The Karlsburg Diabetes Management System: Translation from Research to eHealth Application

Eckhard Salzsieder, Ph.D.,[1,2] and Petra Augstein, M.D., Ph.D.[1,3]

Abstract

Background:

Several telemedicine-based eHealth programs exist, but patient-focused personalized decision support (PDS) is usually lacking. We evaluated the acceptance, efficiency, and cost-effectiveness of telemedicine-assisted PDS in routine outpatient diabetes care.

Methods:

Data are derived from the Diabetiva® program of the German health insurance company BKK TAUNUS. Diabetiva offers telemedicine-based outpatient health care in combination with PDS generated by the Karlsburg Diabetes Management System, KADIS®. This retrospective analysis is based on data from the first year of running KADIS-based PDS in routine diabetes care. Participants were insured persons diagnosed with diabetes and cardiovascular diseases. For final analysis, patients were grouped retrospectively as users or nonusers according to physician acceptance or not (based on questionnaires) of the KADIS-based PDS.

Results:

A total of 538 patients participated for more than one year in the Diabetiva program. Of these patients, 289 had complete data sets (two continuous glucose monitoring measurements, two or more hemoglobin A1c (HbA1c) values, and a signed questionnaire) and were included in the final data analysis. Of the physicians, 74% accepted KADIS-based PDS, a rate that was clearly related to HbA1c at the beginning of the observation. If KADIS-based PDS was accepted, HbA1c decreased by 0.4% (7.1% to 6.7%). In contrast, rejection of KADIS-based PDS resulted in an HbA1c increase of 0.5% (6.8% to 7.3%). The insurance company revealed an annual cost reduction of about 900 € per participant in the Diabetiva program.

Conclusions:

KADIS-based PDS in combination with telemedicine has high potential to improve the outcome of routine outpatient diabetes care.

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Author Affiliations: [1]Institute of Diabetes "Gerhardt Katsch" Karlsburg, Karlsburg, Germany; [2]Diabetes Service Center, Karlsburg, Germany; and [3]Walter and Eliza Hall Institute of Medical Research, Autoimmunity and Transplantation Division, Parkville, Australia