

## Complication Reducing Effect of the Information Technology-Based Diabetes Management System on Subjects with Type 2 Diabetes

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### Abstract

#### **Objective:**

We introduced a new information technology-based diabetes management system, called the Internet-based glucose monitoring system (IBGMS), and demonstrated its short-term and long-term favorable effects. However, there has been no report on clinical effects of such a new diabetes management system on the development of diabetic complications so far. This study was used to simulate the complication reducing effect of the IBGMS, given in addition to existing treatments in patients with type 2 diabetes.

#### **Research Design and Methods:**

The CORE Diabetes Model, a peer-reviewed, published, validated computer simulation model, was used to project long-term clinical outcomes in type 2 diabetes patients receiving the IBGMS in addition to their existing treatment. The model combined standard Markov submodels to simulate the incidence and progression of diabetes-related complications.

#### **Results:**

The addition of IBGMS was associated with improvements in reducing diabetic complications, mainly microangiopathic complications, including diabetic retinopathy, diabetic neuropathy, diabetic nephropathy, and diabetic foot ulcer. The IBGMS also delayed the development of all diabetic complications for more than 1 year.

#### **Conclusions:**

This study demonstrated that the simulated IBGMS, compared to existing treatment, was associated with a reduction of diabetic complications. As a result, it provides valuable evidence for practical application to the public in the world.

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**Abbreviations:** (HbA1c) hemoglobin A1c, (IBGMS) Internet-based glucose monitoring system

**Keywords:** diabetic complications, health economics, Internet, simulation

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