UK CAA Policy for the Medical Certification of Pilots and Air Traffic Controllers with Diabetes

Information for pilots, air traffic controllers and their instructors, examiners and employers

Contents

1. Introduction

This information has been prepared to assist pilots and air traffic controllers (ATCOs) in understanding the requirements for medical certification in the UK with diabetes and gives their employers information to assist in their transition back to work once they have regained certification.

For pilots with insulin-treated diabetes, full guidance is available in the 'ARA.MED.330 Medical Assessment Protocol for Pilots with Diabetes Treated with Insulin and / or Potentially Hypoglycaemic Medication' in the diabetes guidance material. Under the protocol, applicants who already hold a commercial licence (CPL, ATPL, MPL) may be issued a Class 1 medical certificate with an operational multi-pilot limitation (OML). For Class 1 applicants who do not already hold a commercial licence, certification may be possible with a "Certificate holder shall not act as flight crew of aircraft flying for the purposes of Commercial Air Transport" endorsement whilst undergoing training.

Class 3 applicants are not included in the ARA.MED.330 protocol and so medical certificates are currently not being issued to ATCOs with insulin-treated diabetes.

2. Certification assessments for Class 1, 2, 3 and LAPL applicants with diabetes

Treatment with potential hypoglycaemia

Treatment	Available certification / limitations
Insulins (all types) Class 1, 2, LAPL (unrestricted) – refer to CAA medical assessor Regular testing required – see section on **blood testing / CGM active monitoring**	**Class 1**: OML Valid only as or with qualified co-pilot (where applicant holds a CPL, MPL, ATPL) SSL medical restriction(s) as specified: Certificate holder shall not act as flight crew of aircraft flying for the purposes of Commercial Air Transport (where applicant does not hold a CPL, MPL, ATPL and will be changed to OML on successful application for a commercial licence) SIC Specific regular medical examination(s) – contact licensing authority **Class 2 and LAPL[1]:** OSL[2] Valid only with a safety pilot and in aircraft with dual controls (Class 2 and LAPL privileges) SIC Specific regular medical examination(s) – contact licensing authority
Sulphonylureas Glinides (and any combination therapy that includes sulphonylureas or glinides) Class 1 and 3 – refer to CAA medical assessor Class 2 – in consultation with CAA medical assessor Regular testing required – see section on **blood testing / CGM active monitoring**	**Class 1:** OML Valid only as or with qualified co-pilot SSL medical restriction(s) as specified: Certificate holder shall not act as flight crew of aircraft flying for the purposes of Commercial Air Transport (where applicant does not hold a CPL, MPL, ATPL and will be changed to OML on successful application for a commercial licence) SIC Specific regular medical examination(s) – contact licensing authority **Class 2 and LAPL:** OSL[2] Valid only with a safety pilot and in aircraft with dual controls (Class 2 and LAPL privileges) SIC Specific regular medical examination(s) – contact licensing authority **Class 3:** Dependent on history and control may need SSL restriction as specified – Standard ATCO proximity condition

[1] An unrestricted LAPL medical certificate is possible for applicants accepted for certification through the protocol. Otherwise, applicants with Type 2 diabetes can be certificated with ORL for flying in non-rotary wing aircraft in accordance with AMC5 to MED.B.095.

[2] Unrestricted certification may be possible where a medical flight test (MFT) demonstrates that the in-flight requirements are adhered to, and testing does not interfere with safe operations. The MFT should be based on finger-prick testing and recording without assistance from an instructor / other pilot (either for glucose testing or handling the aircraft). It is therefore possible to attain initial Class 2 / LAPL certification.

Treatment with very low risk of hypoglycaemia

Treatment	Available certification / limitations
Glitazones Gliptins Incretin mimetics (GLP – 1 analogues) Biguanides Alphaglucosidase inhibitors SGLT2 inhibitors	**Class 1:** Unrestricted Class 1 if monotherapy or biguanide / SGLT2 inhibitor dual therapy Otherwise: OML Valid only as or with qualified co-pilot SSL medical restriction(s) as specified: Certificate holder shall not act as flight crew of aircraft flying for the purposes of Commercial Air Transport (where applicant does not hold a CPL, MPL, ATPL and will be changed to OML on successful application for a commercial licence) **Unrestricted Class 2, 3 and LAPL**
Diet only or in remission	**Unrestricted Class 1, 2, 3 and LAPL**

3. Blood testing / CGM active monitoring

a. Treatment with potential hypoglycaemia

Before flight / duty

- At least 1 hour before **reporting** for flight / duty period or at least 2 hours before **commencing** flight / controlling (this allows good control to be confirmed or notification to company of unfitness).
- Less than 30 minutes before take-off or commencement of controlling: duties should not continue if testing shows a glucose level outside of the green (no action) range (see the section on **actions to be taken**) until the appropriate priority or corrective actions have been taken and glucose level has returned to the green range.

In-flight / controlling

- For insulins: at least every hour whilst flying.
- For oral medicines that are potentially hypoglycaemic (sulphonylureas, glinides): at least every 2 hours (4 hours ATCO) whilst flying / controlling.
- Within 30 minutes of anticipated landing time (if the approach and landing are delayed and an unexpected period is spent in the ‘hold’, repeat blood glucose testing may be necessary).
- If any diabetic symptoms are experienced.

Pilots or ATCOs who are taking formal rest and not seated at the controls / controlling position may suspend testing but must restart testing prior to resuming flying / controlling.

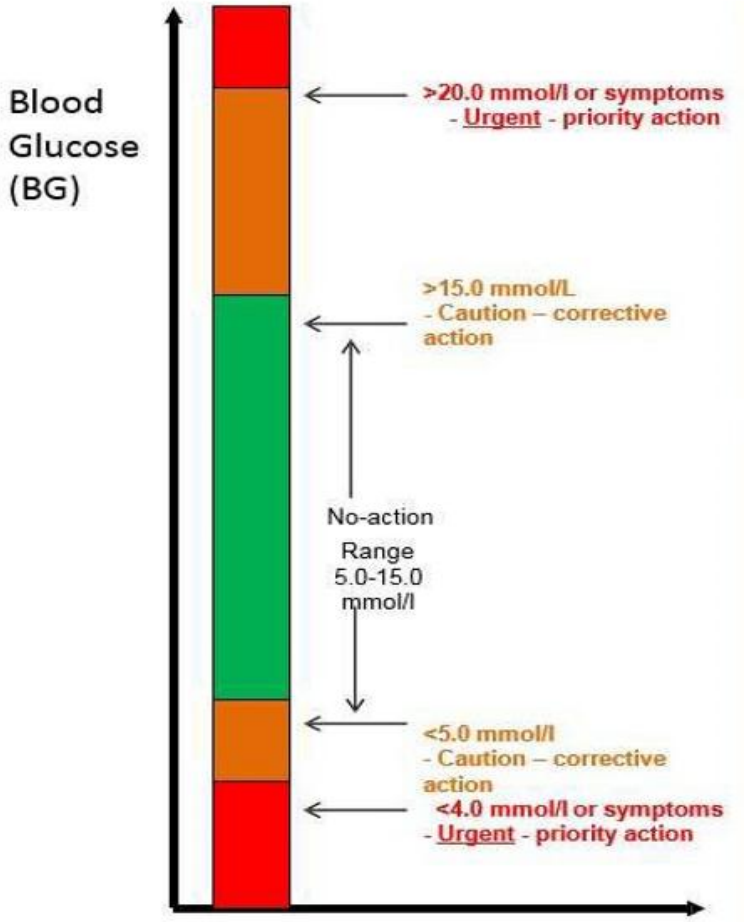
b. Treatment with very low risk of hypoglycaemia

Pilots and ATCOs taking non-hypoglycaemic medications for diabetes should test before commencing flying / controlling (mandatory for Classes 1 and 3, recommended for Class 2 and LAPL). Testing should be undertaken if symptoms are experienced during flying / controlling.

c. Diet-controlled or in remission

Pilots and ATCOs should test before commencing flying / controlling if their most recent HbA1c level was ≥ 48 (mandatory for Classes 1 and 3, recommended for Class 2 and LAPL). No pre-duty testing is required if the most recent HbA1c level was <48. Testing should be undertaken if symptoms are experienced during flying / controlling, for example, thirst, excessive urine output, dehydration, mood changes, excessive tiredness / sleepiness, blurred vision. The **actions to be taken,** set out below, should then be followed.

4. Actions to be taken



High readings

Priority action (>20.0 mmol/l)
For those using finger-prick testing, a repeat test should be performed. **Those using CGM as their primary method of monitoring should perform finger-prick testing and act on that result.**
If still >20.0 mmol/l shall hand over flying duties or, if solo, consider landing as soon as practicable.
Otherwise, take appropriate medication and / or modify carbohydrate intake.
May resume flying duties when blood glucose or CGM reading <20 mmol/l.

Corrective action (>15.0 mmol/l)
For those using finger-prick testing, a repeat test should be performed. **Those using CGM as their primary method of monitoring should perform finger-prick testing and act on that result.**
If still >15.0 mmol/l review medication dosing and / or modify carbohydrate intake.

Low readings

Priority action (<4.0 mmol/l)
For those using finger-prick testing, a repeat test should be performed. **Those using CGM as their primary method of monitoring should perform finger-prick testing and act on that result.**
If still <4.0 mmol/l shall hand over flying duties or, if solo, consider landing as soon as practicable.
Ingest 10-15g readily absorbed carbohydrate and re-test / re-check after 15 minutes.
Review medication dosing and / or modify carbohydrate intake.
If test after ingestion is still <4.0 mmol/l then ingest a further 10-15g carbohydrate and re-test / re-check after 15 minutes.
Wait for 45 minutes after the blood glucose or CGM reading returns to the ‘green’ range before resuming flying duties (in the unlikely event of any symptoms of cognitive impairment the pilot should not resume flying duties for the duration of the flight).
If crew assistance is required or the pilot becomes incapacitated, then a Mandatory Occurrence Report shall be filed.

Corrective action (<5.0 mmol/l)
For those using finger-prick testing, a repeat test should be performed. **Those using CGM as their primary method of monitoring should perform finger-prick testing and act on that result.**
If still <5.0 mmol/l ingest 10-15g readily absorbed carbohydrate and re-test / re-check after 30 minutes.
Review medication dosing and / or modify carbohydrate intake.

Important notes: certificate holders must comply with the following:

Method: The primary method of testing must be either an ISO certified glucometer with memory or a CGM device with a non-adjunctive licence (that is, a device approved for making treatment decisions without confirmatory finger-prick testing). A spare, functioning ISO certified glucometer must be carried. Pilots using CGM devices should also carry an ISO certified glucometer to undertake finger-prick testing in the event of a low or high reading or a device failure.

The basic principle of following the ‘Be aware, eat, test’ cycle should be remembered at all times.

Planning: Pilots and ATCOs should ensure that blood glucose testing / CGM active monitoring is pre-planned, and it is considered good practice to set up alerts / reminders for testing as per the relevant schedule.

Briefing: All commercial pilots should brief the other operating pilot(s) fully prior to the flight. Student pilots should brief their instructor.

The brief should include the nature of their diabetes, their testing regime, the timing and method of blood glucose testing and / or CGM active monitoring, actions to ensure the blood glucose remains in the acceptable range, medication that will be or may be required during the flight, possible symptoms of high or low blood glucose and actions to be taken in the event of incapacitation, according to the operator's / training organisation's standard operating procedures.

The above is also recommended good practice for private flying.

Logging of results: Commercial pilots should ensure the other operating pilot cross checks their test result or CGM reading and should always say the reading aloud so that it is recorded on the voice flight recorder.

All pilots and ATCOs should annotate the results of finger prick testing or the required reading of their CGM in their logbook or other verifiable means for easy reference. Pilots should record the following times in their logbook: Blocks Off, Take Off, Landing and Blocks On times.

Pilots and ATCOs who have to take action for a high or low reading should **always** make an entry in their logbook, documenting the action taken.

Emergency situations are covered in the section **information for operators** below. Pilots and ATCOs should always adhere to the fail-safe position, which is to always take rapidly absorbed carbohydrate (glucose) if unable to test.

The test meter / CGM memory will be periodically reviewed by an aeromedical examiner (AME) or the Civil Aviation Authority (CAA) Medical Department against the flying / controlling log to ensure compliance with the schedule of testing. Failure to demonstrate compliance is likely to result in suspension of the medical certificate.

General aviation pilots should record the blood glucose levels in their logbook along with the time of testing. They may wish to use the commercial pilot recording template (see **information for operators** section) as a checklist for longer flights.

5. Insulin pumps

For insulin pumps, use of CGM and closed loop systems, please see 'ARA.MED.330 Medical Assessment Protocol for Pilots with Diabetes Treated with Insulin and / or Potentially Hypoglycaemic Medication' in the diabetes guidance material. Looping DIY systems are not permitted.

6. Follow up / surveillance requirements for pilots / ATCOs with diabetes

a. Requirements for pilots on insulin or pilots / ATCOs taking other potentially hypoglycaemic medication

Review	Class 1 and 3	Class 2	LAPL
Review with CAA's specialist adviser in diabetes to include - symptoms, clinical reports, review of data logging of operational blood sugars and review of flying / duty log, opinion on diabetes control and safety risk	6-monthly (**Note 1**)	Annually	For first diabetes assessment only but may be required if there are concerns arising from annual file reviews
HbA1c frequency	6-monthly	6-monthly	6-monthly
Medical report(s) from applicant's own local consultant diabetologist (see specification for diabetes reports in the diabetes guidance material)	Annually	Annually (Report from specialist diabetologist or GP diabetes clinic)	Annually - review by AME – pilot should ensure copies of the reports are also provided to the CAA medical assessor for diabetes protocol data collection purposes (Report from specialist diabetologist or GP diabetes clinic)
Cardiology review A cardiology review at the intervals indicated and at any time on clinical indication, to include cardiovascular risk assessment in accordance with the cardiovascular risk assessment flow chart in the cardiovascular system guidance material	For first diabetes assessment then: 5-yearly under 40 years Annually over 40 years	For first diabetes assessment then: 5-yearly under 40 years Annually over 40 years If omitted, requires OSL/OPL and ECG at every medical	For first diabetes assessment then: 3-yearly over 40 years If omitted, requires OSL/OPL and ECG at every medical
Certification review: oral treatments	6-monthly by CAA medical assessor	Annually by AME	Annually by AME
Certification review: insulins	6-monthly by CAA medical assessor (not Class 3)	Annually by CAA medical assessor	Annually by CAA medical assessor

Note 1: Following the initial issue of a Class 1 certificate, this period may be more frequent. For pilots who are well established in the diabetes protocol and who have good stability, this may be extended to annually with 6-monthly review of data logs.

b. Requirements for pilots / ATCOs taking non-hypoglycaemic medication

Review	Class 1 and 3	Class 2	LAPL
HbA1c frequency	6-monthly	Annually	Annually
Medical report(s): see specification for diabetes reports in the diabetes guidance material	Annually (specialist)	Annually (specialist or GP)	Annually (specialist or GP)
Cardiology review A cardiology review at the intervals indicated and at any time on clinical indication, to include cardiovascular risk assessment in accordance with the cardiovascular risk assessment flow chart in the cardiovascular system guidance material	For first diabetes assessment then: 5-yearly under 40 years Annually over 40 years	If 10-year cardiovascular risk ≥15% in accordance with the cardiovascular risk assessment flow chart in the cardiovascular system guidance material	If 10-year cardiovascular risk ≥25% in accordance with the cardiovascular risk assessment flow chart in the cardiovascular system guidance material
Certification review	Annually by CAA medical assessor	Annually by AME	Annually by AME

c. Requirements for pilots / ATCOs controlled by diet or in remission

Pilots / ATCOs of all classes whose diabetes is controlled by diet, or who are in remission, are required to submit an annual HbA1c result to their AME, with a copy of any other diabetes related clinical reports.

If a pilot / ATCO experiences diabetic symptoms between their annual reviews, such as thirst, excessive urine output, dehydration, mood changes, excessive tiredness / sleepiness, blurred vision, they should notify their AME and submit a further HbA1c result. Cardiology review should be determined by assessment of individual 10 year risk in accordance with the cardiovascular risk assessment flow chart in the cardiovascular system guidance material.

7. Medical assessment for UK National Private Pilot Licence (NPPL)

UK pilots who wish to exercise the privileges of an NPPL flying aircraft less than 5700kg MTOM must visit an AME and apply for a LAPL medical certificate. Those who wish to exercise the privileges of a NPPL flying aircraft no greater than 2000kg MTOM may self-declare their fitness as long as they meet and continue to meet the requirements for a pilot medical declaration (including the DVLA blood glucose testing schedule).

8. Indications for change of fit status

An **HbA1c between 8.5% and 10%** should trigger a diabetes review and review of treatment. A period of unfitness may be required to re-stabilise treatment.

An **HbA1c of greater than 10%** indicates poor control and should normally entail an unfit assessment.

Pilots / ATCOs must seek the advice of their AME or the UK CAA in the following circumstances:

Episodes of severe hypoglycaemia must be reported. Such occurrences (including but not limited to severe hypoglycaemia requiring the assistance of another person) will normally entail an

unfit assessment. Specialist review will be required before consideration of any resumption of flying / duties.

Medication type change (which necessitates a change to the testing protocol, for example, starting insulin or starting sulphonylureas / glinides): Unfit for a minimum of 4 weeks. Those who should be under continuing CAA clinic surveillance as indicated in section 6(a) should submit a minimum of 4 weeks of data showing good glycaemic control and must be reviewed before a return to flying / controlling. Further review might be required on an individual basis.

Any change of insulin brand or regimen (including new use of pump): While making the change, pilots will be assessed as unfit. For a change of insulin, a minimum of 2 weeks of data showing good glycaemic control should be submitted to the CAA. For new pump starts, a minimum of 4 weeks of data showing good glycaemic control should be submitted to the CAA. Further review might be required on an individual basis.

Change of non-hypoglycaemic medication type or dose: normally a 2-week period of unfitness will suffice. Stability should be reviewed / confirmed by GP or AME.

Development of any retinopathy may require specialist assessment and may result in further restriction or unfitness if there is any field loss or reduction in visual acuity.

Development of significant nephropathy is associated with increased cardiovascular risk and is likely to entail unfitness until assessed by a cardiologist and nephrologist.

Non-declaration of symptoms, medical history or provision of incomplete testing records / flying logbook is likely to entail unfitness.

9. Specification for diabetes reports

The UK regulations and the CAA's guidance material for fitness decisions, acceptable treatments and required investigations (if specified) can be found in the medical section of the CAA website.

The specification for diabetes reports is in the diabetes guidance material. All relevant information should be reported.

10. Medical flight test / operational test for pilots / ATCOs treated with potentially performance-affecting hypoglycaemic medication

On commencement of treatment with potentially performance-affecting hypoglycaemic medication Class 1 pilots and ATCOs are required to undertake a medical flight test (MFT) or ATCO operational test to determine that the applicant understands the aeromedical issues relevant to diabetes and demonstrates safe management of their health condition whilst exercising licence privileges.

The test does not require the assessor to make any medical or fitness decisions but to make sure that the applicant is compliant with the briefing and blood testing requirements, and manages their equipment, medication and other resources appropriately, without compromising safety.

For commercial pilots, the MFT should preferably be undertaken on the first line flight, as testing in the simulator may not adequately replicate the relevant aspects of the flight environment. For initial Class 1 pilots the MFT should be completed at the earliest opportunity during flight training and prior to first solo. For air traffic controllers, the operational test should be undertaken in conditions representative of the usual operating environment.

There are forms available for the medical flight test and the ATCO operational test.

11. Information for operators on flight crew and for training organisations on students with insulin-treated diabetes

Summary

Operators may have flight crew and training organisations may have students who have diabetes requiring insulin, who wish to return to flying once their condition has stabilised or may be recruited with this condition. This guidance provides information for operators and training organisations and should be read in conjunction with the document 'ARA.MED.330 Medical Assessment Protocol for Pilots with Diabetes Treated with Insulin and / or Potentially Hypoglycaemic Medication' in the diabetes guidance material.

Background

Diabetes

Insulin is a hormone produced by the pancreas which controls blood glucose (sugar) levels. Diabetes develops when there is insufficient insulin or it cannot be effectively used by the body and blood sugar level regulation becomes unbalanced.

Treatment is often with medicines (tablets or insulin injections) that allow the body to use the circulating sugar, thus keeping the blood sugar level in the normal range. High levels occur if not enough medicine is taken / used or too much carbohydrate is eaten and low levels can occur if too much medicine is taken / used or not enough carbohydrate is eaten to balance the medicine.

Pilots with insulin-treated diabetes

A Class 1 medical certificate is only issued to an applicant / pilot on insulin if they fulfil stringent criteria including demonstration of excellent control of their diabetes.

Applicants / pilots with insulin-treated diabetes have to comply with the ARA.MED.330 protocol including frequent blood sugar testing / monitoring before and during a flight duty period to ensure their blood glucose levels remain within an acceptable range.

A licensed flight crew member charged with duties essential to the operation of an aircraft during a flight duty period should always follow the requirements of the protocol when onboard that aircraft.

Hazards should be identified through the operator's / training organisation's safety management system (SMS) and the operator / training organisation is responsible for putting in place measures to remove, or mitigate, the risks of the identified hazards.

Examples of hazards and mitigating measures:

Hazard	Mitigation
Incapacitation due to low or high blood sugar level	Multi-pilot flying only in commercial operations. Adherence to blood glucose mandatory blood glucose testing protocol. Awareness of the risk of not adhering to the protocol through training and pre-briefing. Cross checking of blood glucose results by other pilot(s). Immediate consumption of carbohydrate in the event of a low reading or if operational circumstances prevent blood glucose.

Sharps injury from blood sugar testing equipment	Use of a self-contained testing system or a sharps box for lancet after use. These are still required where the pilot is relying on continuous glucose monitoring systems just in case of device failure and the need to resort to finger-prick blood glucose testing.
Distraction of other pilot	Full briefing in advance of flight duty.
Pilot incapacitation not identified	All pilots briefed in standard operating procedures in the event of a pilot becoming unwell or uncommunicative.

Considerations for operations manuals

a. General (these items are likely to be included already)

Pilot responsibility – decrease in medical fitness

The operations regulations contain requirements for crew not to perform duties when unfit or if aware of any decrease in their medical fitness that might render them unable to safely exercise licence privileges.

Incapacitation of pilot

Any incapacitation, whether sudden or subtle, should be handled in the same way as any other medical incapacitation.

Training for pilot incapacitation

Training on how to recognise pilot incapacitation and the standard operating procedures to follow in the event of pilot incapacitation should be included in the annual SEP training.

b. Specific (these items may need to be added)

Possible symptoms of low or high blood sugar

Low blood glucose (hypoglycaemia) (if level less than 3)	**High blood glucose (hyperglycaemia) (if level greater than 20)**
Sweaty	Thirst
Pale skin	Excess urine output
Mood changes	Dehydration
Poor concentration	Mood changes
Distraction	Excessive tiredness / sleepy
Confusion	Blurred vision

Pilot responsibilities – insulin-treated diabetes

Flight crew members must inform their line manager if returning to flying after being re-certificated following a diagnosis of diabetes and being treated with insulin. In this circumstance, Class 1 medical certification will be subject to an operational multi-pilot limitation; the line manager should be informed of any other operational limitations.

The pilot (including student pilots) must comply with the schedule of blood glucose testing / CGM active monitoring required by the UK CAA.

The pilot must brief the other member(s) of the flight crew / instructor (and other members of the crew as necessary) before each flight on:

- the reason for blood glucose tests / CGM active monitoring
- how the blood glucose test / CGM active monitoring is done
- when blood glucose tests are required (including with reference to the flight plan)
- actions to be taken in the event of a blood glucose test / CGM active monitoring result outside of the acceptable range (below 5 or above 15 mmol/l)
- whether, when and how insulin will be used during the flight duty period
- possible symptoms of low or high blood glucose
- actions to be taken by the pilot if a test is 'out of range'

Blood glucose test / CGM active monitoring times should be pre-planned, by time from departure, waypoints, or by setting up alarms - an iPad, phone or in-cockpit alarm could be used.

It is the pilot's responsibility, when on duty, to carry any medication (for example, insulin) required, any equipment required to deliver the medication (for example, syringes and needles) and documentary evidence from their general practitioner or diabetes specialist confirming the need to carry the medication and equipment. Sufficient medication and equipment should be carried to cover the planned duty period and additional contingency for unplanned extensions. All equipment, medication and carbohydrate for emergency consumption should be safely stored in the cockpit and immediately accessible.

Testing / active monitoring should always be undertaken ensuring compliance with standard operating procedures at all times. The pilot should avoid testing blood glucose during ground manoeuvring in the vicinity of runway holding areas, or entering or crossing a runway, or in phases of flight associated with heavy workload including the take-off and approach and landing.

The result of the blood glucose test / CGM active monitoring should be spoken aloud by the pilot so that it is captured on the cockpit voice recorder (CVR) and the test result / monitor reading should be shown to and cross-checked by the other pilot.

The blood testing / CGM active monitoring schedules are described in 'Blood glucose testing' (section 3). Blood glucose levels should be recorded in, and a comment made in the remarks column of, the logbook.

An example template for recording blood glucose levels:

UK Civil Aviation Authority

Blood glucose log (for pilots with diabetes)

Pilot name: **CAA reference no:**

A/C type: **Flight no:** **Route:**

Date and time:	Flight phase:				Reading (mmol/L)	X-check:		Symptoms	Comments
	Pre-report	Pre-flight	In flight	Pre-landing		Other Crew	CVR		

A record should be made of any snacks or meals taken, insulin used, any bunk rest and any corrective action that was required in the event of a low or high result.

Any crew intervention required to assist a pilot in controlling their blood glucose levels is a reportable event and should be reported under the MOR scheme and the pilot should declare themselves unfit.

Any failure to comply with the testing schedule is a reportable event and should be reported under the MOR scheme.

Blood glucose testing must be done after every period of prolonged rest, 30 minutes prior to resuming flight duties.

If the equipment for blood glucose testing is not self-contained, the lancet, needle and any clinical waste should be disposed of in a single use sharps box.

The primary method of testing must be either an ISO certified glucometer with memory or a CGM device with a non-adjunctive licence (that is, a device approved for making treatment decisions without confirmatory finger-prick testing). A spare, functioning ISO certified glucometer must be carried. Pilots using CGM devices should also carry an ISO certified glucometer to undertake finger-prick testing in the event of a low or high reading or a device failure.

Pilots should always adhere to the fail-safe position, which is to always take glucose if unable to test. If both glucometers or CGM device and glucometer should become unserviceable, the pilot should hand over control of the aircraft to the other pilot. In this event it is recommended that the autopilot should be engaged to reduce workload.

Emergency situations

If operational considerations prevent the pilot from undertaking a blood glucose test or CGM active monitoring at the required time, 15g of rapidly absorbable glucose / carbohydrate (for example, 3 jelly babies, 4 glucotabs) should be consumed immediately and blood glucose testing done as soon as possible.

In an event such as a rapid decompression there would be no time to take precautionary carbohydrate and priority would be given to flying the aircraft. Carbohydrate should be taken once the emergency has stabilised. If a mask continues to be required, it could be quickly lifted, carbohydrate consumed and the mask replaced within a couple of seconds. In any other emergency situation, 15g carbohydrate should be taken as soon as practicable.

If an operational emergency is prolonged, with no opportunity for blood glucose testing or CGM active monitoring, this consumption of 15g carbohydrate must be repeated every hour. Blood glucose testing or CGM active monitoring should be undertaken hourly or more frequently if there was any concern about the pre-emergency glucose trend or if a lot of carbohydrate has been taken over the course of several hours without the possibility of testing.

If the pilot has an insulin pump, in the event of a decompression it should be switched off and 15g carbohydrate should be taken as soon as possible.

If the pilot is awoken from his bunk for an emergency, blood glucose must be tested prior to resuming control and be satisfactory.

Responsibilities of other pilot(s) (whether commander or not) / instructors

The operator / training organisation may wish to inform the whole fleet that they may be rostered with a pilot with insulin-treated diabetes so that flight crew who have any concerns about flying with another pilot using a needle and syringe on the flight deck and periodically undertaking finger-prick blood tests (where continuous glucose monitoring systems are not being used) have the opportunity to raise these concerns. Any pilot who is uncomfortable should notify their line management to ensure this can be addressed through appropriate rostering.

The other pilot should respect the confidentiality of any medical information shared by the pilot.

The other pilot(s) should positively cross-check each blood sugar test result during the flight duty period and confirm the result verbally.

Responsibilities of the operator / training organisation

The operator / training organisation will need to ensure all additional operational procedures and information is promulgated to all pilots in the fleet of a pilot with insulin-treated diabetes.

Manuals may need to be amended to include operational considerations for pilots and operators / training organisations of pilots operating with insulin-treated diabetes.

The operator / training organisation will have access to confidential medical information about their pilot with insulin-treated diabetes.

The normal rules of medical confidentiality apply and must be respected at all times.

Flight crew with diabetes treated with medication other than insulin

Other medications that may lower blood sugar levels, for example, sulphonylureas or glinides, may be used by diabetic pilots to control their blood sugar levels. Pilots on these medications should be subject to the same blood sugar tests, protocols and operational procedures as pilots on insulin. The only difference is that the periodicity of the in-flight testing schedule is reduced to every 2 hours.

Pilots on glitazones, gliptins, GLP-1 analogues, biguanides, alphaglucosidase inhibitors only require one pre-flight blood glucose check; if this is within the acceptable range, they do not need to undertake further in-flight testing.