drivers (85 years and older) (Figure 24).

Figure 24: Approximate Number of Individuals Referred by Age, 2018 to 2023

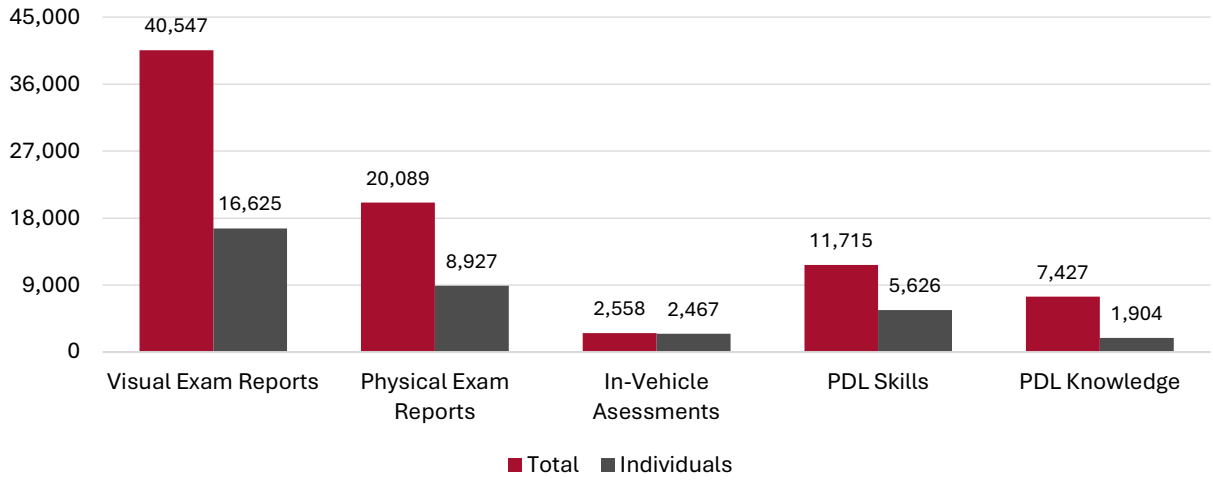


Re-exams Passing Rates

From 2014 to 2023, a total of 39,910 re-exams were conducted. Of these re-exams, 17,799 were given to a single individual (these individuals only took one re-exam), while 22,111 were given to individuals taking multiple re-exams. A total of 25,380 individuals took a re-exam, with 17,799 taking a single re-exam and 7,581 taking multiple re-exams. From 2014 to 2023, a total of 6,960 individuals received a re-exam referral and did not complete a re-exam during the time frame analyzed.

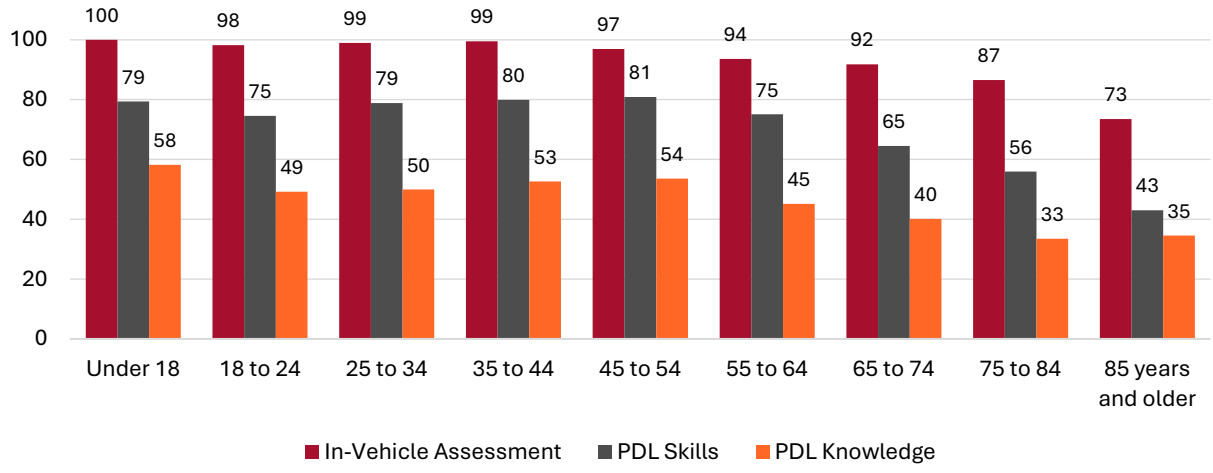
From 2018 to 2023, there were 40,547 VERs for 16,625 individuals, 20,089 PERs for 8,927 individuals, and 2,558 In-Vehicle Assessments (IVAs) for 2,467 individuals. There were 11,715 PDL Skills re-exams for 5,626 individuals and 7,427 PDL Knowledge tests for 1,904 individuals (See Figure 25).

Figure 25: Total Re-Exams from 2018 to 2023



The passing rates for VERs and PERs are over 99% for all age groups. There is more variability in passing rates for IVAs, PDL Knowledge, and PDL Skills tests. As can be seen in Figure 26, the passing rates for IVAs are above 90% for all age groups but drop to approximately 87% for individuals 75 to 84, and approximately 73% for individuals 85 years and older. PDL Knowledge tests have the lowest passing rates for all age groups, but passing rates are the highest for individuals under 18 (58.17%) and lowest for 75- to 84-year-olds (33.50%). Passing rates for the PDL Skills tests are above 74% for individuals 64 and under but start to decline for individuals 65 and over. Individuals 85 and over have the lowest passing rates for the PDL Skills tests (34.58%).

Figure 26: Re-Exam Passing Rates (%) by Age, 2018 to 2023



LEGISLATIVE COMPONENTS

As noted in the introduction, ESHB 1125 identified four mandatory components of the comprehensive plan included in this report. The sections below detail the first three components and interview analysis, while the fourth—preserving the maximum level of older driver independence and privacy—is integrated within each section and among final recommendations.

Policy Review

The Washington State Legislature and the DOL have established policies and procedures aimed at ensuring the safety of road users, including older and medically at-risk drivers. These policies include numerous Revised Codes of Washington (RCWs), Washington Administrative Codes (WACs), and several other internal agency policies that address the screening, assessment,[7] and licensing of older and medically at-risk drivers with physical, cognitive, and visual impairments that may affect their ability to operate a motor vehicle safely. The RCWs, WACs, and internal policies related to older and medically at-risk drivers are presented in the tables in Appendix A within this report.

Below is an overview of policies as they pertain to three primary domains—physical impairments, visual impairments, and cognitive impairments. Additionally, training practices, licensing requirements and restrictions, and the appeals process are discussed. The strengths and weaknesses of the policies, as identified in the research, are reviewed to provide evidence-based recommendations for policy and assessment improvement.

Physical Impairment Assessment

In the state of Washington, the DOL uses several methods to identify drivers with physical impairments that could affect their ability to drive a motor vehicle. DOL policy puts the Licensing Service Representatives (LSRs) in a critical position regarding the screening processes of older and medically at-risk drivers. During in-person interactions between LSRs and drivers at the licensing offices, LSRs are required to observe customers to identify any potential physical risk factors and ask questions about possible physical conditions known to the customer that can affect their ability

[7] While both screening and assessment are designed to assess a driver's risk to themselves or others, the distinction between the two lies largely in the time and ease with which a test can be administered. A screening tool is usually "brief and easy to administer," can identify *possible* driving risk, and can be administered by licensing professionals, while an assessment tool "requires more in-depth evaluation," can identify drivers *truly* at risk, and may require a medical professional to administer (Pomidor, 2019, p. 29-30).

to drive. Additionally, DOL policy relies on the expert advice of medical professionals, as well as input from law enforcement officers and concerned citizens, to acquire knowledge about a driver's ability to operate a vehicle safely (RCW 46.20.041).

Assessment Procedures for Identifying Physical Impairments

Washington State has a comprehensive assessment approach for evaluating a driver's physical ability to operate a motor vehicle safely. Regarding physical impairments, the following assessments are used: a Physical Examination Report (PER) completed by medical professionals, a re-examination skills exam conducted by certified staff, and In-Vehicle Assessments conducted by certified LSRs.[8] The Re-examination Selection Guidelines are invoked when there is an observed physical impairment or a reasonable cause of a physical condition that could negatively affect driving (RCW 46.20.041; RCW 46.20.305). For instance, according to the Re-examination Selection Guidelines, if a customer at the DOL shows some difficulty in gripping an object (e.g., a pen) at the counter due to tremors, DOL policy requires that the customer be subjected to an In-Vehicle Assessment. Also, a customer's paralysis affecting one or more limbs, the use of a wheelchair or motorized scooter for mobility, or walking to the counter with the assistance of a person or device triggers re-examination skills testing.

Physical Assessment Best Practices

Washington's assessment procedures align with several best practices recommended by the National Highway Traffic Safety Administration (NHTSA) and recent scholarly literature but do fall short in some areas. The DOL's use of Physical Examination Reports (PERs) from medical professionals (Driver Evaluation Policy 2.1) aligns with recommendations for medical evaluations (Dickerson et al. 2014). The requirement for Visual Examination Reports (Driver Evaluation Policy 2.2) meets best practices for vision assessments (Swain et al. 2021). Re-examinations of driving knowledge and ability, along with in-vehicle assessments (Driver Evaluation Policy 2.3, 2.4, 2.5) align with recommendations for on-road testing (Schulz et al. 2021).

However, Washington's policies are yet to integrate more robust and technology-backed assessment tools as emphasized in recent literature. For instance, while the DOL uses multiple assessment types to determine drivers who are medically-at-risk, Washington's policies do not mention the use of driving simulators or self-screening tools for older drivers. These validation tools

[8] A re-examination skills exam is similar to the behind-the-wheel skills test new drivers are required to take, with slight modifications, while an In-Vehicle Assessment is conducted in a parked vehicle.

have been recommended in recent studies to help evaluate drivers at risk without necessarily undergoing an on-road test which could be time- and resource-intensive (Anstey et al. 2020; Kandasamy et al. 2019; Toups et al. 2022). Furthermore, while the DOL's policies allow for multiple re-examination attempts (Driver Evaluation Policy 2.4), Washington State does not provide resources to older drivers for remediation as recommended by scholars (Kua et al. 2007). Washington State policy lacks specific remedial training programs or driver rehabilitation courses to be undertaken between attempts (although other organizations in the state do provide these), guidelines for monitoring and follow-up on drivers' progress, and detailed protocols for addressing identified issues to ensure improvement before the next re-examination attempt. Providing these resources can train older drivers to help them pass their re-examination and improve driver safety.

A recent feasibility study by Wallis et al. (2023) tested a toolkit for older driver assessments in general practice in Australia. The '3-Domains' toolkit includes tests of motor function (functional reach), as well as vision (visual acuity) and cognition (road sign recognition), along with an online calculator that estimates the likelihood of passing an on-road test. Medical practitioners found the toolkit useful for informing clinical judgment and facilitating conversations about driving safety, while older drivers felt reassured by the thorough assessment. With further validation, such practical screening tests could be integrated into licensing protocols to help target on-road testing to those most at risk.

Technology also has a role to play in making older driver assessments easy but still time and resource effective. Tablet-based cognitive assessments are another promising avenue for enhancing older driver screening. Bakhtiari et al (2020) developed an iPad-based battery of tests measuring reaction speed, decision-making, memory, and perception-motor skills. Machine learning models using the tablet data showed 73% accuracy in classifying safe vs. unsafe drivers compared to on-road outcomes, with the potential to identify those needing further testing. As digital tools become more sophisticated and evidence-based, they may provide cost-effective, standardized screening options to complement in-person assessments by licensing authorities and health professionals.

While the DOL incorporates multiple sources of information to identify physically at-risk drivers and uses multiple approaches for screening older drivers, Dickerson et al. (2007) noted that relying only on information from a second party (LSR) and third party (such as law enforcement) may not capture physical conditions that are not easily noticeable, which could potentially allow some at-risk drivers to go undetected. Through empathetic, non-threatening, and supportive policies, as well as public

education, DOL may consider adopting an approach to encourage self-reporting of physical impairments (Dugan et al. 2013). By adopting policies that encourage self–reporting of physical impairments, DOL can enhance the effectiveness of its screening process and reduce the risk of collisions caused by older and physically at-risk drivers.

Recent studies suggest that multiple off-the-road screening tools can be briefly administered to help identify older drivers who may be at risk and need further evaluation (Anstey et al. 2020; Attuquayefio et al. 2023; Schulz et al. 2021). In Australia, Anstey et al. (2020) validated an off-road brief screening test to predict on-road driving ability and identify which combination of these tests best predicts older adults who will not pass an on-road driving test. The tests were Useful Field of View, DriveSafe/DriveAware, Multi-D battery, Trails B, Maze test, Hazard Perception Test, DriveSafe Intersection test, and 14-item Road Law test. In other words, these off-road screening tests, including measures of vision, cognition, and motor function, could reliably predict unsafe drivers in an older population with 77% sensitivity and 82% specificity. Anstey et al. (2020) found that a combination of off-road screening tests can reliably identify older drivers likely to fail an on-road driving test as a cost-effective alternative to on-road testing. Similarly, Schulz et al. (2021) developed and validated the Safety Advice for Elderly Drivers (SAFE) screening tool, which incorporates cognitive tests, medical history, and driving patterns. Adding further evidence-based risk factors improved the SAFE's diagnostic accuracy to differentiate fit from unfit drivers with a sensitivity of 91% and specificity of 73%. The findings support using an evidence-based risk factor checklist as an initial older driver screen to flag those needing more intensive evaluation.

These studies show that using innovative, advanced, and standardized screening tools that can investigate multiple factors beyond physical condition but also vision and cognition can support licensing authorities and healthcare providers in the challenging task of assessing older drivers' fitness. It would also reduce administrative time while yielding acceptable results (Classen et al. 2018). The DOL could consider integrating such validated screening batteries into its assessment protocols while ensuring the selected tools are practical, acceptable to older adults, and appropriate for the local context and population.

Visual Impairment Assessment

Those seeking either their first or subsequently renewed license must pass a vision exam demonstrating that their visual acuity is at least 20/40 either with or without corrective lenses, in order to assess whether potential licensees can operate a motor vehicle without jeopardizing both

their own safety and the safety of others on and around the road (WAC 308-104-010; RCW 46.20.130; Policy: Conducting Vision Exams). Those who use corrective lenses but meet that requirement receive a corrective lenses restriction (Visual Examination Report Job Aid).

In certain instances, individuals face additional screening. This is typically determined by Licensing Service Representatives (LSRs). A vision of 20/50-20/100 counts as "passing" the visual acuity portion but necessitates a re-examination, which will then determine whether further screening is required (WAC 308-104-010). If completing testing with bioptic or telescopic lenses, one must complete a re-examination and will have a restriction added to their license. Individuals must also have a total field of vision of at least 110 degrees (WAC 308-104-010; Visual Examination Report Job Aid; Re-examination Selection Guidelines; Policy: Conducting Vision Exams; Policy: Issuing and Receiving VERs).

Vision must be corrected to 20/100 or better with both eyes, for an individual to pass their Visual Examination Report (VER). If an individual's visual acuity is at best 20/80-20/100, or if their doctor recommends it, they will receive a Daylight Driving Only restriction. This may be removed if the individual presents a VER demonstrating that their vision has been corrected or is at least 20/70 (Visual Examination Report Job Aid; Re-examination Selection Guidelines).

Other Screening and Intervention Procedures

Visual acuity minimum requirements of 20/40 remain the standard across the United States (McGwin & Owsley, 2022). Research suggests that all age groups face a sequentially higher chance of failing visual screening tests over time, suggesting those at older ages are the most likely to fail such screening exams (Moore et al. 2022). At the same time, other research demonstrates that visual acuity on its own may not serve as the best predictor of motor vehicle crashes (MVCs), and that other indicators such as useful field of vision and visual processing speed should be included to provide a more comprehensive understanding of one's visual capabilities as they relate to operating a motor vehicle (Grundler & Strasburger, 2020; McGwin & Owsley, 2022). In some extraordinary situations, a qualified medical advisor may find an individual fit to drive despite not meeting specific visual acuity requirements (Harper et al., 2022; Muir et al., 2016). The Multi-D battery, which is not employed by the DOL in visual assessment, has also been found to be accurate in assessing prerequisite functions often considered necessary to operate a motor vehicle (Anstey et al., 2020).

The Multi-D battery is a computer-based test that includes 3 subtests that test vision, motor, and cognitive abilities through color choice reaction time using hand and foot responses, sensitivity to central visual motion, and a test of balance or postural sway (Wood et al. 2008; Anstey et al. 2012, Anstey et al. 2020). Compared to several other tests, the Multi-D test has better predicted both on-the-road driving performance and self-reported crashes and driving incidents (Anstey et al., 2020; Attuquayefio et al., 2023).

Cognitive Impairment Assessments

Cognitive changes are a normal part of the aging process and may be present at any age for a variety of reasons. However, significant declines in driving abilities are most noticeable in those experiencing more severe cognitive decline, such as individuals with mild cognitive impairment (MCI) or Alzheimer's disease and related dementias. Recent studies indicate that up to 60% of older adults with MCI and up to 30% with dementia continue to drive (Toups et al., 2022). These cognitive impairments can negatively impact crucial driving skills, including attention, visuoconstructional skills, and executive functioning. These skills are essential for tasks such as vehicle positioning, maintaining safe distances, navigating roundabouts, journey planning, risk assessment, and adapting behavior, such as adjusting speed to traffic conditions.

In the United States, including Washington State, there is no specific age threshold for mandatory cognitive screening. This differs from countries like Japan, Denmark, Australia, and Switzerland, which have strict age requirements for mandatory cognitive testing. However, some studies suggest that such policies have had little impact on the incidence of motor vehicle collisions (MVCs) in these countries (Ichikawa et al., 2020; Langford et al., 2004). Despite not having age-based mandatory cognitive screening, Washington State does require drivers aged 70 and older to undergo additional scrutiny during license renewals. Unlike the general population, they cannot renew their driver licenses online and must do so in-person at each renewal (WAC 308-104-0190). During the in-person renewal process, an LSR can initiate a driver evaluation (which occurs for drivers of all ages during renewal). The LSR observes the customer during the transaction and, if any signs of confusion, disorientation, or incomprehension are noted, they consult with a supervisor or district manager to determine whether a medical form should be issued. Additionally, the LSR is required to ask all drivers, regardless of impairment, if they have any mental or physical condition or are taking any medication that could impair their driving ability. If the driver responds affirmatively, the LSR issues

a Physical Examination Report (PER) to the driver with instructions to provide the PER to a medical examiner to complete and return.

Requests for driver reevaluation due to cognitive impairments can be referred to the DOL by third parties such as medical professionals, law enforcement, or concerned citizens, including family members. Unlike states such as California, Delaware, Pennsylvania, and Oregon, Washington does not require medical professionals to report to the Department of Licensing (DOL) if their patient may have difficulty driving due to cognitive decline. While proponents of mandatory clinician reporting argue that this strategy effectively identifies drivers with cognitive impairment, thus reducing risk for them and other drivers, recent empirical studies reveal adverse effects of reporting policies (Agimi et al., 2017). For example, primary care clinicians practicing in states with clinician reporting mandates were 59% more likely to underdiagnose dementia compared with those in states with no reporting requirements or driver self-reporting requirements and do not yet yield significant older driver safety benefits (Jun et al., 2024). This discrepancy may be explained by the possibility that patients, aware of mandatory reporting, may conceal their symptoms or refuse further assessments due to the stigma and resistance associated with formal dementia diagnoses. Conversely, the absence of requirements to report patients with cognitive impairments to the DOL in Washington is compounded by a lack of legal protection and confidentiality when reporting, which could deter them from making such reports. This issue is common across many states and may lead to underreporting due to physicians' concerns about harming the physician-patient relationship or facing liability risks (Tran & Lee, 2024). At the same time, physicians who decide not to report medically impaired drivers may be vulnerable to lawsuits by third parties injured by the impaired driver, placing healthcare professionals in a difficult position and reducing the effectiveness of this screening procedure (Hodge, 2022).

The DOL has guidelines that all LSRs use to identify drivers who should undergo re-examination and to determine what evaluation or testing is required. For mild mental impairment, where an individual is still "able to provide information without any assistance", no additional screening is required. For moderate (“need some assistance to provide information”) and severe (“not able to answer routine questions”) mental impairment, a Physical Examination Report is issued, and both a knowledge test and skills test are required (Re-examination Selection Guidelines, 2022). If a Physical Examination Report is issued and not returned within the allotted timeframe, the Medical Section mails the driver a letter suspending the license. When a Physical Examination Report is returned, it is verified for

accuracy and completion by an LSR. The process for appealing the suspension of driving privileges due to cognitive impairment is identical to that for physical conditions.

Washington State policy does not specify which tools physicians should use to assess the cognitive abilities of older drivers. Commonly used tests worldwide include the Mini-Mental State Examination (MMSE), Montreal Cognitive Assessment (MoCA), and Trail Making Test (TMT). These tests can predict on-road safety but may sometimes overestimate or underestimate driving capabilities due to test conditions and the older population's level of familiarity with computer technologies (Snellgrove, 2005; Bennett et.al., 2019; Zhang et.al., 2023). The absence of mandatory cognitive screenings at a certain age and the lack of required reporting from medical professionals create gaps in the policy that could be addressed. Disseminating information about the risks of driving with cognitive impairment and legal mechanisms for family members, the public, and healthcare providers to express concerns is crucial (Moore, 2018). Self-reporting and self-assessment tools during license renewal become less effective with cognitive diseases, as these conditions can cause anosognosia—loss of insight into one's own cognitive and functional deficits (Gergerich, 2015). To enhance road safety, clear guidelines should be established for healthcare providers on the use of cognitive assessment tools. Increasing awareness and understanding of these tools among healthcare professionals is essential. Additionally, implementing pilot programs for on-road testing can provide a practical evaluation of driving capabilities, addressing the limitations of cognitive tests that may overestimate or underestimate actual driving skills.

Training

The DOL implements a comprehensive six-month training program for LSRs covering all duties of the position. Part of this training ensures standardized and effective screening of older and medically at-risk drivers, including specific instruction on medical and re-examination selection guidelines, various scenarios, and related e-guide job aid materials. The training involves both classroom discussions and practical skills application in driver licensing offices, covering different types of impairments and their severity levels. This training equips LSRs with the knowledge and skills needed for consistent identification of potential physical risk factors in drivers. While RCW 46.20.305(1) confers on LSRs the responsibility of establishing 'good cause' for a driver's inability to safely operate a motor vehicle, the DOL's training ensures that LSRs have a standardized framework for establishing such 'good cause'. This approach helps balance the need for individual assessment with consistent application of screening criteria.

While the DOL conducts a comprehensive training program for LSRs that provides a strong foundation for identifying and assessing at-risk drivers, there may still be benefits to incorporating additional standardized screening tools, as discussed earlier in this report. These screening tools would complement the existing training and procedures, potentially streamlining the process and providing additional objective data to support LSRs' assessments. The current training process, which includes ongoing scheduled training throughout an employee's career, demonstrates a commitment to maintaining high standards in driver assessment. Integrating some of the innovative screening tools mentioned earlier (e.g., Multi-D battery, Maze test) could further enhance this system, supporting the DOL's mission to ensure road safety while maintaining mobility for older drivers.

Licensing Requirements and Restrictions

The Washington State Department of Licensing establishes requirements and restrictions for all drivers, to include those who may be older and/or medically-at-risk, which ensure that they safely operate a motor vehicle and do not pose a risk to themselves and other road users. Based on the screening and assessment results, the DOL may take one of three actions: issue an unrestricted license, issue a driver license with restrictions, or cancel the driver license (RCW 46.20.041). RCW 46.20.041 provides flexibility in how these restrictions are implemented, allowing the department to either issue a special restricted license or set forth the restrictions upon the usual license form. This allows the DOL to tailor the format of the license to best communicate and enforce specific restrictions for each driver.

Through the screening and assessment process, if a driver is found capable of being a safe driver, the DOL issues an unrestricted driver license. However, after the evaluation of a driver who presents with physical impairments, the DOL may impose licensing restrictions tailored to the risks that the driver poses (RCW 46.20.041; Driver Evaluation Policy 2.1). If the DOL determines that a driver has severe physical conditions that make them incapable of driving safely, their driver license is revoked (RCW 46.20.041; Driver Evaluation Policy 9.4). To reinstate a driver's driving privileges, the individual must provide a physical examination report and/or pass a re-examination to demonstrate that their physical condition has improved such that they no longer pose a road risk (RCW 46.20.041).

A review of scholarly and non–scholarly literature shows that other states have implemented similar licensing restrictions for older drivers. The National Highway Traffic Safety Administration's (NHTSA, 2009) Driver Fitness Medical Guidelines provide recommendations such as adaptive equipment

requirements, daylight driving only, and geographical restrictions to licensing authorities to regulate older drivers. In addition to these guidelines, scholars have researched specific licensing restrictions effective for regulating drivers with physical impairments (Attuquayefio et al., 2023). Studies on driving restrictions found that older drivers with physical impairments who were subject to licensing restrictions had a lower crash risk than those without restrictions (Asbridge et al., 2017; Joyce et al. 2022; Koppel et al., 2017; Swain et al., 2021). Similarly, research finds that drivers with Parkinson's disease who were subject to licensing restrictions had a lower crash risk than those without restrictions (Thompson et al., 2018). Although this research is somewhat mixed (see page 10), these studies suggest that licensing restrictions may be an effective way to ensure that drivers with physical impairments can continue to drive safely while maintaining their mobility and independence.

The DOL aims to reduce the risks posed by older drivers while maintaining their independence. In this regard, Washington State could learn from an Australian case. Austroads, the association of Australasian Road transport agencies, updated medical standards for driver licensing with an emphasis on early conversations between drivers, health professionals, and licensing bodies to promote safe mobility (Austroads, 2022). The standards outline a risk assessment approach tailored to an individual's medical conditions and functional abilities. Based on a customer's specific medical condition and needs, options to ensure road safety range from unrestricted licenses to conditional licenses with periodic reviews, vehicle modifications, restricted driving times/areas, or license withdrawal in cases of severe impairment. While DOL policy requires that licensing restrictions be tailored to the specific risks posed by the driver's physical impairment (RCW 46.20.041; Driver Evaluation Policy 2.1), there is a possibility to expand these conditions for older drivers based on their physical impairments. The DOL can widen the usage of conditional licensing options such as driving only during daylight hours, within a certain radius of the home, or with specific vehicle modifications. If some of these additional suggestions are already implemented, it ought to be clear within DOL policy that these options are available to older drivers if they disclose their physical impairments or medical history.

The Appeals Process

DOL's licensing regulations provide an appeals process that allows drivers to challenge a decision by the DOL to impose driving restrictions or revoke their driving privileges (RCW 46.20.305). Furthermore, RCW 46.20.041(4) specifically outlines the appeals process for drivers with restricted

licenses, stating that if the department suspends or revokes a restricted license upon receiving satisfactory evidence of any violation of the restrictions, the licensee is entitled to a driver improvement interview and a hearing. This provision ensures that even drivers with restrictions have recourse if they believe their license has been unfairly suspended or revoked.

A review of DOL policies and a comparison of the CDR (Competency to Drive Review) and PCD (Physical or Cognitive Disability) documents suggest that the DOL's current appeals process may not be consistently applied or communicated to these drivers. For example, in the CDR procedure, when a driver reports an unobservable physical condition, the DOL provides a notice of physical evaluation requirement. However, this notice does not inform the driver of their statutory right to a personal demonstration of their ability to drive safely. Similarly, in the PCD procedure, when a driver's license is canceled, the cancellation notice does not include the option for a personal demonstration of their ability to drive safely under the "other options available" section. This inconsistency in the application of the appeals process may lead to confusion and frustration for drivers with physical impairments who have had their licenses canceled or restricted.

To ensure a fair and transparent appeals process, the DOL should consider implementing best practices, such as clearly communicating the right to appeal, providing a detailed appeals process guide, offering multiple opportunities for demonstration, involving occupational therapy professionals, and considering a graduated licensing approach (Dickerson et al., 2014; Golisz, 2014; NHTSA, 2009; Staplin et al., 2003). These practices also align with the American Medical Association's Physician's Guide to Assessing and Counselling Older Drivers (Joseph, 2013) and ensure that drivers with physical impairments have a fair and consistent opportunity to appeal licensing decisions and demonstrate their ability to drive safely.

Recommendations

Washington State's DOL employs a multi-faceted approach to identify and assess older drivers with physical, cognitive, and visual impairments, aiming to enhance road safety while maintaining mobility and independence. However, there are opportunities to strengthen these policies through the following recommendations:

- Implement policies that encourage self-reporting and reporting by third parties of physical and cognitive impairments among older drivers to supplement current screening methods and improve detection rates.

- Provide an ID at no cost to older drivers who voluntarily, or are otherwise forced to, give up their driver license.
- Develop standardized assessment procedures for LSRs to ensure consistent and evidence-based identification of physical and cognitive impairments during in-person interactions.
- Integrate validated off-road screening tools, such as the Multi-D battery or Maze test, into the assessment protocols to predict on-road driving ability more accurately.
- Consider adopting technology-enhanced screening tools, like tablet-based cognitive assessments and driving simulators, to complement in-person assessments and improve efficiency.
- Expand usage of conditional licensing options tailored to specific physical impairments, such as driving only during daylight hours or within a limited radius, to provide flexibility while ensuring safety.
- Enhance the appeals process by clearly communicating rights to drivers, providing detailed guidance, and offering multiple opportunities for evaluation and demonstration of driving ability.

Medical Advisory Board

Medical advisory boards (MABs) play a role in the regulation of medically at-risk drivers in more than 30 states (Lococo et al., 2016; 2017), and many have been in use for several decades (Silverstein, 2005). Research has examined the potential functions of MABs for balancing public safety concerns with the independence of medically at-risk drivers (Dixon & Woodcock, 2018; Meuser et al., 2012; Ryan et al., 2020). These studies have identified several common objectives for MABs, including advising on general policy for at-risk drivers, assessing driving privileges for individual medically at-risk drivers, and establishing appeals processes for drivers whose privileges are affected due to medical conditions. Research also speaks to several additional considerations, including a board's composition, operations, and responsibilities as they relate to achieving the objectives above. Additional factors such as board member expertise, operational best practices, budget considerations, and the overall effectiveness of boards adopted in similar states have also been studied. These considerations are discussed below, beginning with the composition of medical advisory boards.

Composition

Board Size

Scholarly research, as well as practices adopted by other states (Lococo et al., 2017), suggest that an ideal board consists of approximately seven to ten members who contribute unique expertise and perspectives valuable to understanding medically at-risk driving. The size of the board should be large enough to include a diverse range of medical specialties and backgrounds, ensuring comprehensive expertise surrounding drivers' medical fitness. A seven- to ten-member MAB can provide sufficient expertise on the board without overcrowding opinions, creating excessive redundancy, and prolonging decision-making (Fraile & Fradejas, 2012; Silverstein & Barton, 2010). Boards that are significantly larger in size may hinder efficient decision-making and negatively impact the process of regulating older and medically at-risk drivers.

Board Membership

The ideal membership of an MAB should cover all aspects of driver health and safety. Scholarly literature recommends that MABs include neurologists, cardiologists, psychiatrists, and optometrists who can advise on physical, cognitive, and visual impairments that may affect safe driving (Nair et al., 2022; Piano et al., 2023; Stamatelos et al., 2021; Sundhar et al., 2023). For example, neurologists can assess fitness to drive for individuals with cognitive impairments such as Alzheimer's disease and other dementias. Safe driving requires that cognition, motor, and sensory skills function properly, all of which are impacted by neurological diseases (Stamatelos et al., 2021). Also, cardiologists can assess cardiovascular conditions that can impact driving (Nair et al., 2022). For instance, heart failure can lead to decreased stamina and sudden episodes of fatigue or shortness of breath, which can impair a driver's ability to operate a vehicle safely (Babulal et al., 2020). Furthermore, optometrists assess visual fitness to drive, including issues like visual acuity and visual field loss (Piano et al., 2023). Psychiatrists can contribute expert opinions on the effects of cognitive factors and psychotropic medications on driving (Sundhar et al., 2023). Psychotropic medications are drugs that affect a person’s mental state, emotions, and behavior and are used to treat mental health conditions such as depression and anxiety.

Aside from these medical professionals, other experts useful for an MAB are ethicists, public policy and legal experts, transportation safety specialists, and occupational therapists. In recent years, there have been growing calls to incorporate ethical concerns in all aspects of policymaking (Namdarian et al., 2022). Ethicists would be crucial for drawing the board’s attention to the moral

implications of restricting driving privileges and ensuring that decisions respect individual rights while prioritizing public safety (Manson et al., 2020). Also, a public policy and legal expert can broadly advise on legal frameworks governing driving in Washington State (as well as the nation more generally) and the legal implications of MAB advisory (Roy, 2021). Furthermore, occupational therapists are essential on a medical advisory board because they assess and manage health issues that impact individuals' ability to drive and ensure that appropriate evaluations and interventions exist for affected drivers (Vaughan et al., 2022). Moreover, the inclusion of transportation safety experts on MABs ensures that broader safety considerations are integrated into the board's recommendations to promote overall public safety (Roy, 2021). This diverse composition aims to ensure a holistic approach to assessing and managing medically at-risk drivers.

Washington may also consider including driver rehabilitation specialists (i.e., specialized occupational therapists) and geriatricians on an MAB. These experts can contribute their knowledge in assessing and enhancing physical, cognitive, and functional abilities to MAB advisories on medically at-risk drivers. Driver rehabilitation specialists can help to design tailored rehabilitation programs that support drivers in regaining their driving capabilities (McDaid et al., 2022), which is a critical element of a program that aims to maintain the independence of drivers; especially older drivers who may be differentially impacted by policies that address medically at-risk drivers. Geriatricians, on the other hand, specialize in the healthcare of older adults and understand aging-related health issues (Hamaker et al., 2020). They can provide valuable perspectives on how age-related conditions such as frailty, dementia, and sensory impairments impact driving abilities. The inclusion of these experts on MABs, therefore, will help to ensure that the board's recommendations are sensitive to the unique health challenges faced by older drivers.

Operations

Frequency of Meetings

The frequency of MAB meetings should depend on the specific aims and objectives of the board and the number of appeals cases it must review annually. Comparing the frequency of MAB meetings across numerous states in the U.S., an MAB may similarly adopt a flexible meeting schedule of 4 to 12 times per year. Such an approach fits regular policy development, while providing needed flexibility to address variation in the number of appeals cases brought before the board. To provide some context, Lococo et al. (2017) reported that Washington's DOL referred 3,179 cases for medical review/re-examination in 2012. These researchers also reported that in states where an MAB was

active, the board typically reviewed considerably less than 10 percent of initial cases identified by a licensing agency for review/re-examination. Although Washington can expect these numbers to grow over time given the expanding aging population, an MAB is unlikely to review more than a few hundred cases per year in the near term.

Permanency

The permanency of medical advisory boards (MABs) is essential for continuity, building institutional memory, and ensuring sustained focus on long-term goals. A permanent structure supports the development of consistent policies and frameworks that adapt over time to new challenges and evolving evidence. For instance, the Maryland Motor Vehicle Administration's Medical Advisory Board, established in 1947, has been active in advising on medical criteria and vision standards for decades (Lococo et al., 2017). Their longstanding presence has also allowed the MAB to become networked with key actors in the area of driver safety, including driver rehabilitation specialists, law enforcement, occupational therapists, and social workers. Such permanency allows for the accumulation of expertise and the ability to make well-informed, consistent recommendations over time.

Scholarly literature supports the notion that permanent advisory boards are more effective in maintaining high standards and adapting to new information (Silverstein & Barton, 2010). Continuity in advisory roles contributes to better decision-making and policy development because it allows members to build on past experiences and institutional knowledge (Roy, 2021). Moreover, permanent boards are better positioned to engage in long-term planning and to implement sustained interventions that address ongoing issues (Soderstrom et al., 2010). The consistency provided by a permanent structure helps in establishing and maintaining robust advisory frameworks for managing the safety of medically at-risk drivers (Walsh et al., 2019).

Diversity and Representation

Should Washington choose to establish an MAB, it should aim to include and represent several core demographic features of the broader community. It should actively recruit members from various backgrounds and continuously monitor and address representation gaps. The composition of the MAB should consider characteristics to include race, gender, age, and persons with developmental disabilities when selecting members (Montalbano et al., 2021). Ensuring the board reflects the demographic and cultural diversity of the population it serves can enhance the relevance and acceptance of its recommendations. A representative board can also promote the ability for

individuals from different racial, ethnic, gender, and age backgrounds to be afforded the ability to *actively* influence the policy directions of the board (Andersen, 2017).

More importantly, the lived experience of persons with a disability (or relevant medical risk factor) should be considered when establishing a medical review board that would advise and review cases relating to the capabilities of medically at-risk drivers. The Washington State Governor recently signed into law House Bill 1541, also known as the "Nothing About Us Without Us Act." This act requires that any temporary task force, work group, or advisory committee established by the Washington State legislature to examine policies or issues directly affecting underrepresented populations must include at least three individuals from those populations with direct lived experience with the issues at hand. The law aims to increase access and representation in policymaking processes and applies prospectively to entities created on or after January 1, 2025. In line with HB 1541, it is important that an MAB include persons with disabilities, particularly those that affect driving. The lived experiences of these individuals can incorporate empathy within the decision-making process of the MAB.

Stakeholder Engagement

Regular stakeholder engagement is necessary for the success of an MAB. Engaging patients, families, and other stakeholders in the advisory process can provide diverse perspectives and enhance the relevance and acceptance of the board's recommendations. For example, involving medically at-risk drivers and their families in the design of advisories can reveal pertinent issues that experts are unaware of, yet affect older and medically at-risk drivers. Research has shown that family members' perspectives can highlight concerns about independence, driving identity, and reluctance to rely on others, which are crucial for effective policy development and support systems for older drivers (Connor et al., 2021; Holden et al., 2020). Also, stakeholders' engagement in the design and implementation of healthcare initiatives, more generally, has been shown to improve the quality and impact of research and clinical practices (Forcrand et al., 2021). Regularly engaging stakeholders ensures that their experiences, opinions, and needs are considered, leading to more patient-centered and effective healthcare solutions (Holden et al., 2020). This approach may translate well to MAB practices, while also enhancing trust between the DOL and older and medically at-risk drivers.

Additionally, stakeholder engagement can facilitate the identification of priorities and the development of tailored interventions that address specific community needs. For instance, the

Patient Advisory Committees (PACs) used in other arenas, such as the study of genomic cancer risk, have demonstrated the value of stakeholder involvement by successfully incorporating patient feedback to improve study materials and processes (Lindberg et al., 2022). Effective stakeholder engagement strategies include conducting regular feedback sessions and ensuring transparent communication about how stakeholder input is used. For example, the DOL, an established MAB, or other organizations within Washington could schedule meetings with stakeholders or collect public input through town hall gatherings, focus groups, or online surveys, and an MAB could regularly provide the public information on how their concerns and feedback are addressed (Goodman et al., 2020). Additionally, an MAB could implement iterative feedback channels where revised changes are presented back to the public or families of older and medically at-risk drivers for further input (Poger et al., 2020). Such meetings do not necessarily have to be in person, as that could be cost-intensive. Rather, an MAB could provide summary policy documents to these stakeholders and allow them to participate in surveys if they have concerns about policy issues. Scholars argue that such practices can enhance the quality, sustainability, and acceptance of medical and technical interventions (Poger et al., 2020; Young et al., 2021), and this may translate well to an MAB and their decision-making processes.

Technology and Innovation

MABs can benefit from integrating technology and innovation into their operations to enhance their decision-making processes. For instance, leveraging electronic health records (EHRs) can provide board members with immediate access to comprehensive patient data for speedy and effective decision-making. This streamlines the decision-making process by eliminating the need for manual data collection and allowing for more informed evaluations of medically at-risk drivers (Mehboob, 2023). Additionally, video conferencing tools can facilitate more frequent and flexible meetings, enabling board members to discuss and resolve issues promptly without the constraints of physical presence. Video conferencing also helps to reduce the operational costs associated with regular meetings of the MAB. Moreover, this technology may also expand an MAB's ability to conduct thorough case reviews—as is the case in Maryland, for example—by arranging meetings between board physicians and drivers in sensitive cases (Lococo & Staplin, 2005; Lococo et al., 2017).

Proposed Budget for Running a Medical Advisory Board

Although most states with an operating MAB rely on voluntary services from medical and other professionals, best practice entails financial compensation of board members (Lococo & Staplin,

2005). This is especially the case since several states operating voluntary MABs have noted difficulty filling and maintaining positions (Lococo et al., 2017). Table 5 provides a budget estimate for running a Medical Advisory Board based on the practices of several states (Lococo et al., 2017). The budget includes costs for board member compensation, administrative support, meeting expenses, and expense reimbursements.

Table 5: Estimated Budget

	Cost Frequencies				
		Meetings Per Year			
Expense Items	**Per Meeting**	**4**	**8**	**12**	**Annual**
Board Member Compensation[1]	$2,000	$8,000	$16,000	$24,000	---
Administrative Support	---	---	---	---	$20,000
Meeting Expenses	$500	$2,000	$4,000	$6,000	---
Miscellaneous Expenses	---	---	---	---	$3,000
Expense Reimbursements	$1,000	$4,000	$8,000	$12,000	---
Overtime[2]	$1,000	$4,000	$8,000	$12,000	---
Total Costs	$3,500	$14,000	$28,000	$42,000	$23,000
Total Costs with Annual Included	---	$37,000	$51,000	$65,000	---
Total Costs with Overtime	$4,500	$18,000	$36,000	$54,000	---
[Plus Annual Costs]	---	[$41,000]	[$59,000]	[$77,000]	---

Note: Calculations assume a board consisting of 10 members
[1]Compensation set at $200 per member per meeting
[2]Overtime compensation set at one hour maximum per meeting at $100 per hour

The estimates for scenarios with 4, 8, and 12 meetings per year are provided, assuming a board consisting of 10 members. As noted above, other MABs vary in the number of meetings across this range, and the number is dependent on the specific needs of Washington. If the board has no fixed agenda for a particular month, monthly meetings could be used for reviewing individual cases of medically at-risk drivers. Given these assumptions, costs per meeting could range from $3,500 to $4,500, and annual costs could vary from $37,000 to $77,000, largely dependent upon the frequency of meetings per year.

Evaluating MABs on Older Driver Safety Outcomes

Establishing an MAB could enhance the Department of Licensing's ability to balance public safety with the independence of medically at-risk drivers. While the Highway Safety Program Guidelines recommend forming an MAB to provide policy guidance, no definitive empirical data confirms that

the presence of an MAB necessarily leads to a reduction in crashes involving older drivers (NHTSA, 2014).

The outcomes of Medical Advisory Boards' (MABs) activity are difficult to measure universally due to the varying functions and levels of involvement across states. While most states have established MABs, their roles and responsibilities can differ significantly, affecting their overall impact on older driver safety. Table 6 provides a summary of key functions of MABs in each state based on three sources of information: 1) prior research conducted by NHTSA (Lococo et al., 2017), 2) a survey of state licensing departments conducted by the American Association of Motor Vehicle Administrators (AAMVA) during July and August of 2024, and 3) a current review of online resources made available by state licensing agencies. The prevalence of the key MAB functions identified in Table 6 are also mapped across the United States and reported in Figure 27.

As seen in Table 6, some MABs play a proactive role in establishing clinical standards for older driver fitness and creating guidelines for medical impairments. These boards actively shape policies and standards that directly influence driver safety. Conversely, other MABs are more reactive, being called upon only to adjudicate cases when a driver disputes a DMV ruling (Dugan et al., 2013; Lococo et al., 2016). This reactive approach limits the board's influence to specific instances rather than enabling it to shape broader policy and safety standards.

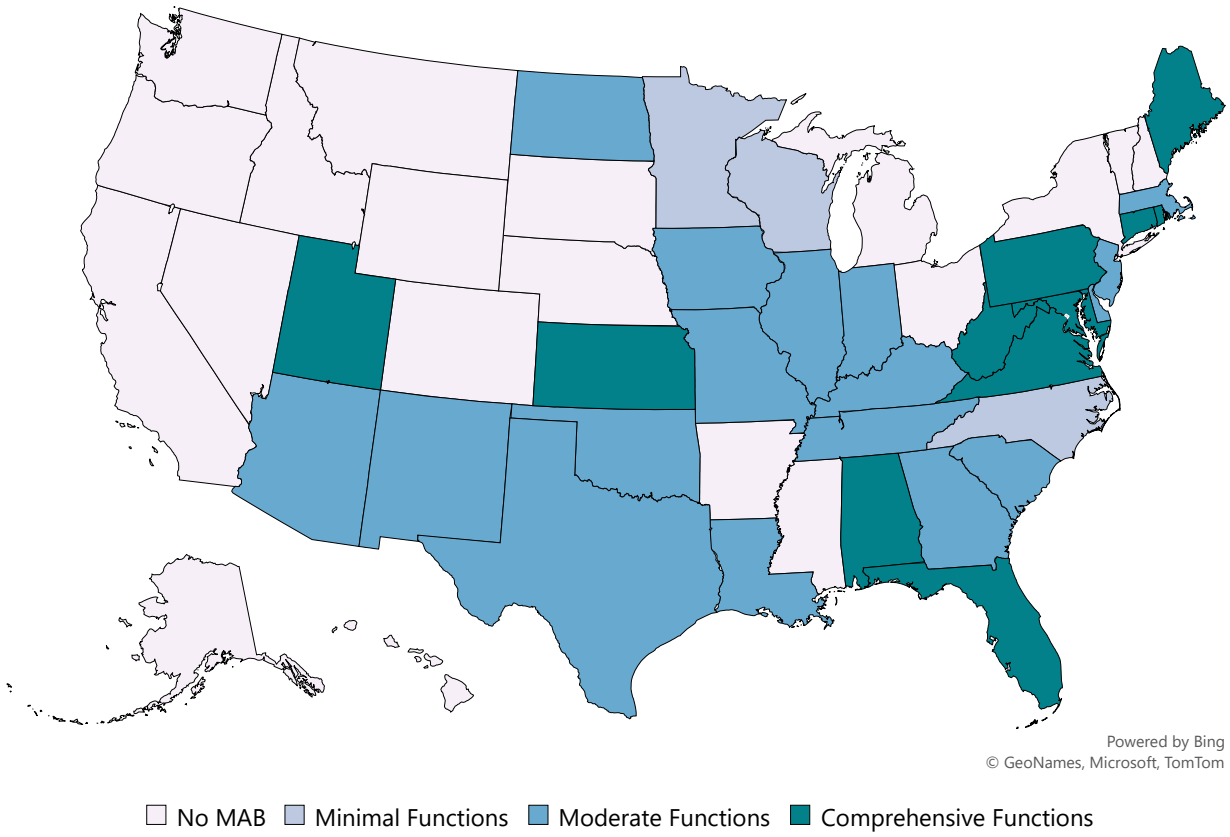
For instance, the MAB in Oklahoma primarily advises the Licensing Agency on Medical & Visual Standards for Licensing and develops medical forms to be completed by drivers' treating physicians. This role is largely advisory and procedural. In contrast, Rhode Island's MAB has a more active and comprehensive role. It not only reviews individual cases and advises on driver appeals but also develops medical forms, facilitates reporting of drivers for medical review or re-examination, and keeps the licensing agency updated on new research. This proactive engagement allows Rhode Island's MAB to potentially have a more direct and substantial impact on driver safety. However, even in states like Rhode Island, where MABs possess a full range of possible authorities, they do not make final decisions regarding the revocation or restriction of driver's licenses. Instead, they provide recommendations to the licensing department, which may consider these recommendations when making its decision.

Table 6: Key Functions of Medical Advisory Boards by State

State	Advise on Medical Standards for Licensing	Review and Advise on Individual Cases	Review and Advise on Driver Appeals Cases	Develop Medical Forms	Develop Educational Materials	Apprise Licensing Agency of New Research
Alabama	✓	✓	✓	✓		✓
Arizona	✓				✓	
Connecticut	✓	✓	✓	✓		✓
Delaware	✓	✓	✓	✓		
Florida	✓	✓	✓	✓	✓	✓
Georgia	✓	✓				
Hawaii	✓	✓	✓	✓		✓
Illinois	✓	✓	✓	✓		
Indiana	✓	✓		✓		
Iowa	✓	✓	✓	✓		
Kansas	✓	✓	✓	✓		✓
Kentucky	✓	✓	✓	✓		
Louisiana	✓	✓	✓	✓		
Maine	✓	✓	✓	✓	✓	
Maryland	✓	✓		✓	✓	✓
Massachusetts	✓	✓		✓	✓	
Minnesota			✓			
Missouri	✓	✓		✓		
New Jersey	✓	✓	✓	✓		
New Mexico	✓	✓				
North Carolina			✓			
North Dakota	✓	✓	✓	✓		
Oklahoma	✓			✓		
Pennsylvania	✓	✓		✓	✓	✓
Rhode Island	✓	✓	✓	✓	✓	✓
South Carolina	✓	✓		✓		
Tennessee	✓	✓		✓		
Texas	✓	✓		✓		✓
Utah	✓	✓	✓	✓		✓
Virginia	✓	✓	✓	✓		✓
West Virginia	✓	✓	✓	✓		✓
Wisconsin			✓			

Note: The following states/districts did not have medical advisory boards in place: AK, AR, CA, CO, DC, ID, MI, MS, MT, NE, NV, NH, NY, OH, OR, SD, VT, WA, WY.

Figure 27: Medical Advisory Boards by State and Number of Key Functions



Note: Minimal = 1 key function; Moderate = 2-4 key functions; Comprehensive = 5-6 key functions.

Out of the 32 states that have active MABs, 27 of them use boards to review and advise on individual cases. However, the criteria for when an individual case is reviewed by the MAB varies significantly from state to state. For instance, in Maine and Missouri, MAB interactions with local authorities occur only in unique situations that are not clearly defined by existing procedures. In contrast, states like Florida and Texas refer most cases to the MAB, making them much more active in these states. This variability leads to significant differences in the activity levels of MABs, which can impact their effectiveness. MABs may handle as few as 10 cases annually, while others may review up to 1,000 cases each year (Lococo et al., 2017; Siggerud, 2007). Higher activity levels can indicate a more robust involvement in monitoring and evaluating drivers, potentially leading to better safety outcomes. However, it also requires more resources and a higher degree of organization to manage the caseload effectively.

Given the variability in MAB functions, one potential universal criterion for evaluating their effectiveness might be the level of physician awareness in the state of both driving-related medical conditions and how licensing authorities in any given state make decisions regarding medical suspensions or revocations of licenses. Physician awareness and involvement are crucial for enhancing older driver safety and minimizing erroneous privilege revocation. Studies suggest that states with MABs are more likely to base licensing decisions on physician reviews and recommendations, which helps ensure that decisions are well-informed and that older drivers are not unjustly deprived of their driving privileges (Silverstein, 2005; Soderstrom et al., 2010). Increased physician awareness can lead to improved screening and assessment processes. Having one or more medical professionals on staff or available can clarify information provided on medical forms, improve assessments, and lead to more comprehensive medical guidelines. This involvement can help ensure that licensing decisions are based on accurate and up-to-date medical information, contributing to older driver safety. Furthermore, states with an MAB or medical professional on staff generally have a broader range of licensing options available (NHTSA, 2017). This flexibility can accommodate the varying medical conditions of older drivers, allowing for more tailored and appropriate licensing decisions when the need for driving restrictions arises. Additionally, having an MAB in place may contribute to the consistent and accurate updating of medical and vision requirements for licensure, ensuring that these standards are reflective of current medical knowledge and practices.

Recommendations

Based on existing research, several recommendations can be made regarding the characteristics of a successful medical advisory board (MAB):

- To best manage medically at-risk drivers, Washington should adopt a medical advisory board.
- The functions of the MAB should include each of the key responsibilities described in Table 6, but the following functions are ranked in order of recommended priority:
    1. Advise the DOL on medical standards for licensing
    2. Aid in the development/modification of medical forms used by medical professionals to assess drivers' fitness to drive
    3. Regularly apprise the DOL of new research in the area of medically at-risk drivers

4. Develop educational materials for both medical professionals and medically at-risk drivers
5. Review and advise on individual cases to determine fitness to drive
6. Review and advise on appeals cases

- An MAB should be established on a permanent basis, and members should be compensated financially to incentivize participation in regular meetings.
- An MAB should include, but not be limited to, the following expertise:
    - Neurologists, cardiologists, psychiatrists, optometrists, ethicists, public policy and legal experts, transportation safety specialists, occupational therapists (including certified or non-certified driver rehabilitation specialists)
- The establishment of an MAB should be the first step taken in the development of a medically at-risk driver program.

Assessment Tools

The third component of ESHB 1125 seeks to identify an assessment tool that the DOL can use to identify a driver's potential medical risk to themselves or others. A wide variety of screening and assessment tools are available, and there are several options for when and by whom these tools can be applied. To explore this, the following sections summarize the screening and assessment tools used in different states to determine driver fitness, and an examination of select tools is provided.

State Comparison of Assessment Tools

Several different standards and best practices are applied across all states to assess driver fitness. These include age-based license renewal requirements related to renewal frequency or in-person renewal mandates to allow for visual, cognitive, or physical assessments to be completed either by licensing or medical professionals. As detailed in the Policy Review section of this report, the DOL, like many licensing agencies across the country, utilizes both passive and active approaches to assessment through requiring in-person license renewal for those 70 and older and a re-examination process when necessary. In-person renewal requirements are often the first stage of assessment by licensing offices, as these interactions present an opportunity to observe drivers for any signs of physical, visual, or cognitive impairment that may affect their fitness to drive. The following information has been compiled from the Insurance Institute for Highway Safety (IIHS) and several websites from state licensing offices (See Appendix C for the full list of sources by state).

License Renewal Requirements by State

Drivers are subject to varying license renewal requirements from state to state as they either age or exhibit signs of degraded driving fitness. Four common categories of requirements include:

- shortening the span of time between renewals as a driver ages,
- restricting the renewal process from remote (online or by-mail) to in-person,
- implementing stricter requirements for vision exams at renewal, and
- implementing additional driving exams if necessary.

With regard to licensing requirements triggered by age, 43 states have adopted such practices. Of these, 23 states have reduced licensing renewal cycles as drivers age, 16 require in-person renewal for older drivers, 43 require a vision exam (of which 19 have specific older driver vision exam requirements and 33 have general vision examinations at each renewal cycle[9]), and three states require some type of driver examination upon renewal for older drivers.

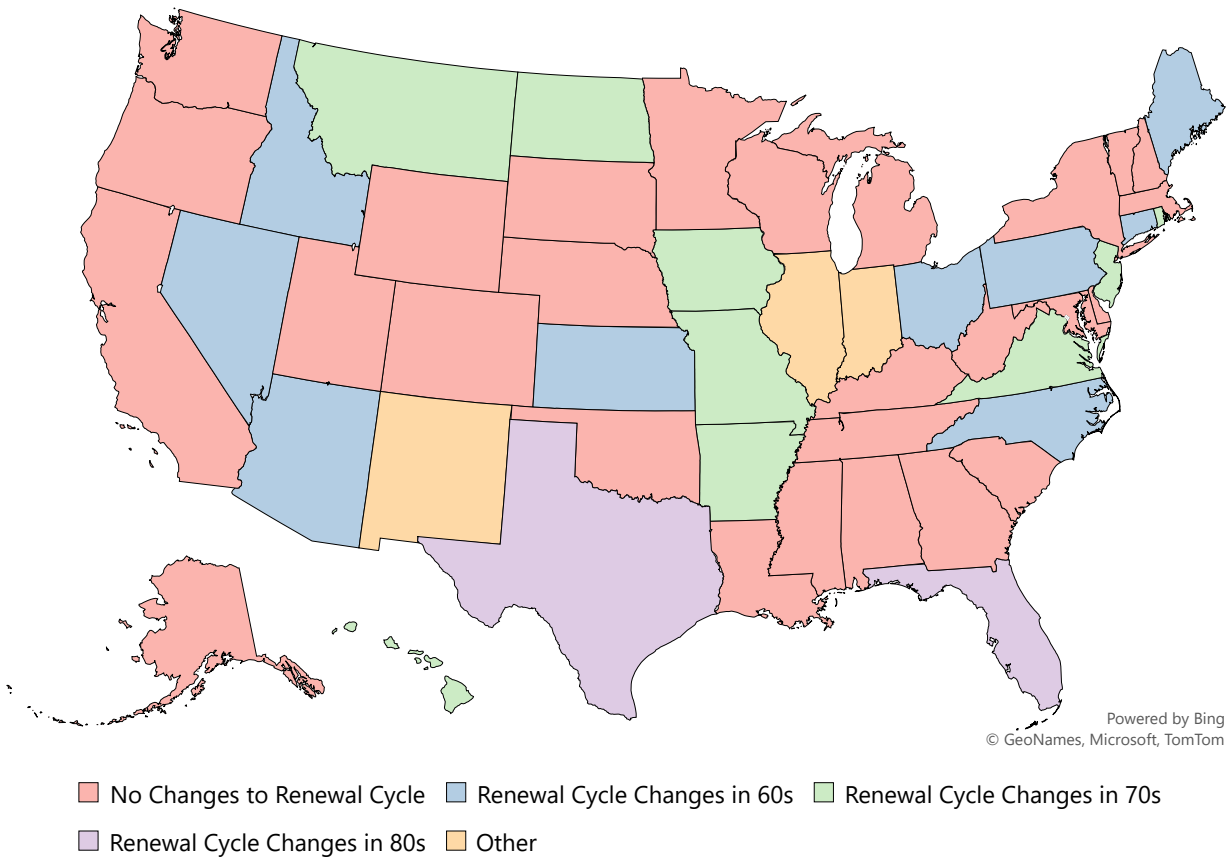
License Renewal Cycle

The 23 states that have age-based license renewal cycles use a variety of approaches. For example, in Arizona, the general license renewal cycle for most drivers is every 12 years, but this changes to every five years for those 60 and older (IIHS, 2024). In Hawaii, the general license renewal cycle is every 8 years but is reduced to every two years for those 72 and older (IIHS, 2024). While Arizona and Hawaii represent the typical approach used by states when adjusting renewal cycles for older drivers, Illinois is in the process of implementing a graduated approach to renewal cycles at different age levels, set to take full effect in July 2027 (IIHS, 2024). This graduated cycle offers license renewal every four years for most drivers aged 21 through 80, while reducing renewal to every two years for those 81 through 86, and then annually for those 87 and older (Office of the Illinois Secretary of State, 2024). A similar stepwise approach to renewal changes exists in Indiana and New Mexico. Of the 23 states with license renewal cycle changes for older drivers, nine states have laws that reduce the license renewal cycle starting for drivers in their 60s, nine states have laws that reduce the cycle starting for drivers in their 70s, and two states have laws that reduce the renewal cycle for drivers starting in their 80s (See Figure 28). Among these states, the average age group at which states begin to change the renewal cycle requirements is for those in their 70s, with most states choosing to have

[9] This totals more than 43, as some states have both.

restrictions put in place at some point between the ages of 60 to 75. The renewal intervals also vary by state, with most states favoring license renewal cycles of two to four years for older drivers.

Figure 28: Age-Based License Renewal Cycle Changes by State



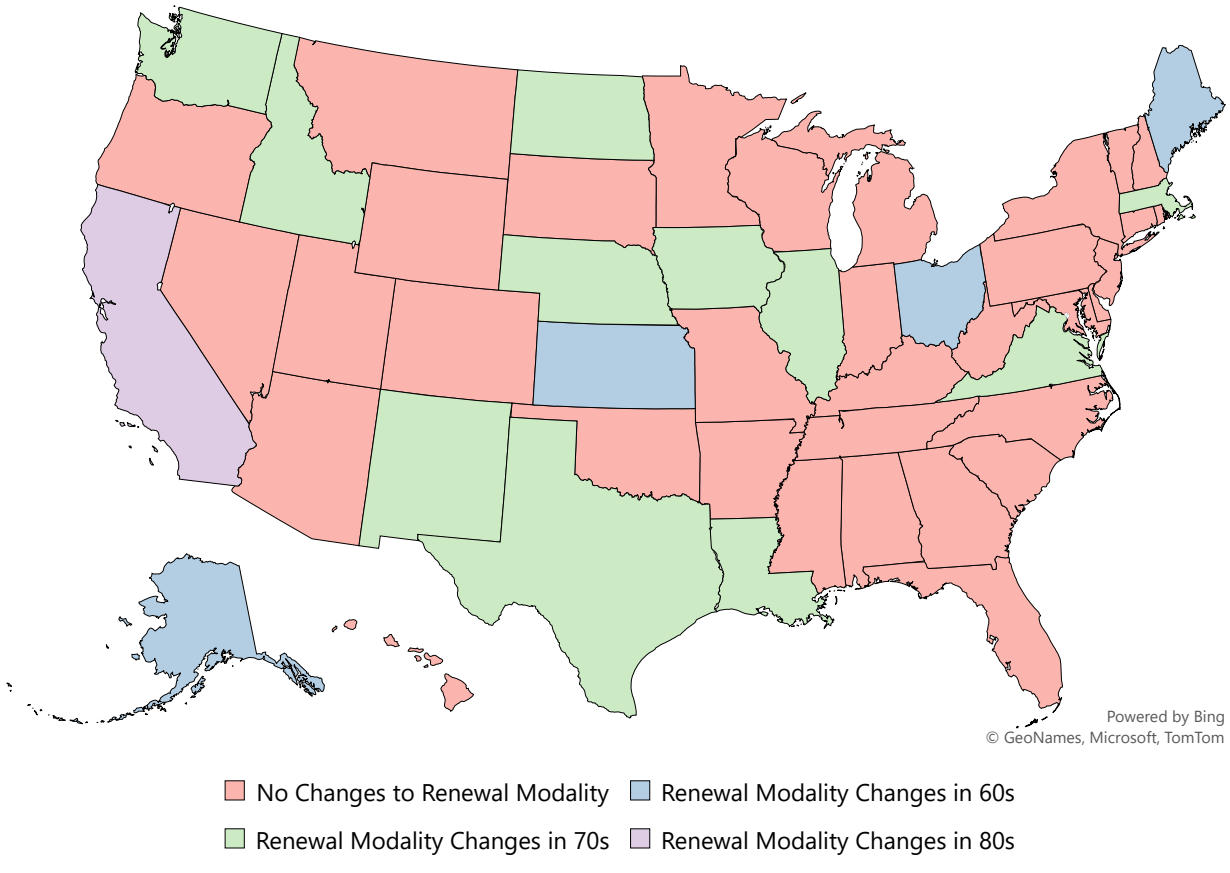
Note: The "Other" category denotes states which have graduated age-based license renewal cycle changes that periodically shorten as drivers age.

Washington State does not have age-based license renewal cycles, instead maintaining a renewal cycle of every six or eight years for all drivers, allowing drivers to choose from these two intervals (which is also common among other states). The renewal interval was expanded up to eight years after passage of HB 1207 in 2022, which was legislation enacted to provide Washington residents with more online services and choices for licensing during the COVID-19 pandemic.

License Renewal Modalities

License renewal across the country typically occurs in one of the following ways: by mail, online, or in person. While many states, like Washington, expanded renewal modalities during the COVID-19 pandemic, states that seek to limit renewal modalities for older drivers generally allow only in-person renewal after a certain age. This allows licensing professionals to observe drivers for any potential physical, visual, or cognitive issues that might inhibit an individual's fitness to drive. As can be seen in Figure 29, these kinds of restrictions on renewal modalities exist in 16 states: four require in-person renewal for drivers starting in their 60s, 11 require in-person renewal for drivers starting in their 70s, and one state requires in-person renewal for drivers starting in their 80s (IIHS, 2024). The average age group for which states begin to require in-person renewal is for those in their 70s; Washington State policy aligns with this, requiring in-person renewal for drivers 70 and older.

Figure 29: Age-Based License Renewal Modality Changes by State

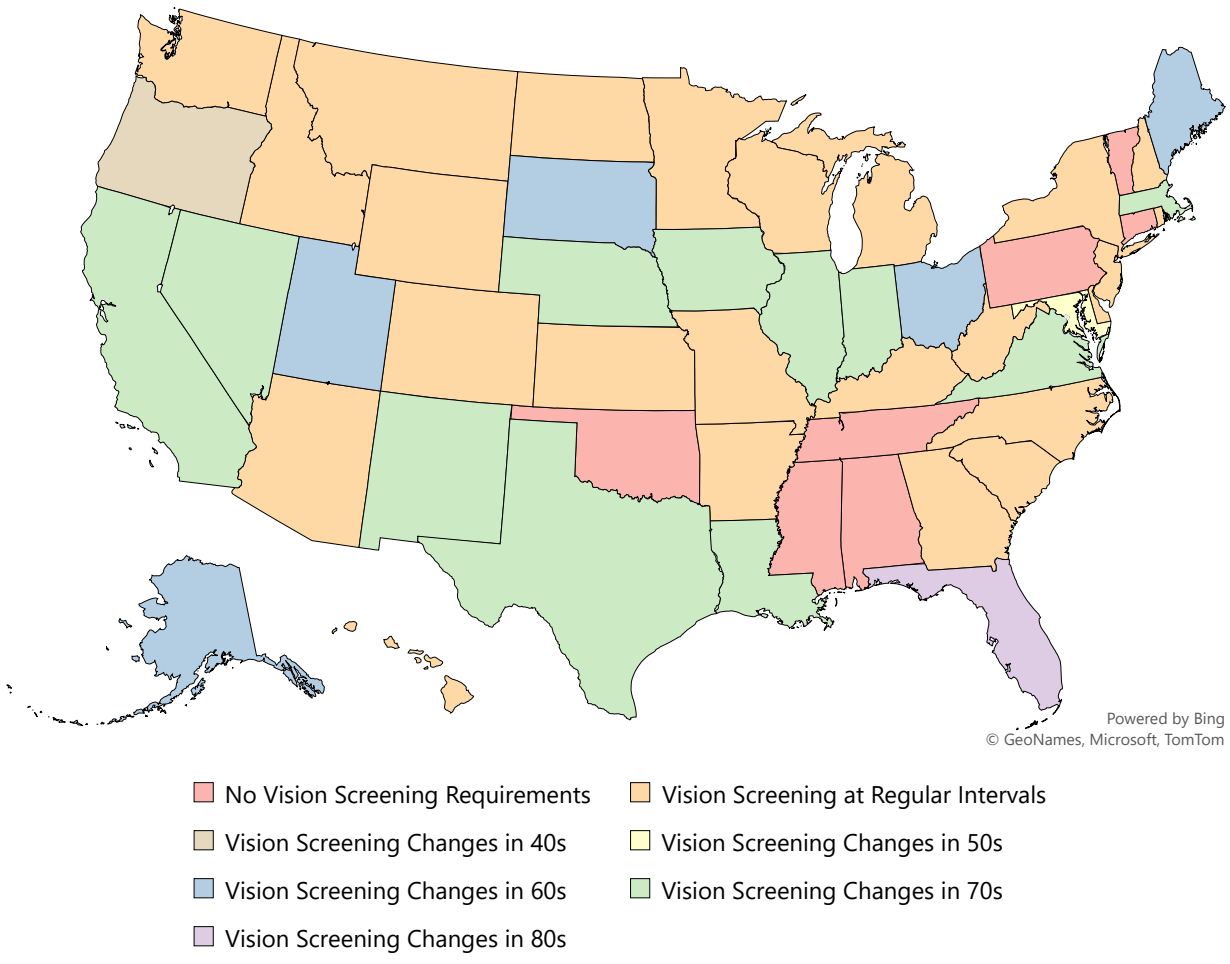


Note: While some states do not restrict renewal modality by age, they may require in-person renewal for all drivers at certain intervals.

License Renewal Vision Screening Requirements

Vision screenings are a common part of the license acquisition and renewal process across the United States, with some kind of vision screening required in 43 states during the license renewal process (IIHS, 2024). Of these, 24 require a vision examination to be passed every renewal, every other renewal, at every in-person renewal, or every 10 years. Another 19 states have policies for vision screenings that require individuals to pass a vision exam beginning at a specific age. Washington State does not have age-based vision screenings, but it does require a vision screening exam at every in-person renewal for all drivers (or an attestation that a driver meets vision requirements if renewing online), which is generally every six or eight years.

Figure 30: Vision Screening Requirements by State



Note: Most states with age-based vision screening requirements require some kind of vision screening for all drivers, opting to tighten requirements beginning at a specific age by increasing the required intervals or requiring older drivers to renew in person.

Most states that require an age-based vision screening begin these exams for drivers at age 75; however, vision screening requirements vary widely across the country, with the start of age-based requirements ranging from the 40s to the 80s. One state requires vision screenings beginning at age 40, another begins screenings at age 50, five start screenings in the 60s, 11 begin screenings for drivers in their 70s, and one begins screenings for drivers starting at age 80. When screenings occur, most take place within licensing offices and are conducted by licensing professionals. See Figure 30 for the vision screening requirements in each state.

Visual Acuity Standards

Visual acuity is one of the most basic and important methods of measurement for visual examinations, as it measures the ability to distinguish shapes and details of objects at a distance (Marsden et al., 2014). Across most states, visual acuity is measured through a Snellen Test which utilizes a chart with rows of decreasingly sized letters placed 20 feet away. The person being tested covers one eye and reads the letters aloud from top to bottom until they can no longer distinguish them, then repeats the process with the other eye (Azzam and Ronquillo, 2020). The results are reported as a fraction, with the numerator as the testing distance and the denominator as the distance at which a person with normal vision can read the same line of letters. According to the American Optometric Association, someone who has 20/20 vision can see clearly at 20 feet what should normally be seen by most people at that distance (AOA, n.d.). The larger the denominator on a test result, the less clear an individual's vision is in comparison to others. For example, a test result of 20/100 vision suggests the individual must be as close as 20 feet to see what a person with normal vision could see at 100 feet. In the United States, 20/200 vision is considered legal blindness (AOA, 2023).

Washington State requires drivers to pass a visual acuity exam with a score of at least 20/40 with both eyes with or without corrective lenses, which is a common standard in many states (WAC 308-104-010). Drivers in states with this standard that score worse than 20/40 are often subjected to restrictions that can include driving during daylight hours only, speed limitations, or road restrictions. Failure to pass the vision screening in Washington requires a driver to complete a vision exam with a licensed optometrist or ophthalmologist who can more accurately measure their vision acuity and vision field (WAC 308-104-010). After this additional exam, if a driver is determined to be within a safe range to drive while wearing corrective lenses, driving eligibility is restored and often unrestricted. If a driver's vision is found to be 20/70 or worse, a restricted license is issued that only

allows driving during daylight hours. Wearing corrective lenses that bring a driver's vision to at least 20/40 results in a restrictive note on the license. Drivers whose eyesight is not correctable to at least 20/100 are ineligible for a license in Washington and are considered to have failed the driver's license examination (WAC 308-104-010).

License Renewal Exams and Skills Tests

While all states require drivers to pass knowledge and skills tests to acquire a driver license for the first time, it is rare for states to require regular testing upon license renewal for specific populations. Washington falls within this standard by not requiring knowledge or skills tests to be retaken upon renewal for all drivers over a certain age. In Washington, license renewal is accompanied by a basic medical screening conducted at the licensing office, during which a Licensing Service Representative (LSR) asks drivers about any medical issues they may have that could inhibit their ability to drive safely (see page 41 for further details). Drivers who respond affirmatively are asked to submit a Physical Examination Report (PER). Beyond this specific requirement, no skills or knowledge testing is required for license renewal. This aligns with most states; 47 states do not require any sort of universal re-examination for license renewal. The exception to this, which also exists in Washington as described above, exists only if there are concerns noted by the LSR issuing the renewal who notices any indications of driver impairment or if issues have been reported through a medical professional, law enforcement officer, or another person who is aware of the driver's capabilities. The latter is typically accompanied by a medical examination as well. Typically, it is up to the LSR's discretion to decide whether a skills or knowledge re-examination or in-vehicle assessment is needed.

While most states do not require re-examination upon renewal by default, three states require specific driving tests for those of a certain age wishing to renew their licenses. California requires a written test after the age of 70 and every subsequent renewal, but road tests are only required if there are indications of driver impairment, based on a report by a law enforcement officer, a physician, or a family member. Illinois requires both a written and road test after every renewal for those 75 and older. Lastly, Missouri requires a sign recognition test for drivers 70 and over who renew their licenses, but the state does not require knowledge or skills tests unless the LSR receives indications of possible driver impairment.

Efficacy of Renewal Requirements on Driver Safety

Of the four license renewal requirements detailed above, two have demonstrated measurable effects on driver safety: in-person renewal and vision screening. While researchers have found mixed results on the efficacy of these two renewal requirements for drivers overall, they have been shown to be most effective for drivers 85 years old and older (Tefft, 2014).

In-person renewal was found to be associated with lower fatality rates among older drivers (Morrisey & Grabowski, 2005), with one study suggesting that this was the only license renewal requirement that was "independently associated with additional benefits" to driver safety (Grabowski et al., 2004). Specifically, Tefft (2014) found a 31% reduction in the fatality rate among drivers 85 and older who were subjected to in-person renewal requirements. Similarly, vision screening requirements seem to have a positive effect on driver safety, with one study suggesting that added vision screening requirements in Florida reduced fatalities among drivers 80 and older by 17% (McGwin et al., 2008). Another study found lower crash hospitalization rates for drivers aged 60 to 74 who were required to undergo vision screening during in-person license renewal (Agimi et al., 2018).

In short, while the research on the safety efficacy of license renewal requirements is sparse, there is some evidence to suggest that in-personal renewal and vision screening requirements (and a combination of both) do lead to better safety outcomes, specifically for older drivers. Because Washington requires both of these during license renewal for older drivers, current license renewal requirements in the state appear to be aligned with evidence-based best practices and should continue.

Assessment/Screening Tool Evaluation

As noted earlier, there are several assessment and screening tools available to both licensing and medical professionals that can be used to assess driver fitness. This section presents multiple assessment and screening tools, evaluates their reliability and validity to determine which may be the most effective, and identifies which tools the DOL might consider adopting.

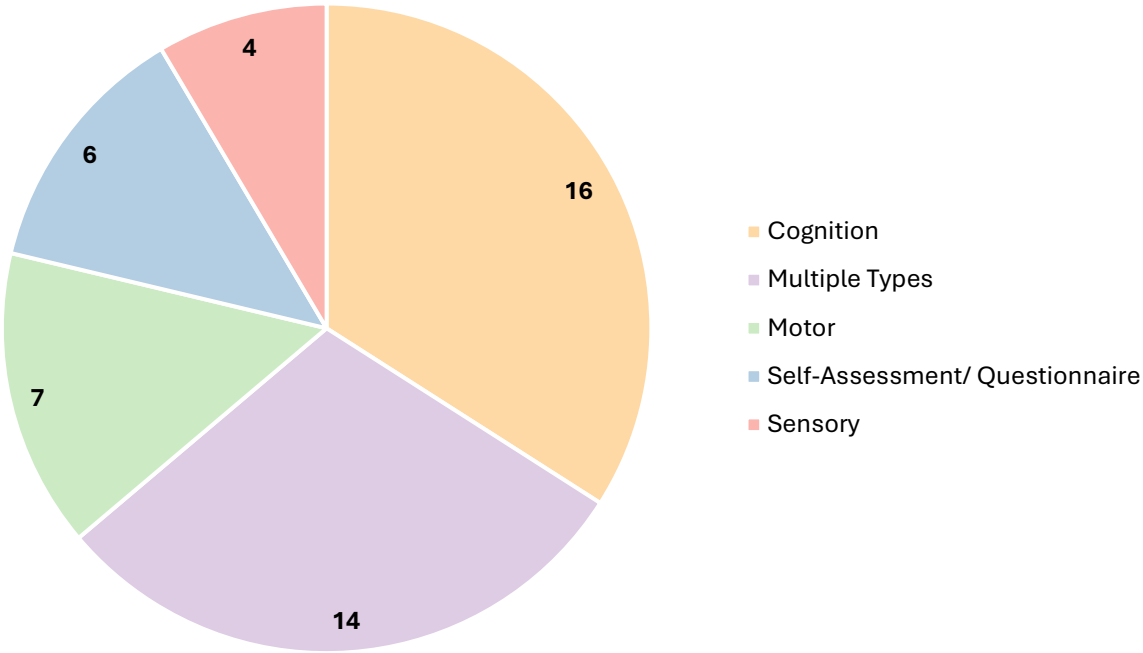
Methodology

Assessment/screening tool evaluation began by assembling a list of tools that have been linked to the evaluation of driver fitness in previous research. This included studies that have assessed tools for evaluating older driver fitness specifically as well as general driver fitness. Initially, all tools were pulled for evaluation, yielding a list of 57 potential assessment/screening tools. Ten of these were

later removed due to lack of depth and content to rigorously evaluate them and their relationship to driver fitness. The list of excluded tools can be found in Appendix B, and the list of the 47 tools examined in this evaluation can be found in Appendix D.

After compiling the final list of tools, further literature was explored to determine their effectiveness. This included whether the tool had been studied in relation to driver fitness and, if not, whether it had been validated in other contexts. This approach was used to align the examined tools with the broader purpose of evaluating driver fitness or related health concerns that could affect an individual's physical or mental capabilities. Figure 31 shows the number of tools examined by type.

Figure 31: Assessment/Screening Tool Types



Tool Description and Instructions

As the literature on assessment/screening tools was gathered, descriptions of each tool and instructions for its use were collected. The tool description included what the tool is supposed to measure and examine. Tool instructions included the process for administering the tool, what the tool is measuring or scoring, how scores should be interpreted, who should ideally administer the

tool, and under which circumstances a tool should be administered. While most of these assessment/screening tools had not been developed with driver fitness in mind, many have been applied to evaluating driver fitness in some manner.

Internal Validity, External Validity, and Reliability

A primary component of this evaluation consisted of examining the assessment/screening tools' internal validity, external validity, and reliability. This consisted of evaluating each tool based on the following questions:

- What studies tested this tool?
- How was the tool tested?
- How can the tool be applied to other cases or populations outside each study?
- What information is relevant to understand the tools' validity and reliability regarding driver fitness?

Based on the answers to these questions, each tool was assigned a numerical score on internal validity (the tool measured what it was designed to measure), external validity (the tool was generalizable to other populations), and reliability (the accuracy of the results and how the tool applied to driver fitness). Each tool was assigned a value between 1 (poorest performance) to 5 (best performance) (See Table 7). The evaluation considered how often the tool was included in the research, prioritizing research that specifically examined validity and/or reliability, with additional effort made to locate studies that applied these tools to driving fitness.

Each tool received up to three scores (one each for internal validity, external validity, and reliability). These scores were summed to develop a total performance score to determine which tools would be most effective in predicting a driver's potential impairments. Performance scores were then sorted into three categories based on the following criteria:

- Not Effective (3 to 7.5)
- Promising (8 to 11.5)
- Effective (12 to 15)

Table 7: Scoring of Internal Validity, External Validity, and Reliability

Score	Internal Validity	External Validity	Reliability
1	Not Internally Valid: The tool has significant methodological flaws or biases that undermine the ability to draw accurate conclusions from the data. Results are questionable due to potential confounding variables or other issues.	Not Externally Valid: The findings have little to no applicability beyond the specific context or sample studied. Results are highly context-specific and cannot be generalized to other settings, populations, or situations.	Not Reliable: The tool shows significant inconsistencies and lacks repeatability. Results vary widely across different assessments or conditions, making the tool highly questionable for evaluating older drivers.
2	Low Internal Validity: There are noticeable methodological issues or biases that impact the reliability of the results, though some aspects might be somewhat valid. Confounding variables or other issues are present but not entirely overwhelming.	Low External Validity: The findings have limited applicability to other contexts or populations. There are significant differences between the study conditions and real-world settings, making generalization difficult.	Low Reliability: The tool has noticeable inconsistencies and variability. Results may be unreliable or vary significantly, which could affect the accuracy of evaluations for older drivers.
3	Moderate Internal Validity: The tool shows reasonable methodological rigor, but there are some issues or potential confounding factors that could affect the results. Validity is acceptable but not robust.	Moderate External Validity: The findings have some relevance to other contexts or populations, but there are notable limitations or conditions that may affect generalizability. The results might apply in similar but not all situations.	Moderate Reliability: The tool generally provides consistent results with some variability. While it offers a reasonable level of accuracy, there may be occasional inconsistencies in how it evaluates older drivers.
4	High Internal Validity: The tool is generally well-structured with strong methodological controls, though there may be minor issues or limitations. Results are mostly reliable, and the confounding variables are well-managed.	High External Validity: The findings are generally applicable to a range of contexts or populations. While there may be some limitations, the results are broadly generalizable and relevant to similar settings or groups.	High Reliability: The tool is largely consistent and provides accurate results with minimal variability. It is dependable for evaluating older drivers, though there may be minor fluctuations in results under different conditions.
5	Excellent Internal Validity: The tool is rigorously designed with thorough controls and minimal confounding factors. Results are highly reliable, and the evidence strongly supports the conclusions drawn.	Excellent External Validity: The findings are highly generalizable across different contexts, populations, and situations. The results are applicable to a wide range of settings, demonstrating strong relevance beyond the specific study conditions.	Very Reliable: The tool is highly consistent and accurate with very little variability. It provides dependable results for evaluating older drivers and is highly trustworthy for making assessments and decisions.

Assessment/Screening Tool Scoring Results

While no tool scored a full 15 points, several in each tool type scored high, indicating that there are a handful of tools within each type that are generally valid and reliable for assessing driver fitness. Figure 32 shows individual tool scores, and Figure 33 shows performance rankings for each tool type. Both illustrate that there are several promising and potentially effective assessment/screening tools.

Figure 32: Tool Performance Scores by Type

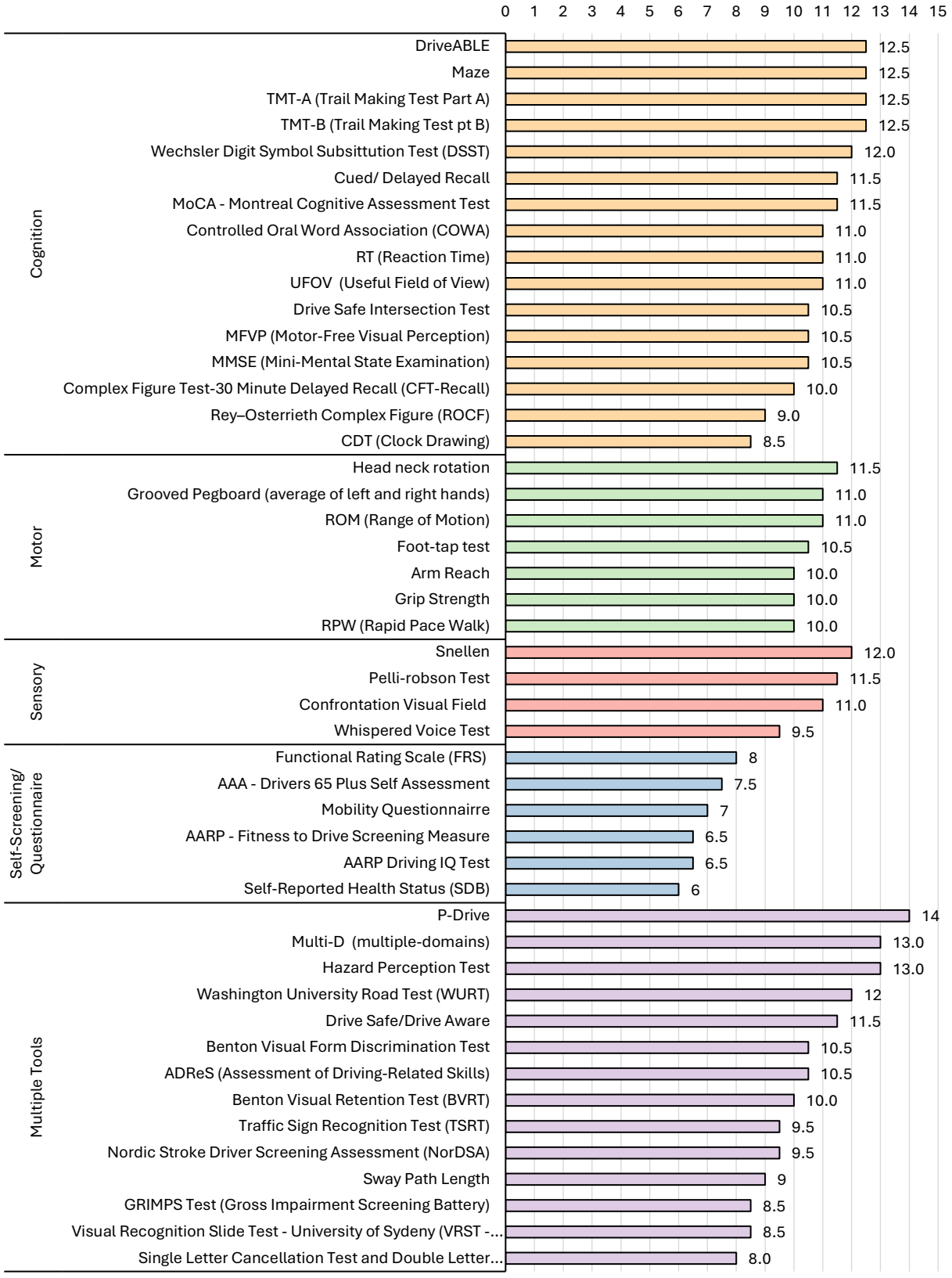


Figure 33: Number of Performance Score Rankings by Tool Type

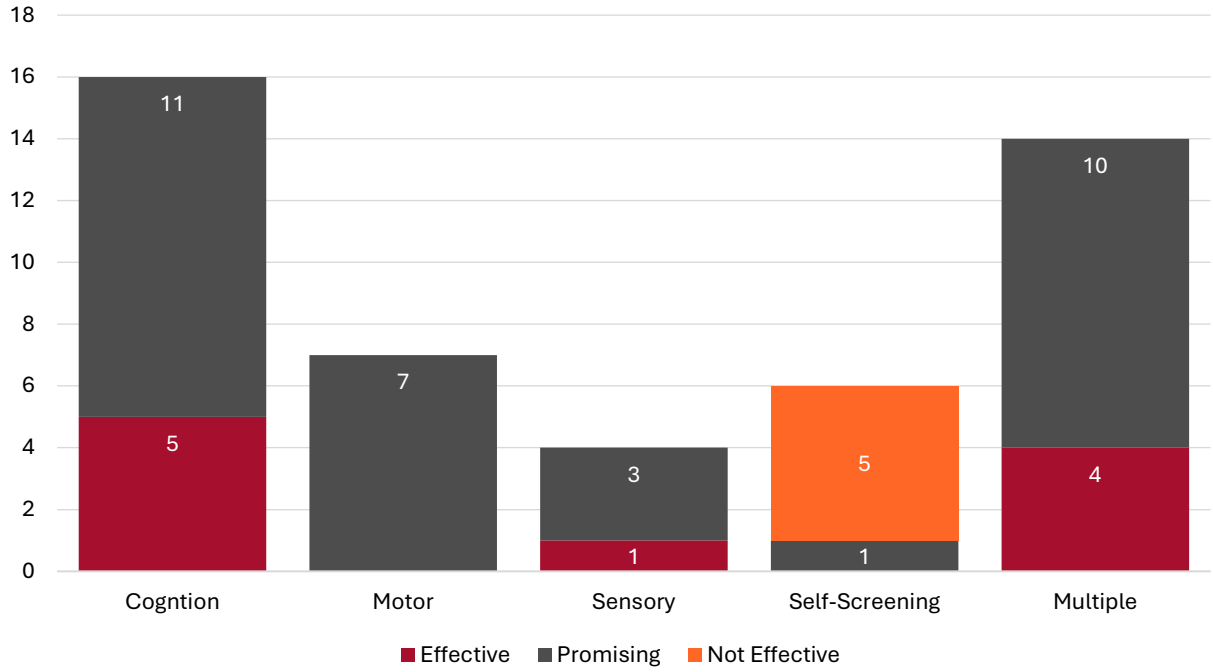


Table 8 shows the highest-scoring assessment/screening tools for the three tool types that contained tools rated as *effective*. These are also broken down by category.

Table 8: Top Scoring Tools

Tool Type	Tool Name	Internal Validity	External Validity	Reliability	Total Score
Cognition	DriveABLE	4.5	4.0	4.0	12.5
	Maze	4.5	4.0	4.0	12.5
	TMT-A	4.0	4.0	4.5	12.5
	TMT-B	4.0	4.0	4.5	12.5
	DSST	4.0	4.0	4.0	12.0
Sensory	Snellen	4.5	3.5	4.0	12.0
Multiple Type	P-Drive	5.0	4.0	5.0	14.0
	Multi-Domains	4.5	4.0	4.5	13.0
	Hazard Perception Test	4.5	4.0	4.5	13.0
	Washington University Road Test	4.0	4.0	4.0	12.0

Recommendations

This evaluation of 47 assessment/screening tools shows that the top-scoring tools are those that are tailored specifically to evaluate driving and address multiple areas/concerns. While other tools are seen as "Effective" or "Promising", their ability to evaluate a driver to the fullest extent is limited, especially when issues of capability and safety are in question. It is recommended that the DOL examine the utility of the top scoring tools, such as DriveABLE, Maze, P-Drive, Multi-Domains, Hazard Perception Test, or the Washington University Road Test.

Consultation

In addition to the preceding legislative components, ESHB 1125 required that a comprehensive plan to improve older driver safety be designed "in consultation with the Washington Traffic Safety Commission, the Department of Health, the Elder Law Section of the Washington State Bar Association, organizations representing older drivers, and driver rehabilitation specialists" (ESHB 1125, 2023). To that end, a total of 23 interviews were conducted from May through October 2024. Interview participants included representatives from all organizations identified in the legislation (See Table 9). Participants were asked about the legislation itself, awareness around current driver safety policies, their views on the establishment of a medical advisory board, and their recommendations for assessment tools, among other related topics.

Table 9: Interviews by Organization Type

Organization Type	Number
Interest Group	7
Government Agency	5
Medical Expert	6
Community Member	6
Subject Matter Experts[1]	3
Other	1

Note: The total number of interviews sums to more than 23 due to some individuals representing multiple entities and multiple participants in one interview.

[1] Subject matter experts include individuals identified in the legislation, including the Elder Law Section of the Washington State Bar Association and Driver Rehabilitation Specialists.

The semi-structured interviews lasted approximately one hour, and interview notes were analyzed thematically using hybrid coding. Hybrid coding is an approach that uses both deductive and inductive coding of themes. This involved using the existing legislation to develop pre-defined codes

(deductive) and developing codes directly from the data (inductive). The following sections outline the major themes and responses to the interview topics.

Familiarity with ESHB 1125

Participants were first asked about their familiarity with the section of ESHB 1125 that addressed older driver safety. Regardless of expertise, only six participants expressed being familiar or somewhat familiar with the legislation. Many reported being surprised that the legislation had passed, as a previous attempt for similar legislation had failed. One expressed that it was "devious" to sneak it into a larger appropriations bill when there was disapproval of it previously. Another did acknowledge that this bill attempted to resolve previous issues regarding age-specific restrictions.

Opinions of ESHB 1125

Participants were then asked their opinions of the legislative requirements pertaining to older and medically at-risk drivers.[10] Of those participants who had heard of the legislation and had an opinion (7), most expressed negative opinions. Many understood where the legislation was coming from (e.g., a place of concern and safety) but shared several concerns, including whether this legislation was truly needed. Participants who questioned the need for the legislation mentioned that (1) younger drivers are the pressing concern, (2) older drivers know their limitations and already adapt their driving, (3) there is not enough evidence that a program of this nature is needed or would be effective, and (4) it was not clear these issues should be addressed through legislation. For instance, one participant expressed that the "costs outweigh the social benefits," given that there is little evidence that a program of this nature is needed. A government representative acknowledged that older driver safety is an issue, but their focus was on more pressing issues (e.g., younger driver safety). A few participants did have positive views of the legislation and believed that it was warranted. One expressed that if someone could not pass a skills or knowledge test, they should not be able to drive.

Discriminatory Concerns

Multiple participants discussed concerns that this legislation is inherently discriminatory, as it targets the protected classes of age and disability. One participant highlighted that these populations already face discrimination in Washington, and this legislation marginalizes them further. Some participants raised concerns or made predictions that there would be legal action

[10] A brief explanation of the policy was provided to those unfamiliar.

against this legislation. One participant expressed that the legislation was "ageist from tip to toe." Another discussed that because ageism is so saturated in the dominant culture, society thinks it is an "acceptable discrimination to make." Interview participants expressed that the assumption that older drivers are bad drivers based on age alone is problematic, as there are many older drivers who are competent and safe. Others expressed concerns that because older individuals often have restricted income, this legislation could cost them more in the form of additional medical exams from increased screenings and assessments, insurance, or other requirements.

Many participants expressed that policies should be reconsidered to avoid any potential ageism, with the focus redirected on all drivers, instead of certain populations. One participant said, "Please take into consideration not only dignity and respect, but also the law. We all want to be treated with dignity and respect, and do not pick on individuals because they have grey hair." Participants suggested that legislative attention should be paid to specific threats to safety on the road caused by behavior like road rage or speeding, which cause dangerous situations across all age groups. Some suggested that government messaging should focus on safety and competence for all drivers, rather than focusing on a certain age group. It was expressed by some that most drivers 70 and older have been driving for decades and have never been labeled as high-risk drivers, making age-based restrictions on driving arbitrary.

Rural Drivers

A concern repeated by participants regarded resources for rural drivers who have their licenses revoked. There are barriers raised when an individual loses their ability to drive, and participants believed that this would be incredibly difficult for many in rural communities if there is not adequate support and funding provided. Transit options available in more urban areas, like public transit, community transit, or rideshare options (e.g., Uber), are not as widely available in rural communities. A lack of transportation can raise issues in several areas, such as access to medical care. One participant provided an example of living in a rural area and temporarily losing their license due to a medical condition. There were no transit options available, and the participant was forced to separate from their spouse temporarily and live with other family who could provide transportation for them. Another individual shared that their father had his license taken (by family) in a rural area, after which he began driving on a tractor and then a lawn mower to get around because of the lack of transportation options.

Perceptions of Current Policies

Of the fourteen participants asked, over half reported being unfamiliar with current policies surrounding older and medically at-risk drivers or had little familiarity, often based on personal experience. One joked, "There's a policy?" The most common policy individuals were aware of was the need to go in person to renew their license and take a vision test after the age of 70. However, several participants were unaware of this policy, indicating an opportunity to improve communication and outreach of existing policies.

This led several participants to suggest launching an awareness campaign of current policies rather than setting new standards for older drivers. One participant intimated that the DOL is largely silent around these policies, stating that there was insufficient messaging around the rule that those 70 and older must renew their licenses in person. Suggestions for improving awareness of current policies included hosting webinars or information sessions at senior centers or airing public service announcements, which may increase awareness around the issue. Doing so could help individuals take useful steps for themselves or their family members.

Eight participants were aware of current policies in the state due to personal experiences, such as an elder family member needing to renew in-person due to their age or having concerns over their family members driving. These participants often expressed frustration regarding the process. Some suggested the renewal interval was too long. One participant gave an example of an older family member whose driving ability had diminished, but who would not need to go in person to renew their license for a few more years. Another participant developed concerns about his father's driving and contacted the DOL. He was told he could bring his father in for tests, but it was not required, which meant his father would have to agree to further testing. To him, it appeared that the DOL did not have a formal protocol or liability process in place. Another example provided by a participant was that they had reached out to the DOL and Sheriff's Office regarding reporting someone who should not drive and was told nothing could be done until an accident occurred. A professional who assists drivers with disabilities and medical needs also expressed frustration with DOL policies. They felt the DOL had inconsistencies in how the department treated those with disabilities and felt that their clients were treated negatively by the DOL.

Lastly, a few participants were aware of a form made available by DOL to request the evaluation of at-risk drivers but felt there were issues with the current practice. Again, the main concern was the lack of awareness of the form. Critiques included that (1) the form does not allow enough opportunity

to provide information, (2) important factors may be missed, including whether an individual has behavioral or mental health concerns, (3) it is rare for medical professionals to have conversations with their patients or patients' families about driving, and (4) law enforcement may also be reluctant to use the form due to perceptions that the process is punitive. A medical professional working for a government agency voiced that filling out the PER on behalf of drivers as a doctor is "terrifying." They felt unsure of what the expectations for a suitable driver would be for the DOL; they were concerned that the questions in the PER were too vague and open to multiple interpretations; and they had concerns over legal responsibility should the driver get in an accident after being cleared for driving.

Recommendations to Improve Safety

Participants made recommendations to improve current policies. Fourteen participants expressed ways small changes could be made to adapt current practices rather than making legislative changes that are age-based. Recommendations included retesting drivers, expanding driving restrictions available to DOL, continuing education, improving reporting practices, and normalizing "giving up the keys."

Retesting and License Renewals

Retesting was a contested topic among the participants, with most being somewhat supportive, but for varying reasons. Many participants said they could support retesting but were unsure of what it should look like. Some believed that it should only be done when triggered through a counter-assessment or referral, but others did support testing after a certain age. Overall, participants were often conflicted about retesting based on age and thought more components should come into play, such as consideration of ability and driving history. Most believed that 70 was quite early and were more supportive of mandatory testing when individuals reached their 80s. One specialist stated that mandatory retesting at certain intervals of age has not been shown to be effective and may scare people out of driving before they need to stop.

Nine participants discussed implementing retesting based on reasons other than age. Suggestions included implementing proficiency tests or requiring all drivers to come in to renew in person every ten years. Another suggestion is to have retesting requirements for certain events, such as when someone gets a ticket for certain driving practices (e.g., reckless driving), is in an accident, or receives a new medical diagnosis.

Another change suggested is that the time between renewals after the age of 70 be shortened, as the current practice allows for them to wait up to eight years between renewals. Others acknowledge that renewal should not occur too often, as it might be perceived as intrusive. Best practices were highlighted by a specialist, who said that renewal intervals are commonly five to eight years (placing Washington within best practices).

Expanding Restrictions

A few participants, particularly experts in the field, suggested that license restrictions could be implemented or expanded to keep individuals driving longer. Washington's medically related restrictions are generally limited to daylight driving and corrective lenses. This is a practice supported by participants who work with older drivers, as they often suggest to their clients to only drive under certain conditions or to certain locations.

Continuing Education

Some participants suggested the idea of continuing education. As with continued testing, since laws and practices around driving change over time, it may improve overall driver safety to have individuals formally educated about these changes. If this were to occur, these participants indicated there would need to be oversight to ensure the quality and legitimacy of continuing education programs. Another suggestion is to provide additional training in areas of defensive driving techniques and to recognize potential issues (e.g., road rage) while driving.

Reporting

Beyond increasing awareness around reporting at-risk drivers, suggestions to increase reporting efficiency were provided. One suggestion was to make it easier for families to report concerns regarding family members. Other participants discussed the need to streamline the process. This could be done through electronic and easy-to-complete forms, such as the system in Florida where a law enforcement officer can swipe a license in their car and a report goes directly to the DMV. Maryland's medical advisory board was also mentioned as an example due to its easily accessible electronic form that goes directly to a nurse for review.

Several participants stated that liability protections for reporting individuals, especially for medical professionals, need to be established and clear. A participant mentioned that doctors are aware of the DOL form for reporting a driver but are hesitant to submit it, as the driver will be contacted. Beyond legal concerns, it could also harm the patient-doctor relationship.

Normalizing "Giving up the Keys"

It was suggested by many participants to focus on educating people to "put up the keys" and quit driving on their own. Focusing attention on this and normalizing it may reduce the stigma surrounding driving cessation. Framing driving safety as the main issue rather than age could help ensure that individuals who need to stop driving are more inclined to do so. Participants suggested numerous ways to help individuals transition out of driving, including preparing individuals through a gradual transition, identifying and providing resources (such as transportation), and supporting them emotionally.

Normalizing the eventuality of not driving could encourage individuals to plan early. One participant highlighted how, as a society, we downplay the significance of this milestone and "do not deal with it until the day the keys are taken away." There is a need to prepare individuals gradually in a sensitive way for this major life transition which could include public awareness campaigns, presentations at senior centers, and encouraging conversations among family members and clinicians. Another suggestion by a field expert was to provide case management to support individuals once their licenses are revoked.

Resources

Over half of the total interviews discussed the need for resources to support the transition out of driving. These included assessing transportation needs and providing a central place to access resources. One critical participant expressed, "There are no conceivable resources that would satisfy the problem." Instead, as noted by several participants, it falls on families.

Transportation Support

A barrier to individuals giving up driving, expressed by many of the participants, was that it reduces an individual's ability to get around. While many can rely on friends and family for rides, this is not an option for all. There needs to be support for the expansion of transportation options, and they need to be affordable and accessible. As one participant puts it, he "can't call Uber every day."

Residents of rural areas do not have the same resources for transportation. Therefore, losing their license can have a disproportionate impact. A concern is finding organizations and resources in the area to provide these resources, even if there is funding available. Participants suggested that these infrastructure gaps need to be addressed, perhaps through a regional approach that expands

transportation through state-funded programs that consider local needs. A small portion of participants were skeptical that there would be funding available to do this.

Even in areas with high levels of public transportation, such as King County, individuals may be uncomfortable using public transportation, especially if they have limited experience prior to giving up driving. Some participants said public transit in urban areas was adequate; however, others said going without a car, even in these areas, is not feasible. Many recommend supporting public transit through increased funding, trip planning resources, and free transit for those who do not have a license.

While rideshare or volunteer program options are available in more urban areas as well, cost can be a barrier. Some participants suggested investment in these areas, or at least publicizing them. Support could include referrals to community or social workers and fuel cards to provide services. Beyond non-profits, community members may be able to provide transportation through partnerships on a volunteer basis or through organizations. An example provided by one participant is that younger seniors (70-80 years) can give rides to older individuals at their senior center. This, however, is dependent on volunteers. Social workers also may be able to connect individuals with transportation for medical needs. One participant discussed a current program they are aware of called *One Call, One Click*. In this program, a single phone call gets clients "a custom-tailored ride to whatever destination [they] need to get to." Another participant suggested WA Cares as a funding resource, especially in rural areas of the state. It is suggested that DOL provide information on non-profits and other programs that provide transportation options, which may be done in a more centralized way, as discussed in the next section.

However, as noted by participants, available transportation options are not always accessible. Individuals often may need assistance from the door of their home to the vehicle used for transportation. It is important to consider this and provide options that are also accessible.

Centralizing Resources

One suggestion was to centralize resources for easier access, such as providing a list of resources for each county on a county or state website. One specialist recommended having this resource provided by a third party, such as a university, which has the resources to keep the website more up-to-date than a government agency. Another suggested setting up a phone line to provide more information about resources.

One participant mentioned that King County passed a tax to support individuals with disabilities, seniors, and veterans by funding all senior centers. The need is even greater outside of King County, especially in more rural areas. Senior centers can be a popular place for older adults and may be a useful place to provide training for older drivers and information on resources. A few participants involved with senior centers highlighted the need for funding for this resource, as senior centers are provided little support.

Increased Messaging

Despite being involved in aging and medically at-risk driving populations, many participants knew little about the resources and options available. Increasing messaging of support can publicize this issue further and perhaps normalize it more. Leveraging partnerships with interest groups like AAA, AARP, senior centers, and other government agencies that provide services to seniors could expand knowledge around driving concerns and provide information on resources, such as alternative transportation.

Medical Advisory Board

Fifteen participants were asked if they would be supportive of a medical advisory board. The majority of these participants were supportive of establishing a medical advisory board, although there were differing views on what it should look like. For instance, there were mixed opinions on the overall role of a medical advisory board. Two participants said any advisory board should not be explicitly focused on older drivers only. Many agreed that an advisory board was different than age-based restrictions but acknowledged that people who feel driving is a right may oppose the establishment of a medical advisory board. There is also concern over who would govern the operations of a medical advisory board, with participants expressing they would prefer medical professionals to have control over it rather than politicians or the DOL. Some participants suggested an advisory board be piloted first before they would feel comfortable fully supporting it.

Seven participants had mixed opinions on or were unsupportive of the establishment of the medical advisory board. One participant questioned why the legislature wants to move in the direction of "institutionalizing bias" toward individuals with disabilities. However, they acknowledged they would support a medical advisory board in an appeals role when individuals want to challenge a license revocation. Other participants expressed concern about having medical professionals work with the board, as there is already a shortage of doctors.

Additional recommendations or considerations for establishing the board included the question of legal liability. Liability protection for the board was highlighted by one participant, stating that both those on the board and individuals referring cases to the board should be protected from legal action. Another participant discussed the complications that could occur with appeals and whether they would go to an administrative hearing, ultimately becoming a legal issue that the state would pay for.

Board Members

There were many differing opinions on who should sit on a medical advisory board. While some suggested it be made up of medical professionals only, others felt it should be a blend of varying professions and interest groups. Medical professionals were the most common suggestion for the board, including general medicine physicians, nurses or nurse practitioners, gerontologists, neurologists, and others (e.g., pharmacists, mental health practitioners, vision doctors, and chronic illness experts). Professionals who assist drivers with medical needs and mobility concerns were also common suggestions, including occupational therapists, driver rehabilitation specialists, and physical therapists. Another prevalent suggestion was to include representatives from groups that would be impacted the most by the board's policies (e.g., seniors, people with disabilities). Social workers, law enforcement officers, and insurance companies were mentioned by some participants. While less common, a few participants also brought in individuals who teach older driver courses, legislators, and specialists in data and research on the topic.

Roles and Responsibilities of the Board

There were varying opinions on what roles and responsibilities the board should fill, but advising on DOL policies was the most commonly listed by participants. A specialist who works with drivers with physical disabilities expressed frustration with mixed policies at the DOL and was in favor of having the medical advisory board assist with policies and testing for individuals with disabilities to ensure equitable treatment.

Many participants discussed how it would be useful for the board to provide information to drivers and others in the medical field on topics like medication interactions. In line with this, having the board work with doctors was another important aspect. A few suggested that if a case is referred to the board, the board should work with the individual's doctor to review cases and possibly refer to doctors for testing. A couple of participants mentioned how individuals can see multiple doctors and be on various medications without knowing how they interact, so having individuals review these

could be helpful when screening for potential issues. Additionally, assisting in establishing assessments and retesting was identified as an important role by participants.

Participants had concerns regarding the decision-making aspects of the board. Hearing appeals of license revocation was brought up by two participants, and two other participants explicitly stated that the board should be able to revoke licenses. A question brought up by one participant centered on the distinction between civil and criminal matters concerning drivers. They provided an example that individuals can have a substance abuse diagnosis and still drive; they do not have their license taken unless it becomes a criminal concern. This is an important consideration that should be made prior to the establishment of the board.

Counter Assessments

Fifteen participants were asked if they were aware of the counter assessments used by the DOL and any suggestions for improvement. Participants were concerned that current assessments include only the knowledge test, vision test, and driving test. One participant highlighted issues with the current testing system, which seems to focus primarily on knowledge and skills tests rather than driving behavior and competency. Further, some participants felt the current assessment system was inadequate for individuals with dementia as they can have "good days and bad days." Some participants supported additional assessments, such as a screening questionnaire for cognitive deficits. Other participants cautioned against adding more tests at the licensing office, saying that current practice is adequate. They believe the responsibility for more advanced assessments should remain the responsibility of medical professionals. Another participant mentioned that there should not be additional demands put on DOL employees, especially when they require additional training and responsibility.

Professionals involved in assessments of drivers, such as driver rehabilitation specialists, were critical of the application of assessments. Currently, there are no consistent assessments recommended by the DOL or other traffic safety organizations in Washington. Driving rehabilitation specialists have evaluations they conduct, but they are specialized and cannot be done quickly at the licensing office. Many of the tests suggested need to be done in a medical setting by a medical professional. A suggestion made by a participant is that when a driver must retake a road test, it should trigger an appointment with an occupational therapist to assess for physical and/or mental deficits. There are barriers for individuals to access specialists for testing or therapy, including access and cost (as this is not covered by insurance).

Specific Assessment Suggestions

Many participants suggested assessments that could be completed by medical professionals, rather than DOL. For example, a few participants noted that a contrast sensitivity test, in comparison to the vision test conducted at the DOL, is more strongly related to crash risk. One participant suggested requiring drivers to take this test and bring the results to a licensing office, but there are barriers to this, such as cost.

A commonly suggested assessment type was to have cognitive assessment options. The Brief Interview for Mental Status (BIMS) test was the most commonly cited cognitive testing option. Another commonly suggested cognitive assessment is the Montreal Cognitive Assessment (MoCA).

One participant mentioned that the Trail Making Test (TMT) Parts A & B (Trails-A and Trails-B), which measure factors like attention and processing speed, are the only cognitive tests that could perhaps be applied in a licensing office. It would require the individual to be taken into a separate room by someone who is well-trained in administering the test. The Trails-B would take approximately 5 minutes, but it would not be able to be a true counter assessment.

One participant with a medical background emphasized the difference between screening and assessment and confirmed there were few screening tests that could be applied at the counter. This participant confirmed that the Snellgrove Maze test is likely the only screening test that could be applied at the counter, although another participant stated that the Maze Test is limited and only flags a test-taker if there are significant cognitive issues. Additionally, the participant stated there is no single test that would be best and there are many acceptable assessment tests that can be conducted by medical personnel. In fact, this participant noted that no two medical groups would likely recommend the same tests. Instead, this professional suggested improving the Physical Examination Report (PERs) form as it assumes a lot of knowledge on the part of medical professionals to complete, who may have no training on these issues as it relates to driving. It was suggested that the DOL could create a list of acceptable tests and have the medical professional supply the results of these tests to decide on driving cessation. Additionally, providing training on testing or a guide for how results should be assessed to determine driving fitness was suggested.

Self-Assessment Options

Many participants were in favor of access to a self-assessment, and participants provided several resources that already exist. These included AARP Washington, AAA, and CarFit. Providing resources

for individuals to do self-assessments may be a way to both normalize and increase awareness around decreasing driving ability. Participants mentioned concerns they believed should be assessed, such as vision, reaction time, and range of motion. There are also cautions with this kind of testing, as one participant mentioned, these tests are helpful for those without cognitive decline but can be greatly distorted for those who do exhibit declines.

Conclusions

Across the various entities consulted, several important considerations emerged. The primary considerations included the following:

- The high level of unfamiliarity with the legislation and current DOL policies suggests the need for improving communication and outreach to impacted populations, especially if a new policy is instituted by the DOL.
- The development of a comprehensive plan to improve older driver safety should focus less on drivers of a certain age and instead emphasize drivers who are medically at-risk, no matter their age.
- Any efforts to restrict or revoke individuals' ability to drive will likely have differential, negative impacts on rural versus urban residents.
- Suggestions for improving upon existing DOL policies included modifying the interval between in-person renewals, adding available licensing restrictions, providing education on changing "rules of the road", streamlining the reporting process to help family and police report dangerous drivers, and engaging in broad educational approaches to normalize "giving up the keys."
- To facilitate driver restrictions and eventual driving cessation, considerable resources should be provided to enhance alternative forms of transportation as well as a centralized location to provide public information about alternative forms of transportation within communities.
- Perceptions about establishing a Medical Advisory Board with diverse expertise were generally supportive, especially if the purpose was limited to advising on policy; concerns were raised about a board focusing specifically on older drivers and/or disabled drivers.
- Participants were favorable of providing resources for drivers to conduct self-assessments of their driving skills, with the caveat that this may not be a useful approach among drivers experiencing significant cognitive decline.

CONCLUSION AND RECOMMENDATIONS

To produce a comprehensive plan for improving older driver safety in Washington, numerous interested parties were consulted, including individuals who represented the Washington Traffic Safety Commission, the Department of Health, the Elder Law Section of the Washington State Bar Association, organizations serving older drivers (e.g., AAA, AARP, Washington State Senior Citizens' Lobby, Washington State Council on Aging), and driver rehabilitation specialists. In addition, a comprehensive review of existing research was conducted to provide a national assessment of the nature and scope of driver safety as it pertains to age. Moreover, Washington State motor vehicle crash data were analyzed to provide a clearer understanding of this issue for Washingtonians. Beyond this, the feasibility of establishing a Medical Advisory Board (MAB) in the state of Washington was assessed by examining existing practices in the United States and reviewing relevant research on MABs. Finally, a comprehensive review of screening and assessment tools was conducted to determine whether such tools could be used by the DOL to identify medically at-risk drivers. Based on these analyses, the following key findings and recommendations emerged.

Key Findings

- Nationally, older drivers were at *higher* risk of involvement in fatal and non-fatal crashes *when* they chose to drive (i.e., per mile driven), but their reduced driving exposure meant their overall contribution to fatal and non-fatal crashes (i.e., per capita) was often *lower* than that of middle-aged and younger drivers.
- Older drivers are a heterogeneous group, and research indicated that the elevated risk for involvement in motor vehicle crashes (per mile driven), relative to non-older drivers, has become concentrated among drivers 80 and older.
- Recent motor vehicle crash data for Washington State indicated that crash rates per 10,000 licensed drivers generally declined with age, and older drivers exhibited the lowest crash rates for non-injury crashes, injury crashes, fatal crashes, and all crash types combined.
- Washington crash data indicated a pattern unique to fatal crash rates per 10,000 licensed drivers; these rates declined with age, but only until drivers reached the 80 and older category where fatal crash rates increased.
- Fatal injury crash rates in Washington State have increased between 2018 to 2022, but the increase is largely driven by drivers in the youngest age group (i.e., 16- to 17- year-olds).

- Referrals for re-examination are heavily concentrated among drivers 65 and older, who account for the majority of all re-exams.
- DOL takes a multi-faceted approach to identify older drivers with cognitive, physical, and visual impairments to both maintain independence and enhance road safety.
- DOL uses physical assessment procedures that align with NHTSA recommendations and recent scholarship.
- DOL lacks specific remedial training programs or older driver rehabilitation courses between test attempts (although other entities do offer these) and lacks guidelines for monitoring and following up on drivers' progress, and detailed protocols for addressing identified issues.
- Visual requirements are consistent with policies across the United States.
- Recent research suggests that visual acuity might not be as useful of a predictor of motor-vehicle collisions, and that cognitive assessments that involve useful field of view and visual processing speed should be included for a more comprehensive understanding of driving abilities.
- Unlike some other states, Washington does not require medical professionals to report to DOL if their patient has difficulty driving due to cognitive decline. Mandatory reporting, however, may face challenges like symptom concealment by patients and fear of legal repercussions by medical professionals.
- There is no single assessment tool that can be applied by DOL to address all driving-related risks. Several tools must be administered by physicians or require training to administer.
- Tools that evaluate cognition and motor skills tend to be the most relevant for driver safety.
- Several screening and assessment tools score high in reliability, internal validity, and external validity, including DriveABLE, Maze, TMT-A, TMT-B, DSST, P-Drive, Multi-D, and Hazard Perception Test.
- Self-reporting tests do not rank as high in reliability and validity. However, as more tests become available, their effectiveness should be evaluated as a potential cost-effective option.
- MABs are used in more than 30 states and their functions vary greatly, with most advising on medical standards for licensing, reviewing and advising on individual cases, reviewing and advising on driver appeals cases, and developing medical forms for guiding driver evaluations by medical professionals.

- Best practices include establishing a permanent MAB, providing financial compensation for board members, and providing funding for administrative support, meeting expenses, and expense reimbursement.
- Research suggests that MABs should be composed of approximately 7 to 10 members representing all aspects of driver health and safety, including neurologists, cardiologists, psychiatrists, optometrists, occupational therapists (i.e., driver rehabilitation specialists), legal experts, and transportation safety specialists.
- Consultants to this comprehensive plan also emphasized including driving rehabilitation experts, seniors, and people with disabilities.
- Driving cessation can lead to declines in mental, social, and physical wellbeing and should be considered and monitored when adopting policies that impact individuals' ability to drive.

Recommendations

- In addition to DOL's current methods for identifying at-risk drivers, the department may further encourage self-reporting and reporting by third parties of physical/cognitive impairments that may impact driving.
- DOL may expand and evaluate the use of licensing restrictions tailored to specific physical impairments (e.g., driving only during daylight hours or within a limited radius) to prolong mobility while ensuring safety.
- DOL should enhance the appeals process by more clearly communicating rights to drivers, providing detailed guidance, and offering multiple opportunities for evaluation and demonstration of driving ability.
- DOL should provide an ID at no cost to older drivers who voluntarily, or are otherwise forced to, give up their driver license.
- The Maze Test should be piloted across a diverse set of locations in Washington, and if successful, incorporated by the DOL as a screening tool for identifying drivers with potential cognitive deficits. If an individual fails this screening test, they should be referred for further testing, which could include a full assessment by a physician.
- DOL (in conjunction with an established MAB) should promote the use of standardized assessment tools by physicians that examine driver fitness, though a single tool should not be emphasized as several valid and reliable tools are available.

- DOL should seek to establish a permanent MAB with approximately 7-10 members who contribute unique expertise and perspectives.
- The MAB should include the following roles (at a minimum): neurologist, cardiologist, psychiatrist, optometrist, occupational therapist specializing in driver rehabilitation, gerontologist, and a transportation safety specialist; the board should also comprise members of the target population, including older drivers and those with medical disabilities.
- The MAB members should be financially compensated since states with voluntary boards have struggled to keep positions filled.
- The MAB should advise on general policy surrounding medically at-risk drivers, as well as assessment tools that could be used by physicians for assessing driver fitness.
- The MAB should both promote recommended assessment tools to physicians in WA state and provide guidance for using recommended assessment tools.
- The MAB should recommend improvements to the Physical Examination Report (PER) that provide more guidance on how and what to assess.
- The MAB should advise on whether the Maze Test should be more widely adopted after the completion of a pilot test.
- The MAB should consult on the expansion of licensing restrictions for medically at-risk drivers.
- DOL should establish a safety program for older and medically at-risk drivers. A minimum of one full-time staff member (1 FTE) and one year should be dedicated to developing the program, which should remain permanently staffed.
- This program should establish a campaign to normalize aging out of driving and should include resources for older drivers to assist in making this transition.
- DOL should develop resources to make transitioning out of driving easier, including a resource guide, planning tools, and contact information for transportation options available within communities across Washington. Maryland's Safety for Older and Medically At-Risk Drivers webpage provides an excellent example of resources that could be emulated in Washington.
- DOL should improve its website to provide older drivers with resources and information.
- The legislature should provide resources to improve public transit and provide alternative options to driving, especially in more rural areas that lack access to public transit.

IMPLEMENTATION PLANNING

Implementation Steps

Task	Legislation or Rulemaking Required	Who does this affect?	Responsibility for Implementation	Requires Additional Staffing	Requires Additional Funds
Develop Medical Advisory Board	Legislation	WA Legislature; DOL	DOL	Yes	Yes
Establish Older Driver Program in DOL	No	DOL	DOL	Yes	Yes
Improve DOL Older Driver/Medically At-Risk Driver website	No	DOL	DOL/Older and Medically At-Risk Driver Program	No	Yes
Develop list of acceptable assessment tools for medical professionals	No	DOL; MAB	MAB	No	No
Enhance appeals process	No	DOL/MAB	DOL/MAB	No	No
Recommend improvements to existing PERs	No	DOL/MAB	MAB	No	Yes
Conduct Pilot Program of Maze (or similar) Test for DOL screening	No	DOL/MAB	DOL	No	Yes
Develop planning tools and resource guide for aging out of driving	No	DOL	DOL/Younger Driver Program	No	Yes
Develop aging out of driving campaign	No	DOL	DOL/Younger Driver Program	No	Yes
Expand available licensing restrictions	Yes	DOL	DOL/MAB	No	No
Evaluate pilot program of Maze (or similar) Test	No	DOL/MAB	MAB	No	Yes
Finalize whether to adopt Maze (or similar) Test system-wide	No	DOL/MAB	DOL	No	No
Evaluate impact of expanded licensing restrictions on road safety and driver independence	No	DOL	DOL/Older and Medically At-Risk Driver Program	Yes	Yes

Development of a Medical Advisory Board

- *Identified Need:*
    - A Medical Advisory Board (MAB) is considered best practice and MABs are used in most states (though roles vary).
    - MAB experts are best placed to provide guidance on the development of policies aimed at helping older and medically at-risk drivers maintain independence while reducing individual crash risk.
- *Participants:*
    - DOL will recruit approximately 7-10 members to serve on the MAB.
- *MAB Tasks:*
    - MAB will develop a list of acceptable driving assessment tools that can be used by physicians and medical professionals and provide guidance for the use of these tools.
    - MAB will advise on improving the appeals process and help develop materials that clearly explain the appeals process for individuals whose driving privileges are restricted/revoked.
    - MAB will recommend improvements to the current Physical Examination Report (PER) used by DOL.
    - MAB will help with the development of a pilot program to evaluate the use of the Maze Test or a similar screening tool for use by DOL during the licensing process.
    - MAB will advise on the expansion of licensing restrictions and the results of an evaluation aimed at assessing the impact of such restrictions.
- *Costs:*
    - Estimates provided by Lococo et al. (2017) (located in Table 5 of this report) can provide some guidance but need to be adjusted to the Washington context.
    - Funding is recommended to support 7 to 10 individuals meeting 12 times a year, administrative support, and miscellaneous costs.
    - Additional funding should be allocated for recruitment of MAB members.
    - Additional funding should be allocated for the evaluation of the MAB over time.
- *Rulemaking authority:*
    - Legislation is likely needed to establish an MAB and clarify its role.

- MABs typically have the power to advise on medical standards for licensing, advise on and review drivers' cases, advise on and review driver appeals cases, and advise on the development of medical forms.

Development of an Older Driver and Medically At-Risk Driver Safety Program in DOL

- *Identified Need:*
  - Several states have a program dedicated to older drivers and medically at-risk drivers; currently, Washington has no such program.
  - Creating a program within the DOL can help establish better resources for these drivers to help lower individual risk of crashes while helping to maintain independence for as long as possible.
- *Participants:*
  - Participants should include DOL and potentially the Washington Traffic Safety Commission.
- *Program Tasks:*
  - DOL should improve its website for older and medically at-risk drivers.
  - DOL should develop planning tools and resource guides for aging out of driving.
  - DOL should develop an aging-out-of-driving awareness campaign.
    - DOL should work with organizations representing older populations for development and outreach, such as Senior Centers, AARP, and others.
  - DOL should evaluate the expanded use of licensing restrictions.
- *Costs:*
  - Funding for 1 FTE individual to develop and administer the program should be provided.
  - Additional funding for website improvement, development of resource guides, and outreach for older drivers should be provided.
  - Additional funding should be provided to evaluate program activities and license restrictions expansion.

Additional Considerations

- To help individuals successfully age out of driving, the Washington State Legislature will need to provide funding to expand transportation options, especially in rural areas.
    - Communities could be encouraged to engage in strategic planning to develop transportation options that best work for them through grants and other opportunities.
- Evaluation of the impact of the established programs on safety and mobility needs to be supported through funding.
- Costs to support free or reduced ID replacement should also be considered.

Risk Management and Mitigation Strategies

- *Risk Management:*
    - Attempting to make age-based restrictions or testing and licensing requirements will likely be met with significant political and legal challenges, which may hinder implementation. These challenges may also lead to resource constraints that may impact attempted changes.
    - Policies enacted may have a disproportionate impact on some members of the populations targeted.
- *Mitigation Strategies:*
    - These risks can be reduced by focusing on all medically at-risk drivers as opposed to older drivers and by emphasizing goals of increased individual safety in the context of driving.
    - Use phased rollouts of policy changes and evaluate the impact of these changes. Make the impact of policy changes publicly available through the Older Driver and Medically At-Risk Driver Program through significant outreach.
    - Work with organizations that serve these populations to help with outreach about the need and impact of programming, such as AARP.
    - Ensure ongoing engagement with an established MAB and an established Older and Medically At-Risk Driver Program within DOL for impacted populations.
    - Provide resources for evaluation of policies enacted to help mitigate potential disproportionate impacts.

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APPENDIX A: LIST OF POLICIES AND PROCEDURES

Table A1: Compilation of Washington RCWs on Older and Medically At-Risk Drivers

RCWs	Policy Summary	Assessment/Evaluation Tool
RCW 46.20.041	If the department believes a person has a physical or mental disability that affects driving, an evaluation is required. Based on the evaluation, the department may issue, renew, restrict, or cancel the license.	Personal demonstration of ability, medical statement from a licensed physician
RCW 46.20.041(2)	Details the actions the department may take based on an evaluation, including issuance, restriction, or cancellation of a license.	Medical evaluation, re-examination, additional documentation as needed
RCW 46.20.305	The department can require a driver to undergo a re-examination if deemed unqualified. Non-compliance may lead to suspension or revocation of the license.	Physical or vision exam, re-examination of knowledge and driving ability
RCW 46.20.305(2)	Mandates examination for licensed drivers reported under RCW 46.52.070, with possible additional requirements like a physician's certificate.	Examination, medical certificate
RCW 46.20.305(3)	Allows the department to require a person to obtain a certificate showing their condition from a licensed physician.	Medical certificate
RCW 46.20.305(4)	The department can take appropriate driver improvement action including suspension, revocation, or issuance of a restricted license based on examination results.	Driver evaluation, re-examination, additional assessments as needed
RCW 46.20.130	Defines the content and conduct of driver licensing exams including tests for vision, traffic laws, and driving skills.	Vision exam, knowledge test, driving skills demonstration
RCW 46.52.070	Police officers must report accidents resulting in substantial bodily harm or fatalities to the department, and the competency of the driver may be evaluated.	Police report triggering a driver evaluation
RCW 46.20.161	Licenses must include a medical alert designation if necessary.	Self-attestation, statement from a licensed physician
RCW 46.20.161(2)	Specifies the details to be included on a driver's license, including a photograph, name, date of birth, address, and any applicable medical alert or restriction.	Self-attestation, physician's statement
RCW 46.20.161(4)	Allows veterans to apply for a veteran designation on their driver's license by providing appropriate documentation.	Submission of documentation proving veteran status
RCW 46.20.161(5)	Details the process for including a medical alert, developmental disability, or deafness designation on a license.	Self-attestation, statement verifying condition, guardian's signature if applicable
RCW 46.20.161(6)	States that self-attestation information is confidential and may only be used by certain officials for specific purposes.	Self-attestation, confidential use policy

RCW 46.20.065	Allows the issuance of temporary permits under certain conditions, such as when a driver needs to practice before the final examination.	Temporary authorization to drive, learner's permit
RCW 46.20.031	Specifies conditions under which the department cannot issue a driver's license, such as age restrictions or medical disqualifications.	Evaluation of eligibility, compliance with medical requirements
RCW 46.20.120	Defines the fee structure, renewals, and administration of driver examinations and licenses.	Payment of applicable fees, completion of required examinations
RCW 46.52.041	Allows for the suspension or revocation of driving privileges based on violation of restricted license terms or medical conditions.	Medical evaluation, re-examination, documentation of compliance

Table A2: Washington Administrative Codes on Older and Medically At-Risk Drivers

WACs	Policy Summary	Assessment / Evaluation Tool
WAC 308-104-010	Details vision test requirements for driver licensing, specifying the need for visual acuity and field of vision standards.	Vision examination, Visual Examination Report (VER)
WAC 308-104-014	Drivers disclose any history of having their driving privileges suspended, revoked, or otherwise sanctioned, as well as any mental or physical conditions or medications that could impair their ability to drive	Physical Examination Report (PER)
WAC 308-104-019	Allows for the renewal of a license or identity card by electronic commerce, requiring certification that the person has no impairing mental or physical conditions or medications. Drivers aged 70 and older cannot renew their driver's license by electronic commerce.	Certification of no impairing conditions or medications
WAC 308-104-080	A driver's license suspended, revoked, or denied won't be reissued until the reissue fee is paid, unless the subject was incompetent to operate a vehicle due to a physical or mental disability	Payment of reissue fee, unless exempted
WAC 308-104-100	The department will issue an occupational/temporary restricted driver's license to anyone with a suspended or revoked license, provided they meet the requirements, including demonstrating a valid and essential need to drive for work, education, health, or family support, and have not committed vehicular homicide or vehicular assault within the last seven years.	Proof of need

Table A3: CDR and PCD Procedures

Policy	Policy Summary	Assessment/Screening Tool
Threshold Determination	Determining reasonable belief or good cause for impairment affecting driving ability	Medical Questionnaire (CDR) Third-party form review (PCD)
Evaluation Requirement	Requirement for customers to complete one of the evaluation types	Evaluation Requirement Letter (CDR & PCD)
Medical Certificate Requirement	Requirement for medical certificates for certain medical conditions	Physical Exam Report (PER)
Vision Certificate Requirement	Requirement for vision exams for moderate to severe visual acuity impairment	Visual Exam Report (CDR & PCD)
Psychiatric Evaluation	No internal process for initiating a psychiatric referral under WAC examination type	Not specified
Alcohol or Drug Evaluation	No internal process for referral for alcohol or drug evaluation under WAC	Not specified
Re-examination of Knowledge and Driving Ability	Re-examination procedures for physical or mental impairments or unsafe driving skills	Re-examination (RX) Selection Guidelines
In-Vehicle Assessment (not in WAC)	Assessment process for in-vehicle driving ability	In-Vehicle Assessment Form (CDR) No process (PCD)
Conducting In-Vehicle Assessments	Detailed process for conducting in-vehicle assessments and imposing restrictions	In-Vehicle Assessment Documentation (CDR)
Periodic Physical Examination Reports	Recurring requirement for physical exams and submission to DOL	Periodic Physical Examination Reports (PCD)
Screening for Medical Conditions	Screening customers for impairing conditions and issuing PERs	
Selection for Re-examination (RX)	Guidelines for selecting customers for re-examination based on observable conditions	Re-examination (RX) Selection Guidelines
Adding and Staging a License Re-Examination (RX) Case Manually	Process for manually adding and staging a re-examination case	Re-examination (RX) Case Staging Guidelines
Agency Determination of Driving Privilege Restrictions	Determining and imposing driving restrictions to ensure safety based on impairments	RX Restrictions Guidelines
Notice of Evaluation Requirement	Notifying customers of required evaluations and statutory rights	Evaluation Requirement Notification (CDR)
Agency Determination of Driving Privilege Cancellation	Criteria for canceling driving privileges based on evaluations	Cancellation Criteria and Re-examination Records (CDR)
Suspend or Revoke the License (RCW 46.20.305)	No internal process for suspending or revoking a license based on the outcome of an evaluation	Not specified
Place Customer on Probation with Reasonable Terms and Conditions	No internal process for placing a person on probation based on the outcome of an evaluation	Not specified

APPENDIX B: ASSESSMENT TOOLS EXCLUDED FROM ASSESSMENT

Table B1: Assessment Tools Excluded from Evaluation

Amsler Grid Test
Color Choice Test
Muscle Strength Test
Paper Folding Test
Randot Steroacuity Test
Scan Test
Visual Reaction Differential Response
Charron Test
8 Item Informant Questionnaire
Visual Selective Attention Test (VSAT)

APPENDIX C: STATE COMPARISON LITERATURE

Table C1: State Comparison Literature

State	Citations
Alabama	• Alabama Law Enforcement Agency (n.d.). Driver License | Alabama Law Enforcement Agency. https://www.alea.gov/node/1 (Alabama Law Enforcement Agency, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Alaska	• Department of Administration Division of Motor Vehicles (n.d). State of Alaska. https://dmv.alaska.gov/home/ (Alaska DMV, n.d.) • Drivers Permits & First-Time Alaska Licenses (n.d.). Alaska DMV Services. https://alaskadmvservices.com/new-driver-services/#:~:text=at%20no%20cost.-,Pass%20a%20vision%20test.,Provide%20proof%20of%20identification (Alaska DMV Services, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Arizona	• ADOT (n.d.). MVDOT Homepage. Arizona Department of Transportation. https://azdot.gov/mvd (ADOT, n.d.) • ADOT (n.d.). Medical and Vision Screening. Arizona Department of Transportation. https://azdot.gov/mvd/services/driver-services/driver-license-information/medical-and-vision-screening (ADOT, n.d. • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Arkansas	• Arkansas MyDMV (n.d.). Arkansas Department of Finance and Administration. https://www.dfa.arkansas.gov/service/mydmv/ (Arkansan MyDMV, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.)

	• Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
California	• California Department of Motor Vehicles. (n.d.). California DMV. https://www.dmv.ca.gov/portal/ (California Department of Motor Vehicles, n.d.) • California Department of Motor Vehicles. (n.d.). Vision conditions. California DMV. https://www.dmv.ca.gov/portal/driver-education-and-safety/medical-conditions-and-driving/vision-conditions/ (California Department of Motor Vehicles, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Colorado	• Colorado Department of Motor Vehicles. (n.d.). Colorado DMV. https://dmv.colorado.gov/ (Colorado Department of Motor Vehicles, n.d.) • Colorado Department of Motor Vehicles. (n.d.). Driver license FAQs. Colorado DMV. https://dmv.colorado.gov/faq-driver-license (Colorado Department of Motor Vehicles, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Connecticut	• Connecticut Department of Motor Vehicles. (n.d.). Connecticut DMV. https://portal.ct.gov/dmv (Connecticut Department of Motor Vehicles, n.d.) • Connecticut Department of Motor Vehicles. (n.d.). Take a knowledge and vision test. https://portal.ct.gov/dmv/licenses-permits-ids/take-knowledge-vision-test?language=en_US (Connecticut Department of Motor Vehicles, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Delaware	• Delaware Division of Motor Vehicles. (n.d.). Delaware DMV. https://dmv.de.gov/ (Delaware Division of Motor Vehicles, n.d.) • Delaware Division of Motor Vehicles. (n.d.). Driver's license vision screening. https://dmv.de.gov/DriverServices/drivers_license/index.shtml?dc=dr_lic_exam#:~:text=Vision%20Screening&text=If%20the%20screening

	%20shows%20that,without%20glasses%20or%20contact%20lenses. (Delaware Division of Motor Vehicles, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Florida	• Florida Department of Highway Safety and Motor Vehicles. (n.d.). General information on driver licenses and ID cards. https://www.flhsmv.gov/driver-licenses-id-cards/general-information/ (Florida Department of Highway Safety and Motor Vehicles, n.d.) • Florida Department of Highway Safety and Motor Vehicles. (n.d.). Vision standards for medical review. https://www.flhsmv.gov/driver-licenses-id-cards/medical-review/vision-standards/ (Florida Department of Highway Safety and Motor Vehicles, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Georgia	• Georgia Department of Driver Services. (n.d.). Georgia DDS. https://dds.georgia.gov/ (Georgia Department of Driver Services, n.d.) • Georgia Department of Driver Services. (n.d.). Medical and vision information. https://dds.georgia.gov/medical-and-vision-information (Georgia Department of Driver Services, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Hawaii	• City and County of Honolulu. (n.d.). Customer Services Department. https://www8.honolulu.gov/csd/ (City and County of Honolulu, n.d.) • City and County of Honolulu. (2022). Vision test options and requirements [PDF]. https://www.honolulu.gov/rep/site/csd/csd_docs/Vision_Test_Options_Requirements_07.01.22.pdf (City and County of Honolulu, 2022) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Idaho	• Idaho Transportation Department. (n.d.). Idaho DMV. https://itd.idaho.gov/itddmv/ (Idaho Transportation Department, n.d.)

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Illinois	• Illinois Secretary of State. (n.d.). Driver Services. https://www.ilsos.gov/departments/drivers/home.html (Illinois Secretary of State, n.d.) • Illinois Secretary of State. (n.d.). Medical and vision requirements for driver's licenses. https://www.ilsos.gov/departments/drivers/drivers_license/medical_vision.html#:~:text=Visual%20reading%20requirements%20are%20as,with%20or%20without%20corrective%20lenses. (Illinois Secretary of State, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
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Iowa	• Iowa Department of Transportation. (n.d.). Driver's license. https://iowadot.gov/mvd/driverslicense (Iowa Department of Transportation, n.d.) • Iowa Department of Transportation. (n.d.). Medical and vision requirements for driver's licenses. https://iowadot.gov/mvd/driverslicense/Medical-Vision (Iowa Department of Transportation, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.)

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Kentucky	• Kentucky Transportation Cabinet. (n.d.). Driver's licenses. https://drive.ky.gov/Drivers/Pages/default.aspx (Kentucky Transportation Cabinet, n.d.) • Kentucky Transportation Cabinet. (n.d.). Kentucky Transportation Cabinet. https://drive.ky.gov/Pages/index.aspx (Kentucky Transportation Cabinet, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Louisiana	• Louisiana Express Lane. (n.d.). Express Lane. https://www.expresslane.org/ (Louisiana Express Lane, n.d.) • Louisiana Express Lane. (n.d.). Medical and vision requirements for personal driver's licenses. https://www.expresslane.org/drivers/personal-driver-s-licenses/medical-vision-requirements/ (Louisiana Express Lane, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
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Massachusetts	• Massachusetts Executive Office of Public Safety and Security. (n.d.). Driving and motor vehicles. https://www.mass.gov/topics/driving-motor-vehicles (Massachusetts Executive Office of Public Safety and Security, n.d.) • Massachusetts Executive Office of Public Safety and Security. (n.d.). Older drivers. https://www.mass.gov/info-details/older-drivers (Massachusetts Executive Office of Public Safety and Security, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Michigan	• Michigan Secretary of State. (n.d.). Michigan Secretary of State. https://www.michigan.gov/sos?gad_source=1&gclid=Cj0KCQiAwvKtBhDrARIsAJj-kTg-60xFiT9wwCMo2L0o1OwZXc1GPAyDB15vr5Lkp5HXZ5w9_Wfm0WAaAukHEALw_wcB (Michigan Secretary of State, n.d.) • Michigan Secretary of State. (n.d.). Driver assessment. https://www.michigan.gov/sos/license-id/driver-assessment(Michigan Secretary of State, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)

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Oregon	• Oregon Department of Transportation. (n.d.). Oregon DMV. https://www.oregon.gov/odot/dmv/pages/index.aspx (Oregon Department of Transportation, n.d.) • Oregon Department of Transportation. (n.d.). How to get a driver license. https://www.oregon.gov/odot/DMV/pages/driverid/licenseget.aspx (Oregon Department of Transportation, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Pennsylvania	• Pennsylvania Department of Transportation. (n.d.). Pennsylvania DMV. https://www.dmv.pa.gov/Pages/default.aspx(Pennsylvania Department of Transportation, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Rhode Island	• Rhode Island Division of Motor Vehicles. (n.d.). Rhode Island DMV. https://dmv.ri.gov/ (Rhode Island Division of Motor Vehicles, n.d.) • Rhode Island Division of Motor Vehicles. (n.d.). Driver license renewal. https://dmv.ri.gov/licenses-permits-ids/drivers-licenses/license-renewal (Rhode Island Division of Motor Vehicles, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
South Carolina	• South Carolina Department of Motor Vehicles. (n.d.). South Carolina DMV. https://www.scdmvonline.com/ (South Carolina Department of Motor Vehicles, n.d.)

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South Dakota	• South Dakota Department of Public Safety. (n.d.). Renew your license online. https://dps.sd.gov/driver-licensing/renew-and-duplicate/renew-online (South Dakota Department of Public Safety, n.d.) • South Dakota Department of Public Safety. (n.d.). Aging drivers. https://dps.sd.gov/driver-licensing/south-dakota-licensing-information/aging-drivers (South Dakota Department of Public Safety, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Tennessee	• Tennessee Department of Safety and Homeland Security. (n.d.). Online driver services. https://www.tn.gov/safety/driver-services/online.html (Tennessee Department of Safety and Homeland Security, n.d.) • Tennessee Department of Safety and Homeland Security. (n.d.). Senior drivers. https://www.tn.gov/safety/driver-services/senior-drivers.html (Tennessee Department of Safety and Homeland Security, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Texas	• Texas Department of Public Safety. (n.d.). Driver license. https://www.dps.texas.gov/section/driver-license (Texas Department of Public Safety, n.d.) • Texas Department of Public Safety. (n.d.). Drivers aged 79 or older. https://www.dps.texas.gov/section/driver-license/drivers-age-79-or-older (Texas Department of Public Safety, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)

Utah	• Utah Department of Public Safety. (n.d.). Driver license division. https://dld.utah.gov/ (Utah Department of Public Safety, n.d.) • Utah Department of Public Safety. (n.d.). Eye test. https://dld.utah.gov/eye-test/ (Utah Department of Public Safety, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Vermont	• Vermont Department of Motor Vehicles. (n.d.). New licenses. https://dmv.vermont.gov/licenses/new (Vermont Department of Motor Vehicles, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Virginia	• Virginia Department of Motor Vehicles. (n.d.). Home. https://www.dmv.virginia.gov/ (Virginia Department of Motor Vehicles, n.d.) • Virginia Department of Motor Vehicles. (n.d.). Renewing a license. https://www.dmv.virginia.gov/licenses-ids/license/renewing (Virginia Department of Motor Vehicles, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)
Washington	• Washington State Department of Licensing. (n.d.). Home. https://www.dol.wa.gov/ (Washington State Department of Licensing, n.d.) • Washington State Department of Licensing. (n.d.). Medical and vision screening. https://dol.wa.gov/driver-licenses-and-permits/medical-and-vision-screening (Washington State Department of Licensing, n.d.) • Insurance Institute for Highway Safety. (n.d.). License renewal laws for older drivers. https://www.iihs.org/topics/older-drivers/license-renewal-laws-table (Insurance Institute for Highway Safety, n.d.) • Governors Highway Safety Association. (n.d.). Mature drivers laws by state. https://www.ghsa.org/state-laws/issues/mature%20drivers (Governors Highway Safety Association, n.d.)

APPENDIX D: ASSESSMENT TOOL LITERATURE

Table D1: Assessment Tool Literature

Tool Name	Citations
AAA - Drivers 65 Plus Self Assessment	Eby et al. 2003; Molnar et al. 2010
AARP - Fitness to Drive Screening Measure	Classen et al. 2010; Eby et al. 2003
AARP Driving IQ Test	Eby et al. 2003; Ross et al. 2012
ADReS (Assessment of Driving-Related Skills)	Kim et al. 2021; McCarthy et al. 2009; Posse et al. 2006
Arm Reach	Shen et al. 2020
Benton Visual Form Discrimination Test	Abe et al. 2021; Barrash et al. 2010; Manna et al. 2011
Benton Visual Retention Test (BVRT)	Anderson et al. 2012; Barrash et al. 2010
CDT (Clock Drawing)	Bahrampouri et al. 2021; Ketelaars et al. 2013; Manning et al. 2014; Yamauchi 2024
Complex Figure Test-30 Minute Delayed Recall (CFT-Recall)	Anderson et al. 2014; Barrash et al. 2010; Xiaonan et al. 2021
Confrontation Visual Field	Bahrampouri et al. 2021; Faraji et al. 2022
Controlled Oral Word Association (COWA)	Anderson et al. 2017; Bauer and Malek-Ahmadi 2023; Lim et al 2019; Suchy-Dicey et al 2023; Zhou et al. 2023
Cued/ Delayed Recall	Rhodes et al. 2019
Drive Safe Intersection Test	Anstey et al. 2020; Attuguayefio et al. 2023
Drive Safe/Drive Aware	Johnston et al. 2021; Vito et al. 2023
DriveABLE	Dobbs, March 2013; Korner-Bitensky et al. 2011
Foot-tap test	Hinman 2019

Functional Rating Scale (FRS)	Grauer 1975
GRIMPS Test (Gross Impairment Screening Battery)	Koppel et al. n.d
Grip Strength	Keener et al 2022; Lenardt et al. 2022
Grooved Pegboard (average of left and right hands)	Anderson et al. 2012, Wang et al. 2013
Hazard Perception Test	Anstey et al. 2020; Attuguayefio et al. 2023; Jones et al 2022
Head neck rotation	Chen et al. 2015
Maze	Anstey et al. 2020; Bahrampouri et al. 2021; Ott et al. 2003; Snellgrove 2005; Staplin et al. 2013
MFVP (Motor-Free Visual Perception)	Ball et al. 2006; Holowaychuck et al. 2020
MMSE (Mini-Mental State Examination)	Bahrampouri et al. 2021; Bedard et al. 2013; Barrash et al. 2010; Folstein et al. 1975
Mobility Questionnaire	Martin et al. 2021
MoCA - Montreal Cognitive Assessment Test	Bahrampouri et al. 2021; Bedard et al. 2013
Multi-D (multiple-domains)	Anstey et al. 2020; Attuguayefio et al. 2023
Nordic Stroke Driver Screening Assessment (NorDSA)	Radford et al. 2004; Selander et al 2010; Selander et al. 2020; Selander et al 2011
P-Drive	Cheat et al 2024; Patomella et al. 2006; Patomella et al. 2010; Patomella and Bundy 2015
Pelli-Robson Test	Jones et al. 2022; Shen et al. 2020
Rey–Osterrieth Complex Figure (ROCF)	Anderson et al. 2013; de Paula et al. 2016; Jerskey and Meyers 2011; Zhang et al 2021
ROM (Range of Motion)	Bahrampouri et al. 2021
RPW (Rapid Pace Walk)	Bahrampouri et al. 2021
RT (Reaction Time)	Fererria et al. 2024; Salvia et al. 2016

Self-Reported Health Status (SDB)	Kandasamy et al 2018
Single Letter Cancellation Test and Double Letter Cancellation Test	Diller et al. 1974; Vanlaar et al. 2015; Zeltzer and Menon 2008
Snellen	Bahrampouri et al. 2021; Currie et al. 2000
Sway Path Length	Sullivan et al. 2007
TMT-A (Trail Making Test Part A)	Anderson et al. 2012; Barrash et al. 2010; Bedard et al. 2013; Dobs and Shergill 2013; Kortte et. al 2002; Wagner et al. 2011; Waggestad et al. 2023
TMT-B (Trail Making Test pt B)	Anstey et al. 2020; Ball et al. 2006; Barrash et al. 2010; Bahrampouri et al. 2021; Bedard et al. 2013; Kortte et al. 2002; Selander et al. 2011; Waggestad et al. 2023;
Traffic Sign Recognition Test (TSRT)	Barco et al. 2020; Macgregor et al. 2001; Vanlaar et al. 2017
UFOV (Useful Field of View)	Anderson et al. 2012; Attuguayefio et al. 2023; Ball et al. 2006; Selander et al. 2011; Edwards et al. 2006
Visual Recognition Slide Test - University of Sydney (VRST - USyd)	George et al 2019; Kay et al 2008; Lee et al. 2015; Lee et al 2019
Washington University Road Test (WURT)	Dalchow et al. 2010; Sawada et. al 2019
Wechsler Digit Symbol Substitution Test (DSST)	Barrash et al. 2010; Jaeger 2018; Lafont et al. 2010; Vanlaar et al. 2019
Whispered Voice Test	Bahrampouri et al. 2021; Pirozzo et al. 2003

APPENDIX E: INTERVIEW FEEDBACK BY ORGANIZATION TYPE

Table E1: Familiarity with ESHB 1125

Organization Type	Familiar	Somewhat Familiar	Not Familiar
Interest Group	1	2	4
Government Agency	1	1	2
Medical Expert	0	0	4
Community Member	0	0	6
Subject Matter Experts	0	0	3
Other	1	0	0
Total	**3**	**3**	**17**

Notes: Some interviews had multiple participants from different groups (e.g., Interest and Medical, Government Agency and Medical) and therefore the count may differ from total. Some participants were not from Washington and were interviewed regarding their processes, so they are excluded from this table.

Table E2: Opinion on ESHB 1125

Organization Type	Positive Opinion	Mixed Opinion	Negative Opinion
Interest Group	0	1	2
Government Agency	1	0	0
Medical Expert	0	0	1
Community Member	0	0	1
Subject Matter Experts	0	0	1
Other	0	0	1
Total	**1**	**1**	**6**

Table E3: Support for Medical Advisory Board

Organization Type	Supportive	Mixed Support	Not Supportive
Interest Group	1	0	2
Government Agency	2	1	0
Medical Expert	2	1	0
Community Member	4	1	1
Subject Matter Experts	1	1	1
Other	0	0	0
Total	**10**	**4**	**4**

Note: Many understandings and perspectives exist within each support level

Table E4: Suggestions for Medical Advisory Board

Organization Type	Medical Professional (General)	Nurse/NP	Gerontologist	Neurologist	Other Medical Specialists[1]	Physical Specialists[2]	Social Workers
Interest Group	2	1	1	0	3	2	1
Government Agency	3	0	2	1	5	2	0
Medical Expert	1	1	3	3	2	3	0
Community Member	5	1	1	1	1	0	1
Subject Matter Experts	0	1	1	2	0	0	0
Other	0	0	0	0	0	0	0
Total	**11**	**4**	**8**	**7**	**11**	**7**	**2**

[1] *Other Medical Specialists included pharmacists, mental health, vision, and chronic illness experts.*
[2] *Includes occupational therapist, driver rehab specialist, physical therapist.*

Table E5: Suggestions for Medical Advisory Board

Organization Type	Representative[1]	Insurance	LE	OD Teachers	Legislators	Data / Research
Interest Group	1	0	1	1	0	0
Government Agency	0	1	0	0	0	1
Medical Expert	0	0	0	0	0	0
Community Member	4	2	2	0	1	1
Subject Matter Experts	0	0	0	0	0	0
Other	0	0	0	0	0	0
Total	**5**	**3**	**3**	**1**	**1**	**2**

[1] *Representatives of groups impacted by policies (e.g., elderly, disabilities)*

Table E6: Roles and Responsibilities of Medical Advisory Board

Organization Type	Advise on Policy/ Advise DOL	Work with Doctor/ Recommend Further Testing	Appeals	Retesting and Assessments	Revoke Licenses
Interest Group	1	0	0	0	1
Government Agency	2	0	1	1	1
Medical Expert	3	0	0	0	0
Community Member	2	2	1	1	0
Subject Matter Experts	2	0	0	0	0
Other	0	0	0	0	0
Total	**10**	**2**	**2**	**2**	**2**