

# Implementation and Evaluation of Shared Medical Appointments for Type 2 Diabetes at a Free, Student-Run Clinic in Alamance County, NC

## Background

- The Open Door Clinic of Alamance County provides free healthcare to residents with an annual income  $\leq 150\%$  the federal poverty rate.
- The Diabetes Maintenance and Prevention Program is a monthly endocrinology clinic within the Open Door Clinic for uninsured patients with type 2 diabetes (T2DM) and is sustained through collaboration between UNC Endocrinology, medical students, pharmacists, and undergraduate students.
- The clinic suffers from common weaknesses of free clinics: unpredictable scheduling, high cancellation rates, long wait times, and complicated cases.
- Shared medical appointments (SMA) maximize time with healthcare providers and patients and integrate group-based diabetes self-management education.
- SMA are thought to enhance peer support, increase motivation and medical adherence, and decrease disease distress.

## Hypothesis and Aims

**Hypothesis:** Implementing shared medical appointments (SMA) as the standard of care at the Open Door Clinic will increase quality of care and peer support, resulting in improved glycemic control among patients with T2D.

- Implement** an SMA model that incorporates the rotation of medical, PA, undergraduate and pharmacy students with a diabetologist.
- Evaluate** efficacy of SMA both quantitatively (Hemoglobin A1c) and qualitatively (self-report questionnaires).

## Methods

- Prior to the SMA model as the standard of care, patients received specialized endocrinology care under a traditional clinic model.
- Questionnaires were collected at baseline and included:
  - U.S. Household Food Security
  - Duke Social Support
  - Diabetes Self-Management
  - Diabetes Distress Scale
- Hemoglobin A1c (HbA1c) was collected every 3-6 months from patients as they returned to clinic.
- The expected within-person effect of SMA on HbA1c over 6 months was calculated using linear mixed-modeling with a varying-intercept.
- A1c was regressed onto SMA exposure as a dichotomized variable (pre/post).

## Results

- 29 patients have been consented and enrolled into the SMA model since November 2015. Complete baseline data has been collected for 21 patients.
- 10 patients who had continuous follow-up data one year before and after SMA enrollment were considered for complete analyses.

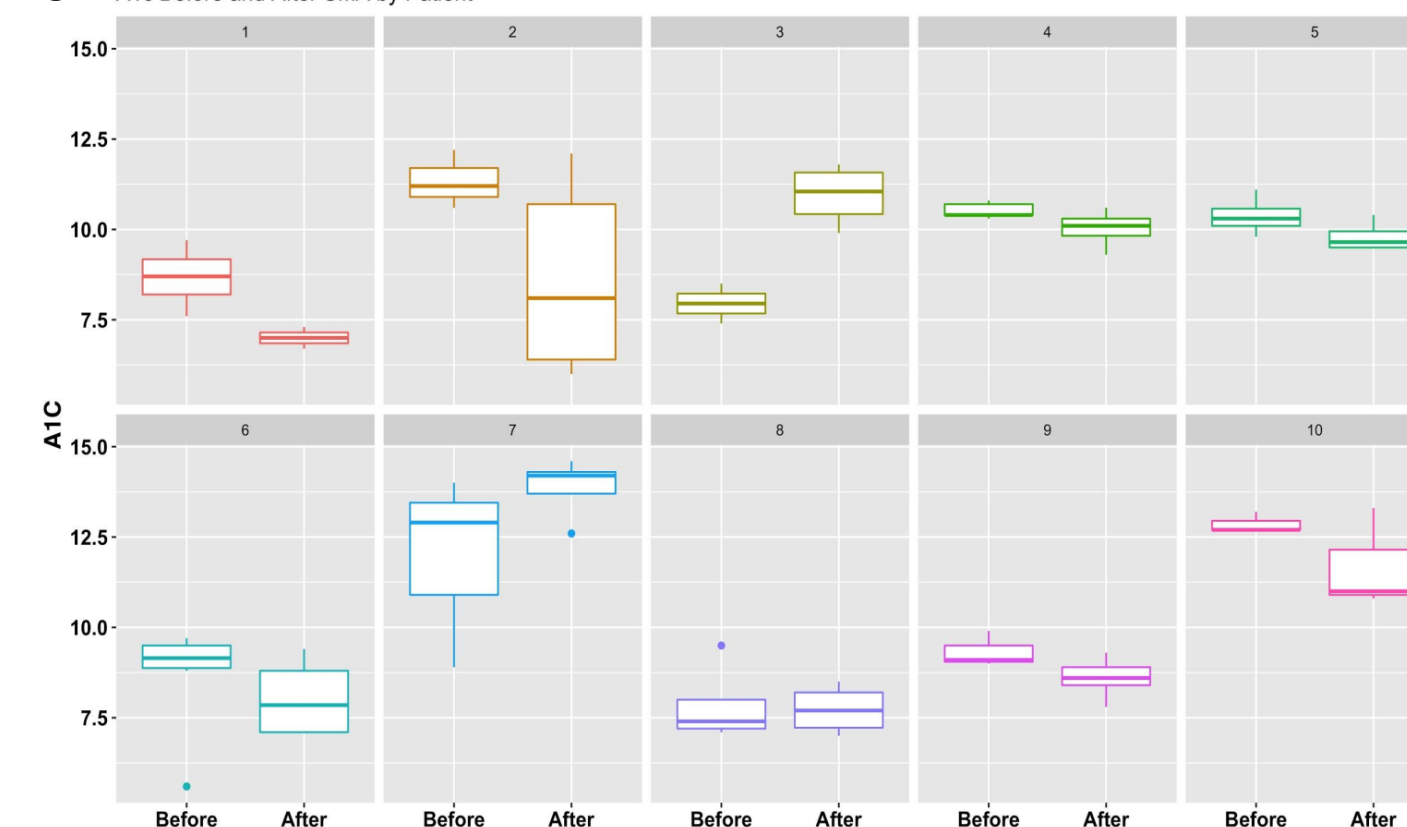
**Table 1A: Baseline Clinical Characteristics of Patients Followed for 6 Mo in SMA (n=10)**

A1c Before SMA (mean; median)	9.78; 9.7	
A1c After SMA (mean; median)	9.72; 9.5	
Count of A1cs Collected Before and after SMA overall	38	41
Number of A1cs Collected Before and after SMA per patient	<b>Before:</b> 4 $\pm$ 2	<b>After:</b> 4 $\pm$ 1

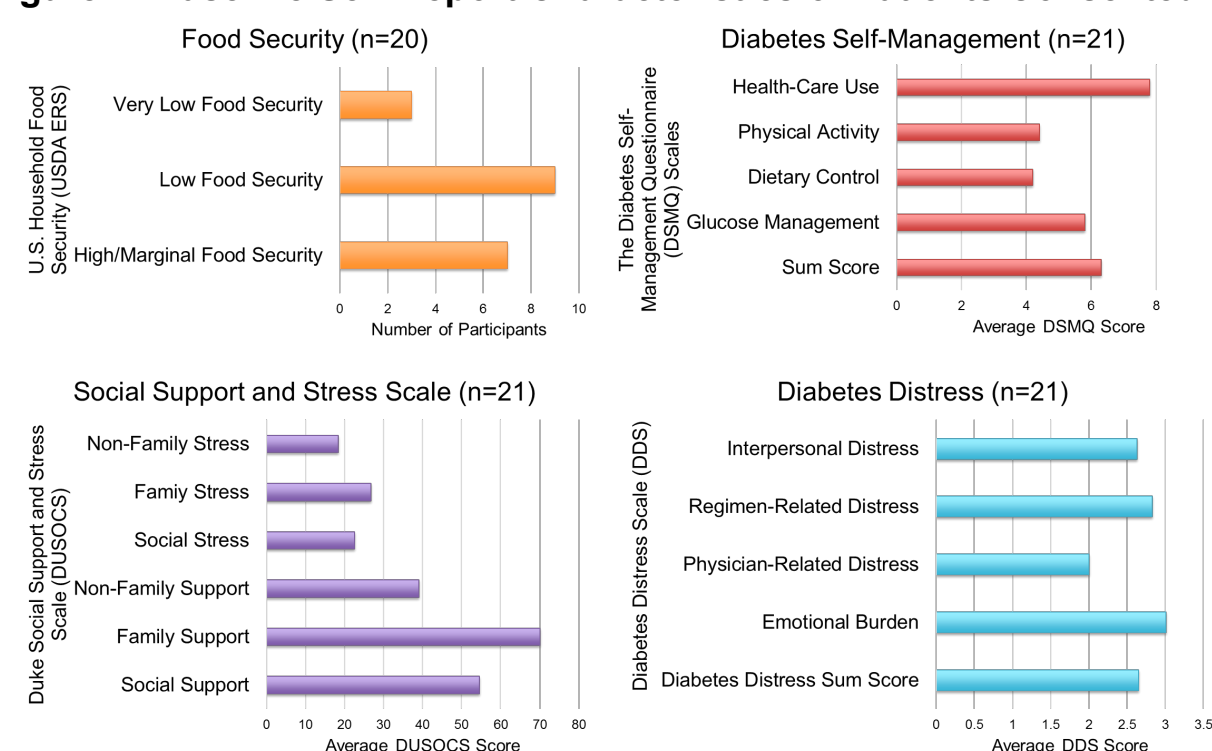
**Table 1B: Linear Mixed Model for Within-Person Effects of SMA on HbA1c over 6 Mo Follow-up**

Within-person change in HbA1c	Estimate	P-value
SMA Intervention (pre/post)	-0.366	0.24

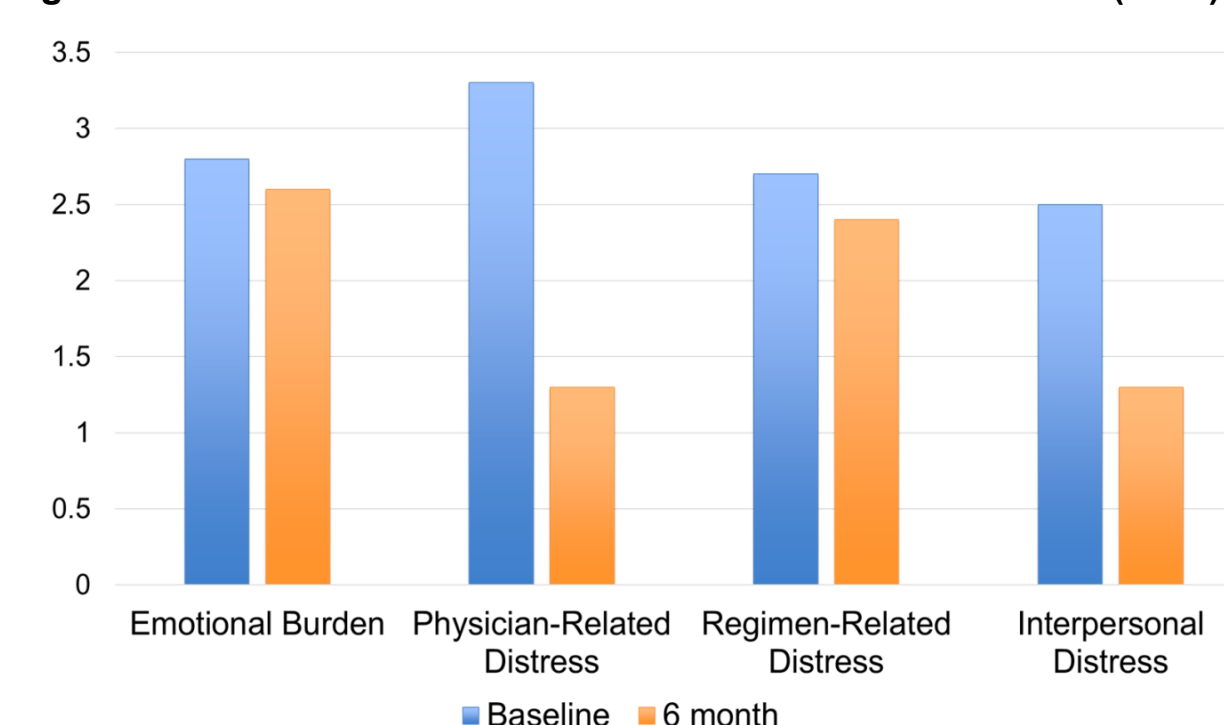
**Figure 2: HbA1c Measures Collected Pre- and Post- 6 Months of SMA at the ODC**



**Figure 1: Baseline Self-Report Characteristics of Patients Consented to SMA**

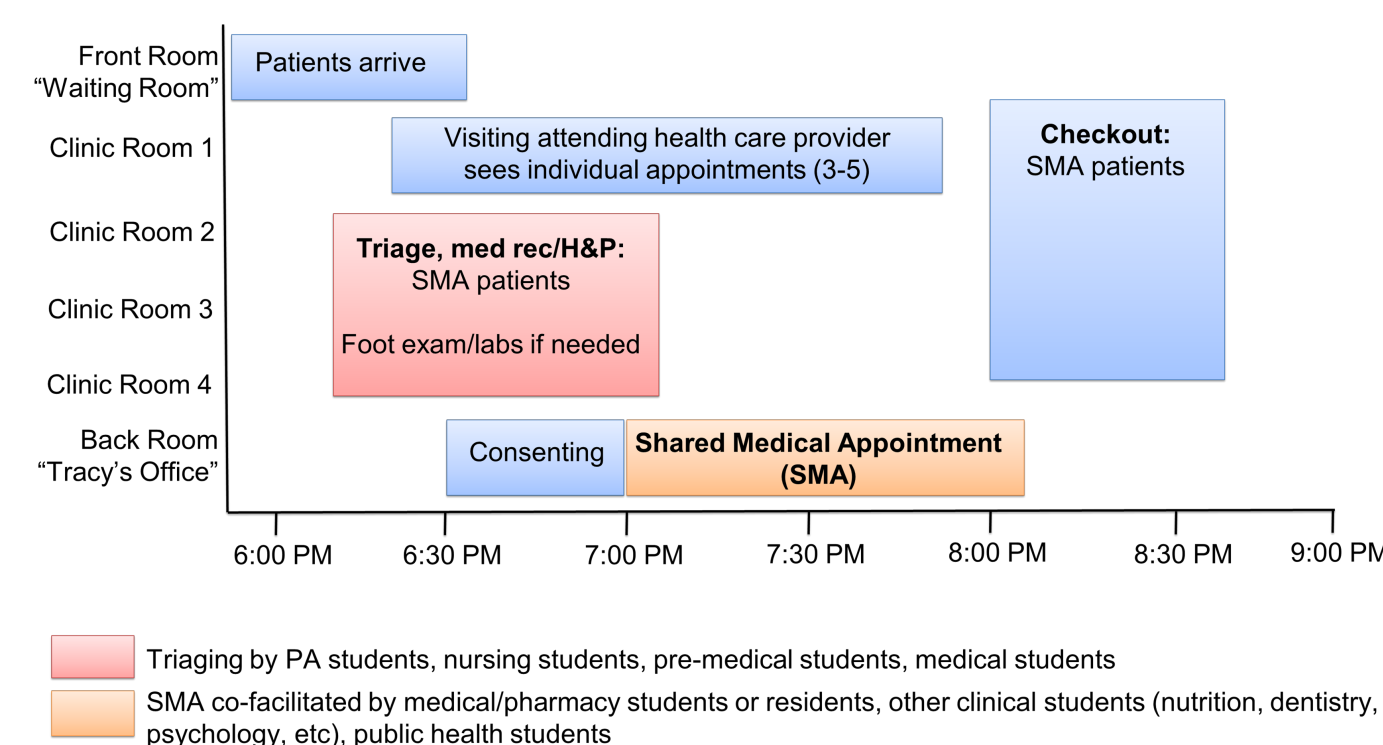


**Figure 3: Diabetes Distress at Baseline and After 6 Mo of SMA (6 Mo)**



## Transdisciplinary Student Involvement

**Figure 4: SMA Model with Clinic Flow to Maximize Transdisciplinary Student Skills**



## Conclusions

- SMA intervention was found to be acceptable to patients and students/staff of the Open Door Clinic.
- At baseline, patients indicated low food security and high levels of diabetes distress (**Figure 1**).
- SMA associated with modest reduction in HbA1c that is consistent with other literature reports (**Table 1B, Figure 2**).
- Pilot data suggests that SMA is associated with a reduction in diabetes distress (**Figure 3**).
- Students involved in SMA gained exposure to novel models of care, the challenges of other (comprehensive) aspects of diabetes care, and the complexities of the patient-perceived experience of diabetes (**Figure 4**).
- SMA are an educational opportunity to integrate transdisciplinary students in the free-clinic context to improve diabetes care for underserved patients and address unmet health needs in the community.