Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 General MED. A . 001 -Competent Authority
Page: 3
Relevant Text: -For the purpose of this Part, the competent authority shall be the authority designated by the Member State where the aeromedical centre (AeMC), the aeromedical examiner (AME) or the general medical practitioner (GMP) to whom a person applies for the issue of a medical certificate has their principal place of business.
Comment: From the Explanatory notes to the proposed regulation it follows that for the time being the regulation for competent authority is not yet elaborated. So the absence of clear definition what personnel in competent authority deals with medical issues as well as the requirements to the level of training and competence of these personnel provides different understandings of the proposed requirements in some parts of it, does not give consistency to the rules especially to the issue of medical confidentiality
Proposal: -For the purpose of this Part, the competent authority shall be the authority designated by the Member State where the aeromedical centre (AeMC), the aeromedical examiner (AME) or the general medical practitioner (GMP) to whom a person applies for the issue of a medical certificate has their principal place of business. Competent Authority shall use the service of medical doctors for all issues related to the medical certifications. These medical doctors shall be qualified and experienced in medicine and in aviation medicine and shall receive refresher training at regular intervals. Medical examiners shall have practical knowledge and experience of the conditions in which the holders of licenses and ratings carry out their duties.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 General MED. A . 015 -Medical confidentiality -MED. A. 050 - Obligations of AeMC, AME and GMP 4c-d -e

Page: 4; 6; 7
Comment: The competent authority or the licensing authority in the EASA member states normally are not medical doctors. Due to national personal data protection laws and EU Directive 95/46/EC on the protection of personal data, it is not allowed for AME´s and GP´s in most of the EASA member states to submit personal medical data (e.g. medical application form with family history and medical data not only from the pilot but also from his/her relatives) to an organisation where non medical personal has access to these data. Medical confidentiality should be better defined here as it is done in the AMC to Med.A.015. For compliance with ICAO requirements of Annex 1 1.2.4.6 Having completed the medical examination of the applicant in accordance with Chapter 6, the medical examiner shall coordinate the results of the examination and submit a signed report, or equivalent, to the Licensing Authority, in accordance with its requirements, detailing the results of the examination and evaluating the findings with regard to medical fitness. this paragraph should contain information to whom medical information should be available. In most countries this procedure is respected. In the countries like Germany, where the transmission of medical data is forbidden the information could be limited to the statement of fitness or unfitness of the pilot that is also the result of examination.

Proposal: All persons involved in medical examinations, assessment and certification shall ensure that medical confidentiality is respected at all times. All medical records in hard copies or electronically stored should be securely held with accessibility restricted to authorised medical personnel. The results of medical examinations shall be submitted to the medical service of the competent authority. In EASA member states where medical confidentiality cannot be guaranteed on all administration levels all personal medical data of pilots shall be stored by AeMC´s , AME´s and GP`s and only the fit or unfit result of the medical investigation shall be transmitted to the licensing authority. Upon request by the competent authority AeMCs, AMEs and GMPs shall submit medical files, reports and any other medical data as required in an anonymous form to the authorized medical doctor of the competent authority for oversight.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: MED.A.020
Page: 4
Relevant Text: (a) A student pilot shall no fly solo unless that student pilot holds a valid medical certificate, as required for the relevant licence.
Comment: It’s desirable that a student pilot should be able to begin his training before obtaining a medical, but the period should be limited for e.g. 3 months. If not, psychopathic, criminal or otherwise unqualified individuals (alcohol dependant, epileptic patients) could remain in the state of a student pilot for years and jeopardise flight safety or prepare terrorist attacks.
Proposal: (a) A student pilot shall no fly solo unless that student pilot holds a valid medical certificate, as required for the relevant licence. A medical certificate has to be obtained not later than 3 months after starting the flight-training.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: MED.A.020
Page: 4
Relevant Text: (h) A pilot shall not hold more than one medical certificate at any time
Comment: Pilots may execute their rights in different classes, so if the paragraph prohibits to hold more than one medical certificate, it’s necessary to define, that a “higher class” includes a “lower class” of medical certificate. Though defined in AMC to MED.A.020, the text should be cited at this site.
Proposal: (h) A pilot shall not hold more than one medical certificate at any time. A higher class of medical certificate includes the lower one with its specified duration in the following sequence: class 1 includes class 2, class 2 includes LPL.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 MED. A. 025 -Decrease of medical fitness – (a); (b); (c)
Page: 4
Relevant text: (a) Pilots shall not exercise the privileges of their license….. when they are aware of any decrease in their medical fitness….. (b) Pilots shall not take or use any medication……. (c) Pilots

shall not exercise…. Whilst receiving any medical, surgical or other treatment
Comment: The experience over the last 5 years under JAA requirements shows, that almost no pilot is aware of his responsibility in decrease of medical fitness. Nobody was informed about his responsibilities. Pilots did not read the internet sites of the national competent authorities where those rules were published. The result was, that many pilots did not realize that to fly with an invalid medical certificate after going back to the cockpit after surgery or medical treatment is illegal. (a) Daily experience of the Aeromedical Centers demonstrates, that many pilots are very “unsensitive” concerning their decrease in medical fitness or tend to deny it, even if there is great evidence of their incapacitation (e.g. alcoholism, following myocardium infarction, following stroke, need of strong acting medication etc.). Lay opinion is not sufficient to give adequate judgement. So the pilot should be encouraged to seek the opinion of his Aeromedical Examiner. Though defined in AMC to MED.A.025, the text should be cited at this site to clarify the legal situation. (b) Pilots or general practitioners are not qualified to judge, if a medication is likely to interfere with the safe exercise of flight duties with respect to time-zone-shift, hypoxia, impairment of relevant sensoric functions (visual system, colour vision, vestibulocochlear system). The decision should be limited to AMEsClass 1.
Proposal: Print the paragraphs of decrease of medical fitness on the medical certificate in that way, that the pilot has signed his understanding of this paragraph. This certificate will handed out to each pilot personally. This guarantees, that each pilot is informed about his responsibilities and makes him liable for correct reports. (a) Pilots shall not exercise the privileges of their licence and related ratings or certificates at any time when they are aware of any decrease in their medical fitness which might render them unable to safely exercise those privileges. When in doubt, at presence of symptoms of illness or when under medication consultants of an AME is necessary prior to performance of flight duties. (b) Pilots shall not take or use any medication prescribed or non-prescribed which is likely to interfere with the safe exercise of the privileges of the applicable licence. At commencement of any medical treatment the pilot shall consult with his AME.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 MED.A.030 (a), (b), and (c) Issuance, revalidation and renewal of medical certificates (b) Initial issue
Page: 4
Relevant Text: (1) Class 1 medical certificates shall be issued by an AeMC ……..
Proposal: The EASA should provide in their requirements the possibility of delegation of competence from the competent authority / licensing authority to AeMCs and AMEs, provided that the same safety standard is guaranteed by oversight procedures of the competent authority. (a) leave it as it is (b) initial issue (1) Class 1 medical certificates shall be issued by the licensing authority or by an AeMC. (2) Class 1 renewals and Class 2 medical certificates shall be issued by the licensing authority or by an AeMC or an AME (3) LPL medical certificates shall be issued by the licensing authority or by an AeMC or an AME or, if permitted under national law, by a general practitioner (GMP) n MED.A.030 (b) and (c) “shall” should be replaced by “may”. If “shall” has to be used in the IRs, then the text of each subparagraph should be amended: “… medical

certificates shall be issued by the authority or by ….” . If so, then a new AMC MED.A.030 has to be developed: “The privileges for an AeMC, an AME or a GMP to issue medical certificates should be defined in their respective authorisation or certificate.” MED.A.030 (b)(3) and (c)(2) must be amended: “… if permitted under national law of the licensing authority, by a GMP.”

General Comment on the implementation of LPL
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA NzSection: 2 MED.A.030 (a), (b), and (c) Issuance, revalidation and renewal of medical certificates (b) (3)Initial issue (c) (2) revalidation and renewal And all following paragraphs where LPL is mentioned
Page: all pages where LPL is mentioned
Relevant Text: Implementation of LPL -General Statement on this issue

1. Comment:
The introduction of the LPL medical certification appears to be contradictory to the basic principle of EASA, being the maintenance of Safety.
Paragraph (3) of the introductory text of the Basic Regulation reads: “Community essential requirements and rules adopted for their inplementation should ensure that Member States fulfil the obligations created by the Chicago Convention.” Paragraph (4) of the introductory text of the Basic Regulation reads: “The Community should lay down, in line with standards and recommended practices set by the Chicago Convention, essential requirements applicable to … The Commission should be empowered to develop the necessary implementing rules.”
2.
ICAO is the lowest acceptable standard for medical requirements in 198 countries. The introduction of a standard that fails to meet ICAO is not acceptable. We should not practice below ICAO standard.

3.
There shall be no separate medical criteria for LPL. If such criteria must exist, they shall be moved to the implementing rules to make them binding and guarantee harmonised application.

4.
The specific requirements for LPL medical certification introduce new standards that appear to be in conflict with scientifically proven medical data

5.
LPL medical certification is not consistent with Class 2 ICAO standards. It shows no medical relationship to existing Class 2 rules. e.g. Hearing requirements. Sometimes the criteria are higher and sometimes lower than ICAO Class 2. There are questions regarding the evidence and the validity by which such standards are proposed. There exists only an acceptable means of compliance for LPL medical certification, but this is not included in the implementing rules. As a result, the acceptable means of compliance are not binding. These will not be known by the GMP or the LPL applicant.

6.

The validity of the LPL medical certificate ignores the peak of ma ny pathologies, in the time between the first and the subsequent medical examination at the age of 45 years, particularly in the psychiatric and psychological areas including mania and schizophrenia, allowing a pilot to continue flying without medical supervision. This presents an important risk to flight safety.

7.
The use of the word “should” and “may” as applied to the medical status fails to apply any restriction, but merely advises rather than directs. This reduces the clarity, transparency and the standard of the medical assessment offered.

8.
The introduction of a system with many standards such as LPL and Class 2, you introduce the risk of reducing the validity, transparency and quality of the assessment offered.

9.
The LPL and Class 2 pilot share the same environment, airspace and aircraft. so the risks and the consequences are similar. There is a risk to shift problematic cases from Class 2 to LPL, in the absence of medical supervision.

10. The existing NPP and Sports Pilots Licences appear to be used by some pilots who cannot comply with Class 2 standards. In countries where the sports licence exists, experience shows that it attracts pilots who have medical or health issues.
Proposal: Delete the specific requirements for medical certification and replace them with the medical criteria of ICAO or Class 2.

General Comment on the implementation of general practitioners
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA NzSection: all paragraphs where GPs are recommended
Page: all paragraphs where GPs are recommended
Relevant Text:
Comment: GENERAL MEDICAL PRACTITIONERS (GMPS) MED.D.001 Requirements for general medical practitioners 1. The use of GMP is below ICAO standard. 1.2.4.4 Contracting States shall designate medical examiners, qualified and licensed in the practice of medicine, to conduct medical examinations of fitness of applicants for the issue or renewal of the licences or ratings specified in Chapters 2 and 3, and of the appropriate licences specified inChapter 4. 1.2.4.4.1 Medical examiners shall have received training in aviation medicine and shall receive refresher training at regular intervals. Before designation, medical examiners shall demonstrate adequate competency in aviation medicine. 1.2.4.4.2 Medical examiners shall have practical knowledge and experience of the conditions in which the holders of licences and ratings carry out their duties. According to ICAO Annex 1, 1.2.4.7.1 The medical examiner shall be required to submit sufficient medical information to the Licensing Authority to enable the Authority to audit Medical Assessments Note.— The purpose of such auditing is to ensure that medical examiners meet applicable standards for good practice.

3. The practice of GMPs is not universal across the EU. There are marked variations in the ability to access medical records and data. In many European countries a therapeutic physician will not, according to national medical legislation, be to act in the role of assessor. 4. The proposed introduction of the GMPs does not include medical audit. The existing use of AME's includes recertification based on the activity of the AME and the requirement to avail of continuing medical education in the area of Aviation Medicine. An example follows:In Germany 150 000 GPs are working in their own office. On the basic level of the requirements for general practitioners (see MED.D.001 Subpart D Page 21) this number will increase to 175 000. If all 70 000 PPL license holders in Germany will decide to give up their PPL and fly only with an LPL license, there is only a small chance for a GP to perform 1.25 LPL medical /10 years. Between the age of 16 up to the age of 80 years a LPL pilot has to perform 20 medicals. 70 000 license holders X 20 medicals = 1 400 000 Medicals in Germany in 64 years, which are 21 875 LPL Medicals /year. Statistically there is a chance of 1.25 LPL Medical in 10 years for one GP in Germany. This is not enough for getting experience to make safety relevant medical decisions for LPL. 5. Holistic medical examiners are required to carry out a comprehensive medical assessment. Any GMP planning to carry out an assessment must be a practitioner in holistic medicine 6. The introduction of the GMP assessment will result in the loss of harmonization of the medical assessment that already exists across the EU in the practice of the AMEs for more than eight years. The situation of mutual recognition results in harmonization. GMPs may practice in the absence of aeromedical training 7. The absence of requirements for GMP as medical assessors of LPL, along with the lack of communication between the GMP and the Authority, will increase the risk to flight safety. We perceive a risk of medical tourism with the introduction of the GMP examination. This practice could enhance the loss of significant medical information Any pilot could travel to any GMP in any country (including countries outside the EU) for the granting of a medical certificate, without any proper control. 8. If the examiner status of GMP is introduced, the pilot should be examined by the GMP in the country of issue of the flying licence. No state has responded to showing there is a system in place that can be used in any member state to harmonise standards across the EU.
Proposal: Delete GMP and use AME

Czech Republic Dr. M. Rada 1) Normal GPs are not allowed to issue any certificates if not familiar with/certified AvnMed. 2) On the other hand, there has been existing a group of approx. 100 GPs, who took a basic course in AvnMed at our Institute. Since that time they are 'designated' to perform an exam and issue a medical certificate but only for class 2, moreover only prolongation, not initial one. It must be issued only in our Institute of Aviation Medicine Prague. 3) In terms of documentation, an access to a complete medical file, the situation in the Czech Republic look like in Germany.
Scotland Most people register with a General Practitioner and attend that doctor or a group
Dr. D Doyle of doctors for all medical matters. If there is a need for specialist treatment, the General Practitioner usually arranges that and keeps a file of the reports that come back from the specialists. The General practitioner's records will have all of the person's medical

attendances and will carry all details from birth. If a person moves to another part of the country, they will register with a GP there and the records from the last GP will be sent in through a central medical records exchange. Everyone in this country has a National Health Service Number, known as the Community Health Index Number (CHI Number) but not everyone knows their number or has kept the document with the number on it. This number should allow the medical records of individuals to be traced, if it is known. The CHI Number can be obtained from National Health Service offices but you will appreciate that this could take time and effort, which a busy doctor may not be willing or able to give. This sounds good and it is for most people but there are many who do not register with GPs when they move to a new location. Their childhood records may remain with a doctor where they lived or may be sent to the central medical records exchange if it is known that they have moved away. These people are difficult to deal with in respect of the accuracy of the available information. They could turn up at any GPs premise looking for a LPL licence medical and there would be no easy way of finding out about their medical history. This problem makes the present arrangements for LPL or NPPL medical certification difficult to support. It is easy, if the doctor is not able to know the history, for a person to obtain a medical certificate for the LPL or NPPL if they know they have a medical problem they wish to conceal.

Availability of complete medical files by GPs in different European countries

Croatia Dr. Z. Lolic Like in Britain and the Netherlands, Croatia has a national health system that every adult person has his/her own GP. The GP has a complete medical file. Specialist of occupation medicine is qualified and licensed for the practice of aviation medicine, like AME, in accordance with applicable Croatian national health system.

Bulgaria Prof. Dr. L. Alexiev The system for health insurance and medical servicing of the population using general practicing in Bulgaria is relatively new and therefore subject to development and corrections. The informational system with medical profiles of the patients is not yet complete and effective, wherefore we think that at this stage the medical certifying of LPL is better to be done by aviomedical examiners. In future the certification could be done by GP medical staff if they pass suitable preparation courses and licensing and this activity is included in GP duties by contract with the National Health Insurance Fund.

Bulgaria Z. Kernacs We have 5130 GPs. They do not have access to complete medical files because the patient can see the specialist directly.

Romania Dr. Baloescu in Romania isn’t a national health system and a national health register. The patients are free to select their GPs. They can visit specialists directly. In this case a GP never has access to ones whole medical file. Till now Romanian GPs didn’t authorized to issue any aeromedical certificate. We think that ESM should oppose that GPs should be authorized to issue certificates on aeromedical fitness.

Slovenia Dr. T. Kozelj Medical file on request from AME to obtained from GP.

Spain In the Spanish medical system the GP have a lot of work and they don't want to
Dr. Alomar do any medical certificate, so they cannot guaranty the safety purpose, so we think ESAM should oppose that GPs should be able to do aeromedical certificates.
Norway The Norwegian GP is a system where each patient has his/her nominated GP until
Dr. Wagstaff the patient wants to change another. Therefore many GPs have a lot of historical data on the patient. However there are also private GPs without government support that have higher prices and often are more accessible on short notice. In other words nothing prevents a pilot applicant to go to another GP than his/her usual one to get a medical certificate. Many AMEs are also GPs therefore this point also applies to AMEs. ESAM should oppose that GMPS should be able to issue certificates or opinions on aeromedical fitness without any requirement for aeromedical knowledge as there is very little flight safety effect in this. In addition it may cause a false sense of security in the pilot.

Netherlands Dr. Ries Simons In the Netherlands each citizen has his/her own GP, who –in principle – holds all medical information on his patient. However, each citizen is also free to go to another GP (who has no information at all) in order to have a medical examination (also for licensing purposes). For medical licensing concerning road driving, it is even mandatory to consult another GP than your own. This rule is meant to prevent GP's doing a favour for an unfit patient, who needs to have his license and with whom the GP has cordial contacts (they don't like to harm their patients).
Hungary Every insured Hungarian person should have a GP, however there is a free of
Dr. H. Gabor choice and unlimited changes situation. In the case visiting a specialist on hi9s own, there are no obligatory reporting system to the GP. Upon this the actual GP does not necessarily have all the medical data from the certain person.
Hungary We have 5130 GPs. They do not have access to complete medical files because the
Z. Kernacs patient can see the specialist directly.
Spain In Spain we cannot control all the GPm because we have multiple medical
Dr. E. Alomar systems and they cannot connect in his medical histories, our opinion is that we cannot give to the GPm's the capacity to make LPL examinations. We have approximately between 200.000 and 400.000 general practitioners

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 MED.A. 035 Application for a medical certificate
Page: 5
Relevant Text: (a) Applications for a medical certificate shall be made in a format established by the competent authority.
Comment:
Does this mean that EASA will not require a unique application format and content for all member states? If yes, it will result a lot of difficulties in the daily work. The different national computer systems will not understand the different application formats. Statistical comparisons of medical data between the different EASA member states

cannot be done due to different formats. Evidence based aviation medicine seems to be impossible if the formats of application forms and all the other medical forms are not harmonized. Due to the different national languages in Europe we need the content in all forms bilingual in national and English language to understand each other.
Proposal: (a) All documents needed for a medical certification process shall be developed by EASA in a binding format with harmonized content for all member states and always provided in national and English language.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 MED.A.045 Limitations to medical certificates (a) (1) and Subpart B
Page: : 5 ; 9 and following
Relevant Text: When, in accordance with the Aeromedical examinations and assessments, the applicant does not fully comply with the requirements for the relevant class of medical certificate but is considered to be not likely to jeopardise flight safety the AeMC or AME shall: (i) in the case of applicants for class 1 medical certificate refer the decision on fitness of the applicant to the licensing authority as indicated in Subpart B, except those requiring a limitation related only to the use of corrective lenses.
Comment: Why shall in cases of MED. B. 005 Cardiovascular System b (3) i --ix d (1) i – ii d (5) last sentence e (1) i – vi e (4) i—ii MED . B. 020 Metabolic and Endocrine System c (2) last sentence MED . B. 025 Haematology c (1) --(5) MED . B. 050 Psychiatry (b) -(d) – (e) MED . B . 060 Neurology (c) 1 – 7

MED B . 085 Oncology (b) for class 1 medical applicants always to be referred to the licensing authority, but not in cases of Respiratory System Digestive System Genitourinary System Infectious Disease Obstetrics and Gynaecology Musculoskeletal System Psychology Visual System Otorhino-larygology Dermatology The risk assessment for class 1 medical certificates is inconsequent. Why is a licensing authority able to do a risk assessment for class 1medicals in MED. B.005 – B.085 as shown in the upper part and why do they think that AeMCs and AMEs can do it in the lower Paragraphs – Respiratory ….Dermatology.? Why does a licensing or competent authority has no problem to delegate the risk assessment for all MED . B. paragraphs to the AMEs class 2, who are on a lower training level than Class 1 AMEs or AeMCs? Does the licensing authority employs medical specialists who are able to be competent for all specialities in MED . B. and to make a sufficient riskmanagement? The experience of the past 5 years under JAA requirements showed that competent authorities very often only hire consultans or medical doctors on low salary and inexperienced in aviation medicine. In Germany we had medical doctors in the authority without any basic or advanced course in aviation medicine who made the risk assessment for class 1 pilots. This may happen also under EASA requirements if the qualification of these medical doctors is not defined and binding for the member states. 1st Aspect: The limit of “not likely to jeopardise flight safety” is not defined and thus up to a widespread scope of individual opinions. The implementation of the “1-percent-rule”, as a basis of the JAA and international flight-safety philosophy, is necessary at that point. 2 nd Aspect: In many countries the “licensing authority” is not privileged to have their own medical staff in house, thus completely lacking medical knowledge. For example in Germany, more than 26 regional authorities do not dispose of any physician. In these cases the authority

is unable to come to an adequate judgement, moreover it’s not authorised to keep personal medical data in their files or obtain them (protection by privacy laws). This means that medical data and decision making must be separated from the authority. For that purpose Aeromedical Centers and AME´s Class 1, controlled and structurally certified by the authorities, have been implemented by the different states as sources of aeromedical competence and special trust. Consequently, the decision making concerning medical licensing class 1 and class 2 should be delegated to the Aeromedical Centers and AME´s Class 1, that should work under conditions controlled by the AMS. .
Proposal: All assessments for class 1 medicals shall be done by AeMCs or AME´s Class 1. Class 2 and LPL medical assessment shall be done by AeMCs or AMEs. An adequate definition should be given under MED.A.010 (Definitions): “A sufficient level of medical flight safety” is achieved, when the probability of a sudden incapacitation, inherent to a identified disease or abnormality, does not exceed 1 % per year for class 1and 2 % - 5% per year for class 2 and LPL).
The EASA should provide in their requirements the possibility of delegation of competence for class 1 medical assessment from the competent authority / licensing authority to AeMCs and AME´s Class 1 and for class 2 and LPL medical assessment to AMEs, provided that the safety standard is guaranteed by oversight procedures of the competent authority. The competence level of a medical doctor in the competence authority/ licensing authority shall be required by EASA on the same level as it is required for the heads of AeMCs or AMEs class 1. Otherwise the tail wags the dog, because competence of medical specialists and well trained AMEs can be overruled by a beginner doctor in the authority.
Alternative proposal:
EASA centralises medical decision making in an EASA medical department with a European air surgeon, analogue to the FAA system. Then 15 safety relevant illnesses have to be referred to this department for decision, all other illnesses can be decided by AMEs. Provided EASA implements a central computer system and a central medical data bank into which all EASA -AMEs will send their medical reports and medical certificates, this will be the better alternative. Medical confidentiality, standardisation, correct oversight and evidence based aviation medicine will be guaranteed in this System. The best would be to use the same computer system in EASA which already works perfect in the FAA system. This provides the chance to have a world wide database for scientific and evidence based medical assessment. Officials from FAA are in favour with this idea and offered the software already for free if EASA wants to use it. (statement at the 1st European Conference on Aviation Medicine and the 3rd FAA refresher seminar August 21st – 24th 2008 in Wiesbaden/Germany)

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 MED.A.045 (a) Limitations to medical certificates
Page: 5
Relevant Text: (2) (i) whether accredited medical opinion……..
Comment: What is meant by accredited medical opinion? Does this mean, that only specialists accredited by the competent authority can be used for a special opinion when assessing whether a limitation is necessary. .
Proposal: Use the term -accredited medical conclusion -as it is defined in ICAO Annex 1 Chapter 1

(1.1) Definitions.” Accredited medical conclusions – The conclusion reached by one or more medical experts acceptable to the Licensing Authority for the purposes of the case concerned, in consultation with flight operations or other experts as necessary.”

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 MED.A.045 Limitations to medical certificates (a) (1) and (2)(i) and (ii) (b) Limitations to LPL medical certificates
Page: 5
Relevant Text: 1(i) in the case of applicants for a class medical certificate refer the decision on fitness of the applicant to the licensing authority,except those requiring a limitation related only to the use of corrective lenses. (ii) in case of class 2 medical certificateand issue the medical with limitations as necessary. (b) When the applicant does not fully meet the requirements for medical fitness, the GMP shall refer the applicant to an AeMC or AME which shall comply with the requirements established in (a) for class 2 medical certificates.
Comment: 1 (i) The licensing authority may delegate the competence to issue the medical certificate with limitations as necessary to an AeMC or AME Class 1, provided that oversight by the authority guarantees the required safety standard. (ii) In case of class 2 medical certificates the AME class 2 shall submit doubtful cases to an AeMC or AME Class 1 where an evaluation can be done and limitations as necessary can be assessed. This makes sure that a medical assessment in pilots who do not meet the requirements, always is done by medical experts experienced in aviation medicine. (b) Statistically a GMP in Germany will perform 1.25 LPL medicals in 10 years .This will lead to time consuming processes for the pilots because GMPs will not have training and experience to make decisions and assessment under LPL requirements. Therefore every question of a GMP will be referred to AMEs. We do not see any whether economical nor time benefit for this process. Pilots will have to pay twice and they will wait until a decision is made. If there is not one national health system in Europe, not even the British one, where it is guaranteed that the GPs have access to the complete medical file of a pilot and pilots cannot hide important medical information by consulting private doctors, why do EASA implement such requirements which no member state can fulfill.
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Proposal: 1 (i) The licensing authority may delegate the competence to issue the medical certificate with limitations as necessary to an AeMC or AME Class 1, provided and oversight by the authority guarantees the required safety standard. (ii) In case of class 2 medical certificates the AME class 2 shall submit doubtful cases to an AeMC or AME Class 1 where an evaluation by medical experts can be done and limitations as necessary can be assessed. (b) Delete GMPs in the requirements and AMC for all EASA member states.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 MED.A.045 Limitations to medical certificates (c) Limitation codes (1) (iii)
Page: 6
Relevant Text: The OML for class 1 medical certificates shall only be imposed and removed by the licensing authority.
Comment: Why can OML only be imposed or removed by the licensing authority for class 1, and on the other hand, it is sufficient for the competent

authority, if an AME can impose or remove OSL for class 2 . How is the process for the pilot or his AeMC or AME to appeal to remove an OML restriction? Will there be an appeal board for this. Is there a review process with new special medical opinions? There is nothing like this in the requirements. .
Proposal: Delegation of responsibility to impose or remove OML and other limitations for class 1 to an AeMC or AME Class 1 shall be possible for EASA member states which needs so. Implement a process of first and second review or a board of medical experts for decisions and assessment which pilots can use if they are outside the requirements or if they feel unfair treatment by the competent authority/ licensing authority.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 MED .A. 055 Validity, revalidation and renewal of medical certificates (a) Validity
Page: 7
Relevant Text: (4) LPL medical shall be valid : (i) until the age of 45 (ii) between the age of 45 and 60, for a period of 60 months….. (iii) after the age of 60, for a period of 24 months.
Comment: There is no reason to introduce validity periods for LPL, below ICAO standards, different from those for class 2. Both types of licenses will give privileges to fly the same classes of aircraft, including carrying passengers. Paragraph (3) of the introductory text of the Basic Regulation reads: “Community essential requirements and rules adopted for their implementation should ensure that Member States fulfil the obligations created by the Chicago Convention.” Paragraph (4) of the introductory text of the Basic Regulation reads: “The Community should lay down, in line with standards and recommended practices set by the Chicago Convention, essential requirements applicable to … The Commission should be empowered to develop the necessary implementing rules.” Therefore any proposal below ICAO Standard is unacceptable. The risk of sudden incapacitation does not change if flying a Cessna with 3 passengers under class 2 or LPL requirements. The gap between the age of 16 and 45 without any medical examination or medical self – declaration, opens the door for all pilots, who are unable for a medical self assessment, due to illnesses like psychosis, mania, depression, alcohol or drug dependency and others, which occur most frequently just in this gap between 16 and 45. The normal standard of alcohol dependent patients in the working population is 5 to 7% , 1 to 3 % are suffering from depression or psychosis.If only 5 % of these patients are flying in that time gap between 16 and 45 while possessing a valid medical issued at the age of 16, between 1000 up to 3500 pilots with aircrafts up to 2000kg with maximum 3 passengers on board, will take part in the normal daily air traffic only in Germany. Arguments that this happens also with thousands of car drivers each day are not solid, because normally cannot violate airspace where Boeings 747 are flying. In case of collision of an commercial aircraft and a Cessna 172, it is normally a fatal accident for both aircrafts, which means that such a flying patient can kill hundreds of passengers. From a medical point of view the validity periods of the LPL are not acceptable. (1): Even when applying for marathon competition or diving, medical certificates, not older than 2 – 3 years, are required in young applicants for the experience of sudden cardiac death or otherwise incapacitation have to be expected in sporting events. Besides, control of vision, that

may worsen considerably between age 30 – 45, is a major goal of medical examination in young leisure pilots. So should a sportsman, who only may put at risk himself, be subdued to more rigid examinations than a leisure pilot, who may put at risk 3 more passengers or far more people when crashing into a crowded site? (2) In case of a damage, jurisdiction and insurance companies might be in the situation, that the pilot's last "medical" is as old as 30 years (student pilot at age 15, no further examination until age 45), so in fact there is no medical certificate that could give information, if the affected pilot was medically qualified or not at all to perform flight-duties. (3) Passengers boarding for sightseeing flights on LPL aircraft should have a minimum safety level, that "their" pilot is medically qualified to take them for a ride without jeopardising their lives. As they are not able to recognize the pilot's sternotomy-scar following bypass-grafting or similar sequelae, they must rely on the presumption, that only medically qualified personnel may hold a flying licence. Class 2 regulations form a minimum of safety standard in respect of the privilege to carry passengers.
Proposal:
Take the same validity dates for LPL as for class 2

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 MED .A. 055 Validity, revalidation and renewal of medical certificates (c) Renewal (ii)
Page: 8
Relevant Text: (ii) if the medical has expired for more than 5 years, the requirements for initial issue shall apply.
Comment: If a pilot is experienced with some hundred flying hours and his medical has expired for more than 5 years and this pilot got older, it might happen that he/she does not meets the criteria of an first examination. E.g. Astigmatism is allowed for first examination class 1 only up to two dioptres, at revalidation exceeding 2 dioptres is allowed. Why should it be a safety risk, if this pilot is assessed fit exceeding 2 dioptres.
Proposal: The (ii) text should clarify, that the requirements of the medical investigation for a first medical examination shall be performed if the medical certificate has expired for more than 5 years. For the fit/ unfit medical assessment the values / restrictions of a revalidation shall be used by the AeMC / AME.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 3 MED.A.060 Suspension of exercise of privileges (a) and (b) (c) LPL medical certificates
Page: 8
Relevant Text: (a) and (b) holders of class 1 and class 2 medical certificates shall not exercise…. (c) Holders of a LPL medical certificate shall inform their doctor or vision care specialist that they are licence holders before they are examined. If pilots are told that the condition from which they are suffering may make it unsafe to perform their duties, they shall not exercise the privileges of their license until advised to do so by a GMP or an AME.
Comment: The text of MED.A.060 (a) and (b) is relevant. The evaluation of the applicant is always with the licensing authority. Therefore the expression "competent authority" in this paragraph should be changed to

“licensing authority” in consequence with MED.A.065 (a). It is also imperative to avoid confusion, because when “competent authority” is used in Part MED it is in MED.A.001 defined as the authority where the AeMC, AME or GMP have their principal place of business and not the authority responsible for the licence and medical certificate. In MED.A.065 (b) “may” is used in an implementing rule. This should be changed to “shall”, or the paragraph would need to be moved to AMC MED.A.065. If there were an illness you could find under MED.A. 060 (a) 1 – 7 and the pilot did not seek the advice of his AME and a fit assessment was not done, then the pilot is flying with an invalid medical certificate. In case of an incident or accident, this might have a big impact on the insurance conditions for the company and for the pilot. The proposed MED.A.060 (c), however, is below ICAO Standard and can not be accepted.This text shows that the author never worked with patients in a normal health care system. More than 95 % of normal doctors or vision care specialists in such a system cannot tell pilots that a suffering condition has an impact to the ability to fly an aeroplane. They are not educated in aviation medicine and they do not know anything about medical requirements. Therefore this paragraph is absolute senseless, because more than 95% of those LPL license holders will be referred to an AME by his treating doctor. On the other hand GPs and medical specialists normally think that flying an aeroplane is a big challenge for human beings and absolutely dangerous. Due to this they write pilots much longer unfit to work as they do in same cases with normal working people. This is not in the interest of a LPL pilot. In Germany alone there are about potential 175 000 GMPs working in their own offices, treating each day 50 to 100 sick patients.
These doctors do not know anything about the privileges of a LPL or PPL license. How shall these doctors make a decision if a medical treatment or suffering by a chronic illness affects the privilege of a licence. If all German license holders are seriously ill once in a year and they seek advice from their treating doctor, statistically every doctor will be asked once every two years. Does the author of this text really think that these doctors are really interested to read and learn the EASA requirements of the LPL continually, if he/she needs this only for one case every two years? If not really fit in decision making, a doubtful GMP will need time to find out what to do and where to ask. This will be counterproductive for LPL pilots, waiting for their medical o.k.
Proposal: First: Print the § (a) 1 --7 on the medical certificate to inform the pilots. Second: A documentation of the medical advice and the fit assessment is essential because it is a revalidation of the medical certificate after serious illness. A special form should be created, which can be submitted to the pilot by e-mail or fax to give him safety that he is legal. Third: in (c) implement the same requirements for LPL pilots as for class 1 and 2 in (a) and (b).

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 3 MED.A.065 Suspension and revocation of medical certificates
Page: 8
Relevant Text: Whole paragraph a 1 …3 b
Comment: How shall this work? Requirements which cannot be controlled that pilots are following them are senseless. False declaration is allowed in Germany and will not be punished. How shall the violation of the provisions of paragraph MED.A.060 be controlled, if there is no provision for documentation. What is a justified concern (see b) Does the competent

authority has to go to court to get their concern justified before they can suspend a medical certificate? How will the competent authority justify something of (a) 1 – 7 without documentation.
Proposal: MED.A.065 (b) should be amended: “The licensing authority shall consider the need to suspend the certificate pending …” Make a new set up of this MED.A.065 with documentation procedures and control mechanism or skip it totally and give it to the responsibility of the pilots.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: MED.C.001 (b) Privileges
Page: 19
Relevant Text: Holders of an AME certificate may apply for an extension of their privileges…….
Comment: The text of MED.C.001 (b) should be in line with MED.C.001 (a), including not only the medical examinations but also the privileges to revalidate and renew class 1 medical certificates. For MED.C.001 (b)(ii) the text is missing !
Proposal: MED.C.001 (b) should be amended: “Holders of an AME certificate may apply for an extension of their privileges to include (i) revalidation and renewal of class 1 medical certificates, and conduct the relevant medical examinations and assessments, when they comply with the requirements in paragraph MED.C.015; and (ii) (missing text to be inserted) “

Comment Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: Subpart C Aeromedical Examiners (AMEs) MED.C.010 Requirements for the issue of an AME certificate MED.C.015 Requirements for the extension of privileges
Page: 19
Relevant Text: MED.C.010 (b): have undertaken a training course in aviation medicine MED.C.015 (b) undertaken an additional training course in aviation medicine
Comment: It should be a differentiation between training courses for class 2 AMEs and LPL-GMPs and the training course for class 1 AMEs.
Proposal: MED.C.010 (b): have undertaken a basic training course in aviation medicine MED.C.015 (b) undertaken an advanced training course in aviation medicine

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: MED.C.025
Page: 20
Relevant Text: (b) Failure to inform the competent authority shall result in the suspension or revocation of the privileges of the authorisation.
Comment: Suspension of the privileges is an inadequate action after a AME has failed to inform the authority about moving the practice.
Proposal: (b) Failure to inform the competent authority shall lead to admonishment of the AME and may result in the suspension or revocation of the privileges of the authorisation in severe or repeated cases, when no alternate legal action is appropriate to ensure sufficient supervision by the authority.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
2008
Section: 3 Subpart D General Medical practitioners (GMPs) Requirements for general medical practitioners MED.D.001
Page: 21
Relevant Text: The whole text.
Comment: This text opens the possibility as worst case that: 1) a medical doctor who completed postgraduate training in general medical practice or any speciality relevant to aeromedical practice (ophthalmologist? ENT specialist?) can issue a LPL medical certificate without any training course in aviation medicine. 2) a medical doctor without postgraduate training but with a training course in aviation medicine and an old invalid licence for any kind of light aircraft can also issue a LPL medical certificate. In my opinion both doctors don't have sufficient training or medical experience for this job. To achieve a uniform level of knowledge and safety its necessary for the GMP as well as for the AME to attend a full 60-hour basic course of aviation medicine. There is no medical speciality 'relevant to aeromedical practice' that could replace experience in aviation medicine itself. Working 1 year as an ophthalmologist e.g. (relevant to aeromedical practice) does not qualify to judge, if a pilot is safe to fly after suffering a myocardial infarction. To achieve the necessary knowledge about the circumstances of flight, one year practice in aviation medicine itself or at least an own pilot license should be required. For GMPs, when permitted under national law to perform aeromedical examinations and issue medical certificates, very strict requirements are needed. The basic requirements in MED.D.001 (a), (b) first line, and (b)(2) seem to be appropriate. The sentence in MED.D.001 (b)(1), however, is totally irrelevant for their ability to perform these tasks and should be deleted. The requirement in MED.D.001 (c) is not understood – a declaration to the competent authority is of no value as long as this authority has no power whatsoever concerning the GMPs. Article 7 of the Basic Regulation accepts, if permitted under national law, that GMPs may act as Aeromedical examiners. According to ICAO Annex 1, the aeromedical examiners shall be regularly audited by the authority, and the same requirement is expected in Part Authority Requirements. However, the competent aviation authorities have no rights to make oversights/audits of GMPs unless they have an AME certificate. An AME certificate shall be limitied, suspended, or revoked if the aeromedical examiner does not fulfil the requirements. For GMPs, acting as Aeromedical examiners according to the Basic Regulation, the competent aviation authorities have no legal power to prevent the GMPs from continue to perform aeromedical examinations and issue medical certificates even if they are not following the regulations. This is a matter for the Ministry of Health or National Board of Health and civil courts, where this type of cases seldom will result in any action unless there has been an extreme malpractice resulting in withdrawal of the licence to practice. According to Article 7 of the Basic Regulation the implementing rules concerning GMPs shall ensure that the level of safety is maintained As described above, the requirements for GMPs as they have been proposed in MED.A.030 and MED.D.001 might be a real threat to aviation safety, unless the assessment and issuing of the medical certificate is restricted to the licensing authority. The present proposed requirements and privileges for GMPs therefore can not be accepted.

Proposal: EASA should revise the requirements and privileges for GMPs after an independent Safety Assessment has been made.

Delete the whole paragraph. Delete GMPs in the EASA requirements and use the AME and AeMC system, which is the only harmonized system of medical specialists in Europe where it can be expected that doctors in this system know the different. The GMPs are not better in medical assessment. EASAs target to bring as much people as possible in an aircrafts cockpit by lowest standards and nearly no salary for the GPs or AMEs cannot be successful by these means.
Comment Proposal:
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section:AMC/GM to part -medical Subpart A Section2 AMC to MED.A.040 Leisure Pilot`s License Medical Report
Page: 23-29
Relevant Text: The whole medical report.
Comment: Why should a medical doctor sign this report? 1) If doctors sign this report they testify that the pilot understood the questions ,or it was explained by the doctor in a way that he could understand the questions. If it is asked e.g. Does the pilot have a psychological or psychiatric illness and quick answers like yes or no are possible, nobody will find out the answer of question 4.4 – alcohol dependency in the past 3 years. If the pilot is ok at the age of 17 nobody will ask him again until 45.This means the doctor who signed the fist LPL medical must give a prognosis of medical fitness for 28 years. But during this time the occurrence of many psychiatric disorders ,alcohol and drug dependency have its peak. Who will be accused, if the worst case will happen that a pilot with a bipolar disorder , unable to realize his situation, flying with a valid medical certificate , will have an accident with a commercial aircraft while violating a controlled airspace? – the medical doctor or the competent authority. 2.) We tested the medical report form in the German Academy of Aviation Medicine in an advanced course of aviation medicine with 25 AMEs who know the medical terminology very well. The best performer needed 35 minutes to fill out the report correctly, at average it took 45 minutes to perform the LPL questions and the medical examinations. Who believes that this will be a cheaper way to enter a cockpit as it was under JAA requirements with a class 2 medical is mistaken. Even GPs need salary for 45 minutes to work . The whole medical part of the LPL seems to be very problematic, far under ICAO standard, for European standards and narrow airspace structures are not safety!

1) For LPL medical standard the same standard as class 2 medical standard shall be recommended.
2) If the political guidelines for EASA do not allow class 2 Medicals for LPL pilots, we propose a self assessment every 2 years by the LPL pilot. For this purpose EASA or the national competent authorities shall provide an internet solution where pilots can fill out the LPL medical report and automatically receive by internet their medical certificate if no grey shaded tick box was ticked. If such a box was ticked it shall be the responsibility of the authority to send the pilot to a specialist or an AME for an assessment. If it is regulated in this way the authority is definitely responsible for the lack of safety in such a system and medical doctors are not used as an alibi for good medical assessment.
This might be important in case of accidents when insurences are looking for responsibilities.

3) If proposal 1 and 2 will not be respected by EASA and the LPL medical requirements will be implemented as it is now, the medical societies should give advice to their doctors to refuse the collaboration in all cases of medical advice, reports and assessment relating to LPL.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section:1 MED.B.010 – Respiratory System
Page: 12
Relevant Text: (a) Applicants with significant impairment of pulmonary function shall be assessed as unfit. A fit assessment may be considered once pulmonary function has recovered and is satisfactory. (b) For a class 1 medical certificate, applicants are required to undertake pulmonary function tests at the initial examination and on clinical indication. (c) For a class 2 medical certificate, applicants are required to undertake pulmonary function tests on clinical indication. (d) Applicants with a history or established diagnosis of: (1) asthma; (2) active inflammatory disease of the respiratory system; (3) active sarcoidosis; (4) pneumothorax; (5) sleep apnoea syndrome; (6) major thoracic surgery; shall undergo respiratory evaluation with a satisfactory result before a fit assessment can be considered. (e) Applicants for a class 1 medical certificate who have undergone a total pneumonectomy shall be assessed as unfit.
Comment:
Proposal: (a) Applicants with significant impairment of pulmonary function shall be assessed as unfit. A fit assessment may be considered once pulmonary function has recovered and is satisfactory. (b) For a class 1 and class 2 medical certificate, applicants are required to undertake pulmonary function tests at the initial examination and on clinical indication. (c) Applicants with a history or established diagnosis of:
(1) asthma;
(2) active inflammatory disease of the respiratory system;
(3) active sarcoidosis;
(4) pneumothorax;
(5) sleep apnoea syndrome;
(6) major thoracic surgery;
shall undergo respiratory evaluation with a satisfactory result before a fit assessment can be
considered. (d) Applicants for a class 1 medical certificate who have undergone a pneumonectomy shall be assessed as unfit.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 MED.B.020 Metabolic and Endocrine Systems
Page: 13
Relevant Text: (a) Applicants shall not possess any functional or structural metabolic, nutritional or endocrine disorder which is likely to interfere with the safe exercise of the privileges of the applicable licence(s). (b) Applicants with metabolic, nutritional or endocrine dysfunction may be assessed as fit subject to demonstrated stability of the condition and satisfactory aeromedical evaluation. (c) Diabetes mellitus (1) Applicants with diabetes requiring insulin shall be assessed as unfit. (2) Applicants with diabetes mellitus not requiring insulin

shall be assessed as unfit unless it can be demonstrated that blood sugar control has been achieved. Applicants for a class 1 medical certificate shall be referred to the licensing authority.
Comment:
Proposal: (a) Applicants shall not possess any functional or structural metabolic, nutritional or endocrine disorder which is likely to interfere with the safe exercise of the privileges of the applicable licence(s). (b) Applicants with metabolic, nutritional or endocrine dysfunction may be assessed as fit subject to demonstrated stability of the condition and satisfactory aeromedical evaluation. (c) Diabetes mellitus (1) Applicants with diabetes requiring insulin shall be assessed as unfit. (2) Applicants with diabetes mellitus not requiring insulin shall be assessed as unfit unless it can be demonstrated that blood sugar control has been achieved

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 MED.B.025 Haematology
Page: 13
Relevant Text: (a) Applicants shall not possess any haematological disease which is likely to interfere with the safe exercise of the privileges of the applicable licence(s). (b) For a class 1 medical certificate, haemoglobin shall be tested at each examination for the issue of a medical certificate. (c) Applicants with a haematological condition, such as: (1) abnormal haemoglobin, including, but not limited to anaemia, polycythaemia or haemoglobinopathy; (2) coagulation, haemorragic or thrombotic disorder; (3) significant lymphatic enlargement (4) acute or chronic leukaemia; (5) enlargement of the spleen; may be assessed as fit subject to satisfactory aeromedical evaluation. Applicants for a class 1 medical certificate shall be referred to the licensing authority.
Comment:
Proposal: (a) Applicants shall not possess any haematological disease which is likely to interfere with the safe exercise of the privileges of the applicable licence(s). (b) For a class 1 medical certificate, haemoglobin shall be tested at each examination for the issue of a medical certificate. (c) Applicants with a haematological condition, such as: (1) abnormal haemoglobin, including, but not limited to anaemia, polycythaemia or haemoglobinopathy; (2) coagulation, haemorragic or thrombotic disorder; (3) significant lymphatic enlargement (4) acute or chronic leukaemia; (5) enlargement of the spleen; shall be assessed as unfit until to satisfactory aeromedical evaluation.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 MED.B.085 Oncology
Page: 18
Relevant Text: (a) Applicants shall have no established primary or secondary malignant disease likely to interfere with the safe exercise of the privileges of the applicable licence(s). (b) After treatment for malignant disease, applicants shall undergo satisfactory oncological evaluation before a fit assessment can be made. Class 1 applicants shall be referred to the licensing authority. (c) Applicants with an established history or clinical diagnosis of intracerebral malignant tumour shall be assessed as unfit.
Comment:

Proposal: (a) Applicants shall have no established primary or secondary malignant disease likely to interfere with the safe exercise of the privileges of the applicable licence(s). (b) After treatment for malignant disease, applicants shall undergo satisfactory oncological evaluation. and regular followup examination before a fit assessment can be made. Class 1 applicants shall be referred to the licensing authority. (c) Applicants with an established history or clinical diagnosis of intracerebral malignant tumour shall be assessed as unfit.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC to MED.A.040
Page: 22
Relevant Text: LPL medical certificates should be issued following examination in accordance with the following report (…).
Comment: The issue of any medical testimony about a general physical condition requires state-of-the-art evaluation of the patient's history and a complete physical examination in accordance with medical good-practice. Without a sound taking of history and examination no medical certification can be done legally.
Proposal: LPL medical certificates shall be issued only following complete evaluation of the applicant's medical history and following a complete physical examination according to medical good-practice.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: Draft Decision AMC and GM for Part Medical and AMC to MED B.090
Page: 22-30, 60 ff.
Relevant Text: All of it
Comment: If our comments are not accepted, the responsibility for issuing the LPL licence and for aeromedical consequences must be taken by the licensing authorities. I would strongly recommend to any medical doctor not to issue a LPL-medical certification as a legal document under the existing conditions.
Proposal: Set Class 2 standards and certification procedures as a reasonable, minimum, safe and acceptable standard for any Aeromedical certification.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC to MED.A.040
Page: 37
Relevant Text: LPL medical certificates should be issued following examination in accordance with the following report (…).
Comment: The issue of any medical testimony about a general physical condition requires state-of-the-art evaluation of the patient's history and a complete physical examination in accordance with medical good-practice. Without a sound taking of history and examination no medical certification can be done legally.
Proposal: LPL medical certificates shall be issued only following complete evaluation of the applicant's medical history and following a complete physical examination according to medical good-practice.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz

Section: AMC to MED B.010 Respiratory System – class 1 medical certificates
Page: 37 -38
Relevant Text: 1. Examinations 1.1 Spirometry Spirometric examination is required for initial examination. A low FEV1/FVC ratio at initial examination should require evaluation by a specialist in respiratory disease. 1.2 Chest radiography Posterior/anterior chest radiography may be required at initial, revalidation or renewal examinations when indicated on clinical or epidemiological grounds. 2. Chronic obstructive airways disease Applicants with chronic obstructive airways disease should be assessed as unfit. Applicants with only minor impairment of their pulmonary function may be assessed as fit. 3. Asthma For applicants with asthma requiring medication or experiencing recurrent attacks of asthma, a fit assessment may be considered if the asthma is considered stable with satisfactory pulmonary function tests and medication is compatible with flight safety (systemic steroids are disqualifying). 4. Inflammatory disease For applicants with active inflammatory disease of the respiratory system a fit assessment may be considered when the condition has resolved without sequelae and no medication is required. 5. Sarcoidosis 5.1. Applicants with active sarcoidosis should be assessed as unfit. Investigation should be undertaken with respect to the possibility of systemic involvement. A fit assessment may be considered if no medication is required, and the disease is investigated and shown to be limited to hilar lymphadenopathy and inactive. 5.2. Applicants with cardiac sarcoid should be assessed as unfit. 6. Pneumothorax 6.1. Applicants with a spontaneous pneumothorax should be assessed as unfit. A fit assessment may be considered if respiratory evaluation is satisfactory: (i) one year following full recovery from a single spontaneous pneumothorax; (ii) at revalidation, six weeks following full recovery froma single spontaneous pneumothorax, with a multipilot limitation; (iii) following surgical intervention in the case of a recurrent pneumothorax provided there is satisfactory recovery. 6.2. A recurrent spontaneous pneumothorax that has not been surgically treated is disqualifying. 6.3. A fit assessment following full recovery froma traumatic pneumothorax as a result of an accident or injury may be acceptable once full absorption of the pneumothorax is demonstrated. 7. Thoracic surgery 7.1. Applicants requiring major thoracic surgery should be assessed as unfit for a minimum of three months following operation or until such time as the effects of the operation are no longer likely to interfere with the safe exercise of the privileges of the applicable licence(s). 7.2. A fit assessment following lesser chest surgery may be considered by the AMS after satisfactory recovery and full respiratory evaluation. Sleep apnoea syndrome Applicants with unsatisfactorily treated sleep apnoea syndrome should be assessed as unfit.
Comment:
Proposal: 1. Examinations 1.1 Spirometry Spirometric examination is required for initial examination. A low FEV1/FVC ratio at initial examination should require evaluation by a specialist in respiratory disease. 1.2 Chest radiography Posterior/anterior chest radiography may be required at initial, revalidation or renewal examinations when indicated on clinical or epidemiological grounds.
2. Chronic obstructive airways disease Applicants with chronic obstructive airways disease should be assessed as unfit. Applicants with only minor impairment of their pulmonary function may be assessed as fit.

3. Asthma For applicants with asthma requiring medication or experiencing recurrent attacks of asthma, a fit assessment may be considered if the asthma is considered stable with satisfactory pulmonary function tests and medication is compatible with flight safety Systemic steroids Therapy is disqualifying, if daily dose is higher than 7,5 mg Prednisolon or Equivalent.
4. Inflammatory disease For applicants with active inflammatory disease of the respiratory system a fit assessment may be considered when the condition has resolved without sequelae and no medication is required.
5. Sarcoidosis
5.1. Applicants with active sarcoidosis should be assessed as unfit. Investigation should be undertaken with respect to the possibility of systemic involvement. A fit assessment may be considered if no medication is required, and the disease is investigated and shown to be limited to hilar lymphadenopathy and inactive.
5.2. Applicants with cardiac sarcoid should be assessed as unfit.
6. Pneumothorax
6.1. Applicants with a spontaneous pneumothorax should be assessed as unfit. A fit assessment may be considered if respiratory evaluation is satisfactory:
(i)
at revalidation, six weeks following full recovery demonstrated by a normal CT scan.from a single spontaneous pneumothorax,
(ii)
following surgical intervention in the case of a recurrent pneumothorax provided there is satisfactory recovery.
6.2. A recurrent spontaneous pneumothorax that has not been surgically treated is disqualifying.
6.3.
A fit assessment following full recovery froma traumatic pneumothorax as a result of an accident or injury may be acceptable once full absorption of the pneumothorax is demonstrated.

7. Thoracic surgery

7.1. Applicants requiring major thoracic surgery should be assessed as unfit for a minimum of three months following operation or until such time as the effects of the operation are no longer likely to interfere with the safe exercise of the privileges of the applicable licence(s).
7.2. A fit assessment following lesser chest surgery may be considered after satisfactory recovery and full respiratory evaluation.
Sleep apnoea syndrome
Applicants with unsatisfactorily treated sleep apnoea syndrome should be assessed as unfit.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC to MED B.015 Digestive System – class 1 medical certificates
Page: 38
Relevant Text: 1. Oesophageal varices Applicants with oesophageal varices should be assessed as unfit. 2. Pancreatitis Applicants with pancreatitis should be assessed as unfit pending assessment. A fit assessment may be considered if the cause (e.g. gallstone, other obstruction, medication) is removed. 3. Gallstones 3.1. Applicants with a single asymptomatic large

gallstone discovered incidentally may be assessed as fit if not likely to cause incapacitation in flight. 3.2. An applicant with asymptomatic multiple gallstones may be assessed as fit with a multipilot limitation. 4. Inflammatory bowel disease Applicants with an established diagnosis or history of chronic inflammatory bowel disease should be assessed as fit if the inflammatory bowel disease is in established remission and stable and that systemic steroids are not required for its control. 5. Peptic ulceration Applicants with peptic ulceration should be assessed as unfit pending full recovery and demonstrated healing. 6. Abdominal surgery 6.1. Abdominal surgery is disqualifying for a minimum of three months. An earlier fit assessment may be considered if recovery is complete, the applicant is asymptomatic and there is only a minimal risk of secondary complication or recurrence. 6.2. Applicants who have undergone a surgical operation on the digestive tract or its adnexa, involving a total or partial excision or a diversion of any of these organs, should be assessed as unfit for a minimum period of three months or until such time as the effects of the operation are no longer likely to interfere with the safe exercise of the privileges of the applicable licence(s).
Comment:
Proposal: 1. Oesophageal varices Applicants with oesophageal varices should be assessed as unfit. 2. Pancreatitis Applicants with pancreatitis should be assessed as unfit pending assessment. A fit assessment may be considered if the cause (e.g. gallstone, other obstruction, medication) is removed. 3. Gallstones 3.1. Applicants with a single asymptomatic large gallstone discovered incidentally may be assessed as fit if not likely to cause incapacitation in flight. 3.2. An applicant with asymptomatic multiple gallstones may be assessed as fit with a multipilot limitation. 4. Inflammatory bowel disease Applicants with an established diagnosis or history of chronic inflammatory bowel disease should be assessed as fit if the inflammatory bowel disease is in established remission and stable and that systemic steroids are not required for its control. 5. Peptic ulceration Applicants with peptic ulceration should be assessed as unfit pending full recovery and demonstrated healing. 6. Abdominal surgery 6.1. Abdominal surgery is disqualifying for a minimum of three months.
An earlier minimum 4 weeks fit assessment may be considered if recovery is complete, the applicant is asymptomatic and there is only a minimal risk of secondary complication or recurrence.
6.2. Applicants who have undergone a surgical operation on the digestive tract or its adnexa, involving a total or partial excision or a diversion of any of these organs, should be assessed as unfit for a minimum period of three months or until such time as the effects of the operation are no longer likely to interfere with the safe exercise of the privileges of the applicable licence(s).

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC to MED B.040 Obstetrics and Gynaecology – class 1 medical certificate
Page: 42
Relevant Text: 1. Gynaecological surgery. An applicant who has undergone a major gynaecological operation shall be assessed as unfit for a period of three months or until such time as the effects of the operation are not likely to interfere with the safe exercise of the privileges of the licence(s) if the holder is completely asymptomatic and there is only a minimal risk of secondary complication or recurrence. 2. Severe menstrual

disturbances An applicant with a history of severe menstrual disturbances unamenable to treatment shall be assessed as unfit. 3. Pregnancy 3.1. A pregnant pilot may be assessed as fit with a multipilot limitation during the first 26 weeks of gestation following review of the obstetric evaluation by the AeMC or AME who shall inform the licensing authority. 3.2. The AeMC or AME shall provide written advice to the applicant and the supervising physician regarding potentially significant complications.
Comment:
Proposal: 1. Gynaecological surgery An applicant who has undergone a major gynaecological operation shall be assessed as unfit for a period of three months or until such time as the effects of the operation are not likely to interfere with the safe exercise of the privileges of the licence(s) if the holder is completely asymptomatic and there is only a minimal risk of secondary complication or recurrence minimum 4 weeks
2. Severe menstrual disturbances An applicant with a history of severe menstrual disturbances unamenable to treatment shall be assessed as unfit.
3. Pregnancy
3.1. A pregnant pilot may be assessed as fit with a multipilot limitation during the first 26 weeks of gestation following review of the obstetric evaluation by the AeMC or AME who shall inform the licensing authority.
3.2. The AeMC or AME shall provide written advice to the applicant and the supervising physician regarding potentially significant complications

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Chapter B AMC for class 2 medical certificate Section: AMC B to MED B.010 Respiratory System – class 2 medical certificate
Page: 51
Relevant Text: 1. Chest radiography Posterior/anterior chest radiography may be required if indicated on clinical grounds. 2. Chronic obstructive airways disease Applicants with only minor impairment of pulmonary function may be assessed as fit. 3. Asthma Applicants with asthma may be assessed as fit if the asthma is considered stable with satisfactory pulmonary function tests and medication is compatible with flight safety (systemic steroids are disqualifying). 4. Inflammatory disease Applicants with active inflammatory disease of the respiratory system should be assessed as unfit pending resolution of the condition. 5. Sarcoidosis 5.1 Applicants with active sarcoidosis should be assessed as unfit. Investigation should be undertaken with respect to the possibility of systemic involvement. A fit assessment may be

considered once the disease is inactive. 5.2 Applicants with cardiac sarcoid should be assessed as unfit. 6. Pneumothorax 6.1. Applicants with spontaneous pneumothorax should be assessed as unfit. A fit assessment may be considered if respiratory evaluation is satisfactory six weeks following full recovery from a single spontaneous pneumothorax or following recovery fromsurgical intervention in the case of treatment for a recurrent pneumothorax. 6.2. A fit assessment following full recovery froma traumatic pneumothorax as a result of an accident or injury may be acceptable once full absorption of the pneumothorax is demonstrated. 7. Thoracic surgery Applicants requiring major thoracic surgery should be assessed as unfit until such time as the effects of the operation are no longer likely to interfere with the safe exercise of the privileges of the applicable licence(s). Sleep apnoea syndrome Applicants with

unsatisfactorily treated sleep apnoea syndrome should be assessed as unfit.
Comment:
Proposal: 1. Examinations 1.1 Spirometry Spirometric examination is required for initial examination. A low FEV1/FVC ratio at initial examination should require evaluation by a specialist in respiratory disease. 1.2 Chest radiography Posterior/anterior chest radiography may be required if indicated on clinical grounds.

12 Comment 13 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC B to MED B.040 Obstetrics and Gynaecology – class 2 medical certificates
Page: 55
Relevant Text: 1. Gynaecological surgery. An applicant who has undergone a major gynaecological operation should be assessed as unfit until such time as the effects of the operation are not likely to interfere with the safe exercise of the privileges of the licence(s). 2. Pregnancy 2.1. A pregnant pilot may be assessed as fit during the first 26 weeks of gestation following satisfactory obstetric evaluation. 2.2. Licence privileges may be resumed upon satisfactory confirmation of full recovery following confinement or termination of pregnancy.
Comment:
Proposal: 1. Gynaecological surgery An Applicant who has undergone a major gynaecological operation should be assessed as unfit until such time as the effects of the operation are not likely to interfere with the safe exercise of the privileges of the licence(s), minimum 4 weeks. 2. Pregnancy 2.1. A pregnant pilot may be assessed as fit during the first 26 weeks of gestation following satisfactory obstetric evaluation. 2.2. Licence privileges may be resumed upon satisfactory confirmation of full recovery following confinement or termination of pregnancy.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC to MED B.090
Page: 60
Relevant Text: (all of it)
Comment: Requirements for LAPL totally lack a reasonable medical basis and controverse in most parts aeromedical and traffic medicine experience and good-practice. Going into details is not possible with the present structure of requirements and the remaining time of session, new structure should be built up in consultance with experienced Aeromedical examiners.
Proposal: Set Class 2 standards and certification procedure as a minimum standard for any aeromedical certification.

Cardiology
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 2 Specific requirements for class 1 and class 2 medical certificates MED.B.005 Cardiovascular System
Page: 9
Relevant Text: (a) Examination (1) A standard 12lead resting electrocardiogram (ECG) and report shall be completed on clinical indication, and: (ii) For a class 2 medical certificate, at the first examination after age 40 and then every 2 years after age 50.

Comment: ecg is necessary at initial to asses conduction defects for instance and after the age of 40, because coronary arteriosclerosis increases after this age.
Proposal: (a) Examination (1) A standard 12lead resting electrocardiogram (ECG) and report shall be completed on clinical indication, and: (ii) For a class 2 medical certificate, at initial, at age 40 and then every 2 years after age 40.

Comment 2 Comment 3 Comment 4
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 2 Specific requirements for class 1 and class 2 medical certificates MED.B.005 Cardiovascular System
Page: 9-10
Relevant Text: (b) Cardiovascular System – General (1) Applicants shall not possess any cardiovascular disorder which is likely to interfere with the safe exercise of the privileges of the applicable licence(s). (2) Applicants for a class 1 medical certificate with any of the following conditions: (i) aneurysm of the thoracic or suprarenal abdominal aorta, before or after surgery; (ii) significant abnormality of any of the heart valves; (iii) a cardiovascular condition requiring systemic anticoagulant therapy; (iv) heart or heart/lung transplantation shall be assessed as unfit. (3) Applicants for a class 1 medical certificate with an established history or diagnosis of any of the following conditions shall be referred to the licensing authority: (i) peripheral arterial disease before or after surgery; (ii) aneurysm of the infrarenal abdominal aorta, before or after surgery; (iii) minor cardiac valvular abnormalities,

(iv) after cardiac valve surgery, (v) abnormality of the pericardium, myocardium or endocardium, (vi) congenital abnormality of the heart, before or after corrective surgery; (vii) recurrent vasovagal syncope, (viii) arterial or venous thrombosis, (ix) pulmonary embolism. (4) Applicants for a class 2 medical certificate with an established diagnosis of one of the conditions specified in (2) shall be evaluated by a cardiologist before a fit assessment can be considered.
Comment: overlapping passages, a more precise list is necessary.
Proposal: (2) Applicants for a class 1 and 2 medical certificate with any of the following conditions: (i) aneurysm of the thoracic or suprarenal abdominal aorta, before or after surgery; (ii) abnormality of any of the heart valves and after valvular surgery; (iii) a cardiovascular condition requiring systemic anticoagulant therapy; (iv) heart or heart/lung transplantation (v) peripheral arterial disease before or and after any kind of revascularization; (vi) aneurysm of the infrarenal abdominal aorta, before or after surgery; (vii) abnormality of the pericardium, myocardium or endocardium, (viii) congenital abnormality of the heart, before or after corrective surgery; (ix) any kind of syncope, (x) arterial or venous thrombosis, (xi) pulmonary embolism shall be assessed as unfit. A fit assessment may be considered by the AMS after cardiological evaluation.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 2 Specific requirements for class 1 and class 2 medical certificates MED.B.005 Cardiovascular System
Page: 10-11

Relevant Text: (d) Coronary Artery Disease (1) Applicants for a class 1 medical certificate with: (i) suspected cardiac ischaemia; or (ii) asymptomatic minor coronary artery disease requiring no treatment; shall be referred to the licensing authority and undergo cardiological evaluation to exclude cardiac ischaemia before a fit assessment can be considered. (2) Applicants for a class 2 medical certificate with any of the conditions detailed in (1) shall undergo cardiological evaluation before a fit assessment can be considered. (3) Applicants with: (i) cardiac ischaemia; (ii) symptomatic coronary artery disease, or (iii) symptoms of coronary artery disease controlled by medication; shall be assessed as unfit. (4) Applicants for the initial issue of a class 1 medical certificate with a history or diagnosis of:

(i) cardiac ischaemia; (ii) myocardial infarction; or (ii) revascularisation for coronary artery disease; shall be assessed as unfit. (5) Applicants for a class 2 medical certificate who are asymptomatic after myocardial infarction or surgery for coronary artery disease shall undergo satisfactory cardiological evaluation before a fit assessment can be considered. Applicants for the revalidation of a class 1 medical certificate shall be referred to the licensing authority.
Comment: The wording is unprecise and the definition of minor coronary artery disease is lacking. The cardiological evaluation is necessary in any case of suspected or proven CAD and this applies for class 1, as well as for class 2.
Proposal: (1) Applicants for a class 1 and 2 medical certificate with suspected or proven coronary artery disease / ischemic heart disease shall be subjected to a detailed cardiological evaluation, before a fit assessment can be considered by the licensing authority.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 2 Specific requirements for class 1 and class 2 medical certificates MED.B.005 Cardiovascular System
Page:11 -12
Relevant Text: (e) Rhythm/Conduction Disturbances (1) Applicants for a class 1 medical certificate shall be referred to the licensing authority when they have any significant disturbance of cardiac conduction or rhythm, including any of the following: (i) disturbance of supraventricular rhythm, including intermittent or established sinoatrial dysfunction, atrial fibrillation and/or flutter and asymptomatic sinus pauses; (ii) complete left bundle branch block; (iii) Mobitz type 2 atrioventricular block; (iv) broad and/or narrow complex tachycardia; (v) ventricular preexcitation; or (vi) asymptomatic QT prolongation. (2) Applicants for a class 2 medical certificate with any of the conditions detailed in (1) shall be evaluated by a cardiologist before a fit assessment can be considered. (3) Applicants with any of the following: (i) incomplete bundle branch block; (ii) complete right bundle branch block; (iii) stable left axis deviation; (iv) asymptomatic sinus bradycardia; (v) asymptomatic sinus tachycardia; (vi) asymptomatic isolated uniform supraventricular or ventricular ectopic complexes; (vii) first degree atrioventricular block; or (viii) Mobitz type 1 atrioventricular block,

may be assessed as fit in the absence of any other abnormality and subject to satisfactory cardiological evaluation. (4) Applicants with a history

of: (i) ablation therapy; or (ii) pacemaker implantation; shall undergo satisfactory cardiovascular evaluation before a fit assessment can be made. Applicants for a class 1 medical certificate shall be referred to the licensing authority. (5) Applicants with: (i) symptomatic sinoatrial disease; (ii) complete atrioventricular block; (iii) symptomatic QT prolongation; (iv) an automatic implantable defibrillating system; or (v) an antitachycardia pacemaker; shall be assessed as unfit.
Comment: the rhythm disorders have to be listed according to their relevance and in a clear order. Irrelevant passages should be removed. Unfitness has to be assessed in the most relevant issues. In some cases other cardiac abnormalities have to be ruled out and then fitness is assessed. Mainly the original part (3) contains a lot of unimportant descriptions. Part (4) mentions previous passages once more and most of it can be removed.
Proposal: (e) Rhythm/Conduction Disturbances (1) Applicants for a class 1 and 2 medical certificate shall be assessed as unfit, when they have any significant disturbance of cardiac conduction or rhythm, including any of the following: (i) disturbance of supraventricular rhythm, including intermittent or established sinoatrial dysfunction, atrial fibrillation and/or flutter (ii) complete left bundle branch block; (iii) Mobitz type 2 atrioventricular block and complete AV block; (iv) broad and/or narrow complex tachycardia; (v) ventricular preexcitation; (vi) QT prolongation. A fit assessment may be considered by the AMS after detailed cardiological evaluation. (2) Applicants with any of the following: (i) complete right bundle branch block; (ii) sinus tachycardia; (iii) isolated uniform supraventricular or ventricular ectopic complexes; (iv) first degree atrioventricular block; (v) Mobitz type 1 (Wenckebach) atrioventricular block, may be assessed as fit in the absence of any other abnormality and subject to satisfactory cardiological evaluation. (3) Applicants with a history of: (i) ablation therapy; or (ii) pacemaker implantation; shall undergo satisfactory cardiovascular evaluation before a fit assessment can be made. (4) Applicants with an automatic implantable defibrillating system shall be assessed as unfit.

Comment 5
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 31
Relevant Text: (b) General 1. Cardiovascular Risk Factor Assessment 1.2 An accumulation of risk factors (smoking, family history, lipid abnormalities, hypertension, etc.) should require cardiovascular evaluation by the AeMC or AME in conjunction with the licensing authority.
Comment: a conjunction with the licensing authority will not be necessary in all cases – only if necessary.
Proposal: (b) General 1. Cardiovascular Risk Factor Assessment 1.2 An accumulation of risk factors (smoking, family history, lipid abnormalities, hypertension, etc.) should require cardiovascular evaluation by the AMC or AME in conjunction with the licensing authority if necessary.

Comment 6
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz

Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 31
Relevant Text: (b) General 2. Cardiovascular Assessment 2.1. Reporting of resting and exercise electrocardiograms should be by the AME or other specialist.
Comment: not any other specialist, but a cardiologist
Proposal: (b) General 2. Cardiovascular Assessment 2.1. Reporting of resting and exercise electrocardiograms should be by the AME or cardiologist.

Comment 7 Comment 8 Comment 9 Comment 10
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 31 -32
Relevant Text: (b) Gerneral 4. Aortic Aneurysm 4.1. Applicants with an aneurysm of the infra-renal abdominal aorta may be assessed as fit for class 1 with a multi-pilot () limitation by the licensing authority. Follow-up by ultra-sound scans, as necessary, should be determined by the licensing authority. 4.2. Applicants may be assessed as fit by the licensing authority after surgery for an infra-renal aortic aneurysm with a multi-pilot limitation at revalidation if the blood pressure, exercise electrocardiographic response and cardiovascular assessment are satisfactory. Regular cardiological review should be required.
Comment: ultrasound is not always the best method for follow up, there are other imaging techniques available and this should be mentioned here. The exercise ecg is not the main issue after infra renal aneurysm surgery and cardiological reviews are not required here on a regular base.
Proposal: (b) Gerneral 4. Aortic Aneurysm 4.1. Applicants with an aneurysm of the infra-renal abdominal aorta may be assessed as fit for class 1 with a multi-pilot limitation by the licensing authority. Follow-up by ultra-sound scans or other imaging techniques should be determined by the licensing authority. 4.2. Applicants may be assessed as fit by the licensing authority after surgery for an infra-renal aortic aneurysm with a multi-pilot limitation at revalidation, if there is good postoperative outcome, the blood pressure is normal or well treated with medication and cardiovascular assessment is satisfactory.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 32
Relevant Text: 5. Cardiac Valvular Abnormalities 5.1. Applicants with previously unrecognised cardiac murmurs should require evaluation by a cardiologist and assessment by the licensing authority. If considered significant, further investigation should include at least 2D Doppler echocardiography. 5.2. Applicants with minor cardiac valvular abnormalities may be assessed as fit by the licensing authority. Applicants with significant abnormality of any of the heart valves should be assessed as unfit. 5.2.1. Aortic Valve Disease (i) Applicants with bicuspid aortic valve may be assessed as fit if no other cardiac or aortic

abnormality is demonstrated. Follow up with echocardiography, as necessary, should be determined by the licensing authority. (ii) Applicants with aortic stenosis require licensing authority review. Left ventricular function should be intact. A history of systemic embolism or significant dilatation of the thoracic aorta is disqualifying. Those with a mean pressure gradient of up to 20 mm Hg may be assessed as fit. Those with mean

pressure gradient above 20 mm Hg but no greater than 40 mm Hg may be assessed as fit with a multipilot limitation. A mean pressure gradient up to 50 mm Hg may be acceptable. Follow up with 2D Doppler echocardiography, as necessary, should be determined by the licensing authority. (iii) Applicants with trivial aortic regurgitation may be assessed as fit. A greater degree of aortic regurgitation should require a multipilot limitation. There should be no demonstrable abnormality of the ascending aorta on 2D Doppler echocardiography. Followup, as necessary, should be determined by the licensing authority. 5.2.2. Mitral Valve Disease (i) Asymptomatic applicants with an isolated midsystolic click due to mitral leaflet prolapse may be assessed as fit. (ii) Applicants with rheumatic mitral stenosis should normally be assessed as unfit. (iii) Applicants with uncomplicated minor regurgitation may be assessed as fit. Periodic cardiolological review should be determined by the licensing authority. (iv) Applicants with uncomplicated moderate mitral regurgitation may be considered as fit with a multipilot limitation, if the 2D Doppler echocardiogram demonstrates satisfactoryleft ventricular dimensions and satisfactory myocardial function is confirmed by exercise electrocardiography. Periodic cardiological review should be required, as determined by the licensing authority. (v) Applicants with evidence of volume overloading of the left ventricle demonstrated by increased left ventricular enddiastolic diameter should be assessed as unfit.
Comment:Aortic and mitral valve disease are mentioned in a strange dimension into the depth of pressure gradients. This is unnecessary, it is the cardiologists work to judge on the severity of the disease and it does not have to be mentioned in that manner. The more precise and efficient version follows below.
Proposal: 5. Cardiac Valvular Abnormalities 5.1. Applicants for a class 1 medical certificate shall be assessed as unfit, when they have any significant valve disease including any of the following: (i) aortic stenosis (ii) aortic insufficiency (iii) mitral insufficiency (iv) mitral stenosis These applicants require a cardiological evaluation for a fit assessment by the licensing authority. A multipilot limitation may be applied. Periodic cardiological review should be required, as determined by the cardiologist and the licensing authority.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 32 -33
Relevant Text: 6. Valvular surgery Applicants with cardiac valve replacement/repair should be assessed as unfit. A fit assessment may be considered by the licensing authority. 6.1. Aortic valvotomy should be disqualifying. 6.2. Mitral leaflet repair for prolapse is compatible with a fit assessment provided postoperative investigations are satisfactory.

6.3. Asymptomatic applicants with a tissue valve who, at least 6 months following surgery, are taking no cardioactive medication may be considered for fit assessment with a multipilot limitation by the licensing authority. Investigations which demonstrate normal valvular and ventricular configuration and function should have been completed as demonstrated by: (i) a satisfactory symptom limited exercise ECG. Myocardial scintigraphy/stress echocardiography should be required if the exercise ECG is abnormal or any coronary artery disease has been demonstrated. (ii) a 2D Doppler echocardiogram showing no significant selective chamber enlargement, a tissue valve with minimal structural alteration and a normal Doppler blood flow, and no structural or functional abnormality of the other heart valves. Left ventricular fractional shortening should be normal. Follow up with exercise ECG and 2D echocardiography, as necessary, should be determined by the licensing authority.
Comment: specific cardiological parameters don´t need to be mentioned here. Time frame is important as well as good postop results and OML might be necessary. Anticoagulants are no go items
Proposal: 6. Valvular surgery Applicants with cardiac valve replacement/repair should be assessed as unfit. A fit assessment may be considered by the licensing authority at a minimum of 6 month following surgery provided good postoperative cardiological results and no anticoagulants necessary. An mulitpilot limitation may be applied. Regular cardiological follow-up should be determined by the licensing authority.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 33
Relevant Text: 8. Other Cardiac Disorders 8.1. Applicants with a primary or secondary abnormality of the pericardium, myocardium or endocardium should be assessed as unfit. A fit assessment may be considered by the licensing authority following complete resolution and satisfactory cardiological evaluation which may include 2D Doppler echocardiography, exercise ECG and/or myocardial scintigraphy/stress echocardiography and 24hour ambulatory ECG. Coronary angiography may be indicated. Frequent review and a multipilot limitation may be required after fit assessment. 8.2. Applicants with a congenital abnormality of the heart, including those who have undergone surgical correction, should be assessed as unfit. Applicants with minor abnormalities, that are functionally unimportant may be assessed as fit by the licensing authority following cardiological assessment. No cardioactive medication is acceptable. Investigations may include 2D Doppler echocardiography, exercise ECG and 24hour ambulatory ECG. Regular cardiological review should be required.
Comment: the above mentioned tests are included in a cardiological evaluation anyway and do not have to be mentioned. Cardioactive medications like ß-blocker or aspirin are acceptable in flying duty and might be necessary for secondary prevention. It is totally wrong to write “no cardioactive medication is acceptable”.
Proposal: 8. Other Cardiac Disorders 8.1. Applicants with a primary or secondary abnormality of the pericardium, myocardium or

endocardium should be assessed as unfit. A fit assessment may be considered by the licensing

authority following complete resolution and satisfactory cardiological evaluation. Periodic cardiological review and a multipilot limitation may be required.
8.2. Applicants with a congenital abnormality of the heart, including those who have undergone surgical correction, should be assessed as unfit. Applicants with abnormalities that are functionally unimportant, may be assessed as fit by the licensing authority following cardiological evaluation. Regular cardiological reviews should be required and a mulitpilot limitation may be applied.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 33 -34
Relevant Text: 9. Recurrent Vasovagal Syncope 9.1. Applicants with a history of recurrent vasovagal syncope should be assessed as unfit. A fit assessment may be considered by the licensing authority after a 6 month period without recurrence provided cardiological evaluation is satisfactory. Such evaluation should include: (i) a satisfactory symptom limited 12 lead exercise ECG to Bruce Stage IV or equivalent. If the exercise ECG is abnormal, myocardial scintigraphy/stress echocardiography should be required. (ii) a 2D Doppler echocardiogram showing no significant selective chamber enlargement nor structural or functional abnormality of the heart, valves or myocardium. (iii) a 24hour ambulatory ECG recording showing no conduction disturbance, complex or sustained rhythm disturbance or evidence of myocardial ischemia. 9.2. A tilt test carried out to a standard protocol showing no evidence of vasomotor instability may berequired. 9.3. Neurological review should be required. 9.4. A multipilot limitation should be required until a period of 5 years has elapsed without recurrence. The licensing authority may determine a shorter or longer period of multipilot limitation according to the individual circumstances of the case. 9.5. Applicants who experienced loss of consciousness without significant warning should be assessed as unfit.
Comment: one single syncope is sufficient and relevant and needs further investigation neurologically and cardiologically. Special exams need not be mentioned here, but reviews and limitations.
Proposal: 9. Syncope 9.1. Applicants with a history of syncope should be assessed as unfit. A fit assessment may be considered by the licensing authority. 9.2. A cardiological and a neurological review should be required. 9.3. A multipilot limitation and periodical reviews may applied.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 34
Relevant Text: BLOOD PRESSURE 1. The diagnosis of hypertension should require review of other potential vascular risk factors. 2. Antihypertensive treatment should be agreed by the licensing authority. Medication acceptable to the licensing authority may include: (i) non loop diuretic agents; (ii) ACE Inhibitors; (iii) angiotensin II blocking agents (sartans); (iv) slow channel calcium blocking agents; (v) certain (generally hydrophilic) betablocking agents. 3. Following initiation of

medication for the control of blood pressure, applicants should be reassessed to verify that the treatment is compatible with the safe exercise of the privileges of the licence held.
Comment: AT 1 blocking agents are missing, not vertain, but preferably hydrophilic ß-blockers shoud be used.
Proposal: BLOOD PRESSURE 1. The diagnosis of hypertension should require review of other potential vascular risk factors. 2. The initiation of hypertensive treatment requires the control of blood pressure and reassessment of the application, to verify that the treatment is compatible with the safe exercise of the privileges of the licence held. 3. Antihypertensive treatment should be agreed by the licensing authority. Preferable medications for an antihypertensive treatment include: (iv) non loop diuretic agents; (v) ACE Inhibitors; (vi) angiotensin II and AT 1 blocking agents; (iv) slow channel calcium blocking agents; (v) preferably hydrophilic) betablocking agents.

Comment Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 34 -35
Relevant Text: (d) CORONARY ARTERY DISEASE 1. Chest pain of uncertain cause should require full investigation. 2. In suspected asymptomatic coronary artery disease, exercise electrocardiography should be required. Further tests may be required which should show no evidence of myocardial ischaemia or significant coronary artery stenosis. 3. Evidence of exercise induced myocardial ischaemia should be disqualifying. 4. After an ischaemic cardiac event, including evascularisation, applicants without symptoms should have reduced any vascular risk factors to an appropriate level. Medication, when used to control cardiac symptoms, is not acceptable. All applicants should be on acceptable secondary prevention treatment. 4.1. A coronary angiogram obtained around the time of, or during, the ischaemic cardiac event and a complete, detailed clinical report of the ischaemic event, the angiogram and any operative procedures should be available to the licensing authority: (i) There should be no stenosis more than 50% in any major untreated vessel, in any vein or artery graft or at the site of an angioplasty/stent, except in a vessel leading to an infarct. More than two stenoses between 30% and 50% within the vascular tree should not be acceptable. (ii) The whole coronary vascular tree should be assessed as satisfactory by a cardiologist, and particular attention should be paid to multiple stenoses and/or multiple revascularisations. (iii) An untreated stenosis greater than 30% in the left main or proxi mal left anterior descending coronary artery should not be acceptable. 4.2. At least 6 months from the ischaemic cardiac event, including revascularisation, the following investigations should be completed (equivalent tests may be substituted): (i) an exercise ECG showing no evidence of myocardial ischaemia nor rhythm disturbance; (ii) an echocardiogram showing satisfactory left ventricular function with no important abnormality of wall motion (such as dyskinesia or akinesia) and a left ventricular ejection fraction of 50% or more; (ii) in cases of angioplasty/stenting, a myocardial perfusion scan or stress echocardiogram which should show no evidence of reversible myocardial ischaemia. If there is any doubt about myocardial perfusion in other cases (infarction or bypass grafting) a perfusion scan should also be required; (iv) further investigations, such as a 24 hour ECG, may be necessary to assess the risk

of any significant rhythm disturbance. 4.3. Follow up should be yearly (or more frequently if necessary) to ensure that there is no deterioration of cardiovascular status. It should include a review by a cardiologist, exercise ECG and cardio-vascular risk assessment. Additional investigations may be required by the licensing authority. 4.4. After coronary artery vein bypass grafting, a myocardial perfusion scan or equivalent test should be performed if there is any indication, and in all cases within 5 years from the procedure. 4.5. In all cases coronary angiography shall be considered at any time if symptoms, signs or non invasive tests indicate cardiac ischemia. 4.6. Successful completion of the six month or subsequent review will allow a fit assessment with a multipilot limitation.
Comment: in English it is spelled “ischemia”, not ischaemia! 1-4 only minor corrections for more precise definitions; more than two stenosis are relevant, if they are located in major coronary vessels and not in small, unimportant vessels. There are several tests equivalent to perfusion scan, so the opportunity is necessary to use either one of them and to decide in each separate case which one will be best for a good evaluation.
Proposal: (d) CORONARY ARTERY DISEASE 1. Chest pain of uncertain cause should require full cardiological investigation. 2. In suspected coronary artery disease, a cardiological evaluation is required. 3. Evidence of myocardial ischemia or significant coronary artery stenosis should be disqualifying. 4. After an ischemic cardiac event, including revascularisation, applicants without symptoms should have reduced any vascular risk and should be on acceptable secondary prevention treatment.
4.1. unchanged (i) There should be no stenosis more than 50% in any major untreated vessel, in any vein or artery graft or at the site of an angioplasty/stent, except in a vessel leading to an infarct. More than two stenoses between 30% and 50% within major coronary vessels should not be acceptable.
(ii) and (iii) unchanged
4.2. and (i), (ii) unchanged
(iii) in cases of angioplasty/stenting, a myocardial perfusion scan or equivalent tests, which should show no evidence of reversible myocardial ischemia. If there is any doubt about myocardial perfusion in other cases (infarction or bypass grafting) a perfusion scan or equivalent tests should also be required;
(iv) further investigations, such as a 24 hour ECG, may be necessary to assess the risk of any significant rhythm disturbance.
4.4. Follow up should be yearly (or more frequently, if necessary) to ensure that there is no deterioration of cardiovascular status.
4.4. After coronary artery bypass grafting, a myocardial perfusion scan or equivalent test should be performed if there is any indication, and in all cases within 5 years from the procedure.
4.5. and 4.6. unchanged

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 35
Relevant Text: (e) RHYTHM AND CONDUCTION DISTURBANCES 1. Any significant rhythm or conduction disturbance should require evaluation by a cardiologist and appropriate follow up in the case of a fit assessment. Such evaluation should include: (i) Exercise ECG to the Bruce protocol or

equivalent. Bruce stage 4 should be achieved and no significant abnormality of rhythm or conduction, or evidence of myocardial ischaemia should be demonstrated. Withdrawal of cardioactive medication prior to the test should be considered. (ii) 24hour ambulatory ECG which should demonstrate no significant rhythm or conduction disturbance, (iii) 2D Doppler echocardiogram which should show no significant selective chamber enlargement or significant structural or functional abnormality, and a left ventricular ejection fraction of at least 50%. Further evaluation may include (equivalent tests may be substituted): (iv) Repeated 24hour ECG recording; (iii) Electrophysiological study; (iv) Myocardial perfusion scanning; (v) Cardiac MRI; (viii) Coronary angiogram. 2. Applicants with frequent or complex forms of supra entricular or ventricular ectopic complexes require full cardiological evaluation.
Comment: The first sentence is the relevant one, the others are unnecessary, as they routinely are required for a sufficient cardiological evaluation.
Proposal: (e) RHYTHM AND CONDUCTION DISTURBANCES 1. Any significant rhythm or conduction disturbance should require evaluation by a cardiologist and appropriate follow up in the case of a fit assessment.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 36
Relevant Text: 6. Complete right bundle branch block Applicants with complete right bundle branch block should require cardiological evaluation on first presentation and subsequently: (i) For initial applicants under 40 years of age a fit assessment may be considered by the licensing authority. Initial applicants over 40 years should demonstrate a period of stability of approximately 12 months. (ii) For revalidation a fit assessment may be considered if the applicant is under 40 years. A multipilot limitation should be applied for 12 months for those over 40 years of age. 7. Complete left bundle branch block A fit assessment may be considered by the licensing authority. (i) Initial applicants should demonstrate a 3 year period of stability. (ii) For revalidation, after a 3 year period with a multipilot limitation applied, a fit assessment without a multipilot limitation may be considered. (iii) Investigation of the coronary arteries is necessary for applicants over age 40.
Comment: An OML is not necessarily related to the age of 40 and might be necessary even below that age and in some cases will not be necessary above the age of 40. The sentence for the necessity of the cardiological evaluation is missing in the section for left bundle branch block.
Proposal: 6. and (i) unchanged (ii) For revalidation a fit assessment may be considered if the applicant is under 40 years. A multipilot limitation may be applied. 7. Complete left bundle branch block Applicants with complete left bundle branch block should require cardiological evaluation on first Presentation. A fit assessment may be considered by the licensing authority. (i), (ii), (iii) unchanged

Comment 16 Comment 17 Comment 18
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates

Page: 36
Relevant Text: 8. Ventricular preexcitation. A fit assessment may be considered by the licensing authority.

(i) Asymptomatic initial applicants with preexcitation may be assessed as fit by the licensing authority if an electrophysiological study, including adequate drug induced autonomic stimulation reveals no inducible reentry tachycardia and the existence of multiple pathways is excluded. (ii) Asymptomatic applicants with preexcitation may be assessed as fit by the licensing authority at revalidation with a multipilot limitation.
Comment: the inducibility of a sustained reentry tachycardia is relevant; if the tachycardia blocks after a few beats, it is irrelevant.
Proposal: (i) Asymptomatic initial applicants with preexcitation may be assessed as fit by the licensing authority if an electrophysiological study, including adequate drug induced autonomic stimulation reveals no inducible, sustained reentry tachycardia and the existence of multiple pathways is excluded.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 36 -37
Relevant Text: 9. Pacemaker 9.1. Applicants with a subendocardial pacemaker should be assessed as unfit. A fit assessment may be considered at revalidation by the licensing authority no sooner than three months after insertion and should require: (i) no other disqualifying condition; (ii) a bipolar lead system; (iii) that the applicant is not pacemaker dependent; (iv) regular followup including a pacemaker check; (v) a multipilot limitation. 9.2. Applicants with an antitachycardia pacemaker should be assessed as unfit.
Comment: new pacemaker devices have a lot of automatic mode changes and some will have an automatic change between bipolar and unipolar sensing and pacing, so it is useless to insist on bipolar electrodes, if they are programmed to unipolar mode in the end. There seems to be a misunderstanding of antitachycardia pacemakers. Most pacemaker decives have some antitachycardia programme settings. Such a device is not the same as an AICD. The sentence 9.2. should be deleted, it is nonsense.
Proposal: 9. Pacemaker 9.1. Applicants with a subendocardial pacemaker should be assessed as unfit. A fit assessment may be considered at revalidation by the licensing authority no sooner than three months after insertion and should require: (i) no other disqualifying condition; (ii) a bipolar lead system programmed in bipolar mode without automatic mode change of the device; (iii) that the applicant is not pacemaker dependent; (iv) regular followup including a pacemaker check; (v) a multipilot limitation. 9.2. deleted

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Subpart B Requirements for medical certificates Section: 1 Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates
Page: 37
Relevant Text: 10. QT Prolongation Prolongation of the QT interval on the ECG associated with symptoms should be disqualifying. Asymptomatic applicants require cardiological evaluation for a fit assessment. 11.

Implantable Cardioverter Defibrillators Applicants with an automatic implantable defibrillating system should be assessed as unfit.
Comment: 11. it is already mentioned on page 12 and it´s unnecessary to repeat that here.
Proposal: 10. unchanged 11. deleted

Comment 20
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Chapter B AMC for class 2 medical certificates AMC B to MED.B.005 Cardiovasuclar System -class 2 medical certificates
Page: 49
Relevant Text: (b) GENERAL 2. Cardiovascular Assessment Reporting of resting and exercise electrocardiograms should be by the AME or other specialist.
Comment: other specialist should be substituted by cardiologist.
Proposal: (b) GENERAL 2. Cardiovascular Assessment Reporting of resting and exercise electrocardiograms should be by the AME or cardiologist.

Comment 21 Comment 22 Comment 23 Comment 24
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Chapter B AMC for class 2 medical certificates AMC B to MED.B.005 Cardiovasuclar System -class 2 medical certificates
Page: 49
Relevant Text: 5. Cardiac Valvular Abnormalities

5.2. Applicants with minor cardiac valvular abnormalities may be assessed as fit. 6. Valvular surgery Applicants who have undergone cardiac valve replacement or repair should be assessed as fit if postoperative cardiac function and investigations are satisfactory. 8. Recurrent Vasovagal Syncope Applicants with a history of recurrent vasovagal syncope should be assessed as fit after a 6 month period without recurrence provided cardiological evaluation is satisfactory. Neurological review may be indicated.
Comment: Better graduation than minor is insignificant in 5.2. In cases of valvular surgery it is very relevant to mention the anticoagulation probability. See also comment 11 for the issue 8. syncope.
Proposal: 5.2. Applicants with insignificant cardiac valvular abnormalities may be assessed as fit. 6. Valvular surgery Applicants who have undergone cardiac valve replacement or repair should be assessed as fit if postoperative cardiac function and investigations are satisfactory and no anticoagulates are necessary. 8. Syncope Applicants with a history of syncope should be assessed as fit provided cardiological evaluation is satisfactory. Neurological review may be indicated.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Chapter B AMC for class 2 medical certificates AMC B to MED.B.005 Cardiovasuclar System -class 2 medical certificates
Page: 50
Relevant Text: (d) CORONARY ARTERY DISEASE 1. Chest pain of uncertain cause requires full investigation. 2. In suspected asymptomatic coronary artery disease cardiological evaluation should show no evidence of myocardial ischemia or significant coronary artery stenosis. 3. After an ischemic cardiac event, or revascularisation, applicants without symptoms should have reduced any vascular risk factors to an appropriate level. Medication, when used to control cardiac symptoms, is not acceptable. All

applicants should be on acceptable secondary prevention treatment. 3.1. A coronary angiogram obtained around the time of, or during, the ischemic cardiac event and a complete, detailed clinical report of the ischemic event, the angiogram and any operative procedures should be available. (i) There should be no stenosis more than 50% in any major untreated vessel, in any vein or artery graft or at the site of an angioplasty/stent, except in a vessel leading to an infarct. More than two stenoses between 30% and 50% within the vascular tree should not be acceptable. 3.2. At least 6 months from the ischemic cardiac event, including revascularisation, the following investigations should be completed (equivalent tests may be substituted): (iii) in cases of angioplasty/stenting, a myocardial perfusion scan or stress echocardiogram which shall show no evidence of reversible myocardial ischaemia. If there is any doubt about myocardial perfusion in other cases (infarction or bypass grafting) a perfusion scan will also be required;

3.4. After coronary artery vein bypass grafting, a myocardial perfusion scan (or satisfactory equivalent test) should be performed if there is any indication, and in all cases within five years from the procedure for a fit assessment without a safety pilot limitation. 3.6. Successful completion of the six month or subsequent review will allow a fit assessment. Applicants may fly with a safety pilot limitation having successfully completed only an exercise ECG. 4. Angina pectoris is disqualifying, whether or not it is abolished by medication.
Comment: “ischemia” not ischaemia! 1. cardiological investigation is more precise than “full” investigation. Second sentence has to be adapted to class 1 – see comment 13. We object to the sentence “Medication, when used to control cardiac symptoms, is not acceptable.” as ß-blockers are used in secondary prevention and of course affect cardiac symptoms as well. So this sentence should be removed. For changes in 3.1. (i) and 3.2. (iii) see comment 13. 3.4 the “vein” should be deleted form the “coronary artery vein bypass grafting”, as there are not only vein grafts available. 4. This sentence should be deleted, as it is already mentioned in sentence 1.
Proposal: (d) CORONARY ARTERY DISEASE 1. Chest pain of uncertain cause requires cardiological investigation. 2. In suspected coronary artery disease, a cardiological evaluation is required. 3. After an ischemic cardiac event, or revascularisation, applicants without symptoms should have reduced any vascular risk factors to an appropriate level. All applicants should be on acceptable secondary prevention treatment. 3.1. (i) There should be no stenosis more than 50% in any major untreated vessel, in any vein or artery graft or at the site of an angioplasty/stent, except in a vessel leading to an infarct. More than two stenoses between 30% and 50% within major coronary vessels should not be acceptable. 3.2. (iii) in cases of angioplasty/stenting, a myocardial perfusion scan or equivalent test, which shall show no evidence of reversible myocardial ischemia. If there is any doubt about myocardial perfusion in other cases (infarction or bypass grafting) a perfusion scan or equivalent test will also be required; 3.4. After coronary artery bypass grafting, a myocardial perfusion scan (or satisfactory equivalent test) should be performed if there is any indication, and in all cases within five years from the procedure for a fit assessment without a safety pilot limitation. 3.6. Successful completion of the six month or subsequent review will allow a fit assessment. Applicants for revalidation or renewal may fly with a safety pilot limitation having successfully completed only an exercise ECG. 4. deleted

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Chapter B AMC for class 2 medical certificates AMC B to MED.B.005 Cardiovasuclar System -class 2 medical certificates
Page: 51
Relevant Text: (e) RHYTHM AND CONDUCTION DISTURBANCES 2. Supraventricular Arrhythmias 2.1. Applicants with significant disturbance of supraventricular rhythm, including sinoatrial dysfunction, whether intermittent or established, may be assessed as fit if cardiological evaluation is satisfactory.

Comment: the sentence 1. is missing here, it should be adapted to Class 1 – like in comment 14. In electrophysiology it is called intermittend or permanent, not established!
Proposal: (e) RHYTHM AND CONDUCTION DISTURBANCES Any significant rhythm or conduction disturbance should require evaluation by a cardiologist and appropriate follow up in the case of a fit assessment. 2. Supraventricular Arrhythmias 2.1. Applicants with significant disturbance of supraventricular rhythm, including sinoatrial dysfunction, whether intermittent or permanent, may be assessed as fit if cardiological evaluation is satisfactory.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Chapter B AMC for class 2 medical certificates AMC B to MED.B.005 Cardiovasuclar System -class 2 medical certificates
Page:51
Relevant Text: (e) RHYTHM AND CONDUCTION DISTURBANCES 7. Pacemaker 7.1. Applicants with a subendocardial pacemaker may be assessed as fit no sooner than three months after insertion provided: (i) there is no other disqualifying condition; (ii) a bipolar lead system is used; (iii) the applicant is not pacemaker dependent; (iv) the applicant has regular follow up including a pacemaker check; 7.2. Applicants with an antitachycardia pacemaker should be assessed as unfit.
Comment: see comment 17; new pacemaker devices have a lot of automatic mode changes and some will have an automatic change between bipolar and unipolar sensing and pacing, so it is useless to insist on bipolar electrodes, if they are programmed to unipolar mode in the end. There seems to be a misunderstanding of antitachycardia pacemakers. Most pacemaker decives have some antitachycardia programme settings. Such a device is not the same as an AICD. The sentence 9.2. should be deleted, it is nonsense.
Proposal: 7. Pacemaker 7.1. Applicants with a subendocardial pacemaker may be assessed as fit no sooner than three months after insertion provided: (i) there is no other disqualifying condition; (ii) a bipolar lead system programmed in bipolar mode without automatic mode change of the device is used; (iii) the applicant is not pacemaker dependent; (iv) the applicant has regular follow up including a pacemaker check; 7.2. deleted

Comment Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Comment LPL
Page: 23 – 26 and 60 -61
Comment: The working group of European Cardiologists in Aviation Medicine reached consensus, that the LPL requirements are medically – cardiologically critical for human safety for the pilot himself and for aviation safety. Furthermore multiple international study results prove

the danger and risks of the requirements and limits set up in the LPL requirements (like for instance a left ventricular ejection fraction below 50%). It would be dangerous as well as stupid to assess cardiological and aeromedical “fitness” under such regulations. It would rather be an assessment and documentation of “sickness” than of fitness, ready for use against consultants by any lawyer or judge in the European Union. Therefore the working group of cardiologists will refuse to check LPL pilots under these regulations. Proposal: Private Pilots should be checked for their fitness to fly according to AMC class 2 medical regulations. LPL requirements should be deleted.

Comments Ophthalmology (Eyes):
Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart A MED.A.010 – General Requirements
Page: 3
Relevant Text: ‘Eye specialist’ means an ophthalmologist or a vision care specialist qualified in optometry and trained to recognise pathological conditions.
Comment: Nowhere in Europe, except in the UK and Malta, we do have sufficiently trained optometrists, only opticians. An optician is in no way trained to evaluate the condition of an eye nor able to recognise pathological conditions.
Proposal: The wording: Eye specialist has to always be replaced by an ophthalmologist! Later on during the entire text the words: ophthalmic evaluation shall be replaced by: ophthalmic evaluation by an ophthalmologist. In countries, where ophthalmologists deny doing the examination, optometrists are allowed to perform an examination at the discretion of the national competent authority.

2 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 MED.A.020 Medical Certification (g)
Page: 4 Relevant Text: (g) If an instrument rating is added to a PPL, the pilot shall under take pure tone audiometry examinations according to the periodicity and the standard required for class 1 medical certificate holders.
Comment: In modern cockpits many complex displays are presented in different colours. Seeing different illumination, lightning and glare conditions, it is possible that displays are not correctly identified and understood. This happens especially in protanomalous pilots, who see red displays much darker compared to how they are seen in an objective presentation. If the colour of the information cannot be identified correctly, the information can be misinterpreted. This can lead to very dangerous situations.
Proposal: (g) If an instrument rating is added to a PPL, the pilot shall under take pure tone audiometry examinations according to the periodicity and the standard required for class 1 medical certificate holders. The pilot must be colour safe.

3 Comment
Author: Group Ophthalmology Section: 1 Subpart A MED A.055 (a) 3
Page: 7 Relevant Text: Class 2 medical certificates shall be valid for a period of: (i) 60 months until the pilot reaches the age of 40. A medical

certificate issued prior to reaching the age of 40 shall cease to be valid after the pilot reaches the age of 42.
Comment: If a pilot needs glasses, changes in refraction occur. Myopia in young ages, astigmatism in middle ages and presbyopia later on. We need to prevent problems like anisometropia resulting in monocularity , or undercorrection ,of refractive errors , which may result in squinting and therefore headaches all day long. Therefore it is necessary to follow up on the refraction and its correction. Also overcorrection, which often occurs in middle ages, can cause problems like headaches.These incorrect optic corrections and resulting headaches can distract the concentration and attention during flight. The routine ophthalmological examination has been dropped by the medical subcommittee of the JAA. This was done as not to burden those pilots, who have no optic correction and therefore see well, do not suffer from any eye-disease or complications. But the idea was to send pilots to an ophthalmologist if problems occur!
Proposal: If an applicant needs correcting glasses or lenses or has any kind of ophthalmic problem, an ophthalmic evaluation by an ophthalmologist has to be performed every 24 months.

Changes: There is a new class, called LPL 4 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart A MED A.055 (a) 4 an AMC to MED B. 090
Page: 7 and 60
Relevant Text: LPL medical certificates shall be valid: (i) until the age of 45 Specific requirements for LPL medical certificates
Comment: LPL pilots and class 2 pilots use the same airspace and can fly nearly the same type of aircrafts (in class 2 only heavier and with a higher cruising range) and they have the same privileges. Therefore it does not make sense to have, from a safety perspective, different requirements for these two kinds of licenses. LPL pilots may even have glass cockpits with a lot of colour information. Safety issues should not be decided upon by politicians, but by specialist. It looks like the LPL is introduced only as a result of enormous pressure of the leisure pilot associations. The requirements are lower than the ones for sailing a boat on a lake. If a plane with the weight of two tons crashes in a public building it can cause fatal accidents and death to people in this area.
Proposal: LPL requirements should be the same as class 2 including a comprehensive ophthalmological eye examination by an ophthalmologist at initial examination or if indicated.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Requirements for medical certificates MED.B.065 c (2) 2) AMC A to MED.B.065 6.1 Page: 16 and 46
Relevant Text: 1) An applicant with substandard vision in one eye may be assessed as fit subject to satisfactory ophthalmic assessment 2) Applicants with reduced central vision in one eye may be assessed as fit if the binocular visual field is normal and the underlying pathology is acceptable according to ophthalmic assessment. II: The better eye achieves distant visual acuity of 6/6 (1.0) corrected or uncorrected III: in the case of acute loss of vision in one eye, a period of adaptation time has passed from the known point of visual loss, during which the pilot is assessed as unfit.
Comment: Substandard Vision in one eye can mean monocularity, or functional monocularity or severe amblyopia. The reduced vision has a

major impact on visual functions as the binocular vision is a summation of visual functions of both eyes. Nearly all thresholds of monocular visual function are with normal binocular vision better than monocular. The absolute threshold for light is 1,5-1,8 times better The contrast recognition is 1,5-1,7 times better The resolution is 1,1 times better The recognition of moving stimulus is 1,9 times better. The visual field is reduced. The blind spot can mostly not be compensated. Dille and Booze published in 1979 (1974-1976) the “Accident experience of civilian pilots with static physical defects”, FAA Office of Aviation Medicine Report No. AM-79-19, 77-20, 76-7. They showed that pilots with blindness or absence of one eye had significantly higher accident observed-to-expected ratios and higher rates per 100.000 hours. Airmen with deficient distant vision had significantly higher observed-to-expected ratios and higher rates per 100.000 hours (0,001). In 1984 Dille and Booze published “The 1980 and 1981 Accident Experience of Civil Airmen with Selected Visual Pathology”, Aviat. Space Environ. Med. 1984: 55:966-9 In the years 1980 and 1981 monocular and amblyopic airmen had higher accident rates than the total airmen population. Mayer and Lane published in 1973 “Monocular Pilots – a Follow-up Study”, Aerosp. Med. 44: 1070-1074. The number of monocular pilots who applied for a student pilot license after having obtained a waiver was proportionately less (84%) than the number of controls who applied (91%). More monocular pilots than control pilots became endorsed on more than one aircraft. There is a suspicion, that monocular pilots were involved in somewhat more hazardous events than control pilots. The decision of the monocularity working group of the JAA was that monocularity in a class 1 applicant or the pilot is not acceptable. Therefor it is essential to implement the sentence” Monocularity is not acceptable for a class 1 applicant” into the “Implementing Rules”.
Proposal:
Monocularity is not acceptable for a class 1 applicant.
Initial applicants for class 1 medical certificate with reduced central vision should be
assessed as unfit.
At revalidation applicants for a class 1 medical certificate with a substandard vision of
0.5 (6/12) or better in one eye can be assessed as fit. In this case the visual acuity of the better eye should be at least 1.0 uncorrected or corrected. However a comprehensive eye examination and evaluation have to be performed for a fit assessment.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 Class 2 1) Subpart B – Requirements for medical certificates MED.B.065 c (2) 2) AMC A to MED.B.065 6.1
Page: 16 and 57
Relevant Text: (c) (2) In the case of class 2 medical certificates, 6/12 or better in each eye separately and visual acuity with both eyes shall be 6/9 or better. An applicant with substandard vision in one eye may be assessed as fit subject to a satisfactory ophthalmic assessment. 4. Substandard Vision 4.1 Reduced stereopsis, abnorma l convergence not interfering with near vision and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may be acceptable. Comment: Substandard Vision in one eye can mean monocularity, or functional monocularity , or severe amblyopia. The reduced vision is a major impact on visual functions as the binocular vision is a summation of

visual functions of both eyes. Nearly all thresholds of monocular visual function are with normal binocular vision better than monocular The absolute threshold for light is 1,5-1,8 times better The contrast recognition is 1,5-1,7 times better The resolution is 1,1 times better The recognition of moving stimulus is 1,9 times better. The visual field is reduced. The blind spot can mostly not be compensated. Dille and Booze published in 1979 (1974-1976) the “Accident experience of civilian pilots with static physical defects”, FAA Office of Aviation Medicine Report No. AM-79-19, 77-20, 76-7. They showed that pilots with blindness or absence of one eye had significantly higher accident observed-to-expected ratios and higher rates per 100.000 hours. Airmen with deficient distant vision had significantly higher observed-to-expected ratios and higher rates per 100.000 hours (0,001). In 1984 Dille and Booze published “The 1980 and 1981 Accident Experience of Civil Airmen with Selected Visual Pathology”, Aviat. Space Environ. Med. 1984: 55:966-9

In the years 1980 and 1981 monocular and amblyopic airmen had higher accident rates than did the total airmen population. Mayer and Lane published in 1973 “Monocular Pilots – a Follow-up Study”, Aerosp. Med. 44: 1070-1074. The number of monocular pilots who applied for a student pilot license after having obtained a waiver was proportionately less (84%) than the number of controls who applied (91%). More monocular pilots than control pilots became endorsed on more than one aircraft. There is a suspicion, that monocular pilots were involved in somewhat more hazardous events than control pilots. The proposal is slightly above the requirements for car drivers who move in just two dimensions with additional clues that are usually not available in the air. A visual acuity of 0.3 is substandard vision or amblyopia.
Proposal: Monocularity is not acceptable for an initial class 2 applicant certification. In the case of a substandard vision in a class 2 applicant, one eye should have a visual acuity of at least 0.5 (6/12) with or without correction and the better other eye at least 0.5 (6/12) uncorrected or corrected. Visual acuity with both eyes shall be 1.0 (6/6)!! or better uncorrected or corrected. Ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may be acceptable. Binocular vision shall be normal.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 AMC B to MED 0.65 (j)
Page: 16 Relevant Text: (j) Spectacles and contact lenses If satisfactory visual function is achieved only with the use of correction: (1)… (7)
Comment: There exist cockpit windshields in aviation which are polarized. If someone wears sunglasses which are also polarized, but in a 90° direction to the polarization of the windshield this person sees only black through the sunglasses which means the person sees nothing. To avoid that and because there is very often the need for sunglasses in flying sunglasses shall not have polarized glasses.
Proposal: (j) Spectacles and contact lenses If satisfactory visual function is achieved only with the use of correction: (8) There shall be NO! use of polarized sunglasses, photochromatic sunglasses and NO use of prismatic glasses.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz

Section: 1 Subpart B Class 2 MED.B.065 2 Page: 57
Relevant Text: 3. Visual acuity
In an applicant with amblyopia, the visual acuity of the amblyopic eye shall be 6/18 (0,3) or better. The applicant may be assessed as fit provided the visual acuity in the other eyes is 6/6 (1,0) or better, with or without correction, and no significant pathology can be demonstrated. 4.2 An applicant with substandard vision in 1 eye may be assessed as fit subject to a satisfactory flight test if the better eye: (i) achieves distant visual acuity of 6/6 (1,0), corrected or uncorrected; (ii) achieves intermediate visual acuity of N14 and N5 for near; (iii) has no significant pathology. Comment: The proposal is slightly above the requirements for car drivers who move in just two dimensions with additional clues that are usually not available in the air. A visual acuity of 0.3 is substandard vision or amblyopia. 4.1 Describes a possible potential functional monocularity through strabism (ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may be acceptable). If one eye is excluded, there is no diplopia and no asthenopia. Therefore the binocular vision, which means the vision with both eyes at the same time, must be normal.
Proposal: Delete 4.2 and keep 4.1 in a changed version and 4.3 4. Substandard Vision 4.1 Monocularity is not acceptable for an initial class 2 applicant certification. In the case of a substandard vision in a class 2 applicant, one eye shall have a visual acuity of at least 0.3 with or without correction and the better other eye at least 1.0 (6/6) uncorrected or corrected. Visual acuity with both eyes shall be 1.0 (6/6)!! or better uncorrected or corrected. Ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may be acceptable. Binocular vision shall be normal. An ophtalmological exam and evaluation shall be required in order to obtain medical fitness.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Page: 16
Relevant Text: A routine eye examination shall form part of the initial and all revalidation and renewal examinations.
Comment: The initial examination should be a comprehensive eye examination performed by an ophthalmologist. Reason: A lot of problems we usually run into later during two examinations can be prevented by checking properly at the first exam. E.g. strabism, decompensated heterophoria, diplopia, glaucoma, monocularity… Besides in the U.K. no general practitioners are trained to do an eye examination. Especially at the initial examination diseases or risk factors that could cause in-flight problems could be seen and additional restrictions or examinations can become necessary.
Proposal: A comprehensive eye examination shall be performed by an ophthalmologist and shall be part of the initial examination.

10 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart B 1) MED.B.065 g (3) 2) AMC to MED.B.065 7
Page: 16 and 46 and page 57
Relevant Text: 1) Applicants for class 1 medical certificate with a clinical diagnosis of keratoconus may be assessed as fit subject to a satisfactory examination by an ophthalmologist. 2) Keratoconus: Applicants with keratoconus may be considered for a fit assessment, if the visual requirements are met with the use of corrective lenses and periodic review

is undertaken by an ophthalmologist. 3) No text concerning keratoconus in class 2 was found on page 57. Comment: If applicants for class 1 and 2 can be assessed as fit with the clinical diagnosis of keratoconus, we will “produce” a considerable amount of pilots, who will for sure later on have to be assessed as unfit, as even with contact lenses their visual requirements will not be sufficient any longer. Many eyes with keratoconus in young patients will end in keratoplasty which also makes unfit.
Proposal: Applicants class 1 and class 2! with the diagnosis of keratoconus are assessed as unfit. At revalidation examination applicants for a class 1 and class 2 medical certificate with a clinical diagnosis of keratoconus may be assessed as fit subject to a satisfactory examination by an ophthalmologist. 1) Keratoconus: At renewal examinations applicants with keratoconus may be considered for a fit assessment, if the visual requirements are met with the use of corrective lenses and at least a yearly examination is undertaken by an ophthalmologist.

11 Comment 12 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart B 3) MED.B.065 g (3) 4) AMC to MED.B.065 7
Page: 16 and 46 Relevant Text: 3) Applicants for class 1 medical certificate with a clinical diagnosis of keratoconus may be assessed as fit subject to a satisfactory examination by an ophthalmologist. 4) Keratoconus: Applicants with keratoconus may be considered for a fit assessment, if the visual requirements are met with the use of corrective lenses and periodic review is undertaken by an ophthalmologist.
Comment: If applicants for class 1 can be assessed as fit with the clinical diagnosis of keratoconus, we will “produce” a considerable amount of pilots, who will for sure later on have to be assessed as unfit, as even with contact lenses their visual requirements will not be sufficient any longer. Should we discuss this? Most eyes with keratoconus in young patients will end in keratoplasty which also makes unfit.
Proposal: 2) Applicants class 1 and class 2! with the diagnosis of keratoconus are assessed as unfit. At revalidation examination applicants for a class 1 and class 2 medical certificate with a clinical diagnosis of keratoconus may be assessed as fit subject to a satisfactory examination by an ophthalmologist. 3) Keratoconus: Applicants with keratoconus may be considered for a fit assessment, if the visual requirements are met with the use of corrective lenses and at least a yearly examination is undertaken by an ophthalmologist.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 MED.B.065 (d)
Page: 15
Relevant Text: (b) (i) a comprehensive eye examination shall form part of the initial examination and be undertaken periodically depending on the refraction and the functional performance of the eye;
Comment: A comprehensive eye examination should be performed at least every 5 years. ‘Otherwise there is little chance to detect pathological conditions, which cause in-flight problems, early enough . Any intraocular changes can only be detected by ophthalmologists. Intraocular changes or pathological findings may be present, although vision acuity still meets requirements.
Proposal: A comprehensive eye examination shall form part of the initial examination and shall be undertaken every 60 months. If the condition of the eye requires more frequent eye examinations by an ophthalmologist a

comprehensive eye examination shall be performed at a more frequent interval decided by an AME and or ophthalmologist.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 MED.B.065
Page: 16
Relevant Text: (2) For a class 2 medical certificate (i) a routine eye examination shall form part of the initial and all revalidation and renewal examinations
Comment: A lot of problems we run into later on, could be prevented, if the initial examination was a comprehensive one. General practitioners are in no way trained to perform a thorough eye exam. They cannot detect diseases or risk factors that could cause in-flight problems later. They also cannot see, which ophthalmological condition needs additional restrictions or additional eye examinations.
Proposal: For a class 2 medical certificate a comprehensive eye examination shall form part of the initial examination and if required.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart B AMC A to MED.B.065
Page: 45
Relevant Text: Refractive error 4.2 At revalidation an applicant may be assessed as fit with: myopia exceeding – 6,0 diopters
Comment: Very thorough examinations are needed to really assure flight safety in myopia exceeding 6 diopters. Retinal problems and optical problems due to high correcting glasses are more frequent in high myopia.
Proposal: At revalidation an applicant may be assessed as fit with: myopia exceeding – 6,0 diopters . The applicant may be assessed as fit if the comprehensive ophthalmological examination shows no elevated intraocular pressure, no myopic degenerations, no optical problems and no any other pathological conditions.

15 Comment 16 Comment 17 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Page: 44
Relevant Text: Eye examination 1.2 All abnormal and doubtful cases should be referred to an ophthalmologist. Conditions which indicate ophthalmological examination include, but are not limited to, a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity and/or the occurrence of eye disease, eye injury, or eye surgery.
Comment: If eye drops are needed to be taken for a longer period of time, a major ophthalmological disease is usually the cause. Especially for inflammations or neurological diseases steroids are very often used. Steroids can have many side effects which often occur as high intraocular pressure (steroidresponder) with corneal edema and reduced visual acuity. Also the oral or iv. medication of steroids can have side effects such as diabetes mellitus and or seizures. If eye drops or oral medication are used to treat a glaucoma it is important to know whether there are visual field defects or an elevation of the pressure that cause visual problems (reduced visual acuity, halos …) or even headache and/or gastrointestinal problems. The routine ophthalmological examinations every second year has been dropped by the medical subcommittee of the JAA, as not to burden the pilots who always see well and do not have any diseases or complications.

But therefore the idea was to send people to the ophthalmologist if problems occur. Medication for a longer period of time describes exactly the kind of problem which requires an comprehensive opthalmological exam.
Proposal: If an applicant for a class 1 medical certificate needs oral or iv. medication for his eyes or affecting his eyes or if any of these pilots needs eye drops, he or she shall report this to his/her AME. If the eye medication is prescribed for more than two weeks, or the eye medication has changed, a comprehensive eye examination has to be performed.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
2 medical certificates
Page: 57
Relevant Text: Eye examination 1.1 At each aeromedical revalidation examination an assessment of the visual fitness of the license holder should be undertaken and the eyes should be examined with regard to possible pathology. Conditions which indicate further ophthalmological examination include, but are not limited to, a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity and/or the occurrence of eye disease, eye injury, or eye surgery. Comment: If eye drops are needed to be taken for a longer period of time, a major ophthalmological disease is usually the cause. Especially for inflammations or neurological diseases steroids are very often used. Steroids can have many side effects which often occur as high intraocular pressure (steroidresponder) with corneal edema and reduced visual acuity. Also the oral or iv. medication of steroids can have side effects such as diabetes mellitus and or seizures. If eye drops or oral medication are used to treat a glaucoma it is important to know whether there are visual field defects or an elevation of the pressure that cause visual problems (reduced visual acuity, halos …) or even headache and/or gastrointestinal problems. The routine ophthalmological examinations every second year has been dropped by the medical subcommittee of the JAA, to not put burden on the pilots who always see well and do not have any diseases or complications. But therefore the idea was to send people to the ophthalmologist if problems occur. Medication for a longer period of time is this kind of problem which were meant and which have to be closer looked at.
Proposal: If an applicant for a class 2 medical certificate needs oral or iv. medication for his/her eyes or affecting his/her eyes or if any of these pilots needs eye drops, he or she should report this to his/her AME. If the eye medication is prescribed for more than two weeks, or the eye medication has changed a comprehensive eye examination has to be performed.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Page: 45 Relevant Text: 4.2 Refractive error: At revalidation an applicant may be assessed as fit with: Hypermetropia not exceeding + 5,0 diopters Comment: There are class 1 pilots at age of 45 and more, who show up for a renewal examination and it is discovered at the time of that renewal exam, that their hypermetropia exceeds 5 diopters. At the moment there is no legal way to have them keep their license, even if there are no other pathological findings in their eyes except exceeding hypermetropia. If there are really no any other pathological findings in these eyes, we need a legal way to have them keep their license. Therefore we suggest the following text:

Proposal: Hyperopia exceeding + 5 diopters makes an applicant unfit! If however at a renewal exam a pilot at age 45 or more (not younger than 45 years) shows a hyperopia of + 5 diopters or more but not more than +6 diopters, he may be by exception be assessed as fit by an extensive opthalmogical evaluation! , not only an opthalmological comprehensive exam, if the following guidelines are respected and an AMC assesses fitness together with the evaluating ophthalmologist. Visual acuity in both eyes with correction shall be 1.0 or more. No opthalmological pathological findings, no obvious signs of a risk of developing a acute narrow angle glaucoma, no signs of a narrow anterior chamber angle, no visual field problems, no ring scotoma, no prismatic deviation problems from high correcting glasses, no optical or any other problems from wearing contact lenses, no elevated intraocular pressure or any other pathological findings may be present. At least yearly ophthalmological comprehensive exams are required to keep medical fitness.

18 Comment 19 Comment 20 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 AMC A to MED.B.65 4.3 Page: 45
Relevant Text: If the refractive error is +3.0 to +5.0 or -3.0 to -6.0 dioptres a review shall be undertaken 5 yearly by an eye specialist.
Comment: Hyperopia: 5 years are too long in regards to complication by high values of optic correction, narrow anterior chambers and potential hypertension. Myopia: 5 years are way to long to supervise the retina and resulting potential problems.
Proposal: If the refractive error is +3.0 -+5.0 dioptres or -3.0 to -6.0 a comprehensive eye examination shall be undertaken 2 yearly after the age of 40 by an ophthalmologist.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart B Chapter A AMC A to MED.B.065 – Visual System, class 1 medical certificates 9.1 – Eye surgery
Page: 46
Relevant Text: After refractive surgery, a fit assessment may be considered provided that: (i) pre-operative refraction was no greater than + 5 or -6 dipotres (ii) post-operative stability of refraction has been achieved (less than 0.75dioptres variation diurnally); (iii) examination of the eye shows no postoperative complications; (iv) glare sensitivity is within normal standards; (v) mesopic contrast sensitivity is not impaired; (vi) review is undertaken by an eye specialist.
Comment: After refractive surgery a period of 6 months is needed for recovery of the visual function of the eye. Corneal scarring, flap problems , refraction, postoperative destability, sicca problems most often occur during the first months post surgery. Visual stability cannot be achieved before a period of 6 months. Corneal thickness postoperatively should not be thinner than 420 µm!
Proposal: Keep the text as it is and add the following text: In refractive surgery a fit assessment may be granted earliest 6 months post surgery. …….and add: (vii) In ophthalmological evaluation, postoperative corneal thickness should be taken into account.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
MED.B.065 – Visual System, class 1 medical certificates 9.1 – Eye surgery
Page: 46

Relevant Text: 9.2. Cataract surgery entails unfitness. A fit assessment may be considered after 3 months.
Comment: Tinted lenses impair flight safety by excluding (!)perception of visual objects at a certain range of nanometers.
Proposal: Cataract surgery: Only monofocal, non tinted intraocular lenses are allowed. If however a tinted intraocular lens has been implanted, the blue-yellow colour vision axis has to be evaluated and has to be normal.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 MED.B.065
Page: 45
Relevant Text: 2. (viii) tonometry on clinical indication; and
Comment: An acute glaucoma attack can be very problematic in-flight. An increase of intraocular pressure in an eye with a narrow anterior chamber angle can give important information to hinder that incidence. Open Angel-Glaucoma is still one of the most frequent cause of blindness in the western world and can lead to visual field defects and reduced visual acuity. Therefore it is very important to know the intraocular pressure. In some countries the examination of intraocular pressure is performed by the optician or optometrist. They cannot perform an ophthalmological examination, evaluation and, if necessary, start a treatment. Therefore an ophthalmological examination is necessary .
Proposal: Tonometry every 24 months or if indicated. In the case of an intraocular pressure of 21 mm Hg or above an eye examination by an ophthalmologist should be performed.

22 Comment 23 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 AMC A to MED.B. 065 1.1.2
Page: 44
Relevant Text: All abnormal and doubtful cases should be referred to an ophthalmologist. Conditions which indicate ophthalmological examination include, but are not limited to, a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity and or the occurrence of eye disease, eye injury, or eye surgery.

Comment: Acute glaucoma can create among others symptoms of an acute abdomen which can be very problematic in-flight. An increase of intraocular pressure in an eye with a narrow anterior chamber angle can give important information to hinder that incidence. Glaucoma is still one of the most frequent cause of blindness in the western world and can lead to visual field defects and reduced visual acuity. Therefore it is very important to know the intraocular pressure.
Proposal: Conditions which indicate ophthal mological examination include, but are not limited to, a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity and/or the occurrence of eye disease, eye injury, or eye surgery and intraocular tension of 21 mm Hg in tonometry or above.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 AMC A to MED.B.65 4.3 Page: 45
Relevant Text: If the refractive error is +3.0 to +5.0 or -3.0 to -6.0 dioptres a review shall be undertaken 5 yearly by an eye specialist.

Comment: Hyperopia: 5 years are too long in regards to complication by high values of optic correction, narrow anterior chambers and potential hypertension. Myopia: 5 years are way to long to supervise the retina and resulting potential problems.
Proposal: If the refractive error is +3.0 -+5.0 dioptres or -3.0 to -6.0 a comprehensive eye examination shall be undertaken 2 yearly after the age of 40 by an ophthalmologist.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Chapter A AMC A to MED.B.070 Chapter 3 3
Page: 47 and 58
Relevant Text: Those failing the Ishihara test should be examined either by: Anomaloscopy (Nagel or equivalent). This test is considered passed if the colour match is trichromatic and the matching range is 4 scales units or less, or by Lantern testing.
Comment: Colour coded information occur in different areas of aviation. Scientific publications show that a normal trichromatic observer notices information faster and more effectively if it is based on colour differences. This reduces the rate of errors and of reaction time. Colour displays all imply that they are focused by a biologically “normal” eye with the possibility of discrimination of the entire colour spectrum. The correct perception and reading of a display is necessary, even more if difficult environmental conditions like glare, high light intensity in the cockpit and on the displays occur.
Electronic flight information displays present several colours at the same time in order to code information thus being identified and resolved faster. Humans with colour vision deficiencies are only able to identify two to three colours if another comparable colour is missing. People with colour vision deficiencies make even more errors at display work if only white signals with different illumination are presented. Already in 1965 Gramberg-Danielsen showed, that protanomals or protanopes have a higher number of rear-end collisions while driving. In 1975 Christ showed that colour coding on displays shows a 200% advantage over size and form coding. The perception time and the error rate can be reduced (Cole, MacDonald). The probability of a person with a colour vision deficiency to perform as good as a colour normal in the identification of colour information decrease by the increase of the degree of severity of the colour vision deficiency and is about 0 in the protanopes. In 1980 Robert Dille published that pilots with a waiver for colour vision deficiency are significant more often involved in aviation accidents than it is expectable by the statistics. In 2000 Ivan declared that people with colour vision deficiencies are usually not aware of the whole limited performance but think that they can identify colours and work satisfactorily in their operative environment. But the colour discrimination of these persons is not based on biological colour discrimination but on different aids as differences in illumination or learning by trial and error. Only normal trichromates should be considered to be colour safe. 4% of the Deuteranomals pass the Ishihara plates anyhow. Applicants could otherwise be protanomal, trichromatic and have a matching range of 4 scale units. But they are no normal trichromatic and do see red lights much darker or even as grey or yellow, compared to normal trichromatic. This can be very dangerous.
Proposal:

Those failing the Ishihara test should be examined by the following two tests: Anomaloscopy (Nagel or equivalent). This test is considered passed if the colour match is the one of a normal trichromatic(0.7-1.4) and the matching range is 4 scales units or less, and by Lantern testing. The Lantern test is considered passed if the applicant passes without error a test with accepted lanterns (Holmes Wright B, Beynes or Spectrolux). Applicants need to pass both tests (Anomaloscopy and Lantern) in order to be assessed as colour safe.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: Chapter B MED.B.070
Page: 16
Relevant Text: (d) In the case of class 2 medical certificates, when the applicant does not have satisfactory perception of colours, their flying privileges shall be limited to daytime only.
Comment: Colour coded information occur in different areas of aviation. Scientific publications show that a normal trichromatic observer notices information faster and more effectively if it is based on colour differences. This reduces the rate of errors and of reaction time. Colour displays all imply that they are focused by a biologically “normal” eye with the possibility of discrimination of the entire colour spectrum. The correct perception and reading of a display is necessary, even more if difficult environmental conditions like glare, high light intensity in the cockpit and on the displays occur. Electronic flight information displays present several colours at the same time in order to code information thus being identified and resolved faster. Humans with colour vision deficiencies are only able to identify two to three colours if another comparable colour is missing. People with colour vision deficiencies make even more errors at display work if only white signals with different illumination are presented. Already in 1965 Gramberg-Danielsen showed, that protanomals or protanopes have a higher number of rear-end collisions while driving. In 1975 Christ showed that colour coding on displays shows a 200% advantage over size and form coding. The perception time and the error rate can be reduced (Cole, MacDonald). The probability of a person with a colour vision deficiency to perform as good as a colour normal in the identification of colour information decrease by the increase of the degree of severity of the colour vision deficiency and is about 0 in the protanopes. In 1980 Robert Dille published that pilots with a waiver for colour vision deficiency are significant more often involved in aviation accidents than it is expectable by the statistics. In 2000 Ivan declared that people with colour vision deficiencies are usually not aware of the whole limited performance but think that they can identify colours and work satisfactorily in their operative environment. But the colour discrimination of these persons is not based on biological colour discrimination but on different aids as differences in illumination or learning by trial and error. Only normal trichromates should be considered to be colour safe. 4% of the Deuteranomals pass the Ishihara plates anyhow. Applicants could otherwise be protanomal, trichromatic and have a matching range of 4 scale units. But they are no normal trichromatic and do see red lights much darker or even as grey or yellow, compared to normal trichromatic. This can be very dangerous.
Proposal:

(d) In the case of class 2 medical certificates, when the applicant does not have satisfactory perception of colours, their flying privileges shall be limited to daytime and VFR only.

26 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: Chapter B AMC B to MED.B.065 1.1.2
Page: 57 Relevant Text: At the initial assessment the examination should include ocular motility, binocular vision, colour vision and visual fields.
Comment: The initial examination should be a comprehensive eye examination performed by an ophthalmologist. Reason: A lot of problems we usually run into later during two examinations can be prevented by checking properly at the first exam. E.g. strabism, decompensated heterophoria, diplopia, glaucoma, monocularity… Besides in the U.K. no general practitioners are trained to do an eye examination. Especially at the initial examination diseases or risk factors that could cause in-flight problems could be seen and additional restrictions or examinations can become necessary.
Proposal: A comprehensive eye examination shall be performed by an ophthalmologist and shall be part of the initial examination. A comprehensive eye exam shall be performed later, if indicated by the AME or ophthalmologist.

27 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: Chapter B AMC B to MED.B.065 3 Page: 57
Relevant Text: Visual Acuity: If an applicant with amblyopia, the visual acuity of the amblyopic eye shall be 6/18 (0.3) or better. The applicant may be assessed as fit provided the visual acuity in the other eye is 6/6 (1.0) or better, with or without correction, and no significant pathology an be demonstrated
Comment: Substandard Vision in one eye can mean monocularity, or functional monocularity, or severe amblyopia. The reduced vision is a major impact on visual functions as the binocular vision is a summation of visual functions of both eyes. Nearly all thresholds of monocular visual function are with normal binocular vision better as monocular The absolute threshold for light is 1,5-1,8 times better The contrast recognition is 1,5-1,7 times better The resolution is 1,1 times better The recognition of moving stimulus is 1,9 times better. The visual field is reduced. The blind spot can mostly not be compensated. Dille and Booze published in 1979 (1974-1976) the “Accident experience of civilian pilots with static physical defects”, FAA Office of Aviation Medicine Report No. AM-79-19, 77-20, 76-7. They showed that pilots with blindness or absence of one eye had significantly higher accident observed-to-expected ratios and higher rates per 100.000 hours. Airmen with deficient distant vision had significantly higher observed-to-expected ratios and higher rates per 100.000 hours (0,001). One monocular pilot, performing agricultural operation, taxied into another aircraft. The FAA accident investigator noted the medical defect in his report of the accident, advised the Regional Flight Surgeon, a recommended re-evaluation of the pilot through medical flight test procedure. In 1984 Dille and Booze published “The 1980 and 1981 Accident Experience of Civil Airmen with Selected Visual Pathology”, Aviat. Space Environ. Med. 1984: 55:966-9 In the years 1980 and 1981 monocular and amblyopic airmen had higher accident rates than did the total airmen population. Mayer and Lane published in 1973 “Monocular

Pilots – a Follow-up Study", Aerosp. Med. 44: 1070-1074. The number of monocular pilots who applied for a student pilot license after having obtained a waiver was proportionately less (84%) than the number of controls who applied (91%). More monocular pilots than control pilots became endorsed on more than one aircraft. There is a suspicion, that monocular pilots were involved in somewhat more hazardous events than control pilots. Proposal: In the case of amblyopia in a class 2 applicant, the better other eye shall have a visual acuity of at least 0.5 uncorrected or corrected. Visual acuity with both eyes shall be 1.0 or better uncorrected or corrected.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Chapter B AMC B to MED.B.065 Class 2 medical certificates 5 – Eye surgery
Page: 57
Relevant Text: 5.1 – after refractive surgery, a fit assessment may be considered provided that there is stability of refraction, there are no postoperative complications and no increase in glare sensitivity.
Comment: Standards or criteria for evaluation of post-surgery status; refractive surgery, cataract-glaucoma or retinal-surgery should be the same as in class 1. After refractive surgery a period of 6 months is needed for recovery of the visual function of the eye. Corneal scarring, flap problems, refraction postoperative destability , sicca problems most often occur during the first months post surgery. Visual stability cannot be achieved before a period of 6 months. Corneal thickness postoperatively should not be thinner than 420 µm!
Proposal: Replace the above text by the text for class 1 and add the following text: After refractive surgery a fit assessment may be granted earliest 6 months post surgery. After refractive surgery, a fit assessment may be considered provided that: Preoperative refraction was no greater than + 5 or – 8 diopters. (vii) Postoperative corneal thickness should be taken into account. .

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1
Chapter B AMC B to MED.B.065 Class 2 medical certificates 5 – Eye surgery
Page: 57 Text: 5.2 After cataract, retinal or glaucoma surgery a fit assessment may be considered once recovery is complete.
Comment:
Standards or criteria for evaluation of post-surgery status; refractive surgery, cataract-glaucoma or retinal-surgery should be the same as in class 1 Recovery time after cataract surgery usually amounts to three months, after retinal and glaucoma surgery amounts to 6 months. Tinted lenses impair flight safety by excluding (!) perception of visual objects at a certain range of nanometers.
Proposal:
A fit assessment after cataract surgery may be granted 3 months post surgery, a fit
assessment after glaucoma or retinal surgery may be granted 6 months post surgery by opthalmological evaluation.
Cataract surgery: Only monofocal, non tinted intraocular lenses are allowed.

If however a tinted intraocular lens has been implanted, the blue-yellow colour
vision axis has to be evaluated and has to be normal.

31 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Chapter B AMC B to MED B. 070 2 Page: 58
Relevant Text: The Ishihara test (24 plate version) is considered passed if the first 15 plates, presented in a random order, are identified without error. It should say, the first 17 plates, plate number 16 and 17 are important plates for colour distinction.
Comment: No reason for taking only 15 plates exists, plate 16 and 17 are very important plates. The wrong identification of these plates may also give a hint of what kind of anomaly or anopy is involved. The total of correct identified numbers is not of any quantitative value of the colour vision. The Ishihara test is only a screening test. The results depend very much on the correct lightning. As the results of Ishihara plates are available on the internet and it is very easy to buy Ishihara plates, it is of vital importance that all plates are correctly identified. 4% of the deuteranomals pass the Ishihara plates anyhow. Proposal: If an applicant for class 2 does not pass the Ishihara test without any error and hesitation, he/she should be evaluated for colour safety with Nagel Anomaloscopy and Lantern Test. This test is considered passed if the colour match is the one of a normal trichromatic (0.7-1.4) and the matching range is 4 scales units or less, and by Lantern testing. The Lantern test is considered passed if the applicant passes without error a test with accepted lanterns (Holmes Wright B, Beynes or Spectrolux). Applicants need to pass both tests (Anomaloscopy and Lantern) in order to be assessed as colour safe. If the applicant is assessed as not colour safe, he or she shall be restricted to fly VFR day only and VFR (VCL).

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 MED.B.065
Page: 44 Relevant Text: 2. Comprehensive eye examination (ix) refraction. Hyperopic initial applicants under the age of 25 shoul d undergo objective refraction in cycloplegia.
Comment: There are numerous class 1 pilots, who show to have hypermetropia exceeding + 5 diopters, when they show up for a renewal application exam. By law hypermetropia exceeding + 5,0 diopters makes them unfit for a class 1 license. To avoid this problem, it is of utmost importance to determine objective and subjective refraction in cycloplegia at the intial opthalomological exam class 1. Therefore it is not enough to ask for cycloplegia in initial applicants under the age of 25. An applicant of 28 years may be +2 diopters in miosis and + 6,5 diopters in cycloplegia!!! This pilot will lose his license at the age of 50, if his hypermetropia is not detected at the initial exam. To avoid these problems in the future, cycloplegia at the initial exam should be applied, when clinically indicated and not only according to age.
Proposal: Hyperopic initial applicants with 1.5 diopters or more under the age of 25, or if indicated, shall undergo objective refraction in cycloplegia.

Comment

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 Subpart B Requirements for class 1 and class 2 medical certificates MED.B.050 Psychiatry MED.B.055 Psychology MED.B.060 Neurology: No comment!
Page: 14 -15
Relevant Text:
Comment:
Proposal:

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 II Draft decision AMC and GM for Part-Medical AMC/GM to Part-Medical Subpart A General Requirements
Page:
Relevant Text: (all Text)
Comment: Univocal comment from the international group representing neurology, psychiatry and psychology: From a medical point of view, especially the branch related LPL is inacceptable. The requirements are below ICAO standard. Many of neurological and psychiatric aeromedical diseases emerge in the time span between the first examination and age of 45 e.g. MS, seizures, subarachnoid hemorrhages (SAH), schizophrenic and manic psychosis, psychotic depression with suicidality etc. Some of these diseases present with low self criticism and lack of insight. This risk for aviation safety cannot be covered with requirements below ICAO standards and such large time intervals. Further more a general practitioner without experience in neurology and psychiatry and without aeromedical education is not able to fulfill reliable examinations/evaluations. In the worst case, if LPL were to be implemented, the question rises why do we need the explanations in section 2 specific requirements LPL medical certificates if a grey box in the questionnaire is ticked. The medical report should be referred to an AME or AeMC for further assessment. AME or AeMC have the knowledge and experience and don’t need the information AMC to MED.B.090 etc.
Proposal:
Instead of LPL requirements class 2.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 II Draft decision AMC and GM for Part-Medical AMC/GM to Part-Medical Subpart A General Requirements Leisure Pilot’s Licence Medical Report 4. Psychiatric illness 4.1 – 4.6 = no comments
Page:
Relevant Text: Does the pilot have history of psychological or psychiatric illness?
Comment: 4. Even the psychologist in the group could not define what a psychological illness is. Illness describes a medical and not primarily a psychological problem. Two points to be added: 4.7 – 4.8 = Aeromedical psychiatric experience has proven that histories concerning the past six months are to short and not representative. ‘psychotic illness/disorder’ are easily misunderstood by pilots/applicants. The questions concerning treatment and medication in this context helps for clarification.
Proposal: 4. Does the pilot/applicant have history of psychiatric illness or psychological deficiency . Two points are to be added: 4.7 significant psychiatric disorder which needed treatment 4.8 does or did the pilot take any psychotropic medication

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart B Requirements for medical certificates Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates AMC.A. to Med.B.050 – PSYCHIATRY – class 1 medical certificates
Page:
Relevant Text: 1. Psychotic disorder A history of, or the occurrence of, a functional psychotic disorder is disqualifying unless in certain rare cases a cause can be unequivocally identified as one which is transient, has ceased and will not recur.
Comment: Otherwise the risk of recurrence could be overlooked
Proposal: 1. Psychotic disorder A history of, or the occurrence of, a functional psychotic disorder is disqualifying unless in certain rare cases a cause can be unequivocally identified as one which is transient, has ceased and will not recur. Psychiatric evaluation is mandatory

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart B Requirements for medical certificates Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates AMC.A. to Med.B.050 – PSYCHIATRY – class 1 medical certificates
Page:
Relevant Text: 4. Schizophrenia, schizotypal or delusional disorder Applicants with an established schizophrenia, schizotypal or delusional disorder should only be considered for a fit assessment if the licensing authority concludes that the original diagnosis was inappropriate or inaccurate or in the case of a single episode of delirium, provided that the applicant has suffered no permanent impairment.
Comment:
Proposal: 4. Schizophrenia, schizotypal or delusional disorder Applicants with an established schizophrenia, schizotypal or delusional disorder should only be considered for a fit assessment if the licensing authority concludes that the original diagnosis was inappropriate or inaccurate and if there is otherwise no risk of recurrence. (or in the case of a single episode of delirium, provided that the applicant has suffered no permanent impairment.) (delete)

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart B Requirements for medical certificates Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates AMC.A. to Med.B.050 – PSYCHIATRY – class 1 medical certificates
Page:
Relevant Text: 5. Mood disorder An established mood disorder is disqualifying. A fit assessment may be considered after full consideration of an individual case, depending on the mood disorder characteristics and gravity and after all psychotropic medication has been stopped for an appropriate period.
Comment: Especially Australian and to some degree Canadian experiences have proven that under specific control there is no risk for aviation safety. Ross J., K. Griffiths, K. Dear, et al. ‘Anti-depressant Use and

Safety in Civil Aviation; A Case-Control Study of 10 Years of Australian Data'. Aviation, Space and Environmental Medicine. 78, 749-755, 2007.
Proposal: An established mood disorder is disqualifying. A fit assessment may be considered after full consideration of an individual case, depending on the mood disorder characteristics and gravity, after full recovery and after regular follow up, all psychotropic medication has been stopped for an appropriate period. The following sentence should be added: In case by case decisions some SSRI and SRNI may be accepted under close psychiatric review.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart B Requirements for medical certificates Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates AMC.A. to Med.B.050 – PSYCHIATRY – class 1 medical certificates
Page:
Relevant Text: 6. Neurotic, stress-related or somatoform disorder Where there is suspicion or established evidence that an applicant has a neurotic, stress-related or somatoform disorder, the applicant should be referred for psychiatric opinion and advice.

Comment:
Proposal: 6. Neurotic, stress-related or somatoform disorder Where there is suspicion or established evidence that an applicant has a neurotic, stress-related or somatoform disorder, the applicant should be referred for psychiatric and/or psychological opinion and advice.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 1 Subpart B Requirements for medical certificates Specific requirements for class 1 and class 2 medical certificates Chapter A AMC for class 1 medical certificates AMC.A. to Med.B.050 – PSYCHIATRY – class 1 medical certificates
Page:
Relevant Text: 9. Deliberate self-harm A single self destruction action or repeat acts of deliberate self-harm are disqualifying. A fit assessment may be considering after full consideration of an individual case and may require psychiatric or psychological review. Neuropsychological assessment may also be required.
Comment:
Proposal: 9. Deliberate self-harm A single self destructive action or repeated acts of deliberate self-harm are disqualifying. A fit assessment may be considered after full consideration of an individual case and may require psychiatric and/or psychological review. Neuropsychological assessment may (delete) also be required.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC A to MED.B.055 PSYCHOLOGICAL – class 1 medical certificates
Page:
Relevant Text: 7. Personality or behavioural disorder Where there is suspicion or established evidence that an applicant has a psychological disorder, the applicant should be referred for psychological opinion and advice.

Comment:

Proposal:
After medical evaluation where there is suspicion or established evidence that an applicant has a psychological disorder (delete) deficiency (insert) , the applicant should be referred for psychiatric and/or psychological opinion and advice.

10 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC A to MED.B.060 Neurology -class 1 medical certificates
Page:
Relevant Text: 1. Epilepsy 1.1 A diagnosis of epilepsy is disqualifying, unless there is unequivocal evidence of a syndrome of benign childhood epilepsy associated with a very low risk of recurrence, and unless the applicant has been free of recurrence and off treatment for more than 10 years. One or more convulsive episodes after the age of 5 a re disqualifying. In the case of an acute symptomatic seizure, which is considered to have a very low risk of recurrence, a fit assessment may be considered.
Comment: Aeromedical neurological experience confirms too many recurrences.
Proposal: 1. Epilepsy 1.1 A diagnosis of epilepsy is disqualifying, unless there is unequivocal evidence of a syndrome of benign childhood epilepsy associated with a very low risk of recurrence, and unless the applicant has been free of recurrence and off treatment for more than 10 years. One or more convulsive episodes after the age of 5 a re disqualifying. In the case of an acute symptomatic seizure, which is considered to have a very low risk of recurrence and after adequate neurological review, a fit assessment may be considered.

11 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC A to MED.B.060 Neurology -class 1 medical certificates
Page:
Relevant Text: 3. Clinical EEG abnormalities 3.2 Epileptiform paroxysmal EEG abnormalities and focal slow waves should be disqualifying.
Comment: Focal slow waves e.g. after head trauma or successfully treated diseases are in some cases waiverable
Proposal: Epileptiform paroxysmal EEG abnormalities and focal slow waves (delete)

should be disqualifying. Focal slow waves should undergo neurological evaluation.

12 Comment
Author: Group Neurology Psychiatry
Section: AMC A to MED.B.060 Neurology -class 1 medical certificates
Page:
Relevant Text: 5. Episode of disturbance of consciousness In the case of a single episode of disturbance of consciousness, which can be satisfactorily explained, a fit assessment may be considered.
Comment: ‘Explainable’ disturbances of conscieousness have rather often had recurrences.
Proposal: 5. Episode of disturbance of consciousness In the case of a single episode of disturbance of consciousness, which can be

satisfactorily explained, a fit assessment may be considered, if the risk of relapse is sufficiently low.

12 Comment 13 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC A to MED.B.060 Neurology -class 1 medical certificates
Page:
Relevant Text: 7. Spinal or peripheral nerve injury An applicant with a history or diagnosis of spinal or peripheral nerve injury should be assessed as unfit. A fit assessment may be considered if neurological review and musculoskeletal assessments are satisfactory.
Comment:
Proposal: 7. Spinal or peripheral nerve injury, myopathies An applicant with a history or diagnosis of spinal or peripheral nerve injury or myopathy should be assessed as unfit. A fit assessment may be considered if neurological review and musculoskeletal assessments are satisfactory.

Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC B to MED.B.050 PYSCHIARTY – class 2 medical certificates
Page:
Relevant Text: (all text)
Comment: These diagnostic groups bare a high risk to endanger others or violate rules, i.e. flying in controlled air space. Draeger J., J. Kriebel (Eds). Praktische Flugmedizin. Ecomed Verlag 2002. C. Curdt – Christiansen, J. Dreager, J. Kriebel (Eds). Practical Aviation Medicine. World Scientific Press. Singapore. Impress.
Proposal: 1. Psychotic disorder Schizophrenia, schizotypal or delusional disorder Applicants with an established schizophrenia, schizotypal or delusional disorder should only be considered for a fit assessment if the licensing authority concludes that the original diagnosis was inappropriate or inaccurate and otherwise no risk of recurrence. 2. Mood disorder An established mood disorder is disqualifying. A fit assessment may be considered after full consideration of an individual case, depending on the mood disorder characteristics and gravity, after full recovery and after regular follow up, as well as all psychotropic medication has been stopped for an appropriate period. In case by case decisions some SSRI and SRNI may be accepted under close psychiatric review. 3. Psychotropic substances Use or abuse of psychotropic substances likely to affect flight safety is disqualifying. 4. Personality or behavioural disorder After medical evaluation where there is suspicion or established evidence that an applicant has a psychological disorder (delete) deficiency (insert) , the applicant should be referred for psychiatric and/or psychological opinion and advice.

13 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC B to MED.B.055 PSYCHOLOGY – class 2 medical certificates
Page:
Relevant Text: Applicants with a psychological disorder may need to be referred for psychological or neuropsychiatric opinion and advice.
Comment:
Proposal: Applicants with a psychological deficiency, likely to interfere with aviation safety should be referred for psychological or psychiatric or neurological opinion and advice. Disorders may need to be referred for psychological or neuropsychiatric opinion and advice. (delete sentence)

14 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: AMC B to MED.B.060 NEUROLOGY – class 2 medical certificates
Page:
Relevant Text: 3. Neurological disease Any stationary or progressive disease of the nervous system which has caused or is likely to cause a significant disability is disqualifying. In case of minor functional loss associated with stationary disease a fit assessment may be considered after full evaluation.
Comment:
Proposal: 3. Neurological disease Any stationary or progressive disease of the nervous system or history of disturbance of consciousness which has caused or is likely to cause a significant disability is disqualifying. In case of minor functional loss associated with stationary disease a fit assessment may be considered after full evaluation.

15 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
AMC B to MED.B.060 NEUROLOGY – class 2 medical certificates
Page:
Relevant Text: New relevant text.
Comment:
Proposal: 5. Spinal or peripheral nerve injury, myopathies An applicant with a history or diagnosis of spinal or peripheral nerve injury or myopathy should be assessed as unfit. A fit assessment may be considered if neurological review and musculoskeletal assessments are satisfactory.

16 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section:2 Specific requirements for LAPL medical certificates
Page:
Relevant Text: 5. PSYCHIARTY AND PSYCHOLOGY (all text)
Comment:
Proposal: Delete entire text. Insert: 5. From clinical and aeromedical experience the total paragraph number 5 is unacceptable. It does not exclude safely psychiatric pilots with high risk for aviation safety. We recommend instead the regulations for class 2.

17 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: Specific requirements for LAPL medical certificates
Page:
Relevant Text: 6.2 Cerebovascular Disease Following a stroke or transient ischemic attack applicants should be assessed as unit for a minimum period of 1 month. After this date, if there has been a full function recovery applicants may be assessed as fit with their privileges limited to operations without carrying passengers for a minimum period of 11 months. A satisfactory exercise ECG is required to remove the limitation.
Comment:

Proposal:
6.2 Cerebovascular Disease Following a stroke or transient ischemic attack applicants should be assessed as unit for a minimum period of 1 month. After this date, if there has been a full function recovery applicants may

be assessed as fit with their privileges limited to operations without carrying passengers for a minimum period of 11 months. A satisfactory neurological and cardiological investigation including exercise ECG is required to remove the limitation.
18 Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: Specific requirements for LAPL medical certificates
Page:
Relevant Text: 6.3. Epilepsy (iii) (all text) 6.5. Chronic neurologic disorder (e.g. Parkinson's disease, Multiple Sclerosis) Applicants may be assessed as fit if they are stable with adequate functional ability. 6.6 Liability to sudden giddiness (e.g. Meniere's disease) 6.7. Benign supratentorial tumour treated by craniotomy If cured and seizure free, applicants may be considered for operations without carrying passengers after one year. If cured and seizure free the limitation can be lifted after a further 4 years. 6.14. Acute intracerebral haemorrhage (iv) (all text) 6.15. Incidental finding of intracranial aneurysm (ii) If treated by surgery the applicant may be considered for operations without carrying passengers when clinically recovered. The limitation may be lifted after 1 year.
Comment: The text is contradictory because it would allow pilots to fly with seizures, if their last 'episode' i.e. more episodes, occurred one year ago. Aeromedical and neurological experience show that there is a further risk of recurrence.
Proposal: Delete all text. 6.5. Chronic neurologic disorder (e.g. Parkinson's disease, Multiple Sclerosis) Applicants may be assessed as fit if they are stable with adequate functional ability under neurological control. 6.6 Liability to sudden giddiness (delete) instability/vertigo (insert) (e.g. Meniere's disease)
6.7 If cured and seizure free, applicants may be considered for operations without carrying passengers after one year. If cured and seizure free the limitation can be lifted after a further 4 years. Exceptions may be assessed in case by case decisions under neurological control.
Delete the whole paragraph (iv)

Insert:
The problem is already covered by part (i).

6.15. Incidental finding of intracranial aneurysm
(ii) If treated by surgery the applicant may be considered for operations without carrying passengers when full clinical recovered (delete) recovery is confirmed. The limitation may be lifted after 1 year.
Comments ENT (Ear, Nose and Throat)

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 Med.A. 055 A(4)(i) – (iii) Validity Revalidation and Renewal of Medical Certificates
Page: 7
Relevant Text: Medical certificates of the LAPL shall be valid until the age of 45
Comment: Even prior to the 45 the birthday changes in health are frequent
Proposal: LPL medical certificates shall be valid: in according to class 2 requirements

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: Subpart B MED.B.075 c Examination
Page: 17
Relevant Text: (1) Hearing shall be tested at all examinations (2) A comprehensive ear, nose and throat examination shall be undertaken for the initial issue of a class 1 medical certificate and periodically thereafter when clinically indicated
Comment: Diseases of ear, nose and throat are often seen in pilots due to cockpit environments. Preventive medical examination is required. At each examination, a clinical ear, nose and throat examination has to be performed. Attacks of vertigo can be extremely dangerous should they occur in flight. Even mild episodes of vertigo occurring in critical phases of flight could be disastrous. An AME normally may not be competent enough to perform the ENT examination.
Proposal: (c) Examination (1) a thorough examination of the equilibrium is to undertaken for all classes (2) Hearing shall be tested at all examinations (i) same text (ii) same text (iii) same text (3) A comprehensive ear, nose and throat examination under supervision of an ENT specialist accepted by the authorities shall be undertaken for the initial issue of a class 1 medical certificate and periodically thereafter when clinically indicated.

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 Subpart A AMC to MED.A.040 – Instruction for completion of LPL report
Page: 27
Relevant Text: ENT chapter has been forgotten in the LPL report form
Comment: The report details the medical standard required for a pilot to hold a light aircraft pilot`s licence. Medical history of an applicant is important to prevent any kind of disqualifying ENT conditions, because there are many issues in the ENT subject which potentially can cause sudden incapacitation in flight.
Proposal: 15 ENT Does the pilot have a history of: 15.1 Impaired hearing or hearing loss Y/N 15.2 Eustachian tube dysfunction Y/N 15.3 Diseases of the middle ear Y/N 15.4 Middle ear surgery Y/N 15.5 Disease of the inner ear Y/N 15.6 Vestibular dysfunction Y/N 15.7 Disease of head neck, face and scalp Y/N 15.8 Disease of the upper airway or oral cavity Y/N 15.9 Sinus dysfunction Y/N

Comment
Author: Dr Oliver Brock, MD, PhD, Senior AME JAR, CASA, CAA Nz
Section: 2 AMC A to MED .B.075 4-Vestibular disturbance
Page: 48
Relevant Text: An applicant with disturbance of vestibular function should be assessed as unfit. A fit assessment may be considered after full recovery. The presence of spontaneous or positional nystagmus requires complete vestibular evaluation by an ENT specialist. Significant abnormal caloric or rotational vestibular responses are disqualifying. Abnormal vestibular responses shall be assessed in their clinical context.
Comment: There are more different types of nystagmus, that can indicate severe diseases of the vestibular system, which have to be regarded.
Proposal: An applicant with disturbance of vestibular function should be assessed as unfit. A fit assessment may be considered after full recovery.

The presence of spontaneous, positional, or any other type of nystagmus requires complete vestibular evaluation by an ENT specialist accepted by the authority. Significant abnormal caloric vestibular responses are disqualifying. Abnormal vestibular responses shall be assessed in their clinical context.
Comment
Author: Group ENT
Section: 2 AMC B to MED.B.075 2. – 8. Examination
Page: 58
Relevant Text: 2. An ENT examination should form part of all revalidation and renewal examinations.
Comment: An AME normally may not be competent enough to perform the ENT examination. The examination of the tubal function is essential to prevent barotraumas which can cause severe sudden in flight incapacitation.
Proposal: An ear nose and throat examination should form part of all examinations. All abnormal and doubtful cases should be referred to a specialist in Aviation ENT acceptable to the authority. Add 9.:Tubal dysfunction An applicant with tubal dysfunction should be assessed as fit if ENT examination is satisfactory.