PROJECT TITLE: Asking the Tough Questions to Mitigate Child Hunger: Food Insecurity Screening in Pediatric Primary Care

TEAM MEMBERS

- Shivani Mehta, MD, MPH - Team Lead
- Peyton Bluhm, MD - Resident Lead
- Amanda Hall, MD - Resident
- Shailly Gaur, MD - Resident
- Chanda Enand, PA - APP
- Carolyn Hull, PA - APP
- Renice Jones, NP - APP
- Kristen DePaula, RN - Nurse
- Catherine O'Grady, MSW, LCSW - Social Worker
- Diana Torres, MSW, LCSW - Social Worker
- Barbara Brandon, Clerical Team Leader
- Jasmyne-Rian Charles, MS - Data Analyst
- Talia Buitrago-Mogollon, CPHQ - CAPE QI Coach

FACILITY: Myers Park Pediatrics

CONTACT INFORMATION:

Name: Shivani Mehta, MD, MPH, FAAP
Title: Assistant Professor - Atrium Health Levine Children's Medical Group
Clinical Assistant Professor – Wake Forest School of Medicine, Department of Pediatrics
General Academic Pediatrician - Atrium Health Myers Park Pediatrics
Physician Champion - Carolinas Medical-Legal Partnership at Atrium Health
Physician Champion - Community Child Health and Advocacy - Atrium Health
Department: Pediatrics
Telephone Number: *704-446-1422*
Mailing Address: 1350 South Kings Drive, Charlotte, NC 28207
Email Address: Shivani.Mehta@atriumhealth.org

PROJECT SELECTION: Food insecurity (FI) is one of the social determinants of health (SDOH) associated with poor health outcomes. FI is defined by the USDA as limited or uncertain access to adequate food at the household level, which includes inability to procure nutritious food due to lack of money or other resources. This is a particular problem for families, as homes with children have almost twice the rates of FI as homes without children. (HealthAffairs.org)

FI has a clear negative impact on children and families. Research demonstrates that parents work to protect their children from experiencing hunger, but FI nonetheless contributes to depression and toxic stress as well as poorer dietary quality, which adversely impacts children. Unfortunately, children living in food-insecure homes have been demonstrated to have poorer overall health including increased risk of hospitalizations and specific health problems such as asthma, behavioral issues and aggression, dental disease, and anxiety. There is also an increased risk of cognitive and developmental problems which is a significant concern for child well-being, with studies showing that the presence of FI in kindergarten can predict worse math and reading performance (nccp.org). Importantly, malnutrition in childhood is associated with adult diseases like diabetes and cardiovascular disease, highlighting how important it is for us to intervene during the critical period of childhood.

Atrium Health Myers Park Pediatrics (MPP) has joined 7 other practices in North and South Carolina (Carolinas Collaborative) to work on improving the identification of and connection to local and federal food assistance programs for families served by 8 pediatric academic institutions. Both North and South Carolina have identified FI as a priority to address, as the rates of FI among children in these states are 19.3% and 16.2% respectively. Recent data from Feeding America places NC as the second highest in FI in kids. 1 in 5 children live in a FI household.

With over 90% of patients at MPP qualifying for Medicaid, we predicted a large portion of our patients would screen positive for FI and be eligible for WIC and SNAP benefits. At project initiation, despite use of the 2 question Hunger Vitals Signs questions embedded into the note templates, there was not a process to screen or track data and performance reliably. Establishing a reliable process for identifying and addressing FI in this population can and will drive demonstrable progress in health equity in our community.

GOAL: MPP aims to reduce food insecurity (FI) in pediatric patients, ages 0-18, by improving the identification of FI and connection to local and federal food assistance programs for families served by December 31, 2022

Process Measures

- Increase the % of patients screened for FI at every well child visit from baseline 0 to 90%
- Increase the documentation of FI to the local estimated benchmark (90%)

Outcome Measure

- 50% of patients identified as FI will be connected to appropriate services.

IMPROVEMENT PROCESS: The QI methodology used for this project was the Model for Improvement with rapid cycle PDSAs (Plan, Do, Study, Act). After building an interdisciplinary team, a project charter was assembled to plan out interventions, define measures, and set up realistic goals for this work. Since the overall aim of this project was to improve the identification of our families with FI in order to address it, the first steps were to identify a screening tool, design a process flow for screening (Graph 1), and create a decision tree for addressing FI needs (Graph 2) as they were being identified. The provider champion, Dr. Shivani Mehta, served in Atrium's Social and Economic Team (SET) Committee and SDOH Pilot Sub-committee where ultimately the

initial screening tool, the NC DHHS Health Opportunity Screening, was adopted. This screening tool covered 5 SDOH domains: FI, housing insecurity, lack of transportation, interpersonal violence, and inability to pay for basic utilities. This group ensured the screening tool was available in the EMR for ease of documentation and extraction. It is worth mentioning MPP does screening for all domains but for the purposes of this application, we will focus on our work around FI.

All tools were tested and went through small PDSA cycles and several revisions before introduction to the overall MPP team in December 2020. Each of the different clinic groups such as clerical, nursing, residents, and providers/attendings participated in trainings about the importance of addressing SDOH in the primary care pediatrics setting and to review the process of screening and referral, with each training tailored to their particular responsibility in the process. The new screening process started in January 2021. During the initial weeks, there were daily huddles with residents and nursing, and follow-up meetings to discuss barriers and learnings.

The preparation paid off. By January 2021 the screening rates were 70% and by April the median performance was 88%. The high reliability of screening uncovered a much higher rate of FI than anticipated and it required MPP to modify how to address the need. The volume of referrals to social work was becoming unmanageable and team members from other areas stepped up to help. Some team members volunteered to help with the referrals to food banks, others created a binder that providers themselves could access and provide the resources directly, including education and connections for WIC and SNAP enrollment. Through another community partnership, Loaves and Fishes, a local food bank, provided boxes to establish a mini pantry of emergency food at MPP given our high rates of FI. Each box contained non-perishable foods that could feed one adult for one to two days. MPP providers have distributed these boxes from our clinic to families who indicate urgent FI on our screening form. These food boxes are essential in urgent FI situations but are a temporary solution. The screening tool allows providers to quickly evaluate which resources are already being utilized by a family and connect them with appropriate resources in the local community. Through another partnership established with Atrium Health, MPP patients and families have connected to Food Lion grocery store to provide $40 every month towards fresh produce to each family who is enrolled.

During the April 2022 EMR transition, the reliability of screening dropped dramatically. This transition impacted several process steps drastically. While we continued using our original paper screener, the new EMR screening questions, while similar and addressing the same domains, were different and did not match the paper screener that was being used. While results were noted in templates and screeners were scanned into the EMR, this was not data we were easily able to capture for our documentation goals. In addition. the screening tool and all domains did not trigger for all patients so additional EMR documentation strategies needed to be developed, and all of this occurred after formal EMR transition training so there was no opportunity to train on SDOH documentation prior to EMR transition. Ultimately, the flow of moving the screening results from the paper copy to the EMR was considerably more time consuming. The clinic also went through very high nursing team turnover, which greatly affected other teams with some shifting of responsibilities. We also lost all automated reports to track performance.

During the subsequent 6 months, the project team worked hard to address each of the barriers discovered. One of the first steps was to ensure the paper copy of the screen matched the EMR screen. Having the paper screen was important due to the sensitive nature of the questions. Research gathered before initiation of the project revealed how much more willing patients are to disclose sensitive information when given privacy and asked to write responses down rather than being asked face to face.

A team between MPP, Pediatric Primary Care and Community Health subsequently designed a new paper screener based on the EMR Foundation questions on SDOH, translated it into Spanish, and requested Health Literacy team support to achieve approvals for an updated SDOH screener. Everyone received refresher training on every step of the process and how to properly document it. The reports were also rebuilt, and performance recovered.

RESULTS/OUTCOMES: All process improvements are marked by median shifts following Run Chart Rule 1 of having 6 consecutive data points above the median. Based on the Healthcare Data Guide, this rule represents a violation of a random pattern and is based on an approximate probability of less than 5% (or P=0.05) of occurring when there is no real change in the measure.

Our primary process of measure screening 90% of all well child visits has been reached with a median performance of 95% since November 2022. (Graph 3)

With the initiation of SDOH screening at MPP, FI was quickly identified as a severe problem in our patient population. Our median performance for positive screens has been 35% since October 2022 (Graph 4). On average, 1 in 3 patients who visits our clinic answered positive to the question, "Within the last 12 months, did you worry that your food would run out before you got enough money to buy more?" and/or "Within the past 12 months, did the food you bought just not last, and you didn't have money to get more?" This is higher than the reported level of FI amongst children in North Carolina.

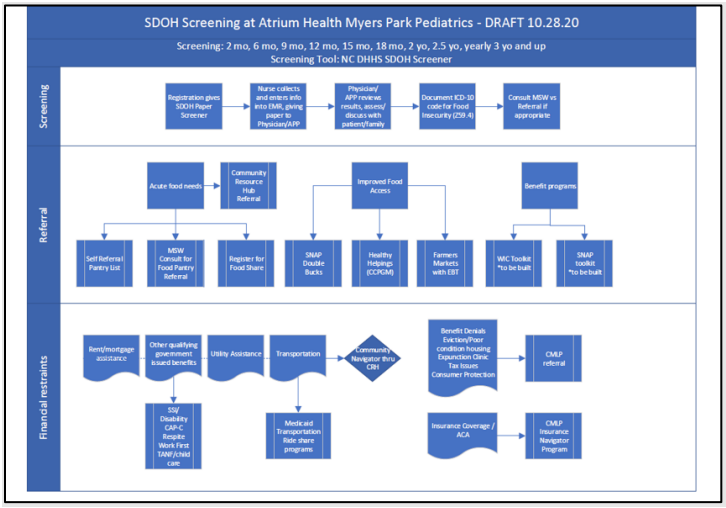
The process measure of accurate documentation of the positive screenings for FI was significantly impacted by the introduction of new managed care plans in July 2021. The new care plans stopped reimbursing for addressing needs on positive screens. When this information was disseminated, some providers stopped documentation. We continue reeducation on the measure but lost the ability to track this measure with the new EMR.

The measure of percent of positive FI being appropriately connected with services was tracked through audit as part of the work with the Carolinas Collaborative and even though that work stopped in May 2022, the median performance was sustained at 96% From Oct 2021 to May 2022 (Graph 5). The collaborative also evaluated the % of food insecurity identified but intervention not documented during the visits. Performance was sustained below threshold at 20% with a median of 5% from Oct 2021 to May 2022 (Graph 6). We are currently working on a way to document and automatically track these last two measures moving forward.

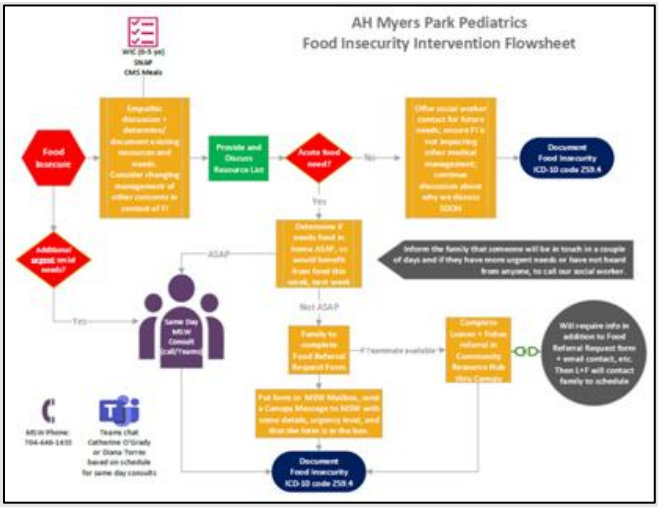
Research has proven SDOH have a significant and direct impact on a child's health. Identification of FI in our patient population has been monumental in ensuring our patient care is holistic and accounts for medical and social impacts on health. It's one of the reasons why at MPP we decided to screen at every well child visit rather than annually.

This pioneering project's success in addressing FI and other SDOHs provided a blueprint for successful spread to other practices with pediatric primary care as well as 10 other pediatric specialties, allowing the service line to develop a remarkably unified approach and to be better prepared to support the pledge of our CEOs to advance health equity. The rapid uptake of MPP's work across the service line truly demonstrates how QI teams can set the pace for turning innovation into impact at scale. MPP's drive for excellence now paves the way for building the brighter future our community deserves.

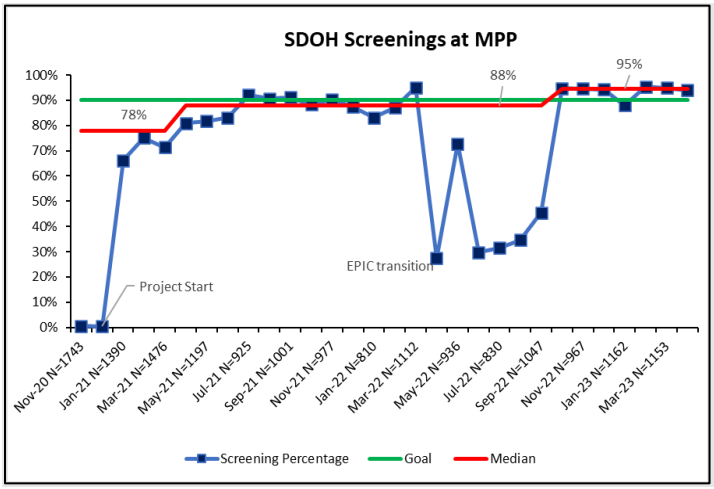
Graph 1



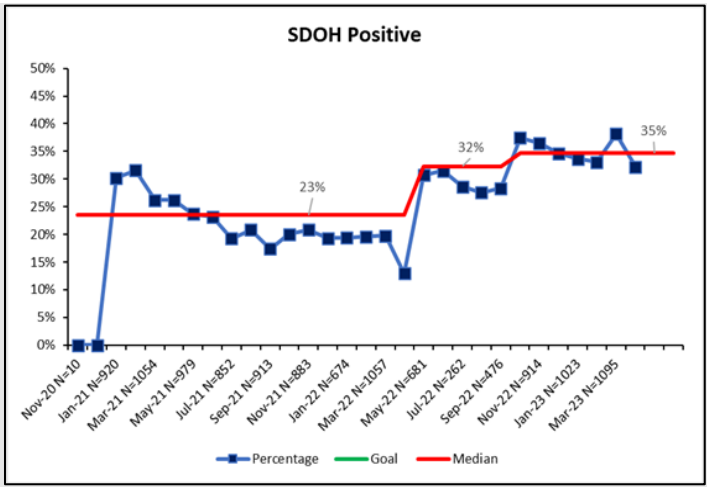
Graph 2



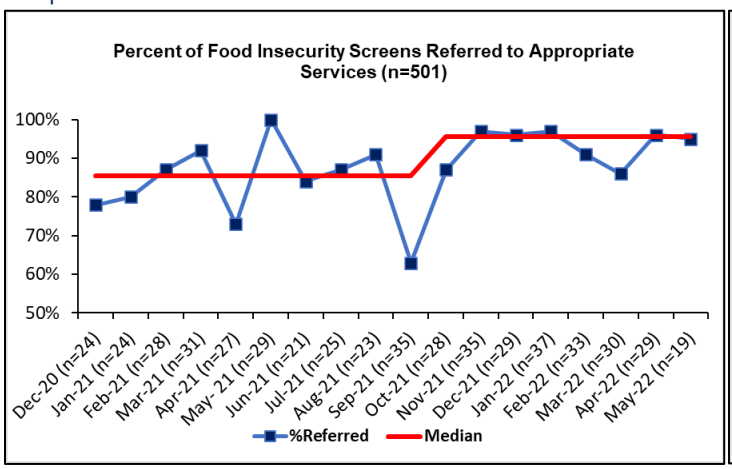
Graph 3



Graph 4



Graph 5



Graph 6