

# Can transportation assistance help slow down the progression of chronic diseases?

Connecting low-income patients to healthcare, food, and social services

*Strategies to Achieve Alignment, Collaboration, and Synergy across Delivery and Financing Systems*

*Research-in-Progress Webinar*  
March 13, 2024  
12-1pm ET

# Agenda

**Welcome:** Carrington Lott, MPH • Systems for Action

**Presenters:** Fei Li, PhD • Georgia State University

Christopher Wyczalkowski, PhD • Metropolitan Atlanta Rapid Transit Authority (MARTA)

**Commentary:** Kathy Taylor • Grady Health System

**Q&A:** Carrington Lott, MPH



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Fei Li, PhD, Georgia State University

Shanae Stover, Georgia State University

Christopher Wyczalkowski, PhD, MARTA

Janee Farmer, Georgia State University

Hyesu Im, Georgia State University

Harry Heiman, MD, Georgia State University

# Summary



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- We conducted a mixed-methods study on transportation and access to healthy food, healthcare, and public health resources for low-income, chronically ill individuals in Atlanta, GA
  - Randomized controlled trial to test the impacts of several mobility assistances on health over 12 months
  - In-depth interviews on the mobility challenges these patients faced during the COVID-19 pandemic and the implications on their food access and healthcare utilization

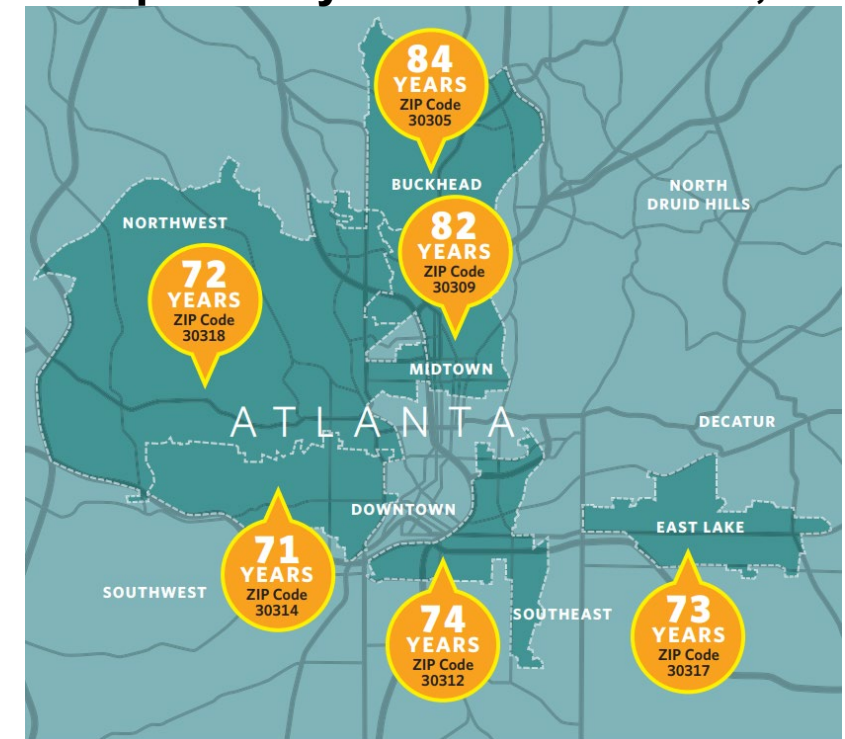
# Problems



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- Mobility and accessibility as a social determinant of health (SDOH)
  - Access to medical care
  - Access to healthy food
  - Access to essential services
  - Independent living and social support
- Transportation inequalities could shape health-related behavior and lifestyles, which in turn contribute to health disparities

## Life Expectancy at Birth in Atlanta, GA



Minyard, K., Lawler, K., Fuller, C., Wilson, M., & Henry, E. (2018). Reducing health disparities in Atlanta. *Stanford Social Innovation Review*, 14(2), 22–23. Data Source: [Mapping Life Expectancy](#), Center on Society and Health, Virginia Commonwealth University



# What We Know

- Transportation barriers can hinder healthcare utilization [1, 5, 7]
- Lack of transportation limits low-income households' access to healthy food [8, 10]
- Public transit services can be absent or inadequate in neighborhoods in need [4, 9]
- Limited mobility of senior, chronically ill individuals [6]
- The COVID-19 pandemic has exacerbated the mobility challenges for transit-dependent populations with chronic health conditions [2, 3]



# Research Questions

- How do low-income, chronically ill individuals navigate the transportation system to obtain medical care and essential services?
- Can mobility support help them better utilize available resources and manage their medical conditions?
- What strategies would be the most effective in addressing the mobility and accessibility challenges these patients face?

# Food As Medicine (FAM): A Cross-Sector Partnership



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- Spearheaded by **Grady Health System**, the largest safety net hospital system in Georgia, FAM is a cross-sector initiative addressing food insecurity and chronic disease management





# Food As Medicine (FAM): A Cross-Sector Partnership



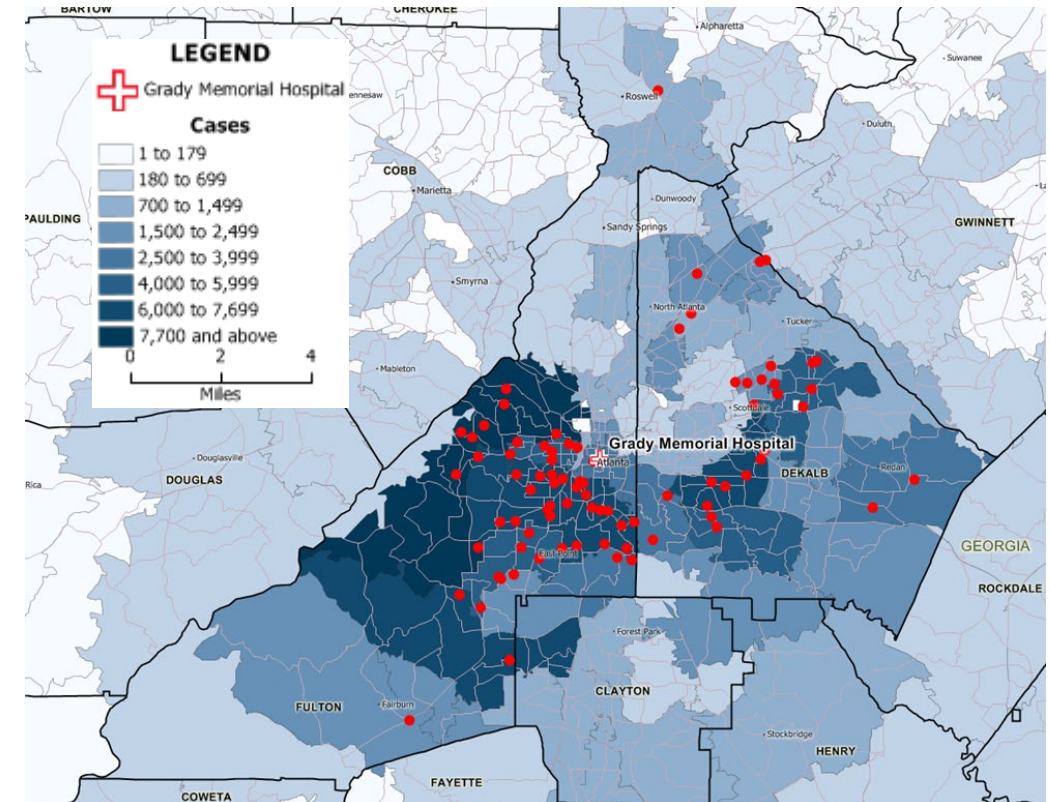
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- Biweekly food pickup (plant-based groceries)
- Cooking and nutrition classes every three months
- Up to four three-month episodes (maximum one-year participation)
- Starting in August 2020, FAM has enrolled over 1,000 Grady patients with diet-related chronic health conditions, mostly uncontrolled diabetes and hypertension.



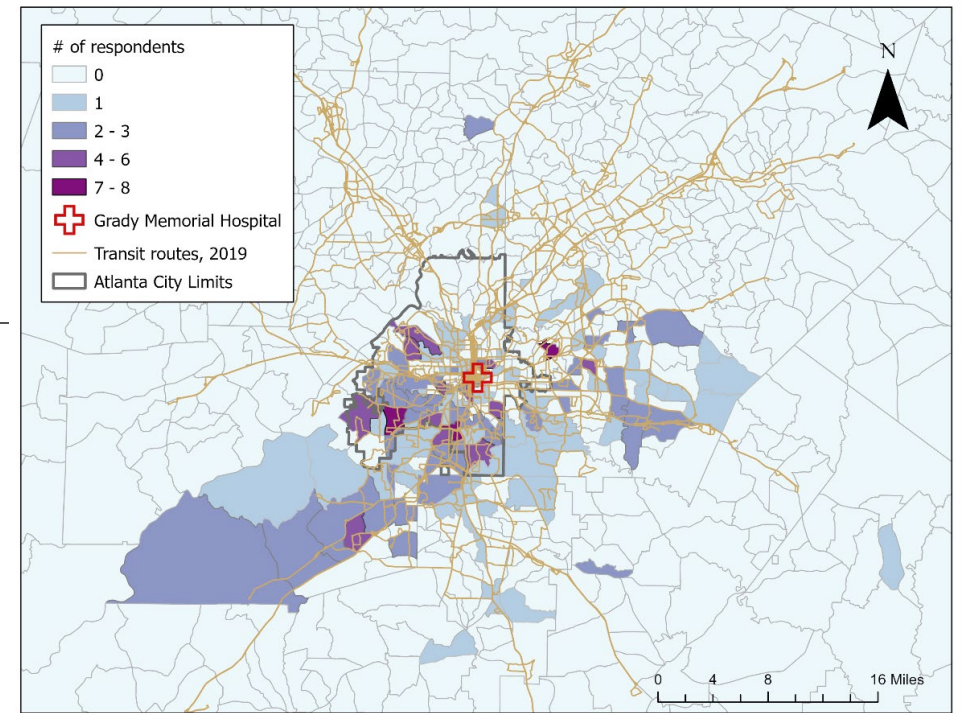
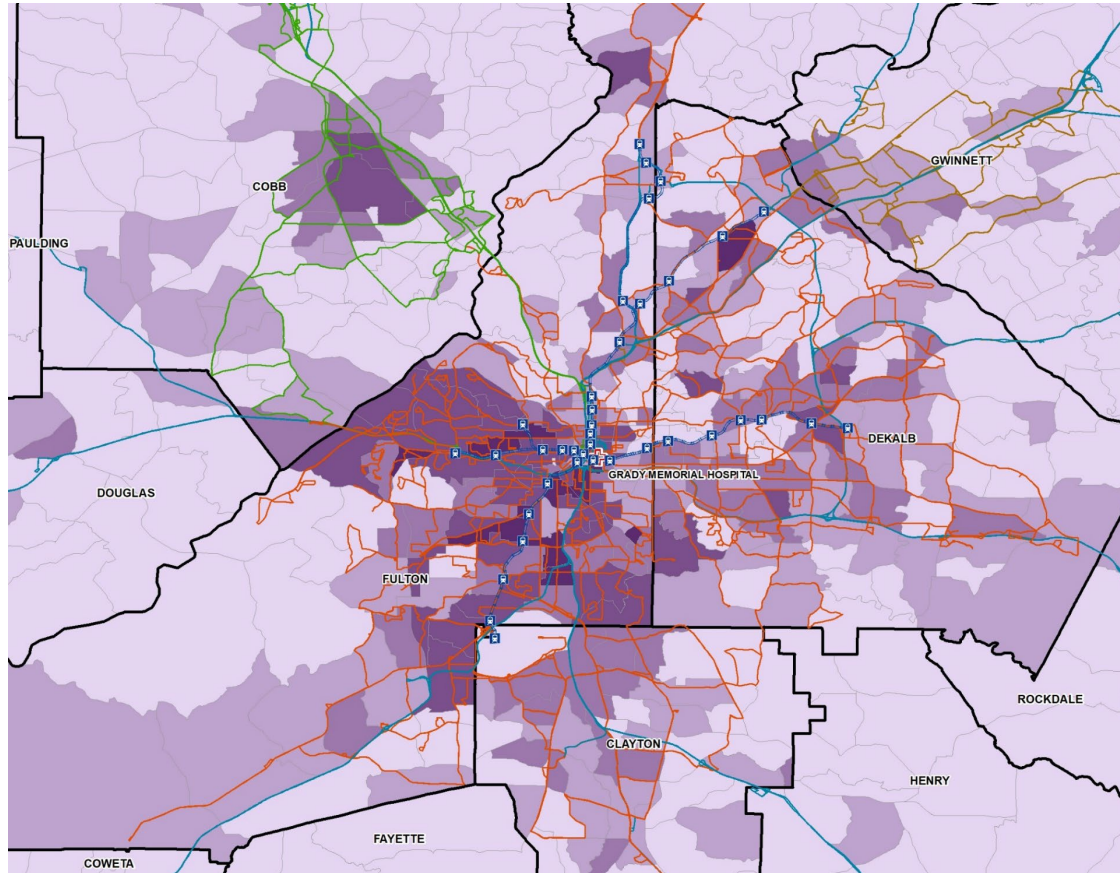
# Target Community

- ~80% of Grady patients live in Fulton and DeKalb Counties; ~60% of which are uninsured or underinsured
- Many of these patients live in communities defined by the CDC as vulnerable to health problems caused by external stresses (homelessness, etc.)
- High prevalence of chronic diseases (diabetes, hypertension, etc.) that also correlate to areas with high social needs

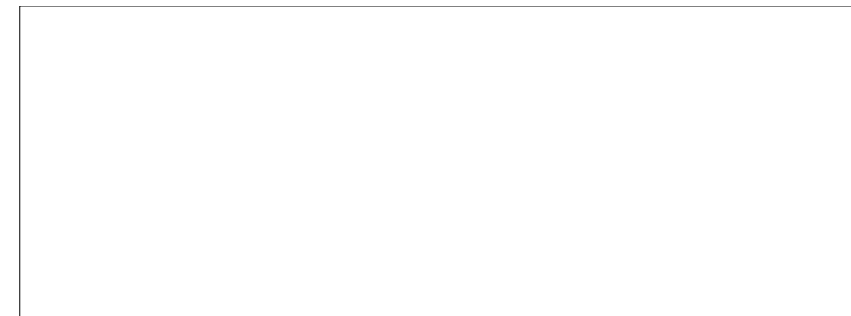


● Census Tract in Fulton and DeKalb counties with Social Vulnerability Index (SVI) score > 0.8 (top 20% most vulnerable census tracts in GA)

# Public Transit Access



Home locations of the survey respondents (N = 263)



Source: Easy Analytic Software, Inc. (EASI) - Census Database, Enhanced Master Database.



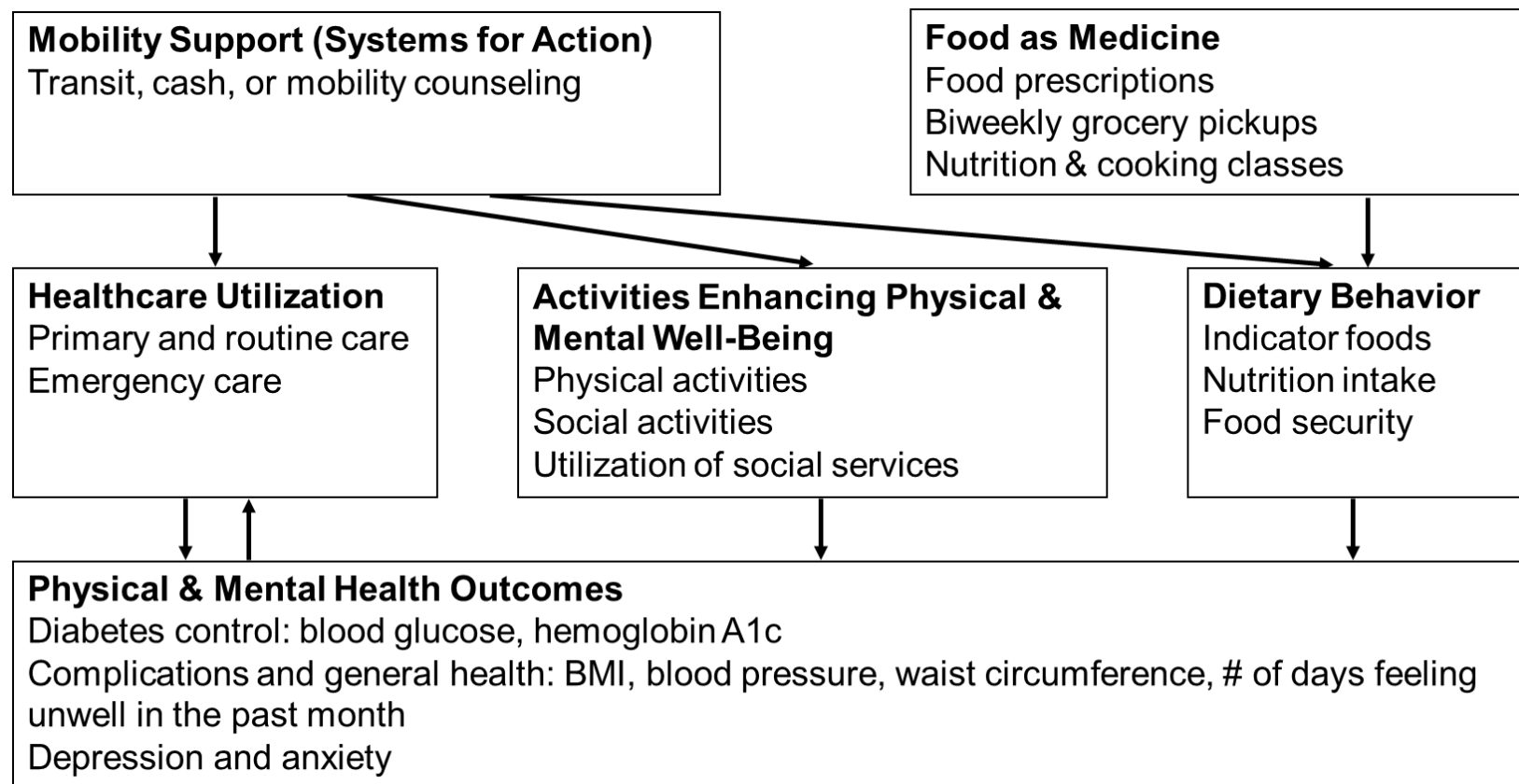
# Study Design

- Recruit FAM participants with transportation challenges
- Randomized mobility assistance for 12 months
  - Public transit (10 rides per month)
  - Cash subsidies (\$25 per month)
  - Mobility counseling
  - Control group
- Five waves of surveys at 0, 3, 6, 9, and 12 months
- In-depth interviews for a subset of participants





# Expected Outcomes



# Participants Profile



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	FAM Participants	GSU Study
<i>N</i>	1,120	263
<b>Demographic</b>		
Age (average)	56.0	55.4
Female (%)	61.2	63.5
Black or African American (%)	92.7	95.6
<b>Housing</b>		
Staying with a relative/friend or in other temporary arrangement (hotel, shelter, etc.) (%)	-	27.3
Experienced homelessness in the past 12 months (%)	21.2	26.9
<b>Food Stamps (SNAP)</b>	73.3	79.0

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# Health Indicators (baseline)

	FAM Participants	GSU Study
BMI (average)	32.4	33.2
Hemoglobin A1C (average, %) <sup>+</sup>	8.9	9.4
Stage 2 hypertension (%) <sup>++</sup>	59.7	52.5
Self-reported general health (%)		
Poor	16.7	19.9
Fair	48.1	52.5
Good	27.0	19.9
Very good	6.0	5.0
Excellent	2.2	2.7
# of days physically unwell in the past month	10.5	11.6
# of days mentally unwell in the past month	8.3	10.2

<sup>+</sup>Hemoglobin A1C (A1C) measures the average amount of blood sugar over the past three months and is a common indicator used to diagnose diabetes. A normal A1C level is below 5.7%. A level of 6.5% or more indicates diabetes, and a level above 9.0% indicates uncontrolled diabetes with high risk of complications.

<sup>++</sup>Systolic blood pressure 140 mm Hg or higher or diastolic blood pressure 90 mm Hg or higher.

# Mobility & Accessibility



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	GSU Study
Having access to a car or private vehicle (%)	46.2
Able to drive (%)	55.4
Enrolled in MARTA Reduced Fare program (%) <sup>+</sup>	34.4
Eligible for MARTA Mobility (%) <sup>++</sup>	30.9
Getting any kind of transportation assistance (%) <sup>+++</sup>	26.1
Having Internet access on a home computer (%)	60.2
Having Internet access on a mobile device (%)	81.8

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<sup>+</sup>MARTA Reduced Fare program is a discount program operated by the local public transit agency, Metropolitan Atlanta Rapid Transit Authority (MARTA). Senior citizens, people with disabilities, and Medicare beneficiaries may participate in the Reduced Fare program and ride MARTA trains or buses at the cost of \$1 per one-way trip, as compared to the regular fare of \$2.5.

<sup>++</sup>MARTA Mobility is an on-demand paratransit service for people with disabilities and costs \$4 for a one-way trip.

<sup>+++</sup>Including MARTA Reduced Fare or MARTA Mobility.



# Participation



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Among those who  
enrolled in FAM at  
least 12 months  
ago...

	<b>FAM Participants</b>	<b>GSU Study</b>
<i>N</i>	532	143
<b>FAM visits</b>	11.3	15.6
<b>Doctor visits</b>	0.7	0.9
<b>Virtual visits</b>	0.3	0.4

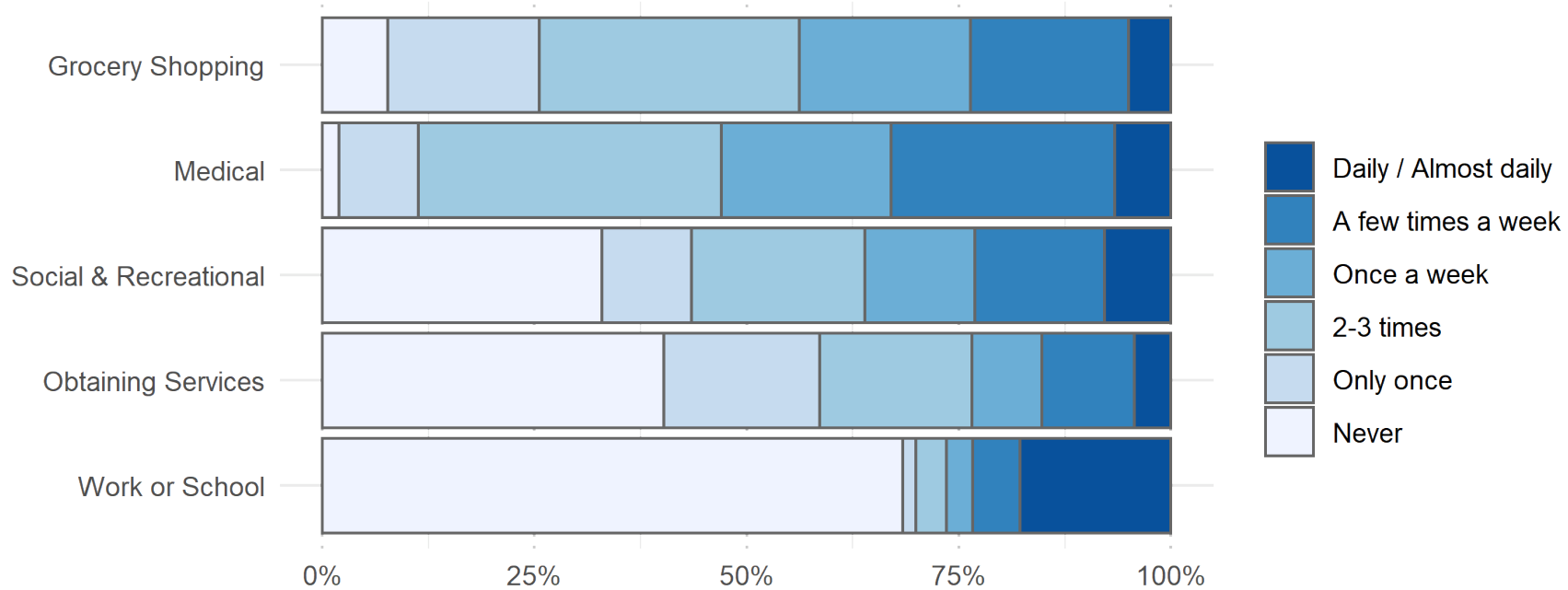
## Survey Participation

## Waves

	1	2	3	4	5
Group 1 Transit	63	46	27	11	1
Group 2 Cash	76	52	43	29	7
Group 3 Counseling	63	35	24	14	3
Group 4 Control	61	40	27	15	3
<b>Total</b>	<b>263</b>	<b>173</b>	<b>121</b>	<b>69</b>	<b>14</b>



# Travel Behavior



**Frequencies of different types of activities in the past month**

Source: Baseline surveys (N = 263)



# Transportation Barriers

- *“Lately, since I've been sick, don't sleep well at night. When I do finally wake up, I'm in a lot of pain. Car's broken down now, so I'm not able to get to the store and get the food I need. I have to either beg somebody or ask somebody or go on their time, and it's cost a lot because now, **since I don't have no transportation, it's like you have to pay for everything.** Then, when you can't get to place to get food, you have to try to order food, and that's expensive. Right now, that's what I've been dealing with, and that's been very hard.”*

*“I haven't had my medicine in over three weeks because I ran out of medicine and I have nobody to take me to go get it. **I haven't had no medicine in over three weeks.**” (0399)*

- *“I try not to say nothing negative against the MARTA Mobility (on demand paratransit), but I keep it real. I keep it real, you know. **Things just don't go accordingly. I don't have no transportation.** My daughter is my only transportation and she was working now, thank you, Jesus. And I have to rely on them [MARTA Mobility].” (0400)*

Source: In-depth interviews (N = 37)

# Transportation Barriers



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- *“At this time with gas being high, I've limited my going out because of the expense of gas, it's very expensive. Everybody can tell.” (0186)*
- *“The cost of a MARTA pass is very expensive. Even if you did a half fare... If I put 40 trips on – I don't know how long that will last. So I'm thinking...let's say every...I don't think it'll last three months, 40 trips. But we can say that. 4 times 3 is 12, let's say 40 trips three times a year... **That's \$120 a year that I can get around.**”*

(Regarding **Common Courtesy**, a senior transportation program in Fulton County) *“It's a dollar each way and they come right away. They come when they say they're going to come. Unlike my insurance transportation, I've been having problems with them. **They've been making me miss a couple of appointments.**” (0386)*

Source: In-depth interviews (N = 37)

# Results from Survey



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$$y_{it} = \beta t + \theta t \times MARTA + \gamma t \times CASH + \delta t \times COUNSELING + \alpha_i + e_{it}$$

Days in the program
Group assignment
Individual fixed effects

Outcomes	Monthly Transportation Budget	Frequency of Medical-Related Trips	Financial Anxiety
$t \times MARTA$	-0.2256 (0.3207)	-0.0022 (0.0082)	-0.0003 (0.0014)
$t \times CASH$	0.0224 (0.3095)	-0.0049 (0.0075)	-0.0005 (0.0013)
$t \times COUNSELING$	0.2382 (0.3357)	-0.0006 (0.0083)	-0.0005 (0.0014)



# Discussion & Next Steps

- Challenges of conducting experiments in vulnerable populations during a pandemic
- ITT analysis of health outcomes
- Further analysis of the in-depth interviews

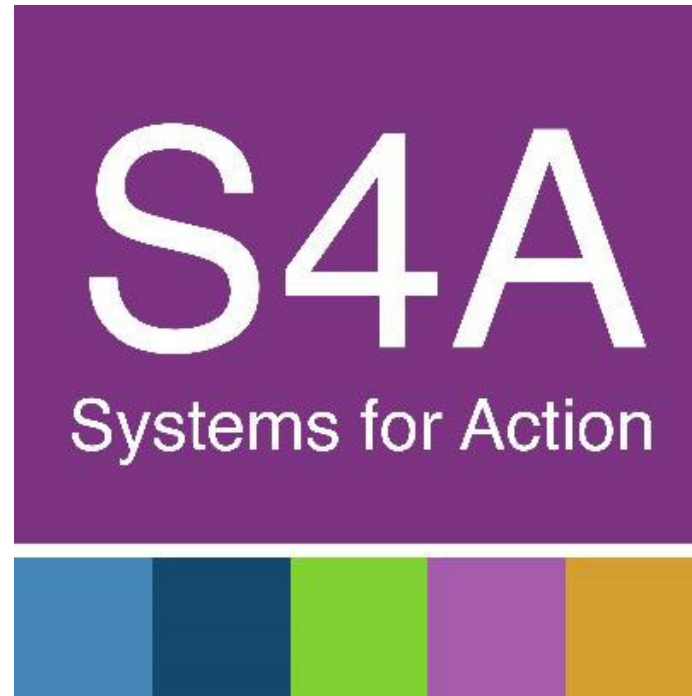
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# Questions?



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March 27 | 12pm ET

## Systems Alignment to Optimize Health Services for Youth Experiencing Homelessness

University of Minnesota

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