

Launching the CDC’s Diabetes Prevention Program in a Large Employed Population

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Background




Recent estimates suggest that 9.3% of the adult U.S. population have Type 2 diabetes (T2DM) and that 37% have prediabetes.¹ The Centers for Disease Control and Prevention’s (CDC) National Diabetes Prevention Program (DPP), a lifestyle change program, has been shown to reduce the risk of developing T2DM by 58%.¹ These outcomes are achieved through a year-long program that focuses on improving nutrition, being more physically active, and managing stress, resulting in changed behaviors that achieve sustainable weight loss. A large health and well-being company is implementing DPP in its employee population using three delivery platforms. We report the use of health and employer data to identify and recruit candidates for DPP enrollment.

Objective

To evaluate employee enrollment in three distinct modalities of the DPP to gain insights that might allow more optimal delivery and possibly improved outcomes in the future.

Methods

Participant Selection and Segmentation: Data from biometric screenings, health risk assessments, and medical claims were used to identify employees at risk of developing T2DM and assign them to CDC risk category 1 (highest risk based on medical history or biometrics) or category 2 (lower risk based on physical activity, body mass index (BMI), age, and family history).² See Figure 1. Eligible at-risk individuals were then evaluated for inclusion in one of three DPP delivery platforms, taking into account data from Human Resources records:

-  **Personal Nurse® (PN):** Telephonic support for employees in risk category 1 who also had elevated BMI and blood pressure
-  **Peer Support Group (PSG):** Group-based coaching for employees residing in one of three cities or working from home, regardless of risk category
-  **Virtual eCoaching:** Online group-based support regardless of risk category

Some additional limits were imposed to help assure that the program was offered as widely as possible but in a manner consistent with program capacity. See Table 2 for additional platform-specific criteria.

Measurement and Analyses: Enrollment rates and characteristics of participating employees were reported. Chi-square (categorical variable) or Wilcoxon rank-sum (continuous variable) tests were used to measure the association between participation and baseline characteristics by arm. Future program evaluation will examine behavior change, weight loss, impact to medical claims and biometric risks. **Study Time Frame:**

- July 1-August 31, 2014: Collection of biometrics and health assessment data to determine program eligibility (COMPLETE)
- January 1-June 30, 2015: Rolling recruitment and enrollment (COMPLETE)
- January 1, 2015-June 30, 2016: Program participation (IN PROGRESS)
- January 1, 2015-June 30, 2016: Outcomes collected at 12 months from date of enrollment. (IN PROGRESS)

Table 1. Three Delivery Modalities

Characteristic	Personal Nurse®	Peer Support	Virtual eCoaching
Group Format & Size	1-on-1 with coach	Group-based, 12-18 people	Group-based, 12-18 people
Coach Background	Nurse with clinical experience	Volunteer employee trained as DPP facilitator	Full-time health coach employed by third-party
Interaction	Telephonic	In-person or telephonic	Via website & smartphone app

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Results

Figure 1. Eligibility Screening

The figure below describes how the population of employees was narrowed down to those who were DPP eligible via CDC’s category 1 and category 2 criteria.³

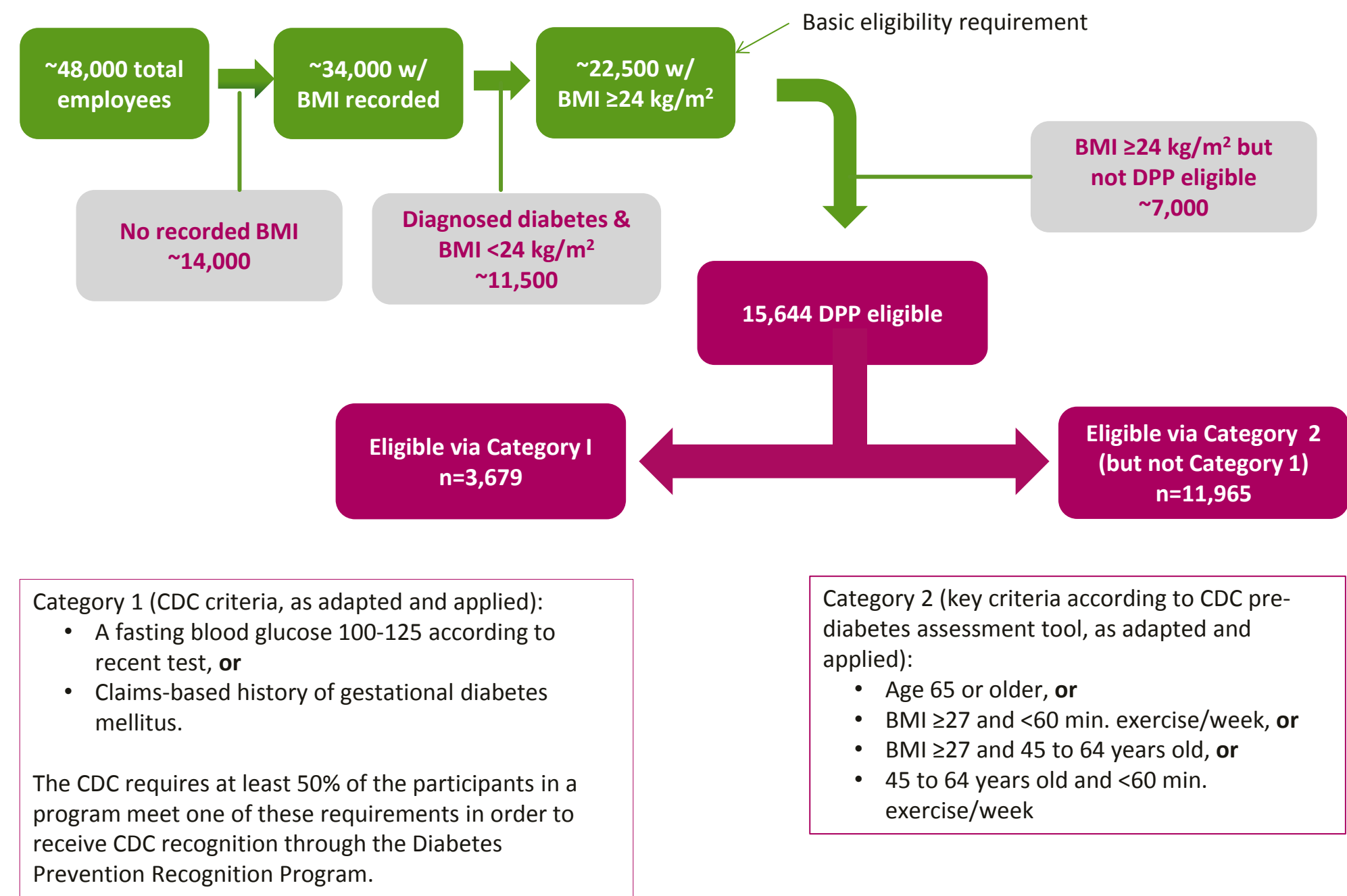


Table 3. Invited Population Demographics

Measure	Personal Nurse®	Peer Support Group	Virtual eCoaching
N	959	2,699	6,805
Female Gender, n (%)	573 (59.8)	1,799 (66.7)	5,086 (74.7)
Age in years, mean (range)	45.6 (22-74)	45.6 (20-74)	45.5 (20-79)
Weekly exercise in minutes, mean (SD)	41.8 (30.9)	41.9 (26.2)	38.3 (27.4)
Category 1 risk, n (%)	847 (88.3)	2,192 (81.2)	1,006 (14.8)
Biometric risks, mean (SD)			
BMI, kg/m²	36.2 (7.8)	33.7 (7.2)	33.2 (6.7)
Glucose, mg/dL	113.4 (22.3)	102.9 (11.8)	93.8 (18.6)
Total number of biometric risks, out of 8	5.38 (1.27)	4.35 (1.60)	3.63 (1.56)
Asked for help*, n (%)	612 (63.8)	1,708 (63.3)	4,423 (65.0)

* The annual health risk assessment asked employees if they would like help addressing their weight, nutrition, or physical activity.

Key for All Tables: BMI=body mass index, CDC=Centers for Disease Control & Prevention, DPP=Diabetes Prevention Program, PN=Personal Nurse®, PSG=Peer Support Group, T2DM=Type 2 Diabetes Mellitus, WAH=Work-at-Home

Table 2. Recruitment Criteria by Delivery Modality

DPP-eligible employees were matched to different modes of delivery according to criteria projected to lead to appropriate placement of employees with greater clinical risks, opportunities to connect in person, or suitability for a virtual program. After random selection to fit program capacity for the Peer Support Group and Virtual eCoaching platforms, the final invitation set included 10,463 individuals.

	Personal Nurse®	Peer Support Group	Virtual eCoaching
Segmentation Criteria	Targeted to Address Increased Health Risks*	Geographically Targeted for in-person or telephonic groups†	Selected to Provide Comparison Populations to Other Arms
Risk Category	Category 1 only	Category 1 or category 2, with preference given to category 1	Category 1 or category 2
Additional Health Risks	Elevated blood pressure and BMI ≥27	None, but all PN-eligible employees who met PSG geographic criteria were invited to the PSG platform	None, but PN-eligible employees not invited to PN or eligible for PSG were invited to Virtual eCoaching
Geographic Considerations	Limited to 32 states where Personal Nurses were licensed to provide services	In-person programs offered in Louisville KY, San Antonio TX, and Green Bay WI	None
Work Setting	Onsite and WAH	Onsite and WAH	Onsite and WAH

* Due to capacity limitations, invitations were sent to a random sample of 959 employees who met all criteria.

† Various strategies were observed to allow participation by all employees in the three target cities who had category 1 risk and as many employees in the three cities with category 2 risk as could be accommodated by PSG capacity. This approach was designed to make the PSG offering eligible for the CDC’s Diabetes Prevention Recognition Program, which requires that 50% of participants be in category 1.

Table 4. Program Participation Demographics

Overall, the rate of participation varied greatly across modality. Program participants were more likely than non-participants to be female under all three platforms. Peer Support Group and Personal Nurse participants were significantly older than non-participants, while Virtual eCoaching participants were significantly younger than non-participants. Participants in the virtual eCoaching platform were more likely than non-participants to be Work-at-Home associates.

	Personal Nurse®			Peer Support Group			Virtual eCoaching		
Measure	Participants	Non-Participants	P-Value	Participants	Non-Participants	P-Value	Participants	Non-Participants	P-Value
N (%)	120 (12.5)	839 (87.5)	-	120 (3.7)	2,579 (96.3)	-	1,623 (23.9)	5,182 (76.1)	
Female Gender, n (%)	79 (65.8)	494 (58.9)	0.146	108 (90.0)	1,691 (65.6)	<0.001	242 (14.9)	1,477 (28.5)	<0.001
Age in years, mean	48.2	45.2	0.004	47.6	45.5	0.034	44.9	45.6	0.020
Work-at-home, n (%)	35 (29.2)	223 (26.6)	0.550	46 (38.3)	919 (35.6)	0.546	524 (32.3)	1,156 (22.3)	<0.001
Category 1 risk, n (%)	109 (90.8)	738 (88.0)	0.360	94 (78.3)	2,098 (81.4)	0.408	190 (11.7)	816 (15.8)	<0.001
Asked for help, n (%)	83 (69.2)	529 (63.1)	0.192	93 (77.5)	1,615 (62.6)	0.001	1,289 (79.4)	3,134 (60.5)	<0.001

Conclusions and Implications

- The participation rate varied widely between offerings, likely due in part to program design and outreach methodology. Further investigation of the attractiveness of each offering is warranted.
- Several factors were significantly associated with participation, depending on the delivery platform. These included gender, work-at-home status, CDC category 1 vs category 2 risk, and whether participants had asked for help improving their health through the health risk assessment.
- The process leveraged data to achieve successful implementation of a DPP involving three arms that allowed for participation from a far greater range of employees than would be able to attend a traditional, in-person offering.
- Offering employees a distinct DPP option based on their T2DM risk category and personal needs allows for measurement of the impact of different delivery modalities, thereby building on previous research in real-world settings.⁴

Limitations

- Resource limitations led to capping the Personal Nurse and Peer Support Group offerings at 120 participants, while the virtual eCoaching offering was able to enroll a greater number of employees. This may have affected the ability to detect significant participation-demographic relationships in the smaller groups. The artificial cap may have biased the comparisons.
- There was a lag of potentially several months between collection of biometric and health assessment eligibility data and the actual program invitation.
- It is not known whether any individuals in the study were engaged in additional external programs or efforts that could impact their health profile.
- The evaluation was limited to a single large employer, so results may not translate to other populations (employees of other companies, spouses, non-working individuals, Medicare-age participants, etc.).

References

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