

Effectiveness of age-based mandatory licensing assessments in reducing older driver crash risk

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The safety effects of age-based mandatory licensing assessments for older drivers have been studied across many different contexts and with different study designs (Siren & Meng, 2012):

Three American studies (Grabowski, Campbell, & Morrissey, 2004; Lange & McKnight, 1996; Levy, Vernick, & Howard, 1995) compared crash rates in different states with different age-based mandatory licensing assessment policies:

- Levy et al. (1995) compared 50 states analysing Fatality Analysis Reporting System (FARS) crash statistics, and found only testing for visual acuity to be somewhat related to lower crash rates, while adding theory tests to the renewal procedure had no effect.
- Lange and McKnight (1996) compared per-driver crash rates in states with age-based mandatory licensing assessments with neighbouring states without such tests, and reported that the rates of crashes involving older drivers were actually higher in those states with age-based testing.
- Grabowski et al. (2004) investigated a number of factors including in-person renewal, vision tests, road tests and the frequency of license renewal (which vary in different states) as predictors of older driver safety. The study showed that the only predictor of a lower crash rate was in-person renewal (as opposed to renewal by post), and that this effect could be seen only for those aged 85 years and older. Additional tests, regardless of whether they were medical or tests of practical driving skills, had no effects on safety.

Two European studies (Hakamies-Blomqvist, Johansson, & Lundberg, 1996; Mitchell, 2008) have also investigated the effectiveness of age-based mandatory licensing assessments:

- Hakamies-Blomqvist et al. (1996) compared crash rates in Sweden, where there is no age-based mandatory licensing assessments, and Finland, where all drivers from the age of 70 onwards have to undertake a medical check in order to renew their license. The results did not show any safety benefits resulting from the Finnish system, and, on the contrary, showed that Finland had a higher pedestrian fatality rate after the age of 70. The authors argued that by providing a modal shift from being a car driver to a unprotected road user (pedestrian, cyclist, moped rider), the screening indirectly caused an increase in the number of unprotected road users who were killed, and concluded that the age-based mandatory screening thus produced an overall negative safety effect.
- Mitchell (2008) compared seven EU-member states with different older driver licensing policies and reported that crash rates for older drivers were lower in countries that had fewer requirements for license renewal in old age.

Four Australian studies have investigated the effectiveness of age-based mandatory licence programs for reducing older driver crash risk (Langford, Bohensky, Koppel, & Newstead, 2008; Langford, Fitzharris, Koppel, & Newstead, 2004; Langford, Fitzharris, Newstead, & Koppel, 2004; Torpey, 1986):

- Torpey (1986) evaluated the effectiveness of different licensing systems by comparing older driver (75 years and above) casualty crash rates across the different licensing jurisdictions in Australia. All jurisdictions had some form of mandatory age-based assessment, except for Victoria where older drivers were assessed only if they were referred to the licensing authority, usually following a crash or traffic misdemeanour. Torpey found that the Victorian crash rate per head of population was very similar to those in New South Wales and South Australia, and lower than the crash rates for Queensland, Tasmania and Western Australia. Torpey also showed that despite its lack of a mandatory assessment program, Victoria had the lowest older driver crash rate per number of licences issued and concluded that there were no demonstrable safety benefits for mandatory assessment programs.
- An update of this study was conducted by Langford and colleagues (Langford, Fitzharris, Newstead, & Koppel, 2004). Older driver crash involvement rates in Victoria were again compared with rates in other jurisdictions with assessment programs and again, older drivers in jurisdictions with age-based mandatory assessment programs could not be shown to be safer than drivers in Victoria. Further, the authors found some evidence that older drivers in Victoria may have a significantly safer record regarding overall involvement in serious casualty crashes. However, it was noted that because some older people maintain their driving licences but rarely if ever drive, the proportion of inactive licence-holders might be higher in Victoria relative to jurisdictions with periodic licence assessment, where inactive drivers may more readily either surrender or lose their licences. The failure to control for possible differences in active-driver levels across jurisdictions may be disguising possible safety benefits associated with mandatory assessment.
- Consequently, Langford and colleagues (Langford, Fitzharris, Koppel & Newstead, 2004a) conducted another set of analyses comparing the casualty crash involvement rates of drivers aged 80 years and older in Melbourne (no regular assessment) and Sydney (regular medical and on-road assessment), using

population, number of licences held, total distance driven, and time spent driving as exposure measures. Results showed that while there was no difference in crash risk based on population, older drivers in Sydney had statistically higher rates of casualty crash involvement than their Melbourne counterparts per licensed driver and per time spent driving. A similar trend was apparent based on distance travelled but was only of borderline statistical significance.

- Langford and colleagues (Langford, Bohensky, Koppel, & Newstead, 2008) studied the effects that screening policies for older drivers had on other road users' risk of being killed by an older driver and reported that age-based mandatory licensing assessments did not have demonstrable safety benefits, in terms of either the total number of fatalities or the number of deaths of other road users.

Overall, the evidence suggests that age-based mandatory licensing assessments have no positive safety effect in reducing older driver crash risk. In addition, research suggests that age-based mandatory assessments may prompt premature driving cessation, which can be associated with a range of negative psychosocial and health consequences, including loss of independence, increased health problems such as heart disease, stroke and depression (Edwards, Lunsman, Perkins, Rebok, & Roth, 2009; Fonda, Wallace, & Herzog, 2001; Freeman, Gange, Munoz, & West, 2006; Marottoli et al., 2000; Marottoli et al., 1997; Mezuk & Rebok, 2008; Ragland, Satariano, & MacLeod, 2005; Windsor, Anstey, Butterworth, Luszcz, & Andrews, 2007; Yassuda, Wilson, & von Mering, 1997) or may force older individuals to shift from driving a vehicle to more high-risk modes of transport, such as walking etc (Hakamies-Blomqvist et al. 1996; Siren & Meng, 2012).

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