Data-driven algorithm yields notable improvements in HbA1c

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(HealthDay)—A data-driven algorithm for personalized diabetes care

can yield substantial improvements in hemoglobin A1c (HbA1c), according to a study published online Dec. 5 in *Diabetes Care*.

Dimitris Bertsimas, Ph.D., from the Massachusetts Institute of Technology in Cambridge, and colleagues presented a data-driven algorithm for personalized diabetes management that improves health-related outcomes. Based on electronic medical records from 1999 to 2014 for 10,806 patients with type 2 diabetes, outcomes were modeled under 13 pharmacological therapies. The range of outcomes under alternative care was analyzed for each patient visit using a *k*-nearest neighbor approach. Neighbors were selected to maximize similarity on individual patient characteristics and medical history. If the expected improvement from switching regimens exceeded a threshold, the recommendation algorithm prescribed the regimen with the best predicted outcome.

The researchers found that the algorithm's recommendation mirrored the observed standard of care in 68.2 percent of the 48,140 patient visits in the test set. For patient visits in which the algorithm recommendation differed from standard of care, the mean posttreatment HbA1c was lower under the algorithm than standard of care (from 8.37 to 7.93 percent; P

"Our prototyped dashboard visualizing the recommendation algorithm can be used by providers to inform diabetes care and improve outcomes," the authors write.

More information: Full Text (subscription or payment may be required)