

## Background

### Food Insecurity (FI):

- Defined as limited access enough food to meet basic nutritional needs
- Affects 15.7% of households with children, or 12.5 million children in the United States
- Fluctuation and seasonal variation depending on a family's available resources and expenses

### Screening for Food Insecurity: Hunger Vital Signs (HVS)

- AAP acknowledges the importance of screening for FI at outpatient clinics more frequently than well child visits
- The HVS is a validated two questing screening tool to assess access to food: has 97% sensitivity and 83% specificity for Food Insecurity

#### Box 1. Hunger Vital Sign (Hager et al. 2010)

For each statement, respond whether the the statement was "Often true, Sometimes true, or Never true" for your household:

1. "Within the past 12 mo, we worried whether our food would run out before we got money to buy more."
2. "Within the past 12 months, the food we bought just didn't last and we didn't have enough money to get more."

### Importance in Cardiology Patients:

- Previously, HVS screening in our pediatric cardiology outpatient clinic identified 6% of families as food insecure
- FI may be associated with disease severity in congenital heart disease (CHD) due to resource utilization

## Global Aim Statement

Implement FI screening in a fetal cardiology clinic, evaluate the risk of food insecurity by fetal cardiac disease severity, and connect families to FI resources.

## Methods

- A quality improvement project conducted at the Fetal Cardiology Clinic in Pittsburgh from 12/2018 to 12/2019
- HVS were implemented during the intake process via a written screening protocol and tracked by an annotated run chart
- **SMART aim:** screen 80% of families and identify FI in 6% of patients over a 1-year period
  - Primary process measure: FI screening
  - Outcome measure: positive FI screen
- Four plan-do-study-act (PDSA) cycles based on hypothesis-driven interventions
- Retrospective chart review to document maternal clinical characteristics and fetal cardiac disease diagnosed from echocardiography
- Connect all FI families to resources through Just Harvest, a local food resource team, and our hospital Food Insecurity Task Force

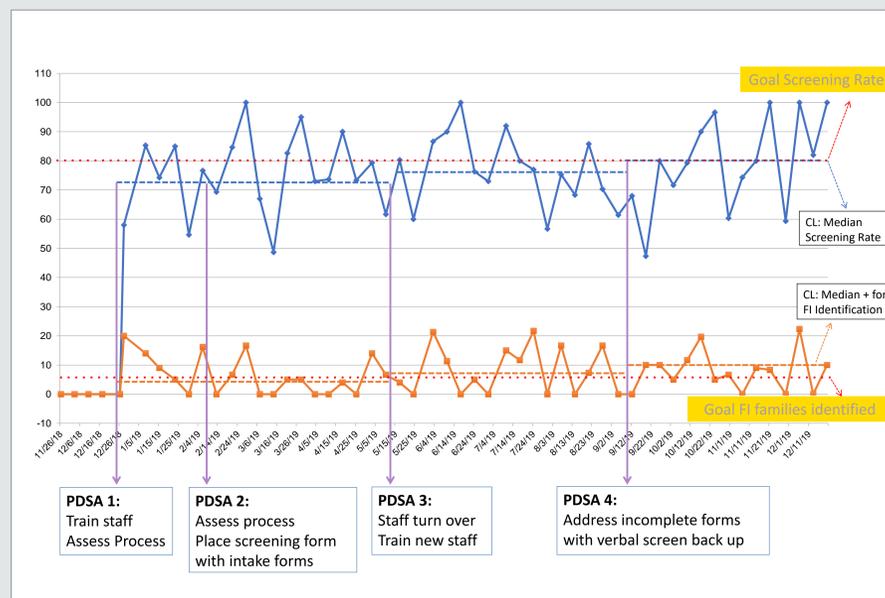
## Results

**Table 1.** Demographic characteristics.

	Total Screened (n=780)	Food Insecure (n=64)	Food Secure (n=716)	p-value
Maternal Age (y)	30 (26 to 34)	28 (23.5 to 33)	30 (26 to 34)	0.04
Race/Ethnicity				0.054
Asian	35 (4.5%)	0 (0%)	35 (4.9%)	
Black	119 (15.3%)	15 (23.4%)	104 (14.5%)	
Hispanic	9 (1.2%)	2 (3.1%)	7 (1.0%)	
White	608 (77.9%)	46 (71.9%)	562 (78.5%)	
Other/Multiple	4 (0.5%)	1 (1.6%)	3 (0.4%)	
Not specified	5 (0.6%)	0 (0%)	5 (0.7%)	
Fetal Cardiac Disease	77 (9.9%)	8 (12.5%)	69 (9.6%)	0.51

Values are median (IQR) or n (%).

**Figure 1.** Run chart for food insecurity screening.



## Conclusion and Discussion

- Screened 780 families within 1-year period (>80% screened)
- Identified 64 families (median 9%) as food insecure and helped link them to local and federal resources
- Our median positive screening rate (9%) was higher than in our previously reported outpatient cohort (6%)
- Partnership with local FI organizations can help connect families to appropriate resources in the absence of a licensed social worker
- Maternal age was significantly lower in food insecure families
- 77 families had an abnormal fetal echocardiogram, of which 8 (12.5%) were food insecure
- Families with a prenatal diagnosis of CHD were not more likely to be food insecure
- Given the known SES stratification in prenatal diagnosis, our study may underestimate the rate of FI in this population
- FI identification requires serial screening in patient's with chronic medical illnesses

## Future Directions

- Analyze data for patients rescreened in cardiology outpatient clinics
- Investigate zip code data collected from food insecure families to explore pathways for local advocacy and community engagement
- Analyze results from screening in Fetal Clinic
- Continue to connect families to Just Harvest and available community resources

## Acknowledgements

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## References

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