

New algorithm predicts life expectancy after heart failure

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A new algorithm, developed from deep learning, can accurately predicts who is most likely to survive heart failure, and for how long.

The platform can also determine whether or not a patient will receive a heart transplant.

The algorithm has been devised at University College London, and it enables medical professionals to make more accurate and, most importantly, personalized assessments of people who are awaiting heart transplants.

This boost in predictive analytics could enable health care providers to make more informed choices about the use of limited life-saving resources.

This may come across as quite stark, but if there is only one heart available for transplant and two candidate patients, the medic will have the option to authorize the transplant for the patient who is more likely to survive, based on the data analysis. This, therefore, has the potential to reduce health care costs.

With the algorithm, termed the Trees of Predictors, machine learning is used. Here the system effectively "learns" from additional new data over time. The system analyzes 53 data points, such as age, gender, body mass index, blood type and blood chemistry, in order to assess the complex differences among people waiting for heart transplants.

From this it draws inferences about the compatibility between potential heart transplant recipients and donors.

Research into the new algorithm has been published in the journal PLOS One, with the paper titled "Personalized survival predictions via Trees of Predictors: An application to cardiac transplantation."

This reflects improvements in technology allowing medical researchers to cross-talk, mine big data and tackle unsolved problems relating to heart health.

Perhaps of greatest importance is cloud computing, which provides "a powerful environment of analytical tools and state-of-the-art software to researchers who are analyzing large datasets for scientific insights."