

Using Air Monitoring Projects to Plant Social, Academic, and Economic Seeds in African American Youth

Gwen Smith

Community Health Aligning Revitalization Resilience & Sustainability

May 13, 2020

Air Sensor International Conference 2022

Agenda

- Social Determinants of Health
- Challenges Faced in Low- and Moderate-Income Earning Communities
- Community Based Participatory Research
- Citizen Science Air Monitoring Projects & Research

Social Determinants Of Health (SDOH)

The social determinants of health (SDH) are the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life.

- **Income and social protection**
- **Education**
- **Unemployment and job insecurity**
- **Working life conditions**
- **Food insecurity**
- Housing, basic amenities and the environment
- Early childhood development
- **Social inclusion and non-discrimination**
- Structural conflict
- Access to affordable health services of decent quality.

CHALLENGES

- Academic
- Social Capital
- Residential Mobility

Academic Success Impacts for Youth

- Utilities
- Babysitting
- Parents Work
- Transportation
- Food Security
- Trafficking
- 4.0 GPA
- 2.0 GPA

SOCIAL CAPITAL



SOURCE: [Social Capital - Career Development - IResearchNet](#)

Social Capital Impacts

- Parents Employment
- Social Circle

Residential Mobility

- Home Radius
- Park Space
- Housing
- Amenities
- Physical Environments

Community-Based Participatory Research (CBPR)

CBPR is an approach to health and environmental research meant to increase the value of studies for both researchers and the communities participating in a study.

- What is of *value* to the researchers?
- What is of *value* to the community?
- How can researchers & agencies be more intentional about making deposits when designing projects

CHARRS Citizen Science & Air Monitoring Project

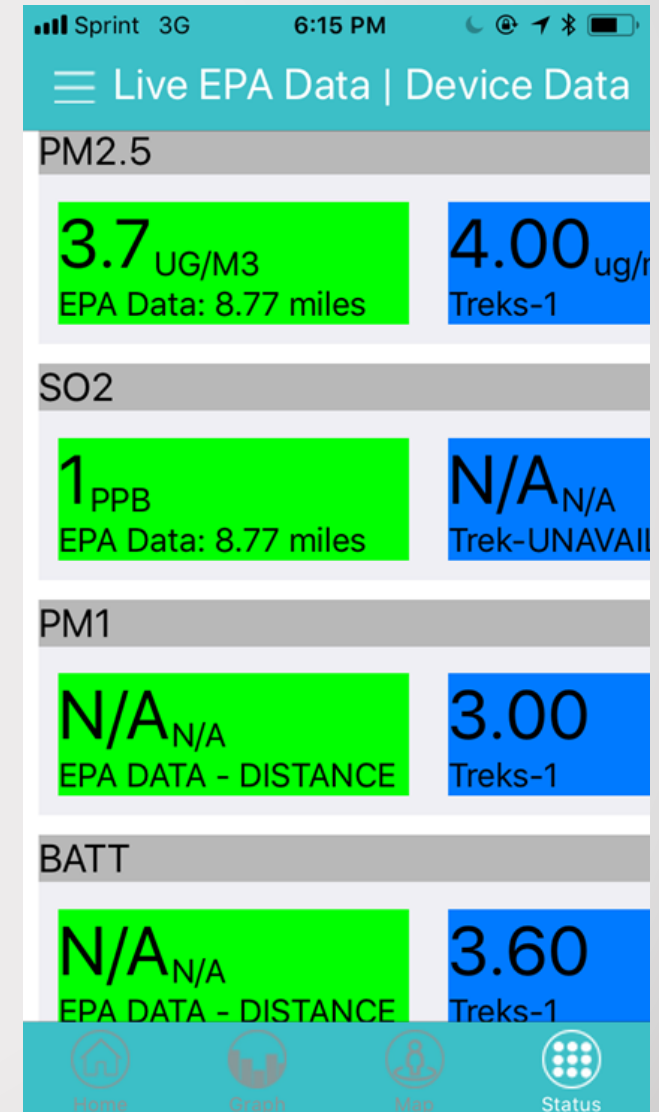
Enriching Deposits for a Fair Start

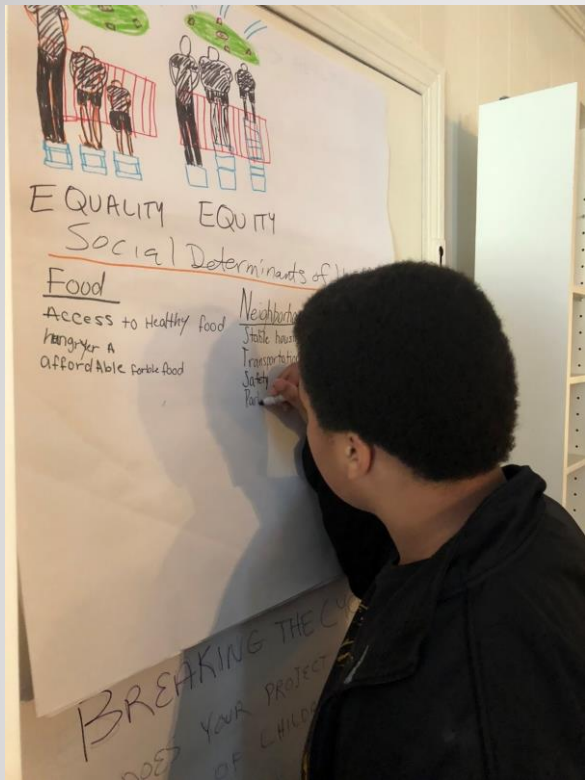
- Environmental Health Outdoor Classroom
 - Leveling the learning field with fun
- Access to Social Capital
- Exposure to science concepts and fields of study
- Cultural and Other Enriching Experience—Widening the mobility radius
- Shared Knowledge
- Understanding How Physical and Natural Spaces Impact Our Health
- Progress

Collier Heights Environmental Health Outdoor Classroom Beta Testing AQTrek Handheld Monitor



Pictured are a high school and middle school student, Rajah and Derek, varying abilities monitoring air quality near the neighborhood truck stop





Collier Heights Environmental Health Outdoor Classroom

Darryl A. Howard, BS, Derwin Douglas, Anthony Hairston, Rajah Jordan, William Mitchell, Montaus Paden, Monteria Paden, Cadence Williams
 Collier Height Assoc. for Revitalization, Resilience, and Sustainability and Morehouse School of Medicine

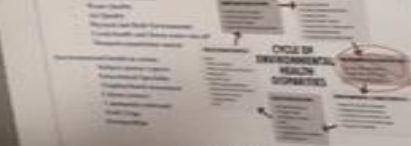


Introduction

The Collier Heights area has a rich history and is home to many diverse people. Unfortunately, the area has a high rate of environmental health disparities. The Collier Heights Environmental Health Outdoor Classroom was created to provide a space for community members to learn about environmental health issues and to work together to address them.

Breaking the Cycle

The program addresses the cycle of environmental health disparities by providing education, resources, and opportunities for community members to get involved in environmental health issues.



Methods

The program uses a variety of methods to engage community members, including:

- Community meetings
- Workshops
- Field trips
- Surveys
- Focus groups
- Environmental health assessments
- Water quality monitoring
- Mosquito surveillance



Results

Environmental Justice Tour

The environmental justice tour of the Donald Lee Hollowell Center of Collier Heights, led by the Morehouse School of Medicine, youth and community members observed issues such as a blocked drainage, a blocked back alley, a block wall, an abandoned gas station, and illegal dumping sites. They became aware of how their everyday environment (air, water, and soil) is contaminated and impacts the health of all residents.



Applied Citizen Science Experiences

Activity	Date	Location	Number of Participants	Observations	Health Impact
Water Quality Assessment	10/15/17	Sandy Creek Watershed	15	High turbidity, high temperature	Increased risk of disease
Mosquito Surveillance	11/15/17	Collier Heights	10	High density of mosquitoes	Increased risk of malaria

Field 1: Mosquito Surveillance

Species	Count	Time of Day	Location
Aedes albopictus	12	14:00-16:00	Backyard
Culex quinquefasciatus	8	18:00-20:00	Drainage



Field 2: Water Quality Assessment

Parameter	Value	Standard	Notes
pH	7.5	6.5-8.5	Good
Temperature	25°C	15-20°C	High
Turbidity	15 NTU	< 5 NTU	High
Dissolved Oxygen	5 mg/L	> 5 mg/L	Low



Discussion

Youth Stakeholders assessed how clear storm drains were and marked them in the Collier Heights Community in the Fall of 2017 and Winter 2018.

Youth Stakeholders learned how to advocate for their community and to understand policy regarding community storm drains, such as calling 311 to report blocked drains to the City of Atlanta. Youth learned the importance of informing community members of the importance of keeping storm drains clear, such as reducing vectors (such as mosquitoes, rats, and stray dogs) and diseases they carry.

Challenges:
 Assessments were conducted on Saturdays. The City of Atlanta 311 only responds to non-emergency calls during the week.

Youth Stakeholders assisted Dr. Rosmarie Kelly, Dr. "Tiffany" They-vi Thi Nguyen, and Kathryn Schmidt of the GA Department of Public Health with mosquito surveillance.

Youth stakeholders learned about the habitats, life cycles, and breeding styles of different species of mosquitoes common to the region including Collier Heights. Understanding how mosquitoes breed and spread diseases in their hosts create a better understanding of the methods to protect an area from dense mosquito populations. Youth stakeholders learned how to identify problem areas, various methods to trap and confirm mosquito populations, and common ways to reduce populations and disease risk.

Youth Stakeholders participated in monitoring water quality in the Sandy Creek Watershed.

Youth Stakeholders learned how to collect water samples from local water sources and test them for environmental and health concerns. To do this they had to learn: to work as a team; to understand what they were testing for and why; and how to read scientific equipment to interpret their findings.

Overall, the CHARRS's Environmental Health Outdoor Classroom has been influenced Youth Stakeholders to understand how their physical environment affects community health, specifically that of women and children. They participated in scientific experiments and activities alongside subject matter experts, volunteers, and community members. These activities have shown them that they have the ability to become a part of the solution to reducing environmental health hazards in the Collier Heights Community, and given them an opportunity to do so.

CHARRS will evaluate the program comparing student responses at the beginning and end of the program. Evaluative summary statements will provide CHARRS with programming and engagement recommendations for future outdoor classrooms.

Acknowledgements

Thank you to Emory University Children's Community Association, Lisa L. Watson, Environmental Research Center (C-CHEM2), Collier Heights Community Association, Lisa L. Watson, Rhonda Haygood, Anna Witt, and CHARRS's Volunteers;



BREAK THE CYCLE OF ENVIRONMENTAL HEALTH DISPARITIES
 13
 Building Children's Environmental Health Disparities and Promoting Resilience



When the Research Is Done & Researchers are Gone

What was the deposit made into the Community?



IMAGE SOURCE: [Bank Deposits: The Most Important Number on the Balance Sheet - Banking Exchange](#)

DEPOSIT OPPORTUNITIES

- Operational support of community partners
- Create Intergenerational opportunities for youth and elders to work together or interact
- Create opportunities for community members that provide new skill-sets-
Economic
- Provide ethics training for community researchers- Academic/Economic
 - Surveys
 - Testing
- Provide letters of Recommendation
- Utilize social equity to create opportunities

Gaining Access to Green Economy, Climate Change Industry, and the Sciences

WE HAVE THE ABILITY TO INCREASE ACCESS FOR
AFRICAN AMERICAN YOUTH THROUGH OUR
PROJECTS AND STILL ACHIEVE OUR GOALS.



Each of us collaborating and choosing to consciously think of ways to make deposits in the communities where we want to work and include those actions in our proposals.

Thank You

Special Thanks to Jessa Ellenberg

Gwen Smith

Community Health Aligning Revitalization Resilience & Sustainability
(CHARRS)

gsmith@charrs.org

404-734-5817