

Guidance material on the use of medications in Pilots and ATCOs

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Background:

The Advisory Board of the European Society of Aerospace Medicine (ESAM) has recommended that guidance material should be produced and be made available on the ESAM website to enable physicians, and aviation medical advisers to obtain the best advice concerning the use of both prescribed and non-prescribed (over-the-counter) medication.

The guidance material is designed to highlight basic principles and to emphasise ‘golden rules’ which are recommended to be observed.

Introduction

The objective of this paper is to produce guidance for General Medical Practitioners, Consultant Specialists and Aeromedical Examiners (AMEs) who are dealing with medical problems occurring in commercial, military, civilian (private) pilots or Air Traffic Controllers and to assist them with the management of medication use. This is not for therapeutic reasons but to enhance the understanding of the potential risks to the safe operation of aviation and accidents in professional or private flying activities, which may occur with the use of medication.

Due to the very high number of prescribed and ‘over-the-counter’ (OTC) medications available (including on the Internet) and the rapid evolution of therapeutics in general, it is inappropriate to try to classify medications which could have an impact on flight safety. Instead the main principles applying to the use of medications in aviation medicine are described and practical and authoritative advice with examples is defined. As a result stakeholders will be made more aware and be sensitive to the relation between medications and flight safety.

Medication use and Aviation Medicine: the main principles

Medication disqualifying for flying duties has at least one of the following direct or indirect effects:

- impairment of sensory functions
 - vision, auditory function, vestibular function
 - impairment of CNS functions
 - cognitive/psychomotor performance, alertness, consciousness
 - impairment of autonomic system functions
 - circulation, metabolism, GI/Urinary function, accommodation (eyes)
1. Any medication can have the propensity to cause problems for aircrews/ATCOs. Every prescription has a benefit/risk ratio; the iatrogenic risk will vary from a low risk to a high one but all drug intake should be considered as potentially hazardous for pilots or ATCOs. In the case of medication use in a common condition (e.g. sore throat, headache, back pain), the therapeutic or symptomatic benefit

is expected to be high, but there are still significant side effects of analgesic, anti-histamine, anti-inflammatory or anti-tussive drug use that may affect safe functioning of pilots or ATCOs. An example in this context is a pilot suffering from allergic rhinitis. In such case, the physician/AME should consider 1) is the disease status compatible with flying? (symptoms may cause in-flight incapacitation); 2) anti-histamines may have sedative effects and/or cardiac arrhythmia risks; 3) OTC anti-histamines are abundantly available (self-medication); 4) effects of co-medication? 5) individual sensitivity for sedative and/or arrhythmia effects? 6) efficacy of the medication. In practice, it is recommended to ground the pilot for a try-out for several days. If there is no evidence for adverse effects and the medication is efficacious, the pilot might fly while using the medication.

2. In case of more severe disease the risk/benefit ratio may be lower with an acceptance of more serious side effects though the disease itself is more likely to justify the withdrawal of the pilot or controller from duty. It should be considered that the indication for medication may be disqualifying in itself: e.g. pneumonia (antibiotics); severe diarrhoea (anti-motility drugs); myocardial ischaemia (beta-blockers); bipolar mood disorder (lithium).

In general, consideration must be given to three factors:

- a) Does the medical condition itself preclude the safe operation of the flying activity?
 - b) Are the potential side effects more of a risk than the medical condition?
 - c) The combination of medication and the disease for which it is prescribed for the individual case and considering all circumstances.
3. When prescribing any drug for aircrew/ATCOs one should consider the acceptable aeronautical risk of the medication and medical condition taking the effects of the working environment of the pilot/ATCO into account. In that context, the effects of altitude/cabin pressure, stresses in the operating environment such as acceleration, decreased humidity, changes in circadian rhythm, and excessive work load should be considered to determine the acceptable risk.
 4. Ideally a Pilot/ATCO taking a new medication should not fly or work for two reasons:
 - a) The condition itself will probably mean that the Pilot/ATCO is unfit to work
 - b) The medication could have side effects which could affect performance and judgement or increase the risk of incapacitation.

This decision will be re-considered depending on whether the need for the medication is to control a long term condition such as hypertension or diabetes or whether the medication is for an acute condition such as an infection or muscular-skeletal disorder. In the latter case the condition is expected to resolve quite quickly with or without medication which is being taken mainly for symptom control rather than for any 'curative' effects. In the latter case the pilot or ATCO may have initiated the taking of medication without having first sought professional aeromedical advice.

5. Following the prescribing of long term treatment such as for diabetes or hypertension, a period of grounding is necessary to assess the efficacy and side effect profile of the medication which if proving efficacious and without side effects may be continued to be taken and at the same time allow the pilot/ATCO to resume work. The pilot/ATCO should be advised to maintain regular supervision of the condition from their treating physician.
6. Because of the commercial pressure and motivation of professional pilots/ATCOs to continue to operate and the strong desire of private pilots to be able to fly, there is pressure to take medication in order to achieve this objective, while the possible adverse effects of the condition or

the likelihood of side effects are sometimes not considered or are minimised by the pilot. There is therefore a risk that the pilot/ATCO will fail to inform their medical adviser that they are pilots/ATCOs and likewise fail to inform their AME about their illness and medication. Emphasis should be made to educate pilots/ATCO and medical practitioners about these risks and to stress the need for pilots to seek advice from their AME or AeMC before commencing any medication. In this context it is important that AMEs have an open mind to discuss the flight safety considerations concerning medication with their pilots/ATCOs and –in consultation with the treating physician- try and find the best possible solution in the interest of the pilot/ATCO concerned. When this is the AME’s attitude, pilots/ATCOs and treating physicians will find it easier to report and discuss medication use. A rigid AME-position against all medications may lead to hiding of medication use by pilots/ATCOs due to commercial pressure and/or strong motivation to keep flying/working. This would create a potentially dangerous situation.

7. For many well established medications the side-effect profile is well known and is published in therapeutic books and journals. Physicians should know the drug’s characteristics and should particularly consider the information concerning effects on the ability to drive vehicles and to use machines, as these effects are also applicable to flying or any safety-sensitive job. Aspects to consider are the type of adverse effects, the incidence, the period of high risk (e.g. at the start of treatment or after longer treatment) and the different risks of specific medications within the same class of medication (e.g. anti-histaminic drugs, beta-blockers, diuretics). Patients taking medication should be advised to read the information leaflet provided with the medication which list known side effects and their likelihood. Some of these side effects, especially minor ones, will occur quite commonly but others will be unusual or extremely rare. AMEs should be knowledgeable about this and have access to information so that they can give appropriate advice to pilots/ATCO and to their medical advisers.
8. Obviously many medications are safe and effective with a low side effect profile and pilots/ATCOs should not be denied medication which has proven benefit and is safe. The need to be vigilant about new medications and their potential side effects is important for some medications which initially appear to hold great promise of therapeutic benefit later turn out to be potentially harmful or have an unacceptable rate of side effects which only become apparent with experience (e.g. some anti-histamines have been banned due to ventricular arrhythmia risk).
9. There are various sources of information about medication that are available for both medical practitioners and pilots/ATCOs. Many medications are also available via the World-Wide-Web and pilots and ATCOs should be careful about obtaining medication from non-official sources where quality or even efficacy cannot be assured and where the seller does not have personal medical responsibility for the purchaser.
Pilots and ATCOs should also be cautious with self-medication that can be bought without prescription, the so-called “Over-the-Counter” (OTC) medication. One should be aware that some freely available OTC drugs, such as some anti-allergic medication or anti-cough syrups, might affect flying performance or may lead to cardiac rhythm disturbances.
10. All aircrew and ATCOs should be reminded by their AME about their obligations to seek advice when they develop a medical condition requiring medication. This fact is clearly stated on every EASA pilot medical certificate:

“MED.A.020 Decrease in medical fitness

Licence holders shall not exercise the privileges of their licence and related ratings or certificates at any time when they take or use any prescribed or non-prescribed

medication which is likely to interfere with the safe exercise of the privileges of the applicable licence;

In addition, licence holders shall, without undue delay, seek aero-medical advice when they have commenced the regular use of any medication.”

- 11.** The development of trust and confidence between a pilot/ATCO and his/her AME is essential as this will encourage dialogue and make it more likely that advice will be sought.
- 12.** The aeromedical decision for a pilot/ATCO taking a medication must be based on the principle that the clinical reasons must always outweigh aero-medical regulations. Thus if it is in the best clinical interests of the patient, then this must take preference over the wish of the pilot/ATCO to continue to be able to operate. If however there is a choice of drugs with equal efficacy but one is permitted and the other is disallowed then it is correct to choose the former so that the pilot/ATCO can continue to work. AMEs and pilot/ATCOs can sometimes be presented with a difficult ethical dilemma when it may be possible to treat a condition such as diabetes and allow the pilot/ATCO to return to work but only if the condition is treated at a sub-optimal level. In diabetes treatment the major risk for acute incapacity is hypoglycaemia so a pilot/ATCO may control the blood sugar at a level which is high enough to ensure that hypoglycaemia cannot occur but which over the long term risks the earlier onset of long term complications and thus a worse prognosis. AMEs should be ready to discuss such a therapeutic dilemma with their pilot/ATCO and consider the important principle that clinical reasons should outweigh aero-medical/regulatory ones. In some cases, new developments in the treatment of diabetes may offer a solution to this dilemma. Therefore, both treating physicians and AMEs should be aware of recent developments in therapeutic care and their significance for flight safety.
- 13.** There are many clinical situations such as diabetes, heart disease, psychiatric, gastro-intestinal, and urological conditions where treatment is essential. During the initial process of diagnosis, initiation and stabilisation of medication the pilot/ATCO will be made ‘unfit’ and so prevented from work. Once the condition for which the treatment is being given has stabilised or improved and medication is effective without side-effects then the pilot/ATCO can be re-assessed by aero-medical experts and in many cases can return to work. This period will vary for different conditions and different individuals. Aeromedical fitness should at least be re-assessed in case of changes in the medical condition and/or a change in medication dosage or change of medication. The AME should be part of this process in co-operation with the aeromedical regulatory authority. This process of continual clinical and aero-medical fitness assessment will continue throughout the rest of the pilot/ATCOs career.
- 14.** AMEs should be prepared to give a pilot/ATCO firm and clear advice when a clinical condition or medication is clearly unacceptable because of safety and regulatory reasons.
- 15.** AMEs should also be familiar with the many different types of flying occupations such as long haul, short haul operations, single pilot, multi-pilot, fixed wing, helicopters, aeromedical evacuation, private recreational flying, and be familiar with specific operational characteristics such as night flying, circadian disruptions, off-shore and mountainous flight conditions. Knowledge of the type of flying which the pilot performs will influence a decision about returning the pilot to work. For instance in multi-crew operations it is possible in some instances for a pilot to return to work with an Operational Multi-Crew Limitation (OML) when this would not be possible in a single pilot operation. Pilots/ATCOs should be encouraged to describe their type of work with their AME as well as with their treating physicians.

Golden Rules for treating physicians and AMEs to consider concerning medication in aircrews

1. Accept that all medication can have potential side effects.
2. Be knowledgeable about a drug's therapeutic and side effect profile.
3. Educate pilots/ATCOs about the potential risks of self-medication.
4. Remind aircrews of their responsibility to seek aero-medical advice when taking medication.
5. Consider the impact of side effects in the aviation related working environment.
6. Do not deny aircrews justified treatment but inform them about the potential advantages and disadvantages of medication
7. Understand the aviation working environment.
8. Integrate the assessment of the medication into a holistic approach including the underlying disease and the circumstances of the pilot/ATCO.
9. Always consider a period of grounding when beginning new medical treatment.
10. Accept some therapeutic drugs as being incompatible with operating in the aviation environment and be prepared to explain why.
11. For AMEs: Understand the regulatory principles, guidelines and regulations.
12. For treating physicians: If in doubt about the effects of illness and/or medication on pilot's fitness to fly or whether or not the pilot has to be grounded: consult your patient's aeromedical examiner (AME), who knows all (legal) medical requirements and can help you to find the best solution.

Golden rules for Pilots/ATCOs concerning medication

1. Do not operate if there is a need to take medication
2. Be aware that any medication can have side effects which could affect flight safety and work performance.
3. For pilots engaged in flying competitions: be aware of the doping rules and avoid drugs that are specified on the doping list.
4. Seek early advice from a Medical Practitioner or Pharmacist before taking medication and inform them of your occupation.
5. Inform the AME without undue delay when taking medication
6. Always declare and record any medication being taken when completing an application form for a medical examination with an AME
7. Remember not to deny taking treatment which will be beneficial because of the desire to continue to operate.
8. Be prepared to be grounded or prevented from working when taking medication for the first time.