

# Grocery Voucher Pilot: Reimagining Diabetes Self-Management Among Low-Income Patients

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## Background & Objectives

Fair Haven Community Health Care in New Haven, CT, annually serves over 1,600 adults with diabetes. Food insecurity is prevalent in approximately 40% of our patients with poorly controlled diabetes (hemoglobin A1C  $\geq$  8). The distribution of grocery vouchers among medically vulnerable patients has been shown to improve diet and food insecurity in various settings [1,2]. We aim to address food insecurity, enhance diabetes self-management, and measure clinical outcomes through the implementation and evaluation of a grocery voucher program.

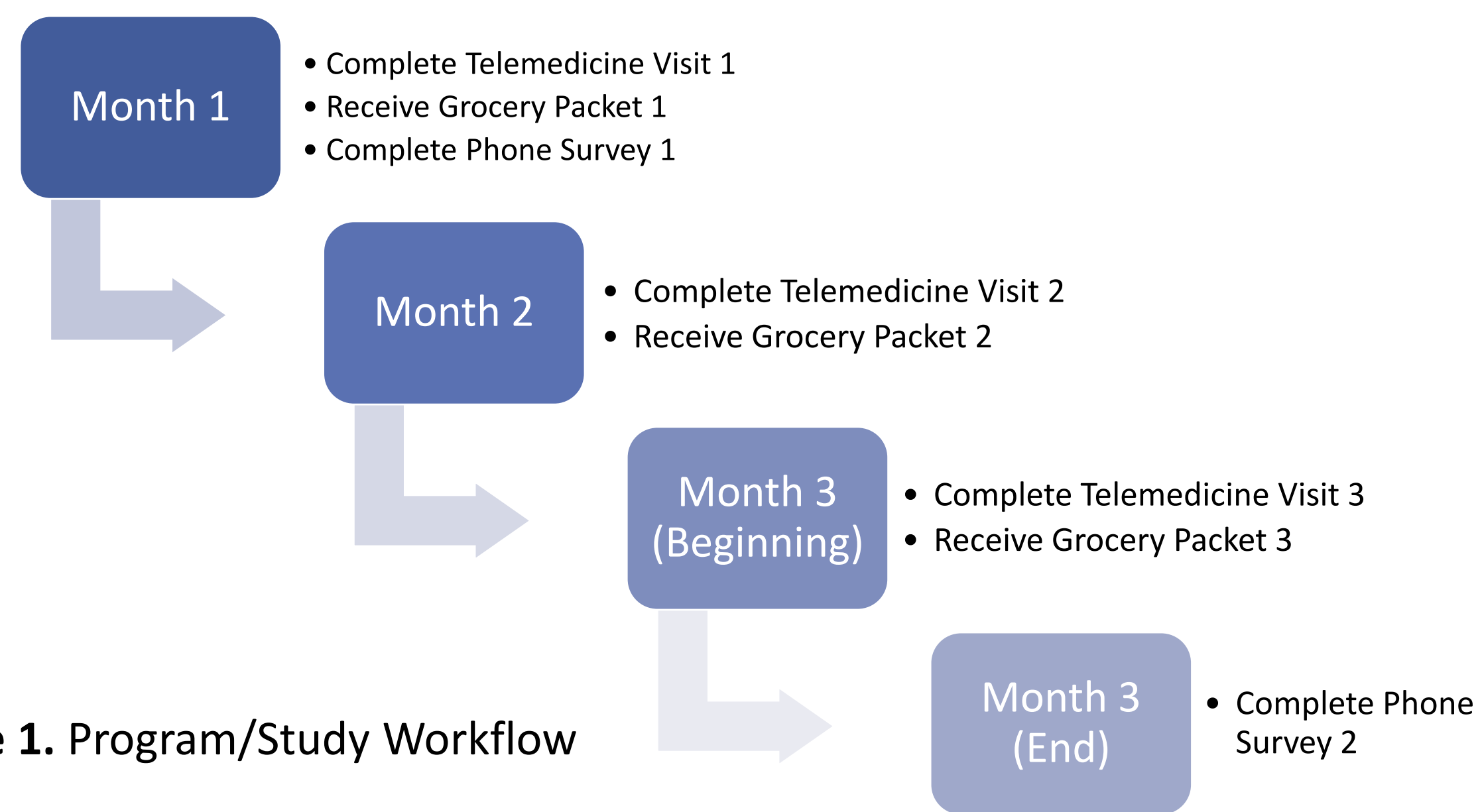


Figure 1. Program/Study Workflow

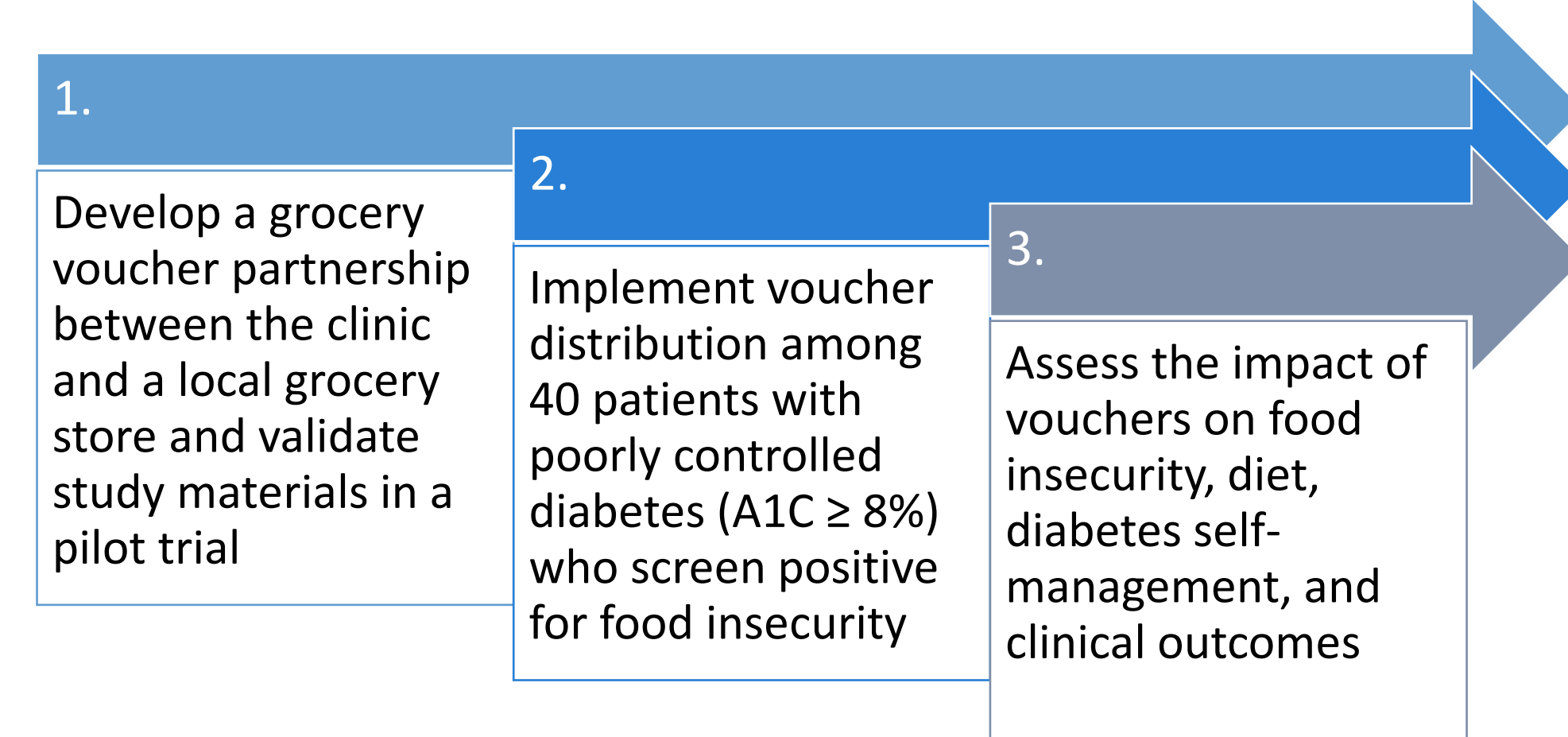
Characteristic	All Participants
Mean age (years) $\pm$ SD (range)	54.9 $\pm$ 12.3(32-75)
Female	68.4%
Race/ethnicity	
Latino or Hispanic	84.2%
Non-Hispanic White	5.3%
Non-Hispanic Black	10.5%
Other	0%
Non-English speaking	78.9%
Health Insurance Carrier	
Uninsured	36.8%
Medicaid/Medicare	42.1%
Private Insurance	21.1%
Mean starting HbA1C $\pm$ SD (range)	10.7 $\pm$ 1.94(7.1-14)*
Mean LDL $\pm$ SD (range)	105 $\pm$ 35.6(37-170)
Mean body mass index $\pm$ SD (range)	32.3 $\pm$ 6.83(19.9-47)
Prescribed insulin	71.1%
PHQ-9 score (mode)	0

\* Four patients with HbA1C < 8% were accidentally enrolled in the study.

Table 1. Characteristics of Grocery Voucher Program Participants at Baseline (n=38)

## Program Description & Evaluation

This mixed methods implementation study has three parts:



First, a community health worker identifies eligible patients and invites them to partake in the program [Figure 1]. Then patients are scheduled for telemedicine visits with a diabetic nurse educator and a grocery packet is provided once monthly for three months. Each grocery packet includes a \$25 grocery gift card, a nutrition education handout, and two recipes. After 40 patients complete the three-month program, we assessed its impact on food insecurity, food choice, and diabetes self-efficacy using pre-post quantitative data (clinical markers and survey responses) and qualitative interviews.

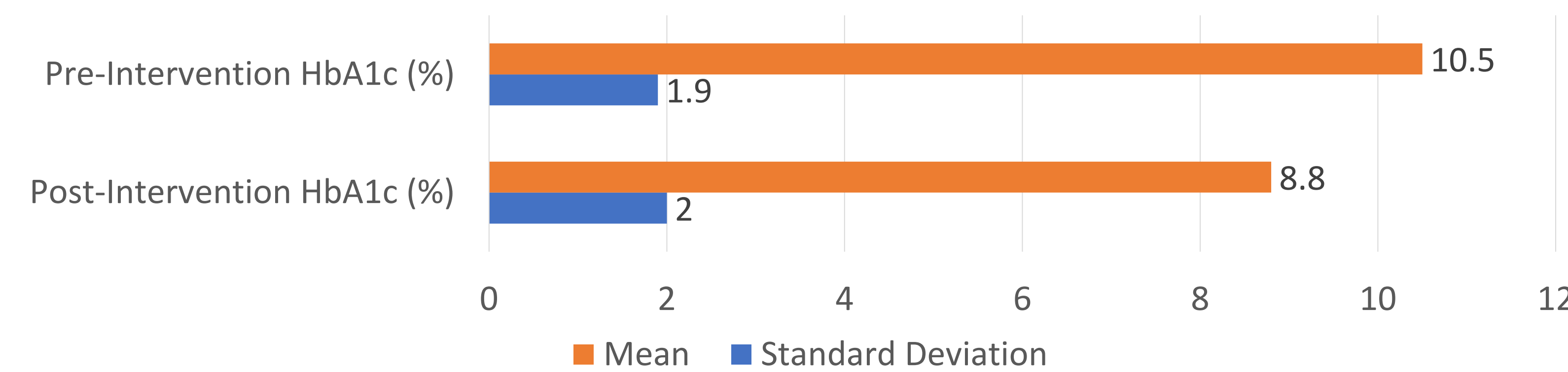


Figure 2. HbA1c Pre-Post Intervention Among Program Participants (n=31)\*  
 \* Due to missing post-intervention mean HbA1c data, 7 pre-intervention values were excluded.



Figure 3. Highlighted Participant Quotes Evaluating Grocery Voucher Program

Outcome	Baseline	Follow-up	p-value
Mean HbA1c (%) $\pm$ SD (range)	10.9 $\pm$ 1.91(7.3-14)	8.73 $\pm$ 2.11(4.6-13.8)*	< 0.001
Food insecurity status (often or sometimes true)†	92%	84%	0.500
Mean fruit and non-starchy vegetable intake (servings per day) $\pm$ SD (range)	2.28 $\pm$ 1.3(0-4.9)	2.87 $\pm$ 1.62(0.6-7)	0.106
Mean starchy vegetable and rice intake (servings per day) $\pm$ SD (range)	0.72 $\pm$ 0.62(0-2)	0.86 $\pm$ 0.49(0-1.86)	0.247
Trade-offs between food versus medicine or supplies (sometimes or often)	76%	56%	0.063
Mean hypoglycemic episodes $\pm$ SD (range)	2.36 $\pm$ 2.50(0-6)	0.96 $\pm$ 1.51(0-5)	0.007
Diabetes distress (moderate or serious problem)	80%	68%	0.453
Medication non-adherence (some of the time, hardly, or not at all)	8%	12%	1.000
Mean self-efficacy (on a scale of 1 to 10) $\pm$ SD (range)	8.59 $\pm$ 1.22(6.4-9.7)	8.63 $\pm$ 1.27(5.6-10)	0.887

\*Due to missing data, n=23 for this value.

†This value was obtained from phone survey questions for food insecurity based on the first three questions of the Six-Item Short Form of the Household Food Security Scale. This method differed from the clinic food insecurity screening done at the beginning of the program, which uses food insecurity questions modeled off the AHC HRSC Screening Tool.

Table 2. Changes in Primary Outcomes for Study Participants from Baseline (Survey 1) to Follow-up (Survey 2) (n=25)

## Results & Conclusions

We enrolled 38 patients in the program over eight months [Table 1] and 25 patients completed all parts of the study. There was a significant average difference between pre- and post-program HbA1c values all among participants (-1.74%, p < 0.001, n=31) and among survey respondents (-2.16%, p < 0.001, n=25) [Figure 2, Table 2]. We also conducted phone interviews with 12 program participants. Overall, the grocery voucher program helped patients better control their diabetes through increased clinic support and financial assistance [Figure 3].

By developing and implementing a program that addresses both the medical and social needs of food-insecure patients with type II diabetes, we have provided an infrastructure that not only brings together an interprofessional team to better engage patients in their care but also addresses health disparities in the community setting.

## Acknowledgements

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## References

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2. Goddu AP, Roberson TS, Raffel KE, Chin MH, Peek ME. “Food Rx: A Community–University Partnership to Prescribe Healthy Eating on the South Side of Chicago”, Journal of Prevention & Intervention in the Community, 2015, 43:2, 148-162.