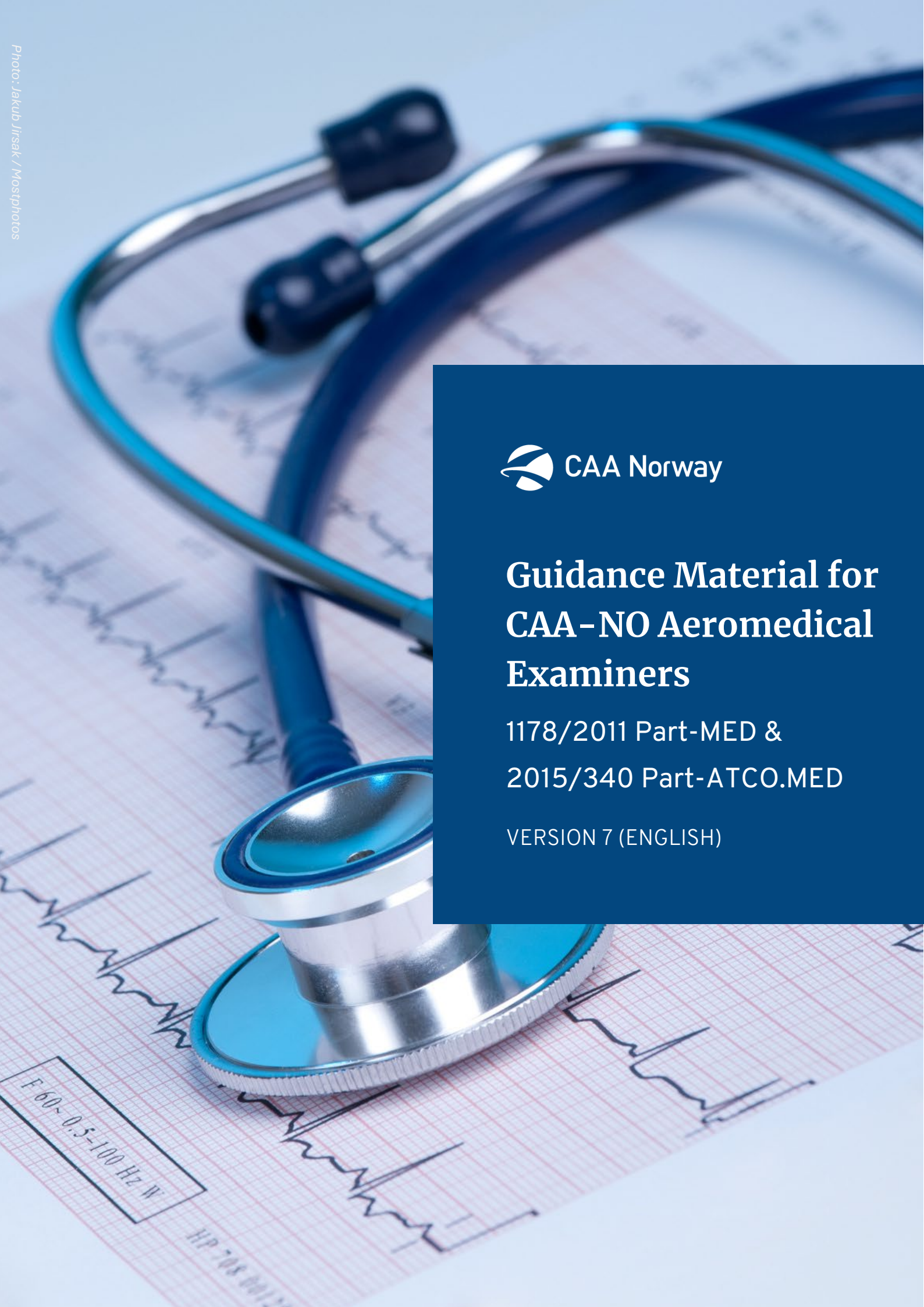

Photo: Jakub Jirsak / Mostphotos

CAA Norway

Guidance Material for CAA-NO Aeromedical Examiners

1178/2011 Part-MED &

2015/340 Part-ATCO.MED

VERSION 7 (ENGLISH)

Table of Contents

Introduction

This guidance material is intended for Aeromedical Examiners (AMEs) and outlines how the aeromedical certification requirements in accordance with Regulation (EU) No 1178/2011 Part-MED, and Regulation (EU) 2015/340 Part-ATCO.MED are to be interpreted and applied in Norway and for Norwegian applicants. The guidance provides national clarifications and supplementary procedures to ensure uniform application of the EASA regulations, in line with the oversight responsibilities of the Norwegian Civil Aviation Authority (CAA Norway).

The material is primarily aimed at Norwegian AMEs but also applies to foreign AMEs who perform aeromedical examinations for applicants or licence holders certified by CAA Norway.

Version 7 replaces previous editions and is valid from **June 2025**. The guidance reflects national practice, legal interpretations, and medical standards as applied by the Aeromedical Section of CAA Norway.

This English version is based on the official Norwegian AME guidance, translated using AI tools (OpenAI) and subsequently quality assured by aeromedical personnel. Some minor adjustments have been made to ensure that the content is also applicable to AMEs appointed by other EASA member states.

Note: This document is not legally binding but is considered authoritative guidance for AMEs acting on behalf of CAA Norway.

Contact Information:

Civil Aviation Authority Norway (CAA Norway)
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Guidance to Part-MED/ Part-ATCO.MED Subpart A

General requirements

MED.A.025, MED.A.035, MED.A.040, MED.A.050 / ATCO.MED.A.025, ATCO.MED.A.035, ATCO.MED.A.040, ATCO.MED.A.050 – AME obligations

Procedures to verify applicant identity

An applicant for a medical certificate must always present valid identification to the Aeromedical Examiner (AME), who is responsible for ensuring that the applicant is who they claim to be. This is essential to prevent the use of a substitute in order to conceal relevant medical conditions. For all medical certificate applications, verification of a valid identity document (e.g. passport) must be documented by scanning the ID into EMPIC.

Verification of the previous medical certificate

When revalidating or renewing a medical certificate, the AME must always review the applicant's previous medical certificate and pay particular attention to the following:

1. Imposed limitations
    - The AME is responsible for understanding the scope of any limitations. If this is not fully clear from the certificate itself or the "applicant comment" field in EMPIC (e.g., SIC), the AME may request the applicant to present the decision letter or obtain the applicant's consent to access the letter in EMPIC. The AME may also contact CAA Norway for clarification.
    - Any limitations endorsed on a medical certificate shall be carried forward at revalidation or renewal, unless explicitly amended or removed in accordance with the applicable regulations or a formal decision
2. Validity period of the previous medical certificate
    - The validity period determines whether the current application is for revalidation or renewal. If the examination is performed within 45 days prior to the expiry of the current certificate, revalidation rules apply.
    - If more than 2 years have passed since the expiry of a Class 1, 2, or 3 medical certificate, the AME must review the full aeromedical file before a new certificate can be considered (cf. MED.A.045(c)(2)(i) and ATCO.MED.A.045(c)(2)(ii)). This requires the applicant to grant the AME access to all prior reports and documents in EMPIC.
    - If more than 5 years have passed since expiry, the same examinations required for initial certification apply, although the medical standards remain those of revalidation (cf. MED.A.045(c)(2)(ii) and ATCO.MED.A.045(c)(2)(iii)). In such cases, renewal of Class 1 or Class 3 certificates must be conducted at an AeMC.
3. Licence number
    - The AME must ensure that the correct nationality and licence number are maintained (cf. ARA.MED.130(a)) and that all relevant documents and medical records are submitted to the appropriate aviation authority.
    - The application and supporting documentation must be recorded in EMPIC; if submitted to another Member State's authority, this must also be documented in EMPIC.

Consequences of withholding relevant information

CAA Norway considers it a serious matter if an applicant fails to disclose relevant medical information, and the AME must ensure that the applicant is aware of this obligation.

If an AME discovers that an applicant has withheld necessary information, or that a certificate holder has failed to report a relevant change in medical condition during the validity period of the certificate, the circumstances and reason shall be documented in EMPIC. In addition, CAA Norway shall be informed in writing.

Failure to comply with this disclosure requirement may result in the revocation of the medical certificate by CAA Norway. In serious cases, this may also lead to criminal penalties, including fines or imprisonment for up to six months, per Norwegian law.

Even if the applicant has disclosed a medical condition in previous applications, this information must be re-declared during each revalidation or renewal of the medical certificate.

AME's duty to inform the applicant

If an AME cannot ensure that communication with an applicant for a medical certificate occurs without a language barrier, the certificate shall not be issued.

After completing the aeromedical examination and assessment, the AME shall inform the applicant of the following:

- the AME's evaluation of whether the applicant meets the applicable medical requirements,
- if relevant, that the application has been referred to CAA Norway for further assessment,
- the applicant's right to request a re-evaluation by CAA Norway in the event of a denial of the medical certificate (as stated in the letter of denial generated in EMPIC). This does not apply to cabin crew.

When issuing a medical certificate, the AME must also inform the applicant of the responsibilities outlined below — even though these are already printed on the certificate. The AME may choose to print the EMPIC information sheet, which also includes a description of the following:

- the applicant's duty to refrain from exercising the privileges of the licence if aware of any medical condition that may compromise flight safety,
- the applicant's duty to seek aeromedical advice from an AME or AeMC without undue delay following surgery, hospital admission, commencement of a new medication, significant injury or illness, or pregnancy,
- any limitations endorsed on the medical certificate.

Documentation requirements in EMPIC

Every aeromedical examination and assessment related to EASA medical certificates and AFIS/HFIS medical certificates in Norway shall be documented in EMPIC. Any condition in the applicant's medical history and any abnormal finding during the clinical examination must be thoroughly commented on by the AME. The applicant should bring discharge summaries from all relevant consultations with clinical specialists or healthcare providers. These documents shall be scanned and uploaded to EMPIC. This requirement is not only essential for verifying

medical fitness but also reflects the well-documented fact that patients frequently misunderstand or forget key aspects of their medical history.

A good rule of thumb is that a case officer at CAA Norway should be able to independently assess whether the applicant meets the health requirements based on the up-to-date medical documentation in EMPIC.

This documentation requirement applies to:

- Initial applications, revalidations, or renewals of medical certificates
- Any changes in the health status of a current certificate holder that require consultation with an AME (to be recorded as Interim Assessment or Expert Examination in EMPIC)

If there is uncertainty about whether previous, but still relevant, medical documentation has been uploaded to EMPIC, such documentation shall be uploaded regardless. The AME must not assume that CAA Norway is aware of all previous relevant documentation.

The medical report in EMPIC shall clearly state whether the AME considers the health requirements fulfilled, with or without limitations—even if the application has been referred to the CAA. In cases of denial, EMPIC must always include documentation of the rejection letter and specify the legal basis used – i.e. the relevant provisions of Part-MED (e.g. MED.B.005 and organ-specific paragraphs such as MED.B.010, MED.B.065, etc). All applicable provisions shall be included for legal clarity, to ensure transparency of the medical reasoning, and to allow for accurate statistical monitoring. For instance, in suspected vasovagal syncope of uncertain origin, both MED.B.010 (cardiovascular) and MED.B.065 (neurology) may be relevant.

Whether issuing a certificate, denying an application, or referring to the CAA, the AME must cite relevant provisions in IR, AMC, and GM. This ensures legal clarity, transparent communication, and proper medical documentation — including in cases where the applicant has a relevant medical history but is nevertheless assessed to meet the applicable medical requirements. If the AME's assessment deviates from the current GM, it must be supported by evidence-based justification for the alternative approach taken.

In cases requiring consultation with the Norwegian CAA, the AME must ensure that written feedback is received and available in EMPIC via the consultation function before issuing the certificate. The absence of such documentation is considered as if no consultation has occurred, regardless of the AME’s comments or verbal communication with the CAA.

The AME must also upload the signed application form to EMPIC. When a medical certificate is issued, the signed certificate must also be scanned and uploaded. It is not sufficient to include an unsigned version of the application or certificate. Both the AME’s and the applicant’s signatures must be included.

A copy of valid photo ID (preferably passport) must be scanned and uploaded into EMPIC to confirm identity verification.

Only EASA medical certificates and AFIS/HFIS medical certificates should be documented in EMPIC. Non-EASA medical certificates issued by other countries must not be recorded in EMPIC. However, EASA medical examinations of applicants holding certificates issued by other EASA authorities must also be recorded in EMPIC.

Documentation requirements for AMEs outside Norway

AMEs who conduct assessments of Norwegian applicants for EASA medical certificates but do not have access to the Norwegian digital medical system (EMPIC) are required to follow the same medical and regulatory standards as AMEs based in Norway. However, due to the lack of EMPIC access, alternative documentation procedures apply.

Submission of medical documentation

All medical documentation relevant to the aeromedical assessment must be submitted to CAA Norway. This includes:

- A complete and signed application form
- A copy of the issued medical certificate (if applicable)
- The full aeromedical report, including:
    - Clinical findings from the examination
    - Assessment of the applicant's medical history
    - Copies of all relevant discharge summaries or specialist reports
    - Clear statement from the AME on whether the applicant meets the applicable medical requirements (with or without limitations)
    - Legal basis (relevant provisions of Part-MED: e.g. MED.B.005 and MED.B.010, MED.B.065, etc.) used for the assessment
- A copy of a valid photo ID (passport preferred)

This documentation must be sent to:

Post address:
Civil Aviation Authority Norway
P.O. Box 243
NO-8001 Bodø
Norway

Email notification:
A brief notification should also be sent to postmottak@caa.no, specifying that medical documentation has been submitted by post. Please do **not** send sensitive or confidential information by email unless appropriate encryption and security measures are used to protect data.

The use of the above postal address and notification procedure is essential to ensure correct logging and medical recordkeeping at CAA Norway.

Additional requirements and recommendations

- The AME should clearly indicate contact details in the submission, in case the documentation is found to be incomplete or if further clarification is required by CAA Norway.
- The AME should inform the applicant that CAA Norway will charge a processing fee for handling medical documentation received from abroad.
- If the AME refers the case to CAA Norway for a decision, a written explanation should be included, and all supporting documents must accompany the referral.
- The AME must cite the relevant provisions from the Implementing Rules (IR), Acceptable Means of Compliance (AMC), and Guidance Material (GM). This ensures legal clarity and

transparent documentation and supports the applicant's right to review and appeal if necessary.

Although AMEs outside Norway do not have access to the Norwegian EMPIC system, the other procedures and requirements outlined in this document remain applicable as far as they are practically feasible. This includes, but is not limited to, standards for clinical documentation, medical reasoning, regulatory references, and professional conduct. References to EMPIC in other sections should be interpreted as applying analogously, meaning that equivalent documentation must still be provided and submitted to CAA Norway by other secure means.

Finalisation and release of the application in EMPIC

If the AME is awaiting supplementary documentation, such as discharge summaries or the results of additional medical investigations, the application must remain on the AME's worklist in EMPIC.

Once the application is complete, it must be released in EMPIC ("Release to AMS") without undue delay. This applies both to applications referred to the CAA Norway and to those that do not require referral.

A medical report must always be released in EMPIC no later than 5 days after the examination has been completed and all necessary documentation is available.

If the AME is awaiting supplementary documentation from the applicant, such as specialist reports or test results, a concrete and reasonable deadline for submission must be agreed. As a general rule, an application must not remain unresolved on the AME's worklist for more than 6 months. If the required documentation has still not been received within this timeframe, the application should be closed in EMPIC.

If the medical examination is incomplete and the applicant requests to withdraw the application, the application should be cancelled in EMPIC. A cancelled application cannot form the basis for a subsequent review by CAA Norway, as this requires a complete medical examination and application.

If the medical examination is complete, but there is still insufficient documentation to confirm compliance with the medical requirements, the applicant should normally be assessed as "unfit" in EMPIC. A medical certificate may only be issued if there is a sound evidentiary basis for doing so. If adequate documentation is not available despite the applicant being given a reasonable opportunity to obtain it, the application must be denied. The reason for the denial must be documented in EMPIC. The applicant must be informed in writing of the decision and that a new assessment may be performed once the necessary documentation is submitted.

Exceptions to the 6-month rule may only be made if special circumstances exist that make a longer waiting period necessary and reasonable. Such exceptions must be justified and documented in EMPIC.

Applicants holding a licence issued by another EASA Member State must be confirmed in writing in EMPIC that all relevant documentation and medical information have been forwarded to the issuing authority (see separate procedure later in this guide).

Registration of aeromedical examinations in EAMR

The European Aero-Medical Repository (EAMR) is managed by EASA and is intended to ensure that AMEs have access to relevant information regarding Class 1 aeromedical examinations conducted in other countries.

At present, the database applies exclusively to Class 1 examinations. It includes the applicant's full name, date of birth, nationality, email address, reference number of the identity document (passport or national ID card), date of the aeromedical examination, validity period of the medical certificate, location of the examination, any limitations imposed, the competent authority, name of the AME, and the status of the application. The EAMR does not contain any medical history or justification for the aeromedical assessment.

All AMEs are required to check the EAMR before issuing a Class 1 medical certificate. After completing a Class 1 examination, the assessment must be recorded in EAMR in addition to EMPIC. Before creating a new record, the AME must check for an existing EAMR ID ("Unique ID") to avoid duplicate entries. Class 1 certificate holders also have access to their own records in the EAMR, and the AME should ensure that the applicant is aware of this.

Due to current limitations in the EAMR software, it is not possible to search for previous records based solely on name or date of birth. Therefore, when registering an examination in EAMR, the AME shall record the applicant's EAMR ID number in EMPIC, and the applicant should be advised to retain the EAMR ID for use in future examinations.

Training on EAMR is regularly offered during AME training courses. However, AMEs are also expected to familiarise themselves with the user guides and training material available on the EASA website:
https://www.easa.europa.eu/en/domains/aircrew-and-medical/medical/european-aero-medical-repository#EAMR%20user%20guides

In the event of technical problems with EAMR, AMEs may contact:
EAMR-Support@easa.europa.eu
It is recommended that a copy of the inquiry be sent to CAA Norway as well.

Medical declaration

The AME shall review the medical application form and declaration together with the applicant to ensure that all relevant medical information is included in the application. Any instance where the applicant has answered "yes" under Medical History must be elaborated on in the comments section. When relevant, the AME must also ensure that supporting medical documentation is scanned into EMPIC and attached to the application.

If the applicant has previously been assessed as medically unfit for a medical certificate, the reason for this must be clearly stated in the application. The AME is responsible for assessing whether this may have an impact on flight safety today. It is not sufficient to merely comment that the information is "known from previous applications". CAA Norway only controls a random sample of aeromedical assessments and may not have previously reviewed the information in question.

The AME must always ensure that the declaration form in EMPIC is signed by the applicant. The signed declaration must be retained for a minimum of 10 years. The AME is responsible for

ensuring that the signed declaration matches the one stored under the Application Form in EMPIC. This requirement may be critical in the event of a future aviation incident, where it might be revealed that the certificate holder withheld essential medical information.

Burden of proof in cases of uncertainty regarding medical fitness

The Basic Regulation (EU) 2018/1139, as implemented into Norwegian law through the EASA Regulation dated 1 July 2024, establishes that compliance with the medical requirements in Part-MED must be documented prior to the issuance of a medical certificate (cf. Article 21 and Annex IV, point 3.1).

This means that in cases where a medical condition may have a potential negative impact on flight safety, it must be documented that there is no functional impairment or increased risk of sudden incapacitation that could adversely affect flight safety.

For the issuance of medical certificate privileges, the burden of proof lies in demonstrating compliance with the applicable medical requirements — not the opposite.

Furthermore, according to MED.A.040, an AME may not issue a medical certificate until a complete medical history has been obtained, all examinations and aeromedical evaluations have been completed, and it has been verified that the applicant meets the medical requirements.

Consultation with or referral to CAA Norway

According to the applicable regulations, certain medical conditions require the AME to refer the application to the aviation authority or to consult with the aviation authority before a medical certificate can be issued. Referral is primarily required for some Class 1 or Class 3 applications, while consultation typically applies to Class 2 applications.

Per GM1 MED.A.025(c), a complete and current aeromedical examination must be performed before the AME or AeMC refers or consults with CAA Norway.

For applications for a medical certificate, there is no requirement for referral if the AME assesses the applicant as unfit and the applicant does not wish to request a review by the authority. In such cases—where it is evident that the applicant is unfit and this has been clearly communicated and accepted—the purpose of a formal referral is largely redundant, especially as the applicant retains the right to request a secondary assessment by the authority at any time. However, the AME must document that the applicant has been informed about the right to request such a review. There is no time limit for the applicant to request a secondary review by the authority, provided that the underlying aeromedical examination is complete and still valid as a basis for assessment.

If the AME determines that the applicant does not meet the medical requirements, the applicant must be marked as unfit in EMPIC before any potential referral, and the assessment shall be clearly justified with reference to the relevant parts of the regulation.

If the application is referred to CAA Norway, the authority must be notified via email (postmottak@caa.no) at the same time as the application is released in EMPIC. This is necessary due to technical limitations that prevent automatic notifications via EMPIC. No sensitive medical information may be sent via unencrypted email; the AME must only refer to the EMPIC report by including the first letter of the applicant's first name, the first two letters of

the last name and the date of birth. Do not include full name or personal ID number. The EMPIC medical report must be complete, or the application will be returned, causing unnecessary delays for the applicant.

If consultation is required, the AME must select “Consult AMS” in EMPIC without releasing the application. The AME must also notify CAA Norway by email (as described above) to ensure efficient processing. The reason for consultation must be clearly specified under “Consultation Reason”.

To avoid delays, the AME must ensure the following prior to referral/consultation:

1. The application must be sufficiently documented in EMPIC. This includes results from any specialist assessments where required. For certain conditions, a minimum observation period is required to confirm medical stability. If the period is not completed, the application must not be referred or consulted on. In such cases, the AME must document in EMPIC whether any medical changes have occurred during the observation period.
2. The email's subject line must include “Referral” or “Consultation”.
3. The AME must clearly communicate in EMPIC the background and justification for the referral or consultation, including reference to the relevant regulatory provision.
4. The AME must provide a professional recommendation and supporting rationale.

All referral and consultation processes must be documented in writing to allow retrospective review. Any verbal exchange over the phone does not meet the requirement for referral or consultation.

In consultations, CAA Norway will typically only assess the specific question posed. In referrals, the authority will assess the entire application and determine whether the applicant meets all medical requirements for certification.

The AME must inform the applicant about the expected or median processing time at CAA Norway, which has been 2–4 weeks in recent years. The AME must also inform the applicant that the official processing time is paused if the application is returned to the AME for missing documentation, which may result in a longer total wait time for the applicant.

Important: A medical certificate must not be issued while awaiting CAA Norway’s decision.

Return of Applications in EMPIC – Why It Happens and How to Avoid It

To ensure that CAA Norway can process applications as efficiently and responsibly as possible, it is essential that all necessary documentation is in place before a case is referred or submitted for consultation in EMPIC. If documentation is incomplete, the application will be returned to the AME for completion—potentially causing unnecessary delays for the applicant.

In both referrals and consultations, the AME is expected to provide an independent and justified assessment of the applicant's medical fitness. This also applies in complex or uncertain cases, where it should be clearly stated what remains unclear and why the case is considered challenging.

In most cases, the Norwegian CAA does not have the opportunity to meet the applicant in person. The case officer, therefore, relies on the AME’s assessment being thorough, well-documented, and clearly reasoned. Such assessments are often critical for smooth and efficient case handling.

If an application is returned in EMPIC, the AME should inform the applicant and clarify what additional information is needed before the case can proceed to further evaluation by the CAA.

Administrative status of AME decisions according to the Norwegian Public Administration Act

Aeromedical Examiners in Norway make professional assessments regarding whether the health requirements set out in the EASA regulations are documented as being fulfilled. However, AMEs do not issue formal administrative decisions ("forvaltningsvedtak") as defined by the Norwegian Public Administration Act ("forvaltningsloven"). Consequently, an AME's assessment of medical fitness does not constitute an "individual decision" under the Act, and the associated formal provisions regarding decisions, appeal rights, deadlines, and administrative procedures do not apply.

If an AME declines to issue a medical certificate, the applicant may request a re-assessment by the CAA Norway. This is considered a new aeromedical evaluation, not an appeal under administrative law. If, however, the CAA Norway subsequently issues a formal denial of a medical certificate, this constitutes an administrative decision governed by the Public Administration Act. In such cases, the applicant has the right to appeal the decision, and the appeal will be processed by the National Office for Health Service Appeals (Helseklage), the designated appeal body for decisions made by CAA Norway.

Jurisdiction of foreign AMEs

These provisions apply specifically to AMEs certified by CAA Norway. AMEs based in other countries and operating under the jurisdiction of a different EASA Member State function in accordance with the legal and administrative framework applicable in their respective countries.

Unchanged medical conditions in cases previously assessed by CAA Norway

Certain medical conditions require evaluation by CAA Norway. In cases where the applicant has previously been assessed by CAA Norway and there are no changes in the medical condition at the time of revalidation, the AME may revalidate the medical certificate under the following conditions:

1. The AME must explicitly reference the previous decision by CAA Norway and confirm that there has been no change in the applicant's medical status that would warrant reassessment by the authority.
2. If CAA Norway's previous assessment was conditional on follow-up examinations, these must be completed and documented accordingly.
3. There must be no formal instruction in the decision letter or related correspondence stating that the case must be referred or consulted with CAA Norway during future assessments.

Re-evaluation of the aeromedical assessment

If the applicant disagrees with the AME's assessment, they may request that CAA Norway conduct a new evaluation of the case. In such instances, it is essential that the case file is sufficiently documented and includes all relevant information and supporting medical records.

As a general rule, the request for reassessment should be submitted through the AME who conducted the original evaluation. The AME should scan and upload the applicant's written request, including the reasoning, into EMPIC. The AME should also provide a written professional assessment addressing the applicant's comments and any updated information.

Any application for review or reassessment by CAA Norway must be based on a complete and valid aeromedical examination. If there is a possibility that the applicant may later request reassessment, the AME should still complete the full examination and assess all aspects, even if early findings suggest that the applicant does not meet the medical requirements.

It is important to note that the case officer at CAA Norway does not conduct anamnesis or clinical examination in connection with such reviews. Therefore, if relevant findings arise during the consultation or clinical examination, they must always be documented in EMPIC, regardless of whether the AME ultimately deems the applicant unfit.

This procedure does not apply to cabin crew. According to Part-MED Subpart C, aeromedical assessments for cabin crew shall be performed by AMEs or AeMCs, and there is no legal basis for issuing a CC medical report by the competent authority. However, cabin crew applicants may seek a second opinion from another AME or AeMC, thereby safeguarding the right to an alternative assessment. AMEs may also contact CAA Norway for aeromedical advice when assessing fitness for cabin crew duties, even if the application is not formally referred to the authority.

Assessment of Class 1 applicants over 60 years of age for single-pilot HEMS operations

Following Amendment Regulation 2024/2076, the age limit for Class 1 pilots engaged in single-pilot HEMS operations has been raised from 60 to 65 years. Aeromedical examinations for such applicants must be conducted exclusively at an AeMC and are subject to several additional medical requirements:

- Extended cardiovascular assessment: Resting ECG, exercise ECG, serum lipids, HbA1c, echocardiography, carotid Doppler, and, if indicated, evaluation of the aorta. Depending on cardiovascular risk, this must be performed at the first aeromedical examination after age 60 and subsequently at least every two years (MED.B.010).
- At the first medical evaluation after age 60, spirometry and assessment for obstructive sleep apnoea (OSA) are required, including application of the STOP-BANG questionnaire (MED.B.015).
- Annual eye examination by an ophthalmologist, with special attention to age-related changes such as presbyopia, glare sensitivity, and contrast sensitivity (MED.B.070).
- Annual colour vision testing (MED.B.075).
- Annual audiometry. At the first examination after age 60, a comprehensive ENT evaluation must also be conducted, including structural and functional assessment of the ears (MED.B.080).

- The AME must consider operator reports per ORO.FC.230, especially regarding cognitive performance.

Note: In accordance with Part-ORA, the AeMC is also required to report statistics concerning all applicants or certificate holders over the age of 60, including age distribution, percentage assessed as unfit, diagnoses leading to unfitness, percentage with incapacitating events, percentage not renewing their medical certificate and any other trends relevant to flight safety.

Examination of applicants licensed by other EASA member states

When conducting a medical examination of applicants holding a licence issued by another EASA Member State, the Norwegian AME shall issue a Part-MED medical certificate in the usual manner if the applicant meets the applicable medical requirements. The information must also be recorded in EMPIC for documentation purposes.

However, the AME is responsible for forwarding all medical records and documentation to the aviation authority of the State where the licence is issued.

The following documents must be included:

1. Signed medical declaration
2. Medical examination report
3. ECG, audiogram, and results from any other relevant examinations
4. Copy of the issued medical certificate

Guidance to Part-MED/ Part-ATCO.MED Subpart B

Guidance material (GM) for medical certification assessments

MED.B.005, MED.B.095(a) / ATCO.MED.B.005 – General medical requirements

General aeromedical principles

The fundamental principle in any aeromedical assessment is that a pilot or air traffic controller does not meet the medical requirements if there are any functional impairments or a risk of acute incapacitation during the exercise of the privileges associated with the medical certificate that could compromise flight safety.

However, the interpretation of terms such as “a degree of,” “likely,” or “aero-medical best practice” in MED.B.005, ATCO.MED.B.005 and MED.B.095 may be unclear.

The section below provides a more detailed explanation of:

- what level of risk may be considered acceptable in aeromedical decision-making,
- how AMEs should relate to different sources of aeromedical guidance when estimating that risk, and
- examples of medical conditions or pharmacological treatments that must be assessed in terms of their potential to cause acute incapacitation.

General assessment of medical fitness

The medical requirements in Part-MED are primarily described in Subpart B. It is important to note that this subpart contains both a general provision (MED.B.005) and more specific, organ-based requirements (Sections 2 and 3 of Subpart B). According to the regulation, the general provision MED.B.005 must always be fulfilled *in addition* to the more specific requirements found in Sections 2 and 3.

According to MED.B.005, an applicant for a Part-MED medical certificate shall not have any active or latent medical condition, or experience any medication-related side effect that:

a) leads to a degree of functional impairment likely to interfere with flight safety, or
a) may result in a sudden onset of incapacity that would prevent the safe exercise of the privileges of the medical certificate.

This means that the AME must assess both the applicant’s current functional status (a) and the future risk of sudden incapacitation (b).

a) <u>Assessment of functional status</u>
Under item (a), the AME must determine whether the applicant suffers from any level of functional impairment that may compromise flight safety. If doubt exists regarding functional ability, it may be appropriate to conduct an operational medical flight test (either in a representative simulator or aircraft). However, such a test does not always improve the basis for assessment. For instance, experienced pilots with early cognitive impairment may be capable of performing a normal flight but still be unable to handle unexpected situations—a situation that fails to meet the MED.B.005 requirement.
In contrast, a stable and predictable functional impairment caused by a musculoskeletal injury can often be evaluated effectively using a flight test. Guidelines and forms for conducting an operational medical flight test can be downloaded from the Norwegian CAA website.

b) Assessment of risk for future incapacitation

Item (b) requires the AME to assess the risk of future medical events that may have a sudden and significant impact on flight safety. Examples include acute events such as syncope, severe pain, or vertigo. Other conditions may involve more insidious functional decline, such as reduced vigilance due to undiagnosed sleep disorders. The AME must base this assessment on identifiable risk ascertained through medical history, clinical examination, and relevant investigations. The inherent and non-identifiable background risk present in all individuals is not included in this evaluation, as it is unknown and cannot be quantified. For applicants to an unrestricted class 1 medical certificate, any identifiable increase in risk beyond the unknown population background risk should be minimal to the point of being nearly negligible (0.5-1 % per year) in order to be considered acceptable.

Where uncertainty exists regarding compliance with medical standards, the AME should use the best available evidence to estimate the probability of sudden incapacitation within a defined period (typically 12 months). In some cases, this estimation may be challenging; in others, well-established guidance material (GM) or evidence-based publications may be available. Regardless, the AME must clearly justify their conclusion and reference the underlying source(s). It is generally unnecessary to express the risk numerically, provided it can be reasonably concluded that the risk falls below the acceptable threshold for the relevant medical certificate. When multiple conditions or risk factors coexist, the cumulative risk of incapacitation must be considered. The sum of individual risks should not exceed the acceptable annual threshold for the applicable certificate class.

The acceptable risk level varies depending on the nature of potential incapacitation and the certificate type. The tables below summarise national guidance for maximum acceptable annual risks of sudden incapacitation due to different types of medical events:

Risk of incapac./year	**0 %**	**1 %**	**2 %**	**3 %**	**4 %**	**5 %**	**6 %**	**7 %**	**8 %**	**9 %**	**10 %**
Class 1 or 3											
Restricted class 1 or 3											
Class 2											
Restricted class 2											
LAPL											
Restricted LAPL											

- Acceptable level of risk for incapacitation due to acute pain attacks or similar medical incidents (grade 1 incapacitation)
- Acceptable level of risk for incapacitation due to syncope or similar medical incidents (grade 2 incapacitation)
- Acceptable level of risk for incapacitation due to epileptic seizures or similar medical incidents (grade 3 incapacitation)

Medical certificate	Grade 1 incapacitation (e.g. severe pain attack)	Grade 2 incapacitation (e.g. syncope/TLOC)	Grade 3 incapacitation (e.g. generalised seizure)
Class 1 (unrestricted)	≤ 1 %	≤ 0.5–1 %	≤ 0.5 %
Class 1 (restricted)	≤ 2 %	≤ 1–2 %	≤ 1 %
Class 2 (unrestricted)	≤ 2 %	≤ 1–2 %	≤ 1 %
Class 2 (restricted)	≤ 5 %	≤ 2–5%	≤ 2 %
LAPL (unrestricted)	≤ 5 %	≤ 2–5 %	≤ 2 %
LAPL (restricted)	≤ 10 %	≤ 5–10 %	≤ 5 %

The wide ranges reflect differences in the type of incapacitation. For example, generalised epileptic seizures typically have more severe consequences than a syncopal episode, which in turn may be more critical than a pain-related incident.

The accepted risk level also depends on whether the certificate has an operational limitation that mitigates the impact of a potential incapacitating event. For instance, an OML (Operational Multi-pilot Limitation) may reduce risk by ensuring another pilot can take over if early warning symptoms (e.g. aura in migraine) are detected. In such cases, a slightly higher risk may be acceptable. In contrast, other restrictions (e.g. SIC) are intended to reduce the likelihood of an event occurring (e.g. through more frequent monitoring). Still, they do not reduce the safety impact once the event occurs – thus, they do not justify an increased acceptable risk.

These thresholds apply only when no other specific requirement exists in the regulation or associated GM. If a regulation mandates stricter criteria, they take precedence.

In some cases, a particular condition may require OML for Class 1 and OSL for Class 2, despite an apparent mismatch in the stated percentages. This reflects both uncertainties in risk estimation and the crucial importance of the restriction in mitigating flight safety risk.

Role of specialist assessments

In many cases, a risk assessment must be based partly on a specialist opinion. However, such specialists may lack knowledge of aviation medicine or selection criteria. When referring an applicant, AMEs should clearly specify the relevant aviation medical requirements and request an estimated probability of defined medical events, where possible and relevant.

If the specialist's conclusion diverges significantly from existing guidance material (GM), it must be supported by evidence-based sources at a higher level in the evidence hierarchy than the GM in question.

Hierarchy of sources for “best aeromedical practice”

The issuance or denial of a medical certificate must always be based on the applicable legal provisions found in the Implementing Rules (IR). For example, for EASA Class 1 and Class 2 medical certificates, the legal basis is found in Regulation (EU) 1178/2011 Part-MED. In many cases, the provisions in Part-MED are not sufficiently specific or detailed for the AME to conclusively determine whether the applicant meets the medical fitness requirements. In such cases, the AME must refer to the associated Acceptable Means of Compliance (AMC) to the IR. While AMCs are non-binding, they represent the minimum acceptable standard to meet the IR's

intent and ensure flight safety. Therefore, the AME may not apply a lower standard than what is described in the AMC.

AMEs are not permitted to create alternatives to AMC on their own. However, the competent authority (e.g., the Norwegian CAA) may establish Alternative Means of Compliance (AltMOC). Such alternatives must be notified to and coordinated with EASA and must still comply with the IR. AltMOCs must be supported by strong documentation proving that they provide an equivalent level of safety to the standard AMC.

If neither the IR, AMC, nor AltMOC provide sufficient guidance for a particular case, the AME may refer to Guidance Material (GM). GMs are considered to be non-binding recommendations or best practices and are always linked to specific legal provisions in the IR. While the IR remains the legal basis, GMs differ from AMCs in that the AME may deviate from GM, provided that the alternative approach offers an equivalent or higher level of safety. The assessment is supported by evidence of a higher level than that underlying the GM itself.

This national guidance document includes Norwegian GMs. For other conditions not addressed in this document, reference should be made to the internationally recognised UK CAA Guidance Material, available from the UK CAA's website:
www.caa.co.uk/Aeromedical-Examiners/Medical-standards

The UK CAA GMs provide helpful flowcharts summarising various medical requirements and include templates specifying what type of specialist documentation should be obtained. However, note that IR and AMC take precedence over GM, and GMs incompatible with IR/AMC cannot be applied. For example, the UK CAA includes guidelines on the medical certification of insulin-dependent diabetics that are not in accordance with Part-MED and therefore cannot be used in Norway.

The ICAO Manual of Civil Aviation Medicine (2012) also includes useful GMs, especially for assessing Class 1 medical fitness. A link to this manual is available on the Norwegian CAA's website.

Rationale for the deliberate flexible wording in IR and AMC
The reason that many IR and AMC provisions are not more specific is that medicine is a dynamic field in which knowledge evolves faster than regulations can be updated. A rigid regulatory framework could become outdated and misaligned with the current scientific understanding of treatment and prognosis. In contrast, less prescriptive rules allow for greater flexibility and quicker updates via GM. They also support the ability of the AME or the applicant to challenge the existing GM and present objective, as well as evidence-based documentation supporting alternative assessments.

When the medical condition is not included in the IR, AMC, or GM
In some instances, the AME must assess a medical condition that is not addressed in IR, AMC, or GM. In such situations, MED.B.005 still applies, meaning the AME is required to assess both functional ability and the risk of future incapacitation. In these instances, it may be helpful to consult current aeromedical literature. A widely used reference is Ernsting's Aviation Medicine (edited by Rainford and Gradwell). Other helpful clinical resources include UpToDate and BMJ Best Practice, which are particularly valuable for conditions not covered by IR, AMC, or GM. Most Norwegian physicians have free access via www.helsebiblioteket.no.

Prognosis and the risk of complications are typically the most relevant aspects in an aeromedical context, and UpToDate usually includes a prognosis section with references to supporting literature.

If no validated or evidence-based sources are available, expert opinion may be the only basis for assessment. Nevertheless, the AME should ensure that the opinion is objective, reasonable, and as well-supported as possible.

Evidence-based assessment of medical fitness

An evidence-based approach to assessing medical fitness integrates three key elements: individual applicant variables, expert assessments, and research-based evidence. These represent the gold standard for ensuring objective, transparent, and scientifically robust decisions. However, this methodology is resource-intensive and time-consuming, which is why Guidance Material (GM) has been developed to reflect evidence-based principles as far as possible. In most cases, existing GM provides a sufficient basis for decision-making, and AMEs are not expected to perform comprehensive literature reviews. Nevertheless, a working knowledge of evidence-based methodology is essential – particularly in cases not covered by GM, or when the standard guidance is deemed inappropriate for a specific applicant. If the AME chooses to deviate from GM, a higher standard of supporting evidence is typically required.

Understanding evidence-based aerospace medicine includes recognising both the strengths, limitations and pitfalls of basing the decision on individualised data, expert opinions, and scientific literature:

- **Applicant-specific variables**
  These may yield more precise risk estimates for the individual applicants. Published research and general guidelines are typically based on group-level data, such as means or medians. Certain individuals may have unique characteristics – such as age, comorbidities, disease subtypes, or other risk modifiers – that result in higher or lower risk than what is concluded in population-level studies. However, relying on such factors can introduce subjective judgment, cognitive bias, and inconsistent practice unless the approach is systematic and well-justified. In an aeromedical and operational context, the assessment of risk should reflect the cumulative medical risk profile of the applicant – not only the risk associated with each medical condition. Therefore, it is essential to consider the totality of the applicant's health status, including interactions between multiple conditions and risk factors, when determining medical fitness.
- **Expert opinions**
  Expert assessments should be objective, reasoned, and referenced, since subjective clinical judgment is prone to cognitive biases such as overconfidence, confirmation bias, and anchoring. Moreover, the context of clinical practice differs from that of selection medicine:
    - Clinical physicians often prioritise patient care and treatment options
    - AMEs must evaluate prognosis, function, and future risk within a forward-looking, safety-critical aviation environment, often with low tolerance for uncertainty

  When obtaining specialist reports, the AME should clearly guide the specialist, as most are unfamiliar with aeromedical risk assessment. Clinical expertise can still be

invaluable, especially when assessing current functional capacity, treatment outcomes, and diagnostic pathways. However, the low thresholds for acceptable medical event risk (e.g., 1–2 % per year) theoretically require following hundreds of equivalent patients over many years to allow for intuitive clinical risk estimation—an unrealistic scenario in routine clinical practice. Intuitive estimates from specialists, therefore, often carry significant uncertainty. Still, specialists may reference relevant studies or registries based on large datasets that help strengthen the evidence-based risk assessment.

- **Use of literature**
  A broad and systematic search in recognised medical databases is essential to avoid cherry-picking studies and introducing confirmation bias. Each study must also be evaluated for:
  - Internal validity (methodological quality, control of confounders, precision), and
  - External validity (transferability to an aeromedical context and the individual applicant).

  Many publications may ultimately be excluded from consideration due to either poor methodological quality or limited applicability in the aeromedical domain.

  A critical and systematic approach to evaluating the evidence base significantly strengthens decision quality, particularly in complex or borderline cases involving medical certification. This is essential in maintaining fairness, transparency, and safety within aeromedical assessments.

A. Evidence-based aeromedical assessment

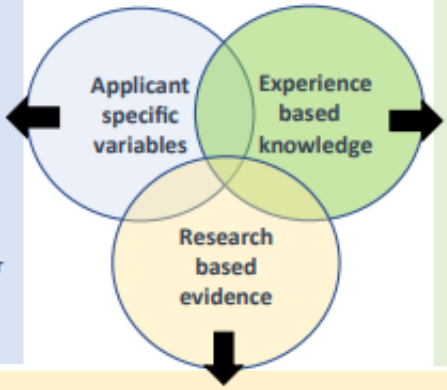
1. Applicant specific information

a) Consider requested privileges, flight operations and applicable aircrafts. Does fitness decision depend on the extent or restrictions in privileges?

b) Identify any disease-specific variables, variations or subtypes, genetics or other factors that may result in a prognosis that deviates from the normal predictions for that condition.

c) Assess the overall risk based on medical comorbidities, age, general fitness, and other variables that may affect the accumulative risk.

The aim is not to define a certain or precise risk, but to conduct an evidence-based and critical assessment of the best available evidence to conclude whether the risk most likely is above or below the acceptable thresholds.



2. Expert assessments

Expert assessment and advice should be objective, reasoned and preferably reference based. Intuitive, judgment-based, or inadequately reasoned assessments should be interpreted with caution.

- Include perspectives from following 3 expertise areas:

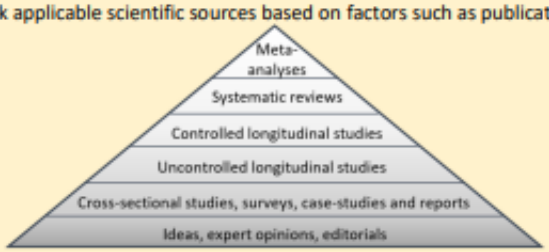
a) Clinical expert in relevant medical specialty/condition
→ Most likely diagnose, level of diagnostic certainty.
→ Treatment options or possible risk mitigation
→ Assessment of functional impairment and risk of future incapacitations. Inputs on supplemental investigation to further map functions or risks.

b) Aviation medicine expert
→ To what degree does the functional impairment or incapacitation risk affect flight safety?
→ Does the flight environment (e.g. hypobaric hypoxia, pressure changes, g-forces, vibration etc) interact with or affect the relevant medical risk?

c) Selection medicine expert
→ Legal aspects, statistical methods, and risk analysis.
→ Consider potential cognitive biases and pitfalls due to differences in clinical vs selection medicine perspectives.

3. Scientific documentation

a) Conduct a systematic search in recognized medical databases of peer-reviewed publications. Include all endpoints. Avoid cherry picking.
b) Rank applicable scientific sources based on factors such as publication date, source credibility, scientific quality, and evidence level:



c) Critical review of scientific quality, internal validity, and reliability, using indicators as exemplified below:
- ❑ Was the study retrospective or prospective (the latter tends to have fewer biases and confounders)?
- ❑ What was the number of subjects, duration of follow-up and percentage of dropouts (should be high, long, and low)?
- ❑ Were endpoints defined prior to the study (better than after)?
- ❑ Was the measurement objective (more reliable than subjective)?
- ❑ Did the study include control groups, subgroups, and regression analysis for assessment of attributable risk (i.e. the number of incidents that was caused by that particular medical condition)?
- ❑ Did the authors consider potential confounders and biases?
- ❑ Did the authors conduct sensitivity analysis (may indicate robustness of the findings)? Is there consistency among multiple studies?
- ❑ What was the precision of the findings (e.g. p-value and confidence interval of risk estimates)?
- ❑ If relevant; may causality be assessed using Hills criteria?

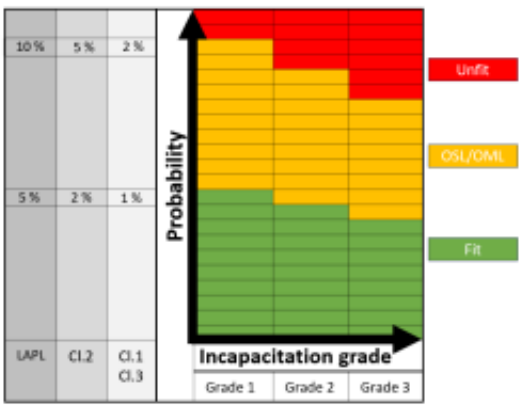
d) Critical review of external validity or applicability in an aeromedical setting
- ❑ Does the endpoint affect flight safety? Are all relevant endpoints included? Does flight environment affect the endpoint?
- ❑ Were the subjects comparable to the applicant in terms of age, comorbidity, and other risk factors?
- ❑ Can the endpoints or risk be prevented, treated, or mitigated by appropriate measures or follow-up?

e) Convert attributable risk, relative risk, odds ratio, multiple risks, or periodical risks to annual risk, using applicable statistical methods. E.g. an identified and stable risk (R) of a medical incident over a period of X years would pure statistically equal an annual risk of $1-(1-R)^{(1/X)}$

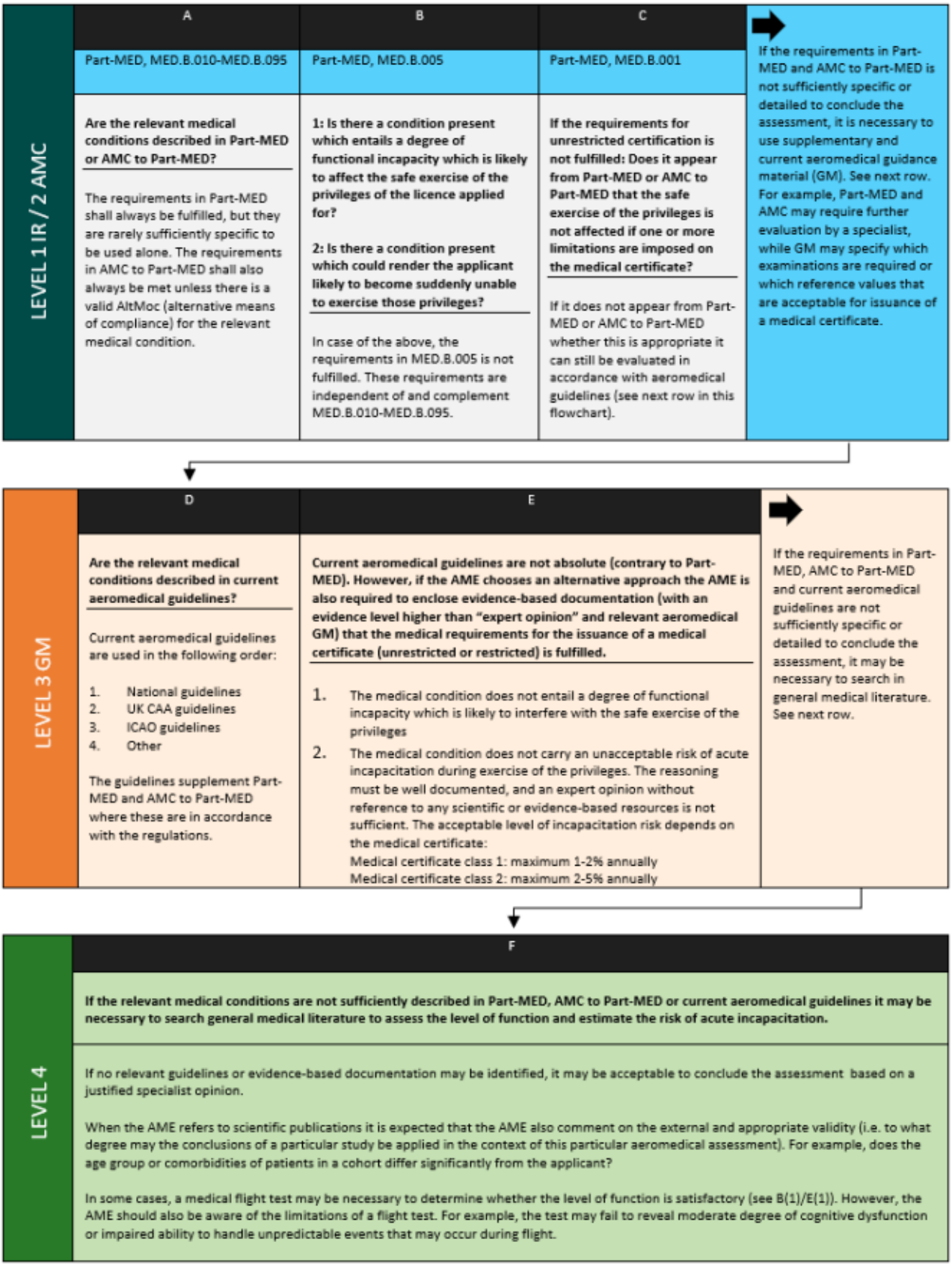
B. Decision basis (MED.B.005)

1. Functional performance assessment
There shall be no functional impairments that affect the safe performance of the applicable privileges. Assess mobility and motor functions, sensory processing and perception, coordination and spatial awareness, personality and behaviour, cognitive abilities and other psychological or physical functions of relevance.

2. Incapacitation risk assessment (cf. probability – consequence matrix to the right)
Assess the annual risk of future functional impairments that may affect flight safety.
Grade 1 incapacitation: partial incapacitation due to acute medical incidents such as vertigo, intractable pain attacks, visual disturbance, or other severe symptoms.
Grade 2 incapacitation: complete and obvious incapacitation such as LoC.
Grade 3 incapacitation: incidents that may have more severe consequences than LoC, such as epileptic seizures. This category also includes subtle incapacitation that may go unnoticed, such as somnolence, serious mental disturbance, or suicidal impulses.



The flowchart referenced below is published by the Norwegian Civil Aviation Authority. It is designed to provide a structured overview of the hierarchy of documents that define medical requirements and guide source weighting when assessing whether a pilot meets the medical criteria for licence certification.



Assessment of medical fitness for Class 3 medical certification

The assessment of medical fitness for a Class 3 medical certificate shall be carried out in accordance with the Implementing Rules (IR) of Part-ATCO.MED and the corresponding AMC or AltMoC to Part-ATCO.MED.

If a conclusive decision cannot be reached based solely on IR and AMC/AltMoC, reference shall be made to applicable Class 3 Guidance Material (GM).

In many cases, the IR, AMC/AltMoC, or GM for Class 3 may not provide sufficiently detailed or specific criteria for the medical condition in question. In such cases, the applicable Class 1 guidance may be consulted.

The acceptable risk threshold for acute incapacitation is, in principle, the same for Class 1 and Class 3 certificates, and in most situations, the medical standards will be equivalent. However, certain factors distinguish the medical assessment of air traffic controllers from that of pilots, and these differences must be carefully considered before determining fitness for duty as an ATCO:

a) Operational environmental factors
   Evaluate whether operational environmental factors affect the medical risk differently for air traffic controllers than for pilots. For example, hypobaric hypoxia poses a higher risk of incapacitation in pilots with mild obstructive lung disease. In contrast, ATCOs are not exposed to G-forces or hypobaric environments in the same way.
b) Functional demands and safety context
   Compared to a pilot, consider whether an ATCO's operational demands and working environment influence how the medical condition affects functional capacity or air safety.
   For example, ATCO duties may require sustained vigilance and high communication performance, which may be impacted differently by certain medical or cognitive conditions.
c) Applicability of restrictions
   If the relevant GM for Class 1 would result in the issuance of a certificate with a limitation, the same limitation will usually apply to a Class 3 certificate. However, the relevance of the limitation must be re-evaluated in light of the specific working conditions of an ATCO.

This applies especially to SSL (Safety Sensitive Limitation) in cases where Class 1 GM would recommend an OML (Operational Multi-pilot Limitation). If the medical condition carries a borderline (1–2 % per year) risk of complete and sudden incapacitation (grade 2 or 3), SSL should generally be applied. This ensures that another controller can immediately take over duties (within seconds or minutes, depending on the operational setting). If the risk is limited to partial incapacitation (grade 1), an SSL may not be necessary provided that the operational environment, contingency arrangements, and nature of incapacitation allow other ATCOs to assume the role before safety is affected. The applicant should be invited to a dialogue regarding any proposed limitations or compensatory measures. With the applicant's consent, involving the employer may in some cases be appropriate to ensure that flight safety is adequately preserved.

Issuance of cabin crew medical reports (CC medical report)

The competent authority for cabin crew depends on the EASA Member State in which the individual applies for a Cabin Crew Attestation (CCA). To exercise the privileges of the CCA, the applicant must hold a valid cabin crew medical report, confirming compliance with applicable medical requirements.

The medical standards for cabin crew are defined in Part-MED, Subpart C, and further specified in the corresponding AMC/AltMoC.

According to MED.C.005, cabin crew shall undergo aeromedical assessments (at least every 5 years) to verify the absence of any physical or mental disorder that could lead to incapacitation or otherwise prevent them from safely performing their operational duties. These assessments must be conducted by an AME or an AeMC.

AMC1 MED.C.005 and GM1 MED.C.025 provide guidance on specific aspects of cabin crew duties that AMEs should consider when evaluating physical and mental fitness.

Per MED.C.020, cabin crew must be free from congenital or acquired abnormalities, latent or active disease, conditions, injuries, postoperative complications, or medication effects resulting in functional impairment or a risk of sudden incapacitation that may compromise flight safety.

According to MED.C.025, the initial medical assessment shall include a review of the applicant's medical history and a clinical examination covering the following systems: cardiovascular system, respiratory system, musculoskeletal system, ENT (ear, nose, throat) and visual system, including colour vision.

All subsequent examinations must include a review of the applicant's medical history and a clinical examination if deemed necessary, in accordance with best aeromedical practice.

Where there is a clinical indication or uncertainty, additional investigations may be performed at the discretion of the AME or AeMC. The health standards for the various organ systems are described in AMC2 MED.C.025 to AMC18 MED.C.025.

When specific guidance is absent

If the relevant health requirements for cabin crew are not sufficiently defined in the IR, AMC, or GM, the AME must assess the condition per best aeromedical practice. It is recommended that the wording of AMC standards for cabin crew be compared with those applicable to LAPL medical certificates, Class 2 medical certificates, and (in selected cases) Class 1 medical certificates. As general guidance principles, the AME may consider the following:

- An applicant who meets Class 2 medical requirements will, in most cases, also satisfy the medical standards for cabin crew
- An applicant who does not meet LAPL standards will typically not meet the medical requirements for cabin crew either

History of systemic allergic reaction

A history of systemic allergic or anaphylactic reaction is one of several medical conditions that may result in acute incapacitation and is not specified in the Regulation. If such a history is

present, the requirements of MED.B.005 are not considered to be met, unless it can be documented that:

- The allergen is precisely identified, and
- Exposure to the allergen can be avoided with a very high degree of certainty, both before and during the exercise of the privileges associated with the medical certificate.

A specialist report from an allergist must be obtained. This should describe:

- The specific allergens to which the applicant is sensitive,
- The expected severity of any reaction, and
- Whether exposure through ingestion, dermal contact, or aerosol is likely to provoke a systemic response.

Based on this information, the risk of allergen exposure must be assessed, including risks from:

- Nearby passengers (e.g. during commercial flights),
- Previous flight crew (e.g. residual contamination),
- Inadvertent intake of incorrect food items.

If the estimated risk is considered sufficiently low to permit the issuance of a Class 1 medical certificate, an OML (Operational Multi-crew Limitation) restriction should be considered. This restriction is typically required in cases where there is a clinical indication for carrying an epinephrine auto-injector (EpiPen) during flight operations.

Refer to the UK CAA GM flowchart on allergy, available under the *Respiratory* section of their published guidance materials.

Suppose the risk is considered sufficiently low to allow the issue of an unrestricted medical certificate. In that case, performing allergen challenge testing should not be clinically contraindicated, provided such testing is unlikely to provoke severe symptoms at exposure levels that could realistically occur during exercise of the certificate privileges.

If the risk of acute incapacitation is documented to be less than 1 % per year, the issuance of an unrestricted medical certificate may be considered.

In addition, the AME must evaluate the side effect profile of any allergy medication the applicant may use, especially with regard to fatigue, sedation, or impaired psychomotor performance, as these may pose unacceptable risks in an aviation context.

Use of medications

It can be challenging to determine which medications are acceptable for aviation duties. In general, the AME must assess the known side effects of a medication – particularly their frequency (typically described in the summary of product characteristics, SmPC) – and whether they could pose a risk to aviation safety.

If side effects are known to diminish with prolonged use or after reaching steady state, this should be factored into the assessment following a suitable observation period. The AME should also understand the medication's mechanism of action and whether this could be influenced by flight-related physiological stressors such as hypobaric exposure or G-forces.

Clear and explicit side effects are more easily assessed than subtle, undetectable effects that may impair safety but cannot be directly observed during an AME examination.

In some cases, the medication itself, not the underlying medical condition or indication, disqualifies the applicant from certification.

Common medication classes and aeromedical assessments (see GM1 MED.A.020 for details):

- **Antibiotics**: Indicates an active infection, which may render the pilot unfit.
- **Antimalarials**: Chloroquine and doxycycline are typically acceptable; mefloquine is not compatible with flying.
- **Antihistamines**: May cause drowsiness; non-sedating types may be acceptable under certain conditions.
- **Decongestant nasal sprays** are usually safe, but underlying ENT pathology (e.g., sinus or Eustachian tube dysfunction) must be assessed.
- **Codeine-containing medications**: Incompatible due to central sedative effects.
- **Antihypertensives:**
    - Generally acceptable after a stable treatment period with non-loop diuretics, ACE inhibitors, ARBs, calcium channel blockers, and selected beta-blockers.
    - Loop diuretics (e.g. furosemide), centrally acting agents, and alpha-blockers (e.g. doxazosin) are typically incompatible with flying.
    - Combined alpha-beta blockers (e.g. labetalol, carvedilol) may pose similar risks and are generally unacceptable.
- **Antidepressants**: Generally incompatible. Exceptions exist for certain SSRIs under specific, well-defined conditions (see guidance on maintenance treatment for depression).
- **Anaesthetics:**
    - Wait at least 12 hours after local anaesthesia,
    - At least 48 hours after general, spinal, or epidural anaesthesia.
- **Hormonal contraceptives or HRT**: Typically compatible with flying.
- **Anticoagulants:**
    - Initiation of treatment renders the applicant temporarily unfit.
    - For therapeutic use (e.g., pulmonary embolism or DVT): not compatible with flying
    - Prophylactic use: possible certification after a stable period and assessment of an acceptable bleeding risk.
        - Warfarin: INR must be stable for at least 6 months, with 4 out of 5 INR values within range; INR monitoring must continue at least every 2 months.
        - NOACs/DOACs: Require 3 months of stable dosing without side effects before assessment.
    - Class 1 certificates must carry an OML limitation. For Class 2, ORL or OSL is typically required, though Class 2 without limitation may be considered if using NOAC/DOAC with a low bleeding risk.
    - HAS-BLED and similar tools can assist in assessing bleeding risk (see AMC1/AMC2 MED.B.010).
- **Antiplatelet therapy:**
    - Monotherapy (ASA or clopidogrel): usually acceptable if annual bleeding risk < 1 %.

  - DAPT (dual antiplatelet therapy): bleeding risk often 1–3 % / year; not compatible with unrestricted Class 1 certification.
  - Triple therapy or combinations of antiplatelets and anticoagulants are incompatible with Class 1 or unrestricted Class 2.
  - High-risk factors for severe bleeding include advanced age, high dose, low haemoglobin, thrombocytopenia, AVM, recent surgery or trauma, renal impairment, low body weight, uncontrolled hypertension, prior GI bleeding, diabetes, or genetic predispositions.

Selected specific medications:

- **Lithium**: Not compatible with flying.
- **Sildenafil (Viagra)**: Minimum 6-hour no-fly interval.
- **Tadalafil (Cialis)**: 36-hour no-fly interval at standard dose; daily low-dose use may be acceptable after 7 days without side effects.
- Methylphenidate (Ritalin) / Atomoxetine (Strattera): Not compatible.
- **Levothyroxine**: Acceptable if a stable dosage and normal thyroid function are documented.
- **Carbimazole**: Not compatible with flying.
- **Insulin**: Not compatible with flying.
- **Metformin**: Class 1 certificate requires OML limitation.
- **Levodopa**: Generally incompatible (advanced Parkinson's disease).
- **Isotretinoin**: Generally, not compatible due to risks including mental side effects and impaired night vision. May be considered for Class 2 or LAPL (not night flying). Minimum 2-week no-fly after treatment ends and no persistent adverse effects.

If a specific medication is not listed in current regulatory guidance or AME resources, the non-binding site www.leftseat.com may occasionally provide helpful aeromedical guidance.

General checklist for medications

Due to the large number of available medications and the frequent lack of concrete or up-to-date regulatory guidance, this checklist is intended as a structured tool for AMEs to ensure consistent and transparent decision-making regarding medication use.

1. **Identify basic information**
   - What medication is being used? (Include both active substance and trade name).
   - What is the medical indication for use?
   - What is the dosage, frequency, and duration of treatment?
2. **Regulatory status**
   - Is the medication acceptable according to Part-MED, AMC, and national aeromedical guidelines?
   - Supplement with international sources (e.g. UK CAA, FAA/leftseat.com) if needed.
3. **Evaluation of the indication**
   - Is the underlying medical condition itself disqualifying, regardless of the medication?
4. **Assessment of dosage**
   - Is the dosage within the standard therapeutic range?
   - Unusually high dosages may imply increased risk and require more thorough assessment or adjustment.

5. **Assessment of side effect profile**
   - Investigate known adverse effects via:
     - National drug formularies (e.g., SPC, Felleskatalogen).
     - Official drug monographs.
     - Adverse event databases (e.g., EMA, FDA).
   - Evaluate relevance for aviation safety, focusing on:
     - Acute incapacitation risks (e.g., vertigo, syncope, seizures).
     - Mental and behavioural effects (e.g., depression, anxiety, psychosis, confusion).
     - Subtle side effects (e.g., fatigue, decreased concentration, impaired psychomotor performance).
6. **Steady state & observation period**
   - Estimate time to reach steady state (~5 x drug half-life).
   - If side effects are likely to decline with stable use, an appropriate observation period before fitness assessment is required.
   - Document the observation period clearly in EMPIC.
7. **Evaluation of interactions**
   - Check for interactions:
     - With other medications (pharmacokinetic/pharmacodynamic).
       See: www.interaksjoner.no
     - With physiological stressors: hypobaria, hypoxia, dehydration, G-forces.
     - With individual-specific factors: age, comorbidities, and genetics that may influence side effect risk.
8. **Overall risk assessment**
   - Do side effects or interactions pose an unacceptable safety risk in the aviation environment?
9. **Documentation**
   - Record:
     - The assessment
     - The rationale for the decision
     - Any observation period required
     - Any specialist involvement
     - Final conclusion regarding fitness or the need for further investigation
10. **Follow-up**
    - If an observation period is required, schedule reassessment accordingly.

MED.B.010 / ATCO.MED.B.010 – Cardiovascular system

Cardiovascular risk assessment

The AME must initiate extended cardiovascular evaluation in cases of accumulation of risk factors, even in the absence of diagnosed cardiovascular disease. Such risk factors include smoking, family history, hypertension, and a predisposing lipid profile. A complete assessment of cardiovascular risk factors must be conducted and documented in EMPIC at least every five years for applicants aged 40–49, every three years for those aged 50–59, and at least every two years for those over 60. The assessment should include a review of trends based on historical data.

The applicant's total risk of acute incapacitation must remain within the acceptable limits for the relevant class of medical certification. When other medical conditions are present that contribute a risk near the upper threshold of acceptability, the cardiovascular risk should also be factored into the overall evaluation of cumulative risk.

There are various tools available for estimating the risk of future cardiovascular events. Some focus solely on the risk of cardiovascular death (e.g. NORRISK), while others focus on myocardial infarction (e.g. the Framingham calculator). However, in an aeromedical context, tools that estimate the likelihood of any cardiovascular or cerebrovascular event with the potential to cause acute incapacitation are preferred. For this reason, the most appropriate tools for aviation medicine are typically QRISK3 (available at http://qrisk.org/) and SCORE2. The European Society of Cardiology has developed a freely available app that assists in determining which calculator is most relevant for a given individual.

If two or more cardiovascular risk factors are present, the AME must always carry out a formal cardiovascular risk assessment using either QRISK3 or SCORE2, and the result must be documented in EMPIC.

If the calculated 10-year risk exceeds 10 %, an unrestricted class 1 or class 3 medical certificate should not be issued unless further investigations demonstrate that the actual annual risk remains within acceptable aeromedical thresholds. It is important to note, however, that all calculators have limitations. For instance, QRISK3 is not validated for individuals with a history of coronary artery disease, known renal impairment, or familial hypercholesterolemia. Furthermore, findings from additional cardiovascular evaluations may support a lower risk estimate than that predicted by the calculator.

If the applicant has undergone coronary CT imaging with calcium scoring, the Astro-CHARM calculator may be used. This tool combines traditional cardiovascular risk factors with the calcium score to more accurately estimate the risk of major cardiovascular events. Reference should be made to the EASA GM flowchart on cardiovascular risk assessment and the interpretation of the coronary calcium score. While a low calcium score is typically associated with reduced risk, it is important to recognise that acute coronary events may still occur due to non-calcified plaque.

Finally, while dividing a 10-year risk estimate by 10 is a simplistic and statistically imprecise method for estimating annual risk (as risk does not increase linearly with time, especially with ageing), it may be used pragmatically in aeromedical practice in the absence of better individualised estimates.

Stress ECG (exercise test)

In some cases, an exercise ECG (stress test) is required. While this test is primarily used to assess for myocardial ischemia, it also provides valuable information about physical exercise capacity, heart rate and blood pressure response, and the presence of exercise-induced arrhythmias. Validation studies typically report that exercise ECG has a sensitivity and specificity for coronary artery disease of approximately 70 % and 80 %, respectively, depending on factors such as the workload achieved. Although the test alone is insufficient to definitively rule out or confirm ischemic heart disease, a typical result at adequate workload combined with low pre-test probability generally confers a high negative predictive value.

The AME must ensure that the test has been performed in accordance with AMC1 MED.B.010. This means that a complete workload for an asymptomatic applicant should correspond to stage IV of the Bruce protocol. Achieving less than 10 METS is generally not accepted as sufficient exertion for class 1, 2, or 3 medical certifications. For LAPL certification, reaching at least 85 % of the age-predicted maximum heart rate is considered adequate. The maximum heart rate is estimated using the formula by Tanaka et al.: 208 – (0.7 × age).

The duration of the test must be at least 6 minutes (9 minutes if the Bruce protocol is used). A 12-lead ECG must be recorded throughout the exercise phase and for 10 minutes post-exercise, as ischemic ECG changes may only appear during the recovery phase. Importantly, significant ST-depression occurring solely in the recovery period is as predictive of ischemia as changes occurring during exercise, and a substantial proportion of positive exercise ECGs show ischemia only in recovery.

If the METS value is not reported in the clinical summary, it can be estimated using the following formulas:

> Treadmill
> ((1.67 × F) + (0.3 × F × P)) / 3.5
> where F = speed in km/h, and P = incline in percent.
>
> Ergometer bicycle
> ((12 × power in watts) + 300) / (weight in kg × 3.5)

The workload requirements for exercise ECG are outlined in EASA AMC, UK CAA guidelines, and the ICAO Manual of Civil Aviation Medicine.

If the applicant is unable to reach sufficient exertion levels (e.g. due to orthopedic limitations), this must be justified. In some cases, alternative tests with documented equivalent or better negative predictive value may be accepted. However, if the inability to reach the target workload is due to reduced physical fitness, the AME should recognise that this is associated with increased risk of ischemic heart disease.

A 2009 prospective study by Bourque et al. (“Achieving an Exercise Workload of ≥10 METS Predicts a Very Low Risk of Inducible Ischemia: Does Myocardial Perfusion Imaging Have a Role?” *J Am Coll Cardiol* 2009;54(6):538–545) concluded that failure to achieve >10 METS was associated with a 10-fold increased risk of inducible myocardial ischemia on stress myocardial perfusion imaging, and failing to reach 7 METS was associated with an 18-fold increase. Furthermore, epidemiological data supports a significant correlation between low

cardiorespiratory fitness and overall mortality, even after stratifying for sex, age, and cardiovascular risk factors (Kokkinos et al., 2022).

Echocardiography

The examination must demonstrate satisfactory cardiac pump function, including a left ventricular ejection fraction (LVEF) of at least 50 %. In cases where valvular disease is identified, reference should be made to the specific guidelines for such conditions.

For cardiac conditions involving hypertrophy or dilation of the atria or ventricles, the internal diameter of the left atrium should generally be less than 4.5 cm (or a volume below 65 mL). The left ventricular end-diastolic diameter (LVEDD) and end-systolic diameter (LVESD) should be less than 6.5 cm and 4.4 cm, respectively. Interventricular septal thickness should be less than 2.5 cm.

If values are approaching the upper limit of these ranges, a satisfactory cardiological assessment must be available. Additionally, the need for applying operational limitations such as OML (Operational Multi-pilot Limitation) or OSL (Operational Safety Limitation) should be carefully considered.

Myocarditis

An applicant with a history of myocarditis may be considered fit for Class 1 medical certification with an OML (Operational Multi-pilot Limitation), for Class 2 with an OSL (Operational Safety Limitation), or for Class 3 with an APC (Air Traffic Control with Periodic Cardiological Review), provided that all of the following criteria are met:

- The applicant is asymptomatic.
- At least 6 months have passed since full clinical recovery without any signs of ongoing myocarditis or residual effects.
- A satisfactory cardiological evaluation has been completed, which must include:
    - Exercise ECG (stress test),
    - 24-hour Holter monitoring (ECG),
    - Transthoracic echocardiogram (echo cor).
- The applicant has a generally acceptable cardiovascular risk profile.
- There has been no history of systemic embolism.
- A SIC restriction is imposed, requiring regular follow-up with a cardiologist, including repeated exercise ECG and echocardiography, to exclude the development of dilated cardiomyopathy, which may arise months or even years after an episode of myocarditis.

If the applicant has not been treated with anthracyclines and follow-up remains satisfactory over time, removal of the OML/OSL restriction may be considered after several years.

Hypertension

Normal blood pressure is defined as a systolic pressure below 120 mmHg and a diastolic pressure below 80 mmHg (according to ACC/AHA). Hypertension is defined as office blood pressure readings of ≥140 mmHg systolic or ≥90 mmHg diastolic (as per ESC/ESH). Home measurements typically yield values 5–10 mmHg lower than office readings.

The maximum office blood pressure that may be accepted for medical certification is 160/95 mmHg, based on repeated measurements. See UK CAA guidelines for a more detailed overview.

If blood pressure readings persistently exceed 140/90 mmHg, the AME should conduct a cardiovascular risk assessment before considering issuing a medical certificate.

If ambulatory 24-hour blood pressure monitoring is performed, note that the reference values differ from office-based measurements. In such cases, an average 24-hour blood pressure of ≤150/85 mmHg should be demonstrated before a Class 1, 2, or 3 medical certificate can be considered.

If antihypertensive treatment is required, medications such as loop diuretics, alpha-blockers, and centrally acting agents are generally not acceptable due to neurological side effects or unpredictable blood pressure responses under G-load. Upon initiation of approved medications (e.g., ACE inhibitors, angiotensin II receptor blockers, calcium channel blockers, thiazides, or certain hydrophilic beta-blockers) or changes in dosage, the pilot must abstain from flying for a minimum of two weeks to monitor for adverse effects that could impair flight safety.

If beta-blockers or calcium channel blockers reduce the heart rate significantly, the pilot should avoid exposure to more than +2.5 Gz during flight, and the AME must assess the need for a multi-pilot (OML) limitation.

Syncope/TLOC

Both MED.B.010/ATCO.MED.B.010 and MED.B.065/ATCO.MED.B.065 are relevant when syncope is suspected. Syncope is defined as a transient and self-limited loss of consciousness due to reduced cerebral perfusion—this condition falls under the umbrella of transient loss of consciousness (TLOC). Examples include vasovagal reflex syncope, situational syncope, orthostatic syncope, arrhythmic syncope, and other cardiac causes. Other causes of impaired consciousness include shock, intoxication, hypoglycemia, cerebrovascular incidents, head trauma, migraine, or epileptic seizures.

In cases of a history of syncope, the AME must ensure the episode is described in detail. Unless the diagnosis is obvious, documentation from a cardiologist is required (including exercise ECG, 24-hour ECG, and echocardiogram), and possibly from a neurologist. A tilt table test should be considered if vasomotor instability is suspected. The AME must assess whether to impose an OML or OSL limitation. If the loss of consciousness was sudden and without warning signs, the applicant is normally considered unfit. It is important to remember that hypoxia and +Gz forces can potentially predispose to vasovagal syncope during flight and have significant implications for aviation safety. If there is a history of TLOC and the cause remains uncertain, the AME should reference both MED.B.010 and MED.B.065 in the EMPIC report.

As a general rule, the risk of recurrence during flight must be considered *very low* before fit assessment. This also applies to syncopes that are considered benign from a clinical perspective.

In cases of a first-time syncope that clearly appears to be a vasovagal reaction—with a well-defined triggering factor and identifiable presyncopal prodromal symptoms—and where the event is deemed irrelevant to situations that may arise during the exercise of the privileges of the medical certificate, the AME may assess the applicant as fit following a minimum observation period of one week without recurrence. In such cases, involvement of the CAA is not required, provided that the AME documents the assessment in accordance with MED.B.010 and MED.B.065.

The following syncope risk scoring system is designed as a structured tool to support transparent and consistent aeromedical decision-making in cases of suspected or confirmed transient loss of consciousness (TLOC). It is specifically adapted to the operational demands of aviation medicine, where the primary concern is identifying and mitigating the risk of sudden incapacitation during flight. The system assigns a quantitative risk score based on clinically relevant parameters related to the syncopal episode, including duration, prodromal symptoms, body position, triggering risk factors, and associated clinical findings.

The scoring system should not replace clinical judgment but rather complement it, providing a reproducible framework for risk assessment in accordance with GM1 MED.B.065 and GM1 MED.B.010.

<table>
<tr><th colspan="2">Syncope risk score</th></tr>
<tr><td>1. Prodromal symptoms:
No prodrome and sudden LOC = +5
Minimal prodrome or gradual onset LOC = +1
Clear prodrome (slow onset with symptoms like nausea, yawning, diaphoresis) = 0</td><td>5. Risk factors for non-benign syncope:
Cardiovascular: +1 to +3
Neurological (e.g. recent head injury, known diagnosis): +1 to +3
Age > 60: +1</td></tr>
<tr><td>2. Posture at the time of syncope:
Lying or sitting = +2
During physical exertion = +1
Standing = 0
Postural (from lying to standing) = 0</td><td rowspan="2">6. Associated symptoms/findings:
Involuntary movements/seizure-like activity = +2
Tongue biting = +2
Fecal incontinence = +2
Urinary incontinence = +1
Palpitations = +1
Chest pain = +1
Cardiac murmur = +1
Significant physical injury due to syncope = +1</td></tr>
<tr><td>3. Duration until postictal orientation and normal function resume:
60 seconds = +2
10–60 seconds = +1
< 10 seconds = 0</td></tr>
<tr><td>4. Precipitating factor indicating benign syncope:
None = +2
Moderate (e.g. stress, recent life events) = +1
High (e.g. substance ingestion, infection, orthostasis, emotional stress, dehydration, hot/confined space) = 0</td><td>7. History of prior syncope
Syncope within the last 5 years: repeat scoring per episode
Syncope > 5 years ago, score ≥ 3: +1 per episode
Syncope > 5 years ago, score < 3: 0</td></tr>
</table>

Assessment of the syncope risk score
Total score 0–1 points • At minimum: resting ECG, blood pressure, heart rate, and neurological status must be assessed by the AME. • Refer to specialist if in doubt (cardiology/neurology). • Temporary OML/OSL or other restrictions may be applied pending evaluation. Total score 2 points • Specialist cardiological and neurological evaluation unless diagnosis is clearly benign. • Consider OML/OSL/OPL for 0–5 years, depending on individual factors and recurrence risk. Total score 3–4 points • Mandatory cardiology and neurology evaluation. • OML/OSL/OPL usually applied for 5 years (subject to change based on case-specific factors). • Consider up to 6 months grounding (observation period without recurrence). Total score > 4 points • Unfit. Future re-evaluation of fitness may be possible on an individual basis.

DVT/PE

For applicants with a history of deep vein thrombosis (DVT) or pulmonary embolism (PE), the following applies:

1. Haematological evaluation must be documented to exclude thrombophilia and other predisposing conditions.
2. Following pulmonary embolism, the following additional documentation is required:
   a. Cardiological assessment, including evaluation of pulmonary circulation pressures.
   b. Satisfactory oxygen saturation levels must be confirmed. In case of uncertainty, testing should include a High-Altitude Simulation Test (HAST) or equivalent to simulate cabin pressure conditions.
3. Arterial or venous thrombosis or embolism is disqualifying if the applicant is undergoing anticoagulation *treatment*. Standard treatment duration is typically at least 3 months following DVT/PE. After this, anticoagulation may be used for *prophylaxis*, and in such cases, a limitation (OML/ORL) must be added to the medical certificate.
   - For warfarin (Marevan) use, a stable INR over at least 6 months must be documented before a limited certificate can be considered. This entails that at least 4 out of 5 INR values fall within the therapeutic range.
   - For NOACs/DOACs, which do not require INR monitoring, fitness with limitations may be considered after 3 months, provided there are no adverse effects or unacceptably high bleeding risk.
4. The most likely cause of the thromboembolic episode should be clearly identified, and an individual risk assessment for recurrence must be performed, including whether the applicant can avoid predisposing factors in the future.
   - If no sufficiently detailed specialist evaluation is available, including a justified estimate of annual recurrence risk and the likelihood of incapacitating

symptoms, the guideline table below should be used for medical decision-making.

- For applicants on prophylactic anticoagulation, risk assessment must consider both the bleeding risk and the degree of protection against recurrence provided by the treatment.

	First DVT	Second DVT / First PE	Third DVT / Second PE
Absence of risk factors for recurrence / known cause that can be avoided.			
Idiopathic DVT or unknown cause, no predisposing factors identified on workup.			
Persistent risk factors increasing the likelihood of recurrence.			
• At least 3 months (for DVT) or 6 months (for PE) of observation before fitness can be considered. • OML limitation if on prophylactic anticoagulation. If INR monitoring is required, or if there is a high bleeding risk or additional significant risk factors for recurrence, ORL/OSL should also be applied to Class 2 medical certificates	• Evaluated individually depending on risk factors. • At least 6–12 months of observation (depending on certificate class and individual risk profile). • Permanent OML/ORL limitation may be necessary depending on recurrence or bleeding risk.		• Unfit

MED.B.015 / ATCO.MED.015 – Respiratory system

Sarcoidosis

For applicants with sarcoidosis, the condition must be inactive and limited to hilar lymphadenopathy (stage 1). Pulmonary function must be satisfactory, and no signs of systemic involvement should be present. The AME must be particularly aware of the risk of ocular, cardiac, or neurological involvement. To meet these requirements, the following should be documented:

1. Pulmonary function testing must demonstrate satisfactory and stable lung capacity, defined as:
    - ≥ 70 % of predicted FVC and gas diffusion capacity,
    - No more than 10 % and 15 % annual decline in FVC and DLCO, respectively.
2. HAST (Hypoxia Altitude Simulation Test) should be performed in pilots when lung function is uncertain (e.g., at Glittreklinikken, Oslo). This test measures PaO_2 in hypoxic air (e.g., 15.1 % O_2), simulating cabin conditions on long-haul flights.
3. Echocardiography, exercise ECG, 24-hour Holter monitoring, and cardiac MRI (CMR) must all be normal, with no indication of cardiac sarcoidosis.
4. The applicant must not require treatment for sarcoidosis. However, a maintenance dose of up to 10 mg Prednisolone daily may be accepted under stable conditions.
5. MRI of the brain with contrast must show no evidence of central nervous system involvement (brain or meninges).
6. Ophthalmological examination must show no signs of ocular sarcoidosis.
7. A SIC limitation should be applied, with regular follow-up:
    - Every 6 months for Class 1/3 certificates and every 12 months for Class 2
    - Follow-up should include chest imaging, pulmonary function tests, resting ECG, and 24-hour Holter ECG.
    - Repeated MRI of the heart or brain is not required if the disease has remained inactive since the previous imaging.
    - After 5 years of documented stable disease, the frequency of follow-up may be reconsidered by the AME in consultation with a specialist.
8. In uncertain cases, a specialist report with individualised risk assessment must be provided.

In cases of systemic involvement or Stage 2–3 pulmonary sarcoidosis, a medical certificate may be issued with OML (Class 1) and possibly OSL (Class 2) limitations, for a minimum of 5 years, provided all the above criteria are fulfilled.

Chronic obstructive pulmonary disease (COPD)

COPD will generally render an applicant unfit for medical certification under Class 1, Class 2, and Class 3. However, fitness may be considered in cases where pulmonary function impairment is minimal.

For pilots, it must be documented that oxygen saturation (sO_2) remains above 88–90 % under simulated cabin pressure conditions equivalent to 8,000 feet. This can typically be assessed using a High-Altitude Simulation Test (HAST) or equivalent hypoxia simulation test. During such

testing, sO_2 and pO_2 are measured while the applicant breathes gas with reduced oxygen content, simulating cabin air oxygen partial pressure.

Alternatively, these values may be recorded in a hypobaric chamber that mimics the pressure and oxygen levels found at altitude.

Asthma

Applicants for Class 1, Class 2, or Class 3 medical certification with a history of medication-requiring asthma must undergo an evaluation by a respiratory specialist before fitness can be assessed. This applies to those who have required medication more than once within any 3-month period during the past 5 years (for Class 1 and 3) or the past 2 years (for Class 2).

The purpose of exercise spirometry is to detect bronchial hyperresponsiveness, which could lead to acute bronchospasm under operational conditions—such as low humidity, cold air, or stress. The exercise must include at least 6 minutes of running, bringing the applicant to ≥80 % of maximum heart rate. Short-acting beta-2 agonists must be discontinued at least 8 hours prior to the test, and long-acting beta-agonists (LABAs) at least 48 hours before. Spirometry should be conducted pre-exercise and at 1-, 3-, 5-, and 10-minutes post-exercise. A drop in FEV_1 of less than 10 % after exercise is required for a satisfactory result.

The exercise challenge test may also be conducted by the AME if not performed by the respiratory specialist, using the UK CAA GM and standard testing form.

The specialist evaluation must confirm the following criteria:

Requirement	Class 1 and 3	Class 2
Condition	Controlled and stable; uncontrolled asthma is disqualifying.	Controlled and stable; uncontrolled asthma is disqualifying..
Acute attack	At least 5 years since the last acute asthma attack or hospitalisation.	At least 2 years since the last acute asthma attack or hospitalisation.
Lung function	FEV_1/FVC > 70% An FEV_1/FVC ratio < 70 % may be accepted in exceptional cases, provided justification is documented by a respiratory specialist.	Peak expiratory flow > 80 % of predicted.
Exercise test	No significant drop in FEV_1 post-exercise (≥ 6 minutes running and ≥ 80 % max HR).	No significant drop in FEV_1/FVC post-exercise (same conditions as for class 1).
Borderline cases	Drop of 10–19 % during the exercise test may allow for limited certification if asymptomatic in daily life and with documented treatment response.	Same as class 1; limited certificate (OSL or ORL) may be considered.
Medication	Acceptable medications only (oral steroids are disqualifying).	Acceptable medications only (oral steroids are disqualifying).
Clinical signs	No bronchospasm ("wheezing") on physical exam.	Same as class 1.
Infection response	No bronchospasm with mild respiratory infections.	Bronchospasm must be easily controlled.

Obstructive sleep apnea (OSA)

Obstructive sleep apnea (OSA) may significantly affect aviation safety due to symptoms such as fatigue, headaches, and reduced concentration during the day. If there is a history or clinical suspicion of OSA, the AME must assess all the following factors. According to Regulation (EU) 2024/2076, the evaluation of OSA risk – using the STOP-BANG questionnaire – is now also mandatory at every aeromedical examination.

Cardiovascular assessment

As many individuals with OSA are overweight and hypertensive, a cardiovascular risk assessment must be included. If increased cardiovascular risk or uncertainty is present, a cardiology workup must be documented before medical certification can be issued. In addition to hypertension, OSA is associated with elevated risks for arrhythmias (e.g., atrial fibrillation or bradycardia) and coronary artery disease. 24-hour ECG monitoring and coronary investigations are therefore usually required.

Daytime sleepiness assessment

The Epworth Sleepiness Scale (ESS) is used to evaluate daytime sleepiness. A score >10 is not acceptable for pilots or air traffic controllers with valid certification. However, ESS is subjective and must not be used alone. Objective findings must be included in the medical evaluation. The examiner may also request corroborative evidence of adequate daily function and alertness (e.g., third-party observations or workplace assessments).

Neuropsychological evaluation

OSA can lead to neuropsychological deficits affecting aviation safety, including impairments in attention, memory, visuospatial abilities, executive functioning, and psychomotor speed. Mood and emotional regulation may also be impacted. The AME must conduct a basic neuropsychological assessment and, in case of doubt, refer the applicant to a qualified psychologist. Screening is particularly important in individuals with high AHI scores, borderline oxygen saturation, substantial sleep fragmentation, or a suggestive history.

Specialist evaluation

If OSA is suspected, the AME must determine whether referral to a specialist (including polysomnography) is required, based on the following or equivalent criteria:

1. STOP-BANG Score
    - A score of 3–4 warrants further assessment, including neck circumference and Mallampati Score.
    - A score of 5–8 normally mandates referral to a specialist.
    - Each of the following criteria adds 1 point to the score:
        - Snoring
        - Tiredness/fatigue
        - Observed apneas
        - High blood pressure or antihypertensive use
        - BMI > 35 kg/m^2
        - Age > 50 years
        - Neck circumference > 40 cm
        - Male gender

2. Adjusted Neck Circumference
    - Add 3 cm for snoring and/or witnessed apneas
    - Add 4 cm for hypertension or antihypertensive use
    - A total >48 cm warrants referral to a specialist
3. Mallampati Score
    - Evaluate oropharyngeal anatomy with the applicant sitting, neck extended, and tongue protruded.
    - A score of 3–4, combined with other risk factors, suggests significant OSA risk and requires specialist referral.

Polysomnography (PSG)

Typically conducted in a sleep lab, PSG includes EEG, EOG, EMG, respiratory monitoring, SpO_2, snoring, and heart rate. The Apnea-Hypopnea Index (AHI) is calculated as follows:

- Mild OSA: AHI 5–14
- Moderate OSA: AHI 15–29
- Severe OSA: AHI ≥30

Oxygen saturation must be satisfactory: at least 90 % of the sleep period must show SpO_2 > 90 % for certification to be considered.
EEG provides staging (N1–N3 and REM), detects arousals, and identifies sleep fragmentation. Note that fragmentation may occur even with normal oxygen levels. EEG also helps detect coexisting conditions. EOG and EMG are used to assess REM sleep and distinguish from NREM.

Home sleep testing (polygraphy)

Polysomnography is the gold standard, but home-based polygraphy may be acceptable in minor and uncomplicated cases. PSG is required for borderline cases, high suspicion of OSA, treatment failures, or uncertain indications.

Maintenance of wakefulness test (MWT)

If uncertainty remains about alertness or residual symptoms post-treatment, the MWT (or equivalent) should be used to assess the ability to remain awake during defined tasks. If the applicant has well-treated mild OSA, acceptable SpO_2, and no other signs of sleepiness, daytime function may be assessed by history and the Epworth scale alone.

Assessment of treatment response

Applicants diagnosed with obstructive sleep apnoea (OSA) must provide documentation of satisfactory treatment. Accepted treatment options include weight reduction and lifestyle modifications, surgery, mandibular advancement devices, or CPAP therapy. The applicant remains unfit for flying or air traffic control duties if there is evidence of unsatisfactory nocturnal oxygen saturation or persistent daytime sleepiness attributable to the condition.

<u>CPAP</u>

When CPAP therapy is indicated, compliance may be documented through device-recorded usage data. The minimum acceptable use is at least 5 hours per night, at least 6 nights per week. Treatment effect should not be assessed earlier than 30 days after initiation, as optimal benefit is typically achieved after several weeks of consistent use. CPAP must also be used the night before a planned flight.

According to the UK CAA GM, a CPAP usage report must be submitted to the AME every 3 months during the first year, accompanied by the applicant's pilot logbook covering the same period.

Mild untreated OSA – fitness criteria

In select cases, applicants with mild OSA (AHI ≤14) may be considered fit without treatment, provided all of the following apply:

1. AHI does not exceed 14
2. Nighttime oxygen saturation is acceptable
3. Absence of symptoms, including no sleepiness; if in doubt, MWT and/or cognitive testing is needed
4. A specialist report supports that both objective and subjective findings confirm no safety-relevant symptoms and no treatment indication

All assessments must be carefully documented and updated periodically to ensure continued fitness for aviation duties.

MED.B.020 / ATCO.MED.B.020 – Digestive system

Abdominal or inguinal hernia

The applicant shall not have a hernia that poses a risk of incapacitation. If the hernia is irreducible or if there is a risk of strangulation, the medical requirements for certification are not met. In any case where there is doubt about the potential for incapacitating symptoms, a specialist evaluation must be provided. The aeromedical assessment must also consider the potential impact of barometric pressure changes on the hernia. Following surgical repair, at least 30 days should normally elapse, and documentation of a satisfactory postoperative follow-up must be available before the AME can reassess medical fitness.

Inflammatory bowel disease (IBD)

A history of inflammatory bowel disease requires a satisfactory gastroenterological evaluation and established, stable remission before a medical certificate can be considered. There must be no requirement for systemic corticosteroids to maintain remission. In accordance with internationally accepted supplementary guidelines, the following criteria must be documented:

1. **Established remission**:
   For Class 1 medical certification with OML (Operational Multi-pilot Limitation), a sustained remission of at least 6 months is required; for Class 1 certification without OML, at least 12 months of remission is required. In IBD, remission is classified as clinical, endoscopic, or histological. Histological remission is associated with the lowest relapse risk, while clinical remission has the lowest prognostic value. For certification purposes, at least endoscopic remission must be documented. In individual cases, faecal calprotectin levels may be accepted as a surrogate marker for endoscopic remission, provided this is substantiated by a specialist and interpreted in light of previous endoscopic findings, clinical status, and historical measurements.
   - Calprotectin levels <50 mg/kg are considered satisfactory.
   - Levels >100 mg/kg are generally not acceptable.
   - Levels between 50–100 mg/kg require additional endoscopic or equivalent diagnostic assessment and a specialist statement confirming low risk of relapse. In borderline cases, a limited medical certificate may be considered.
2. **Medication use during observation period**:
   During the required observation period, only minimal maintenance therapy should be needed. Refer to the UK CAA Guidance Material for further information regarding acceptable pharmacological treatments in IBD. These guidelines are intended to address both the risk of medication-related side effects and the inherent risk from the underlying disease under ongoing treatment.
   Continuous follow-up by a gastroenterologist must be documented. At each renewal or revalidation of the medical certificate, the AME must obtain documentation confirming that the remission criteria are still fulfilled.

MED.B.025 / ATCO.MED.B.025 – Metabolic and endocrine systems

Overweight

In cases of overweight with a BMI between 32 and 35, applicants should be informed about the health risks associated with excess body weight and the potential implications for their medical certification. This counselling should be documented in EMPIC.

If the applicant's BMI is ≥35, the following shall be assessed and documented in EMPIC:

- **Functional capacity**:
  A satisfactory functional status must be demonstrated. For pilots, this is typically assessed through a medical flight test and include both safe cockpit operation and emergency egress. The AME must describe the method used to assess function and justify the evaluation.
- **Cardiovascular risk profile**:
  A comprehensive cardiovascular risk assessment must be performed, and the cardiovascular risk should be concluded as acceptable for medical certification. The assessment shall at a minimum include:
  - Medical history and lifestyle factors
  - Anthropometrics: BMI, waist-to-hip ratio and neck circumference
  - Blood glucose (fasting or HbA1c)
  - Urinalysis (urine dipstick)
  - Blood pressure
  - Annual Exercise ECG achieving at least 10–11 METS, if the estimated 10-year cardiovascular risk exceeds 20 %. If an adequate workload is not achieved or if the risk profile is borderline, further cardiovascular workup must be conducted by a cardiologist.
- Obstructive sleep apnoea screening:

See GM for OSA. Include both evaluation of daytime sleepiness (Epworth Sleepiness Scale) and OSA risk (STOP-BANG, Mallampati, neck circumference).

The AME may issue a Time-Limited Medical Certificate (TML) valid for 2 months pending completion of the cardiovascular assessment and medical flight test.

If results confirm adequate function and risk profile, Class 1 or Class 3 medical certification may be issued. The AME should consider applying a TML limitation to enable BMI follow-up.
A new functional assessment is required if the applicant's BMI increases by more than 2.5 units.

Diabetes mellitus

Insulin-dependent diabetes mellitus is disqualifying for medical certification of Class 1, Class 2, and Class 3. In applicants using approved non-insulin antidiabetic medications, a medical certificate may be considered with operational limitations:

1. OML (Operational Multi-crew Limitation) must always be applied for Class 1.
2. OSL/OPL should be considered for Class 2 certificates depending on individual risk assessment.

For certification to be considered, the AME must document the following:

1. Satisfactory exercise ECG (or an equivalent cardiovascular stress test):
    - To be repeated annually for Class 1 or 3 certificate holders.
    - To be repeated annually for Class 2 if the applicant's estimated 10-year cardiovascular or cerebrovascular risk exceeds 20 % or if risk is uncertain.
    - The test must demonstrate adequate exercise capacity and no signs of inducible myocardial ischemia.
2. Acceptable total cardiovascular risk profile, including:
    - Blood pressure control
    - Lipid status
    - SCORE2 or QRISK3-based risk calculation as appropriate
3. Stable and satisfactory glycaemic control, defined as:
    - HbA1c monitored at least every 6 months for Class 1 and 3
    - HbA1c monitored at least annually for Class 2
    - Values must be consistently within the target range for the chosen treatment algorithm
4. Absence of diabetes-related complications that could impact flight safety:
    - Ophthalmologic evaluation to exclude retinopathy or macular oedema
    - Neurologic evaluation for signs of peripheral or autonomic neuropathy
    - These assessments may be performed by the AME or referred to a specialist if in doubt
5. There shall be no history of hypoglycemic episodes while on the current medication, and antidiabetic agents shall not pose any clinically significant risk of hypoglycemia.
    - Substances known to carry a moderate or high risk of hypoglycemia, such as sulfonylureas or glinides, are generally not acceptable for aeromedical certification. Where considered, the estimated annual risk of hypoglycemia causing functional impairment must be demonstrably below 1 %.

MED.B.050 – Musculoskeletal system

Orthopaedic and rheumatological disorders

An applicant with an inflammatory, traumatic, or degenerative condition affecting the musculoskeletal system is considered unfit to fly until it has been documented that the condition does not compromise flight safety. This requires that:

- The condition must be in remission or stable
- The applicant must not be taking any disqualifying medication
- There must be no functional impairment demonstrated during medical examination or medical flight testing that could impact operational performance

If any doubt arises during the aeromedical examination regarding functional capability, a medical flight test must be performed. Depending on the specific operational and medical context, this should be conducted either in the appropriate aircraft type or a representative simulator.

Before the AME can consider issuing a medical certificate, the applicant must demonstrate safe performance of all relevant tasks, including:

1. Normal flight operations
   (e.g. pre-flight checks and preparations, taxiing, take-off, landing, in-flight manoeuvres, handling of pedals/switches/flight controls)
2. Emergency procedures
   (e.g. handling failures in engines, flight controls, or brakes)
3. Safe evacuation
   of the aircraft under time-critical and/or emergency conditions

If the applicant is certified on multiple aircraft types, separate evaluations and reports may be required for each.

In accordance with MED.B.005, there must also be no risk of sudden-onset severe pain, loss of strength, or range-of-motion limitations that could impact operational safety. This risk assessment must consider the underlying diagnosis, the disease course, and the duration of remission.

MED.B.055 / ATCO.MED.B.055 – Mental health

Assessment of mental health

At each aeromedical examination for initial issue, revalidation, or renewal of a medical certificate for flying, the AME must assess the applicant's mental health.

For the initial Class 1 medical examination, a mental health report must be prepared, documenting a comprehensive assessment in accordance with AMC1/AMC2 MED.B.055, GM1 MED.B.055, and GM2 MED.B.055. This report must be uploaded to EMPIC as a separate attachment. For all other examinations (including revalidations and renewals) of Class 1 or Class 2 medical certificates, documentation must demonstrate that all relevant core components have been assessed as satisfactory. Either the template provided by the national authority or a more detailed version may be used.

The assessment must address the following five key areas:

1. Evaluation of attitude and general risk factors:
    - The applicant's attitude toward mental health and ability to recognise symptoms in themselves or others.
    - Coping strategies for mental stress, including willingness to seek advice or help.
    - History of behavioural problems in childhood.
    - Family history of psychiatric illness.
2. Social history:
    - Interpersonal or relational problems (e.g. with relatives, friends, or colleagues).
    - Impact of work schedules or absences on family relationships.
    - History of criminal behaviour.
    - Occupational or life stressors (e.g. fatigue, shift work, circadian rhythm disruption, environmental stressors).
    - Past traumas—physical or psychological.
    - History of problems during training or checks.
    - History of accidents or incidents (e.g. in aviation or driving).
3. Symptom history:
    - Loss of interest or energy, asthenia.
    - Appetite or weight changes.
    - Sleep disturbances.
    - Mood changes (including suicidal thoughts).
    - Agitation, irritability, or signs of mania.
4. Observations by the AME:
    - Appearance, behaviour, mood, hygiene, cooperation, and speech.
    - Thought processes and content.
    - Insight and judgement.
5. Evaluation of psychiatric disorders or psychological dysfunction:
    - Screening for personality disorders (mandatory for initial assessments). Tools like PID-5 (DSM-5 aligned) are recommended.
    - Substance use, including alcohol and psychoactive drugs:
        - Use of screening tools such as AUDIT or DUDIT is recommended.

    - Laboratory drug testing results should be interpreted in light of their limitations (e.g. short detection windows).
- Depersonalisation, derealisation, loss of control, and impulse control should be explored.
    - Adult ADHD screening is recommended if symptoms are suspected.
- Perception and cognition must be screened:
    - Include orientation, alertness, concentration, memory (short-term and long-term), visuospatial ability, executive functions, and language.
    - Brief bedside tests or validated tools like CogScreen® may be used.
    - Referral for a complete neuropsychological assessment is required if impairment is suspected.
- Screening for other psychiatric conditions:
    - The M.I.N.I. interview is recommended and may be performed after brief training.
    - Consider use of M.I.N.I. Plus, in complex cases.

The assessment must consider the applicant's social, environmental, and cultural context and aim to identify any disturbances that may pose a risk to flight safety.

Initial mental health assessments are ideally done in collaboration with a psychiatrist or clinical psychologist but may also be performed independently by an AME with relevant competence. Referral to a specialist is mandatory when there is evidence of psychiatric illness or doubt regarding psychological fitness.

The use of psychometric instruments must be context-appropriate. Tools like PHQ-9 may be useful clinically, but more comprehensive instruments (e.g., MMPI-2) are better suited for selection purposes. These tools often include validity scales to assess response consistency. Interpretation should be carried out by a qualified professional, and forms must be completed under supervision.

Additional investigations may include drug testing, brain imaging, or third-party declarations (e.g. from a family physician, employer, or relative).

In commercial pilots with a history of psychiatric illness, a SIC limitation shall normally be applied to the Class 1 medical certificate after recovery (see AMC1 MED.B.055(c)). This must remain until a specialist concludes that the risk of relapse is negligible and comparable to that of the general population.

Referral to psychologist, psychiatrist, or addiction medicine specialist

In cases where psychological impairment is suspected (e.g. reduced cognitive performance), the applicant must be referred to a clinical psychologist or neuropsychologist. Where a psychiatric disorder is suspected (including mood disorders, neurotic disorders, personality disorders, or behavioural disorders), the referral must be to a specialist in psychiatry. For substance use disorders, the applicant must be referred to a specialist in psychiatry or addiction medicine.

In exceptional cases, other specialists may be considered if it is clearly documented and justified why that particular specialist is more relevant. For instance, if a psychologist has had a

long-term therapeutic relationship with the applicant. In all cases, the report must demonstrate that the specialist possesses relevant diagnostic experience.

According to AMC1 MED.B.055(f) and AMC2 MED.B.055(e), psychiatric assessments must be conducted by a psychiatrist with appropriate knowledge and experience in aviation medicine, and psychological assessments must be conducted by a qualified clinical psychologist with expertise and experience in aviation psychology. If the specialist does not have prior aviation medicine experience, the CAA considers it sufficient that the AME provides adequate guidance to ensure the necessary understanding of all relevant aviation-specific requirements for the individual case. The report must explicitly state that the specialist has considered relevant operational, environmental, and occupational stressors specific to the applicant's role as a pilot or air traffic controller.

Although not mandatory, accreditation as an aviation psychologist by the European Association for Aviation Psychology (EAAP) is desirable.

The assessment must include a face-to-face consultation to ensure adequate communication, including nonverbal cues. Only in exceptional circumstances may the consultation be conducted remotely, such as when the relevant assessment may be based solely on reviewing prior reports and documentation.

The report must clearly state that the assessment complies with current aviation medical regulations and guidance. If the referral is made by an AME or AeMC, the referring physician must ensure that all criteria for the specialist and the report content are met.

The AME must ensure the following elements are explicitly addressed in the specialist's report (unless not relevant in the given case):

1. Confirmation that the applicant's identity has been verified.
2. The specialist's qualifications, including:
   a. Expertise in the methods or tests used and relevant diagnostic experience.
   b. Previous experience assessing pilots/ATCOs or familiarity with operational demands and aviation safety standards.
   c. Aviation medicine training through participation in relevant courses or training at an AeMC, including the date and extent of last refresher training.
3. Confirmation that the consultation was conducted in person.
4. Full description of the reason for referral. If due to a concern or requirement from the CAA, this must be clearly stated. The specialist must confirm they have received and reviewed any formal decision letters or requirements from the authority. All supporting documentation (e.g. GP notes, discharge summaries, other specialist reports) must be listed.
5. Applicant's diagnosis and comorbidities.
6. Current symptoms or findings.
7. Summary of the applicant's upbringing, social history, and family dynamics.
8. Results of validated clinical questionnaires or neuropsychological tests.
9. For substance use disorders, objective biological test results must be considered.
10. Details of past or ongoing treatment and follow-up for known psychiatric conditions.
11. Medication use, including potential and future side effects that may affect flight safety.

12. Summary of relevant regulations and guidelines, confirming the specialist is up to date with current aviation medical requirements and has considered these in their conclusion.
13. Assessment of future risk of impairment relevant to flight safety:
    - This must include a structured estimate of the annual risk of functional impairment affecting aviation safety, based on both general prognosis and specific relapse risk.
    - The risk estimate should be based on published data or expert consensus, taking into account the applicant's individual course of illness.
    - The probability of recurrence leading to cognitive, emotional, or behavioural impairment should also be addressed.
    - Factors such as insight, coping strategies, treatment adherence, and previous response to therapy must be considered.
    - The total annual risk can be approximated by multiplying the relapse risk by the probability that a relapse will cause safety-relevant impairment. For Class 1 medical certificates, this risk should generally not exceed 1 %.
14. A clear conclusion with a justified assessment of the applicant's mental health and fitness for flying or air traffic control duties. The conclusion must reflect that the burden of proof lies with demonstrating the absence of any mental condition that may impair flight safety, not vice versa. If a prior psychiatric concern was present and the specialist cannot clearly confirm its resolution, further investigation or follow-up will usually be required.

Incomplete reports will generally be returned. AMEs/AeMCs must ensure that all required components are present before referral or submission to the CAA.

Mood disorders

Refer to the UK CAA flowchart, and note that any established mood disorder is disqualifying for flight duties. Before the AME may consider the applicant as fit, there must be documented evidence of full remission. Furthermore, before an unrestricted medical certificate can be issued, it must be substantiated that the risk of relapse is very low.

This documentation must include a specialist psychiatric report explicitly addressing the applicant's mental health in relation to the operational demands and responsibilities of flight crew duties.

Where ongoing remission is dependent on pharmacological treatment with SSRIs, certification may be considered under the following conditions:

- Only approved medications are used: citalopram, sertraline, or escitalopram
- The dosage must be stable (no change in SSRI dosage during the past month)
- A minimum of four weeks' grounding is required after cessation of medication

Where remission is maintained through ongoing treatment, either pharmacological (SSRIs) and/or psychotherapy (e.g. cognitive behavioural therapy or psychodynamic therapy), the following additional requirements apply:

- Satisfactory performance in a simulator assessment or medical flight test
- Documented evidence of regular and satisfactory follow-up by a psychiatrist (SIC)

- The medical certificate must carry OML limitation (for Class 1) and OSL/OPL limitation (for Class 2) where pharmacological treatment is ongoing

Alcohol use disorder

Alcohol use and aviation

Epidemiological studies have estimated that approximately 10 % of the general population suffers from an alcohol use problem. It is presumed that this prevalence may also apply to pilot populations. It is well documented that ethanol impairs pilot performance. Studies have shown that blood alcohol concentrations (BAC) as low as 0.025 % (25 mg/dL) may negatively affect flight safety.

Alcohol may cause increased impulsivity, impaired judgement and risk-taking behaviour, reduced learning ability, memory, psychomotor performance, orientation, and decision-making. Oculovestibular function may also be impaired, compromising the pilot's perception of spatial orientation, visual fixation, and tracking ability, which are particularly relevant under low-light conditions.

Other studies have demonstrated that alcohol intake may impair flight safety even after BAC has returned to zero, including residual alcohol-induced oculomotor disturbances. High alcohol intake may also cause next-day symptoms such as headache, nausea, vomiting, and general malaise—factors which may impair performance. Furthermore, alcohol consumption affects sleep quality, increasing the risk of fatigue the following day.

A Dutch report (2003) on alcohol use among pilots concluded that a BAC of ≥ 0.08 % (0.8‰) the day before flying may reduce flight safety, a fact that remains underappreciated by many pilots.

Diagnosis of alcohol use disorder (AUD)

The AME or relevant specialist should assess the likelihood of AUD based on the DSM-5 or ICD diagnostic criteria. The evaluation may be difficult, as many criteria rely on subjective and self-reported information. Nevertheless, the assessment may be supplemented with biomarkers, collateral information, and longitudinal follow-up.

DSM-5 Alcohol Use Disorder Criteria • mild AUDs: presence of 2–3 criteria last year • moderate AUDs: defined as the presence of 4–5 criteria last year • severe AUDs: defined as the presence of 6 or more criteria last year
1. Alcohol is often taken in larger amounts or over a longer period than was intended
2. There is a persistent desire or unsuccessful efforts to cut down or control alcohol use
3. A great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects
4. Craving, or a strong desire or urge to use alcohol
5. Recurrent alcohol use resulting in a failure to fulfil major role obligations at work, school, or home
6. Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol
7. Important social, occupational, or recreational activities are given up or reduced because of alcohol use
8. Recurrent alcohol use in situations in which it is physically hazardous

9. Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol
10. Tolerance, or needing increased amounts of alcohol to achieve intoxication, or having a diminished effect with continued use of the same amount of alcohol
11. Withdrawal, or the characteristic withdrawal syndrome for alcohol as well as drinking alcohol (or taking a benzodiazepine) to relieve or avoid alcohol withdrawal symptoms

If a substance use disorder is suspected, referral should be made to a specialist in psychiatry or addiction medicine. If ICD-10 criteria for harmful use or dependence, or DSM-5 criteria for substance use disorder, are met, the applicant is not medically fit.

Phosphatidylethanol (PEth) in diagnostics

PEth in blood is formed only in the presence of ethanol, with high specificity and sensitivity for alcohol intake within the past weeks. A single episode of drinking usually does not increase PEth significantly; regular consumption leads to dose-dependent accumulation. For monitoring changes over time, repeated testing at least every second week is recommended.

Typical thresholds (in µmol/L):

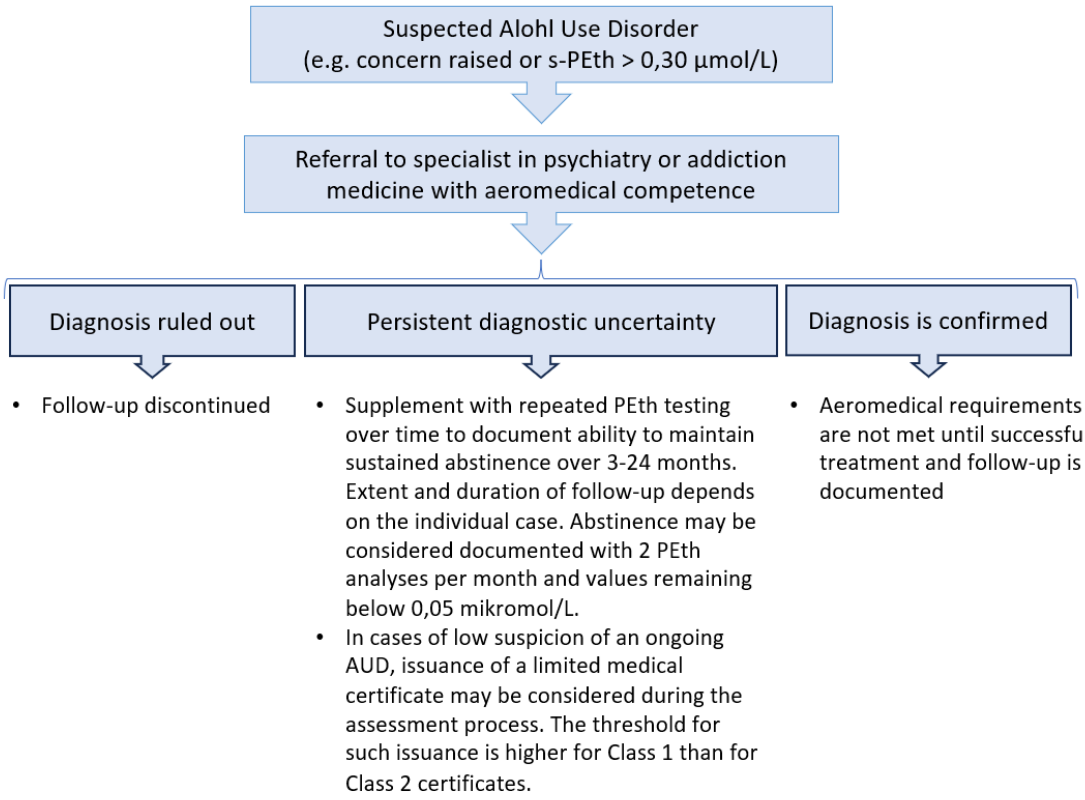
- <0.03 µmol/L: consistent with abstinence or low consumption
- >0.30 µmol/L: suggests harmful use or misuse

False positives/negatives are very rare, but possible. Outliers should be interpreted in a clinical context.

Follow-up of possible AUD

A simple assessment is usually insufficient to rule out AUD under MED.B.055. Evaluation must be based on ICD/DSM criteria. If criteria for AUD are met, the applicant is considered unfit. The assessment will usually include consideration of the ability to reduce intake and ensuring that the alcohol use does not interfere with occupational or social responsibilities.

The following flowchart outlines the recommended aeromedical approach to suspected Alcohol Use Disorder, including referral pathways, follow-up strategies, and certification implications based on diagnostic outcomes:



Medical recertification after a history of Alcohol Use Disorder

An unrestricted medical certificate may be considered after a minimum of two years of documented abstinence. However, a limited certificate (Class 1 with OML or Class 2 with OSL/OPL) may be issued after at least 3 months of abstinence, provided:

1. Completion of rehabilitation, typically several weeks in a residential addiction treatment program. Alternative treatment plans must be well-documented. Involvement of family members is encouraged.
2. A satisfactory psychiatric evaluation, explicitly assessing the advisability of re-certification.
3. Documented abstinence: ≥ 3 months (limited certificate) or ≥ 2 years (unrestricted certificate), validated by serial biological markers.
4. A documented monitoring and follow-up plan, usually including:
    - Peer reports
    - Regular AME reviews
    - Random and scheduled testing: urine (EtG/EtS), blood (PEth/CDT %), and possibly hair EtG
    - In Class 1 cases, an AKAN agreement or equivalent structured monitoring contract
    - Lifelong follow-up may be warranted in some cases

Initial month protocol:

- 2× weekly urine EtG/EtS
- Weekly PEth testing
- CDT % baseline at 4 weeks

CDT% requires abstinence before sampling to reflect "true zero." If needed, supervised disulfiram (Antabuse) use for 4 weeks may be used to confirm abstinence before CDT measurement.

Subsequent months:

- 1–2 monthly tests (CDT% or PEth)
- CDT% change > 30 % from baseline suggests relapse
- PEth > 0.05 µmol/L indicates relapse
- Hair EtG may be used for long-term verification

5. If a relapse occurs:

- The applicant must repeat treatment and undergo a new observation period.
- A history of multiple relapses normally disqualifies the applicant permanently.

AMEs must ensure the applicant understands that non-cooperation or missed tests resets the observation period. All relevant communication should be documented in EMPIC.

Substance testing of initial Class 1 applicants

During the initial Class 1 medical certificate examination, substance testing must be performed as outlined in AMC1 MED.B.055(d). As a minimum, this includes testing for alcohol and the following psychoactive substances: opiates, cannabinoids, amphetamines, cocaine, hallucinogens, and sedatives.

Testing procedures in Norway are described by the Norwegian Directorate of Health: https://helsedirektoratet.no/retningslinjer/prosedyrer-for-rusmiddeltesting

In the event of a positive confirmatory test indicating recent use of narcotic substances in connection with the planned aeromedical examination, the general rule is that 2 years of documented abstinence is required before a Class 1 certificate without OML (Operational Multi-pilot Limitation) may be considered. In exceptional cases, a shorter follow-up period may be accepted, provided there is sufficient documentation and justification from a relevant medical specialist demonstrating that no substance use disorder has been present and that the risk of recurrence is very low.

History of illicit drug use or misuse of prescription medications

In cases with a history of harmful use of psychoactive substances that may pose a risk to aviation safety, the medical requirements for certification are not considered met. A documented period of abstinence of 2 years is usually required before an unrestricted medical certificate for flight duties can be considered. A Class 1 medical certificate with an OML (Operational Multi-pilot Limitation) or a Class 2 certificate with OPL/OSL (Operational/Specific Limitation) may be considered after a minimum of 3 months, provided that treatment has been completed, a specialist evaluation is available, and a follow-up plan is in place. These requirements also apply in cases of repeated or ongoing misuse of prescription drugs for intoxicating purposes.

There is no definitive threshold for how far back substance use must be to no longer be disqualifying. The use of illicit drugs or prescription medications for intoxication is evaluated more strictly than moderate, socially acceptable use of legal substances (such as alcohol). Recent, ongoing, or extensive substance use is assessed more severely than minimal and

sporadic use far in the past. A positive toxicology screen (including confirmation analysis) at the time of the aeromedical examination is typically interpreted as an indicator of a substance use problem. The same applies to credible concerns or a history of driving under the influence.

Self-disclosure of previous substance use by the applicant is generally judged less harshly than cases with independently documented illicit use. In civil aviation, there is a zero-tolerance policy for the use of illicit drugs, and it is expected that pilots, air traffic controllers, and cabin crew are fully aware of this. A history of illicit drug use in a current certificate holder is, therefore, usually judged more strictly than similar use reported long ago by initial applicants.

Applicants with a history of illicit drug use or misuse of psychoactive medication must be referred to a specialist in psychiatry or addiction medicine. In some cases, a psychologist may be used, depending on their qualifications and the degree of suspicion of a substance use disorder.

If the specialist cannot rule out a substance use problem or there is uncertainty as to whether medical requirements are met, the AME should consider obtaining corroborative information and monitoring the applicant to document the ability to maintain abstinence over time. This follow-up period should typically be at least 3–6 months, depending on the substance used, the time since last use, and other risk factors. Medical certification is usually deferred until the follow-up period is completed. The follow-up duration may be extended, shortened, or omitted in exceptional cases based on a reasoned decision by the AME. In cases of high suspicion of substance use disorder, the follow-up period will typically be 2 years.

Documentation of sustained abstinence typically requires weekly scheduled tests, at least monthly unannounced screenings (random testing), or lower-frequency testing using hair samples in combination with urine tests. The testing plan should be evaluated by the AME in consultation with the specialist.

In cases of previous illicit drug use, the AME should also document that the applicant has been informed of and understands the zero-tolerance policy for illicit substance use while holding a valid EASA medical certificate.

ADHD

An applicant with a history of ADHD/ADD will normally not meet the medical requirements for flight or air traffic control duties. However, exceptions may be considered in some instances if a comprehensive, multidisciplinary specialist evaluations clearly demonstrate that the condition no longer presents any safety-critical cognitive or behavioural impairments.

The evaluation must, at a minimum, include the following:

1. **A psychiatric specialist assessment**, which must:
   a. Confirm or refute the diagnosis according to current criteria (preferably DSM-5).
   b. Assess whether other concurrent psychiatric disorders may account for the symptoms.
   c. Include an explicit evaluation of attention, impulse control, emotional regulation, and insight. The specialist must rule out dissocial behaviour, impulsivity, or risk-taking tendencies that may impact flight safety. Methods suitable for a selection medicine context should be used, and collateral information from third parties may be obtained where relevant and with consent.

2. **A comprehensive neuropsychological assessment**, which must:
   a. Evaluate cognitive functions, including attention, executive functioning, working memory, and reaction time.
   b. Include validated tests targeting ADHD-related domains and test validity assessment within a selection medicine context.
   c. Conclude with clear evidence of the absence of persistent cognitive impairments that could affect aviation safety.

Both specialist reports must explicitly conclude that there is no clinically significant inattention, behavioural disorder, impulsivity, or cognitive impairment, and that there is no ongoing need for treatment with stimulant medications.

Stimulant medication may, in rare cases, be accepted for microlight pilots, cabin crew, or LAPL licence holders with appropriate restrictions (OPL/ORL/OSL), provided that the applicant is symptom-free, functionally stable over time, and on a low, stable treatment dose. The use or need for stimulant medication is incompatible with holding a Class 1, Class 2, or Class 3 medical certificate.

As with other psychiatric conditions, a well-founded and clearly reasoned recommendation from the relevant medical specialists is required before medical certification can be considered. The justification must include a detailed explanation of why the condition does not pose a risk of impaired attention or impulsivity that could impact aviation safety.

MED.B.065 / ATCO.MED.B.065 – Neurology

TLOC/syncope

Although syncope and other forms of transient loss of consciousness (TLOC) are addressed under the cardiovascular section of the regulatory framework, many of these conditions—particularly vasovagal syncope and situational syncope—are primarily mediated by the autonomic nervous system and have a neurogenic pathophysiology. Vasovagal episodes involve brainstem reflexes and vagal activation, leading to hypotension and/or bradycardia. As such, they may also be considered under the broader scope of neurological assessment. For guidance on medical certification after TLOC, refer to the cardiovascular section of this document, where risk stratification is described in more detail.

Differential diagnoses such as epileptic seizures, migraine variants, or transient ischemic attacks (TIA) also fall within the scope of neurological assessment.

In cases of unexplained syncope or TLOC where the underlying cause remains uncertain, the AME should refer to MED.B.065 (neurology), and not only MED.B.010 (cardiovascular system), when assessing medical fitness.

Cerebrovascular event

A history of stroke (including cerebral infarction or haemorrhage) or TIA due to atherosclerosis, embolism or unknown cause will generally result in permanent unfitness for Class 1 and Class 3 medical certification. Such a history will also normally preclude the issue of an unrestricted Class 2 medical certificate. This is primarily due to the high risk of recurrent cerebrovascular or cardiovascular events. The recurrence risk is usually >10–15 % in the first year and approximately 4 % annually thereafter, unless the cause is clearly identified and no longer present. The risk of epileptic seizures is also increased after stroke, particularly with cortical, haemorrhagic, frontal or temporal lesions.

Exceptionally, Class 1 or 3 medical certification with an OML or SSL limitation may be considered if it can be documented that the cerebrovascular event was caused by a specific condition that is no longer present, that the risk of recurrence (including cerebrovascular, coronary, or epileptic events) is below 1–2 % per year, and that functional capacity is documented as satisfactory. In practice, this requires fulfilment of the same conditions listed below for Class 2 certification, in addition to a detailed specialist opinion with adequate justification or references documenting sufficiently low risk. The case must be referred to the CAA.

Atherosclerotic or unknown causes are considered disqualifying for Class 1 and 3 certifications.

Applications for renewal or revalidation of Class 2 or LAPL certificates can also only be considered exceptionally, and an OSL or OPL limitation must always be applied to Class 2 certificates. The assessment must be made in consultation with the CAA and must fulfil all the following criteria (see below). Additionally, factors such as location and extent of the infarct or haemorrhage must be considered.

Conditions for issuing a Class 2/LAPL certificate after stroke/TIA due to atherosclerosis, embolism, or unknown cause:

- No neurological deficits that could impact flight safety. A neuropsychological assessment and a medical flight test should be performed if the AME cannot exclude cognitive or perceptual impairment. Some safety-critical cognitive, neurological, or perceptual functions may only be detected through targeted testing, and the AME, neurologist, or psychologist must consider which part of the brain was affected. A neuropsychological evaluation is usually required if the infarct involved higher cognitive centres (especially the frontal lobe, parietal lobe, temporal lobe or cingulum).
- Very low seizure risk, including a SeLECT score <3 for restricted Class 2, and <5 for restricted LAPL.
- Minimum of 12 months' observation period for Class 2/LAPL with OPL/OSL, and 24 months for unrestricted LAPL.
- Angiographic sequences (MR or CT angiography) of the head and neck have ruled out vascular anomalies or other untreated structural causes.
- Follow-up brain MRI after the observation period shows no new lesions.
- Satisfactory cardiological assessment including exercise ECG, echocardiography and 24-hour Holter monitoring.
- No significant carotid artery stenosis on neck ultrasound.
- Satisfactory lipid profile.
- No coagulation disorder.
- Well-controlled blood pressure.
- Satisfactory ophthalmological status, including visual fields.
- Non-smoker.
- No atrial fibrillation.
- No diabetes mellitus.
- No use of anticoagulants such as warfarin or dabigatran.
- Only one cerebrovascular event in history.
- No history of coronary artery disease or myocardial infarction (applies to Class 2 only).
- Age below 65 years for Class 2 or unrestricted LAPL, and below 70 years for restricted LAPL. Age is a risk factor for recurrence, and these limits also apply to applicants who previously received an exemption when younger.
- Annual cardiological follow-up with exercise ECG and review of risk factors, potentially including 24-hour Holter monitoring.

Patent foramen ovale (PFO) and paradoxical embolism

Patent foramen ovale (PFO) is present in approximately 25 % of the general population. This means that many patients with cerebral infarction due to other causes may also be found to have a PFO, without a causal relationship between the PFO and the stroke. The risk of recurrent stroke following PFO closure, therefore, depends on the likelihood that the interatrial shunt was in fact the cause of the infarction. The RoPE score (Risk of Paradoxical Embolism) is one tool used to assess this causal link. Most clinical studies addressing prognosis after PFO closure include patients aged 18–60 with a RoPE score of at least 7.

Several publications have estimated the probability that a stroke was attributable to a PFO (PFO-attributable fraction), as well as the calculated risk of recurrent events based on RoPE score (Kent DM et al. *An index to identify stroke-related vs incidental patent foramen ovale in*

cryptogenic stroke. Neurology 2013;81(7):619–25). The table below provides an approximate estimation of stroke/TIA recurrence risk based on these published values:

RoPE score	**PFO-attributable fraction (95 % CI)**	**Estimated stroke / TIA recurrence at 2 years (95 % CI)**	**Estimated annual risk of stroke / TIA recurrence after PFO closure**
0-3	0 % (0-4)	20 % (12-28)	10 %
4	38 % (25-48)	12 % (6-18)	3,7 %
5	34 % (21-45)	7 % (3-11)	2,3 %
6	62 % (54-68)	8 % (4-12)	1,5 %
7	72 % (66-76)	6 % (2-10)	0,8 %
8	84 % (79-87)	6 % (2-10)	0,5 %
9-10	88 % (83-91)	2 % (0-4)	0,1 %

Note: The risk estimates in the table above are subject to considerable uncertainty due to limited scientific data. The wide confidence intervals imply that even when a RoPE score of 7–10 is present, medical certification should still generally be limited with an OML or OSL restriction, in line with national and international guidance.

In addition to the RoPE score, other variables are often considered when evaluating the causal relationship between a detected PFO and a stroke. These may include:

- Size of the shunt (e.g., number of microbubbles detected in the left atrium during Valsalva maneuver)
- Presence of an atrial septal aneurysm or Chiari network
- PFO angle
- Previous history of vascular events

Cerebral infarction caused by atrial fibrillation

The CHA_2DS_2-VASc score is used to assess the risk of embolic stroke in individuals with atrial fibrillation, and reference is made to the UK CAA Guidance Material (see *Atrial Fibrillation*) for how this explicitly impacts aeromedical certification. It should be noted that a history of stroke, TIA, or thromboembolism in itself contributes +2 points to the CHA_2DS_2-VASc score. A total score of 2 corresponds to an estimated annual risk of approximately 2.9 % for stroke, TIA, or systemic embolism.

Some studies have shown that anticoagulation therapy can reduce the risk of stroke by approximately 50–60 % in this patient group. However, the risk of severe bleeding remains above 1 % per year (cf. HAS-BLED score), meaning that the overall risk of an incapacitating event typically exceeds 2–3 % per year. This supports the conclusion that a pilot with a history of stroke due to atrial fibrillation does not meet the medical requirements for a Class 1 medical certificate or an unrestricted Class 2 medical certificate. In selected cases, issuance of a Class 2 medical certificate with an OSL limitation may be considered, provided the overall risk profile is otherwise very favourable.

Unruptured cerebral aneurysm

An applicant with an incidentally discovered, "cold" (unruptured) cerebral aneurysm may be considered for medical certification after consultation with the Civil Aviation Authority (for Class

2 and LAPL) or referral to the Authority (for Class 1 and 3). Assessment guidelines are primarily based on six factors from the **PHASES score**, as shown below:

PHASES aneurysm risk score	Points
(P) Population	
North American, European (other than Finnish)	0
Japanese	3
Finnish	5
(H) Hypertension	
No	0
Yes	1
(A) Age	
<70 years	0
70 years or more	1
(S) Size of aneurysm	
<7.0mm	0
7.0-9.9mm	3
10.0-19.9mm	6
20mm or more	10
(E) Earlier SAH from another aneurysm	
No	0
Yes	1
(S) Site of aneurysm	
ICA	0
MCA	2
ACA (inkludert Acom)/Pcom/posterior	4

For most Norwegian pilots and air traffic controllers, P, H, A, and E will be zero, meaning that aneurysm size and location are typically the decisive factors. However, individual risk assessment is necessary, considering that, for example, women may have a slightly higher risk than men (RR approx. 1.7). The rupture risk is highest shortly after detection and then declines.

Use of these guidelines assumes the following:

- No evidence of aneurysm growth or change at 6-month follow-up during the first year, and thereafter annual imaging (MRA or CTA). A SIC limitation must be applied for at least 5 years.
- Satisfactory control of other risk factors, including blood pressure and smoking cessation.
- Single aneurysm. Multiple aneurysms require case-by-case evaluation.
- Patent aneurysm. If the aneurysm is thrombosed, the applicant may resume flying without limitations, provided annual imaging is performed.
- Asymptomatic aneurysm. Symptomatic aneurysms carry a ~4–5× higher risk of rupture and usually require surgical or endovascular treatment before consideration for certification.

If these conditions are met, the PHASES score is used in combination with the table below for certification decisions:

<table>
<tr><th>PHASES score</th><th>CLASS 1</th><th>CLASS 3</th><th>CLASS 2</th><th>LAPL</th></tr>
<tr><td>0-2</td><td>Unlimited</td><td rowspan="4">Unlimited</td><td rowspan="4">Unlimited</td><td rowspan="6">Unlimited</td></tr>
<tr><td>3</td><td rowspan="3">OML</td></tr>
<tr><td>4</td></tr>
<tr><td>5</td></tr>
<tr><td>6</td><td rowspan="3">Unfit the first year of observation, thereafter OML</td><td rowspan="3">Unfit the first year of observation, thereafter limited certification (SSL)</td></tr>
<tr><td>7</td><td rowspan="2">OSL the first year, thereafter unlimited</td></tr>
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<tr><td>9</td><td rowspan="3">Unfit</td><td rowspan="3">Unfit</td><td rowspan="2">Limited* certification the first year</td></tr>
<tr><td>10</td><td rowspan="2">OSL</td></tr>
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<tr><td>12 el. mer</td><td>Unfit</td></tr>
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**Restrictions for LAPL typically involve safety pilot or operational limitations. Given the potentially greater G-loads and hemodynamic fluctuations in LAPL operations (e.g., aerobatic flying), additional restrictions may be warranted even at lower PHASES scores.*

Following treatment of an unruptured cerebral aneurysm

Following surgical or endovascular treatment of a solitary unruptured ("cold") cerebral aneurysm, the applicant is considered unfit for an observation period as specified below, depending on the aneurysm location and treatment modality. This is primarily due to the risk of epileptic seizures, thromboembolic events, or early rebleeding. The applicant may be considered for limited medical certification (e.g., OML/OSL) after the specified observation period, provided follow-up imaging confirms complete occlusion, and no neurological sequelae or complications have occurred.

Location of successfully clipped/coiled aneurysm	Clipping (craniotomy)	Coiling (endovascular)
A.cerebri media	Unfit for 3 years, then OML/OSL for 6 years	Unfit for 2 years, then OML/OSL for 5 years
A.cerebri anterior	Unfit for 2 years, then OML/OSL for 5 years	Unfit for 2 years, then OML/OSL for 4 years
A.communicans anterior	Unfit for 2 years, then OML/OSL for 3 years	Unfit for 1 year, then OML/OSL for 2 years
A.communicans posterior	Unfit for 3 years, then OML/OSL for 6 years	Unfit for 1 year, then OML/OSL for 2 years
A.cerebri posterior	Unfit for 1 year, then OML/OSL for 3 years	Unfit for 1 year, then OML/OSL for 2 years
A.carotis interna bifurkatur	Unfit for 1 year, then OML/OSL for 3 years	Unfit for 1 year, then OML/OSL for 2 years
Posterior circulation	Unfit for 1 year, then OML/OSL for 3 years	Unfit for 1 year, then OML/OSL for 2 years

If the aneurysm ruptured prior to intervention, the case must be assessed under the criteria for post-subarachnoid haemorrhage (SAH).

There must be satisfactory neuroimaging confirming complete obliteration of the aneurysm before medical recertification is considered. In cases of subtotal occlusion, an individual risk assessment may be performed.

Treatment should, as a general rule, have been successful without neurological sequelae or complications, and the aneurysm should be completely secured, with no epileptic seizures or cerebrovascular events occurring during follow-up.

The risk of seizures is known to vary depending on the location of the aneurysm (e.g. higher in MCA) and treatment modality (e.g. higher after surgical clipping than after coiling). Coiling carries a lower seizure risk, but a slightly higher early rebleeding risk compared to clipping (>2 % within the first year vs. <1 % after clipping). Increased long-term stroke risk following aneurysm treatment has also been reported in some studies.

For Class 1 medical certification, annual MR angiography is recommended for the first five years, and every second year thereafter.

Perimesencephalic non-aneurysmal subarachnoid haemorrhage (PN-SAH)

In order to conclude that a haemorrhage is a PN-SAH, there must be characteristic findings on CT (regarding both the quantity and location of the blood), follow-up with a negative cerebral angiography, and a benign clinical course (including absence of loss of consciousness).

Since a small aneurysm may be missed in the acute phase, some clinicians opt for a follow-up cerebral angiography after a few weeks. This is controversial, as conventional angiography carries a 0.2–0.5 % risk of neurological complications. However, repeating the imaging increases diagnostic certainty. A middle ground may be a repeat CT angiography if there is any uncertainty surrounding the diagnosis.

The risk of rebleeding due to a missed aneurysm is highest in the first few months, and approximately 4 % of PN-SAH patients experience rebleeding within the first 6 months due to misdiagnosis. The risk of rebleeding decreases rapidly thereafter and is very low (<0.5 % per year) after one year. Based on this, an observation period of at least 6–9 months is recommended. After this period, a Class 1 medical certificate with an OML limitation may be considered, provided that the radiological criteria for the PN-SAH diagnosis have been fulfilled (or repeat imaging has confirmed the findings). The OML limitation may be considered for removal no earlier than one year after the haemorrhage occurred. The above principles also apply to Class 3.

History of epileptic seizure

The assessment of medical fitness depends, among other factors, on whether there is a documented history of epilepsy, a single unprovoked seizure of unknown origin, or an acute symptomatic seizure with a known and well-controlled underlying cause. See the table below for a detailed summary of the specific requirements.

Medical certificate	History of epilepsy diagnosis	History of acute symptomatic seizure / known cause	History of unprovoked seizure of unknown cause
Class 1	Unfit, except in cases of benign childhood epilepsy where all of the following are met: 1. No *convulsive* seizures after age 5 2. Seizure-free for at least 10 years without antiepileptic medication 3. Comprehensive evaluation reveals no predisposing factors and includes a specialist statement confirming a recurrence risk < 1 % per year	May be considered fit with OML if a specialist, after a comprehensive neurological assessment, documents a recurrence risk < 1–2 % per year (depending on seizure type). If the cause is uncertain, refer to the criteria for unprovoked seizures.	May be considered fit with OML if all of the following are met: 1. Only one seizure in history 2. Seizure-free for at least 10 years without antiepileptic treatment 3. Comprehensive evaluation reveals no predisposing factors and includes a specialist opinion confirming recurrence risk < 1 % per year
Class 3	Unfit, except in Rolandic epilepsy (benign childhood epilepsy with centrotemporal spikes), where the following are met: 1. No convulsive seizures after age 5 2. Seizure-free for at least 10 years without antiepileptic medication 3. Comprehensive evaluation reveals no predisposing factors and includes a specialist opinion confirming recurrence risk < 1 % per year	Both of the following must be met: 1. Seizure-free for at least 10 years without antiepileptic treatment 2. Specialist assessment confirms cause is resolved and recurrence risk < 1 % per year	Unfit until a definitive cause has been identified
Class 2	May be considered fit with OSL only if the following are met: 1. Seizure-free for at least 10 years without antiepileptic treatment 2. Comprehensive evaluation reveals no predisposing factors and includes a specialist statement confirming recurrence risk < 2 % per year (depending on seizure type)	May be considered fit with OSL/OPL if a specialist, after a comprehensive neurological assessment, documents recurrence risk < 2–5 % per year. If the cause is unclear, refer to the criteria for unprovoked seizures.	May be considered fit with OSL/OPL if all of the following are met: 1. Only one seizure in history 2. No history of complex febrile convulsions 3. Seizure-free for at least 10 years without antiepileptic medication 4. Comprehensive evaluation reveals no predisposing factors

			5. Specialist opinion confirms recurrence risk < 2–5 % per year (depending on seizure type)
LAPL	May be considered fit with OSL if the following are met: 1. Seizure-free for at least 5 years without antiepileptic medication 2. Comprehensive evaluation reveals no predisposing factors and includes a specialist statement confirming recurrence risk < 5 % per year (depending on seizure type)	May be considered fit with OSL/OPL if a specialist, after a comprehensive neurological evaluation, documents recurrence risk < 5 % per year. If the cause is unclear, refer to the criteria for unprovoked seizures.	May be considered fit with OSL/OPL if all of the following are met: 1. Only one seizure in history 2. No history of complex febrile convulsions 3. Seizure-free for at least 5 years without antiepileptic medication 4. Comprehensive evaluation reveals no predisposing factors 5. Specialist opinion confirms recurrence risk < 5 % per year
CC	May be considered fit with MCL only if the following are met: 1. No seizures after age 5 2. Seizure-free for at least 10 years without antiepileptic medication 3. Comprehensive evaluation reveals no predisposing factors	May be considered fit with MCL if a specialist, after a comprehensive neurological assessment, documents recurrence risk < 2–5 % per year. If the cause is unclear, refer to the criteria for unprovoked seizures.	May be considered fit with MCL if the following are met: 1. Only one seizure in history 2. Seizure-free for at least 10 years without antiepileptic medication 3. Comprehensive evaluation reveals no predisposing factors 4. Specialist opinion confirms recurrence risk < 2–5 % per year

Increased risk of epileptic seizure

Certain conditions may be associated with an increased risk of epileptic seizures, such as a history of head trauma or craniotomy/brain surgery. The estimated annual risk should be documented to be less than 1–2 % for a Class 1 medical certificate to be issued, which typically implies a mandatory observation period. The estimate must be based on a specialist assessment or justified through references or established aeromedical guidelines. In borderline cases, certification with operational limitations may be considered.

History of head trauma

In applicants with a history of head trauma, a focused clinical examination must be performed to rule out any neurological or neuropsychological impairment relevant to flight safety. It should be noted that certain neurological deficits may not be detected unless the relevant functional domains are specifically assessed.

If there is clinical or radiological evidence of parenchymal brain injury, a specialist evaluation (neurologist and/or neuropsychologist) is required, taking into account the nature and location of the injury, as well as a medical flight test. The specialist evaluation must include:

1. Documentation of absence of neurological or neuropsychological deficits relevant to flight safety: According to AMC1 MED.B.055(f), full recovery must be demonstrated before a medical certificate is issued after a head injury. This includes the absence of subclinical deficits that may negatively impact flight safety. The assessment must explicitly address the extent and location of brain injury and confirm that a comprehensive and functionally relevant battery of tests has been applied. If the specialist cannot rule out neuropsychological deficits and there is evidence of structural brain damage, an additional neuropsychological evaluation is required. The neurological and neuropsychological assessments should be recent and conducted shortly before recertification.

2. Evaluation of the risk of future epileptic seizures: Based on the nature of the injury and individual risk factors, the specialist must conclude whether the future risk of epileptic seizure falls within acceptable thresholds for the relevant class of medical certificate (e.g., < 1–2 % annually for Class 1 with OML). National and international aeromedical guidelines for observation periods are based on group-level data. Unless individual factors suggest a different prognosis, the recommended observation time should follow established guidelines. Deviation from these guidelines requires a higher level of evidence.

One of the most significant challenges for AMEs is the assessment of the risk of delayed post-traumatic epilepsy (PTE). Over 50 % of first seizures occur within the first year, and about 80 % within the first two years. However, PTE can occasionally debut after many years. Risk factors for epilepsy include:

- Penetrating brain injury
- High-energy trauma
- Skull fracture (especially depressed fractures)
- Intracranial haemorrhage (especially subdural, subarachnoid, or intraparenchymal)
- Brain contusion (particularly cortical, frontal, or temporal)
- Midline shift on acute-phase CT/MRI
- Gliosis or hemosiderin deposits on MRI
- Advanced age
- Family history of epilepsy
- Prolonged post-traumatic amnesia
- Prolonged loss of consciousness / low GCS

In the presence of facial skeletal trauma, evaluation by an ophthalmologist (orbital fracture) or ENT specialist (e.g., sinus dysfunction, Eustachian tube damage) may be warranted. In cases of skull base fracture, there is a risk of traumatic CSF leak, which often presents within 3 months but may occur later, particularly after rapid pressure changes during flight.

If no deficits affecting flight safety are present, the AME must still consider the risk of future complications. For example, subarachnoid haemorrhage or intraventricular bleeding may carry a risk of post-traumatic hydrocephalus, warranting follow-up imaging (CT or MRI) after a sufficient observation period.

CT findings in the acute phase should be interpreted carefully, and follow-up CT at 12–24 hours may reveal bleeding not seen initially. MRI is more appropriate for long-term PTE risk assessment. Findings such as gliotic scarring or hemosiderin deposits (on T2-weighted MRI) are associated with a higher risk. MRI is also sensitive to diffuse axonal injury (DAI). For moderate or severe injuries, an updated MRI should always be available before re-certification.

There are several systems for classifying the severity of head trauma. While some are most useful in acute clinical management, radiological classifications are often more informative for PTE risk. The following classification may be used in aeromedical decision-making:

Category	Clinical and radiological findings	Aeromedical guidance
Minimal	GCS 15, no PTA, no LoC, no neurological deficits, no symptoms > 48h	> 6 days observation after full recovery
Mild	< 30 min PTA/LoC, normal CT	> 6 weeks observation after full recovery; consider OML for up to 1 year*
Moderate	0.5–24 h PTA/LoC, normal CT or uncomplicated linear skull fracture	> 6 months observation after recovery, then OML for 2 years
Severe	> 24 h PTA/LoC, significant skull fracture or intracranial injury on CT	> 2 years observation after recovery, then long-term OML and possibly OSL
Very severe	Extensive parenchymal injury with persistent deficits and high PTE risk	Permanently unfit

GCS = Glasgow Coma Scale; PTA = Post-traumatic Amnesia; LoC = Loss of Consciousness

* Depends on the presence of additional PTE risk factors or late complications

Migraine

Migraine is generally disqualifying for medical certification for flying (Class 1, 2, and LAPL) or for working as an air traffic controller (Class 3). The condition may involve incapacitating symptoms such as severe fatigue, intense headache, and aura. Aura can include visual disturbances, speech disruption, or other neurological symptoms that impair function and pose a risk to aviation safety.

Aeromedical evaluation must include a neurological assessment (performed by a neurologist for Class 1 and 3 certificates, and preferably also for Class 2 and LAPL), covering at least the following:

- Exclude other neurological causes
- Has the applicant experienced incapacitating symptoms?
    - Severe headache
    - Aura with significant deficits (e.g., central visual field loss or motor symptoms)
    - Severe nausea/vomiting
    - Disabling fatigue or photophobia
- How rapid is the onset of attacks?
    - Sudden onset may pose a risk of incapacitation during flight
- How frequent are the attacks?
    - Attack frequency reflects suitability for a continued aviation career
- Are the attacks triggered by identifiable factors?
    - Unknown or unavoidable triggers increase the uncertainty regarding incapacitation risk

- Are the attacks prevented or treated with medication?
    - Some migraine medications (e.g., 5-HT1 agonists) are disqualifying due to adverse effects. The use of such medication suggests a higher attack frequency than is acceptable for pilots or air traffic controllers.
    - Regardless, a single migraine attack requires a 2–6 months observation period before a limited Class 1 or Class 3 certificate may be considered.

The evaluation is largely based on trust in the applicant's account, and the specialist should be alert to potential underreporting of attack severity.

Medical certification may be considered under certain conditions:

Incapacitating migraine attacks Examples: significant aura, rapid onset (< 2 hours), severe impairment, or need for disqualifying medication.	**Non-incapacitating migraine attacks** Examples: slow onset (> 2 hours), mild or no aura, known and avoidable triggers, and no need for medication or only over-the-counter treatment.
Class 1 and 3	
Fitness may be considered with OML/SSL after 6 months attack-free.	Fitness may be considered with OML/SSL after 2 months attack-free.
Restrictions may be removed after 10 years attack-free. In some instances, a shorter observation time (5–10 years) may be considered if the risk of recurrence or the degree of incapacitation is assessed as low.	Restrictions may be removed after 1 year attack-free or at least 5 years if multiple attacks have occurred without known and avoidable triggers.
Applicants without a CPL, ATPL, or MPL licence are unfit. Certification may be considered after 10 years of attack-free. In special cases, a shorter observation time (5–10 years) may be accepted under the same risk conditions.	Applicants without a CPL, ATPL, or MPL licence are unfit. Certification may be considered after at least 1 year attack-free, or 5 years if multiple unprovoked attacks have occurred.
Class 2: OSL	
Fitness may be considered with OSL immediately.	Fitness may be considered with OSL immediately.
Restriction may be lifted after 6 months attack-free.	Restriction may be lifted after 2 months attack-free.
LAPL	
Consider OSL/OPL/ORL where appropriate.	Consider OSL/OPL/ORL where appropriate.

Vestibular schwannoma (acoustic neuroma)

Applicants with a diagnosed vestibular schwannoma are initially considered unfit for flying. However, a Class 1 medical certificate with OML and SIC limitation, or a Class 2 medical certificate with ORL and SIC limitation, may be considered, provided that all of the following criteria are fulfilled:

1. Hearing requirements of Part-MED must be met, and hearing must have been stable for at least 6 months.
2. No tinnitus to a degree that may affect flight safety.
3. No other neurological deficits beyond hearing loss and moderate tinnitus. The AME should pay particular attention to vestibular disturbances, including any history of vertigo. Risk of ataxia or involvement of other cranial nerves must also be considered.

4. Updated MRI of the brain must show no significant growth (>2 mm over the past year), and no compression of the brainstem, cerebellum, or fourth ventricle.
5. No current indication for treatment, including surgery or radiation.
6. The applicant must be aware of the risk of sudden-onset symptoms, even with a benign and slowly progressing tumour. This includes the risk of acute hearing loss, for example, due to vasospasm or occlusion of the labyrinthine artery.
7. A follow-up plan must be established, with MRI and ENT specialist evaluations at least every six months during the first year and at least annually thereafter. The ENT specialist must confirm that the tumour remains stable and asymptomatic and does not pose a risk of acute incapacitation during the exercise of licence privileges.

Following surgical resection or completed stereotactic radiotherapy (e.g. Gamma Knife), a Class 1 certificate with OML or a Class 2 certificate may be considered no earlier than 3 months after treatment, provided that all of the following conditions are fulfilled:

1. **Clinical recovery:** Full clinical recovery with no neurological deficits that could affect flight safety.
2. **Epilepsy risk:** No postoperative seizures and no findings indicating elevated seizure risk (based on surgical approach, perioperative complications, or postoperative MRI).
3. **Radiological status:** Documented radiological stability and no evidence of complications, including radiation-induced effects, that could cause sudden-onset symptoms.
4. **Residual tumour:** Either complete resection or presence of residual tumour assessed as clinically insignificant by a relevant specialist.

It should be noted that delayed radiation-related effects may manifest many months or even years post-treatment. Accordingly, a follow-up plan with MRI (SIC) must be in place with a minimum frequency of once per year.

The OML may be considered for removal no earlier than 12 months after treatment, provided that there is full clinical recovery, documented stability, and no signs of tumour regrowth, late complications, or radiation effects that may cause sudden-onset symptoms.

The SIC limitation may be considered for removal no earlier than after 5 years of stable follow-up without clinical or radiological signs of recurrence or complications.

MED.B.070 / ATCO.MED.B.070 – Ophtalmology

Implanted intraocular multifocal lenses

Implantation of multifocal intraocular lenses (IOLs) is generally considered disqualifying for flying duties, primarily due to the risk of glare and reduced contrast sensitivity (see e.g., AMC1 MED.B.070(i)(2)). However, a LAPL medical certificate or Class 2 medical certificate, with or without a VCL limitation, may be considered under the following conditions:

- The applicant must undergo a satisfactory medical flight test and a comprehensive ophthalmological evaluation performed by an ophthalmologist with aviation medicine experience.
- If the ophthalmologist lacks sufficient aeromedical experience, this can be compensated through explicit guidance provided by the AME, which must be documented in the ophthalmologist's report and conclusions.

The ophthalmological examination must pay particular attention to factors relevant to aviation, such as hypobaric hypoxia and variable lighting conditions in the cockpit. The assessment shall include:

- Testing of contrast sensitivity and glare sensitivity
- An evaluation of the risk of halo phenomena or other visual disturbances that could affect the safe exercise of licence privileges
- Details of the surgery, including:
    - Date of the procedure
    - Type of implant used
    - Documentation confirming absence of postoperative complications

An unrestricted medical certificate requires a normal eye examination and a risk of future visual disturbances equivalent to that of the general population.

Vision chart

For testing of distance visual acuity, a 5—or 6-metre Snellen chart must be used to eliminate measurement error due to accommodation. This distance may also be simulated using a mirror system and a reversed Snellen chart. Although vision charts calibrated for 3 metres exist, they are associated with a certain risk of inaccuracy in some individuals due to accommodative effects.

If the AME chooses to assess distance vision using a 3-metre Snellen chart, this may be accepted only if there is a procedure in place for referral to an ophthalmologist when results are close to the minimum thresholds required for the relevant medical certificate. For Class 1 medical certificates, a 3-metre Snellen chart is acceptable if monocular visual acuity is ≥ 0.8 in each eye and binocular acuity is ≥ 1.1 (the requirements are 0.7 and 1.0, respectively, on a 6-metre chart).

The vision chart must meet the following requirements:

- Use of letters or symbols with high contrast
- Illumination of approximately 500 lux, similar to standard office lighting
- No glare or reflections
- The chart should be positioned at approximately eye level

During testing, the AME must randomise the order of the letters or symbols, and reading should be performed quickly to reduce the risk of memorisation bias.

For near and intermediate vision, N5 and N14 charts should be used at distances of 30–50 cm and 100 cm, respectively. The chart must be of good quality, and both monocular and binocular vision should be assessed. However, according to Part-MED, the requirement is considered met if the text is readable binocularly.

The UK CAA Guidance Material (GM) includes a practical Excel spreadsheet where spectacle prescription values (sphere, cylinder, and axis) can be entered for each eye, allowing for automated assessment against regulatory requirements. As stated in MED.A.010, the refractive error used for assessment is based on the axis that deviates most significantly from emmetropia.

Spare spectacles

If visual correction is required to meet vision standards, the applicant is obliged to carry a spare pair of spectacles when exercising the privileges of the licence. The visual acuity requirements for both near and distance vision must be met with the spare spectacles.

Where the use of spare spectacles is mandated, the AME must ensure that the applicant:

- Meets all applicable vision standards using the spare spectacles, and
- That the spectacles are well tolerated, approved, and suitable for aviation use before a medical certificate is issued.

Assessment of contrast sensitivity and glare sensitivity

Evaluation of both contrast sensitivity and glare sensitivity shall always be included in the ophthalmological assessment of applicants over the age of 60, in the presence of symptoms of impaired vision in low-light conditions, or when conditions such as cataract, retinal pathology, or previous refractive surgery are present. Previous findings should be taken into account to identify progressive loss of contrast sensitivity or worsening of glare sensitivity.

An example of a test commonly used to assess contrast sensitivity is the Pelli-Robson Contrast Sensitivity Chart. Alternatives include the Mars Letter Contrast Sensitivity Test or the CSV-1000. Testing conditions must include good and uniform illumination. In cases of uncertainty regarding compliance with visual standards, the applicant should undergo further evaluation by an ophthalmologist with aeromedical experience, and if necessary, a medical flight test.

Examples of tests for glare sensitivity assessment include the Brightness Acuity Tester (BAT) or the Mesotest II (Oculus).

MED.B.080 / ATCO.MED.B.080 – ENT

Hypoacusis in pilots

In cases of reduced hearing, the AME shall obtain documentation confirming that auditory function is satisfactory before referring the application to the Civil Aviation Authority. For the initial issuance of a Class 1 medical certificate, the applicant shall meet the established requirements for pure tone audiometry. The following guidelines are therefore applicable only for the revalidation/renewal of a Class 1 medical certificate or applications for a Class 2 certificate with an Instrument Rating (IR).

One or both of the following assessments may be used to document adequate hearing function:

1. **Medical flight test with focus on auditory performance**
   The documentation must confirm that the pilot does not have hearing loss that compromises flight safety, including a conclusion with a recommendation and verification that the following criteria are met:
   a) Adequate perception of speech during all phases of flight
   b) Good ability to communicate with air traffic service personnel (e.g., air traffic controllers or AFIS officers)
   c) Good ability to communicate with other crew members during flight
   d) Accurate comprehension of non-routine aviation phraseology
   e) Accurate perception of radio signals
2. **Representative Speech Audiometry and ENT Specialist Evaluation**
   If hearing is evaluated by means of speech audiometry, the assessment and recommendation must be provided by an audiologist or ENT specialist with sufficient understanding of operational aviation requirements. It is sufficient for the specialist to gather relevant operational information about the applicant through dialogue with the AME or an instructor familiar with the aircraft type in question.

   The evaluation must consider:
   - The underlying cause of hearing loss
   - Whether the audiometry was conducted with representative background noise
   - Whether the applicant demonstrates an accurate understanding of non-standard aviation phraseology

   It is important to note that speech audiometry alone is not sufficient, as the focus must be on hearing function during actual flight operations. For further guidance, the UK CAA guidelines and the ICAO Manual of Civil Aviation Medicine are referred to.

   CAA Norway considers documentation of 100 % speech discrimination (in one or both ears) at 60 dB or lower sufficient to demonstrate satisfactory hearing, and this does not require testing with background noise. Speech audiometry without background noise may also be acceptable if supported by a well-reasoned professional justification from the specialist or AME. The applicant shall meet the hearing requirements without needing to increase headset volume to levels that could damage hearing. The pilot must also be able to communicate effectively with other crew members.

If the results of pure tone audiometry are unchanged from a previous aeromedical examination, the AME may make an individual assessment as to whether a repeat flight test or speech

audiometry is required. In cases of unchanged hearing, retesting usually is not necessary, and there is no need for renewed referral to the CAA.

Hypoacusis in air traffic controllers

If an air traffic controller does not meet the requirements for pure tone audiometry, a Class 3 medical certificate may only be considered upon documented evidence of satisfactory hearing function. This requires that the applicant has undergone both a representative hearing performance test and an evaluation by a specialist:

1. Representative functional hearing test
The air traffic controller must undergo a functional hearing test in an environment representative of their normal operational working conditions. For initial certification, speech audiometry must be conducted.

2. Evaluation and recommendation by an ENT specialist
The ENT specialist must have sufficient knowledge of the air traffic controller's operational environment. A written assessment and recommendation must be provided, confirming whether the controller can safely continue their duties without the hearing loss compromising operational safety.

Significant deterioration of hearing loss

If a deterioration in hearing is detected that exceeds what is expected from normal age-related hearing loss (presbyacusis), the applicant must, in addition to the requirements mentioned above, undergo an evaluation by an Ear, Nose, and Throat (ENT) specialist, including an assessment of vestibular function.

As a general rule, the certificate holder will be re-evaluated after one year. If the hearing loss is found to have stabilised, regular interval medical examinations may then be resumed.

BPPV (benign paroxysmal positional vertigo)

Various international guidelines have been developed for the assessment of applicants with a history of BPPV. These include UK guidelines that allow for a more liberal approach, permitting consideration for Class 1 medical certification with an OML after just 4 weeks of symptom freedom, provided a satisfactory specialist evaluation and clinical course. In contrast, the Danish authorities have published more conservative guidelines, reflecting the high recurrence rate typically associated with BPPV. According to these guidelines, a minimum of 3 months without symptoms is required before Class 1 certification with an OML can be considered (see Trafikstyrelsen).

In Norway, the Danish guidelines will normally apply. However, in exceptionally low-risk cases, the AME may consider the UK approach:

→ If an ENT specialist can confirm the absence of risk factors (see list below), the AME may follow the UK guidelines, allowing Class 1 certification with an OML after at least 4 weeks symptom-free, and possible removal of the limitation after at least 4 months.

→ If one or more risk factors are present, these must be assessed by a specialist, and the Danish guidelines should be followed, with at least 3 months symptom-free before considering Class 1 certification with an OML, and at least 12 months before the OML can be removed. The exact duration of the symptom-free observation period should be based on the number and type of

risk factors, and the specialist must document that the estimated annual risk of incapacitating vertigo is less than 2 % per year (for certification with OML).

Risk Factors:

- Previous history of BPPV
- Three or more vertigo episodes within 48 hours
- Total symptom duration ≥ 7 days before complete resolution
- Episodes with a tendency to fall or significant balance impairment
- Severe autonomic symptoms (e.g. nausea, vomiting, diaphoresis)
- Vertigo attacks lasting longer than 1 minute
- Atypical course of illness
- Need for multiple repositioning manoeuvres (e.g. Epley, Semont) before symptom resolution
- BPPV associated with head or neck trauma (e.g. whiplash)
- Vestibular findings by ENT specialist:
  - Atypical or strong reaction to Dix-Hallpike manoeuvre
  - Positive Head Impulse Test (HIT/vHIT) indicating vestibular hypofunction
  - Positive Romberg or Unterberger/Fukuda tests
  - Spontaneous or atypical positional nystagmus
  - Abnormal audiometry suggesting other vestibular pathology
- Relevant comorbid conditions:
  - Migraine
  - Osteoporosis
  - Vitamin D deficiency (serum level < 20 ng/ml)
- Use of vestibular-suppressing medication:
  - Current or recent use of agents such as Betahistine, Prochlorperazine, Diazepam
- Anatomical risk factors:
  - Multicanal or bilateral BPPV
  - History of vestibular or otological barotrauma

As with other aeromedical guidelines, a shorter observation period may be considered on a case-by-case basis if evidence-based documentation is provided demonstrating that the applicant's functional capacity is satisfactory and that the risk of acute impairment relevant to flight safety is within acceptable limits for the next 12 months (e.g., < 1 % annual risk for unrestricted Class 1 certification).

Guidance to Part-MED Subpart D/Part-ATCO.MED Subpart C

Requirements for Approval as an AME

MED.D.001 / ATCO.MED.C.001 – Privileges

Privileges that follow the AME certificate

The AME certificate specifies which medical certificates an aeromedical examiner is authorised to issue. Depending on the specific approval, AMEs are typically permitted to conduct initial assessments, revalidations, or renewals of Class 2, LAPL, sailplane, balloon, microlight, AFIS/HFIS, and cabin crew medical certificates. Class 1 AMEs may also revalidate and renew Class 1 medical certificates. Similarly, Class 3 AMEs are generally authorised to revalidate or renew Class 3 certificates, provided the medical requirements are met.

Initial medical examinations and issuance of Class 1 or Class 3 medical certificates must be conducted at an Aeromedical Centre (AeMC).

Aeromedical practice and expert role

When exercising the privileges of an AME certificate, the aeromedical examiner is obligated to adhere to the applicable regulatory requirements. CAA Norway expects the AME to follow the procedures outlined in this document, which complement the provisions set out in Part-MED/Part-ATCO.MED. Furthermore, it is expected that the AME remains up to date and complies with current regulations and guidelines for aeromedical assessments and decision-making.

The AME is also expected to be aware of their role as a medical expert when exercising the privileges granted by CAA Norway. This entails acting with professional competence, refraining from issuing medical certificates in cases of personal or familial conflicts of interest, clearly separating the role of expert from that of treating physician, ensuring that medical assessments are accurate and objective, and representing the EASA regulatory framework and the CAA in their professional conduct. This also includes contributing to a safety culture and fostering public trust in the fairness and professionalism of the regulatory system.

As an expert, the AME shall manage aeromedical requirements with professional integrity and be responsible for upholding aviation safety. This includes professional behaviour and clear, respectful communication with applicants. The AME should:

- **Explain medical and regulatory assessments** in a factual, pedagogical, and respectful manner. Consider that the applicant may not be familiar with medical terminology or that clinical assessments may not directly translate into aeromedical conclusions. It may be necessary to clarify the role of burden of proof, documentation standards, or the distinction between automatic rights and granted privileges.
- **Recognise that communication shapes applicants' understanding** and trust in the system. If the AME disagrees with a regulatory provision or finds it professionally challenging, such concerns should be raised with CAA Norway through established channels, accompanied by relevant documentation and justification. This allows for the consideration of national adaptations or proposed changes (e.g., AltMoC) in accordance with formal procedure.
- Be clear that medical decisions are based on documented risk assessments and applicable regulations, not on personal opinions or preferences of the AME or CAA case officers.

- **If the applicant is found to be "unfit"**, the AME is expected to communicate this conclusion directly, clearly, factually, and empathetically. The medical rationale in light of current requirements should be explained. Although delivering a denial may be uncomfortable, this responsibility lies with the AME if medical criteria are not met. Referring the matter to the CAA solely to avoid delivering this message may lead the applicant to believe the decision is based on subjective interpretations or uncertainty, potentially undermining confidence in the objectivity of the system. Clear and transparent communication by the AME enhances understanding of the regulations, promotes trust in the process, and reinforces the AME's integrity and expert role.

AMEs share a responsibility for the evidence-based development of regulations and practice. Professional questions or disagreements should be raised through relevant professional and regulatory forums, supported by documentation, to ensure that proposals for change are addressed systematically.

As stated in ICAO Doc 8984 *Manual of Civil Aviation Medicine*, the AME must not only assess medical fitness, but also "…understand the role of aviation medicine in the overall safety system and be able to communicate clearly with applicants, authorities and other stakeholders in a manner that supports safety objectives." Moreover, "AMEs should be encouraged to view themselves not just as examiners, but as advocates for safety, whose conduct must inspire confidence in both the medical and regulatory systems." As a designated expert, this underscores that the AME must also possess a basic understanding of legal principles.

CAA Norway may restrict or revoke AME approval if the examiner does not carry out their duties in accordance with current requirements.

MED.D.005 – Application for approval as an AME

Application form for approval as an aeromedical examiner (AME)

When applying for initial designation or revalidation as an AME in Norway, the designated application form (NF-1122 Application for approval as an aeromedical examiner) must be used. This form can be downloaded from the Civil Aviation Authority of Norway's website.

As specified in the application form, the following documentation must be enclosed (unless previously submitted to the CAA):

- Proof of valid medical licence (authorisation as a physician)
- Specialist certification
- Documentation of completed aviation medicine course
- Any other relevant continuing medical education

Fee

In accordance with the Regulation on Fees to CAA Norway, a fixed annual fee and a variable fee based on the number of aeromedical examinations conducted will be charged. AMEs are advised to stay informed about this regulation, as it is updated annually.

MED.D.010 – Initial approval as an AME Class 2

Granting of AME privileges Class 2

The requirements for the granting of Class 2 AME privileges are outlined in Part-MED, section MED.D.010, and include documentation of the following:

1. **Medical authorisation**
   The applicant must hold a valid medical licence.
2. **Completed medical speciality training**
   - While clinical specialities are most relevant, there is currently no restriction within European regulations as to which medical specialities are accepted for AME approval.
   - According to Part-MED, it is sufficient that the physician has, at some point, fulfilled the requirements for recognition as a medical specialist; there is no requirement for revalidation of the speciality.
3. **Completion of an approved basic course in aviation medicine (AME basic training course)**
   - The Institute of Aviation Medicine in Oslo (Flymedisinsk institutt) periodically offers such courses. Information on upcoming courses is published on: https://www.flymedisinskinstitutt.no/
   - Basic AME training courses are also held abroad, but it is recommended to confirm in advance that the course is recognised by an EASA member state authority.
   - The Norwegian CAA (Luftfartstilsynet) may also accept non-EASA courses, provided they are at least 60 hours in duration, include all the elements described in AMC1 MED.D.020, and the applicant completes a 4-hour supplementary EASA regulatory module provided by the CAA.
4. **Adequate facilities, procedures and functional equipment for conducting aeromedical examinations**
   - The minimum required medical equipment includes: stethoscope, otoscope, ophthalmoscope, reflex hammer, blood pressure monitor, Snellen's visual chart with correct lighting and distance, high-quality Ishihara colour vision plates, device for measuring haemoglobin (Hb), electrocardiograph (ECG), spirometer, and audiometry (or a documented referral routine). An N5/N14 near vision chart can be provided by the CAA. All technical equipment must be calibrated according to current guidelines, and the AME must have a system in place to ensure future recalibration. Internet access, a computer, and a scanner are also required.
   - The AME must be able to document sufficient knowledge of, and competence in applying, current procedures and regulatory requirements, including the national guidelines outlined in this manual.
   - Prior to initial approval, CAA Norway shall inspect the facilities and assess the procedures used in the aeromedical practice before the location can be used for aeromedical certification. If the physician lacks sufficient knowledge of the current administrative procedures (e.g. having completed basic AME training in another EASA Member State), a supplementary administrative course provided by CAA Norway shall be completed.

MED.D.015 – Approval as an AME Class 1

Extension of AME privileges to Class 1

The requirements for extension of AME privileges to Class 1 are set out in Part-MED section MED.D.015. The applicant must already hold a valid AME certificate and meet the following criteria:

1. A minimum of 30 aeromedical examinations for Class 2 medical certificates must have been conducted within the last 3 years.
    - This requirement ensures sufficient experience with clinical aeromedical examinations, assessment of medical fitness, and familiarity with the relevant regulatory framework (Part-MED and associated guidance).
    - Up to 50 % of the required examinations may be substituted by equivalent selection medical examinations, even if carried out under a different regulatory framework.
2. Completion of an advanced course in aviation medicine
    - This course must provide in-depth knowledge of aviation medicine and the associated regulatory environment. In specific cases, an equivalent course may be accepted if supplemented with an administrative course in the application of Part-MED.
    - The CAA may also accept a non-EASA advanced aviation medicine course if it is at least 60 hours in duration, includes all elements defined in AMC2 MED.D.020, and the applicant completes a 4-hour supplementary module in the EASA regulatory framework provided by the CAA.
3. Completion of practical training at an Aeromedical Centre (AeMC) or under supervision by the CAA
    - This requirement may be met through a two-day training at an AeMC or with the CAA. See the “Checklist for AME training at AeMC” on the CAA’s website.
    - The applicant must demonstrate satisfactory practical competence during the attachment. This shall be documented by a certificate signed by the Head of the AeMC, as outlined in AMC1 MED.D.015(c) and (d).

ATCO.MED.C.010 – Approval as an AME Class 3

Granting of AME Class 3 privileges

The exact requirements apply for initial authorisation of AME privileges for Class 3, as for initial authorisation of Class 2 AME privileges. In addition, an advanced course in aviation medicine must be completed. The course must include specialised training in areas such as the operational working environment and applicable medical requirements for air traffic controllers.

The AME must have sufficient knowledge of the working conditions and operational demands placed on an air traffic controller to assess whether a physical or mental impairment, or other health-related condition, may impact flight safety. The AME must also be able to evaluate the risk and consequences of sudden incapacitation and determine whether appropriate limitations could mitigate any associated safety risk.

If the advanced course completed is only approved for Class 1 privileges, it may be supplemented with an additional module addressing Class 3 requirements. In exceptional cases, this additional training may be substituted by a combination of:

- Prior AME experience with Class 3 examinations (with a sufficient volume of “medical assessment of air traffic controllers”), and
- A minimum of 2 hours extended educational visit in a control tower or area control centre (providing training in the air traffic control environment),

provided that the combination is deemed to confer equivalent competence.

MED.030 / ATCO.MED.C.025 – Revalidation or renewal of AME certificate

Renewal of AME certificate

The requirements for renewal of AME privileges are as follows:

1. The AME must continue to meet the general requirements for medical practice and must hold a valid national authorisation to practise medicine throughout the period for which the AME certificate is issued.
2. The AME must demonstrate sufficient refresher training in aviation medicine during the last three years
    - For Class 2 privileges, a minimum of 20 hours of approved refresher training is required, of which at least half must be conducted under the supervision of or in cooperation with CAA Norway.
    - For renewal of Class 1 privileges, a minimum of 10 hours of refresher training per year must be documented, with at least 15 hours over three years conducted under CAA oversight.
    - Courses conducted under EASA oversight or recognised conferences (e.g., AsMA, ECAM, ICASM) may count toward this requirement.
    - Refresher training courses or equivalent experience must normally be pre-approved by the CAA.
    - Medical selection courses (e.g., for diving, seafaring, or offshore work) may count toward aviation medicine refresher hours at a 2:1 ratio.
    - Participation in aviation medicine peer support group meetings (with at least three AMEs discussing anonymised complex cases with written summary and references) may be credited with up to 3 hours per year.
    - Four hours of flying (in a simulator or aircraft) may count as 1 hour of refresher training (maximum 5 hours per 3 years). Alternatively, one refresher hour may be credited per 5 jump seat sectors.
    - For Class 3 privileges, refresher training must include relevant medical requirements and the operational environment for air traffic controllers.
3. The AME must have conducted at least 10 aeromedical examinations per year
    - The CAA may grant exemptions in exceptional circumstances (e.g., illness, leave) or accept equivalent experience.
    - Up to half of the examinations may be replaced by equivalent occupational medical assessments governed by other regulatory frameworks.
4. The AME must exercise privileges in compliance with applicable regulations and AME approval conditions
    - This requirement applies throughout the entire authorisation period.
    - According to Regulation (EU) 1178/2011, Part-ARA, point ARA.MED.250, the CAA may suspend or revoke AME authorisation if the AME fails to comply with these requirements.
5. The AME must demonstrate ongoing competence in aviation medicine beyond the already described minimum quantitative thresholds

- This is typically done through a web-based competence test consisting of randomly selected multiple-choice questions. A pass mark of 80 % is required.
- A passed test is valid for up to 6 months.
- If the AME fails the test, MED.D.030(a)(6) is considered not fulfilled, and the renewal requirements under MED.D.030(b) will apply.

Renewal of AME authorisation

The requirements for renewal of AME privileges are as follows:

1. The AME must meet all general requirements for medical practice and continue to hold a valid national authorisation to practise medicine throughout the period for which the AME certificate is issued.
2. The AME must document satisfactory refresher training in aviation medicine within the last year
    - Renewal of Class 1 AME privileges requires documentation of at least 10 hours of refresher training in the previous year.
    - Renewal of Class 2 AME privileges requires documentation of at least 8 hours of refresher training in the previous year.
    - At least half of the refresher hours must be conducted under the supervision of or in cooperation with CAA Norway.
    - Course hours completed through participation in EASA-accredited aviation medicine courses (including Basic and Advanced) or conferences such as AsMA, ICASM, and ECAM or ICAM are accepted on equal terms as courses conducted under the supervision of CAA Norway.
3. The AME must have completed practical training at an AeMC or under the supervision of the CAA within the last year
    - This requirement may be fulfilled through a two-day training at an AeMC or with the CAA.
    - During the training, the AME must demonstrate satisfactory practical competence. This shall be confirmed with a certificate signed by the Head of the AeMC.
    - The AME and the AeMC shall use the official checklist ("Checklist for AME training at AeMC") available on the CAA's website, which outlines the minimum training requirements.
4. The AME must practise in accordance with applicable regulations and the conditions of the AME certificate
    - This requirement applies throughout the authorisation period.
    - In accordance with Regulation (EU) 1178/2011, Part-ARA, ARA.MED.250, the CAA shall suspend or revoke AME authorisation if the AME no longer complies with the regulatory requirements or fulfilment criteria.
5. The AME must demonstrate adequate maintenance of aeromedical competence
    - This may be fulfilled by passing a web-based competence test consisting of randomly selected multiple-choice questions. A score above 80 % is considered sufficient.

- A passed test is valid for up to 6 months, and the AME may attempt the test once per six-month period.
- The questions assess both medical knowledge and familiarity with applicable aeromedical regulations and sources commonly used in practice.
- If the test is not passed, the CAA may offer general guidance on incorrectly answered questions; in other cases, the answer key cannot be disclosed due to resource demands in maintaining the question bank.
- The CAA is responsible for the question bank; the technical platform and administration of the test is managed by Educatia.

MED.D.025 – AME's obligation to report changes affecting the AME approval

Duty to notify regarding disciplinary investigations

AMEs subject to investigation or supervision by the Norwegian Board of Health Supervision (Statens Helsetilsyn) must notify CAA Norway without undue delay. The same obligation applies to AMEs under investigation by the County Governor (Statsforvalteren) concerning matters that may be relevant for their authorisation or practice as an AME. The same obligation applies to AMEs practising outside of Norway who are under investigation or disciplinary review by their country's relevant medical supervisory authority.

This duty ensures continued oversight and is essential to safeguard aviation safety and regulatory compliance.

Obligation to notify of change of practice location

If an AME intends to conduct aeromedical examinations at a new office or medical practice location, this must be reported to and pre-approved by CAA Norway. A new inspection of the facilities will be conducted before the revised AME certificate can be issued, reflecting the updated address of the aeromedical practice.

MED.D.035 – Issuance of LAPL medical certificate by GPs

Issuance of LAPL medical certificate by Norwegian general practitioners

A Norwegian general practitioner (GP) may act as an aeromedical examiner for applicants seeking a LAPL medical certificate under the following conditions:

1. The GP holds a valid Norwegian medical license.
2. The GP is the applicant's regular physician and has full access to the applicant's complete medical history and records. This includes previous GP records, records from other relevant healthcare providers, and data registered in EMPIC. If full access is not ensured, the GP is not permitted to issue a LAPL medical certificate.
3. All LAPL medical applications must be registered in EMPIC. It must be documented that the GP has reviewed the applicant's medical history and records, referencing all relevant information concerning medical fitness.
4. The GP must be registered with the Norwegian Civil Aviation Authority, and their contact details must be published on CAA Norway's website.
5. Medical examinations and assessments for the LAPL certificate must follow best aeromedical practices (cf. MED.B.095(a) and AMC) and comply with applicable regulations, guidelines, and procedures.

The GP must have completed satisfactory training in EMPIC, aeromedical principles, procedures, and relevant regulations. The GP is also responsible for remaining up to date on these topics. The CAA Norway will assist with initial training and refresher training upon request. This training is typically conducted in Oslo.

CAA Norway is responsible for overseeing the GP's practice, including scheduled or unscheduled inspection visits. If any breach of applicable requirements is detected, CAA Norway may, under ARA.GEN.355(e), limit or revoke the GP's right to issue LAPL medical certificates. Please note that the GP may be required to pay a fee in accordance with the applicable regulations and is responsible for staying informed about these requirements.

In all cases where the applicant does not fully meet the LAPL medical requirements, the application must be rejected or referred to an AME with Class 2 or Class 1 privileges. Below is a list of examples of conditions that require assessment by an authorised AME before a LAPL certificate may be issued:

- Use of hearing aids
- Malignant disease
- Coronary heart disease
- Heart failure
- History of heart valve surgery
- History of pneumothorax
- More than one syncope episode
- History of epileptic seizure
- Neurological disease
- Personality disorder
- Major surgery
- Learning difficulties
- Chronic lung disease
- Sleep disorder
- Organ transplant
- Use of antidepressants
- History of psychosis
- Use of sedating medication
- Endocrine disease
- Diabetes requiring medication
- Visual field defects
- Implanted pacemaker or ICD
- Visual acuity in one or both eyes less than 6/9 (20/30) despite correction with glasses or lenses
- Alcohol or substance misuse
- Physical disability

In addition, the following situations also require assessment by a certified AME:

- The applicant has previously had a medical certificate denied or revoked.
- Limitations are required on the certificate, which may only be applied by AMEs. (GPs may apply VDL or VNL limitations related to visual correction requirements; other limitations must be applied by AMEs.)
- If the GP is uncertain regarding the applicant's medical fitness.