Food for Thought

Better clinical outcomes through better nutrition

Featuring Susan Hawkins, M.B.A., FACHE, and William A. Conway, M.D.

According to data from the U.S. Department of Agriculture, some 35 million people, or 10.5% of all American households, experienced a period of food insecurity at some point during 2019. They either were unable to acquire enough food to meet their needs or were uncertain when and where their next meal might come from. The 2020 coronavirus pandemic, and the economic fallout that has resulted from its outbreak, has only worsened the circumstances for many, with data from Northwestern University estimating that food insecurity more than doubled, hitting as many as 23% of households.

Addressing the issue of food insecurity and its role as a social determinant of one's health, Henry Ford Health System—which has served the metro Detroit community for decades—shared insights into Henry's Groceries for Health, a unique partnership with Gleaners

CASE STUDY

Community Food Bank, one of the first food banks ever established in the United States and a longstanding pillar of service for those living in Motor City. In their presentation at AMGA's 2020 Annual Conference, Henry Ford Health System's Senior Vice President of Population Health, Susan Hawkins, M.B.A., FACHE, and Executive Vice President (retired) William Conway, M.D., discussed how the two organizations attempted to stem the flames of food insecurity's burning platform and its detrimental role in increased hospital admissions and readmissions, emergency department visits, and medical treatments.

Securing the Insecure

Initiating its pilot partnership with Gleaners, Henry Ford selected four out of its total 38 medical clinics to test its new food health program, screening more than 1,600 patients and officially enrolling 300 into the trial population. Henry Ford began its enrollment process in November of 2017, with a final dis-enrollment in May 2019. Each participant could stay in the program for 12 months. Henry Ford's screening process relied on a simple, two-question inquiry:

- In the past 12 months, did you worry whether your food would run out before you got money to buy more?
- True or False? Within the past 12 months, the food you bought didn't last and you didn't have money to get more.

A positive response to either question made them eligible for the study.

"We did this during routine office visits," said Conway, explaining the Henry's Groceries intervention workflow. "Those who screened positive were given a healthy food package there on the spot. And that was resupplied every two weeks for one year. And this was all free of charge. Patients could come and pick up their package, or as it turned out, many preferred having home deliveries. As Gleaners pointed out to us, the home delivery would ensure a higher level of compliance with the program than if participants come pick up their food. They can't always arrange transportation, for example, which can sometimes lead to gaps in their supply of food."

The food packages included healthy fresh and frozen foods, as well as shelf-stable options representing all major food groups. Designed to provide 14 meals over the course of two weeks, or one meal a day, the food was intended to be supplemental. In between these biweekly deliveries, Henry Ford's population health staff would continue contact with the patient to confirm the next scheduled meal pick-up or drop-off, identify any problems with food quantity, and gather feedback on the patient's satisfaction with the food.

Acknowledging that a variety of other food service options exist, including food prescriptions, food pharmacies, and hospital-based pantries, Conway explained that Henry's

Gleaners Food Bank of Southern Michigan collects food from local gardens and manufacturers and distributes sorted goods to 534 partner soup kitchens, shelters, and pantries. Henry's Groceries for Health were distributed following screenings at Henry Ford medical clinics.

Table 1

Utilization and Clinical Outcomes

Utilization Changes – 12 months before and after Index or Enrollment Date	Intervention Group (N=256)	p value	Comparison Group (N=256)	p value	Intervention vs. Comparison	p value
Reduction in Emergency Department Use	41.5%	<0.001	25.3%	0.008	0.44 visits/ patient lower	0.057
Reduction in Hospitalizations	55.9%	0.040	17.6%	0.90	0.15 visits/ patient lower	0.052
Reduction in A1c among Patients with Diabetes (N=122)	2.7%	0.06	(1.4%)	0.48		
Reduction in Body Mass Index	0.3%	0.64	0%	0.48		

Red font indicates statistically significant difference.

Table 2

Cost Comparisons

Total Cost of Care	Intervention Group (N=114)	Comparison Group (N=118)	Difference
Reduction in Total Cost (All Medical and Pharmacy Claims)	$397 PMPM (22.6%)	$134 PMPM (15.7%)	$263 PMPM

Calculated for participants in value-based contracts only (full claims data); compared 12 months of claims before and 12 months after program enrollment date for intervention group or index date for comparison group

Groceries for Health sought to differentiate itself through a number of provisions. Unlike other programs, Henry's Groceries screened patients during routine outpatient clinic visits, employed a closed-loop referral system to drive higher participation, provided both home delivery and pick-up options to lower attrition, and provided a variety of food options both fresh and frozen. Additionally, patient participation, satisfaction, and other data were shared in real time, allowing rapid program adjustments to be made to meet patients' needs swiftly and efficiently. Lastly, the program had the ability to track clinical utilization and outcomes over time for participants.

Nutritional Intake and Measurable Outcomes

Throughout its pilot partnership with Gleaners, Henry Ford measured the success of the Groceries for Health program through numerous performance measures, including participant satisfaction both during and after the program ended, as well as other measurable metrics such as emergency room and hospital utilization rates, clinical changes for patients with diabetes, and changes in total cost of care.

"We designed the research up front with help from our biostatisticians," explained Hawkins. "As a comparison study, we took a group of individuals from before the study began and compared them to the intervention group itself. The comparison group was statistically identical in multiple dimensions, including home ZIP code, age, race, and clinical factors like presence of chronic conditions. We looked at baseline characteristics for both groups, as well as what changes we saw for the 12 months after they started the program compared to the 12 months before. For the comparison group, the evaluation period was a set date range. For the intervention group, the index date was really their enrollment date. So whenever in that six-month period we enrolled them, we looked at their data 12 months before and after for all of these outcome measures."

Hawkins went on to explain that the Henry Ford research team conducted a series of statistical analyses, looking at relative reduction in utilization outcomes within the groups, and then using a difference-in-difference approach to look at the intervention group compared to the comparison group. This particular tactic was necessary to understand the program's unique

"A question we get often is why we didn't use a randomized trial approach… We didn't want to screen for food insecurity, identify somebody as having that problem, and then put them into a control group and not address it at all."
—Susan Hawkins, M.B.A., FACHE

impact, as the entire comparison group comprised individuals who were also under Henry Ford's care.

"A question we get often is why we didn't use a randomized trial approach," said Hawkins. "While it would have been ideal, giving us a true control group to compare to the intervention group, at the end of the day, we didn't want to screen for food insecurity, identify somebody as having that problem, and then put them into a control group and not address it at all. We felt for lots of reasons—including ethics—that was not how we wanted to go forward."

Turning to the actual results of the study, Hawkins first addressed the data point of emergency department use, which demonstrated that the Groceries for Health program successfully produced a substantial reduction in utilization.

Several food recipients described how the program actually improved their sense of dignity, that they weren't as ashamed as they might have been in other programs to be receiving food as a "handout."

Hawkins reported, "The intervention group saw an almost 42% reduction in emergency department use. While the comparison group also saw a reduction of 25%, when we used the difference-and-difference approach, we actually saw an average of half a visit per patient less for the intervention group than the comparison group. So we were actually seeing a statistically significant difference between the two groups."

Hawkins explained that there was also a large reduction in hospitalizations in the intervention group of 56%. While the comparison group also saw reduction of 18%, the far more significant difference was the 0.15 fewer hospitalizations per patient for the intervention group (see Table 1).

The program also had an impact on total cost of care. While Henry Ford could only measure the cost differences for those participants who were in value-based contracts before and after their enrollment, due to availability of their medical claims in Henry Ford's data warehouse, the intervention group saw a reduction of $397 per member per month, amounting to about 23% of their starting per member per month cost to the organization. On average, the comparison group saw a reduction as well, about $134 per member per month, or about 16% (see Table 2).

Despite such successful, positive reductions in utilization and cost, these same dramatic results were not evident in the clinical measures that Henry Ford was monitoring. Drops in either A1c level or body mass were, unfortunately, not statistically significant across the study. The hope, as Hawkins puts it, is "as we get more and more engaged in this project and expand this and spread this further, we will begin to see differences in some of these clinical measures and, hopefully, other measures that we could add, as well."

Impact on Health and Satisfaction

Looking beyond the hard data, after the program ended, Henry Ford was able to get a local research group to reach out and interview a select number of the program's participants. In addition to praising Groceries for Health's convenience and customer service, as well as how it helped them eat differently and eliminated the temptation to buy food that wasn't as healthy for them, several interviewees described how the program actually improved their sense of dignity, that they weren't as ashamed as they might have been in other programs to be receiving food as a "handout."

Moving forward, Henry Ford is already looking to expand and improve the program. The organization is looking to scale the program into new areas, such as pediatric clinics, school-based clinics, and private physician practices. In addition, they are looking at ways for participants to better store leftovers, accommodate patients with restricted dietary needs (halal diets, vegetarian options, dialysis diets), remove household size limitations, and simply draw a tighter correlation between the importance of good nutrition and clinical health, empowering patients to take charge of their health in a way they were perhaps not accustomed to.

"Our goal is to enroll 1,000 new participants in the coming year," said Hawkins. "Given COVID-19, we're not entirely sure this can happen as quickly as we had originally planned, but certainly we'll get launched before the year is over, incorporating both existing and new measures to add to our research and, hopefully, developing a full-scale program by the end of 2021." GPJ

***Susan Hawkins, M.B.A., FACHE**, is senior vice president, Population Health, Henry Ford Health System; and **William A. Conway, M.D.**, is executive vice president (retired), Henry Ford Health System, and chief executive officer, Henry Ford Medical Group.*