Hemoglobin A1C Improvement in African-American Diabetics through Healthy Cooking Techniques

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Aim Statements

- ## Global Aim
  - Identify racial disparities in hemoglobin A1C control
  - Reduce percent of African-American patients with hemoglobin A1C greater than 9%

- ## Specific Aim
  - Identify 10 VMG Edenton primary care patients with hemoglobin A1C > 9%
  - Improve A1C control by 25% through patient education by December 2018

What is Diabetes Mellitus?

- Type 1 diabetes
  - Pancreas no longer produces insulin
- Type 2 diabetes
  - Person's insulin is ineffective
- Most cells require insulin to take glucose from the blood and convert it to energy
- Hemoglobin A1C of 9% or higher is considered uncontrolled (average glucose of 212 mg/dL)

Why Diabetes Mellitus?

- Affects 30 million Americans

- 2 million new diagnoses per year

- Disproportionately impacts Black Americans
    - Almost twice as likely to develop diabetes as Non-Hispanic Caucasians

Diabetes in VIM Edenton

- 262 diabetic patients
  - 31 had a hemoglobin A1C above 9% (average blood glucose $\geq$ 212 mg/dL)
  - 55% of uncontrolled diabetics were African-American
- Only 1 of 6 surrounding counties has more than one grocery store
  - Bertie, Chowan, Gates, Perquimans, Tyrrell, and Washington counties

Participants

Inclusion Criteria

1. Self-identifies as Black or African-American
2. At least 21 years old
3. Has had 2 consecutive A1Cs above 9%
4. Last A1C was on or after January 15, 2018
5. Taking at least 2 diabetes medications

Exclusion Criteria

1. Documented psychotic disorder
2. Known hemoglobinopathy
3. Chronic corticosteroid use

Which Intervention?

- All patient had a VMG primary care physician
- All patients on an acceptable medication regiment
- But still uncontrolled based on A1C

What else could they possibly need???

Cook Smart, Eat Smart

- Curriculum offered through the North Carolina Cooperative Extension

- Targeted to adults and teens

- Curriculum goals:
  - Plan and prepare healthy meals at home
  - Stay on budget with food choices

- All sessions are "hands-on"

- Diabetes basics course
  - What is insulin and what does it do?
  - What is a carbohydrate?
  - What is a hemoglobin A1C and why is it important?
  - What are the signs of hyperglycemia and hypoglycemia?
  - How to I read a nutrition facts label?
 - How does my medicine work?

Sessions 2 - 5

Class	Topic
Session 2	Kitchen basics Disinfection procedures, safe cutting/chopping, and safe food handling Techniques for roasting, marinades, stir-fry, and rice
Session 3	Grocery store tour How to choose healthy and cost-effective options while grocery shopping Techniques for grilling, baking, crock-pot use, and one-pot meals
Session 4	Techniques for steaming, packet cooking, sautéing, and making soups
Session 5	Techniques for making salads, salad dressing, simple appetizers, quick breads, pasta, and eggs

Results

- Ten participants invited
  - Four attended the first two classes
  - Three participants completed the program
- Hemoglobin A1Cs checked 6 weeks after course completion
  - All 3 participants reduced hemoglobin A1C
  - Two participants reduced their hemoglobin A1C below 9% for the first time since diagnosis

Results

Participant Hemoglobin A1Cs
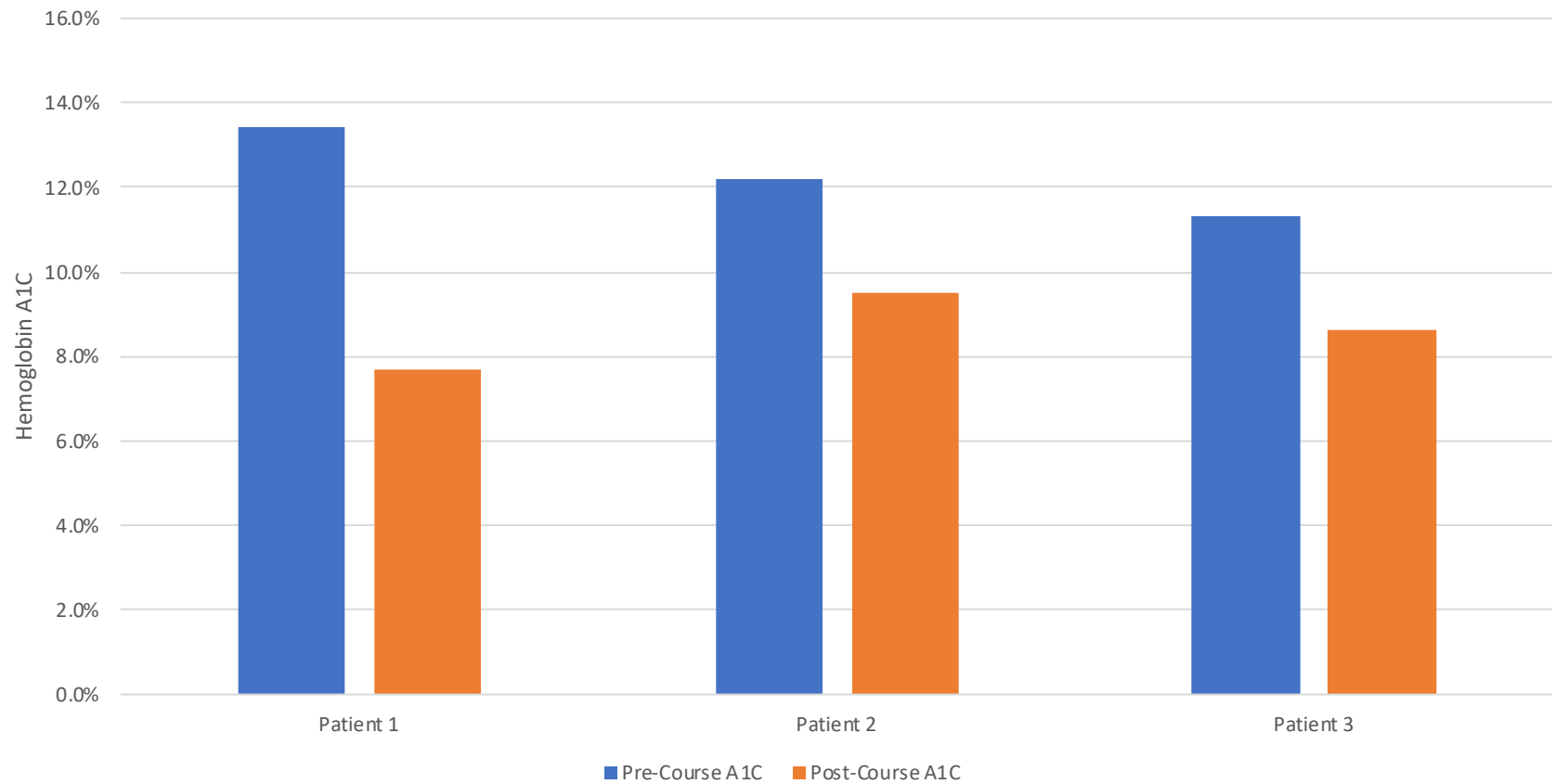
Lessons Learned

- Course attendance would likely be higher with more medically-compliant patients

- Many long-term patients with diabetes do not understand their disease

- A significant number of patients with uncontrolled diabetes could improve their health with hands-on diet and cooking education.

- The Cook Smart, Eat Smart curriculum can be taught in any medical clinic, church, or other building with power outlets and a sink.

Next steps

"It wasn't really insulin. You don't have diabetes yet. It was just a warning shot."

References

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"My diabetic research shows that test subjects are 98% more likely to take their diabetic pills if the pills are covered in chocolate."