

Evaluation of the Effectiveness of Diabetes Tel-Assurance[®] at CareFirst Blue Cross and Blue Shield Healthplan

Background: Diabetes related glycemetic control remains a large opportunity for improvement within membership of commercial healthplan populations. Case management has been shown to effect an average improvement in Hemoglobin A1C of 0.5 mg% per recent meta-analysis¹. Tel-Assurance[®] is a clinically proven patient engagement and behavioral change technology which has been shown to improve hospitalization rates and financial outcomes for chronic disease populations.

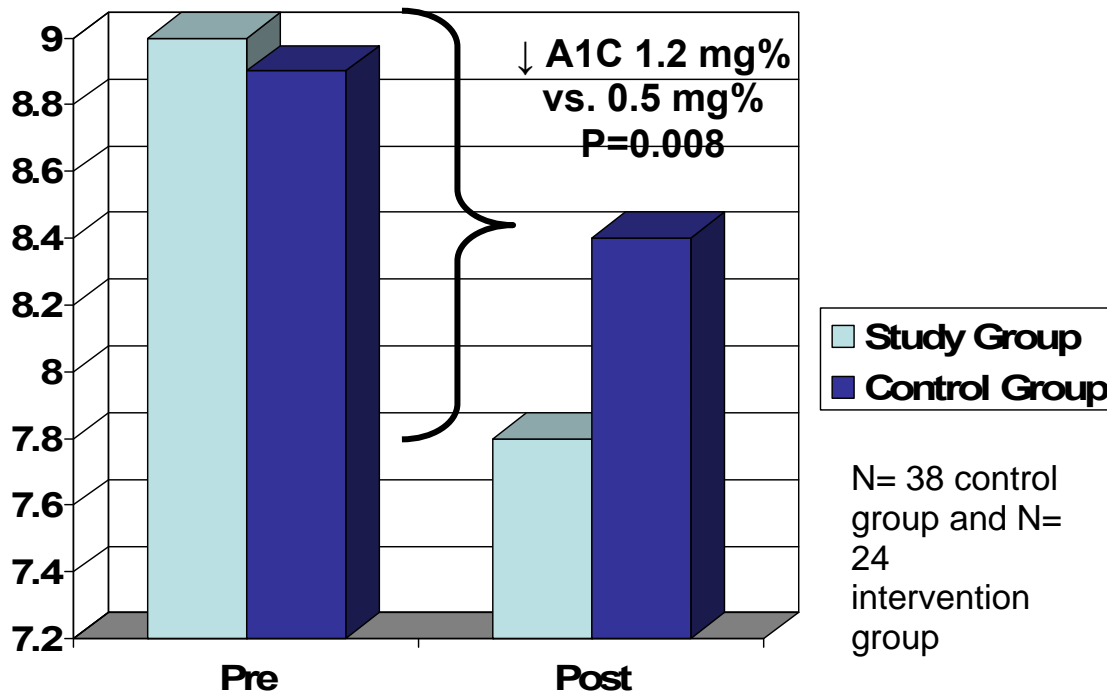
Objectives: To examine the impact of Tel-Assurance[®] on glycemetic control for a Healthplan high risk diabetes population (CareFirst, Baltimore), as an adjunct to traditional high intensity disease/ case management as provided by Health Management Corporation (HMC). To compare the effect of such intervention to recently reported meta-analysis data of case management more broadly.

Methods: A target population was identified by using HMC's risk stratification methodology, based on claims history of diabetes related costs. All diabetic individual members with a risk strata of "high" or "super high" intensity were recruited to participate in daily self-care monitoring using Tel-Assurance[®] (N=363), as long as baseline Hemoglobin A1C value (A1C) was >7.5 mg%. To be eligible, members had to have access to a working telephone or Internet connection, and have had a documented A1C within the previous 9 months. Daily patient self-reported blood sugar values, clinical symptoms, and changes in behavior were tracked. Daily "clinical" and "no-call" variant individuals were identified and flagged for subsequent case management within existing workflows at HMC. Case managers at HMC were responsible for reviewing daily patient data and contacting those members who fell outside of prescribed clinical parameters (blood sugar out of range or new symptoms of impending clinical exacerbation) and /or who fail to use the Tel-Assurance[®] monitoring program for two consecutive days. Enrollees were randomly assigned (3:1) to case management alone according to HMC's standard operating procedures or to case management plus daily Tel-Assurance[®] monitoring and were followed for up to 12 months each. The primary analysis outcome was a reduction in A1C value compared to baseline for each patient. Those members who did not have a follow-up A1C value available after the intervention period were excluded from final analysis.

Results: Of the 363 individuals identified as either high risk or super high risk with a baseline A1C value available at the time of randomization, the baseline A1C value for the entire group was 8.9 mg%. Following randomization, the A1C values at baseline for the group assigned to Tel-Assurance[®] monitoring was slightly higher at 9.03 mg%, and the baseline value in the control group slightly lower than the entire group mean (P=N.S.). For those members assigned to case management alone (n=270), after a minimum of 6 months of monitoring, a follow-up A1C value was available in 38 individuals. In these 38 individuals, the mean A1C value dropped from 8.9 mg% to 8.4 mg % (Δ 0.5 mg%;

P=N.S.). In contrast, for those individuals assigned to receive daily Tel-Assurance[®] monitoring (n=93), and for whom a follow-up A1C was available for analysis (n=24 individuals), the group mean A1C value dropped from 9.0 mg% to 7.8 mg% (Δ 1.2 mg%; P=0.008 by Student's T test).

The results of the control group (case management alone) are comparable to those seen in a recent meta-analysis of such interventions¹ (Δ 0.5mg% improvement), while those of the intervention group (case management plus Tel-Assurance[®] monitoring) were superior (Δ 1.2 mg%).



Conclusions: Current approaches to improving glycemic control in a high risk diabetic population include case management intervention, but do not incorporate a real-time patient behavioral feedback loop. Targeted interventions can best be accomplished when actionable, clinically relevant information is conveyed from patients to case managers and physicians. Based on the current results of a pilot prospective randomized trial of case management alone vs. case management plus Tel-Assurance[®] monitoring, a statistically significant improvement in glycemic control was accomplished by Tel-Assurance[®] monitoring. Likewise, the level of improvement in the case management only arm reproduced the findings of other recent meta-analysis of similar interventions.

¹ JAMA 2006; Vol 293: pp. 427-440.