



# Using Fitbits and Follow-Up to Increase Physical Activity and Prevent Diabetes

Theresa Dachel, DNP, RN, APNP, AGPCNP-BC, CEN  
Assistant Professor

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College of Nursing  
and Health Sciences

University of Wisconsin  
**Eau Claire**

# Disclosures

A background image of a doctor in a white lab coat with a red stethoscope around their neck. The image is overlaid with a semi-transparent blue filter. The text is centered over the image.

I declare no actual or potential conflict of interest and no relevant financial relationships, sponsorships, or commercial interests with Fitbits, other physical activity trackers, or anything else in relation to this presentation.



# Learner Objectives



1. Recall that increasing physical activity (PA) through motivation is one component of a diabetes prevention program



2. Discuss how healthcare team relatedness matters to help individuals increase PA

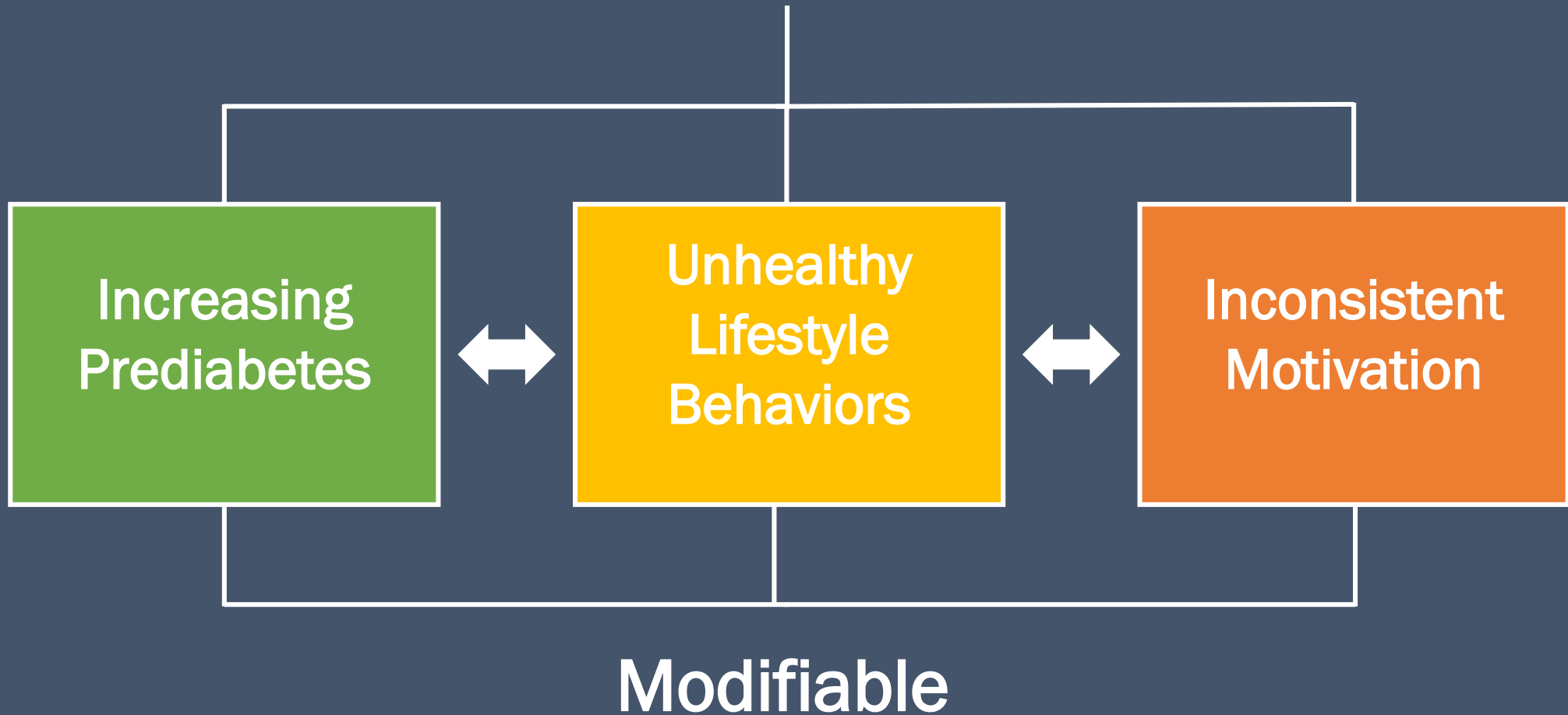


3. Explain how rural area challenges can be overcome for individuals to increase PA



4. Justify how preventive care costs including the use of physical activity trackers (PATs) can be less than treating annual care of individuals with diabetes

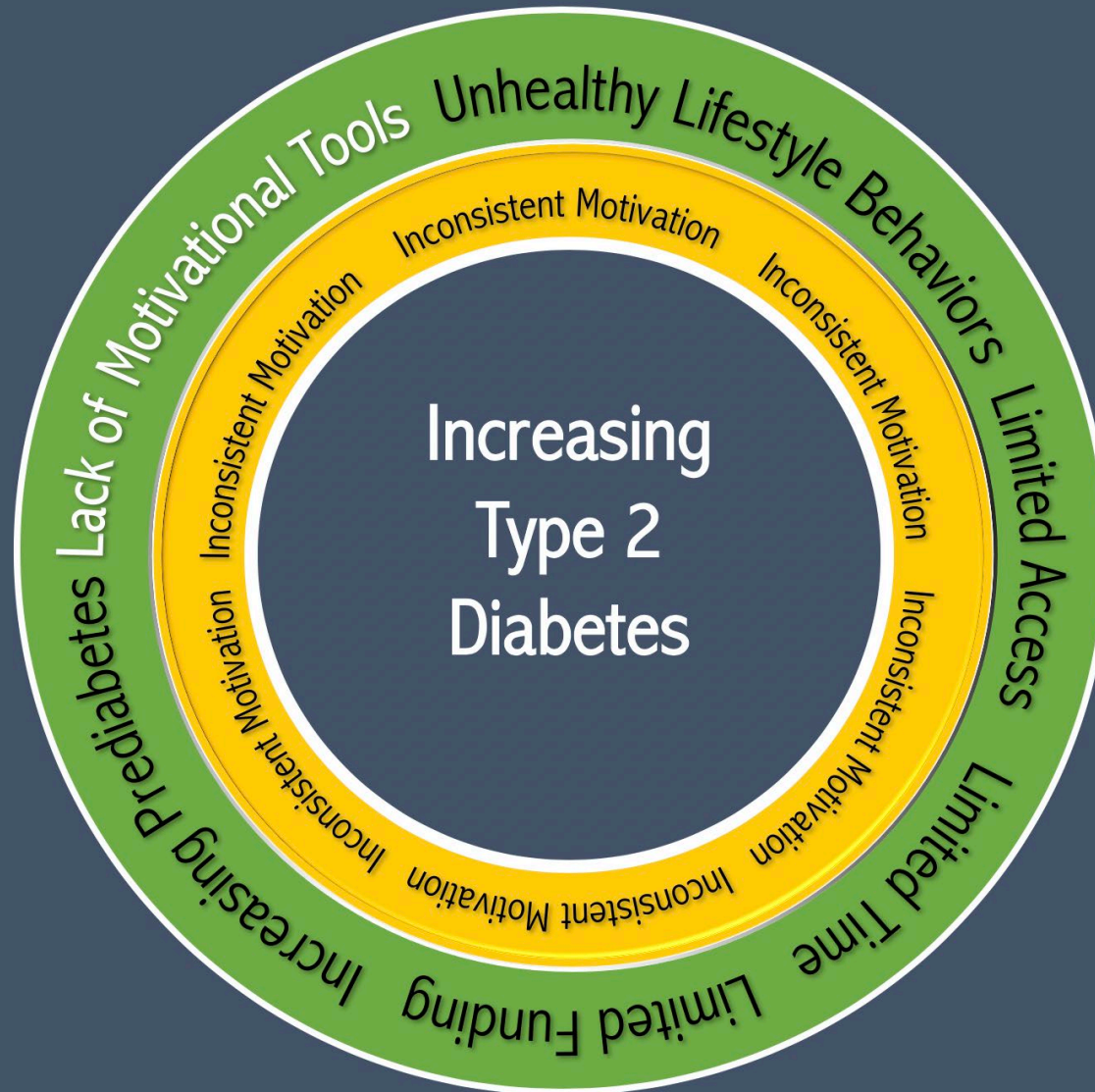
# Clinical Challenge: Increasing Incidence of Type 2 Diabetes



# Clinical Challenge at Smaller Scale



# Needs Assessment



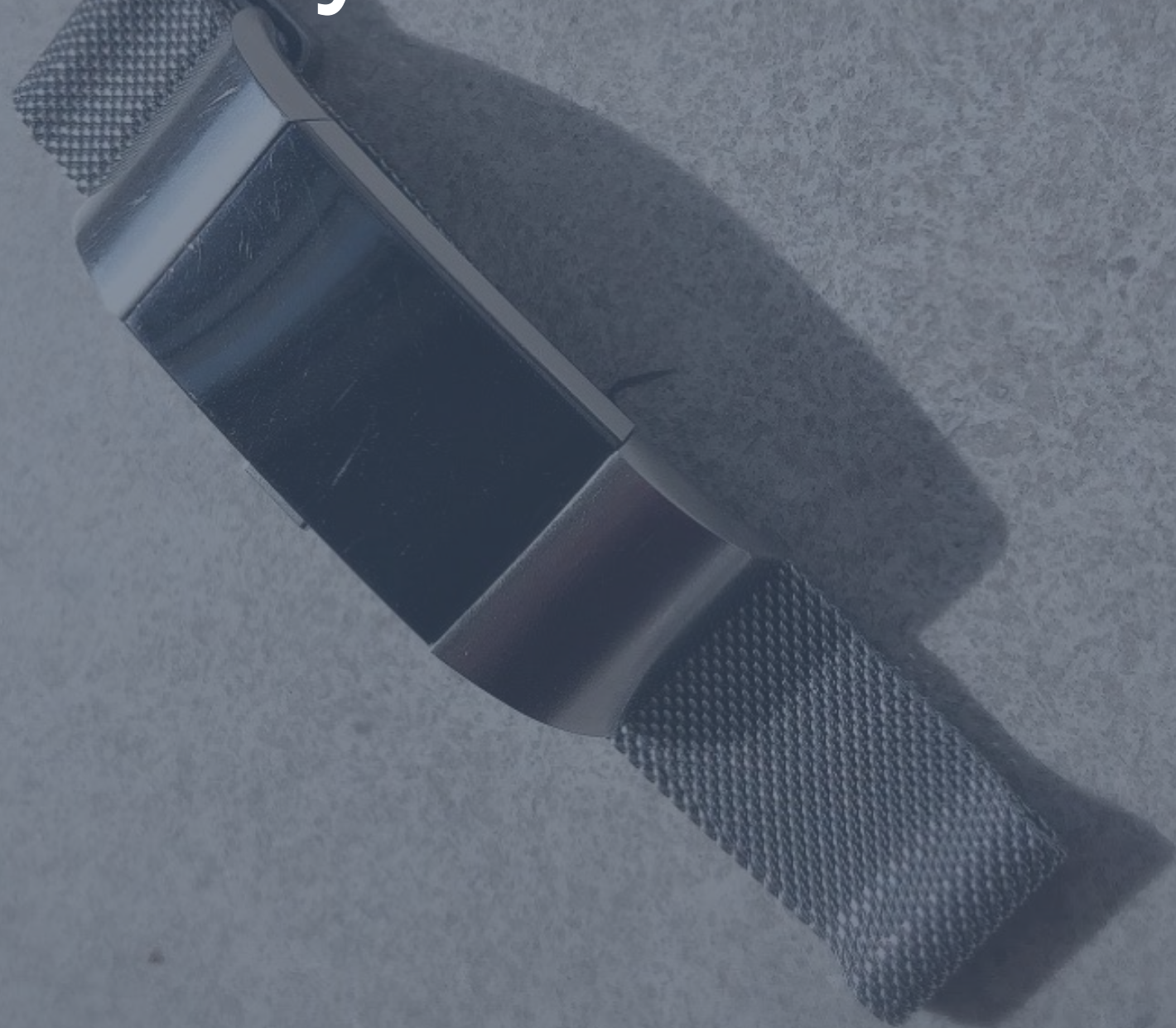


# Purpose

To evaluate the feasibility and effectiveness of physical activity trackers and individualized follow-up with coaching strategies as a motivational tool for rural individuals with prediabetes to **increase and sustain physical activity** as one component of a diabetes prevention program



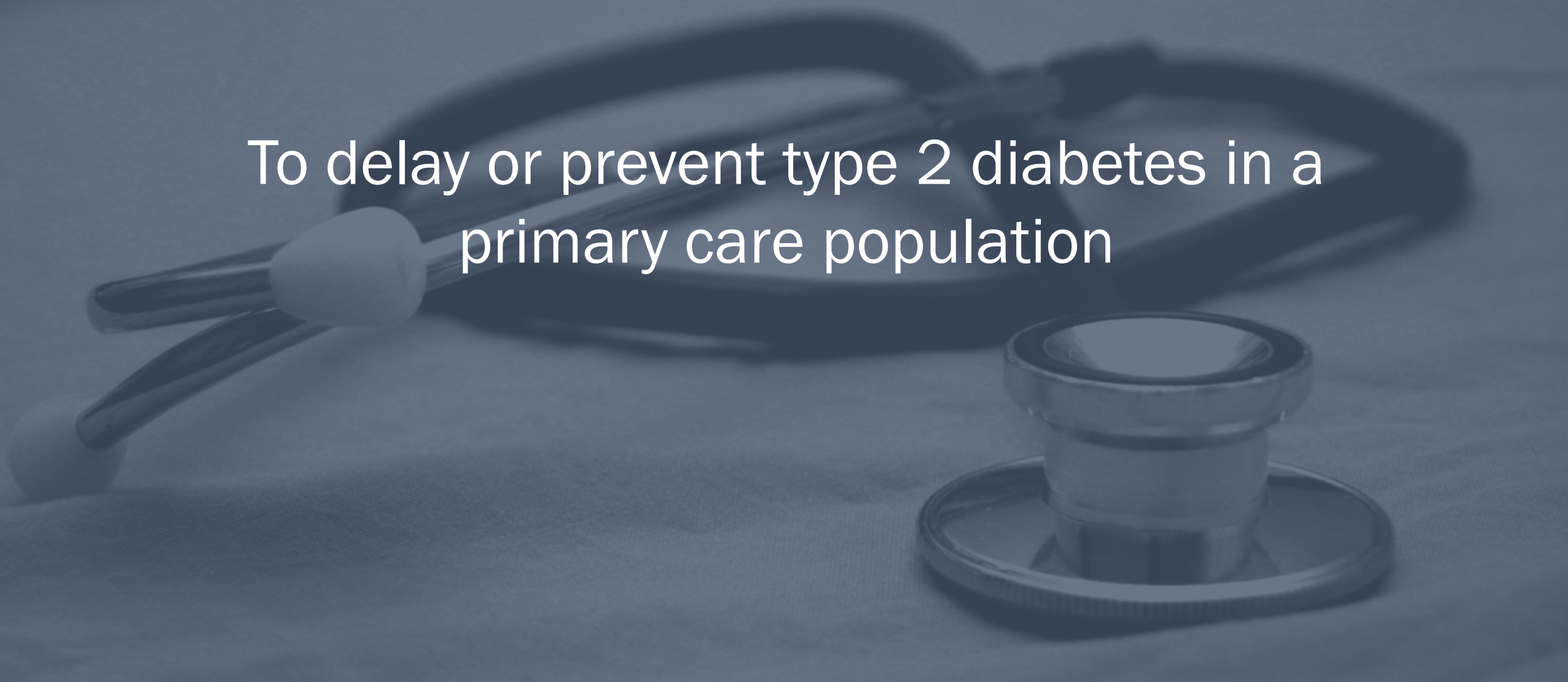
# Physical Activity Tracker





# Overarching Goal

To delay or prevent type 2 diabetes in a  
primary care population



# Synthesis of Literature: Primary Themes



## PREVENTION

Prevent type 2 diabetes



## TARGET

Target those with prediabetes



## FOCUS

Focus on lifestyle behavioral changes



## UNDERSTANDING

Understand it takes more than just knowledge to make behavioral changes



# Theoretical Framework

## Self-Determination Theory



# Quality Improvement Framework

## PDSA Model



PLAN



DO



STUDY



ACT

REPEAT



# Summary of Approach Program Overview



SETTING



MAIN TEAM



PARTICIPANTS



INTERVENTION



EVALUATION



PROGRAM  
ACTIVITIES



DATA  
COLLECTION



DATA  
ANALYSIS

# Summary of Phase 1 and 2 Key Results



PHYSICAL  
ACTIVITY



BIOPHYSICAL  
DATA



SURVEYS



INTERVIEWS &  
FIELD NOTES



# Phase 1 Results: PA Steps and Minutes

Phase 1 (Months 1-3)

Total Participants' Average Daily PA Steps

6,877

BASELINE

10,198

MONTH 3

# Phase 1 Results: PA Steps and Minutes

Phase 1 (Months 1-3)

## Total Participants' Average Daily PA Minutes

25

MONTH 1  
(NO BASELINE)

35

MONTH 3

# Phase 1 Results: PA Steps and Minutes

Phase 1 (Months 1-3)

## PA Steps and Minute Goals Met

STEPS: 12/13 (92%)

MINUTES: 8/13 (62%)

MONTH 1

STEPS: 7/13 (54%)

MINUTES: 7/13 (54%)

MONTH 3

\* 1/13 (8%) is undetermined due to PAT data or device lost



# Phase 1 Results: Biophysical Data

Phase 1 (Months 1-3)

## Month 3 HA1C Compared to Baseline:

- 4/13 (31%) **decreased**
- 4/13 (31%) **stayed same**
- 5/13 (38%) **increased**
- 12/13 (92%) **did not transition**
- 2/13 (15%) **decreased to normal**

## Month 3 Weight and BMI Compared to Baseline:

- 3/13 (23%) **decreased** and 2/13 (15%) **had significant weight loss** (21 and 14 pounds)
- 3/13 (23%) **stayed same**
- 7/13 (54%) **increased**

# Phase 1 Results: Survey

Phase 1 (Months 1-3)

## Month 3 Average Participant Results Compared to Baseline



# Phase 2 Results: PA Steps and Minutes

Phase 2 (Months 4-6)

## Total Participants' Average Daily PA Steps

6,877

BASELINE

10,198

MONTH 3

7,664

MONTH 6



# Phase 2 Results: PA Steps and Minutes

Phase 2 (Months 4-6)

## Total Participants' Average Daily PA Minutes

25

MONTH 1  
(NO BASELINE)

35

MONTH 3

24

MONTH 6

# Phase 2 Results: PA Steps and Minutes

Phase 2 (Months 4-6)

## PA Steps and Minute Goals Met

STEPS: 12/13 (92%)  
MINUTES: 8/13 (63%)

MONTH 1

STEPS: 7/13 (54%)  
MINUTES: 7/13 (54%)

MONTH 3

STEPS: 3/13 (23%)  
MINUTES: 3/13 (23%)

MONTH 6

\* 1/13 (8%) is undetermined due to PAT data or device lost

# Phase 2 Results: Biophysical Data

Phase 2 (Months 4-6)

## Month 6 HA1C Compared to Baseline:

- 6/13 (46%) **decreased**
- 2/13 (15%) **stayed same**
- 5/13 (38%) **increased**
- 12/13 (92%) **did not transition**
- 2/13 (15%) **decreased to normal**

## Month 6 HA1C Compared to Month 3:

- 6/13 (46%) **decreased**
- 1/13 (8%) **stayed same**
- 6/13 (46%) **increased**
- 12/12 (100%) **did not transition**
- 2/13 (15%) **decreased to normal**



# Phase 2 Results: Biophysical Data

Phase 2 (Months 4-6)

## Month 6 Weight and BMI Compared to Baseline:

- 5/13 (38%) **decreased** and 3/13 (23%) **had significant weight loss of** 29, 11, and 6 pounds)
- 2/13 (15%) **stayed the same**
- 6/13 (46%) **increased**

## Month 6 Weight and BMI Compared to Month 3:

- 6/13 (46%) **decreased** and 4/13 (31%) had weight loss of 6 to 8 pounds
- 2/13 (15%) **stayed the same**
- 5/13 (38%) **increased**

# Phase 2 Results: Surveys

Phase 2 (Months 4-6)

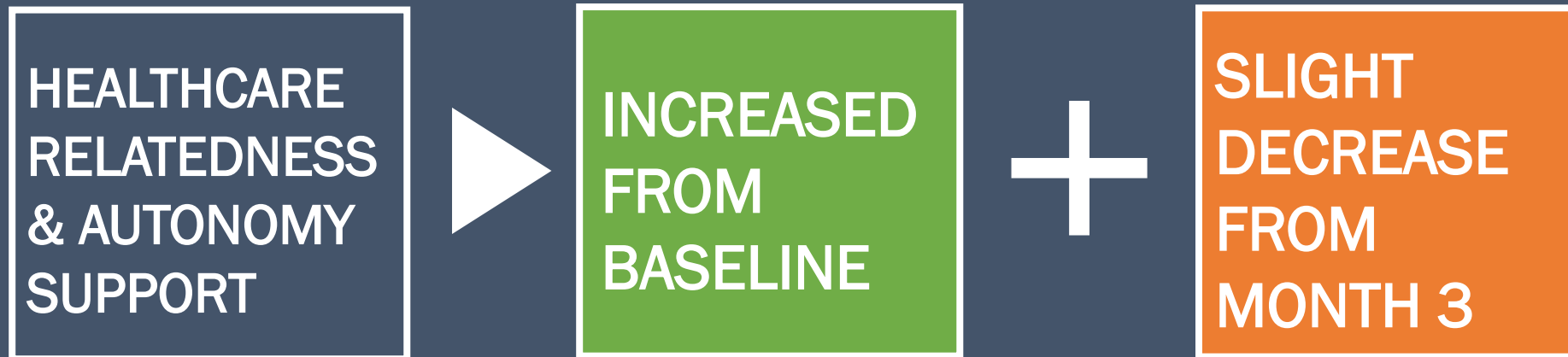
## Month 6 Average Participant Results Compared to Baseline and Month 3



# Phase 2 Results: Surveys

Phase 2 (Months 4-6)

## Month 6 Average Participant Results Compared to Baseline and Month 3





# Semi-Structured Interview Results

## Participant Themes

### Facilitators

PATs provided an increased awareness to do PA

Combination of PATs and follow-up visits to do PA was helpful

Motivation and self-determination was increased with this program

Social support helped increase PA

### Barriers

Pain

Increased work demands

Increased driving time

Inclement weather

# Semi-Structured Interview Results

## Additional Benefits of Program



INCREASED ENERGY LEVEL



IMPROVED SLEEP



HEALTHIER DIET



IMPROVED MOBILITY



IMPROVED MOOD



DECREASED PAIN

# Challenges: Technology Connection



SETUP



RESULTS



SYNCING



FUNDING

# Challenges: Human Connection



**TIME**



**SCHEDULING**



**STAFF**



# Recommendations: Technology Connection



# Recommendations: Human Connection



**DEDICATED  
TEAM**



**PROGRAM  
AGREEMENT**



**PRIORITIES**



**FUNDING**

# Key Points



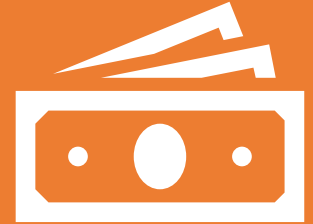
MOTIVATION



RELATEDNESS



RURAL



COSTS

# Practice Implications



Consider  
program for  
others at risk for  
type 2 diabetes  
or other health  
concerns



Prioritize patient-  
centered care

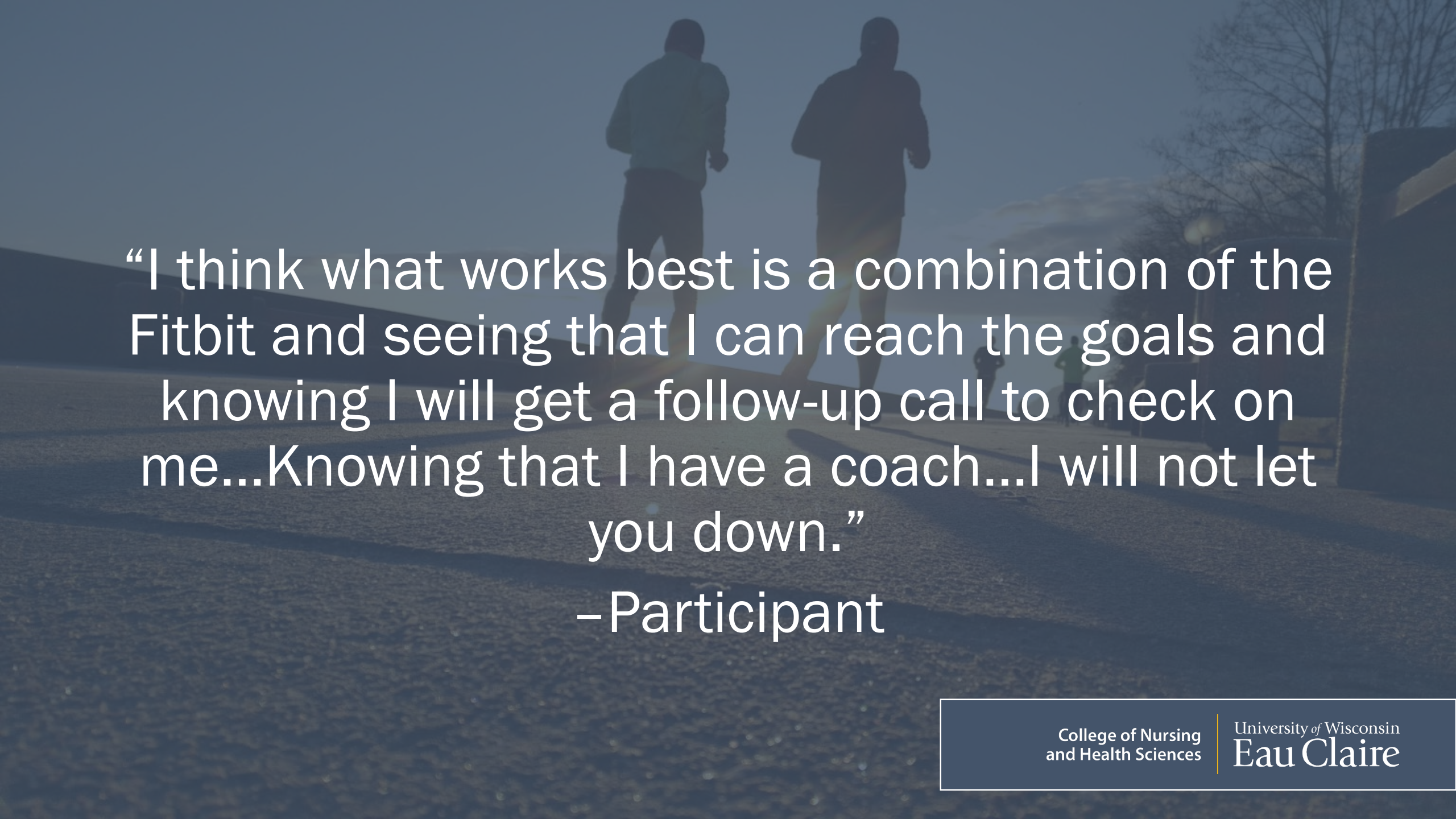


Healthcare policy  
support needed

# Conclusions

- This diabetes prevention program can be a cost-effective motivational tool to increase physical activity among rural individuals with prediabetes
- Feasibility/sustainability is questionable



The background of the slide features a dark, blue-tinted photograph of two people running on a paved path. They are seen from behind, their forms silhouetted against a lighter, hazy sky. The path curves slightly to the right, and there are some trees and a building visible in the distance on the right side.

“I think what works best is a combination of the Fitbit and seeing that I can reach the goals and knowing I will get a follow-up call to check on me...Knowing that I have a coach...I will not let you down.”

–Participant

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