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## Health Coaching in Low Income, Underserved Patients with Diabetes Mellitus Type 2

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Health Coaching in Low Income, Underserved Patients with Diabetes Mellitus Type 2

By

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## Introduction

Type 2 Diabetes Mellitus (T2DM) is a chronic disease that affects over 420 million people worldwide.<sup>1</sup> Within the U.S., more than 30 million Americans are diagnosed with T2DM.<sup>2</sup> The financial impact of T2DM is costly with estimates to be around \$327 billion in the U.S. alone annually, and the overall health care costs for diabetics are twice as much for those without.<sup>3</sup>

Social determinants, such as Social Educational Status, insurance coverage, and general accessibility to healthcare, collectively influence outcomes in patients with T2DM. Patient populations that are low income and underserved generally face greater disadvantages compared to the general population that prevent them from successfully managing T2DM: financial constraints (inability to pay for medications and services) and overall inaccessibility (or relatively reduced accessibility) to health care services and medications.<sup>4</sup> Low income and underserved T2DM patients are less likely to be health literate, have difficulty in obtaining health care, and have low trust in the health care system.<sup>5</sup> Those who are homeless struggle with daily necessities of providing shelter, food, clothing, and safety, often utilizing the Emergency Department for assistance instead of a primary care provider for long term management<sup>6</sup>. Many patients work multiple jobs to provide for their family which may not offer the flexibility in time off for medical appointments. Even when given proper medications, culturally appropriate patient education is often lacking. As a result, low income and underserved T2DM patients are likely to be more uncontrolled than the general population.<sup>7</sup>

Despite the advancements in pharmacotherapeutics that have shown proven reductions in HbA1C, medications alone do not specifically address the psychosocial

barriers that many T2DM patients face. Evidence also supports that greater patient knowledge does not necessarily correlate with improvements in glycemic control.<sup>8</sup>

Implementation of health care coaching into a treatment plan for T2DM low income/underserved patients may address barriers to managing their overall care (i.e. sociocultural factors, financial inaccessibility). Health care coaches are individuals who are involved in the chronic disease management of a patient that function as a source of support and to keep patients accountable for their decisions in overall management of their chronic disease. They play a vital role in empowering patients to take control of their health through education by establishing goals and helping patients navigate their current lifestyle in order to reach these goals.

### **Relevance to Practice**

In low income, underserved populations with uncontrolled T2DM, how does implementation of a health coach with a patient centered approach in promotion of behavioral changes, compared to patients without a health coach, affect A1C within one year? Evidence supports that health coaches have improved the health of patients with chronic diseases.<sup>9</sup> T2DM patients who are low income and/or underserved may benefit from the incorporation of a health coach in their overall treatment plan as a means to overcome barriers to T2DM management, to better understand their disease, and to have a support system to which they would not otherwise have access to.

## **Health Coaching**

The role of a health care coach is broadly defined and the capacity in which they are integrated is highly variable. Health care coaches are commonly community health workers (CHW), but they can also be registered dietitians, medical assistants, nurse case managers, and other allied health care professionals and educators who function as part of an integrated health care team. Coaches often receive on-the-job training from physicians or other clinicians, Diabetes Management Self Education materials, and principal investigators of research studies.<sup>10</sup> The amount of training hours to become a health coach varied from as low as 36 hours to as high as 100 hours, with educational backgrounds varying from Medical Assistants with on the job training to individuals with master's degrees in social work or psychology.<sup>11</sup> Despite a wide spectrum of training, the majority of studies that integrated a health coach demonstrated statistically significant decreases in HbA1C, supporting the concept that the presence of a health coach can improve the health of T2DM patients and that extensive training may not necessarily be required for similar outcomes.

The methods in which health coaches interacted or performed visits with patients also varied tremendously among studies. These interactions were carried out via mobile device/applications, telephone calls, text messages, and in-person meetings; some studies utilized one method (i.e. telephone calls only) while others used a combination of methods (i.e. quarterly clinic visits and phone calls). The frequency of visits and contact with the health coach also varied, with as few as two visits (beginning and end of study), while others occurred as many as every three months, or as often as the patient wanted to be in contact with their coach. Within a 12-month intervention, efficacy

of the intervention peaked within the initial three to six months of the study.<sup>12</sup> This may be due to the time needed to understand and implement the intervention as well as compliance to the intervention after six months. Alternatively, this may indicate that an entire year may not be necessary to demonstrate significant reductions in HbA1C.

A multiple coach intervention study with a Registered Dietitian, Exercise Coach, and Health Coach demonstrated a statistically significant decrease in HbA1C and BMI. Between the three types of coaches, the Registered Dietitian was the only coach that had statistically significant involvement in decreasing BMI, which indicates that a certain type of health care coach may influence certain variables more than others.<sup>13</sup>

Culturally specific diabetes management programs have also demonstrated successful outcomes. Project Dulce is a culturally specific program provided to Latinos, a minority population with the greatest risk for development of T2DM. This program includes a nurse-led team comprised of bilingual/bicultural professionals (nurse, certified diabetes educator, dietitian, and medical assistant). Aside from one-on-one visits, patients attended classes taught by an educator in their native language to discuss medication, exercise, diet, and the importance of self-monitoring, and to address the cultural beliefs of T2DM. Project Dulce demonstrated statistically significant reductions in clinical outcomes (HbA1C, blood pressure, and LDL) and the potential for reduction in hospital costs within one year of implementation.<sup>14</sup>

### **Improvements in Glycemic Control**

Most the literature reviewed demonstrates that health coaching interventions in low income, underserved patient populations improves glycemic control through a reduction in HbA1C. The ranges among studies analyzed reported reductions in HbA1C

from 0.5% - 1.5% within a 12-month range. A 1% reduction in HbA1C correlates with a 37% decrease in risk for microvascular complications and 21% decrease in death related to diabetes,<sup>15</sup> supporting the concept that a nonpharmacological component of a treatment plan, such as health care coaching, can improve outcomes and decrease complications.

For patients who received treatment as usual (no health care coaching but regular visits with primary care provider and dietitian), some studies demonstrated a decrease in HbA1C as well, but a greater reduction was found in patients who did receive health care coaching.<sup>11</sup> The capacity for health coaching to influence the rate at which HbA1C can be lowered in T2DM patients reduces the risk for disease progression and complications.

In addition to improving glycemic control, relevant secondary outcomes that were also measured in these studies included better perceived support, patient activation, greater assessment of illness, improvement in overall diet, foot care (with concern to diabetic neuropathy) and medication adherence.<sup>12, 16, 17</sup>

### **Future Implications/Limitations**

There are limitations to the literature presented. Most these studies were not double-blinded. Consequently, there may be some level of bias in how the coaching was performed. In addition, there is a possibility that patients who feel the need to address their disease are more likely to participate in the research versus patients who do not.

Notably, the health coaching roles and education levels, types, and frequencies varied among the studies. In all the studies analyzed, health coaches ranged from

CHWs, to medical assistants, registered dietitians, health educators, and nurses, all with varied training on how to coach and educate diabetes patients. Because of this variability, it is difficult to assess which combination of variables (such as having one coach versus a team, and the amount of face-to-face interaction) would be most optimal in designing a health coaching program.

Evidence supports that low income and underserved populations with uncontrolled T2DM benefit from health coaching with demonstrated reductions in HbA1C. Because not all studies demonstrated a statistically significant reduction in HbA1C, nor shifted all patients from being uncontrolled to controlled (HbA1C <7%), this brings up the possibility of other unaccounted variables in this specific patient population that influence patient management of T2DM and may need more research.

Questions for future research could include the following: How will T2DM patients fare beyond one year and without health coaching in maintenance of their A1C? Will intermittent coaching after one year help maintain compliance? On a long-term evaluation over decades, how cost-effective are health coaches in the health care system?

### **Conclusion**

Evidence supports that integration of a health coach in T2DM management in low income and underserved populations contributes to reductions in HbA1C within a year. Additional secondary benefits include: increased perceived support, positive assessment and awareness of illness, and activation in self-care and management of disease. Health coaching is an effective method of increasing support to a vulnerable population, and it should be considered as an essential component of T2DM treatment

and maintenance plan especially in these patient populations. By improving diabetes management and overall progression from uncontrolled to controlled T2DM status, the benefit is widespread: individuals benefit from hindrance of disease progression, and the health care system benefits by using a cost-effective method to reduce the overall financial burden.

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