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Preventing Prediabetes Conversion to Diabetes Through a Multimedia Bundle

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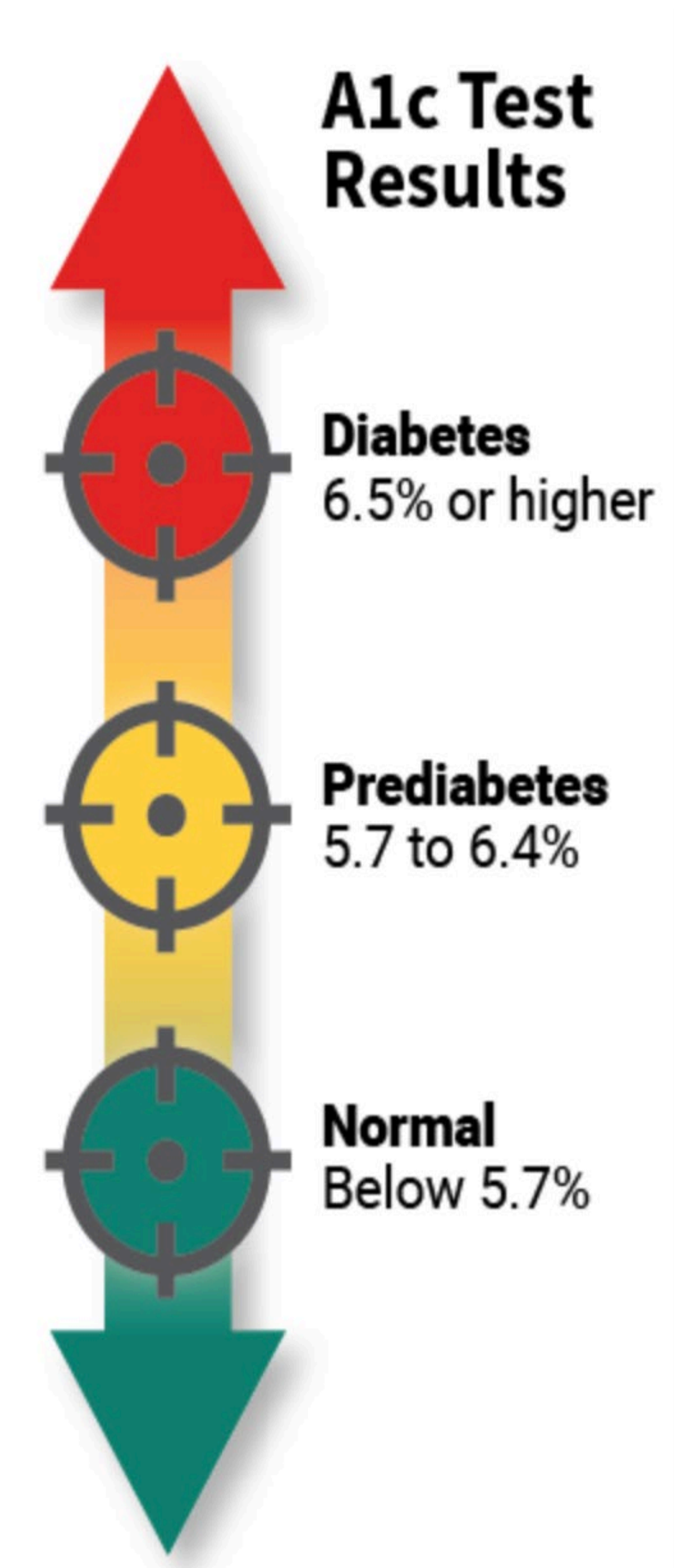
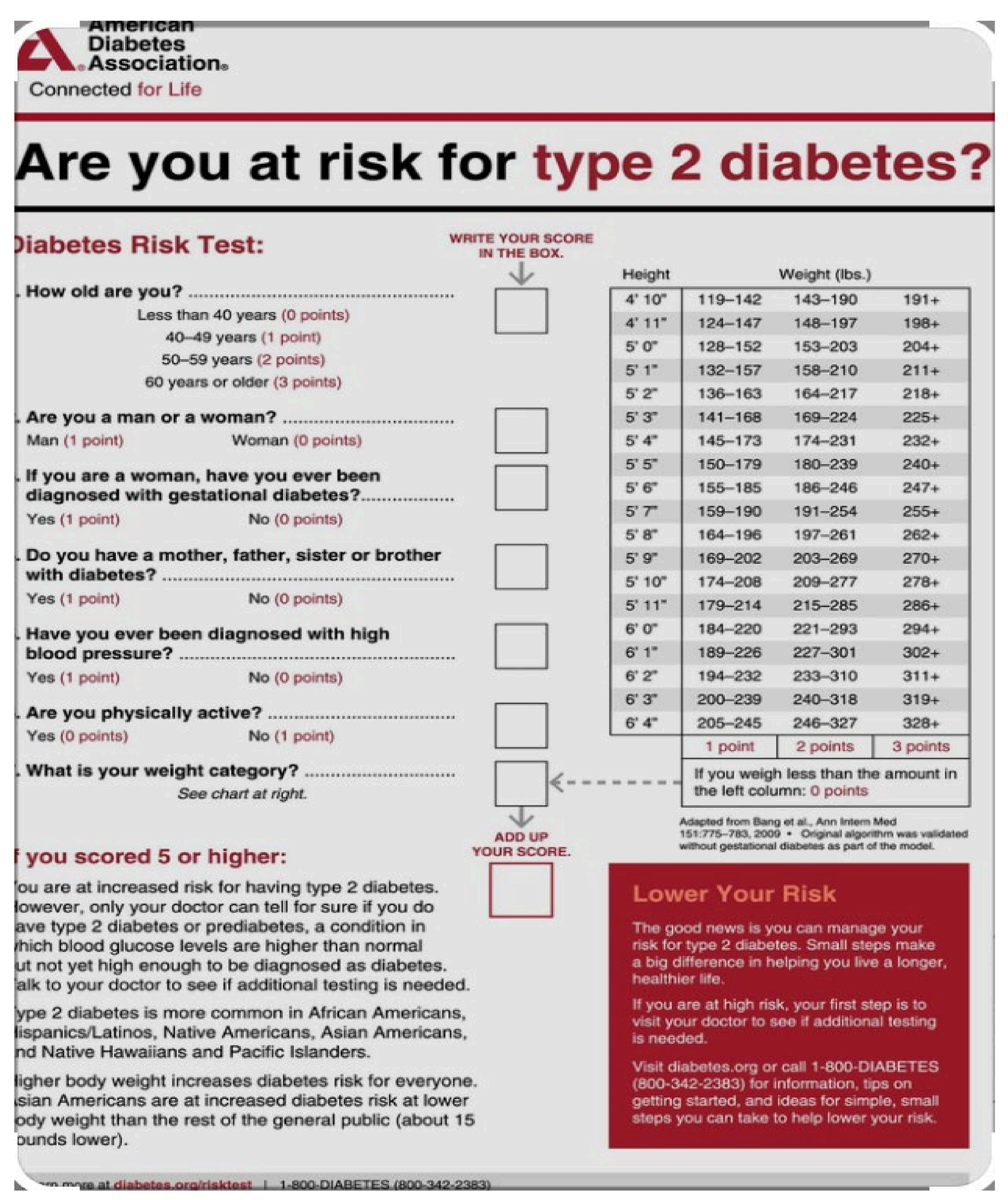
Introduction

- This Doctor of Nursing Practice (DNP) project deals with the knowledge practice gap that exists in the care and education of patients diagnosed with prediabetes. Through the use of a multimedia patient education/accountability bundle patients can be provided with the information and tools they need to prevent disease progression.

Background and Significance

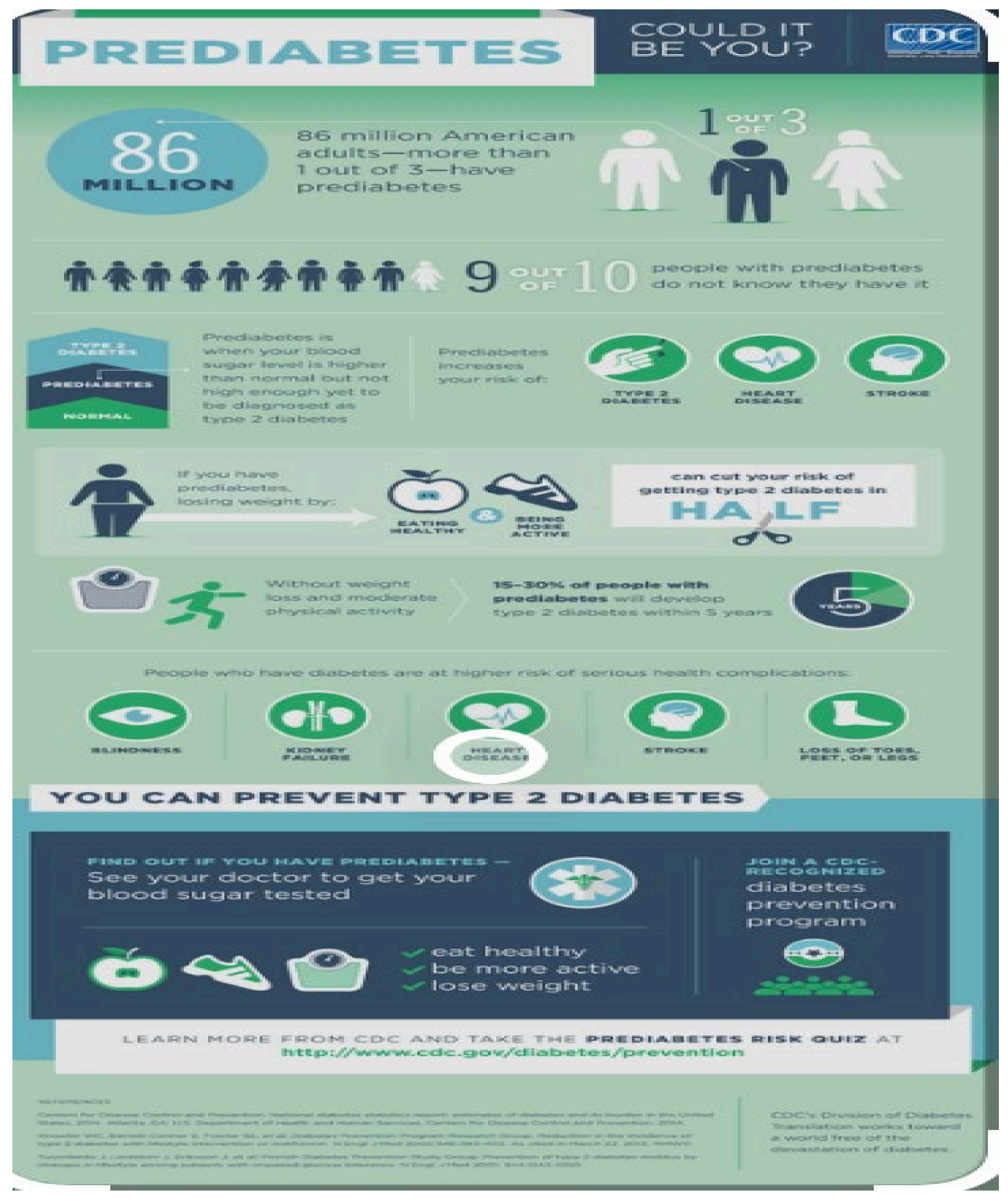




- Prediabetes is defined as impaired glucose tolerance or impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) (Grant & Cosentino, 2019). Diagnosis of prediabetes requires one of three test results. A HgA1c of 5.7% - 6.4% on one occasion is considered prediabetes. This range of percentages means your average blood sugar level is above the safe healthy range and your chance of developing Type two diabetes is high. A fasting blood sugar level from 100 to 125 mg/dL (5.6 to 7.0 mmol/L) is considered prediabetes. This result is sometimes called impaired fasting glucose. A blood sugar level from 140 to 199 mg/dL during an oral glucose tolerance test (OGTT) (7.8 to 11.0 mmol/L) is considered prediabetes. This is sometimes referred to as impaired glucose tolerance (IGT) (Prediabetes, 2020).
- Insulin resistance, and insulin hypersecretion are pathophysiological changes that begin to occur in prediabetes. Full blown diabetes is a devastating disease that puts one at risk for serious end organ damage, requiring multiple daily injections and finger sticks as well as painful and slow multisystem failure (Robertson et al., 2020).

Background and Significance (cont)

- Over time too much built-up sugar in your body causes major problems including hypertension and cancer. Microvascular and macrovascular complications arise from too much built-up sugar in your body congesting organ systems.



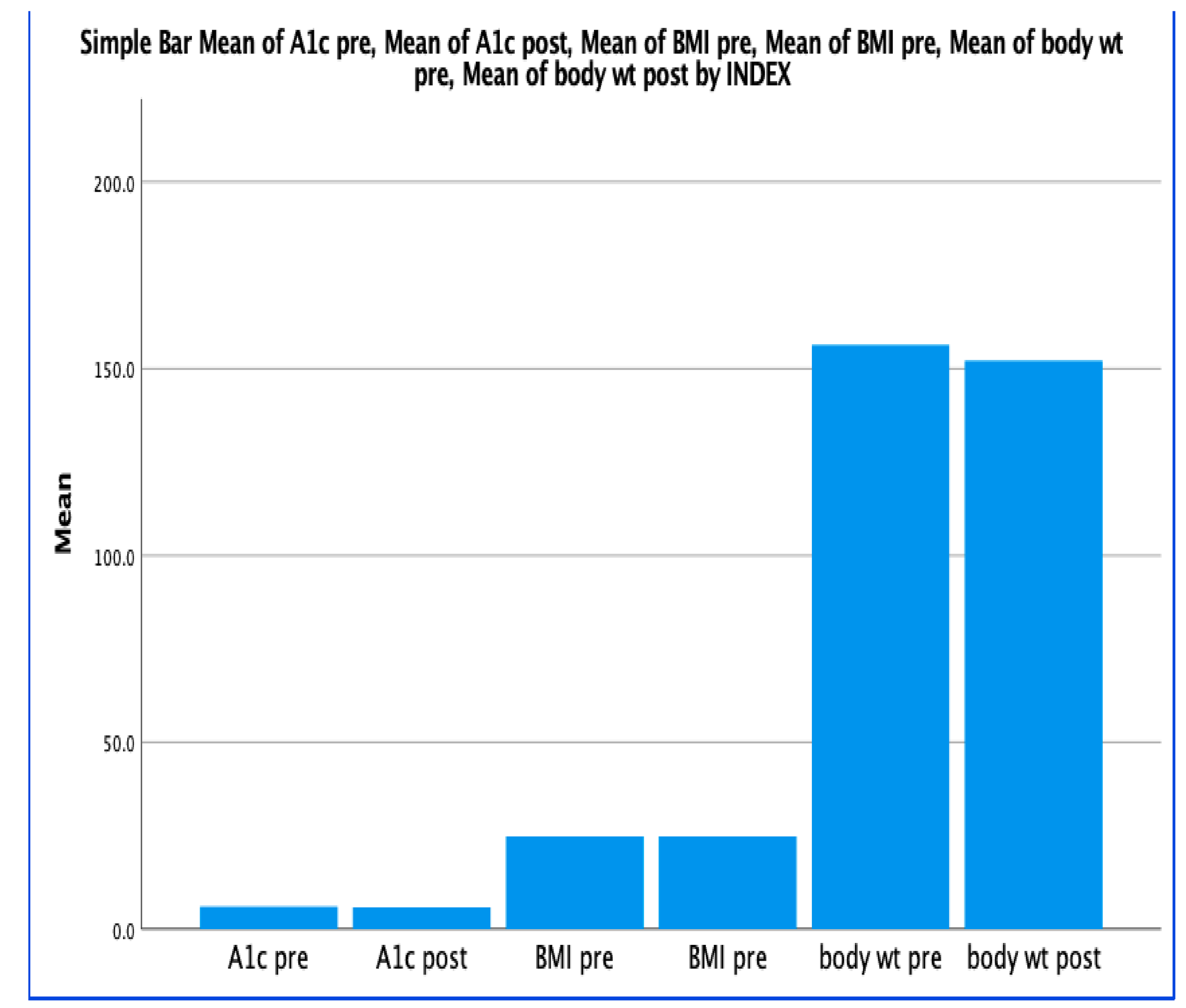
Methodology

- The project will engage the use of a multimedia bundle and telephone check ins at a primary care practice. Pre/post blood work as well as height and weight will include glycosylated hemoglobin (A1c) of the sample of 50 prediabetic patients.
- Two telephone check ins midway and a month later.
- A retrospective chart review will compare pre and post intervention HgA1c and BMI.

Results

- N= 41. Sample lost 9 members to attrition.
- Demographics measured included gender, ethnicity, age, and education.
- No relationship between demographics and outcomes was seen.
- No conversion to type two diabetes was seen
- Decrease in weight , BMI, A1c.
- Data was then coded as to frequency : 1= not at all, 2= 3/wk and 3= daily.
- Those who tracked daily saw the most dramatic weight change.
- T-test showed significance for all variables.A1c t(40)=5.869, p<.001. BMI t(40)=5.849, p<.001, weight t(40)=5.216.

Discussion



- Decrease in other cardiac markers such as cholesterol and ESR (not measured in all patients). Increase in endurance and overall feeling of well-being. And a desire to continue lifestyle changes.
- Both staff satisfaction and patient satisfaction are expected to improve. Policy changes should be lobbied for.
- The staff attitudes regarding the ease and perceived efficacy of diabetes education will likely increase dramatically as a result of the very easy to implement and through tool.
- Cost benefit analysis shows this will save both time and money for the practice.

Implications for Practice

AT-RISK WEIGHT CHART

HEIGHT	WEIGHT	HEIGHT	WEIGHT
4'10"	129	5'7"	172
4'11"	133	5'8"	177
5'0"	138	5'9"	182
5'1"	143	5'10"	188
5'2"	147	5'11"	193
5'3"	152	6'0"	199
5'4"	157	6'1"	204
5'5"	162	6'2"	210
5'6"	167	6'3"	216

- Improvements will be seen in the care and patient education/teaching provided to prediabetics. The bundles thoroughness assures all information is imparted, and the fact that patients then have the information to read and absorb on their own time will improve their ability to understand and apply the material.

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