

New tool finds best heart disease and stroke treatments for patients with diabetes

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Researchers from North Carolina State University and Mayo Clinic have developed a computer model that medical doctors can use to determine the best time to begin using statin therapy in diabetes patients to help prevent heart disease and stroke.

"The research is significant because patients with [diabetes](#) are at high risk for [cardiovascular disease](#) and statins are the single most commonly used treatment for patients at risk of [heart disease](#) and/or stroke," says Dr. Brian Denton, "and this model can help determine the best course of action for individual patients based on their risk of developing cardiovascular disease." Denton is an assistant professor in NC State's Edward P. Fitts Department of Industrial & Systems Engineering and lead author of the study.

Statins are a key component of current cardiovascular medical treatment guidelines, Denton says. They lower cholesterol levels and may significantly reduce the risk of heart attack and stroke, particularly in patients that are considered to be at high risk.

The researchers developed a new mathematical model that examines various possible treatment policies to see how they influence short-term and long-term health outcomes for patients. The model shows how people are affected by diabetes, and how their health changes over time as the disease advances and patients age.

The new model incorporates patient-specific data. An established risk

model calculates each patient's probability of heart attack and [stroke](#) based on risk factors, such as their cholesterol, blood pressure, etc. This overall risk "score" is used to weigh the medical advantages of beginning statin therapy against the financial cost of the statins.

Overall, by accounting for the progression of diabetes, the patient's specific risk score and the cost-benefit analysis, the new model may help patients and doctors decide on the optimal time to begin statin therapy.

Denton says the new model has not yet been put into practice, but that the research team plans to develop a pilot to put the tool into the hands of medical professionals.

The research, "Optimizing the Start Time of Statin Therapy for Patients with Diabetes," was published earlier this month in the journal *Medical Decision Making*.

Source: North Carolina State University ([news](#) : [web](#))

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