Public consultation: UK Private Pilot Licence and National Private Pilot Licence Medical Requirements

CAP 1284

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Executive summary

In keeping with our new approach to make the regulation of General Aviation (GA) more proportionate and less burdensome, while still seeking to protect third parties, we are launching a consultation to propose that the medical requirement for a UK Private Pilot Licence or a National Private Pilot Licence holder is to hold a current DVLA Group 1 Ordinary Driving Licence (ODL). It is proposed that, in general, no General Practitioner (GP) or Authorised Medical Examiner (AME) intervention is required. Existing medical options (for example a UK declaration with GP counter signature) will remain available.

Driving licences have to be renewed every three years after the age of 70 and, apart from an eye test, only require self-declaration. The primary benefits to pilots will be cost and time savings.

An introduction is provided to the existing UK and NPPL holder privileges and the current medical standards required. We then consider the risks associated with flying and look at the safety of GA flying compared to other recreational activities. We also review the causes of aircraft accidents and likelihood of medically caused accidents. The risk to third parties of GA is considered and the regulatory approach taken by the Federal Aviation Administration in the USA is also reviewed.

There are additional themes which are considered, which include the probability of a pilot being medically incapacitated whilst flying, how age affects medical conditions and also the effect of psychiatric conditions. Other options include limiting the size of aircraft which a pilot can fly, and limiting the number of passengers which may be carried. Self-certification is also a suggestion, where pilots could declare themselves fit to fly on a regular basis and, potentially submit this information to us.

Your feedback on the proposal is requested and a consolidated list of questions is found in Annex A. Please note that none of the proposals in this consultation will affect pilots conducting Commercial Air Transport flights such as those with fare paying passengers.

A response to this consultation is requested by 10th July 2015. The information received will be used to determine how to take this proposal forward.

Next steps and how to respond

A full list of the consultation questions can be found in Annex A.

Responses to this consultation should be sent to gaconsultations@caa.co.uk by 10th July 2015.

There is also a Survey Monkey response tool at: www.surveymonkey.com/s/GAmed

Background

Our approach to GA regulation

In response to the Government's GA Red Tape Challenge (RTC) of 2013, we conducted a fundamental review of our approach to the regulation of GA, with a view to making it more proportionate and less burdensome.

This led to the creation of our GA Programme, a portfolio of projects designed to address issues and recommendations from the GA RTC and improve the regulation of UK GA in general. It is managed by our GA unit, and involves drawing on resource and expertise from throughout the organisation.

To guide us in doing this, we set out the following principles:

- Only regulate directly when necessary and do so proportionately;
- Deregulate where we can;
- Delegate where appropriate;
- Do not gold-plate, and quickly and efficiently remove gold-plating that already exists.

The GA Policy Framework[1] was published in November 2014 and is the mechanism by which we will deliver on those principles while continuing to meet our statutory duties to protect the public.

The primary stakeholders that the framework aims to protect are:

- Uninvolved third parties on the ground;
- Other users of airspace, including commercial air transport;
- Third party participants onboard GA aircraft where we have developed guidelines to inform them of the risks associated with the relevant activity.

We have also proactively engaged with the European Aviation Safety Agency (EASA) to help bring about change. EASA is also taking a new approach to GA and the UK is taking a leading role in enabling more proportionate and better regulation, with the Head of our GA Unit chairing the EASA national aviation authorities GA roadmap group and being one of the six-strong EASA GA task force. While the proposals included in this consultation are focused only on UK licence holders, if this new approach to pilot medical requirements is implemented, then the UK may be able to influence EASA in considering reviewing the medical requirements for EASA licence holders flying EASA aircraft.

[1] GA Policy Framework

Through abiding by our principles for the regulation of GA, and using the GA Policy Framework process to assess third party risk, we are introducing the proposal to reduce the medical requirements for the National Private Pilot Licence and UK Private Pilot Licence. The number of aircraft accidents which may have a possible (not conclusive) medical cause is very small. A more proportionate approach to private pilot medical requirements is to remove the need for GP intervention. The proposal is that a current DVLA Group 1 Ordinary Driving Licence (ODL) is sufficient for private pilots.

This new more proportionate approach should reduce both the amount of time and money spent on medical examinations and tests by UK private pilots while having little impact on overall safety standards.

National Private Pilot Licence and UK Private Pilot Licence current medical requirements

The focus of this consultation is the medical standards for the National Private Pilot Licence (NPPL) and the UK Private Pilot Licence (UK PPL). We also consider all types of GA aircraft (for example aeroplanes, helicopters, gliders, gyroplanes) where GA is defined to be aeroplanes with a maximum certified take off mass (MTOM) of less than 5,700kg and helicopters with an MTOM less than 3,175kg. Regulation for the NPPL and UK PPL is stipulated in the Air Navigation Order[2] (ANO) and therefore can be amended by the UK without referral to the European Commission. The ANO can be further amended to allow EASA PPL holders flying non-EASA aircraft to benefit from any regulation (or de-regulation) but the main focus of this consultation is on the privileges of UK licence holders.

NPPL privileges allow the holder to fly UK registered aircraft of up to four seats, MTOM of 2,000kg within UK airspace and airspace of certain other countries subject to additional requirements. Operations are currently restricted to flying under Visual Flight Rules (VFR), however there is a separate consultation on the Air Navigation Order where the privileges of the NPPL will be reviewed. NPPL holders may also currently fly EASA aircraft within the restrictions of the NPPL.

The UK PPL licence is an ICAO compliant PPL valid for life and enables the pilot to fly non-EASA aircraft with additional class/type ratings and EASA aircraft within the privileges of a LAPL (at the time of writing).

National Private Pilot Licence

The NPPL with Simple Single Engine Aircraft (SSEA) Class Rating was introduced in 2002 to encourage people to take up flying by creating a national licence with a shorter minimum time requirement than the ICAO compliant JAR PPL. The microlight and Self-Launching Motor Glider (SLMG) stand-alone licences that existed at the time were discontinued and replaced with NPPL Class Ratings to simplify the national licence options into one licence. It also addressed the Joint Aviation Authorities (JAA)[3] medical requirements being more stringent than previous UK levels making them less appropriate for recreational flying. Since the introduction, we have issued over 8,000 NPPL licences.

[2] www.caa.co.uk/cap393

[3] The JAA was an associated body of the European Civil Aviation Conference representing the civil aviation regulatory authorities of a number of European States who had agreed to co-operate in developing and implementing common safety regulatory standards and procedures.

Current NPPL medical requirements

Prior to the NPPL all Simple Single Engine Aircraft licensing relied on the ICAO medical examination system, which use a network of Aeromedical Examiners (AMEs). However, holders of licences entitling them to fly microlights, gyroplanes, balloons or airships made a declaration of fitness on CAA Form 150 A/B. The form was countersigned by the holders GP. Form 150 A/B also required that the GP certified that the holder had normal colour vision and if not advised that flight within controlled airspace, where signal lights might be used to communicate, could only be made when equipped with radio. (It should be noted that, whilst the NPPL exists for helicopters, it has to be supported by a LAPL(H) with at least a LAPL medical).

The NPPL was established using a declaration of medical fitness by the pilot which is then countersigned by their general practitioner, who has access to the pilot's medical records. The general practitioner (GP) is not required to determine whether the applicant meets either the UK DVLA Group 2 professional driving standards (if the pilot proposes to fly with passengers) or the UK DVLA Group 1 Ordinary Driving Licence (ODL) standards (if the pilot proposes to fly solo or with a safety pilot). Annex B sets out in more detail the medical standards required for each driving standard. The introduction of the NPPL brought this change to the medical requirements because we believed that a GP's knowledge of a pilot's past medical history would be at least as good, and possibly better than, a physical examination by an AME.

Non-disclosure of significant medical information to AMEs is not uncommon. We have knowledge of some fatal medically-caused accidents where the GP had knowledge of an issue, for example alcohol misuse, depressive illness or coronary artery disease, but this was unknown to the AME.

The DVLA Group 2 professional driving standards are very similar to a Class 2 ICAO medical, but without any routine investigations (for example ECG, blood test, lung function test). The DVLA Group 1 Ordinary Driving Licence (ODL) standards are considerably lower. We decided to use the Group 1 ODL standards for the NPPL (if the pilot flies solo or with another qualified pilot who could take control in the event of pilot incapacitation) because of the reduction of potential risk to passengers and the extreme rarity of light aircraft crashes (from any cause) killing or injuring third parties on the ground.

At the same time as these standards were introduced for single engine piston (SEP) aircraft that weigh less than 2,000kg, microlight and self-launching motor glider (SLMG) ratings were also added to the NPPL, with the same medical requirements. The British Gliding Association (BGA) had used a similar system of GP-countersigned self-declaration for many years.

The Aircraft Owners and Pilots Association, the Light Aircraft Association, the British Microlight Aircraft Association and the British Gliding Association have been administering the NPPL, appointing their own medical advisers. These doctors are the first point of

contact for pilots or their GPs requiring further information on the National PPL medical standards.

UK Private Pilot Licence

The UK PPL requires an EU Class 2[4] (or Class 1) medical. An NPPL medical declaration or LAPL medical certificate can also be used, but this means the licence holds the same restrictions as an NPPL. The total number of UK Private Pilot Licence holders with a current medical is approximately 14,600 (as of October 2014).

Glider Licence

The British Gliding Association (BGA) is the governing body for the sport of gliding in the UK. There are approximately 7,000 glider pilots in the UK. The BGA has recently voted to return to their original system of self-declaration of fitness for solo flight.

Balloons - UK Private Pilot Licence and Restricted Commercial Pilot Licence

Both the UK PPL(B) and the CPL(B) Restricted licences require the GP signed NPPL medical standard declaration. A Restricted CPL(B) pilot has limited privileges and is restricted to aerial work, not public transport (so they cannot take fare paying passengers). A full CPL(B) is required to undertake public transportation of fare paying passengers. Our proposal is to consider changing the medical requirements for the UK PPL(B) and UK Restricted CPL(B) only, as this is in line with our focus on GA and recreational flying. There are approximately 500 balloon pilots who fall into these categories.

[4] EU Class 2 Medical

Medical requirements for UK licences

The current medical options for the UK licences are:

Licence type	Medical requirement	Approximate number of licences
UK PPL aeroplanes, helicopters, SLMG	EU Class 2 (or Class 1) medical certificate	~14,600
(National) PPL	NPPL GP-countersigned declaration or an EASA LAPL Medical certificate or an EASA Class 2 Medical certificate or an EASA Class 1 Medical certificate	~8,600 (max)
UK Restricted CPL(B)	NPPL GP-countersigned declaration*	~500
UK PPL balloons	NPPL GP-countersigned declaration*	
UK PPL gyroplanes	NPPL GP-countersigned declaration*	~200
UK PPL microlights	NPPL GP-countersigned declaration*	~ 500
Gliders		~7,000
TOTAL		31,400 (max)

Figure 1

Notes:

1. UK PPL licence figures are correct as of October 2014 and include the number of current licences based on those with a current EASA medical certificate.
2. NPPL – this is the total number of licences issued by the CAA by the end of October 2014. We do not have a record of those with current medicals, as the CAA is not necessarily involved in this process.
3. UK PPL microlights – number of licences issued by the CAA since 2000.
4. The figures do not include those who may hold a commercial pilot licence but exercising the privileges of a private pilot licence holder.
5. *It should be noted that medical certificates such as EASA Class 2 and EASA Class 1 will also be accepted for these licences.

Based on the figures in the table above (Figure 1), the maximum pilot population which could take advantage of a proposal covering UK PPLs and NPPLs is approximately 32,000.

Medical requirements - validity

One of the areas considered later in this document is that of screening. How often this occurs is dependent on age. The validity periods for the NPPL medical declaration and EASA Class 2 medical certificate are:

NPPL declaration of medical fitness

Initial – 45	to age 45 or 5 years, whichever is longer
45 - 59	5 years
60 - 64	to age 65 or 1 year, whichever is longer
65+	1 year

EASA Class 2 medical certificate

Initial – 40	5 years (not beyond age 42)
40-50	2 years (not beyond age 51)
50+	1 year

EASA LAPL medical

Initial – 40	5 years (not beyond age 42)
40+	2 years

Recreational flying – risks

Before we consider the proposal to change the medical requirements for private pilots, we need to consider the risks associated with flying. The safety of GA flying compared to other recreational activities is considered and then the causes of accidents and likelihood of medically caused accidents is reviewed. We also look at the risk to third parties from GA and finally review the approach to medical requirements which the Federal Aviation Administration has taken in the USA.

How safe is GA flying compared to other recreational activities?

The table (Figure 2) below shows the fatal accident rate per million hours. Activities such as horse riding and rock climbing have more risk associated with them, but have no regulatory oversight and rely on the participants to assess and manage risk.

Activity	Fatal Accident rate per million hours
Canoeing	4
Motor Cycling	8
UK All GA	**13**
Swimming	13
Rock Climbing	40
Boxing	200
Horse Riding	280

Figure 2

Data Source: *Dr David J Smith, Technis (www.technis.org.uk) and the Editor GASCo Flight Safety*

Causes of GA accidents

In November 2012, EASA published a document entitled *Roadmap for Regulation of General Aviation*[5] setting out its new approach to GA regulation. It noted that "traditionally, much regulation has been blanket regulation, aiming to cover all possible risks by saying something about everything, though the vast majority of fatalities are caused by a small number of recurring causes."

[5] EASA GA Roadmap

The top five causes of fatal accidents identified by EASA accounting for 80% of deaths are:

1. **Loss of control in visual meteorological conditions - VMC** (i.e. basic handling issues, typically stall/spin accidents);
2. **Controlled flight into terrain - CFIT** (Typically a non-instrument rated pilot/aircraft scud running in worsening weather ending with hitting the ground, or a ground obstacle);
3. **Low altitude aerobatics or buzzing**;
4. **Loss of control in instrument meteorological conditions - IMC** (Often similar to the poor weather CFIT accidents above, except that to avoid CFIT, the pilot elected to climb into the cloud where he then lost control);
5. **Forced landings due to pilot error** (Most often caused by running out of fuel).

General aviation – fatalities with a suspected medical cause

GA accidents which may have been caused by medical conditions are much less common. For the purposes of this discussion, GA is considered to be any aircraft (i.e. aeroplane, helicopter, gyroplane, glider etc) flying non-commercially within the GA weight category (aeroplanes less than 5,700kg MTOM and helicopters less than 3,175kg MTOM).

Medical factors include hypoxia, fatigue, dehydration, alcohol and suicide as well as established disease. The total number of UK fatal aircraft accidents which *may* have been caused or contributed to by medical factors is averaged at a maximum of 13% of the total fatal accidents. It should be noted that there is a degree of uncertainty in these statistics, as the cause of an accident is sometimes unknown and the presence of a pre-existing medical condition does not necessarily mean it was a factor in the accident mechanism. The table below shows the fatal accidents, including those where there *may have* been a medical cause. If we only focused on fatal accidents with a confirmed medical cause, the number of accidents reported in Figure 3 would be less. Further details on these accidents are provided in Annex C.

Year	Fatal accidents	Possible Medical Cause	Possible Medical Percentage of the total
2004	24	3	13%
2005	17	5	29%
2006	13	2	15%
2007	23	3	13%
2008	9	1	11%
2009	20	2	10%
2010	8	0	0%
2011	15	1	7%
2012	13	1	8%
2013	9	2	22%
Total	151	20	13%

Figure 3

Third party risk

We have a statutory duty to ensure the safety of those who are affected by aviation activities, for example third parties on the ground, other airspace users, as well as passengers.

Third parties on the ground

History shows that the probability of a GA accident causing injury to people on the ground is extremely low. The table at Annex D shows that there were a total of six GA accidents involving third parties on the ground over the last ten years. Two of these were fatalities: one involved a gyroplane incident with a pedestrian and another involved a glider and a spectator at an air show. These individuals were third parties involved in aviation activities rather than being uninvolved third parties. However, it should be noted that there was no indication in the subsequent investigations that indicated medical causes played any part in these accidents.

The potential area of an aviation accident compared with density of the population of the UK was also considered. However, taking account of controlled airspace and Air Navigation Order legal provisions, most GA activity takes place away from congested areas and therefore no meaningful conclusions could be drawn from such small statistical samples and a non-uniform distribution of activity.

The approach of the Federal Aviation Administration (FAA)

The FAA believes that the medical standards that permit an individual to drive a car in close proximity to other cars at high speed provide an adequate level of safety to operate a light sport aircraft. Hence, the FAA introduced the Sport Pilot licence in 2004 such that a US driver's licence standard provided evidence of sufficient health. By contrast, as stated earlier, the UK requires a GP to sign the NPPL self-declaration form and an AME to carry out the EU Class 2 medical.

Supporting evidence of only two medical cause accidents in a year 10 year period (from 1990) of gliding and ballooning was cited to support the FAA's decision to adopt a driver's licence as medical verification. Further, in a study between 1986 and 1992, the percentage of accidents involving medical cause factors was lower for those activities not requiring medical certificates than those that did.

The US is now considering extending this medical principle to allow pilots to conduct non-commercial visual flight rules flights below 14,000ft at less than 250kts in aircraft up to 6,000lb (2,722kg) with no more than six seats (five passengers) and to be exempt from the requirement to hold a FAA medical certificate.

Proposal and factors for consideration

Proposal

We are proposing that the medical requirement for a UK PPL or NPPL licence holder or CPL(B) Restricted holder should be to hold a DVLA Group 1 Ordinary Driving Licence, and that no GP or AME involvement is required (existing medical options, for example a UK declaration with GP counter signature, will remain available). This is on the basis that GA is a form of recreational activity where reasonable judgment can be made with minimum regulatory intervention. Driving licences have to be renewed every three years after the age of 70 and, apart from an eye test, only require self-declaration. This proposal is assumed throughout the rest of this section where different factors are considered and where feedback on this proposal is requested. The remainder of this section focuses on various themes and seeks your view on the assumptions made and evidence presented.

The UK Air Navigation Order

This proposal will require a change to the Air Navigation Order (ANO) and is anticipated to include Articles 73A(2)(c) and (d) and 73A(3). The changes to the ANO will be dependent on the response from this consultation.

Pilot training/ behaviour

The pilot has to have a basic understanding of the physical and mental challenges of flying and the physiological strains, such as cold and hypoxia they may experience. Private pilots have to undergo training in human factors which includes the importance of their being physically and mentally fit and well to fly. Pilots should conduct a self-assessment of their health prior to any flight and in general, it is expected that pilots would consider a decrease in their medical fitness prior to any flight (where it is clear to them) and not fly if they do not feel well enough.

Question 1: Do you agree that private pilots do not generally take part in recreational flying if they feel unwell? Please answer yes or no. If you do not agree, please explain why.

If we assume that the above statement is correct, it is fair to further assume that the pilot will feel fit to fly prior to take-off. This means that the main risk that needs to be considered is that of the pilot becoming so unwell during the flight that the flight is put in danger within seconds or a few minutes, such that the pilot cannot conduct an emergency landing. A condition that evolves over an hour or more would mean that the pilot is more likely to conduct a landing at the destination or other airfield before a substantial risk to safety occurs.

Risk of incapacitation

A simple model can be used to estimate the medical risk in the flying population by applying the age-related risks of conditions that cause aero-medically relevant incapacitation to the known flying population.

We will focus on the conditions which could result in sudden incapacitation in flight where the pilot may be unaware of symptoms at the start of a flight. Examples of such medical conditions are:

- Seizure
- Heart attack
- Stroke/cerebral haemorrhage
- Syncope (faint) due to fast or slow cardiac rhythm
- Pulmonary embolism
- Acute high severity incapacitating pain (such as renal colic)

Screening is a way of checking apparently healthy people to identify those who may be at increased risk of a disease or condition and this can lead to prevention. However, neither a Class 2 medical or an NPPL self-declaration signed by the GP will necessarily identify or predict the events listed above if the patient is feeling fit and well at the time of screening. Furthermore, screening only occurs at certain intervals (as defined earlier) and is dependent on the age of the pilot.

The table at Figure 4 below shows the probability of these conditions occurring in the average UK population for different age brackets (references are listed in Annex F). For simplicity, we have applied these figures to a pilot population of 10,000 using the average pilot age profile where the number of pilots peak in the 6th decade and decline quite steeply thereafter. Using this data and assuming a pilot flies an average of 30 hours per year, it is possible to estimate the probability of pilot incapacitation in-flight as a result of the conditions listed above. It should be noted that this assumes that the probability of an event occurring is equally distributed throughout the year and there is no change in this probability as a result of flying.

Age Decade	Proportion of Pilots	Principal risks for acute incapacity								Events/yr/ 10,000 pop	In-flight (Av 30hrs)
		Pulmonary embolism[1]	Renal Colic[2,3]	Stroke[4]	Syncope[5]	Coronary risk[6]	incident epilepsy[7,8]	prevalent* epilepsy[7,8]	Total risk		
10-19	1.2%	0.21%	0.03%	0.00%	0.00%	0.01%	0.06%	0.31%	0.62%	**0.76**	**0.003**
20-29	12.6%	0.21%	0.03%	0.00%	0.26%	0.01%	0.04%	0.31%	0.86%	**10.85**	**0.037**
30-39	13.7%	0.21%	0.03%	0.02%	0.32%	0.04%	0.03%	0.40%	1.05%	**14.33**	**0.049**
40-49	19.5%	0.21%	0.03%	0.07%	0.38%	0.10%	0.04%	0.43%	1.26%	**24.54**	**0.084**
50-59	25.3%	0.21%	0.03%	0.17%	0.39%	0.36%	0.05%	0.41%	1.62%	**40.94**	**0.140**
60-69	19.9%	0.21%	0.03%	0.45%	0.54%	1.14%	0.07%	0.39%	2.83%	**56.32**	**0.193**
70-79	7.1%	0.21%	0.03%	1.00%	1.11%	2.50%	0.14%	0.44%	5.43%	**38.34**	**0.131**
80-89	0.7%	0.21%	0.03%	1.78%	1.95%	5.00%	0.18%	0.70%	9.85%	**6.47**	**0.022**
Total	**100%**	*50% of those with epilepsy aren't seizure free, assume 1 fit/yr								**192.56**	**0.659**

Figure 4

We have considered the primary causes of incapacitation, but it should be noted that there are causes other than those listed above, which have not been included in the table.

Assuming this is only applied to UK PPL and NPPL holders, the maximum number of pilots who *could* be affected by this proposal is approximately 32,000. The table above is based on a pilot population of 10,000, which suggests that the total number of medical incapacitation in-flight events per year is 0.659. So, multiplying 0.659 by 3.2 would suggest that there could be a total of approximately two medical incapacitation events in-flight per year.

The subject of screening is considered later on and it should be noted that the current system will not necessarily prevent medical incapacitation in-flight, but reduce the likelihood of this occurring.

The potential total of two medical incapacitation events in flight per year, the outcome of which cannot be known, is considered to be extremely low when set against the total activity.

Question 2: Do you agree that the probability of private pilot incapacitation in flight is extremely low? Please answer yes or no. If no, please provide evidence.

Considering the evidence presented in this document so far, we would be interested in receiving your views on whether we should change the medical requirements for UK PPL and NPPL holders.

The remainder of this section goes on to deal with specific details such as age, passenger carriage and flight instruction.

Question 3: Do you believe that we should proceed with the proposal to allow private pilots with the UK PPL or NPPL to fly provided they meet DVLA Group 1 Ordinary Driving Licence medical standards, with no GP or AME involvement in the process? Please answer yes or no. If no, please provide evidence.

It should be noted that because a DVLA Class 1 Ordinary Driving Licence medical would be sub-ICAO, if pilots wanted to fly outside of UK airspace they would still require an ICAO compliant medical (unless bilateral agreements were in place with other member states).

As discussed, the risks of the most likely incapacitating conditions generally increase with age. However, as the number of pilots peak in the 6th decade and decline quite steeply after, the estimated absolute number of incapacitations in the oldest pilots is less than their younger colleagues. This flying population is likely to already have been biased by more pilots stopping flying due to loss of function associated with age or failing to meet the medical requirements. In the graph below, the flying population is compared with the general population age group (information obtained from the Office of National Statistics). Again, it is assumed that the average pilot flies 30 hours per year and the previous data presented in the table is shown graphically in Figure 5.

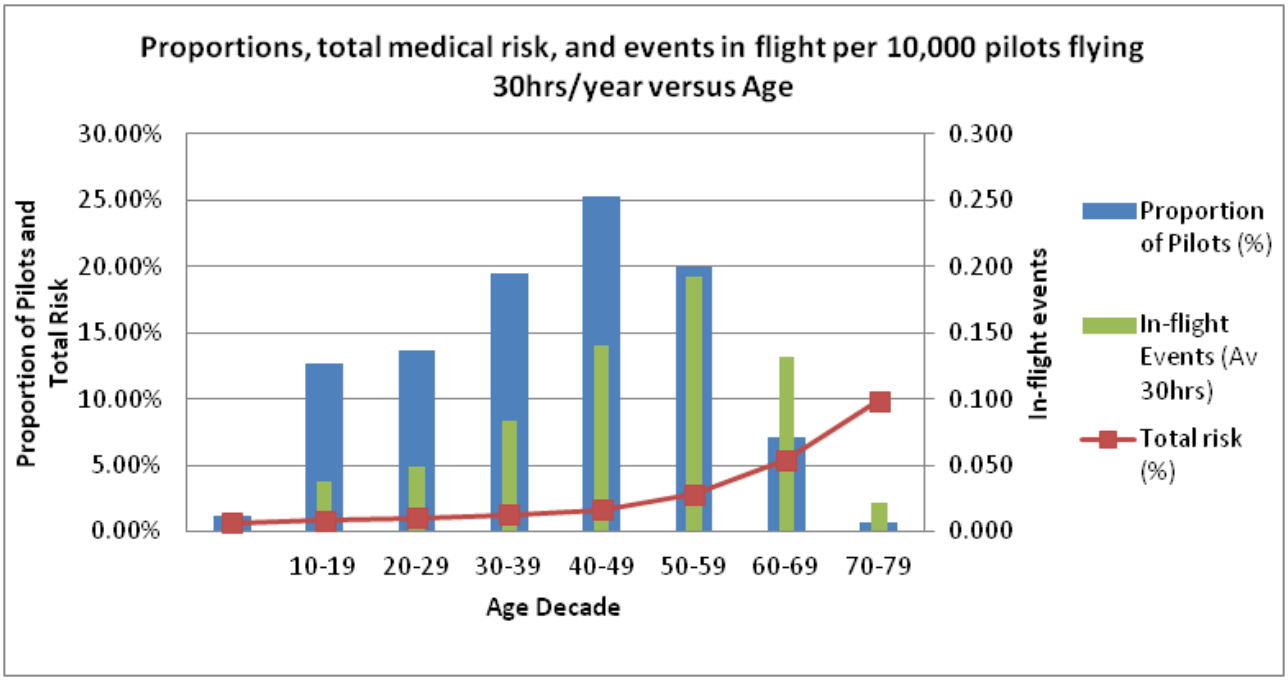

Figure 5

Degeneration of senses

The special senses such as vision, hearing, and balance are a vital element of safe flying but all can be affected by ageing, degeneration and acute and chronic disease. A pilot should always ensure that they have no impairment to these senses prior to a flight and should self-certify themselves prior to any flight.

Question 4: To minimise the risk of private pilots not being fit to fly (through illness or degeneration of senses) do you believe that we should require private pilots to self-certify themselves through, for example, signing a form? Do you believe they should submit this information to us at regular intervals aligned with the validity of current medicals? (e.g. five , two or one year, dependant on age)? Please answer yes or no to both points.

The evidence presented suggests that the probability of incapacitation increases with age. In addition, the special senses such as vision, hearing and balance can degenerate with age.

Question 5: Based on the evidence presented, or other evidence which you can reference, do you believe an upper age limit should be included on the proposed change to the medical requirements for private pilots? Please answer yes or no.

If you do believe an age limit should be imposed on this new requirement, what do you think the age limit should be? Please give an exact figure and rationale.

Psychiatric conditions

The effect of psychoactive medication and drugs including alcohol, as well as some mental health conditions can cause significant impairment and therefore threaten the safety of a flight. These are all examples of psychiatric disorders.

Psychiatric disorders can be very difficult to diagnose and a patient's insight into the severity of such illness may be lost, resulting in dangerous behaviour. Deliberately crashing to kill one self is a recognised suicide method and a study by Cullen[6] showed at least three GA fatal accidents in a 26 year period (1970 – 1996) were due to suicide, although suicidal intent is extremely difficult to predict. In addition, pilots who fly while intoxicated with alcohol or other substances are at a very high risk of accident and death. Pilots with known alcohol or substance abuse problems should be assessed as unfit for flying as they are likely to violate regulations randomly.

Psychiatric conditions can be very difficult for a GP or AME to detect compared to physical conditions, especially if there is no previous history and an individual is determined to hide

[6] Cullen SA 1998.Aviation Suicide: A Review of General Aviation Accidents in the UK 1970-1996 Aviation Space & Environ Med69:696-8

the condition, has lost insight or is denying symptoms. Neither a Class 2 medical nor a NPPL self-declaration signed by the GP are necessarily able to predict every medical event affecting a patient in their care and this includes psychiatric conditions as well as drug and alcohol misuse. If we were to move to a DVLA Group 1 Ordinary Driving Licence (ODL) system, then without any other mitigation methods, pilots with known issues in this area could still be eligible to hold a DVLA licence and fly as pilot in command. Acute conditions where the DVLA licence is removed would also remove the medical fitness to fly. However, there will be circumstances in which a psychiatric condition is known but does not require a DVLA Group 1 Licence to be removed. In the latter case, extra mitigation could be put in place by only applying the new medical requirements to those people who have no history of a significant psychiatric condition.

In light of the recent Germanwings A320 crash, psychological assessment of commercial pilots is currently under review and the conclusions will also be considered in relation to any change in policy in this area for private pilots.

Question 6: Do you believe that private pilots who have a history of significant psychiatric condition (i.e. that requires medication) should be assessed by their GP rather than use a self-certification system? Please answer yes or no and provide reasons.

Third party risk

Third party risk - passengers

The exposure of third parties to the assumed small risk could be further minimised by limiting the number of passengers which the pilot may carry.

Question 7: If the medical requirements are changed as proposed, should the number of passengers a private pilot carries be restricted? Please answer yes or no.

If yes, do you think this should be restricted to a)one, b)two, c)three, d)four or e)five.

A further extension of protecting passengers is to only allow the pilot to fly with a safety pilot. The presence of another pilot to intervene in the event of medical incapacity could reduce the risk to passengers. This would only apply to aircraft with more than two seats. It should be noted that the anticipated benefits obtained from the proposal (on which we are consulting) will be reduced if this limitation was introduced.

Question 8: Do you believe that pilots taking advantage of our proposed change to medical requirements should have to fly with a safety pilot? Please answer yes or no.

Third party risk – flight students

Students paying for tuition in an aircraft may expect a higher medical standard for their instructor. At present a minimum of the DVLA Professional Driver (Group 2) standard or higher is required. We would be interested in your views on this subject.

Question 9: Do you believe that the medical requirements for flight instructors should be changed from the current system? Please answer yes or no.

Third party risk – to the public on the ground

Whilst the NPPL privileges allow the holder to fly UK registered aircraft of up to four seats and a maximum take off mass of 2,000kg, a UK PPL holder may add additional class or type ratings to their licence, thus potentially being able to fly an aircraft of weight greater than that typically associated with GA.

As discussed earlier, history shows that the probability of a GA accident causing injury to people on the ground is extremely low as shown by the table at Annex D which shows third party accidents involving aircraft weighing less than 5,700kg. It could be argued that aircraft of significantly more mass could cause more damage in the event of an accident. A UK PPL holder can only fly non-EASA aircraft (the majority of which are less than 5,700kg) or EASA aircraft using the privileges of a LAPL, which automatically restricts the weight limit to 2,000kg. Whilst this is self-limiting, an additional restriction could be included for UK PPL holders wishing to take advantage of the proposal. One option could be to limit the Maximum Take-Off Mass of the aircraft. Another option could be to limit the privileges of a UK PPL to that of an NPPL if they wish to take advantage of the proposed new medical requirements.

Question 10: Do you believe that the UK PPL holder wishing to take advantage of the proposed new medical requirements should be limited to flying aircraft with a Maximum Take-Off Mass of 5,700kg or less? Please answer yes or no.

Question 11: Do you believe that the UK PPL holder wishing to take advantage of the proposed new medical requirements should be limited to the licence privileges of an NPPL holder? Please answer yes or no.

Other considerations

Commercial pilots - balloons

We have considered the full CPL(B) to be out of scope of this review, as the focus has been primarily on private flights. However, if you would like the CAA to consider reducing the medical standards for commercial balloon pilots, please let us know.

Question 12: Do you believe that the medical requirements for the CPL(B) should be changed? Please answer yes or no. Please also provide reasons for your answer.

EASA PPLs flying non-EASA aircraft

The focus for this consultation has been on holders of a UK PPL or an NPPL. However, it would be possible to extend this proposal to include EASA PPL holders when flying non-EASA aircraft.

Question 13: Do you believe the proposal to change the medical requirements for UK PPL and NPPL holders should be extended to EASA PPL holders flying non-EASA aircraft in the UK? Please answer yes or no.

Question 14: Do you have any other specific comments which you would like to be considered as part of this consultation?

Cost and benefit assessment

The proposal will require a change to the Air Navigation Order and this in turn will require a Regulatory Impact Assessment (RIA) to be completed and a cost benefit analysis to be undertaken. To ensure we have accurate information to complete the RIA, we have included some assumptions in this section and would welcome your view on whether you agree that these are sensible figures.

Benefits

- The main benefit to the pilot will be the financial savings through no longer requiring GP or AME involvement. These savings will be dependent on whether the pilot holds an NPPL or a UK PPL:
  - NPPL – we assume that the typical cost for GP counter-signature is £0 - £80 per visit.
  - PPL – EU Class 2 Medical varies from £140 - £200, depending on whether it is initial certification or revalidation and whether an ECG is required.
- The other benefit is the time saved by the pilot which will be converted into a monetary value in the IA. Including travel time to and from the GP or AME, we estimate the following:
  - NPPL: 30 – 60 minutes.
  - UK PPL – EU Class 2 Medical: 60-90 mins
- The additional factor which will need to be considered is the business lost to GPs and AMEs as a result of fewer pilots requiring GP or AME intervention.

Question 15: Do you believe that the figures used to describe the time and cost benefits are accurate for the average private pilot? Please answer yes or no. If no, please provide your view on what realistic figures would be.

Question 16: Can you identify any other specific benefits of this proposal?

Annex A Questions

Question 1: Do you agree that private pilots do not generally take part in recreational flying if they feel unwell? Please answer yes or no. If you do not agree, please explain why.

Question 2: Do you agree that the probability of private pilot incapacitation in flight is extremely low? Please answer yes or no. If no, please provide evidence.

Question 3: Do you believe that we should proceed with the proposal to allow private pilots with the UK PPL or NPPL to fly provided they meet DVLA Group 1 Ordinary Driving Licence medical standards, with no GP or AME involvement in the process? Please answer yes or no. If no, please provide evidence.

Question 4: To minimise the risk of private pilots not being fit to fly (through illness or degeneration of senses) do you believe that we should require private pilots to self-certify themselves through, for example, signing a form? Do you believe they should submit this information to us at regular intervals aligned with the validity of current medicals? (e.g. five, two or one year, dependant on age)? Please answer yes or no to both points.

Question 5: Based on the evidence presented, or other evidence which you can reference, do you believe an upper age limit should be included on the proposed change to the medical requirements for private pilots? Please answer yes or no.

If you do believe an age limit should be imposed on this new requirement, what do you think the age limit should be? Please give an exact figure and rationale.

Question 6: Do you believe that private pilots who have a history of significant psychiatric condition (i.e. that requires medication) should be assessed by their GP rather than use a self-certification system? Please answer yes or no and provide reasons.

Question 7: If the medical requirements are changed as proposed, should the number of passengers a private pilot carries be restricted? Please answer yes or no.

If yes, do you think this should be restricted to a)one, b)two, c)three, d)four or e)five.

Question 8: Do you believe that private pilots taking advantage of our proposed change to medical requirements should have to fly with a safety pilot? Please answer yes or no.

Question 9: Do you believe that the medical requirements for flight instructors should be changed from the current system? Please answer yes or no.

Question 10: Do you believe that the UK PPL holder wishing to take advantage of the proposed new medical requirements should be limited to flying aircraft with a Maximum Take-Off Mass of 5,700kg or less? Please answer yes or no.

Question 11: Do you believe that the UK PPL holder wishing to take advantage of the proposed new medical requirements should be limited to the licence privileges of an NPPL holder? Please answer yes or no.

Question 12: Do you believe that the medical requirements for the CPL(B) should be changed? Please answer yes or no. Please also provide reasons for your answer.

Question 13: Do you believe the proposal to change the medical requirements for UK PPL and NPPL holders should be extended to EASA PPL holders flying non-EASA aircraft in the UK? Please answer yes or no.

Question 14: Do you have any other specific comments which you would like to be considered as part of this consultation?

Question 15: Do you believe that the figures used to describe the time and cost benefits are accurate for the average private pilot? Please answer yes or no. If no, please provide your view on what realistic figures would be.

Question 16: Can you identify any other specific benefits of this proposal?

Annex B Requirements for NPPL

The medical standards are based on the DVLA driving medical standards. If there is nothing in your medical history which would stop you reaching a DVLA Group 2 standard required for large lorries and buses, you can obtain a National PPL without any medical limitations. If you have a past history of significant illness but meet the DVLA Group 1 Ordinary Driving Licence (ODL) standard required for cars and motorcycles, you will only be able to fly either solo or with another 'safety' pilot qualified on your aircraft type. A pilot acting as a safety pilot must be appropriately briefed.

DVLA Group 1 and 2 stipulate medical requirements relating to:

- Neurological disorder
- Cardiovascular disorder
- Diabetes mellitus
- Psychiatric disorders
- Drug & alcohol misuse and dependence
- Visual disorders
- Renal disorders / aspiratory disorders.

Age Limits

- Group 1: Licences are normally valid until age 70 years unless restricted to a shorter duration for medical reasons as indicated above. There is no upper limit but after age 70 a renewal is necessary every 3 years. All licence applications require a medical self declaration by the applicant.
- A person in receipt of the higher rate of the Mobility Component of Disability Living Allowance may apply for a licence (Group 1 category B) from age 16 years, instead of the usual lower age limit of 17 years.
- Group 2: Excepting in the armed forces and certain PCV licences, Group 2 licences, lorries (category C) or buses (category D) are normally issued from the age of 21 years and are valid until age 45 years but may be issued from age 18 where the licence holder has obtained or is undertaking a Certificate of Professional Competence (CPC) initial qualification. Group 2 licences are renewable thereafter every 5 years to age 65 years unless restricted to a shorter period for medical reasons.
- From age 65 years, Group 2 licences are renewable annually without upper age limit. All Group 2 licence applications must be accompanied by a completed medical application form, D4.

Annex C Fatal GA accidents - possible medical cause

The following two tables show fatal GA accidents over a ten year period from 2004-2013 where medical issues were a possible factor. However, in nearly all cases, it was not possible to prove that the accidents were due to medical causes.

Date	Synopsis	Type	Fatalities	Pilot age	Pilot Licence	Medical Certification	Valid	Ilicit/Non Prescribed Substances	Pilot Exp	Possible Cause
06-Oct-13	Handling	Microlight	1	52	No Licence	None	N/A	N	73	Multiple medical issues
14-Jul-13	Handling	Microlight	2	76	NPPL	Declaration	Y	N	365	Eyes
22-Aug-12	In-flight incapacitation?	Microlight	1	79	NPPL	Declaration	Y	N	164	Heart Condition
05-May-11	Handling	Aeroplane	1	63	NPPL	Declaration	N	Y	591	Heart Condition
15-Nov-09	Handling	Helicopter	2	69	PPL	Class 2	Y	Y	476	Unsepecified
08-Nov-09	In-flight incapacitation?	Aeroplane	1	70	NPPL	Declaration	Y	N	856	Heart Condition
08-Oct-08	VMC>IMC	Microlight	1	41	PPL	Unknown	N	Y	123	Other
08-Jul-07	Handling	Aeroplane	2	34	PPL	Class 2	Y	Y	79	Other
09-Apr-07	VMC>IMC	Aeroplane	3	56	PPL	Class 2	N	Y	324	Heart Condition, alcohol
28-Mar-07	Alcohol (instructor)	Microlight	2	54	PPL	Unknown	UNK	Y	4960	Liver
09-Jun-06	Unknown	Microlight	1	41	SP	Unknown	UNK	Y	40	Other
01-Jun-06	Handling	Gyroplane	1	69	PPL	Unknown	UNK	N	242	Heart Condition
18-Dec-05	Airprox	Aeroplane	1	34	SP	Class 2	Y	N	52	Therapeutic Drugs
02-Oct-05	In-flight incapacitation?	Aeroplane	2	53	PPL	Class 2	Y	N	1059	Liver
04-Sep-05	VMC>IMC	Aeroplane	2	63	PPL	Class 2	Y	Y	150	Multiple medical issues
18-Aug-05	In-flight incapacitation?	Aeroplane	2	61	PPL	Class 2	Y	N	289	Heart Condition
08-Feb-05	VMC>IMC	Aeroplane	1	52	PPL	Class 2	Y	N	225	Heart Condition
07-Aug-04	Unknown	Glider	1	50	Glider Certificate	Unknown	UNK	N	125	Dehydration
29-Feb-04	In-flight incapacitation?	Aeroplane	1	71	CPL	Class 2	Y	N	3434	Heart Condition
01-Feb-04	In-flight incapacitation?	Aeroplane	1	81	PPL	Class 2	Y	N	2160	Heart Condition

Annex D Third parties on the ground

UTC date	Headline	Narrative text Information from the Air Accidents Investigation Branch (AAIB)
28/03/2005	Aircraft stalled during go-around and collided with two vehicles, seriously injuring one of the vehicle's owners. AAIB Field investigation.	**AAIB Bulletin 4/2006, ref: EW/C2005/03/05** - Summary: During a go-around, the aircraft stalled and crashed into two parked motor caravans, seriously injuring the owner of one of them. Investigations revealed that the pilot, who had qualified and trained on flex-wing aircraft, had not received adequate training to fly a three-axis aircraft, and was not in current flying practice. The approach had been flown towards rising ground and an illusory visual horizon was a contributory factor. The aircraft was overweight at the time of the accident and its elevators were incorrectly rigged. Pilot training requirements did not differentiate between control system types and so three Safety Recommendations (2005-128 to 2005-130) were made to address this aspect. **CAA Closure:** CAA FACTOR F17/2006 detailing the CAA responses to the three AAIB Safety Recommendations was issued on 13 June 2006. Any further CAA action required will be progressed via the 'Annual Review of AAIB Recommendations' procedure.
09/08/2005	Glider hit spectator during competition finish. Spectator fatally injured. AAIB Field investigation.	**AAIB Bulletin 2/2007, ref: EW/C2005/08/02** - Summary: The accident occurred during a race as part of the Junior World Gliding Championships. During the final approach to cross the finishing line a glider, flying at a height of approximately 15ft, banked at an angle of about 20 degrees to the left as it passed a group of spectators who were standing on vehicles outside the airfield perimeter. The left wing of the glider struck one of the spectators, a professional photographer, causing him fatal injuries. The glider made a largely uncontrolled landing in a nearby field. It was seriously damaged but the pilot was unhurt. The investigation concluded that gliders involved in the race had been flying unnecessarily low during the approach to the finish. The accident and other evidence suggested a problem with the safe conduct of race finishes and deficiencies in the training for and oversight of such events. Since this accident, the British Gliding Association has been proactive in trying to address some of these issues but its rules do not apply to gliding championships conducted in the UK under the International Gliding Commission Rules. The AAIB made five Safety Recommendations (2006-119 to 2006-123 inclusive). **CAA Closure:** CAA FACTOR F8/2007 detailing the CAA responses to the five AAIB Safety Recommendations was issued on 10 May 2007. Any further CAA action required will be progressed via the 'Annual Review of AAIB Recommendations' procedure.

14/11/2005	Engine started unexpectedly during hand swung start. Aircraft ran forward into hangar and struck a person who was seriously injured. AAIB Field investigation.	**AAIB Bulletin 8/2006, ref: EW/C2005/11/03** - Summary: The aircraft owner was rotating the propeller by hand to introduce a priming charge into the cylinders when the engine started unexpectedly. There was no parking brake on the aircraft and chocks were not used. The aircraft moved forwards, gathered pace, tore the supine owner's clothing and yawed into a hangar where it hit other aircraft. Inside the hangar its propeller struck and injured a person who had seen the 'runaway' aircraft coming towards him and had sought refuge there. One magneto must have been live to allow the engine to fire but the fault could not be traced. One safety recommendation (2006-057) was made to include propeller handling in the JAR PPL syllabus. **CAA Closure:** CAA FACTOR F28/2006 detailing the CAA's responses to the one AAIB Safety Recommendation was issued on 11 September 2006. Any further CAA action required will be progressed via the 'Annual Review of AAIB Recommendations' procedure.
09/03/2009	UK Reportable Accident: Rotor sport gyroplane collided with pedestrian on the ground who was fatally injured. Police and AAIB Field investigation.	**CAA Closure:** AAIB and police investigation closed.
28/05/2009	UK Reportable Accident: A/c rolled over during landing. Piece of a/c detached and struck a workman at a nearby hangar, causing severe injuries. One POB, minor injuries. AAIB investigation.	**CAA Closure:** The student pilot was landing on a concrete apron in front of some hangars. As the helicopter descended from a low hover, it was seen to rock from left to right and then to rotate quickly to the left. It lifted slightly in a nose low, right skid low attitude and then rolled over onto its right side. As parts of the rotor blades broke up, a piece of debris was flung across the apron and seriously injured a workman approximately 200ft away. See AAIB Bulletin 10/2009, ref EW/G2009/05/26.
27/10/2009	UK Reportable Accident: On landing, a/c skidded on wet runway, crossed the threshold and stopped on an embankment. Two POB, no injuries, one other person, minor injuries. AAIB investigation.	**CAA Closure:** The aircraft impacted the aerodrome boundary after take-off was aborted following an apparent loss of engine power. Mechanical inspection did not determine the cause but reports of similar occurrences indicate that carburettor icing or rich cut were possibilities. The aircraft hit a dog as it came to rest and consideration is given to relevant aspects of aerodrome licensing. AAIB Bulletin 04/2010, Ref: EW/G2009/10/17.

Annex E Medical screening

The components of medical risk assessment

When a patient sees a doctor, the consultation essentially comprises four phases: the medical history, a clinical examination, additional tests and finally a diagnostic formulation and management plan. Where the medical history is not already known to the doctor (as would normally be the case of a GP) the patient or applicant describes the symptom and any past history, usually with prompting and focussed questioning from the doctor. This part of the assessment is normally the most crucial in the normal doctor-patient meeting as it focuses the diagnostic possibilities from many thousands to less than a dozen or so. A clinical examination can then usually confirm a diagnosis or narrow down the possibilities to less than a handful. Similarly, medical investigations including laboratory tests and scans have a similar utility to the examination. Finally, based on the history and examination/test findings it is usually possible to reach a diagnostic conclusion and advise the patient of what needs to be done.

Clearly if the patient or applicant conceals symptoms or history, and in some cases tries to conceal evidence such as scars or to interfere with tests, the system partially or fully breaks down.

Medical diagnosis is often described as an art because, as an unknown patient comes through the door, there are thousands of possibilities as to what is wrong. If a doctor were to be given the choice between a medical history, clinical examination, or a number of tests, most would choose the medical history as the enquiry can be tailored to the responses. Conversely there are many clinical tests that are used for medical investigation of presenting disease. Sometimes these same tests are used as medical screening to try to detect disease before it has caused symptoms. Here it becomes increasingly difficult to define cut-offs that actually mean disease is present and to determine what further tests are needed. Bayes' theorem of conditional probability can be applied in that the probability of a positive test depends on the finding of a positive test in the population you wish to test. An example is given below for the screening of 10,000 pilots for cancer x (suffered by 1% of the population) with a blood test that is 'positive' in 90% of cancer x patients, falsely negative in 10% of cancer x patients and falsely positive in 5% of tests. Presented also are the results of testing if the test is only done in the 500 pilots who have symptoms (all cancer x patients have symptoms) and the results will be as follows:

	Screening test only	Symptoms and screening
Number of pilots tested	10,000	500
Number with cancer x	100	100
Number positive with cancer x	90	90
Number with cancer x missed	10	10
Number ‘positive’ without cancer x	500	25

It is evident that the same number of pilots with cancer x are diagnosed or missed, but the knowledge of the symptom history reduces the number of tests needed by 95% and the number of pilots unnecessarily inconvenienced and made anxious requiring further tests from 500 to 25.

The above principles are therefore important in choosing when to screen the pilot population, either by history, clinical examination, or with the use of tests.

Annex F References

The following references are referred to in Figure 4.

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5. European Society of Cardiology Guidelines on Management (Diagnosis and Treatment) of syncope – update 2004. Europace (2004) 6: 467-537

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