



# Shared Medical Appointments to Improve Outcomes for Adults with Type 1 Diabetes



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## Purpose

- To implement an evidence-based quality improvement project at the USF Diabetes Center in Tampa, Florida.
- To assess improvements in care outcomes of adults with type 1 diabetes, through the implementation of shared medical appointments (SMA) with a focus on carbohydrate counting education.

## Background

- Diabetes mellitus type 1 is a chronic disease that places individuals at a higher risks for complications and mortality at an early age.
- Serious health complications include kidney failure, heart disease, stroke, lower-limb amputations and blindness.
- In the United States, more than 70% of patients ages greater than 30 with type 1 diabetes are not at glycemic goal of Hb A1c less than 7%.
- The American Diabetes Association has recognized there is a lack of continuous comprehensive care throughout the lifespan of adults with type 1 diabetes.
- The SMA concept was developed by Dr. Edward Noffsinger, PhD in the 1990s.
- SMA is defined as “a cluster of individual, comprehensive appointments focused on facilitated peer interaction around self-management and empowerment.”

## Methods

- Three SMA sessions were held at the USF Diabetes Center.
- Sample**
  - A convenience volunteer sample was recruited from the two USF Diabetes Center clinics in Tampa, Florida.
  - The target population for this project was adults 20 to 45 years old diagnosed with type 1 diabetes mellitus with a Hb A1c greater than 8%.
- Outcome Measures**
  - The primary outcome measured was Hb A1c levels before and 3 months post-SMA.
  - Adult CarbQuiz scores before and post-SMA were measured to assess knowledge gained from carbohydrate counting education.
  - An anonymous satisfaction questionnaire was administered to gauge patient satisfaction with this type of visit.

## Results

- 9 adults with type 1 diabetes from the USF Diabetes Center participated in this study.
- 7 of the 9 participants completed all before and post-SMA Hb A1c, Adult CarbQuiz, and satisfaction questionnaire.

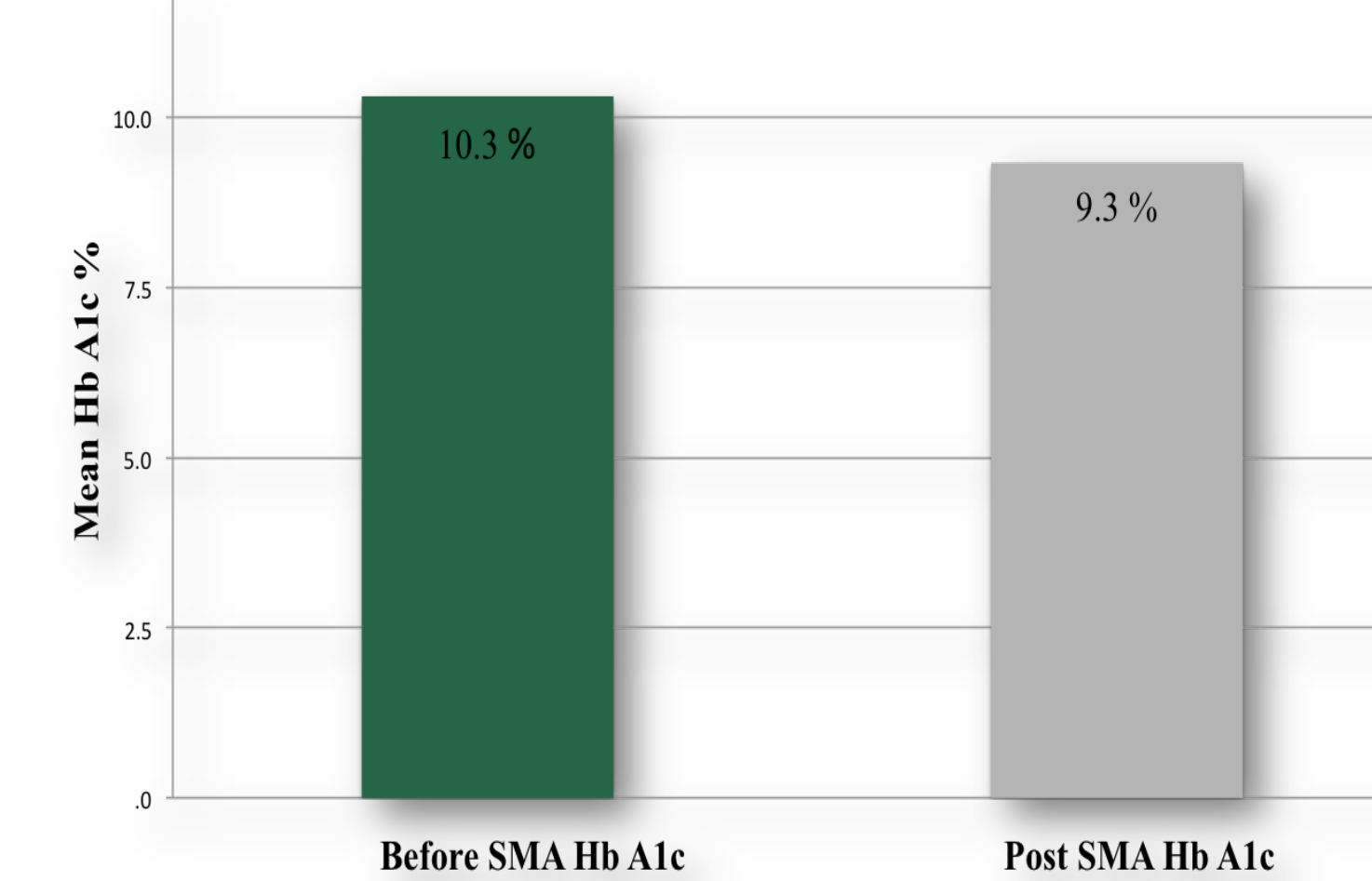
Table 1 Participants demographics

Mean Age	30.4 years (range 20-45 years old)
Gender (%)	Female (56%)
Marital Status (%)	Single (89%)
Race (%)	White (44%) Latino (22%) Asian (22%) African American (11%)
Occupation (%)	Full time (44%) Part-time (33%) Student (11%) Not employed (11%)
Highest level of education (%)	Graduated from a four-year college (56%) Graduated from high school (44%)
Age of diabetes diagnosis (%)	0-5 years old (33%) 6-10 years old (33%) 11-15 years old (22%) 20 years or older (11%)
Diabetes education classes ever attended (%)	2 classes (33%) 4 or more (44%)

## Results

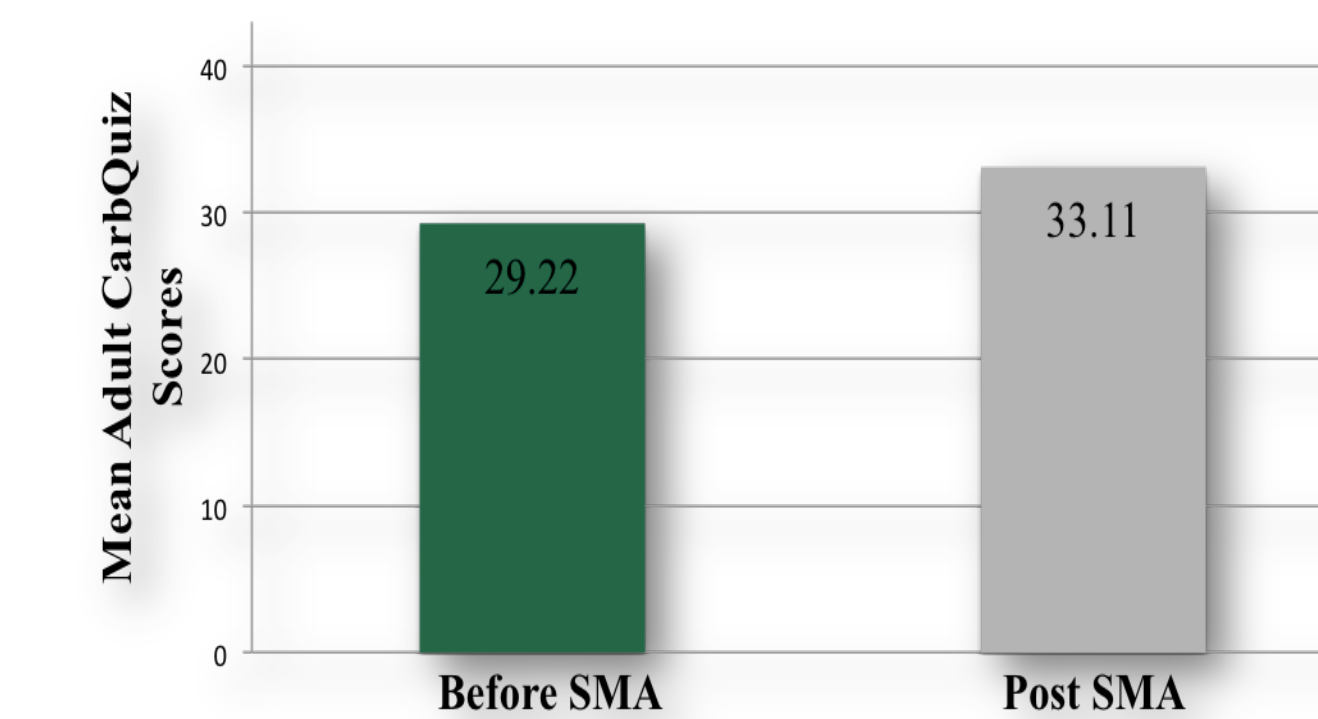
- The participant’s Hb A1c prior to the SMA ranged from 8.0-14.0%, with a mean of 10.3% (SD = 2.49). Hb A1c after the SMAs ranged from 6.8-12.2%, with a mean of 9.3% (SD = 2.14).

Figure 1 Mean Hb A1c Comparison



- The Adult CarbQuiz scores ranged from 16-38 points with a mean of 29.22 before the SMA (SD= 6.59). The scores after the SMA ranged from 21-41 points with a mean of 33.11 (SD 5.69)

Figure 2 Mean Adult CarbQuiz score Comparison



- A paired sample t-test revealed a statistically significant improvement in participants’ Hb A1c after the SMA intervention.
- A paired sample t-test revealed a statistically significant improvement in Adult CarbQuiz scores after the SMA intervention.

Table 2 Paired Sample t-test for Hb A1c and Adult CarbQuiz scores

	Before SMA		Post SMA		t	DF	p	d
	Mean	SD	Mean	SD				
Hb A1c (%)	10.31	2.49	9.33	2.14	3.52	6	0.012	0.42
AdultCarb Quiz scores	29.22	6.59	33.11	5.69	-3.03	6	0.016	0.63

## Discussion

- There was an improvement in the care outcomes among adults with type 1 diabetes over 3 months.
- The participant’s satisfaction with the SMA was high at a level of 4.67 out of 5.
- Although there is limited literature of SMAs and type 1 diabetes, the results of this study were similar to the published findings on the beneficial impact of SMAs on Hb A1c in patients with type 2 diabetes.
- While most participants had been diagnosed with diabetes for at least 10 years and had attended multiple diabetes education classes, the implemented SMA showed a statistically significant improvement in Hb A1c and increased their knowledge on carbohydrate counting.
- Recommendations for further research in this area include implementing larger studies of SMAs over a longer period of time.
- SMAs should become a component of standard care for adults with type I diabetes and the education component of SMAs should include various topics including physical, mental and emotional health.

## References

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