Computers Learning to Improve Clinical Trial Participation

With medical research struggling to recruit necessary numbers for clinical trials and studies being compromised or halted altogether, scientists are teaching computers to figure out why people accept or decline invitations to take part.

Researchers at Cincinnati Children's Hospital Medical Centre have reported in the *Journal of the American Medical Informatics Association* on using "machine learning" technologies to predict the likelihood of participation.

"Challenges with patient recruitment for clinical trials are a major barrier to timely and efficient translational research," said Yizhao Ni, PhD, lead author and a researcher in the Division of Biomedical Informatics at Cincinnati Children's. "The ultimate goal of our research is to impact patient recruitment strategies to increase participation in clinical trials, and to help ensure that studies can be completed and the data are meaningful."

The authors have developed an automated algorithm which they say is more efficient at predicting patient participation response than the random response predictor programme that is currently in place.

The research team collected 3, 345 patient responses to trial invitations on 18 clinical trials at one centre that were actively enrolling patients between January 1, 2010 and December 31, 2012. In parallel, they collected demographic, socioeconomic, and clinical predictors from multiple sources to represent the patients' profiles.

This data was fed into the machine learning algorithm, which used programmes for predictive modelling, comparison, analysis and prediction in order to process the information.

About 60 percent of patients approached through standard recruitment methods agreed to take part in trials. The researchers projected that their automated algorithm could raise acceptance rates to 72 percent and their aim is to exceed this figure.

Patients are less likely to participate in randomised studies, multi-centre trials, more complex trials, and trials that required follow-up visits, facts that the research confirmed. Interestingly, the paper also identifies new challenges that need analysis in the future.

Manual processing on the outcome of clinical trial invitations is difficult to manage in busy medical environments. An automated system that analyses and interprets data can develop more precise and successful recruitment methods.

Source: PRNewsWire

JAMIA

Image Credit: Cincinnati Children'sHospital Medical Centre

Published on : Thu, 28 Apr 2016