EASA
European Union Aviation Safety Agency

Diabetes Mellitus in Pilot and ATCO aeromedical fitness (DM)

Contractor

Medical University of Graz

Consortium Members

CAA International Limited

Katholieke Universiteit Leuven

University of Surrey

Contract period

28/10/2022 - 27/10/2025

Budget

467 215€

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to visit the webpage of this project

Main objectives:

As medicine is constantly evolving, new diagnostic measures that allow continuous and reliable blood glucose monitoring are currently being developed, as well as new treatments with a less hypoglycaemic profile (oral anti-diabetics) and automated insulin pumps that allow them to monitor the glucose level and deliver the required insulin dose in an automated way.

However, it is difficult to assess the risk of hypoglycaemia/hyperglycaemia of pilots/ATCOs during the performance of their duties, and the sensors used by the new equipment may be affected by both cabin pressure changes and the cabin environment.

No research studies are yet available to assess the possibility of the safe use of such equipment in the aviation environment in order to alleviate fitness requirements for pilots/ATCOs with such pathology.

This research project aims to bridge this gap by :

- Providing evidence-based recommendations for updating the requirements related to diabetes mellitus in line with the latest medical developments;
- Developing an impact assessment of the recommended amendments;
- Producing guidance material for aeromedical examiners and medical assessors on the updates to the fitness assessment of applicants;
- Generating material to support the management of the proposed amendments (e.g., presentation of the results obtained under this project and training material for professional audiences,); and
- Creating risk management promotion material for aeromedical certificate holders to allow them to early detect and self-manage their metabolic risk factors.

Impacts & benefits

If applicable, the research results will support a potential amendment of aeromedical regulations, and alleviate the fitness requirements for pilots and air traffic controllers diagnosed with such pathology.

In addition, the project will deliver guidance and promotion material to manage the proposed amendments, both for aeromedical examiners and medical assessors as well as for aeromedical certificate holders.

This project has been funded from the European Union's Horizon Europe research and innovation programme.

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Further reading

Led by the University of Graz, the development of the research will be carried out in six tasks:

- In a first phase the project team will conduct a thorough **review of the state-of-the-art diagnostic methods and treatment options** for diabetes mellitus by assessing recent scientific literature and published clinical trials, as well as latest guidelines of competent national and international organisations. The literature review also considers the most frequent comorbidities and complications and their potential incompatibility with the different classes of aeromedical certification.

- The identification of the diagnostic and monitoring methods for diabetes mellitus that are **suitable for use in aeromedical fitness assessments** for screening purposes, for confirmatory purposes and for monitoring purposes will then be carried out.

- On a third phase, the research will determine the **suitability** of the state-of-the-art diagnostic methods and treatment options for the **aviation operational environment**, and assess whether the potential changes in this working environment (for example in case of sudden cabin decompression) may adversely affect the functioning of monitoring and treatment systems.

- In task 4 the **acceptable risk of incapacitation** considering the evolution of medical science and the potential application of limitations to mitigate certain risks will be ascertained.

- In light of all previous tasks, task 5 will make a review of the existing **requirements for the aeromedical fitness** of applicants or holders of an aeromedical certificate that have diabetes mellitus; reviews the existing aeromedical requirements for each class of aeromedical certification.

- Lastly, and as the final phase of the research, the project team will analyse the outcomes of all previous tasks and make **recommendations for potential adjustments** to existing aeromedical requirements in light of newly developed diagnostic measures and treatment options for diabetes mellitus that would allow the improved assessment of the risks as well as maintaining the competence within the aviation system by allowing prevention, early detection and a better follow-up of the medical certificate holders that have developed diabetes mellitus.

Relevant stakeholders will be consulted throughout the project, and project reports will be made available through the EASA website.

This project is part of the portfolio of EASA managed research projects funded under the European Research Programmes. Projects under this portfolio address research needs of civil aviation authorities and are geared to generate mid-term benefits after the successful completion of the project to enhance safety, security and sustainability.

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