Culturally Tailored Diabetes Interventions for a Texas Border Community: An Exemplar of Building Self-Management Science

Starr County, Texas

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The Starr County Border Health Initiative   *1988-present*

STARR COUNTY

Research Field Office,
Rio Grande City,
Starr County

Why Starr County?

- **96% Hispanic**
- **Population: 64,000+**
- **County Seat – Rio Grande City (Research Field Ofc.)**
- **Foreign born – 31.4%**
- **Households w/ internet subscription – 50% (TC 85%)**
- **Bachelor's degree or higher – 9.7%**
- **Persons w/o health insurance – 28%**
- **Living in poverty – 32%**
- **Median household income – $27,133**

Source: https://www.census.gov/quickfacts/fact/table/starrcountytexas/WTN220212#WTN220212

COMMUNITY SETTING

STARR COUNTY

RESEARCH PATHWAYS

Meta-analysis → **Intervention**

| Meta-analysis	Intervention
MA: DSME interventions (ANF)	**RGV: Intervention development (focus groups, pilots)**
MA: DSME interventions revisited (DREF)	**RGV: Efficacy of culturally tailored DSME intervention in Mexican Americans (NIDDK)**
MA: Weight loss strategies in type 2 diabetes (NINR)	**RGV: Comparison of 2 culturally tailored DSME interventions in Mexican Americans (NIDDK)**
MA: Pilot testing of a predictive model of diabetes outcomes (UT-Houston Faculty Development Leave)	**RGV: Feasibility of nurse case management in rural border communities (NIDDK)**
MA: Biobehavioral determinants of health outcomes in type 2 diabetes (NINR)	**RGV: Diabetes Prevention & Genetic Influences (NIDDK)**

Promoting Weight Loss in Type 2 Diabetes (n=89) (Brown et al., 1996)

META-ANALYSIS

BMI

HbA1c

-20# wt. loss

-2.4%-age points
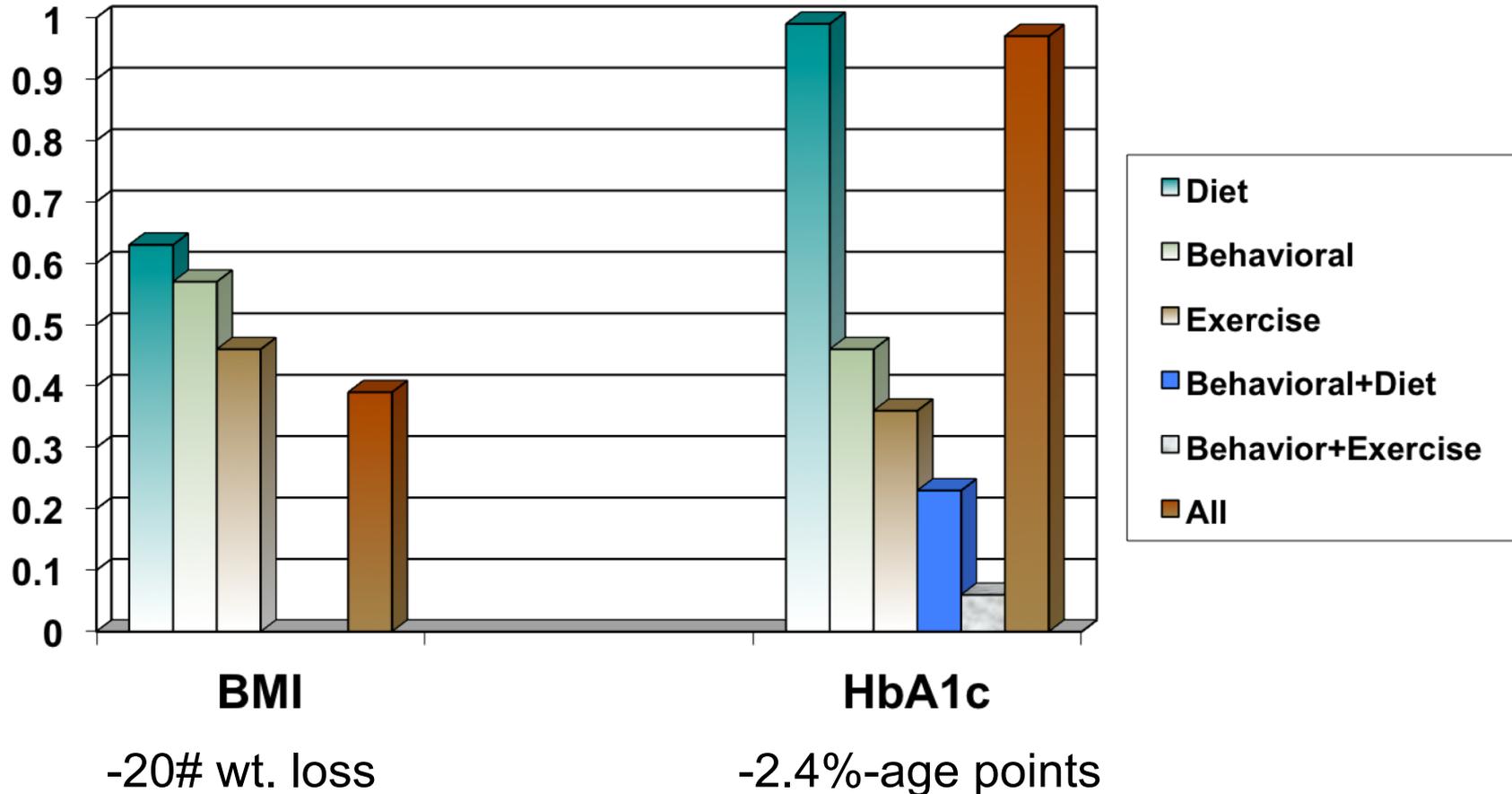
INTERVENTIONS

Culturally tailored education + group support:

52 contact hours ("*extended*")

22 contact hours ("*compressed*")

22 contact hours ("*compressed*") + NCM
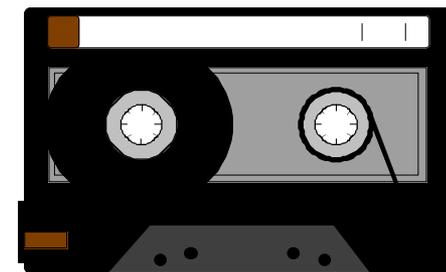
Instructors: RNs & RDs + *promotoras*

Practical lifestyle changes

Reinforcements: certificates of achievement, door prizes, free monitors, t-shirts

Social support: family members, friends, groups

Community-based settings: schools, churches, health clinics, agricultural extension center, adult day care centers

1,100+ study participants

Recruitment & Retention

STARR COUNTY

Recruitment: 95%+
Retention: 81-90%

Language

Family-centered

Non-judgmental approach

Transportation

Flexible scheduling

Reminders — telephone, calendars

Benefits — feedback, intervention, monitoring, rewards

Snacks of healthy Mexican-American foods

Sample Characteristics

- 64% female
- 54 years of age on average (range 35-70)
- 20% on insulin
- 38% use alternative remedies (garlic, *chaya*)
- 8 years average diabetes duration (range 1-25)
- Scored low (1.0) on acculturation scale (0-4)
- 90% preferred speaking Spanish
- Baseline mean A1C ~ 12%

Dosage Effects: A1C —
compressed vs. extended ≥50% attendance (n=110)
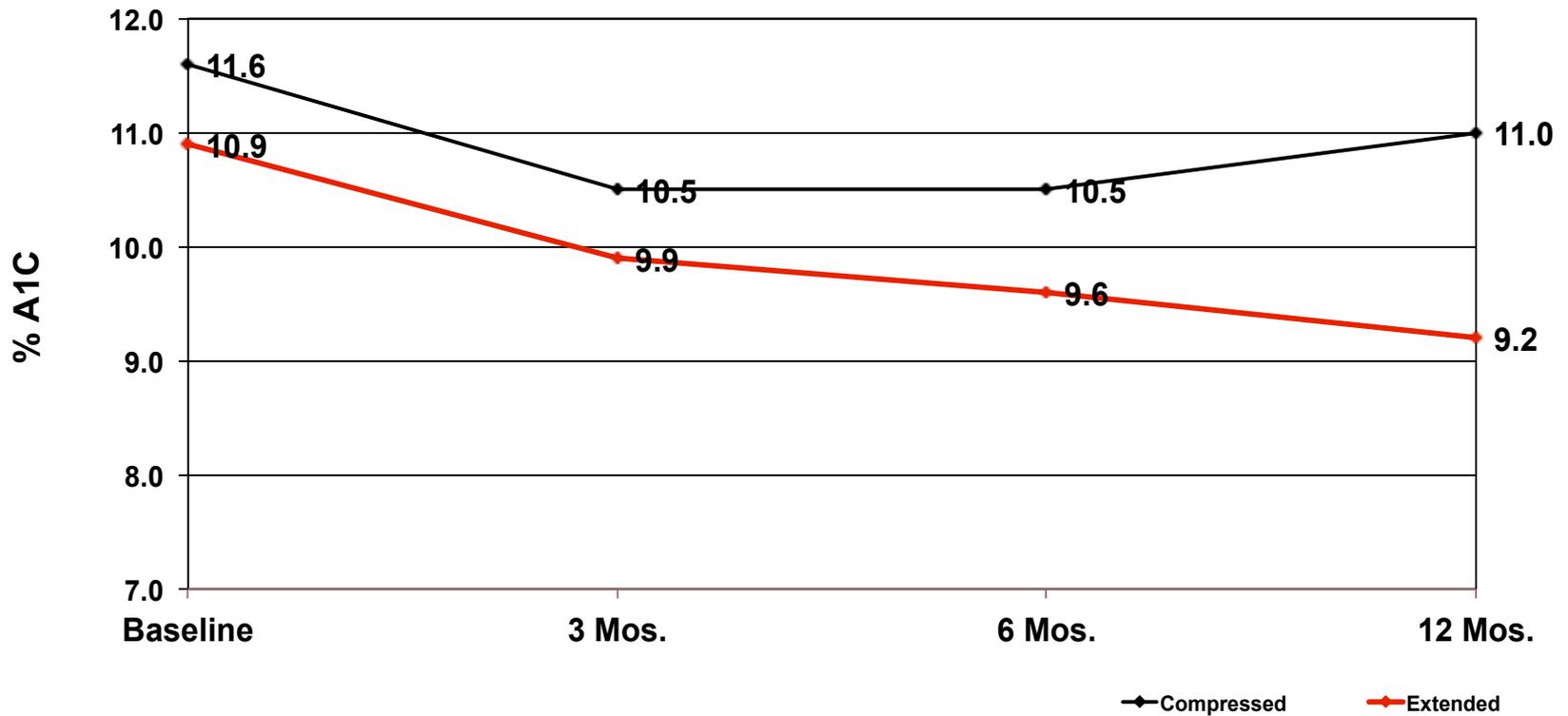
A1C at 12 months – *Dosage Effects*
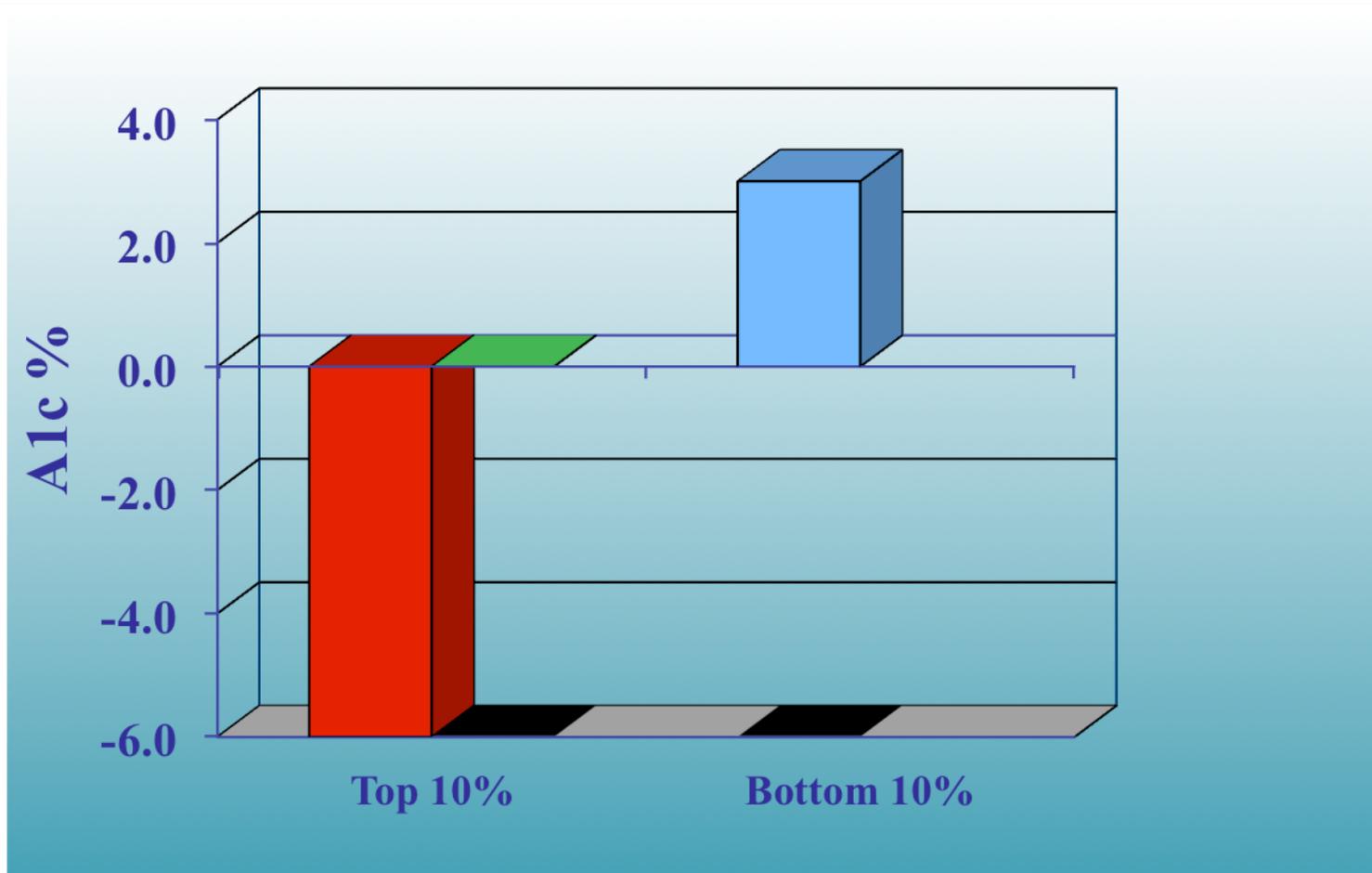
	Top 10%	Bottom 10%
	n=20	n=20
	Attended 57%	Attended 37%
	Mean age: 54.8	Mean age: 53.9

Final analysis….

- **Significant improvements in A1C, FBG, knowledge**
- **No sustained significant changes in BMI**
- **Gender differences (males perceive more support, control over diabetes)**
- **Environmental barriers to exercise**
- **Importance of glucometers/strips**
- **Misinterpretation of HCP recommendations**
- **Self-prescribing of medications**
- **Misunderstanding of health experiences of family and friends**
- **Availability of bilingual Hispanic nurses, dietitians**

Diabetes Prevention Culturally Tailored for Mexican Americans (2017-2022)

Test a **culturally** tailored lifestyle intervention that *incorporates motivational interviewing* and is designed to prevent, or delay onset of, T2DM in Mexican Americans with prediabetes (A1C of 5.7% – 6.4%)

OGTT - FBG, 2-hr. BG
A1C
Weight / BMI
Triglycerides, cholesterol
Blood pressure
Food frequency
Fat avoidance
Physical activity
Depression (PHQ-9)
Health beliefs - Barriers
Perceived stress

Diabetes Prevention Culturally Tailored for Mexican Americans (2017-2022)

FOCUS GROUPS (3 groups, *n*=30)

Reference: Brown, S.A., Perkison, W.B., García, A.A., Cuevas, H.E., Velasquez, M.M., Winter, M., & Hanis, C.L. (2018). The Starr County Border Health Initiative: Focus groups on diabetes prevention in Mexican Americans. *The Diabetes Educator, 44,* 293-306. Epub 2018 Apr 12.

GENETIC FACTORS (Exploratory Aim)

Examine the influence of genetic variation on ability to:

a) control blood glucose levels (e.g., HNF1alpha and SLC16A)

b) maintain behavioral changes necessary to achieve optimum control (dopamine receptors)

Diabetes Prevention Culturally Tailored for Mexican Americans: FOCUS GROUPS

- ## <u>Cultural Considerations</u>

  Food—raised to eat unhealthy foods, HCP advice takes away the culture

  Exercise—"White person's luxury"

- ## <u>Barriers</u>

  Cost, time, family preferences

  No place to walk, heat, dogs, job

  Lack of health insurance, transportation

  No community support for being healthy

  Fear of deportation

- ## <u>Recommendations</u>

  Simple recipes, cooking demonstrations

  Reading labels

  Portion control/calories

  Eat cultural foods

  Focus on the family

  Competition, game

  Motivations – family, live longer, recognition

Diabetes Prevention Culturally Tailored for Mexican Americans: INTERVENTION

Groups randomly assigned to:

Experimental group:

1. 12 2-hour weekly educational group sessions (preparing and eating healthy Mexican-American foods and increasing physical activity)
2. 12 bi-weekly + 3 monthly support group sessions (problem solving)
3. 3 booster sessions to enhance maintenance

Control group:

"enhanced" usual care that receives lab results with individualized guidance and referrals

Diabetes Prevention Culturally Tailored for Mexican Americans: INTERVENTION

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- **Emphasis on dietary principles:**
  - portion control, limiting calories/CHO/sodium intake, timing of meals
- **Dietary guidelines applied to MA foods**
- **Grocery store tour(s) – reading labels**
- **Physical activity (Fitbits, Fitabase)**
- **Goal setting/problem-solving model**
- **Mindful eating**
- **DVDs / handouts**
- **Behavioral Resource Toolkit ($100)**
- **Snacks of healthy MA foods**

Diabetes Prevention Culturally Tailored for Mexican Americans: INTERVENTION

Behavioral Checklist

LISTA DE COMPORTAMIENTO

Fetcha:
Semana De: _____

NOMBRE:_____ PESO COPORAL:_____ RGV-P ID:_____

DIAS	Pastillas para diabetes	Insulina	Comida	Carnes	Vegetables	Fruitas	Leche	Almidones y panes	Grasas	Golocinas	# de Pasos Recorridos
Lunes			Desayuno								
			Almuerzo								
			Cena								
Martes			Desayuno								
			Almuerzo								
			Cena								
Miercoles			Desayuno								
			Almuerzo								
			Cena								
Jueves			Desayuno								
			Almuerzo								
			Cena								
Viernes			Desayuno								
			Almuerzo								
			Cena								
Sábado			Desayuno								
			Almuerzo								
			Cena								
Domingo			Desayuno								
			Almuerzo								
			Cena								

Sharon A. Brown, PhD, RN and Hasan M. Yousuf

Diabetes Prevention Culturally Tailored for Mexican Americans: PROGRESS REPORT

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Focus groups

Refined curriculum

Training/orientation

62% of sample recruited *(n*=186/300)

6 groups currently in progress

Collecting data at:
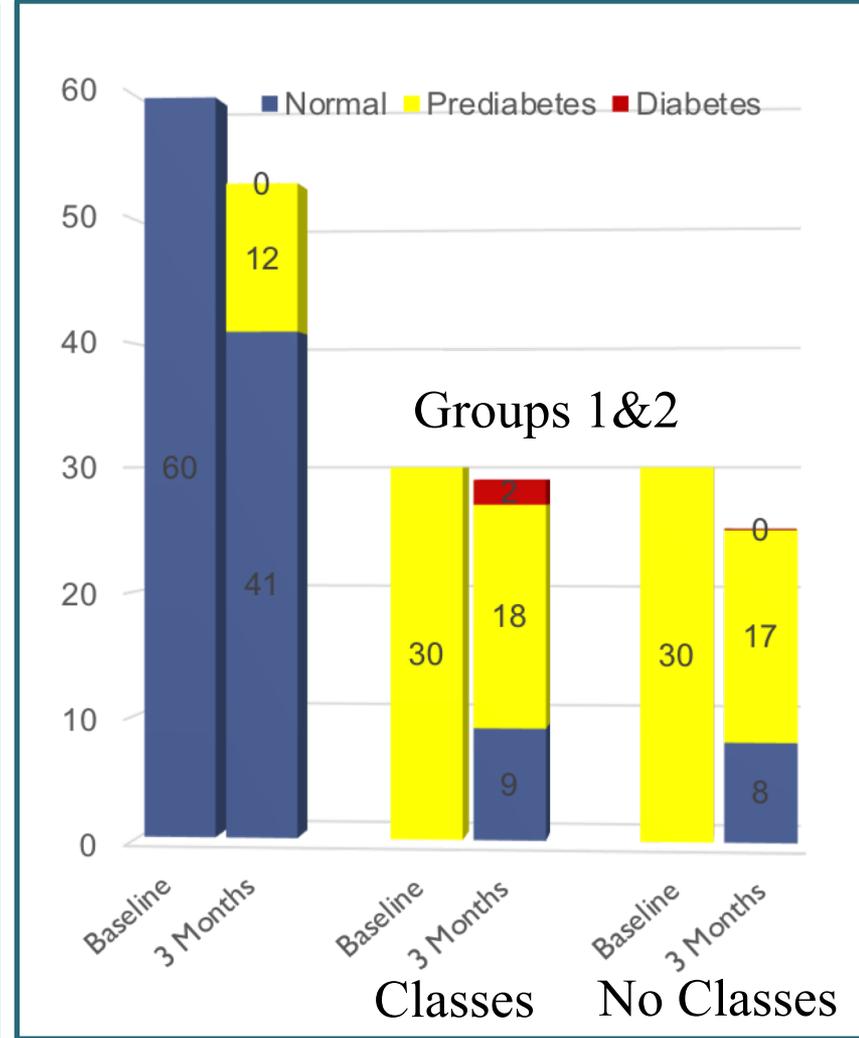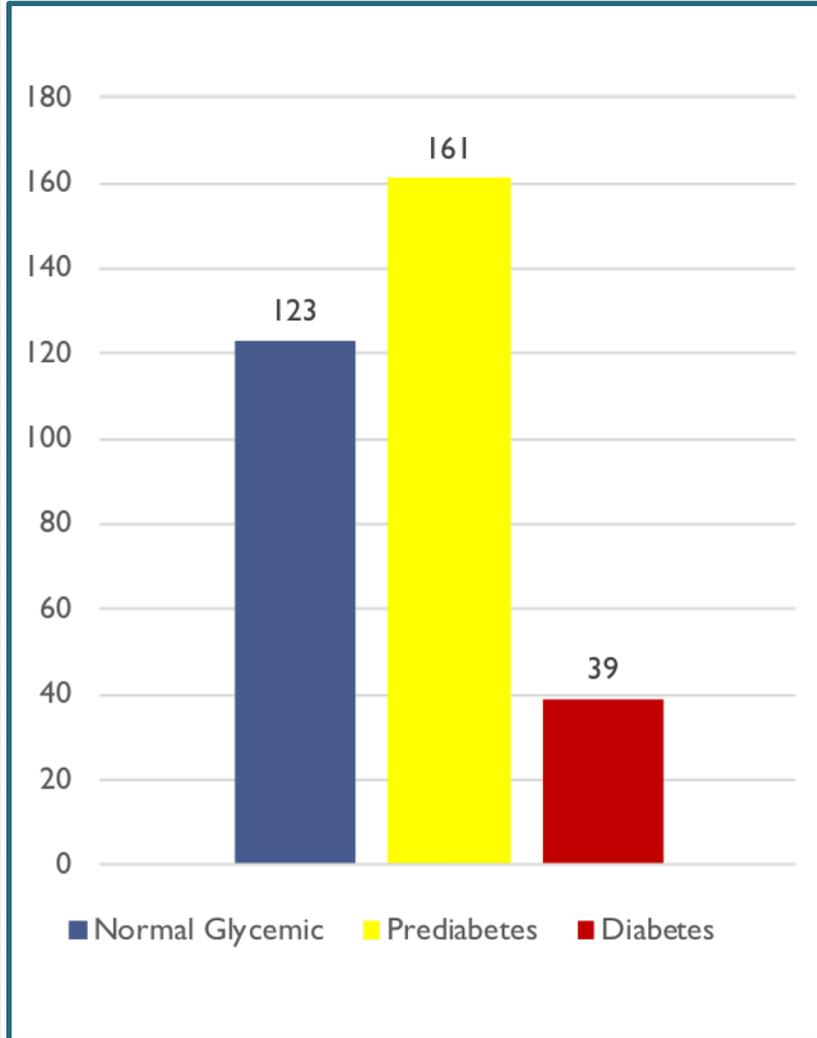
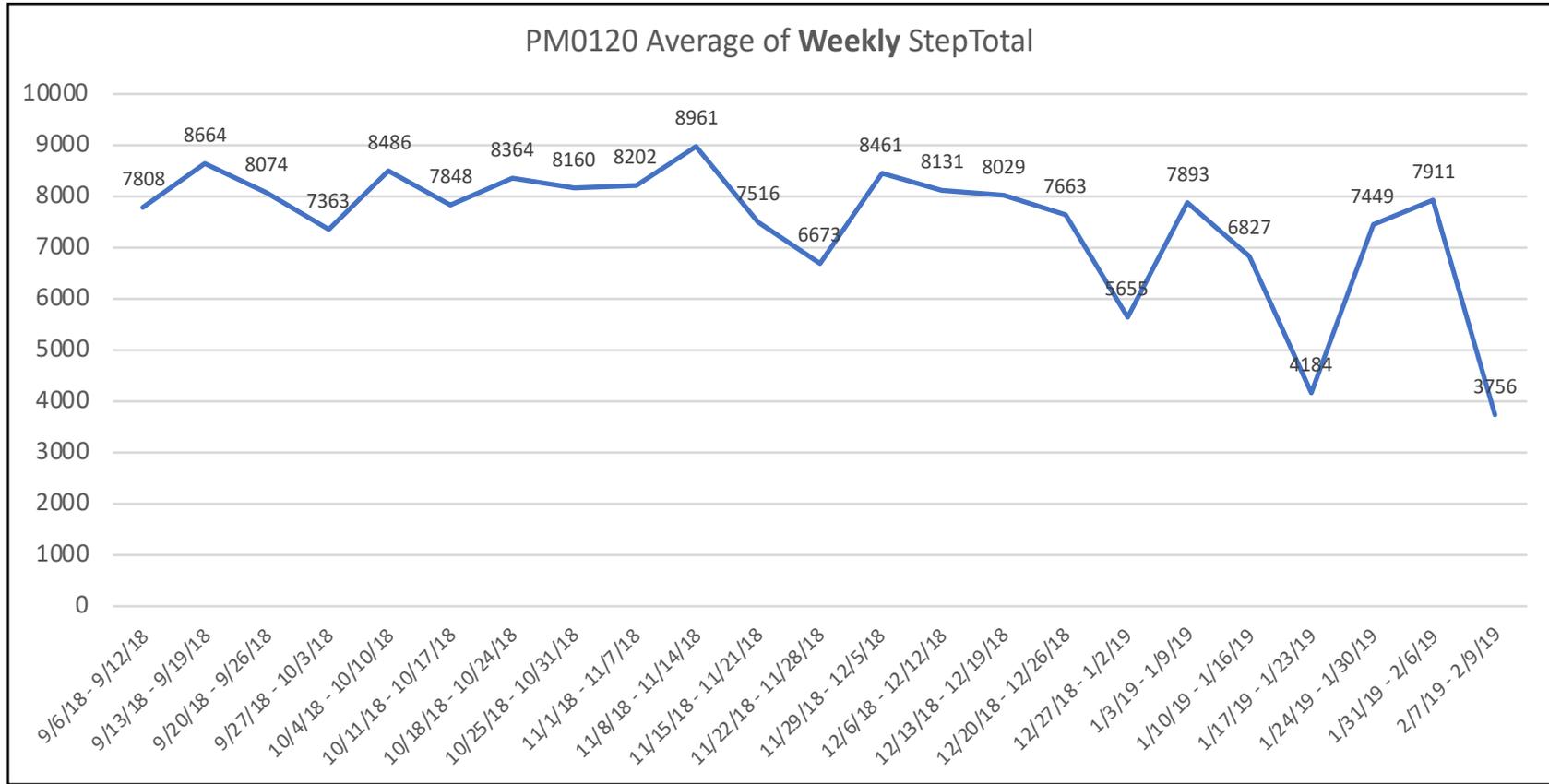**baseline & 3, 6, 12, 24, 36 mos.**

[currently at the peak of activity]

Fitbit Feedback & Tracking

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PM0120 Average of **Weekly** StepTotal

RESEARCH TEAM

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