The National Road Transport Commission is required under its Act to promote uniform or consistent road transport policies and practices throughout Australia. One of our key objectives is to enhance road safety. Health standards for drivers and their consistent assessment is a significant plank in this agenda.

Health standards for commercial vehicle drivers are especially important because the community expects drivers of public passenger vehicles, heavy goods vehicles, and vehicles carrying dangerous goods to meet higher standards than the general driving population.

This document was first published in November 1994 in response to calls from within the medical profession, driver licensing authorities, and the road transport industry for clear standards for the assessment of commercial vehicle drivers. It was developed for the Commission and the Federal Office of Road Safety by a team of doctors from the Australasian Faculty of Occupational Medicine. The standards assist medical practitioners throughout Australia to provide expert advice about a driver's medical eligibility for a commercial driver licence.

Since first published, over 45,000 copies have been distributed to health professionals and other interested parties throughout Australia. Recognising that setting medical standards for driver licensing purposes is a difficult task, users of the document were encouraged to make suggestions on how the standards may be improved.

This edition addresses concerns that the original criteria in relation to cardiovascular conditions, vestibular function and colour vision were too stringent. Consideration of these and other issues is reported in the Commission’s Technical Working Paper 19 “Interim Review of Medical Examinations of Commercial Vehicle Drivers” (1996).

Our thanks are due to all those who have contributed to these standards. We commend this second edition to you as part of our ongoing commitment to improving road safety throughout Australia.

David O’Sullivan
Chief Executive
National Road Transport Commission

Peter Makeham
Director
Federal Office of Road Safety
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Dr Peter Clark, Manager, Environmental Health & Safety Policy, Mobil Oil
Dr Ki Douglas, Staff Specialist, Occupational Medicine, Sydney Hospital
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Dr Andrew Frean, Consultant Occupational Physician, BP Australia Ltd, Victoria
Dr Helia Gapper, Director, HealthQuest, The Government Medical Officer, New South Wales
Dr David Gras, Deputy Director, AGHS, Dept of Human Services & Health, Victoria
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PART A
Driving and Medical Fitness

1 PURPOSE OF STANDARDS

These standards are intended to assist medical practitioners who are conducting medical examinations of commercial drivers on behalf of driver licensing authorities. The licensing authorities require clear, non-technical medical advice regarding a person’s fitness to drive commercial vehicles so as to ensure public safety. The final decision on certification rests with licensing authorities.

2 COMMERCIAL VEHICLES

The range of vehicles that a commercial driver may drive is extensive. A separate skills assessment may be used for some classes of vehicles, but the medical examination should apply to all commercial vehicle drivers. The vehicles include:

- those which are physically difficult to drive and/or require the capacity to monitor many vehicle functions, e.g. heavy rigid vehicles and articulated vehicles;
- those for which the public expect a high standard of fitness, e.g. taxis and ambulances;
- those for which the consequences of a crash are usually serious, e.g. buses and dangerous goods vehicles;

3 EPIDEMIOLOGY

There are about 140,000 large trucks and 50,000 articulated trucks on Australian roads. Each year there are over 2,000 serious crashes involving commercial vehicles in which 400 people die and 1,700 are seriously injured. Of these, half are car occupants and a quarter are truck occupants. The average cost of a casualty truck accident is about $130,000 - giving a total annual cost of about $250m.

The consequences of a vehicle crash may include:

- threats to the safety of the driver, his or her passengers, other road users and those resident or otherwise adjacent to the road; and
- threats to the environment from spillage of chemicals, fire, or damage inflicted by the vehicle or the emergency recovery procedure.

There are many causal factors in motor vehicle crashes and the contribution of medical factors is unclear. Although studies suggest alcohol and other medical conditions substantially contribute to 20% of crashes involving commercial vehicle drivers, the basis of these estimates is questionable as some conditions, such as psychosis or hearing impairment, would not be detected at a routine post-mortem. The likely contribution of recently recognised conditions, such as sleep apnoea causing daytime hypersomnolence, are also yet to be determined.

The cost-benefit analysis of regular medical examinations must be qualified by this lack of certainty. The validity of clinical assessments and the natural history of an individual’s condition, need to be allowed for in determining both the extent and frequency of medical examinations, and the criteria to be applied (see page 3).
Fig.1 - The driving task. The core cycle of driving takes place in a complex environment.

INFORMATION

DECISIONS

VEHICLE

LEGAL
- Licence
- Log Books
- Speed Limits
- Zero BAC

DRIVER
- Experience
- Training
- Health

NATURAL ENVIRONMENT
- Night
- Extremes of Weather

ROAD
- Signs
- Other Vehicles
- Road Layout

BUSINESS
- Contract Requirements
- Shifts
- Training

VEHICLE
- Load Distribution
- Maintenance
- Design

CONTROLS
4 THE DRIVING TASK

The driving task is complex. As shown in Fig.1, it involves skills and attributes of the individual driver, and the ability of that driver, to interact with both the vehicle and the external environment at the same time. The driver must:

- receive information from instrument displays, the vehicle and the external environment;
- process and interpret this information in the light of his or her driving skills, knowledge of road laws and business requirements and decide what to do; and
- implement these decisions via the steering wheel, floor pedals, gear lever, other controls and by altering posture.

This process occurs within an external context of contributing factors such as:

- the individual driver’s experience, training, attitude and physical and mental health;
- the road system, e.g. signs, other traffic, road layout, etc;
- vehicle and equipment characteristics, e.g. use, braking performance, stability, load distribution, maintenance;
- business requirements, e.g. rosters (shifts), driver training, contractual demands;
- legal requirements, e.g. log books, speed limits, blood alcohol concentration, licensing procedures; and
- the natural environment, e.g. night, extremes of weather, glare.

5 TYPES OF EXAMINATIONS

5.1 Normal examination

Normally a medical examination will be conducted at the time of first licensing for a commercial licence. The frequency of examination may be changed as part of a conditional licence or in accord with State/Territory laws requiring more frequent examination of drivers beyond a specified age. These details are available from the driver licensing authority in your State/Territory.

5.2 For cause examinations

Special examinations may be requested following a serious injury or illness. They may also be requested because of concerns arising about driving behaviour, called ‘for cause’ examinations. In the event of recurrent accidents (or other concerns held by the driver licensing authority), a driver may be referred for a ‘for cause examination’. It is desirable that all aspects of the driver - vehicle - road system be considered including, if needed, a skills assessment of the driving task before directing medical attention to the driver.

A full medical history and history of any accidents should be taken and a complete physical examination conducted. Whilst attention should be given to conditions discussed elsewhere in this report, particularly alcohol/drug misuse, unusual conditions warrant consideration, investigation and, where justified, specialist referral.

5.3 Temporary impairment

All practitioners should routinely enquire of a patient’s occupation. In the case of commercial vehicle drivers, consideration should be given to the effect an intercurrent illness or injury and its treatment/rehabilitation may have on the ability to drive safely. Failure to do so may have medico-legal consequences for the practitioner in the event of an accident involving the patient. Altered driving routines or alternative duties may be recommended.

In the event of a disability becoming permanent and affecting safe driving, the patient should be counselled and the licensing authority notified. Further information on examinations for specific medical conditions is contained in the medical standards (Part B) where appropriate.

6 EQUAL EMPLOYMENT OPPORTUNITY (EE0)

The purpose of examinations is to protect public safety. They should not be used as a barrier to employment and the setting of clear criteria should result in equitable examinations. The provision for a conditional licence to be granted where appropriate should assist employability.
**Fig. 2 - The Examination Process**

1. **Driver Seeks Licence**
   - Licensing Authority Advises Need For Exam

2. **Driver Chooses General Practitioner And Makes Appointment**
   - General Practitioner Examination
     - Fail
       - Licence Refused And Right of Appeal Advised
     - Pass
       - Licensing Authority Decision
         - Fail
           - Licence Refused And Right of Appeal Advised
         - Pass
           - Licence Issued
   - Maybe
     - Driver Advised Of Need For Specialist Examination
       - Driver Makes Specialist Appointment

3. **Specialist Examination**
   - Fail
     - Licence Refused And Right of Appeal Advised
   - Pass
     - Licensing Authority Decision
       - Fail
         - Conditions Chosen
       - Pass
         - Licence Issued
7 THE EXAMINATION PROCESS

The medical examination process is outlined in Fig. 2.

7.1 The authority

The licensing authority instigates the process by informing the driver of the need for (re)examination and provides the driver with the relevant form.

7.2 The driver

The driver makes an appointment with his/her general practitioner (unless otherwise directed), and attends for examination.

7.3 The general practitioner

The general practitioner conducts the examination and completes the form. The general practitioner returns the original copy of the completed form to the licensing authority and may keep a copy for his/her medical records.

Where a condition of significance is suspected but not proven (e.g. angina) the general practitioner should proceed to investigate this since it is in the patient’s own interests. The licensing authority should be advised of this as an interim measure and then final results supplied when available. Where there is doubt about the safety of the driver continuing driving whilst the condition is being investigated this should be conveyed to the licensing authority, including telephone advice as needed.

7.4 Confidentiality and ethics

If a doctor finds conducting the examination creates a conflict of interest, then the case should be referred elsewhere.

If the general practitioner suggests that a case should be referred to an appointed referral specialist (see below), more information may be sought from the treating doctor. Where coincidental conditions are found in the course of the examination, they should be managed as appropriate for the patient’s welfare.

7.5 Payment procedure

The AMA recommends that the examination fee be based on a consultation exceeding 25 minutes but less than 45 minutes at the AMA rate (Level C, Item 36 for vocationally registered practitioners).

For normal examinations, payment of the examination fee should be made by the person or the employer, not the driver licensing authority. In respect to “for cause” examinations the cost of a referral made by the licensing authority will, in some States/Territories, be met by the authority. You should contact your local driver licensing authority to ascertain the policy in your State/Territory.

The cost of the medical examination is not rebatable from Medicare unless the person is unemployed at the time of the examination, and the examination is undertaken solely for employment purposes.

Where an examination is extended for clinical reasons the patient must be advised of any additional costs that will be incurred.

7.6 The authority

On receipt of the medical report, the licensing authority considers it in conjunction with other relevant material and determines whether to issue or refuse a licence, or in some cases to seek specialist opinion which may lead to issuing a conditional licence. A conditional licence may restrict the driver to, say, driving during daylight hours only, within a defined geographical area, or allow him/her to drive only a nominated type of vehicle. Other conditions may require more regular medical reviews and so on.

7.7 Appointed referral specialists

A range of appointed medical specialists1 (referred to as approved specialists in this document) will be established to which reference of unresolved, anomalous, or unclassifiable cases can be made by the licensing authority. The specialists may seek expert advice from neuropsychologists, occupational therapists, etc as appropriate.

The licensing authority may seek advice from an appointed specialist to determine if the person should be entirely disbarred, given a licence with conditions, or a full licence.

An applicant should not be referred to an appointed specialist unless there is sufficient documented evidence available to enable the specialist to make an assessment and the examining doctor believes that the criteria will be met.

7.8 Appeal procedure

Details on the appeal process may be obtained from the driver licensing authority in your State/Territory.

1A medical specialist holds formal medical qualifications recognised by the National Advisory Specialist Qualifications Advisory Committee (NASQAC).
8 LEGAL DISCLAIMER

Whilst all reasonable care has been taken in compiling the standards and criteria, the authors and the Australasian Faculty of Occupational Medicine accept no responsibility for any consequences arising from their application.

In addition, it is expected that doctors will keep themselves appraised of major changes in medical knowledge which may influence their assessment of drivers.

9 EVALUATION AND REVIEW

It is proposed to periodically revise these standards and procedures.

If you have any comments or suggestions about improving this document, please write to:

The Chief Executive Officer
National Road Transport Commission
PO Box 13105 Law Courts
MELBOURNE VIC 3000

OR

The Director
Federal Office of Road Safety
GPO Box 594
CANBERRA ACT 2601
This part provides information on medical conditions which may affect driving. The criteria for assessment are set down, i.e. whether applicants meet the standards for a commercial vehicle driver’s licence; whether a conditional licence would be appropriate; or whether further testing and monitoring is required.

The main purpose of the Standards is to enhance public safety.

The aim of examining a commercial vehicle driver should be to establish whether he or she suffers from any medical condition which could affect his or her capacity to drive safely. The criteria are met if no such condition is diagnosed. The ability of the driver to perform driving related tasks, such as unloading cargo or changing a tyre, is not the focus of these standards.

Wherever possible, the circumstances under which a person suffering a condition covered by these standards does not meet the criteria have been clearly defined. Where a clinical situation is not adequately covered, the medical examiner should return to the key objective - public safety. Could the condition cause sudden loss of control of a vehicle?

This document focuses on common conditions known to affect fitness to drive, but other medical conditions may also be relevant. It is not possible to define all clinical situations where an individual’s overall function would compromise public safety. For example, where a person has a systemic disorder or a number of medical conditions, there may be additive or cumulative detrimental effects on judgement and overall function, e.g. combinations of impaired vision, hearing and locomotor dysfunction, or combinations of physical and mental illness and associated medication.

The important principle is that the evaluation of individual medical fitness and safety to drive depends on comprehensive medical assessment of overall health and informed medical judgement about the impact of single or multiple conditions on whole person function.

Under proposed nationally uniform laws, a driver will be obliged to notify the appropriate driver licensing authority of any permanent or long term injury or illness that may impair his or her ability to drive safely.

If, during the course of a medical examination required by a driver licensing authority, the examiner is uncertain about a person’s condition or circumstances, he or she should note this on the health assessment form and recommend review by an appropriate specialist.
1 CARDIOVASCULAR CONDITIONS

1.1 Rationale

1.1.1 Epidemiology

(a) Ischaemic heart disease as the major problem

Heavy goods vehicle and public passenger vehicle drivers are mostly male and aged below 60. In that section of the Australian population, ischaemic heart disease is the most common serious illness which could give rise to a future risk in driving. Perhaps 80% of commercial vehicle drivers who are medically reviewed after illness for suitability to drive are in the ischaemic heart disease category.

(b) Evidence regarding risk

Heart attacks causing collapse or sudden death in the driver’s seat and their consequences have been the subject of a number of reports. The evidence suggests that people who develop severe and even fatal coronary attacks while driving may have sufficient warning to slow down or stop before losing consciousness, since less than half result in property damage and injury. However, sometimes no warning occurs or a warning symptom is misinterpreted or ignored, and this may result in severe injury or death to other drivers and pedestrians.

Collapse from ischaemic heart disease (non-fatal and fatal) appears to account for one sixth to one seventh of sudden illness accidents, which in turn account for about one accident per 1,000 reportable accidents. Thus ischaemic heart disease poses a relatively small but increased risk.

Although the medical and surgical treatment of ischaemic heart disease may lead to alleviation of symptoms and improve life expectancy, coronary arteriosclerosis tends to be a progressive process and the risk of heart attack, collapse and sudden loss of consciousness is greater than in healthy populations.

(c) Effects of driving on the heart

A further problem in those who have established ischaemic heart disease is that driving causes occasional emotional and sensorimotor arousal leading to a faster heart rate and fluctuation in blood pressure. Most drivers will also occasionally need to carry out heavy work, e.g. when loading/unloading, or when changing a tyre, or carrying out unforeseen repair or maintenance activity. Theoretically any of these factors could trigger angina, or even infarction.

However, driving professionally is not known to cause or contribute to death from ischaemic heart disease. Two recent studies of tanker drivers in the petroleum industry both indicate that professional drivers in that industry have low mortality rates from heart disease.

1.1.2 Effects on driving

(a) Medical incidents creating the risk

The risk when driving is that either collapse or chest pain arising from the presence of heart disease could result in sudden loss of consciousness or inability to control a vehicle.

For example:

- syncope (fainting, collapse, sudden loss of consciousness) can result from cardiac arrhythmia, infarction, severe angina, or failure of a pacemaker; and
- severe incapacitating chest pain from angina or infarction can come suddenly.

The issue is whether some people can be said to be at higher risk of such events; and whether they should be allowed to drive in circumstances where public safety may be jeopardised.

(b) Drivers with ischaemic heart disease

Drivers at increased risk may come to the notice of the employer or the licensing authority because:

- they have recovered sufficiently from clinical heart disease to apply for driver duties; or
- they are discovered to have symptoms and/or signs of disease through routine screening.

It is usually not possible (or desirable) to do more than place the person with established heart disease in a broad risk category, such as:

- some increased risk over the general population; or
- no increased risk.

Screening with well-designed techniques will find some people with established ischaemic heart disease. These people clearly have
increased risk over the general population, and are classified under the criteria listed below as having angina or established ischaemic heart disease.

(c) Risk factors

Several well known pre-disease risk factors occur in the general population: age, sex, blood pressure (especially if uncontrolled); high blood fats; family history; and sedentary lifestyle. There is no statistically sound evidence on which to base a judgement about risk for driving in those who are asymptomatic, but have very high risk factors. Therefore routine risk factor screening is NOT required.

An ECG should be performed only if clinically indicated. Medical examiners who are not skilled in the interpretation of ECGs should have them interpreted by a cardiologist or specialist physician.

Drivers in whom multiple risk factors are known to exist should be reviewed annually.

(d) Reduction of risk in regard to public safety

The issue of whether to exclude those at higher risk of heart attack from driving is not a medical decision, but medical findings are relevant. Opinions on the degree of restriction are divided. Some clinical medical authorities take a patient-oriented view which broadly claims that there is acceptable risk where a patient has no symptoms and has normal heart performance on testing. Those who focus on public safety and liability issues, including licensing authorities, tend towards more restrictive viewpoints.

The epidemiological (statistical) evidence supports the view that people with coronary artery disease, including those who have had bypass surgery, have an increased risk of future episodes compared with those who do not have the disease.

Identification of those with increased risk places legal and ethical obligations on medical examiners and employers as well as on driver licensing authorities.

1.2 Criteria

1.2.1 Ischaemic heart disease or coronary artery disease

(a) Proven angina pectoris

The criteria are NOT met:

- if the person is subject to angina pectoris.

A conditional licence may be considered in the following circumstances.

1. If a Bruce stress test (or equivalent protocol) and thallium or sestamibi scan show no evidence of myocardial ischaemia.

2. If myocardial ischaemia is demonstrated, a coronary angiogram may be offered. If that shows lumen diameter reduction of less than 70% in a major coronary branch, and less than 50% in the left main coronary artery, the person may drive, subject to annual review.

3. If the result of the angiogram shows a lumen diameter reduction of equal to or greater than 70% in a major coronary branch and less than 50% in the left main coronary artery (or if an angiogram is not conducted), and:

- the clinical history is one of minimal symptoms; and
- there is an exercise tolerance of at least six minutes on the Bruce treadmill test (or equivalent protocol); and
- there is no evidence of severe ischaemia, i.e. less than 2mm ST segment depression on an exercise ECG and absence of a large defect on a stress perfusion scan; and
- there is an ejection fraction of 50% or over.

The presence of other risk factors should also be considered.

Where surgery or angioplasty is undertaken to relieve the angina, the criteria listed below apply.

(b) Suspected angina pectoris

When the cause of the chest pain is in doubt, an exercise test should be carried out by an approved specialist. If the tests are positive or the person remains symptomatic and requires anti-angina medication for the control of symptoms, the criteria as listed for proven angina pectoris (above) apply.

(c) After confirmed myocardial infarction, coronary artery bypass grafting (CABG) or coronary angioplasty.

The criteria are NOT met:

- if the person has had a confirmed myocardial infarction, CABG, or coronary angioplasty.
A conditional licence may be issued after 3 months if:

- the clinical history is one of minimal symptoms; and
- there is an exercise tolerance of at least 6 minutes on the Bruce treadmill test (or equivalent protocol); and
- there is no evidence of severe ischaemia, i.e. less than 2mm ST segment depression on an exercise ECG and absence of a large defect on a stress perfusion scan; and
- there is an ejection fraction of 50% or over.

The presence of other risk factors should also be considered.

In the event of non-renewal of a licence, efforts should be directed to retraining and redeployment of drivers commensurate with their cardiac status.

1.2.2 Other vascular disorders

The criteria are NOT met:

- if the person has aortic aneurysm, thoracic or abdominal, either before or after surgery.

1.2.3 Hypertension

The criteria are NOT met:

- if the person’s sitting blood pressure is consistently 200/110 or greater (treated or untreated); or
- if there is end organ damage (cardiac, cerebral, retinal or renal) which will impair safe driving; or
- if treatment results in marked postural hypotension or impaired alertness.

The presence of other factors should also be considered.

A conditional licence may be considered, subject to annual review:

- if the person is treated with anti-hypertensive drug therapy and effective control of hypertension is achieved (ideal blood pressure less than 140/90 but no greater than 150/95) without appreciable side effects over a four week follow-up period;
- if there is no evidence of target organ damage, associated ischaemic or other forms of heart disease; and
- if other causative risk factors have been eliminated.

1.2.4 Arrhythmia

The criteria are NOT met:

- if the person has a history of recurrent or persistent arrhythmia, which may result in syncope or incapacitating symptoms.

A conditional licence may be issued where the condition has been cured surgically (e.g. Wolf-Parkinson White syndrome) or successfully treated medically for at least three months.

- if the person is taking anti-coagulants refer to anti-coagulants therapy below.
- if the person has a pacemaker or electrical device implanted.

A conditional licence may be recommended by a cardiologist with expertise in electrophysiology after consideration of the relative risks of pacemaker dysfunction.

- if the person has a cardioverter-defibrillator implanted for ventricular arrhythmias.

Anti-coagulant therapy is discussed below.

1.2.5 Electrocardiographic abnormality

An ECG is only required if clinically indicated.

The criteria are NOT met:

- if the person has an electrocardiographic abnormality.

A conditional licence may be considered, subject to annual review:

- if the ECG shows left or right bundle branch block, pre-excitation or changes suggestive of myocardial ischaemia or previous myocardial infarction; and
- if an exercise test performed by a cardiologist or specialist physician or referral made to an approved specialist is negative; and
- if there are no other disqualifying conditions.

Equivocal cases should be referred to an approved specialist.

1.2.6 Valvular heart disease

The criteria are NOT met:

- if the person has any history or evidence of valve disease, with or without surgical repair or replacement, associated with symptoms or a history of, embolism, arrhythmia, cardiac enlargement (on chest
X-ray greater than 16cm), abnormal ECG, high blood pressure; or

- if the person is taking anti-coagulants. A conditional licence may be issued subject to the criteria specified below in relation to anti-coagulant therapy.

- if mitral stenosis is present, even if not associated with any of the above conditions.

A conditional licence may be considered, subject to annual review:

- if the person’s cardiological assessment shows mild valvular disease of no haemodynamic significance, and it is not associated with any of the above conditions.

Equivocal cases should be referred to an approved specialist.

1.2.7 Cardiomyopathy

The criteria are NOT met:

- if the person has established cardiomyopathy; or

- if the person has had a heart or heart/lung transplant.

1.2.8 Congenital heart disorders

The criteria are NOT met:

- if the person has complicated congenital heart disorders.

A conditional licence may be considered:

- if there are minor congenital heart disorders such as pulmonary stenosis, atrial septal defect, small ventricular septal defect, bicuspid aortic valve, patent ductus arteriosus or mild coarctation of the aorta; and

- if there are no other disqualifying conditions.

1.2.9 Anti-coagulant therapy

Anti-coagulant therapy for cardiac conditions needs to be optimal to prevent emboli while not increasing the risk of haemorrhage.

The criteria are NOT met:

- if the person is on anti-coagulation therapy.

A conditional licence, subject to annual review, may be considered if the person’s cardiologist or haematologist certifies that the therapy is satisfactory.
2.1 Rationale

The adverse effects of alcohol on safe driving are well documented. All Australian jurisdictions (and most throughout the world) enforce legislation to control the incidence of drink driving. Most would claim at least partial success. This regulatory trend has led to lower acceptable blood alcohol concentrations (BACs) for drivers generally and in Australia zero levels for heavy vehicle drivers.

Epidemiological studies have compared BACs of drivers involved in crashes with people driving under similar controlled circumstances. These studies leave little doubt that the consumption of alcohol is a major contributor to motor vehicle crashes and the serious injuries that result.

In the USA, the Department of Transportation has estimated that:

- 11% of drivers involved in all crashes have BACs greater than 0.05g/100ml;
- 24% of those involved in crashes with serious injuries have elevated BACs;
- 45% of drivers involved in fatal crashes have BACs of 0.10g/100ml or higher; and
- almost 70% of drivers in fatal crashes involving just one vehicle, for which the driver is considered to be responsible have BACs greater than 0.10g/100ml.

In a New South Wales study, 13% of fatal accidents involved truck drivers with BACs over 0.05g/100ml, and 22% of all fatal and serious injury accidents involved drivers with BACs over 0.05g/100ml. The studies conclude that as the severity of the crash increases, so does the probability that alcohol is involved.

The risk of involvement in a motor vehicle crash increases as the concentration of alcohol in the blood increases. It has been reported that with a BAC of 0.06g/100ml, a driver is twice as likely to be involved in a fatal crash as is a driver without alcohol in the blood; at 0.10g/100ml the driver is 7 times as likely to be involved; and at 0.15g/100ml the relative risk is more than 25 times greater.

Many physiological, psychological and other factors affect blood alcohol concentrations. It is therefore difficult to accurately estimate a BAC from a known alcohol intake.

A further distinction should be drawn between a clinically obvious intoxication, and the impairment which is of significance for motor vehicle safety. The obvious clinical signs of slurred speech, inability to walk in a straight line or difficulty in standing, classically associated with intoxication, are often not observed until much later than the significant decrement in a person’s ability to perform given tasks compared to their normal performance. Some people do not appear intoxicated until levels of 0.20g/100ml to 0.30g/100ml are reached, whereas impairment has been demonstrated at 0.03g/100ml and lower.

When the data from crashes involving drivers with elevated BACs is further examined, two further subgroups stand out with even higher risk. These are:

- problem or addicted drinkers; and
- young drivers, particularly young males.

A 1983 study demonstrated that alcoholics and problem drinkers are involved in at least one third to one half of all alcohol-related crashes with serious injuries, yet the overall prevalence of this group in the community is generally accepted to be 10% of the adult population.

The chronic effects of excess alcohol intake on organ damage are well known to all medical practitioners, and it is obvious that the many manifestations of organic brain damage seen from alcohol are incompatible with safe driving.

However, in many ways it is the effects which lead to impairment of functions vital to the optimal performance of complex driving tasks that present the more difficult decisions. These can generally be grouped into:

- those functions associated with the processing and handling of sensory information and CNS arousal in general; and
- those concerned with speed and accuracy of response in the psychomotor tasks.

There are a variety of tests to measure performance in these tasks including the:
- Critical Flicker Fusion Threshold Test,
- Choice Reaction Time Test,
- Compensatory Tracking Test,
- Short-term Memory, Continuous Attention Task, and
- Subjective Sedation Test.

2.2 Criteria

2.2.1 Chronic alcohol abuse

The criteria are NOT met:

- if the person has clear historical and clinical evidence of chronic alcohol abuse and unequivocal signs of end organ damage, especially of any organic brain damage.
- if the person has a strong history of alcohol abuse and clinical evidence of abuse is limited to biochemical findings without clinical signs.
A conditional licence may be considered, subject to frequent review:

- if the person has stopped drinking, demonstrates good evidence of insight into the problem, is not suffering from any withdrawal symptoms and shows no evidence of any progressive damage. It is preferable that this assessment be made by approved practitioners specialising in alcohol treatment.

2.2.2 Frequent alcoholic intoxication

People who are frequently intoxicated do not readily admit to a problem and the diagnosis of most cases will require careful clinical judgement.

People in this category should be told of the very significant risk they pose to public safety as well as to their own health. They should be monitored at yearly intervals to ensure that their risks as drivers have not increased.

The criteria are NOT met:

- if the person has a clear history of frequent alcohol intake leading to intoxication coinciding with periods of driving.

A conditional licence may be considered, subject to further assessment:

- if the person’s episodes of intoxication do not coincide with periods of driving. However, there would need to be a clear demonstration that blood alcohol concentrations will have returned to legal limits when driving activities are undertaken, and that psychomotor performance and information processing will not be adversely affected.

3 DRUGS OTHER THAN ALCOHOL

3.1 Rationale

3.1.1 Epidemiology

Apart from alcohol, there are many other substances which may affect driving performance. These range from illegal substances such as heroin and other opiates through to commonly prescribed medications and over-the-counter preparations. Substance abuse, defined as taking a centrally acting substance (drug) for non-therapeutic reasons in higher than therapeutic dosage in order to obtain a desired psychological effect, is clearly incompatible with safe driving.

The co-ordination of sensory and motor systems is particularly important for commercial drivers. Psychoactive drugs have the potential to disrupt cognitive and psychomotor functions crucial for safe driving. Table 1 gives examples of drugs which may affect driving skills.

A 1992 study pointed out that the majority of people who are prescribed psychoactive drugs are in fact active drivers. It is clearly important to protect them and the general public from accidents caused by drug-induced sedation.

The literature relating drugs to traffic accidents is much less developed than is the case for alcohol. However, it has been demonstrated that simple and repetitive tasks common in driving may be particularly affected by sedative drugs.

There is evidence to suggest that psychoactive drugs are contributory factors to accidents in general (not just traffic). A 1983 study reported that the risk of accidents is increased with benzodiazepine usage, while in 1990 it was reported that benzodiazepine users are significantly more likely to sustain accident-related injuries than non-users.

In 1972 the World Health Organisation indicated its concerns over the relationship between psychoactive drugs and driving skills which have since been further supported by a number of studies. A 1990 study in the UK demonstrated that patients receiving benzodiazepine and other minor tranquillisers are five times more likely to experience a serious motor vehicle accident than non-drug users.

The interaction of alcohol with psychoactive drugs can be directly fatal, or result in impairment of performance to such an extent that a fatal accident may ensue. A summary
of studies in 1992 stated that the interaction between personality, mental state, performance situation and psychoactive drugs is complex. It is suggested that the use of psychoactive/sedative compounds will not necessarily cause an accident, but the more behaviourally toxic compounds may increase the relative risk of an industrial or road traffic accident.

Data on illicit drugs is much less readily available, partly because of their illegal status. However, since many of their physiological effects are similar to both alcohol and prescription drugs, their usage is also likely to cause a significant safety hazard.

Stimulant drugs such as amphetamines and cocaine which produce a heightened sense of well-being, disinhibited behaviour and over activity obviously have a potential for causing road accidents.

Cannabis can certainly impair psychomotor functions thought to be related to driving skills. However, there is still debate about the duration of impairment outside of laboratory experiments.

3.1.2 Effects on driving

Such a diffuse group of substances obviously has varied effects on driving related skills. Some prescription, over-the-counter and illegal substances can alter vision, perception, judgement, attention span, motor function and other characteristics important to safe driving. While it is the ‘on the road’ actions that are significant, these effects are more clearly demonstrated by laboratory tests devised to quantify decrements associated with these substances. These research tools include the:

- Critical Flicker Fusion Threshold,
- Choice Reaction Time,
- Compensatory Tracking Tests,
- Short Term Memory, Continuous Attention Task, and
- Subjective Sedation.

3.2 Criteria

More than for perhaps any other category of medical condition, careful individual assessments need to be made of commercial vehicle drivers using psychoactive drugs. Additional advice from those involved in specialised treatment centres will frequently be necessary and ongoing assessment is likely to be critical.

3.2.1 Illicit drugs

The habitual use of illicit drugs is incompatible with safe commercial vehicle driving.

However, occasional use of these drugs also requires very careful assessment. Virtually all illicit drugs are psychoactive, and likely to have detrimental effects on driving skills. The medical practitioner should be satisfied that their usage is not going to affect the commercial vehicle driver in the performance of his or her duties.

The criteria are NOT met:

- if the person is using illicit drugs in a manner which may affect his or her driving; or
- if the person is using stimulants such as amphetamines. These drugs have been used to combat fatigue while driving, and while they may initially increase alertness and efficiency, their effect is notoriously unpredictable and may be accompanied by marked changes in mood and behaviour. Amphetamine use is also commonly followed by periods of depression and fatigue.

For those undertaking a methadone programme, see 3.2.2.

3.2.2 Prescribed psychoactive drugs (see Table 1)

Although short or long term usage of many of this group of drugs is also incompatible with safe commercial driving, the circumstances will vary markedly between individuals and each case should be considered on its merits. At the very least, strong warnings should be made to individuals using any of this group of substances, particularly if there is the potential for combination with alcohol. Methadone programme participants must be given very careful and detailed consideration.

In most cases, the condition for which medication is prescribed will be of greater significance than the medication itself in regard to fitness as a commercial driver, hence the sections on these conditions should be consulted.

In all cases when doctors are prescribing medications, they should consider any possible effects on driving skills and inform the patient. At periodic examinations, commercial drivers should be reminded of the effects prescription and over-the-counter medications and alcohol have on driving skills. Failure to do so may have medico-legal consequences for the practitioner in the event of an accident involving the patient.
Where alternative therapy with non-
psychoactive drugs is possible, this should be
undertaken.

The criteria are NOT met:

- if the person is taking psychoactive drugs
  which will impair driving performance on a
  long term basis.

Uncertain cases should be referred to an
approved specialist.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Classes of drugs with potential for affecting driving skills</th>
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<tbody>
<tr>
<td><strong>Sedative, Hypnotic, or Anti-Anxiety Agents</strong></td>
<td><strong>Skeletal Muscle Relaxants</strong></td>
</tr>
<tr>
<td>- barbiturates</td>
<td>- dantrolene</td>
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<tr>
<td>- benzodiazepines</td>
<td>- methocarbamol</td>
</tr>
<tr>
<td><strong>Analgesics</strong></td>
<td><strong>Ophthalmic Agents</strong> (topical preparations)</td>
</tr>
<tr>
<td>- codeine</td>
<td>- most agents for treating glaucoma</td>
</tr>
<tr>
<td>- narcotics</td>
<td><strong>Antibiotics</strong></td>
</tr>
<tr>
<td>- propoxyphene</td>
<td>- minocycline</td>
</tr>
<tr>
<td><strong>Anti-Allergy Agents</strong></td>
<td><strong>Drugs and Chemicals of Abuse</strong></td>
</tr>
<tr>
<td>- antihistamines</td>
<td>- alcohol</td>
</tr>
<tr>
<td><strong>Antipsychotic or Antidepressant Agents</strong></td>
<td>- amphetamines (chronic use)</td>
</tr>
<tr>
<td>- cyclic antidepressants</td>
<td>- cocaine (chronic use)</td>
</tr>
<tr>
<td>- haloperidol</td>
<td>- marijuana</td>
</tr>
<tr>
<td>- phenothiazines</td>
<td></td>
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</tbody>
</table>
4.1 Rationale

Assessment of drivers with psychiatric disorders regarding fitness to drive presents a challenging problem for the examining doctor. A wide variety of conditions can occur which may fluctuate in their degree of disability and transience. The precise effect of alterations in mental state on driving ability may also be unclear.

Driving is a complicated psychomotor performance which depends on fine co-ordination between the sensory and motor system. It is influenced by factors such as arousal, perception, learning, memory, attention, concentration, emotion, reflex speed, time estimation, auditory and visual functions, decision taking and personality. Complex feedback systems interact to produce the appropriate co-ordinated behavioural response. Therefore anything that interferes with any of these factors can impair driving ability. Examining doctors should assess drivers with these factors in mind.

4.1.1 Epidemiology

There have been relatively few attempts to determine what proportion of motor vehicle accidents (MVA) involve drivers with a known history of psychiatric illness. Patients hospitalised for mental illness appear to have higher accident rates than those of the general population. The MVA rate among mentally ill people was twice that of an age adjusted sample without mental illness. The sample consisted mostly of schizophrenic and manic-depressive individuals.

Certain diagnostic groups appear largely responsible for the higher accident rates found among psychiatric inpatients. Patients with neuroses and personality disorders had increased rates. Rates for people with schizophrenia differ little from the general population. The highest rate of MVAs have been found in people with personality disorders and alcoholism. People who were paranoid or depressed have been found to be more likely to be involved in fatal MVAs than those in a control group. It has also been reported that more than 50% of fatally injured drivers had experienced interpersonal or vocational stresses during the 12 months preceding their crashes, compared with 18% of a control group. MVA rates double six months before and after divorce which provides evidence that there is increased risk of accidents during periods of stress.

Other studies have shown drivers involved in accidents had an increase in stressful events within four weeks of these occurrences.

4.2 Criteria

Australian and overseas experience shows the inappropriateness of rigid rules relating to psychiatric conditions and the issuing of licences. Taking psychotropic medication can affect alertness and co-ordination. The potential for interactions, especially with alcohol, should be noted. Anti-depressant medication may cause drowsiness and postural hypotension. Decisions on individual cases should only be made after all the facts are considered and, if in any doubt, psychiatric consultation should be sought. However, epidemiological evidence supports use of the following standards.

The criteria are NOT met:

- if the person has an acute psychosis, whether schizophrenic, manic-depressive or other depressive psychosis. People who have affective disorders suffer from disturbances in attention, judgement, and motor activity that can seriously, even if temporarily, affect their fitness to drive;
- if the person is taking psychoactive drugs which will impair driving performance on a long term basis;
- if the examining doctor believes that a person’s judgement or psychomotor activity is currently affected by present or past mental disorder;
- if the examining doctor believes that there is a significant risk of a previous psychotic condition relapsing.

A conditional licence may be considered:

- if relevant psychiatric opinion is supportive;
- if the person has a psychotic condition which is so well controlled as to reduce the risk of an exacerbation to that of any member of the general population.

A medical decision is not appropriate:

- if the person has a personality disorder. Such people often show disregard for social values and the law; they may have a history of aggressive, irresponsible or erratic behaviour which may be evidenced by repeated traffic violations and civil charges. Such people should be managed through administrative channels. Their fitness to drive - on personality criteria alone - is not considered to be a medical decision.
5 NEUROLOGICAL CONDITIONS

5.1 Epilepsy

5.1.1 Epidemiology

Epilepsy occurs in two peaks, between 2 to 5 years and again at puberty. Therefore, the presence of idiopathic epilepsy will most likely be apparent by the time a driver’s licence is issued. In a heterogeneous group of ‘first fitters’, 62% had recurring fits 12 months after the first seizure, and nearly 50% after 6 months. Estimates of the risk of epilepsy-related traffic accidents vary between 0.03% and 0.3%. It would also seem that drivers with epilepsy are involved in accidents at about 1.8 times the normal frequency. In any particular case, the likelihood of further seizures after the first episode is dependent upon the actual epilepsy syndrome involved.

5.1.2 Effects on driving

Sudden loss of consciousness clearly impairs the ability to control a vehicle. While control of epilepsy may appear to be adequate, several inherent features of the driver’s work such as sleep deprivation, and the possible use of drugs and stimulants for long distance drivers, may increase the risk of fitting.

5.1.3 Criteria

The criteria are NOT met:

- if epilepsy is confirmed.

A conditional licence may be considered:

- if the person has a past history of febrile convulsions; or
- a past history of epilepsy with seizure free period of 5 years whilst not on any anticonvulsant medication; or
- had a past single seizure, or cluster of seizures, due to exceptional and non-repeatable circumstances; or
- if the person has epilepsy which is so well controlled as to reduce the risk of a convulsion to that of any member of the general population, noting the inherent features of the individual’s job.

5.2 Strokes

5.2.1 Effects on driving

People who have suffered a stroke are at increased risk of a second episode which may render them unconscious, or otherwise incapable of handling a vehicle.

The sequelae of a stroke may limit a driver’s ability to adequately control a vehicle, or result in sensory or perceptual deficits which may cause the driver to fail to recognise dangerous situations.

5.2.2 Criteria

The criteria are NOT met:

- if the person has a history of cerebrovascular accident.

A conditional licence may be considered:

- if the stroke was caused by a condition which has now been satisfactorily treated. A satisfactory recovery from the stroke, including perceptual deficits, must also be demonstrated.

Cases of berry aneurysm should be referred to an approved specialist.

5.3 Transient Ischaemic Attacks

5.3.1 Effects on driving

Transient ischaemic attacks may render a driver temporarily unconscious or unable to control the vehicle.

5.3.2 Criteria

The criteria are NOT met:

- if the person has had two or more transient ischaemic attacks.

A conditional licence may be considered:

- if the aetiology of the attacks has been identified, the underlying cause removed, and the person has had a six-month period free of attacks.

If the underlying cardiac pathology for such episodes is identified the restriction would be based upon the prognosis of that condition, and the likelihood of continued recurrence.

Persons who have had only one transient ischaemic episode should be referred to an approved specialist.
6 NEUROMUSCULAR DISORDERS INCLUDING MULTIPLE SCLEROSIS, PARKINSONISM

6.1 Rationale

Severe neuromuscular disorders limit the ability of a driver to effectively control a vehicle.

6.2 Criteria

The criteria are NOT met:

- if the person has Parkinsonism, multiple sclerosis or any other severe neuromuscular disorder.

A conditional licence may be considered:

- if the disability is limited to minor muscular weakness (subject to frequent re-assessment because of the progressive nature of such disorders);

or

(a) if the Parkinsonism is drug induced; and

(b) if the person is likely to recover on cessation of the treatment; and

(c) if the underlying cause for which the drugs were administered is not a cause for exclusion in its own right.

7 DEMENTIA AND OTHER COGNITIVE IMPAIRMENTS

7.1 Rationale

The effects of dementia or cognitive impairment may be variable, but in most cases would inhibit the driver’s ability to respond quickly to unfamiliar situations.

(See also Section 16.5 HIV Infection)

7.2 Criteria

The criteria are NOT met:

- if the person’s dementia or cognitive impairment is confirmed.

8 SERIOUS HEAD INJURY

8.1 Rationale

Effects of a head injury vary widely depending on the severity of the initial injury and the particular structures affected. Individuals who have suffered a head injury may suffer ‘soft’ neurological sequelae such as perceptual difficulties and behavioral changes (mood swings, disinhibition, and aggression). They may also display a lack of insight, and inappropriate responses to advice. Such cases need to be very carefully assessed and often require skilled neuropsychological testing.

8.2 Criteria

A person who recovers from a loss of consciousness of less than 24 hours with no complications does not present any special risk. Similarly, immediate seizures which occur within 24 hours of a head injury are not considered to be epilepsy, but part of the acute process.

The criteria are NOT met:

- if the person has a head injury causing functional disturbance until the after effects have been assessed. This may include a medical assessment, neuropsychological testing, and/or a practical driving test.

9 SYNCOPE

9.1 Rationale

Unpredictable, spontaneous loss of consciousness is obviously incompatible with safe driving.

9.2 Criteria

The criteria are NOT met:

- if the person suffers from current syncope.

A conditional licence may be considered by an approved specialist:

- if the cause of the person’s syncope has been identified, appropriate treatment instructed, and compliance confirmed.
10 SLEEP DISORDERS

10.1 Obstructive Sleep Apnoea

10.1.1 Epidemiology

Obstructive Sleep Apnoea is a disorder characterised by snoring, closure of the upper airway, oxygen desaturation and episodes of multiple arousal during sleep. Daytime sleepiness is a major symptom. The estimated prevalence is 1-2% in the total population and at least 8% in middle aged males. There is an even higher prevalence in some occupational groups. A study of truck drivers in the USA suggested 46% had some form of sleep apnoea.

10.1.2 Effects on driving

Studies of road accident records from USA and Europe have suggested an accident rate from 2.5 to 12 times greater in those suffering sleep apnoea than age matched controls.

Another USA study using a computer based test of vigilance showed that those suffering from sleep apnoea make significantly more errors than non-sufferers of the same age.

Significant sleep apnoea (i.e. more than 20 episodes of apnoea per hour of sleep) is associated with increased mortality rate and an increased risk of strokes and cardiovascular incidents.

As a group, people with sleep apnoea are excessively sleepy during the day compared with non-sufferers but the severity of the apnoea is not highly correlated to the degree of sleepiness experienced, as people with mild sleep apnoea can be very sleepy.

10.1.3 Clinical issues

People with sleep apnoea tend to underestimate their level of daytime sleepiness and self-reported data on daytime sleepiness, or the potential to fall asleep while driving, cannot be relied on.

Thus, if a person is considered to be suffering from sleep apnoea, this should be investigated by overnight study in a recognised sleep disorders centre. Under some circumstances, daytime wakefulness testing may also be appropriate.

Common indicators of the possibility of sleep apnoea include habitual snoring during sleep, witnessed apnoeic events, falling asleep during non-stimulating activities and feeling tired despite apparently adequate amounts of sleep. Although uncommon, some sufferers experience sleep attacks without prior warning.

Other symptoms include morning headaches, periods of poor concentration and difficulties with short term memory. Less frequently, arousals produced by apnoea cause a presentation dominated by the complaint of insomnia.

A high level of suspicion of sleep apnoea should occur where an applicant presents with the following features:

- a history of snoring
- witnessed apnoeas (by a partner)
- excessive daytime sleepiness
- physical features such as a thick neck, obesity and reddened, oedematous narrow oropharynx.

However, significant degrees of sleep apnoea occur without many of the above features. Thin people may also suffer from sleep apnoea and often the sufferer may under report the symptom of sleepiness.

The consumption of alcohol or sedatives, shift work and sleep deprivation may exacerbate sleep apnoea.

Conditions such as hypertension and hypothyroidism are often associated with sleep apnoea.

Treatment for sleep apnoea may include weight loss and alcohol reduction programmes, surgery or continuous positive airways pressure (CPAP).

10.1.4 Criteria

The criteria are NOT met:

- if the person has established sleep apnoea until treatment is effective. Consideration should be given to how long-distance drivers will comply with treatment such as CPAP.

A conditional licence (with periodic review) should be recommended:

- if the person has a combination of daytime sleepiness and a BMI in excess of 30 and a reddened, oedematous narrow oropharynx; or
- if the person has a history of snoring and witnessed apnoeas,

unless sleep apnoea can be reasonably excluded. The certifying practitioner should arrange investigation.

1 Obesity defined as Body Mass Index > 30; 

\[\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}\]
10.2 Narcolepsy

10.2.1 Epidemiology

Narcolepsy, a neurological condition in which sufferers experience the unheralded occurrence of sleep, is related to dysfunction of the brain-stem sleep-wake mechanisms. It affects 0.06% of the population and is much less a problem than sleep apnoea. It is typically unrecognised for many years because of a lack of knowledge by medical practitioners and a characteristic behavioural response of many sufferers, who because of embarrassment about sleepiness and cataplexy (when present), conceal the symptoms. The peak age of onset is adolescence.

Narcolepsy can be diagnosed by ascertaining the patient’s history, in conjunction with the multiple sleep latency test (MSLT). Overnight sleep study is necessary on the night prior to the MSLT to be certain that there are no other sleep disorders and to aid MSLT interpretation. The majority of sufferers are HLA - DR2 positive. Importantly there is a subgroup of excessively sleepy individuals who do not have the diagnostic features of narcolepsy, but nonetheless are pathologically sleepy.

10.2.2 Effects on driving

The excessive sleepiness clearly puts the driver at risk. Many sufferers, by strong motivation and various measures (open windows, cold air) find that they can force themselves to stay awake. However, they can be subject to sleep attacks without warning, and/or cataplexy which place them at extreme risk.

Sufferers of narcolepsy may experience:

- excessive daytime sleepiness;
- cataplexy;
- sleep paralysis; and
- vivid hypnogogic hallucinations.

Tricyclic antidepressants and MAO Inhibitors are used to treat cataplexy while a combination of chemical stimulant and behavioural therapy is required to treat sleepiness.

Narcolepsy sufferers should avoid dangerous situations and mundane tasks. Although the efficacy of amphetamines can be tested using wakefulness testing, ongoing compliance with treatment is essential to the future level of wakefulness.

10.2.3 Criteria

The criteria are NOT met:

- if narcolepsy is confirmed.
11 VISION AND EYE DISORDERS

11.1 Visual Acuity

11.1.1 Epidemiology

Between 2% and 6% of drivers can be expected to have visual acuity of 6/12 or less. However, available studies of the relationship between reduced visual acuity and road accidents suggest that the percentage of road accidents due to defective visual acuity or to other ocular abnormalities is very small.

11.1.2 Effects on driving

As over 90% of information input to drivers is visual, adequate visual acuity is required in order to drive safely.

11.1.3 Criteria

The criteria are NOT met:

- if the person's best corrected visual acuity is less than 6/9 in the better eye (this includes monocular vision) or less than 6/18 in the other; or
- if the person makes more than two errors in the 6/9 line with the better eye, or 6/18 line with the other eye.

A conditional licence may be considered:

- if the person's vision is less than 6/18 in the worse eye. This includes applicants with monocular vision. The opinion of a specialist ophthalmologist or optometrist should be obtained.

11.2 Visual Fields

11.2.1 Epidemiology

Studies in the USA indicate that fewer than 1% of drivers have total visual fields less than 120 degrees. There is no evidence that these drivers are more prone to accidents than those with normal visual fields. It might be expected that drivers with restricted visual fields would be more likely to be involved in side collisions. There is no evidence that drivers with monocular vision are overrepresented in accidents. It is generally assumed that drivers who have recently lost one eye may be at particular risk.

11.2.2 Effects on driving

It is reasonable to assume that drivers with substantial visual field loss are less equipped to perceive potential hazards and are more susceptible to temporary blindness by dust.

11.2.3 Criteria

Visual fields should initially be assessed by confrontation. Specialist assessment (including perimetry) is required for any abnormality detected.

The criteria are NOT met:

- if the person has monocular vision, any abnormality of visual fields to confrontation, or bitemporal or homonymous hemianopia.

A conditional licence may be considered:

- if the person has less than normal fields to confrontation. Individual specialist assessment should occur. A person with a partial field loss if they have 140° or more of horizontal visual field remaining. This is to be determined with a IV4e target on a Goldman perimeter or equivalent.

11.3 Colour Perception

11.3.1 Epidemiology

Defective colour vision is mainly inherited. It occurs in 8.0% of men and about 0.2% of women. Of men, 2.0% have a red perception difficulty (protan defect), and 6.0% have a green perception difficulty (deutan defect). Less than 0.5% have a severe red perception difficulty (protanopia).

Some studies have indicated that drivers with protan defect have a reduced visual distance for other vehicles' tail lights and for red traffic signal lights. Drivers with a protan defect have an increased nose to tail collision rate.

A recent review of studies of motor vehicle accidents and drivers with colour blindness has found that drivers with severe colour blindness are at increased risk.

11.3.2 Effects on driving

The majority of drivers who have colour vision defects are able to distinguish traffic lights by the different intensities and position of lights as well as the movement of traffic and pedestrians. However, these cues may not always be available in poor weather conditions or when there is a traffic light failure. In addition drivers with a protan defect have a significantly reduced visual range for red signal lights and slower response to traffic lights.
11.3.3 Criteria

Colour vision is to be initially assessed with the Ishihara Test administered under good lighting. Where three or more errors are made (out of 24 plates), further assessment is required. A Medmont C100 (or OSCAR) vision tester should be used to identify protans. A listing of ocular practitioners with appropriate testing equipment is available from the driver licensing authority in your State or Territory, the Australian Optometrical Association (Tel: 03 9663 6833), or the Royal Australian College of Ophthalmologists (Tel: 02 9267 7006).

The criteria are NOT met:

- if the person is a protan.

If the person is assessed to be a protan and wishes to seek a review of that assessment, he or she may seek a final and conclusive test on a Nagel Anomaloscope. A driver’s ocular practitioner can arrange for the Anomaloscope to be sent to him or her by contacting the Victorian College of Optometry (Tel: 03 9349 7400 or Fax: 03 9349 7498). The driver will be required to pre-pay all freight costs, which will be equivalent to a 5kg parcel, plus insurance (expected to be in the range of $140-200 depending on distance).

11.4 Diplopia

11.4.1 Epidemiology

Diplopia, although rare, does occur as a result of neurological disease, trauma or as a developmental anomaly. No authoritative epidemiology could be found relating diplopia to drivers or accident rates. However, it can be assumed to be a visually disabling condition likely to cause confusion and uncertainty.

11.4.2 Effects on driving

Diplopia, of whatever cause, represents an unacceptable risk. Episodes of diplopia, whether due to transient ischaemic attacks, migraine or other cause, should be considered in terms of their suddenness of onset and the driver’s ability to stop safely and obtain relief.

11.4.3 Criteria

The criteria are NOT met:

- if the person has diplopia from whatever cause, whether persistent or recurrent.

A conditional licence may be considered:

- if the person has diplopia only on extreme lateral gaze. While this does not warrant failure, it should be recorded on the examination form.

11.5 Dark Adaptation and Night Vision

11.5.1 Epidemiology

It has been estimated that 2% of the population may have significantly reduced night vision, and significant individual variability has been documented. Certain retinal disorders can result in reduced night vision. These are either familial or lead to reduced visual acuity. Retinitis pigmentosa is the most common. Retinitis pigmentosa causes severe visual field loss which has a greater effect on road safety than any concurrent reduction of night vision. No authoritative epidemiology could be found relating reduced night vision to drivers or accident rates.

11.5.2 Effects on driving

Diseases such as retinitis pigmentosa, glaucoma and choroido-retinitis produce a marked deficiency of night vision, and present many obstacles to safe driving.

11.5.3 Criteria

Cases of severe retinal disease, or a history of familial retinal disease (such as retinitis pigmentosa) should be referred to an approved specialist.

A conditional licence may be considered for daylight driving.

11.6 Cataract and Aphakia

11.6.1 Epidemiology

Cataracts are very common and their incidence increases with age - some 40,000 cataract operations are performed in Australia each year. It is difficult to estimate the prevalence of cataracts because the condition may range from small opacity of the lens that does not affect visual acuity through to an extensive opacity resulting in significant vision loss.

11.6.2 Effects on driving

Drivers with cataracts encounter increased glare from oncoming vehicle lights which may reduce their ability to see, presenting a hazard for night driving. Advanced cataracts may lead to decreased visual acuity (see 11.1). Moderate cataracts may have little effect on visual acuity, but may still be associated with increased vulnerability to glare. The extent and location of the cataract, together with any glare disability, should be considered when deciding on driving fitness.
Absence of the lens of the eye (aphakia) following cataract surgery is usually corrected satisfactorily with an intra-ocular lens. If correction is by means of spectacles or contact lenses only, consideration should be given to whether the person is fit to drive.

11.6.3 Criteria

The criteria for visual acuity (11.1) must be met for drivers with a cataract.

Following cataract surgery, individual specialist assessment should occur.

11.7 Glaucoma

11.7.1 Epidemiology

Over the age of 40 years, 1-2% of the population are diagnosed as having glaucoma. The incidence rises with increasing age. People with glaucoma may have significant loss of visual fields.

11.7.2 Effects on driving

Glaucoma can lead to progressive loss of visual field if untreated. However, if satisfactorily controlled, in the absence of other visual disability, it represents no increased public risk. Drivers should be made aware that use of miotic drops can lead to reduced night vision.

11.7.3 Criteria

The criteria for visual fields (11.2) should be met.

A conditional licence may be considered subject to an annual review of visual fields.

12 HEARING

12.1 Rationale

Mild to moderate hearing loss does not appear to affect the ability to drive safely and studies have shown that some drivers with hearing loss have a better than average driving record.

Drivers of commercial vehicles should have a reasonable level of hearing to be aware of changes in engine or road noises which may signal developing problems, and to be aware of horns, rail crossings, emergency signals and sirens without compromise of safety.

Drivers of passenger vehicles require sufficient hearing to be able to communicate with passengers above ambient noise without having to turn their head. Hearing aids amplify extraneous noise and are subject to malfunction. They should not be relied upon without specialist advice.

12.2 Criteria

Hearing should be initially evaluated by a simple clinical test. If there is a clinical suggestion of hearing loss, then a formal audiogram should be conducted without the use of hearing aids.

The criteria are NOT met:

- if the person has an average hearing threshold level of equal to or greater than 40dB in the better ear. (Average hearing threshold is the simple average of pure tone air conduction thresholds at 500, 1000, 2000 and 3000 Hz.).

A conditional licence may be considered for drivers who use hearing aids and have sufficient corrected hearing to meet the safety requirements outlined in 12.1.
13 VESTIBULAR FUNCTION

13.1 Rationale

Vestibular malfunction can occur suddenly and with sufficient severity to make safe driving of any type of vehicle impossible; it is often accompanied by nystagmus which compounds the disability in regard to driving.

In confirmed Menieres disease, these symptoms can occur despite treatment and the natural history is of progression associated with increasing deafness until, in the extreme, total loss of vestibular and cochlear function occurs.

Following an acute labyrinthitis attack of vertigo, a sudden onset may occur for up to twelve months resulting in a sudden, unpredictable inability to drive.

Benign paroxysmal vertigo, which may follow a head injury, causes vertigo and nystagmus when specific head positions are assumed. This condition is likely to recur at any time for many years despite treatment.

13.2 Criteria

Vestibular function should be assessed by using a simple Romberg test, which is also required for neurological function. (A pass requires the ability to maintain balance while standing with shoes off, feet together side by side, eyes closed and arms by sides, for thirty seconds.)

The criteria are NOT met:

- if the person has any condition of recurrent vertigo. This includes people suffering from confirmed Menieres disease and benign paroxysmal vertigo, despite treatment; or

- if the person has any other type of vertigo. Such persons should be re-assessed after 12 months free of attacks without treatment.

Persons who fail the Romberg test should be referred to an approved specialist.

14 LOCOMOTOR DISABILITIES

14.1 Rationale

14.1.1 Epidemiology

Locomotor disorders are common. The main conditions occurring in the adult years include:

- **ankylosing spondylitis** - affects 1% of the population and is 4 times more common in males;

- **rheumatoid arthritis** - affects 3% of the population and is 2-3 times more common in females;

- **generalised osteoarthritis** and **degenerative joint disease** are nearly universal by the time of retirement, although pain and stiffness do not necessarily accompany radiological changes;

- **Paget's disease** - affects between 0.5%-2% of adults and is twice as common in men. Aching and pain may be a feature affecting the spine, hips, knees and skull.

There is no specific data on the relative accident risk for commercial vehicle drivers suffering from the above conditions, back injuries, amputations, deformities, arthritis or peripheral neuropathies. However, the scientific literature does show an association between whole body vibration, driving heavy vehicles, and a higher incidence of back pain and/or peripheral neuropathy compared to workers in more sedentary jobs. While these conditions are not linked with road accidents, they can be a cause of major disability and a factor in premature retirement.

14.1.2 Effects on driving

There is no published data on the risk of accidents and/or loss of control of a vehicle due to locomotor disorders. Musculo-skeletal impairment is rarely of a degree which precludes driving heavy vehicles, though rotation of the head (mobility of cervical spine) is a particular requirement. Adaptive equipment can usually be installed in most vehicles (e.g. spinner knobs, automatic transmission, air suspension seats) to enable the impaired driver to operate the vehicle safely.

14.1.3 Aim of medical assessment

The medical assessment is aimed at detecting those drivers who would have difficulty in controlling a vehicle because of loss of the use of critical limbs or digits or loss of sensation in the extremities, and to identify those drivers
who would benefit from a specific vehicle adaptation. In many cases a functional assessment undertaken by an occupational therapist who is suitably qualified and trained as a driving rehabilitation assessor may be required. If in an isolated area, an occupational therapist could conduct the test with advice from a therapist specialising in driver rehabilitation. It is recommended that the treating doctor consult the peak occupational therapists’ association in his/her State or Territory. In some circumstances a conditional licence to drive may depend on a suitable modification to the vehicle.

14.2 Criteria

In relation to disability due to locomotor disorders or peripheral neuropathies, fitness to drive is not a medical decision. The decision can only be made after careful assessment, in a suitably modified vehicle if required, by those competent to evaluate the driving skills of people with disabilities (e.g. an occupational therapist who has completed the Occupational Therapy Driver Evaluation Course).

Vehicles with clutches and manual transmissions require drivers to have four functioning extremities. The lower extremities are required to operate clutch, brake and accelerator pedals, and the upper extremities are needed to steer, shift gears and operate other controls.

The criteria are NOT met:

- if the person has peripheral neuropathy resulting in loss of sensation or proprioception in the extremities; or

- if there is amputation or congenital absence of a limb required to operate a hand or foot control where no modification is practicable; or

- if there is amputation or congenital loss of both upper or both lower limbs, or one upper and one lower limb.

The criteria are generally not met:

- if the thumbs are missing from both hands (subject to a practical assessment); or

- if acute inflammation and pain in any joint interferes with concentration or impairs the range of motion such that the vehicle cannot be operated safely. Such cases should be re-examined if the inflammation is brought under control; or

- if rotation of the cervical spine is less than 45° to the left or right.

A conditional licence may be considered, subject to practical assessment:

- if the person has a lower limb prosthesis for a below knee amputation and does not have to operate a foot pedal with the prosthesis, and the clutch pedal (if present) has been modified for use by a prosthesis. Automatic transmission and/or modification to hand controls may also be required. A spinner knob will be needed if a power boosted hand brake control has been added; or

- if the person has the forefoot, first metatarsophalangeal joint or large toe amputated; or

- if the person has less than a thumb and two fingers on each hand or only one arm, provided a spinner knob or other device is fitted to the vehicle; or

- if there is pain and stiffness in any joint, or a joint replacement, having regard for the range of movement and muscle power required to operate a heavy vehicle and the task of getting in and out of vehicles.

A practical driving assessment is essential for most final decisions.

Where a conditional licence may be appropriate or where there is any doubt about the person’s ability to operate a vehicle safely, the examining doctor should suggest a more comprehensive assessment, including a practical driving test. The driver should wear any prosthesis prescribed and the vehicle should be equipped with appropriate modifications.

Initially the person will have to demonstrate proficiency in driving a light private vehicle such as a car, prior to being assessed in a heavy vehicle. A minimum 40 minute driving assessment will need to be undertaken by the driver in the presence of a heavy vehicle driving instructor and an occupational therapist. Where possible the occupational therapist should be qualified to assess driving tasks. Alternatively, the occupational therapist may take advice from a therapist specialising in driver rehabilitation.
15 ENDOCRINE

15.1 Diabetes

15.1.1 Epidemiology

Diabetes affects 2% of the population rising to 8% in those over 60 years of age.

15.1.2 Effects on driving

Diabetes may affect a person’s ability to drive due to acute loss of consciousness in a hypoglycaemic episode or from end organ effects on vision or vasculature or limbs and extremities, particularly the feet. Tight control of insulin-dependent diabetes is associated with increased risk of hypoglycaemic episodes.

15.1.3 Criteria

The criteria are NOT met:

- if the person has diabetes unless it is satisfactorily controlled by diet alone.

A conditional licence may be considered, subject to at least annual review:

- if the person has diabetes mellitus satisfactorily controlled by oral hypoglycaemic agents provided there is an absence of hypoglycaemic episodes and of end organ effects.

The presence of insulin-dependent diabetes effectively debars a person from driving commercial vehicles, but persons receiving insulin therapy may be referred to an approved specialist if there is an absence of hypoglycaemic episodes and no end organ damage and the treating specialist certifies that control is satisfactory.

15.2 Other Endocrine Disorders

Endocrine disorders with symptoms which could affect the ability to drive a vehicle safely should be individually assessed.
16 MISCELLANEOUS

16.1 Gut

16.1.1 Epidemiology

Gastro-intestinal disease is now well understood and effective treatments are available for most conditions. There are few, if any, of these conditions that are likely to cause sudden loss of consciousness or inability to drive, provided they are well managed and under regular review.

16.1.2 Effects on driving

Untreated peptic ulceration and oesophagitis may manifest as anaemia, pain or frank bleeding. While the symptoms may render a person unfit to drive in the short term, the conditions respond well to treatment and the risk of a sudden disabling illness is insignificant.

Inflammatory bowel conditions such as colitis and Crohn's disease may all cause considerable pain and disability if not well controlled. This may take the form of lethargy, diarrhoea, urgency of defecation and, in extreme cases, faecal incontinence. A person with such a condition would be unfit to drive due to lack of concentration, especially for long distances where access to toilet facilities may be limited.

The onset of untreated malignancy of the gastro-intestinal tract is typically slow and not prone to cause acute disablement.

16.1.3 Criteria

As there are no specific conditions which absolutely preclude employment as a commercial vehicle driver, there are no specific mandatory tests or examinations for the gastro-intestinal tract.

16.2 Respiratory System

16.2.1 Epidemiology

The respiratory system is one of the most commonly affected by disease, with specific conditions such as asthma causing about 5 deaths per 100,000 population in Australia.

16.2.2 Effects on driving

Severe respiratory disorders can interfere with a driver's safe handling of a motor vehicle through inadequate oxygen and/or increased carbon dioxide to the brain and heart, leading to poor judgement, agitation, drowsiness, reduced concentration, weakness, and cardiac effects. Less severe respiratory disorders do not impair driving to the same degree.

16.2.3 Criteria

The criteria are NOT met:

- if the person has severe respiratory failure.

A conditional licence may be considered:

- pending advice about the person's condition from a treating specialist regarding the severity of the person's condition and the likelihood of control.

16.3 Renal System

16.3.1 Epidemiology

End-stage renal failure affects 50-60 people per 1,000,000 in Australia, of which two-thirds are less than 60 years of age.

16.3.2 Effects on driving

Many of the complications of renal failure are reversible, such as urinary tract infection and obstruction, and fluid and electrolyte disturbances. They may require short term admissions to hospital to treat and stabilise.

The above complications may be worsened by long distance driving if the driver does not consume adequate amounts of fluid, access to toilet facilities is limited or where access to medical assistance is difficult.

16.3.3 Criteria

The criteria are NOT met:

- if the person has end-stage renal failure.

A conditional licence may be considered:

- if supported by an approved specialist.
### 16.4 Cancer and Driving

#### 16.4.1 Effects On Driving

Cancer may affect the ability to drive due to primary or secondary tumors in the brain, their treatment, or as a result of effects on a site elsewhere in the body.

#### 16.4.2 Criteria

The effects at the initial site are mainly covered by criteria given elsewhere.

The criteria are NOT met:

- if the person has evidence of primary or secondary cancer within the brain.

A conditional licence may be considered by an approved specialist:

- if the brain tumor has been successfully treated.

### 16.5 HIV Infection

#### 16.5.1 Epidemiology

HIV infection is an important public health issue. It is also important in the evaluation of medical problems which may affect safety to drive a range of commercial vehicles, because it may present adverse general health effects or specific neurological problems with little, if any, advance warning. It is not uncommon for neurological or psychological events to be the first clinical manifestation of HIV infection, e.g. AIDS dementia complex in 10% of cases or seizures in 18% of cases.

#### 16.5.2 Effects on driving

The human immunodeficiency virus (HIV) is highly neurotropic. The brain appears to be a principal site for the virus soon after infection and the development of neurological complications may be an indication of the course of the infection and the severity of the immune deficiency. While drivers in the early phases of the disease may be symptom free, a major safety concern is that disturbances of behaviour, memory and control of movement, may have subtle development or present suddenly with little or no prior clinical warning. Some of the earliest manifestations of the progression of the disease may be impaired cognitive processes or isolated neurological defects with later AIDS dementia complex. The evaluation of psychiatric, neurological and neuromuscular conditions and problems with dementia and cognitive impairment, are addressed in Sections 4 - 7.

#### 16.5.3 Criteria

HIV testing is not required routinely and should not be done unless there is a clinical indication.

The criteria are NOT met:

- if the person has an HIV infection.

A conditional licence may be considered, subject to at least annual review if specialist advice is received on the person’s condition and there is an absence of neurological manifestations or neuropsychiatric or other complications, which would compromise safety to drive commercial vehicles.
Appendix 'A'

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Summary of Medical Criteria

1 CARDIOVASCULAR CONDITIONS (pg 8)

1.2.1 Ischaemic heart disease or coronary artery disease (pg 9)

(a) Proven angina pectoris

The criteria are NOT met:

- if the person is subject to angina pectoris.

A conditional licence may be considered in the following circumstances.

1. If a Bruce stress test (or equivalent protocol) and thallium or sestamibi scan show no evidence of myocardial ischaemia.

2. If myocardial ischaemia is demonstrated, a coronary angiogram may be offered. If that shows lumen diameter reduction of less than 70% in a major coronary branch, and less than 50% in the left main coronary artery, the person may drive, subject to annual review.

3. If the result of the angiogram shows a lumen diameter reduction equal to or greater than 70% in a major coronary branch and less than 50% in the left main coronary artery (or if an angiogram is not conducted), and:
   - the clinical history is one of minimal symptoms; and
   - there is an exercise tolerance of at least 6 minutes on the Bruce treadmill test (or equivalent protocol); and
   - there is no evidence of severe ischaemia, i.e. less than 2mm ST segment depression on an exercise ECG and absence of a large defect on a stress perfusion scan; and
   - there is an ejection fraction of 50% or over.

The presence of other risk factors should also be considered.

Where surgery or angioplasty is undertaken to relieve the angina, the criteria listed below apply.

(b) Suspected angina pectoris

When the cause of the chest pain is in doubt, an exercise test should be carried out by an approved specialist. If the tests are positive or the person remains symptomatic and requires anti-angina medication for the control of symptoms, the criteria as listed for proven angina pectoris (above) apply.

(c) After confirmed myocardial infarction, coronary artery bypass grafting (CABG) or coronary angioplasty.

The criteria are NOT met:

- if the person has had a confirmed myocardial infarction, CABG, or coronary angioplasty.

A conditional licence may be issued after 3 months if:

- the clinical history is one of minimal symptoms; and
- there is an exercise tolerance of at least 6 minutes on the Bruce treadmill test (or equivalent protocol); and
- there is no evidence of severe ischaemia, i.e. less than 2mm ST segment depression on an exercise ECG and absence of a large defect on a stress perfusion scan; and
- there is an ejection fraction of 50% or over.

The presence of other risk factors should also be considered.

In the event of non-renewal of a licence, efforts should be directed to retraining and redeployment of drivers commensurate with their cardiac status.

1.2.2 Other vascular disorders (pg 10)

The criteria are NOT met:

- if the person has aortic aneurysm, thoracic or abdominal, either before or after surgery.

1.2.3 Hypertension (pg 10)

The criteria are NOT met:

- if the person’s sitting blood pressure is consistently 200/110 or greater (treated or untreated); or
- if there is end organ damage (cardiac, cerebral, retinal or renal) which will impair safe driving; or
- if treatment results in marked postural hypotension or impaired alertness.

The presence of other risk factors should also be considered.

1.2.4 Arrhythmia (pg 10)

The criteria are NOT met:

- if the person has a history of recurrent or persistent arrhythmia which may result in syncope or incapacitating symptoms.

A conditional licence may be issued where the condition has been cured surgically (e.g. Wolf-Parkinson White syndrome) or successfully treated medically for at least three months.

- if the person is taking anti-coagulants refer to anti-coagulant therapy below.

- if the person has a pacemaker or electrical device implanted.

A conditional licence may be recommended by a cardiologist with expertise in electro-physiology after consideration of the relative risks of pacemaker dysfunction.

- if the person has a cardioverter-defibrillator implanted for ventricular arrhythmias.

Anti-coagulant therapy is discussed on next page.
1.2.5 Electrocardiographic abnormality (pg 10)

ECG is only required if clinically indicated.

The criteria are NOT met:

- if the person has an electrocardiographic abnormality.

A conditional licence may be considered, subject to annual review:

- if the ECG shows left or right bundle branch block, pre-excitation or changes suggestive of myocardial ischaemia or previous myocardial infarction; and
- if an exercise test performed by a cardiologist or specialist physician or referral made to an approved specialist is negative; and
- if there are no other disqualifying conditions.

Equivocal cases should be referred to an approved specialist.

1.2.6 Valvular heart disease (pg 10)

The criteria are NOT met:

- if the person has any history or evidence of valve disease, with or without surgical repair or replacement, associated with symptoms or a history of, embolism, arrhythmia, cardiac enlargement (on chest X-ray greater than 16cm), abnormal ECG, high blood pressure; or
- if the person is taking anti-coagulants. A conditional licence may be issued subject to the criteria specified below in relation to anti-coagulant therapy.
- if mitral stenosis is present, even if not associated with any of the above conditions.

A conditional licence may be considered, subject to frequent review:

- if the person’s cardiological assessment shows mild valvular disease of no haemodynamic significance, and it is not associated with any of the above conditions.

Equivocal cases should be referred to an approved specialist.

1.2.7 Cardiomyopathy (pg 11)

The criteria are NOT met:

- if the person has established cardiomyopathy; or
- if the person has had a heart or heart/lung transplant.

1.2.8 Congenital heart disorders (pg 11)

The criteria are NOT met:

- if the person has complicated congenital heart disorders.

A conditional licence may be considered:

- if there are minor congenital heart disorders such as pulmonary stenosis, atrial septal defect, small ventricular septal defect, bicuspid aortic valve, patent ductus arteriosis or mild coarctation of the aorta; and
- if there are no other disqualifying conditions.

1.2.9 Anti-coagulant therapy (pg 11)

The criteria are NOT met:

- if the person is on anti-coagulation therapy.

A conditional licence, subject to annual review, may be considered if the person’s cardiologist or haematologist certifies that the therapy is satisfactory.

2 ALCOHOL (pg 12)

2.2.1 Chronic alcohol abuse (pg 12)

The criteria are NOT met:

- if the person has clear historical and clinical evidence of chronic alcohol abuse and unequivocal signs of end organ damage, especially of any organic brain damage.
- if the person has a strong history of alcohol abuse and clinical evidence of abuse is limited to biochemical findings without clinical signs.

A conditional licence may be considered, subject to frequent review:

- if the person has stopped drinking, demonstrates good evidence of insight into the problem, is not suffering from any withdrawal symptoms and shows no evidence of any progressive damage. It is preferable that this assessment be made by approved practitioners specialising in alcohol treatment.

2.2.2 Frequent alcoholic intoxication (pg 13)

The criteria are NOT met:

- if the person has a clear history of frequent alcohol intake leading to intoxication coinciding with periods of driving.

A conditional licence may be considered, subject to further assessment:

- if the person’s episodes of intoxication do not coincide with periods of driving. However, there would need to be a clear demonstration that blood alcohol concentrations will have returned to legal limits when driving activities are undertaken, and that psychomotor performance and information processing will not be adversely affected.
3 DRUGS OTHER THAN ALCOHOL (pg 13)

3.2.1 Illicit drugs (pg 14)

The criteria are NOT met:

- if the person is using illicit drugs in a manner which may affect his or her driving; or
- if the person is using stimulants such as amphetamines. These drugs have been used to combat fatigue while driving, and while they may initially increase alertness and efficiency, their effect is notoriously unpredictable and may be accompanied by marked changes in mood and behaviour. Amphetamine use is also commonly followed by periods of depression and fatigue.

3.2.2 Prescribed psychoactive drugs (pg 14)

The criteria are NOT met:

- if the person is taking psychoactive drugs which will impair driving performance on a long term basis. Uncertain cases should be referred to an approved specialist.

4 PSYCHIATRIC DISORDERS (pg 16)

The criteria are NOT met:

- if the person has an acute psychosis, whether schizophrenic, manic depressive or other depressive psychosis. People who have affective disorders suffer from disturbances in attention, judgement, and motor activity that can seriously, even if temporarily, affect their fitness to drive; or
- if the person is taking psychoactive drugs which will impair driving performance on a long term basis; or
- if the examining doctor believes that a person's judgement or psychomotor activity has been affected by a current or past mental disorder; or
- if the examining doctor believes that there is a significant risk of a previous psychotic condition relapsing.

A conditional licence may be considered:

- if relevant psychiatric opinion is supportive; or
- if the person has a psychotic condition which is so well controlled as to reduce the risk of an exacerbation to that of any member of the general population.

A medical decision is not appropriate:

- if the person has a personality disorder. Such people often show disregard for social values and the law; they may have a history of aggressive, irresponsible or erratic behaviour which may be evidenced by repeated traffic violations and civil charges. Such people should be managed through administrative channels. Their fitness to drive - on personality criteria alone - is not considered to be a medical decision.

5 NEUROLOGICAL CONDITIONS (pg 17)

5.1 Epilepsy (pg 17)

The criteria are NOT met:

- if epilepsy is confirmed.

A conditional licence may be considered:

- if the person has
  - a past history of febrile convulsions; or
  - a past history of epilepsy with seizure free period of 5 years whilst not on any anticonvulsant medication; or
  - had a past single seizure, or cluster of seizures, due to exceptional and non-repeatable circumstances; or
- if the person has epilepsy which is so well controlled as to reduce the risk of a convolution to that of any member of the general population, noting the inherent features of the individual's job.

5.2 Strokes (pg 17)

The criteria are NOT met:

- if the person has a history of cerebro vascular accident.

A conditional licence may be considered:

- if the stroke was caused by a condition which has now been satisfactorily treated. A satisfactory recovery from the stroke, including perceptual deficits, must also be demonstrated.

Cases of berry aneurysm should be referred to an approved specialist.

5.3 Transient Ischaemic Attacks (pg 17)

The criteria are NOT met:

- if the person has had two or more transient ischaemic attacks.

A conditional licence may be considered:

- if the aetiology of the attacks has been identified, the underlying cause removed, and the person has had a six-month period free of attacks.
- If the underlying cardiac pathology for such episodes is identified the restriction would be based upon the prognosis of that condition, and the likelihood of continued recurrence.

Persons who have had only one transient ischaemic episode should be referred to an approved specialist.

6 NEUROMUSCULAR DISORDERS INCLUDING MULTIPLE SCLEROSIS, PARKINSONISM (pg 18)

The criteria are NOT met:

- if the person has Parkinsonism, multiple sclerosis or any other severe neuromuscular disorder.

A conditional licence may be considered:

- if the disability is limited to minor muscular weakness (subject to frequent re-assessment because of the progressive nature of such disorders); or
  (a) if the Parkinsonism is drug induced; and
  (b) if the person is likely to recover on cessation of the treatment; and

Summary of Medical Criteria
if the underlying cause for which the drugs were administered is not a cause for exclusion in its own right.

7 DEMENTIA AND OTHER COGNITIVE IMPAIRMENTS (pg 18)

The criteria are NOT met:

- if the person’s dementia or cognitive impairment is confirmed.

8 SERIOUS HEAD INJURY (pg 18)

The criteria are NOT met:

- if the person has a head injury causing functional disturbances until the after effects have been assessed. This may include a medical assessment, neuropsychological testing, and/or a practical driving test.

9 SYNCOPE (pg 18)

The criteria are NOT met:

- if the person suffers from current syncope.

A conditional licence may be considered by an approved specialist:

- if the cause of the person’s syncope has been identified, appropriate treatment instructed, and compliance confirmed.

10 SLEEP DISORDERS (pg 19)

10.1 Obstructive Sleep Apnoea (pg 19)

The criteria are NOT met:

- if the person has established sleep apnoea until treatment is effective. Consideration should be given to how long-distance drivers will comply with treatment such as CPAP.

A conditional licence (with periodic review) should be recommended:

- if the person has a combination of daytime sleepiness and a BMI in excess of 30 and a reddened, oedematous narrow oropharynx; or
- if the person has a history of snoring and witnessed apnoeas,

unless sleep apnoea can be reasonably excluded. The certifying practitioner should arrange investigation.

10.2 Narcolepsy (pg 20)

The criteria are NOT met:

- if narcolepsy is confirmed.

11 VISION AND EYE DISORDERS (pg 21)

11.1 Visual Acuity (pg 21)

The criteria are NOT met:

- if the person’s best corrected visual acuity is less than 6/9 in the better eye (this includes monocular vision) or less than 6/18 in the other; or
- if the person makes more than two errors in the 6/9 line with the better eye or 6/18 line, with the other eye.

A conditional licence may be considered:

- if the person’s vision is less than 6/18 in the worse eye. This includes applicants with monocular vision. The opinion of a specialist ophthalmologist or optometrist should be obtained.

11.2 Visual Fields (pg 21)

The criteria are NOT met:

- if the person has monocular vision, any abnormality of visual fields to confrontation, or bitemporal or homonymous hemianopia.

A conditional licence may be considered:

- if the person has less than normal fields to confrontation. Individual specialist assessment should occur. A person with a partial field loss if they have 140° or more of horizontal visual field remaining. This is to be determined with a IV4e target on a Goldman perimeter or equivalent.

11.3 Colour Perception (pg 21)

The criteria are NOT met:

- if the person is a protan.

If the person is assessed to be protan and wishes to seek a review of that assessment, he or she may seek a final and conclusive test on a Nagel Anomaloscope.

11.4 Diplopia (pg 22)

The criteria are NOT met:

- if the person has diplopia from whatever cause, whether persistent or recurrent.

A conditional licence may be considered:

- if the person has diplopia only on extreme lateral gaze. While this does not warrant failure, it should be recorded on the examination form.

11.5 Dark Adaptation and Night Vision (pg 22)

Cases of severe retinal disease, or a history of familial retinal disease (such as retinitis pigmentosa) should be referred to an approved specialist.

A conditional licence may be considered for daylight driving.

11.6 Cataract and Aphakia (pg 22)

The criteria for visual acuity (11.1) must be met for drivers with a cataract.

Following cataract surgery, individual specialist assessment should occur.

11.7 Glaucoma (pg 23)

The criteria for visual fields (11.2) should be met.

A conditional licence may be considered subject to an annual review of visual fields.
### 12 HEARING (pg 23)

The criteria are NOT met:

- if the person has an average hearing threshold level of equal to or greater than 40dB in the better ear.
  (Average hearing threshold is the simple average of pure tone air conduction thresholds at 500, 1000, 2000 and 3000 Hz.)

A conditional licence may be considered:

- for drivers who use hearing aids and have sufficient corrected hearing to meet the safety requirements outlined in 12.1.

### 13 VESTIBULAR FUNCTION (pg 24)

The criteria are NOT met:

- if the person has any condition of recurrent vertigo. This includes people suffering from confirmed Menieres disease and benign paroxysmal vertigo, despite treatment; or
- if the person has any other type of vertigo. Such persons should be re-assessed after 12 months free of attacks without treatment.

Persons who fail the Romberg test should be referred to an approved specialist.

### 14 LOCOMOTOR DISABILITIES (pg 24)

The criteria are NOT met:

- if the person has peripheral neuropathy resulting in loss of sensation or proprioception in the extremities; or
- if there is amputation or congenital absence of a limb required to operate a hand or foot control where no modification is practicable; or
- if there is amputation or congenital loss of both upper or both lower limbs, or one upper and one lower limb.

The criteria are generally not met:

- if the thumbs are missing from both hands (subject to a practical assessment); or
- if acute inflammation and pain in any joint interferes with concentration or impairs the range of motion such that the vehicle cannot be operated safely. Such cases should be re-examined if the inflammation is brought under control; or
- if rotation of the cervical spine is less than 45° to the left or right.

A conditional licence may be considered, subject to practical assessment:

- if the person has a lower limb prosthesis for a below knee amputation and does not have to operate a foot pedal with the prosthesis, and the clutch pedal (if present) has been modified for use by a prosthesis. Automatic transmission and/or modification to hand controls may also be required. A spinner knob will be needed if a power boosted hand brake control has been added; or
- if the person has the forefoot, first metatarsophalangeal joint or large toe amputated; or
- if the person has less than a thumb and two fingers on each hand or only one arm, provided a spinner knob or other device is fitted to the vehicle; or
- if there is pain and stiffness in any joint, or a joint replacement, having regard for the range of movement and muscle power required to operate a heavy vehicle and the task of getting in and out of vehicles.

A practical driving assessment is essential for most final decisions.

### 15 ENDOCRINE (pg 26)

#### 15.1 Diabetes (pg 26)

The criteria are NOT met:

- if the person has diabetes unless it is satisfactorily controlled by diet alone.

A conditional licence may be considered, subject to at least annual review:

- if the person has diabetes mellitus satisfactorily controlled by oral hypoglycaemic agents provided there is an absence of hypoglycaemic episodes and of end organ effects.

The presence of insulin-dependent diabetes effectively debars a person from driving commercial vehicles, but persons receiving insulin therapy may be referred to an approved specialist if there is an absence of hypoglycaemic episodes and no end organ damage and the treating specialist certifies that control is satisfactory.

#### 15.2 Other Endocrine Disorders (pg 26)

Endocrine disorders with symptoms which could affect the ability to drive a vehicle safely should be individually assessed.

### 16 MISCELLANEOUS (pg 27)

#### 16.1 Gut (pg 27)

As there are no specific conditions which absolutely preclude employment as a commercial driver, there are no specific mandatory tests or examinations for the gastrointestinal tract.

#### 16.2 Respiratory System (pg 27)

The criteria are NOT met:

- if the person has severe respiratory failure.

A conditional licence may be considered:

- pending advice about the person’s condition from a treating specialist regarding the severity of the person’s condition and the likelihood of control.

#### 16.3 Renal System (pg 27)

The criteria are NOT met:

- if the person has end-stage renal failure.

A conditional licence may be considered:

- if supported by a renal specialist.
A conditional licence may be considered:
- pending advice about the person’s condition from a treating specialist regarding the severity of the person’s condition and the likelihood of control.

16.3 Renal System (pg 27)
The criteria are NOT met:
- if the person has end-stage renal failure.

A conditional licence may be considered:
- if supported by a renal specialist.

16.4 Cancer (pg 28)
The effects at the initial site are mainly covered by criteria given elsewhere.
The criteria are NOT met:
- if the person has evidence of primary or secondary cancer within the brain.

A conditional licence may be considered by an approved specialist:
- if the brain tumor has been successfully treated.

16.5 HIV Infection (pg 28)
HIV testing is not required routinely and should not be done unless there is a clinical indication.
The criteria are NOT met:
- if the person has an HIV infection.

A conditional licence may be considered, subject to at least annual review if specialist advice is received on the person’s condition and there is an absence of neurological manifestations or neuropsychiatric or other complications, which would compromise safety to drive commercial vehicles.

The Commercial Drivers Health Assessment Form on the next page, is included as a model form only. It is envisaged that a single form, similar to this, will ultimately be used by all driver licensing authorities. This issue will be examined by the NRTC and Austroads in the development of uniform administrative arrangements for the application of these standards. In the interim, each State/Territory will continue to use its existing forms.
Driver Licensing Authority
Commercial Drivers Health Assessment

This information is being collected so that the Driver Licensing Authority may assess your medical eligibility to drive a commercial vehicle. The information may be used for research to improve road safety.

Guidelines for completing form

 Applicant must:
  ● make an appointment with a doctor of his/her choice;
  ● complete Section 1 on the next page prior to the medical examination;
  ● present this form to the doctor;
  ● bring spectacles, hearing aids, etc with you to the examination.

 Examining Doctor must:
  ● read Part A and sections of Part B of the Medical Examinations for Commercial Vehicle Drivers;
  ● review Section 1 with applicant, and comment on any abnormality;
  ● complete Section 2 on page iii and the Medical Examiner’s Certificate below;
  ● forward completed and signed “Authority Copy” of the form to Driver Licensing Authority.

The doctor may extend the examination where considered clinically appropriate, but must advise the applicant of any extra cost.

Payment for the examination is not the responsibility of the Driver Licensing Authority and is not usually rebatable under Medicare.

Medical Examiner’s Certificate

I certify that I have examined ________________

I find he/she: □ Meets the criteria as set out in the Medical Examinations of Commercial Vehicle Drivers.
  □ Does not meet the criteria.
  □ Does not meet the criteria but may be considered for a conditional licence.
  (Suggested Conditions).................................................................................................................................

Date of examination: ____________________________
PRINT or STAMP name of examining doctor: ____________________________
Signature of examining doctor: ____________________________
Address: ____________________________

( )
**Section 1 - Applicant to Complete**

Please answer the questions by ticking the correct box. If you are not sure, guess. The doctor will ask you additional questions during the examination.

<table>
<thead>
<tr>
<th>Question</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are you being treated by a doctor for any illness or injury?</td>
<td></td>
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<tr>
<td>2. Are you receiving any medical treatment or taking any medication?</td>
<td></td>
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<tr>
<td>3.* Have you ever had an accident as a result of blacking out or falling asleep?</td>
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<td>4.* In the past year, have you ever had to pull off the road because you have become sleepy?</td>
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<td>5. Have you ever contemplated or attempted suicide?</td>
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<tr>
<td>6. Have you ever had, or been told by a doctor that you had any of the following?</td>
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<tr>
<td>6.1 High blood pressure</td>
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<td>6.2 Heart disease</td>
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<td>6.3 Chest pain, Angina</td>
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<td>6.4 Any condition requiring heart surgery</td>
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<td>6.5 Palpitations/Irregular heartbeat</td>
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<td>6.6 Abnormal shortness of breath</td>
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<td>6.7 Head injury, Spinal injury</td>
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<td>6.8 Seizures, Fits, Convulsions, Epilepsy</td>
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<td>6.9 Blackouts, Fainting</td>
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<td>6.10 Stroke</td>
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<td>6.11 Dizziness, Vertigo, Problems with balance</td>
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<td>6.12 Double vision, Difficulty seeing</td>
<td></td>
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<td>6.13 Colour blindness</td>
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<td>6.14 Psychiatric illness, Nervous disorder</td>
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<tr>
<td>6.15 Kidney disease</td>
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<td>6.16 Diabetes</td>
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<tr>
<td>6.17 Sleep disorder, Sleep apnoea, Narcolepsy</td>
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<td>6.18 Alcohol abuse</td>
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<td>6.19 Bleeding from bowel or black motions</td>
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<td>7. Have you ever had any other serious injury, illness, operation, or been in hospital for any reason?</td>
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<td>8. Have you ever:</td>
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<tr>
<td>8.1 attempted to cut down on your drinking</td>
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<td>8.2 been annoyed by other people criticising your drinking?</td>
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<td>8.3 felt guilty about your drinking?</td>
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<td>8.4 taken a morning eye-opener</td>
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<td>9. Do you use illicit drugs?</td>
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<tr>
<td>10. Do you use any drugs or medications not prescribed for you by a doctor?</td>
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<tr>
<td>11. Applicant's Declaration:</td>
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<td>I, __________________________ (Print Name)</td>
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<td>- certify that to the best of my knowledge the above information supplied by me is true and correct; and</td>
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<tr>
<td>- consent to Dr __________________________ releasing medical information to the Driver Licensing Authority, or a medical practitioner nominated by the Authority, in order to assess my medical eligibility for a commercial vehicle driver licence.</td>
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<tr>
<td>Signature:</td>
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<tr>
<td>Date:<em><strong><strong>/</strong></strong></em>/_____</td>
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**Doctor's comments on the above** (append additional pages if necessary):

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Section 2 - Medical Examiner to Complete

1. Throat appearance:  
   Normal □ Abnormal □

2. Chest/Lungs:  
   Normal □ Abnormal □

3. Cardiovascular System:  
   3.1 Blood Pressure (repeated if necessary)  
      Systolic □ mm Hg □ mm Hg  
      Diastolic □ mm Hg □ mm Hg  
   3.2 Pulse Rate:  
      Regular □ Irregular □  
   3.3 Heart Sounds:  
      Normal □ Abnormal □  
   3.2 Peripheral Pulses:  
      Normal □ Abnormal □

4. Abdomen:  
   Normal □ Abnormal □

5. Weight:  
   □ kg divided by Height □ m²  
   = Body Mass Index □

6. Vision:  
   6.1 Visual Acuity  
   | Uncorrected | Corrected |  
   | R | L | R | L |  
   | 6/ | 6/ | 6/ | 6/ |  
   Are contact lenses worn? No □ Yes □  
   6.2 Ishihara:  
      Normal □ Abnormal □  
      No. of Incorrect responses: □
   6.3 Visual Fields (Confrontation):  
      Normal □ Abnormal □

7. Hearing:  
   Normal □ Abnormal □

8. Neurological/Locomotor:  
   8.1 Cervical spine rotation  
      Normal □ Abnormal □  
   8.2 Upper Limbs  
      (a) Muscle Tone  
         Normal □ Abnormal □  
      (b) Co-ordination  
         Normal □ Abnormal □  
      (c) Joint movements  
         Normal □ Abnormal □  
      (d) Reflexes  
         Normal □ Abnormal □  
   8.3 Lower Limbs  
      (a) Muscle Tone  
         Normal □ Abnormal □  
      (b) Co-ordination  
         Normal □ Abnormal □  
      (c) Joint movements  
         Normal □ Abnormal □  
      (d) Reflexes  
         Normal □ Abnormal □  
   8.4 Rombergs:  
      Normal □ Abnormal □

9. Urinalysis:  
   Normal □ Abnormal □

10. Signs of alcohol or other drug abuse:  
     Present □ Absent □

Comments on any abnormality  
(append additional pages if necessary)

*See “Sleep Apnoea” criteria, page 19