

2.3.1 Introduction

This section details the assessment procedures for pilots, other aircrew members and air traffic controllers who suffer or who may suffer from lung or respiratory system disease.

The aim of the respiratory assessment within the aeromedical examination is to ensure that applicants do not suffer from lung or respiratory system disease which places them at an unacceptable risk of incapacitation, or which may otherwise jeopardise the safety of air navigation.

2.3.2 The Respiratory Standard – CASR Part 67

[CASR 67](#) The respiratory standards are found in the following paragraphs of [CASR Part 67](#):

CASR 67.150	For medical standard 1	CASR 67.150 Table 67.150 1.12 – 1.13
CASR 67.155	For medical standard 2	CASR 67.155 Table 67.155 2.12
CASR 67.160	For medical standard 3	CASR 67.160 Table 67.160 3.12

2.3.3 Assessment

All applicants for Australian aviation medical certificates are administered a comprehensive screening questionnaire physically examined by a DAME, and required to undertake a number of screening tests.

When conducting the respiratory component of the aeromedical examination, the DAME should note the presence of relevant risk factors for the development of lung and respiratory system disease and the presence of signs and symptoms suggestive or diagnostic of such conditions.

For example: risk factors for the development of asthma include:

- Family history of asthma
- Personal or family history of smoking
- Other allergies or atopic symptoms.

FEV₁ is measured at the original assessment and each renewal assessment. (Note spirometers should be calibrated to BTPS). Chest X Rays may be required if the applicant's history or physical signs so indicate. This is likeliest in smokers or ex-smokers. Routine Chest X Ray is not required.

Further investigation of respiratory abnormalities may include flow loop spirometry, measurement of diffusion capacity, blood gas estimation (both at ground level and at simulated altitude) and various forms of imaging of the respiratory system.

Referral to a consultant respiratory physician may be required to confirm a diagnosis or to resolve concern over a differential diagnosis. CASA may also require an applicant for medical certification to be assessed by a consultant respiratory physician as part of its consideration of an applicant's fitness for aeromedical certification.

2.3.4 Documentation of Respiratory Conditions

Many respiratory conditions are principally diagnosed and classified on the basis of history. DAMEs should take a careful and thorough clinical history before reaching a respiratory diagnosis, particularly a diagnosis that may significantly affect an applicant's employment prospects. Particular attention must be paid to chronic use of any medications that are incompatible with the exercise of the privileges of licensure. Also see [Section 2.13 Medication – Drugs and Flying/Controlling](#).

2.3.5 Asthma

Diagnosis and assessment

In the first instance care should be taken to ensure an accurate diagnosis of asthma, noting that the criteria of recurrent, reversible airways obstruction should be met. Subsequent assessment of asthma should distinguish between severity and control. Severity is in part determined by the amount of treatment required to maintain control (as evidenced by type and quantity of prescription or over-the-counter medications required to control asthma symptoms, the requirement for oral steroid medication and the number of Emergency Room presentations or hospital admissions due to asthma). CASA will not usually certificate applicants who suffer from severe asthma. Uncontrolled asthma, regardless of severity, is not acceptable in the aviation environment, and will preclude the issuing of any class of CASA medical certificate.

Applicants who have asthma which is well controlled (if necessary using anti-inflammatory therapy) may be eligible for any class of medical certificate. Applicants with mild well controlled asthma maybe required to undergo periodic spirometry. In the case of applicants with moderate well controlled asthma, periodic assessment by a respiratory physician may be required. CASA will notify specific requirements on a case-by-case basis.

Asthma severity

Severe asthma

Applicants with severe asthma experience continuous symptoms, limited physical capacity, and have a FEV₁ or peak flow measurement of less than or equal to 60% predicted. Peak flow variability may be greater than 30%. Treatment requirements of patients with severe asthma will likely include moderate or high doses of inhaled corticosteroid, with or without long-acting beta-agonist, oral theophylline, or inhaled anticholinergic. Some applicants may require oral corticosteroid. Patients with severe asthma may require care through hospital Emergency Rooms or even hospital admission when control of the condition is poor.

Moderate asthma

Applicants with moderate asthma generally have symptoms of airflow obstruction most of the time, and experience some impairment of physical capacity. Their FEV₁ or peak flow will be in the range 60-80% predicted, and peak flow variability may be greater than 15%. Treatment requirements will likely include low to moderate doses of inhaled corticosteroid, (e.g. beclomethasone 400-1000 micrograms per day or equivalent).

Mild asthma

Applicants with mild asthma generally have intermittent symptoms, interposed between symptom-free intervals that may be prolonged. FEV₁ and peak flows are often normal, and there may be no peak flow variability.

Asthma control

For CASA's purposes, good control requires that, in the three months preceding assessment, the applicant:

- Has experienced no or minimal cough, wheeze or breathlessness on exercise or during the night
- Has maintained "best" pulmonary function
- Has maintained stable exercise capacity, although possibly somewhat impaired
- Has not required treatment with oral corticosteroid
- Has not required an Emergency Room visit/hospital admission for symptoms of asthma.

2.3.6 Chronic Bronchitis and Emphysema

Smokers aged 45 or more should undergo increased screening for these conditions for all classes of medical certificates. Positive findings dictate a full respiratory assessment, including a report by a respiratory physician. It is unlikely that applicants with severe chronic bronchitis or emphysema will meet the medical standard for issue of a class 1 medical certificate. However, restricted class 2 and 3 certification may be possible, on a case-by-case basis.

2.3.7 Pneumothorax

Traumatic Pneumothorax.

Medical certification for all classes is usually possible after review of medical reports covering precipitating factors, associated problems, extent of recovery and subsequent lung function. Full assessment by a respiratory physician may be required.

Single Spontaneous Pneumothorax.

An applicant who has had a spontaneous pneumothorax with full recovery and no obvious cause nor likelihood of recurrence may be assessed as fit for all classes of medical certification.

Recurrent Spontaneous Pneumothorax.

An applicant with recurrent spontaneous pneumothorax (defined as two or more episodes on the same side) is not usually acceptable for any class of medical certificate. If the pneumothorax has been surgically corrected by pleurodesis (mechanical or chemical) or pleurectomy, the applicant may be assessed as fit. Assessment by a respiratory physician may be required.

2.3.8 Pulmonary Tuberculosis

An applicant with active tuberculosis (but not open tuberculosis) may be medically certificated for any class provided there is adequate evidence that he/she is on appropriate therapy and there is no evidence of side effects from the therapy. Applicants with fully treated pulmonary tuberculosis should be aero medically assessed to determine the extent of lung damage/recovery. Assessment by a respiratory physician is required in all cases.

2.3.9 Sarcoidosis

Sarcoidosis is usually acceptable for all classes of medical certification, provided myocardial and other system sarcoidosis has been excluded. Reports of full cardiovascular and respiratory assessments are required.

2.3.10 Pulmonary Embolism

An applicant who develops pulmonary embolism must be comprehensively investigated to determine if there are significant underlying reasons for the episode. Once recovery is complete and the applicant demonstrates normal pulmonary function (including normal blood gases), unrestricted medical certification at any class is usually possible. CASA will not usually consider re-certification until at least 8 weeks after the episode. Pilots who are prescribed long-term anticoagulation with warfarin following a pulmonary embolism may be granted conditional certification.

2.3.11 Fibrosing Lung Diseases

Applicants with these conditions require full respiratory assessment, including blood gas estimation. Thereafter, certification may be possible on a case-by-case basis.

2.3.12 Obstructive Sleep Apnoea (OSA)

This condition is often under-reported because applicants fear loss of certification. DAMEs must specifically inquire whether or not the applicant has conditions that suggest OSA eg, loud habitual snoring, witnessed apnoea. Where the diagnosis is entertained, the Epworth Sleepiness Scale must be administered to the applicant. If the resulting score is 16 or more, assessment by a sleep physician is required. Following definitive diagnosis of OSA, unrestricted medical certification at all classes is usually possible after appropriate corrective treatment has been instituted and demonstrated to be successful. This usually requires reports from a sleep physician, before and after treatment.

Also see 'Sleep Disorders' in Section [2.6.17](#) (Psychiatry).

The Epworth Sleepiness Scale provides an estimate of the likelihood of dozing or falling asleep, in contrast to just feeling tired.

Applicants suspected of suffering from OSA should be questioned about their sleepiness during normal activities. (Even if the applicant has not recently undertaken some of these activities, they should be asked to estimate their relevant chance of dozing based on prior experiences).

Use this scale to allocate scores under 'chance of dozing' in each situation described.

- 0 = no chance of dozing
- 1 = slight chance of dozing
- 2 = moderate chance of dozing
- 3 = high chance of dozing

Situation	Chance of dozing
Sitting and reading	
Watching television	
Sitting inactive in a public place (e.g. a cinema or meeting)	
As passenger in a car for > 1 hour	
Lying down to rest in the afternoon when circumstances permit	
Sitting and talking to a companion	
Sitting quietly after an alcohol-free lunch	
In a car, while stopped briefly in heavy traffic	
Total Epworth Sleepiness Score	

If the score is 16 or more, assessment by a sleep physician is required.

(The Epworth Sleepiness Scale is reproduced with the permission of Dr M.W. Johns, A new method for measuring daytime sleepiness: the Epworth sleepiness scale. Sleep, 14(6):540-545.)