



Case Study:

Innovative delivery of the Diabetes Prevention Program (DPP) for impactful outcomes in Mississippi in the context of Covid-19

Over 88 million American adults have prediabetes – that’s 1 in 3 adults! Of those 88 million, more than 8 in 10 don’t even know they have it. The Diabetes Prevention Program (DPP) developed by the Centers for Disease Control (CDC) is the most effective method to prevent or delay the onset of type 2 diabetes and reduce the risk of heart disease and stroke among people with prediabetes. A joint effort by HabitNu, a CDC recognized DPP delivery organization and Novo Nordisk, a pharmaceutical company focused on diabetes, and Foot Print Farms, an urban vegetable farm in Jackson, was undertaken in April 2020 to address food insecurity and diabetes prevention in a coordinated program in Mississippi. Analysis of outcomes after the Core 16 sessions of the program revealed impactful outcomes in the context of Covid-19.

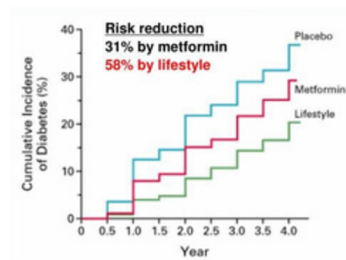
Prediabetes: The problem

1. Prevalence of diabetes and prediabetes in Mississippi

Mississippi ranks second in the nation for overall diabetes prevalence and is the only state located in the Centers for Disease Control and Prevention’s (CDC) “Diabetes Belt” with every county showing increased diabetes prevalence. According to the "The Burden of Diabetes in Mississippi" report prepared by the American Diabetes Association in 2016, nearly 308,000 individuals, or 13.6% of the state’s adult population live with diabetes and another 810,000 individuals or 37.5 % of the population have prediabetes¹. Diabetes and prediabetes cost Mississippi an estimated \$3.5B each year¹.

2. Food insecurity in Mississippi Mississippi leads the nation in food insecurity. According to Feeding America, there are 600,000 individuals in the state, about 20% of the population, who are considered to be food insecure, including 1 in 4 children². Food insecurity has multiple adverse health impacts including developmental problems for young kids. Families struggling with food access are likely to eat foods that are detrimental to their overall physical health. **3. Impact of diabetes and Covid-19 on black Mississippians** African Americans in Mississippi are disproportionately affected by diabetes. Nearly 46% of adult black Mississippians are obese and 16% have diabetes. Those numbers loom large in normal times, but more so when considering Covid-19 and its increased risk of death³. Co- morbidities like hypertension and diabetes, which are tied to Covid-19 complications, impact the black community at higher levels than other communities. Despite African Americans making up less than 40 percent of Mississippi’s population, they represent 56 percent of the state’s known Covid-19 infections and 72 percent of deaths in May 2020. **4. Covid-19 on diabetes prevention initiatives** Community based organizations usually deliver CDC’s Diabetes Prevention Program (DPP) in person at their location. The social distancing directives announced in the wake of Covid-19 have forced these organizations to suspend recruitment and delivery of the in-person DPP.

Delivering the Diabetes Prevention Program



58%
Reduction
in risk

CDC’s DPP study focused on moderate physical activity and lifestyle changes to lose 5-7% body weight. DPP’s effectiveness has been proven with successful participants reducing the risk of developing type 2 diabetes by 58%⁴.

To help address the increasing levels of food insecurity and high incidences of diabetes in economically vulnerable communities in Mississippi, Novo Nordisk started a statewide initiative called Farmhouse to Your House. This collaborative between Novo Nordisk, a local vegetable farm, Foot Print Farms, Diabetes Prevention Program suppliers such as HabitNu, and local healthy food advocates like celebrity chef Nick Wallace and his Culinary and Creativity Kitchen, was launched with the mission to address food insecurity and diabetes prevention in a coordinated program. HabitNu, a CDC-recognized DPP provider, was one of the providers selected by Novo Nordisk to develop a unique program to help alleviate food insecurity and reduce type 2 Diabetes in Mississippi’s most vulnerable communities.

According to Genevieve Jean-Bart Fadayomi, Former Associate Director, U.S. Corporate Sustainability & Social Impact at Novo Nordisk, “Farmhouse to Your House was developed by Novo Nordisk to tackle obesity and prediabetes and to help underserved communities take charge of their health. Our goal has been to not only get nutritious food to those who need it, but also to create an environment where Mississippians can overcome barriers to healthy lives. Our Diabetes Prevention Program (DPP) partners play an important role by providing a critical piece of the puzzle to reduce obesity, diabetes, and prediabetes in the community”

Implementation of DPP in Mississippi

1. Recruitment of eligible participants

The traditional participant recruitment for DPP follows a range of strategies such as referrals from physician clinics, community service organizations, churches, social media, and traditional media channels. HabitNu and other stakeholders working to prevent diabetes in Mississippi launched “Mississippi Prevents Diabetes initiative”, msdpp.org. Mississippi thus became the first state to implement a stakeholder engagement model for the delivery of DPP. The objective is to provide a “Plug and Play” platform and a network that allows providers, suppliers, and payers to meet their diabetes prevention goals.

Covid-19 stay at home provisions were enacted across the country in mid-March 2020, all in-person programs were suspended. HabitNu, with the approval of Novo Nordisk, decided to deliver the program online using HabitNu’s lifestyle coaches and adapted its recruitment strategies to focus outreach efforts in Jackson, Mississippi. HabitNu’s recruitment included the following segments.

- The FQHC at Jackson Hinds, one of the largest community health service organization in Jackson, queried their EHR and identified 12 eligible participants.
- Referrals from University of Mississippi Medical Center’s employees and patients.
- Referrals from Jackson Federation of Teachers and Paraprofessionals portal.

These organizations used social media and email outreach to explain the HabitNu program and provide a link to the HabitNu risk assessment quiz.

The two day campaign recruited 65 qualified participants. Each eligible participant was contacted by a HabitNu lifestyle coach to explain the commitment required and assess the participant’s readiness to join the program. About 48 individuals were identified as meeting the criteria for recruitment and on-boarded into the program. Nine individuals dropped out after the informational first session.

2. Delivering DPP in Mississippi during the Covid-19 pandemic

HabitNu has been recognized by the CDC to deliver both the in-person and online DPP programs. Effective deployment of HabitNu DPP requires lifestyle coaches who are trained to use the CDC-approved curriculum and who have the knowledge and skills to effectively deliver the program. Efficient DPP delivery also requires infrastructure to recruit, enroll, and engage participants while appropriately tracking milestones and outcomes. Remote, online delivery needs to go beyond delivering weekly webinar classes; it must engage participants outside the classroom to keep them active and motivated by using an integrated array of digital engagement tools.

HabitNu program components: All the participants received a digital scale that syncs with HabitNu



HabitNu’s online DPP delivery includes the following components:

- Downloadable HabitNu App** that includes a food diary, weight and activity tracker, secure discussion forum, coach/participant communication, automated alerts and notifications and educational curriculum delivered as short interactive videos.
- HabitNu discussion forum:** A secure chat forum for participants to interact among themselves and with their coach on a daily basis.
- HabitNu Connect telehealth portal** for weekly webinar meetings: Participants log into HabitNu Connect, our telehealth portal to attend weekly sessions, integrated to the HabitNu App. The lifestyle coach schedules lessons through the Coach’s Console which also includes the web conferencing tool to schedule the DPP session. Participants receive notifications in advance of each session.

Challenges:

- Internet stability was an issue for some of the participants. However, participants were given the option to dial in with a unique telephone number to listen to the classes and record their participation.
- Some participants were initially reluctant to engage, but became comfortable interacting with the group over time. In between classes the participants were engaged by personalized nudges, messages from the coach, and short videos every week that coincide with the curriculum topics.

Combining Farmhouse to Your House and program delivery

Each participant received 26 boxes of locally grown fruits, vegetables, and herbs directly from Footprint Farms to coincide with the DPP sessions. The participants collected produce each week from Jackson Hind FQHC's reception center, the designated pick-up site in Jackson, Mississippi. Several participants were unfamiliar with the varieties of produce they received. HabitNu coaches shared healthy recipes to prepare the produce. The produce boxes also included accompanying literature providing participants with useful nutrition information and easy to cook recipes. The online webinar by local Chef Nick Wallace on how to convert local ingredients like kale, potatoes, turnips, collard greens and herbs into tasty dishes was welcomed by the group.

DPP Participants collecting their produce boxes



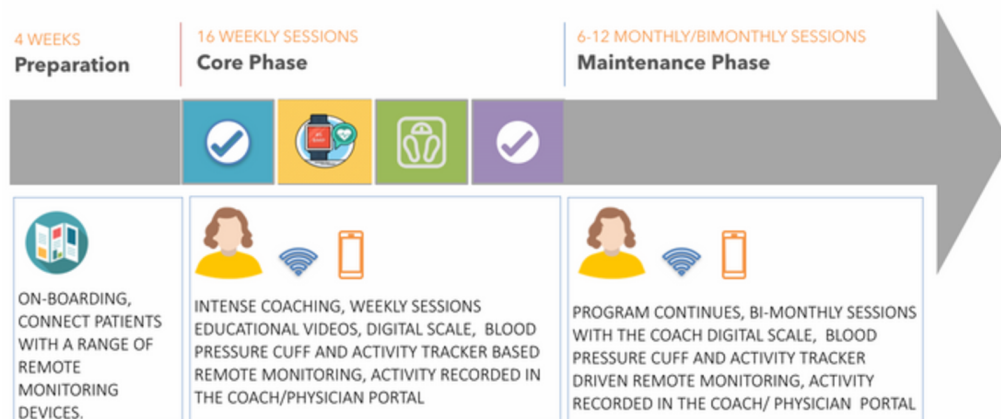
One of the participants, Tara said that she is enjoying the wide variety of produce she received and cooked turnips and collards for the first time in her life.



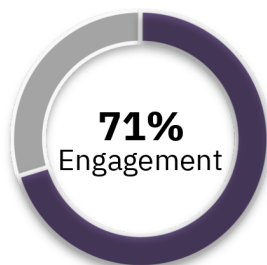
Program outcomes

The CDC's DPP study states that losing 5% body weight reduces the risk of developing type-2 diabetes by 58%. HabitNu's expected outcomes for the online DPP program in Jackson are weight loss and overall engagement in the program. Outcomes data from the HabitNu DPP in Mississippi were analyzed after the 16-session-core phase. The results indicated that among six active cohorts 43% of the participants experienced between 3-12% weight loss with a top weight loss of 21%. The overall engagement in the program was 71%. The weight loss and engagement percentages are above the National DPP average of 5% and 20% respectively. We believe participants in the HabitNu-Novo DPP will continue to lose weight over the course of the year.

Program structure



301 Participants recruited , **6** Ongoing classes , **21%** Top weight loss achieved



71% participants who joined HabitNu actively engaged and completed the first 6 months

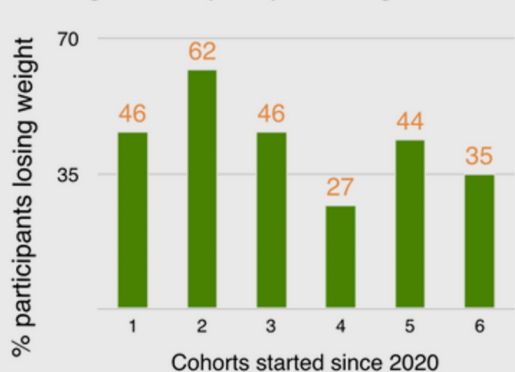
HabitNu's meaningful engagement: watching the videos, keeping food and exercise logs, stepping on the scale and participating in group discussion



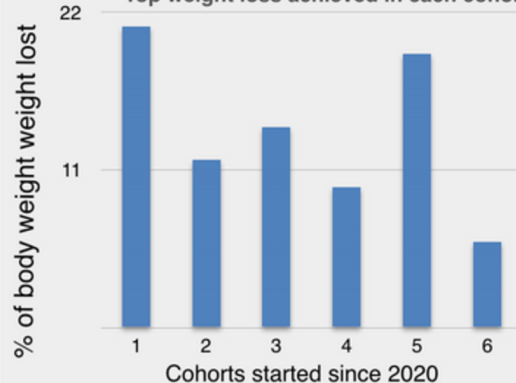
43% of the active participants in the ongoing classes are experiencing physiologically significant weight loss.

Please note that this number is twice higher than the average weight loss observed in National DPP. In addition, the average weight loss is 5-7% where as all the six HabitNu cohorts has achieved top weight loss low above 7% .

Percentage of active participants losing 3% or more in each cohort



Top weight loss achieved in each cohort



Participant experience

**Tara Brock. : Lost 21 %
of her start weight**



Tara lives in Jackson, Mississippi. She received an email forwarded to her about HabitNu and took the risk-assessment quiz and was glad to receive a call from HabitNu. We asked Tara the following questions.

1. Why did you join HabitNu?

Diabetes runs in my family and I don't want to be a diabetic. I have been on several programs and spent a lot of money over the years and nothing was sustainable. In one program I felt so hungry all the time that I ended up gaining 10 pounds. So I decided to give HabitNu DPP a try.

2. Tell us about the produce boxes.

I picked up the produce box whenever it was available. The produce box forced me to plan my meals around what I get and explore new recipes. Initially, it was hard, but I learned to cook. I make my food on the weekend and heat it when I get back from my work during the week. This way I have a healthy dinner every day. I used to buy my meals every day and that was quite expensive.

3. We just completed the Core phase. How did DPP change your lifestyle?

I started to pay attention to nutrition labels since joining the program. This program impacts my choices. Last week I really wanted to get a take out. I used the app to look at the nutrition information of my choices and was shocked. I finally ended up getting a low-calorie meal instead of the hamburger and fries I really wanted.

4. What's your experience with HabitNu DPP?

I will say definitely join DPP. I honestly changed my habits with this program. Step on the scale everyday and it helps me. The personal support I get from my coach is invaluable. I learned to be mindful of my eating. I love the weekly webinars and they are very interactive. I haven't enjoyed any other weight loss program this much. It is a wonderful program.

**Brea Cole. : Lost 6.7
% of her start weight**



Brea works at one of the medical centers in Jackson, Mississippi. She qualified for the program based on the CDC risk test. We asked Brea the following questions.

1. Why did you join HabitNu?

I have been so busy with work and I liked the idea of an online program. I had two goals when I joined. I have a family history of diabetes and I wanted to lose weight and keep it off. I also wanted to learn more about DPP and how to facilitate engagement online.

2. Tell us about the produce boxes.

I picked up the produce boxes several times. They were full of greens, vegetables and seasonal fruit. I really enjoyed sweet potatoes, carrots, and blue berries. The produce box forced me to cook! I picked up the box on Thursdays and prepared the food during the weekend. Cooking greens was a challenge. I investigated recipes on HabitNu's recipe section and discussed them with the group on HabitNu's discussion forum.

3. We just completed the Core phase. How did DPP change your lifestyle?

This program helped me to be mindful of food and physical activity and I found myself weighing more often. The scale keeps me on track. This may sound selfish, but I also learned to focus on myself more.

4. What's your experience with HabitNu DPP?

Now my weight loss is steady. I was managing my weight by myself but it always fluctuated. I love the fact that HabitNu has multiple choices to attend the weekly meeting. I like seeing my weight trends and blood pressure trends. I like the curriculum videos very much and watch some of them frequently. I love being part of a supportive group. I also benefit a lot from the discussion board and having accountability partners.

Key ingredients for success of the program

- Recruitment: A streamlined online recruitment through a single on-boarding portal helped screen participants for commitment and readiness to participate in a year-long program.
- Online delivery: The flexibility of the online delivery during Covid-19 contributed to the success of the program.
- Lifestyle Coaches: HabitNu's trained lifestyle coaches are experienced to deliver the program online. They are able to engage participants outside of the classroom sessions.
- Incentives (produce and scale): All the participants received a Withings digital scale after two-weeks into the program. The scale added an additional layer of motivation. Participants received produce boxes every week, which tremendously helped overcome food insecurity during the pandemic.

Expansion towards sustainability

Recently, the MS Department of Health approved legislation to reimburse National DPP through Medicaid expansion, and several other payers are likely to follow suit. This study proves that it is possible to effectively deliver and achieve impactful outcomes through the National Diabetes Prevention Program, combined with healthy food incentives in an online format to vulnerable communities in Mississippi. The Farmhouse to Your House collaborative model demonstrates how we can bring various stakeholders together around a common goal of helping individuals take charge of their health and well-being to make positive lifestyle changes. It is important to continue the Novo Nordisk Farmhouse to Your House collaborative to highlight the impact this project has made, and sustain it beyond the grant period.

Referral partners

THE UNIVERSITY OF MISSISSIPPI
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Sources

- 1 Burden of diabetes in Mississippi (<http://main.diabetes.org/dorg/PDFs/Advocacy/burden-of-diabetes/mississippi.pdf>)
- Hunger in Mississippi (<https://map.feedingamerica.org/county/2016/overall/mississippi>)
- 2 Explore diabetes in Mississippi (<https://www.americashealthrankings.org/explore/annual/measure/Diabetes/state/MS>)
4. Knowler WC, Barrett-Conner E, Fowler S, et al. Reduction in the Incidence of type 2 diabetes with lifestyle intervention or metformin. *New England J Med.* 2002;346(6):393-403.
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<https://www.farmhousetoyourhouse.com>

<https://www.habitnu.com/mississippi>

