International Journal of Integrated Care
ISSN 1568-4156
**Volume 14, 01 November 2014**
**Publisher: Igitur publishing**
**URL: http://www.ijic.org**
**Cite this as: Int J Integr Care 2014; Inter Digital Health Suppl; URN:NBN:NL:UI:10-1-116546**


Conference Abstract

# Cost utility analysis of long-term telemonitoring of patients with DMT2: Results of the Greek pilot of the renewing health multicenter pragmatic randomized trial

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## Abstract

**Objective:** To study the impact of a long-term tele-monitoring program for patients with type 2 diabetes mellitus (DMT2) on glycemic control, health-related quality of life (HRQOL) and costs compared to usual care.

**Participants:** 154 patients with DMT2 capable of using the tele-monitoring device, with an HbA1c > 53 mmol/mol (7.0 % according to NGSP), were randomly assigned in the tele-monitoring (I) , (N=74) and the control (C), (N=80) group after having signed the informed consent form.

**Methods:** In the (I) group patients' blood glucose profiles were collected on a weekly basis using a mobile phone health platform, for a period of one year. Allocated health professionals provided by

phone the appropriate counseling on lifestyle and medication changes when required. Patients in the (C) group received usual care with face-to-face consultations. HRQOL was assessed using a generic (SF36v2) questionnaire. The Short Form 6D (SF-6D) instrument was used in the analysis to obtain quality adjusted life years (QALYs) from the SF-36v2 for use in the cost utility analysis. The study was approved by the Institutional Review Board. (Local Trial Registration NCT01498367.)

**Results:** A statistically significant decrease (p=0.001) in HbA1c levels was observed; for the (I) group the decrease was 15.42 mmol/mol and for the (C) group 9.29 mmol/mol with the mean difference between the two groups favouring the (I) group. There was a statistically significant improvement in the generic HRQOL, both in the mental component summary scores [MSC: (I) +3.46, (C) -3.24, p<0.001] and in the physical component summary scores [PSC: (I) +1.17, (C) -1.26, p<0.01] in the tele-monitoring group. For the (I) group health utility was increased by an average of 0.049 points, whereas in the control group a decrease of 0.048 points was observed. The mean difference between the two groups after 12 months was favoring the intervention group that showed a significantly higher health utility (p<0.001). The average cost per patient was €986.26 for the (I) group and €494.85 for the (C) control based on 2011 prices.

Based on the health utilities calculated with the SF6D and the average costs, the incremental cost-effectiveness ratio (ICER) for the telemedicine intervention in the diabetic group was €5,460.11 per QALY.

**Conclusion:** Our results indicate that home tele-monitoring is more effective in improving glycemic control and HRQOL in DMT2 patients compared with the usual care and a potentially cost effective choice for the National Health System in Greece. Nevertheless the clinical significance of the improvement in the measured HRQOL and any difference in the demographics of the treated patients should be also taken into account.

## Keywords

**telehealth; cost utility analysis; diabetes mellitus type 2**