

## Telemedicine Diabetes Consultations Are Cost-Effective, and Effects on Essential Diabetes Treatment Parameters Are Similar to Conventional Treatment: 7-Year Results from the Svendborg Telemedicine Diabetes Project

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### Abstract

#### Background:

The increasing number of patients with diabetes poses a major challenge for the health care system. One instrument to meet these challenges could be the use of telemedicine, which, at the same time, may reduce treatment costs. Since 2005, diabetes patients on the island of Aeroe have been offered expert diabetes care using teleconsultations. This article describes the impact of the telemedicine solution on essential diabetes treatment parameters, patient satisfaction, and cost-effectiveness.

#### Methods:

Telemedicine consultations were conducted with the patient and nurse specialist placed in a consultation room of Aeroe Hospital in audiovisual contact with the physician situated at the hospital on the mainland. Consultations were supported by an electronic patient record and a Web-based quality-monitoring diabetes database.

#### Results:

Inclusion criteria in this retrospective study were at least 6 months of telemedicine diabetes control with a minimum of two visits and two hemoglobin A1c (HbA1c) values. Results were compared with data from the Danish National Diabetes Registry (DVDD). Data are given in medians. In total, 23 type 1 diabetes mellitus (T1DM) patients, aged 65 (56–74) versus 48 years, diabetes duration 21.0 (10.7–31.3) versus 20.5 years, and 55 type 2 diabetes mellitus (T2DM) patients, aged 67 (64–70) versus 65 years, diabetes duration 14.0 (10.5–17.5) versus 11.7 years, were included. After teleconsultation, HbA1c in T1DM patients was 8.0% (7.4–8.6%) versus 7.9% [64 (57–71) versus 63 mmol/mol], not significant, and in T2DM patients was 7.4% (7.1–7.7%) versus 7.6% [57 (54–61) versus 60 mmol/mol],  $p < .05$ . Body mass index, blood pressure, and lipid values were comparable with the DVDD. Patient satisfaction was especially related to the major reduction in transportation time (7 h). Reductions in traveling costs and saved working days were the most important factors in making the telemedicine set-up economically efficient.

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**Abbreviations:** (dkr) Danish kroner, (DVDD) Danish National Diabetes Registry, (HbA1c) hemoglobin A1c, (ICT) information and communication technologies, (T1DM) type 1 diabetes mellitus, (T2DM) type 2 diabetes mellitus

**Keywords:** cost-effectiveness, diabetes, telemedicine, videoconferencing

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**Abstract cont.**

**Conclusion:**

Telemedicine consultation for remote outpatient diabetes control is feasible, and the interdisciplinary interventions achieved high treatment quality results in essential diabetes treatment parameters. In addition, the telemedicine set-up was associated with improved cost-effectiveness and patient satisfaction.

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