
Personalised Treatment for Heart Failure



The AI4HF project was recently launched in Utrecht, the Netherlands. The project is designed to pioneer the development of the first reliable artificial intelligence (AI) model for managing heart failure patients. The initiative is led by a consortium of global partners, including the European Society of Cardiology (ESC).

Professor Folkert Asselbergs, coordinator of AI4HF at the Amsterdam Heart Centre, explained that the project aims to create an innovative personalised risk calculator. This tool will identify the most effective treatments for individual heart failure patients by incorporating patient data, such as symptoms, lifestyle behaviours, blood tests, electrocardiograms, and cardiac imaging. The process will involve collaboration with patients and clinicians.

Heart failure is a major cause of hospitalisation among individuals over 65. Around half of the hospital readmissions in these cases are linked to concurrent conditions, multiple medications, and disabilities resulting from heart failure. The prognosis for heart failure is often worse than that of many types of cancer. Managing the condition is challenging due to its various causes and manifestations, ranging from reduced quality of life to frequent hospitalisations, heart attacks, and premature death.

Prof Asselbergs highlighted the need for a personalised approach that tailors advice and treatment to each patient. This involves early prediction of the risk of adverse outcomes and encompasses medication, diet, exercise, pacemakers, and cardiac resynchronisation therapy. Proactive action is especially crucial because an ageing population and unhealthy lifestyles are expected to result in a 46% increase in heart failure patients by 2030.

The AI4HF consortium will leverage the largest-ever dataset of heart failure patients. The project, funded by the European Health and Digital Executive Agency (HaDEA), brings together 16 organisations worldwide. Hundreds of thousands of heart failure patients from Europe, South America, and Africa will facilitate novel analyses across populations, clinical settings, and ethnic groups.

The consortium will utilise a unique combination of resources and tools to achieve its objectives. Real-world health data will be obtained from the BigData@Heart initiative, and the FAIR4Health platform will integrate this data following best practice recommendations established by FUTURE-AI. Patient privacy will be safeguarded throughout the process through a federated learning approach. This entails training the AI model on-site at clinical centers in Europe, Africa, and South America, using local data. The resulting individual models will be combined at a central location while patient data will remain secure at local centres. An advanced AI-patient interface will also be developed to provide accessible information on personal risk and strategies for reducing that risk through lifestyle changes.

Source: [ESC](#)

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