An evaluation of the Diabetes Conversation Map™ Program: Are Program Factors Associated with Health Outcomes and Healthcare Utilization at 12 Months Post-Enrollment?

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BACKGROUND
- Clalit Health Services members with Type 2 diabetes Mellitus (T2DM) have participated in the Diabetes Conversation Map™ Program of 6 sessions that has been run for over seven years.
- Over 400 nurses from primary care and diabetes-specialist clinics have been trained and certified as Map™ program instructors to lead the sessions.
- Variability in outcomes among patients may be related to intra-operator variability and secular changes.
- A key factor that needs to be considered in evaluating the success of the Map™ program is the attendance rate of the participants attend the program, which can affect the extent of the program's impact.
- This is the first study to evaluate how exposure to the Map™ program may influence health outcomes in a large population.

METHODS
- This was a retrospective cohort study of 11,053 participants with 120M who enrolled in the Map™ program anytime between 13 September 2010 to 1 April 2016, had at least 12 months available follow up, a baseline HbA1C level above 7%, and had a documented count of the number of Map™ sessions attended.
- Using a 12-month follow-up period, we assessed pre- and post-intervention changes in the following health outcomes: laboratory test results, medication adherence, and healthcare utilization.
- Using Gamma and Poisson regression models and testing for hierarchical regression with random effects, we assessed (separately) the association between two key program factors (nurse instructor and enrollment year) and participants' attendance rate (number of Map™ sessions attended) on the selected outcomes.
- A sensitivity analysis was also conducted by grouping the HbA1C outcome levels to a dichotomous change of 20% or 10% below or above pre- and post-intervention and grouping the main exposure of number of Map sessions to be dichotomous (0 vs. 1-2 sessions).

RESULTS
- Of the Map participants, 67.6% were aged 55-74 and 17.3% were women.
- About a half were obese (51.3%) and about a third were past or current smokers (30.9%).
- Introducing the random effect of nurses who conducted the sessions yielded a low explained variance. Similarly, there were no significant differences in the outcomes across year of enrollment.
- Only two outcomes, HbA1C levels and hospitalizations, had any significant association with the number of Map™ sessions attended.
- The number of sessions was not associated with any other outcomes.
- Map™ participants who attended at least one session had on average a 2.1% reduction in HbA1C levels compared to those who enrolled but did not attend any sessions.
- Those who attended four sessions had a lower average HbA1C than those who attended no session or one session (by 3.4% and 1.3%, respectively).

Adjusted multivariable gamma regression for number of Map sessions attended and HbA1C association 12 months post index date

CONCLUSIONS
- Our results suggest that attending up to four sessions in the Map™ program is associated with improved HbA1C and attending up to three sessions in the Map™ program decreased hospitalizations, and these do not vary by enrollment year or instructor.
- Attending at least 2 Map™ program sessions has a significant and clinical impact on HbA1C levels.
- We suggest that nurses who instruct the Map™ program should try to improve participants' attendance to at least four sessions in order to maximize reductions in HbA1C and hospital admissions.

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