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RESEARCH AND DELIVERY SCIENCE

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“Don’t do anything for us without us” Evaluating environments with citizen scientists to improve local health

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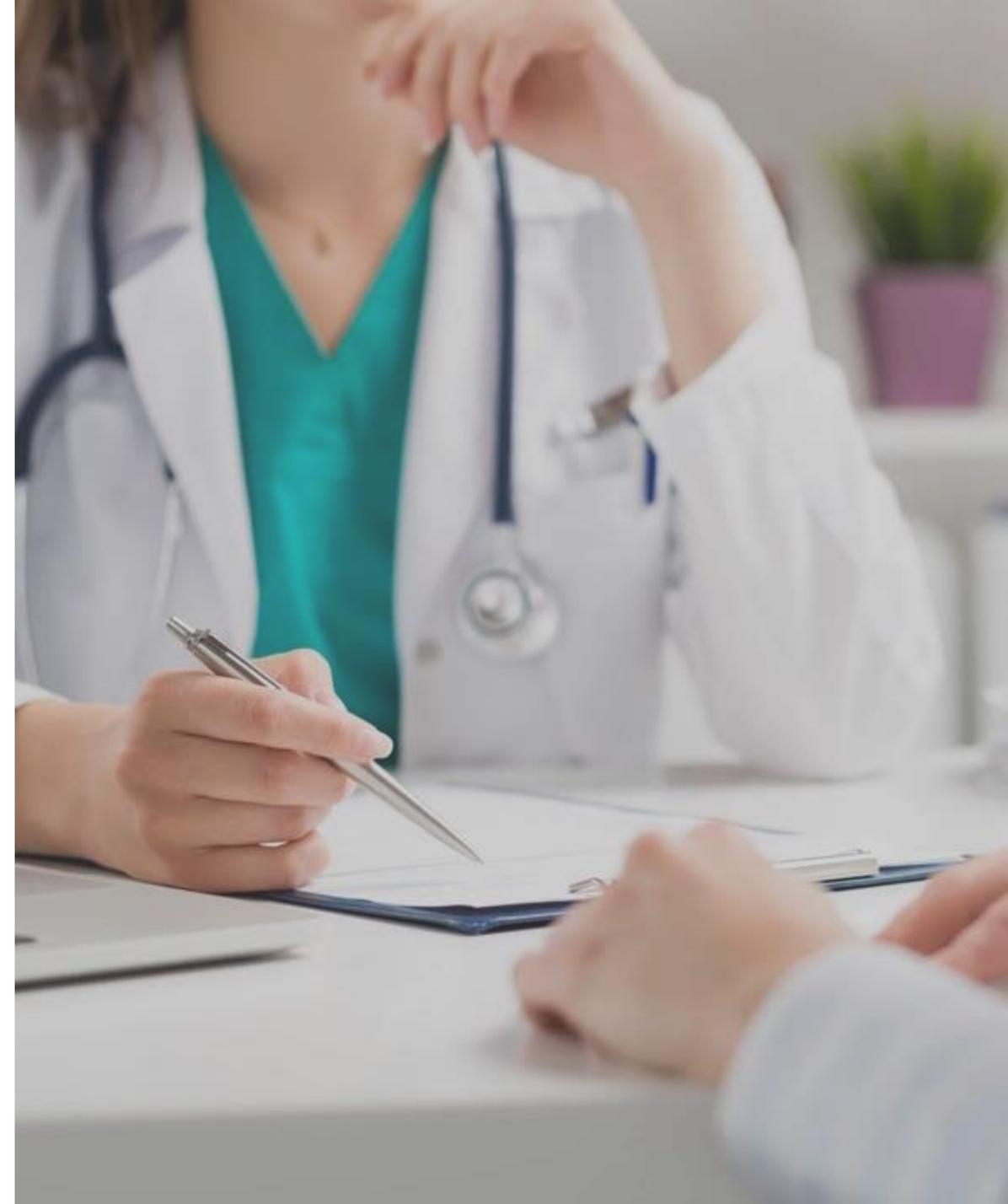
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medschool.cuanschutz.edu/ACCORDS



Agenda

- Why environment matters in public health research
- Methods for community engaged environmental assessment to improve local health
 - Case Example Harm Reduction Vending Machines
 - Our Voice methodology
 - Iterative implementation
 - Results outlining the value in each step
 - Case Example Engaging community members in walking audits to improve local health
 - Walk audits in the context of epidemiological research
 - Recruiting and training community members
 - Dissemination of walk audit data



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Context Matters

RESEARCH

Open Access

How do contextual factors influence naloxone distribution from syringe service programs in the USA: a cross-sectional study



Barrot H. Lambdin^{1,2,3*}, Lynn Wenger¹, Ricky Bluthenthal⁴, Tyler S. Bartholomew⁵, Hansel E. Tookes⁵, Paul LaKosky⁶, Savannah O'Neill⁷ and Alex H. Kral¹

Not predictors of naloxone distribution:
Opioid overdose mortality rates

↑ Community support ↑ rates of naloxone distribution



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*7 key invested partners in Patient Centered
Outcomes and Comparative Effectiveness
Research*

- *Patients and the Public*
 - *Providers*
 - *Purchasers*
 - *Payers*
 - *Policy makers*
 - *Product makers*
- *Principal investigators*

7 Ps Framework



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Concannon TW, Meissner P, Grunbaum JA, et al. A new taxonomy for stakeholder engagement in patient-centered outcomes research. *Journal of general internal medicine*. 2012;27(8):985-991.

Vine Grove Police Department, Kentucky



8th P is for Place

- First Narcan Vending Machine in Kentucky
- Who will this reach?



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Autry L. 'I think it's doing some good!' Kentucky's first Narcan vending machine opens in Hardin County. *WKU Public Radio*. <https://www.wkyufm.org/2022-10-04/i-think-its-doing-some-good-kentuckys-first-narcan-vending-machine-opens-in-hardin-county>



Access to Resources

- Walking environments can impact physical activity but also transportation mobility by providing safe access to public transit stops.



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Missing Context: Physical Environment

Nilsen and Bernhardsson *BMC Health Services Research* (2019) 19:189
<https://doi.org/10.1186/s12913-019-4015-3>

BMC Health Services Research

RESEARCH ARTICLE

Open Access

Context matters in implementation science:
a scoping review of determinant
frameworks that describe contextual
determinants for implementation outcomes



Per Nilsen¹ and Susanne Bernhardsson^{2,3*} 



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Environmental Factors to Consider in Program Implementation

- Macro level features: community layout and land use (e.g. access to public transit)
 - Well suited to inform expansion (example to come)
- Micro level features: observable in a setting (e.g. lighting, cameras)
 - Natural (vegetation, weather)
 - Social (people and culture)
 - Built environment-man made features (benches, buildings)



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Carlson J, Dean K, Sallis J. Measures registry user guide: physical activity environment. *National Collaborative on Childhood Obesity Research*. 2017



VENDY

**VENDING MACHINE NALOXONE
DISTRIBUTION IN YOUR
COMMUNITY**

**Using P for Place to Increase
Reach:
The Case of Harm Reduction
Vending Machines**



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Naloxone Distribution Disparities

- Take home naloxone is a safe and effective strategy to prevent opioid overdose deaths
- Low rates of distribution in pharmacies to high risk groups (<2%)
- Disparities in naloxone distribution
 - Geographic regions
 - People of color
 - Low socioeconomic status
 - Rural communities

McDonald, Rebecca, and John Strang. "Are take-home naloxone programmes effective? Systematic review utilizing application Follman, Sarah, et al. "Naloxone prescriptions among commercially insured individuals at high risk of opioid overdose." *JAMA network open* 2.5 (2019): e193209-e193209.

Madden, Erin Fanning, and Fares Qeadan. "Racial inequities in US naloxone prescriptions." *Substance Abuse* 41.2 (2020): 232-244.

Egan KL, Foster SE, Knudsen AN, Lee JG. Naloxone availability in retail pharmacies and neighborhood inequities in access. *American journal of preventive medicine*. 2020;58(5):699-702.

Sisson, Michelle L., et al. "Attitudes and availability: A comparison of naloxone dispensing across chain and independent pharmacies in rural and urban areas in Alabama." *International Journal of Drug Policy* 74 (2019): 229-235.

Guy Jr, Gery P., et al. "Trends in state-level pharmacy-based naloxone dispensing rates, 2012–2019." *American journal of preventive medicine* 61.6 (2021): e289-e295.

Khan, Maria R., et al. "Racial/ethnic disparities in opioid overdose prevention: comparison of the naloxone care cascade in White, Latinx, and Black people who use opioids in New York City." *Harm Reduction Journal* 20.1 (2023): 24.



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National Push to Increase Access to Naloxone

[Home](#) > [About](#) > [News](#) > The Biden-Harris Administration Takes Critical Action to Make Naloxone More Accessible and Prevent Fatal Overdoses from Opioids ...

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Media Guidelines for HHS Employees



FOR IMMEDIATE RELEASE

March 29, 2023

Contact: HHS Press Office

202-690-6343

media@hhs.gov

The Biden-Harris Administration Takes Critical Action to Make Naloxone More Accessible and Prevent Fatal Overdoses from Opioids Like Fentanyl

Today, the U.S. Food and Drug Administration (FDA) approved the first nonprescription, “over-the-counter” (OTC) naloxone nasal spray, Narcan. Naloxone – a medicine that can reverse an opioid-related overdose – has been shown to be a critical tool to prevent fatal overdoses, connect more people to treatment for substance use disorder, and save lives. This action by the Biden-Harris administration to make this naloxone product available without a



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HRVM Background

- Europe
 - Nearly 40 years of syringe exchange using vending machines
 - Reaches hard to reach populations
 - Younger than in-person needle exchange program
 - Shorter duration of injection drug use than in-person needle exchange program
 - Limited current contact with drug treatment or assistance agencies
 - Increased geographic availability (such as rural areas where syringe exchange services are not available)
 - Increased temporal availability (24 hours)
- United States (continental US since 2017)
 - Associated with decrease in opioid overdose death (naloxone)



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Islam, Md Mofizul, Alex Wodak, and Katherine M. Conigrave. "The effectiveness and safety of syringe vending machines as a component of needle syringe programmes in community settings." *International Journal of Drug Policy* 19.6 (2008): 436-441.

Russell, Erin, et al. "A scoping review of implementation considerations for harm reduction vending machines." *Harm reduction journal* 20.1 (2023): 33.

Allen, Sean T., et al. "Evaluating the impact of naloxone dispensation at public health vending machines in Clark County, Nevada." *Annals of Medicine* 54.1 (2022): 2680-2688.

Arendt, Daniel. "Expanding the accessibility of harm reduction services in the United States: measuring the impact of an automated harm reduction dispensing machine." *Journal of the American Pharmacists Association* 63.1 (2023): 309-316.

Interviews with Young Adults Who Use Opioids

- Barriers to naloxone uptake
 - Privacy, Convenience, Knowledge
- Supportive of vending machine
- Macro and microlevel environmental features key to perceived use of HRVM
 - Convenience (e.g. near drug access points)
 - 24/7 access
 - Outdoor preference
 - Limited law enforcement presence
 - Safety-such as lighting (female respondents)



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Wagner, Nicole M., et al. "Qualitative exploration of public health vending machines in young adults who misuse opioids: A promising strategy to increase naloxone access in a high risk underserved population." *Drug and alcohol dependence reports* 5 (2022): 100094.

Real world implementation

- Trac B Exchange-First machine in continental U.S.
 - Feasible: in current building with business hours 9:30-1pm, 1:30-5pm.
 - New resource **for population currently using the program**
- Saranac Lake, New York, Police Department. Pat Brady from WAMC Northeast public radio reported:

the police chief “noticed some hesitation to come into the lobby and use the machine, which he attributes to addiction stigma”



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Bradley P. First Narcan vending machine in state, outside of New York City, installed in Saranac Lake. *WAMC Northeast public radio*. <https://www.wxnews.org/2023-10-24/first-narcan-vending-machine-in-state-outside-of-new-york-city-installed-in-saranac-lake>

Vending machine Naloxone Distribution in Your community (VENDY)

This project aims to develop a naloxone vending machine program using an iterative process and engagement with people who use opioids to maximize naloxone reach and program sustainability in 3 diverse communities.



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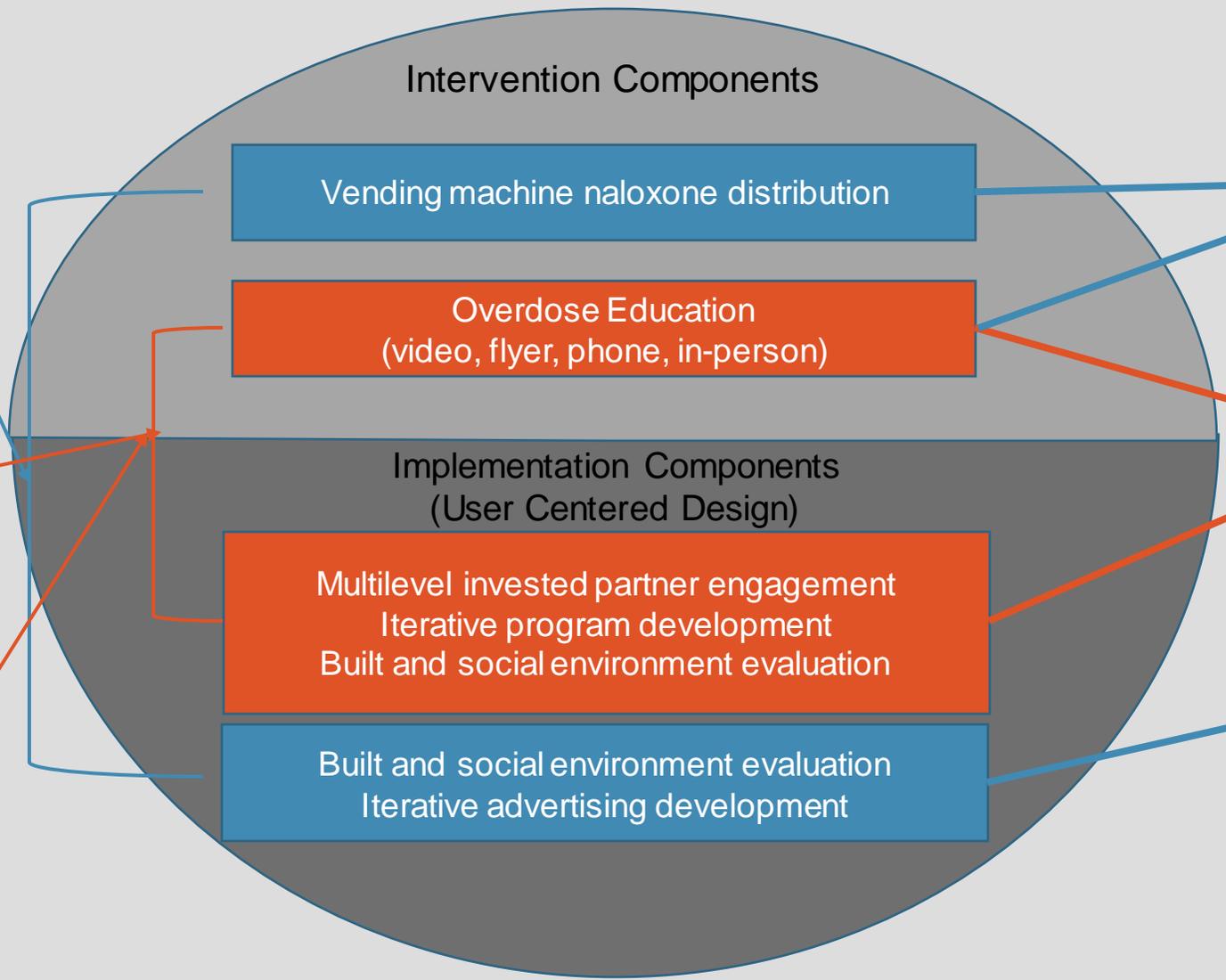
PRISM Contextual Barriers to Naloxone Uptake and VENDY Implementation

Patient Perspective
-Convenience
-Privacy
-Location
-Knowledge

Organization Perspective
-Navigating multilevel partners
-Location identification

External Environment
-National and local policies (e.g. pharmacy regs)

VENDY Program



RE-AIM Outcome Target

Reach Effectiveness

Adoption Implementation Maintenance

Reach Effectiveness

Our Voice Methodology

Active involvement of citizen scientists to improve the health of communities

- Capitalizing on technology to support “citizen scientist” to be change agents in their community to improve physical activity



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<https://med.stanford.edu/ourvoice.html>

King AC, Winter SJ, Sheats JL, Rosas LG, Buman MP, Salvo D, Rodriguez NM, Seguin RA, Moran M, Garber R, Broderick B, Zieff SG, Sarmiento OL, Gonzalez SA, Banchoff A, Dommarco JR. Leveraging Citizen Science and Information Technology for Population Physical Activity Promotion. *Transl J Am Coll Sports Med.* 2016 May 15;1(4):30-44. PMID: 27525309; PMCID: PMC4978140.

Our Voice Methodology

- Step 1-Discover: What about your community impacts healthy living
 - Walks using Discovery Tool application
 - Take photos, record thoughts
 - What can we improve?
- Step 2-Discuss: Discuss with other citizen scientists
- Step 3-Active: Advocating for local improvements
- Step 4-Change: Change your community for the better
 - Evaluate outcomes
 - Track activities
 - Celebrate success



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<https://med.stanford.edu/ourvoice.html>

King, Abby C., et al. "Maximizing the promise of citizen science to advance health and prevent disease." *Preventive medicine* 119 (2019): 44.

Pedersen, Maja, et al. "The "Our Voice" Method: Participatory Action Citizen Science Research to Advance Behavioral Health and Health Equity Outcomes." *International Journal of Environmental Research and Public Health* 19.22 (2022): 14773.

Take photos of things around you that would impact using a Naloxone vending machine here.



Why did you take this photo?



Is this good or bad for the community?



Choose one or both



Discovery Tool



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Our Voice Use

<https://med.stanford.edu/ourvoice.html>

About Our Voice +

Projects -

- United States +
- Australia +
- Brazil +
- Canada +
- Chile +
- Colombia +
- Israel +
- Mexico +
- New Zealand +
- South Africa +
- Taiwan +
- Thailand +
- United Kingdom +
- Sweden +
- Nigeria +
- Netherlands +
- Peru +

The Our Voice Impact

Partner With Us

Publications +

Local projects, global relevance.

Our Voice is proud to partner with community-based organizations and research groups across the US and around the world, adapting our approach to support diverse communities in improving health *from the bottom up*.



Explore Our Voice Projects

- Zoom out to view projects from all over the world.
- Click on a pin to view a project and its description.
- Click on a project's page link to be taken to individual project page.
- Expand the map to full screen and use the search bar to find projects related to your keywords (i.e. physical activity, nutrition, etc.).

Our Voice Projects Map

This map was made with Google My Maps. Create your own.





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Our Voice Topics

<https://med.stanford.edu/ourvoice.html>

One approach, endless applications.

Our Voice is proud to partner with institutions around the world to launch citizen science projects ranging from environmental justice to age-friendly walking paths.

Though the Our Voice approach can be tailored to nearly innumerable project topics, recent research topics have included walking environments, food environments, biking environments, social environments, mental health, physical activity, safety and violence prevention, wellbeing and quality of life, age-friendly environments, school & campuses, parks and green spaces, transportation, housing, disability access, work environments, substance abuse, and civic engagement.

FOCUS AREAS

- Physical Activity
- Food Environment
- Walking Environment
- Civic Engagement
- Schools and Campuses
- Parks and Green Space
- Wellbeing
- Age-Friendly Environments
- Safety and Violence Prevention
- Foundations of Our Voice



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Since 2017, citizen scientists have used the Stanford Discovery Tool to collect...



Our Voice Impact

<https://med.stanford.edu/ourvoice.html>

Levels of Impact

By using their own data and working with others, even small groups of citizen scientists can successfully make positive changes happen for the whole community.

We typically think of these change happening at four levels: individual, community, built environment, and policy.



Level of Impact	Examples
Individual	Increased sense of self-efficacy, social cohesion, and co-responsibility for community change
Social/Community	New walking groups, community gardens, cooking classes, educational campaigns, and cross-sector collaborations
Built Environment	New and improved sidewalks, bike paths and public trails; more community-friendly parks; new signage and signals; better lighting, benches, bus shelters, etc.
Policy/Funding	New funds for clean-up and maintenance; healthier food options at schools; increased access to public sports facilities; lower speed limits



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Implementation Considerations

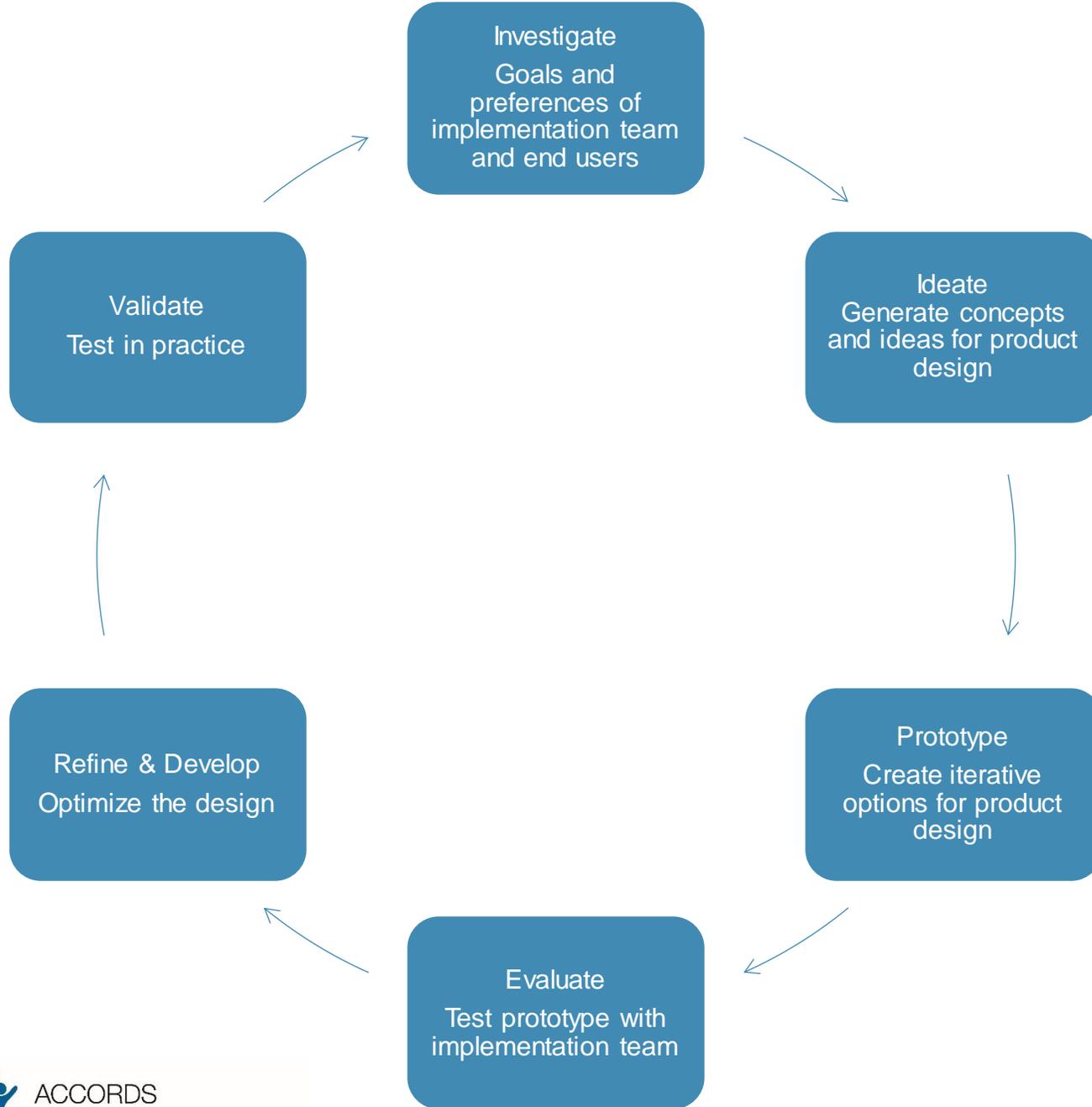
- Evidence based program may already be identified
 - Not what...where and how
- Multilevel
 - Patient Level (End user)
 - Substance use stigma and willingness to engage with others
 - Organization level
 - Organization Perspective
 - “We won’t get this approved if it’s outside”
 - Implementation and Sustainability Infrastructure
 - Risk aversion: “how do we do this so we are not on the front page of the [local newspaper]”
 - External Environment
 - Policies (e.g. pharmacy regulations)



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Human-Centered Design



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Graham, Andrea K., et al. "User-centered design for technology-enabled services for eating disorders." *International Journal of Eating Disorders* 52.10 (2019): 1095-1107.

Maguire, Martin. "Methods to support human-centred design." *International journal of human-computer studies* 55.4 (2001): 587-634.

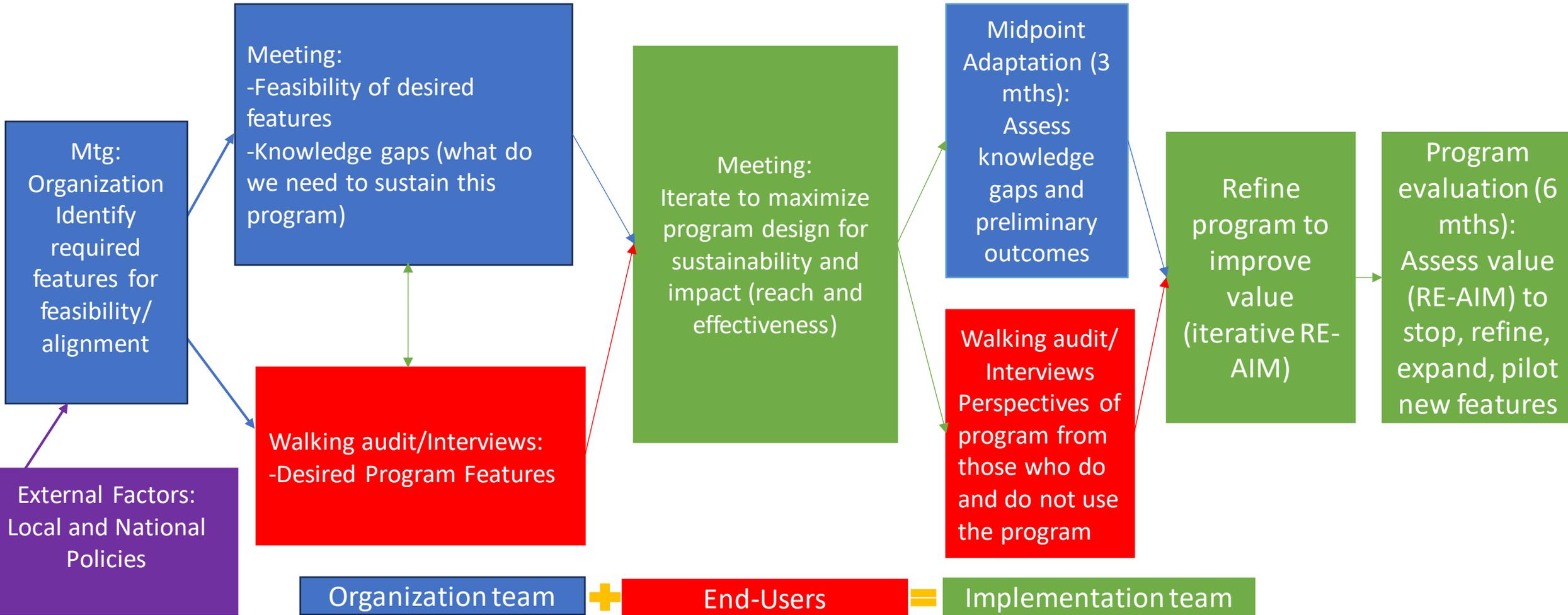
Effective, Adaptable and Sustainable for Your community- Operationalizing Program Sustainability (EASY-OPS)

Step 1: Investigate and Discuss

2: Prototype and Activate

Step 3: Pilot test Prototype

Step 4: Evaluate



Methods: Investigate and Discuss

- Step1: Investigate and Discuss
 - Organization (Discover): Where are we able to implement this program?
 - End-User (Discover): Within this range of options where should we implement this program and why?
 - Step 1: Map (macro level) Identify best and worst 5 locations on a campus map and why
 - Step 2: Walk (micro level) “Take photos of things around that would impact using a naloxone vending machine here.”
 - Step 3 (Discuss): How should we implement this program?
 - Step 3 Interviews vs group discussion to inform ideal program features and locations
 - Organization (Discuss): Here is what we’ve heard from patients, what is feasible? What do we need to know to figure out if we should/can sustain this program (knowledge gaps)?



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Methods: Activate and Evaluate

- Step 2: Prototype (Activate)-(Minimum viable product)
 - Implementation team (including representative citizen scientist)
 - Balance end users desires and feasibility to build a program for pilot testing
 - Determine appropriate methods for pilot testing (how do we best answer those knowledge gaps?)
- Step 3: Pilot test prototype -3 mths
 - Patients: users and nonuser interviews (repeat Discovery Tool walking audit)
 - Preliminary RE-AIM outcome evaluation including knowledge gaps
 - Implementation team: refine program based on data from evaluation (iterative RE-AIM)



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Methods: Activate and Evaluate

- Step 4: Evaluate (Change): 6 mths
 - RE-AIM outcome evaluation
 - Implementation team: stop, refine, expand, pilot new features



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Methods Cont'd

Setting

- Federally Qualified Health Center in urban location in Colorado

Citizen Scientists

- At least 18 years of age and opioid use in the last year

Recruitment

- Flyers in clinic, providers, and through substance use community engagement program

Discuss and Discover Methods

- 2 hour in person interview

Organization Team

- Organization leaders (approving program implementation)
- Organization program managers (overseeing program implementation)

Implementation team

- Organization team + citizen scientist representative (in Discuss phase invited to participate)



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Results: Value of each step in the process with citizen scientists

- Step 1: macro level map: best and worst 5 locations for VENDY
- Step 2: microlevel Discovery Tool walk to explore top 5 locations
- Step 3: discuss and identify other ideal program features



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Citizen Scientist characteristics n=7

Characteristic	%
Age average, (range)	42 (30-55)
Witness or experienced an opioid overdose	100%
Housing (n=5)	40%: own house/apartment 60%: shelter, rehab, halfway house
Nonwhite* (Black, Niiji)	43%
Male	57%
Education (some college or more)	57%
<200% below poverty line	67%

*No Latinx representation



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Step 1: Macro level map evaluation with citizen scientist “Bob”



Step 1 helped identify key themes for program expansion

For me personally, I like to keep a low profile about my addiction. I wouldn't really want it to be in an obtrusive place because I might be like embarrassed about going up to get it. I don't know. There is like a little bit of a stigma with it

Privacy

...whether you are on the bus, walking, or driving it makes it convenient, it is easy because it is never congested or real packed that way

Convenience

When thinking about program expansion consider these themes when selecting locations for VENDY placement



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When you look at it from a convenience perspective, I think, it would be inconvenient because there is so much traffic and the construction makes it even worse so it is hard to get over there

Step 2: Microlevel walk.

Walk to location ranked #1

5 and 1 switched

Step 2: Microlevel (context) specific features of the environment

- Social: Privacy was not the quantity of people (foot traffic), but the type of people
 - Security (negative)
 - Other people who use drugs (positive)
- Natural: nice outdoor landscaping was appealing and offered cover
- Built: convenience and privacy
 - next to a bus stop supported convenience
 - Lighting (security-one female noted importance)
 - Cameras directly above the machine were a deterrent, but many cameras on campus so cameras in general or near by were not a concern.



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There are people like me
here

**Step 3:
Discuss.
Bob's picture
and quote where
much better
than my
description of
results**



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Results: Importance of an iterative process

- Organization team initial location thoughts
 - ED (24 hour access, easily accessible, lots of foot traffic)
 - Outpatient clinic
 - Pharmacy
 - Let's see what patient's say, no restrictions on where on campus it will go
- Initial 2 interviews (1 male, 1 female, both White)
 - Macro and Micro evaluations: only liked outdoor locations
 - ED #1 worst (24 hr access, but high foot traffic and security at the door)

Is outdoor feasible (security/policy)?



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Iterative process results

Discuss with the organization team:

1. Organization team surprised by the initial results

“[naloxone] confidentiality and privacy was more of a 5-10 year old concern”

“I’m surprised its not in the main hospital. I’ve seen other locations....they try to find places with high foot traffic....I would think that [the hospital] would be a key place.”

2. Came to understand the importance of privacy

“I would say the stigma isn’t around the naloxone its around being a user”

“I think the idea off having it close to [methadone clinic] makes sense...that’s a safe place where people know they can get support....they do hang out there....but its also mostly that population.”

3. Feasibility concerns

“what we wouldn’t want to have happen is have the machine off in a corner somewhere so far away that no one sees when someone vandalizes the machine”



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Iterative process results

Ideate for solutions to meet citizen scientist preferences

1. Organization team ideas

- Let's see if security cameras on location will be sufficient
- In next interviews: "If VENDY had to be placed inside somewhere on campus, where would be the best indoor location."

2. Go back to end-users for additional feedback (n=4)

- Successfully identified 2 consistent indoor locations that were deemed acceptable by all 4 patients.
- 1 Outdoor location was in the top 3 for all.



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Discussion

Macro and Microlevel environmental evaluations provided something unique

1. Macro key for program expansion
2. Micro identified environmental features critical to the context

Iterative process with the organization team allowed for ongoing exploration and ideation to ensure program feasibility while integrating the community perspective anonymously

Next steps: Bring implementation team (including citizen scientists) together to develop program prototype meeting feasibility and patient preferences



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Limitations

- Currently limited to 1 site
- Modifications to methods may be needed to appropriately address other topics and environments
- Latinx persons make up almost 30% of the population and was not represented in this cohort of citizen scientists.



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- Andrew Quanbeck, PhD
- Marty Otañez, PhD

Funding: National Institute on Drug Abuse (K01DA056698)



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THANK YOU



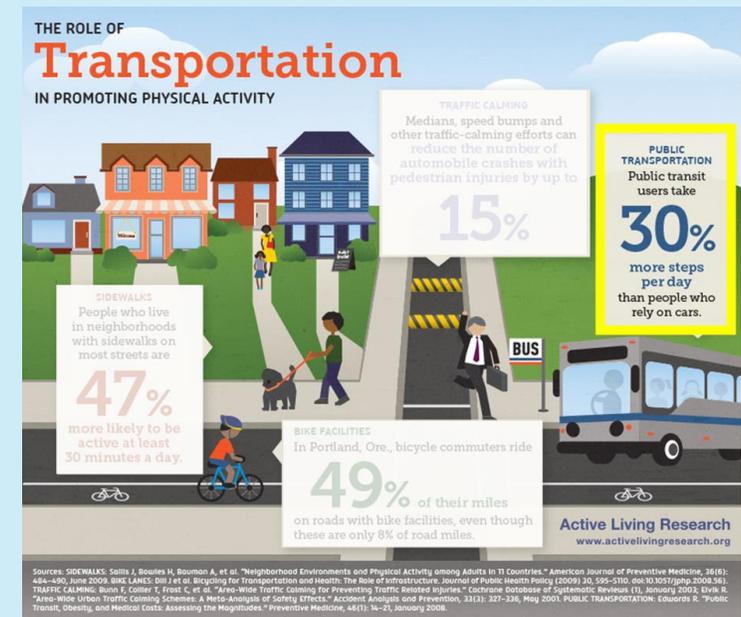
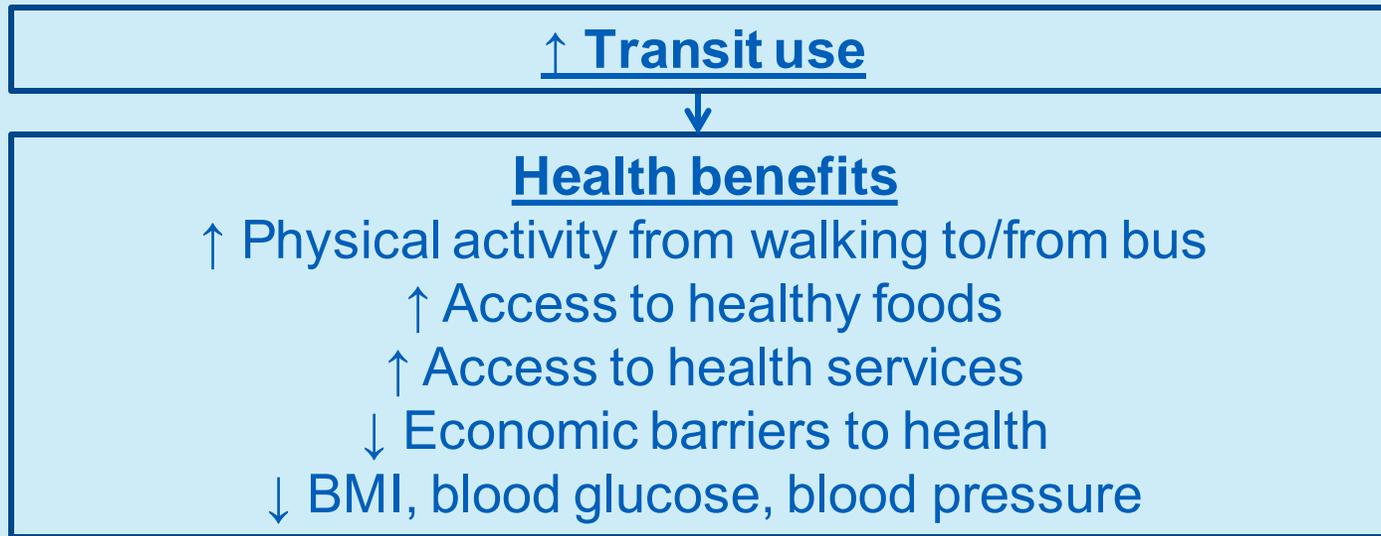
Engaging community members in walk audits



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Evaluating health impacts of zero-fare bus transit in Kansas City



+15-20 minutes of walking



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Barriers to transit use

Culture

Personal
circumstances

Access

Neighborhood
conditions



Barriers to transit use

Neighborhood
conditions

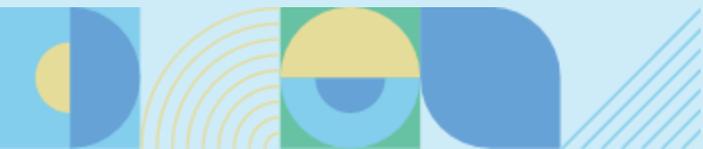


Pedestrian infrastructure

Availability and quality of amenities

Safety from traffic

Safety from crime



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Research question

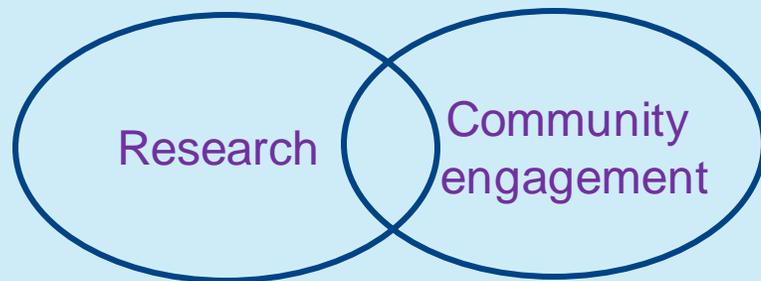
How do neighborhood walking conditions relate to bus use?		
	Mean number of bus users boarding at bus stop (N=257 bus stops)	
<i>Sampling of variables</i>	Pre zero fare	Post zero fare
Sidewalk conditions		
Good	100	110
Poor	80	80
Crossing conditions		
Good		
Poor		
Bus stop conditions		
Good		
Poor		

Statistical models will adjust for macro-level environmental variables such as population density, area income and poverty, etc.



Considerations in designing data collection approach

- Data were needed for research aims
 - Relation of neighborhood factors with bus use
- Data should benefit community
 - Education and engagement
 - Advocacy
 - Informing practice



Prior community led walk audits informed this infrastructure project that was part of Kansas City's Vision Zero initiative



Framing within Our Voice Framework

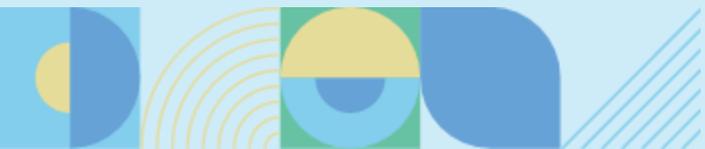
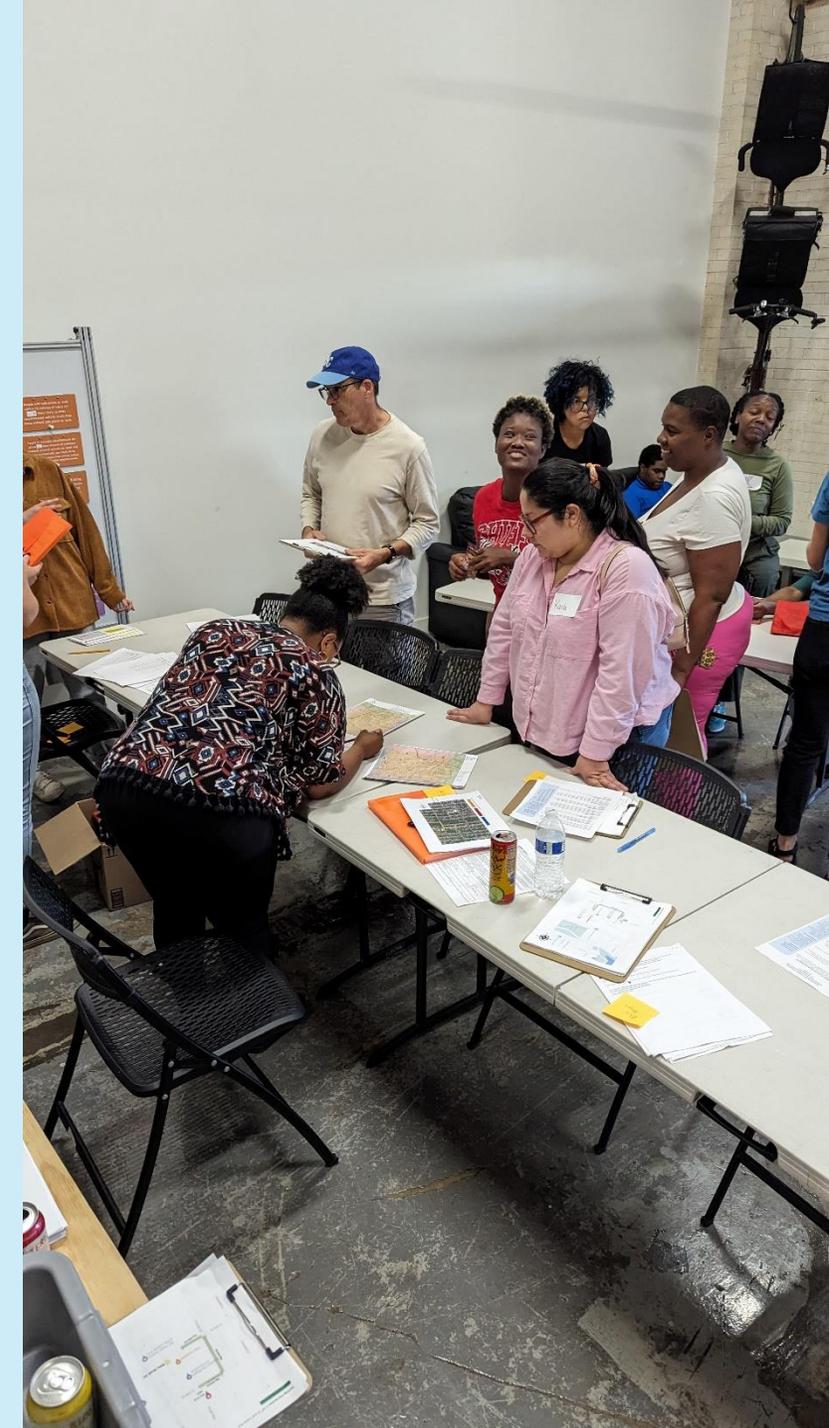
- Step 1-Discover: What about your community impacts healthy living
- Step 2-Discuss: Discuss with other citizen scientists
- Step 3-Activate: Advocating for local improvements
- Step 4-Change: Change your community for the better

Level of Impact	Examples
Individual	Increased sense of self-efficacy, social cohesion, and co-responsibility for community change
Social/Community	New walking groups, community gardens, cooking classes, educational campaigns, and cross-sector collaborations
Built Environment	New and improved sidewalks, bike paths and public trails; more community-friendly parks; new signage and signals; better lighting, benches, bus shelters, etc.
Policy/Funding	New funds for clean-up and maintenance; healthier food options at schools; increased access to public sports facilities; lower speed limits



Citizen Scientist engagement

- Community members:
 - Inform audit tool refinement
 - Conduct data collection
 - Use the data
 - Disseminate their findings
 - Advocate for their neighborhoods



Citizen Scientists

- 36 community members
- 4 meetings
 1. Training and refinement
 2. Certification
 - Complete audits on own*
 3. Reflections
 4. Celebration
- 2 groups



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Seeking Citizen Scientists

Help evaluate community factors around city bus stops in your neighborhood

AUDIT

HOW DO I PARTICIPATE?
Attend 2 in-person training meetings

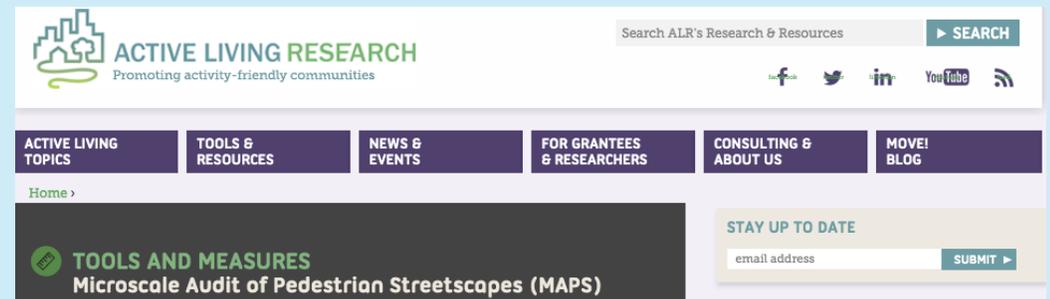
WHO CAN PARTICIPATE?
Youth (14-17 years old) and adults who live near the following KCMO bus stops: 64109, 64110, 64120, 64121, 64127, 64128, 64129.

COMPENSATION
The first meeting is free. Meetings 2 and 3 (all approximately 1.5-hours) are for \$267.50 per route (each route will take at least 10 hours to complete). Meeting 4 is for \$267.50 in compensation.

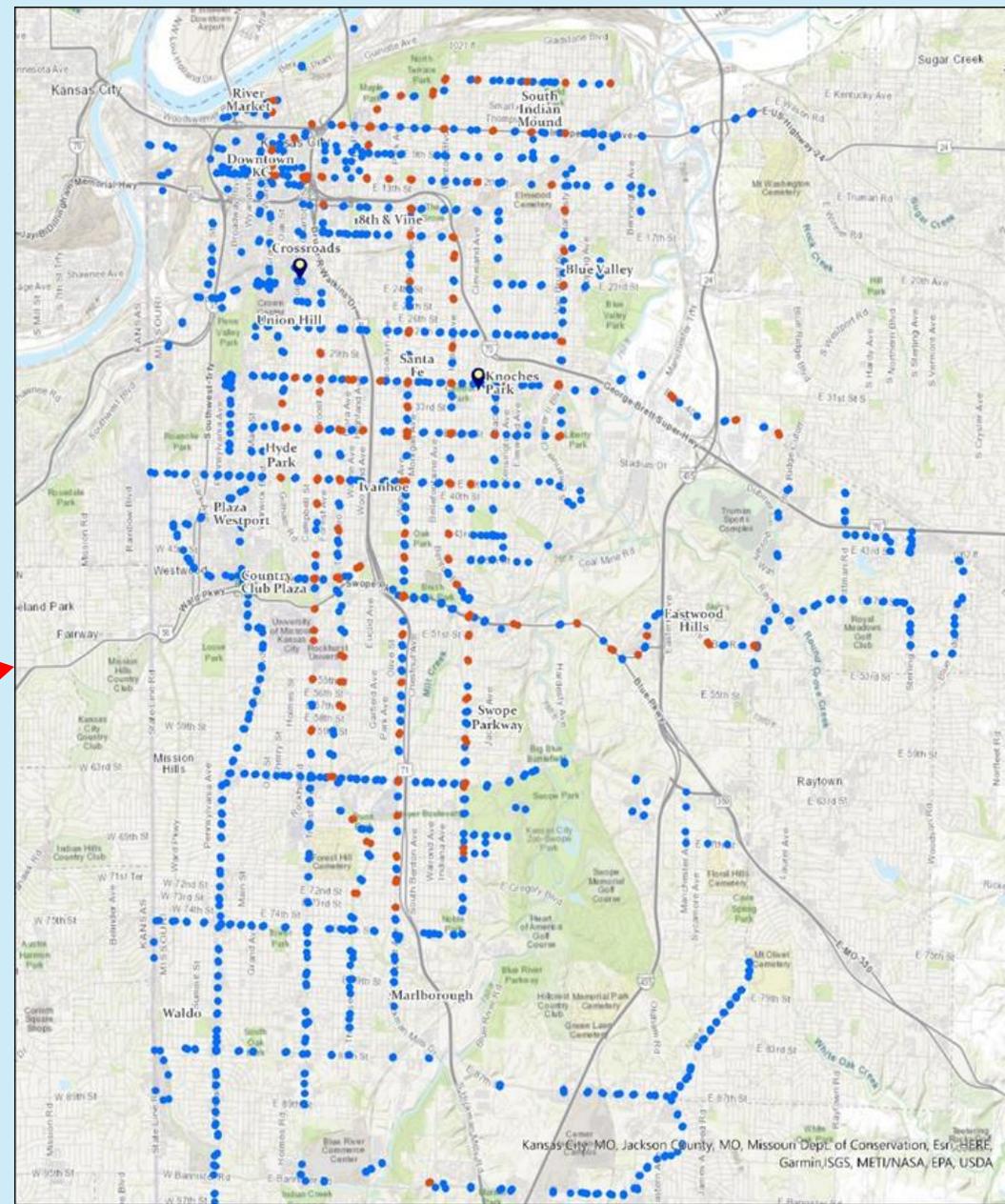
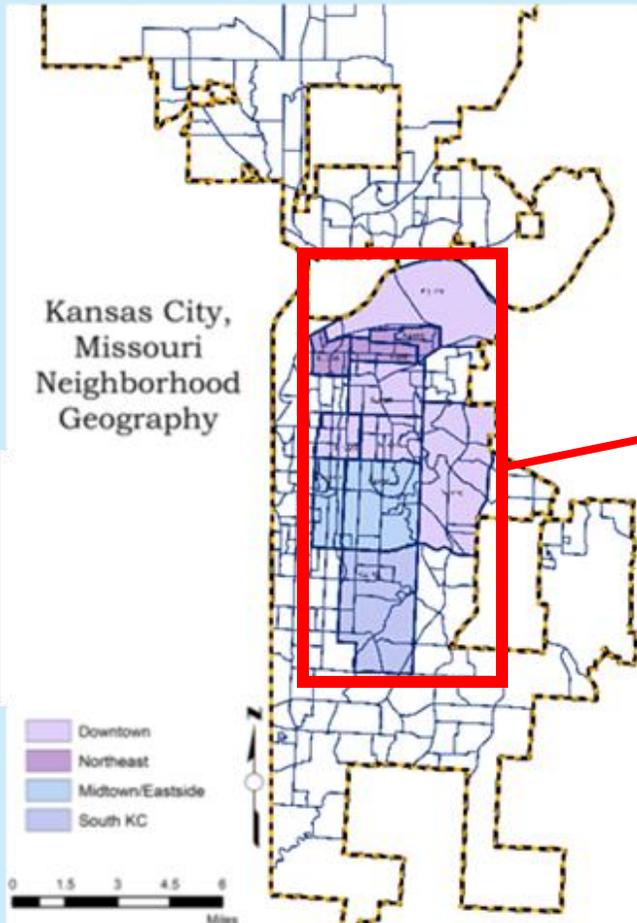


Audit tool

- Adapted from Microscale Audit of Pedestrian Streetscapes (MAPS)
- 3 tools: street segments (blocks), intersections, and bus stops
 - Street and land use characteristics
 - Pedestrian infrastructure
 - Physical/social characteristics
 - Bus stop characteristics
 - Perceptions
 - Safety from traffic; safety from crime; aesthetics.



Locations



Locations:

- 3 routes around each selected bus stops.

Sample:

- 106 clusters of bus stops
- 318 walking routes
- 257 total bus stops
- ~1/3 of the bus stops in the 10 zip codes

300 hours of walk audits!

Dissemination

- Citizen Scientists' report of findings
 - Refined through project meetings

Contents:

- Background & Purpose
- Key Findings
- Maps
- Reflections
- Recommendations



NEIGHBORHOOD WALKING ENVIRONMENTS AROUND BUS STOPS: REPORT OF FINDINGS

A PROJECT LED BY CITIZEN SCIENTISTS TO INFORM COMMUNITY IMPROVEMENTS IN KANSAS CITY, MO

JANUARY 2024

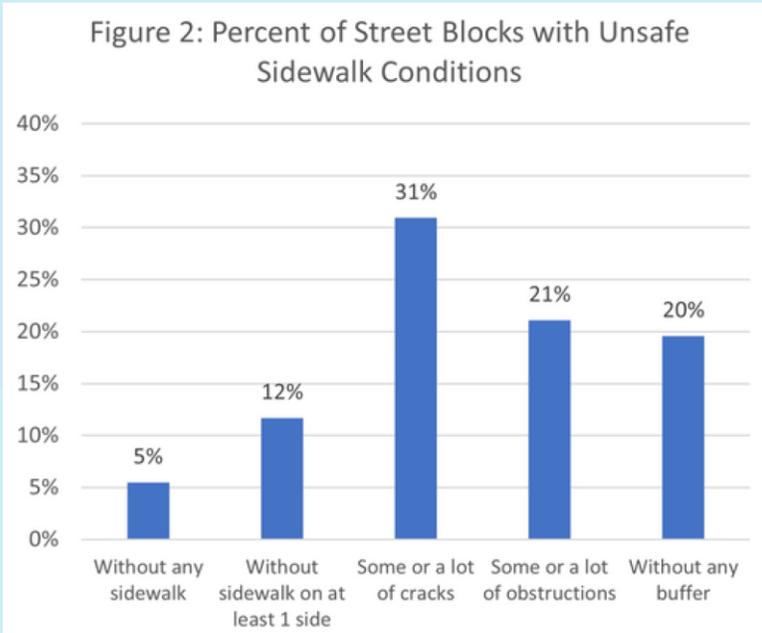


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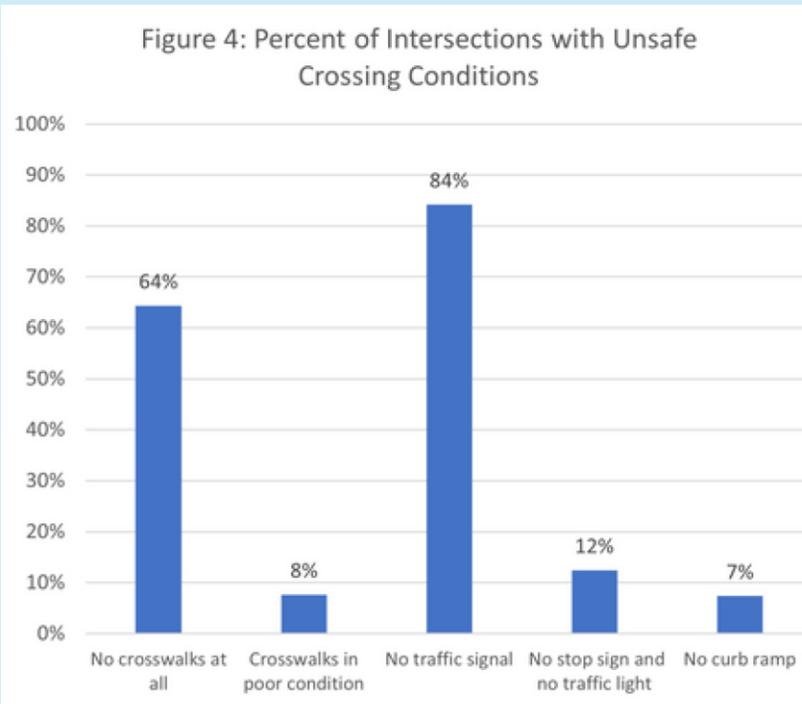
Findings:

- 29% of walking routes near the bus stops had poor quality sidewalks (Figure 1).
- 5% of the street blocks near the bus stops did not have a sidewalk on either side of the street, and 12% had a sidewalk on only one side (Figure 2).



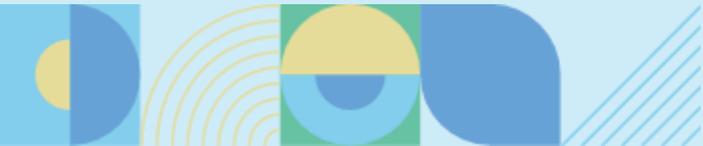
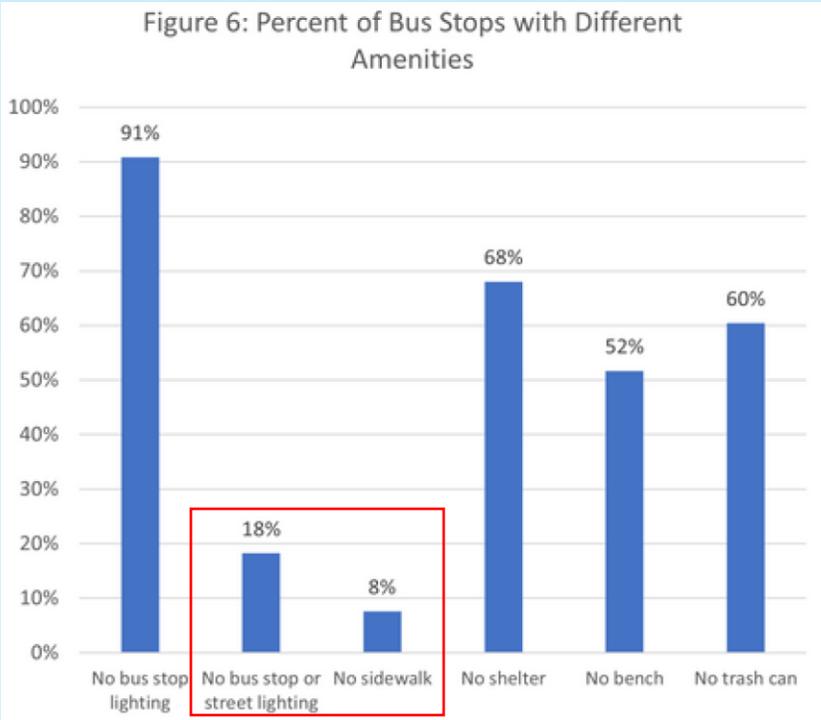
Findings:

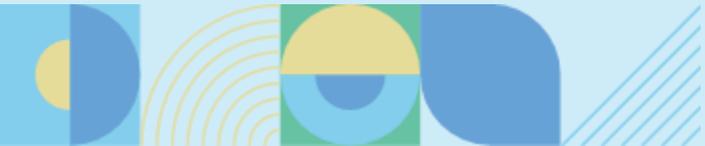
- 77% of intersections on street blocks that had a bus stop had poor crossing quality (Figure 3).
- When considering all intersections along the walking routes near each bus stop, 64% had no crosswalks and 12% had no traffic control (Figure 4).



Findings:

- 44% of the bus stops had poor quality amenities (Figure 5).
- Less than half of the bus stops had a shelter, bench, or trash can, and 8% did not have a sidewalk (Figure 6).





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Our Reflections as Citizen Scientists

Doing these neighborhood audits helped us become more aware of the conditions in our communities, though we feel sad about the conditions in many of the places we walked.



Neighborhood conditions are very different across communities and reflect a history of racism.

We need sidewalks, safe ways to cross streets, and lower traffic speeds to feel safe walking.

People don't walk where it's not safe, and we don't feel safe when no one is out walking.



Bus stops need amenities; bus stops without amenities are a barrier to riding the bus.

We want to help and need to know more about how we can help.



Our Recommendations as Citizen Scientists

For Public Officials

- Improve walking safety around bus stops, parks, schools, and other places people walk.
- Expand Vision Zero to increase safety for all road users.
- Increase community engagement around walking safety.
- Connect walking safety improvements with housing opportunities, redevelopment projects, and transit projects.
- Combine neighborhood improvements with policies and programs that prevent gentrification and displacement.

For Community Leaders

- Organize volunteers to help with maintenance (e.g., trash/litter cleanup) where resources are limited.
- Educate community members on how to share their voice for neighborhood improvements.
- Support cross-sector collaboration among transportation, housing, business, education, and tourism (e.g., leverage World Cup resources).
- Support communities to seek funding for neighborhood improvements (e.g., Public Improvements Advisory Committee).
- Create a culture of safety for all road users, start with one person at a time.

For Community Members

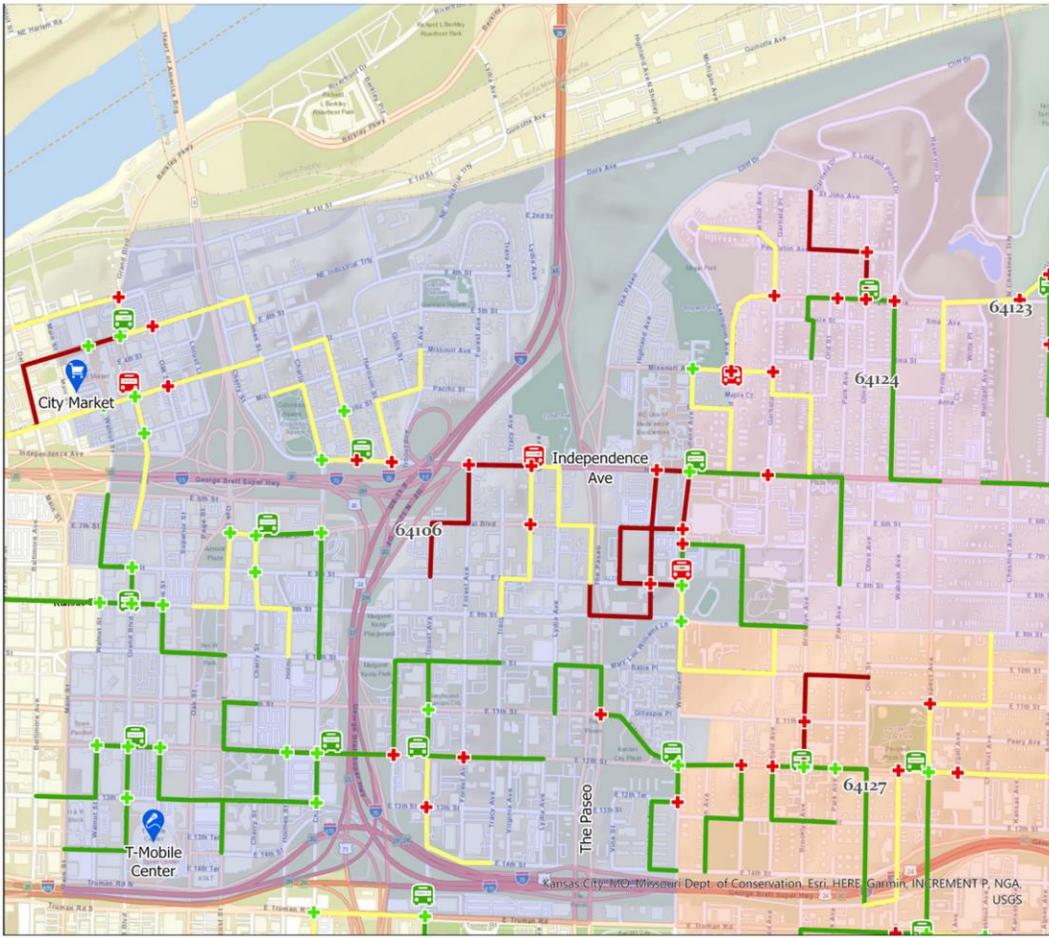
- Share walking safety concerns with neighborhood leaders and city officials.
- Call or email your city councilmembers.
- Engage with your neighborhood association and community leaders.
- Keep spending time outside in your neighborhood walking and connecting with others and nature.
- Celebrate every accomplishment and do not give up.
- Use existing resources within your community. Find more here: [BikeWalkKC Complete KC - DIY Guide](#)



ZIP CODE:
64106

Legend

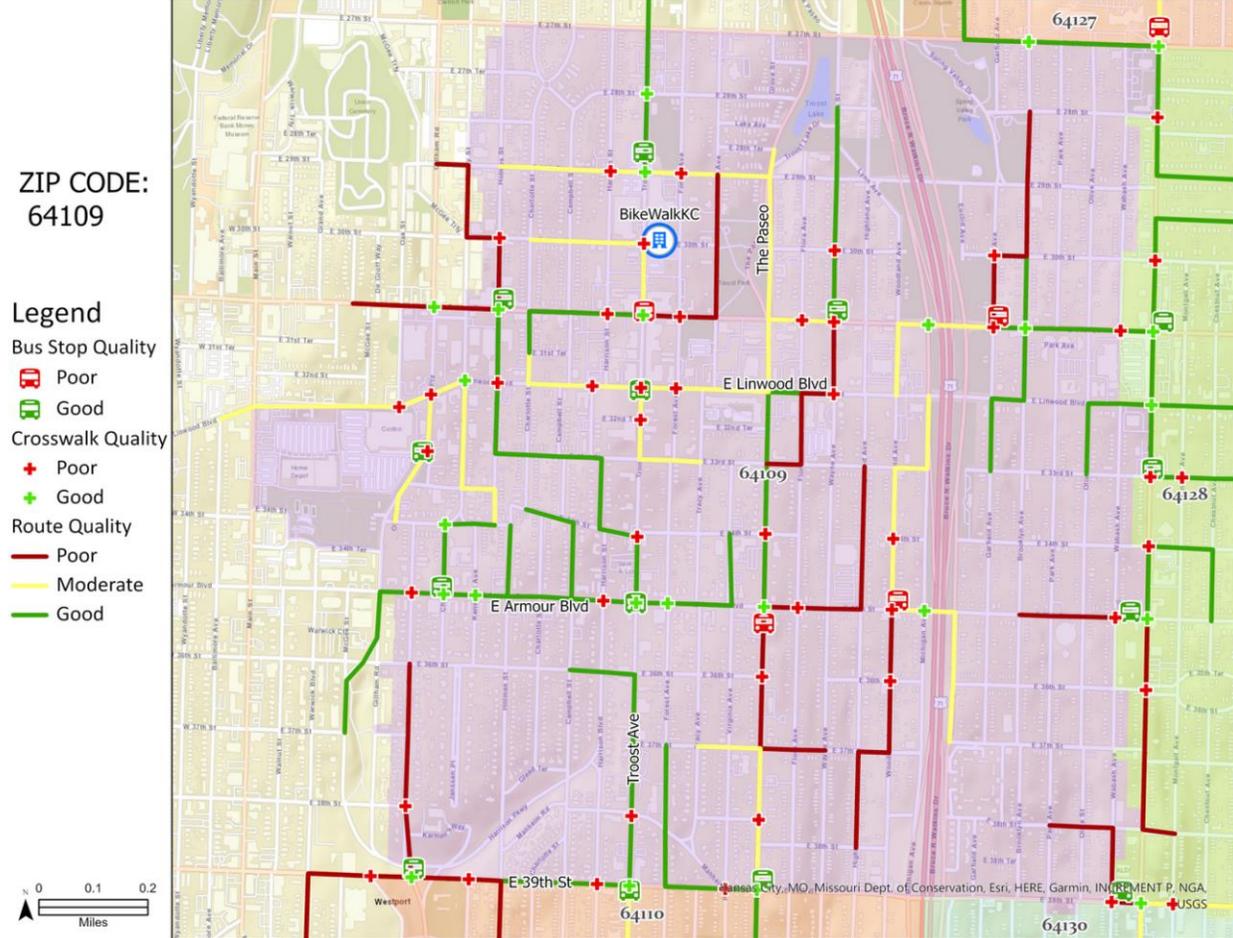
- Bus Stop Quality
 - Poor
 - Good
- Crosswalk Quality
 - Poor
 - Good
- Route Quality
 - Poor
 - Moderate
 - Good



ZIP CODE:
64109

Legend

- Bus Stop Quality
 - Poor
 - Good
- Crosswalk Quality
 - Poor
 - Good
- Route Quality
 - Poor
 - Moderate
 - Good



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Data availability

Neighborhood Walking Environments Around Bus Stops

Project Summary:

This project included 36 Citizen Scientists who came together in 2023 to look at features of Kansas City, MO neighborhoods that impact health, physical activity, and ability to use the Kansas City bus system (RideKC). Citizen Scientists were members of the community, students, and community advocates who live in Kansas City, MO.

The goal of the project was to look at the quality of sidewalks, cross walks, and bus stops in the community. We targeted areas around bus stops to support a research study being led by the University of Missouri – Kansas City and Children’s Mercy Hospital. The study aims to evaluate health impacts of the free bus in Kansas City.

Citizen Scientists looked at street conditions for 318 routes and 257 bus stops. This spanned over 110 miles of streets in KCMO. Their assessments took over 300 hours to complete.

Download Report Data

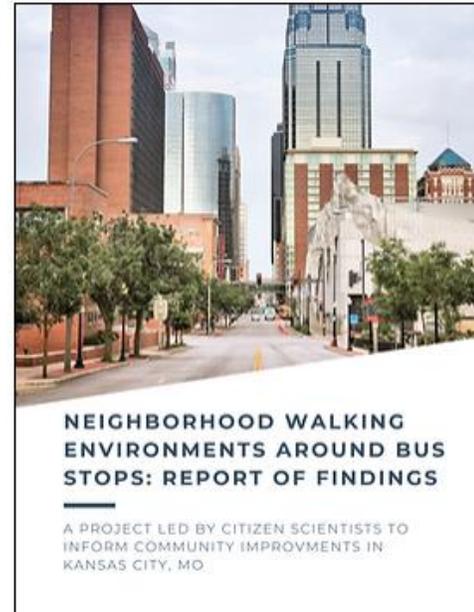
The data used in this report will be available for download using the link below.

[Walk Audit Data CSV](#)

We are currently cleaning the data to ensure its accuracy, please check back soon for the complete dataset.

Questions?

Contact Maddy Pilla at mpilla@cmh.edu



[Click the Image to access the Report of Findings](#)

Report last updated: 1/15/2024



Community-wide dissemination event

- Official release of report
- Citizen Scientists serve on moderated panel
- Advocacy presentation from local organization
- Community members and leaders invited to engage in discussion
 - Peers (community members)
 - Public officials (city council, public works)
 - Community leaders (local institutions, non-profits)



**NEIGHBORHOOD CONDITIONS
AROUND BUS STOPS**
A CITIZEN SCIENTIST LED PROJECT TO
INFORM COMMUNITY IMPROVEMENTS
IN KANSAS CITY, MO

CELEBRATION & LESSONS LEARNED
You're invited! Please join us as we celebrate and reflect on the efforts of Citizen Scientists as they present their findings and experiences looking at walking conditions of Kansas City, MO streets.



JANUARY 16, 2024
5:00 – 6:30 PM
**KANSAS CITY HEALTH
DEPARTMENT - BIERY
AUDITORIUM**
2400 TROOST AVE
KANSAS CITY, MO 64108

FOR MORE INFO OR
TO RSVP, USE THIS
QR CODE:

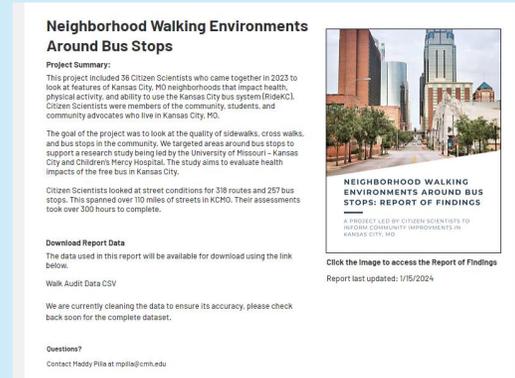
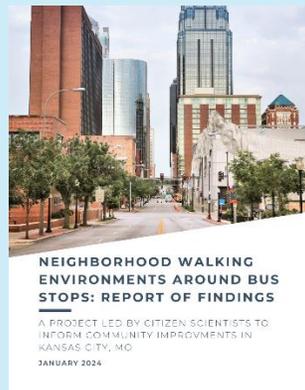


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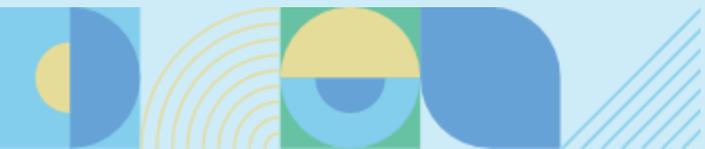
Summary of outputs

- Linkages were made among community members and community leaders
- Information was disseminated via report, community event, and project website
- Combination of high-level data summaries and specific/detailed data
- Maps were created to support decision making and advocacy
- Community members used their voices to inform and impact their communities



Lessons learned

- Plan for more resources than traditional data collection approach
- Simplify audit questions even more
 - Language
 - Complexity of questions and responses
- Pre-fill as much as possible (direction, street names)
- Move quickly to keep momentum
- Embrace the champions



Limitations and considerations

- Body of research on neighborhood advocacy curriculums
- Present project lacked formal evaluation
- Use of information in advocacy and decision making difficult to track
- Data accuracy and quality assurance
- Informing specific projects versus broader engagement (pros/cons)
- What next? – ways to continue engaging with community members



Acknowledgements

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BikeWalkKC

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