

Safe driving for older people:

Some evidence and some practice tips

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Driving motorised vehicles is an essential part of independent living for older people. The loss of independent driving is cited as a major limitation by older people and is associated with subsequent depression.¹ Although many caregivers of those who stop driving because of Alzheimer's disease manage to get around, some report difficulties due to lack of transport services and available drivers.² This article presents selected evidence about driving, factors associated with crashing, the driving assessment by doctors and useful tips to help GPs in the important task of delivering this assessment.

It should be pointed out that we are unable to completely obviate risk in this matter. It is also understandable that GPs are in a great position to use continuity of care to review progress in patient's ability to drive over time.

Older drivers

The Ministry of Transport reports that 57% (125 000) of all those people in New Zealand over age 75 years have licences. This population proportion falls to 40% (48 000) at age 80. It is encouraging that despite the mandatory on-road test, numbers of 80+ licensees have risen by 22% in the last three years. While this is undoubtedly due, in part, to the ageing population, older drivers are clearly still able to get out there and get around.

New Zealand is the only country that has a universal, mandatory on-road test for older drivers. Of the 32 000 on-road tests yearly, only 4% of those completed by people over age 80 years fail their renewal, suggesting a lot of work for little return. The Ministers

for Transport, Transport Safety and Senior Citizens recently requested a review of this policy and it is quite likely that the mandatory on-road test will become 'optional'. Whatever changes occur will not come to pass for at least two years so there is time to review assessment skills and practices for drivers. There is anecdotal evidence that the on-road test is unnecessarily threatening and older people stop driving rather than face the test drive. While this might be seen as sensible self-regulation, there may, as a result, be unnecessary limitation in independence. While there is a great need to maintain independence for older people, this has to be balanced against safety for the older driver, their passengers, other drivers and pedestrians.

Crashing

While older drivers are involved in the fewest crashes,³ this is, of course, because they are a small proportion of the driving population and the youngest drivers outrank everyone else. Older drivers also drive the fewest miles but they are involved in a disproportionate number of fatal accidents. This, of course, is not because of their age but due to the decreasing functional capacity that accompanies age.³ In New Zealand, crash risk per older driver may rise slightly from middle age but is far lower than the 18–24-year-old rate. Crash risk adjusted for the kilometres driven is higher but of debateable relevance as older drivers do fewer miles. The fragility of older drivers and their passengers means that older drivers have higher death and injury rates. However, the 67 older drivers (80+) killed and the 319 injured in the last five

years are still less than 3% of the New Zealand total road fatalities for this period. The New Zealand public is at a much greater risk from the perfectly healthy younger driver displaying poor judgement and behaviour while driving, than from the older driver who is very experienced, rarely drives without a licence, or disregards traffic laws, or drives after drinking.

What makes them crash?

Many factors interfere with the ability to control a motor vehicle, including vision problems, cognitive impairment, cardiovascular disease, diabetes, medication use and perhaps hearing impairment and previous falls.⁴ Vision problems can be further detailed to include contrast sensitivity deficit, visual field loss, and visual attention impairment. Older drivers with a 40% or greater impairment in the useful field of view were 2.2 times (95% confidence interval, 1.2–4.1) more likely to incur a crash during three years of follow-up, after adjusting for age, sex, race, chronic medical conditions, mental status, and days driven per week.⁵ Older drivers taking short-acting benzodiazepines are at no increased risk of crashing, however those using long-acting benzodiazepines are 1.45 times more likely to crash in the first week of therapy and 1.26 more likely to crash with sustained therapy.⁶ In addition, a case control study identified those not taking a beta blocker as being at increased risk of crashes. Perhaps the anti anxiety effect of the blockers assists in decision-making in crisis as well as cardiovascular benefit.⁴ Mental changes include decreased memory, visual spatial defects, prolonged re-

action times as well as cognitive impairment. Musculoskeletal changes can impair the ability to control the motor vehicle.³ The main problem with these changes is that they impair the ability to quickly observe, process information and react appropriately to ensure safe driving.

The driver's assessment: why have one?

Having a medical assessment and relicensing saves lives. In the USA licensing laws are quite variable. A comprehensive review of crashes and relicensing laws reported that 17 294 elderly drivers were involved in 16 840 fatal accidents over the five-year period in 50 states. The rate at which drivers over age 70 years were involved in fatal crashes was lower in states where there was a requirement for vision testing as part of driver's licence renewal. If both vision and knowledge tests were required, even lower rates of fatal crashes were observed for older drivers.⁷ This relationship was independent of other road accident factors, including number of miles travelled, average driving speed, speed variation, proportion of registered trucks in the state, amount of rural versus urban driving, income and number of hospitals per capita, so it does appear to

be related to having a driving assessment for older people. The 'dob in' system where any relicensing is only triggered on referral does not work, as the highest crash rates were observed in the states that operated by this system.

The exact components of a medical assessment that are most useful and predictive have been more difficult to identify. However, the GP will remain the medical assessor for fitness to drive. The on-road assessment will probably still be available and the search for the perfect screening test, or set of tests to predict the at-risk driver will continue. In the meantime we are left with a set of sensible recommendations, the exact evidence-based benefit of which will be difficult to prove. GPs in New Zealand will continue to fill in the forms. After all, they are the one health professional who knows the older person the best and are in the best situation to support the older person through the transitions that will inevitably come.

The driver's assessment: what is important?

What is medical fitness to drive? Firstly there is the medical assessment in which decisions about driving are fairly straightforward, i.e. problems such as dementia, stroke, syncope, sei-

zures, poor vision, which are explained in the medical fitness to drive booklet.⁸ Secondly there is a grey area, in which there may be mild cognitive deficits of ageing (every individual is slightly different) and/or mild deficits in multiple areas, e.g. mild Parkinsonism, previous TIA and osteoarthritis, situations not well dealt with in the medical fitness to drive examination. GPs assessing patients in this area need better screening protocols and the final arbiter is an on-road test.

It also is possible that maximising medical management e.g. the treatment of motor function, cardiovascular function and active rehabilitation may improve overall function, and medical assessments to drive should be done under optimal conditions and after medical conditions have been optimally managed.

There is no question that the cognitive effects of ageing and medical illness affect driving and lead to problems with complex traffic situations, right hand turns, giving way and reaction times. However, on the whole, older drivers self-regulate well in terms of avoiding danger and ceasing driving and this accounts for their surprisingly low crash rates. Research has suggested that visual acuity, poor visual attention and limited neck rotation were related to future crashes, however the study did not include information about existing conditions so the relative usefulness of aspects of the history and functional tests was not able to be assessed.⁴ There is no doubt that those with moderate and severe Alzheimer's disease are poor drivers but there is wide variation in driving performance among those with milder degrees of impairment, some exhibiting quite safe driving skills.⁴

Cardiovascular disease, unstable and causing variations in consciousness, is obviously a critical impediment to driving, as is uncontrolled seizure disorder. Syncope is the most obvious disorder in this category to prohibit driving.

Vision testing is very important with the useful field of vision and

Box 1. Essential components for safe driving assessment.

Driving history - previous crash is a strong predictor, kms driven are important, more kms correlate with more crashes

Family concerns

Medication review - benzodiazepines and antidepressants increase risk

Medical illnesses that impair driving

Diabetes

Cardiovascular

Neurological, stroke, epilepsy, Parkinson's disease

Musculoskeletal for the actions involved in driving

Vision

Psychological/cognitive variables that increase the risk of crashing

Cognition testing - confusion, MMSE, Mini-cog or GPCog for dementia

Anxiety, personality change

perception being more important than the visual acuity. Older patients' most common cause of crash involving injury is that, when turning right, they fail to observe an oncoming hazard. Referral to an optometrist may be useful if there is any doubt.

Cognition remains a vexed issue, as the standard MMSE test is not very acceptable to older patients and not closely related to driving ability. Confusion is the most highly correlated factor with driving skill. If the GP has the impression of confusion, i.e. difficulty answering questions or inattention, this may correlate with impaired driving skill. A combination of knowledge, judgement and good reaction times are needed to control a vehicle. In addition, a clear head and emotional stability in a crisis are useful.

A more acceptable cognitive test may be the Mini-cog⁹ or the GPCog;¹⁰ both are well tested and recommended by authorities as diagnostic tests for dementia. What is really needed is a

broader evaluation including reaction times, which have been shown in studies to relate to driving skill. Reaction times have been measured in relationship to falls prevention,¹¹ but an easy way for practitioners to do this is not yet available. A combination of inattention in performance of simple tasks, such as finding their driver's licence, mistakes made in copying information and forgetfulness in recalling simple facts may be predictive of driving risk. GPs can observe these factors as part of a routine examination.

One of the most important final pathways of concern is cortical function; inattention, neglect or personality change. There is an acute need for a brief psychomotor test to assist in establishing driving risk.

Developments in research include a desperate search for predictive tests. However, the rarity of crash events constrains the ability to easily test thousands of older drivers and then wait for events.

Information about driving ability from family, friends and caregivers might assist in a discussion about safe driving.

After the testing

If in doubt, there is currently a mandatory on-road test that evaluates driving ability. In the future this may only be available if cued by the medical test. While clearly the majority of older drivers are capable and safe, the maintenance of the on-road test as a further evaluation would be very helpful for GPs as it provides different information about the risk of future crashes. The older driving on-road test has been validated against crash risk in NZ.

Remember that if the older person is not safe to drive, they, their passengers and the rest of the public are better off. More community services to assist in convenient and safe transport for older people would make the transition to non-driving status easier and the task of the form-filler less anxiety provoking.

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