810-P | A Behaviorally-Enriched Diabetes Prevention Program for an Employee Driver Population

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Disclosures

In compliance with accrediting board policies, the American Diabetes Association requires the following disclosure to participants:

- Garry Welch - Disclosed the following conflict of interest: Co-founder and Chief Scientific Officer of Silver Fern Healthcare LLC.

- Sarah Downs, Maryann Videtto, and Alyssa Griswold are employees of WellSpark Health.

Introduction

Research shows that prediabetes and type 2 diabetes are principally patient-managed conditions that are heavily influenced by culture and environment.

Self-management behaviors and psychosocial issues have had a strong research focus since the 1990s, yet insights from this research have not been disseminated into medical care.

Costly medications and medical procedures have dominated national diabetes treatment protocols, yet improvement in quality outcomes has been modest.

In 2016, landmark ADA psychosocial care guidelines recommended that front-line clinical teams should routinely assess and actively manage behavior and psychosocial issues in diabetes to improve patient outcomes.

Silver Fern Healthcare emerged from clinical research in diabetes and behavior medicine to create for clinicians a practical, scalable, web-based, "Behavior Diagnostic Platform" comprised of behavior and psychosocial patient assessments, clinical supports, and data analytics. The Silver Fern tool promotes a patient-centered care model and leverages the new medical subspecialty of lifestyle medicine.

The Diabetes Prevention Program (DPP) is a validated, standardized, group education model designed to prevent the progression from prediabetes to type 2 diabetes.

Some at risk prediabetes populations are hard to reach and mobile and have infrequently engaged in available national DPP programs to date.

These populations may require a more personalized approach to successfully engage them and achieve CDC outcomes.

Silver Fern collaborated with a clinical care delivery partner, WellSpark Health, to create a "behaviorally enriched" DPP designed for Connecticut (CT) commercial drivers using the Behavior Diagnostic Platform. Both the employer and leadership of the drivers' union were active in program design and implementation.

Objective

Transportation workers, including commercial drivers, are at high risk of developing diabetes but are a challenging workforce to reach for public health initiatives. We evaluated an innovative, culturally-tailored Diabetes Prevention Program (DPP) designed to strengthen driver behavioral engagement and program outcomes as part of a collaboration between WellSpark Health and leadership of the CT employer and drivers' labor union.

We compared the program findings for those reported earlier (Diabetes Care, 2017) for a national database collected by the Centers for Disease Control (CDC). WellSpark Health's modified DPP included addition of validated behavior and psychosocial assessments and tailored health coaching that adopted ADA Psychosocial Care Guideline recommendations.

Methods

Outcomes were program attendance, % weight loss, and average weekly physical activity level. Drivers attended informational sessions, completed standard DPP screening, and signed up for a 1-year DPP at 11 work sites. Standard DPP group education (delivered onsite and virtually) using the PreventT2 curriculum was enriched with additional individual health coaching sessions (as needed based on clinician judgment, see Fig 1) that targeted practical behavioral and psychosocial barriers typically not addressed in a standard DPP. Health coaches also developed customized educational resources and used validated behavior and psychosocial barrier assessments (Silver Fern Behavior Diagnostic) to capture behavior and psychosocial barriers and driver preferences for lifestyle change.

PRACTICAL GOAL:

Improve the health status of drivers with prediabetes and prevent potential future loss of their Commercial Drivers License from type 2 diabetes and its impacts.

CHALLENGES FACED BY POPULATION:

Long work hours; frequently changing schedules; low access to healthy meal choices; weather extremes; lack of tailored **Information**, personal **Motivation**, and key **Behavior skills**.

DEMOGRAPHICS:

Gender: 98% male; Mean age: 48.9 ±8.7 years; 76% white; 13.6% Latino.

INTERVENTION:

Standard DPP group education program, delivered by a commercial health and wellness company, and enriched with:

- Group and individual health coaching sessions based on employee needs and program progress that targeted common, yet modifiable, behavior and psychosocial barriers
- Health coaches (N=3) developed customized educational resources and used practical, validated behavior and psychosocial assessments in modular form (Behavior Diagnostic), suitable for prediabetes. Assessments completed: Health Literacy N=86; Self-Management (Meal plan, Physical activity) N=77; Behavioral health Barriers (depression, anxiety, PTSD, binge eating, problem drinking) N=80; Bodily pain N=83; Poor sleep N=92. There were few instances where drivers refused to complete these modules. There were no financial incentives to drivers; participation was voluntary but encouraged by employee leadership.
- N=97/117 eligible drivers attended the first DPP session and were included in the analyses.

RESULTS:

Start/End of 1-Year DPP

Measure	Start	End
Weight (lbs.)	247.3 ± 49.1	233 ± 47.1 ***
HbA1c (%)	5.6 ± 0.8	5.2 ± 0.7 ***
Avg. minutes of weekly physical activity	121.8 ± 135.9	261.9 ± 144.9 ***
*** dependent t-test $p<0.0001$		

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Figure 1: Data visualization - Tableau output showing the number of modules **completed** by drivers each week or **declined** over DPP

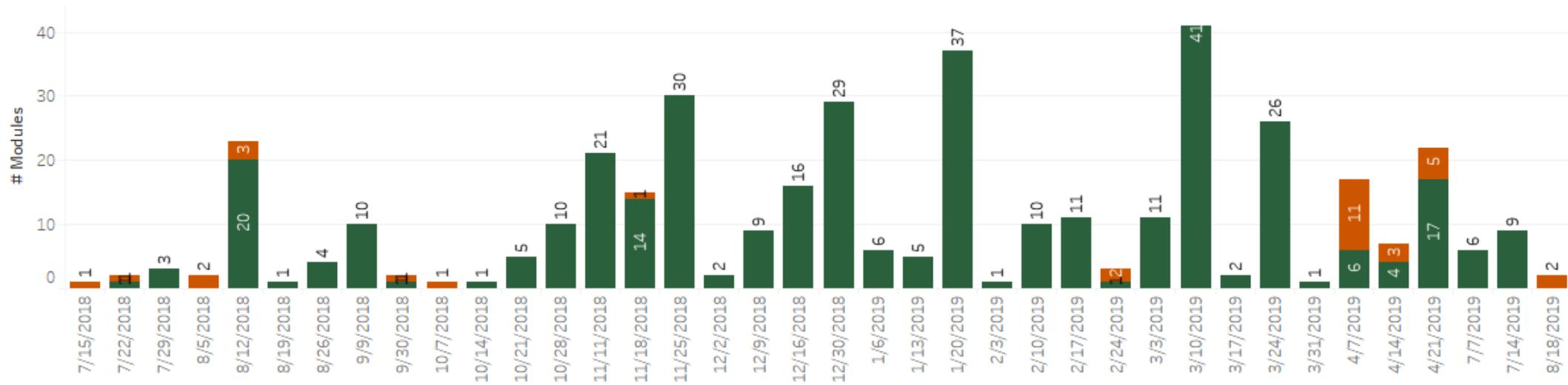# Figure 2: Results of a behaviorally-enriched Diabetes Prevention Program (DPP) compared to published CDC program outcomes (N=97)

Category	WellSpark Health DPP Participants	CDC Database DPP Participants
Met goal of 150 minutes physical activity per week	82.0%	41.8%
Reached a 5% weight-loss goal	60.7%	35.5%
Completed program (at least 22 sessions)	70.8%	10.4%
Attended for at least 6 months	79.8%	48.3%
Attended at least 4 sessions	98.9%	87.0%

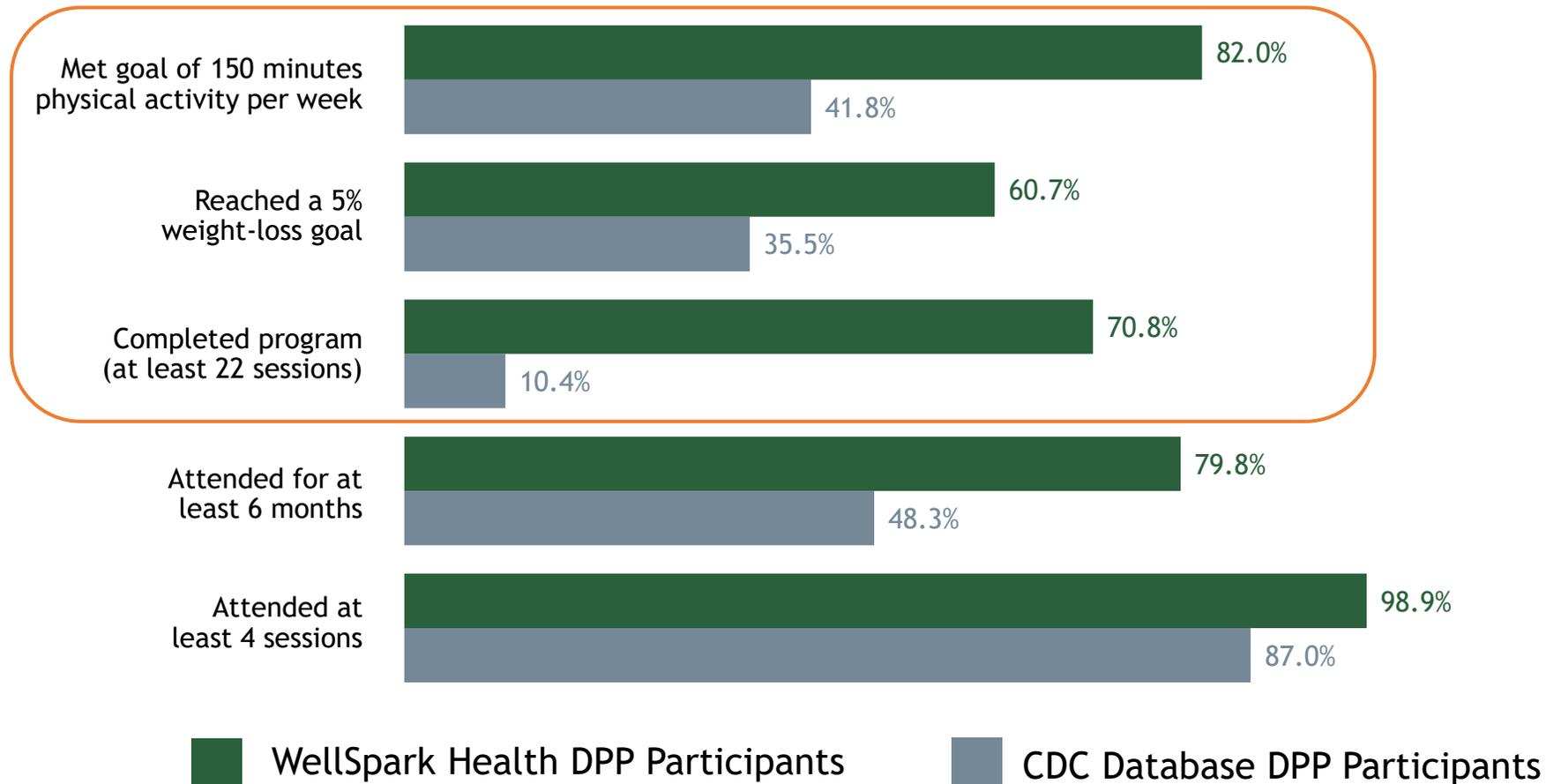■ WellSpark Health DPP Participants   ■ CDC Database DPP Participants

Figure 3: Group DPP Insights – Unlocking behaviors, goals, and barriers

Example: Top three driver responses for the Meal Plan module

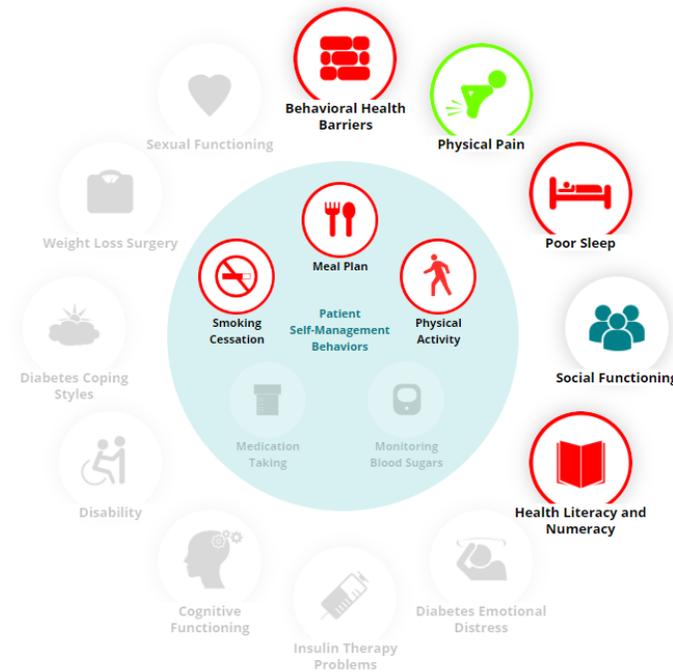| Most Common Behaviors	
Doesn't limit the number of carbohydrates at each meal	42%
Doesn't read labels on food packages	25%
Eats out a restaurants or buys fast foods	24%
Most Common Barriers	
I have a sweet tooth	41%
I eat when I am bored or stressed	32%
I enjoy snacking between meals	28%
Most Common Goals	
Eat healthier snacks	37%
Manage carbohydrates in my diet better	27%
Eat more fruits and vegetables	21%

Case study: Unlocking Behaviors, Goals, and Barriers

Case Report: Carl*

- ✓ 52-year-old, commercial driver
- ✓ Weight 220 lbs. at program entry
- ✓ Prediabetes identified from baseline worksite screening

Behavior Diagnostic: Clinical Results

Behavioral Health Barriers
Physical Pain
Sexual Functioning
Weight Loss Surgery
Poor Sleep
Meal Plan
Patient Self-Management Behaviors
Physical Activity
Smoking Cessation
Social Functioning
Diabetes Coping Styles
Medication Taking
Monitoring Blood Sugars
Health Literacy and Numeracy
Disability
Cognitive Functioning
Insulin Therapy Problems
Diabetes Emotional Distress

Built-in flagging system indicates areas for clinical review

Module was taken and results were flagged.

Module was taken, no red flags.

Detailed Clinical Findings

Carl is not managing his carbohydrates or reading food labels.
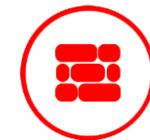
Carl is feeling too tired or stressed to exercise frequently.

Carl is a smoker. He has expressed an interest in new techniques for quitting.

Carl has health literacy barriers.

Carl has had trouble concentrating on things, such as reading the newspaper or watching television.

Carl is waking frequently to use the bathroom.

*De-identified, not the actual name or image of participant

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Conclusion

- Commercial drivers facing challenging work schedules and diagnosed as being at high risk of developing type 2 diabetes, which could potentially impact their livelihood and quality of life, were enrolled in a tailored, behaviorally-focused, enriched DPP that showed strong improvements in weight loss and physical activity at the end of program.

- Program design, assessments, and clinical tools developed for the behaviorally-enriched DPP were well accepted by the participating drivers based on high program engagement rates, behavior and psychosocial assessment completion rates, and positive clinician feedback. Active employer and union leadership engagement was a key success factor as was the high priority among the health coaching team to understand the local culture of commercial drivers.

- The evidence-based Behavior Diagnostic incorporated into the DPP successfully unlocked important self-management behavior and psychosocial issues previously identified as important in ADA psychosocial care guidelines. These issues were subsequently addressed on an individual and group basis by DPP health coaches.

- Overall, the program achieved strong engagement and clinical outcomes compared to the CDC's published DPP data.

References

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