

#### 2.13.1 Introduction

The increasing use of drugs, both prescribed and self-administered, within the Australian community, presents a significant challenge to DAMEs when determining an applicant's fitness for aviation related duties. All drugs, even those purchased "over the counter (OTC)", may have adverse effects that may render aircrew members or air traffic controllers unsafe to fly or to perform their normal duties.

#### *General Principles*

As a general principle, DAMEs should assume all medications are hazardous for aviation operations until demonstrated otherwise.

When assessing whether a pilot or Air Traffic Controller (ATC) taking medication is fit for aviation-related duties, two principal issues should be considered:

- The potential for the underlying medical condition to affect fitness for flying or controlling duty
- The potential for the treatment (including drug therapy) to reduce fitness for flying or controlling duty.

The following characteristics of specific compounds will influence the limitations on their safe use in the aviation environment:

- Unwanted, dose-related drug effects (e.g. blurred vision or drowsiness)
- Hypersensitivity/allergic reactions
- Idiosyncratic effects
- Drug side effects that may occur in some of the population (eg, nausea, liver damage or bone marrow suppression)
- Drug combination effects – potentiation
- Drug interactions; particularly with alcohol, to increase risk of side effects or reduce activity of the drug/s.



Virtually all drugs unacceptable for aviation duties, regardless of the nature of the disorder being treated, have one or more of the following effects:

- CNS depression
- CNS stimulation
- Autonomic nervous system disturbance
- Disturbance of equilibrium.

#### *Determination of Fitness for Aviation Duty when Taking Medications*

It is not practicable in this chapter to indicate whether a specific drug or even class of drug is always compatible with safe flying or controlling. Rather, this chapter provides a general overview of many commonly used medications and their use in the flying environment. Whenever a DAME is in doubt about a pilot or controller who is taking a drug or medication, advice should be obtained from the CASA Aviation Medicine Section.

With regard to their effect on fitness for aviation duties, medications may be divided into five groups:

- A. Those medications considered safe when flying or controlling.
- B. Those medications generally considered compatible with aviation duties without restrictions once the possibility of idiosyncratic reaction has been eliminated (generally after a period of ground trial). Applicants using these substances may be cleared to exercise the privileges of their licences by a DAME.
- C. Those medications which may be compatible with aviation duties, but which require a specific assessment by CASA. Only CASA can clear pilots and ATCs to use these drugs while performing aviation-related duties.
- D, Drugs that are not compatible with flying or ATC duties.
- E. Those medications that do not fit any of the above groups, or where there is uncertainty. In such cases, the DAME should either:
  - Contact CASA's Aviation Medicine Section prior to any decision to certificate or not certificate a licence holder or applicant; or
  - Not endorse the certificate and refer the matter to AMS for determination.



#### A. Medications compatible with flying or controlling

The following medications may be taken without consultation:

- Simple analgesics such as single doses of aspirin, paracetamol, and ibuprofen to provide analgesia may be used for minor self-limiting conditions. Paracetamol is preferable as there is less risk of gastric irritation. Medications containing Codeine should not be used for this purpose.
- Simple antacids may be used for mild isolated episodes of gastric disturbance. Mixtures containing anticholinergics or antispasmodics should not be used by an applicant engaged in aviation duties. Simple antacids do not include H<sub>2</sub> receptor antagonists.
- Antidiarrhoeals such as kaomagma, kaopectate and bismuth subcitrate are acceptable for mild afebrile diarrhoea.
- Nasal sprays such as oxymetazoline or phenylephrine, to be used as a 'get-me-down' should unexpected ear or sinus block occur during flight.
- Non-prescription suppositories and topical anorectal ointments/creams used to treat simple haemorrhoids.
- Topical medications including antiseptics, topical acyclovir, antifungals, weak steroid creams or benzoyl peroxide used for minor wounds and skin conditions, vaginal creams/pessaries and suppositories.

**Note:** Schedule 4 (prescription only) items such as topical antibiotics and tretinoin skin applications are not included.

- Oral Contraceptive Pill (combined OCP or mini-pill), injectable progesterone contraceptives and implantable progesterone contraceptives.
- Nicotine gum, patches or sprays used for smoking cessation.
- Steroid nasal sprays used to treat hay fever.
- Moistening or simple astringent eye drops

#### B. Medications requiring ground trial before DAME approval of use when flying or controlling

Pilots and ATCs taking the following medications require a ground trial (and/or AMS consultation) prior to DAME approval to fly or control:



- **Anaesthetics.** Medical certificate holders require clearance from a medical practitioner following the administration of any anaesthetic agent:
  - Minimum of 12 hours following local or regional (including dental) anaesthetics. (The condition for which the anaesthetic has been administered must also be considered prior to returning an individual to flying or controlling duties).
  - Minimum of 48 hours following general, spinal or epidural anaesthetic. This proscription includes drug-induced sedation. (The condition for which the anaesthetic etc has been administered must also be considered prior to returning an individual to flying or controlling duties).
- **Hypnotics.** Medical certificate holders should not fly or control for at least 12 hours after ingesting the sleep-inducing agent Temazepam. Medical certificate holders should not fly or control for at least 8 hours after using the sleep-inducing agent Zolpidem. Pilots and ATCs who use Temazepam or Zolpidem should not combine these drugs with alcohol. The use of the sleep-inducing agent Triazolam is not compatible with flying or controlling duties due to its potential CNS side effects. The use of Melatonin is not supported by CASA due to variation in its formulation and variability in its effects.
- **Antibiotics (oral and topical).** Medical certificate holders may continue to undertake flying or controlling duties when taking antibiotics provided:
  - the infectious condition being treated will not significantly interfere with aviation-related activities and will not be exacerbated by the specific operating environment, and
  - the prescribing medical practitioner or DAME has determined there are no adverse drug reactions from the antibiotic which has been prescribed. This would normally involve a short (approximately 48 hour) ground trial or previous use of the same antibiotic.
- **Immunisations.** Medical certificate holders should not undertake aviation-related duties for 24 hours after receiving the following vaccinations (primary and boosters):
  - Adult diphtheria and tetanus
  - Poliomyelitis
  - Hepatitis A & B
  - Measles, mumps, rubella
  - Yellow fever
  - Typhoid
  - Tuberculosis (Mantoux Test or Bacille Calmette-Guerin);
  - Influenza
  - Varicella
  - Meningococcal
  - Pneumococcal
  - Cholera.



Class 3 medical certificate holders receiving these vaccinations will usually remain fit for duty, but should consult a GP or DAME in individual cases of doubt.

After receiving the following immunisations (primary and boosters) there should be no aviation-related duties for a minimum of 72 hours:

- Japanese Encephalitis.

- **Non-sedating antihistamines**

- C. **Medications which may be compatible with aviation duties, but which require specific assessment by CASA**

For many of the following medications, it is important to note that they will be prescribed to treat particular conditions. Refer to the relevant section regarding certification requirements for that condition as well as to the issues discussed here.

CASA approval is required prior to pilots and ATCs who are taking the following classes of medications returning to flying or controlling duties:

- **Sedating Antihistamines:**

- These should only be used when there is at least 12 hours between use and commencing aviation-related duties.

- **Antihypertensives:**

- ACE inhibitors
- Calcium channel blockers
- Diuretics
- Beta blockers.

- **Antiarrhythmics:**

- Quinidine
- Disopyramide
- Verapamil
- Amiodarone
- Digoxin.

- **Gout medications:**

- Allopurinol (colchicine is not usually suitable)
- Probenecid
- Non-steroidal anti-inflammatory medications.

- **Hypolipidemic drugs:**

- HMG-COA reductase inhibitors
- Gemfibrozil (gemfibrozil and statin medications are not to be used together)
- Cholestyramine (colestipol is not suitable).



- **Ophthalmological preparations:**

It is possible for patients to absorb sufficient beta-blocker through ocular administration to affect cardiovascular response to exertion/exercise.

- Timolol (glaucoma)
- Betaxolol (glaucoma).

- **Thyroid disease:**

- Thyroxine requires a 14-day trial.

- **Antidepressants.**

- Selected non-sedating selective serotonin reuptake inhibitors (SSRIs) require a minimum of 28 days ground trial. The underlying condition should be considered prior to returning the aviator to duty. MAOIs and tricyclic antidepressants are not generally considered compatible with aviation-related duties. (Also see section [2.6 Psychiatry.](#))

- **Other medications:**

- **Oral acyclovir** or **famcyclovir** for genital herpes
- **Griseofulvin** or **terbinafine** for systemic antifungal therapy requires a 28-day trial. Monthly liver function testing is required
- **Omeprazole** for oesophagitis and peptic ulceration maintenance therapy, following endoscopic confirmation of ulcer healing
- **Ranitidine** for peptic ulceration maintenance therapy, following endoscopic confirmation of ulcer healing
- **Clomiphene** to enhance oogenesis
- **Sucralfate** for non-ulcerative GI symptoms
- **Tetracycline** (low dose, for long term treatment of acne)
- **Sulfasalazine** for prophylaxis of well controlled ulcerative colitis
- **Sulfamethoxazole/trimethoprim** for chronic urogenital tract infections.

When these classes of medications are prescribed, the following actions should be taken:

- **Ground trial:** The length of the ground trial will be determined on a case-by-case basis in consultation with CASA Aviation Medical staff, and will also depend on control of the underlying disorder and any side effects of the medication.
- **Consultation:** The DAME should contact CASA Aviation Medicine Section to discuss specific requirements for an applicant using or proposing to use any medication whose side effect profile is unknown or of possible concern.



#### D. Medications not acceptable for/not compatible with aviation related duties

The following medications are not compatible with aviation related duties and are never to be approved for use by a medical certificate holder without prior specific written approval by CASA.

- Narcotics
- Insulin
- Amphetamine
- Cytotoxics
- Psychotropic medications
- Anticoagulants
- Nitrates
- Complex antidiarrhoeals. Mixtures containing antispasmodics (eg, Lomotil, Imodium) are not usually compatible with aviation-related duties.

#### E Other medications such as vitamins, minerals and herbal preparations

Aircrew are to treat herbal medications as they would any other OTC medication. There is a potential for unforeseen consequences when taking such preparations and aircrew and ATCs should consult a DAME for advice before taking such medications and performing aviation-related duties.

#### Vitamins, minerals and dietary supplements

In Australia, all medicinal therapeutic products must carry an AUST L or AUST R number on the label, unless exempt. Vitamins and minerals are considered listed therapeutic goods meaning quality and safety factors have been assessed by the Therapeutic Goods Administration. In general, pilots and ATCs should not exceed the Recommended Daily Allowances for these products.

#### Herbal preparations

Herbal preparations are widely available in the community, and are seen by many as a “natural” alternative to conventional medicine. Unfortunately, such agents are not always subject to the same stringent regulations that apply to registered medicinal compounds as noted above. In addition, many of these preparations contain agents that may interact with other drugs and have the potential to cause side effects that are incompatible with flight safety. CASA considers routine use of herbal preparations as being incompatible with flying or controlling duties.



Herbal preparations are derived from plant parts or oils. One should bear in mind that there are no standards for quality, potency, safety or efficacy in their manufacture. Identical products may differ markedly between manufacturers or batches by the same manufacturer. Additionally, many drugs are derived from the same plants used in the herbal preparations. Therefore, many herbal preparations have the same potential side effects as manufactured drugs.

Several herbal preparations present particular threats to aviation safety, alertness, or physical well-being. Below are some of the herbal preparations known to be potentially dangerous.

- **Hallucinogens.** The following may cause hallucinations or disorientation:
  - Californian poppy
  - European mandrake
  - Kava-kava
  - Magic mushrooms
  - Nutmeg (in doses greater than a tablespoon)
  - Periwinkle
  - Thorn apple
  - Yohimbe bark.
  
- **Sedatives.** The following may cause drowsiness, slow reaction time, or disorientation:
  - Celandine
  - Deadly Nightshade
  - Hemlock
  - Henbane
  - Hops
  - Indian snakeroot
  - Jimson weed
  - Jin bu huan
  - Opium poppy
  - Passion flower
  - Scopolia
  - Skullcap
  - Valerian
  - Wild lettuce
  - Wolfsbane.



- **Cardiovascular effects.** The following may cause heart palpitations or precipitate myocardial ischaemia/infarction.
  - Broom
  - Ephedra
  - Indian snakeroot
  - Lily of the Valley
  - Pheasant's eye
  - Purple foxglove
  - Squill
  - Stophanthus
  - White squill
  - Yellow foxglove.
  
- **Liver poisons.** The following may cause drowsiness, slow reaction time, or disorientation:
  - Borage
  - Chapperal
  - Colts foot
  - Comfrey
  - Germander
  - Life root
  - Thread leafed groudssel.

The DAME often lacks clinical information sufficient to be able to quantify the aeromedical risk from use of herbal preparations. The following questions will be of benefit in evaluating the safety (or otherwise) of these agents:

- Is the use of the preparation due to signs or symptoms that suggest an underlying medical problem separate from the preparation in question?
- Is any component known to have neuropsychotropic effects?
- Is the preparation likely to contain unlabelled or incorrectly labelled ingredients?
- Is the preparation being used in a dose range far outside that of current experience or in an extremely concentrated form?
- Is any component of the preparation known to cause physical harm (even infrequently, unless the quantified incidence of adverse effects is known)?
- Is the preparation an alcohol-based tincture, tonic or elixir?

If all answers are negative, it is difficult to justify prohibition of the particular agent. Any positive answers must be dealt with by education, treating the underlying condition, not endorsing the medical certificate, or referring the matter to Aviation Medicine Section at CASA.

# Designated Aviation Medical Examiner's Handbook

## 2. Medical Aspects

### 2.13 Medication – Drugs and Flying/Controlling

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