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To the ESAM President

Response of the French Society of Aerospace Medicine to the public consultation about the UK and National Private Pilot Licence requirements

As specified in the executive summary of the public consultation (page 4), it is simply proposed that the intervention of General Practitioners and Authorised Medical Examiners is no more required. The current medical certificate would be changed to the holding of a DLVA group 1 ODL, which means a self-declaration of the pilot concerning his health.
It seems that a very important benefit would be cost and time savings for this recreational expensive and time-consuming activity…

In page 17 and following, there are proposals and factors for consideration in details, and 16 questions are posed to the reader. Many of them need a clear response.

QUESTION 1

Of course, we do not agree.
Before this question, the authors wrote 6 lines to explain the **ideal situation** of a pilot who would understand perfectly and consider his health before flying. But in the real life, things are very different.

In case of a very bad condition, it is (almost) sure that the pilot will feel unwell and probably will take the decision not to fly, as he would not practice any other activities (for instance a few days after a myocardial infarction, during the final phase of a bad cancer, after a fracture of the leg with no possibility of walking…) In such **extreme medical situations**, the pilot can easily imagine that his place in not in a cockpit.

However, there are much many situations in which a pilot generally considers that he is in good health, he doesn't feel unwell, and so there is no danger to fly, **to the contrary of the assessment of a medical doctor** (MD). There are at least 4 reasons to explain this statement :

1. A pilot is not a MD ;

2. A pilot, and also a MD who has not been trained in aviation medicine –such as General Pracitioners (GP)–, rarely thinks about the risk of a sudden incapacitation and about the effects of the aeronautical environment on the health ;
3. The notion of "feeling unwell" is very subjective ;
4. Rarely a pilot wants to stop flying, particularly if he has a long experience, and sometimes he considers that flying can improve his general condition and his psychological condition…

The Authorised Medical Examiners (AME) and the Specialists of aviation medicine who have been working in AeroMedical Centers (AeMC) for years, could give many examples of such situations, as the following :

1. A *bad cancer* with a treatment which has not been finished yet. Some pilots want to fly between two sessions of chemotherapy !
2. A recent treatment for a *myocardial infarction* with multiple angioplasty-stenting or coronary bypass. The pilot usually says: "Now everything has been repaired, I feel good !" He is all the more convinced that his cardiologist told him: "Now you can practise your usual activities", and that sentence doesn't help the AME/AeMC.
3. Multiple cardiovascular risk factors (diabetes + hypertension + hypercholesterolemia + smoking…): these pilots consider their health very fine until the occurrence of a sudden cardiac event (favoured by stress).
4. *A type 2 diabetes* (T2D) alone which is frequently minimized by the patient and sometimes by the GP: "I have a little diabetes"… Let's remind that the objectives of anti-diabetic medications are frequently not reached (in France: 50% of T2D with A1C>7% and 35% with A1C>8%)…
5. *Kidney stones* with a risk of a sudden renal colic. Until the occurrence of this sudden abdominal pain, you feel good. But we should not forget that the pilots who have experienced a renal colic usually remember this event all their life…
6. A recent hospitalization for a *pneumothorax*, with a very good recovery but a very high risk of recurrence (favoured by dysbarism): 30-60% (same side), 10-20% (other side).
7. Many *chronic treatments* with well-known possible side effects…

When a pilot wants to be delivered a medical certificate, he has to fill a **questionnaire** about his past medical history and his treatment. To be convinced of our statement, let's have a look to these questionnaires. In France, probably due to the culture, many pilots forget their pathology and/or their medical treatment in this questionnaire, and yet they do not hide these elements in case of questions posed by the MD. These pathologies are not considered as dangerous, and these pilots do not feel unwell…

There are also many pilots who clearly do not have a precise idea of the main **side effects** of their treatment and how these effects can impact the flight safety. This statement had been highlighted in a previous study about auto-medication carried out in professional pilots. Surprisingly in this study, to the question asking "Would you fly with a medication if you know that it can impact the flight safety", 50% had answered "Yes" !

Finally, some pilots do not declare on purpose their antecedents (**false declaration**) just in order to fly, because they guess they could have an impact on their medical fitness, which means such pilots know that there is a significant risk for the flight safety, and yet they do not mind to hide these elements to a MD… In the different AeMC in France, it is said that the AME know approximately 50% of the health problems of their pilots… the reality may be more severe !

The risk of incapacitation

In the third paragraph of page 18 ([Screening… pilot]), it is clear that the authors do not understand **the process of aviation medicine** when they write that a class 2 medical will not identify or predict medical events during a flight in a patient feeling well. Of course, all events are not predicted. But a very important objective of aeromedical expertise is to discuss with the pilot about his cardiovascular risk factors, his lifestyle and some little symptoms he has forgotten/minimized, then to examine him, because this attitude may deal to a prescription of different investigation and/or many advices to avoid such events. Most myocardial infarctions occur in patients with cardiovascular risk factors: the prescription of an exercise test can detect coronary artery disease at an early stage, and the prescription of statin and antiagregant therapy can reduce the risk of such events. This prevention and screening are much more realized by the AME/AeMC than by GP (in France), because GP are usually consulted in case of significant symptoms only.
Many pilots explain to the AME that they do not consult their GP because they feel well and they have a regular and "complete" examination for their medical fitness. As a consequence, clinical signs are frequently discovered during the **physical examination** of this visit although they complaint about nothing: abnormal heart noise, irregular heart rate, thyroid nodule, melanoma, haematuria… Without this examination, pathologies could have been discovered at an advanced stage compatible with a risk of sudden incapacitation: arrhythmias, stroke, cerebral metastasis, renal colic …
Eeach time the AME decides to declare **temporary unfit** a pilot, he is convinced that there was a significant risk during flight. Of course, such a screening and prevention has become difficult with the new European regulations which have decided a very low periodicity of the examinations because the final objective of aviation medicine has not been understood …

QUESTION 2

Figure 4 is the typical example of **a false demonstration of the real medical risk** during a flight !

Firstly, some potential causes are considered, others are forgotten. What was the reason ? It should be added for instance: pneumothorax, arrhthymias with palpitations, digestive symptoms, other neurological symptoms, barotraumas, psychiatric events…

Secondly, **many percentages are wrong**: it is well known that the prevalence of pulmonary embolism and renal colic is not the same during all life, and also the coronary risk after 70 and 80 yo is not as low ! To explain this wrong table, we should say that the authors do not know how to use data of the literature, and also that the literature study was bad: at least 2 references out of 8 have no date ! At least one reference is very old: You cannot talk about the prevalence of kidney stone disease in 2015 with a reference of… 1987 !! It is well known that the prevalence of renal calculi is approx. 10% and may be higher in aircrew members, particularly professional pilots. Actually, we could explain to pilots that this prevalence depends on the diagnostic methods used for the calculation (symptoms, ultrasound, scanner…)

Finally, it is **totally wrong** to declare (p 18) that "there is no change in this probability as a result of flying": if a pilot must present a *pneumothorax*, this event will be favoured by

dysbarism; if a pilot must present an *epileptic seizure*, it will be favoured by fatigue and helicopter activity; for *atrial fibrillation*, you must considerer stress and aerobatics with +Gz accelerations; for *renal colics*, consider vibrations… etc. It appears that they authors wrote these proposals without any help of MD who are involved in aviation medicine.
So this wrong figure clearly cannot lead to this potential total of 2 medical incapacitations per year. The real theoretical risk is **underestimated** but would be very difficult to calculate exactly…

However, we could respond "Yes" to this question by considering the both following data:

1. A private pilot flies every year from 10 to 100 (150 ?) hours;
2. Most of the time he is on the ground: during (365 x 24 - [10-100]) = 8,760 - [10-100] = [8,660 - 8,750] ~ 8,700 hours / year).

Consequently, with this very high level of calculation, in case of a medical event (not favoured by flying…), it is more likely to occur during the 8,700 hours on the ground than during the [10-100] flying hours: the in-flight risk is statistically low !!! But with this mode of thought, even a self-declaration is not justified…

According to us, the real question should be: "If we can calculate very precisely this annual risk, when do we consider this risk as high ? 3 events and finally 3 human lives ? 10 lives ?" This question poses an **ethical problem** which is very far from statistical considerations…

QUESTION 3

By considering our response to question 1, the new response is "Of course not !"

To summarize, a pilot with a bad lifestyle and/or a disease but no symptom will not consider that he feels unwell. Moreover, his knowledge of the disease will not make him think that there is a risk of in-flight sudden incapacitation. So **a self-declaration is totally absurd**.

A very good example could be this 74-yo pilot who presented with a head trauma 6 years ago and a first epileptic seizure 4 years after: he takes an anti-epileptic drug for the moment with no recurrence. He also takes some medications for cardiac arrhythmias. But actually he feels good and so he has recently asked us to fly the plane he had built… and alone please !

A declaration of the GP is also a bad option, because in case of a disease the GP will prescribe some exams then a treatment to cure his patient. In case of a remission (cancer) or a better condition (cardiac disease), it is difficult for a GP to explain to his patient that he is not as well as he should be to continue flying. This statement is daily observed in the French AeMC. A medical assessment must be performed by MD who are different from GP: so the AME have been created… These MD know to say "Sorry but you cannot fly (any more)" when necessary: that's part of their job, even if they do not like to do it. Moreover, many pilots thank the AME to have make them understand the risk and so the decision, even for class 2 private pilots during an over-expertise. To explain is also (a big) part of their job.

Finally, in many cases you may be fit to drive a car but unfit to fly an aircraft. The main reason of this difference is that when a patient suddenly presents with a medical event, he can rapidly stop and park his car, and so his life and the life of passengers, other drivers and/or pedestrians are no more at stake. In the same situation in an aircraft flying above trees, houses, sea…, **the patient will not be able to land wherever and whenever he wants**…

A very simple evidence that unfortunately we cannot trust pilots for the self-evaluation of their medical condition is that many pilots who were declared unfit to fly aircrafts by the French Aeromedical Authority are going **microlighting solo**…! And not surprisingly, they usually inform the AME : "if you declare me unfit, I will go microlighting." Perhaps the medical requirements for microlighting should be changed instead of changing those of private pilots.

The second paragraph of page 20 ([It should… states]) gives another argument to consider this proposal as a nonsense: how on earth can anyone propose that, among the European community, pilots flying in UK airspace would do it under UK medical rules, and the same pilots flying outside of UK airspace according to another medical rules (although they are doing the same activity). That is totally absurd !!

QUESTION 4

The **ENT and ophthalmological system** (OPH) is clearly important for flying, particularly solo. To the contrary of a pathology which leads to an acute risk (not recognized by pilots), a degeneration of senses may be detected by pilots and so they may ask for a consultation with a specialist in order to help them to improve their sensations. However, all parameters of visual function are not recognized and analyzed by pilots as normal or abnormal. Particularly, some applicants discover in Aeromedical Centers that their relief vision if not efficient, others that they have a very bad visual acuity. Some pilots present with a bad hearing, but they admit this deficiency after audiometric tests with or without intelligibility tests. Again, a pilot who knows he has a problem but considers he can fly, will self-certifies that his senses are good. If he really thinks he cannot fly anymore because of his senses, he will not sign any form because he will have stopped flying before...

The idea to make pilots submit a regular self-declaration about their vision and audition is the evidence that **senses must be regularly tested** as they are during periodical examinations. One should also consider that in the real life, hearing follow-up is very bad and so most of patients discover their deficiency at a very late stage.

One should also consider that pilots take benefits of the ENT and OPH examination during assessment: prescription of a better visual correction, prescription of orthoptic reeducation, information about the noise exposure and the manoeuvres to improve dysbarism tolerance… Such ENT and OPH assessments are improving the flight safety and also may **increase the total duration of piloting ability**.

To finish, many accidents have been explained by **sense illusions** in relation to the visual and vestibular system, and so a not regular assessment of these functions may be considered as a pseudo-criminal attitude.

QUESTION 5

The upper age limit is a very old question, not only for private but also professional pilots. At present there is an upper age limit for class 1 pilots carrying passengers (65 yo), but not for

other class 1 pilots. Consequently, such a limit would not be logical to propose for private pilots…

The experience shows that many old private pilots should stop their flying activity for different reasons: disease, visual and hearing dysfunction, cognitive dysfunction, high cardiovascular risk... and yet they continue flying ! **These pilots really have to be explained** by medical doctors that they should or they must stop flying. However, a so difficult decision (end of flying activity) must not be taken suddenly but should be prepared gradually during several consultations: this is another role of the AME and AeMC…

QUESTION 6

In case of a history of significant psychiatric condition, there is also a risk that the pilot does not declare his antecedent in a signing form. This can be explained by different ways:
1. After an acute event (depression, anxiety, acute psychotic event…) or between two events, usually the patient feels good…
2. The psychological auto-evaluation of a psychiatric patient appears difficult and not objective;
3. Some people consider psychological problems as a shame;
4. It's probably more difficult for a pilot to admit a decrease in his mental condition than his physical condition, because he usually considers he is mentally strong (mechanism of defence in the aeronautical environment).

In that situation, **a medical examination is useful** because:
1. The pilot will not exactly say to a MD what he would have written and signed: it is much easier to hide on a paper than in front of a doctor by cheating when answering questions;
2. It may exist some residual signs or symptoms that can be detected by the MD during the consultation: abnormal presentation and attitude, anxiety, sleep troubles, sub-depressive mood, family or professional problems…

If the pilot declares a history of significant psychiatric condition, for the same reasons he must be assessed by a MD. Ideally, for an objective conclusion this assessment must be performed by another doctor than the GP. It means that **GP should address their pilots to the AME or AeMC**… Moreover, such a psychological/psychiatric history includes but does not require a medication use at the time of the declaration/assessment.

QUESTION 7

There is no medical justification to restrict a maximum number of passengers. Such a proposal is typically an **EASA-proposal, with no consideration for Ethics**. One could ask "What is the price of one life ? Can we imagine that the lives of two passengers are not very important, but the life of a third passenger makes the difference ?"

QUESTION 8

This question highlights the danger of this proposal for the flight safety: on the one hand it's a proposal with a **very low level of medical safety**; on the other hand, it is admitted that this

proposal may pose a problem for the protection of passengers… And again Ethics is questioned in case of a safety pilot for aircrafts with more than two seats: to be clear it means that we do not mind if a pilot and a passenger die, but we are worried in case of three persons dead…! This is absolutely despicable !

Proposals of questions 7 and 8 appear as clever as the "ORL limitation" that some authors have dared to propose for the updated-EASA regulations. The "ORL limitation" means you must have a safety pilot in case of passengers on board only, which clearly signifies: "Never mind if you have a crash and you die alone, but please do not do it with passengers on board !" We cannot imagine that such a **non-ethical limitation** has been imagined and advised by medical doctors, and that MD will be able to use it in the future… Moreover, in case of a crash and death or sequelae of a pilot flying alone with this ORL limitation, we should advise the family to make a formal complaint because the accident could have been avoided if a medical limitation had been proposed !

Finally the response to questions 7 and 8 is: if these proposals are adopted, let's try to have the lowest number of dead people in the future and so these pilots should not carry any passengers and should fly with a safety pilot on board only: what a progress !

QUESTION 9

The large experience of the AeMC shows that many pathologies or medical troubles are likely to be hidden by class 1 pilots because of the potential consequences on their medical fitness and career, and so it is not possible to admit that **we can trust a self-declaration** for these pilots by considering their professionalism only… We have already explained that it is more difficult to cheat in front of a MD (even if you can !) than in front of a paper. As a consequence, the students paying for tuition may expect a high level of medical safety and so may expect a real medical assessment performed by a real MD, ideally an AME.

QUESTION 10

The idea that the aircrafts of a high mass could cause more damage than the aircrafts of a low mass is very theoretical. In fact, damage in case of an accident will depend on the mass but also the speed, the angle… and probably ground parameters. Moreover, if you are quietly in your garden having a breakfast and suddenly an aircraft crashes in your property and in your face, we are not sure that a mass < 5,700 or > 5,700 kg will make a significant difference ! There is **no medical justification** to decide medical proposals depending on the aircraft mass.

People who think the contrary should also take into consideration the total mass of all passengers on board before the takeoff. For instance, if you are flying alone with a weight of 60 kg, in theory you may cause less damage than if you are flying with a weight of 100 kg (overweight or obesity) and 3 passengers of total 210 kg (approx. 70 kg each). This additional 250 kg may pose a problem in the proposal, particularly if the aircraft mass is close to the 5,700 kg limitation… Does it mean all pilots and passengers should check their weight (i.e. their mass) before each flight, then make a calculation and write the official result on a register ? Should we also take into consideration the mass of additional luggage and fuel ?...

To make a comparison in the class 1 environment, could we imagine that some medical concerns and limitations depend on the aircraft mass: A380, A320, Falcon, CRJ, DR400…?

QUESTION 11

The arguments which were developed in questions 8 to 10 are the same to answer question 11.

Finally the response to questions 10 and 11 is: if these proposals are adopted, let's try to have the lowest number of dead people in the future and so these pilots should fly the lightest aircrafts in the world: we could propose a maximum takeoff mass of 2,000 kg, or 1,000 kg…: what a progress again !

QUESTION 12

Pilots of balloons are not "sub-pilots": they have responsibilities, they can crash and they are exposed to different constraints (hypoxia, low temperature, stress…) which may impair a bad medical condition. In case of an acute medical problem on board at a high altitude, it will be difficult to manage this medical situation and probably not easy to land. Thus, medical considerations must be discussed for this particular activity, and a periodical assessment is required as for every pilot. As a consequence, we believe that the medical requirements for the CPL(B) should be changed, but not for a self-declaration but for a class 2 medical certificate !

As an example, it has been recently performed an expertise for a pilot of balloons presenting with a genetic kidney polycystic disease, aortic anevrysm, atrial fibrillation and myocardial event during transplantation, persistant renal insufficiency and many medications as required: this patient of the real life would like to fly his balloons solo….

QUESTION 13

For the previous responses to all questions, we tried to develop medical arguments and ethical principles which are clearly opposed to considerations of aircraft mass, number of passengers… For the same reasons, there is no justification to consider that the EASA PPL holders are different pilots than UK and NPPL holders. **All pilots should be assessed by a MD and particularly an AME.**

This question highlights the **ethical problem posed by the creation of the LAPL**: if a MD considers a class 2 pilot unfit to fly, he should also declare him unfit to fly as a LAPL pilot, even if the requirements are not exactly the same in the Acceptable Means of Compliance and Guidance Material of the EASA regulations. However, the AMC/GM for LAPL pilots are so woolly that ethically the AME have the only choice to apply the AMC/GM of class 2 pilots. For instance, who can imagine that a patient with a very bad coronary artery disease (multiple stents, arrhythmia, cardiac dysfunction…) cannot fly in class 2 but can fly in LAPL ? And yet, this is exactly what the EASA would like the MD to do, which is in the opposite way of all medical arguments.

QUESTION 14

Consider this specific comment: in these proposals, there is an attempt to bring some statistical data which can be discussed particularly because some references are old and inappropriate. But in case of an accident involving casualties, one should consider that a pre-flight estimated risk of 0.03% (for instance) suddenly becomes a 100% occurred risk for the casualties and the family: **it was unlikely to occur and yet it has occurred** ! And finally, it will be very difficult to explain to the family members the spirit of these requirements, i.e. based on statistical but no medical considerations.

QUESTION 15

That's very funny to read that the main benefit of these proposals are time and money !

On the one hand, to learn piloting aircrafts then to continue practicing aeronautical activities needs enough time. In these proposals, the average number of flying hours per year is 30. However, to calculate exactly the annual time devoted to this activity, we should include the time to prepare and debrief every flight, also the time to go to the flying club and to come back home. Finally, we can easily double the number of flying hours to estimate the total duration of « flight period ». On the other hand, according to the EASA regulations, an aeromedical examination is required for class 2 pilots every 5 years before 40 yo, every 2 years after 40 yo and every year after 50 yo. So the time devoted to the medical assessment is 1 to 3 hours (including the time to go and come back) every 1 to 5 years… only ! Consequently, we cannot imagine that the potential gain of time is a real benefit that is asking by private pilots. We should add that this private activity is a hobby. **As every hobby, the practitioner must accept to take and/or to waste time…**

In the same way, if you calculate the total amount of 30 flying hours per year (approx. 30 x 100 € / year in France), and the cost of a GP counter-signature or a class 2 medical assessment in UK (from £0 to £200 / year to 5 years), money appears as a very bad argument for these proposals... Moreover, it appears that the cost of a UK class 2 medical assessment is expensive, and so a better proposal could be to ask Great Britain to see France as an example of a cheaper medical assessment (approx. 50 - 100 € for the AME and AeMC).

QUESTION 16

There is no (other) beneficit for these proposals.