

Parks, Physical Activity, and Chronic Disease: A Research Agenda



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Children's Mercy Hospital – December 14th, 2017

Just a bit about Gina ...

- BS in Kinesiology and MPH from Kansas State University, PhD from Arnold School of Public Health
- Previously Assistant Professor Public Health Augusta University
- Assistant Professor Department of Kinesiology at Kansas State University
- Director, Physical Activity Research in Community Settings (PARCS) Lab bit.ly/PARCSLab
- Research: built environment and health, with an emphasis on parks, physical activity, and chronic disease
- Interested in advancing innovative technology and infrastructure to improve community health

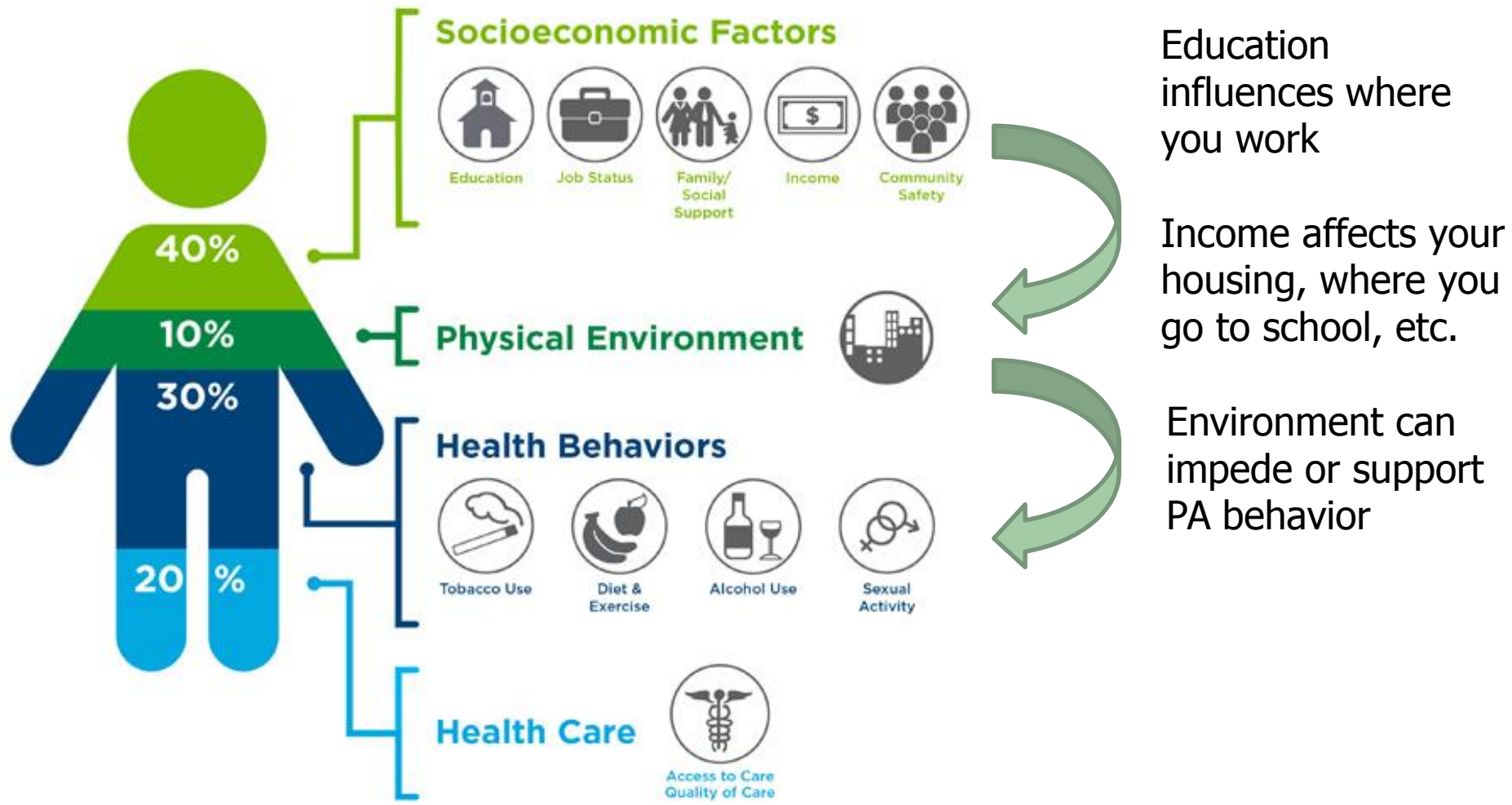


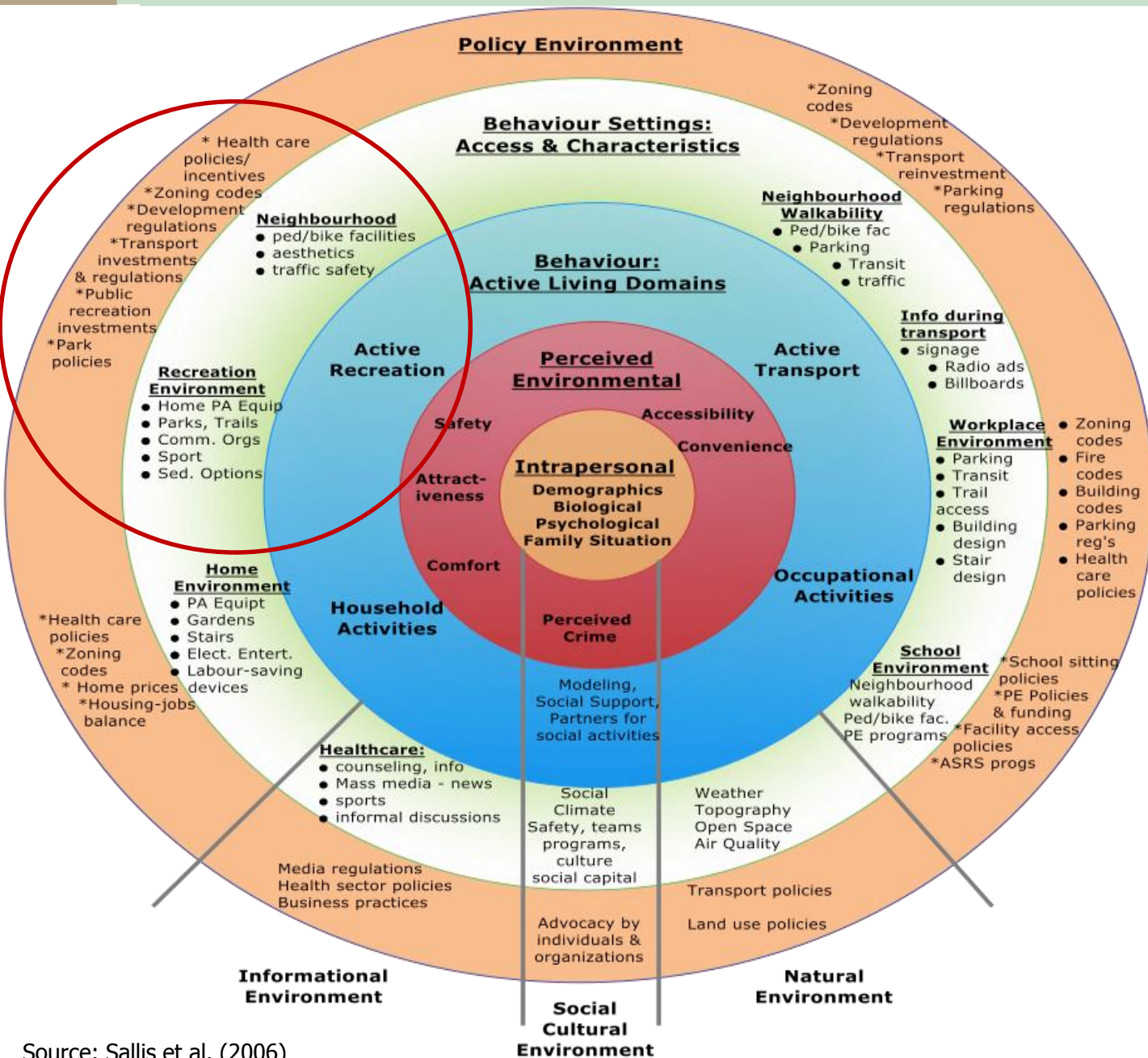
Agenda for Today

- Role of Parks in PA and Health Promotion
- Measuring Park Environments
- Technology and Infrastructure for Park Advocacy and Health Promotion
- Park/PA Interventions
- Future Directions



What Goes Into Your Health?





Active Recreation

- Recreation Environments
 - Parks & Trails
 - Community Organizations
 - Sports
- Neighborhood
 - Ped/bike facilities
 - Aesthetics
 - Traffic Safety
- Policies/transportation
- Health care (incentives)

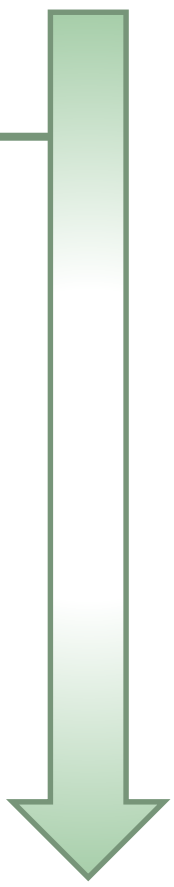
Parks and Physical Activity

- Beyond community benefits (economic, environmental) parks offer numerous physical, psychological, and social benefits
- Parks specifically have been viewed as potential settings to increase PA levels
 - Legislated
 - Low cost
 - Ability to reach large numbers
 - Approximately 80% of Americans use services provided by local parks and recreation departments
- Time spent outdoors is a consistent positive determinant of PA



Parks

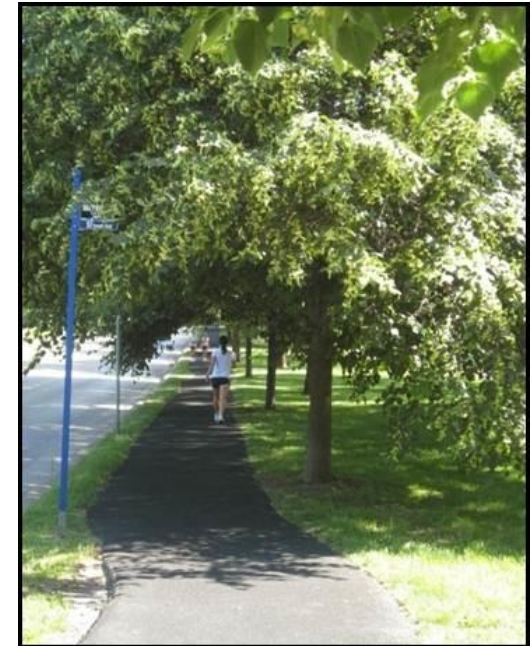
Role of parks in PA & health promotion



Health

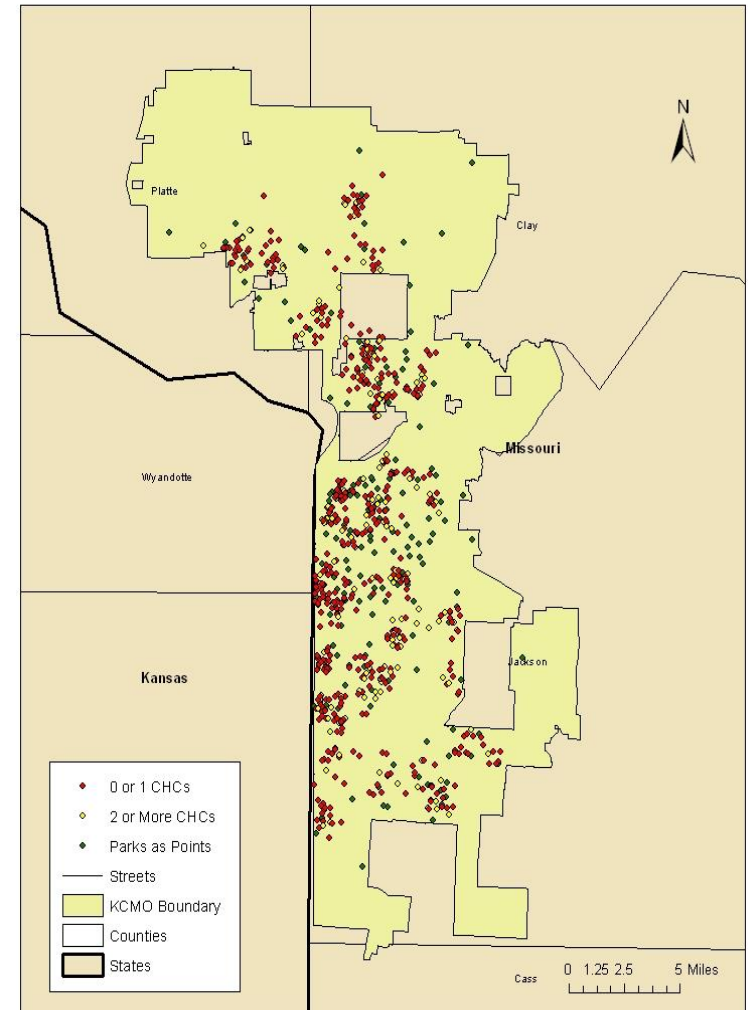
Overview of Parks and Physical Activity Research

- Living closer to **park space** is associated with increased PA among adults & youth
- Park characteristics associated with PA
 - **Size/area/number**
 - **Accessibility** (connectedness)
 - Number and types of **features** (playgrounds, trails, sports fields, etc) and **amenities** (bathrooms, benches)
 - **Quality** (cleanliness, graffiti, equipment)
 - **Safety**
- Park availability, features, and quality are generally worse in low income and/or high-minority areas



- Explored the spatial relationship between park availability and incidence of chronic health concerns (CHCs) across age groups in Kansas City, Missouri (KCMO).
- Among respondents ages 40-59, those **without a park within ½ mile** from home were more than **twice as likely to have 2+ CHCs** compared to those that had a park nearby (OR=2.28, CI=1.05-4.94).
- Parks may be an important **protective factor** for chronic diseases, especially among middle-aged adults who are still mobile but at risk for onset of CHCs.
- Similar to previous research indicating park users reported fewer visits to a physician

Parks and Chronic Disease in Kansas City, Missouri



Besenyi, G. M., Kaczynski, A. T., Stanis, S. A. W., Bergstrom, R. D., Lightner, J. S., & Hipp, J. A. (2014). Planning for health: A community-based spatial analysis of park availability and chronic disease across the lifespan. *Health & Place, 27*, 102-105.

Parks

Role of parks in PA & health promotion

Measurement and Advocacy

Health



Development of a Community Stakeholder Park Audit Tool

Purpose: To develop a tool that will enable diverse stakeholders to quickly and reliably audit community parks for their potential to promote physical activity



Development of the Community Park Audit Tool (CPAT)

- Kansas City, Missouri
- 34 diverse stakeholders
 - 3 workshops
 - Field testing in 59 parks
- 6 pages with 4 sections:
 - Park Information
 - Access and Surrounding Neighborhood
 - Park Activity Areas
 - Park Quality and Safety

COMMUNITY PARK AUDIT TOOL

Instructions

Before you begin, review the brief training guide and audit tool and try to locate a map of the park. Then, go to the park and proceed with filling out this audit tool. The tool (6 pages) is divided into four sections that focus on different aspects of the park environment. Additional instructions are provided within each section.

Tips for Using the Community Park Audit Tool (CPAT)

- Drive, bike, or walk around the park to get a feel for the contents and characteristics of the park and surrounding neighborhood.
- The CPAT is organized such that questions on similar topics are grouped into logical sections and the four sections are arranged in the order that you might encounter them during your audit. However, you may need to switch between sections or pages as you complete the park audit. Therefore, it is important to review and be familiar with all of the tool sections and questions before you begin your audit.
- It is also important that you check back through the full document (6 pages) when you are finished to ensure you have completed all the sections and questions.
- Space is provided at the end of each section (and some individual questions) where you can take notes or record comments as you complete your audit. The margins or back of each page (if copied single-sided) can also be used to take notes, but please be sure that all relevant information is transferred to appropriate places on the tool and that all questions are fully answered using the format provided.
- If you see anything during your audit that requires immediate attention, contact the local parks department.

Section 1: Park Information

Park Name: _____ Observer Name or ID: _____

Park Address/Location: _____

Were you able to locate a map for this park? No Yes

Was the park easy to find onsite? No Somewhat Yes

Date (m/d/yr): ___/___/____

Approximate Temperature: ___ °F Weather: Clear Partly Cloudy Rain/Snow

Start Time: ___ am or pm (circle) End Time: ___ am or pm (circle) Length of visit: ___ min

Comments on Park Information:

Community Park Audit Tool
Page 1 of 6

CPAT Inter-rater Reliability

- Reliability of 10 items could not be assessed due to less than three pairs of ratings
- Vast majority of the items had acceptable kappas and/or percent agreement

Kappa Value	# of items	# of items in row with % agreement > 70%
Not available/applicable	56	55
0.60 or above	55	55
0.40-0.59	13	12
Less than 0.40	8	6

- Is there an app for that?

Author's personal copy

TBM

ORIGINAL RESEARCH



Development and testing of mobile technology for community park improvements: validity and reliability of the eCPAT application with youth

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Abstract

Creation of mobile technology environmental audit tools can provide a more interactive way for youth to engage with communities and facilitate participation in health promotion efforts. This study describes the development and validity and reliability testing of an electronic version of the Community Park Audit Tool (eCPAT). eCPAT consists of 149 items and incorporates a variety of technology benefits. Criterion-related validity and inter-rater reliability were evaluated using data from 52 youth across 47 parks in Greenville County, SC. A large portion of items (>70 %) demonstrated either fair or moderate to perfect validity and reliability. All but six items demonstrated excellent percent agreement. The eCPAT app is a user-friendly tool that provides a comprehensive assessment of park environments. Given the proliferation of smartphones, tablets, and other electronic devices among both adolescents and adults, the eCPAT app has potential to

Implications

The eCPAT application is valid and reliable for use with youth populations.

Youth can make valuable contributions within participatory action research processes for community health promotion.

The eCPAT app is a useful tool that has potential to be distributed and used widely by the general public.

The eCPAT app has potential to be incorporated into Park Prescriptions or similar initiatives to improve community awareness of park features and attributes in an effort to increase park-based PA.

eCPAT – Objectives

- To develop and test an electronic version of the Community Park Audit Tool (eCPAT) for use by youth and the general public on portable electronic devices
- To examine the acceptability, feasibility, and efficacy of mobile technology to engage youth in healthy community policy, system, and environmental change efforts

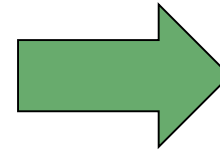


eCPAT Development Stages

- Literature review
- Key informant interviews
- Systems requirement analysis
- Application software design
- Program coding
- Alpha (capacity) testing
- Database development



Data collection on
Mobile Device + App



Server for data
analysis

eCPAT
Community Park Audit Tool

IMPORTANT AUDITING TIPS

- Drive, bike, or walk around the park to get a feel for what's in the park and the neighborhood around the park.
- The eCPAT questions are grouped in sections in the order that you might come across them in a park. However, you may need to switch between sections as you complete your park audit. Therefore, it is important to look through the tool before you begin.
- When you are finished, go back and make sure you have completed all the sections and questions.
- There is space at the end of each section where you can type comments as you complete your audit.
- Also, use the legend to the right to identify the various icons in the eCPAT and their uses.
- If you see anything that requires immediate attention, contact the local parks department.

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Legend

- ❌ Incomplete Section
- ✅ Complete Section
- ℹ View More Information
- 📷 View Picture Example
- 📷 Take Photo
- 🏠 Return to Home
- ⚙ Administrative

welcome user06!

START NEW AUDIT

LOGOUT **AUDITS**

eCPAT
Community Park Audit Tool

Park Info Access & Neighborhood Activity Areas Quality & Safety

Park Information

- ▶ Park Info ❌
- ▶ Weather ❌

Comments on Park Information

Access and Neighborhood

Instructions

This section asks about accessing the park and about the neighborhood surrounding the park. Several questions include follow-up responses if you answered yes. There are spaces for comments at the end of the section. **When thinking about the surrounding neighborhood, consider all areas that you can see from inside of the park.**

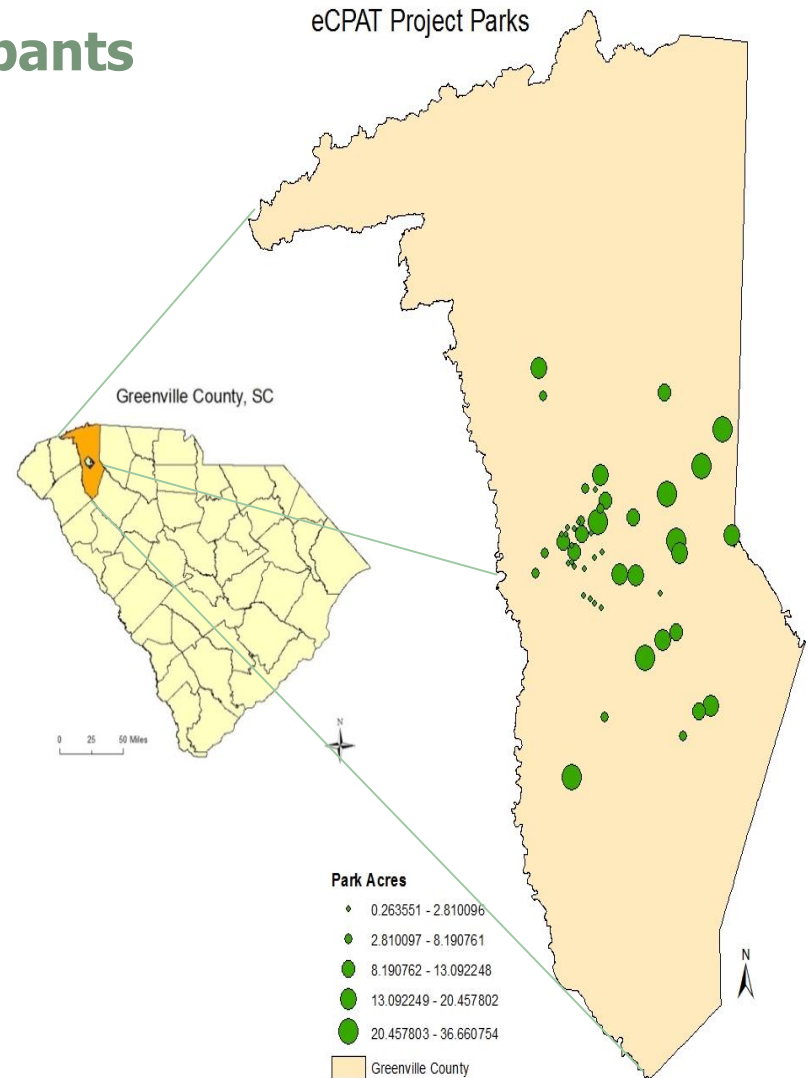
When rating the access and surrounding neighborhood, please use the following definition:

- **Usable**: everything necessary for use is present and nothing prevents use (e.g., sidewalks are passable)

- ▶ Access ❌
- ▶ Park Signs ❌
- ▶ Entry points ❌
- ▶ Public Transit ❌
- ▶ Parking Types ❌
- ▶ Sidewalks ❌

eCPAT – Study Setting and Participants

- 47 parks – diverse mix of quality, size, features, and geographic dispersion
- Youth ages 11-18
 - 19 youth beta testing phase
 - 124 youth completed testing the eCPAT app in Greenville area parks
- Youth audited 2 parks each and completed surveys and focus groups



eCPAT – Results

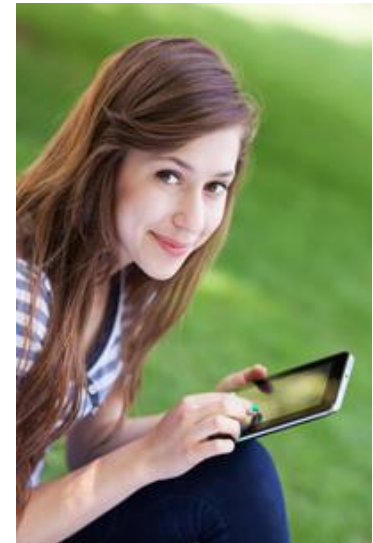
- Criterion validity analysis compared youth eCPAT audit to gold standard eCPAT audit
- Inter-rater reliability analysis compared youth eCPAT auditor 1 to youth eCPAT auditor 2
- 90 items examined using Cohen's kappa
- 41 items examined using percent agreement

Validity

- 40% of items had moderate to perfect kappas
- All but 2 items had excellent percent agreement

Reliability

- 41% of items had moderate to perfect kappas
- All but 4 items had excellent percent agreement
- Items with lower scores tended to be more subjective, temporal, or abstract



eCPAT – Preliminary Findings

Preference Dimensions	Paper CPAT	eCPAT app	I liked both equally	I didn't like either
Which format was <u>easier</u> to use?	9.7	71.0	16.9	3.2
Which format did you <u>enjoy</u> using the most?	6.5	80.6	9.7	3.2
Which format would you want to use in <u>future</u> projects?	3.2	80.6	12.9	3.2
Overall, which format did you like the <u>best</u> ?	9.7	77.4	12.9	0.0

- eCPAT selected as easier, most enjoyable, best liked, and preferred format for future projects

Electronic Community Park Audit Tool Mobile Application (eCPAT)

- Addresses needs related to:
 - Few audit tools developed specifically for youth
 - Youth PAR technology needed
 - Unique opportunity to combine multiple technologies (photography, GIS, mobile interface) into a single user-friendly tool that is useful to multiple stakeholders





Contents lists available at ScienceDirect

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed



“We actually care and we want to make the parks better”: A qualitative study of youth experiences and perceptions after conducting park audits

David G. Gallerani, MPH^{a,*}, Gina M. Besenyi, MPH; PhD^b,
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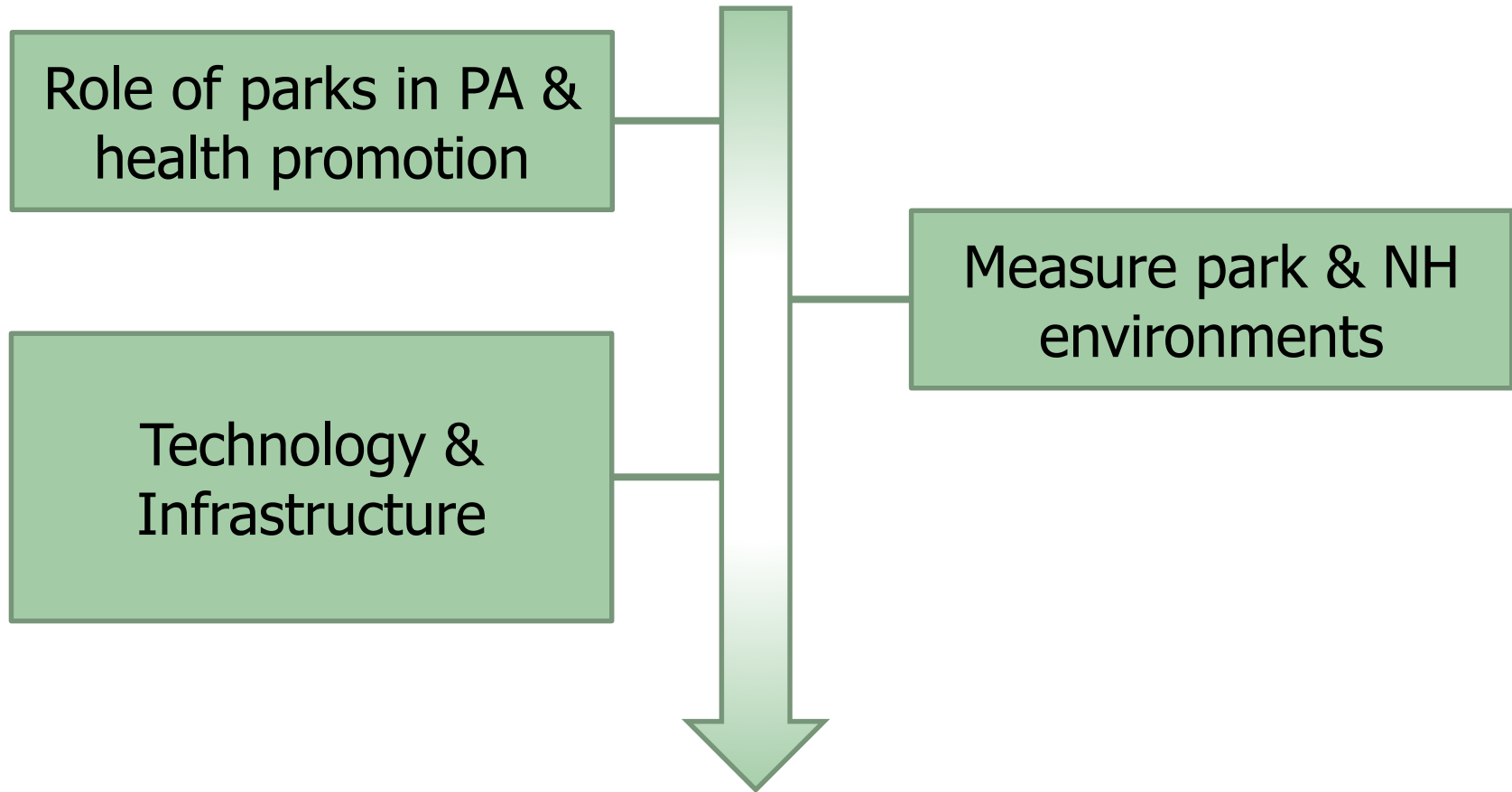
Besenyi, G.M., Schooley, B.L., Turner-McGrievy, G., Wilcox, S., Wilhelm Stanis, S.A., & Kaczynski, A.T. (under review). The electronic community Park Audit Tool (eCPAT) Project: Exploring the use of mobile technology for youth empowerment and advocacy for healthy community policy, systems, and environmental change. Manuscript submitted for publication in *Frontiers in Public Health*.

eCPAT – Summary

- eCPAT app also has potential to be distributed and used widely by researchers, professionals, and the general public
- Need to further develop and eCPAT system

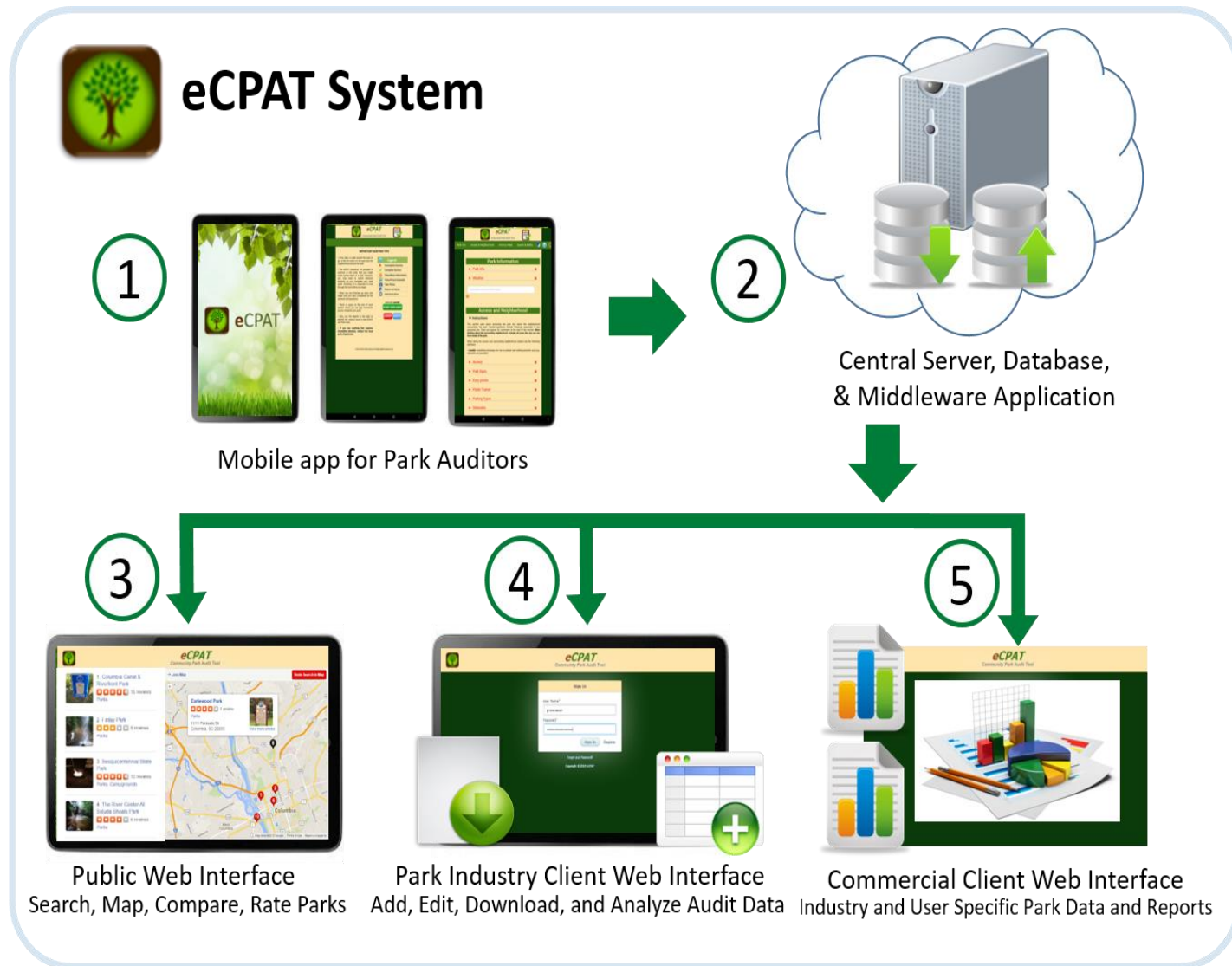


Parks



Health

eCPAT System





eCPAT

Community Park Audit Tool

Welcome admin1234

[Download eCPAT Mobile App](#)

[View Profile](#)

[Manage Parks](#)

[eCPAT Submissions](#)

[Edit Profile](#)

[Change Password](#)

[Sign Out](#)

My Profile

Name	Ecpat Administrator
Email Address	kanwar@osscube.com
Organization Name	USC
Organization Type	Academic/Research
City Name	Columbia
Country Name	United States
State/Province Name	Province
Postal Code	29201
Street Address	USC, Columbia
Street Address 2	Public Health Building

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eCPAT

eCPAT Park Search

Search your local area for parks and recreation areas near you.

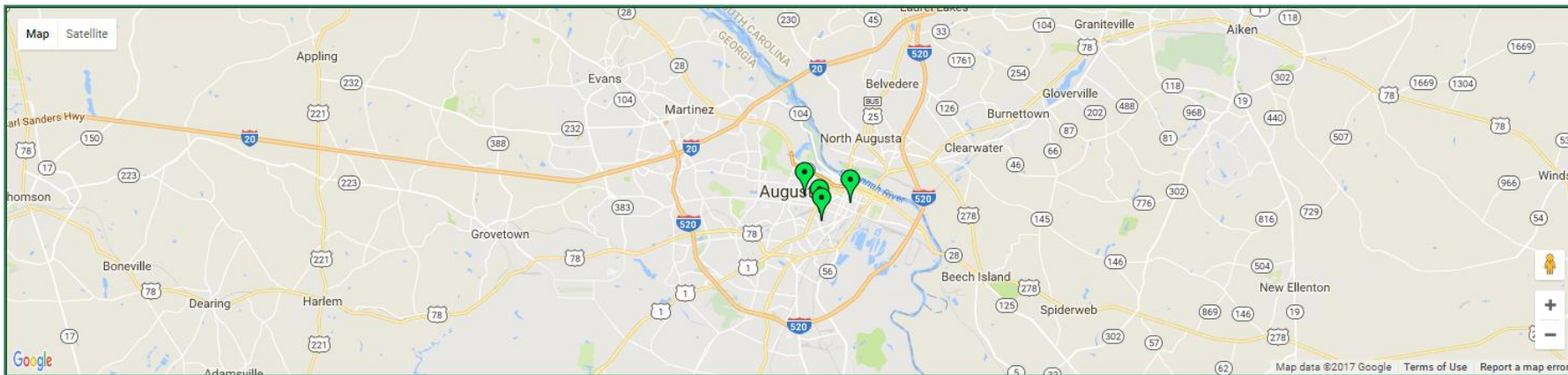
Select Search Radius: • 1 mile • 3 miles • 5 miles

Address or Zip Code



eCPAT

eCPAT Park Search



New Search

Select Search Radius: 1 mile

3 miles

5 miles

Address or Zip Code



Filter Results

Facilities:

- Baseball Field
- Basketball Court
- Fitness Equipment
- Lake
- Off-leash Dog Park
- Open/Green Space
- Playground

Search Results

4 park results were found



W.T Johnson Community Center

Address: 1606 Hunter St. Augusta, GA 30901

Summary Attribute:	Value
Total Park Facilities:	0
Total Park Amenities:	0
Park Quality Index:	36 %



[More Information](#)



[Get Directions](#)



Dyess Park

Address: 902 James Brown Blvd. Augusta, GA 30901

eCPAT Park Information



Park Name

W.T Johnson Community Center

Park Size

3.49

Address

1606 Hunter St.
Augusta, GA 30901



[Directions To This Park](#)

- Unique Park Facilities
- Key Park Amenities
- Park Access
- Traffic Signals
- Total Park Amenities

Activity Areas



0 Comments [Leave a Review!](#)

Login

Recommend Share

Sort by Best

Start the discussion...

LOG IN WITH



OR SIGN UP WITH DISQUS

Name

Be the first to comment.

Implications and Future Directions

- Engage community stakeholders in testing and refining the website
- Develop a mobile friendly version of the web-page
- Engage physicians and healthcare providers
- Incorporate into electronic health records to support Park Prescription programs

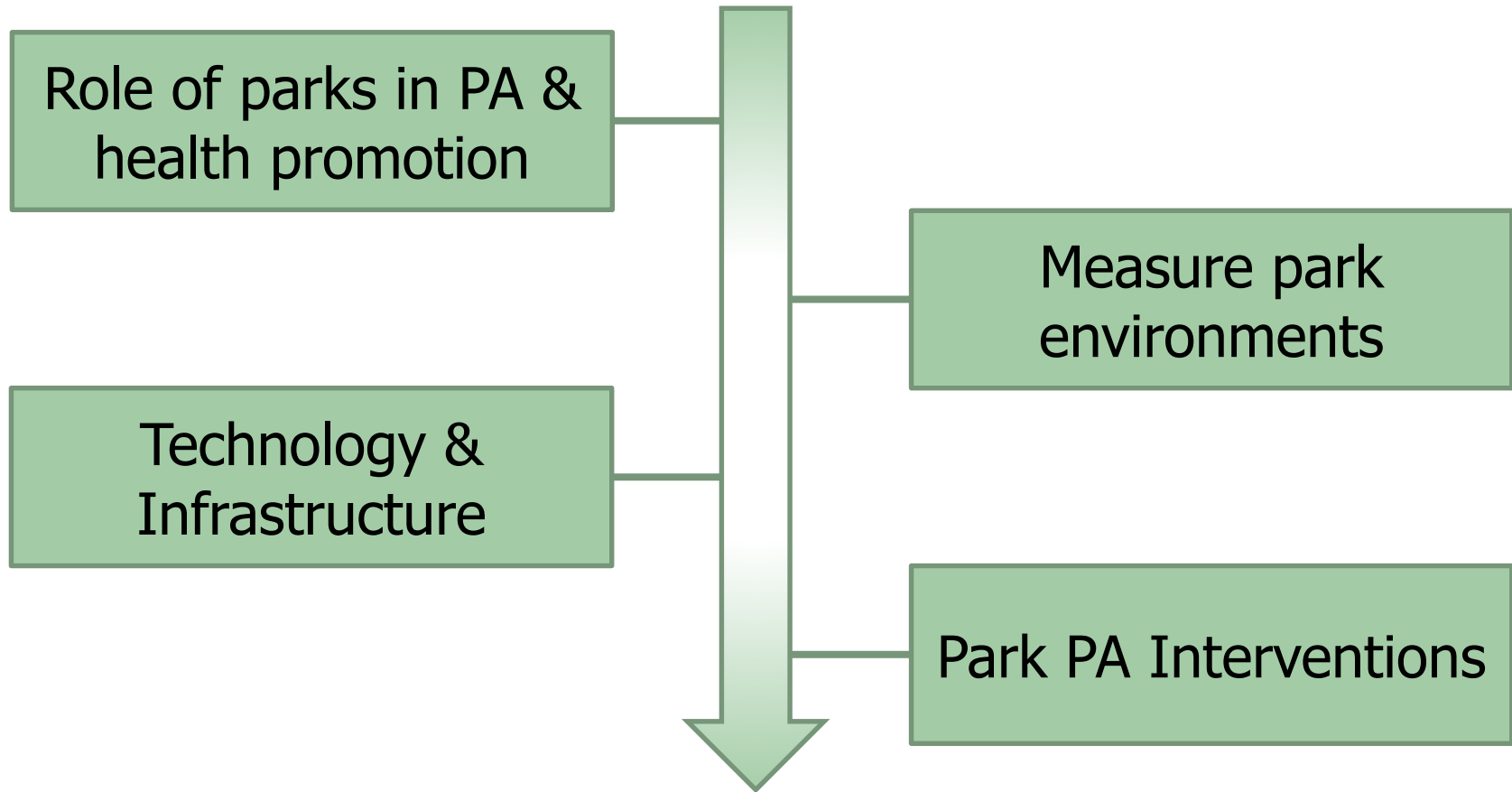
The screenshot shows a web-based assessment tool interface. At the top, there are tabs for 'A&P 1-2', 'A&P 3-4', 'A&P 5-6', 'A&P 7-8', 'A&P 9-10', and 'A&P 11-12'. A 'ReadyTalk' chat icon is visible. Below the tabs are buttons for 'Care Plan', 'Reconciliation', and 'Help'. A 'Select Specialty' dropdown menu is set to 'Pediatrics'. The main section is titled 'Assessment #1' and includes instructions: 'Select problem; enter assessment, orders, and meds; then click 'Commit Assessment''. Below this is a text input field containing 'BODY MASS INDEX PED >=EQUAL TO 95TH % AGE (ICD-V85.54) (ICD)'. To the right of this field are buttons for 'View/Insert Prior', 'Commit Assessment' (highlighted in yellow), and 'Clear All'. Below the text field are radio buttons for 'Assessment: New', 'Improved', 'Unchanged', 'Deteriorated', and 'Comment Only'. A large purple arrow points to the 'Parks Rx Provided Today' section, which contains a text area with 'Orders: Ofc Vst, Est, Level III (99213) (99213)'. At the bottom of the form are buttons for 'New Meds', 'Change Meds', 'Meds auto insert', 'New Orders', 'Orders auto insert', 'Insert Template', and 'Print Handout'. Below this is another 'Assessment #2' section with similar instructions and buttons.

Implications and Future Directions

- Park Rx Provider Survey
 - Understand current provider knowledge and practice for PA counseling
 - Gauge interest to develop/support local Park Rx Programming
 - Understand facilitators and barriers



Parks



Health

Future Directions in Parks, Physical Activity, and Chronic Disease

- **Park Prescriptions**

- Regular PA can help children maintain a healthy weight and reduce risk of chronic disease
- Partner with local providers to prescribe park-based PA
- Use quick text function in EHR – Link to eCPAT data - Allows prescription of a park
- Pre/Post assessment of weight/BMI, fitness
Wearable devices to track PA
 - eCPAT mobile website can help track park visits to send to physicians (check-in function)



Future Directions in Parks, Physical Activity, and Chronic Disease

- **Youth Engagement for Community PA Resources**
 - Reduce disparities in youth PA and health outcomes through engagement in community policy, systems, and environmental change
 - Based on award-winning HYPE curriculum developed as part of a CDC community transformation grant
 - Youth are engaged in a citizen science process to identify ways to improve PA resources in their community
 - Youth-led community changes lead to positive individual and community level outcomes



Acknowledgements



University of Missouri



KANSAS STATE
UNIVERSITY
Department of Kinesiology



Robert Wood Johnson Foundation



National Recreation
and Park Association

Augusta
GEORGIA
RECREATION & PARKS



AUGUSTA
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GREENVILLE
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city of
greenville
PARKS & RECREATION

Parks, Physical Activity, and Chronic Disease: Advancing Technology and Infrastructure for Public Health



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