Assessing fitness to drive

Part 1

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BACKGROUND
The requirement for general practitioners to write reports about their patients' fitness to drive will increase as the population ages and licensing criteria change. It is important that GPs understand the medical and legal issues involved in this important area of public health.

OBJECTIVE
This two part article discusses the rationale behind assessing fitness to drive and briefly summarises several medical conditions that commonly give rise to problems. This information will help GPs understand the decision making process regarding this sensitive issue, and improve the quality of medical reports. Adequate assessment and reporting can help patients avoid becoming involved in traffic crashes, and the doctor from becoming involved in court appearances.

DISCUSSION
Specific medical conditions discussed in part one are epilepsy, diabetes, and cardiovascular disease. Guidelines are based on currently available evidence regarding the effects of medical conditions on driving and are subject to regular review as new information becomes available.

General practitioners are often required to perform examinations and write reports about patients' fitness to drive. Many conditions are capable of affecting a person's ability to control a motor vehicle,[1] and licensing authorities have an obligation to control drivers' eligibility for a license based on their fitness to drive. Studies of the impact of disease and/or treatment on crash rates report a low incidence compared to crashes caused by factors such as drink driving.[1] Despite this, questions of medical fitness to drive can assume enormous importance in civil and criminal proceedings.

Fitness to drive may be difficult to assess in the medical consulting room. Driving is an 'over learned' task for most people, and some of the necessary cognitive skills can persist despite some degree of intellectual decline. While conditions such as epilepsy have obvious effects on driving, others such as musculoskeletal or psychological conditions are less easy to assess. In many jurisdictions, doctors are able to advise a licensing authority regarding re-tests or conditional driving licenses. Specialised assessments such as occupational therapy or licence re-testing can be helpful. The tasks involved in routine driving may be almost automatic, but a driver must also respond to unusual or emergency situations, perhaps drive at night, or navigate complex unfamiliar routes, so there must be a functional reserve to cope with these situations. Where reserve is diminished, a licence restricted to certain times of the day or to limited routes may be a way to preserve mobility, often at a time of life when this is restricted by age or disease. When considering conditional licenses however, safety and practicality must have a high priority. *Table 1* lists practical and not so practical restrictions and conditions.

Licensing guidelines

Austroads have established guidelines *Assessing fitness to drive*[2] with the aim of preserving individual freedom and maximising public safety. These guidelines address eligibility for various types of licenses as well as criteria for allowing driving to recommence after an illness or during medical treatment.

Commercial vehicles are much heavier than cars, and carry passengers, valuable cargo or dangerous goods such as fuel,

Table 1. Licensing conditions

Useful conditions	Dangerous, impractical or unenforceable conditions
Day time driving	Driving with a 'navigator'
Restricted number of passengers	Reduced speed limit
No freeway or CBD driving	Specific routes
Local area (5 km from home)	Avoid 'peak hours'
Periodic medical reviews	
Blood sugar testing before driving for diabetics	
Vehicle type (automatic, power steering)	
Vehicle modifications to accommodate disabilities	
Corrective lenses	

chemicals or explosives. Drivers often work irregular hours which can affect their ability to eat, sleep or take medication. The consequences of a crash are potentially more serious and therefore a higher level of risk assessment is needed for commercial licensing. The first class of licensing is the assessment of drivers of private cars, motor cycles, and small commercial vans of the 'light rigid' category up to 8 tonnes. Drivers of all other vehicles, including any used for transporting passengers, must comply with the commercial guidelines. These apply throughout Australia, although individual states are responsible for their own licensing policies.

Licensing authorities can request a driver to undergo medical and other assessments before granting a licence. In some states of Australia these are age based, in others, such as Victoria, there are no compulsory reviews unless the authority has received information regarding a medical condition. South Australia is the only state where it is compulsory for health professionals to report drivers who have a medical condition that can affect driving. Ultimately the decision on whether a person is fit to drive is made by a licensing authority. When the decision is medically based, administrators rely totally on the information received from doctors. All authorities have their own medical reporting forms and it is important that doctors provide sufficient detail to allow the authority to make a proper decision. An uninformative or 'zero content' report does the patient a disservice and may only serve to delay a decision.

Under uniform Australian law, all persons (including doctors) are indemnified from civil action if, acting in good faith, they notify the authority that a driver suffers from a condition which could adversely affect their driving. Drivers are obliged to inform the authority of any condition likely to affect their ability to drive. Doctors should always advise patients to report such conditions. Failure to report can have adverse consequences for insurance and can lead to criminal charges for the driver if a crash is found to be caused by an unreported medical condition.

Unfortunately, patients may choose not to report their condition and may not inform their doctor of relevant historical details. One study of patients advised to report by specialists found only 27% did so.[3] Although reporting is not mandatory, doctors should consider informing licensing authorities in cases where it is known that patients continue to drive against medical advice. Concerns regarding confidentiality and negative effects on the doctor-patient relationship may make this a very difficult decision, although it may be possible for reporting to be done anonymously. Advice given to patients regarding driving and reporting should be well documented. If a crash results in criminal charges or a coroner's inquest, the driver's doctor could be called as a witness and examined in court.

Drivers may have a poor understanding of regulations and distorted perceptions of their own driving abilities.[4] These beliefs generate great emotion and concerns about loss or denial of a licence can lead to evasive and dishonest behaviour. Doctors should be wary of new patients presenting for driving assessments with no previous history available, especially those who profess not to know why they are being requested to have an assessment.

The following is a discussion of several specific medical conditions and their impact on driving. In this article, epilepsy, diabetes and cardiovascular disease will be discussed, with further conditions discussed in next month's issue.

Epilepsy

All GPs will have patients with epilepsy who are on anti-convulsants. Seizure risk is the criterion for licensing. The crash risk attributed to fitting drivers is low,[5] possibly because of medical management. The relative risk of a crash in known epileptic drivers is less than two, which must be put into context of, for instance, the much higher risk associated with alcohol and drug use, and the increased risk of healthy drivers aged 18–25 years compared to middle aged drivers.[6] There are also differences in risk between epileptic drivers on treatment and the epileptic population as a whole where the risk of a crash is increased by 40–100%.[7] The crash frequency in epileptic drivers is 50–60% of seizure frequency. This is probably due to unreported crashes, seizures without loss of consciousness, or the perception of an aura allowing the driver to pull over. However, it may also be a fortuitous finding and the real risk could be much higher.[8]

Types of epilepsy differ in their potential effect on licensing. Complex partial and generalised tonic-clonic seizures are most commonly associated with crashes.[8] Involuntary movements during partial

seizures have contributed to crashes. Other forms are less commonly implicated with myoclonic seizures rarely involved. Guidelines for epileptics emphasise the identification of a specific epilepsy syndrome and monitoring of treatment. Because oversight of epilepsy depends on evidence from the patient, it is important for doctors to assess the reliability of the history. Information from family members can help. The Austroads' guidelines specify certain fit free periods, so there may be bias in histories given to clinicians.[9] Objective evidence of seizure frequency and type may come from police reports, hospital records or observations made during hospital admissions for monitoring. Clinical evidence of brain imaging or electro-encephalogram may be helpful in establishing a diagnosis, and serum drug levels may be helpful in monitoring treatment.

An important issue is the risk of recurrence in patients who have ceased medication. There are many variables including the type of epilepsy and the indications for ceasing treatment.[10] Patients with generalised tonic-clonic epilepsy and those on multiple drug therapy represent the greatest risk of seizure recurrence. The most significant factor is the time since the last seizure rather than the time off medication.

Diabetes

Diabetic drivers have a small excess risk of a collision compared to nondiabetics, although the risk is less with effective treatment.[11] The major cause of incapacity is hypoglycaemia which is due to the treatment rather than the disease itself. Advice to drivers should include testing blood glucose before driving, having a low threshold for corrective action, and keeping sugary snacks in the vehicle. There is discordance between the demands of impeccable diabetic control that may produce some degree of hypoglycaemia, and the minimisation of risk of disturbed consciousness while driving.[12]

End organ damage affects systems important for driving. Long term complications may include sensory deficits and tissue loss. There is also increased susceptibility to cardio– and cerebro-vascular disease.

Hyperglycaemia does not suddenly incapacitate drivers, however its occurrence often leads to adjustment of treatment when hypoglycaemia may occur. During this period drivers may be advised not to drive until the condition is stable.

Hypoglycaemia is usually only a problem in patients treated with insulin, although it may also occur with some oral agents. Driving impairment begins at low levels of hypoglycaemia and worsens as blood sugar levels fall, but there is no clearly defined threshold for hypoglycaemia. While most drivers are aware of hypoglycaemia and that their ability to drive may be impaired,[13] corrective action is often deferred until blood glucose falls to low levels, increasing the risk and making correction more difficult. Patients may also decide to drive while in a state of hypoglycaemia which will worsen while they are driving.[14] Driving while hypoglycaemic, perception of the condition, and decisions made while hypoglycaemic, are often of major forensic significance.[15]

Australian guidelines allow discretion by medical practitioners in assessing fitness to drive by diabetics. There is no problem with diabetics on diet alone or most diabetics on oral medication provided there are no significant end organ problems. Diabetics on insulin are permitted to drive all classes of vehicles, although those driving heavy vehicles should be assessed by an endocrinologist.

Cardiovascular disease

Cardiovascular disease is not a major cause of crashes. Even though death is sudden in epidemiological terms, there may be a brief symptomatic period which allows a driver to pull over.[16,17] Sudden cardiac death at the wheel is a rare event compared to traumatic causes of death while driving. When sudden death does occur, cardiac causes are the most significant.[18]

Causes of sudden incapacity include arrhythmias such as Stokes-Adams attacks or ventricular arrhythmias, syncope, stroke, or cardiac arrest from myocardial infarction. Stressful situations on the road may also induce acute cardiac problems.[19] There is also some evidence that prolonged exposure to traffic can be a risk factor for myocardial infarction.[20]

Most drivers who have suffered a cardiac event at the wheel were usually at increased risk beforehand, although they often come to the attention of licensing authorities only after the event occurred. This may be unfortunate for commercial drivers in whom the diagnosis may mean an end to their livelihood.

Licensing guidelines take into account historical, epidemiological and clinical factors that indicate there is an increased risk. They encompass risk assessment as well as rehabilitation. Specific problems are discussed below.

Hypertension

There is some evidence that commercial drivers with diastolic blood pressure over 95 mmHg have a greater risk of having a crash,[21] however it is uncertain whether this is an elevated risk in driving compared to the inherent morbidity of hypertension in general, effects of medication, or associated lifestyle factors.

Syncope

Syncope may be a simple faint or a symptom of more serious disease. The guidelines recommend a period of observation and investigation to exclude serious causes. Intensive investigation of simple faints is rarely helpful.[22] Patients with risk factors including recurrent faints, driving a heavy vehicle or a history of other vascular conditions should be offered a tilt-table test.[23] Unfortunately there is evidence that 100% of drivers with syncope do not heed their doctor's advice.[24]

Coronary artery disease

Angina and myocardial infarction are the

most common reason for medical review of commercial drivers. Risk is assessed using history, electrocardiogram, echo, exercise testing and angiography.[25] Guidelines combine the results of one or more of these to define criteria for acceptable risk.

There is a variable incidence of postoperative cognitive disturbances after coronary bypass surgery ranging from transient memory and concentration difficulties to strokes. Cardiologists may not take this into account when discussing postoperative fitness to drive.[26]

Cardiomyopathy

Cardiomyopathies have in common a reduction in cardiac function with an increased risk of cardiac failure and arrhythmias. Patients with cardiomyopathy may not be permitted to drive commercial vehicles.

Ventricular arrhythmias

These serious arrhythmias can be life threatening. In survivors, the question is when they can resume driving. These patients are not considered fit to drive commercial vehicles because of the potential risks of a crash. In one study, 17% of ventricular arrhythmia survivors had a recurrent event within 1 year with the risk falling to baseline levels by the eighth month in 62% of the study group; 38% had a persistently high risk determined by electrophysiological testing.[27] These patients should remain under continuous regular review by a cardiologist, especially if they have been treated with a pacemaker or implantable defibrillator.

Resource

A list of driver licensing authorities throughout Australia is given in Appendix 8 of *Assessing fitness to drive*. This can be obtained from Austroads or downloaded from: www.austroads.com.au/aftd/index.html. Most authorities will have a medical review department or consultant doctors available to give advice.

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