ABSTRACT

PENBROOKE, TERESA L. Local Parks and Recreation Agencies Use of Systems Thinking to Address Preventive Public Health Factors. (Under the direction of Dr. Michael B. Edwards).

Many leaders believe that local communities should play a role in preventive health. Within the United States (U.S.), some form of governmental agency typically manages local public facilities, spaces, lands, and recreation programs. These departments are usually identified as *parks and recreation* (P&R) or some similar variation. Public health (PH) evidence has increasingly pointed to local P&R agencies as a critical setting for promoting health. Addressing desired PH outcomes is a growing focus for P&R agencies, but many have limited resources or strategies on which to base their actions. However, the research base is also growing. The global research question has shifted from asking *IF* P&R agencies can positively affect PH factors, to *HOW* they can best do so with limited resources.

This dissertation research featured a mixed-methods approach including a thematic literature review, exploration through a three-stage Delphi panel study with 17 P&R agency Key Informants, and a case study of two larger P&R agencies to deepen findings and identify strategies for local P&R agencies. This study was iterative, with each stage informed through review with all Informants. To help with potential limitations of the research methods and/or possible constraints due to personal experience and affiliations, a focus was maintained on transparency, continued search for the evidence-base, and asking, “what is missing?”

The study first explored preventive health factors modified by P&R. The research investigated the theoretical basis of *systems theory* and potential *systems thinking* approach applications for local P&R agencies. Systems theory has been used previously in business and PH applications to describe concepts of how various components, actors, factors, and processes within a given system work together, and to help identify barriers, gaps, and opportunities for improved effectiveness.

Results indicate that the primary modifiable PH factors for P&R include increased physical activity, improved nutrition, enhanced safety or perception of safety, increased social and parental engagement, improved transportation and access to locations (especially nature), and cessation or reduced overconsumption of tobacco and alcohol. However, community-specific data on many of these various health factors are not yet readily available to public agencies. The continuing challenge at the local P&R management level is knowing the priority of the factors for a specific agency and/or partners to address.

This study furthered the theoretical knowledge base for both research and practice through summary of the primary factors, interactions, initiatives, and potential strategies for P&R agencies to address to facilitate change. The research examined how agencies may use a systems thinking approach to prioritize. Results indicate that it is critical within the system to focus on leadership to create a strong organizational culture of PH from P&R; a cultural ethic of inclusion and equity; allocation of staff and financial resources; equitable access to assets and programs; collaboration; utilization of crime prevention and design strategies; increased health promotions; and centralized tracking of feasible measures. Conclusions include an adapted framework for a community systems thinking approach related to addressing the factors. There is also a need for better dissemination of research, evidence-based tools, and established methods. A conceptual framework is suggested to further address the gaps in knowledge transferal between P&R research and practice realms.

Local Parks and Recreation Agencies Use of Systems Thinking to Address Preventive Public Health Factors

by
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DEDICATION

This dissertation is dedicated to the memory of my mother, Nancy L. Stolzenburg, who forever instilled in me my love for acquiring knowledge, patience for exploring the blessing and the curse of my unending curiosity, and the unshakeable belief that women can do anything we set our minds to.

BIOGRAPHY

Teresa Penbrooke was born in Lincoln, Nebraska, USA, in 1963, and moved with her parents and younger sister to Denver, Colorado in 1966. Her parents amicably divorced in 1970, and she was raised through her school years by her mother in Westminster, CO. Growing up, life was full of camping trips, lake outings, neighborhood walks, and swimming in the local pools. A recreation center and library were built a block away when she was ten, giving her safe havens to spend ample out of school time exploring both her love of water and of books full of knowledge. Her mother, Nancy Stolzenburg, a self-made serial entrepreneur, worked double shifts in a variety of businesses to support her daughters.

When she was 13, she was brought into her Mom's deli restaurant to help out, and learned to prep, cook, and cashier, and how to treat customers well. By 16, after school and weekend time was spent running two of Mom's restaurants, handling the inventories and ordering, keeping the books, and hiring and training staff when Mom was busy. Her first paying jobs outside of Mom's businesses were as a clerk in a music store, and then as a lifeguard at *Waterworld* for Hyland Hills Parks and Recreation District, CO, the first summer it opened in 1979. At the time, it was the largest local government-run waterpark in the U.S. After high school, Teresa moved far away (11 miles NW) over the hill to the strange land of Boulder, CO, to start as a psychology major at the University of Colorado. In the first year and a half, Teresa became aware that clinical psychology was not the way to go for her as a career, and the call of the outdoors, friends, water, and playing USVBA doubles volleyball tournaments led her away from school. For nine years in her twenties, she enjoyed life as a "Boulder hippie chick", and fell in love with the lifestyle of running large group kayaking and rafting river trips. To earn income, she worked various restaurant management jobs, trained as a chiropractic and wellness center assistant, and led logistics and outdoor recreation programs for the City of Boulder Adventure Program.

In 1990, she decided that the professional field of public parks and recreation (P&R) was a calling, as helping people be active, fit, and happy seemed to be the way to go. She applied back to the University of Colorado in the Parks and Recreation Program which was then housed through the Business School. After acceptance and as she enrolled for Spring of 1991, the program was cut by the University. As she was already living near campus and married, and had shifted life to go back to school full-time, Teresa enrolled in Kinesiology to enhance her fitness, wellness, nutrition, and athletic training knowledge.

The last year of her undergraduate studies, she was offered a study abroad program in Guadalajara to deepen her Spanish skills. Just before going to Mexico for five months, she found she was pregnant, so that Spring she enjoyed the doting of Senoras and concentration on language classes before her son, Caylon, was born in July 1992. That Fall, Caylon mostly slept while she finished coursework and wrote her Honor’s Thesis, *The effects of ephedrine/caffeine compounds on the resting metabolic rate of two groups of women with distinct body fat distribution patterns*. This thesis garnered *magna cum laude* honors during graduation in December 1993, and a Rocky Mountain Region 1993 Graduate Research Award for Medicine and Science in Sports and Exercise from the American College of Sports Medicine.

After graduation, Teresa’s first full-time position in public P&R was for the City of Broomfield, CO (back in middle America, 9 miles east of Boulder) in 1993 as a recreation programmer and leader for Seniors, Fitness & Wellness, Special Events, Facilities, and Trips. As she began to better understand the local government systems, she yearned for more education and responsibilities. Her marriage deteriorated as her professional drive heightened, and following a divorce in 1995, she was a single mother with sole custody of her son. She took a higher paying recreation coordinator position with North Jeffco P&R District (now Apex District) in Arvada, CO. She learned that to move to a director-level position for these public agencies, she would benefit from a Masters Degree, so enrolled at the University of Phoenix, Denver, nighttime Masters Program while working and raising her son. She completed many “hands-on” marketing, management, and research projects focused on P&R agencies, gradually adding similar responsibilities at North Jeffco, and then graduated with a Master of Arts in Organization Management (MAOM) in December 1998.

After achieving her MAOM, Teresa continued working on planning projects within that agency and began applying for director positions at other agencies. She was on the planning team conducting pricing and staffing studies to build the Apex Community Center, still the largest public center west of the Mississippi at 160,000 SF, and enjoyed working with the architects. After coming in “#2” from a series of interviews for director positions, frustrations led to more soul searching and she realized that she really was a “planning, organizational management, and research geek” at heart. Within a week, fate brought her a part-time consulting project to conduct a study for the City of Boulder P&R Department, and within a few months, she was making more consulting on the side than she was with North Jeffco.

In 1999, she took the leap and started a sole-proprietor consulting firm called Flow Consulting. Within a couple of years, she brought on a partner, changed the firm name to an S-Corp LLC called GreenPlay, LLC, found an office, and hired staff to keep up with the demand. Since that time, GreenPlay has conducted studies and consulting projects for over

450 agencies in the U.S. and a few internationally. Teresa remains as CEO, with 18 staff working on approximately 35 community projects each month around the country. Over the years, Teresa expanded her work as a requested educator and speaker on various recreation and management topics, and contributed to research and testing on several practitioner-based management innovations in the field, such as component-based method (CBM) geo-spatial system inventories and enhanced level of service analyses, the Pyramid Methodology for determining appropriate cost recovery, and the Public Sector Services Assessment for identifying community-specific key core agency services.

In 2008, both her business partner and GreenPlay's accountant noted that over half of Teresa's time was being spent on non-profit research and teaching activities. Teresa realized that she would not want to stop this type of work. With a group of like-minded other consultants and practitioners, GreenPlay sponsored the formation of a national 501(c)(3) not-for-profit organization called GP RED (www.gpred.org), for trans-disciplinary Research, Education, and Development (RED) for health, land, and recreation management agencies, and the associations, academics, and consultants that serve them. Teresa became the Secretary of the governing Operating Board, and part-time faculty and researcher. In 2010, Teresa began working on contract through GreenPlay with Dr. David M. Compton, Chair of the P&R and Physical Education Department at Indiana University, and other faculty to create the *Healthy Communities Surveillance and Management Toolkit*, geared to help public parks and recreation better address increasing physical activity and reducing obesity. When Dr. Compton retired from IU in 2012, this work moved under the GP RED research umbrella, with Teresa becoming Director of GP RED's Healthy Communities Research

Group, and Dr. Compton came on as a part-time member of the GP RED National Advisory Board, faculty, and research associate.

While presenting multiple sessions at the World Leisure Organization's Biennial Congress in Rimini, Italy in 2012, Teresa met with Dr. Karla Henderson, then Professor in the Department of Parks, Recreation, and Tourism Management at North Carolina State University, to discuss her work. Dr. Henderson invited Teresa to come present at a brown bag seminar for the Health and Wellbeing Research Circle for the Department. While visiting, Teresa was offered a funded PhD program and a Research Assistantship. Part of the goals for Teresa with this program was to be able to increase her academic knowledge and credibility, to work further on this healthy communities work, and to help update the parks and recreation planning and management curriculum from a practitioner standpoint.

Teresa had remarried in 2010 to Kurt Cashman and her son Caylon had finished his own Bachelors of Science in Geology, Philosophy, and Business, and GreenPlay has continued to grow with great guidance from her business partner and staff. With these evolutions came some freedom and support that allowed Teresa to begin her PhD program at NC State in January 2014. The following dissertation is the current culmination of her studies and contributions in this realm. She hopes you find this work as meaningful as she does, and that her passion shines through the research and intended rigor in her continued personal goal to help communities thrive.

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As an older “non-traditional” student, this part of the path of my life would certainly not be possible without strong support from many loved ones, friends, and mentors. There are literally hundreds of contributors who have helped me get to this point with this “silly PhD thing”, so I hope I am not leaving out anyone important (you would know who you are!) as I thank some of the many key contributors.

First of all, thank you to my husband, Kurt Cashman, for putting up with my need to disrupt our Colorado home and our life for me to move away do this. Your daily phone calls of support and ongoing strong “base” means more to me than you will ever know. I just hope my crazy love for NC infects you too, and as we keep the fires burning in CO, we can someday slow down a bit and really enjoy some more beautiful time to just BE together. I am also thankful that you’ve helped keep our family, Caylon, Jordan, and Connor, strong, connected, happy, healthy, and productive during my time away, and our extended CO and NE family network connected. I love you, and this one is really for the CashPen team!

Next, I must thank Chris Dropinski, my long-time GreenPlay business partner (or my “business wife”, as we have still been together for my longest partnered relationship!). I know you’ve had to shoulder a lot of the load for our firm while I was off gallivanting with this academic, research, and teaching stuff, but as always, even though you and I sometimes have different methods to get there, I know our goals and our passions for helping communities thrive are the same. I hope to bring even more help to you now as we continue forward. I could not be here without you, and all of our great, smart, passionate, and supportive members of the GreenPlay and GP RED teams.

For my day to day friends and loved ones, Robby, Linda, Ozlem, Nancy, Raj, and all my other beach-loving, music-playing, hiking, teaching, seeking, and fellow grad school geeks, you have supported me during light and dark hours, sometimes almost frantic stress, health issues, and provided much needed breaks for music, outdoor adventures, good food, venting, dog love, and all sorts of laughter. I treasure you deeply.

Now, for my professional and academic mentors who have paved the way… Thank you to Dr. Karla Henderson for bringing me into this program, and for being there throughout this crazy ride. Dr. Mike Edwards, you are the best Advisor I could have worked with. I have been continually amazed how intelligent, knowledgeable, and insightful you are. You have consistently guided me in all aspects, in such a talented and sometimes subtle way that I often never knew I was “being guided” along the way until later. I have loved getting to know you, your lovely wife Melissa, and the girls. My success is yours too!

Drs. David Compton, Jason Bocarro (see, spelled it right!), Myron Floyd, Aaron Hipp, Nancy Wells, Carla Barbieri, Erin Seekamp, Yu-Fai Leung, and Vanessa Urch Druskat, along with Chris Cares, Robin Moore, and Leon Younger, thank you for mentorship and helping me know that our field is full of brilliant people trying to do the next right thing.

I would also like to acknowledge the many agency professionals who volunteered many hours to assist with this work, especially John Henderson and Christine Lafontant, the lead case study Key Informants, along with the Delphi Key Informants and stakeholders. In addition, thank you to Zaarnaz Bashir, former manager of Health and Wellness Division from the National Recreation and Park Association, for helping to identify Key Informants.

I could truly not be here without all of you, and so many other friends, family, and colleagues. Now, let’s just go do some more good work and have some fun!

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LIST OF ABBREVIATIONS AND TERMS

CBM LOS – Component-based method (CBM) for inventory and level of service analysis. Looks at parks systems as components using digital geo-spatial analysis with GIS rather than just standard park classifications or capacity-based (x/per 1,000) analysis.

CDC – Centers for Disease Control and Prevention, a Federal Agency.

CPTED – Crime Prevention through Environmental Design - Internationally accepted and recommended practices for design and planning to enhance facilities and spaces for increased safety and perception of safety. See http://www.cpted.net/.

Factors – Used in this research as an “umbrella term” for variables in PH research with various actions. May include determinants, correlates, causal variables, mediators, moderators, and confounders.

GIS – Geo-spatial information systems. Typically includes software that analyzes and creates maps for geographic locations and other spatial elements.

GP RED – National 501(c)(3) not-for profit organization co-founded by this dissertation researcher and others. Mission is to provide Research, Education, and Development for health, recreation, and land management agencies. Primary goal is to help fill the educational and translational research gaps for professionals in academics and practice, and the associations that serve them. See www.gpred.org.

HEPA – Healthy Eating and Physical Activity. HEPA guidelines have been created by the National Afterschool Association (NAA, 2015) and have been adopted by the NRPA as recommended guidelines for P&R agencies.

IRB – Institutional Review Board - a type of committee used in research in the United States that has been formally designated to approve, monitor, and review behavioral and biomedical research involving humans. IRB fosters compliance with federal regulations and an organization's institutional policy. All protocols for this research have been approved by the NC State IRB.

Key Informants – In this study, P&R practice "topic experts" were identified from P&R agencies across the country. 17 of these practice topic experts became the *Key Informants* as representatives of their agencies in this study.

LTPA – Leisure time physical activity.

NRPA – National Recreation and Park Association – the only U.S. national organization with membership, education, and resources for P&R professionals. See www.nrpa.org. Most states in the U.S. also have their own state association.

PA – Physical activity.

P&R – Parks and recreation agencies, and the field and profession that serves them and their communities.

PH – Public health agencies, and the field and profession that serves them and their communities.

OST – Out of school time.

ROI – Return on Investment. This typically includes quantifying the financial return of an investment or subsidy.

SRTP – Safe Route to Play (GP RED) or Parks (NRPA).

SRTS – Safe Routes to School.

SEM – Social Ecological Model

SES – Socio-economic status

WHO – World Health Organization

CHAPTER 1 – INTRODUCTION

> *"Science is an organized form of wonder. Every scientific study comes out of a wondering. You see something in the field, and ask, 'What's going on? Why is that happening?' Then you figure out how to answer that question, very rarely with 100 percent certainty, but with the minimum amount of uncertainty that you can get".*
>
> *– Eva Saulitis (Byl, 2017, p. 8)*

Background

Standardized effective strategies for improving community health have long been elusive as a major public health issue (Huang, Drewnowski, Kumanyika, & Glass, 2009). On a national and global level, the U.S. Centers for Disease Control and Prevention (CDC, 2016) and the World Health Organization (WHO, 2011) are just a few of the organizations that have said that communities and partners within those communities should address preventive health factors. However, those agencies fall short on specific recommendations for how a community overall should do so.

The Role of Parks and Recreation

In most communities in the U.S., the public places where leisure activities occur include lands and assets such as natural areas, parks, playgrounds, greenways, trails, sports fields, bodies of water, and recreation facilities. These assets and related programs and services are usually managed at a local level in a geographically defined town, township, city, special district, or county, within a local governmental unit or department. The department is typically called *parks and recreation* (P&R), or something similar, and they address the management of community parks and recreation services through agency actions

(Edwards, Jilcott, Floyd, & Moore, 2011; Godbey, Caldwell, Floyd, & Payne, 2005; Moiseichik, 2010, Vick, 2007). The unit of analysis for this study is the local parks and recreation agency (including county, city, town, and district levels). County-level analysis often includes an overlay function with municipalities, or may be appropriate as a stand-alone jurisdiction for smaller or rural counties that have fewer smaller units within them (Edwards, Jilcott, Floyd, & Moore, 2011; Shores & West, 2010; Singh, Siahpush, & Kogan, 2010).

Approaches to affect change in community systems need to concentrate on mechanisms for strengthening the abilities of individuals within systems, including their social networks, organizations, resources, gaps, and policies within the community to collectively address common problems (Casey, Eime, Payne, & Harvey, 2009; McLeroy, Kegler, Steckler, Burdine, & Wisotsky, 1994). Public health (PH) evidence has increasingly pointed to these P&R agencies as being one of the critical settings for potentially promoting health in communities. Addressing desired PH outcomes and addressing health equity issues among diverse populations has become a growing focus for many P&R agencies (Active Living Research, 2016; Cerin & Leslie, 2008; Cohen, McKenzie, Sehgal, & Lurie, 2007; Ding, Sallis, Kerr, Lee, & Rosenberg, 2011; Edwards, Jilcott, Floyd, & Moore, 2011; Epstein et al., 2012; Merriam, Bality, Stein, & Boehner, 2017; Schultz et al., 2015; Sallis & Spoon, 2015). There is also a need to address the community availability of schools for public use, and encouragement of out of school time (OST) or leisure-time activities (Bocarro, Kanters, Casper, & Forrester, 2008; Edwards, Jilcott, Floyd, & Moore, 2011; NIOST, 2015; Tebes et al., 2007; Thaw et al., 2014).

Research has repeatedly shown that amenities and programs offered by P&R can help increase health promoting activities, such as increasing physical activity (PA) (Gardsjord, Tveit & Nordh, 2014; Godbey & Mowen, 2010; Kaczynski & Henderson, 2007; Kanters, Bocarro, Filardo, Edwards, McKenzie, & Floyd, 2014; Layton, 2016a; Schultz et al., 2016; Shores & West, 2010). The role of P&R agencies is not typically clearly identified in PH or other community systems literature, but responsibilities are often shown as a subset of public safety or related to schools. Actions by local policymakers to increase P&R parks and facilities location, access, and attractiveness, especially to underserved populations may be effective ways to promote health promoting activity (Babey, Wolstein, Krumholz, Robertson, & Diamant, 2013). Addressing these issues is a growing focus for P&R agencies, but many do not have access to an available applicable evidence base, tools, or methodologies to effectively do so (Burns, 2016; Compton, Kim., & Damask, 2013; Godbey & Mowen, 2010). They need not only the evidence base for what to address and why (which is now available from the research realm), but understanding of HOW to do so within their specific type of organizational and community system.

Over the past several years, there has been an increase of evidence connecting public parks, programs, and trails to active living behaviors (e.g., Floyd et al., 2011; Sallis, Floyd, Rodriquez, & Saelens, 2011; Veitch, Ball, Crawford, Abbott, & Salmon, 2012; Wolf & Wohlfart, 2014). As concern has grown over the rise of health epidemics related to sedentary lifestyles, the opportunities have pointed towards promoting P&R as cost-effective places and services for encouraging healthier community behaviors. A recent national study indicated that in the U.S., local public P&R agencies serve more than 70% of community members, and over 80% agree that P&R provide benefits (Mowen, Graefe, Barrett, &

Godbey, 2015). P&R agencies facilitate health promoting activities on a local community level primarily though two distinctive characteristics - low-cost access and widespread availability (Bedimo-Rung, Mowen, & Cohen, 2005; Chiesura, 2004; Kaczynski, Potwarka, & Saelens, 2008; Mowen, Kaczynski, & Cohen, 2008).

Gaps in Current Research

PH research has been somewhat disparate in terms of the level of intervention, the role of P&R in PH, and the role of specific strategies or site-specific park characteristics (Babey, Wolstein, Krumholz, Robertson, & Diamant, 2013; Sallis et al., 2014). Current approaches (including lack of strategic systematic approaches) and resource limitations limit the effectiveness of P&R agencies to effectively determine priorities, resulting in reactive rather than proactive actions (Burns, 2016; Compton et al., 2011). There is a need to synthesize the research and focus on specific leverage points that create gaps for P&R. The issue may go beyond methodological limitations for measurement, and may lead to a need to evaluate applications in community practice. Given the large number of potential programs and interventions to choose from, and the constant limits on available financial resources, local P&R administrators are challenged to identify the most appropriate interventions for their specific community (Burns, 2016; Compton et al., 2011; Godbey & Mowen, 2010).

Another continuing challenge at the local community level is knowing which preventive PH factors are of the highest priority for a specific local P&R agency to address. This study seeks to identify and explore the key potential factors that P&R agencies may be intentionally addressing and/or affecting in their communities. For purposes of this dissertation, all types of preventive PH variables (e.g., determinants, correlates, causal variables, mediators, moderators, and confounders) including their various potential actions, will be included using the umbrella term of *factors*, as this study is not concerned with validating the action of the variables themselves, but focused on thematic analysis of how strategies can be used by local P&R agencies to prioritize and address them.

The federal government, academicians, and non-profit organizations (e.g., Centers for Disease Control [CDC], 2016; Designed to Move, 2012; Let's Move, 2016; NRPA, 2016a) regularly promote many national level programs and campaigns. Most national programs and campaigns for health interventions focus on programs and strategies for individual or interpersonal change. Although P&R agencies often offer programs that address these levels of change, by the nature of their governmental structure and funding mechanisms, they are often focused on community/societal-level interventions and evaluation. (CDC, 2014b; Godbey & Mowen, 2010; Let's Move, 2014).

Gaps also exist related to organizational impacts and strategies. There are a variety of national, local governmental, and foundation-sponsored initiatives working to identify factors and components within varieties of levels of the SEM (e.g., Active Living Research, 2016; CDC-SEM, 2016; Healthy People 2020; Khan et al., 2009). Researchers have been looking for indicators and assessment tools that move beyond the assessment of individual health or factors, such as PA occurring at a single site or its components, to a larger community level assessment of how to improve these factors in a community as a whole (Compton & Kim, 2013; Edwards. 2009; Ross, Young, Sturts, & Franzidis, 2013, Sallis et al., 2015; Young, Ross, Kim, & Sturts, 2013).

Systems Theory as the Theoretical Basis

Addressing PH factors at a local community level is complex. The global PH field, which has been reasonably dominated by linear models of planning, is witnessing increased interest in using non-linear processes, based on *systems theory* and the resultant *systems thinking* to address interventions (Sarriot & Kouletio, 2015; Stroh, 2015). Seminal works were based on Von Bertalanffy's systems theory work (1968). The various fields of environmental sociology, social ecology, public health, planning, business, and related disciplines have been integrating systems thinking based on systems theory related to studying ecology and human well-being (Arai & Pedlar, 1997; De Savigny & Adam, 2009; Lieschow et al., 2008; Stroh, 2015). This theory appears to be applicable to this topic area for P&R. Although the terms are often used interchangeably in the literature, for this dissertation, the term *systems theory* is used to explore the conceptual and theoretical basis for how a specific community system works relative to P&R addressing identified preventive health factors. S*ystems thinking* is used to discuss the process that allows for stakeholders within a given system to have a shared agenda, or basis for application of the theory at work within that system.

Varying other related theories from P&R research and PH realms were explored in the literature. For example, Bauman, Sallis, Dzewaltowski, & Owen (2002) examined a variety of variables associated with various theories and frameworks (e.g., the health belief model, the trans-theoretical model, the theory of planned behavior, and social cognitive theory) for consistent evidence of association with physical activity (PA). Golden & Earp (2012) contributed a strong focus on the social ecological model (SEM) to describe the interactive characteristics of individuals and environments that underlie health outcomes to guide PH practice within a community system.

Attention to systems thinking appears to be evolving in the P&R realm. Floyd et al. (2011) discussed elements of the SEM and related theory to describe how individual, park, and neighborhood environmental variables and characteristics may influence children's park-based activities. Godbey & Mowen (2010) discussed various related theoretical elements (although not directly calling them out as theory-based) common to SEM related to provision of individual, familial, community, and societal benefits and investments in P&R. They invoked systems theory, social exchange theory, and the theory of change elements for discussing concepts related to behavioral programs and assets, transactional partnerships, and community systems planning. These are just a few of the examples of the vast application of theoretical bases conceptualized to try and address PH factors in local communities.

The local community system (and the P&R agency system that serves it) operates with many organizational elements and partners. Many relationships and interactions occur at all levels. A systems thinking approach and integration with SEM applications can help inform the analysis of these systems at various levels of the SEM within a community. System approaches help to empower the individuals, families, and communities to develop and implement appropriate local strategies in order to alleviate health problems (Arai & Pedlar, 1997; De Savigny & Adam, 2009; Golden & Earp, 2012). Design of community environmental assets, strategic creation of programs, as well as the creation of goals and strategies related to determining access to resources, such as safe PA facilities, may facilitate the improvement of outcomes related to health (Henderson & Ainsworth, 2003; Kuo, 2013; Sallis et al., 2015).

Purpose

The primary purpose of this dissertation is to attempt to better understand *HOW* local P&R agencies (the unit of analysis) can and are addressing key health factors as preventive PH providers, through systematic approaches to prioritize addressing health outcomes with limited resources. A goal for this dissertation research is to advance the knowledge base around this specific topic area, and to advance theory around that topic that can be generalizable within the field. As such, extensive research will be conducted to identify and confirm the appropriate theoretical basis that is applicable to this topic, along with identifying the existing gaps and areas for advancement.

This study will identify the key modifiable health factors, along with perceived effective and strategic methods local P&R agencies are using to prioritize and address factors. After the initial literature review, the research will explore and expand upon the theoretical basis through elements of systems theory and the resultant system thinking impacts on local P&R agencies (the unit of analysis). Addressing all levels of a community system may require more complex and adaptations of concepts and methods directly for P&R management strategies and evaluaton practices. The following research questions will guide this study:

Primary Research Question

Using systems theory and resultant systems thinking, a comprehensive thematic literature review, a Delphi panel study of key informants, case study methodologies, and cumulative analysis using a Key Issues Analysis Matrix, this dissertation seeks to answer the following primary research question:

Q. How do parks and recreation (P&R) agencies address prioritizing modifiable key health factors?

Secondary Research Questions

SRQ1: What have relevant research literature and data identified as the key modifiable factors for preventive PH through local P&R systems?

SRQ2: Using Delphi study methodology, what do P&R professionals see as the key strategies in systematic prioritization of modifiable health factors?

SRQ3**:** Using case study methodology, how are two agencies addressing prioritizing modifiable key health factors in their communities?

Significance

This work is significant in that it seeks to identify what we can learn by systematic methods, and how might this improve our understanding for effective P&R administration and management. Prior literature suggests that P&R agencies provide preventive PH benefits (e.g., Active Living Research, 2016; Cerin & Leslie, 2008; Cohen, McKenzie, Sehgal, & Lurie, 2007; Ding, Sallis, Kerr, Lee, & Rosenberg, 2011; Godbey & Mowen, 2010; Edwards, Jilcott, Floyd, & Moore, 2011; Epstein et al., 2012; Floyd et al., 2011; Sallis & Spoon, 2015). However, there is little research related to the efficacy of systematic methods for P&R agencies to prioritize their interventions and offerings given limited resources (Burns, 2016; Compton et al., 2011; Crompton, 1999; Godbey & Mowen, 2010).

The primary audience for this research is intended to be both academic researchers and professional practitioners. This research seeks to identify, analyze, confirm, and then disseminate knowledge related to the theoretical basis, potential methods and strategies, implications for future research, and potential applications to practice to help communities address preventive health through P&R agencies. All research will include attention to both research and practice limitations and implications. An overarching goal for significance is to identify the factors that are evidence-based from a trans-disciplinary approach, and potential methodologies for identifying community specific interventions based on those factors, along with how they can be implemented or managed by P&R agencies as preventive public health providers within the community.

In addition, a secondary system, related to but separate from the local community system, may prove to be relevant. This research will explore system interplay between the academic/research realms and the P&R practitioner realms. The Delphi and case study will be used to explore that although there may be adequate and innovative research conducted and available from the academic research realm, there may also be a strong gap in how this knowledge base is reaching the practitioner realm. The system of interest is the process for how the information flows, is translated, and informs implementation – the transfer of knowledge. There is likely a gap between the evolving and emerging needs of the practitioners and the focus and funding for research in the research realm.

Chapter Summary

This study has been designed to establish a systems theory approach to help researchers and practitioners better understand key factors related to preventive PH that may be effectively addressed, modified, and/or managed by local P&R agencies. The research will look to identify management practices, current national movements and potential interventions, and strategies that are successfully being used by local P&R agencies to achieve desired outcomes. The following chapters more fully explore the theoretical basis, literature, methods and strategies used to gather data, a discussion of the results, and conclusions, with strong consideration for future research implications and application to practice.

CHAPTER 2 – LITERATURE REVIEW

Literature Review Methodology and Potential Process Sources

SRQ1 asked: What have relevant research literature and data identified as the key modifiable factors for preventive public health through local P&R systems? To answer this question, a comprehensive exploratory and integrative review of articles and publications from various PH, P&R, and planning disciplines was conducted to survey themes related to the primary factors for preventive PH, which may be modifiable by P&R. An electronic search was made to identify relevant articles published up until February 2017.

Literature was identified by use of the search terms as shown in the following section to search select databases and online libraries: CAB Abstracts, CAB Archive, PubMed, ProQuest Health Management, & Sport Discus, along with waterfall-style continued exploration of articles from the gray literature recommended by respected colleagues, from relevant conference attendances, and from related websites and social media (e.g., ALR, CDC, Google Scholar searches, ResearchGate, Facebook, and Twitter announcements from relevant organizations working in this realm). Searches were limited to identifying publications since 1980 (as typically it is more difficult to find digital collections prior to this date), except for additional articles recommended by experts in the field, and/or seminal works cited for theoretical basis. Quality of materials was explored for sources through an examination of methods cited, authors and author affiliations, subsequent citations in academic journals, and impact documentations. As this review was a thematic exploration of factors, along with strategies being used to address factors by public P&R agencies, published gray literature (i.e., non-academic sources such as association briefs, websites, and webinars) were included for methods and process that may not have yet had full academic and peer reviewed validation. Many of these were identified by the Delphi panel as being used by practitioners with effective applications (e.g., component-based inventories, some youth survey instruments, and program based management matrices). It may be important to note that the line between peer-reviewed and gray literature is rapidly lessening, as some strong scientifically focused organizations (e.g., the American Public Health Association, the Aspen Institute, Active Living Research, CDC, and WHO) are often now self-publishing online rather than relying solely on inclusion in peer-reviewed journals. This makes it difficult at times to distinguish between the two.

Focus was not on evaluating the validity, credibility, or reliability of the individual studies or articles themselves, but instead on identification of common emerging themes relative to theories used as a basis, the potentially modifiable PH factors from P&R, and strategies used to address the factors by P&R.

Search Terms

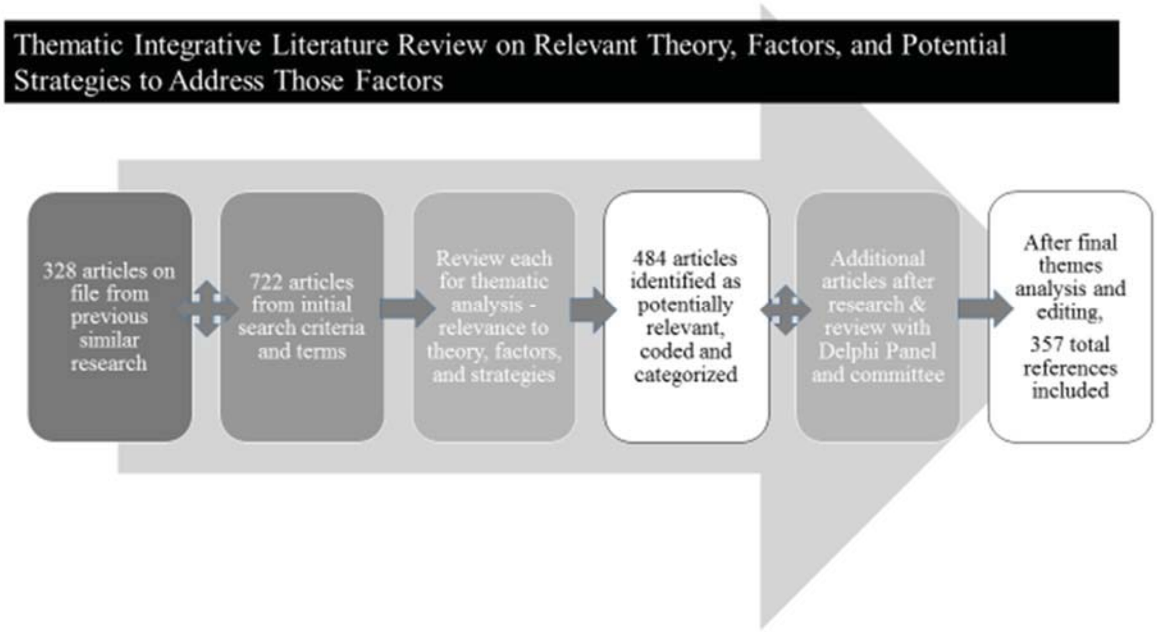
There was an initial search of literature relative to various theoretical bases and potentially modifiable health factors. Because this was an iterative process, as new themes emerged and were identified as important to the work from the Delphi panel, additional searches were conducted to deepen and inform the research. Throughout the process, the following search terms were included at various times and in various combinations:

> Activity, After School, Determinants, Engagement, Factors, Health, Health Impact Assessments, Indicators, Knowledge-to-Action Framework, Leisure Management, Logic Models, Matrices, Metrics, Nature, Nature Dosage (Dosing), Nutrition, Obesity, Out of School Time (OST), Parks, Physical, Planning, Recreation, Rural,

Safety, Public, Social Ecological Model (SEM), Sports, Systems Theory, Systems Thinking, Tobacco, Trails, Transportation, Urban, and Youth Activities.

Selection Criteria

The literature review narrowed focus on an attempt to reach saturation on the evidence related to key theories, key factors, and key methodologies or strategies used by researchers or P&R agencies to address the factors. Excluded from the review were articles not in English, and studies focused only on in-school or private sector activities (unless the focus was on a methodology). Over 1,100 potentially relevant sources were reviewed. In the end, 357 reference sources were included. Figure 1 depicts the review process.



Thematic Integrative Literature Review on Relevant Theory, Factors, and Potential Strategies to Address Those Factors
328 articles on file from previous similar research
722 articles from initial search criteria and terms
Review each for thematic analysis - relevance to theory, factors, and strategies
484 articles identified as potentially relevant, coded and categorized
Additional articles after research & review with Delphi Panel and committee
After final themes analysis and editing, 357 total references included

Figure 1. Process for the thematic literature review

Content Analysis

This thematic literature review included both integrative and interpretive methods. In the literature on methods for research synthesis, a distinction was made between integrative and interpretive reviews. Integrative reviews may be more suitable for quantitative studies where findings are aggregated or pooled using techniques such as statistical meta-analysis. Interpretive reviews may be more suitable for qualitative studies, where the aim for synthesis is to achieve a higher-order interpretation through understanding how individual studies included in the synthesis connect and interact (Oliver, Harden, & Rees, 2005). Many reviews show both integrative and interpretive characteristics whether they are dealing with qualitative studies, quantitative studies or both.

For this review, I used primarily an interpretive approach when synthesizing thematic content from qualitative studies, and an integrative approach to synthesizing from quantitative studies. The strength of an integrative review is that the methodology helps draw conclusions about the current state of knowledge amongst diverse studies (Bocarro, Greenwood, & Henderson, 2008; Torraco, 2005). Thematic integrative and interpretive reviews may not employ summary or quantitative statistics, as sample sizes cannot be pooled due to the heterogeneity of studies and samples (Crawford & Johnson, 2011). Combined integrative/interpretive thematic reviews are capable of presenting varied perspectives and a depth and breadth of evidence without over-emphasizing studies within empirically based research hierarchies (Oliver, Harden, & Rees, 2005). A critique of these types of studies from the perspective of health reveals that despite exhaustive searching, the available studies typically only provide evidence about the views of particular categories. The evidence is therefore always partial and evolving (Baxter, Killoran, Kelly, & Goyder, 2010; Oliver et al., 2005).

This review attempted to serve as a cross section of scholarly activity to identify key relevant themes. A key goal of this research was to help provide insight into ways future research may augment the field’s knowledge base (Hodge, Bocarro, Henderson, Zabriskie, Parcel, & Kanters, 2015). For this review, articles were identified that include relevant data on an intervention or strategies related to the search words and criteria. A summary of key words and thematic summary textual paragraphs were compiled documenting the outcomes, goals, and intervention strategies. The information was organized and presented based on how key factors and/or strategies to address those factors have been conceptualized.

An overview of the key theoretical basis, factors, systematic process strategies, and observational tools from the literature was provided as an initial basis for the remaining parts of the study. The literature review included a summary of relevant themes, key factors, identified strategies and methods, and was organized based on how key factors and/or methods have been conceptualized. The factors were purposefully not listed in any prioritized order, as the findings indicated that they may have different priority order in different communities. It is important to note that this research focused on how agencies can use a systematic approach to prioritize the factors for their own specific community. This review was focused on identifying key common themes, tools, and methods related to the factors that can be potentially modified by P&R agencies, but not concerned with verifying specific validity or results of the studies themselves. This review is comprehensive but not exhaustive, with a goal of reaching saturation in theme identification, not systematic or quantitative analysis.

Using the Delphi study and case study methods (including questionnaires, focus groups, and interviews) described in the following chapters, potential systematic process methods for community-specific prioritization were reviewed and discussed through an iterative exploration for applicability, relevance, feasibility, and priority for implementation for use in a local P&R setting. The following sections introduce and outline the key health factors relevant theories and identified from the literature that may be modifiable by P&R agencies, with an initial focus on middle school youth. In addition, background was provided not only on the factors themselves, but also on various tools, methods, and processes that are being used to identify outcomes from the factors (with a focus on identifying those factors that evidence indicates may be *modifiable by P&R*). As they vary in content, application, and priority in any given community, they are also presented in no particular order.

Gaps in the Research - Identifying Relevant Modifiable Health Factors for P&R

A primary goal of this study was to identify from the literature and through the Delphi panel, which preventive PH factors may be most modifiable by P&R agencies. The following sections include a thematic overview of that ongoing research and the factors and potential strategies to address them through P&R, as identified to date.

A key guiding summary included a review by Richter et al. (2000) of 16 studies and a case study that yielded a wide variety of environmental, individual, community, and partnership-related contributing factors for youth PA and nutrition. These were each related to four variables; a) practices of retailers, b) policies and practices in the home, c) availability and use of recreation opportunities, and d) community-wide health interventions (including school practices). After a review of additional literature, Compton, Kim, and Damask (2010) found that the preliminary contributing factors for improving health primarily through increasing physical activity and reducing obesity in youth appear to primarily include five factors; nutritional habits and availability, participation in active programs, social and parental engagement, transportation and access to sites, and perceptions of safety. The additional research for this dissertation worked to confirm those findings through the prioritization and questionnaires from the Delphi panel, and also to add a newer emphasis on the potential health cognitive, physical, and psychological benefits of access to nature, along with other elements such as public policies around tobacco cessation and alcohol overconsumption.

All of these studies indicate that the interaction of factors is complex and varies among communities. Each included suggestions that additional research needs to be conducted to help identify how local public P&R systems can and should best approach these factors to focus their resources to improve health in their community. However, a gap exists in identifying and addressing which of these factors can actually be managed or modified by P&R agencies, as some factors (such as immunizations or contraception) are beyond their purview (Burns, 2016; Compton, Kim, & Damask, 2010).

Identified Preventive Health Factors Addressed by P&R

Although the PH realm is concerned with all forms of health and disease (e.g.; immunizations, pre-natal care, infectious diseases, outbreaks of insect-borne disease, etc.), this study focused on identifying and summarizing the preventive PH factors that can specifically be modified by P&R agencies. These factors included variations of indicators, determinants, correlates, causal variables, modifiers, indicators, and/or confounders (Bauman, Sallis, Dzewaltowski, & Owen, 2002; Sallis & Hovell, 1990; SCIMPH, 2013, Tremblay et al., 2011; United Nations [UN] 2030 Agenda, 2016). The purpose of this study was not to further validate the specific action of P&R agencies, or on the factors themselves beyond those identified in the literature, but to identify how processes and strategies are being used to determine prioritization methods and outcomes related to the factors by P&R agencies. This study was also not designed to address communicable or other diseases such as environmentally-caused illness, sexually-transmitted diseases, or other allopathic health needs that are often addressed in the PH and medical realms.

The primary factors that were identified as modifiable by P&R from the literature and from the results of this study appear to be (purposefully in no particular order): ability to do physical activity (PA), availability of good nutrition, access to programs and facilities (including transportation and/or cost), safety and/or perception of safety, social engagement (parental and/or peer), tobacco cessation and excessive alcohol consumption, and benefits (physical and mental) that come from access to nature. All of these, along with processes to address them for potential positive outcomes, are explored more fully in the following sections, from both the literature and analysis of practice applications through the Delphi panel and case study.

Physical Activity

The majority of the current research related to potentially modifying health through P&R is around measuring physical activity (PA) and/or obesity. PA is a key factor (along with nutrition discussed later) as a determinant of whether someone is of normal weight or obese, along with effects on overall health (CDC, 2016; Kumanyika et al., 2008; Popkin, 2008; Sallis et al., 2015). Often research related to P&R activities and/or out of school (OST) time refers to leisure time PA (LTPA) to indicate time relationship and differentiate it from in-school PA.

Two federal sources outline objectives and strategies for increasing PA at a local level. One is the *Healthy People 2020* (2016), through the U.S. Office of Disease Prevention and Health Promotion, and the other is the Centers for Disease Control reports and webpages (CDC, 2014b) based heavily on work by Khan et al. (2009). The CDC uses data from the

National Survey of Children’s Health (NSCH), a national and state-representative, random-digit–dialed, cross-sectional telephone survey of approximately 45,000 households that have adolescents, ages 10 – 17. In the 2011-2012 NCSH, overall, 65% of U.S. adolescents were found to live in neighborhoods supportive of physical activity, defined as neighborhoods that are perceived as safe and have sidewalks or walking paths and parks, playgrounds, or recreation centers (Watson, Harris, Carlson, Dorn, & Fulton, 2016). In this nationwide study the primary outcome measure, a neighborhood supportive of physical activity, was a composite measure derived from individual features related to perceived neighborhood safety; availability of sidewalks or walking paths; and the availability of parks, playgrounds, or recreation centers (National Physical Activity Plan Alliance [NPAPA], 2016; Watson et al., 2016). These general measures are related to ten identified indicators they have related to physical activity in children and youth: (1) overall physical activity; (2) sedentary behaviors; (3) active transportation; (4) organized sport participation; (5) active play; (6) health-related fitness; (7) family and peers; (8) school; (9) community and the built environment; and (10) government strategies and investments (NPAPA, 2016). Another strong source of current research related to PA is provided by Active Living Research, funded by the Robert Wood Johnson Foundation (Active Living Research, 2016).

Many national level programs and campaigns are set forth each day from the federal government, academicians, and non-profit organizations to address contributing factors for increasing PA and the resultant benefits of doing so (e.g., CDC, 2015; Designed to Move, 2012; Let’s Move, 2016; Sallis et al., 2016). However, community-specific youth data on measurements such as levels of obesity and participation in PA are not readily available to practitioners (Brenner et al., 2013; CDC, 2014b). Agencies often have limited information from which to inform the implementation of programs and development of appropriate resources to address health issues in their communities. All of these national-level research organizations look at local systems for potential interventions, and they recommend many programs, site enhancements, and individual methods for increasing PA.

Public parks facilitate PA on a community level primarily through two distinctive characteristics - low-cost access and widespread availability (Bedimo-Rung et al., 2005; Chiesura, 2004; Kaczynski, Potwarka, & Saelens, 2008; Mowen, Kaczynski, & Cohen, 2008). Empirical evidence has demonstrated that people who reside in communities with safe, active transit to parks and recreation facilities are more likely to be physically active than their counterparts. Although these findings are encouraging, most neighborhoods are not appropriately connected to parks via pedestrian paths. This presents difficulty for people to easily access parks without motorized transportation, such as youth and older adults. People are more likely to walk to parks if their communities are better connected to parks by active transit routes (NRPA, 2014).

To increase the participation in PA, especially sustained PA, interventions require a fair understanding and consideration of the influences of these behaviors. A systematic review found benefits effecting overweight/obesity, blood pressure, bone strength, aerobic fitness, strength and endurance, depression, anxiety, and several measures of self-concept among children and youth engaging in PA (Janssen & LeBlanc, 2010). A 2007 study which synthesized results of 28 random control trials of potential PA interventions with youth showed that a decisive role for the compulsory provision of aerobic PA has been demonstrated as effective (Connelly, Duaso, & Butler, 2007). That study also suggested that additional research was still needed to identify how such activity can be sustained and transformed into a personally chosen behavior by those youth over their life course and during LTPA. A limitation of this study was that out of 28 studies they could identify on this subject, only four included ages above ten. PA during adolescence is one of the best predictors of adult physical activity, and evidence has shown that promoting and establishing lifestyles that incorporate physical activity among children is often more effective and easier than promoting physical activity among adults (Kushi et al., 2006).

Activities, programs, and screen time. Changes in culture and technology have affected patterns and trends in energy imbalance, leading to lower levels of PA overall through shifts in stages of eating, drinking and activity (Popkin, 2008; Ng & Popkin, 2012). These shifts have been occurring since Paleolithic times, but they appear to have increased in varying degrees in different regions of the world in the past century (Ng & Popkin, 2012).

Researchers have promoted offering organized youth programs offered during adolescents' out-of-school time (OST) as an ideal setting for increasing youth PA and healthy eating (Edwards, Kanters, & Bocarro, 2014; Zarrett & Bell, 2014). When youth are home alone, they typically spend excessive time in sedentary activities (watching television or on computers) and have extended opportunities for snacking (Frank, Andresen, & Schmid, 2004; Fredricks & Eccles, 2006; Zarrett & Bell, 2014). Research indicates that individual entertainment, passive screen time, and social media are increasing, and increased screen time is typically related to increased body mass (Grøntved & Hu, 2011; Larson, Green, & Cordell, 2010; Stamatakis et al., 2015; Tremblay et al., 2011; Wethington, Pan, & Sherry, 2013). Some studies have suggested that the type of sedentary behavior, such as screen time, might be more important than overall sedentary time in relation to youth health (Larson, Green, & Cordell, 2011; Stamatakis, et al., 2015). It has proven difficult to isolate the independent effects of PA and screen-based sedentary behavior on negative health outcomes due to differences in study samples, and methodologies between studies. To address screen time, there has to be attractive and accessible options available, along with education regarding the dangers of prolonged sedentary screen time (Larson, et al., 2011; Stamatakis et al., 2015; Wethington, Pan, & Sherry, 2013).

P&R professionals have worked to validate the important contributions of access to public green space to healthy lifestyles, (Kellert, 2005). Analysis of a national study, the National Kids Survey, conducted by the USDA Forest Service using a random phone survey of 1,450 U.S. households with children from 2007-2009, found gender differences for reasons that youth do not spend more time outdoors (Cordell, Betz, Green, & Dunleavy, 2010; Larson, Green, & Cordell, 2011). Interest in music, art, reading, and similar activities was the reason given by highest percentage of girls (64 percent) for not spending more time outdoors. For boys, it was video games and watching DVDs and television (54 percent). In addition, not having neighborhood access to outdoor areas, not having a friend to go with, and not having transportation were reasons given more frequently by girls for not spending more time outdoors, whereas not feeling safe was more often given as a reason by boys.

Sports, which are typically perceived to be inherently (but not always) active, and other organized afterschool programs (e.g., P&R programs, community clubs, and faith-based organizations) which often feature physical recreation as one part of the curriculum, represent a relatively healthy environment compared to alternative OST arrangements (e.g., being home alone). The effectiveness of these activities depends upon a variety of community-specific programmatic and contextual factors (Edwards, Kanters, & Bocarro, 2014; Jones, Edwards, Bocarro, Bunds, & Smith, 2017). Some studies have suggested that organized sports fail to meet suggested guidelines for physical activity (Leek et al., 2010). However, there are conflicting studies. Specifically, where some research has shown youth engage in more moderate-to-vigorous physical activity on participation days than non-sports days (Wickel & Eisenmann, 2007), other research has shown youth spend 43% of sports practice inactive and fewer than one-fourth of youth obtain the recommended 60 min. of moderate-to-vigorous activity during practice (Bocarro, Kanters, Edwards, Casper, & McKenzie, 2014; Katzmarzyk, Walker, & Malina, 2001; Zarrett & Kelly, 2014). Despite these limitations, sports are frequently regarded as a potentially effective mechanism to promote positive youth development, increase PA, and as a way to increase health (Bocarro, Kanters, Edwards, Casper, & McKenzie, 2014; Leek et al., 2010). The research is clear that P&R has a strong role in providing activities, programs, and spaces that can increase PA.

Nutrition and Food Availability

Although it has not typically been seen as a primary focus of P&R agencies, nutrition is a key factor for health, especially resultant effects on obesity and body mass (DeMattia & Denny, 2008; Ferder, Ferder, & Inserra, 2010; Papas et al., 2007). Nutrition is often considered personal choice, however there are a number of local level community system factors that can be addressed to address nutrition. Availability of foods, minerals, vitamins, and water can be addressed through zoning and public services, and awareness and culture can be impacted by meal planning education, economic interventions, and food safety preparation methods (DeMattia & Denney, 2008; Glanz & Sallis, 2006). Disparities in access to healthy foods have been identified, particularly in the United States (Morland & Evenson, 2009).

The role of P&R agencies in community nutrition availability and education has not been clearly defined. Some options may include educational after-school classes and camps, food policy for all P&R programs and vending, and providing spaces to increase availability of fresh foods, such as community gardens and farmers' markets. Many cities such as Chicago, Seattle, New York, and several of the Delphi panel agencies in this study have adopted citywide healthy vending policies. Although there are some indications of success, the evidence highlighting the effectiveness of such policies in altering the food and beverage environment in community P&R settings is minimal at this point (Narain, Mata, & Flores. 2016).

Obesity. Obesity is not a primary focus for many P&R agencies, and it is also a complex topic to address. Obesity often is an outcome used as a measurement related to health and often viewed as a subset of the PA and nutrition equations, as it is related to energy consumption, expenditure, and resultant energy balance (Papas et al. 2007). The literature indicates that obesity is increasingly a topic for community attempts at systematic intervention, and it is often seen as one of the greatest health threats currently facing the United States. Obesity contributes significantly to a variety of serious diseases including heart disease, diabetes, stroke, and certain cancers, as well as poor general health and premature death (CDC, 2014b; Finkelstein, Trogdon, Cohen, & Dietz, 2009; Sallis et al., 2014; Wetmore & Mokdad, 2012). Equity in communities also has a role in obesity, as the prevalence of obesity is typically lower in areas that have supermarkets and higher in area with only small grocery stores or fast food restaurants. Studies show that types of food stores and restaurants influence food choices and, subsequently, diet-related health outcomes (Morland & Evenson, 2009).

Although there are signs of potential improvements in some populations in the U.S., such as early childhood (Ogden et al., 2016), obesity among older youth remains a very serious problem (CDC, 2016). Various intake habits specifically influence obesity. For example, research findings support the importance of promoting regular breakfast consumption among adolescents, as typically breakfast-eating frequency declines through adolescence and has been inversely associated with body weight in cross-sectional studies, (Bruening, Larson, Story, Neumark-Sztainer, & Hannan, 2011). In addition, research has indicated a potential correlation drinking between sugar-sweetened beverages, eating meals at home with family or in other settings, and other factors around consumption and youth obesity (Cordain et al., 2005). Papas, Alberg, Ewing, Helzlsouer, Gary, and Klassen (2007) built upon several previous studies to portray the effects of the built local environment on body mass as shown in the following model in Figure 2.

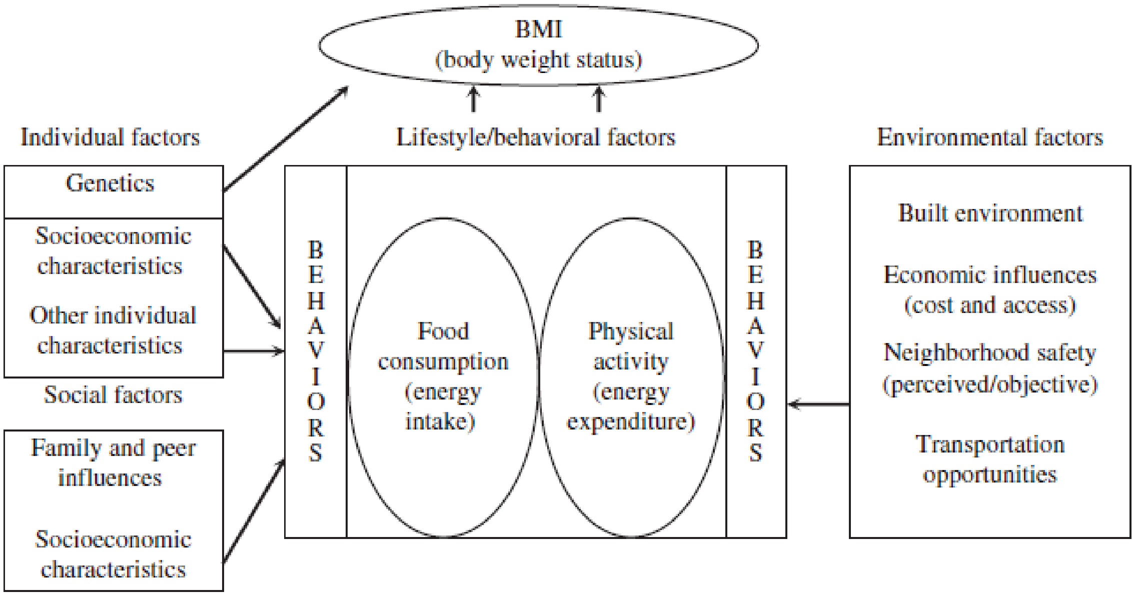

BMI
(body weight status)
Individual factors
Genetics
Socioeconomic characteristics
Other individual characteristics
Social factors
Family and peer influences
Socioeconomic characteristics
Lifestyle/behavioral factors
BEHAVIORS
Food consumption (energy intake)
Physical activity (energy expenditure)
BEHAVIORS
Environmental factors
Built environment
Economic influences (cost and access)
Neighborhood safety (perceived/objective)
Transportation opportunities

Figure 2. Ecologic model - Built environment to PA, diet, and body weight (Adapted from Papas et al., 2007)

Although there may be some recent leveling off of rates of obesity in U.S., over the past four decades, the prevalence of obesity has more than tripled for youth aged 6-11 years and more than doubled for youth aged 12-19 years (CDC, 2014b, Ogden et al., 2016). If youth become overweight, there is a high likelihood they will remain so as adults. Research shows that the current generation of youth are the first that will most likely have a shorter lifespan than their parents primarily due to the effects of being overweight or obese (Compton & Kim, 2013; Olshansky, 2005). As stated by Compton and Kim (2013),

> In 2007, about one-third of 10-to-17-year-olds were overweight…50% of obese children and 80% of obese adolescents remain obese as adults. If kids have two obese parents, they have an 80% chance of being obese themselves. That’s important to understand because as more obese adults become parents, it creates a reinforcing loop and there will be more obese children. (p.1)

When this pattern continues into adulthood, as it often does, it can lead to an unprecedented rate of premature death and disability, diminished workplace productivity, and staggering financial repercussions for families, insurers, health care providers and society. In the short-term, poor nutrition and sedentary lifestyles cause serious health issues, lower self-esteem, may lead to social and psychological problems, and contribute to poor academic performance (Fletcher, 2010).

Current high prevalence of childhood obesity has been shown to be related to a low level of PA and an abundance of sedentary pastimes in youth (Tremblay et al., 2011). In a systematic literature review, Van der Horst, Paw, Twisk, and Van Mechelsen (2007) found that for adolescents (age range 13 - 18), positive associations with physical activity were found for gender (male), parental education, attitude, self-efficacy, goal orientation/

motivation, physical education/school sports, family influences, and friend support. Ethnicity (Caucasian), socioeconomic status, and parental education were found to be inversely associated with adolescent sedentary behaviors. As discussed in previous sections, as community level P&R agencies can effect PA and nutrition, they can have a resultant effect on obesity within the community overall.

Body Mass Index (BMI). To measure levels of body size relative to weight or obesity, typically a measurement of Body Mass Index (BMI) is used. Relative to this study, the inclusion of BMI as a relevant potential measurement tool related to the nutrition and PA factors is appropriate. Although this type of measurement can be difficult to measure accurately (see later sections on community measurement tools), it is a commonly accepted quantitative tool that help agencies track and measure their progress for these factors in a community realm.

Limitations exist related to using BMI as a measurement tool. It is not always an accurate predictor of body fat percentage in some portions of certain ethnic groups and especially elite athletes with high muscle to fat ratios), but it remains a common and accepted measure of body weight status form most populations (CDC, 2014b), and continues to be the best available mechanism available for assessing overall body mass in large study populations. The national categories for weight classifications typically include categories (underweight; healthy weight; overweight; and obese) as established by the CDC (2014). BMI can be is calculated from height and weight using the using the standard BMI percentage calculation of: $\textit{weight (lb)} / [\textit{height (in)}]^2 \times 703 = \textit{BMI}$ (CDC, 2014b). BMI is calculated the same way for youth and adults. However, standard youth classification charts indicate slightly different ranges for normal, overweight, and obesity for youth to accommodate the variability of younger bodies. Sample BMI charts are available online from the CDC (2014).

Transportation and Access

In many communities, addressing health factors from a systems standpoint is not an issue of simply whether or not they have enough parks, trails, recreation centers, or programs to help improve health. It may be an issue that people do not have the ability to get to these types of amenities. This is especially true for those who cannot or do not drive (youth and older adults), or those with lower incomes that cannot afford traditional transportation options. Amenities may be too far away to walk, there may be barriers such as major roads and highways or waterways, or there may not be adequate alternative transportation. Addressing community transportation and access to amenities can be a key issue or barrier when addressing preventive health factors. This can be a just physical amenities or systems layout issue, or it can also be cultural in nature.

In the U.S. cultural shifts in many communities, such as pride in not having to walk or not having to use public transportation (sometimes viewed as “dirty”), have led to many feeling that “having to walk” is beneath them (Popkin, 2008). This is especially true for lower income populations who view upward mobility as freedom to escape PA and show others they are not in poverty. This is keenly correlated to some of the disparities of socio-economic status (SES) discussed in later sections.

Results across the various studies have shown that participation in PA is positively associated with publicly provided recreational infrastructure (access to recreational facilities and schools) and transport infrastructure (presence of sidewalks and controlled intersections, access to destinations and public transportation). At the same time, transport infrastructure (number of roads to cross and traffic density/speed) and local conditions (crime, area deprivation) are negatively associated with participation in PA (Davison and Lawson, 2006; McGrath, Hopkins, & Hinckson, 2015). Quite often, the intended changes in community infrastructure designed to make a community feel safer or quieter, such as the use of cul-de-sac patterns for street layouts, have had the unintended effect of reinforcing sedentary behaviors and creating barriers to walking and biking for residents (Lewyn, 2016). For example, only 18% of neighborhoods in American metropolitan areas are considered *walkable* using www.walkscore.com. Even in some of the most transit-oriented metropolitan areas, many neighborhoods are not very walkable. The most walkable region in the U.S. is considered to be New York City, where 52% of neighborhoods are walkable. However, almost 80% of suburban neighborhoods are not (Lewyn, 2016). In rural communities, the distance is often just too far.

Locals P&R systems can address the physical layout, walkability, cultural education, and the policy sides of these changing patterns related to transportation, by improving access to safe trails and sidewalks, along with working with local transportation departments to enhance availability, timeliness, and cleanliness of public transportation, and removing barriers to access. This may also have important benefits for pollution control and climate change concerns as well as increasing community expended PA (Ng & Poplin, 2012; Sallis et al., 2006). Recent focus on alternative transportation planning show slight increases in alternative travel modes in the U.S., but this rate of change needs to occur faster than currently projected. The rates need to continue towards the examples of European countries, such as the Netherlands and Denmark in order to have positive impacts on health (Pucher, Buehler, Bassett, & Danneberg, 2010).

How people use their time and how they use transportation are related, and these can be contributing factors to preventive health. Much of this aspect is also cultural or related to socio-economic status (SES). A major component of this transition has been the shift in all domains of activity and inactivity patterns and energy expenditure. Daily expenditure of time for various activities has been examined by researchers in the public health and epidemiological realms by using the sleep, leisure, occupation, transportation, home-based activities (SLOTH) model (Ng & Popkin, 2012; Pratt, Macera, Sallis, O’Donnell, & Frank, 2004), which incorporates the time and activity domains of sleep, leisure, occupation, transportation, and home-based activities. Some key factors are the industrialization of work and home, better availability of food and easier preparation, and availability of local public water, leading to lower levels of simple subsistence activities, but a primary factor is that as car ownership has increased, the distance walked per year has declined for both adults and youth (Ng & Popkin, 2012).

All of these aspects can be systematically measured and examined using current inventory and level of service analyses methods (Layton, 2016; Penbrooke, Compton, Peterson, Layton, Kim, & Moyers, 2014). Improving cultural views around daily PA and transportation options for local community residents use requires integrated policies that include different but complementary interventions and integrated infrastructure provisions. Policy actions, such as requiring enhanced bike/pedestrian plans, along with addressing constraints such as perceived and real barriers to walking, can be good steps to systematically help increase access to amenities that increase PA and enhance the other health factors in local communities (Epstein et al., 1995; Giles-Corti et al., 2005; GP RED – SRTP, 2016; NRPA, 2016; U.S. Department of Health & Human Services, 2015). P&R may not have the primary responsibility for transportation and access, but they certainly need to be at the table for these discussions, as transportation and access can have strong implications for the effectiveness of P&R preventive health strategies. P&R also typically manages and maintains off-street and loop trails, bikeways, and greenways in most communities.

Safety and Perceptions of Safety

The perception of a community or local environment as unsafe may lead to a reduction in participation in activities over time. This effect can be through perceptions or realities of crime or other unsanctioned behaviors, or related to traffic and transportation. For example, one barrier to activity participation may be the safety or perception of safety around how youth get to an activity location (Carver, Timperio, & Crawford, 2008; Friedan & Dietz, 2010).

Related to personal safety, research has shown that unsupervised OST is associated with various negative youth outcomes. Juvenile crime rates and other non-sanctioned behaviors occur most frequently between 3 and 6 p.m. in the afternoon, just after students are released from school and when they have nothing to do (Kremer, Maynard, Polanin, Vaughn, & Sarteschi, 2014; Newman, Fox, Flynn, & Christeson, 2000). Many studies suggest that during this time period, youth are most likely to become victims of crime, engage in destructive behaviors (graffiti, vandalism), be in or cause car accidents, and engage in risky behaviors, such as smoking, alcohol abuse, drugs, and sexual intercourse (Jacobs, Vernon, & Eccles, 2004; NIOST, 2015; Tebes et al., 2007).

In a study of more than 20,000 6th-8th grade students within 47 Massachusetts middle schools, researchers found that the presence of recreation spaces may be less influential on individual middle school youth PA compared to the safety of the spaces (Walls et al.. 2012). The researchers also indicated that future studies are needed to examine safety concerns related to PA in P&R areas. There is evidence to suggest that community-based OST programs, such as those often offered by P&R and other providers, can provide alternative positive activities that can help improve safety and health of youth (Godbey & Mowen, 2010; Kremer et al., 2014; NIOST, 2015). Although actual crime rates have not been strongly correlated with PA, fear of crime or perception of safety has been shown to be related to lower PA and outdoor recreation (Shinew, Stodolska, Roman, & Yahner, 2013).

Recommendations to address these issues typically include creating positive activation strategies, such as increasing programming, increasing police and adult presence in parks and other recreation and trails areas, along with positive messaging and creation of a safe culture. Safe spaces and asset design can be enhanced through including attention to *Crime Prevention through Environmental Design (CPTED)* principles (Armitage, 2014). Moreover, efforts must be made to reduce any gang problems. It is key to work closely with public safety officials to establish a strong positive community environment (Newman, Fox, Flynn, & Christeson, 2000).

Social Components and Parental Engagement

Research has indicated that the role of parents, including monitoring, negotiating of unsupervised time, and establishment parental trust, is correlated with establishing desired behaviors (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003). Although peer behavior typically becomes more important with age, the role of modeling and support by parents and guardians are still key determinants for PA behaviors by youth (Haines, 2007; Lederer, King, Sovinski, & Kim, 2015; Puhl, 2010). In addition, it is important to monitor the amount of bullying in recreation, parks, schools and the community. Often overweight and obese youth are more likely to be the victims and perpetrators of bullying behaviors than their normal-weight peers. Strategies to address this component can include training and program elements to incorporate identifying and working through these types of behaviors in all situations (Janssen, Craig, Boyce, & Pickett, 2004). Education and modeling related to family rules can greatly impact youth health factors related to eating habits, sedentary behaviors, and weight status (Lederer, King, Sovinski, & Kim, 2015).

Access to Nature and Health

Claims have long been made of the health-promoting effects of contact with nature, but these claims have only recently been subjected to rigorous scientific testing. Research has evaluated the role of the natural environment on physical health factors related to the effect of being in nature or greenspace. A strong body of evidence is now available, and various recommendations have been made using language and phrases such as treating “nature-deficit disorder” (Charles & Louv, 2009; Louv, 2005), forest bathing and nature therapy (Lee et al., 2012) and healing through “eco-therapy” (Delamont, 2016; Shanahan, 2015). As P&R agencies manage public parks, forests, and other types of greenspaces on a local level, this evidence related to the role they play is increasing in importance.

An array of studies ranging from rigorous experiments to large-scale epidemiological work have tied nature to health for other outcomes ranging from childhood obesity, to immune functioning, and rates of physician-diagnosed disease in adults, to longevity in older adults, and strong effects on stress reduction, cognitive functioning, and mental health. For example, Lovasi, Quinn, Neckerman, Perzanowski, and Rundle (2008) found that a higher number of street trees were associated with a lower prevalence of early childhood asthma. Also, a study of almost 250,000 Medicare beneficiaries in Florida found that enhancing greenness or vegetative presence may be effective in promoting health in older populations, particularly in poor neighborhoods, potentially due to increased time outdoors, physical, activity, and/or stress mitigation (Brown et al., 2016).

A substantial body of work has examined the contributions of provisioning, regulatory, and maintenance ecosystem services to urban health. For example, it has been shown that urban green space can regulate air and water pollution, mitigate urban heat effects and enhance access to nutritious fruits and vegetables (Jennings, Larson, & Jun, 2016). It has been suggested that decreased nature experience may help to explain the link between urbanization and mental illness. This suggestion is supported by a growing body of correlational and experimental evidence (Charles & Louv, 2009; Lee et al., 2012). There is also evidence that in rural settings, levels of nearby nature can moderate the impact of stressful life events on the psychological well-being of children (Wells, 2013; Wells & Evans, 2003).

Mental health is significantly related to access to nature and greenspace (Alcock et al., 2014; Bratman et al., 2015; Lederbogen et al., 2011; Lee et al., 2012; Wells, 2000). More than 50% of people in the world now live in urban areas, and by 2050, this proportion will be 70% (Lederbogen et al., 2011). Urbanization has been associated with increased levels of mental illness, but until recently it has not been yet clear why. (Alcock, White, Wheeler, Fleming, & Depledge, 2014; Bratman, Hamilton, Hahn, Daily, & Gross, 2015; Lederbogen et al., 2011; Wells & Rollings, 2012). Residential distance from parks has an impact, with the highest positive impacts on residents within short walking distance from a park, and the number of visits and physical activity minutes are significantly and independently related to distance (Sturm & Cohen, 2014).

Mental health policy has traditionally focused on individually-centered interventions. Just as health policy for preventable chronic illnesses has shifted attention to modifiable environmental determinants, population mental health may benefit substantially from systematic environmental interventions (Bratman et al., 2015; Lederbogen et al., 2011; Lee et al., 2012; Louv, 2005; Sturm & Cohen, 2014; Wells, 2000). Research has increasingly focused on the cognitive or attentional benefits of nature experiences. As noted by Wells (2000),

> A pattern seems to emerge from the literature. The pattern suggests that a child living in a place with more nature, with more restorative resources is likely to benefit with respect to his or her cognitive functioning or attentional capacity. (p. 5)

A substantial body of literature regarding adults that suggests that exposure to the natural environment, directly or through one's window view, is psychologically, cognitively, and/or physically beneficial (Ulrich, 1979; Ulrich, 1993; Wells, 2000; Wells & Donofrio, 2011). Moreover, evidence has accumulated to begin to answer questions about the dosage of nature needed to promote health (Bratman, Hamilton, Hahn, & Daily, & Gross, 2015; Kuo, 2010; Kuo, 2013; Kuo & Taylor, 2004; Shanahan, Fuller, Bush, Lin, & Gaston, 2015; Wells, 2000; Wells & Rollings, 2012). The evidence to date suggests that total exposure is important. All forms and quantities of exposure to greenspace appear to be helpful (Kuo, 2013).

Recent research indicates that access to and views of water, now referred to *bluespace* in literature, may have an even greater effect on reducing psychological distress (Nichols, 2014; Nutsford, Pearson, Kingham, & Reistma, 2016). Bluespace typically includes waterbodies (e.g. lakes, oceans, and rivers), and secondarily may include larger pools, and rarely includes smaller human-made features such as water fountains or sculptures. Nichols (2014) has compiled an extensive list of references related to the benefits of access to and from water, and refers to the mental and psychological benefits as *Blue Mind*. This area of research is newer but growing.

One mechanism of these benefits from nature might be the impact of nature exposure on rumination, a pattern of self-referential thought that is associated with heightened risk for depression and other mental illnesses. Evidence has shown that in healthy participants that a brief nature experience, such as a 45 to 90 minute walk in a natural setting, decreases both self-reported rumination and other negative pre-frontal brain activities, whereas a walk in an urban setting may not (Bratman, Hamilton, Hahn, & Daily, 2015). There may be a pathway by which nature experience improves mental well-being and evidence now suggests that accessible natural areas within urban contexts may be a critical resource for mental health in our rapidly urbanizing world (Bratman, Hamilton, Hahn, & Daily, 2015; Kuo, 2015; Lederbrogen et al., 2011; Lee et al., 2012; Wells & Evans, 2003).

From these insights into access to nature and appropriate dosages, recommendations have been suggested by researchers for addressing nature deficits at the population level. These include: add green everyday places and views; bring green spaces closer; bring green activities and events closer; make spaces and programs fit nearby users; make green spaces serve multiple activities and uses; support longer visits; reconsider barriers to use; help people start green or blue activities; and help people continue these activities (Kuo, 2013; Sturm & Cohen, 2014). However, conflicting studies have indicated that effects may not only be related to the distance to greenspace and bluespace but may also be related to finer qualitative aspects (Delamont, 2016; Layton, 2016b; Nichols, 2014; Saw, Lim, & Currasco, 2015). Although parks planners and researchers are used to assessing quantity of available land and water, proximity and accessibility, a measure of the quality of the space is often left out of the picture, in part because it is difficult to measure objectively, and because how it factors into larger urban questions is not well understood (Layton, 2016b; Saw, Lim, & Currasco, 2015).

Some findings suggest that poorly planned parks have the capacity to actually worsen the mental health outcomes in some places, effectively doing the opposite of one of their intended functions (Delamont, 2016; Saw, Lim, & Carrasco, 2015). The reason may be that in neighborhoods facing larger social issues like drug usage and crime, parks can simply serve as a place for these things to occur. However, that does not appear to be an argument against building parks and greenspaces in low-income neighborhoods. It just needs to be done in a way that is aware of the issues in the community and includes safe design aspects (Delamont, 2016, GP RED – SRTP, 2016; Rosenthal et al., 2009; Shinew, Stodolska, Roman, & Yahner, 2013; Walls et al., 2012; Wells, Evans, & Yang, 2010).

This section has provided just a brief overview of the benefits of nature and greenspace to health. An additional extensive annotated bibliography can be found through the Children and Nature Network (www.childrenandnature.org/research).

Tobacco Cessation

Although it is not currently widely represented in the literature, or typically thought of as a primary role for P&R agencies, some research suggests that P&R agencies may be able to play a positive role in addressing smoking prevention and cessation, especially among youth. In the United States, more than 600 municipalities have smoke-free parks, and more than 100 have smoke-free beaches (Leung et al., 2013). The National Recreation and Park

Association (NRPA) released typical objectives for an outdoor smoke-free policy that include protecting against secondhand smoke, supporting a normative message that smoking is harmful, motivating smokers to quit, and mitigating tobacco-related sanitation costs (Leung et al., 2013). The position statement (NRPA – Tobacco, 2016b) includes:

> Attitudes and opinions about the consumption of tobacco have shifted in recent decades, and scientific research has repeatedly confirmed the danger of tobacco use. As park and recreation agencies seek to improve public health, protect the environment, and uphold public trust, prohibiting the use or consumption of tobacco at our ball fields, recreation centers, parks, splash pads and walking trails will go a long way towards encouraging healthier lifestyles among the families and communities we serve. The benefits of a tobacco prohibition include:
>
> - Healthier recreational environments that promote physical activity, encourage personal development, and minimize exposure to tobacco use and secondhand smoke.
> - Less tobacco use and initiation among child and adult visitors at park and recreation facilities.
> - More public awareness about the dangers of tobacco use and secondhand smoke exposure.
> - Better health equity and fewer health disparities among visitors to park and recreation facilities.
> - Cleaner parks that contribute to a high quality recreation experience because they are free of tobacco, secondhand smoke and cigarette butts.

- Fewer carcinogens, toxic metals and poisonous gases from secondhand smoke and tobacco products that impact human health, worsen air quality and impair physical activity necessary to fully enjoy park and recreation facilities.
- Fresher air, smoke-free facilities and better respiratory health for all visitors to park and recreation facilities.

Reduction of Excessive Alcohol Consumption

This factor was not identified until later in the iterative literature research (it came up during the last stages of the Delphi panel and case study). P&R, as front-line elements of the local community system, may have a strong role around culture, availability, and educations around reduction of overconsumption of alcohol. Although it may be a controversial topic and research is limited at this time for providing specific evidence for P&R, informants noted that public P&R agencies are seeing an increased demand for alcohol sales at public events. Historically, many agencies have had policies that did not allow for alcohol due primarily to the known health impacts, and/or have other types of alcohol provision practices.

The literature indicates that in the U.S., alcohol consumption increased 7% from 2001 to 2013 (Dawson, Goldstein, Saha, & Grant, 2015). Dawson et al. found that during this period, the prevalence of drinking, volume of intake, frequency of drinking and prevalence of monthly heavy episodic drinking increased overall. The proportion of past-year drinkers among U.S. adults 18 and older rose from 61 to 66%, and mean volume of ethanol consumption increased by 26%. The increases were greater for women overall, and the increase in drinking prevalence was magnified among all race-ethnic minorities, whereas the increase in monthly heavy drinking was magnified only among Blacks (all relative to Whites).

In 2014, Stahre, Roeber, Kanny, Brewer, and Zhang examined how excessive alcohol consumption is a leading cause of poor health and mortality in the U.S. They found that among working age adults, 10% of all deaths were alcohol related, with an annual average of an annual average of 87,798 in 2010, and stated that they believed this average number and years of life lost was underestimated. Stahre et al. supported community policies recommended by the CDC to reduce local community consumption, such as increasing prices through taxes, increasing vendor liability, and reducing availability. Findings indicate the need for continued systematic and expanded efforts to prevent chronic and episodic heavy alcohol consumption in communities. Given the across-the-board increases in alcohol consumption in recent years, policy efforts that address drinking at the community population level are supported (Dawson et al., 2015; Stahre et al., 2014).

This health factor may be best addressed by P&R agencies through proactive policies and awareness campaigns. One such campaign that has reported success is the "That Guy" campaign, created and implemented to help reduce military alcohol consumption by the U.S. Department of Defense (www.thatguy.com). The campaign states up front that That Guy is, "Anyone (yes, ladies, you too!) who, after drinking excessive amounts of alcohol, loses control of self or situation with humiliating or compromising results." This is to help better create a culture of responsible consumption. In addition, if a P&R agency is committed to improving preventive public health, review of alcohol policies and vending for events, concerts, farmer's markets, sponsorship sales, and programs may lead to better alignment of practices with those goals.

Gaps in the Existing Theoretical Basis – Systems Theory for P&R

A goal of this dissertation was to improve the knowledge base around improving PH in a local community through P&R by addressing the identified factors. In doing so, it was necessary to gain a greater understanding of the complex adaptive systems and organizational elements involved in both causing and solving public health problems (Leischow et al., 2008). Because of the complex system of nutrition, physical activity, and various levels of other individual, intrapersonal, community, and societal factors that affect health, the literature indicated that researchers likely need to use a systems-oriented approach and related theory to address the multiple factors and levels of factors related to health (Compton & Kim, 2013; Huang, Drewnoski, Kumanyika, & Glass, 2009; Jennings, Larson, & Jun, 2016; Lieschow & Milstein, 2006). For issues as complex as trying to position P&R agencies as preventive PH providers, a systems approach can help organize and prioritize interventions for those agencies. The following sections focus on the key theoretical basis and related approaches, along with identified preventive factors, organizational elements, potential strategies, and outcomes assessment related to improving health in a community.

Systems Theory Approach and Systems Thinking

Community management activities, such as P&R administration, are complex activities. Many elements are involved, so at times it seems almost impossible to describe development in a clear and organized manner. Although it is indeed a very complex field, there is a theoretical basis which can be used to identify many of the components and processes involved in this work. This way of organizing information has been called *systems theory*. General system theory, which was initially conceptualized by Ludwig von Bertalanffy (1968), provided an analytical framework which can be used to describe some of the many factors involved in community development and management. This theory has evolved and been adapted for many business and organizational management aspects (Stermann, 2000). In recent years it has been applied to health systems (e.g., De Savigny & Adam, 2009; Leischow & Milstein, 2006; Leischow et al., 2008; Mabry, Marcus, Clark, Leischow, & Mendez, 2010; Papas et al., 2007; Sarriot & Kouletio, 2015; Trochim, Cabrera, Milstein, Gallagher, & Leischow, 2006).

Some of the concerns in community development, such as assessing power and influence, resource allocation, understanding the dynamics of inter-group relationships, and considering the changes involved in planning development activities, can be understood and described using systems theory. Terms such as systems and sub-systems, closed and open systems, system boundaries, the transfer of energy or influence across boundaries, feedback and system balance (or homeostasis) can be used to clarify what sometimes seems to be a bewildering array of information involved in community development work (Sarriot & Kouletio, 2015). A community system is based on the interaction of a variety of variables in drivers, attitudes, access, awareness, need, available resources, and delivery structures (Stermann, 2000).

Varieties of national and regional level governmentally sponsored initiatives are working to identify the ever changing factors and components within systems approaches to preventive PH. Instead of focusing on developing single programs or sites to address specific health issues, community-based preventive approaches need to concentrate on mechanisms for strengthening the abilities of individuals, social networks, organizations, and policies within the community to collectively address common problems (Casey, Eime, Payne, & Harvey, 2009; Frumkin & Eysenbach, 2003; Khan et al., 2009; McLeroy, Kegler, Steckler, Burdine, & Wisotsky, 1994; Umstattd Meyer et al. 2016). A systems approach helps to empower the individuals and communities to develop and implement appropriate local strategies to alleviating health problems (Arai & Pedlar, 1997).

The various fields of environmental sociology, social ecology, public health, planning, and related disciplines have been integrating s*ystems thinking*. This term is often used synonymously for analysis using systems theory in the literature, as related to ecology and human well-being. However, systems thinking is approached differently from different disciplines, and it can be more accurately described in social science application as the common approach that allows for stakeholders within a given system to have a shared agenda, or basis for application of the theory at work within that system (Stroh, 2015).

Related to P&R, the systems terminology has been often used in the literature to refer to *ecosystems*. This type of language often used by U.S Federal agencies like the Environmental Protection Agency (EPA, 2014), and the Centers for Disease Control (CDC, 2016). In this research it was helpful to explore the example of the frameworks of ecosystems in general as a basis. Ecosystems are the life-sustaining benefits we receive from nature. These ecosystem services provide components that are important to environmental and human health and well-being (Jennings, Larson, & Jun, 2016; U.S. EPA, 2014). Components of ecosystem services that contribute to health include clean and adequate water, food, recreation, cultural and aesthetic amenities, contributions to climate stability, habitat and biodiversity, and clean air. Interactions take place on multiple scales (e.g., physical sites, air and watersheds, and regional influences) and settings (e.g., rural, urban, suburban) and at municipal, state, and regional levels.

Local community levels can fit into overall systems to address PH factors at a local level. Environmental assets (components of a system) and programs may facilitate the performance of health enhancing activities. An example is the creation of goals and strategies related to determining access to resources such as safe exercise facilities, nature, trails, and safe streets (Frumkin & Eysenbach, 2003; Henderson & Ainsworth, 2003). The design of neighborhoods and communities is also important. Compton and Kim (2013) introduced the use of STELLA® Modeling software to depict how P&R agencies may address creating a healthy community for ages 10-14 using systems thinking. Figure 3 depicts an example from Compton & Kim for such a system thinking model, with the adjacent text stating,

> The model is very complex and can be huge…STELLA® has made it easy to break the model into five modules that are consistent across public entities but unique in how they work together. Different agencies or organizations can tailor the model to reflect their use of funds, staff deployment, specific policies, or other variables. Modeling how money is used for…programs, funding sources and capital investment, populations of ages 10 – 14 year olds, engagement in physical activity, and health care costs, the modules work together to form a surveillance and management system for a healthy community.

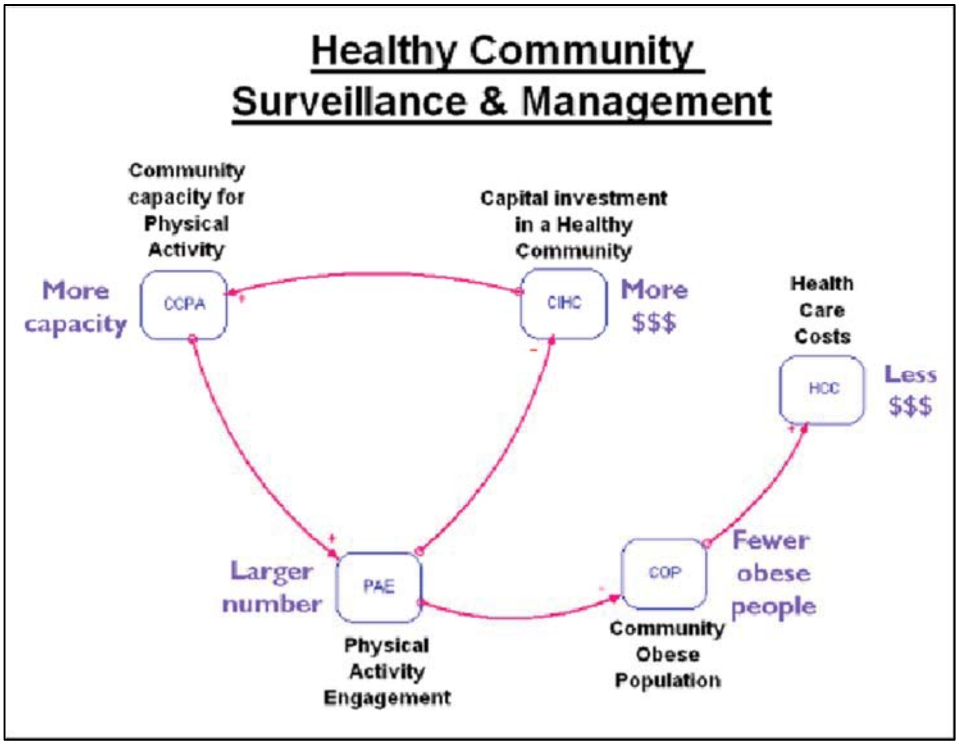

Healthy Community Surveillance & Management
Community capacity for Physical Activity
More capacity
CCPA
Capital investment in a Healthy Community
CIHC
More $$$
Health Care Costs
HCC
Less $$$
Larger number
PAE
Physical Activity Engagement
COP
Community Obese Population
Fewer obese people
+
+
-
-
+
+

Figure 3. Example of a systems thinking model for P&R addressing community health (Compton & Kim, 2013) used with permission.

Social Ecological Model (SEM) and Theory

Relative to health findings in the literature, another type of system approach framework that is often used by the PH realm and increasingly in P&R research is the *Social Ecological Model* and its related theoretical basis. Services, environmental assets, and facilities typically need to be addressed within a systemic context of causes, effects, extent, prevention, and/or reduction of factors at a variety of socio-ecological levels (Casey, Eime, Payne, & Harvey, 2009; Golden & Earp, 2012; Hipp, Adlakha, & Chockalingam, 2013; Jennings, Larson, & Jun, 2016).

The Social Ecological Model (SEM) and the related ecological systems theories have their roots in a simple framework that understands behavior as a function of both individual factors and the environments in which individuals live. Building on the work of Urie

Brofenbrenner (1977), who had previously articulated a multilevel framework, McLeroy, Bibeau, Steckler, and Glanz (1988) offered five levels of influence specific to health behavior: intrapersonal factors, interpersonal processes and primary groups, institutional factors, community factors, and public policy. Social ecological models have since been used by many researchers to recognize individuals as embedded within larger social systems and describe the interactive characteristics of individuals and environments that underlie health outcomes (Golden & Earp, 2012; Hipp, Adlakha, & Chockalingam, 2013; Sallis, Owen, & Fisher, 2008; Stokols, 1992). An application of the SEM is built on the assumption that health behaviors, such as PA, are driven by factors unique and internal to individuals, social and interpersonal interactions, and broader environmental characteristics. As individuals, we have internal characteristics that influence, and are in turn, influenced by our environment – social, physical, economic and political. Our individual beliefs and the environment in which decisions are made can both directly affect behavior, which in turn will impact health. When we engage in certain behaviors, our experiences influence our beliefs about them, and sometimes impact the environments in which we live. Figure 4 provides an example of a SEM as applied to PH.

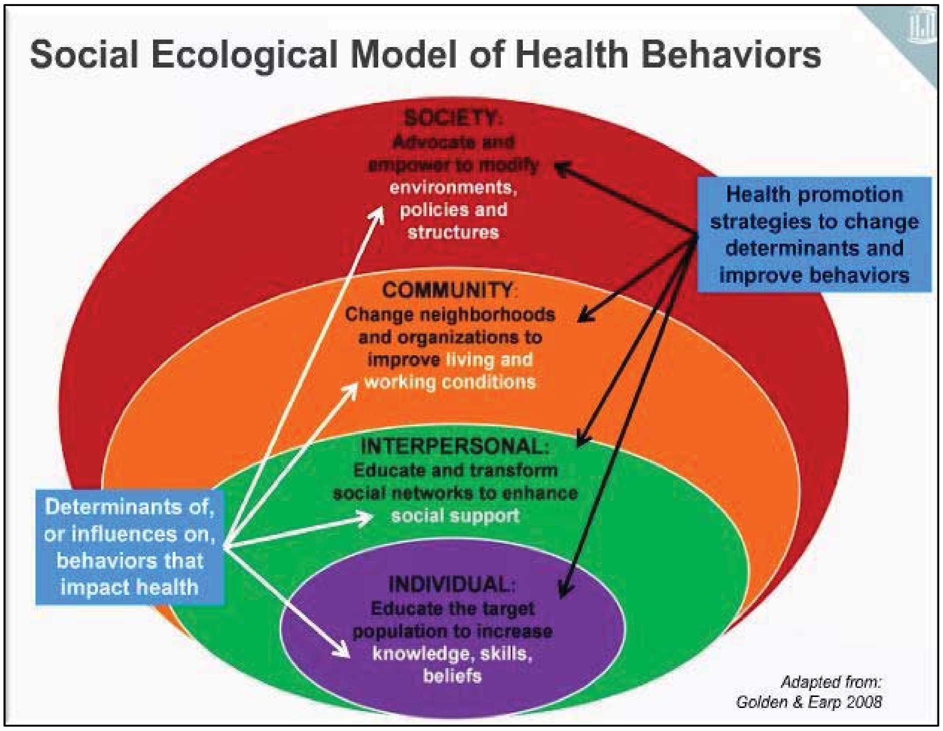

Social Ecological Model of Health Behaviors
SOCIETY:
Advocate and empower to modify environments, policies and structures
COMMUNITY:
Change neighborhoods and organizations to improve living and working conditions
INTERPERSONAL:
Educate and transform social networks to enhance social support
INDIVIDUAL:
Educate the target population to increase knowledge, skills, beliefs
Health promotion strategies to change determinants and improve behaviors
Determinants of, or influences on, behaviors that impact health
Adapted from:
Golden & Earp 2008

Figure 4. Social ecological model as applied to health
(Golden & Earp, 2015, *personal communication, used with permission*)

Exploring further the Role of Local Parks and Recreation Agency Systems

Design of *local* environments at a community level on the SEM have been shown to have the potential to contribute substantially to health, especially through physical activity (Sallis et al., 2006; Sallis et al., 2015) as shown on Figure 5. There has been an increase of evidence connecting public parks and trails to active living behaviors at a community level (e.g., Cohen et al., 2013; Hitchings, 2013; Veitch, Ball, Crawford, Abbott, & Salmon, 2012; Wolf & Wohlfart, 2014). The literature has provided evidence that access to and use of public P&R amenities and programs can help improve health outcomes (Godbey & Mowen, 2010; Kaczynski & Henderson, 2008; Kanters, Bocarro, Edwards, & Floyd, 2014; Shores & West, 2010), primarily through access to activities, programs, and locations. As concern has grown over the rise of health epidemics related to sedentary lifestyles, the promotion of health now often turns to public P&R as cost-effective places for encouraging healthier community behaviors (Burns, 2016).

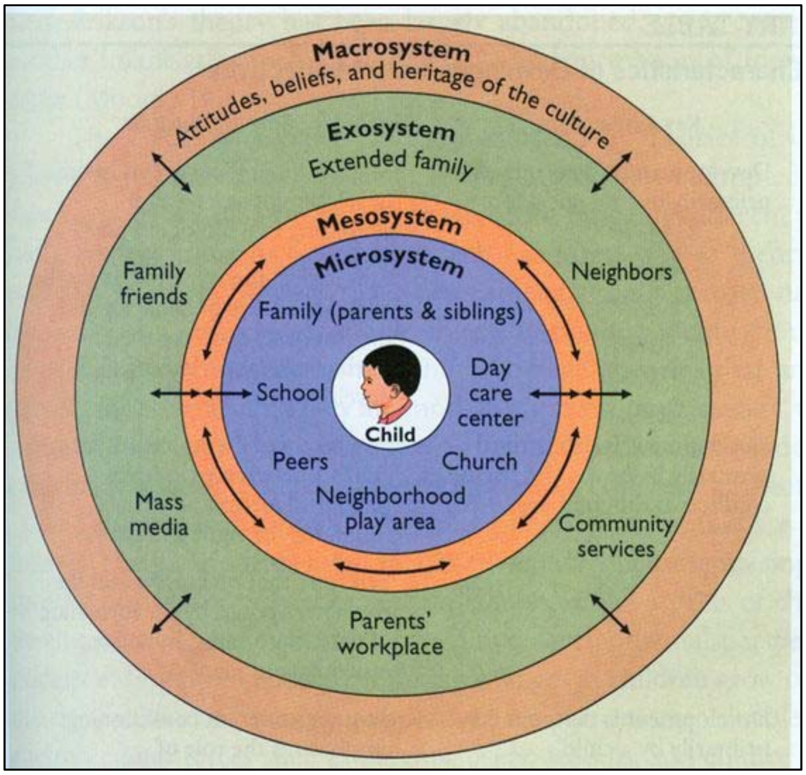

Macrosystem
Attitudes, beliefs, and heritage of the culture
Exosystem
Extended family
Mesosystem
Microsystem
Family friends
Neighbors
Family (parents & siblings)
School
Child
Day care center
Peers
Church
Neighborhood play area
Mass media
Community services
Parents' workplace

Figure 5. SEM showing local community services.
(Adapted from Bronfenbrenner, 1977, 2005; Sallis et al., 2006)

In local community planning for P&R, planners typically look to the public agency's charter and taxing boundaries for their definition of their community. Usually in the U.S., local community means city, town, township, or district with their corresponding geographic boundaries. Counties can be considered local, especially if they have smaller populations, few smaller units of government within them, or those more rural in nature, or regional, if they have larger multi-jurisdictional overlays, or encompass many different types of planning and zoning categories (Edwards, Jilcott, Floyd, & Moore, 2011; Giles, Gabris, & Krane, 1980). Counties often operate as overlay regional systems when there are other local jurisdictions (e.g., cities, towns, townships, districts) offering local services within them, or they may be the primary governing local jurisdiction for smaller counties with few towns or other services in very rural or undeveloped areas.

However they are governed or their jurisdictions, there has been substantial research and measurement of perceived or real benefits from site-specific design attributes, or participation and use of specific local community public spaces such as parks, trails, and facilities (Bedimo-Rung, Mowen, & Cohen, 2005; Chiesura, 2004; Kaczynski, Potwarka, & Saelens, 2008; Mowen et al., 2008). Some of these programs, spaces, and education may be offered through the schools (Bocarro, Kanters, Cerin, Floyd, Casper, Suau, & McKenzie, 2012; Casper, Bocarro, Kanters, & Floyd, 2011; Kanters, Bocarro, Filardo, Edwards, McKenzie, & Floyd, 2014). Others are offered through public P&R agencies, alternative for profit and non-profit providers, and faith-based organizations (Bedimo-Rung, Mowen, & Cohen, 2005; Burns, 2016; Penbrooke, Compton, Peterson, Layton, Kim, & Moyers, 2014). The proportion of who is providing these services varies in each community.

An element of note is that the purview of typical offerings by local P&R agencies have not been specified directly by many systems thinking researchers, but typically are generally covered under the factors listed under national/regional, community/local, work/school/home, and individual factors. Although leisure activities and spaces are identified, the role of P&R agencies is often not directly identified, but assumed to be part of what is shown as a subset of Public Safety and potentially related to Schools. Given the large number of programs and interventions to choose from, and the constant limits on available financial resources, local public administrators (specifically P&R departments) are challenged to identify the most appropriate interventions for their community (Godbey & Mowen, 2010).

Most national programs and campaigns to improve health factors focus on individual or interpersonal change, however P&R agencies, by their governmental structure and funding mechanisms, are often focused on community/societal-level interventions and evaluation. (CDC, 2016; Godbey & Mowen, 2010; Let's Move, 2014). Components of the local P&R system that provide health benefits are also varied (Powell, Slater, Chaloupka, & Harper, 2006; Penbrooke & Layton, 2007). Nutritional availability, familial environment and culture, adequate medical care, social and security, and transportation all play a strong role. However, typically access to various types of spaces to be active are needed, such as parks, recreation facilities, trails, programs, and other providers (e.g., private, non-profit, faith-based organization). I created Figure 6 to depict the roles of these various components of P&R within a systems thinking approach.

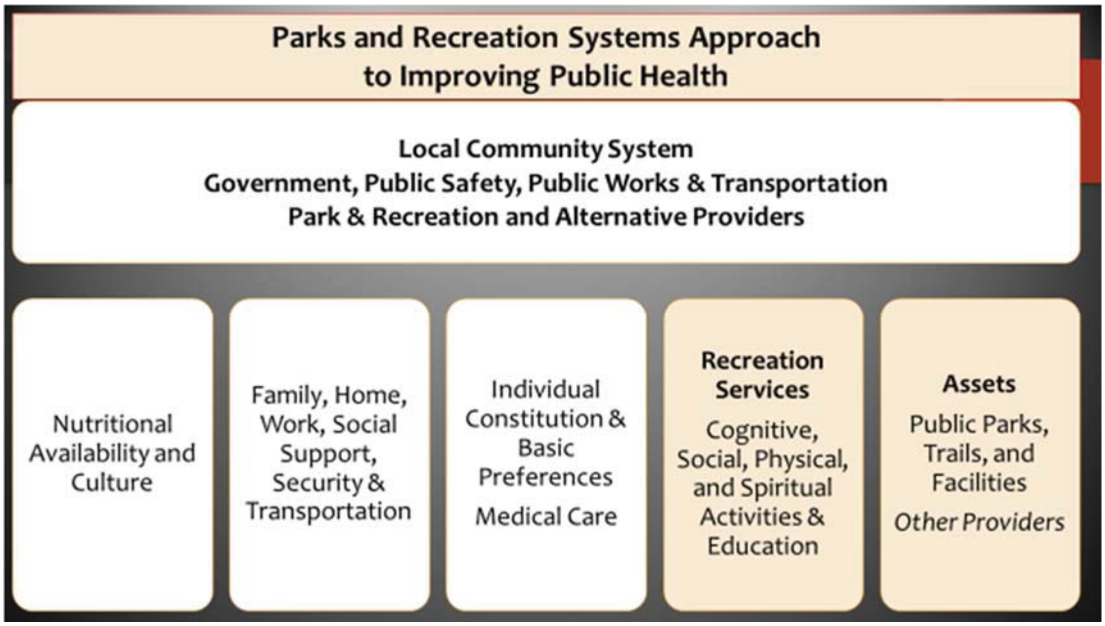

Parks and Recreation Systems Approach
to Improving Public Health
Local Community System
Government, Public Safety, Public Works & Transportation
Park & Recreation and Alternative Providers
Nutritional Availability and Culture
Family, Home, Work, Social Support, Security & Transportation
Individual Constitution & Basic Preferences
Medical Care
Recreation Services
Cognitive, Social, Physical, and Spiritual Activities & Education
Assets
Public Parks, Trails, and Facilities
Other Providers

Figure 6. P&R role in improving health

Limitations of Community Systems Approaches

Challenges and gaps remain in this P&R system approach. One limitation to local P&R services is lack of or inequitable distribution of resources. If there is an overlay system situation, there may be gaps or duplications in service provision with other governmental or alternative providers (Burns, 2016; Edwards, et al., 2011; Penbrooke & Layton, 2007). Most of the research on P&R participation and spaces has been done at a specific *site* level, and not at a holistic *community systems level* of analysis of factors related to health (Compton & Kim, 2013; Huang, Drewnowski, Kumanyika, & Glass, 2009). A large amount of research has been done using quantitative methods to examine proximity and specific site attributes, with less attention given to further qualitative aspects related to site use. (McCormack, Rock, Toohey, & Hignell, 2010). This appears to be changing. A mixed-methods approach is likely needed to garner a comprehensive assessment in any given community system to identify which components are priorities and may yield the greatest return on investment (Creswell, 2013; Cyr, 2016; Roe, Aspinall, & Ward Thompson, 2016).

In recent years, various agencies and researchers have been trying to harness systematic approaches in the literature to improving community-health level outcomes, especially for improving physical activity and/or reducing obesity (e.g., ALR, 2016; CDC, 2016; Khan et al., 2009; Umstaddt Meyer et al., 2016). The challenges and limitations now lie within the implementation and measurement (Burns, 2016; Khan et al., 2009; Umstaddt Meyer et al., 2016). Khan et al. (2009) noted seven such limitations in their comprehensive report for the CDC on Common Community Measures for Obesity Prevention (COCOMO) (CDC, 2016; Umstaddt Meyer et al., 2016).

1. Recommended community strategies are usually based on available evidence, expert opinion, and transparent documentation. However, typically the suggested measurements have not been validated in practice.

2. To allow local governments to collect data, the suggested measurements typically assess only one aspect or dimension of a more complex environmental or policy strategy. Single indicators usually are inadequate for achieving in-depth community-wide assessment of complex strategies, but they can be appropriate tools to assess local government's attention.
3. Typically by design, proposed measurements for public systems are confined to those that are under the authority of local governments, without including the important role that schools, private, and non-profit collaborators play within that system.
4. Many of the recommended strategies or suggested measurements have more relevance to urban and suburban communities than to rural communities that typically have limited transit systems, sidewalks, and/or local government facilities. Many of the measurements require GIS capability; this technology might not yet be available in certain rural communities.
5. Many suggested measurements require specific quantitation (e.g., the number of full-service grocery stores per 10,000 residents for nutritional analysis). Currently, no established standards exist by which communities can assess and compare their performance on these measures. As was learned from the NRPA creation of guidelines for park level of service analysis in the 1980s (Lancaster, 1983), data collected from local governments reporting on these measurements can lead to the inadvertent emergence of perception of a recommended *standard* rather than a comparative *benchmarking number* (Penbrooke & Layton, 2007*)*.

6. Many proposed policy-level measurements have their own limitations. For example, although some measurements have been developed in consideration of local governments, a number of policies might be established at the state or federal level.
7. Policy measurements may not be sensitive to change or variability over time. For example, after a community has implemented a desired policy, several years may be needed before any verifiable change can be detected, quantified, and reported.

Knowing that a policy exists does not reveal the extent to which that policy is actually implemented or enforced, if at all. Although implementation of and adherence to policies are critical to their impact, measuring the implementation of policies requires a level of assessment that might not be generally feasible for most local governments. Despite these limitations, attention to policy and/or systems analysis can serve as a catalyst for discussion and consideration with community members, staff, and elected governing officials.

Conceptual Framework - Knowledge to Action Flow

Research has indicated that when knowledge flow is effective, system performance and systems level change is possible (Lieschow et al., 2008; Stermann, 2000; Trochim, Cabrera, Milstein, Gallagher, & Leischow, 2006). Related to but separate from local community systems thinking approaches, the PH literature indicates that since the early 2000’s, PH researchers have been exploring various frameworks to apply to the translation of scientific knowledge into action to improve the public’s health (Graham et al., 2006; Wilson, Brady, & Lesesne, 2011). The National Institute of Health (NIH) has tested and suggested a variety of approaches to create and implement transdisciplinary-systems principles and methods for the discovery, development, and delivery of PH program and policy interventions within a research-to-practice paradigm (Lieschow et al., 2008; Mabry, Marcus, Clark, Leischow, & Mendez, 2010). This work has identified four priority areas that together serve as a synergistic foundation for understanding and improving the PH from a systems perspective.

1. *Managing systems knowledge* - The management and transfer of shared knowledge for interaction between stakeholders in a systems environment.
2. *The power of transdisciplinary and multidisciplinary systems networks* - Networks are the backbone of a system that links diverse stakeholder individuals and groups.
3. *Methods for analyzing complex systems* - There is strong promise in a variety of systems approaches, including formal system-dynamics modeling techniques and group processes that harness the problem-solving capabilities of multiple stakeholders.
4. *Systems organizing* - Methods of organization can be seen as as a continuum from formal organization in the traditional sense to self-organizing partnerships or collaborations.

The Knowledge to Action (K2A) Framework. Based on a variety of systems research adapted to the PH realm, the Centers for Disease Control has adopted the *Knowledge to Action Framework (K2A)* to conceptualize work across disciplines and content areas (CDC, 2014a). This organizing framework helps to depict the high-level processes necessary to move from discovery into action through translation of evidence-based programs, practices, or policies. The CDC K2A Framework as shown in Figure 7 identifies three phases (research, translation, and institutionalization) and the decision points, interactions, and supporting structures within the phases that are necessary to move knowledge to action.

Evaluation undergirds the entire K2A process. Development of the K2A Framework helps bring together system elements of research and practice, and highlights the importance of planning for translation, attending to supporting structures, and evaluating the public health impact (Wilson, Brady, & Lesesne, 2011). A variety of the national initiatives described in the Results and Conclusions sections (e.g., Alliance for a Healthier Generation; National Afterschool Alliance [NAA]) are using the K2A framework to help organize and recommend strategies and action plans.

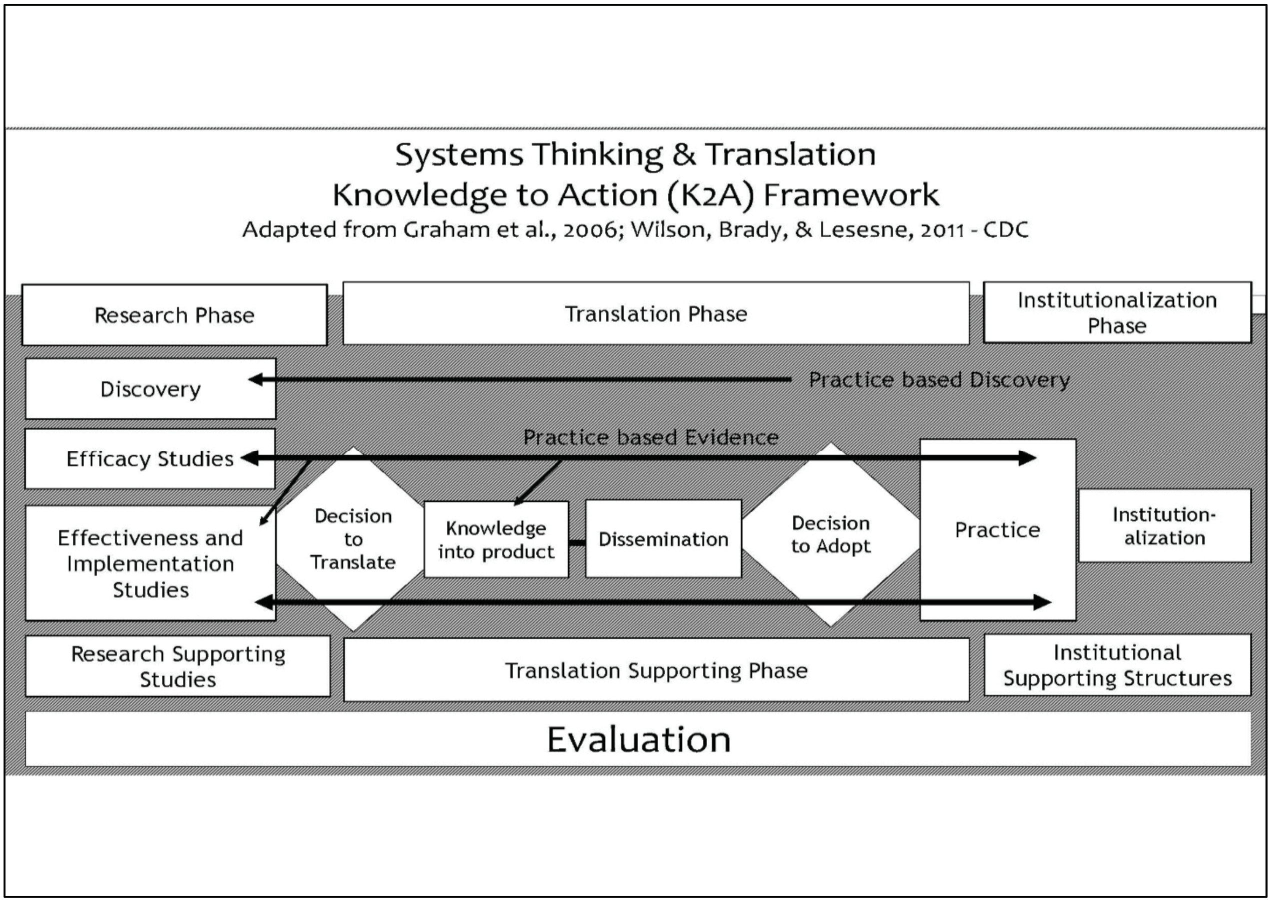

Systems Thinking & Translation
Knowledge to Action (K2A) Framework
Adapted from Graham et al., 2006; Wilson, Brady, & Lesesne, 2011 - CDC
Research Phase
Translation Phase
Institutionalization Phase
Discovery
Practice based Discovery
Practice based Evidence
Efficacy Studies
Effectiveness and Implementation Studies
Decision to Translate
Knowledge into product
Dissemination
Decision to Adopt
Practice
Institution-alization
Research Supporting Studies
Translation Supporting Phase
Institutional Supporting Structures
Evaluation

Figure 7. Adapted Knowledge to Action (K2A) Framework from CDC and NAA

Potential Strategies - Relevant Organizational Elements and Campaigns

Related to addressing the factors, and as sub-elements of the system and systems thinking approach, the literature identifies a variety of organizational, management, and planning aspects, along with national initiatives that are being utilized to help address the health factors by P&R agencies. The Delphi panel identified that organizational culture was one of the key elements relative to success and prioritization for the health factors, especially having strong leadership that had made the decision to address the factors, and carried that decision forth, with a strong organizational vision. In addition, various national recognitions and accreditation, although not seen as always necessary, were seen by the Informants as indicators that an agency's leadership is paying attention to best practices in planning for P&R. This was sometimes expressed as a constraint for smaller agencies who may not have the internal resources to pursue recognitions. These next sections include primary themes from the literature that help to inform the potential strategies, tools, and other considerations for potential application in practice to address the factors.

Organizational Culture & Seeking of National Recognitions

It appears that organizational culture is a key element determining whether or not a P&R agency addressed preventive health factors, especially at a systems level. Across the U.S., more than 9,000 local P&R departments and organizations manage more than 108,000 public park facilities and 65,000 indoor facilities (Godbey & Mowen, 2010; Penbrooke, 2009). These organizations address the health factors in different ways (and some not directly at all). A lot of how or if they focus on these various areas depends on organizational culture, leadership, resources, and history.

Literature on organizational culture of P&R agencies is somewhat sparse, but in the field of P&R some researchers are trying to recognize best practices and create systems that identify and teach them. Some literature has attempted to correlate organizational culture with the attempts to seek accreditation and other national recognitions (Farland, 2010). In the U.S. there are two identified nationally recognition programs for P&R agencies, and these are both administered by committees facilitated by the National Recreation and Park Association (NRPA - www.nrpa.org). The first is the *Gold Medal Award* (http://www.nrpa.org/goldmedal/), which honors agencies that "demonstrate excellence in long-range planning, resource management, and innovative approaches to delivering superb park and recreation services with fiscally sound business practices". The second is accreditation by the by the Commission for Accreditation of Parks and Recreation Administration (CAPRA - http://www.nrpa.org/certification/ accreditation/CAPRA). CAPRA is the only national U.S. accrediting organization for public P&R agencies, but only a small portion of U.S. organizations participate. In 2009, 77 agencies were accredited (Farland, 2010), and in 2014, 138 were accredited agencies (CAPRA, 2014). In 2016 the CAPRA website indicated 151 agencies participating. This number indicates strong growth, but this current number still represents less than 3% of the roughly 9,000 local P&R agencies in the U.S.

Literature is limited on effectiveness of these recognitions on organizational culture but some researchers have attempted to discern their value, especially related to organizational effectiveness (Farland, 2010; Sandberg; 2004; Vick, 2007). Farland (2010) completed a comprehensive literature review on the topic, and examined the potential relationship of culture to performance and attitudinal attributes. He found that the earliest literature on organizational culture was created starting in the 1970's and has continued since for other related disciplines. In this research, Farland found "no known studies which identify and compare the organizational culture differences for municipal parks and recreation agencies in the United States" (p. 4). Part of his research examined demographic and organizational administrative benchmarking information such as community population, budgets, number of full-time personnel, and whether they were accredited. Farland's study looked at the comparison of results between accredited CAPRA agencies and agencies not accredited. CAPRA's requirements for providing 140 *Standards of Evidence* were updated in 2014 with a stronger focus on systematic evaluation, management, and planning best practices (CAPRA, 2014).

Farland's work delved more deeply into organizational differences. He received responses from 37 accredited agencies and 59 non-accredited agencies, and he looked at the differences for various indicators of organizational focus, such as whether they were more *achievement* externally within the community, or focused more on *supporting* their internal team. According to Harrison and Stokes (1992), achievement orientation is the most aligned orientation, as it focuses more on the agency's mission, goals, and objectives. An achievement oriented workplace is also more inclined to work toward common goals and mission, have higher employee morale, and a team orientation in all aspects.

The key finding from Farland's study was that for agencies who were accredited, the leading indicator was that they were primarily *achievement* focused in their cultural orientation. Agencies who were not accredited displayed the *Support* focus as their leading indicator. The support orientation creates an environment more focused on shared values and work ethics, and the workplace supports the organization with a focus on socialization and support (Farland, 2010; Harris & Stokes, 2002). CAPRA accredited agencies reported that their primary reasons for accreditation were to meet and validate a set of best practices and to meet a higher level of professional standards. Non-accredited agencies reported that the lack of financial resources and constraints for time to complete the process were the reasons for not taking part (Farland, 2010).

The literature appears to support that having an external focus on mission and goals for the community overall may provide stronger alignment for an organization than agencies that are more internally focused on staffing and constraints. This does not necessarily mean that going through the CAPRA process should be required or in itself makes an agency better, but it may be that going through the formal steps required to improve management and planning practices for things like CAPRA or applying for NRPA Gold Medal Awards may help agencies become better aligned to achieve desired outcomes (Farland, 2010).

Even though organizational culture appears to be an important part of effective dimensions for assessment and planning, there are other factors beyond organizational culture that may affect the performance of agencies (Vick, 2007). Many of the CAPRA standards require other systematic planning and assessment tools, and studies have shown that systematic approaches typically are more effective from both a time and financial performance aspects (Jervis, 1997). Organizations that utilize similar systematic approaches to address the health factors may be more likely to have stronger success and outcomes.

Addressing Social Equity in Communities

Factors related to social equity are important for addressing health at a P&R systems level. Access to P&R locations and programs is not always equal or equitable in communities (Rigolon, 2016). Often differences exist based on socio-economic status (SES), nature of the community density (rural vs. developing or sub-urban, vs. urban), and race/ethnicity. For example, studies have shown that lower-SES and high-minority neighborhoods may have reduced access to facilities, which in turn may be associated with decreased PA and increased levels of obesity. Inequality in availability of facilities may contribute to ethnic and SES disparities in PA, and overweight patterns, and resultant overall health (Gordon-Larsen, Nelson, Page, & Popkin, 2006; Rigolon, 2016).

In addressing health factors in any local community, it is important to reduce disparities based on race, ethnicity, gender, and socio-economic status (SES) (Singh, Siahpush, & Kogan, 2010). Researchers have found that the disparities in access to recreation resources are an environmental justice concern and should be a high priority for public health research and policy (Edwards, Jilcott, Floyd, & Moore, 2011). Greater availability of outdoor play and/or sports areas and parks have been associated with higher levels of youth PA (Slater et al., 2010). However, perceived environmental *barriers*, such as lack of access to these types of settings, have been associated with lower income neighborhoods.

Although results from the 2003–2004 through 2011–2012 *National Health and Nutrition Examination Surveys* (NHANES) suggest that obesity rates in youth overall may have stabilized (Ogden, Carroll, Kit, & Flegal, 2014), the most recent prevalence estimates indicate that racial/ethnic and sex disparities are evident (Barr-Anderson, Singleton, Cotwright, Floyd, & Affuso, 2014). Many studies have also demonstrated a positive association between high-SES and low minority areas and recreational resources (e.g., Floyd, 2007; Jennings & Gaither, 2015; Jennings, Larson, & Jun, 2016; Gordon-Larsen, Nelson, Page, & Popkin, 2006; Powell, Slater, Chaloupka, & Harper, 2006; Rigalon, 2016; Slater et al., 2010; Wolch, 2014).

Inequities in distribution of P&R resources may be a significant environmental justice issue (Cutts, Darby, Boone, & Brewis, 2009; Rigalon, 2016). Specifically, ethnicity and gender have been investigated by many researchers as potential predictors of PA and correlates of obesity (e.g., Gordon-Larsen, McMurray, & Popkin, 1999; TFAH, 2015). As there are a variety of nutritional and cultural factors that affect obesity, biological explanations seem unlikely taken on their own (Richmond, Hayward, Gahagan, Field, & Heisler, 2006). Ethnic minorities generally engage in less physical activity overall and for the most part, females tend to partake in less physical activity than their male counterparts, with ethnicity again being a differentiating variable (TFAH, 2015).

Opportunities to make healthy choices in where people live, learn, work and play all contribute to the rates of obesity being higher for Black, Latino and American Indian/Native American adults and children than for Whites (TFAH, 2015). Black, Latino, and American Indian/Native American communities experience higher rates of hunger and food insecurity, limited access to safe places to be physically active and targeted marketing of less nutritious foods (Beam, Ramirez, & Gallion, 2013; Indian Health Service, 2016; TFAH 2015). Research has shown that children in low socioeconomic communities often depend more on after-school programs to provide their PA than those in more affluent neighborhoods (Hynes & Sanders, 2011). Low-income and African-American children, populations with the highest risk of inactivity-related health conditions, have been found to be twice as likely to attend after-school programs as higher income and white children (Hynes & Sanders, 2011). Overweight and obesity rates are higher, start at earlier ages and increase faster among Black and Latino children than among White children (TFAH, 2015). In addition, individuals with lower income and/or education levels are disproportionately more likely to be obese (TFAH, 2015). Researchers have also found that from a systems standpoint, neighborhood social conditions and parental education in the U.S all significantly affect youth obesity levels (Kumanyika et al., 2008; Singh, Siahpush, & Kogan, 2010). In 2010, children of parents with less than 12 years of education had an obesity rate 3.1 times higher (30.4 percent) than those whose parents have a college degree (9.5 percent).

Preventive Public Health Systems Planning

Related to the theoretical basis of systems thinking, and the complexities of addressing the interwoven effects of and on the health factors, it was important to explore the current state of preventive PH systems planning and an element for applicable themes relative to P&R. It is known in the PH and medical realms that most chronic health problems (e.g., heart disease, obesity, Type II diabetes, and certain cancers) are at least mostly preventable through diet and lifestyle interventions (Katz, 2009; Schroeder, 2007). The approaches to effectively intervene include educational, behavioral, and structural mechanisms at all levels of the SEM, however translating these findings into practice in a community has been hampered by insufficient funding and difficulty reaching those persons in greatest need. (Blankenship, Friedman, Dworkin, & Mantell, 2006; Katz, 2009).

Like any positivistic research, PH policy has historically been built upon creating summaries of information collated through systematic reviews of the literature (Higgins & Green, 2011). The research and application to PH practice is evolving. As Baxter, Killoran, Kelly, and Goyder (2010) surmised from their review of historical approaches to PH planning:

> Conventional systematic reviews have been criticized on a number of grounds: that they provide a lack of context for social interventions; that they are of limited use to

> policymakers, practitioners, and other groups due to the lack of studies available; they exclude important work; and that they lack consideration of feasibility and implementation. (p. 5)

Systematic approaches and frameworks however have been identified for application to address these types of preventive PH challenges, and the sections following outline some of the primary methods being used by in the PH realm that could be better applied to P&R applications.

Health impact assessments (HIAs). HIAs were created in the PH realm to provide a systematic planning process that brings together scientific data, health expertise, and stakeholder input to identify the potential and often overlooked positive and negative effects on public health of proposed laws, regulations, projects, policies, and programs (APA, 2016a; Lock, 1999). They were defined internationally in the 1990's by the World Health Organization (WHO, 1999) with the initial purpose to:

- Inform and influence decision makers.
- Place public health on the agenda.
- Promote cross-sector working.
- Reduce conflict between stakeholders.
- Help address inequalities in health.

They have been gaining national attention in the planning and PH realms in the U.S. since the early 2000's. HIAs are designed to provide pragmatic, evidence-based recommendations about how to reduce risks, promote benefits, and monitor the health effects of the implemented decision and have been used to inform decision-making in a range of sectors, including planning, agriculture, criminal justice, economic policy, transportation, and housing (Pew, 2016).

Research is mounting on the best methods and efficacy of HIAs. The American Planning Association (APA, 2016) conducted a study to identify every known HIA conducted in the U.S. between 2004–2014 for a planning-related policy or project, and analyzed them by planning topic, type, date, decision level, and location. The number of planning HIAs conducted and identified by the APA increased from one in 2004 to a peak of 29 per year in 2012 and 23 in 2014 (APA, 2016a). It appears that this number is expanding rapidly and in recent decades, several factors have contributed to the increasing use of health impact assessments (HIA) in the United States (Cowling, Lindberg, Dannenberg, Neff, & Pollack, 2017; Dannenberg, 2016). As of March, 23, 2017, the Pew Charitable Trusts maintained an online national list of 417 different types of HIAs with clickable links, accessible at:http://www.pewtrusts.org/en/multimedia/data-visualizations/2015/hia-map.

Some U.S. universities are now implementing academic curriculum and/or certification programs around HIAs. For example, Cornell University, Rutgers University, the University of California – Los Angeles, and the University of North Carolina now have courses specifically designed around how to do HIAs as part of healthy communities planning. Rutgers now offers certification in HIA Planning, (http://www.cpe.rutgers.edu/courses/current/ep0704ha.html), and UCLA maintains a broad database of trainings, methods, templates, and resources on these topics (www.hiaguide.org). Starting in Spring 2017, Cornell University offers a full semester mixed undergrad/grad course on HIA Planning through the Environmental Sociology Department (personal communication from Nancy M. Wells, PhD). An online search identifies a variety of examples, including free webinars and outlines offered to help practitioners and researchers understand how best apply them to various situations.

HIAs address a variety of types of system planning, such as comprehensive plans, corridor plans, and functional plans, along with policy applications (APA, 2016a; Cowling et al., 2017). In a study conducted by the American Planning Association (APA, 2016a), a little more than one-fifth of the plans addressed policies, such as zoning and development regulations and new utility fees. One-tenth of the planning HIAs addressed projects such as the development of a new community facility. HIAs are designed to be flexible, with the range of reflecting the comprehensive nature of planning as a discipline and the many ways in which to address human health through planning. The HIAs issues studied by APA encompassed 14 broad topic areas, with more than half of the planning HIAs focused on land use, varying geographic scales, and different health conditions or outcomes. HIAs are intended to each be unique, reflecting the circumstances, location, and way the HIA was conducted, in addition to potential for their impact (APA, 2016b). Recently, these types of studies have been adapted to parks planning assessments along with food/nutrition policies and plan by professional planners and researchers (CDC, 2016; Cowling et al., 2017; Epstein et al., 2012).

The steps for HIAs are somewhat similar to steps for general system site and master planning projects, but are focused on health impacts and outcomes with an added emphasis on evaluation at the end (something that public P&R agencies generally have not funded in overall system planning). The six steps vary in title and adaptation depending on author or researcher, but generally include something similar to:

1. Screening - Determine whether an HIA will add value.

2. Scoping - Develop a plan for the HIA.
3. Assessment - Identify current and predicted health impacts.
4. Recommendations - Identify actions that protect health.
5. Reporting - Communicate findings.
6. Evaluation - Monitor impacts.

One of the major criticisms of HIAs has been that methods of collecting and analyzing evidence may not be sufficiently rigorous to withstand scrutiny and challenge (Lock, 1999). Newer methods may address this criticism, but a range of data sources including economic, epidemiological, quantitative, and qualitative information should be routinely taken into account. Often the most useful information is not routinely collected. As noted by Lock (1999),

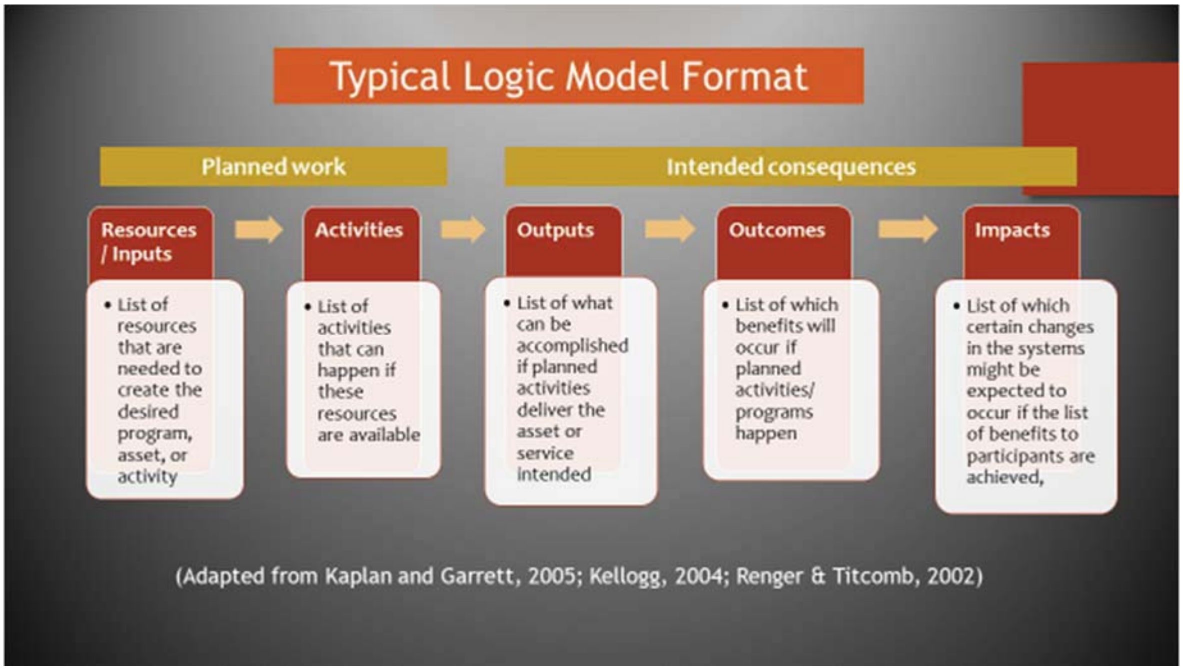
> Seldom is there going to be the time or money available for collection of primary data. Although it may be preferable for decision makers to have a quantitative measure of health impact, the limitations of qualitative estimates may have to be accepted as the best evidence available. This may limit the strength of the recommendations an assessment can make both in terms of the certainty and size of an impact. (p. 1397)

In addition, all HIAs contain elements of uncertainty (Mesa-Friasa, Chalabia, Vannib, & Foss, 2013). However, in a systematic review of peer-reviewed HIA studies, Mesa et al. (2013) found that out of 51 articles reviewed, only 19 of the articles used uncertainty quantification methods. Their conclusions were that the typical expectations for quantitative expectations for HIAs were not applicable due to the complex nature and confounding elements of the studies, and that future research should attempt to broaden the way uncertainty is taken into account in HIAs. In addition, although evaluation is listed as a primary last step, in practice, this step is still often not addressed effectively in practice settings.

Despite the challenges, HIAs may have strong application to addressing P&R system planning, especially related to the preventive health factors. Recently the CDC issued a manual titled *Parks, Trails, and Health Workbook - A Tool for Planners, Parks & Recreation Professionals, and Health Practitioners* (CDC, 2016) that includes an overview and an appendix dedicated to applying HIA methods to parks and related systems. Additional recent reviews have suggested practices that can improve the efficacy and application in practice (Cowling et al., 2017; Hirono et al., 2017) . Hirono et al. (2017) suggested that incorporating peer review in HIAs may be an additional strategy that can help to improve the quality and usefulness of HIAs. The researchers suggested that there be process, technical, general, and political peer-review included throughout the stages of the HIA. A remaining challenge is to identify appropriate “peers” and resources to conduct the reviews at these stages.

Logic models. Another aspect of PH planning becoming more frequent in use is the process of creating a logic model. (Baxter, Killoran, Kelly, & Goyder, 2007; Goldsmith, Bankhead, & Austoker, 2007; Kaplan & Garrett, 2005; Kellogg Foundation, 2004). Logic models can be a useful way of examining the complexity of relationships between factors and outcomes, and of highlighting potential areas for interventions and further research or action. The use of techniques from primary qualitative research may also be helpful in synthesizing diverse document types (Kellogg Foundation, 2004). Because they are more graphic in nature than standard textual plans, they require systematic thinking and planning to better describe programs of action. The visual representation of a plan in a logic model format is flexible, points out areas of strength and/or weakness, and allows stakeholders to run through many possible scenarios to find the best outcomes for that situation. In a logic model, approaches can be adjusted and change courses as program plans are developed. Ongoing assessment, evaluation, review, and corrections can produce better program design through a strategic systematic approach (Kellogg, 2004).

In recent years, many funders have begun to require that community-based initiatives develop logic models as part of their grant applications and for ongoing monitoring and reporting. At the same time, program evaluators are increasingly using logic models to identify and measure expected results (Kaplan & Garrett, 2005). As shown in Figure 8 as an presentation graphic I adapted, basic logic models typically include identification of objectives, along with steps to monitor, manage, and report program outcomes throughout development and implementation.



Typical Logic Model Format

Planned work

Intended consequences

Resources / Inputs
- List of resources that are needed to create the desired program, asset, or activity

Activities
- List of activities that can happen if these resources are available

Outputs
- List of what can be accomplished if planned activities deliver the asset or service intended

Outcomes
- List of which benefits will occur if planned activities/ programs happen

Impacts
- List of which certain changes in the systems might be expected to occur if the list of benefits to participants are achieved,

(Adapted from Kaplan and Garrett, 2005; Kellogg, 2004; Renger & Titcomb, 2002)

Figure 8. Basic logic model format (adapted by author)

For implementation in practice, these can be created through the use of tables, spreadsheets, or with graphic software. Limitations of logic models often lie in the initial assumptions. As detailed by Kaplan and Garrett (2005) from their extensive review, often when funders require the development of a program logic model, the emphasis is on setting goals for activities and expected outcomes. Although articulating the underlying rationale for a program is critical to its success, it is frequently a later assumed activity, and one that is never quite completed. The discussion of program assumptions seems to be the place where there is the biggest disconnect between planners/evaluators and program managers/implementers. Often managers are willing and able to layout activities and expected outputs, but the time-consuming process of articulating and assessing the strength of assumptions through a literature review or discussion with experts can feel like a distraction or waste of time (Renger & Titcomb, 2002). This seems to be especially true in the realm of P&R practice, where gathering evidence-based research by public practitioners on the job is rarely funded or rewarded. However, despite the limitations, application of this type of logic model framework may enhance the collaborative planning capabilities and funding success for P&R agencies, through inviting a systematic approach of addressing each element of the system to identify gaps, limitations, and opportunities.

P&R Systems Planning

Related to systems thinking, examining systematic assessment and planning for addressing health factors by P&R requires first exploring the parent discipline of professional planning and its relationship with P&R planning. However, as concluded by Lewis (2008) when she edited a guide to parks system planning, *From Recreation to Re-Creation: New Directions in Parks and Open Space Systems Planning* for the American Planning

Association, a wealth of information exists about how to design specific sites such as parks, and how to create, implement, and measure recreational programming. The challenge remains in that specific guidance on how to plan for management of overall public parks and recreation systems is not widely available. Lewis stated, “Planners know planning. Parks professionals know parks” (p. vi). In response, she gathered resources to create that guide to serve as a reference manual by planners for planners. The guide, published in 2008, was one of the most current resources found on system planning for P&R, but did not focus on evidence-based P&R outcomes, and was primarily written for landscape architects and planners, not P&R administrators.

A community system is based on the interaction of a variety of variables in drivers, attitudes, access, awareness, need, available resources, and organizational delivery structures (Stermann, 2000). In order to determine best course of action, a management and planning framework needs to identify objectives and indicators, monitor those indicators, and implement management practices to address them (Jaakson, 1985; Lewis, 2008). Published literature shows the development of conceptual and management system frameworks for a variety of specific P&R assessment situations besides but sometimes related to addressing these health factors, such as carrying capacity (Manning, 2007; Manning, 2014; Whittaker et al., 2011), social norms theory (Heywood, 2011), limits of acceptable change (LAC) (Stankey, Cole, Lucas, Petersen, & Fris, 1985; Stankey, McCool, Clark, & Brown, 1999), the Recreation Opportunity Spectrum (ROS) (Driver & Brown, 1978; Stankey et al., 1999; Wilhelm Stanis et al., 2009), Recreation Experience Preferences (REP) scales (Manfredo, Driver & Tarrant, 1996), sustainable tourism and ecotourism frameworks (Buckley, 2009; Honey, 2008; Nyaupane & Andereck, 2008), level of service analysis tools (Layton, 2016b;

Lewis, 2008; Penbrooke, 2007; Penbrooke & Layton, 2007), adaptive management (Stankey, Clark, & Borman, 2005; Stankey, McCool, Clark, & Brown, 1999), social and environmental justice (Floyd, 1999; Floyd, 2007; Gramann & Allison, 1999), and general sustainability frameworks (McCool & Stankey, 2004).

Many of these frameworks have been derived for addressing natural resource planning at a federal level or for academic theoretical research, with little translation to practical local level P&R planning and assessment application, and not focused on planning for modifying health factors. However, both the ROS and LAC frameworks represent examples of the social reform aspects of planning (Stankey et al., 2005) that have been somewhat adapted for application to P&R in the public sector as related to equity. Most of the instruments, however, are limited because they are too simplistic to account for high complexity, ambiguity, and uncertainty that occurs in P&R systems planning (Stankey et al., 1999).

Little additional current information was available in the literature on systems or strategic system planning specifically for P&R. The most comprehensive current book in this area, *Management of Parks and Recreation Agencies*, is a detailed tome of suggested P&R management practices published by the NRPA (Moiseichik, 2010), and is the basis for CAPRA standards for agency accreditation. It includes 681 pages, with 14 pages on strategic system planning for P&R agencies. An additional resource that covers this material is a text called *Leisure Services Management* (Hurd, Barcelona, & Meldrum, 2008). This text focuses on an introduction to competency-based management theory for leisure management providers, and includes a brief overview of planning practices for public P&R agencies. Although one of the more currently used resources in overall P&R administration, this text was published prior to broad adoption of some of the current planning methodologies in use nationally that rely on new technologies such as Geographic Information Systems (GIS), new software, and enhanced spatial analysis tools, and the current focus on integration of health factors. Another available resource is a book chapter on general P&R department management in a general local government management text (Vick, 2007). Other publications attempt to address overall systems management for P&R and some of these are similar to the frameworks presented for HIAs from the PH realm discussed in other sections.

In the 1970's some federal level P&R planning units began using the Social Learning Model approach for systems planning (Stankey et al., 1999). This was based on incorporation of broad traditions from planning stemming from philosophical pragmatism with a core of purposeful action. The Social Learning Model may translate into the current need for application of community-specific planning at all levels, including a balanced management approach for health. The Social Learning Model also lends itself to the five common steps for any decision making or research process (including planning for agencies). This structure is similar to the steps presented for HIA's, and also looks like a standard positivistic outline for research (Henderson & Bialeschki, 2010; Hurd, Barcelona, & Meldrum, 2008; Lewis, 2008). Summarized, these typical steps include:

1. Identify and define the problem or project
2. Identify stakeholders or resources for data and information gathering
3. Identify needs or results
4. conduct analysis to present findings and draft recommendations
5. Conclusion or Implementation

If application to P&R practice is included in the process, a sixth step would be evaluation and monitoring (Hurd et al., 2008). Including triangulation in the data collection may also be beneficial (Yoder, McKinney, Wicks, & Espeseth, 1995). Systematic assessment of the health factors within P&R has been suggested as a preferred mechanism to address improved health within a community (Compton et al., 2011; Penbrooke et al., 2014; Saelens, Sallis, Black, & Chen, 2003).

P&R needs assessments. One of the key elements of effective P&R community systems engagement is knowing the community and what they want (Barth, 2008; Henderson & Bialeschki, 2010; Hurd, Barcelona, & Meldrum, 2008; Moiseichik, 2010). After more than 17 years of personal professional experience overseeing over 450 community-specific research, information gathering and engagement processes, I have compiled and adapted a list of the most common effective methods to train staff and to provide in educational settings.

For public agencies, a mixed methods approach is necessary to accurately determine needs. Typically a needs assessment process includes qualitative and quantitative methods, such as key stakeholder interviews, focus groups, open public meetings, and random surveying of residents of the community, at a minimum. Agencies that systematically use these types of tools at least every five years typically have been shown to have more effective internal and external relationships, better implementation of plans, and increased decision-maker buy-in (Barth, 2008). For this dissertation research, the Delphi panel data gathering process included exploration of whether the informant agencies had actively included community needs assessments relative to the identified health factors.

Figure 9 provides a graphic GreenPlay uses (I am CEO and Founder of this firm) to explain the wide variety of tools available.

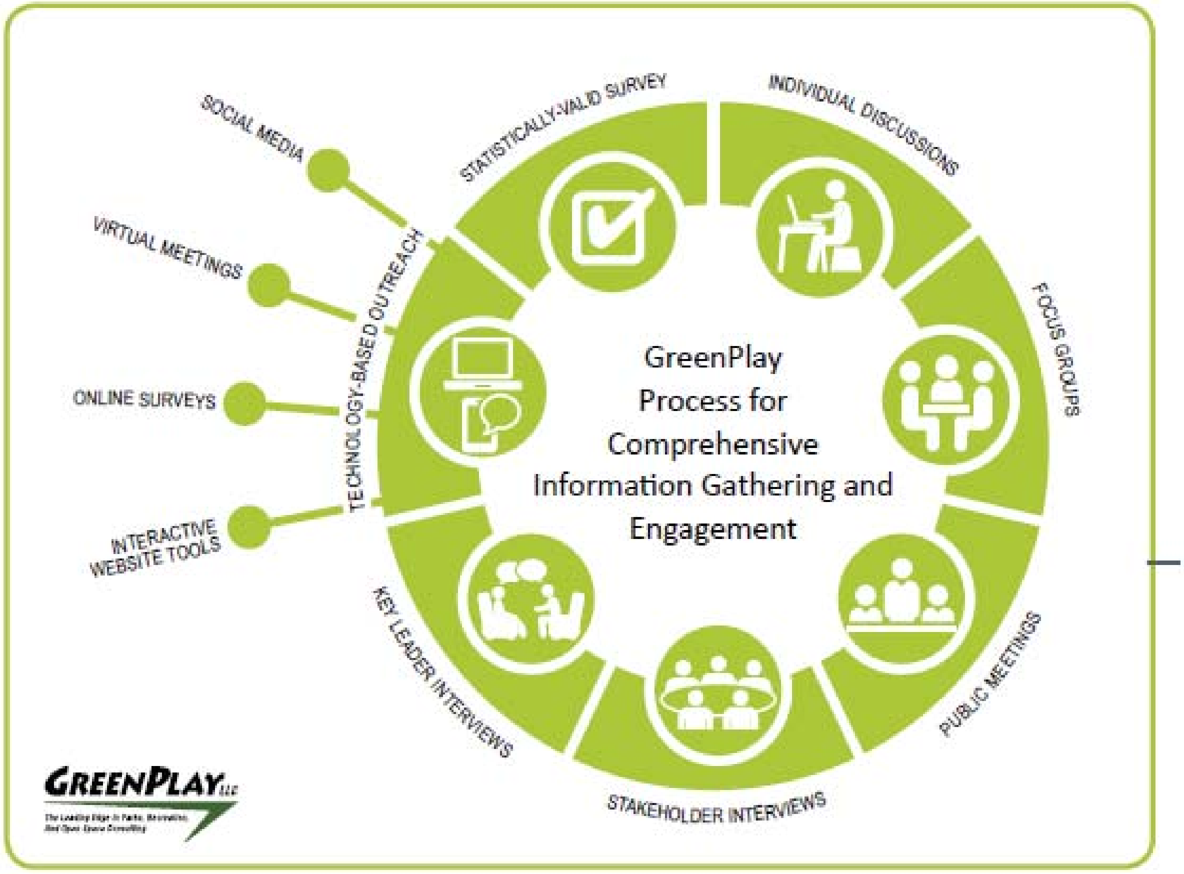

SOCIAL MEDIA
VIRTUAL MEETINGS
ONLINE SURVEYS
INTERACTIVE WEBSITE TOOLS
TECHNOLOGY-BASED OUTREACH
STATISTICALLY-VALID SURVEY
INDIVIDUAL DISCUSSIONS
FOCUS GROUPS
PUBLIC MEETINGS
STAKEHOLDER INTERVIEWS
KEY LEADER INTERVIEWS
GreenPlay Process for Comprehensive Information Gathering and Engagement
GREENPLAY LLC

Figure 9. Community needs assessment and engagement tools

Organizational Partnerships

The role of partnerships has been discussed in the literature as an important element in promoting awareness and use of P&R services for PA and health (Bocarro et al., 2009; Henderson & Bialeschki, 2005; Henderson et al., 2001; Mowen, Payne, Orsega-Smith, & Godbey, 2009; Spangler & Caldwell, 2007). Addressing health factors in a local agency P&R system requires coordination and collaboration with a variety of partners. PH and P&R agencies have not always seen each other as a major partner, but that may be changing (Bocarro et al., 2009; Mowen, Barrett, Graefe, Kraschnewski & Sciamanna, 2017).

The roots of the recreation profession stem from social, environmental, and health concerns of the 19th and 20th Centuries (Cross, 1990). More recently however, advocates from the P&R profession have sought a greater voice in the PH agenda. These efforts, combined with a renewed interest in the role of the built environment in shaping health, have resulted in a growing acceptance of P&R as a legitimate health partner (Godbey, Caldwell, Floyd, & Payne., 2005; Sallis, Linton, & Kraft, 2005). However, barriers to health partnership participation remain, and there is a continued need to communicate the contributions of P&R agencies to a wide variety of other organizations (e.g., public health, transportation, design realms, community development, and faith-based organizations). The widespread adoption of partnerships has been instigated by diminished public resources, combined with a need to serve an increasingly diverse constituency (Mowen et al., 2009). This requires organizations to pool resources and leverage strengths to provide community services more effectively. There has also been a heightened awareness that pervasive social concerns (e.g., youth delinquency, obesity, environmental degradation) cannot be effectively tackled by one single organization, discipline, or level of governance (Henderson et al., 2001; Mowen & Kerstetter, 2006).

Partnerships allow organizations to stretch existing staff, facilities, equipment, and finances to provide enhanced programs or to be more inclusive in their services. In addition to leveraging resources, partnership participation can increase organizational visibility and credibility, reduce service duplication, and create opportunities for professional growth across organizational staff (Yoder & Ham, 2005). According to the literature, trust and relationship building, accommodating diverse values, having a broad strategic vision, network brokering, negotiation, cross-organizational communications, collaborative leadership styles, conflict resolution, and flexibility comprise the skill set required to successfully manage partnerships (Crompton, 1997; Frisby, Thibault, & Kikulis, 2004; Mayo, 1997). However, many organizations lack the basic capacities required to successfully do so, in part because professional development and educational programs have not kept pace with changing job demands (Razani et al., 2016; Yoder & Ham, 2005).

Based on the organizational dynamics referred to most often by agency managers and staff as contributing to under-managed partnerships, two main themes which are typically identified as related to partnerships are managerial structures and processes (Frisby et al., 2004; Razani et al., 2016). Three subthemes that reflect how managerial structures contribute to under-managed partnerships include:

- a lack of planning and policy guidelines
- unclear roles and reporting channels
- insufficient human resources

Beyond that, sub-themes related to inadequate managerial processes for partnerships have been uncovered and reported in previous studies (Frisby et al., 2004), including:

- insufficient training
- insufficient time devoted to partnerships
- difficulties negotiating competing values
- a lack of communication and consultation
- poor coordination among parties
- insufficient supervision
- a lack of evaluation
- a lack of strategies for retaining and terminating partnerships

A variety of studies examining collaborative partnerships within the P&R field have found a large discrepancy between support for collaborative partnerships and the actual collaborative efforts that are taking place (Barcelona & Bocarro, 2004; Bocarro et al., 2009; Payne, Zimmerman, Mowen, Orsega-Smith, & Godbey; 2013; Selin & Chavez, 1995; Uhlik, 1995). This suggests that P&R practitioners may conceptually recognize the promise of collaboration and partnerships, but may also lack the knowledge, motivation, skills, or resources to initiate and maintain these collaborative efforts.

Mowen et al. (2009) conducted a nationwide survey of park and recreation agencies to document health partnership practices, characteristics, and effectiveness. Results indicated that a large number of park and recreation organizations (88%) had participated in at least one health partnership, with some participating in several at a time. Larger organizations (with larger budgets and larger populations served) were more likely to participate in health partnerships. Among those agencies who did not participate in health partnerships, lack of resources to initiate the partnership was seen as a key barrier to participation. Schools and public health agencies were frequently cited as partners and physical activity promotion, obesity prevention, and general wellness were the core issues partnership issues addressed. Organizations with physical activity partnerships typically emphasized programmatic and environmental approaches. Key contributions from the health partnerships were creating facilities and providing greater access to the public. Respondents felt that visibility, meeting the mission statement, and image were important partnership benefits and perceived their partnerships as being somewhat or very effective. A more detailed study of 216 North Carolina municipal and county public park and recreation agencies by Bruton et al. (2011) indicated that about a third of the departments participated in formal partnerships with health departments to promote physical activity. Over half of the departments participated in formal partnerships with other community organizations. Less than half of the departments participated in formal partnerships with schools. Departments that served larger populations and had larger operating budgets were more likely to engage in partnerships with county health departments. Certification of agency leadership played a role in these findings, as the certification status of directors (whether they were Certified Parks and Recreation Professionals - CPRPs) was positively associated with engaging in a partnership with other organizations. Departments that focused their efforts on minorities and obesity among teens were more likely to engage in partnerships with school systems and other community organizations. Departments that focused effort upon individuals with disabilities were more likely to engage in partnerships with YMCAs. The study also suggested that departments who serve smaller populations may need assistance in identifying partners and sustaining partnerships.

An additional nationwide study of P&R practitioners by Payne et al. (2013), also identified that larger communities are significantly more likely to recognize the need for and have more experience with partnerships for health related work than smaller communities. Very small and large communities partner significantly more often with senior services, nonprofit health promotion agencies, and public health agencies than small and medium ones. Large and small communities appear to be significantly more likely than very small and medium communities to agree that their decision making in partnerships is inclusive, and that they have clearly defined goals and objectives.

The literature indicates that large communities are significantly more likely than very small communities to report that their partnerships help to leverage resources, make policy changes, meet their mission statement, and link to funding opportunities, but the outcomes of partnerships, even for smaller agencies, can be beneficial. A variety of challenges, constraints, and benefits emerge from initiating and maintaining partnerships, but they are often key to leveraging scarce resources to provide greater services for the public.

National Initiatives Related to the Health Factors

Related to partnerships and other organizational strategies to address the health factors, the literature review and intentional web searches indicate that there are literally hundreds of initiatives related to addressing the health factors that have been and are being implemented around the U.S. Currently many national level programs and campaigns set forth as suggestions to address many of the health factors each month from the federal government, academicians, the private sector, and non-profit organizations (CDC, 2016; Designed to Move, 2012; Let’s Move, 2016).

This thematic literature review initially identified many of these initiatives, and this list was expanded as the Delphi panel informed the process. As they appear to provide some effective campaigns and methods, the research included a web search to identify national initiatives that may be providing impact for P&R agencies. From the Delphi panel, literature, and the web search, 31 national initiatives were identified that appear to offer at least some assistance relative to tools, strategies, and/or collaborations for P&R agencies to address the factors. Table 1 indicates the name of the included initiatives. The initiatives are briefly described in Appendix A using language from the sources. Results from Questionnaire #2 included the findings from the agencies as to whether are using these initiatives.

Table 1. *Relevant Identified National Initiatives*

ACHIEVE
ACSM's Exercise is Medicine
Active Living by Design
Active Living Coalition
Active Living Research
After School Association's HEPA
Alliance for a Healthier Generation
CDC's Healthy Places Parks HIA Toolkit
Community Health Improvement Plans (CHIP)
Community Health Needs Assessments (CHNA)
Complete Streets
Eat Smart, Move More
GP RED's Safe Routes to Play
GP RED's Surveillance and Management Toolkit (SMT)
Harvard's Food & Fun Afterschool Programs.
Healthy Kids Concepts
Healthy Parks Healthy People
KaBOOM!'s Playability
Let's Move
Live Well
Media Smart Youth
NFL Play 60
NIOST's Healthy Out of School Time
NRPA's Commit to Health
NRPA's Safe Routes to Parks
Partnership for Healthier America (PHA)
PHIT America
Safe Routes to School
SPARK
Together Counts
Trust for America's Health

Park prescriptions and/or prescriptions for play. One type of national initiative that appears to be gaining momentum is park prescriptions. In recent years, a variety of programs that involve medical practitioners to “prescribe” P&R activities or locations for PA have gained some ground around the U.S. Park prescriptions is broad term for a movement to strengthen the connection between health care P&R to improve the physical and mental health among individuals and communities. Current research has recently and is now being conducted at an academic level to test validity and implementation of this type of program (Christiana, Battista, James, & Bergman, 2016; Sallis et al., 2016; Selentrich, 2015; Zarr, Cottrell, & Merrill, 2017), including current research at NC State University.

In April 2015, the American College of Sports Medicine and Kaiser Permanente convened a joint consensus meeting to discuss how to make PA assessment and exercise prescription a standard of care, with the most important step in the process being the implementation of a physical activity vital sign (PAVS) during medical care (Sallis et al., 2016). This would allow for baseline and ongoing evaluation of PA through a medical office, and would also allow for measurement of success of any prescriptions of exercise. This would promote strong potential partnerships with between the medical community and P&R, helping to further position P&R as a preventive PH provider. Previously, most information on Park prescriptions was available only from a practitioner and/or association organizational level (ALR, 2016; NRPA, 2016). This type of partnered campaign can open doors to connect with doctors/physicians and even school nurses who can prescribe children that are overweight, obese, diabetic, asthmatic etc. to get out and go play. Typical goals include:

- Connect children with nature and basic play for health benefits
- Create champions: build capacity among pediatric health care providers to be leaders in prescribing nature and recreational play
- Refer families to a park or nature center within economically, racially/ethically, and culturally diverse communities

Park prescriptions offer an alternative to treating or preventing health problems that focuses less on traditional medicine and more on connecting with parks and nature to increase levels of physical activity and reduce levels of stress. The movement has quickly grown from concept into a period of rapid implementation with programs being developed across the country (ALR, 2016; Sallis et al., 2016; Zarr, Cottrell, & Merrill, 2017). The number of programs likely will continue to evolve, but some of these similar programs noted in 2016 are included in Table 2.

Table 2. *Identified Prescriptions for Parks Programs*

Name	Website
Docs in the park	http://bcrp.baltimorecity.gov/Recreation/SpecialPrograms/DocsinthePark.aspx
Exercise is Medicine	http://www.exerciseismedicine.org/
Rx: Play	http://www.oregon.gov/oprd/PLANS/pages/planning_rx_play_medical_admin.aspx
Park Rx	http://www.parkrx.org/
Walk with a Doc	www.walkwithadoc.org

The Role of Allocating Resources and Return on Investment

Related to systems planning, the role of allocation of funding and resources to address the health factors appears to be a primary organizational element, with strong impact on potential effectiveness. No community public agency has unlimited funding, and public agency decision makers must make tough decisions related to allocation of staffing resources and investment of public tax dollars, especially as related to P&R services (Burns, 2016; Godbey & Mowen, 2010; Moiseichik, 2010). Cost-effectiveness and cost-benefit studies have demonstrated the ability of PA interventions to offer ‘‘good value for money,’’ but most of these studies have focused on interventions at the individual or patient group level (disease prevention, secondary prevention) (Laine et al., 2014). Studies of the cost-effectiveness of PA interventions at the local population level are relatively few (Laine et al. found ten studies through a systematic review). However, if an intervention can change the amount of PA in a population, it also may change health care costs incurred by individuals, local communities, and the nation as a whole (Laine et al., 2014; Roux et al., 2008). One purpose for this current research is to identify factors that may influence resource allocation and potential resultant return on investment related to prioritizing those factors for interventions at the local level.

Potential Community-Specific Strategies and Data Collection Tools

The previous sections focused on literature around the health factors, theoretical basis, and contributing organizational elements. The following sections focus on strategies that may be used to measure or address the health factors in local community systems.

Measuring Physical Activity and Other Factors

As PA has been the primary traditional factor overtly addressed by P&R agencies, there is more literature available on how to measure and address PA than the other factors. However many measurement techniques could be modified to be used as strategies to measure the other factors. Each method or strategy for PA assessment has their own limitations and opportunities (Kaczyinski & Henderson, 2007; Saint-Maurice & Welk, 2014). The complex nature of activities makes it difficult to accurately measure all of its aspects and assess the impact on outcome parameters, such as energy expenditure. Different measurement techniques available can be grouped into five categories: behavioral observation, self-report (questionnaires and activity diaries), physiological markers (heart rate, body temperature, ventilation), wearable motion sensors (pedometers, accelerometers), and indirect calorimetry (Hipp, Adlakha, Eyler, Chang, & Pless; 2013; Plasqui & Westerterp, 2007; Schutz, Weinsier, & Hunter, 2001).

Most studies on parks, PA, and health outcomes primarily use the individual as the unit of analysis. Only a few studies have examined outdoor recreation opportunities and PA at macro-level scales, such as across counties or metropolitan areas (Edwards et al., 2011, Rosenberger et al., 2009). Literature indicates that there are methods and researchers have measured actual activity within specific site contexts. For example, recent research has shown that adolescents were more likely to engage in PA and achieved their highest PA levels when using built environments located outdoors (Oreskovic et al., 2015). Babey, Tan, Wolstein, and Diamant (2015) found that in California, 71% of adolescents reported being physically active the last time they visited a park, older adolescents and females were less likely to be physically active in parks, and adolescents with a park within walking distance of home and those with a safe park nearby were more likely to be physically active during a park visit. A 2015 systematic review and meta-analysis of 23 studies showed that in studies that located youth PA with GPS, walking to school produced small increases in activity compared with transport by car or bus, and greater proportions of activity took place in streets and urban venues (40-80%) than in green spaces (20-50%) (McGrath, Hopkins, & Hinckson, 2015).

Ideally, PA should be assessed during daily life, over periods long enough to be representative of the habitual activity level and with minimal discomfort to the subject. Furthermore, it is important to identify PA patterns (frequency, duration, intensity) as well as activity-related energy expenditure (AEE) (Sallis et al., 2016). The limitations concerning the accurate measurement of PA are often amplified in young people due to the cognitive, physiological, and biomechanical changes that occur during natural growth, as well as the challenges brought from youth having different types of patterns of PA compared with adults (Corder, Ekelund, Steele, Wareham, & Brage, 2008).

Validity is a measure of how well the research actually represents the true construct of interest (Remler & Van Ryzin, 2015). A variety of validity measures and definitions exist, but primarily they are related to measuring that the research has 1) Face validity – does the measure get at what we really want to measure?; 2) Content validity – Does the measure include all dimensions of the construct?; and 3) Criterion validity – does the empirically measure the concurrent findings of other research and/or have predictive capabilities? (Remler & Van Ryzin, 2015). Kelly, Fitzsimons, & Baker (2016) presented an argument that validity alone is not sufficient when studying PA and sedentary behaviors, as these are multi-dimensional constructs that are multi-faceted. They can be described by multiple domains, dimensions, and correlates or determinants that require context of not only a single outcome, and to compare results to such type of an analysis can lead to an incorrect perception of the strengths and weaknesses of different methods and a false hierarchy of measures. They suggest a framework approach to PA research is necessary that includes attention to multiple domains, dimensions, correlates and determinants. This includes duration, frequency, intensity, and type of PA, along with where, when, why, and with whom it is occurring.

Collecting data on PA can be achieved through a variety of methods. A researcher may use self-report methods (individuals subjectively report their activities) and observational methods (the activity is objectively observed from an outside researcher or instrument). The goal of these measurements are to get at the truth of what is really occurring. Benefits, trade-offs, and limitations are common to all methods (Sallis & Saelens, 2000).

Observational tools and methods for assessing PA. According to Sallis (2009), the optimal measurement of PA underlies all of the major elements of the evidence base for, and the practice of, health promotion. Accurate physical activity measurement is important for informing overall health promotion efforts (Bauman, Phongsavan, Schoeppe, & Owen, 2006). The following list provides an overview of primary observational tools. This list is not exhaustive, but provides an overview of themes emerging from the literature related to the common methods that can be used related to assessing PA in P&R systems.

Site audit tools for PA. Many site audit tools attempt to objectively assess the environment as it relates to PA (Schultz et al., 2016). It is important to note that this current study is not designed to validate the accuracy of the vast array of physical activity measurement tools, especially those that are only suited for site specific or individual application. Rather, this study aims to identify which tools are emerging as potentially best suited for application in a P&R local community system setting at low cost, with efficiency, and easy adoption for assessment of larger populations.

There has been an increase of measurement of benefits for PA from observational site specific design attributes, or participation (use of) public spaces such as parks, trails, and facilities (Bedimo-Rung, Mowen, & Cohen, 2005; Chiesura, 2004; Kaczynski, Potwarka, & Saelens, 2008; Kaczynski, Wilhelm Stanis, & Besenyi, 2012). Satellite imagery is now being used to identify components in mapping and to measure “greenness”, tree canopy, and water coverage (Brown et al., 2016; Layton, 2016b).

Direct site observation. Beyond simple site assessment, there are many methods for direct observation of PA on specific sites. For example**,** Behavior Mapping may be useful for auditing to provide snapshots in time to evaluate how specific spaces are being used for behaviors (NLI, 2016). This can help in analyzing transportation patterns, facilities, or park sites. Site specific audit tools can help evaluate the levels of PA from sites and programs. (Cohen et al., 2011; McKenzie, Cohen, Sehgal, Williamson, & Golinelli, 2006). They can be useful for site specific PA analysis and pre-post audits if changes are recommended for sites, but as of yet, are not as applicable to full community systems analysis.

In addition to those described previously, many other site-specific technical tools have been developed to measure physical activity in parks. Most have been developed since 2000. Some published approaches include:

- BRAT-DO (Bedimo-Rung, et al., 2006)
- EAPRS - Environmental Assessment of Public Recreation Spaces (Saelens, Sallis, Black, & Chen, 2003; Kaczynski & Havitz, 2009)
- PARA – Physical Activity Resource Assessment Instrument (Lee et al., 2012).
- POST - Quality of Public Open Space Tool (Leslie, Cerin, & Kremer, 2011)
- SOPARC, SOPLAY, SOFIT, and ISOPARC (Bocarro et al., 2009, Floyd et al., 2011, IPARC, 2012, McKenzie et al., 2006,).
- CPAT – Community Park Audit Tool (BEACH Lab, 2015).

Wearable physical activity sensors with GPS. Initial motion sensors included basic pedometers and accelerometers. New technology has enhanced the opportunities to measure individual motion-based PA (Tremblay et al., 2011). Devices such as accelerometers, pedometers, and Geographic Positioning System (GPS) enhanced wrist watches (e.g., FitBit & Garmin wristbands) can allow researchers to track the complete whereabouts and 24-hour activity levels of participants (Evenson, Wen, Hillier, & Cohen, 2013). There may be cost limitations (someone must buy the device for each wearer) and potential privacy concerns, but data are now be being collected and may be potentially available from the larger manufacturers. Previous research has indicated that seven days of data are sufficient for analysis, as this includes both weekdays and weekends (Trost, Pate, Freedson, Sallis & Taylor, 2000).

Webcams and crowdsourcing. New technology has also enabled tracking of PA through the use of webcams in public places, and crowdsourced reporting and analysis. Although they have a variety of uses, these tools can be helpful for identifying traffic patterns and physical activity through unobtrusive observation, and may allow for use of big data through public webcams in some communities (Hipp, Adlakha, Eyler, Chang, & Pless, 2013). These may be primarily observational, or include self-reported data and reporting, depending on the usage. Crowdsourcing has also become a popular tools for having the public identify issues that they have observed in their communities. This can include creating open public reporting sites such as *MySidewalk* (www.mysidewalk.com) and free satellite imaging (e.g., Google Earth, Community Commons).

Doubly labeled water. The typically referenced “gold standard” for assessing and observing PA is through use of doubly labeled water, where metabolic by-products of individuals are analyzed to determine energy expenditure (Kelly, Fitzsimons, & Baker, 2016).

Limitations of using Observational Tools. Although it is considered the most accurate method, there are strong limitations to the doubly labeled method for use in larger populations and system-wide studies in terms of cost, technology, clinical needs, and compliance (Kelly, Fitzsimons, & Baker, 2016; Plasqui & Westerterp, 2007). Observing data with the other proven protocols is typically more expensive, as trained observers must be available to collect the data. Using technology to observe PA may remove the issue of observer reliability and self-report bias, but still leads to some challenges. The validity of accelerometers and pedometry for tracking PA has long been validated. However, there are still limitations related to assumptions that must be made and decisions for compliance by the participant. There is an increased cost, and for youth, some parents and teachers feel these methods may be invasive. It is difficult to do a full-system wide analysis with these types of measures. To do an accurate full system-wide assessment observation of physical activity, all sites within the system would need to be observed.

Spatial Analysis Tools for Assessment of Spaces and Programs

Various researchers have been looking for assessment tools that move beyond the direct and observational assessment of physical activity related to an individual park and/or its components, to a larger community-wide assessment of those and other factors and components to evaluate how they are providing a level of service for health for the community as a whole (Compton & Kim, 2013). Geographic Information Systems (GIS) allow for spatial analysis so researchers and planners can efficiently display a variety of past, current, and potential future spatial conditions and situations that enable the researcher to determine trends and consider prospective geographic and locational scenarios (Aytur, Jones, Stransky & Evenson, 2014; Betts & Penbrooke, 2007; Chancellor & Cole, 2008; Layton, 2016b; Penbrooke & Layton, 2007). As related to the PH factors, units of participation, the locations of spaces, proximity analysis for assets and food availability, and transportation options that can influence activities can be digitized, analyzed, and graphically portrayed (mapped).

Through the improvements in GIS since the late 1990s, creation of a detailed community-wide database has become somewhat more manageable for decision-making, but it is still relatively new and many communities do not yet have this level of detail. Many are now using GIS for point, polygon (parcel), and linear basis. Even Google Maps provides this type of detail for most U.S. communities. However, the ability to add qualitative and components for quantitative analysis for a full community has only recently become possible (Aytur, Jones, Stransky & Evenson, 2014; Chancellor & Cole, 2008; Penbrooke & Layton, 2007). Researchers are now more often gathering this information for community-wide P&R system decision making, often using the following tools and methods which appear to useful for this type of research.

ParkIndex. Kaczynski et al. (2016) summarized and addressed a measurement system that is based on the idea that access to and use of parks are associated with diverse environmental, economic, social, psychological, and physical health benefits. They described that despite enthusiasm among researchers and planners in several fields (e.g., urban planning, parks and recreation, public health), it remains unclear which park metrics correlate with park use and how best to combine diverse indicators into a strong measure of park access and exposure. These researchers stated that a lack of comprehensive and standardized metrics for measuring park exposure limits park-related research and health promotion efforts. They developed an empirically derived and spatially represented index of park access (called ParkIndex) to allow researchers, planners and citizens to evaluate the potential for park use for a given area. Results from Kansas City, Missouri, showed that two park summary variables — the number of parks and the average park quality index within one mile — were positively associated with park use. ParkIndex could provide standardized metrics of park access that combine elements of both park availability and quality, and they can be represented spatially.

Park Metrics (formerly called PRORAGIS). This voluntary submittal online system created by the National Park and Recreation Association (NRPA) looked at an inventory of some attributes of a parks and recreation system to attempt to create a nationwide benchmarking tool for communities. In the 1980's, NRPA published the *Recreation, Park and Open Space Standards and Guidelines* to address appropriated Levels of Service (LOS) and to assist agencies in the planning and development of park and recreation facilities (Lancaster, 1983). Although these guidelines are still widely used by earlier-trained professionals, NRPA no longer considers their use a best practice for agency management and planning. Applying a "one size fits all" approach to address the needs of widely varying communities does not provide accurate guidance for parks and recreation planners (Penbrooke & Layton, 2007). Instead, NRPA advocates the use of comparative benchmarking. Researchers for NRPA have created the Park Metrics tool, (formerly called Parks and Recreation Operating Ratio and GIS or PRORAGIS™) system as a tool to collect and analyze data about parks and recreation agencies across the country (http://www.nrpa.org/publications-research/parkmetrics/). The goal was to allow users to compare themselves to other departments that they identify as similar to themselves – whether similar in geography, climate, size, or number of total employees. Members of NRPA have free access to this tool. Limitations of this tool are that data are self-reported by agencies using a variety of inventory and level of service tools, with varying degrees of sophistication. A cursory review of available data indicates current various deficiencies in accuracy and the number of communities participating. This may be addressed as agency use of standardized GIS and digital level of service tools grow. The other limitation is that the original PRORAGIS dataset intentionally did not include a qualitative analysis of components of a community's system, but simply quantitative and locational attributes, typically parcel-based. It does not include a walkability analysis. As the submittals are voluntary from agencies using different collection systems and formats for attributes, accuracy was proving difficult to achieve. In late 2016, NRPA discontinued the use of the geo-spatial elements, but continued focus on the quantitative capacity-based benchmarking capabilities of this online national tool, with a goal of creating a more reliable system (Kevin Roth, NRPA Vice President of Research, personal communication, Nov. 11, 2016).

Component-Based Methodology (CBM) Level of Service Analysis. This digitally-based inventory and level of service (LOS) system was created by practitioners and consultants in the field in the 2000's to address the community-specific deficiencies that were not addressed through the previous standard NRPA LOS capacity-based practices. It includes point, parcel, and linear GIS basis for location, accessibility, walkability, along with qualitative functionality assessment for selected attributes for a full system of all relevant components owned and managed by a community (Penbrooke & Layton, 2007). This system has been utilized by more than 100 communities nationwide, and some national and trade associations have acknowledged its applicability and success in practice (e.g., American Planning Association and NRPA). NRPA used it for a national inventory analysis of youth football fields and it was considered during the formulation of attributes and standard for PRORAGIS in 2008-2009, but it was considered too sophisticated at that time by NRPA for broad use by most public agencies. Peer-reviewed academic validation and publication are in process (Layton, 2016b).

GRASP®Active. The spatial analysis of provision of urban greenspace system such as parks and facilities is one way to address PH, but reliable guidelines and policies for greenspace provision require the availability of sound measurements of greenspace effectiveness in order to achieve predictable outcomes. The effectiveness of exposure to greenspace as a treatment for health disorders appears to be a function of three factors: a) the frequency of exposure; b) the duration of exposure, and c) the intensity of the exposure (Kuo, 2013; Shanahan, Fuller, Bush, Lin, & Gaston, 2015; Shanahan et al., 2016; Wells, 2014). For parks, greenways, and other greenspace features, this translates into how often one visits (frequency), how long they stay (duration), and the quantity of the visit (intensity). A measurement that encapsulates characteristics that contribute to visiting more often, staying longer, and enjoying a richer experience is useful for determining the "dosage" that a particular greenspace location or feature provides.

An additional recent geo-spatial analysis measure, which has been an off-shoot of one professional consulting firm's proprietary version of CBM LOS analysis, called GRASP® (www.dcla.net), has shown promise in the professional P&R planning realm for addressing quality and dosage. It is called GRASP®Active. This measurement tool was developed for use in assessing the potential for a park system and the features within it to generate physical activity within the surrounding community. GRASP®Active merges CBM LOS for assessment of greenspace features (Penbrooke & Layton, 2007) with empirically derived evidence on health benefits (Shanahan et al., 2015; Shanahan et al., 2016) and active energy expenditure data developed by NCSU (Floyd et al., 2015) to evaluate the propensity of greenspace to generate physical activity. The resulting composite indicator (described in detail in Layton, 2016b) combines the quantity, distribution, functionality, and energy expenditure associated with park components with the quality of the overall park setting. The measure can be thought of as the potential "dosage" of physical activity associated with exposure to the park system and elements within it. Although GRASP®Active has been focused on aspects of greenspace related to physical activity, a similar approach could be used to develop indicators of greenspace strength related to other domains of health, including social, ecosystem, and economic outcomes.

Suggested Measures and Methods for Linking Health to Park and Trail Planning

Based upon information collected from an NCSU research project (Schultz et al., 2016), the Centers for Disease Control and National Park Service staff identified eight useful measures for linking public health goals to park and trail system planning (Merriam, Bality, Stein, & Boehner, 2017). These measures were vetted with park and recreation professionals, public health practitioners, and academic researchers. The suggested measures are:

Proximity – Percentage of the population (city/county/state/national) living within a half mile of a public park or trail corridor boundary.

Walking access – Percentage of the population (city/county) with less than a half-mile walk route to a public park or trail entrance.

Park connectivity – The ratio of the number of people with less than a half-mile walk route to a public park or trail entrance to the number of people living within a half mile of that specific park or trail corridor boundary.

Land area – Percentage of land area designated as public parks or trails.

Physical activity – Percentage of users engaged in sedentary, moderate, or vigorous physical activity at a specific facility area.

Visitation – Annual number of visits to a specific facility area.

Frequency – Average number of visits to a specific facility area by an individual during a period of time.

Duration – Average time spent at a specific facility area by an individual.

Self-Reported Data Tools

Gathering self-reported data related to the health factors through interviews, questionnaires, and other hardcopy or online mechanisms can provide an easy and relatively low-cost way to collect large amounts of data (Sallis & Saelens, 2000). Online surveying has enhanced the ability to get information from large populations at low cost (Flick, 2014). Objective observed data are typically more valid (if the tools are well-designed, reliable, and protocols are followed), and self-reported data sometimes have poor validity, as the subjects may have memory-related, emotional, or psychological reasons for providing responses that are not accurate. They may simply not recall the information, or may want to present the actual activities differently than is empirically true for social reasons (Pate et al., 2002; Remler & Van Ryzin, 2015; Sallis & Saelens, 2000).

Although research indicates many instances of using self-report instruments for PA research (e.g., GP RED – SMT, 2016; Saint-Maurice & Welk, 2014), most studies using self-reports do not provide accurate estimates of the absolute amount of PA, so when absolute amounts need to be estimated, objective measures should be used. Few self-report measures have been developed for or validated in distinct demographic, ethnic, or cultural groups (Sallis & Saelens, 2000). When used in combination with objective measures, the most effective role of self-reports may be to assess the context and type of physical activities.

However, given cost and resource limitations, especially when looking at system-wide PA, self-report mechanisms may be an effective way to gather large amounts of data. There is power in gathering data from large populations that help limit the challenges of small groups for self-report (Flick, 2014; Remler & Van Rzyin, 2015). Multiple self-report physical activity measures are available, with adequate reliability, content validity, and relative criterion validity that can be used with youth, adults, and older adults. There is still a need to improve the utility of self-report instruments that can be more effectively deployed in a cost effective way (Bauman, Phongsavan, Schoeppe, & Owen, 2006; Pate et al., 2002). Strong protocols, pilot testing of instruments, and testing relative to observed measures can help improve validity, but for the highest level of accuracy, they should be used as part of a mixed-methods approach, analyzed in a framework that considers full community context. A couple of the more innovative current methods for strategically gathering and organizing self-reported data and input follow.

Multi-Attribute Utilities Technique (MAUT). The Multi-Attribute Utility Technique (MAUT) is a nominal group technique that has been used for gathering organized self-report data. This method also facilitates PH decision making among diverse groups of stakeholders using identified relevant factors and indicators for the subject at hand by other (Chapman, 1999; Zachry, Woodie, & Skrepnek, 2002). Compton, Kim, and Damask (2012) adapted the technique to help community coalitions rank priorities of factors and indicators for P&R agencies, with a focus on five of the potentially modifiable health factors (PA, nutrition, transportation, social engagement, and safety) and various methods/indicators identified from the literature for addressing those factors. The method was pilot tested with South Bend, Indiana in 2012 with their *Active Youth Initiative*. Kim prepared ranking and calculation sheets for onsite usage, and performed a Mann-Whitney U-test (Siegel & Castellan, 1988) to examine if there was a significant mean difference in the perception of importance between groups. Since that time, the MAUT has been utilized with two additional community coalitions who were addressing positioning of P&R agencies as preventive public health providers (Liberty, MO, and Arlington Heights, IL). These agencies have representatives on the Delphi panel. As the Delphi panel Key Informants have used this method, examples were provided of MAUT results used in community process in the study repository, and are available in publicly released documents available at http://www.gpred.org/initiatives/healthy-communities-research-group/. The MAUT process includes a multi-stage rating by a group of onsite informants, with discussion and information exchange within the middle of the process to inform and engage informants of differing backgrounds. A quantitative scoring of coefficients is calculated and provided in real time for review and on-site validation. Most of the methods initially ranked Questionnaire #1 for the Delphi panel were based on the identified factors and indicators from the adapted MAUT process (Compton, Kim, & Damask, 2012). A full overview of the process, factors, and indicators measured is available in the community reports at http://www.gpred.org/initiatives/healthy-communities-research-group/.

Photovoice. Often it is important to use other means beyond oral or textual data collection, especially given populations with lower cognitive or developmental capabilities, or language barriers. Photovoice is a self-reporting engagement and onsite surveying process through which people can identify, represent, and enhance their community using a photographic technique (Wang & Burris, 1997). Photovoice provides a photo documentation observational method that can be used to train people to observe and document their priorities, perceptions of safety concerns, and barrier analysis, even without verbal or textual input (Henderson & Heath, 2015; Strack, Magill, & McDonagh, 2004; Wang, & Burris, 1998**)**. It can be used for documenting walking and biking with photos and text to show decision makers how the youth or those without strong language skills perceive in their world.

Photovoice has three primary goals: 1) to promote critical dialogue and knowledge about important issues through large and small group discussion of photographs 2) to enable people to record and reflect their community's strengths and concerns through visual means rather than just textually or orally, and 3) to help share that information with policymakers (Strack, Magill, & McDonagh, 2004; Wang & Burris, 1997). This tool has been used by a variety of researchers to enable youth and/or non-English speaking participants to graphically record examples of their thoughts and recommendations, and could be one viable tool for community specific youth research (Henderson & Heath, 2015; IPHI, 2015).

Although some may argue that this self-report tool may not be as valid and reliable as observational methods, with the advent of digital photography and cell phones with cameras, the decreased costs and ease of use is making this method more achievable for larger systems analysis. The photos tend to be more reliable indicators than verbal data provided. This has proven to be helpful as a health promotion strategy and increasing of awareness of barriers to decision makers through youth engagement (IPHI, 2015). This technique can be considered a component of Participatory Action Research (PAR), and includes image-based analysis. It has been growing in usage, particularly related research and planning for community health (Henderson & Heath, 2015). A related observational tool growing in use by researchers, but not fully described here or yet in use by practitioner agencies, is the use of *big data* visual photo gathering and analysis through community-installed cameras.

Methods and Strategies for a Potential Focus on Youth

In the literature, research has shown that the interventions often need to start with youth (Beyer, Heller, Bizub, Kistner, Szabl Shawgo, & Zetts, 2015; Shannon, 2006). Early adolescents (ages 12–14) may be an ideal group to examine more closely. They are typically cognitively and developmentally ready for more involvement, autonomy, and responsibility; hence, parental guidance, supervision, and authority wanes as peers assume more influence, presenting increased opportunities and pressure to experiment with risky behaviors (Steinberg, 1999). Recent literature lends support to the fact that some psychosocial factors such as self-efficacy and physical competence may be solid anchor points upon which to improve the participation of youth in voluntary activity (Frazier et al., 2015). The facilitated development of motor skills may also be a good means for enhancing the self-image of obese children (Guinhouya, 2012). Therefore, community interventions to increase physical activity and/or reduce obesity may also need to include focus on improving these personal dimensions around which physiological and environmental factors might revolve. Some health factors in youth may lead to lifelong impacts if not addressed early. For example, obese and overweight children and adolescents not only experience the physical consequences of obesity, they often also suffer from higher levels of depression, lower self-esteem, social isolation, more bullying, and a poorer quality of life in comparison to their peers that may carry on into adulthood (Hills, Andersen, & Byrne, 2011; Janssen, Craig, Boyce, & Pickett, 2004; Strong et al., 2005).

As one of the challenges for P&R agencies is in determining community specific information from the youth themselves, one form of collecting self-reported data is the surveying the youth within a given community. Much of research is focused on national, state, or county level (Slater et al., 2010). In recent years, there have a been a variety of youth-specific surveys or evaluation scales that attempt to garner evidence on knowledge, awareness, participation, and/or skills related to youth and the identified health factors on a community specific level. The purpose of the review of these types of tools in this study is not to validate or recommend a specific survey tool, but to identify some of the more common examples from the literature that are or could be used in a P&R setting to garner usable youth information from a specific community. PhotoVoice was listed a previous section, and that method can also be effective. Additional methods are listed below in no particular order.

Environmental Perception and Attitude Surveys. Research has consistently shown that children's outdoor experiences affect conservation values, stewardship behaviors, and participation in outdoor activities later in life (Wells & Lekies, 2006). There have been a variety of survey tools that have been created to use for gathering information on youth perception of the environment. Tools such that measure children's attitudes may help forecast a child's willingness to engage in pro-environmental behaviors and activities as an adult (Larson, Green, & Castleberry, 2011; Wells & Evans, 2003).

One example of a youth survey tool is the *Children's Environmental Perception Scale (CEPS)*, created by the University of Georgia researchers as a survey instrument to assess the environmental attitudes and awareness of children from different ages (6 to 13-yearolds) and ethnic groups (Larson, Green, & Castleberry, 2011). Eco-affinity and eco-awareness emerged from preliminary mixed-methods pilot studies as two distinct components of environmental orientations to be measured. This simplified evaluation tool may help educators and researchers examine the ways children perceive the natural world. It may also help to identify cognitive and affective aspects of existing environmental education programs that need improvement.

Additional similar environmental survey instruments have been utilized and published. The *Environmental (2-MEV) Scale* questionnaire was developed in Europe to measure adolescents' attitudes and gauge the effectiveness of educational programs, forming the basis for the theory of ecological attitudes (Johnson & Manoli, 2011). The 2-MEV Scale was modified for use with 9 to 12 year old children in the United States. Some other cited earlier instruments include *The Children's Attitudes Toward the Environment Scale (CATES)* (Musser & Malkus, 1994), the *Children's Environmental Attitude and Knowledge Scale (CHEAKS)* (Leeming, Dwyer, & Bracken, 1995) and the *New Ecological Paradigm (NEP) Scale for Children* (Manoli, Johnson, & Dunlap, 2007). Other often cited surveys include:

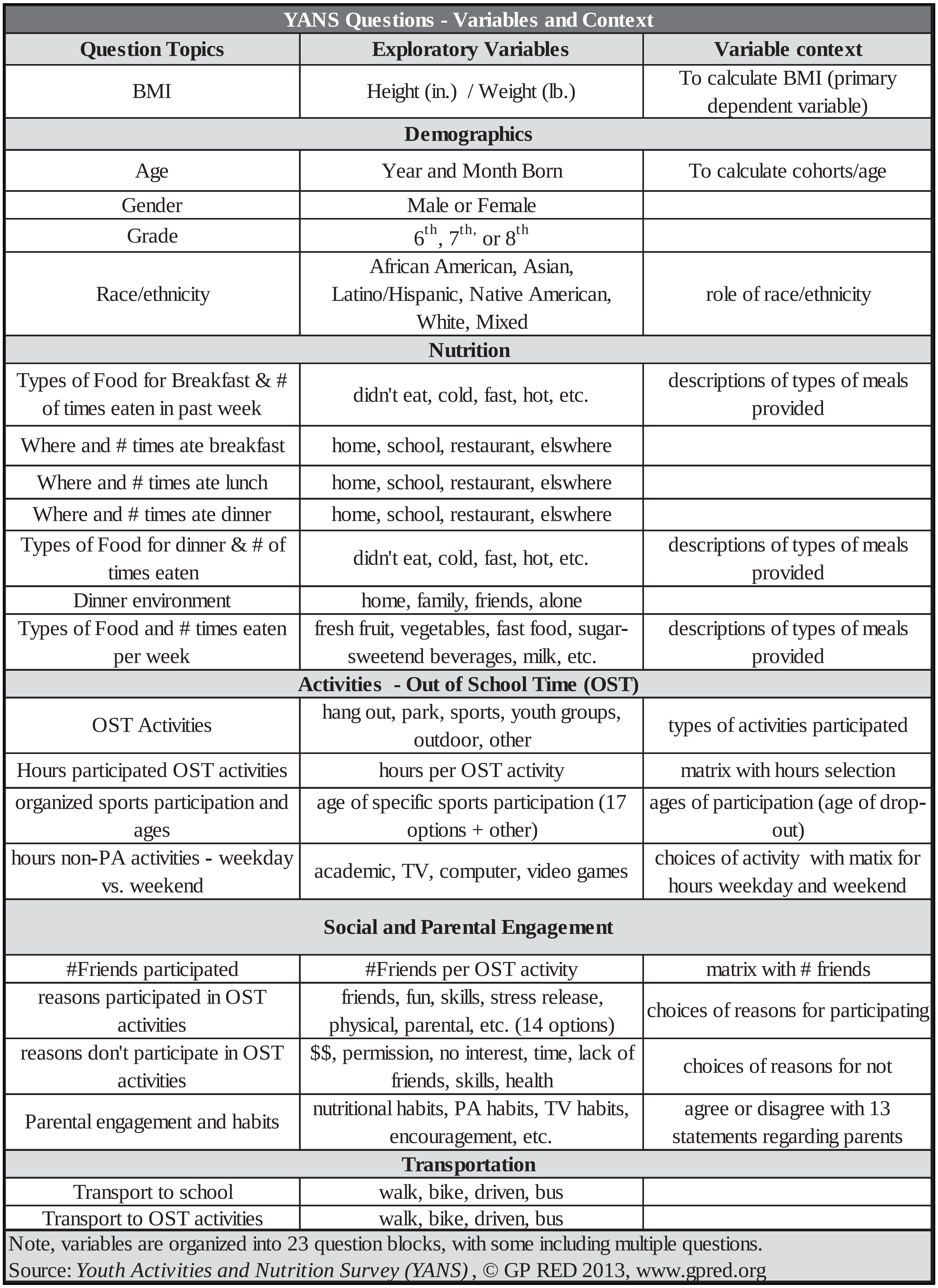
The youth-focused Neighborhood Environment Walkability Scale (NEWS-Y) provides a survey assessing physical activity in various locations (Rosenberg et al., 2009). The surveys have been tested for validity for adolescents regarding perceived land use mix-diversity, recreation facility availability, pedestrian/automobile, traffic safety, crime safety, aesthetics, walking/cycling facilities, street connectivity, land use mix-access, and residential density. The NEWS-Y has acceptable reliability when conducted by trained researchers and subscales were significantly correlated with specific types of youth PA. The NEWS-Y can be used to examine neighborhood environment correlates of youth PA.

The *Youth Activities and Nutrition Survey (YANS)* was designed as an online in middle-school survey specifically to help identify and address health factors that could be modifiable by P&R agencies (Kim, Jordan, Compton, & Penbrooke, 2015). It has been pilot tested, conducted, and considered effective and reliable in practice in three different U.S. communities (including two of the Delphi panel agencies) but has not, as of yet, been fully tested for reliability or validity through a peer-reviewed process.

Researchers from Indiana University, East Carolina University, and GP RED initially created the YANS. It is now owned and licensed by GP RED's Healthy Communities

Research Group (www.GPRED.org). The survey was created as part of a larger *Surveillance and Management Toolkit (SMT)* focused on exploring five primary LTPA and obesity factors: nutritional habits, physical activity participation, transportation and access, perceived safety, and parental/cultural engagement, as part of an overall ecological systems approach (Compton & Kim, 2013; Compton, Kim, & Damask, 2012; Compton et al., 2011).

To date the YANS has provided results from an online middle school youth survey from three communities (Liberty, MO, n=2,502; Arlington Heights, IL, n=1,425; and Halifax County, NC, n=551) for a total of N = 4,478. Known limitations have been found for using self-reported data from middle schools students, especially in terms of recall and honesty, and the use of self-reported height and weight to calculate BMI. However, with the power of almost 4,500 responses collected for the YANS from these three communities, it appears this may be a potentially important data source and potential tools for collecting youth-focused community-specific recalled data with relatively low cost and time investment. Community demographics were provided as study background. The online survey consists of 23 question blocks with variables as shown Figure 10. The survey was conducted during school time (average completion time was 18 minutes) using computers in schools, monitored by school representatives. A protocol and training was provided to schools for testing and approved by the Institutional Review Boards of both NCSU and East Carolina University.



YANS Questions - Variables and Context		
Question Topics	**Exploratory Variables**	**Variable context**
BMI	Height (in.) / Weight (lb.)	To calculate BMI (primary dependent variable)
Demographics		
Age	Year and Month Born	To calculate cohorts/age
Gender	Male or Female	
Grade	6th, 7th, or 8th	
Race/ethnicity	African American, Asian, Latino/Hispanic, Native American, White, Mixed	role of race/ethnicity
Nutrition		
Types of Food for Breakfast & # of times eaten in past week	didn't eat, cold, fast, hot, etc.	descriptions of types of meals provided
Where and # times ate breakfast	home, school, restaurant, elswhere	
Where and # times ate lunch	home, school, restaurant, elswhere	
Where and # times ate dinner	home, school, restaurant, elswhere	
Types of Food for dinner & # of times eaten	didn't eat, cold, fast, hot, etc.	descriptions of types of meals provided
Dinner environment	home, family, friends, alone	
Types of Food and # times eaten per week	fresh fruit, vegetables, fast food, sugar-sweetend beverages, milk, etc.	descriptions of types of meals provided
Activities - Out of School Time (OST)		
OST Activities	hang out, park, sports, youth groups, outdoor, other	types of activities participated
Hours participated OST activities	hours per OST activity	matrix with hours selection
organized sports participation and ages	age of specific sports participation (17 options + other)	ages of participation (age of drop-out)
hours non-PA activities - weekday vs. weekend	academic, TV, computer, video games	choices of activity with matix for hours weekday and weekend
Social and Parental Engagement		
#Friends participated	#Friends per OST activity	matrix with # friends
reasons participated in OST activities	friends, fun, skills, stress release, physical, parental, etc. (14 options)	choices of reasons for participating
reasons don't participate in OST activities	$$, permission, no interest, time, lack of friends, skills, health	choices of reasons for not
Parental engagement and habits	nutritional habits, PA habits, TV habits, encouragement, etc.	agree or disagree with 13 statements regarding parents
Transportation		
Transport to school	walk, bike, driven, bus	
Transport to OST activities	walk, bike, driven, bus	

Note, variables are organized into 23 question blocks, with some including multiple questions.

Source: *Youth Activities and Nutrition Survey (YANS)* , © GP RED 2013, www.gpred.org

Figure 10. YANS variables

Other youth community-specific surveys and constraints. Reimers, Mess, Bucksch, Jekauc, and Woll (2013) conducted a systematic review to identify reliable and valid questionnaires for assessing neighborhood environmental attributes in the context of physical activity behaviors in youth. Current gaps and best practice models in instrumentation and their evaluation were discussed. They identified 13 questionnaires on attributes of the neighborhood environment, with seven of them conducted in the U.S. They were examining strengths and weaknesses of methods primarily. They recommended that cross-culturally adapted questionnaires be used, with promotion of high-quality studies focused on standardized measurement properties. They indicated that measurement models should be specified to ensure that appropriate methods for youth-appropriate psychometric testing are applied in all studies.

Sampling procedures can cause challenges when based on school clusters or convenience samples, which might lead to clustered samples within similar neighborhood environments. In addition, convenience samples might not cover the entire target populations. However, youth specific surveying, in general, may be an efficient and feasible way to identify youth perceptions and activities within communities. As always, the larger the sample size, the more likely the results will be representative.

Summary of the Literature Review

This thematic literature review was initiated originally just to identify the modifiable health factors that can be addressed by P&R agencies. As the review continued, the research uncovered a variety of topics around systems theory, followed by organizational elements, methods, and strategies that appear to be important and relevant to P&R agencies. As new ideas emerged from the Delphi panel and case study, additional review and research was conducted. The findings on factors and strategies have purposefully not been presented in any priority order; however, as the review progressed the literature was analyzed in conjunction with the Delphi panel and case study priorities and input, key themes began to emerge. It became clear that to address the health factors from a basis of systems theory, I needed to include focus on three strong categories. These are 1) the theory itself (systems theory or systems thinking, and related theories) and how that may apply to P&R agencies, 2) the actual factors themselves, and 3) potential strategies and prioritization tools that can be used by P&R agencies to systematically address those factors.

Summary of Key Theoretical Findings

Systems theory posits that all components of the system are important (Shermann, 2000). Any deficit or gap can be present and can impose a challenge or constrain on the rest of the system. Related to P&R addressing modifiable PH factors, there are various systems interacting to potentially modify individual level health through P&R in a community. There is the overall community-level PH system. The local community includes additional actors beyond PH such as hospitals, schools, public safety, planning, transportation, private and non-profit alternative providers, and other governmental or community departments or agencies. The P&R agency system (the unit of analysis for this study) is just one actor within this overall system. P&R is the primary actor of concern in this study, along with the educational and research system that trains staff and provides knowledge (and/or transfer of knowledge) to the P&R agency. The ongoing need for knowledge transfer between research and practice realms continued to emerge as a guiding constraint or opportunity (depending on the agency) within the community system. The Delphi panel and case study helped to identify which strategies agencies can use, given where they are in their current knowledge base of the theories, evidence, and methods, decisions to adopt knowledge or create action, and their available resources, tools, and determined strategies.

Summary of Key Modifiable Factors

The research seems to illustrate a complex web of potential factors and tools. The primary factors from the literature were identified under themed categories of: assessing physical activity, nutrition, safety, transportation and access, parental/social engagement, access to nature, tobacco and alcohol use reduction, and the elements that measure or impact these factors. Each factor can be explored more deeply with a variety of sub-elements, and many are inter-related. Additional examples abound in the literature of the benefits of addressing these factors through P&R strategies. For example, it has been found that youth who reduce their overall television watching and videogame playing have shown weight loss as one result (Robinson, 1999). It has also been found that simply spending more time outdoors is correlated with increased activity (Pate et al., 2003) and reduction of stress, ADD, and ADHD (Kuo, 2010; Kuo; 2014, Kuo & Taylor, 2004). Finally, community-based interventions have proven to be an effective promotion of physical activity and weight management. These programs were most effective when focusing on decreasing sedentary behaviors and increasing motivation for activity (Epstein et al., 1995; Pate et al., 2003). The factors are often interrelated. For example, studies have found that focusing on diet (promoting healthy foods and balanced nutrition) as well as limiting sedentary activities (such as television viewing) can be linked to healthy weight loss and increase in PA (Epstein et al.,1995).

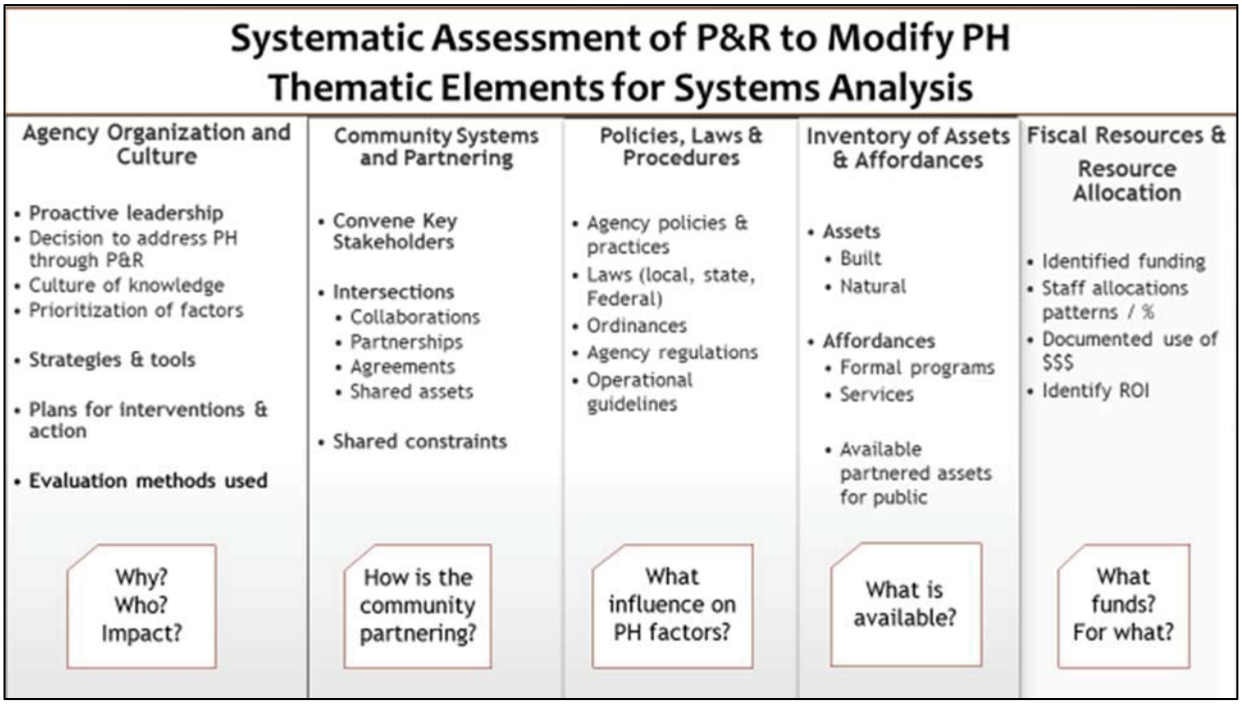
These findings from the literature substantiate that the efforts to create a community specific framework of improvements and interventions through P&R promote interplay of the key factors. It is important to remember that the focus of this dissertation research was not on further validation of these factors themselves, but rather on further identifying the potential methods, tools, and processes that P&R agencies are using to systematically address these potentially modifiable factors for positive outcomes. From this literature review, efforts moved forward to identifying and exploring examples of how some P&R agencies are trying to effectively do so.

Summary of Key Strategies to Address the Factors

After an iterative review of the literature, guided and modified by the Delphi panel and case study, the key strategies identified for addressing the factors were grouped under the following thematic categories of coding:

- Agency Organization and Culture
- Community Engagement and Partnering
- Governing Policies, Laws, and Procedures
- Inventory and Assessment of Assets and Affordances (Programs and Services)
- Financial Analysis and Resource Allocation

Figure 11 provides a schematic I adapted to identify and organize these thematic categories and sub-elements for further review and use. These categories of strategies were further explored in Delphi panel and case study research. A primary finding is that although a global systematic approach may be desirable, each community is different. The priority of factor importance and strategies need to be community specific, and determined through systems analysis, planning, and evaluation.



Systematic Assessment of P&R to Modify PH
Thematic Elements for Systems Analysis

Agency Organization and Culture

- Proactive leadership
- Decision to address PH through P&R
- Culture of knowledge
- Prioritization of factors
- Strategies & tools
- Plans for interventions & action
- **Evaluation methods used**

Why?
Who?
Impact?

Community Systems and Partnering

- Convene Key Stakeholders
- Intersections
  - Collaborations
  - Partnerships
  - Agreements
  - Shared assets
- Shared constraints

How is the community partnering?

Policies, Laws & Procedures

- Agency policies & practices
- Laws (local, state, Federal)
- Ordinances
- Agency regulations
- Operational guidelines

What influence on PH factors?

Inventory of Assets & Affordances

- Assets
  - Built
  - Natural
- Affordances
  - Formal programs
  - Services
  - Available partnered assets for public

What is available?

Fiscal Resources & Resource Allocation

- Identified funding
- Staff allocations patterns / %
- Documented use of $$$
- Identify ROI

What funds?
For what?

Figure 11. Systematic assessment thematic categories

CHAPTER 3 - METHODOLOGY

Overall Research Approach

This study focused on answering the primary and secondary research questions related to identifying factors and methods for intervention by P&R agencies to address preventive PH factors in their communities. The unit of analysis was case-level, for this study is about local P&R agency systems. The research included a mixed-methods approach (Babbie, 2016; Brennan Ramirez et al., 2006; Flick, 2014; Yin, 2015; Young et al. 2013), and primarily used inductive methodologies to identify, code, analyze, categorize, refine, and validate emerging theoretical and thematic categories (Charmaz, 2006; Flick, 2014; Strauss & Corbin, 1998; Yin, 2015). NC State's Institutional Review Board (IRB) for the Protection of Human Subjects in Research approved all methods used in this study. The use of extended contacts, repeated observations, continuous observations, corroboration, and triangulation of data sources and techniques helped to increase the internal validity (Flick 2014; Henderson, 2006).

The following process methods were used to address the research questions – an integrative thematic literature review (as summarized in Chapter 2), a Delphi panel of Key Informants (knowledgeable participants representing a local P&R agency), and a detailed case study of two agencies whose representatives also participated as a Key Informant for the Delphi panel. Focus on detail was greater for the case study agencies, and they were analyzed comparatively to the other methods. The analysis of case study elements became more deductive, guided by the categories to specifically explore application of agency resources and decision making for prioritization (Yin, 2015). The following sections describe the detailed processes for the Delphi and case study methods.

Delphi Study

After the initial thematic literature review was conducted and analyzed, a Delphi study methodology was used to explore and answer the secondary research question - SRQ2: Using Delphi study methodology, what do P&R professionals see as the key strategies in systematic prioritization of modifiable health factors?

The initial literature review informed the study through initial identification of theoretical basis and conceptual framework for addressing the research questions, modifiable health factors from the literature, and identification of initial potential strategies and methods for addressing those factors. Standard Delphi methods were used for further identifying expert consensus on suggested research and practice applications through reiteration and discussions.

The Delphi method uses a process of having an expert panel of Key Informants to formulate solutions to problems through several cycles of revision based on each other's feedback. Ideally, the end result provided a better solution than any of the experts could have arrived at individually (Landeta, 2006, Young et al., 2013). Other fields such as medicine, nursing, public policy, business, public health, and social work, have effectively used Delphi approaches (Maxey & Kezar, 2015), but in P&R related research, use of this technique is relatively new (Barth & Carr, 2014; Young et al., 2013). The Delphi method has proven to be a well-suited as a research tool when there is incomplete knowledge about a problem or phenomenon. Delphi studies typically includes two to four rounds of information gathering, and previous published studies have included between 4 and 171 experts (Barth & Carr, 2014; Skulmoski, Hartman, & Krahn, 2007).

For this study, a panel of 17 Key Informants representing local P&R agencies were identified to use the Delphi method to create a summary of suggested process methods for P&R agencies to address identifying priorities for the factors and interventions. The process was designed to provide input validity through reiteration. This helped identify processes used in the field, further gaps, and limitation in research. At times, as additional factors or strategies arose from the Delphi panel or case study, I conducted an additional literature review on those factors and included that evidence in the summarized literature review.

The Delphi technique has long been supported in the literature as a consensus-building tool based upon the collective opinion of knowledgeable experts (Hsu & Sandford 2007; Skulmoski, Hartman, & Krahn, 2007; Young et al., 2014). The primary weakness of using the Delphi method included the inherent nature of using subjective judgment of the experts selected (Green et al., 2007). The panel members were carefully selected according to specific criteria, and they were provided with and asked to review large amounts of information from the literature which helped to reduce misinformation on the topic, but they may not be fully representative of the field as a whole.

Procedures for Delphi Panel

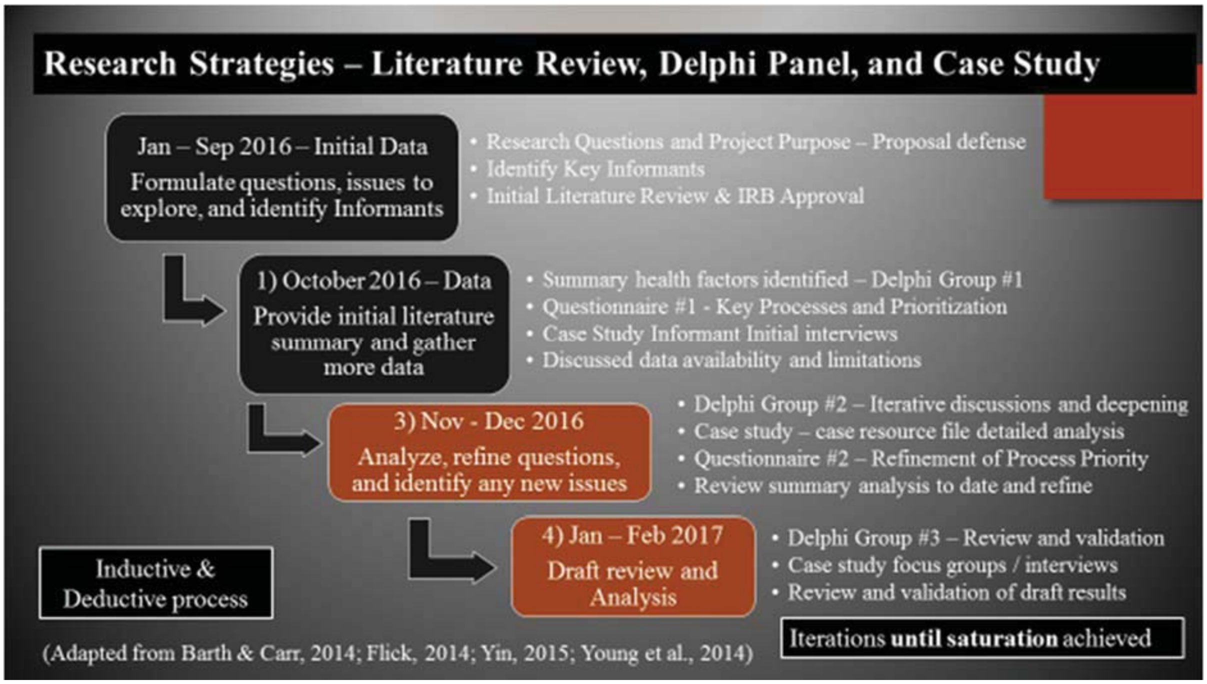
To identify Key Informants, I first reviewed a list of P&R practitioners I had personally compiled since 2010 who had been conference attendees for sessions related to P&R healthy communities topics, and who had indicated interest in participating in future research. In addition, I conducted a national search of P&R agency websites including keywords of “parks and recreation” and “healthy communities”, and gathered recommendations from a representative of Health and Wellness division of the National Recreation and Park Association. Eighty-eight potential Key Informants representing local

P&R agencies were invited through an IRB-approved form (Appendix B - Invitation to Participate and Appendix C. Informed Consent Form) to participate by email. Criteria for invitation to participate included:

- Must have been a mid to senior-level practitioner at a local P&R Agency with at least three years' experience in the field (to help ensure familiarity with the agency).
- Must have represented an agency that claims interest in addressing and/or improving outcomes for at least one of the key factors identified from literature through P&R agency actions.
- The agency had to claim to be trying to assign at least some staff resources, trying to convene stakeholders, collecting data, and /or attempting to identify measurable outcomes related to the factors.

Seventeen informants (19% of those invited) indicated eligibility, availability, and full commitment to participate in the Delphi panel. The rest invited either did not respond (about one third), emails bounced (four), and the remainder responded with a statement related to not having time to participate. No one invited indicated an opinion that this work was not important, and quite a few who declined requested to receive copies of the full study once completed.

The Key Informants indicated in the initial stages that they did not have a strong understanding of the theory basis behind this research. However, this method was used primarily to introduce them to systems theory, and to gain opinion and consensus for the factors, methods, and strategies statements that are provided in the results and conclusions. Figure 12 provides a graphic overview of the Delphi and case study process.



Research Strategies – Literature Review, Delphi Panel, and Case Study

Jan – Sep 2016 – Initial Data

Formulate questions, issues to explore, and identify Informants

- Research Questions and Project Purpose – Proposal defense
- Identify Key Informants
- Initial Literature Review & IRB Approval

1) October 2016 – Data

Provide initial literature summary and gather more data

- Summary health factors identified – Delphi Group #1
- Questionnaire #1 - Key Processes and Prioritization
- Case Study Informant Initial interviews
- Discussed data availability and limitations

3) Nov - Dec 2016

Analyze, refine questions, and identify any new issues

- Delphi Group #2 – Iterative discussions and deepening
- Case study – case resource file detailed analysis
- Questionnaire #2 – Refinement of Process Priority
- Review summary analysis to date and refine

4) Jan – Feb 2017

Draft review and Analysis

- Delphi Group #3 – Review and validation
- Case study focus groups / interviews
- Review and validation of draft results

Inductive & Deductive process

(Adapted from Barth & Carr, 2014; Flick, 2014; Yin, 2015; Young et al., 2014)

Iterations **until saturation** achieved

Figure 12. Delphi and case study process and timeline

Basecamp Study Management Site

I established an online group portal through Basecamp (www.Basecamp.com) to allow for sharing of resources and organized project contacts for all panel participants. As shown in representative Figure 13, a folder was created for each agency participating in the Delphi panel, and the Key Informants were asked to upload any pertinent agency summary documents, demographics, and policies, guidelines, planning documents, grant materials, or reports related to the health factors. All of the agencies contributed resources to the Basecamp folders, which led to sharing of 98 resource documents.

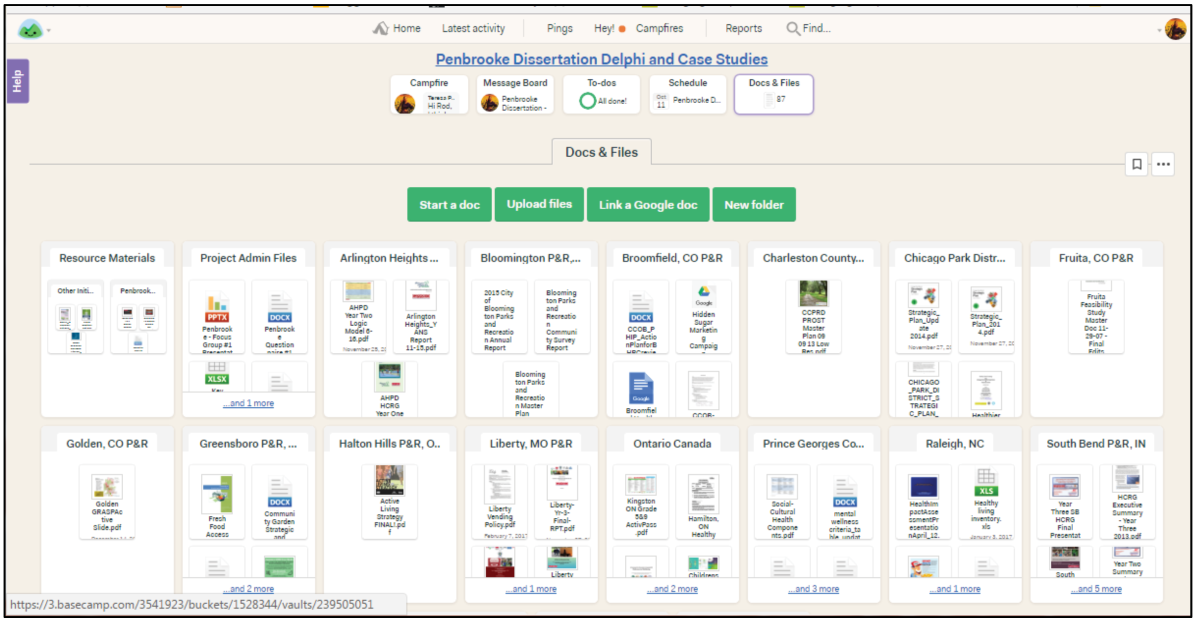

Home
Latest activity
Pings
Hey!
Campfires
Reports
Find...
Help
Penbrooke Dissertation Delphi and Case Studies
Campfire
Message Board
To-dos
All done!
Schedule
Docs & Files
Start a doc
Upload files
Link a Google doc
New folder
Resource Materials
Project Admin Files
Arlington Heights ...
Bloomington P&R,...
Broomfield, CO P&R
Charleston County...
Chicago Park Distr...
Fruita, CO P&R
Golden, CO P&R
Greensboro P&R, ...
Halton Hills P&R, O...
Liberty, MO P&R
Ontario Canada
Prince Georges Co...
Raleigh, NC
South Bend P&R, IN
...and 1 more
...and 2 more
...and 3 more
...and 5 more
https://3.basecamp.com/3541923/buckets/1528344/vaults/239505051

Figure 13. Screen capture of www.Basecamp.com resource portal, 12/24/16

Delphi Panel Round #1

The first round of the Delphi panel study included an overview of the initial literature review and the Delphi questionnaires, introduced through a web-based recorded conference call, labeled Delphi Group #1, using www.anymeeting.com. Semi-structured questions were included (See Appendix D – Delphi Group Protocol) with a focus on agency strengths and known constraints relative to addressing the potentially modifiable health factors. A PowerPoint summary presentation for Focus Group #1 was provided (Appendix F – Delphi Group #1 Presentation) to give the Key Informants a summary of the literature review on the initial theoretical basis, research questions, and the potentially modifiable health factors identified from the literature. The online meeting was recorded verbatim and then transcribed for analysis.

After the Delphi Group #1, the first questionnaire was administered online through a link to Qualtrics (see Appendix I – Questionnaire #1 Protocol & Appendix J – Questionnaire #1). Each preliminary factor was rated by the panel using Likert scales and open ended responses, denoting Informant’s choices of perceived priority and/or importance when applied to P&R process and practice. Round #1, Delphi Group #1 and Questionnaire #1 focused on:

- Confirming knowledge and perceived applicability for modification of the health factors from the literature that P&R agencies may be addressing
- Practices for how these agencies are addressing these factors
- These agencies’ approaches to prioritizing factors within a local setting
- Agency strengths for the approaches in terms of success and why
- Perceptions for how P&R can best build capacity to address these health factors

Questions were included to help determine which types of data are collected by the agency relative to the primary factors, perceived measureable outcomes, and gaps identified and to identify if they did not have this information, could not collect it for some reason, or are using other methods for analysis.

Delphi Panel Round #2

After I compiled summary responses and analysis from Round #1 into a second PowerPoint presentation (see Appendix G – Delphi Group #2 Presentation) and it was reviewed by the dissertation committee, a Delphi Group #2 online conference call was scheduled through a Doodle Poll of informants. This Delphi Group #2 introduced the Round #1 summary, invited deepening comments and suggestions, and was also recorded verbatim for later transcription and thematic analysis. Questionnaire #2 was introduced to deepen responses on the key factors and to further identify and refine the list of factors and process criteria as well as to develop a consensus by the Delphi panel. The second refinement and ranking online Questionnaire #2 was then created using Qualtrics to prioritize their perception of process, identified and prioritized relevant national initiatives, and potential achievable outcomes (see Appendix K – Questionnaire #2 Protocol & Appendix L – Questionnaire #2).

Both questionnaires included sections for open-ended responses to help identify any missing strategies, interventions, data collection techniques, and outcomes that the Key Informants reported related to these factors, along with questioning their ease of survey completion. Results from Questionnaire #2 were exported to Microsoft Excel and each question analyzed using the XLMiner Statistical Analysis Toolpack for descriptive analysis and prioritization.

Delphi Panel Round #3

After completion of Questionnaire #2 and the thematic summary analysis of the transcription for Delphi Group #2, I compiled the results into a presentation for Delphi Group #3 (See Appendix H – Delphi Group Presentation #3) . These were provided back to the Key Informants to review results. For Delphi Group #3, the Key Informant panel was asked to review the Literature Review and summary slides of the results in the presentation, provide validation and review, and submit new potential strategies through an additional focus group call with all of the Key Informants to deepen the findings and consensus, in line with common focus group methods (Babbie, 2014; Cyr, 2016; Yin, 2013). The primary objective of the Delphi Group #3 online call was to share draft results and generate conversations that helped further explore and uncover individual opinions regarding these issues. They also helped to reveal group consensus, where it exists, on the issues at hand. As in the literature for this method, the potential for data collection had emerged from the range of experiences and perspectives that these focused conversations uncovered (Cyr, 2016).

The Key Informants made new suggestions based on positive or negative feedback from within their professional experiences. The submission of the summarized methods, tools, and draft key conclusions were reviewed and prioritized through the second online questionnaire and discussed three or more times to arrive at consensus of accuracy of the results from the Key Informants.

Case Study

Concurrently with the Delphi study, an inductive qualitative case study of two purposively selected P&R agencies was conducted with focus on the following topic to address SRQ3: How are two agencies addressing and prioritizing modifiable key health factors in their communities?

The case study research design model for this study was informed by previous similar but different studies and reported methods (e.g., Brennen Ramirez et al., 2006; Compton et al., 2011; Ross et al., 2013; Yin, 2013; Young et al., 2013). The literature indicated that case studies can be most effective when they are methodologically-based to include collection of a variety of informing types of data to capture the process and factors in a detailed way through narrative interviews, focus groups, ethnography, and review of relevant secondary data. Case studies are not restricted due to intended comparability, and they are able to fully enhance the potential of the other methods used (Flick, 2014, Yin, 2013). Limitations to case studies can arise if only one case is used to generalize. To address that limitation and further enhance findings from this study, the process included identifying and analyzing two community systems within context of other methods.

I selected the case study approach, as this was foremost an exploratory study to identify the “how and why” aspects related to how agencies can address the factors in a systematic way in their given situation (Cyr, 2016; Yin, 2013; Young et al., 2014). This case study was an adapted iterative process gathering data that was combined with various other methodologies (e.g., the literature review, agency resource analysis, and Delphi study) to focus on potential systematic processes and strategies that these agencies are using, and may be useful as a model for other P&R agency research and application.

The two case study agency Key Informants who agreed to participate in this research represented Prince Georges County, MD, and San Diego County, CA. Although they have slightly different organizational structures and community demographics, both are award-winning larger agencies focused on providing P&R related activities, programs, and assets within their communities. Both case informants also served on the Delphi study panel.

These agencies were identified for this research as they:

- had an identified interest in the research questions
- indicated that they were willing to participate and will provide a representative for both the case study and Delphi study processes for the study time period
- indicated that they had been dedicating some staff resources towards addressing at least three of the key factors, with some focus for middle school youth
- reported they were currently attempting to use some sort of systematic approach to addressing the key modifiable factors for youth
- indicated they were currently achieving positive outcomes related to the research questions

Data Gathering from the Case Study

The case study format included explorations of factors addressed, interventions, methods, policies, and identified outcomes, from the literature and use methodologies and for additional qualitative analysis until saturation was reached (Charmaz, 2006; Flick, 2014; Glaser & Strauss, 1967; Strauss & Corbin, 1998; Yin, 2013). Primary data collection consisted of initial in-depth semi-structured interviews with the primary case Key Informant and detailed review of resources provided by the case Key Informant, followed by a supplemental presentation to help deepen understanding, a Focus Group, and/or interviews with additional agency-selected key stakeholders to review and to refine the identified themes for application to practice. The following summary steps were taken for the case study process:

A. Both representatives attended Delphi Group #1 as an introduction to the overall research. An agenda and comments were provided. Both representatives had access to all agenda, compiled data, and summary notes as created. Information from the dissertation research questions, the literature review, and the Delphi Study were provided in advance. Both agencies provided resource documents such as reports, plans, policies, grant applications, and guidelines uploaded to the Basecamp online study files open for review by both me and all other study Informants. Both case study Informants participated in all three Delphi Panel Groups, #1, #2, & #3.

B. Case data was compiled for each of the two agencies through detailed review of the resources submitted by the Key Informants for the Delphi Resources on Basecamp. In addition, general demographics and health behavior indicators were compiled from www.communitycommons.org.

C. Individual semi-structured interviews with the identified Key Informants from each of the agencies were conducted and recorded verbatim using a semi-structured format as shown in Appendix D (Babbie 2016; Flick, 2014; Yin, 2013).

D. Key Stakeholders Focus Group and Interviews - Following the interviews and Delphi Group #2, a snowball sampling of additional representatives was conducted within each agency to identify key additional stakeholders (key employees, volunteers, community partners, etc., from each agency). A summary presentation and semi-structured questions were developed based on the results from the Delphi Panel #3 presentation (see Appendix H) and the agency resource review, and asked related to processes and strategies used, goals and objectives related to the identified factors, and methods for determining outcomes. Deepening of understanding was pursued in areas of additional interest or findings. The case study Key Informants also participated in review of their own results and results overall through Delphi Group #3. The case study focus groups were conducted using simple semi-structured presentation and question formation to further identify summary themes (Cyr, 2016; Goulding, 1999; Yin, 2013).

E. The Key Informants reviewed and provided feedback to confirm findings (Cyr, 2016; Goulding, 1999; Yin, 2013). All comments were recorded verbatim and transcribed, and then later thematically summarized and reviewed again by the participants to confirm accuracy in capture during and after the calls. The final summary themes and analysis were again submitted back to the Key Informants for review and their perception of accuracy before integration into the Dissertation.

All web-based conference calls were summarized in real time and recorded verbatim for later transcription. Summaries and transcriptions were reviewed in detail, coded for thematic analysis through both frequency and node aspects related to the emerging categories of theoretical basis application and concepts, modifiable factors, and potential strategies to address the factors. This was done to try and understand the agency's process, and summary results were provided back to all Informants for validation review. A summary of collected case agency data was compiled and sent back to the representatives to check for accuracy of findings. Representative statistics were summarized for quantitative data, and summary text identifying emerging themes, limitations, and gaps was compiled and presented.

Case Study Analysis

Data from the two agencies were analyzed independently and comparatively to look for themes related to addressing the health factors. The research data were used in conjunction with interview and final focus group data to provide construct validity through continually watching for triangulation among differing data sources, differing perspectives on the same data set, and the use of various methods (Yin, 2015). For example, emerging themes were compared within the agency from the Delphi transcripts, the questionnaires, the interview transcripts, and the focus group, in addition to between agencies through comparison. The results and data from each stage were analyzed using grounded theory approaches advocated by Babbie (2016), Corbin and Strauss (2008), and Flick (2014). Stated briefly, grounded theory approaches follow many of the processes of grounded theory, and involve analyzing data for concepts through coding, comparison, and creating memos and diagrams. Corbin and Strauss emphasized that an open code should not merely be a summary of a particular portion of one's data, but rather it should be a tool for thinking conceptually.

They delineated two different comparisons, constant comparison in which I compared result to result within the data, and theoretical comparison in which I compared incidents in the data to findings or results within my own experience or knowledge. Comparisons like this can be used to help researchers “move more quickly from the level of description to one of abstraction” (p. 77).

The creation of researcher memos, figures, charts, tables, and diagrams and the resultant PowerPoint presentations for each round of the Delphi process also helped inform this analysis. The transcribed interviews, focus groups, and questionnaires were analyzed independently and then relative to each other and the results of the Delphi panel overall. Prior to the coding for themes, the first step was microscopic examination of the data (Henderson, 2006). During this step, I reviewed the data line-by-line in relation to researcher memos to better understand the perspective of informants and context of the data. This allowed for the identification of *in vivo* concepts to inform coding and iterative thematic summarizations. During the coding process, the data were categorized, organized, and sorted (Corbin & Strauss, 2014). Open coding of the data allowed common words and phrases to be analyzed to lead to primary categories of themes. Next, data were axially and then selectively coded, to refine the categories into like topics. Lastly, the data were process and outcome coded to identify key themes over time (Corbin & Straus, 2014; Yin 2015). As referenced by Corbin and Strauss as typical process, the memos and diagrams evolved over the course of the study, becoming more theoretical in nature over time. The concepts ranged from lower level concrete ideas to the higher level abstract conceptualizations needed to build theory and overall themes for conclusions.

As an aid to building theory, Corbin and Strauss advocated for deciding upon central categories or themes that serve as a unifying explanatory concept. They stated that the explanatory nature of themes distinguishes descriptive studies from ones that build theory. For this project, the health factors and the initiatives and methods identified in the literature review continually guided the thematic organization and classifications, but the inclusion of those initiatives and methods evolved and were deepened when new themes emerged. During open coding, I reviewed the data word by word and line by line and attached thematic codes to the data that related instances in the text to the concepts or categories (Grbich, 2007). This process was iterative and results from each transcription and questionnaire were read and reviewed multiple times. In addition, coded sections of text were reviewed together during the analysis process and discussed with the informants at each stage. Examining coded text together often resulted in further memos and additional questions for the next round of the Delphi panel and case study interviews, and generally prompted review of previous themes and interviews. The iterative process and continual input from the informants helped assess whether that particular code or theme was widespread throughout the data or limited to particular individuals/agencies.

Notes and summary memos were continually made during the data collection and coding process to develop the emerging themes in the results for discussion and conclusions, and were also further reviewed to help understand theoretical relationships between concepts. The independently coded interview data from the two case agencies were cross-analyzed to help draw conclusions, relative to the results of the Delphi Study. These patterns were also analyzed to determine if there were different stakeholder perceptions of strategy feasibility that may be achieved that were not in the initial factors and literature identification.

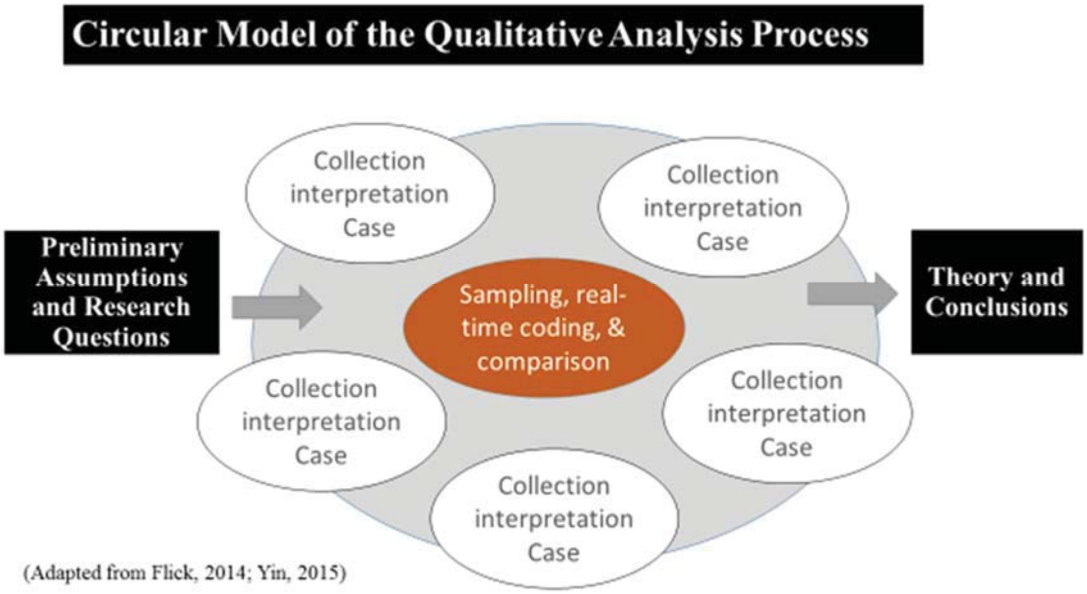
Final Analysis and Compilation

The reiteration of identified important key themes from the data continued until saturation was achieved (Flick, 2014; Glaser & Strauss, 1967; Yin, 2015). At each step, themes related to the identified factors from the literature and data collected, with alignment for potential modifiability by P&R agencies, were addressed and refined. The analysis included all four types of typical general case study strategies (Flick, 2014; Yin, 2013):

1) The identification of initial modifiable factors came from the literature.
2) Working data from the "ground up." – Review of secondary data and focus groups continually elicited new data for consideration.
3) Developing a case description – each case (the two agencies) were included along with a description and analysis.
4) Examining plausible rival explanations. – Data were examined for potential alternate findings, along with continual asking of "what are we missing?"

Circular Iterative Analysis

Analytic strategies included both real-time and summary review for pattern matching, explanation building through an iterative process. Figure 14 provides the model for the circular analysis process I used for validation and refinement (adapted from Flick, 2014; Yin, 2015).


Circular Model of the Qualitative Analysis Process
Preliminary Assumptions and Research Questions
Collection interpretation Case
Collection interpretation Case
Sampling, real-time coding, & comparison
Collection interpretation Case
Collection interpretation Case
Collection interpretation Case
Theory and Conclusions

(Adapted from Flick, 2014; Yin, 2015)

Figure 14. Circular and iterative dissertation analysis model

Although computer-aided coding and analysis software were used for the questionnaires and transcribed interview thematic analysis (including Qualtrics, NVivo and MS Excel statistical analysis toolpack softwares), the real-time validation of emerging themes with the focus group participants greatly supplemented the detailed transcription and computer-aided coding. It is believed by many researchers (including me) that in this type of public social science research, an over-reliance on computer-aided analysis minimizes the personal experience of the researcher, the interactive process, and the situational factors which can serve to add depth, rather than detract from the emerging developments (Cyr, 2016).

During conference calls and focus groups, key words and concepts were verbally summarized online to participants, and then compared with my researcher memos, then further edited for concise textual presentation of the key ideas in the summary presentations and report back. The interactions that occurred in the focus group settings for Delphi or case study participants were a source of additional data, which enhanced the individual and overall group unit of analysis. The interactive unit of analysis involved close attention to the back and forth that occurred between participants. As also identified by Cyr (2016), this interaction allowed answers to build and evolve, educating the Delphi panel Key Informants in the process, and uncovering nuances and complexities that may not otherwise be anticipated. This helped to identify areas of consensus or disagreement, as all Informants became more aware of the modifiable factors, methods being used by other agencies to address them, and potential outcomes.

In a second later process stage I incorporated my researcher memos, an organizing key themes listing, and interpretation of the key ideas to deduce the concepts and look further at theoretical meaning and summary themes. At this stage the concepts were sufficiently developed to incorporate the compatible literature and other research tools in order to demonstrate the ‘fit’, relationship and, where applicable, the extension of that literature through these research findings. The third stage presented the key ideas, uniting and integrating the concepts into categories within the specific context of the overall research and presented them back to the Key Informants and the dissertation committee for additional validation and review.

Key Themes Analysis Matrix

To finalize the overall assessment and check comparison of the many data sources, I addressed the iterative assessment through a Framework Method (Gale, Heath, Cameron, Rashid, & Redwood, 2013; Ritchie & Lewis, 2003) to compile a Key Themes Analysis Matrix in MS Excel, using a three-point color-coded scale (low, mid, and high priority). The row sections were summarized under factors, strategies, and outcomes, and the column headings included the source of the ratings: literature review, resource documents, Delphi panel (Questionnaire #1, Questionnaire #2, and focus groups), case study (Informant interviews, additional stakeholder interview, and final case study focus groups), along with a column for my researcher opinion and summary ratings.

Trustworthiness and Credibility

The study was designed to apply a systematic mixed-methods approach to a complex case-based research problem. However, as with all qualitative studies, limitations exist which have been acknowledged and addressed to enhance trustworthiness and credibility of the study. Many steps were taken to ensure trustworthiness. The selection of two case study agencies with similar characteristics helped with dependability because it allowed for easier comparison between the two park units. Notes and memos were taken to help develop emerging themes. During the rounds and coding process, I shared summaries with members of the dissertation committee after each round to review as a way to enhance trustworthiness. The review invited discussion on the process, the codes, and the emerging themes. Direct quotes and thick descriptions were also used to support the themes that emerge from the data. The key themes and conclusions were reviewed by the informants prior to finalization.

However, as with all research, there are limitations. First is the challenge of researcher bias. I have been involved with similar research since 1999, and may have brought a limited purview or natural bias in some areas. In addition, I am the CEO and Founder of a national P&R consulting firm, GreenPlay, LLC (www.greenplayllc.com), which has completed over 450 local community P&R planning and research projects around the U.S. I am also the Director of the *Healthy Communities Research Group* and co-founder of GP RED, a national 501(c)(3) non-profit research, education, and development organization which works with recreation, health, and land management agencies. In addition, I have personally previously worked in some planning, project management, or program employee and/or contractor capacity for five of the seventeen informant agencies, including Arlington Heights Parks District, IL; Broomfield, CO; Liberty, MO; Prince George’s County, MD; and South Bend, IN. I have working knowledge of and/or professional relationships with most all of the other informant agencies listed. GreenPlay and GP RED collaboratively maintain a national list of current contacts and/or have done projects with over 8,000 professionals, representing local governmental agencies, associations, universities, and vendors in this realm, so past relationships, communications, and/or direct contact was likely and unavoidable.

I fully acknowledge that researcher bias can interfere if care is not taken to use the group as an inductive process (letting themes emerge) rather than leading the participants to pre-determined themes (Yin, 2015). Although an initial thematic literature was conducted, there was a trade-off between bringing a lot of prior theorizing to the theme-identification effort, and looking at the data with openness to new information from the Informants. Prior theorizing could have inhibited the forming of fresh ideas and new connections (Charmaz, 2006), but I took great care to approach the data and results with an open mind, looking for the new themes or ideas. By examining the data relative to themes, I tried to be transparent in all communications, and looked not to find only what was previously assumed or experienced. Assiduous theory avoidance of prior evidence, on the other hand, could have brought the risk of not making the connection between data and important research questions (Flick, 2014; Ryan & Bernard, 2003; Yin, 2015). Constant review, reiterations, informant back-checking, and sharing of all data compiled was an important part of the research to try and help limit bias.

Limitations of the focus group methodologies were acknowledged and care taken at each stage with attention, as literature has shown that there can be over-reliance of emergent themes and concepts if there is not broad representation of the general study population in attendance. There was also a danger of placing too much emphasis on early identification of codes (themes) as the exclusive feature of the process, without explaining how the identified key themes relate to each other (Cyr, 2016; Glaser, 1992; Strauss & Corbin, 1990).

It was important to recognize that the Delphi study and case study focus groups and interviews were each just one a separate but important related method in a well-rounded mixed-methods approach (also including quantitative and descriptive questionnaires and separate informant resource analysis). They quickly helped identify key themes and allow for deepening of understanding and interpretation, but cannot be necessarily interpreted as an exhaustive account of all themes or concepts that are important for all P&R agencies. Further validation of the importance of the key themes through other mixed-methods research tools was an important consideration for overall context and accuracy (Yin, 2013). In addition, the Delphi panel of 17 Key Informants included the two case study informants, and was purposefully small in order to be manageable within this study timeframe and methods. All informants were already identified as interested in this topic through selection criteria, and may not be representative of all P&R agencies. Care was taken to also look for missing information whenever possible. A “scrutiny-based approach” was used in reverse, in addition to typical theme identification techniques (Ryan & Bernard, 2003). In addition to asking, “What is here?” the process included asking all involved continually and at each stage, “What is missing?”

Care was also taken related to the potential for the Delphi panel and case study participants’ reflexivity and/or bias in presentation of their data and observations. These representatives all work directly on these topics, and naturally want their agency to be presented “in the best light”. Presentations, focus group facilitation, questionnaire creation, and reviews included focus on findings for potential methods, strategies, and process applications, rather than implying positive or negative judgments about data and resources presented by each agency. The analysis focused on systematic process and applicability of methods, rather than analysis of actual data presented. To help with these limitations and potential trustworthiness issues, reiterative review by the full Key Informant panel and dissertation committee was invited to suggest additional data for consideration at all points of the study. Transparency was a goal through ongoing open presentation of all summary data, with the expectation that this collaborative approach with many experienced minds could effectively help get to the crux of the answers for this research.

CHAPTER 4 - ANALYSIS AND RESULTS

This dissertation is comprised of the results from three primary research components. The summary of the comprehensive integrative thematic literature review included identification of key factors that may be modifiable through P&R, theoretical basis, and an overview of related organizational elements and strategy themes that have emerged. This chapter focuses on the analysis and results of my original research, which included the Delphi panel study with 17 Key Informants to help validate and further deepen information relative to how local government P&R agencies are addressing those factors, and a concurrent case study of two agencies (who also participated in the Delphi panel) to deepen exploration to identify the “how and why” aspects related to how resourced and motivated agencies may address the factors in a systematic way in their given situation. All of the presentations provided and these research methods were couched under a broader basis of systems theory, looking at how these agencies can potentially adapt, identify, and promote change within their own community system to address the modifiable health factors. The aggregated summary results and analysis of these Delphi study and case study methods were explored relative to systems theory and systems thinking.

Delphi Panel Results and Analysis

The Delphi panel, including the two case study Key Informants, provided a variety of strategies for data gathering from this study, including three Delphi Panel Group Discussions, agency provided resources, input through online questionnaires, ranking of priorities, and review of findings. The following sections provide a summary of results from each stages of the research.

Key Informants

The Key Informants and their participation are shown in Table 3 for each agency.

Table 3. *Key Informants*

Agency	**Position**	**FG #1**	**Q. #1**	**FG#2**	**Q. #2**	**FG# 3**
Arlington Heights P&R District, IL	Rec. Director	X	X	X	X	X
Bloomington P&R, IN	Wellness Coor.		X		X	X
Broomfield, CO P&R	Fitness Supervisor	X	X	X	X	X
Charleston County P&R, SC	Asst. Dir. – Rec.	X	X			
Chicago Park District, IL	Wellness Coor.	X	X	X		X
Fruita, CO P&R	Director	X	X		X	X
Golden, CO P&R	Director	X	X		X	X
Greensboro P&R, NC	Youth Devel. Dir.	X	X	X	X	X
Halton Hills P&R, ON Canada	Active Liv. Coor.	X	X		X	X
Liberty, MO P&R	Director	X	X	X	X	X
Ontario Canada	Policy Analyst	X	X	X	X	X
Prince Georges County, MD	Res. & Eval Man.	X	X	X	X	X
Raleigh P&R, NC	Asst. Rec. Super.		X		X	X
San Diego County, CA	Wellness Coor.	X	X	X	X	X
South Bend P&R, IN	Director	X	X		X	X
Tacoma Metro Parks, WA	Chief Strat. Off.	X	X		X	X
Widefield School District 3, CO	Program Mgr.	X	X		X	X
Total		**15**	**17**	**9**	**15**	**16**

The research had continued contact and response, with only one Informant discontinuing mid-study due to personal time constraints. As explained in the Delphi Group #2 results section, that panel had some attendance issues, as times zones were confused through the Anymeeting.com software. All informants received the presentation and follow up by email.

Agency Demographics, Geographic Distribution, and National Recognitions

The Delphi panel Key Informants were purposefully invited to represent a wide variety of populations served and geographic locations as summarized in Table 4.

Table 4. *Key Informant Agencies, Populations, and National Recognition Status*

Agency	**Population 2015**	**Gold Medal**	**CAPRA**
Fruita, CO P&R	12,646		
Golden, CO P&R	18,867	X	X
Liberty, MO P&R	29,149		
Widefield School District 3, CO	51,281		
Broomfield, CO P&R	55,889		
Halton Hills P&R, ON Canada	56,809		
Arlington Heights P&R District, IL	76,024	X	
Bloomington P&R, IN	80,405	X	X
South Bend P&R, IN	101,168		X
Tacoma Metro Parks, Tacoma, WA	198,397		X
Greensboro P&R, NC	269,666	X	X
Charleston County P&R, SC	350,209		X
Raleigh P&R, NC	423,179	X	
Prince Georges County, MD	909,535	X	X
Chicago Park District, IL	2,695,598	X	X
San Diego County, CA	3,095,313	X	
Ontario, Canada	12,651,795		
Total		8	8

CAPRA – Accredited by the Council on Accreditation of P&R Agencies
Gold Medal – Recipient of NRPA Gold Medal national award

Although this study is focused on U.S. P&R agencies, two agencies from Canada (one small community and one province-wide ministry) were included, as these agencies in Ontario have been recommend by other Key Informants as having been thought leaders in addressing these health factors through intersection of public health and P&R. Some other agencies in Australia and New Zealand also were early adopters for addressing these issues, but due to the needs for real-time collaboration for the Delphi Groups, the agencies in Canada had an easier time participating and contributing their resources, thoughts, and review. Results indicated that the two Canadian agencies had similar resources and challenges to the U.S. agencies, but had more federal and provincial support funding due to the socialized nature of health care in Canada. However, resources provided were helpful to the other Key Informants and on the higher end of sophistication and evidence-base relative to the smaller agencies in the study. They were somewhat similar to those provided by the larger case study informants who had been addressing these factors for a similar length of time.

National recognitions, such as Gold Medal Award status and CAPRA accreditation, were identified as informative organizational elements, relative to potential links to organizational culture and effectiveness. Detailed correlational analysis was not conducted as to relationship of effectiveness to these recognitions (this could be indicated for additional future research), but the themes identified within the Delphi groups, case focus groups, and interviews indicated that those agencies who had the strong system planning focus (as required by the recognitions) tended to have stronger buy-in from their decision makers.

A map of the Key Informant geographic distribution is included in Figure 15. Even with a limited number of 17 Informants, there was broad cross-country and agency type representation.

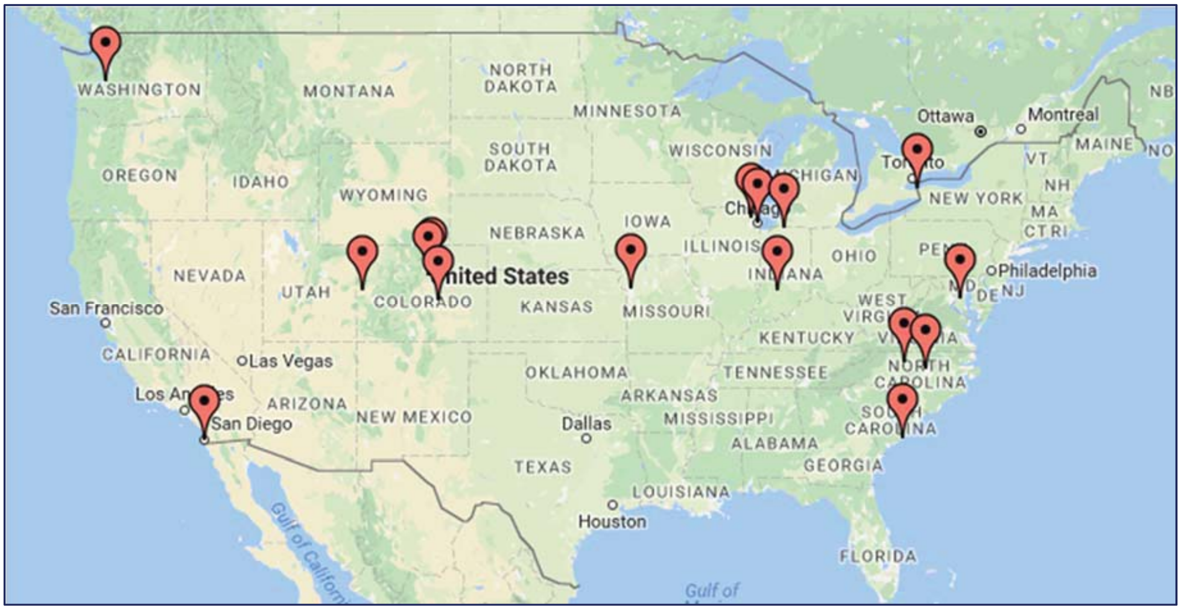

WASHINGTON
MONTANA
NORTH DAKOTA
MINNESOTA
Ottawa
Montreal
OREGON
IDAHO
SOUTH DAKOTA
WISCONSIN
MICHIGAN
Toronto
VT
MAINE
WYOMING
Chicago
NEW YORK
NH
MA
CT RI
NEBRASKA
IOWA
NEVADA
UTAH
United States
ILLINOIS
OHIO
PENN
Philadelphia
NJ
DE
MD
San Francisco
COLORADO
KANSAS
MISSOURI
INDIANA
WEST VIRGINIA
VIRGINIA
CALIFORNIA
Las Vegas
KENTUCKY
OKLAHOMA
TENNESSEE
NORTH CAROLINA
Los Angeles
San Diego
ARIZONA
NEW MEXICO
Dallas
ARKANSAS
MISSISSIPPI
SOUTH CAROLINA
ALABAMA
GEORGIA
TEXAS
LOUISIANA
Houston
FLORIDA
Gulf of California
Gulf of Mexico

Figure 15: Map of Key Informant agencies

Agency Summary Descriptions and Resources Provided

The following section provides a brief description of key findings from the Delphi panel agency backgrounds and the resources they provided for the study. Full Delphi methodology was provided in Chapter 3, and agency more detailed agency descriptions are provided in Appendix E. Delphi Panel Descriptions. In reviewing these data from a systems theory lens, categories for themes emerged from review of the agency descriptions, websites, and verbatim transcripts relative to the factors they addressed and the strategies they used.

Summary of Informant Resources Provided

As indicated in the Delphi agency descriptions, Informants were asked if they had any types of plans, policies, reports, assessments, or other documents from their agency they felt were related to addressing, management, or evaluation of any of the health factors presented from the introduction to the study in Focus Group #1. All Key Informants were asked to upload any such resources to their own folder created in Basecamp for the study. This created a repository of 98 resources provided by and for the Delphi panel. Although all indicated interest in addressing the factors, these agencies represent a wide variety of expertise and sophistication in trying to do so. Some have been only recently trying to address them, and just learning about this topic. Others (such as the agencies from Ontario, Canada, and San Diego, CA), have been working to systematically address the factors for over 30 years. Table 5 provides a list of documents, and perhaps more helpful, the next Table 6 classifies the type of document provided by each agency.

Table 5. *Resource Documents Provided by Informants*

Agency	**Resources Provided in Basecamp**
Arlington Heights P&R District, IL	AHPD HCRG Year One Report; AHPD YANS Report, 2015; AHPD Year Two Logic Model
Bloomington P&R, IN	BLPRD Community Survey Report Final; 2015 Bloomington Parks and Recreation Annual Report; Bloomington Parks Recreation Master Plan 2016 - 2020;
Broomfield, CO P&R	CCOB - Healthy Vending Policy
Charleston County P&R, SC	CCPRC P&R Master Plan, ACSM Exercise is Medicine
Chicago Park District, IL	CPD Healthy Vending Policy; CPD 2012 Strategic Plan - Exec. Summary; CPD - 2012 Strategic Plan; CPD 2014 Strategic Plan Update
Fruita, CO P&R	Have P&R MP, but does not address health factors; Recreation Center feasibility Study
Golden, CO P&R	GRASP®Active Slide, Golden P&R Master Plan
Greensboro P&R, NC	Greensboro P&R Fighting Hunger Article, Fresh Food Access Plan, Community Garden Plan, Prescriptions for Play, Renaissance Food Coop Flyer
Halton Hills P&R, ON Canada	Town of Halton Hills Active Living Strategy (2016)
Liberty, MO P&R	Liberty Demographic Report; Liberty Year One HCRG Report; YANS Liberty 2015 Report; Liberty HCRG & LCHAT Year Three Report; Liberty Vending Policy

Table 5. *Continued*

Ontario Canada	Ontario’s Plan for Healthy Eating, Active Living, 2006; OHCC - Healthy Communities and the Built Environment , 2008; Ontario Children's Outdoor Charter, Healthy Nutritional Environments in Recreation Facilities, Kingston ON ActivPass
Prince Georges County, MD	Social-Cultural Health Components; mental wellness criteria table; environmental wellness criteria table; physical wellness criteria table; Formula 2040 Functional Master Plan; HW Action Plan DRAFT 7-27; Plan 2035 Community Profile;
Raleigh P&R, NC	Raleigh Community Profile, Blue Ridge Road Corridor Health Impact Assessment Project, Healthy Living Inventory, Healthy Snack Game Plan Flyer, Healthy vending contract
San Diego County, CA	San Diego County Strategic Parks and Recreation Master Plan - 2016 -2021; LiveWell San Diego County Overview; Community Gardens Policy; Farmers Markets Policy; Vending and Concessions Policy; Parks and Recreation Operations Plan 2016-2018; Rec RX; Nature Explorers; Healthy Edge Guidelines
South Bend P&R, IN	SB Year Three HCRG Beta Site Presentation; SB HCRG Findings Report 2012; Year Two HCRG Summary Report; Year Two Summary and Year Three Action Pres Handout; South Bend HCRG Year Three Report; South Bend HCRG Year Three Report; Admin Manual; Demographics Report;
Tacoma Metro Parks, Tacoma, WA	Final Metro Parks 2014 Trends Report; MPT Strategic Action Plan 2013-2018; MLCPP Comprehensive Matrix; Metro Parks Tacoma Survey Findings Report January, 25 2016; NE Final Dashboard; CH_FinalDashboard.pdf; ALCW Final Dashboard; 6.9.16 Mission Led Comprehensive Implementation Plan; Mission Led Comprehensive Plan; MPT Health Food Options Policy
Widefield School District 3, CO	Widefield School District Parks and Recreation Master Plan, 2016

Table 6. *Types of Resource Documents Provided by Agencies as Addressing Factors*

Agency	**Comm. Needs Assess**	**Master / System Plans**	**Component - Based Inventory**	**Food/ Vending Policy**	**PA Program Plan**	**Other Policies/Plans**	**Logic Models**	**GP RED SMT Reports**	**Youth Survey**	**Other info**
Arlington Heights P&R District, IL	X	X	X				X	X	X	
Bloomington P&R, IN	X	X	X							
Broomfield, CO P&R	X	X		X						
Charleston County P&R, SC	X	X	X		X	X				
Chicago Park District, IL	X	X		X	X					
Fruita, CO P&R	X	X				X				
Golden, CO P&R	X	X	X							
Greensboro P&R, NC	X			X		X				X
Halton Hills P&R, ON Canada	X	X			X	X				
Liberty, MO P&R	X		X	X			X	X	X	
Ontario Canada	X	X		X	X	X	X			
Prince Georges County, MD	X	X	X		X	X	X			
Raleigh P&R, NC	X	X	X		X					X
San Diego County, CA	X	X	X	X	X	X	X			X
South Bend P&R, IN	X	X	X	X			X	X		
Tacoma Metro Parks, Tacoma, WA	X	X	X	X	X	X				
Widefield School District 3, CO	X	X	X							
Total % Agencies having Resources	**100%**	**88%**	**65%**	**53%**	**47%**	**53%**	**35%**	**18%**	**12%**	**12%**

The majority of these Key Informant agencies (88%) have system-wide community plans and all of them conduct needs assessments of their communities that have at least some mention or attempt to focus on addressing health factors. 65 percent have a completed a component-based method (CBM) inventory in GIS.

Popular specific policies and program specific plans include healthy food/vending policies (53%), physical activity plans (47%), and other types of program plans (53%). A lower number of PH-specific planning methods have been used, including creation of logic models (35%), or use of the *Surveillance and Management Toolkit*™ (SMT) - 18%). 12% have included youth specific surveying tools. This research did not identify the other specific plans, and some agencies are using additional strategies, such as working from checklists from the national initiatives. All Delphi agencies expressed gratitude at being able to review the plans and policies provided by the other agencies.

Results from Delphi Group Discussion #1

On October 18, 2016, all Delphi panel Key Informants (including the two case study informants) participated in an online recorded meeting with me using www.anymeeting.com, following the approved focus group protocol described in Chapter 3 - Methods, and using Delphi Group Presentation #1 included in Appendix F. The first portion of the meeting included an introduction to the project and an overview of the primary health factors from the literature. The Informants were then asked to describe their agency's primary strengths and constraints as related to addressing the potentially modifiable health factors. The responses were recorded and transcribed verbatim. Text of the transcriptions were reviewed for thematic elements through repeated commonality highlighting, and also using coding, nodes, and frequency queries using NVIVO 10 for Windows. Table 7 provides the top 20 word frequencies in response to the question, “What are the strengths that you see for your agency in terms of how you’re addressing these health factors?”

Table 7. *Top 20 Word Frequencies for Agency Strengths*

Focus Group #1 - Strengths Top 20 Priority Word Frequencies		
Word	**Frequency Count**	**Weighted Percentage (%)**
health	32	1.25
community	31	1.21
parks	30	1.18
programs	27	1.05
people	23	0.90
vending	21	0.82
healthy	18	0.70
working	16	0.63
policy	14	0.55
system	14	0.55
food	13	0.51
data	11	0.43
change	11	0.43
process	11	0.43
recreation	11	0.43
agencies	10	0.39
outcomes	9	0.35
resources	9	0.35
communities	8	0.31
partnerships	8	0.31

The Informants were focused on strengths related to how they are addressing health through the community’s P&R actions through parks, programs, and various types of policies and planning methods. Further thematic analysis of summary content identified the key strengths and constraints perceived by the Informants to be:

Key Strengths

- Healthy vending policies
- Community coalitions and partnerships
- Programs to increase participation
- Resources / staffing for larger agencies

Key Constraints

- Availability of resources & staffing (especially smaller agencies)
- Evidence-based evaluation tools and outcome measurements

Results from Questionnaire #1

All seventeen Delphi panel agencies (including the case study agencies) completed Questionnaire #1 through a link to a Qualtrics online survey. Aggregate analysis of the answers was conducted using the Qualtrics report features and Microsoft Excel 2013, with the add-in of the XLMiner Statistical Analysis Toolpack. The questionnaire included agency identifiers such as agency names, contact information, and name of Informant. The questions then delved into experience of Informants, preliminary ranking of priority of health factors for their agencies, their current perceptions of effectiveness of methods currently used, and about outcomes measurement.

Key Informant Roles and Background

Question 5 asked about their role in their organization. As Table 8 summarizes, the majority of informants are Directors or Senior Managers, with others as Supervisors, Assistant Directors, and two informants with titles specific to work related around the health factors (these were both from larger agencies). As a whole, Informants indicated that unless the agency was large and could afford to hire specialty staff, if attention was being paid to policies, planning, and partnerships aligning with addressing the health factors, it needed to come from upper level staff.

Table 8. *Role of Informant at Agency*

Q5 - Title / Role at Agency	**%**	**Count**
Director/Senior Manager	44%	8
Supervisor level (staff supervision, may be more than one program area)	33%	6
Assistant Director/Assistant Manager	11%	2
Coordinator/Programmer	6%	1
Instructor	0%	0
Volunteer	0%	0
Other:	11%	2
Wellness Manager	6%	1
Policy Advisor	6%	1

Key Informants were queried as to their length of time in the field as a way to indicate experience with P&R (ergo, accumulated knowledge of how this research may affect or be being addressed by their P&R agency). As one of the criteria for involvement in this research was at least three years in the field, all Informants but one had at least three years, with the majority having extensive experience (greater than 10 or 20 years). The one exception was the Executive Director for South Bend Parks and Recreation, as he had actually worked for the City of South Bend for many years as an Economic Development Director before he was recently moved to the position when the previous P&R Director retired. The agency and the prior Director had been a strong proponent of this type of work related to the health factors for his agency. An exception was made since this agency met all other criteria, the Director working with staff had ample dedicated resources to share, and so was deemed appropriate for inclusion. Figure 16 visually graphs this experience.

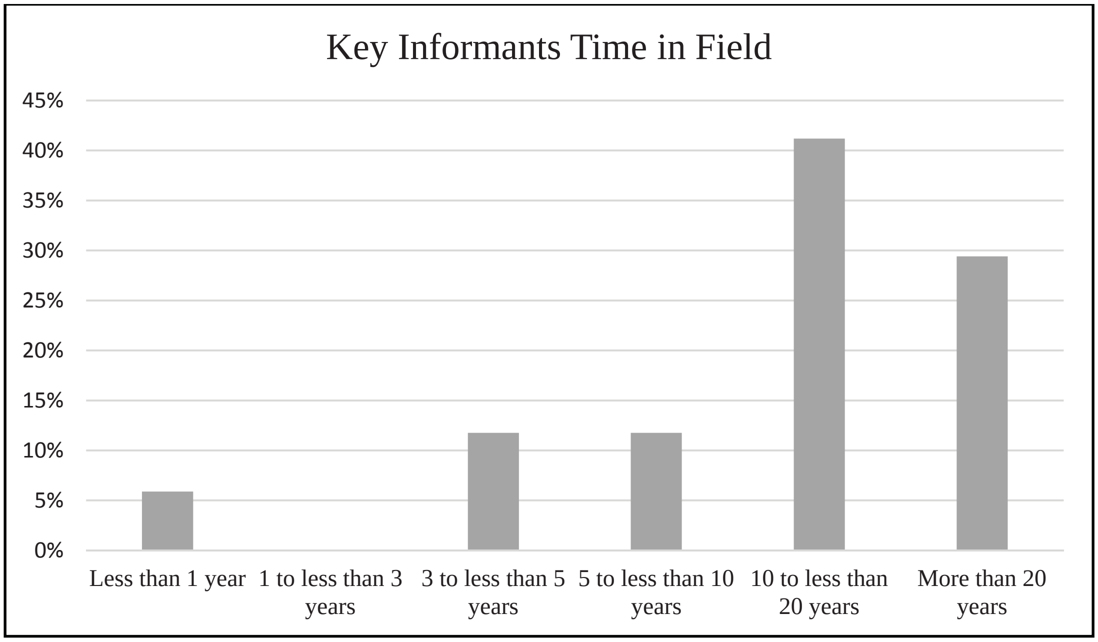


Figure 16. Key Informants time in field of P&R

Ranked Priority of Health Factors

The Key Informants were asked to rank the health factors identified from the literature on a 1 to 5 scale, with 1 as most important for their agency to address. Results are shown in Table 9.

Table 9. *Relative Priority of Health Factors by Key Informants*

Priority of Factors	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**
Physical Activity	71%	18%	12%	0%	0%	0%	0%	0%
Safety or Perception of Safety	20%	20%	7%	20%	0%	13%	13%	7%
Nutrition / Food Availability	6%	6%	25%	31%	13%	6%	6%	6%
Transportation / Access	0%	7%	13%	0%	7%	60%	7%	7%
Social/Peer Engagement	0%	38%	13%	19%	25%	0%	6%	0%
Parental Engage. / Education	0%	7%	27%	7%	33%	20%	7%	0%
Other Factors	0%	20%	0%	20%	60%	0%	0%	0%

The first priority for these Informants is PA. This is not surprising, as the primary role of many agencies is creating places and programs for people to move. Safety is also a higher priority (1st or second by 40% of informants), but not by all agencies, in fact, both of the larger Case Study agencies ranked Safety as the highest priority. After that, the priorities become less clear, and conclusions less obvious. They vary by agency and community system. Other factors were also reported but were deemed lower priority. These additional factors were provided through open-ended responses that included Tobacco Cessation, Team Building Skills, Stress Management, and Access to Nature, with each answer receiving one response.

Perceived Effectiveness of Strategies to Address Health Factors

The next set of questions explored the Key Informants' perception of effectiveness of a variety of tools, strategies, methods, and initiative steps from the literature to address the primary health factors. Results from these agencies indicate that creating programs and community coalitions specifically to address the health factors are deemed the most effective methods. Hiring specific staff resources and pursing grant funding were also indicated as effective, but substantial numbers of agencies have not used these methods. When asked during the subsequent Focus Group as to why they have not used these methods, a typical answer was that resources are generally not available, especially in smaller communities. Table 10 provides a summary of Informant-perceived effectiveness of methods.

Table 10. *Percent Rating of Informant Perceived Effectiveness of Methods*

Question 25 – Potential Methods to Address Factors	**Extremely effective**	**Moderately effective**	**Not effective at all**	**Never used**	**Don't Know**	**Total**
Creating specific programs	41%	41%	0%	12%	6%	17
Creation of a community coalition	41%	18%	0%	35%	6%	17
Hiring specific staff to address	35%	12%	0%	47%	6%	17
Pursuing grant funding	31%	25%	6%	38%	0%	16
Analyzing partners and alternative providers	29%	41%	0%	24%	6%	17
Youth Programs	25%	56%	0%	19%	0%	16
System Inventory of Assets	19%	38%	13%	25%	6%	16
Systematic Program Analysis	19%	50%	6%	19%	6%	16
Creating Positive Policy focus	19%	44%	0%	31%	6%	16
Centralized web/social media	18%	24%	0%	47%	12%	17
General community surveying	18%	47%	6%	18%	12%	17
Other special assessments	18%	41%	0%	18%	24%	17
Evaluation of crime / safety	13%	31%	0%	25%	31%	16
Creation of Youth Group	12%	41%	0%	41%	6%	17
Parental education	12%	53%	0%	24%	12%	17
Financial analysis of impact	6%	13%	0%	75%	6%	16
Surveying of youth	6%	75%	0%	13%	6%	16
Correlation of health metrics to site planning	6%	19%	0%	38%	38%	16
Physical Evaluation (like BMI)	0%	29%	12%	47%	12%	17
Other	0%	33%	0%	33%	33%	3

Outcomes Assessment

The Informants were asked if they measure outcomes related to the primary health factors. Figure 17 provides the results in graphic form.

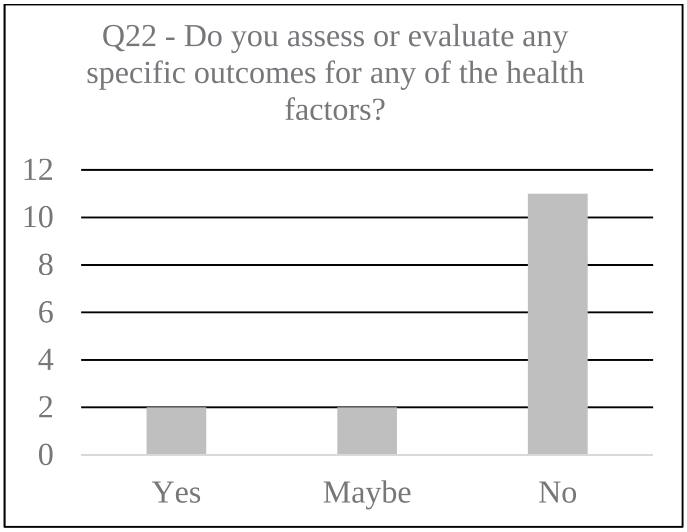


Figure 17. Do Key Informant agencies measure outcomes?

Informants indicated that 13% said yes or maybe, and 69% said no. Of those who said yes, 67% measured outcomes for PA, and 33% measure outcomes for nutrition, with the following verbatim open-ended responses:

- For the Exercise is Medicine Programs, we conduct an initial pre-engagement assessment, then conduct regular assessments at three month intervals. Each assessment consists of individual physical tests to gauge advancement or decline.
- We measure BMI before and after program, self-reporting of weight, heart rate, & diets.
- We have a comprehensive evaluation strategy in place to monitor the outcomes of the Town's Active Living Strategy.
- We mostly track attendance numbers, but not factors such as BMI or behavior change.

Staff Time and Resources Allocated

These questions were researching the percentage of personal informant time and number of full-time equivalents (FTEs) of other staff that may be allocated to specifically address the health factors. Figure 18 provides results.

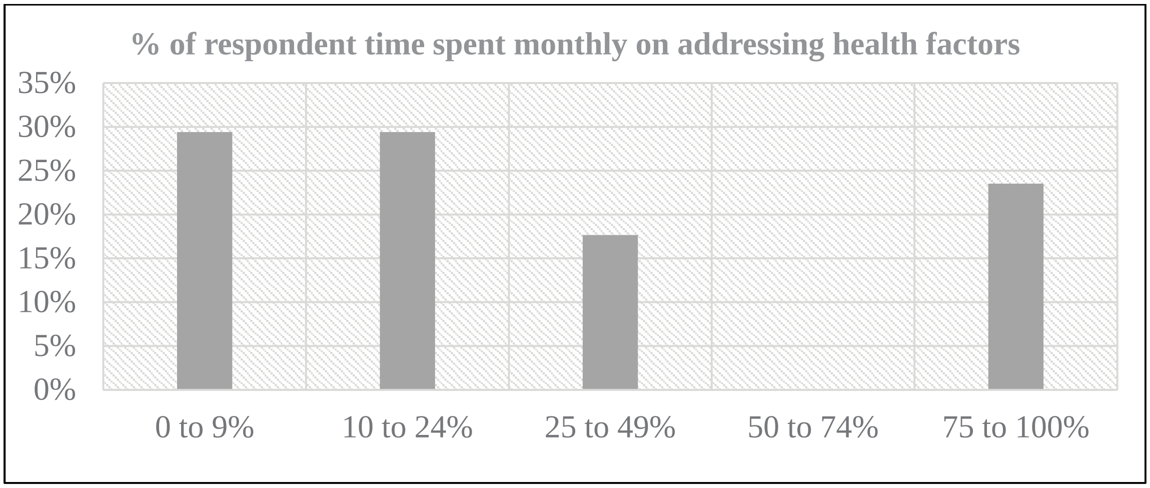


Figure 18. Percent of Key Informant time spent on health factors

The amount of time varied greatly, and may be related to agency and/or community size. Table 11 shows the frequency of respondents who reported having other staff in their agency who are also assigned to address these preventive health aspects.

Table 11. *Number of Full-time Staff Equivalents (FTEs) Assigned Beyond Informant*

# of Respondents	# of other FTEs assigned
3	3
1	5
2	6
1	10
1	20

71% of the agencies reported that they have additional staff besides themselves assigned. The number of total additional FTEs ranged from 3 to 20, with the larger agencies having the most staff assigned. San Diego County had the most, with 20. Charleston County reported 10, Chicago Park District and Halton Hills both reported 6, Metro Parks Tacoma with 5, Prince George's County with three, and the others were lower.

Results from Delphi Focus Group #2

Delphi Panel Group #2 was conducted on November 30, 2016. Nine Informants participated in an online recorded meeting with me using www.anymeeting.com, following the approved Focus Group Protocol (Appendix G). Unfortunately, seven of the informants were unavailable at the later time. To help remedy this error, Special emails and Basecamp notifications were sent after the meeting summarizing the questions and asking for necessary clarifications and input, pointing to results thus far including in the Delphi Group Presentation #2, and a special question block was added to Questionnaire #2 to address input that was requested during the Delphi Group #2. The Delphi Group #2 online meeting was facilitated with the focus on presenting the results from Questionnaire #2, along with follow up questions related to confirmation of the information presented thus far. Consensus was obtained that the information appeared to be correct and useful. Informants reported finding strong value in the creation of the Basecamp repository for resources. Several suggested that they be organized by type rather than just by agency (a matrix was created for this purpose in results for Questionnaire #2), and several stated that this was a key benefit to participating in this Delphi Panel.

Results from Questionnaire #2

Of the Delphi Panel Key Informants, 15 of the 17 (88%) took the second questionnaire through Qualtrics. To begin, as a follow up from Delphi Group #2, the Informants were asked an open ended question about whether they were surprised by or not surprised by the summary of information from Questionnaire #1 presented in Delphi Group #2 presentation. This was coded into categories based on *surprised, not surprised*, and *key observations* about the factors as summarized in Table 12 on the following page. As expected, there were sometimes differing thoughts on the same topic.

Table 12. *Key Informant Thoughts on Review of Questionnaire #1 Summary*

Surprised by	Not surprised by	Observations
partnerships were so low	rang true	glad to see creation of coalitions
safety did not rank higher	rank order	safety is a fundamental human need, want matrix of resource materials
safety ranked so high	information is consistent	difficult to measure change in short period
lack of outreach to public	all seems valid	
70% of agencies do not measure outcomes related to health	no surprises	what programs are being implemented around safety?
lack of data collected by some agencies	seems spot on	work would not be possible without partnerships
impressed by # of resources some departments have	it’s the same for others	data presented were clear and certainly validated our current position as a department
policy templates not available	no surprises	want to know who measures what
social media may be a motivator	presentation on target	all seems to ring true
	no surprises	effectiveness of methods are valid
	importance of collaboration	would spend more time on data and analysis if we had the resources
	all seems valid	we are more data driven on economics and financial implications versus health factors
		we think we as P&R professionals know what to do without going to the public
		larger communities benefit from stronger policy direction
		evidence suggests that information based campaigns do not lead to behavior change
		looking forward to more information from resources

Ranking of Participation with National Initiatives

To deepen into exploring awareness and participation in national initiatives, a list of the 31 national initiatives which appeared to be relevant to P&R and their efforts to address the modifiable health factors that were identified from literature web searches, and the resources provided by the Delphi Panel were compiled for the survey. A complete table showing all agencies and initiative participation past and present is included in Appendix A – National Initiatives and Agencies Active with Them. Initiatives with the Delphi agencies responding that they are currently active with them are shown in Table 13:

Table 13. *National initiatives - Agencies Currently Active*

National Organization	**% Active**
Safe Routes to School	53%
Community Health Needs Assessments	42%
Let's Move	38%
NRPA's Safe Routes to Parks	36%
NRPA's Commit to Health	36%
Community Health Improvement Plans	33%
Complete Streets	33%
After School Association's - HEPA	27%
Live Well	25%
KaBOOM!'s Playability	23%
Alliance for a Healthier Generation	20%
Active Living Research	18%
GP RED's SMT	18%
GP RED's Safe Routes to Play	18%
SPARK	15%
NIOST's Healthy Out of School Time	11%
ACHIEVE	10%
Active Living Coalition	10%
CDC's Healthy Places Parks HIA Toolkit	10%
Eat Smart, Move More	9%
Healthy Parks Healthy People	9%
NFL Play 60	8%
Healthy Kids Concepts	8%

The respondents were then asked for an open-ended response on which initiatives have been most helpful to their agency and why. The comments all included verbatim in Appendix A. Several indicated that they would like see these initiatives, especially NRPA, GP RED's SMT, CHNA, CHIP, Public Health Institute, National Leadership Academy for the Public's Health, CDC, and Robert Wood Johnson Foundation work and energy harnessed into one giant movement.

Ranked Strategies to Address Specific Factors

Building upon the preliminary ranking of potentially modifiable health factors identified in Questionnaire #1, the next series of question blocks included perceived ranking of priorities of effectiveness of various identified methods and strategies to address specific health factors. The lists of strategies were culled from the literature, with a focused adaptation of those utilized in previous multi-attribute utilities technique (MAUT) studies, created by Compton, Kim, and Damask (2012) in previous research. Additional strategies were added from literature and early Delphi Panel findings in this study, and each question block included an answer for *other*, with additional room for comments. All of the methods and strategies for addressing health factors were compared relative to priority in effectiveness overall by the Informants. Detailed analysis was conducted for each factor separately, and then aggregated in summary format. The descriptions of strategies and methods have been shortened here for readability, but are included in full in Appendix L – Questionnaire #2.Those strategies that received greater than 40% rating as Priority #1 for effectiveness in addressing the health factors are depicted in Figure 19.

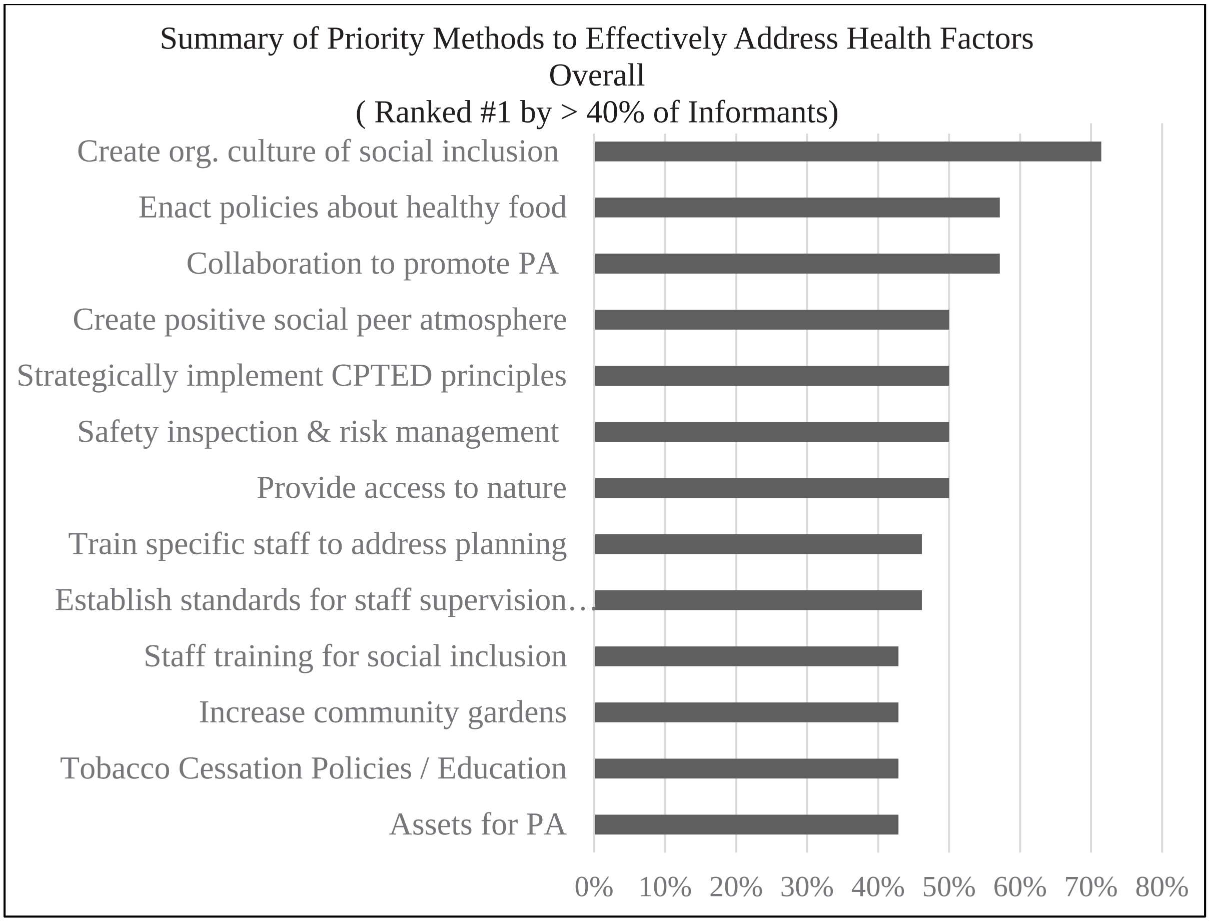


Figure 19. Overall priority ranking of effectiveness of strategies to address health factors

Results from Delphi Group #3

Delphi panel Group #3 was conducted on January 6, 2017. Sixteen Informants participated in an online recorded meeting with me, using www.anymeeting.com, following the approved Focus Group Protocol described in Chapter 3 - Methods, using Delphi Group Presentation #3 included in Appendix H. The purpose of this final panel meeting was to provide an overview of preliminary summary results thus far, with a focus on results from Round #2 that had not yet been presented, along with questions related to obtaining consensus on the results and preliminary conclusions. Informants were led through the slides in Delphi panel Group #3 and asked to provide any comments or corrections. A couple of adjustments were suggested and made to the various participation points summary, and a couple of Informants updated their national initiatives participation. The chart of total resources available from Informants was discussed, and one Informant added an additional vending policy. The chart included in Appendix A of which agencies are or have been active with national initiatives was seen as a great help, because now they could contact each other about participation or questions about the national initiatives. Comments were made that the collection of resources and access to examples of what other agencies were doing was one of the best parts of participation for the informants. Several Informants indicated that they had not been previously aware of the breadth of work other agencies were doing.

An additional common theme that emerged was the identified need for an ongoing national repository for available evidence-based research for practitioners, along with examples of how other agencies are addressing the factors through plans, policies, templates, and logic models (similar to what was made available to these Informants through their participation in the Basecamp site). One representative comment that garnered agreement was:

> There are a number of agencies that are looking at health and how parks and recreation can play a role in the health system, and they really are struggling to try to figure out how to do it. They feel as though there's not one place to go for all the information. Where can you just go and get evidence-based practices? And they're just not sure where to find it because it seems like there's so many different places to go.

The Informants indicated consensus that there are just not enough data or tracking mechanisms in place to really have a specific focus on youth at this time. They were surprised that so much literature and research was available, but none had the capability yet of fully tracking middle school age participation separately, and only three had been able to work with schools to do youth-specific self-report surveying. The conclusion from the group was that they know more detailed tracking and evaluation is needed, but current software system reporting functions do not allow for that type of detail easily in practice.

In review of the other factors suggested, consensus indicated that the factors identified seemed accurate. In addition, access to nature and tobacco cessation were added as two key factors that may be modifiable by P&R, but the two other identified factors, stress management and development of teambuilding skills should be classified more as potential outcomes from addressing several of the other factors. At the end, the question was again asked, “What is missing?” The common theme was identified that given current knowledge bases of all the different types of agencies and level of knowledge of the Informants, saturation had been achieved through this work. A representative summary comment was:

> When I looked at your summary slides about going forward, implications for research and practice, I thought that was a fantastic summary. And a lot of those things really resonate with me particularly from just going through the process of developing our active living strategy. I think there's a real strong focus now on research-based initiatives and we're being asked to verify that there are positive outcomes associated with the different activities that we planned. And I also think that we are being called upon more and more to evaluate what we are actually doing. And that is a challenge. So I was somewhat, as others have said, relieved to see that we're not the only recreation and parks department that struggles with that. This whole thing is definitely in need of a strategic systems approach. That summary conclusions slide

> really resonates with me. I think the thing that we have to look forward to in the future is how we bridge the gap between research and the practitioners. We really look forward to an opportunity to see simplified templates in terms of how we can effectively implement some of these strategies that others have either tried or are trying. I'm also really interested in the park prescriptions and working with local health providers and the insurance industry. But, at any rate, it’s been really good to be able to see what other folks have been doing. And our agency is looking forward to participating more on a national scale to help forward this issue.

Based on review of comments and results, it is clear that the Key Informants found their participation in this research to be beneficial. Most of them were surprised by the large amount of research that is available in the literature, found benefit from the national repository of sample documents and policies on Basecamp, and agreed that additional systematic approaches to addressing the factors and learning more from the research realm would be valuable. The perceived limitations around using a systems approach to address the key preventive health factors were all about not having enough resources to do so, needing more time, money, or staff.

Case Study Results and Analysis

Two local government county-level Departments of P&R (DPR) were selected for more detailed level case study analysis, Prince George’s County DPR (PGC), is part of the Maryland National Parks and Planning Commission, and the key Informant was John Henderson, Research and Evaluation Manager. San Diego County (SDC), California was represented by Key Informant Christine Lafontant, Region Manager. The reason for selection of county-level agencies was that data are typically available for comparison at a county level, and these selected agencies are large enough to have dedicated staff and other resources available to address the health factors. Both of these agencies are Gold Medal Award Winners from the National Recreation and Park Association. The Gold Medal Award honors communities throughout the United States that demonstrate excellence in long-range planning, resource management, and innovative approaches to delivering superb park and recreation services with fiscally sound business practices (NRPA, 2016). Both are included in the 152 agencies currently accredited through the Commission for Accreditation of Park and Recreation Agencies (CAPRA), which accredits P&R agencies for excellence in operation and service (NRPA, 2016).

The two selected agencies are located on opposite coasts of the U.S. Both have urban, suburban, and more rural areas within the counties, and both are larger agencies with dedicated resources towards attempting to define, address, and measure some outcomes relative to the health factors that are potentially modifiable through community P&R. Both have indicated that they have some resources focused on programming and spaces for youth, but like the other Key Informants, neither have strong tracking and evaluation practices in place at this time to separately evaluate the youth components in most cases.

The results from the case analysis are outlined on the following pages with an initial section on demographics and various county-wide indicators for both agencies, followed by more detailed analysis of methods, processes, resources, and outcomes addressed from each County.

Case Study Demographics

All demographics have been compiled from the free U.S dataset of the *Community Commons Community Health Needs Assessment* tools (www.communitycommons.org), which is primarily sourced from US Census Bureau, American Community Survey, 2010-14, along with other sources for specific indicators. Note that these final population numbers may differ slightly in this section from those seen elsewhere in resources for this study that have come directly from the agencies, as they may be sourced from varying years. This tool was funded on a federal level to help enable non-profit health care systems to comply with the *Affordable Care Act*, and provides a convenient, reliable free portal for demographics and some health indicators down to a county level.

Population and population density. Although both case study agencies are large coastal counties on opposite sides of the U.S., PGC has fewer total people but is more densely populated per square mile, as shown in Table 14.

Table 14. *Case Study Populations Comparison*

Report Area	Total Population	Total Land Area (Square Miles)	Population Density (Per Square Mile)
Prince George’s County, MD	909,535	482.71	1,832.91
San Diego County, CA	3,095,313	4,206.67	756.69
United States	314,107,083	3,531,932.26	88.93

As indicated in Table 15, the percentage of age groupings for both Counties are similar, and both have higher percentages of young adults as compared to the general U.S. population.

Table 15. *Case Study Percentage of Age Groupings*

Report Area	Age 0-4	Age 5-17	Age 18-24	Age 25-34	Age 35-44	Age 45-54	Age 55-64	Age 65+
Prince George’s County, MD	6.73%	16.36%	11.28%	14.89%	13.92%	14.71%	11.79%	10.31%
San Diego County, CA	6.57%	16.27%	11.56%	15.68%	13.34%	13.46%	11.11%	12.01%
United States	6.36%	17.13%	9.96%	13.47%	12.96%	14.09%	12.29%	13.75%

Race / ethnicity. Although both counties have lower white populations than the U.S. as a whole, PGC has a much higher Black population. SDC has a higher Hispanic/Latino population. Summary community, state, and national data are shown in Table 16.

Table 16. *Race / Ethnicity of Case Study Agencies Compared to State and U.S.*

Report Area	White	Black	Asian	Native American / Alaska Native	Native Hawaiian / Pacific Islander	Some Other Race	Multiple Races	% Hispanic
PGC, MD	21.37%	63.75%	4.26%	0.35%	0.02%	7.69%	2.56%	15.87%
Maryland	58.06%	29.50%	5.86%	0.28%	0.04%	3.38%	2.88%	9.00%
SDC, CA	70.98%	5.04%	11.25%	0.67%	0.45%	6.76%	4.85%	32.60%
California	62.13%	5.94%	13.48%	0.75%	0.39%	12.85%	4.46%	39.00%
United States	73.81%	12.60%	5%	0.82%	0.17%	4.70%	2.91%	16.90%

Familial and income indicators. As indicated in Table 17, both agencies serve populations with higher median incomes than the U.S. average, but PGC residents have more students receiving free and reduced lunches. SDC has a higher population with limited English capabilities (the majority who speak Spanish).

Table 17. *Case Study Familial and Income Indicators*

Report Area	Families with Children under 18	Population Foreign Born	Population with Limited English proficiency	% free or reduced lunch	Median Household Income
PGC, MD	35%	21%	9%	62%	$84,835
SDC, CA	34%	23%	16%	50%	$74,569
United States	32%	13%	9%	52%	$65,443

Health behavior indicators. The Community Commons website also collects data relative to a variety of health indicators. The indicators can be found defined on the Community Commons website, www.communitycommons.org. Some of the indicators are listed in Table 18 as collected related to the factors identified as being potentially modifiable by P&R.

Table 18. *Comparison of Health Indicators from Community Commons*

Report Area	Food insecurity rate	% with Low food access	% Adults with no LTPA	% adults who walk or bike to work	% adults use public transit	Adults % lack social support	Rec Fac. Access / 100K	% Adults Obese - BMI >30
PGC, MD	16%	28%	23%	2%	17%	23%	8%	33%
SDC, CA	13%	16%	16%	4%	3%	23%	12%	19%
U. S.	15%	24%	22%	3%	5%	21%	10%	28%

SDC has a much lower percentage of adults who are obese (BMI > than 30) and higher access to recreation facilities. PGC has a much higher percentage of adults who live in *food deserts* (areas of low food access), higher percentage of obesity, and also more adults who use public transportation to get to work (a benefit of high population density).

Summary of Prince George's County, MD Specific Case Findings

In Prince George's County (PGC), MD, the operation of the entire County public recreation program is managed by the Maryland-National Capital Park and Planning Commission (M-NCPPC), which is a bi-county agency, created by the General Assembly of Maryland in 1927. The Commission's geographic authority extends to the great majority of Montgomery and Prince George's Counties. Along with operating the P&R functions for PGC, the Commission has two other major functions, the preparation, and adoption of the approved General Plan for PGC for the physical development of the Maryland Washington Regional District, and the acquisition, development, operation, and maintenance of a public park system in Montgomery County. For purposes of this study, the focus is on PGC's system only. The Commission operates in each County through a Planning Board appointed by and responsible to the County government. All local plans, recommendations, administration of subdivision regulations, and general administration of parks are responsibilities of the Planning Boards.

PGC consists of 498 square miles (approximately 320,000 acres). It is bounded by District of Columbia to the west. PGC is located within the Washington metropolitan area, which is home to 5.6 million residents. The region’s diverse economy is fueled by federal spending that has weathered recent recessions and nurtured growing research, commerce, information, and technology sectors. PGC has 27 incorporated municipalities. Figure 20 depicts regional context.

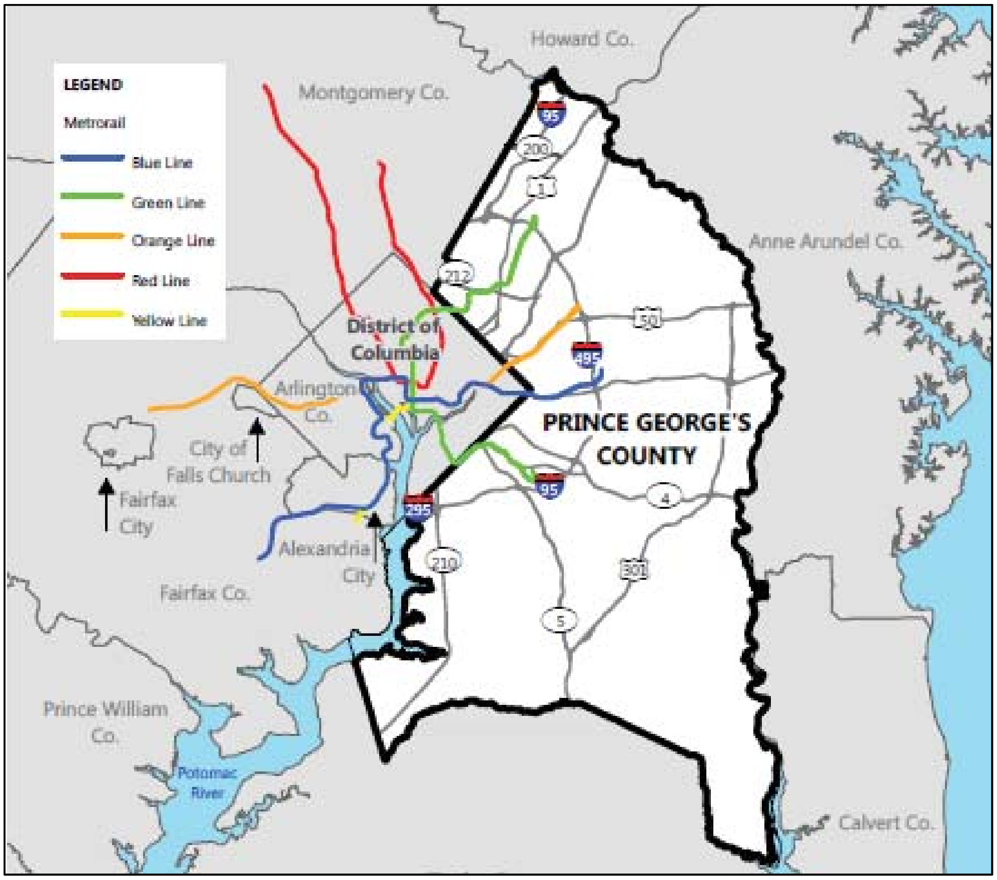

LEGEND
Metrorail
Blue Line
Green Line
Orange Line
Red Line
Yellow Line
Howard Co.
Montgomery Co.
Anne Arundel Co.
District of Columbia
Arlington Co.
City of Falls Church
Fairfax City
Alexandria City
Fairfax Co.
Prince William Co.
Potomac River
Calvert Co.
PRINCE GEORGE'S COUNTY
95
200
1
212
50
495
95
4
295
210
301
5

Figure 20. Prince George’s County regional context

PGC is linked to the nation's capital by a dense transit and road network and it is an important part of the Washington, D.C.'s, robust regional economy. The County's P&R functions are led by the M-NCPPC Department of Parks and Recreation (DPR). PGC DPR is nationally recognized for outstanding efforts in program design and development by organizations such as the National Recreation and Park Association (NRPA), the Council on Accreditation for Parks and Recreation Agencies (CAPRA), and the Maryland Recreation and Parks Association (MRPA). M-NCPPC is one of the 152 agencies that are nationally accredited by CAPRA and is the only agency to have been awarded six national gold medals for excellence in park and recreation management.

For this agency, the key findings were that it is a large agency that is trying to address evaluation and outcomes, with staff assigned that are specifically trained in PH and systematic assessment and evaluation, but they have indicated, that they have still felt like they are "making it up" as they go along. The PGC DPR is governed by their Commission, in conjunction with the County Council, managed by assigned staff in alignment with the *Formula 2040: Functional Master Plan for Parks, Recreation and Open Space,* an agency-wide visioning and strategic plan. The agency is somewhat unique in that this system planning effort purposefully incorporated and identified many elements that are relevant and important to this dissertation study, and was specifically framed around three goals; health and wellness, connectivity, and economic development.

The *Formula 2040* plan include an action plan to address findings, including over 100 objectives and hundreds of action steps, many of which are related to the health factors in this study. In the plan, there were basically two objectives that pertain to health and wellness. First is the objective of partnering with others to reduce the overall adult obesity rate in the

County by 10%, and the second is the objective of making sure that 75% of PGC DPR programs have health and wellness components. As a result of this plan's goals, approximately three staff full-time equivalent (FTE) resources were assigned to specifically address health and wellness goals for the agency. In addition, a comprehensive topic-specific *Health and Wellness Action Plan 2016-2020* has been drafted to guide implementation of the health and wellness objectives. In the plan a variety of matrices were developed to specifically address various factors such as: social-cultural health components; mental wellness criteria table; environmental wellness criteria table; physical wellness criteria. As these matrices are the first of this type related to application to P&R practice identified by this research, they are included in Appendix M – PGC Wellness Criteria Tables.

To accomplish their goals, the PGC Wellness action plan focuses on six thematic areas: Signature Programs; Standards, Guidelines, and Policies; Partnerships, Sponsorships, and Grants; Facilities; Marketing; and Staff Training. The plan includes desired outcomes and outlines specific steps to achieve those outcomes. This plan includes logic model type outlines for social engagement, mental, environmental, and physical wellness goals. Overall, the action plan was designed to align the Department with national public health movements. The plan is detailed, and describes that the PGC DPR is committed to being a leader in addressing the health and wellness needs of PGC residents.

In addition to the Wellness Plan, the PGC DPR has recently decided to participate in the *Parks Rx* Program (see http://www.parkrx.org) developed by the National Park Service and pilot tested in DC with Dr. Robert Zarr and Anne O'Neill (Zarr, Cottrell, & Merrill, 2017). This work includes analysis and tracking of a list of 45 component fields for evaluation. The system has been designed to track which park locations are prescribed, how many visits the patients make, what they do during their visit, and the duration of visits. Although results from use of this system are forthcoming later in 2017 and therefore not available for this study, the design of this system appears to provide an opportunity to develop a protocol to monitor and evaluate benefits.

Key themes emerged from the interviews with the informants interviewed for this research, and the themes were later confirmed with them for perceived accuracy. The informants indicated that they have been targeting incorporating health and wellness goals into their P&R functions since 2009. Although all factors are important to them, their highest priority factor is safety and perception of safety. The second was physical activity. Third was parental engagement and education. Fourth was nutrition. Fifth was social and peer engagement, and sixth was transportation and access. Social Capital is also important as an aspect being explored in collaboration with the University of Maryland.

PGC Organizational Strategies to address the Factors. PGC has many organizational elements in place, and they are addressing most of the health factors. The County utilizes systems planning methods and needs assessments that address the health factors, along with a component-based inventory and LOS. However, there is a need for greater system-wide awareness and collaboration. Creating the *Health and Wellness Action Plan* was difficult for PGC. So far it has resulted in being more of an internal plan, but is a work in progress based on identifying the program components and elements. A primary challenge is the fact that the agency is “huge” and there are several divisions devoted just to programming. It is difficult to share information, and there is little in place in terms of formal tracking of the desired outcomes. Related to evaluating physical assets, the Informants indicated that simply due to the longitudinal nature of this type of evaluation, it has been difficult to implement evaluation strategies. They are still trying to get full assessment of programs and assets, and to work with partners such as the University of Maryland and others to create evidence-based criteria. Their creation of the wellness criteria matrices included focus on several of the health factors included in the appendices are some of the more detailed evaluation tools identified, but it is too soon to report effectiveness.

As related to rated effectiveness of methods to address health factors, the Key Informant indicated the results shown in Figure 21. The most effective methods indicated were to provide parental education around the factors, and to provide a centralized website and social media on the factors.

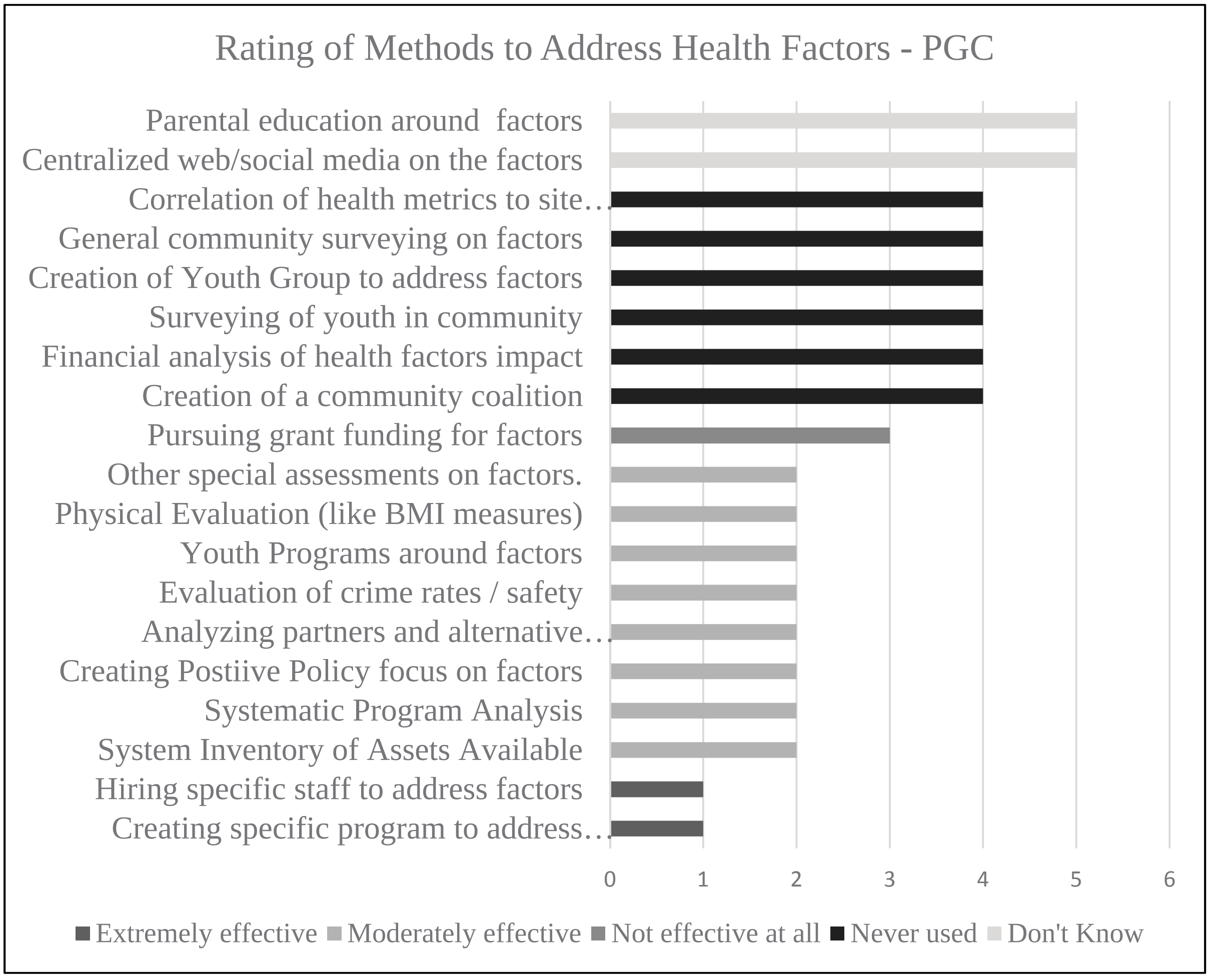


Figure 21. Rating of methods to address health factors – Prince George’s County

The agency’s leadership and system planning does generally support this work, and ongoing focus appears to be intended. Agency strengths were indicated as having significant resources to address these issues, and having a strong guiding system plan that includes focus on the strategies and desired outcomes. Challenges continue to be that they have “a sluggish and inefficient bureaucracy that frustrates innovation”, along with few current partnerships, and proven metrics and methods for evaluation. PGC is likely one of the key leading agencies in the country to watch over next few years, as they continue to attempt to address the factors with emerging methods and utilize evaluation to measure effectiveness in the P&R realm.

Summary of San Diego County, CA Primary Case Findings

The San Diego County (SDC) Department of Parks and Recreation (DPR) strives to enhance the quality of life for more than three million county residents and visitors of all ages. SDC DPR promotes health and wellness, safe communities, and civic pride through thousands of programs system-wide, including events and activities, recreation centers and state-of-the-art sports complexes. The County’s Gold Medal award-winning park system includes 36 local and 19 regional parks, 8 camping parks, more than 360 miles of trails, fishing lakes, ecological preserves, botanic gardens, and open space preserves. SDC DPR operates and manages more than 48,000 acres of parkland and 11 historic park sites. Park facilities are managed to enrich the lives of all patrons. To help ensure these services are provided to millions of visitors each year, the SDC DPR manages a budget of over $38 million per year. The agency has also achieved accreditation from CAPRA. Regional context is shown in Figure 22.

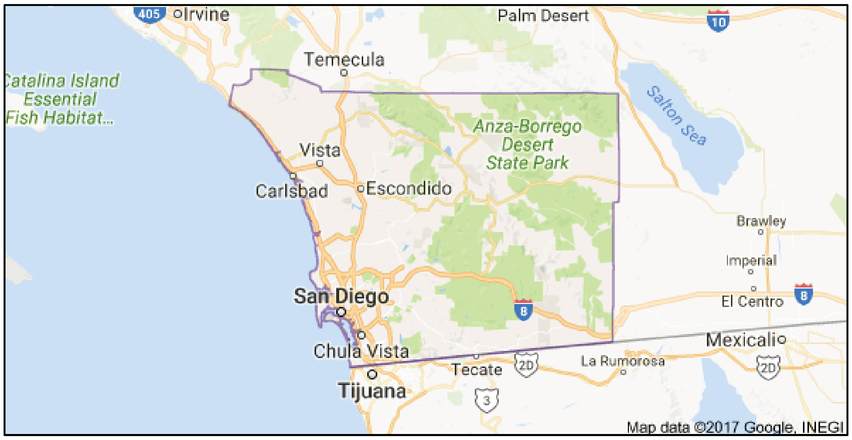

405
Irvine
Palm Desert
10
Temecula
Catalina Island Essential Fish Habitat...
Salton Sea
Anza-Borrego Desert State Park
Vista
Carlsbad
Escondido
Brawley
Imperial
El Centro
8
San Diego
8
Chula Vista
Mexicali
Tecate
2D
La Rumorosa
2D
Tijuana
3
Map data ©2017 Google, INEGI

Figure 22. Regional context of San Diego County, CA

Key findings from SDC DPR indicate that it is a very large county system that has directly been trying to address health factors through P&R for almost thirty years. The Informants indicated that the priority order for SDC for addressing the factors were, 1) Safety or Perception of Safety, 2) Social and Parental Engagement, and 3) PA. The SDC DPR has developed relationships with a variety of partners, including a university and several non-profit organizations that are specifically interested in addressing these health factors and others.

The SDC DPR is a strong proponent of systemwide planning, and has created a culture of including health in all planning documents and evaluation. The County utilizes systems planning methods and needs assessments that address the health factors, along with a component-based inventory and LOS. The Department is guided by the 2016-2021 *Parks and Recreation Strategic Master Plan*, which includes health as one of the four key components of the Strategic Vision for the agency. In addition, a more detailed SDC DPR *Operations Plan 2016-2018* calls out four specific strategic initiatives related to addressing the health factors. These include Healthy Families, Safe Communities, Sustainable Environments, and Operational Excellence.

SDC Organizational Strategies to address the Factors

SDC places emphasis on systemwide organizational and strategic planning. The Informant provided many resource documents on the Basecamp site. These included not only the general systems plan, needs assessments, and strategic plans, but also a variety of polices and practice guideline documents for the addressing the various factors themselves.

Related to evaluating outcomes, SDC DPR tracks attendance numbers, but does not evaluate specific individual measures, such as BMI or behavior change. As related to rated effectiveness of methods to address health factors, the SDC indicated a different priority order than the other case study or the aggregate from the Delphi panel for addressing the factors, as shown in Figure 23. The most effective methods indicated for SDC were to pursue grant funding and to create positive policies to address the factors.

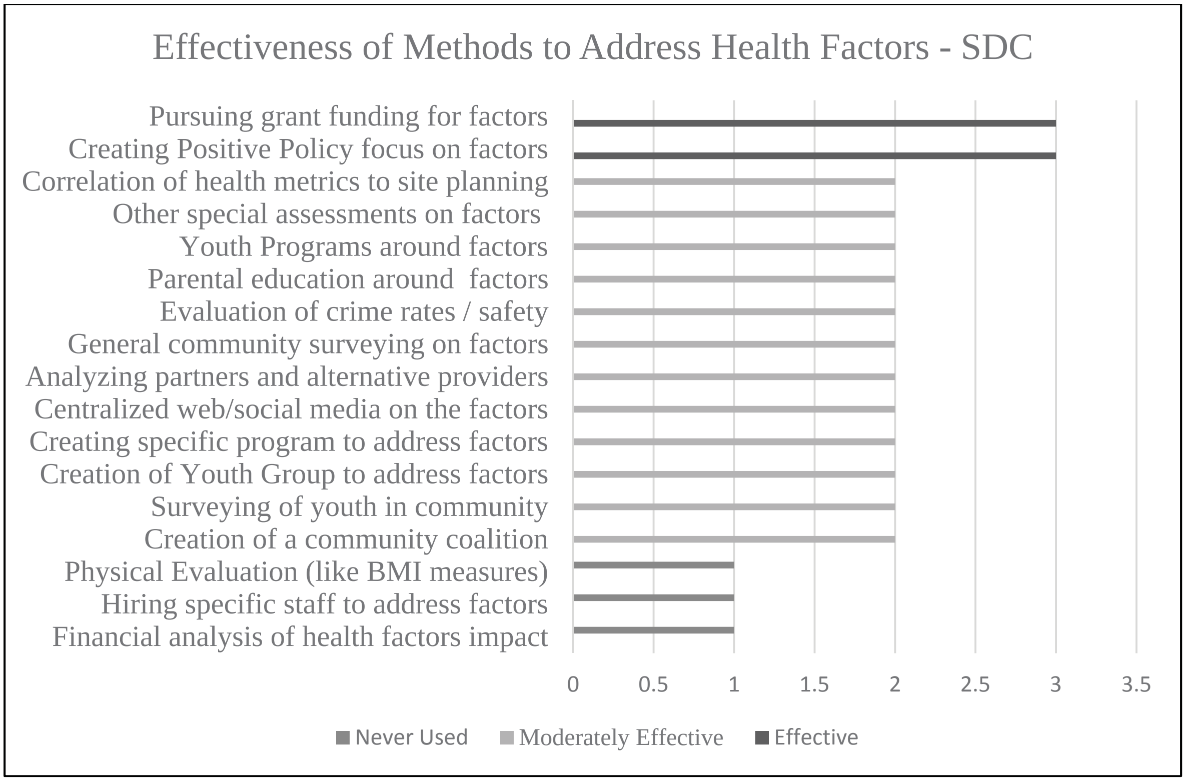


Figure 23. Rating of methods and strategies to address health factors – San Diego County

Information and documents were provided related to the agencies strategies and practices for promoting nature access for youth, managing community gardens, farmers markets, and nutrition, including vetted vending and concessions policies. SDC has collaborated with the City Project and The San Diego Foundation to create a *Parks for Everyone – Green Access for San Diego County* report to gain a better understanding of the state of green access in the San Diego region. This report provided geographic, demographic, and economic data to map and assess the overall accessibility of the region's green space, as well as to examine the equity of green access by analyzing whether certain groups of people, based on income level, race/ethnicity, have access to these resources. Complementing the SDC DPR systemwide plans, the maps in *Parks for Everyone* plot green space in relation to population with a goal of improving health and equity.

SDC provided materials for this study from their partnership with *LiveWell San Diego County*. The agency has an active regional coalition and plan that works with DPR annual reports, created by SDC DPR and other county departments, to highlight success stories of internal and external organizations and recognized partners who are making positive changes. These reports are available on the Live Well San Diego website at LiveWellSD.org/about/live-well-san-diego-materials/. This website also includes resources to promote community involvement, identified best practice tools for organizations and partners, and information about the *Live Well San Diego Indicators*, designed to measure the region's collective progress. The *Top Ten Live Well San Diego Indicators* were identified under five themes to capture the overall well-being of residents in the County. These indicators are part of a framework to allow the County to connect a wide array of programs and activities to measureable improvements in the health, safety, and wellbeing of every resident. Figure 24 provides the ten indicators used.

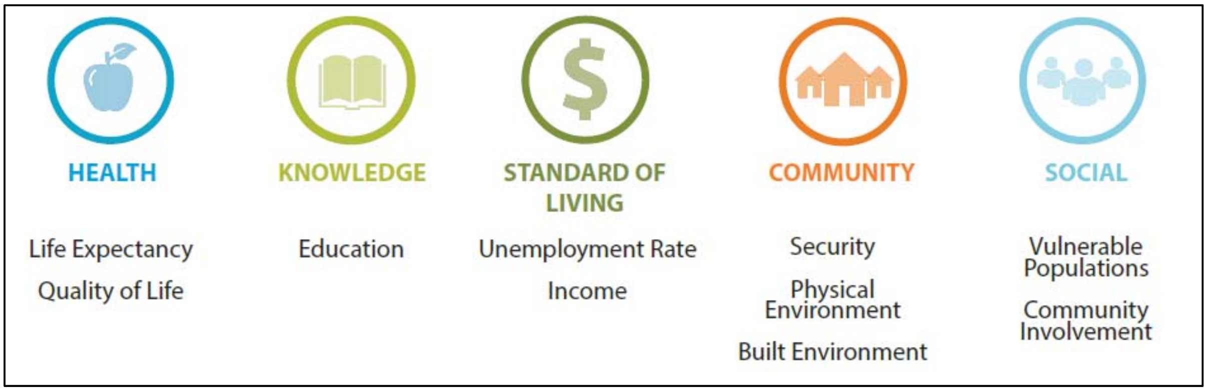

HEALTH
Life Expectancy
Quality of Life
KNOWLEDGE
Education
STANDARD OF LIVING
Unemployment Rate
Income
COMMUNITY
Security
Physical Environment
Built Environment
SOCIAL
Vulnerable Populations
Community Involvement

Figure 24. San Diego County LiveWell health indicators (figure provided by Key Informant)

The complete framework is posted on the County of San Diego *Live Well San Diego* webpage: http://sdcounty.ca.gov/content/sdc/live_well_san_diego/indicators.html. This information is included in these research findings, as SDC indicated that cooperation and collaboration with this LiveWell initiative provided strong support for addressing the health factors, provided some successful strategies, and helped in collaboratively addressing measuring outcomes for the health factors for SDC DPR.

One strategic aspect that was different for SDC was their evaluation of the success of park prescription-type projects in practice. These projects seem to be growing in popularity around the country as a P&R strategy, but SDC, with their longer attention to formally addressing PA as a health factor than most P&R agencies, has previously tried to implement exercise prescription programs with the medical community, and so far, they have not found success. Examining their experience may help identify potential barriers for other communities. The Informant shared a telling statement regarding the exercise prescription program that was no longer in use.

> It was grant funded, and we had one year funding. It was a pilot. I've done it twice in two different communities, and I just can't figure out how to make it more successful. There's something missing from giving that type of program to people. We're saying basically, you can come sign up for any of our classes for $5. Like that's the co-pay and your kid could take this class, and yet it just wasn't getting people to sign up. We had to think about this quickly, and we did this $5 co-pay to create some kind of ownership, right? To them it's like, oh that was free, I don't have to go. That wasn't really the intent. We really wanted people to attend. Maybe it wasn't a matter if people can. If it was $1, I don't know if that would have made a difference. Talking to the doctors or nurses, it was just like, sometimes these people just don't have $5 for the co-pay for their medicine, or they don't even fill up the prescription that we gave them for medicines to make them better. There's a lot more barriers than we're thinking of.

The Informant indicated that without additional funding and individual support for participants, a simple prescription program is not likely to lead to adherence.

In terms of success in addressing the factors, SDC indicated strengths in the fact that the County of San Diego as a whole (system) is addressing health and wellness. This agency likely has some of the most experience in the U.S. in terms of integrating PH practices with P&R, and regularly creates policies and templates for evaluation. They provided many resources for the Basecamp site that other Delphi Informants found of value. Primary challenges or constraints were identified as having a large and diverse region, having challenges in obtaining and tracking meaningful data and comparisons that truly demonstrates the effects of SDC's programs and policies, and obtaining funding for specific programs. The SDC case results indicate that even with all their work for almost 30 years, there is much to do, especially in terms of assuring equity across the system, and measurement of outcomes for evaluation.

Comparative Analysis of Case Study Agencies and Theoretical Basis

Comparison of the two agencies identifies a variety of key findings, similarities, and differences that helped to inform the study conclusions. These also helped inform the study results as a whole, along with how they do and do not align with and inform the systems theory and systems thinking basis. A primary finding is that both of the case agencies have been able to assign resources to specifically address at all of the identified modifiable health factors. Both are larger agencies that have more resources assigned than the other Informant agencies, but as they are larger, they have more difficulty in centralized tracking of information. Both agencies agree that tracking information specific to youth is a challenge, as many of the registration and participation tracking mechanisms do not specifically report or track by age cohorts. Both agencies indicated that safety and perception of safety, PA, and social/parental engagement are the top three health factors they need to address. Transportation is also often a challenge, especially for lower income areas.

Both case agencies indicated a dedicated focus on creating equity across the system, and addressing under-resourced populations. The Key Informants and additional stakeholders for these larger agencies indicated that they had a harder time tracking down information, as it was likely that others are working on various topics. Both Key Informants indicated that taking the questionnaires was somewhat difficult for them, not because they did not understand the questionnaires or background, but because others in the organization needed to be consulted to gain the prioritization and initiative participation data. In addition, both indicated that they work with many partners, have areas of their communities that are under-resources (equity issues), and their key priority factor is a focus on safety and/or perception of safety. Both agencies indicate that they have participated in a variety of national and regional initiatives and grants, but their participation efforts differ. More partners and more areas to serve mean for both agencies that they are often in the role of “high level upstream focus” as organizer and policy maker, more than an operational implementer of the programs, at least at the higher position level of these participating informants.

Both case agencies have systemwide plans in place that rely upon regularly scheduled full community needs assessments. Both agencies have adopted using a component-based method (CBM) inventory and level of service analysis process, using GIS to analyze and manage their systems. Both specifically call out health and wellbeing as primary goal, with stated objectives and support from senior leadership. Both agencies indicate that measuring outcomes beyond participation and locations has been difficult, and neither claim to have a strong method for measuring the specifics of the desired outcomes. Both agencies appear to place a higher priority on the use of and perceived effectiveness of the system-wide methods, strategies, and potential outcomes than the general Delphi panel overall.

The primary differences of the case agencies had to do with systemwide implementation strategies, including length of time addressing the initiatives, current initiatives participation, and ranked priority of effectiveness of methods used. SDC has been specifically addressing most of these factors for almost 30 years, and has had existing relationships and partnerships with the local universities, LiveWell San Diego, and other partners. PGC is relatively new in having a specific focus on the health factors, mostly since 2010, and there is no countywide established partnership or coalition yet established. They have just created the extensive *Health and Wellness Plan* in 2017. There is not yet a full cultural acceptance of this work's focus across the large PGC agency, but the Informants hope that it will continue to grow in the coming years.

As is likely true for all agencies, the priority ranking of perceived effectiveness of strategies and methods is perhaps an effect of the difference of length of time and allocations of resources within the agency for specifically addressing the factors. PGC had hired a dedicated "Research and Evaluation Manager" that was tasked with helping to organize the organization's approach and evaluation of potential outcomes. PGC had participated in ten national initiatives in recent years related to these factors, and was still active in five of them. SDC reported having twenty FTEs of staff allocated to help address the factors, and had participated in eight national initiatives, but was currently active only with Let's Move. A telling statement from the SDC Key informant was:

> We've had a lot of grants, but grants end, and then the program ends. A lot depends on where the money is coming from. We've shifted our focus some from going after grants for programs to now a bigger focus on changing policy longer term and working with others. Health is now part of everything that we do, but now we work with various groups and neighborhood to help them offer the programs they want for their part of the community, more than us offering something across the County.

PGC was still identifying which programs they offer internally and/or by partners, which partners are addressing which health factors, and which they may want to pick up or add internally. Grant funding for PGC has been seen as a tool to help offer programs in more areas. With their new plans, the broad goal stated "at least 75% of the programs include a health or wellness component." They had set up matrices to help measure outcomes in a specific way.

One key difference between the case agencies was in the perspective of the potential effectiveness of parks prescription programs. SDC had been a pilot for two of these types of programs, and had determined that they were not very effective for reaching participants overall. This was mostly due to resulting non-compliance from the participants and the large amount of resources needed to run the program. In addition, the SCD agency included the finding that if Park prescription programs were to continue, there would need to be dedicated funding for internal staff to help act as a liaison with the medical community. PGC, being relatively newer to this realm, reported high hopes for park prescription programs, and were just starting a formal relationship with Dr. Robert Zarr to fully implement them. Additional research is happening right now in this realm, and further research is indicated on this topic.

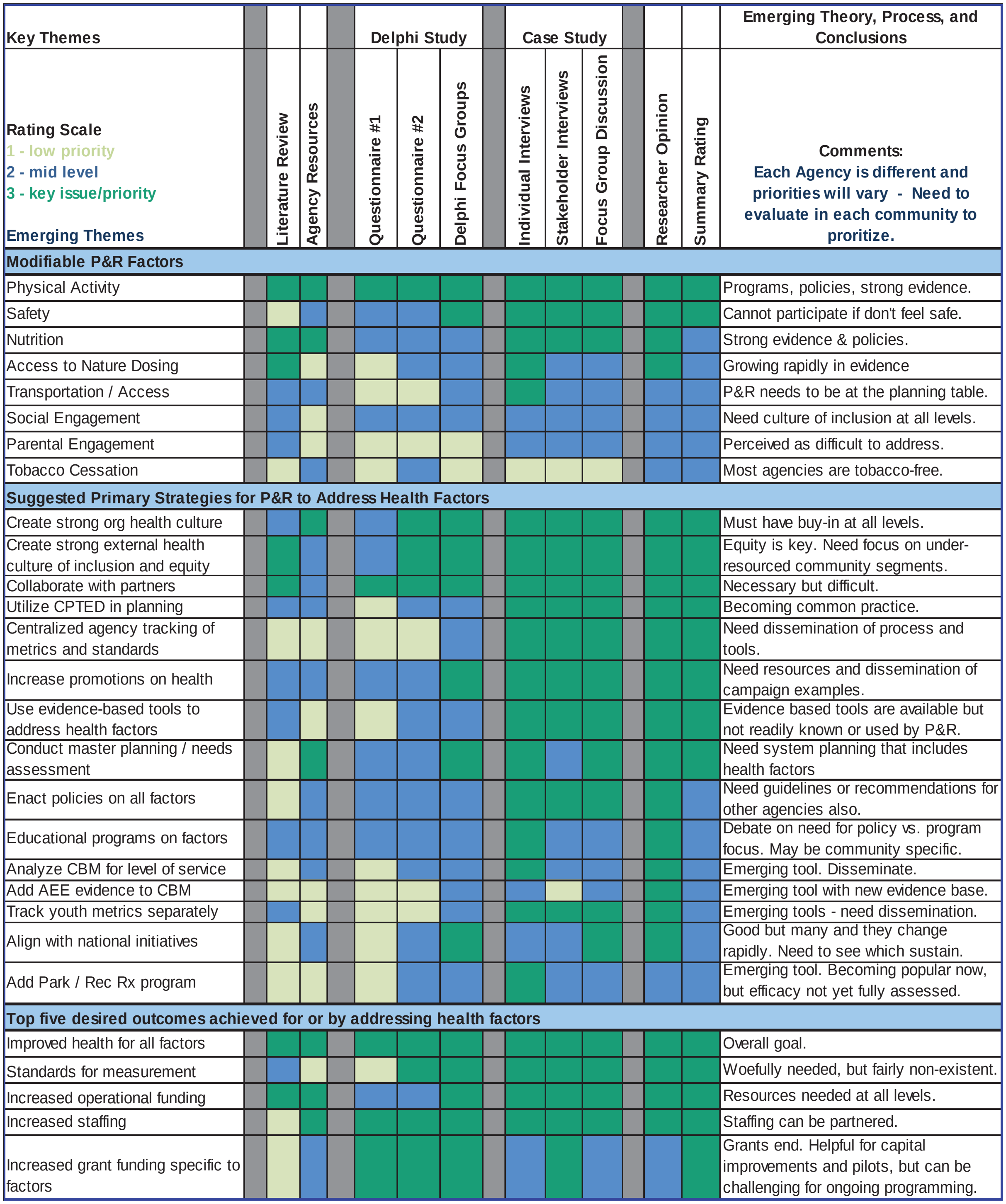
The comparative analysis of the case agencies with the Delphi panel overall in relationship to the systems theory theoretical basis highlighted key themes that merited further exploration for conclusions that were initiated through the creation of a Key Themes Analysis Matrix framework.

Key Themes Analysis Matrix

In addition to establishing a theoretical basis, this research encompassed reviewing a large amount of literature, factors, methods and strategies, and a variety of potential outcomes. To help organize this vast amount of data, I utilized iterative assessment with a Framework Method to review the many sources of data and results, and then compiled a Key Themes Analysis Matrix in MS Excel, using a 3-point color-coded scale (low, mid, and high priority). This type of framework method has been used since the 1980s to analyze organizational management goals and outcomes in the social science realm (Ritchie & Lewis, 2003). I have used it before successfully on other community planning projects that require analysis of large amounts of diverse data. Other researchers have also found it to be helpful for organizing multi-disciplinary and qualitative health research (Gale, Heath, Cameron, Rashid, & Redwood, 2013). The feedback from the Informants review indicated it was effective method for organizing and articulating the large number of categories and themes related to the variety of factors, methods, strategies, and potential outcomes for this project.

The Key Themes Analysis Matrix lists the key findings on the left hand column for the health factors, priority strategies for addressing them, along with key identified desired outcomes for P&R agencies. Columns indicate the results from the research methods used, showing priority and comments. To determine priority, key themes were culled from the data from all research methods. Results from each method were evaluated to determine whether a factor, strategy or method, or desired organizational systemwide outcome was identified. Identified items were then rated as a low, mid, or high priority for P&R agencies to address.

Results, as shown in Figure 25 on the following page, indicate and confirm the eight primary modifiable factors. Fifteen primary strategies for addressing the strategies were identified and ranked by reviewing the aggregated qualitative and quantitative results from each method. Five primary desired organizational outcomes were shared across the study. In addition, I added a column of my own personal opinion of priority based on my professional research and practitioner experience with these topics, and then a final column based on an aggregate summary ranking, along with a short comment. All themes, selected priority levels, and researcher comments were vetted with all of the Informants in Stage 3 of the Delphi panel. All Informants indicated agreement with the aggregated findings and all priority rankings. These rankings were then used as the primary basis for the formation of conclusions, implications, and recommendations.



Key Themes			**Delphi Study**			**Case Study**					**Emerging Theory, Process, and Conclusions**
Rating Scale **1 - low priority** **2 - mid level** **3 - key issue/priority** **Emerging Themes**	**Literature Review**	**Agency Resources**	**Questionnaire #1**	**Questionnaire #2**	**Delphi Focus Groups**	**Individual Interviews**	**Stakeholder Interviews**	**Focus Group Discussion**	**Researcher Opinion**	**Summary Rating**	**Comments:** **Each Agency is different and priorities will vary - Need to evaluate in each community to proritize.**
Modifiable P&R Factors											
Physical Activity	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	Programs, policies, strong evidence.
Safety	🟨	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩	🟩	Cannot participate if don't feel safe.
Nutrition	🟩	🟩	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟦	Strong evidence & policies.
Access to Nature Dosing	🟩	🟨	🟨	🟦	🟦	🟩	🟦	🟦	🟩	🟦	Growing rapidly in evidence
Transportation / Access	🟦	🟦	🟨	🟨	🟦	🟩	🟦	🟦	🟦	🟦	P&R needs to be at the planning table.
Social Engagement	🟦	🟨	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	Need culture of inclusion at all levels.
Parental Engagement	🟦	🟨	🟨	🟨	🟨	🟦	🟦	🟦	🟦	🟦	Perceived as difficult to address.
Tobacco Cessation	🟨	🟦	🟨	🟦	🟨	🟨	🟨	🟨	🟦	🟦	Most agencies are tobacco-free.
Suggested Primary Strategies for P&R to Address Health Factors											
Create strong org health culture	🟦	🟩	🟦	🟩	🟩	🟩	🟩	🟩	🟩	🟩	Must have buy-in at all levels.
Create strong external health culture of inclusion and equity	🟩	🟦	🟦	🟩	🟩	🟩	🟩	🟩	🟩	🟩	Equity is key. Need focus on under-resourced community segments.
Collaborate with partners	🟩	🟦	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	Necessary but difficult.
Utilize CPTED in planning	🟦	🟦	🟨	🟦	🟦	🟩	🟩	🟩	🟩	🟩	Becoming common practice.
Centralized agency tracking of metrics and standards	🟨	🟨	🟨	🟨	🟦	🟩	🟩	🟩	🟩	🟩	Need dissemination of process and tools.
Increase promotions on health	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩	🟩	Need resources and dissemination of campaign examples.
Use evidence-based tools to address health factors	🟦	🟨	🟨	🟦	🟦	🟩	🟩	🟩	🟩	🟩	Evidence based tools are available but not readily known or used by P&R.
Conduct master planning / needs assessment	🟨	🟩	🟦	🟦	🟩	🟩	🟦	🟩	🟩	🟩	Need system planning that includes health factors
Enact policies on all factors	🟨	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟦	Need guidelines or recommendations for other agencies also.
Educational programs on factors	🟦	🟦	🟦	🟦	🟦	🟩	🟦	🟦	🟩	🟦	Debate on need for policy vs. program focus. May be community specific.
Analyze CBM for level of service	🟨	🟦	🟨	🟦	🟦	🟩	🟦	🟦	🟩	🟦	Emerging tool. Disseminate.
Add AEE evidence to CBM	🟨	🟨	🟨	🟨	🟦	🟦	🟨	🟦	🟩	🟦	Emerging tool with new evidence base.
Track youth metrics separately	🟦	🟨	🟨	🟨	🟦	🟩	🟩	🟩	🟩	🟦	Emerging tools - need dissemination.
Align with national initiatives	🟨	🟦	🟨	🟦	🟩	🟦	🟦	🟩	🟩	🟦	Good but many and they change rapidly. Need to see which sustain.
Add Park / Rec Rx program	🟨	🟨	🟨	🟦	🟦	🟩	🟦	🟦	🟦	🟦	Emerging tool. Becoming popular now, but efficacy not yet fully assessed.
Top five desired outcomes achieved for or by addressing health factors											
Improved health for all factors	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	Overall goal.
Standards for measurement	🟦	🟨	🟨	🟩	🟩	🟩	🟩	🟩	🟩	🟩	Woefully needed, but fairly non-existent.
Increased operational funding	🟩	🟩	🟦	🟦	🟩	🟩	🟩	🟩	🟩	🟩	Resources needed at all levels.
Increased staffing	🟨	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	Staffing can be partnered.
Increased grant funding specific to factors	🟨	🟦	🟩	🟩	🟩	🟦	🟩	🟦	🟦	🟩	Grants end. Helpful for capital improvements and pilots, but can be challenging for ongoing programming.

Figure 25. Key Themes Analysis Matrix of data resources and emerging conclusions.

CHAPTER 5 – DISCUSSION AND CONCLUSIONS

As discussed in previous chapters, this study explored the primary research question of how parks and recreation (P&R) agencies address prioritizing modifiable key health factors. In addition, the research has addressed secondary questions on first identifying and confirming the specific factors, how these Case Study and Delphi Key Informant agencies are trying to successfully address them, and suggested potential methods and strategies for use in further research and application to practice.

The following sections summarize and integrate the findings from the literature review, the Delphi Panel, and the Case Study to discuss and identify conclusions for: 1) the identified potentially modifiable health factors, 2), the role of the community system and the basis of systems theory for this work, along with related relevant national initiatives and organizational strategies, and 3) the process of translating evidence to implementation. This chapter identifies and discusses the key findings from this research and the summary results from the Key Themes Analysis Matrix. The results influenced and supported the conclusions and implications for the application of systems theory and resultant systems thinking for P&R agencies. I conclude by suggesting next steps for research and practice, including application of an adapted Knowledge to Action (K2A) Framework for P&R research and for agencies in their local systems. This conceptual framework may help in discussing and addressing the gaps of knowledge, research, theory, and evidence for P&R. In addition, I summarize a suggested systematic toolkit approach for identifying and addressing the factors within a community-specific P&R system setting.

The reasoning behind the selection of the Delphi panel and case study research strategies was primarily to identify any additional themes or strategies that were not already available in the literature, and to use the full Delphi panel to confirm and help prioritize strategies identified. The Delphi panel was crucial in identifying national initiatives and confirming all findings through the three-stage process. An added benefit was that the Key Informants served to educate and inform each other. Resources were submitted by the agencies and aggregated into a common online Basecamp (www.basecamp.com) repository. Feedback from the Delphi Panel Group Discussion in Stage 3 was overwhelmingly positive in terms of all Informants final perceptions of this research. The feedback from the Informants as to how the factors and strategies are or are not working in a systems context was invaluable.

The case study served its purpose in providing detail relative to the challenges of addressing strategies, evaluation practices, and outcomes. Although the results from the case study were not very different overall from the results of data from the Delphi panel, a primary conclusion was solidified that all communities are different, have different priorities, and are at different stages, and levels of challenge in addressing these factors. Even with two somewhat similar agencies serving large demographically-diverse populations on opposite coasts of the U.S., their strategic organizational focus is somewhat different. This appears to be a function of lifecycle stage of the research and resource availability within these agencies (the longer the effort has been occurring, the more the effort appears to be focused on policy rather than pure program delivery). This appears to be an important element influencing how the local system overall may function, along with the level of interest in evaluation. Integration of the case study results served to deepen and enrich the conclusions related to the application of the theoretical basis and recommendations, and provided additional resources, feedback, and validation of the findings.

An overview of the identified health factors, suggested strategies, limitations, and implications for research and practice applications follow. Analysis led to implications for suggested additional research for the academic realm, and practice applications to address the factors in local communities.

The Potentially Modifiable Health Factors

As indicated on the Key Themes Analysis Matrix, and fully referenced in the literature review, common themes emerged relative to the health factors that are potentially modifiable by P&R agencies. The additional research for this dissertation through the Delphi Panel and Case Study confirmed those findings. The list is not exhaustive, and some agencies may address other preventive health factors. A key conclusion from all methods is that priority order for attention to the factors is community-specific, and depends on needs, situational climate, and resources available in a given community. Table 19 indicates the identified descriptive statistics for the priority factors on an 8 point scale (1 is highest) in order from all Delphi Informant responses.

Table 19. *Delphi Panel Factor Rating - Descriptive Statistics*

	N	Minimum	Maximum	Mean	SD
Physical Activity	18	1.00	3.00	1.41	0.69
Social/Peer Engagement	17	2.00	7.00	3.56	1.50
Safety/Perception of Safety	17	1.00	8.00	3.88	2.26
Nutrition / Food Availability	17	1.00	8.00	4.13	1.73
Other Factors	6	2.00	5.00	4.20	1.17
Parental Engage/ Education	16	2.00	7.00	4.53	1.41
Transportation / Access	16	2.00	8.00	5.47	1.54

When data were aggregated from all Delphi Informants, PA was identified the highest priority factor for all agencies seventeen agencies overall. All of the Informants had some type of plan or programs in place related to PA. It is a common program area for P&R

agencies, who have long addressed providing locations and programs for sports, fitness, and individual activities that promote physical activity. Evidence is mounting for the role of the individual elements beyond simple access and proximity to sites that affect PA. These include documented relationships between PA and social support, nutritional habits, parental engagement, screen time (time spent watching television or sedentary at computers, which may displace time that could be devoted to PA), transportation availability, access to natural environments, cost, perceptions of safety, and other factors that may be at play (Cohen et al., 2006; Drenowatz et al., 2010; Hitchings, 2013; Sallis et al., 2015).

Although the analysis of the literature and volume of availability indicates that PA is the most studied factor for P&R, both case study agencies indicated that it was not their highest priority. PA was second behind safety and perception of safety for Prince George's County, and third behind safety and parental/social engagement for San Diego County. This may partially be a function of looking specifically at larger countywide communities for the case study. However, analysis of additional resources provide from other Delphi Informants who have used a multi-attribute utilities technique process in their communities to prioritize addressing health factors, along with detailed analysis of the individual Informant priorities, indicated that the priority order of factors varies by community. These results warrant further research into the other factors within a systems context.

As for the other factors, the evidence suggests that efforts to improve health factors may be affected by increasing or decreasing peer-to-peer and parental engagement of others in participation and policies. Informant responses confirmed that for youth, parental engagement and modeling is more important than simple statements telling youth to be healthier. If the parents are not themselves modeling healthy actions, youth may not either.

However, when peers adopt healthy practices, others tend to do so. For all ages and actors within the system, teambuilding through sports and other programs, and creating social engagement and bonds can work to improve health. Therefore, it is important to focus not only on the individual, personal levels of education and change, but also on the intrapersonal, familial, community, and societal levels.

The results indicate that people will not participate or allow their family and friends to participate if they do not feel safe. Although safety and perception of safety are actually two different but related factors, it is important to address both actual safety through examining actual crime rates and spatial safety, and also to address emotional, cognitive, and psychological perception of safety. Depending on the community, one or the other may be more important as a priority to address, but in the mind of an individual in the community, perception is reality. The literature indicates that national initiatives such as *Crime Prevention through Environmental Design* (CPTED) can reduce actual crime and increase perception of safety. The findings indicate that working with public safety officers (police) as partners can be one effective strategy to address this factor. If crime rates or other safety issues are actually low, but perception of safety is negative, attention may need to be focused on educational /marketing campaigns that address the false perceptions, such as promoting actual safety records and methods that are in place.

Although nutrition is not always thought of as a primary factor under the purview of P&R agencies, the evidence is clear that local public agencies can help improve nutritional intake and quality in communities. Some examples provided by the Informants were creation of nutritional policies for program areas, creation of community gardens, summer and breakfast feeding programs, and facilitation of farmers' markets. The Informants confirmed that nutrition can be a priority factor for P&R, especially in communities with disparities in food availability. The indicators and strategies include promoting sound policies both within the agency and within the overall community system. These may include vending policies, policies around agency programming, recommendation of policies to other community partners, such as schools, faith based organizations, and non-profit associations. In addition, the research indicates that P&R agencies can affect positive nutritional change through enabling provision of healthy food and education through healthy food option availability, farmer's markets, and community gardens. Nationally accepted guidelines are available for describing what healthy means for these access points (e.g., NAA HEPA Standards, 2015). Several of the Key Informants provided nutrition related policies, such as policies for internal vending, internal programming food provision, and suggested policies for other community partners (such as alternative providers, schools, and faith-based organizations) that provide related public programming and spaces.

The literature is clear that a person cannot derive health benefits from a place or program in their community if they are not able to get to it (or at least see it, in the case of access to nature). The evidence is clear that having adequate access combined with education can help increase PA in a community. However, some studies have questioned these "build it and they will move" lines of research. Several studies have suggested that access to recreational facilities and parks is less of a barrier to PA than other individual factors, such as socio-economic status (SES), perceptions of safety, self-efficacy and individual thought patterns (e.g. Cerin & Leslie, 2008; Cohen et al., 2013; Veitch et al., 2012). Promoting zoning and health policies that encourage the design and regular use of P&R managed spaces may also offer a promising opportunity for increasing PA. Although not direct health factors per se, availability of transportation options and accessible locations are key to participation and use of community amenities. P&R agencies may not always think of themselves as transportation providers, but they must be part of the system to ensure that users can access the assets and offerings.

The literature shows that proximity to quality P&R amenities increases utilization. New geo-spatial methods have been created that can help determine preferred location and minimize barriers. It is important to recognize that when focusing on age groups such youth and seniors who don't drive, additional focus needs to be on provision of safe transportation alternatives, whether it is by car, bus, bike, or other popular alternative means (e.g., skateboarding, scooters). Bike lanes and off-street trails increase utilization and access. There are effective nationally endorsed strategies (e.g. Complete Streets or 8:80 strategies) that can be adopted to help improve local practices. Findings indicate that P&R agencies need to actively participate in transportation planning if they want to modify the other health factors within a systemwide context.

Delphi Informants suggested additional factors for inclusion after the initial literature search. Although not widely represented in the literature relative to P&R, some research and findings from the Delphi panel suggests that P&R agencies may be able to play a positive role in addressing smoking prevention and cessation, especially among youth. In the United States, more than 600 municipalities now have smoke-free parks, and more than 100 have smoke-free beaches (NRPA – Tobacco, 2016b). After additional factors were added in Stage 2, addressing tobacco ranked second in terms of other factors to address, and in the top fifteen strategies that received greater than 40% rating of first priority to address from all Key Informants. Both case study Key Informants and others during Stage 3 mentioned that their agencies were already under a smoke free or tobacco free policy. The verbal consensus from Informants was that since addressing tobacco is typically a community-wide policy for public facilities, they did not usually need a specific separate policy for P&R, unless the community overall did not have one in place. Informants added some resources for tobacco to the Basecamp repository.

Similarly, alcohol reduction in communities was also a factor suggested late in review of the research, so some additional research was added to the literature review. However, this factor was not separately included in the rankings or Key Themes Analysis Matrix. The literature indicates that on a global scale, reduction of alcohol consumption in communities is warranted as a preventive public health goal. P&R agencies often offer alcohol to the public through programs and special events. These agencies may be able to play an important front line role in education, especially for youth.

There may be additional related health factors for P&R to address in their community systems. These may include addressing overall stress management, water quality, environmental degradation, and climate change, which all may have a direct or indirect effect on preventive health, especially if they are not already being addressed by other actors in the community at large. The research is steadily evolving from trying to determine whether P&R agencies can positively modify these health factors, to trying to determine how best to do so given limited resources within the larger community system.

Theoretical Basis – Systems Theory and Systems Thinking

The research from identifying and confirming the priority health factors expanded to analysis of the existing literature on systems theory and systems thinking, along with how this theoretical basis can be applied to P&R agencies for addressing the health factors in local communities. The literature review introduced the existing systems theory evidence, then introduced a theoretical model for the interplay of a community system with various socio-ecological levels, with P&R as a primary actor to help address the identified health factors. After integrating the findings from the Delphi panel and case study, conclusions indicate that applying this theory and creating a resultant culture of collaborative systems-wide thinking provides a basis for application to how P&R agencies can address preventive PH factors in their specific communities through both research and practice.

The mechanism for how an agency can address the factors in their community appears to be ingrained in having established emphasis on consensual and adopted systemwide needs assessments and plans that identify the priority of factors and specific strategies for that specific agency. A summary system model is reproduced in Figure 26, indicating the key factors and actors within the community system. P&R can be a leading partner within this system, and through strategic leadership, can influence how all factors and actors are connected for the overall desired systems outcome of improving preventive community health factors. A key element is that P&R can take leadership and facilitate working with the other actors and partners, such as the local community medical, schools, public works, transportation, and public safety agencies to effectively address the other strategies that may be implemented to address the factors.

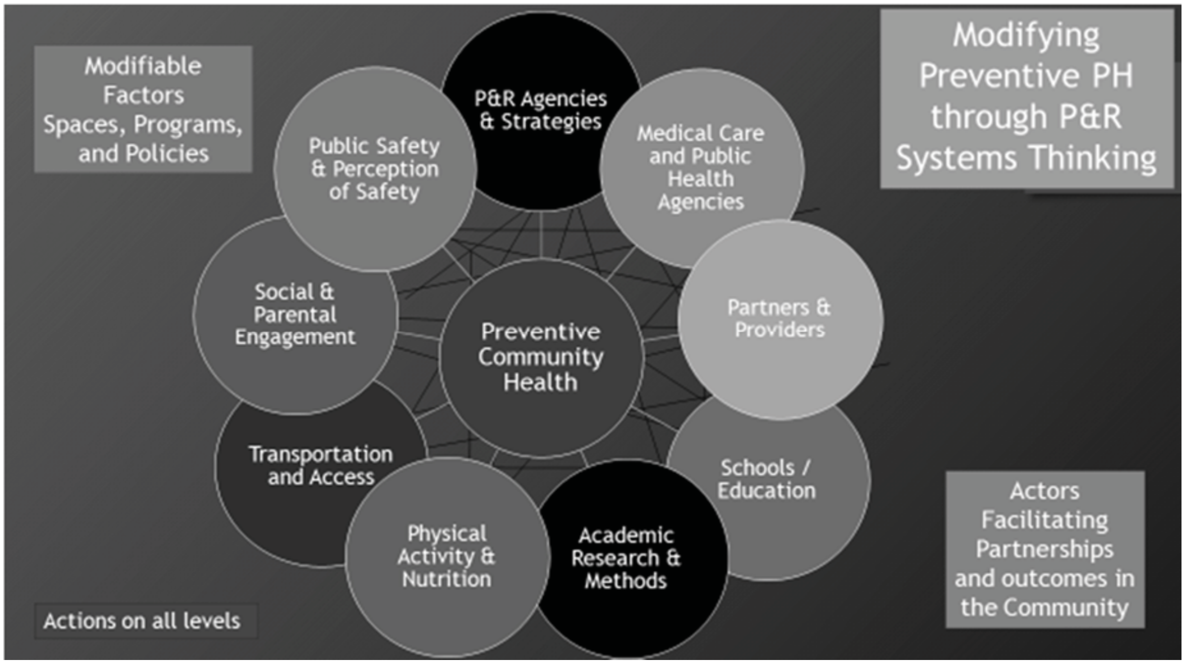

Modifiable Factors Spaces, Programs, and Policies
P&R Agencies & Strategies
Modifying Preventive PH through P&R Systems Thinking
Public Safety & Perception of Safety
Medical Care and Public Health Agencies
Social & Parental Engagement
Preventive Community Health
Partners & Providers
Transportation and Access
Schools / Education
Physical Activity & Nutrition
Academic Research & Methods
Actors Facilitating Partnerships and outcomes in the Community
Actions on all levels

Figure 26. System model for P&R agencies as a partner in preventive community PH

The literature indicated that applying and facilitating a systems thinking approach (through convening and partnering with all stakeholders in the system) can lead to minimization of duplications of service and gaps in service provision, along with building trust and agency effectiveness, improved collaboration, a common agenda and goals, shared measurement and evaluation of outcomes, and improved continuous communications (Stroh, 2015). In this study, the Informants repeatedly suggested and confirmed this type of need for and application of systems thinking for P&R.

Findings from the Informants confirmed that systematic assessment of the health factors within P&R appears to be one way to address improved health within a community. The research indicates that P&R has a default stronghold as manager of the majority of public spaces and programs where health-promoting strategies can occur in a community. However, instead of simply focusing on developing single programs or policies to address specific health issues, communities need community-specific preventive approaches and consensual plans to concentrate on mechanisms for strengthening the abilities of individuals, social networks, and organizations to collectively address their common problems. This approach helps to empower the individuals and organizations within those communities to develop and implement appropriate local strategies to alleviating health problems.

One mechanism to increase and promote the use of P&R as preventive PH providers within a system approach is to examine factors that facilitate as well as constrain visitor use and activities, and address those factors. The systematic assessment for communities evaluating these special topic areas related to health also can use steps for decision making and planning. It does appear to be important to conduct regular system-wide plans, needs assessments, program analyses, and inventories and levels of service analyses, as discussed in later sections as potential organizational strategies.

Challenges and limitations lie within the implementation and measurement of interactions within the system, especially for complex factors and a multi-level system like P&R. It is important to note that P&R is neither the only actor, nor maybe even the leading actor in this system. To be successful, a systems thinking approach indicates that all agencies need to understand that their P&R system is part of a larger community system. The actors within the system need to collaborate with other providers in the community to affect change.

The role of organizational culture. When trying to measure the benefits and outcomes for management of P&R agencies related to the health factors, the *culture* of the organization appears to be very important, and can influence the management and performance of that organization and the influence upon the community system overall. Some organizations pay close attention to planning and assessment, and some do not. The results from the Informants indicate that having leadership with a vision and mission that includes addressing preventive health is key for potential effectiveness in addressing the factors. Evidence indicates that strong and knowledgeable leadership of the P&R agency is crucial to promoting both internal and external focus on these health factors (Ross, Young, Sturts, & Fran, 2013). From that leadership, factors can be addressed through identified and prioritized strategies.

The study indicates that having a comprehensive system-wide plan in place (e.g., a departmental system-wide P&R master plan) is key to gaining organizational buy-in and consensus of decision makers. Paying attention to the elements required for accreditation, and/or items valued for national recognition (e.g., CAPRA or Gold Medal awards), attention to creating an internal achievement focused culture, along with attention to community needs assessment and engagement, all appear to be related to success in positioning agencies to be able to address health factors (Bruton et al., 2011; Burns, 2016; Hurd, Barcelona, & Meldrum, 2008; Jaakson, 1985).

The role of national initiatives in addressing health factors. With the organizational system framework, the research indicates that alignment with other local, regional, and national initiatives is key to gaining resources within the system. The literature and input from the Informants covered a variety of initiatives at all levels of the socio-ecological spectrum that have or are being created and directed towards addressing the identified health factors. It became clear when coding for themes through the various methods that involvement or alignment with national initiatives may impact an agency’s ability to systematically effect positive outcomes. Attention to national initiatives was not an intentional inclusion in the initial literature review or in Round 1 of the Delphi Panel, but they kept arising through input and discussions. It became apparent that additional research into the available initiatives was warranted, so it was conducted.

Although many of the Delphi Informants are involved with various local or regional initiatives, for purposes of this study the review was limited to identifying established national initiatives related to addressing one or more of the health factors in communities. From the literature and the web search, 31 national initiatives were identified that appear to offer at least some assistance relative to tools, methods, and/or collaborations for P&R agencies to address the factors. Most agencies are working with data and suggested practices from national level agencies, such as information from the national Safe Routes to Schools initiative, Community Health Needs Assessments, information from the Centers for Disease Control and Prevention, and information available around addressing the health factors from national non-profit organizations such as NRPA, GP RED, and the Active Living Research group. The identified national initiatives were further explored in Stages 2 and 3 of the Delphi panel. Participation in national and regional initiatives appear to have an important influence in whether or not a P&R agency feels they have a good chance of gaining funding, resources, and collaborations to become effective. All Informants indicated that they were or had participated in at least some of the national initiatives identified in the literature review and ranked by the Informants in the Delphi study.

Pursuing national recognitions may also be important to secure resources and recognition within the local system. Informants indicated involvement in national recognitions, such as the NRPA Gold Medal Awards and CAPRA Accreditation process as being key mechanisms for recognition at the community level. Achieving these types of recognitions can help enhance credibility, decision maker awareness, visibility, and partnership opportunities within the local community system, and also may increase the opportunities for transfer of knowledge through national educational offerings, association gatherings, and opportunities for connections.

During the following later deepening discussions, both within the Delphi Panel, and in the Case Study focus group and interviews, conclusions were made that even though the national initiatives were helpful, the challenge for agencies was primarily around whether or not there was funding available to implement the suggested methods or mechanisms, or continue with the initiative. The typical reason that an agency had been previously but was no longer was active with an initiative was typically that the initiative was funded by a grant, and the grant had ended. Sometimes, some of the goals of the initiative were continued, but typically, when the funding resource ended, the focus ended on those goals. This may be especially troubling for agencies in the coming years. Under the Obama administration in the U.S., strong focus and funding at a federal level was made available or required preventive health. With the election of a new national administration in 2016, indications have been that there may be some desire to discontinue certain types of programs at a federal level. This may mean that these national initiatives might go away and these resources may end.

Strategies and Methods Effectively in Use by P&R agencies

Systems theory and resultant systems thinking indicates that a system works best to address health factors if factors, actors, and strategies within the system are in alignment to achieve common goals and desired outcomes (Sarriot & Kouletio, 2015; Scaccia et al., 2015). Analysis of the themes which emerged from the literature review, the data from the Key Informants, and the resultant the Key Themes Analysis Matrix identified a variety of systems approaches, site analysis tools, and other strategies relative to the theoretical basis that appear to be relevant for application to P&R agencies. The primary tools and methods identified through iterative coding and thematic exploration include the following primary strategies for addressing the factors within a local system.

System-wide planning tools and methods for P&R. The review revealed that P&R agencies are using systems planning and management tools such as community master and comprehensive planning, community-wide needs assessment, and system-wide geo-spatial inventory and analysis. P&R systems are often engaged in a form of social exchanges across their specific system to negotiate the negotiations and exchanges within the community with a goal for the greater good. This negotiation includes collaboration of different stakeholders and the different skills they bring to the table. The literature identifies the importance of identifying and convening stakeholders within the system as part of a mixed-method approach for systems analysis. Key systems analysis tools and strategies were identified for P&R, such as:

- Departmental master and strategic plans that identify the needs and plans for addressing the health factors as part of overall agency planning.
- Community-wide needs assessments including questions related to the health factors to gather qualitative input from demographically representative groups and key stakeholders, including focus groups, public meetings, individual interviews, staff input, user and/or intercept surveys, and youth-specific surveying tools, and quantitative input from statistically-valid random surveys of residents for validation and prioritization.
- Geo-spatially component-based methods (CBM) for inventory and level of service (LOS) analyses that include not only capacity, parcel-based, and asset

> locations, but also component-based location, quality, and access analysis. New tools are also capable of integrating evidence-based PA energy expenditures analysis, sub-area demographics, and density analysis within the quantitative dataset. Although there are no national studies of P&R agencies for comparison, my professional experience with over 450 communities leads me to believe that these numbers are higher than average for typical agencies overall. This may indicate that agencies focusing on health are more focused on consensual system planning than agencies who are not addressing health factors, and could be an implication for future research.

Site-specific analysis and observational tools. The literature review identified advances in the availability, validity, and reliability of site-specific analysis tools, with potential to helping evaluate outcomes, especially in pre- and post- evaluation of sites or projects. These can include site specific land/asset surveying, observational behavior and activity analysis tools (e.g., SOPARC, C-PAT, Behavior Mapping, webcam sourcing), direct measured analysis tools (e.g., wearable trackers; doubly labeled water, BMI measurements, participation tracking), and self-reported data. The directly measured data are the most reliable, but also typically the most expensive and sometime intrusive to obtain. These type of strategies were indicated by the Informants as lower priority for practitioners in practice due to cost and resource limitations.

Policy and practice guidelines creation. A body of the literature was interested in the creation and effect of specific policies, practices, and programs or educational campaigns. Analysis of resources (funding, capital, and staffing) dedicated to the efforts appear to be correlated with effective modification of health factors. The questionnaires and focus group dialogues identified themes relative to the various types of policies that are common or lacking for the agencies. The types of policies available and provided were identified and classified through the Basecamp resources analysis and the questionnaires during Round #2 of the Delphi panel, and analysis of the case study. The most common policies and guidelines available from the study included vending/food provision policies and physical activity specific program plans. However, policies related to smoking cessation, partnerships, and asset planning/design were also deemed as helpful.

Emerging methods. The key themes analysis identified a variety of emerging methods and strategies that P&R agencies are using in practice that have not yet been fully validated in peer-reviewed in research literature. These include advances in geo-spatial analysis, such as the component-based method (CBM) for inventory and level of service analysis for P&R, which has been used by 65% of the Key Informant agencies and is now being used in practice by most of the major professional P&R planning firms in the U.S. However, these methods are not yet being taught in university curricula. In practice, some firms and larger agencies are now incorporating evidence-based active energy expenditures, programming locations, qualitative analysis, and assets management fields into the analysis. These new methods may help address the discrepancies in the literature relative to qualitative analysis of parks and greenspace that affect utilization and satisfaction, beyond the quantitative and spatial analyses related to proximity and capacity. These methods may also provide a focus for future integration into digitized systemwide datasets for parks prescription programs.

In addition, other tools are being created in practice on an almost daily basis. Resources provided by Informants included innovative matrices for evaluation, programming templates, and various policies that may or may not be evidence-based or tested. There is work for researchers to stay current and help validate emerging tools that are being used in practice, and to share and help disseminate those that are effective.

Funding and Resources

A common theme emerged that a primary constraint to system effectiveness is having sufficient funding and allocation of staff to address these factors. Funding is in short supply for all of the P&R agencies. Even the agencies who have more staff reported needing more funding to implement the programs or more spaces for activity and programs to occur. The focus on preventive health as a goal has been at least anecdotally known by most P&R professionals since the field emerged, but the quantification of return on investment (ROI) for these types of allocations has been minimal. However, the literature indicates that there are now peer-reviewed methods to do undertake calculations. P&R agencies would be well served if they can apply quantification of benefits for goals. Site specific goals in particular can be quantified through pre- and post-studies using health impact assessment techniques to indicate their contribution to the overall system. Newer literature identifies the costs per components of a P&R system, and allows for alignment of component planning with assessment of predicted energy expenditures (Floyd et al., 2015). This can allow an agency or researchers to project how changes may occur for specific capital investments. Integration with the medical realm allows for real evaluation of health improvements through ongoing tracking through tools utilized in P&R prescriptions programs. As these programs evolve and the software is modified to allow for better integration and analysis, P&R agencies will be better able to track, evaluate, and convey the ROI for their systems and projects to decision makers. As stated in the summary conclusions from Cohen et al. (2016),

> The current investment in urban parks across the U.S. is relatively small, considering the potential benefits they may yield in health. Physical inactivity contributes to a high proportion of chronic diseases and is directly responsible for 11% of all deaths. Yet, among the 100 largest U.S. cities, the average annual per capita expenditure for parks in 2013 was just $73 (range, $9–$247), less than 0.8% of the $9,146 per capita expenditure on health care in the same year. Neighborhood parks are challenged by being financed at the local level. (p. 7)

Addressing the Gaps using a Knowledge to Action Framework Application

This research indicates that even though much of the evidence is available to researchers in the academic and PH realms, it is unfortunately slow in translation and dissemination to the practice realm. As one Informant in the case study who has a Master’s Degree in PH and now works in P&R administration indicated, “There’s at least a 10-year lapse in theory and the updates to trends and research.” The Informant also indicated agreement with the finding that P&R does not yet include strong focus on evaluation, as recommended in the research realm, and that researchers are slow to validate the emerging tools that come from the practice realm. Figure 27 reproduced here highlights the interaction that needs to happen between the two realms within this knowledge exchange system.

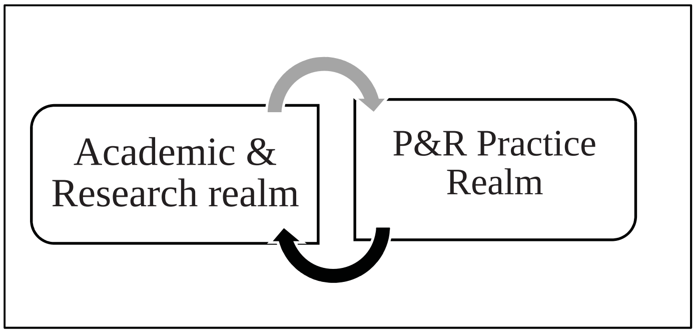


Figure 27. System interaction of academic and P&R practice realms

In reviewing and presenting the results and conclusions, it became more evident that there is a large gap in knowledge translation that is affecting the ability of P&R agencies to address the PH factors. There is strong knowledge and evidence available related to the PH factors at the research level, but it is not yet being effectively conveyed and/or utilized in the practice realm. This situation is not unique to P&R, and other fields have a similar challenge in addressing the transfer of knowledge between the education/research realms and the worksite/practice realms (Eraut, 2009).

In analyzing the relationships to the other emerging themes and data from this study's various research methods, it became apparent that there is a strong need for application and conveyance of this type of conceptual framework to try to help bridge this knowledge gap between the academic PH and P&R research realms and the P&R practice realms. The exchange must be oriented toward outcomes that can be achieved through interactions with other individuals or groups. The exchange must seek to adapt means to further achieve these ends.

In reviewing concepts related to more effective knowledge transfer in a related setting, this research identified the CDC's Knowledge to Action (K2A) Framework, presented in the literature as a potential conceptual mechanism to translate the research on PH to action (CDC, 2014a). I present an adapted K2A framework to apply systems thinking for P&R in Figure 28.

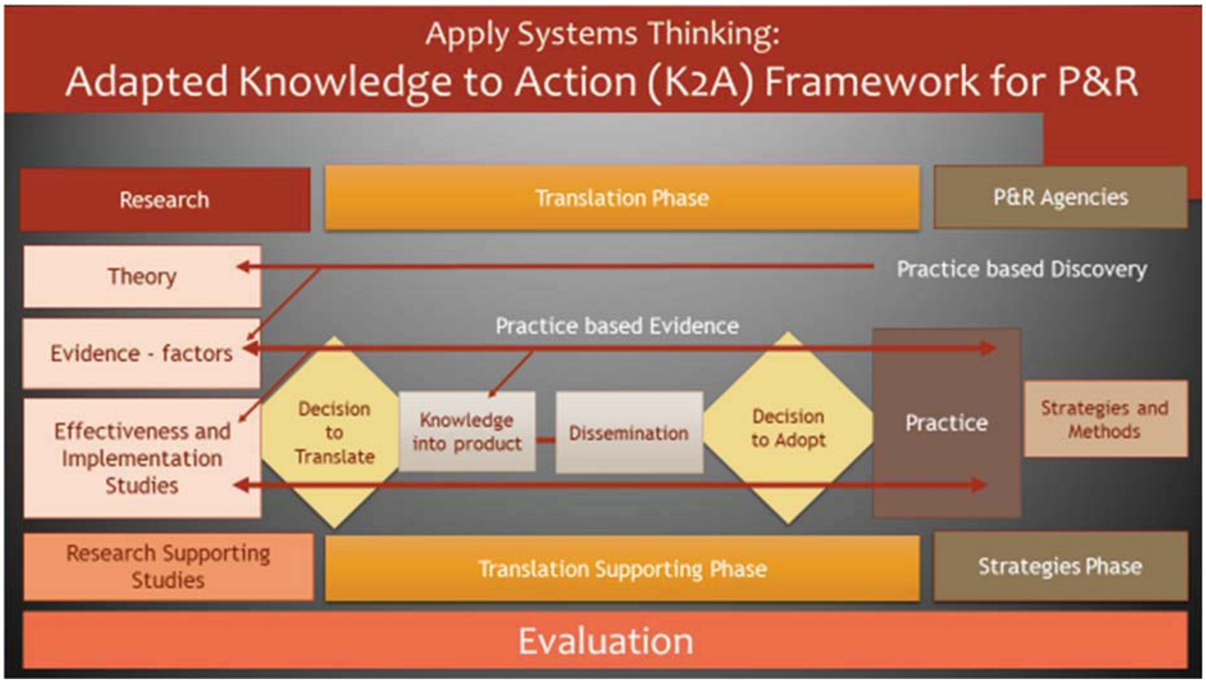

Apply Systems Thinking:
Adapted Knowledge to Action (K2A) Framework for P&R
Research
Translation Phase
P&R Agencies
Theory
Practice based Discovery
Practice based Evidence
Evidence - factors
Effectiveness and Implementation Studies
Decision to Translate
Knowledge into product
Dissemination
Decision to Adopt
Practice
Strategies and Methods
Research Supporting Studies
Translation Supporting Phase
Strategies Phase
Evaluation

Figure 28. Knowledge to Action (K2A) Framework applied to P&R

Wilson, Brady, and Lesesne (2011) initially identified key aspects of this conceptual framework for PH, which appear to be applicable to the P&R setting.

> The K2A Framework is not a causal or theoretical model but a schematic for processes that can be used by practitioners gathering practice-based discoveries or evidence (going from right to left in the framework diagram) and by researchers developing and testing interventions (going from left to right). The framework was designed to be applicable regardless of the disease, condition, or risk factor being addressed and regardless of the type of intervention being considered (i.e., program, policy, or practice); to incorporate involvement of all actors in the research and practice communities (including scientists, administrators, policy makers, support systems, and practitioners); and to identify crucial points of interface between them. The K2A Framework reflects the developers' experience in the field, showing that

> public health practitioners and practitioner-generated innovations are needed for effective translation. (p.2)

In terms of application, this K2A framework indicates that P&R agencies need to have access to the research knowledge base that is available from the academic and PH realms. This could include promoting better access to the published peer reviewed research findings (often hid behind a journal paywall), and a focus on pulling out the relevant implications for practice settings into more easily digestible layperson's research briefs. Targeting research presentations to professional member associations such as NRPA and state-level P&R associations should recognized as a more highly valued continuing educational function in university evaluation criteria, rather than designated as a "service" activity.

As P&R agencies work with partners in the community, such as hospitals or medical partners, non-profits, PH, schools, transportation, and others, the knowledge/evidence-base, and resultant feasible/desired outcomes for each stakeholder must be clearly identified and addressed. One example of how this may help came from the following example identified during the Informant research. A Key Informant identified that despite conducting a needs assessment and internal P&R systems analysis that they had done relative to their assets, programs, and participation to increase PA and reduce obesity in their community, during their project, a partnering hospital pulled additional funding. The hospital representative stated that it was because the P&R agency did not make the direct link (knowledge identification) as to how increases in PA and better nutrition would help with the hospital's stated goal in their *Community Health Needs Assessment* to reduce Type II diabetes. Although this link may seem obvious to most PH researchers, the lack of articulation of the research evidence base by the P&R agency, as to how they were specifically going to help collect and evaluate the evidence for the hospital, caused a knowledge gap and reduced funding. The P&R agency explanation likely came too late in the conversations, or was wrapped up in programming language, rather than terms of ROI or other specific evaluations of physical health outcomes that the hospital needed to justify funding. This is just one example, but clear partnership facilitation and mutual goal setting can be facilitated through the application of knowledge translation and planning tools like logic models and HIA formats up front in conversations, which may be beneficial for setting, measuring, and achieving joint outcomes in a practice setting. However, if researchers cannot effectively provide dissemination of the evidence and education for the P&R practitioners, the research cannot be used in practice.

The goal of this K2A framework is to outline how information (theory, evidence, and methods) must flow (be translated) from the left side (researchers) to the right side (practitioners) in order to be used in the P&R setting. During the translation supporting phase, these include the organizational strategies chosen (e.g., addressing organizational culture, increased resource allocation through staffing or funding, or strategically increasing access to assets or programs), and the attention by organizational leadership on decision to adopt the research for practice application. There also needs to be a concurrent flow of information (emerging practices and tools) from P&R practitioners back to the researchers for validation and implications for future research. This could be better facilitated through inviting practitioners to present to researchers on a regularly scheduled basis to discuss their needs, newly created practice-identified strategies or methods, and joint validation and dissemination of the effectiveness and evaluation.

Limitations of this Research

Using a mixed-methods approach with a focus on qualitative analysis and input from 17 local public P&R agencies (including the two case study agencies) can provide strong results for theoretical and practical conclusions, but cannot necessarily be considered representative of the P&R realm as a whole. However, they do provide a good start. These agencies were specifically selected due to their indicated interest in this topic. The Key Informants all have at least some personal and professional inclinations towards addressing the focus areas. Although the thematic literature review is more generalizable, the findings from the Delphi panel and case study are presented as possible best practices for identifying potential methods, strategies, and outcomes measurement. At least a few other larger P&R agencies have been identified as having some focus on addressing these factors (e.g., Miami, San Francisco, Seattle), which were not available for participation in this study. They or others may have created additional varying methods and strategies not yet identified here.

In addition, although efforts were made to approach this from an inductive and transparent process, I have been actively working in this realm for over 30 years, and obviously bring some researcher bias to the study. A goal was to continually address all results with the Informants and dissertation committee for iterative review and confirmation, and to continually ask, "What is missing?"

The application of systems thinking and theory to the P&R realm, and the conceptual framework presented, are new to P&R related research. This is primarily a qualitative analysis, and my conclusions are based on iterative revisions, coding, and categorization of the themes, factors, and strategies. However, it is likely with the complex nature of this work that there are still more missing elements and ideas. There are many implications for future research, and this knowledge base will surely continue to evolve as researchers and practitioners become more focused in this realm.

Part of this research was to examine if information is available, meaningful, and useful for the agencies. Relative to this, the informants were asked their perceptions of how hard or easy it was for them to take the survey. Informants were asked at both Stage 2 and Stage 3 in the study if they found it easy to answer the questionnaires. Almost half (n = 8) of the Informants on both questionnaires answered that it was extremely or somewhat easy to take the survey. Open-ended comments indicated three common reasons for difficulty in taking the questionnaires, 1) In larger agencies, others had the information, 2) They had not tracked this type of information before or they had no centralized tracking mechanism, and 3) They had not spent time thinking about these factors in this way before.

Agencies often have limited information from which to inform the implementation of programs and development of appropriate resources to address PH issues in their communities. As an example, initially this dissertation research was focused on factors affecting youth but evolved to focus more generally on all age groups. In the early stages, this research study included a specific focus on identifying the research related to middle-school aged youth within the literature. The literature suggests that effective interventions often need to start with youth (Beyer et al., 2015; Shannon, 2006). Research has shown that PA during childhood and adolescence is one of the best predictors of adult PA, and evidence has shown that promoting and establishing lifestyles that incorporate physical activity among children is often more effective and easier than promoting physical activity among adults, and can provide life-long benefits (Janssen & LeBlanc, 2010; Kuo, 2010; Kuo, 2013; Kushi et al., 2006). However, as found in this study and in the literature, currently local community-specific youth data on these various health factors are not readily available to practitioners (Brenner et al., 2013; CDC-YRBSS, 2015). Due largely to the need for appropriate youth research protections and difficulty in accessing youth directly, the majority of this information is collected for adults (Beyer et al., 2015; Shannon, 2006).

During the first stage of this study results from the P&R agencies who practice in this realm indicated that the agencies involved do not readily have the resources and data available from their registration systems or evaluations to focus specific research separately on middle school youth at this time. Therefore, that specific youth cohort focus was discontinued after Stage 1 of the Delphi panel. This could be an area of interest for additional focus for research and practitioner data collection in the future.

From a systems analysis standpoint, one challenge identified related to the addressing the modifiable factors is the tendency for both P&R agencies and academic institutions to try to separate the various program areas and assets into different divisions or departments. For example, many agencies and universities promote sports management as if it is an entirely different discipline than natural resource conservation and trails management. Yes, there are obvious operational and technical management differences, but from a preventive PH systems standpoint, both of these often-siloed categories are simply separate program areas that can facilitate PA, social and parental engagement, and/or stress management, among other benefits. Attention to safety and access/transportation to these amenities and components all require systemwide community infrastructure that is subject to resource constraints. The separate divisions often do not easily share knowledge or data across or even within the departments or agencies, leading to an additional constraint within the system.

All programs areas are typically managed in the public realm by a P&R agency in the local community, unless they are operating at a full revenue-producing capacity without regard to services to under-resourced populations, which can facilitate private sector involvement. This research has identified the complexity and current limitations of evaluating categories of public services that are often treated as differing elements within an academic or local community system.

Going forward – Implications for Future Research and Practice

When asked during the later stages of this research by a dissertation committee member, “What have we learned from this that we didn’t know already?” I had to think long and hard about that. On one hand, when evaluated from a purely academic basis of the research indicated and methods used, a conclusion could be that most of the evidence was available in the academic peer-reviewed realm, and most of the conclusions in this study were at least suspected by my academic committee members who regularly work in this research realm. This study is likely the first to summarize that evidence around preventive health application for P&R. However, the big “AHA” was that although the many of the researchers know and have ready access to most of this information, it has NOT been readily disseminated to or adopted by P&R practice agencies. Much of this information was new to the majority of the Delphi Informants, even as all of them have indicated interest, experience, and focus in this realm for their agencies. This led to integration of the suggested conceptual K2A framework for transfer of knowledge between research and practice.

There are several larger and more sophisticated agencies in the U.S. who are using many of the methods and strategies identified. Some are starting to measure outcomes using tools created primarily through PH research, especially related to participation and physical activity. However, although they may be connected to PH or research partners, these agencies each report that they are usually still “making it up” when it comes to what to do with that information in practice. Some agencies are more advanced than others, and the smaller agencies just entering this arena do not know where or how to get information on best practices. NRPA just adopted *Health and Wellness* as a “pillar” of focus in 2013, and their relatively recently created division and staff for this pillar are trying to figure it out. There are no national “standards” or guidelines for how to do this work. Prior to this research, there was currently no national repository of sample policies, guidelines, or templates, or textbooks compiled on this topic. Although some universities are moving towards aligning P&R with PH (e.g., Indiana University – Bloomington; Pennsylvania State University - University Park; San Jose State University, CA; and North Carolina State University - Raleigh), there is still no accepted overall “program” or “certification” that teaches P&R administrators how to effectively address these PH topics.

To my knowledge, this is the first comprehensive study that explores a summary of modifiable health factors that may be addressed by local P&R agencies in the U.S., along with potential strategies for addressing outcomes for those agencies. This is also the first known study that included a Delphi panel of Key Informants from seventeen P&R agencies, with a focus on methods on identifying consensus on the resources they have available to address these factors, methods being used, and outcomes being evaluated. Some researchers and some of these Key Informants have conducted individual analysis to identify examples of resources and practices, but this is the first compilation and analysis of these themes conducted in an organized way on a larger group of agencies with this direct focus. Using systems theory as a guiding basis, and facilitating a systems thinking approach, appears to have strong merit going forward.

Gathering Local Community Data to Prioritize

A challenge remains in that effective models and frameworks for systematic approaches related to preventive PH factors and outcomes have not been readily available to practitioners (Brener et al., 2013; Burns, 2016; CDC, 2014b). Organizational elements and culture have been shown to play a strong role in how communities address the factors. Some of the more important organizational elements were explored in the literature and from the Delphi and case studies.

Local agencies often have limited information from which to inform or prioritize the implementation of programs and development of appropriate resources to address health issues in their communities, and the priorities are often different in different communities. This research identified community-specific measuring tools and methods. Addressing methods to gather information, foster community engagement, form partnerships, and prioritize interventions that leverage P&R likely require a framework and systematic approach (Burns, 2016; Huang et al., 2009; Sallis et al., 2015; Young et al., 2013). Although the actions taken should be community specific, there are common strategies that can help build capacity to address the health factors.

The methods and strategies that need to be used are completely dependent upon community-specific needs, resources, and funding. These elements are typically different in each community. The focus appears to be on a need for systematic assessment per community to determine their needs, rather than just adopting any one of the broad national programmatic elements and initiatives as a leading method. That being said, this work has compiled an extensive review of the literature on the health factors, national initiatives, methods and strategies to address those factors, and potential outcomes that may be adopted as objectives for local P&R agencies. Key identified themes and methods appear to suggest in summary that P&R agencies should systematically assess, analyze, document, and evaluate the priority of the key health factors within their own community to help position P&R as an effective preventive community public health provider.

Specific Implications for Research

As I am sure is true for most researchers, a primary goal for my research was to help move the knowledge base on this topic forward. However, there are many elements of this study that identified additional implications for future research.

A primary area appears to be further development and validation of systems theory and systems thinking modeling applications for P&R. This may include examining questions such as how can P&R agencies adapt system modeling technology, such as modeling software and network analysis tools, to examine priority strategies to address preventive health factors. There is also need to continue to bolster and convey the research on all of the identified specific health factors, especially related to the impact from various strategies.

This study has identified gaps in knowledge and qualitative data related to the role of strategies to address organizational culture, resource allocation, and funding. However, additional research is needed to confirm the impacts of these strategies, along with confirmed mechanisms for evaluation, particularly within the context of feasibility for a community system. There is support indicated for researchers to evaluate and make available valid and credible tools, templates, and evidence-based instruments that can be used at a systems level to allow for community-specific information gathering and evaluation. This includes the need for validated component-based inventory and level of service analysis methods (like *ParkIndex* and/or *GRASPActive*). There are also varieties of widely adopted practitioner-developed cost recovery and resource allocation methods (such as the *Pyramid Methodology* and the *Public Sector Services Assessment*) that may have an influence on prioritization of addressing the health factors. These methods have not been tested for efficacy, reliability, or validity in a peer-reviewed realm. Additional research on these methods could help answer long-standing questions about the impacts of funding mechanisms, strategic analysis of equity issues, and the role of partnerships in a system context.

In addition, there needs to be additional research on best application of the existing research tools and methods to a practice realm. Additional future research could include using the K2A framework concepts and accepted research methods to encourage overall systems thinking approaches to 1) disseminate this current academic research and expanded knowledge base into peer-reviewed articles for and with other researchers; 2) translate this research to practice language, and disseminate and teach to practitioner audiences; 3) identify additional practices that would benefit from more rigorous academic and research review; and 4) create valid consensus on improved methods and strategies for P&R field overall.

Specific Implications for Applications to Practice

The research indicates that P&R agencies could benefit by adopting a systems thinking approach to addressing the health factors in their communities. This includes incorporating common PH and research practices when planning, but perhaps more importantly, they need to adopt an organizational culture that allows for regular funding for and analysis of evaluation of the methods on a regular basis. Doing so can help make “the right thing, the easy thing" for community residents on a daily basis, so desired change can occur across all levels of the SEM.

As identified in this study, there are several measurement and analysis instruments in use by agencies that could be adopted for broader use in the practitioner realm. There are accepted methods for component-based method (CBM) inventory and level of service analysis that are currently in use by professional planning firms; quality and recommended dosages of nature exposures now being explored in the biomedical and environmental sociology fields and many agencies provided program and financial evaluation templates. An opportunity exists to adapt the health and wellness criteria that have been created in the field by some of participating agencies (e.g., the Prince George's County DPR matrices uploaded into the Basecamp repository and provided in Appendix M).

It is important to acknowledge that outcome effects from some of the policy resources have not been fully vetted by researchers. Often practitioners and consultants have created methods, templates, and policies in response to an immediate need, without full benefit of access to the research that has been done. They are "creating tools on the fly", without considering the vast amount of related research available. As the Delphi panel and case study informants indicated, these practice field-created methods and tools may be achieving the goals for which they are intended, but validation needs to occur. Alignment and connection of the research base and these used methods should be an ongoing goal for agencies and researchers.

Application of PH practices to P&R. The literature indicates an evolution in that integration of some PH practices and methods that have been used for interventions on other health factors and in other situations may be beneficial for application to P&R practice. Two

PH methods that appear most applicable for use are the integration of health impact assessment (HIA) methods, and adoption of logic models for program and grant planning.

Applying strategic health impact assessment (HIA) methods from the PH realm for assessing health impacts appears to be gaining use in application to P&R agencies, especially in planning for projects or policies with an identified health focus. These steps are somewhat similar to steps for any overall planning project, but focused on the specific site or project. The key difference between HIAs and typical P&R planning processes is the addition of a sixth step in the HIA for evaluation. Table 20 indicates representative corresponding steps for each process.

Table 20. *Similarities and Differences between HIAs and P&R Planning*

Step #	**Typical PH HIA Steps**	**Typical P&R Planning Steps**
1	Screening	Project Kick-Off
2	Scoping	Information Gathering
3	Assessment	Findings Analysis
4	Recommendations	Recommendations
5	Reporting	Project presentations & approvals
6	Evaluation	

The results indicate that a challenge exists in that most P&R public agency decision makers do not yet readily see the benefit of investing the resources in Step 6 – Evaluation, indicated for HIAs. It is true that this is still a challenge for PH agencies, even if they want to include a greater focus on evaluation of outcomes from the outset. The key appears to be finding measurable outcomes and setting up internal tool and methods that can measure those outcomes in the practice setting so that the process is not so onerous. Researchers tend to be more precise and want more data for evaluation than P&R practitioners are able to easily collect, given limited staffing, time allocation, and financial resources.

As described and referenced in the literature review, the PH realm often also uses a logic model format to identify and graphically portray goals, objectives, time frame, and evaluation methods for interventions. This usually is created using a SMART format (specific, measurable, actionable, realistic, and timely). P&R agency system wide planning may include an action plan that is similar (typically with goals and objectives, timing, responsibility, and funding impacts) and may incorporate a SMART focus, but again, the focus on evaluation is typically not included or scheduled. Results from the study, specifically from the case study informants, indicate that use of logic model formats for P&R are growing, specifically when applying for grant funding from those used to dealing in the PH realm. Although not yet adopted by these P&R Informants, additional PH frameworks could also be beneficial if adopted in practice. P&R agencies would do well to adopt these common PH practices when planning, but more importantly, they need to adopt a culture that allows for regular funding for and analysis of evaluation of the methods on a regular basis. Doing so can help make *the right thing, the easy thing* for community residents on a daily basis, so change can occur across all levels of the SEM.

Going forward, the practice realm would benefit from adopting additional research methods that can be translated and disseminated to allow P&R agencies identify and evaluate data relative specifically to the specific demographics they serve. As discussed previously, the Informants were not currently able to analyze or report participation data to address specific demographic elements, such as youth. In evaluation of the methods used by some of the agencies who have been more focused on these factors, findings indicated three primary strategies that appear to be effective in providing stronger data and metrics for decision making and outcomes achievement related to addressing preventive health.

1. Tracking information by age group in registration and participation records - Most agencies are now using registration software and online registration, but the reports provided within these software packages do not usually easily allow for data evaluation for these age groups separately. Of those agencies who have used an organized toolkit or template for addressing the health factors, one of the biggest challenges was gathering data for youth specifically.
2. Conducting system-wide youth specific surveying or data collection methods – Although data are often available through national surveys done in schools for high school students, it does not easily translate to community specific data for younger students. It would be ideal to have observational or directly recorded data from many of the available research tools, as that can be more reliable. However, several of the agencies reported that using youth specific self-reported surveys have helped them better address the youth needs in their community. Results indicate that this typically needs to be done in partnership with schools to have access to a broad representation of the youth in the community. The literature includes a variety of surveys that may be useful, but more research is needed to assess best standardization, implementation, and validity of these instruments for use in practice.
3. Convening a youth-specific task force or committee – Several of the Key Informants reported that creating and facilitating a youth specific task force (include youth themselves) has been an effective strategy for addressing the factors as related to youth in communities.

Creating a toolkit approach to address the community-specific health factors. The literature and several Informants identified that an apparently effective organizational strategy for application of this knowledge base to practice within a local community can include creating and disseminating some sort of toolkit approach, outlining data collection methods and strategies to systematically address modifying the health factors. Summary steps for this type of approach in practice may include:

- Convening community stakeholders and champions – including identifying leadership to gather and engage representatives of residents (all demographics), partners, and alternative providers for all areas of the community to ensure equitable services.
- Creating a basis for focus, such as a warrant for agency action – Identifying why, for whom (audience), desired impact, and messaging to the community and stakeholders. This warrant for action is related to improving the organizational culture and creating a shared agenda with collaborating stakeholders.
- Documenting current programming, inventories, and outcomes – Implementing emerging practices such as using programming analysis templates, component-based GIS inventories and LOS analysis, and evaluation matrices to identify specific asset, program, and active energy expenditures by neighborhood.
- Enacting policies, methods, programs, and guidelines to help – this likely will include partnering on many aspects for the benefit for the community, and using PH, design, and planning principles (e.g., HIAs, logic models, CPTED principles, and policies).

- Identifying and obtaining fiscal resources - this may include identifying sustainable resources for capital and/or operational funding for places, programs, and staff, along with tracking allocation of these resources for evaluation and to show ROI.
- Aligning more effectively with available research – This may include dedicating resources toward identifying PH needs and other research, along with attention to telling the story through focused evaluation, documented outcomes, and dissemination/sharing of effective practices, including methods from the PH realm.

Creation of a national repository of P&R agency examples. Informants reported finding strong value in the compilation of the Basecamp repository of resources. These included sample policy documents, system plans, program plans for various factors, and some specific planning documents around addressing the factors through P&R. In total, 98 documents were uploaded, and all Informants indicated in Stage 3 of the Delphi panel that they had reviewed the various documents. Several suggested that they be organized by type rather than just by agency (a matrix was created for this purpose, shown in results for Questionnaire #2), and several stated that this was a key benefit to their participation in this dissertation research. It is my intent to continue to facilitate availability of this national repository for interested agency representatives and researchers in the future, through a GP RED funded Basecamp portal.

A final goal is that this dissertation is that it is just a start for continued research and systematic applications to practice to continue to help our communities thrive, through positioning P&R agencies as evidence-based preventive public health providers.

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APPENDICES

Appendix A - National Initiatives and Agencies Active with Them

Penbrooke Delphi Study - Results from Questionnaire #2, October 2016

To deepen into exploring awareness and participation in national initiatives, a list of the 31 national initiatives which appeared to be relevant to P&R agencies and their efforts to address the modifiable health factors that were identified from literature web searches, and the resources provided by the Delphi Panel were compiled for the survey. The following table includes percentage of the full list of similar initiatives in which Delphi Panel agencies who took Questionnaire #2 (n=15) reported they are or have participated, and after the open ended comments, descriptions of the initiatives are provided in tabular summary form.

National Initiatives and Percentage of Agencies Active with Them

National Organization	% Active	Not now but YES in past	NO
Safe Routes to School	53%	13%	33%
Community Health Needs Assessments	42%	0%	58%
Let's Move	38%	8%	54%
NRPA's Safe Routes to Parks	36%	0%	64%
NRPA's Commit to Health	36%	0%	64%
Community Health Improvement Plans	33%	8%	58%
Complete Streets	33%	8%	58%
After School Association's – HEPA	27%	0%	73%
Live Well	25%	8%	67%
KaBOOM!'s Playability	23%	23%	54%
Alliance for a Healthier Generation	20%	0%	80%
Active Living Research	18%	9%	73%
GP RED's SMT	18%	9%	73%
GP RED's Safe Routes to Play	18%	9%	73%
SPARK	15%	15%	69%
NIOST's Healthy Out of School Time	11%	0%	89%
ACHIEVE	10%	20%	70%
Active Living Coalition	10%	10%	80%
CDC's Healthy Places Parks HIA Toolkit	10%	10%	80%
Eat Smart, Move More	9%	9%	82%
Healthy Parks Healthy People	9%	9%	82%
NFL Play 60	8%	15%	77%

Healthy Kids Concepts	8%	0%	92%
Active Living by Design	0%	10%	90%
ACSM's Exercise is Medicine	0%	10%	90%
Harvard's Food & Fun Afterschool Programs	0%	0%	100%
Media Smart Youth	0%	0%	100%
Partnership for Healthier America	0%	0%	100%
PHIT America	0%	0%	100%
Together Counts	0%	9%	91%
Trust for America's Health	0%	0%	100%

Additional initiatives that were listed as “other” included one agency each listed as currently participating with include the Public Health Institute; I am moving, I am living; Organ Wise Guys; ParticipAction; Sport for Life; Fit for Life; Active Canada 2020 (Canadian).

Open Ended Comments about the National Initiatives

The respondents were asked for an open-ended response on which initiatives have been most helpful to their agency and why. As these appear to be very informative for this qualitative research, they are presented here verbatim in the order in which they were recorded:

- NRPA's Commit to Health in conjunction with Alliance for a Healthier Generation and HEPA standard have had a significant positive impact on program nutrition -- especially where feeding occurs on-site.
- GP RED's SMT, CHNA, CHIP, Public Health Institute, National Leadership Academy for the Public's Health, CDC, Robert Wood Johnson Foundation. If only we could harness their work and energy into one giant movement....
- CHIP is helping us stay on task for our goals as a community. Safe Routes to School is a collaboration between school districts and our street/parks

department which helps open doors for future projects. I am moving, I am living is for child care aged children to help promote healthy living at the very early stages.

- We have developed new partnerships and programming centered around our involvement with GP RED and the NRPA and IPRA health initiatives.
- Looking at this list was a huge awakening for me to realize that we do not participate in any of these initiatives other than the Community Health Assessment and Organ Wise Guys, which only some of our staff are still using. Thank you for sharing this, because I will be sharing this with my staff for us to start researching and finding ways for us to start implementing more of these.
- KaBoom's Playful City USA program has been beneficial for connecting our organization to others on a National level. Being actively involved in this program also opens the door to more opportunities for grants and similar opportunities. ACHIEVE and the Active Living Coalition also help to create a supportive environment for cross sector work within our diverse community.
- We have gone "all in" on the complete streets concept throughout the entire city. Some of our most significant community investments ($20 million +) over the past two years have been in this arena. We were the first city in Indiana to reach gold medals in all five Lets Move! categories. We were also the first beta site for the GP RED Healthy Communities Surveillance and Management Toolkit.

- The County of San Diego was very involved in Let's Move and became the first Let's Move County. Health and Human Agency does all the reporting.
- Complete Streets is championed by our Public Works Department.
- LiveWell Colorado provided us some direction and programs for our community to potentially participate in. We directed community members to the county programs, etc. LiveWell program is no longer funded or active in Mesa County, Colorado Safe Routes to Schools was impactful in that we have had some walkability analysis done. This has allowed us to look at crosswalk locations, sidewalk-ability, etc. and has translated into some funding to make improvements. I will say we would think twice about participating in grant funding from Safe Routes in the future due to the construction and reporting requirements imposed on the project.
- KaBoom, NFL Play 60, Eat Smart Move more, all these agencies have been great partners in providing curriculum and funding for programs.
- The Canadian *Framework for Recreation in Canada 2015* is a strategic document that is particularly supportive of physical activity (including active transportation and active school travel) and the importance of providing access to nature.
- Some of the initiatives developed by ParticipAction are engaging and easily incorporated into community programming. Initiatives need to be linked within a larger plan in order to make them sustainable, otherwise they are simply a special event that comes and goes.

Appendix A	Relevant Identified National Initiatives
Initiative	**Brief description and website**
ACHIEVE	ACHIEVE strives to bring together local leaders who have the drive and ability to make Policy, Systems, and Environmental changes that will improve the health and wellness of their communities. http://www.achievecommunities.org/
ACSM's Exercise is Medicine	Exercise is Medicine®, a global health initiative managed by the American College of Sports Medicine (ACSM), encourages primary care physicians and other health care providers to include exercise when designing treatment plans for patients. Along with the National Physical Activity Plan, Exercise is Medicine strives to make physical activity a “vital sign” that is routinely assessed at every patient interaction with a health care provider. http://www.acsm.org/about-acsm/initiatives/eim
Active Living by Design	Active Living By Design partners with nonprofits, local leaders and funders to create healthy communities by making streets safer, bringing healthy foods to stores, and build parks, playgrounds and other active spaces for children and adults. http://activelivingbydesign.org/
Active Living Coalition	ALC is a network of individuals and organizations whose mission is to work together to promote a healthy lifestyle to those who live, work, and visit Monroe County through events, programs, and policies. http://www.activelivingcoalition.org/
Active Living Research	Active Living Research translates and disseminates evidence to advocates, policy-makers and practitioners aimed at preventing childhood obesity and promoting active communities. http://activelivingresearch.org/
After School Association's HEPA	The Afterschool Association hosts the National Institute on Out of School Time and the Health Out of School Time Coalition that has created Healthy Eating Physical Activity Standards. These standards have also been adopted by NRPA for their health initiatives. http://www.niost.org/HOST-Site
Alliance for a Healthier Generation	The Alliance for a Healthier Generation is a catalyst for children’s health, working with schools, companies, community organizations, healthcare professionals and families to transform the conditions and systems that lead to healthier kids. https://www.healthiergeneration.org
CDC's Healthy Places Parks HIA Toolkit	The CDC produces a variety of tools for HIAs and other assessments, such as Parks, Trails and Health: A Tool for Planners, Parks & Recreational Professionals, and Health Practitioner. https://www.cdc.gov/healthyplaces/healthtopics/parks_resources.htm
Community Health Improvement Plans (CHIP)	A community health improvement plan is a long-term, systematic effort to address public health problems in a community. The plan is based on the results of community health assessment activities, and is part of a community health improvement process. They are happening in all states, but one example and tools are available at http://www.health.state.mn.us/divs/opi/pm/lphap/chip/.
Community Health Needs Assessments (CHNA)	A CHNA is required as part of the Affordable Care Act, and is intended to be community-wide. This assessment and formal report should be in alignment with the federal IRS Community Benefit reporting requirements that affect all state licensed 501(c)(3) hospitals. Examples from Kaiser Permanente for various communities are available at: https://share.kaiserpermanente.org/article/community-health-needs-assessments/

Complete Streets	Complete Streets is an initiative to create streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. https://smartgrowthamerica.org
Eat Smart, Move More	This is intended as a statewide resource for tips and information to help people eat smart and move more everyday. It is active in several states and features a variety of tools to address workplace, personal tools, obesity, and diabetes prevention. . Here is the NC example: http://www.eatsmartmovemorenc.com/index.html
GP RED's Safe Routes to Play	Safe Routes to Play (SRTP) is a child-centered transportation planning process which helps communities assess the potential to create non-motorized connectivity between neighborhoods and parks, playgrounds, trails, and natural areas for children and their families. http://www.gpred.org/initiatives/safe-routes-to-play/
GP RED's Surveillance and Management Toolkit (SMT)	The SMT is an initiative of the GP RED Healthy Communities Research Group (HCRG) to help parks, recreation, public health, and related departments and organizations use a Systems Thinking Approach to assess, analyze, document, and evaluate key elements related to the repositioning of parks and recreation agencies as a primary provider of activities that impact public health in communities. http://www.gpred.org/initiatives/healthy-communities-research-group/
Harvard's Food & Fun Afterschool Programs.	Food & Fun After School© is a curriculum designed to develop healthy habits out of school time. Eleven teaching units help programs infuse healthy snacks and recipes, physically active games, and creative learning activities into regular program schedules. http://www.foodandfun.org/?p=about
Healthy Kids Concepts	This initiative is committed to taking action in the fight against childhood obesity in California and nationwide. Healthy Kids Concepts is resolved to create a movement where healthy eating, exercise and fun becomes the norm in the daily lives of our children. http://www.healthykidsconcepts.org/home.html
Healthy Parks Healthy People	Healthy Parks Healthy People is a global movement that harnesses the power of parks and public lands in contributing to a healthy civil society. The idea originated with Parks Victoria, Australia, and was brought to global prominence at the 1st Healthy Parks Healthy People Congress in April, 2010. https://www.nps.gov/public_health/hp/hphp.htm
KaBOOM!'s Playability	This initiative was designed as a solution to ensure that all kids, especially the 16 million living in poverty in America, can get the balanced and active play they need to thrive. https://kaboom.org/playability
Let's Move	Let’s Move! was launched by the First Lady, Michelle Obama, dedicated to solving the challenge of childhood obesity within a generation, so that children born today will grow up healthier and able to pursue their dreams. Let's Move! is about putting children on the path to a healthy future, giving parents helpful information. fostering environments that support healthy choices, providing healthier foods in schools, ensuring that every family has access to healthy, affordable food, and, helping kids become more physically active. http://www.letsmove.gov/
Live Well	LiveWell has been used as a name for a variety of statewide and county nonprofit organizations committed to preventing and reducing the barriers to healthy eating and active living. Each organization has a somewhat different mandate and available tools. An example from Colorado is

	available at: https://livewellcolorado.org/about/
Media Smart Youth	*Media-Smart Youth: Eat, Think, and Be Active!*® is an interactive after-school education program for youth ages 11 to 13 designed to help youth think critically about media, build skills around PA, and to eat healthfully. https://www.nichd.nih.gov/msy/about/Pages/default.aspx
NFL Play 60	NFL PLAY 60 is the National Football League's campaign to encourage kids to be active for 60 minutes a day in order to help reverse the trend of childhood obesity. http://www.nflrush.com/content/6468
NIOST's Healthy Out of School Time	A national coalition of leaders in the Out-of-School Time (OST) field. The goal is to foster health and well-being practices in afterschool programs nationwide, using science-based standards for healthy eating, physical activity, screen time, and social supports for these behaviors including staff, family, and child engagement. http://www.niost.org/HOST-Site
NRPA's Commit to Health	Commit to Health is NRPA's campaign to support the implementation and evaluation of the Healthy Eating Physical Activity (HEPA) standards in P&R sites across the country. P&R sites can join the national movement to improve access to healthy foods, increase opportunities for physical activity, and a connect kids to the natural environments. https://www.nrpa.org/our- work/partnerships/initiatives/commit-to-health/
NRPA's Safe Routes to Parks	Building upon the national Safe Routes to School and GP RED's Safe Routes to Play initiatives, NRPA created a campaign around Safe Routes to Parks to implement environmental and policy strategies that create safe and equitable access to parks for all people. http://www.nrpa.org/Safe-Routes-To-Parks/
Partnership for Healthier America (PHA)	PHA brings together public, private and nonprofit leaders to broker meaningful commitments and develop strategies to end childhood obesity. Most importantly, PHA ensures that commitments made are commitments kept by working with unbiased, third parties to monitor and publicly report on the progress partners are making to show everyone what can be achieved when working together. http://ahealthieramerica.org/about/about-the-partnership/
PHIT America	PHIT America is a campaign dedicated to increasing physical activity and fitness to improve the health of all Americans. PHIT America was launched in January 2013 with the support of more than 100 companies and organizations. PHIT stands for Personal Health Investment Today. http://www.phitamerica.org/About.htm
Safe Routes to School	The goal of this initiative is to advance safe walking and bicycling to and from schools, to improve the health and wellbeing of kids of all races, income levels and abilities and to foster the creation of healthy communities for everyone. http://www.saferoutespartnership.org/ and http://www.saferoutesinfo.org/
SPARK	Since 1989 SPARK is dedicated to creating, implementing, and evaluating research-based programs that promote lifelong wellness. SPARK strives to improve the health of children, adolescents, and adults by disseminating evidence-based Physical Education, After School, Early Childhood, and Safe & Healthy Students programs to teachers and recreation leaders serving Pre-K through 12th grade students. - See more at: http://www.sparkpe.org/what-is- spark/#sthash.McdArJ69.dpuf

Together Counts	Together Counts™ is a nationwide program inspiring active and healthy living. Together Counts was started by The Healthy Weight Commitment Foundation, a broad-based not-for- profit organization whose mission is to help reduce obesity, especially childhood obesity, by encouraging positive and permanent lifestyle changes among school-aged children and their families. http://www.togethercounts.com/about
Trust for America's Health	Trust for America's Health (TFAH) is a non-profit, non-partisan organization dedicated to saving lives by protecting the health of every community and working to make disease prevention a national priority. TFAH believes that preventing disease and stopping epidemics everyday requires a strong, effective, and responsive public health system. http://healthyamericans.org/about/

Appendix A: Penbrooke Study - National Intitiatives and Agencies Active with them (N = 15 Agencies Responding)

Agency	Arlington Heights PD, IL	Bloomington, IN	Broomfield, CO	Fruita, CO	Greensboro, NC	Halton Hills, ON	Liberty, MO	Ontario, CA Ministry	Prince George's County, MD	Raleigh, NC	San Diego County, CA	South Bend, IN	Tacoma - Metro Parks, WA	Widefield SD, CO
ACHIEVE		YES							Past				Past	
ACSM's Exercise is Medicine														Past
Active Living by Design											Past			
Active Living Coalition		YES				Past								
Active Living Research						YES	YES				Past			
After School Association's HEPA		YES							YES			YES		
Alliance for a Healthier Generation		YES							YES					
CDC's Healthy Places Parks HIA Toolkit							YES	Past						
Community Health Improvement Plans (CHIP)		YES	YES				YES		YES		Past			
Community Health Needs Assessments (CHNA)		YES	YES		YES		YES					YES		
Complete Streets			YES					Past				YES	YES	
Eat Smart, Move More					Past					YES				
GP RED's Safe Routes to Play	YES						YES		Past					
GP RED's Surveillance and Management Toolkit (SMT)	YES						YES					YES		
Harvard's Food & Fun Afterschool Programs														
Healthy Kids Concepts	YES													
Healthy Parks Healthy People							YES	Past						
KaBOOM!'s Playability		YES	YES		Past					YES	Past			
Let's Move		YES	YES				YES		Past		YES	YES		
Live Well			YES	Past			YES							
Media Smart Youth														
NFL Play 60										YES	Past	Past		
NIOST's Healthy Out of School Time									YES					
NRPA's Commit to Health	YES	YES							YES					
NRPA's Safe Routes to Parks	YES	YES	YES										YES	
Partnership for Healthier America														
PHIT America														
Safe Routes to School		YES	YES	Past		YES	YES			YES	Past	YES	YES	
SPARK			YES						Past	YES	Past			
Together Counts												Past		
Trust for America's Health														
Other			YES		YES	YES	YES							

Appendix B - Invitation to Participate

Penbrooke Delphi Study and Case Study Overview
Positioning local parks and recreation agencies as preventive public health providers
Sent by email to identified potential agency participants
Dear Agency Representative- Key Informant,

Attached is an updated overview version of an invitation to participate in a Delphi Panel and/or Case Study that is part of my dissertation research. Please let me know if you are willing to participate as a “key informant” in this study, I’m recruiting additional communities (up to 18). Your participation is completely voluntary. You will not receive compensation for participating in this study. This study is not designed to evaluate validity or measure benefits of outcomes from your work on these factors, but focused to assess and detail the current processes, tools, time allocation, and methods your agency is using to identify and address the key factors.

Participation in this Delphi Study will consist of:

1. **Review of provided literature summary** related to health factors that may be modifiable by local P&R agencies for middle school youth, and your related materials (approx.. 1-3 hours)
2. Participation in a group **web-based conference call** (Oct) to explain the project and answer questions (1.5 hours)
3. Answer an **online questionnaire** regarding data that is available to you, factors you are addressing, outcomes you are measuring, and process for prioritization (Oct) – (1 hour)
4. Participate in a **web-based conference call** focus group for review of summary analysis of the collected questionnaires and info from all Key Informants (Nov) – (1.5 hours)
5. Answer a second **online questionnaire** to help prioritize results for feasibility of process for local P&R agencies (Nov) – (1 hour)
6. Participate in a third email-based **review of results** and provide feedback and any other suggestions (Dec). – (approx. 2-3 hours), including evaluation of this study.
7. You will receive copies of all results and full dissertation when ready.

Total time commitment for Delphi Study = about 10 – 12 hours over approximately four months.

Case Study: Two agencies will be selected for a more detailed Case Study analysis (in addition to participating in the Delphi Study) that will include additional collection of detail on agency process data, along with semi-structured individual interviews and an additional focus group including up to five additional agency representatives and stakeholders for your agency. If you are selected for potential Case Study involvement, you and these stakeholders will be also be asked to consent to these additional activities. Total time commitment for Case Studies = approximately 20 hours over five months.

Please confirm your desire to participate by email, and let me know if you have any questions or suggestions. I will be in touch to move forward.

Thank you,

Teresa Penbrooke, MAOM, CPRE
Direct (mobile): 303-870-3884   Email: tlpenbro@ncsu.edu
PhD Candidate and Research Assistant
North Carolina State University – Department of Parks, Recreation, and Tourism Management
http://cnr.ncsu.edu/prtm

APPENDIX C - North Carolina State University INFORMED CONSENT FORM for RESEARCH

Delphi and Case Study - Positioning local parks and recreation agencies as preventive public health providers

What are some general things you should know about research studies?

You are being asked to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of a certain topic or issue. You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those that participate. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher(s) named above.

What is the purpose of this study?

The purpose of this study is to investigate the systematic processes used by local government parks and recreation agencies that may be related to addressing and positioning their agency as public health providers for key health factors such as nutrition, physical activity, transportation, perception of safety, parental and social engagement, and others, along with any outcomes identified and measured.

What will happen if you take part in the study?

If you agree to participate in this study, you will be asked to review a summary of literature provided on this topic, and then participate in two online questionnaires, and one to two semi-structured interviews and/or focus groups lasting approximately 30-60 minutes each. Questions will be developed related to the process and methods your agency uses to address the health factors, along with time spent by you and other employees, tools, and outcomes that have been evaluated. Case Study participants will provide additional agency- specific materials and participate in more detailed review of findings and focus groups.

Risks

There are minimal risks or discomforts of the procedures to be used in the study.

Benefits

The primary benefit is increased knowledge of potential process improvements and benefits of positioning P&R agencies as public health providers. All participants will receive copies of all results, analysis, and potential managerial implications they can use for individual knowledge increase and/or process improvements for the public good.

Confidentiality

The information in the study records will be kept confidential to the extent necessary and allowed by law. Data will be stored securely in a password protected computer file. Participant names may be listed in the study as a participant, but most personal statements and contributions will be summarized. Individual quotes may be used if they add value to the results. Participants are representatives of public agencies and all emails and records may be open to public “sunshine laws. Confidentiality can’t be guaranteed for focus group or case study participants, and it is understood that info shared in the focus group may be shared outside the group for professional use.

Compensation

You will not receive anything for participating except for a summary of the analysis and findings.

What if you have questions about this study?

If you have questions at any time about the study or the procedures, you may contact the researcher, Teresa L. Penbrooke, at Box 8004, 3033A Biltmore Hall, North Carolina State University, Raleigh 27695, or (303) 870-3884 or email tlpenbro@ncsu.edu.

What if you have questions about your rights as a research participant?

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, Box 7514, NCSU Campus (919/515-4514).

Consent To Participate

"I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled."

Subject's signature____ **Date** _________________
Investigator's signature **Date 9/19/2016**

APPENDIX D - FOCUS GROUP PROTOCOL

Positioning local parks and recreation agencies as preventive public health providers

Teresa L. Penbrooke, CPRP, MAOM, PhD Candidate, NSCU

Focus Groups Protocol

For this Study, **three focus groups** will be conducted for the Delphi Study and Case Study participants (one to introduce the research and process and collect initial thoughts on the topic, and one to validate and discuss the initial findings of the questionnaire, and one to review and discuss the findings after questionnaire #2). In addition, for the Case Study, one additional focus group for each of the Case Study agencies will be held to involve additional agency representative and key stakeholders for additional deepening and suggestions for that specific agency) for a total of five recorded and transcribed focus groups.

The two Case Study representatives will participate in the first two Delphi Study focus groups simultaneously for efficiency and knowledge transfer among participants, but data from the other tools (the online questionnaires and case study data process collection tools identification and the final three focus groups) will be kept separate for analysis between the two study groups. All focus groups and interviews will be conducted using an online approach through group video conferencing and recording using **www.anymeeting.com** and recorded for verbatim transcription.

Scripts for Each Focus Group

Focus Group # 1 – Introduction to Study and Health Factors

(includes Delphi Study Participants, including the two Case Study Informants)

This will using a simple semi-structured question formation combined with a grounded theory inductive approach to identify summary themes. The focus group will be prepared for and facilitated by a trained researcher. The script will include

- Introduction to the research. Participants, and research questions
- Introduction and brief summary of the background and literature on the Key modifiable Health Factors as provided in the literature (nutrition, physical activity, transportation, social and parental engagement, and perception of safety.
- SWOT (Strengths, Weaknesses, Opportunities, & Threats) questions will be asked related to participants' involvements and process for addressing these health factors at a local government P&R level.
- Q. 1 – What are the **strengths** you see in how your agency addresses these health factors?
- Q.2 - What are the primary **weaknesses** or external **challenges** (threats) your agency faces in trying to address these health factors?
- Q.3. What are the **opportunities** you see for your agency in going forward?
- Q.4. What types of **process and/or systematic planning tools** is your agency using to address these factors?
- Q.5. – What types of **positive outcomes** is your agency achieving in this area of work?

Focus Group #2 – Delphi and Case Study Participants – Prioritization of Factors

- Review of results from the completed online questionnaire #1.
- Facilitated discussion and deepening questions related to the findings thus far

    Q.1. – Do the summary results presented ring true for your agency?

    Q.2 . Based on the responses, are there any additional **factors** you are addressing?

    Q.3. – Based on the responses, are there any additional **processes** you are using to evaluate and measure?

    Q.4. – Based on the responses, are there any additional **outcomes** to share?
- Introduction to **Questionnaire #2 – Prioritization** of factors & processes for feasibility.

Focus Group #3 – Validation of Results and Feedback on Prioritization and Implementation

(For the Delphi Study and Case Study Informants)– Agenda and Script:

- Review of the results of Questionnaire #2 on Prioritization
- Facilitated discussion on any identified additional process ramifications for agencies and feasibility of process for best potential **implementation**.
    - Q.1. – What is your feedback on the results of Questionnaire #2?
    - Any other considerations you would like to share at this time?

Focus Groups #4 and #5 (for the two separate case study agencies and key stakeholders)

- For the Case Study, an additional separate Focus Group each (#4 and #5) will expand participation to additional staff and stakeholders working around the topic for their agencies. Each of the two Case Study agencies will be asked to invite up to 5 key stakeholders to discuss **process effectiveness**, **potential improvements**, and **feasibility of implementation and outcomes**.
- The agenda and script will be:
    - An introduction to the study and findings from Questionnaire #2 overall
    - An introduction to findings specific to their agency case.
    - Deepening questions for each of those two agencies.
        - Q.1 – How can the process and outcomes for these factors be improved?
        - Q.2 – How does the agency's process affect the partner relationships?
        - Q.3 – What are barriers to evaluation and outcomes for your specific agency?

Appendix E. Delphi Panel Descriptions

This appendix includes a full description of each agency, with the exception of the two case study agencies, Prince George's County, MD, and San Diego County, CA, which are more fully described in following the Case Study sections in Chapter 4. It is important to note that with the data collected and interest of the informants, each of these Delphi agencies could have been its own informative case study. However, key summary findings relative to this study have been aggregated except for the two case study agencies. All agencies were offered the opportunity to review this information for validity prior to final submittal. This summary descriptive section focuses on agency overview, demographics, indications of note, and relevant information from the resource documents provided. Information obtained from the questionnaires and additional results for the case study agencies are in included in later sections on those topics.

Arlington Heights Park District, IL – Key Informant: Brian Meyer

This 16.2-square mile Parks and Recreation District is located in northern Cook County and southern Lake County, IL, 27 miles northwest of downtown Chicago. The District serves most of Arlington Heights and small portions of Palatine, Mt. Prospect, Prospect Heights, Rolling Meadows, and Lake County. Arlington Heights population was 72, 287 in 2015. Median age is 44 (higher than the U.S. average of 35) and household median house household income is over $77,000 per year, significantly higher that the U.S. average of $51,939. It's the third largest suburb in Cook County, the eighth largest suburb in the Chicago Metropolitan area, and the twelfth largest community in the State of Illinois. The white population is majority but trending slightly downward from 88.5% to a predicted 86% in 2020. Brian Meyer, Director of Recreation, was the Key Informant for this project.

Arlington Heights began to specifically address the health factors when the informant, Brian Meyer, attended a conference session on healthy communities through P&R at an NRPA conference, I taught in 2013. After working to obtain funding and partnerships to move forward, the APHD contracted with GP RED to become a *beta site* for a two year project (2015-2016) to utilize the *Surveillance and Management Toolkit* (GP RED - SMT, 2016). This project was in alignment with the *2014 Arlington Height Park District Comprehensive Plan*, which included a variety of goals and tasks related to this work. The following goals and objectives are directly tied to this project:

- Goal 2.2: Provide quality recreational programs and services which meet the needs of all age groups, and promote a healthy lifestyle in the community.
- Specific Tasks from the Comprehensive Plan Goal 2.2:
    - Coordinate with all community partners to implement the agreement with GP RED Healthy Communities Research Group (HCRG) SMT Project.
    - Offer five new health and wellness programs yearly for youth ages 6-12.

Since that inception, the District compiled a coalition of nine community agencies (e.g. hospitals, schools, the Village of Arlington Heights, etc.) to create the Arlington Heights Health Action Alliance. The toolkit included many of the other methods identified and described elsewhere in this research, including a component-based inventory and level of service analysis, system-wide program analysis, creation of a youth focus group, a Youth Activities and Nutrition Survey (YANS), and use of a multi-attribute utilities technique (MAUT - facilitated by Dr. David Compton) to determine priority factors for AHPD (see *Figure 13*).

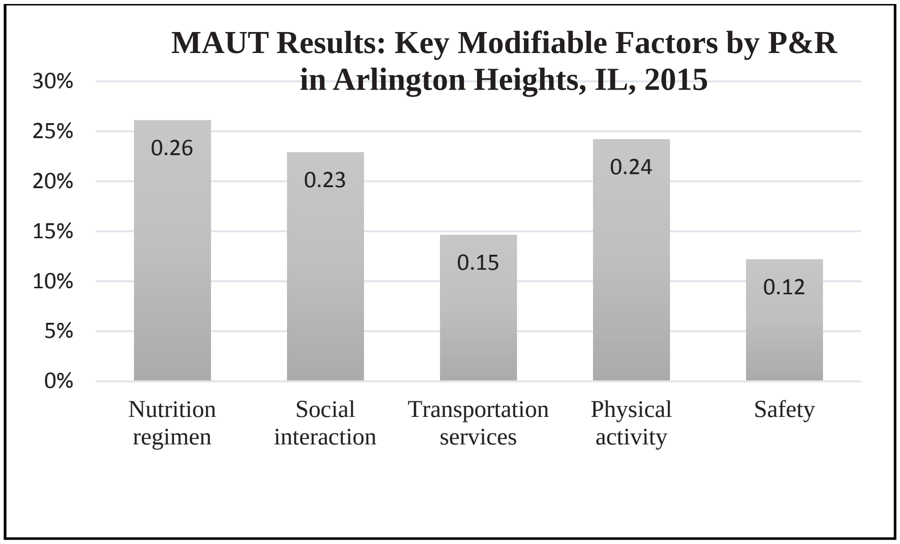


Figure 1. Key Modifiable Factors by P&R in Arlington Heights, IL, 2015

As can be noted from the figure, in Arlington Heights, the key stakeholder participants in the MAUT determined that the highest ranking priority for addressing by AHPD would be nutrition, just slightly ahead of PA. This tool was put in context with the other methods used to create a overall action plan for the next year that was then implemented. To date, AHPD reports that the following outcomes have been achieved:

1. Strong increased partnerships for *Arlington Heights Health Action Alliance (AHHAA).*
2. Helped to “create a buzz” among the partners including brand identity and tag line.
3. A complete component-based digital inventory and level of service analysis was completed for all facilities, parks, trails, and programs.
4. The Youth Focus Group & YANS gave youth a voice and compiled youth information.
5. Relevant trends, demographics, financial, and key management aspects were compiled.
6. Various Program & participation enhancements were achieved:

a. AHPD developed sponsorships with Northwest Community Healthcare.
b. A Fit Kids series of classes was started, geared toward kids between the ages of 4-12.
c. Incorporated healthy snacks into preschool program.
d. The AHPD incorporated pickle ball lines into the gym at Pioneer Park for all ages.
e. The Youth Nutrition program was offered to approximately 900 students.
f. The APHD aligned with schools for bussing & additional locations.

In addition, in late 2016, AHPD worked with the GP RED HCRG and Design Concepts to update their component-based inventory and level of service to include active energy expenditures per component based on the recent work by Layton (2016), and Floyd, Suau, Layton, Maddock, and Bistura-Meszaros (2015) on creating the evidence base and methods for this new type of analysis. AHPD is the second agency in the country (Golden, CO, another informant agency, was the first) to address this type of analysis. Publications of the AHPD work are forthcoming.

The resources provided for this research in Basecamp included the AHPD HCRG SMT Year One Report, 2015; AHPD YANS Report, 2015; and the AHPD Year Two Logic Model. The agency recently had funding discontinued for this work, and while there is a desire, there are not current resources allocated to ongoing evaluation or tracking of future outcomes in this arena.

Bloomington, IN Parks and Recreation Department

Bloomington is a mid-size community in south central, Indiana, with a population of 80,405 (approximately 83% white), with a median income of $50,054. The City is home to

Indiana University – Bloomington (IU). Allison Miller, Wellness Coordinator, was the Key Informant for this project.

The P&R department (BLPRD) has a long history of collaboration IU and the Eppley Institute. In recent years, IU moved its P&R departmental function under the School of Health, and these agencies have been actively working together. In relation to paying attention to modifiable health factors, Bloomington was the initial *Alpha Site* for IU's *Healthy Communities Surveillance and Management Toolkit* (SMT), under the direction of Dr. David M. Compton. (Compton et al. 2010). Bloomington participates in the CDC's ACHIEVE program through a grant funded application. (Bloomington-Monroe ACHIEVE, 2016) and CHANGE, a community assessment tool developed by the CDC's Healthy Communities Program work. Bloomington / Monroe County was selected as an ACHIEVE Community because of its rich collaborations and strong leadership conducted an annual health and wellness assessment of the County community for three years in response to grant requirements, and was designed to identify community assets and potential areas for improvement in the area of health and wellness.

In addition to BLPRD, there are a variety of community organizations involved in ACHIEVE, including Indiana State Department of Health, hospitals, Indiana University, schools, Monroe County YMCA, and the local Active Living Coalition. Annual Community Goals and Objectives of this work include focus on nutrition & PA:

- Collaboration with restaurants, health centers, fitness centers, and other community organizations and businesses to promote the benefits of the trails to the community.
- Addition of signage and infrastructure to the trails to promote fitness and healthy eating

- Creation of an awareness campaign that showcases how the trail system connects and the community and connects all the elements of a healthy, active lifestyle.

The agency provided resources in Basecamp primarily focused on using needs assessments and system planning to address the health factors. The system master plan has included component-based inventory and level of services analysis. Documents provided include: BLPRD Community Survey Report Final; 2015 Bloomington Parks and Recreation Annual Report; and Bloomington Parks Recreation Master Plan 2016 – 2020. Summary reports or evaluation of specific outcomes were not readily available.

Broomfield, CO – Key Informant: Veronica Mueller

The City and County of Broomfield is a consolidated city and county just north of Denver, CO, with a 2015 population of 55,889, which include 86% white population. Median household income is $80,430. Recreation services are a separate department. Veronica Mueller, Fitness Supervisor, was the Key Informant. While Fitness has long been a division in Broomfield, specific agency-wide focus on these issues as health factors is relatively new. The informant reported that the Broomfield Health initiative and coalition started in 2008 and has been slowly progressing with a primary focus on coalition building and vending policies:

> “So it’s definitely pulling down all the silos in our community as far as making sure that we all know what our partners are doing, and what the community’s doing, and a bigger picture just outside of parks and rec as far addressing every issue for a healthy eating, active living initiative that we have. We had changed out all of the vending in recreation, in our public vending, to the healthy options that were recommended through a study through health and human services. So that was big step to change out the vending in the building. It hasn’t been greatly received, but they’re going to

have to adjust because it’s all we have now. It’s healthy food in the vending machine, so that’s very good.”

The agency is tracking pre and post sales outcomes from the vending change, but results were not yet available. In addition to providing resources such as examples of the vending policy and a nutritional campaign example, the Department recently created and provided a copy of their *Public Health Improvement Plan, Action Plan for Obesity Prevention*. This plan includes the following goals with more detailed objectives and action plan tasks, include quantitative measurement goals, with a planned evaluation in 2018:

Goal 1: increase community outreach and public awareness related to obesity prevention

Goal 2: improve nutrition and physical activity among the Broomfield residents.

Goal 3: enhance worksite wellness programs in Broomfield.

Goal 4: enhance health and human service clients' knowledge and awareness of wellness.

The agency also utilizes a system wide master plan and needs assessment completed in 2005, but their inventory is park classifications-based rather than using a digital component-based method. The informant indicated she is looking forward to future evidence-based future planning with hopes that health goals will continue to be more integrated into overall departmental goals.

Charleston County, SC – Key Informant: John Massey

Charleston County, SC P&R offerings are handled by special district established in 1968 called the Charleston County Park and Recreation Commission (CCPRC), which overlays the County but is not funded or managed by the County. The District serves a large, diverse population, numbering 350,209 in 2015, with 69% white and 29% black residents. Overall median income for the County was $53,437, but there are pockets of very high and very low income areas. The agency manages over 11,000 acres of parks and hundreds of programs. This is a coastal county, with many beach access points, but also a focus on programming across the County. John Massey, Assistant Director for Recreation Programs, was the Key Informant.

Addressing equity is a key goal, and transportation to facilities and park spaces are an issue, especially in rural and under-resourced areas of the County. The CCPRC has a full system comprehensive master plan called “Parks for Tomorrow”, completed in 2012 and available at https://ccprc.com/1207/Comprehensive-Plans, including a detailed needs assessment and the use of component-based method for inventory and level of service analysis. Specific analyses were created to address transportation and health.

Guiding principles were included that address these themes:

- Parks and recreation opportunities are provided to promote healthy active lifestyles and connect people to nature.
- Provide park facilities within a 15-minute drive time or less to every resident

Core values were identified, including the following two related health factors:

- Health & Wellness - Providing and promoting healthy lifestyle opportunities
- Building a Legacy - Maintaining a vision for the future while sustaining a healthy park system

As they have been noted as a larger agency reporting success in addressing the health factors, this Informant was initially invited to be part of the case study. The informant discontinued participation about half way through the project, but was offered an opportunity to participate in each stage. Because an initial individual interview was initially conducted, additional detailed results were identified relative to their methods for addressing the health factors. As they added substantial deepening information to the thematic analysis, those findings are summarized here.

A large focus of the programming for CCPRC has emerged to include alignment and implementation of the national initiative *ACSM Exercise is Medicine* program. The Informant indicated how this works:

> “Well, for the Exercise is Medicine program, we start with when an individual goes to physicians. We have a relationship with a physician liaison through the network at the local hospital. They describe our program (CCPRC) as being a location for *Exercise is Medicine* saying this is could be appropriate for individuals that have chronic conditions like COPD, metabolic syndrome and things like that. So yeah, physicians are welcome to recommend people in our program if they think they’d be appropriate. When the recommendations come in, the referral, we contact the client and basically say, ‘Let’s talk for a minute about what your health and whether or not you might be appropriate for our program’ ”.

The CCPRC has several staff who are specifically assigned to act as the liaisons for incoming patients who have been referred, and to help direct them to appropriate P&R programs and locations. They recommend participation goals and try to measure PA outcomes, such as:

> “We utilize an initial assessment. We put them into the program. They’ll then start taking a class usually two times a week, one hour or class two times a week. And then, three months after that, we’ll conduct that same assessment to see whether or not they have improved on any of those measures, and then do it like that every three months thereafter.”

The agency can access the online assessments when desired, however, the informant indicated that currently they are primarily only evaluating participation numbers and attendance. They would like to expand that evaluation process:

> “We are attempting to establish an IT (information technology) component to allow us to engage individuals to measure their involvement in our programs across the session interactively, but that’s not coming online. We don’t have a working program yet, but we’re working with a consultant trying to get one.”

Chicago Park District, IL – Key Informant: Colleen Lammel

Chicago Park District is a very large P&R district serving 2,695,598 residents in and around the City of Chicago, IL. Colleen Lammel was the Key Informant. The geographic area and demographics are diverse with a variety of income levels (median income overall was $63,153), with race/ethnicity breakdown including 44% white, 32% black, 28% Latino/Hispanic, and 13% other races. The District is guided by and operates from a strategic plan that incorporates a variety of programmatic goals, including a primary core value of “Children First”, with a strong focus on health and the benefits P&R provide to youth. The following statement from the system-wide *2014 Chicago Park District Strategic Plan*, provided as a resource on Basecamp for this project and available online at:

http://www.chicagoparkdistrict.com/about-us/strategic-plan/, highlights the focus on efforts related to addressing the identified health factors:

> "Studies have proven that spending time outside makes children healthier, is predictive of higher levels of physical activity, lowers levels of obesity, reduces stress, and even improves a child's ability to concentrate. The science confirms what we already know: that our parks and programs make children's lives better. These benefits are real. We see it every day in the parks. We see it in the children that participate in our programs. We find it in the adults that grew up going to the parks and now bring their own children. But that's not every child. And we need every child in Chicago to play in the parks." (p.10).

The primary goals through the plan and vision for the agency are around equity, increased participation, and programming, including goals such as these to:

- Expand early childhood fitness programs
- Increase youth sports participation by 25 percent

The District has implemented a specific Wellness Department tasked with overseeing the achievement of this vision and the goals. The system-wide planning efforts include master planning and needs assessment with similar focus. The District has utilized park classifications/capacity based inventory and LOS methods, not component-based methods. In the focus groups, the informant indicated that the biggest recent area of focus, strengths, and challenges have been around the creation and implementation of vending and food purchasing policies. Policies were enacted, and then revenues fell substantially. Policies were updated, and additional language enacted specifically around beverages. Policies around concessions were changed. Staff from the Wellness Department are tasked with overseeing and managing the adherence and revisions of the policies. The informant specifically noted challenges around implementation:

> “We changed our whole purchasing policy. Everything has to go through the Wellness Department approval system. We just have to stamp and sign them, but with 256 staffed parks, and 580 total parks, it deals with too much manpower.”

The informant provided full copies of the Strategic Plans and the Vending Policy to share for this research on Basecamp.

Fruita, CO – Key Informant: Ture Nycum

On the opposite end of the agency spectrum from Chicago, Fruita is a small town in western Colorado, along I-70 bordering of Utah. Ture Nycum, Director of Parks and Recreation, was the Key Informant. Population of Fruita was 12,646 in 2015. The demographic racial background is 90% white. While the agency is small and resources very limited, the drive and energy of staff to address the themes related to the health factors is high. With just a few full-time staff they have built and operate the Fruita Community Center – a 55,000 sq. ft. facility complete with indoor and outdoor swimming pools, gymnasium, fitness area, senior center, meeting rooms and the Fruita Branch of Mesa County Public Library. They coordinate many youth to senior programs to actively engage participants. In addition, they host and permit over 40 community events and festivals, including Mike the Headless Chicken Festival, Thursday Night Concerts, Sweetheart Run and Health Expo, and more.

The agency does have a system-wide master plan, primarily focused on parks, open space, and trails, with a park classification system inventory. The agency did conduct a needs assessment when planning for their new community center (included in the resources on

Basecamp) and expressed interest in participating in the study to reflect the challenges that remain for very small communities. There are not any current plans in place for specifically addressing the health factors, but the mission for the agency includes the statement that they want to “enhance the quality of lives for residents and visitors on social, mental, and physical levels. The agency has been active with Safe Routes to School grants and a CO chapter of LiveWell, but time and limited staffing preclude much ability to align with other national initiatives. The informant stated during Focus groups that much of this information was new, and he wasn’t exactly sure how to address these factors, but the motivation is there. He stated,

> “We’re a smaller community. We’re not like Chicago or other communities like that. We probably think of it more in terms of hands on approach, where we offer the programs and we do staff community programs. We support environmental well-being and access to care, so we’re trying provide some of that information. We may want to access more funding, so we can then provide some more programs… Community policies, decisions and discussions like you are talking about, we haven’t really been able to put on to paper.”

Golden, CO – Key Informant: Rod Tarullo

The City of Golden, CO is a small town located west of Denver, nestled up against the foothills of the Rockies. Golden Parks and Recreation Department oversees 565 acres of parks and open space over 25 different sites, and 24 miles of trails, in addition to a broad variety of recreation programs and numerous facilities. The Key Informant for this project was Rod Tarullo, Director of Parks and Recreation. Total population in 2015 was 18,867, with racial demographics of 90% white. Median income per household was $53,896.

While the agency is smaller, the leadership has been focused on pursuing strong national recognitions and alignment with national initiatives. The agency is both CAPRA certified and a Gold Medal Award winner. They clearly recognize the need to align with addressing the health factors. Rather than simply update their previous capacity-style level of service analysis, when addressing their *2016 Golden Parks and Recreation Master Plan Update*, they took an enhanced approach. In an effort to begin to equate parks and park access to physical activity active energy expenditures and public health. Working with GreenPlay and Design Concepts, Golden undertook detailed analysis that combined the component-based methodology with the latest research in performance metrics and public health indicators. This methodology and analysis built upon an exploratory study conducted in Cary, North Carolina by Layton (2016) and Floyd et al. (2015). In addition, the master plan called out health as a key focus area throughout. In terms of strengths of this approach, the Informant stated,

> “One of the pieces that’s pretty important to us is to try to add the health element. Often, we’ve seen in regards to levels of service that a lot of citizens give input, and the things that go into parks are primarily based on popularity. We’re really trying to connect the dots to be able to show the health value that’s related to different amenities and components and their location within our system.”

Greensboro, NC – Key Informant: Michelle Gill-Moffat

Greensboro is the third largest city in North Carolina, located in the central region of the state. Population in 2015 was 269,666, and racial demographics include a diverse community of the majority of 48% white and 40% black. Median household income is below the national average at $41,518. The Key Informant for this research was Michelle Gill-

Moffat, Youth Development Director, who indicated interest after agency leadership identified that they City is interested in trying to actively address the health factors through P&R. While many program are offered in other areas by the Department of P&R, initial focus has been primarily on addressing nutrition. As explained by the Informant:

> "A couple of years ago Greensboro was identified as one of the top food deserts in the country, and so a lot of effort from our department, as well as the City and the County, has been put into how can we help fix this. One of things that we have put some effort into internally is creating a community food taskforce, which one of our staff members oversees. That helps bring together people that are interested in ending that stigma of being a food desert and helping with food insecurities. They oversee them, they bring together community partners. One of things that we do with that is we offer food through one of our community partners at our afterschool programs through one of the nonprofits. One of our youth councils this summer held a service learning program that focused on learning about food deserts and insecurities. We spend a fair amount of time talking with our youth in our programs about what it means to not know where you next meal is coming from."

Additional efforts are focused on transportation planning to get participants to programs, and also to help get transportation to and from food sources. The agency does not yet have a system wide master plan, full needs assessment, or digital inventory and level of service analysis, but they are planned to be completed in the near future. Resources provided on Basecamp included a Greensboro P&R Fighting Hunger Article, Fresh Food Access Plan, Community Garden Plan, Prescriptions for Play, and a sample Renaissance Food Coop Flyer.

Halton Hills, Ontario, Canada – Key Informant: Margaret Taylor

Halton Hills was suggested for inclusion by other Delphi Panel informants as an agency in Canada that is strategically addressing health factors through parks and recreation. Population in 2015 was 56,809. The median household income (after-taxes) in Halton Hills is $80,266, a lot higher than the national average at $54,089. The population is 94% white. The Key Informant for this project was Margaret Taylor, Recreation Coordinator, hired specifically to address process, partnerships, community engagement, development of key goals and actions, along with evaluation, for a variety of program areas, including health factors.

Halton Hills has written and adopted an *Active Living Strategy* intended to "support, engage, and foster an active, healthy Town of Halton Hills community, where the healthy choices are the easy choices at work, home and play". The Active Living Strategy outlines actions aimed at promoting a healthier community through physical activity over the next five-years, considering the unique demographics and features of Halton Hills. The Active Living Strategy was a collaborative effort based on principles of *Active Living by Design* (www.activelivingbydesign.org) and guided by a *committee* comprised of Town of Halton Hills staff, representatives from community-based organizations with expertise from varying backgrounds, Council representation and community members at large. The resource provided in Basecamp was the Active Living Strategy.

Liberty, MO – Key Informant: Janet Bartnik

Liberty is a small to mid-size community north of Kansas City in Missouri. Population was 29,149 in 2015, with 91% being white. Median income per household was

$65,106. The Key Informant for this research was Janet Bartnik, Director of Parks and Recreation.

Liberty began addressing the health factors with a strong focus through P&R when they became a Beta Site for the GP RED *Healthy Communities Research Group (HCRG) Surveillance and Management Toolkit (SMT)* in 2013 as part of a three year project. All background documents and reports for the project are available at http://www.gpred.org/initiatives/healthy-communities-research-group/. A summarized case study research brief of this work is available at http://www.gpred.org/wp-content/uploads/2017/01/GP-RED10-Collaborative-Initiatives-January-2017.pdf.

Janet led in creating a community coalition with the Clay County Public Health Department, hospitals, schools, and various other partners, called the L-CHAT. A community needs assessment, component-based inventory and level of service analysis, and financial/programmatic assessments were completed. Data gathering included using the multi-attributed utilities technique (MAUT for identifying consensus on priority of health factors to address. See *Figure 14.* For Liberty, the key stakeholders within P&R identified that PA was the most important factor to address, but interestingly, when community partners were added, it was nutrition. Additionally, graphic analysis was conducted for transportation and proximity, barriers analysis, walkability, and comparisons of program vs. assets availability.

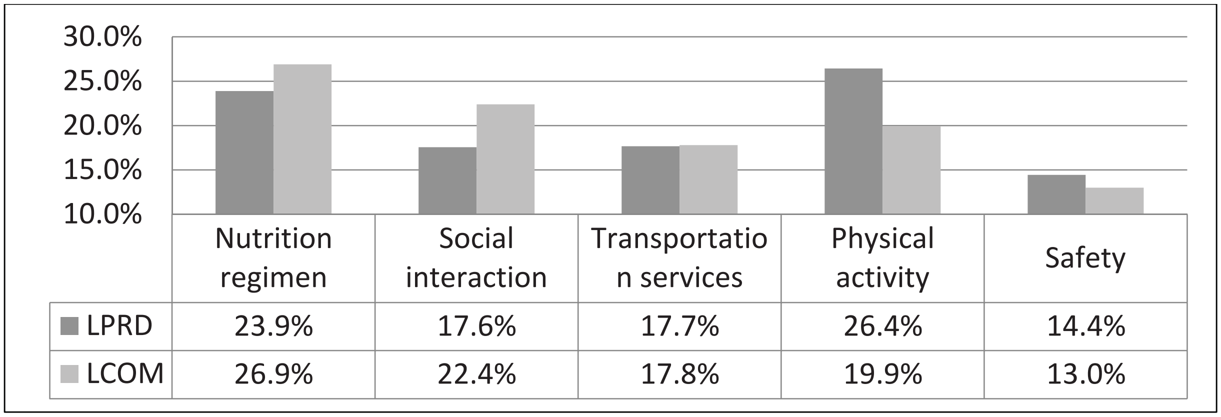


Figure 2. Liberty, MO MAUT priorities, both within P&R (LPRD) and with partners (LCOM)

A *Youth Activities and Nutrition Survey (YANS)* was pilot tested and used with schools to measure youth self-report of youth activities and information around the health factors. Goals were set for each year's action plan using a logic model format. Summary outcomes measured and achieved included:

- Increased partnerships with County Health, Schools, and Hospitals.
- Stakeholder identification and new programs.
- Full assets and program location inventory, with focus on connectivity.
- Helped create new HCRG Youth and Nutrition Survey (YANS) (created with East Carolina University)
- Hired a full-time Fitness and Wellness Coordinator

While Liberty does not yet have a full system-wide master plan, this work provided needs assessment, policy applications, logic models, program planning templates, and other tools for system planning. Resources provided on Basecamp include all of the reports, along with a copy of the vending policy.

Ontario, Canada – Ministry of Health Promotion, Sport, and Tourism – Key Informant: Carol Ointment.

While different from the other Delphi Study key informants, this provincial agency was included due to evidence of strong early implementation of process, methods, community engagement, partnerships and evaluation across sectors, including recognizing the importance of parks, recreation, and trails across the province. Population in the province in 2011 was 12,651,795. The majority of the population is are of English or other European descent with 25.9 percent of the population consisted of visible minorities (defined by the Canadian government as "persons, other than aboriginal peoples, who are non-Caucasian in race or non-white in colour) and 2.4% are aboriginals (Statistics Canada, 2016).

The Ministry focuses on land-use planning. Key informant Carol Oitment is involved with inter-ministerial government committees in relation to legislation pieces. This position provides an opportunity to influence the inclusion of active transportation, trails and green spaces.

In 1992, an Ontario Healthy Communities Coalition (OHCC) was established in 1992 to support local and regional groups, coalitions and networks that are working on healthy community initiatives in Ontario. Their mission was to work with diverse communities of Ontario to strengthen their social, environmental and economic well-being by working in partnership with community organizations and individuals on projects related to developing healthy communities. The initial project consisted of eight components:

1) Literature Review

2) Environmental Scan

3) Indicators of Promising Practices and Case Studies

4) 15-20 Community Workshops

5) 5 Regional Forums

6) Publication

7) Project Evaluation

8) Follow-up Support

That work continues through support from over 40 collaborating organizations (Carol Oitment is one representative). The outcomes have primarily identified that it is NOT the responsibility of ONE organization's specific mandate, but that this work on health factors is an area that organizations work on together to achieve their overall mandate.

The Ministry continues in engaging in a strategic planning process working with many other agencies. This includes engaging in discussion with key stakeholders on the next phases and the role for environmental supports and policy within this program. The built environment, nutrition, and promotion of physical activity continues to be important components in Ontario's Action plan for Healthy Eating and Active Living (Ontario HEAL, 2006). As the Informant indicated in a Delphi group discussion,

> "I think our greatest strength has been that collaboration that I hear over and over. We had a real bonus moment when our sport and recreation unit within the ministry was with the Ministry of Health Promotions for a period of time. We're now back with Tourism and Culture, but that was a real boon to us when we were with the health community. They've really raised our profile and they have become much more active during research since. Their 'a-ha moment' working with us was to see all the benefits that could be gained by working with parks and recreation. I don't think that's been well appreciated, and it certainly has been changing over the last many years."

Resources provided for this work on Basecamp include Ontario's Plan for Healthy Eating, Active Living, 2006; OHCC - Healthy Communities and the Built Environment, 2008; Ontario Children's Outdoor Charter; Healthy Nutritional Environments in Recreation Facilities; and an overview of Kingston, ON ActivPass program.

Raleigh, NC – Key Informant: Chris Frelke

Raleigh is the capital of North Carolina, with a population of 451,066 in 2015. The racial make-up is diverse, with 57% white, 29% black, and 11% Latino. Median household income was $54,581. P&R functions are managed by the Department of Parks, Recreation, and Cultural Resources. Chris Frelke, Assistant Superintendent, participated as the Key Informant.

Raleigh's P&R are guided by a *System Plan*, created in 2013 in alignment with the City's comprehensive plan, available at https://www.raleighnc.gov/parks/content/PRecDesignDevelop/Articles/2012PRSystemPlan.html. The vision stated at the beginning of the plan includes that it is, "a system that addresses the needs of all and fosters a community of creativity, engagement, healthy lifestyles, and welcoming neighborhoods. A full needs assessment and modified component-based inventory and level of service analysis was conducted. Relative to the health factors, sub-systems are identified, with the category of Programs and Services having the following relevant stated goals:

Goal 1: The City of Raleigh will provide opportunities for every resident to maintain a healthy lifestyle.

Goal 2: The City of Raleigh will improve outreach and foster a welcoming multi-cultural environment.

Goal 3: The City of Raleigh will identify and eliminate barriers to participation in parks, recreation and cultural programs for preschool, youth and teens of all abilities throughout the city.

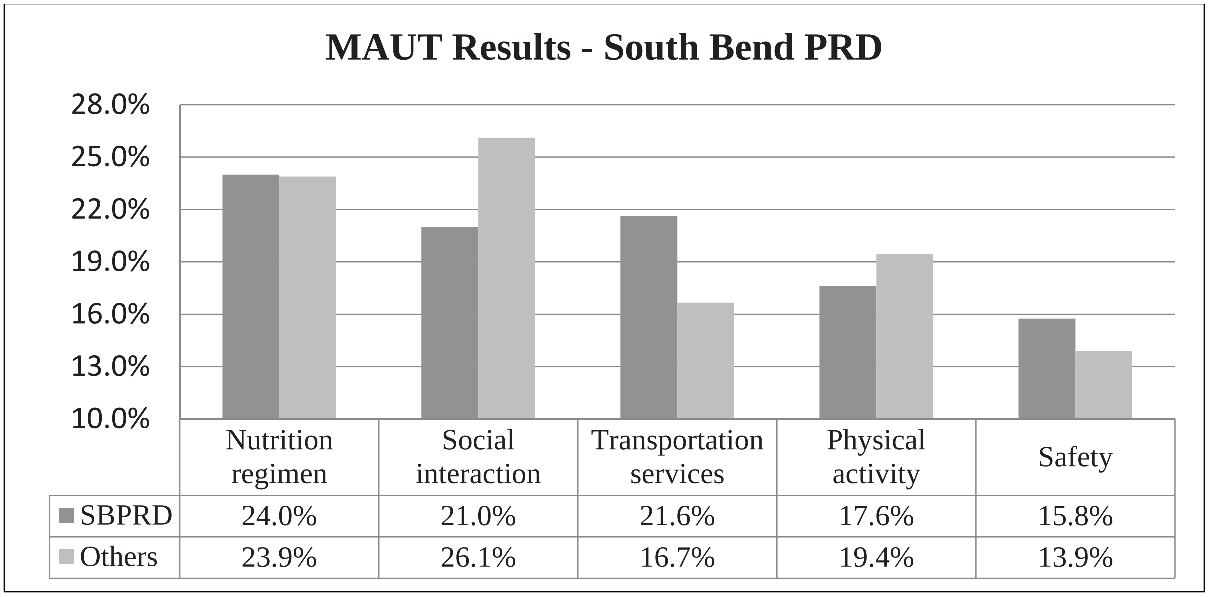
Goal 4: The City of Raleigh will provide inclusive and independent spaces, facilities and programs that are accessible to all residents regardless of ability and age.

The informant indicated that the Department regularly utilizes health impact assessment processes for site-specific planning projects, and has implemented policies around healthy living, including a vending policy, a program inventory template that identifies health impact goals of programs, and guidelines for food within programs. However, challenges remain in trying to identify appropriate standards and measuring outcomes, and there is much work to be done. Examples of each of these resources were uploaded into Basecamp.

South Bend, IN – Key Informant: Aaron Perri

South Bend is a city in northern central Indiana, about 1.5 hours east of Chicago. Population in 2015 was 101,168. The City has some diversity, with 60% white, 26% black, and 12% Latino populations. Median income is lower than the national average at $34,656, and the City has pockets of neighborhoods with very low incomes. The Key Informant for South Bend was Aaron Perri, Executive Director of South Bend Parks and Recreation Department (SBPRD). Perri was new in this position with the Department (coming from the Department of Economic Development in the City when the previous Executive Director retired). This agency however has been strongly focused on addressing health factors through P&R since the prior Director began work as the second *Beta Site* for GP RED’s HCRG SMT project.

That was a three-year project that commenced in 2011. All reports are available at http://www.gpred.org/initiatives/healthy-communities-research-group/. The work included conducting a full component based inventory and level of service analysis in GIS, demographics, programs, financial, and partnership analysis, and convening partners. A coalition was created called the Active Youth Initiative (AYI) that included the county public health department, planning, hospitals, schools, and other stakeholders to address the health factors in South Bend. In Year Two of the project, Drs. David Compton and Kiboum Kim created the templates and testing for the first application of the multi-attributes utilities technique (MAUT) for P&R health factors with these stakeholders. The results of this assessment for South Bend are shown in *Figure 15*.



	Nutrition regimen	Social interaction	Transportation services	Physical activity	Safety
SBPRD	24.0%	21.0%	21.6%	17.6%	15.8%
Others	23.9%	26.1%	16.7%	19.4%	13.9%

Figure 3. Mean coefficients of each factor rating by SBPRD and other AYI members

Note the differences in the ratings by the non-P&R agencies stakeholders and the agency members. While nutrition was highest for both, the SBPRD staff rated transportation as the second highest, while the others rated social interaction as the second highest factor. This indicated that all of these were key focus areas for the AYI, but also indicates how differently internal P&R staff may perceive priorities from other community members. Additional focus on other tools provide context to help create summary action plans and goals for coming years. Outcomes identified as achieved through this project were:

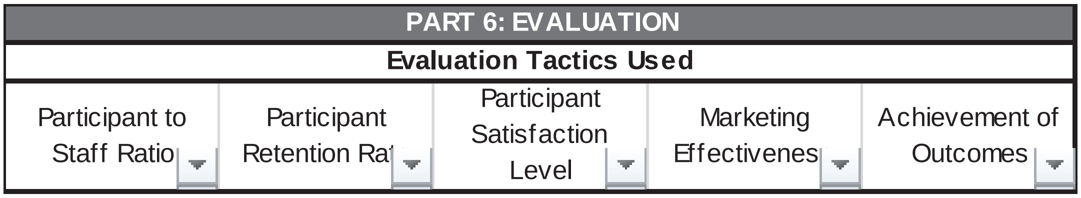
- Creation of the AYI and a warrant for agency action
- Completion of the detailed component-based inventory and analysis
- Creation of management program and financial templates
- Partnered program creation such as Passport to Play and Prescription to Play
- Development of an AYI Facebook page and social media presence
- Identification of relevant alternative providers within the City
- Participation Increases

As this initiative with GP RED ended in 2014, the Informant and other staff have indicated that the key challenge has been keeping the momentum going. One of the benefits of working with a national initiative or organization is the periodic meetings, data compilation, and sharing of resources that a focused resource can provide. While the intent to continue the efforts have been maintained, resources for dedicated staffing and time commitment have dwindled. All reports were uploaded to Basecamp to share for this project.

Tacoma, WA - Metro Parks Tacoma – Key Informants: Shon Sylvia and Joe Brady

This P&R agency is knows as Metro Parks Tacoma (MPT) and serves a population of 198,397 in 2015, with a diverse community of 64% white, 11% black, 11% Latino/Hispanic, 8% Asian, and 8% listed as two or more races. The median household income is $51,269. The agency was created in 1907 as a municipal corporation to manage park, recreation and zoological services and facilities for the citizens of Tacoma. The Key Informant for this research was Joe Brady, representing Shon Sylvia, Executive Director.

Every six years, MPT establishes program priorities for future improvements of services provided to the community through creation of a *Mission-Led Comprehensive Program Plan (MLCPP)*. There are three primary program areas, Active and Community Wellness, Nature and Environment, and Culture and Heritage. Most relevant to this research on the health factors is the focus for the Active and Community Wellness program areas. This plan includes community-wide needs assessment, component-based inventory and LOS analysis, an implementation plan, creation of a matrix related to identifying program tracking measures, and "dashboards" for each geographic sub-area of the community, which is a graphic summary with a map and charts to identify participation, program vs. unmet needs, and a summary of needs and challenges. The matrix is an internal program management tool focused primarily on identifying location (sub-area of city), delivery methods, participation, audience, cancellation rates, and cost recovery expectations, along with types of evaluation methods used. *Figure 16* provides a summary of the "evaluation tactics" identified and tracked.



PART 6: EVALUATION

Evaluation Tactics Used

Participant to Staff Ratio	Participant Retention Ra	Participant Satisfaction Level	Marketing Effectivenes	Achievement of Outcomes

Figure 4. Summary of evaluation tactics tracked by MPT (used with permission)

The agency also is guided by a Strategic Plan, which includes goals, objectives, and performance measures. The first goal is most relevant for this research and includes:

Goal 1: Foster active lifestyles to support a healthy community.

Objectives

1.1 Provide infrastructure to encourage active living and community wellness.

1.2 Embrace a holistic approach to community wellness.

1.3 Promote healthy lifestyles through diverse programming.

Performance Measures

P1.1 - % of respondents satisfied with the condition, quantity and distribution of parks and facilities, and the quality and variety of programs supporting a healthy lifestyle.

P1.2 - % of respondents using MPT parks and facilities, and agreeing that MPT facilities and activities allow them or their family to enjoy a more active life.

Resources provided to Basecamp by MPT include these reports, along with other sample policies and guidelines including: Final Metro Parks 2014 Trend Report; M PT Strategic Action Plan 2013-2018; MLCPP Comprehensive Matrix; Metro Parks Tacoma Survey Findings Report 2016; NE Final Dashboard; CH Final Dashboard.pdf; ALCW Final Dashboard; 6.9.16 Mission Led Comprehensive Implementation Plan; Mission Led Comprehensive Program Plan; MPT Health Food Options Policy. While this agency has created innovative methods for evaluation and tracking, the Informant indicated that most of that work is still focused on participation or self-reported satisfaction related elements. Additional evidence-based standards around addressing specific health factors are desired.

Widefield School District, CO – Key Informant: Tamara Moore

Widefield-Security is the largest unincorporated community located on the southern end of Colorado Springs and north of the Town of Fountain in Colorado. It sits just below Pikes Peak and near the foot of Cheyenne Mountain. Widefield-Security is strategically located off of I-25 and is approximately 80 miles south of the state capital of Denver. Historically an agricultural area, it has become a bedroom community with 35 percent of the

District students having military families. Four military installations are located in the Colorado Springs area. There are no malls or big businesses in the Widefield-Security area, and the largest employer is the School District.

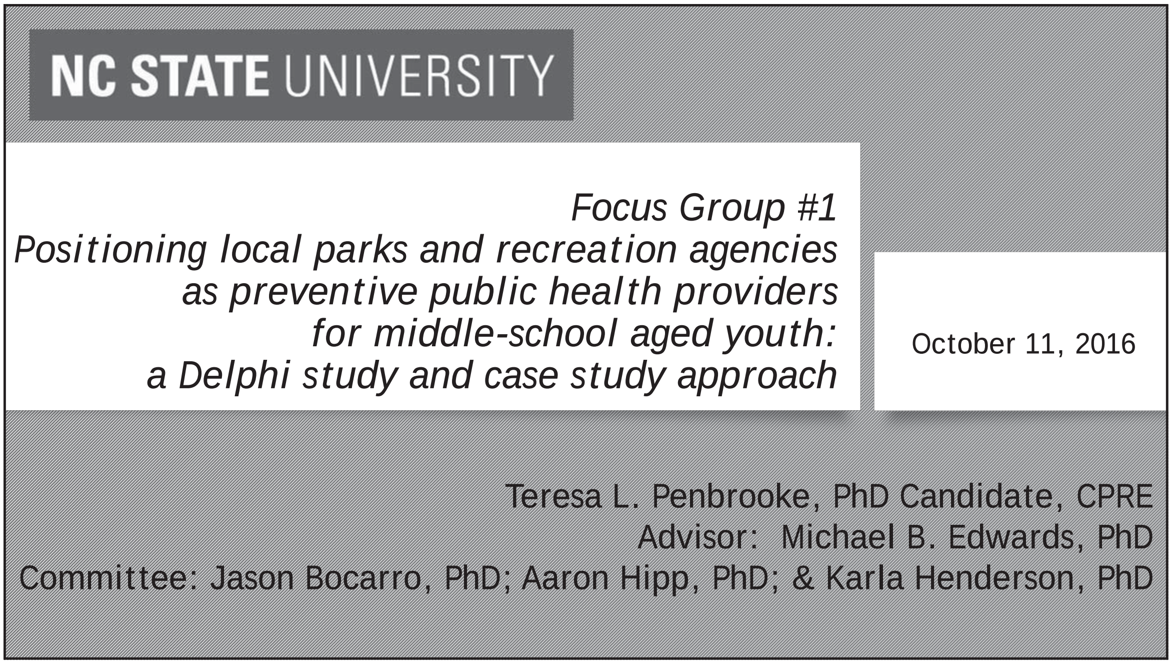
There is no town hall or similar organizational structure to service the needs of the community. The Board of Education functions to provide many services beyond education. Widefield School District #3 (WSD3) has the distinction of being the only school district in the state and one of few in the U.S. that owns and operates a P&R Department. This department is called the Widefield Community Center. Population in 2015 was 51,281, The white population is trending downward from 72.9 percent in 2010 to a predicted 69.2 percent in 2020. Black population is 10.4%, and Hispanic/Latino is 18% and growing. Median household income was $58,066 in 2015. The Key Informant for this agency was Tamara Moore, Program Manager for P&R.

This agency was invited to participate in this research specifically to provide input from a different type of small organization, and their perceptions relative to the health factors, methods, and potential outcomes that could be measured by P&R. While the agency's resources have been very limited, Executive Director Ben Valdez, had attended several healthy communities focused conference presentations and contacted me directly to discuss new and best practices for incorporating health. An agency master plan was completed in 2016, and included a full community-wide needs assessment, random statistically-valid survey, health trends analysis, component-based inventory and level of service analysis, identification of underserved populations, and results related to potential funding mechanisms. Top focus areas identified relate to the health factors, including a need for more social engagement opportunities (special events), space for PA (a new recreation center), focus on youth, and a need for more standards for evaluation.

Currently this agency had no additional resources to provide to Basecamp beyond a copy of their system wide P&R Master Plan, but the Informant enthusiastically participated in focus groups and questionnaires. Her input and participation helped to deepen conclusions relative to the challenges that smaller P&R organizations with limited resources face in trying to address the health factors. Key statements when asked about agency strengths included:

> “Boy, I feel like we have more challenges than strengths. Our strengths are probably just connected to the school district, because we’re owned and operated by them. We can partner on things, whether that’s them running a program or us running a program, or us supporting them financially…We’re more program-based and activity-based. Those are our strengths.”

Appendix F - Delphi Presentation #1

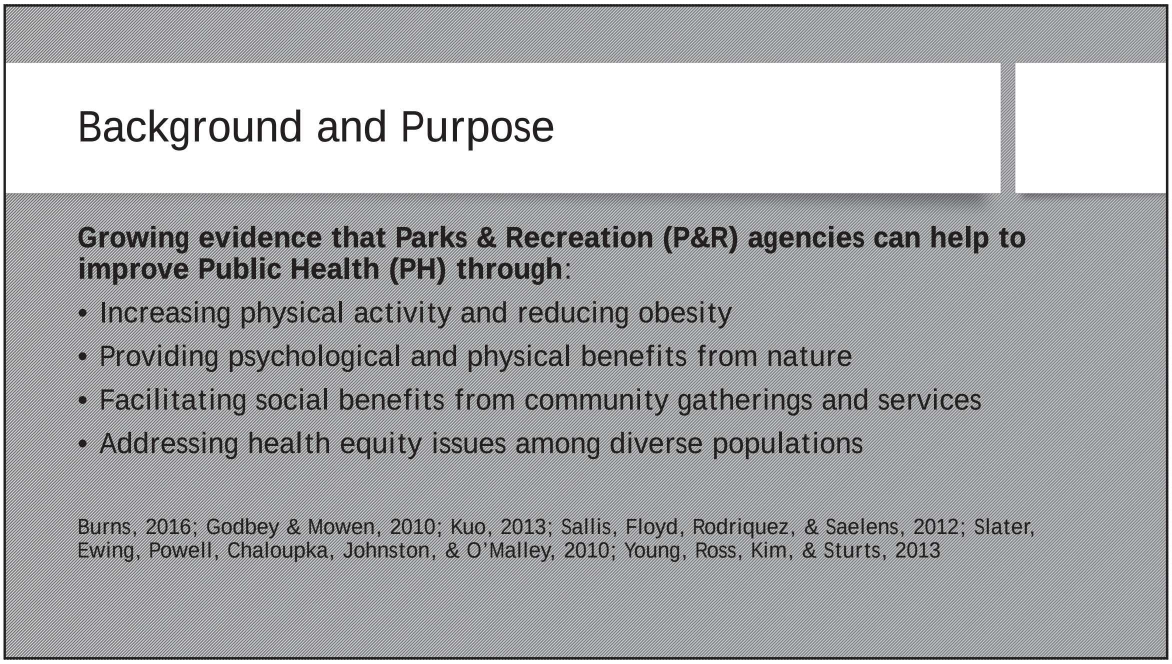


NC STATE UNIVERSITY

Focus Group #1
Positioning local parks and recreation agencies
as preventive public health providers
for middle-school aged youth:
a Delphi study and case study approach

October 11, 2016

Teresa L. Penbrooke, PhD Candidate, CPRE
Advisor: Michael B. Edwards, PhD
Committee: Jason Bocarro, PhD; Aaron Hipp, PhD; & Karla Henderson, PhD



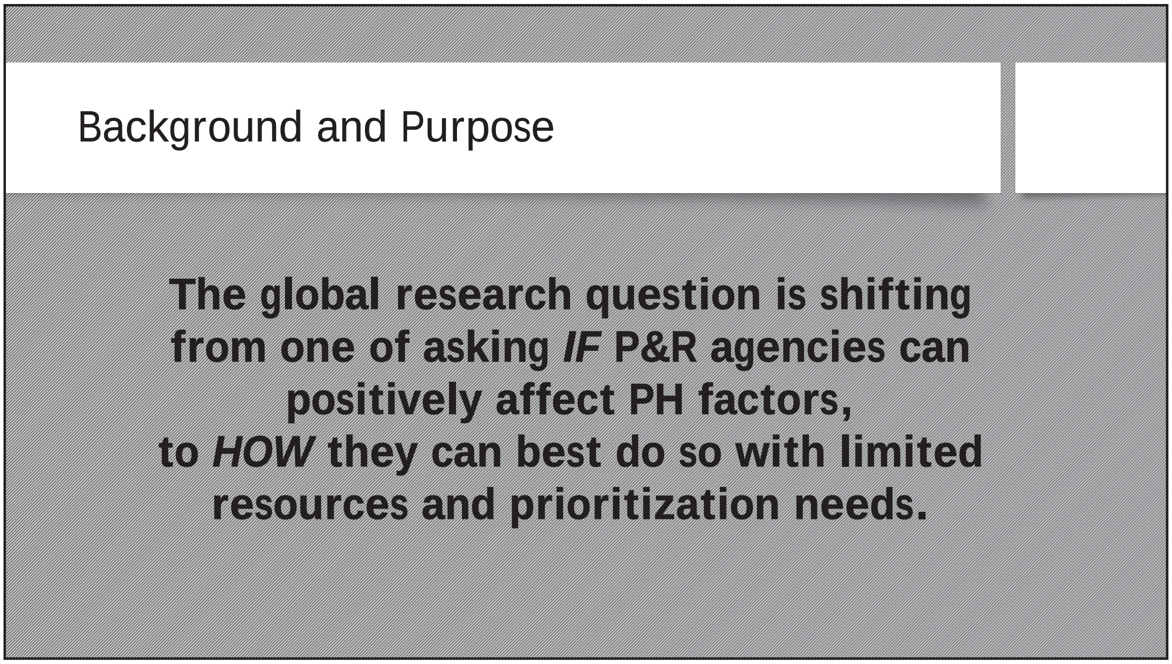
Background and Purpose

Growing evidence that Parks & Recreation (P&R) agencies can help to improve Public Health (PH) through:

- Increasing physical activity and reducing obesity
- Providing psychological and physical benefits from nature
- Facilitating social benefits from community gatherings and services
- Addressing health equity issues among diverse populations

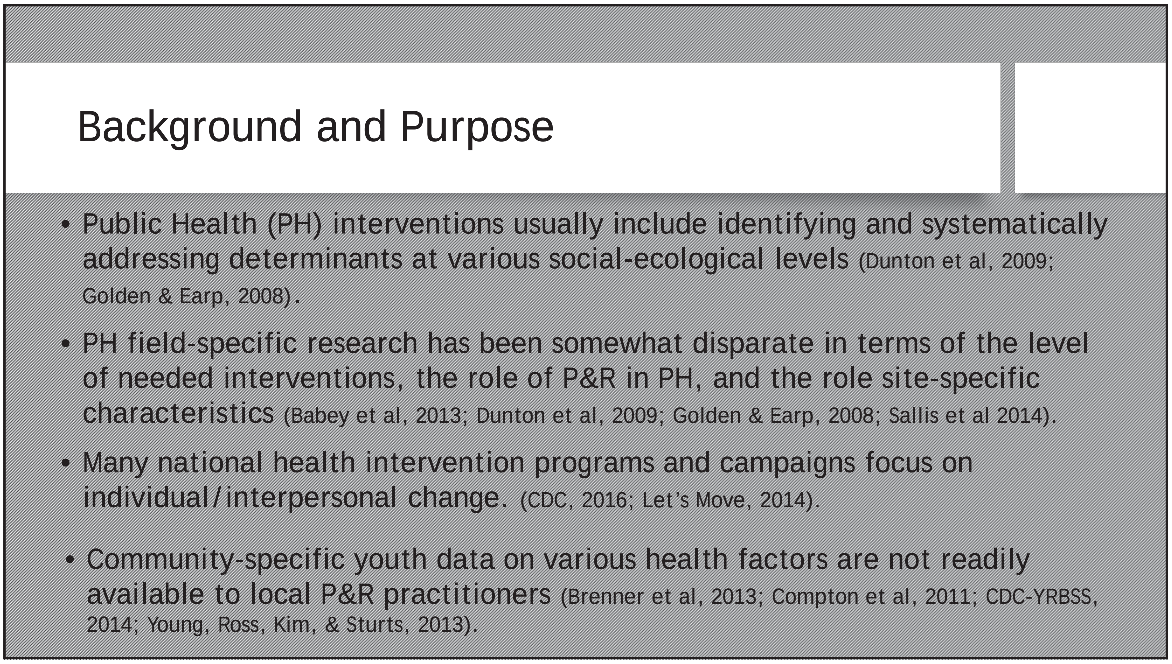
Burns, 2016; Godbey & Mowen, 2010; Kuo, 2013; Sallis, Floyd, Rodriquez, & Saelens, 2012; Slater, Ewing, Powell, Chaloupka, Johnston, & O'Malley, 2010; Young, Ross, Kim, & Sturts, 2013

Appendix F - Delphi Presentation #1



Background and Purpose

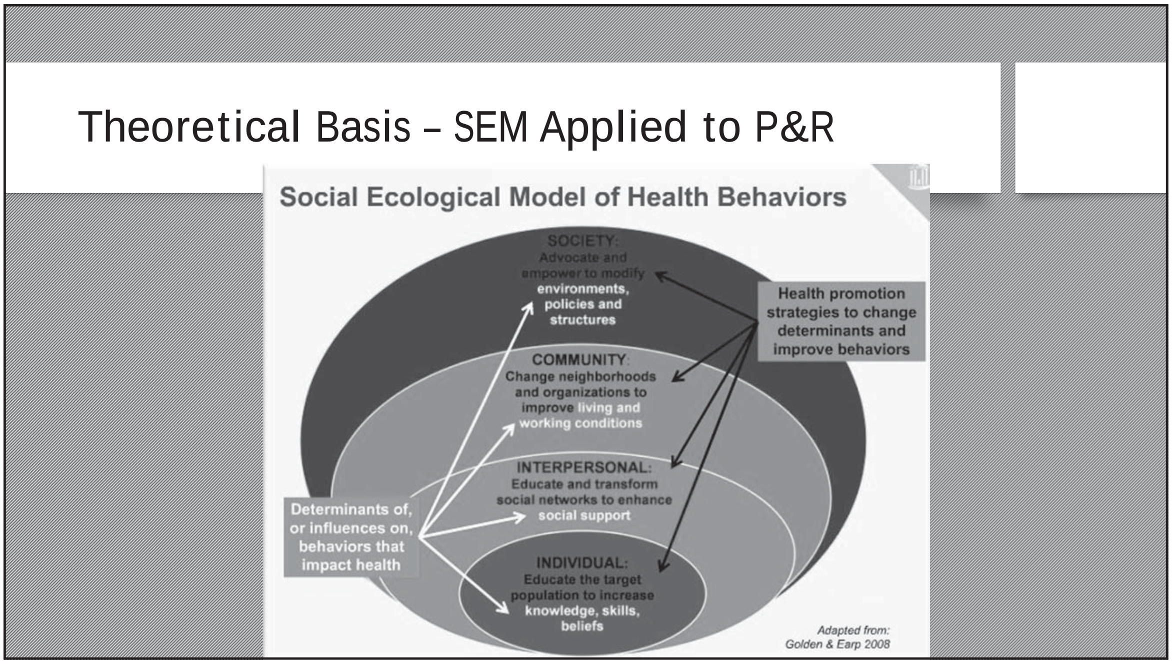
The global research question is shifting from one of asking *IF* P&R agencies can positively affect PH factors,
to *HOW* they can best do so with limited resources and prioritization needs.



Background and Purpose

- Public Health (PH) interventions usually include identifying and systematically addressing determinants at various social-ecological levels (Dunton et al, 2009; Golden & Earp, 2008).
- PH field-specific research has been somewhat disparate in terms of the level of needed interventions, the role of P&R in PH, and the role site-specific characteristics (Babey et al, 2013; Dunton et al, 2009; Golden & Earp, 2008; Sallis et al 2014).
- Many national health intervention programs and campaigns focus on individual/interpersonal change. (CDC, 2016; Let's Move, 2014).
- Community-specific youth data on various health factors are not readily available to local P&R practitioners (Brenner et al, 2013; Compton et al, 2011; CDC-YRBSS, 2014; Young, Ross, Kim, & Sturts, 2013).

Appendix F - Delphi Presentation #1



Theoretical Basis – SEM Applied to P&R

Social Ecological Model of Health Behaviors

SOCIETY:
Advocate and empower to modify environments, policies and structures

COMMUNITY:
Change neighborhoods and organizations to improve living and working conditions

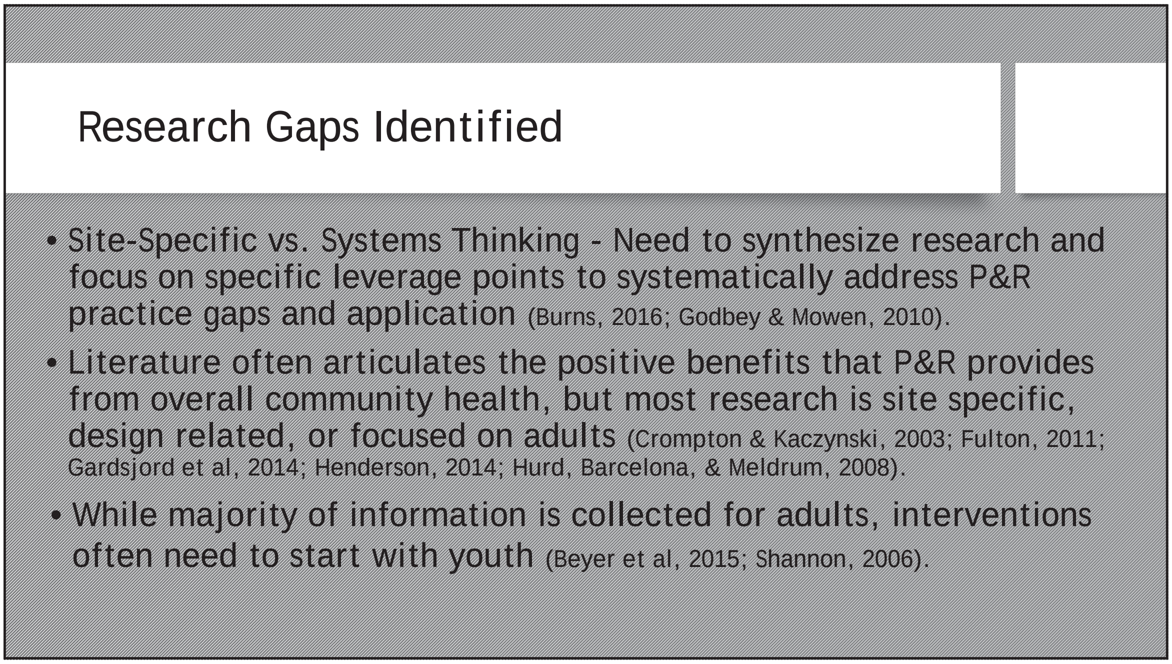
INTERPERSONAL:
Educate and transform social networks to enhance social support

INDIVIDUAL:
Educate the target population to increase knowledge, skills, beliefs

Health promotion strategies to change determinants and improve behaviors

Determinants of, or influences on, behaviors that impact health

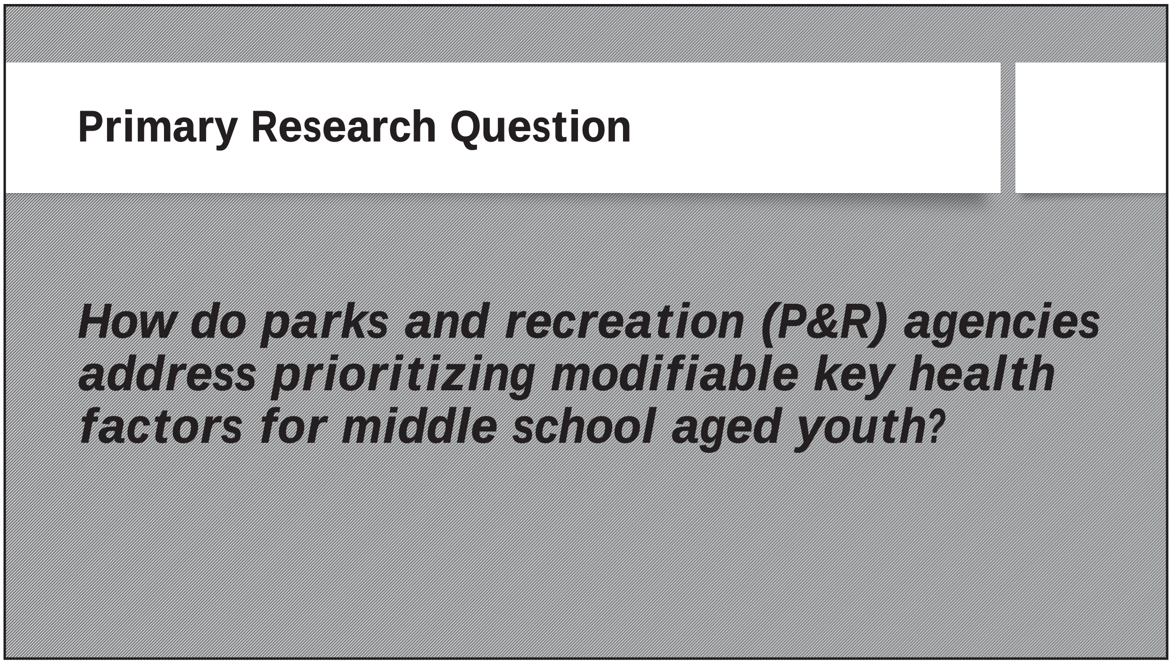
Adapted from: Golden & Earp 2008



Research Gaps Identified

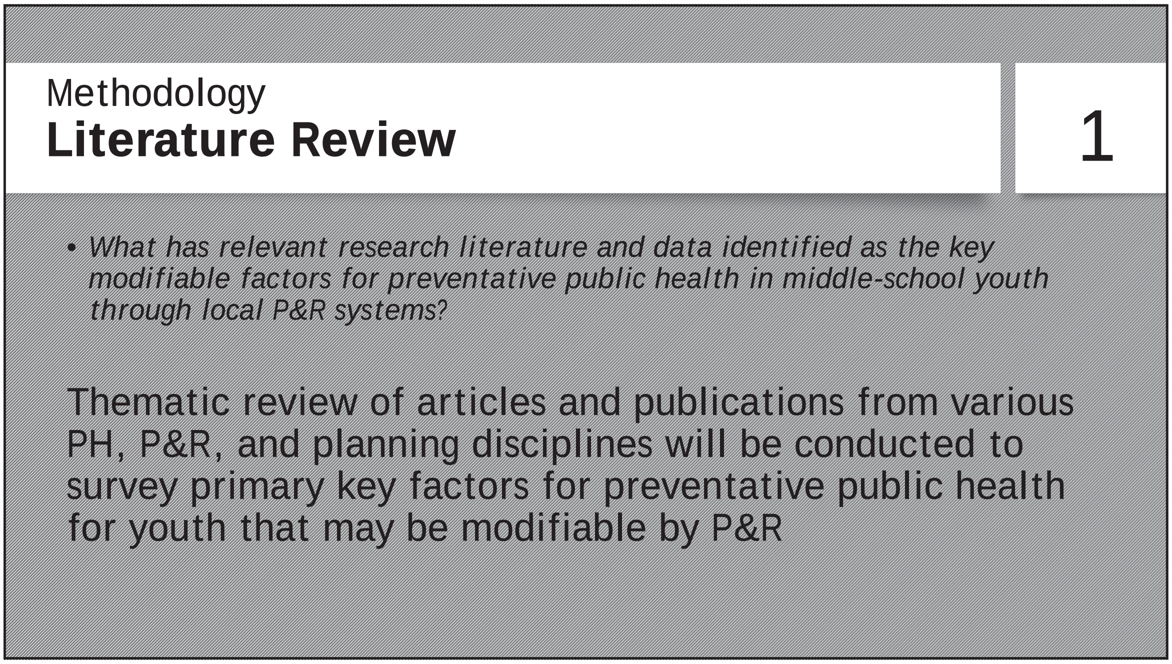
- Site-Specific vs. Systems Thinking - Need to synthesize research and focus on specific leverage points to systematically address P&R practice gaps and application (Burns, 2016; Godbey & Mowen, 2010).
- Literature often articulates the positive benefits that P&R provides from overall community health, but most research is site specific, design related, or focused on adults (Crompton & Kaczynski, 2003; Fulton, 2011; Gardsjord et al, 2014; Henderson, 2014; Hurd, Barcelona, & Meldrum, 2008).
- While majority of information is collected for adults, interventions often need to start with youth (Beyer et al, 2015; Shannon, 2006).

Appendix F - Delphi Presentation #1



Primary Research Question

***How do parks and recreation (P&R) agencies address prioritizing modifiable key health factors for middle school aged youth*?**



Methodology

Literature Review

1

- *What has relevant research literature and data identified as the key modifiable factors for preventative public health in middle-school youth through local P&R systems?*

Thematic review of articles and publications from various PH, P&R, and planning disciplines will be conducted to survey primary key factors for preventative public health for youth that may be modifiable by P&R

Appendix F - Delphi Presentation #1

Methodology

Delphi Study

- ***What do P&R professionals see as the key processes in systematic prioritization of modifiable health factors for middle-school youth?***

Standard Delphi methods will be used for further identifying expert consensus on suggested research and practice applications through reiteration and discussions.

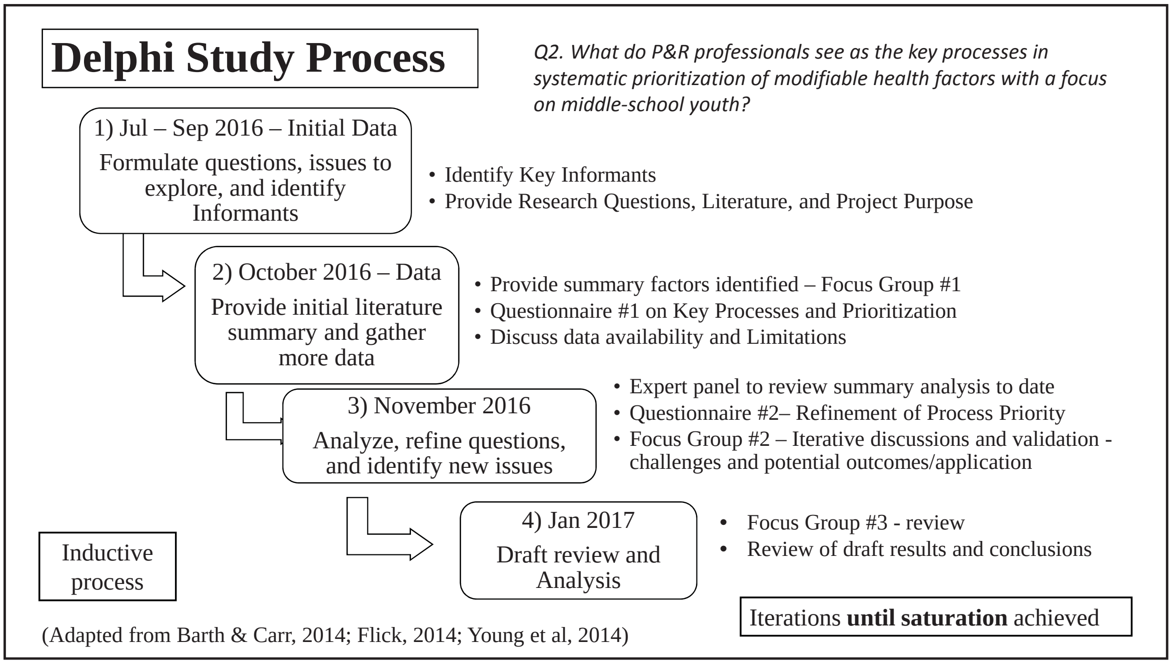
Delphi Study

A general process of having an expert panel to help formulate solutions to problems through several cycles of revision based on each other's feedback. Ideally, the end result is a better solution than any of the experts could have arrived at individually.

(Landeta, 2006, Young et al, 2013).

- *Key Informants* representing local P&R agencies. – YOU!
- To address identifying priorities for the factors and interventions and provide validity through reiteration.
- Will also help identify further gaps and limitation in research.

Appendix F - Delphi Presentation #1



Delphi Study Process

Q2. What do P&R professionals see as the key processes in systematic prioritization of modifiable health factors with a focus on middle-school youth?

1) Jul – Sep 2016 – Initial Data
Formulate questions, issues to explore, and identify Informants

- Identify Key Informants
- Provide Research Questions, Literature, and Project Purpose

2) October 2016 – Data
Provide initial literature summary and gather more data

- Provide summary factors identified – Focus Group #1
- Questionnaire #1 on Key Processes and Prioritization
- Discuss data availability and Limitations

3) November 2016
Analyze, refine questions, and identify new issues

- Expert panel to review summary analysis to date
- Questionnaire #2– Refinement of Process Priority
- Focus Group #2 – Iterative discussions and validation - challenges and potential outcomes/application

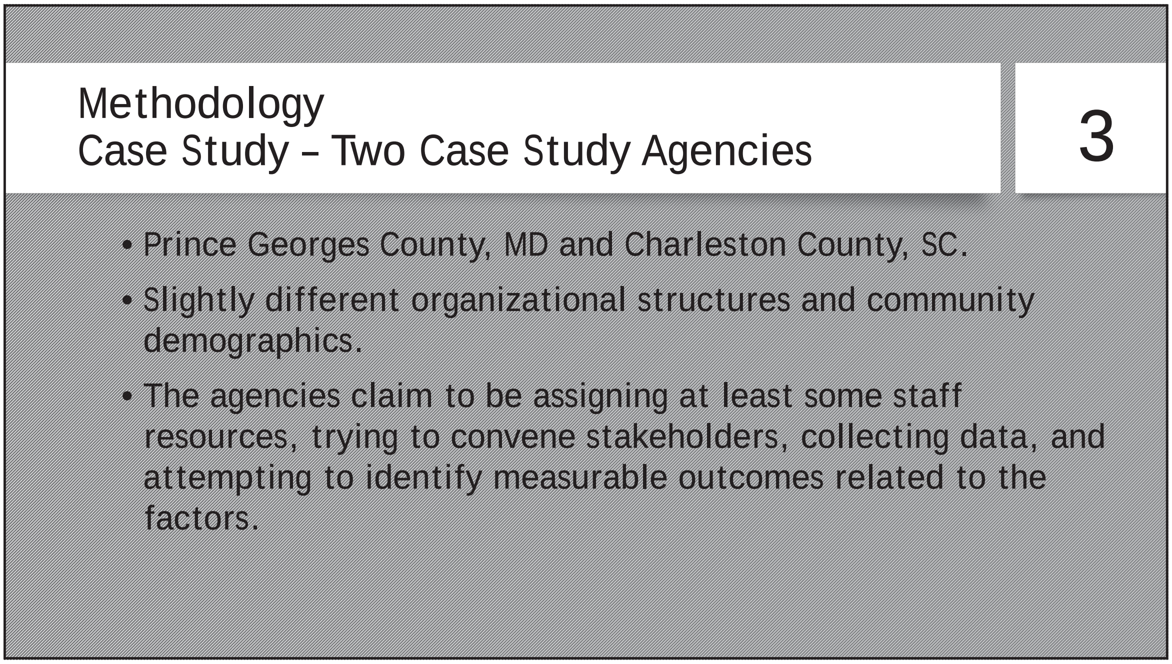
4) Jan 2017
Draft review and Analysis

- Focus Group #3 - review
- Review of draft results and conclusions

Inductive process

Iterations **until saturation** achieved

(Adapted from Barth & Carr, 2014; Flick, 2014; Young et al, 2014)

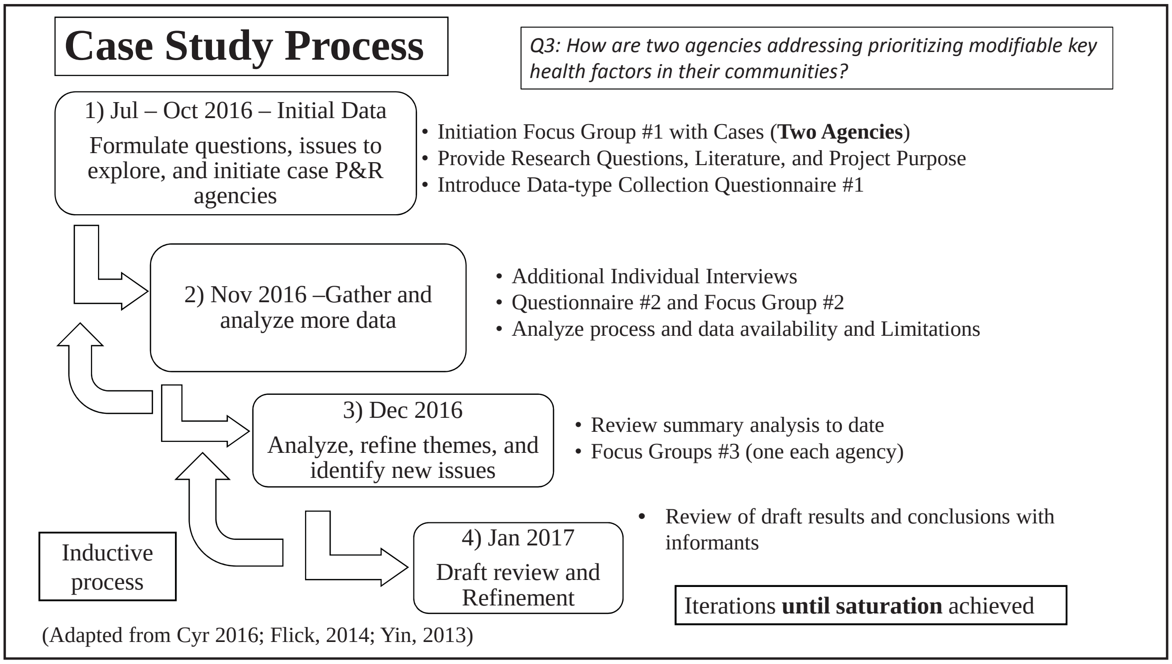


Methodology
Case Study – Two Case Study Agencies

3

- Prince Georges County, MD and Charleston County, SC.
- Slightly different organizational structures and community demographics.
- The agencies claim to be assigning at least some staff resources, trying to convene stakeholders, collecting data, and attempting to identify measurable outcomes related to the factors.

Appendix F - Delphi Presentation #1



Case Study Process

Q3: How are two agencies addressing prioritizing modifiable key health factors in their communities?

1) Jul – Oct 2016 – Initial Data
Formulate questions, issues to explore, and initiate case P&R agencies

- Initiation Focus Group #1 with Cases (**Two Agencies**)
- Provide Research Questions, Literature, and Project Purpose
- Introduce Data-type Collection Questionnaire #1

2) Nov 2016 –Gather and analyze more data

- Additional Individual Interviews
- Questionnaire #2 and Focus Group #2
- Analyze process and data availability and Limitations

3) Dec 2016
Analyze, refine themes, and identify new issues

- Review summary analysis to date
- Focus Groups #3 (one each agency)

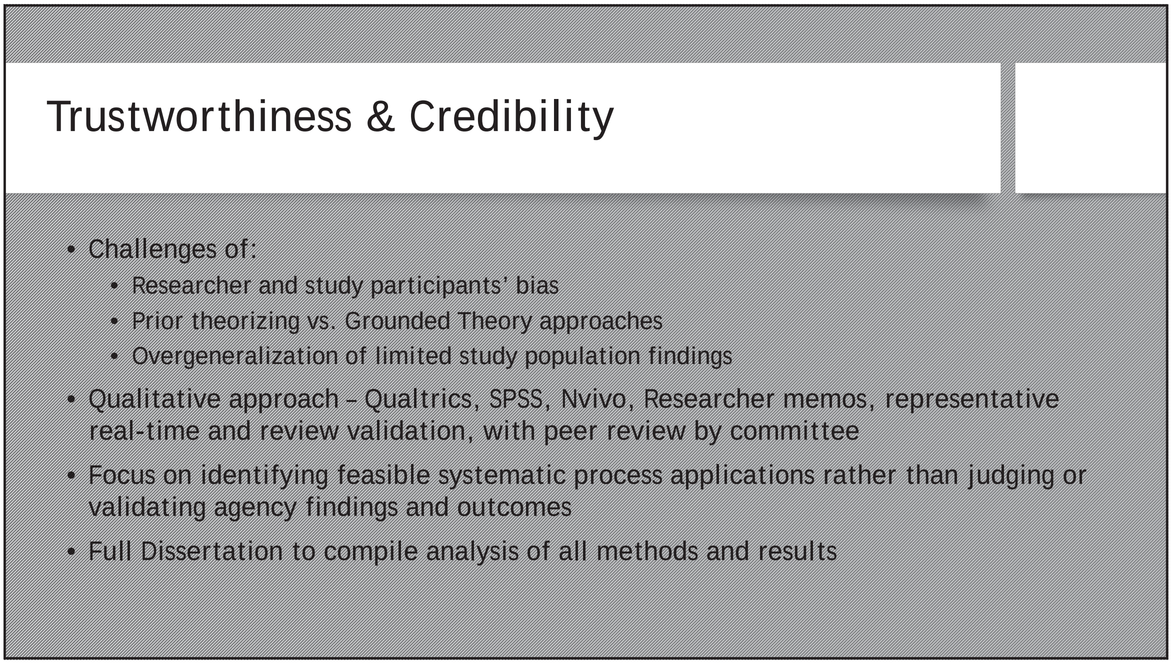
4) Jan 2017
Draft review and Refinement

- Review of draft results and conclusions with informants

Inductive process

Iterations **until saturation** achieved

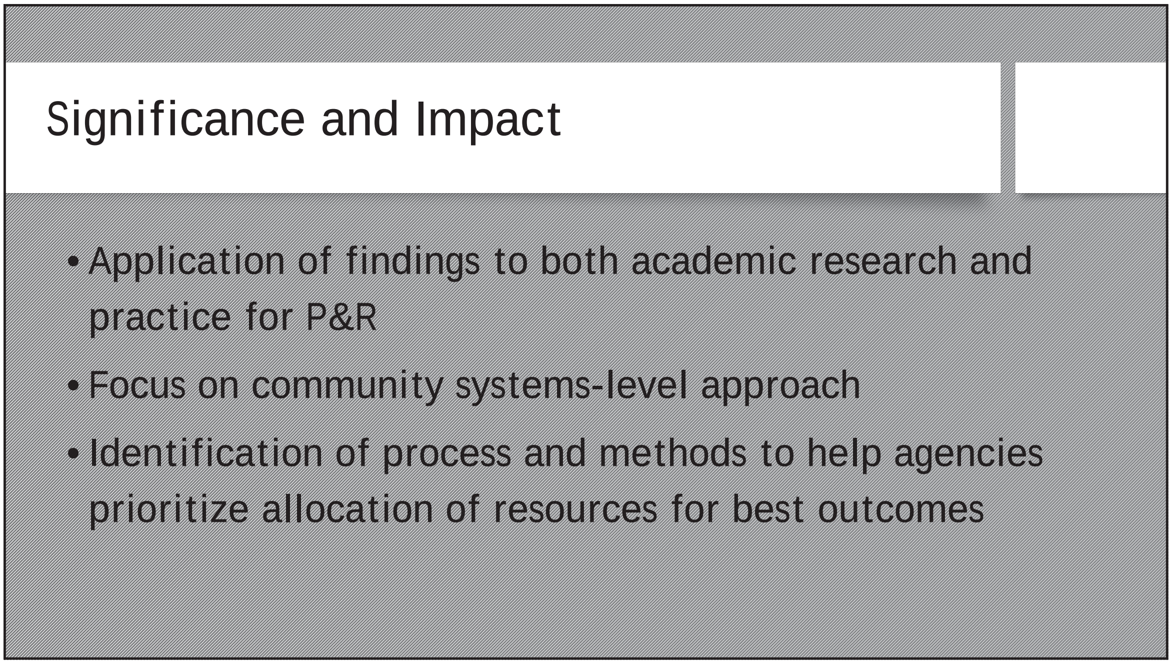
(Adapted from Cyr 2016; Flick, 2014; Yin, 2013)



Trustworthiness & Credibility

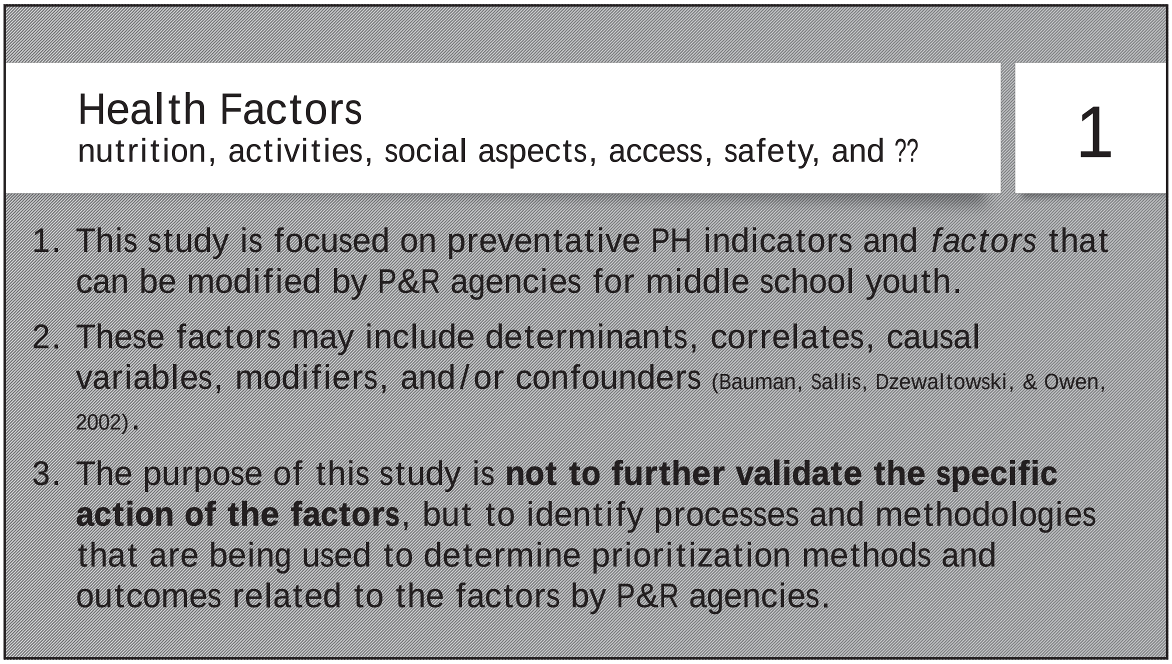
- Challenges of:
  - Researcher and study participants' bias
  - Prior theorizing vs. Grounded Theory approaches
  - Overgeneralization of limited study population findings
- Qualitative approach – Qualtrics, SPSS, Nvivo, Researcher memos, representative real-time and review validation, with peer review by committee
- Focus on identifying feasible systematic process applications rather than judging or validating agency findings and outcomes
- Full Dissertation to compile analysis of all methods and results

Appendix F - Delphi Presentation #1



Significance and Impact

- Application of findings to both academic research and practice for P&R
- Focus on community systems-level approach
- Identification of process and methods to help agencies prioritize allocation of resources for best outcomes



Health Factors

nutrition, activities, social aspects, access, safety, and ??

1

1. This study is focused on preventative PH indicators and *factors* that can be modified by P&R agencies for middle school youth.
2. These factors may include determinants, correlates, causal variables, modifiers, and/or confounders (Bauman, Sallis, Dzewaltowski, & Owen, 2002).
3. The purpose of this study is **not to further validate the specific action of the factors**, but to identify processes and methodologies that are being used to determine prioritization methods and outcomes related to the factors by P&R agencies.

Examples of potentially modifiable health factors and methods to address

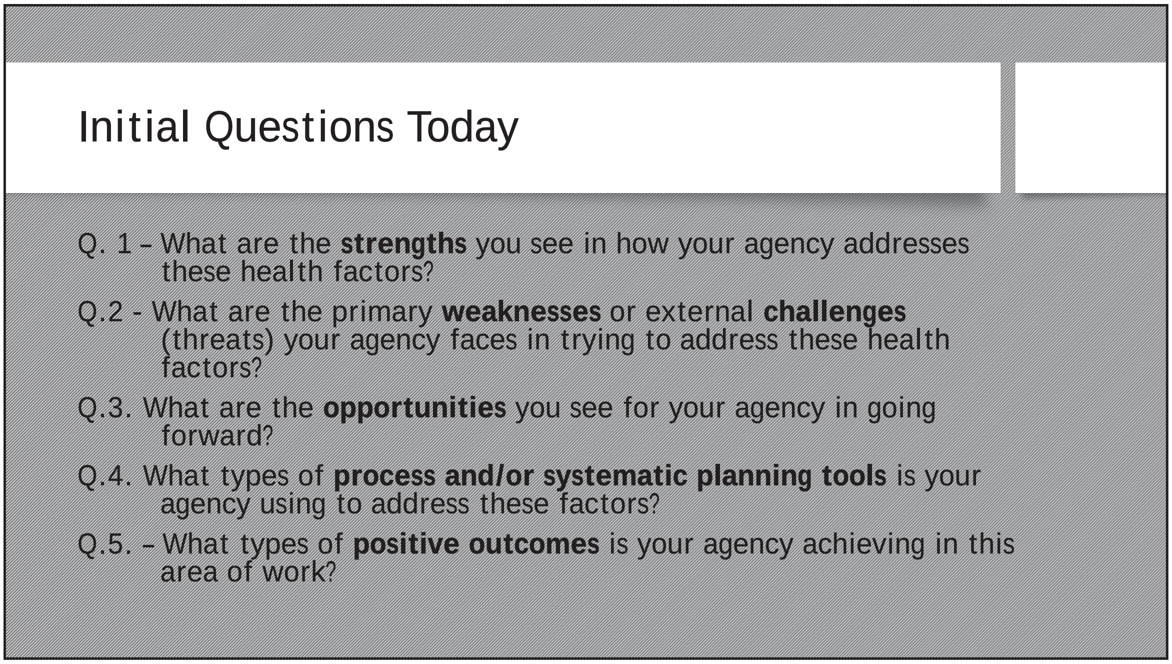
Key Factors	Examples of agency methods to address
Nutrition	Policies on availability of healthy food
	Information, education and training
	Healthy food/drink options
	Collaboration with local restaurants
	Community gardens / farmers markets
Social interaction	Efforts to prevent bullying and hazing
	Non-competitive organized activity options
	Establish practices of social inclusiveness
	Promote positive social environment
	Parental Engagement strategies
Transportation / Access to services	Accessibility of public transportation
	Cost of services
	Convenience
	Consumer knowledge of public transportation services
	Utilization rates
Physical activity	Inventory & quality of natural and built assets
	Varied physical demands of programs/services/sites
	Availability of assets/programs
	Application of evidence based practices by staff
	Promotion of increased physical capacity/Prescriptions
Safety/Perception of Safety	Crime rate at or near assets/programs
	Parent/children perception of safety level
	Prevention practices of service providers / CPTED
	Safety inspection & risk management / public safety
	Staff supervision & surveillance efforts
AND???	Smoking policies, etc.

Introducing Data Collection & Sharing

Start Recording

Questionnaire #1
- Basecamp for review and uploading
- Qualtrics Questionnaire #1 link will be sent
- Please complete by **10/21**

File Sharing - Agency Process Reporting & Outcomes
- Upload any agency info and examples into Basecamp – your file!
- Agency Demographics - jurisdiction, summary of services www.communitycommons.org
- Feel free to review other files for ideas / examples
- Make comments / questions / connect



Initial Questions Today

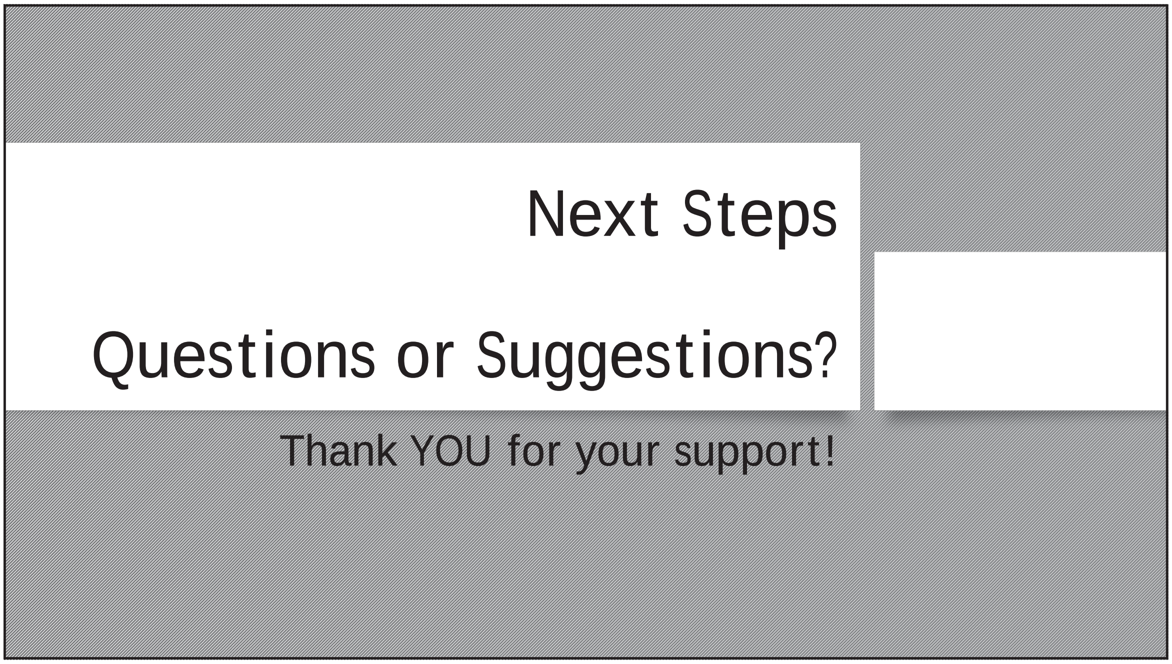
Q. 1 – What are the **strengths** you see in how your agency addresses these health factors?

Q.2 - What are the primary **weaknesses** or external **challenges** (threats) your agency faces in trying to address these health factors?

Q.3. What are the **opportunities** you see for your agency in going forward?

Q.4. What types of **process and/or systematic planning tools** is your agency using to address these factors?

Q.5. – What types of **positive outcomes** is your agency achieving in this area of work?



Next Steps

Questions or Suggestions?

Thank YOU for your support!

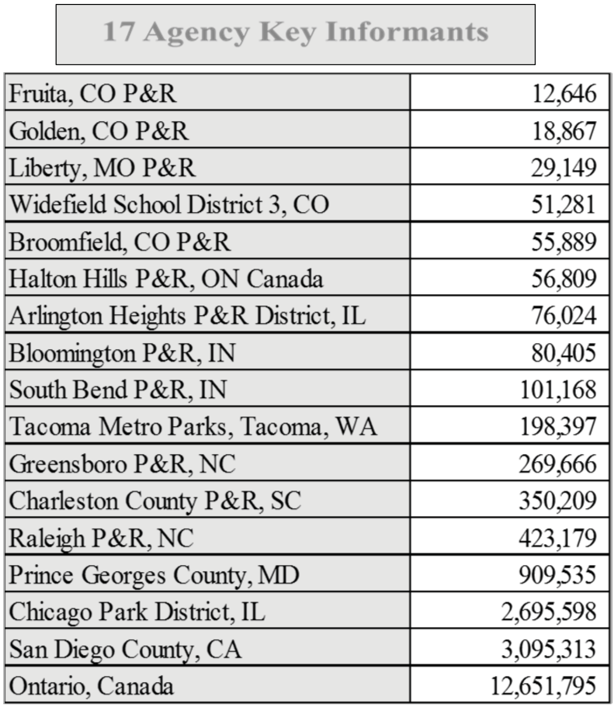
Focus Group #2
Rough Analysis of Summary Data
Questionnaire #1 and Focus Group #1

Penbrooke Delphi Study

November 2016

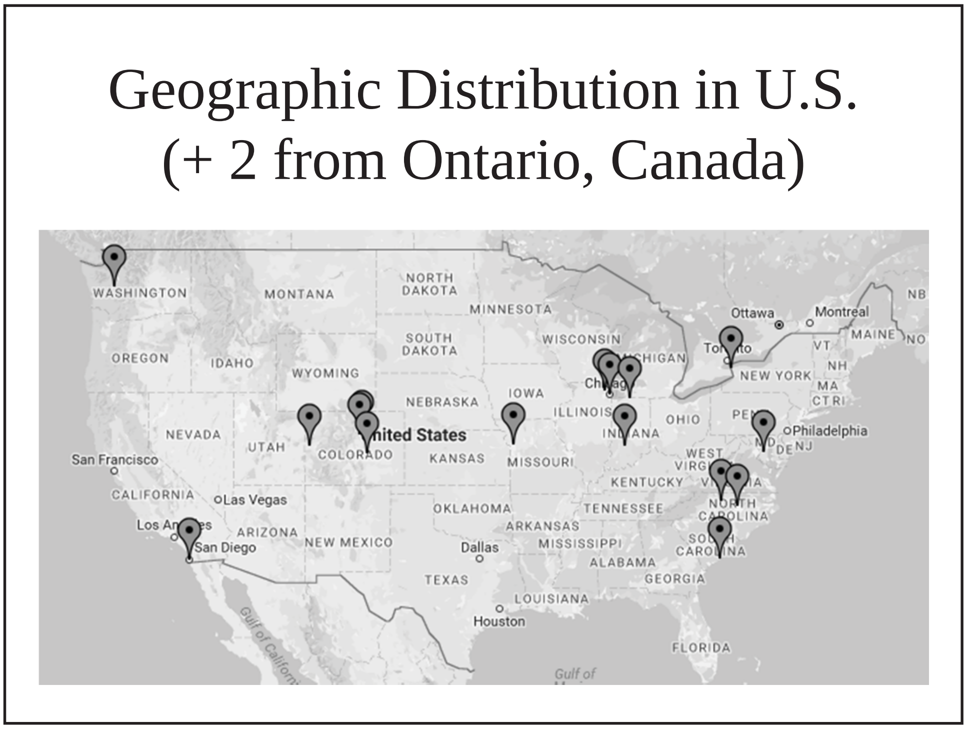
NC STATE UNIVERSITY

Agency Populations Represented



17 Agency Key Informants

Fruita, CO P&R	12,646
Golden, CO P&R	18,867
Liberty, MO P&R	29,149
Widefield School District 3, CO	51,281
Broomfield, CO P&R	55,889
Halton Hills P&R, ON Canada	56,809
Arlington Heights P&R District, IL	76,024
Bloomington P&R, IN	80,405
South Bend P&R, IN	101,168
Tacoma Metro Parks, Tacoma, WA	198,397
Greensboro P&R, NC	269,666
Charleston County P&R, SC	350,209
Raleigh P&R, NC	423,179
Prince Georges County, MD	909,535
Chicago Park District, IL	2,695,598
San Diego County, CA	3,095,313
Ontario, Canada	12,651,795



Geographic Distribution in U.S. (+ 2 from Ontario, Canada)

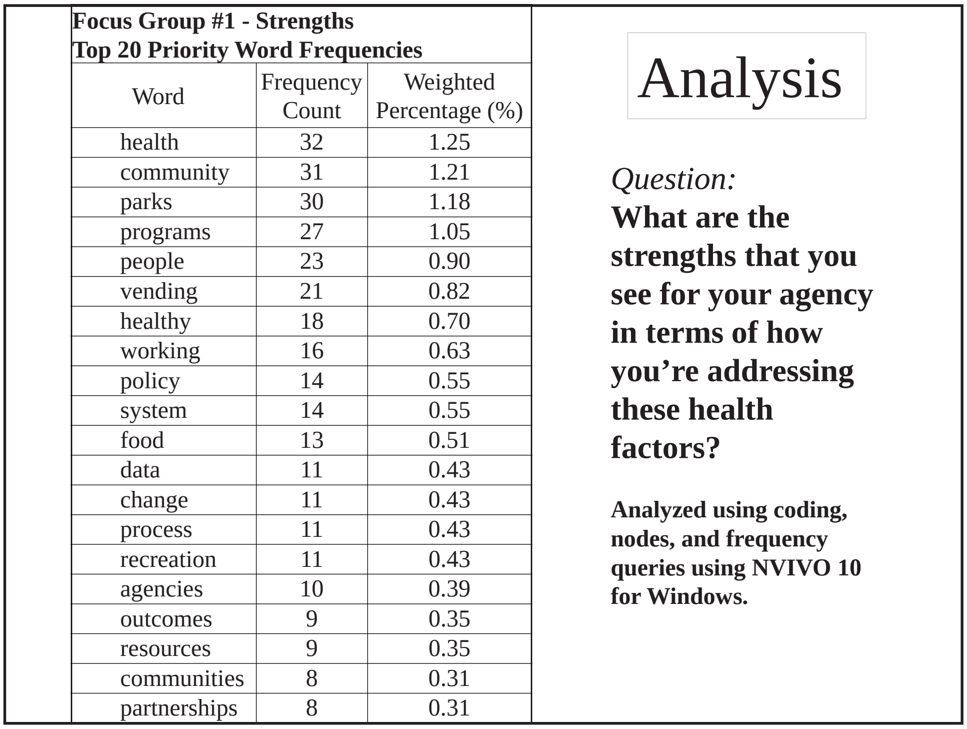
WASHINGTON
MONTANA
NORTH DAKOTA
MINNESOTA
OREGON
IDAHO
SOUTH DAKOTA
WISCONSIN
WYOMING
Chicago
MICHIGAN
Ottawa
Montreal
Toronto
MAINE
NB
VT
NH
NEW YORK
MA
CT RI
NEBRASKA
IOWA
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
Philadelphia
NJ
MD
DE
NEVADA
UTAH
United States
COLORADO
KANSAS
MISSOURI
WEST VIRGINIA
VIRGINIA
KENTUCKY
San Francisco
CALIFORNIA
Las Vegas
OKLAHOMA
TENNESSEE
NORTH CAROLINA
Los Angeles
San Diego
ARIZONA
NEW MEXICO
ARKANSAS
Dallas
MISSISSIPPI
ALABAMA
SOUTH CAROLINA
GEORGIA
TEXAS
LOUISIANA
Houston
FLORIDA
Gulf of California
Gulf of Mexico

Round #1 Focus Group

- Intro to Project
- 13 Key informants participated in Focus Group, and 17 in Q. #1
- Overview of Health Factors from literature
- Questions on strengths and constraints, along with goals for project

Agency	FG #1	Q. #1
Liberty, MO P&R		X
Raleigh P&R, NC		X
Greensboro P&R, NC	X	X
Prince Georges County, MD	X	X
San Diego County, CA	X	X
Chicago Park District, IL	X	X
Charleston County P&R, SC		X
Arlington Heights P&R District, IL	X	X
Bloomington P&R, IN		X
Widefield School District 3, CO	X	X
Broomfield, CO P&R	X	X
Fruita, CO P&R	X	X
Ontario Canada	X	X
South Bend P&R, IN	X	X
Metro Parks, Tacoma, WA	X	X
Golden, CO P&R	X	X
Halton Hills P&R, ON Canada	X	X
	13	17

Appendix G - Penbrooke Delphi Panel #2 Presentation



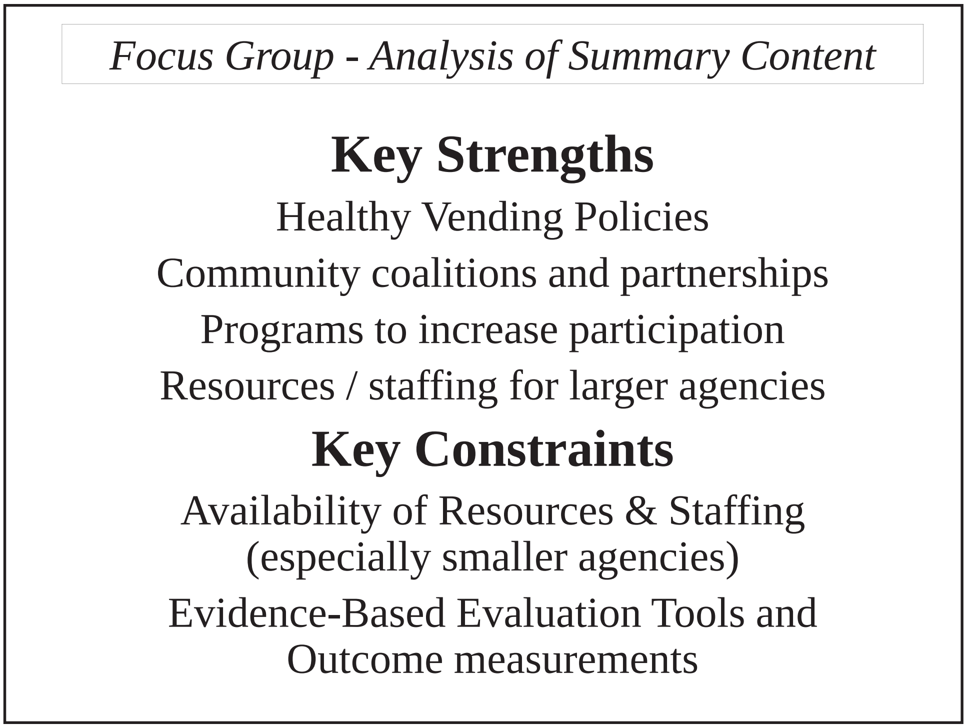
Focus Group #1 - Strengths
Top 20 Priority Word Frequencies

Word	Frequency Count	Weighted Percentage (%)
health	32	1.25
community	31	1.21
parks	30	1.18
programs	27	1.05
people	23	0.90
vending	21	0.82
healthy	18	0.70
working	16	0.63
policy	14	0.55
system	14	0.55
food	13	0.51
data	11	0.43
change	11	0.43
process	11	0.43
recreation	11	0.43
agencies	10	0.39
outcomes	9	0.35
resources	9	0.35
communities	8	0.31
partnerships	8	0.31

Analysis

Question:
What are the strengths that you see for your agency in terms of how you're addressing these health factors?

Analyzed using coding, nodes, and frequency queries using NVIVO 10 for Windows.



Focus Group - Analysis of Summary Content

Key Strengths

Healthy Vending Policies

Community coalitions and partnerships

Programs to increase participation

Resources / staffing for larger agencies

Key Constraints

Availability of Resources & Staffing
(especially smaller agencies)

Evidence-Based Evaluation Tools and
Outcome measurements

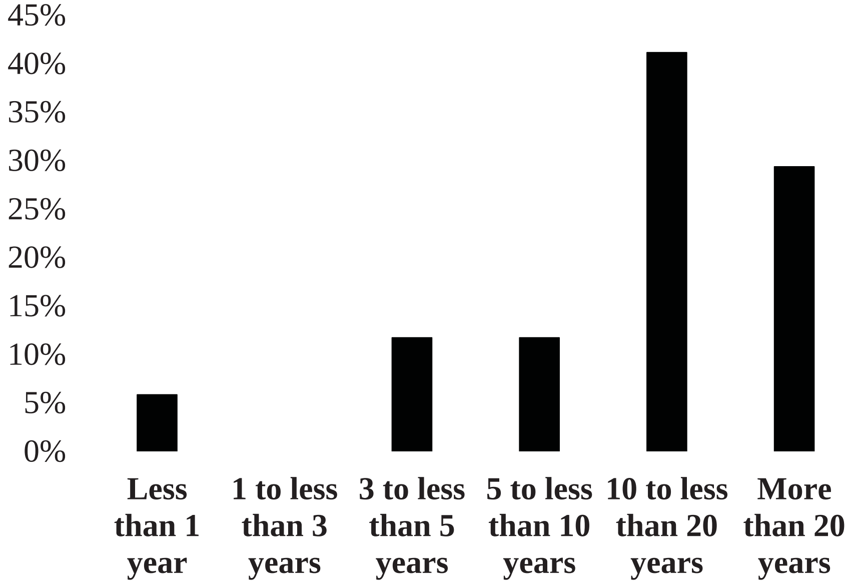
Round #1 Questionnaire

- 17 agencies completed
- Agency info
- Experience of Informants
- Ranking of priority of health factors
- Effectiveness of methods currently used
- Outcomes

Agency	**FG #1**	**Q. #1**
Liberty, MO P&R		X
Raleigh P&R, NC		X
Greensboro P&R, NC	X	X
Prince Georges County, MD	X	X
San Diego County, CA	X	X
Chicago Park District, IL	X	X
Charleston County P&R, SC		X
Arlington Heights P&R District, IL	X	X
Bloomington P&R, IN		X
Widefield School District 3, CO	X	X
Broomfield, CO P&R	X	X
Fruita, CO P&R	X	X
Ontario Canada	X	X
South Bend P&R, IN	X	X
Metro Parks, Tacoma, WA	X	X
Golden, CO P&R	X	X
Halton Hills P&R, ON Canada	X	X
	13	17

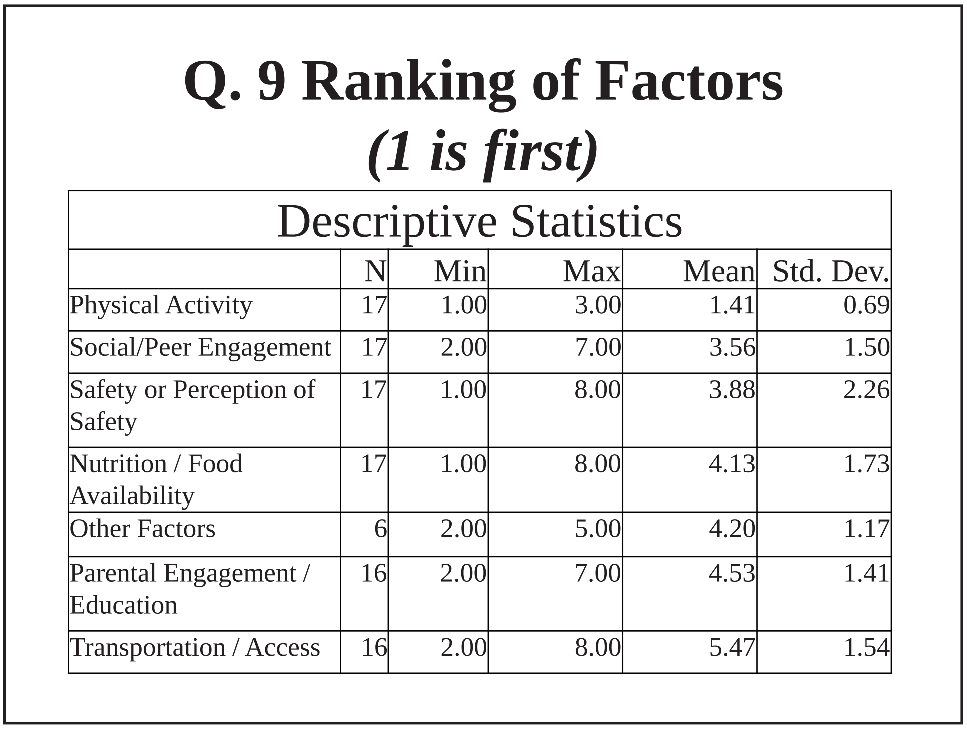
Q5 - Title / Role at Agency	**%**	**Count**
Director/Senior Manager	44%	8
Assistant Director/Assistant Manager	11%	2
Supervisor level (staff supervision, may be more than one program area)	33%	6
Coordinator/Programmer	6%	1
Instructor	0%	0
Volunteer	0%	0
Other:	11%	2
Wellness Manager	6%	1
Policy Advisor	6%	1

Key Informants Time in Field



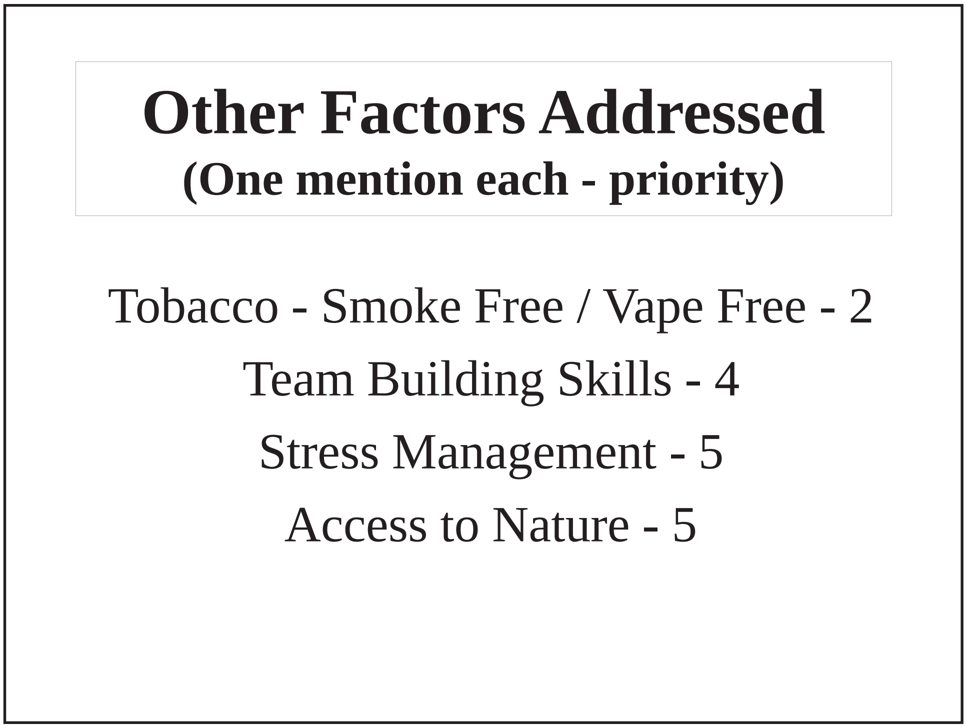
Q. 9 - Ranked Priority of Health Factors

Priority of Factors	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**
Physical Activity	71%	18%	12%	0%	0%	0%	0%	0%
Safety or Perception of Safety	20%	20%	7%	20%	0%	13%	13%	7%
Nutrition / Food Availability	6%	6%	25%	31%	13%	6%	6%	6%
Transportation / Access	0%	7%	13%	0%	7%	60%	7%	7%
Social/Peer Engagement	0%	38%	13%	19%	25%	0%	6%	0%
Parental Engagement / Education	0%	7%	27%	7%	33%	20%	7%	0%
Other Factors	0%	20%	0%	20%	60%	0%	0%	0%



Q. 9 Ranking of Factors
(1 is first)

Descriptive Statistics					
	N	Min	Max	Mean	Std. Dev.
Physical Activity	17	1.00	3.00	1.41	0.69
Social/Peer Engagement	17	2.00	7.00	3.56	1.50
Safety or Perception of Safety	17	1.00	8.00	3.88	2.26
Nutrition / Food Availability	17	1.00	8.00	4.13	1.73
Other Factors	6	2.00	5.00	4.20	1.17
Parental Engagement / Education	16	2.00	7.00	4.53	1.41
Transportation / Access	16	2.00	8.00	5.47	1.54



Other Factors Addressed
(One mention each - priority)

Tobacco - Smoke Free / Vape Free - 2

Team Building Skills - 4

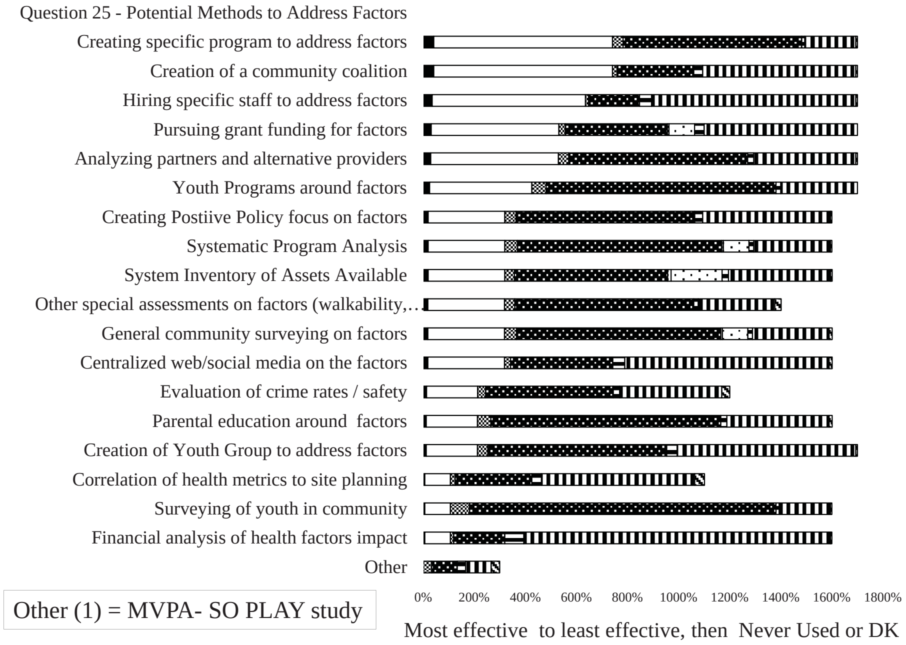
Stress Management - 5

Access to Nature - 5

Appendix G - Penbrooke Delphi Panel #2 Presentation

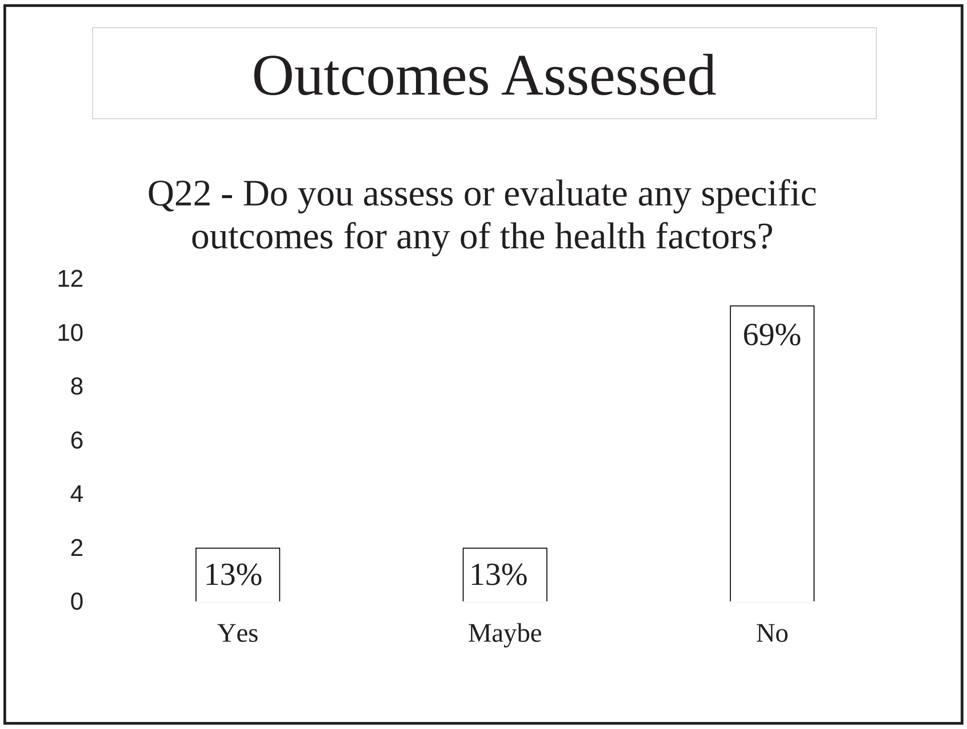
Question 25 – Effectiveness of Potential Methods to Address Factors	Extremely effective	Moderately effective	Not effective at all	Never used	Don't Know	Total
Creation of a community coalition	41%	18%	0%	35%	6%	17
Creating specific program to address factors	41%	41%	0%	12%	6%	17
Hiring specific staff to address factors	35%	12%	0%	47%	6%	17
Pursuing grant funding for factors	31%	25%	6%	38%	0%	16
Analyzing partners and alternative providers	29%	41%	0%	24%	6%	17
Youth Programs around factors	25%	56%	0%	19%	0%	16
System Inventory of Assets Available	19%	38%	13%	25%	6%	16
Systematic Program Analysis	19%	50%	6%	19%	6%	16
Creating Positive Policy focus on factors	19%	44%	0%	31%	6%	16
Centralized web/social media on the factors	18%	24%	0%	47%	12%	17
General community surveying on factors	18%	47%	6%	18%	12%	17
Other special assessments on factors (walkability, food availability, etc.)	18%	41%	0%	18%	24%	17
Evaluation of crime rates / safety	13%	31%	0%	25%	31%	16
Creation of Youth Group to address factors	12%	41%	0%	41%	6%	17
Parental education around factors	12%	53%	0%	24%	12%	17
Financial analysis of health factors impact	6%	13%	0%	75%	6%	16
Surveying of youth in community	6%	75%	0%	13%	6%	16
Correlation of health metrics to site planning	6%	19%	0%	38%	38%	16
Physical Evaluation (like BMI measures)	0%	29%	12%	47%	12%	17
Other	0%	33%	0%	33%	33%	3

Effectiveness of Potential Methods to Address Factors



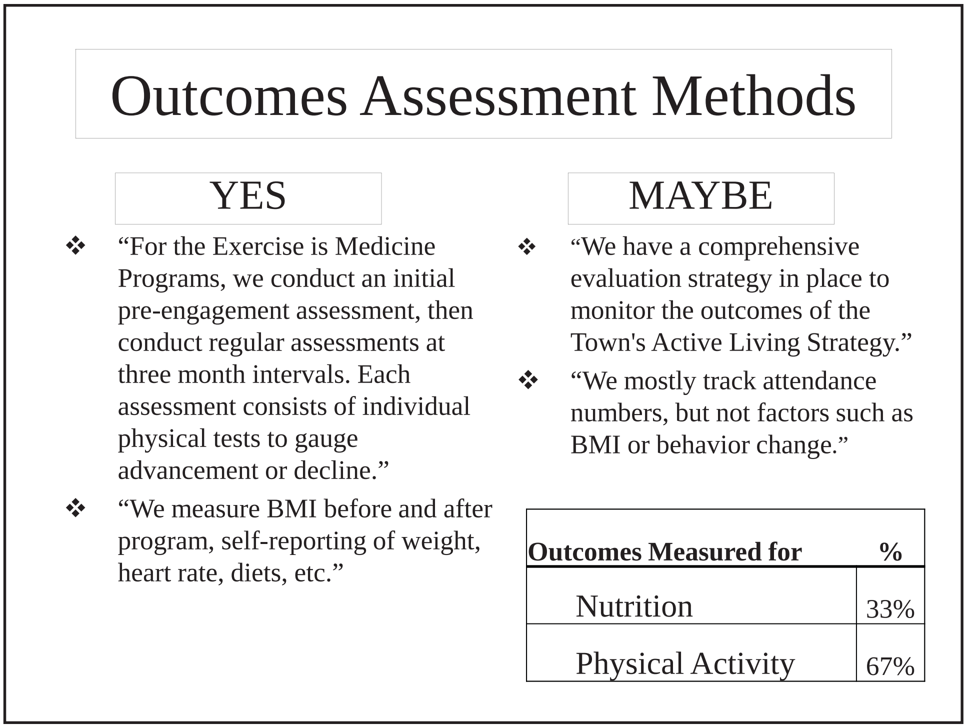
Other (1) = MVPA- SO PLAY study

Appendix G - Penbrooke Delphi Panel #2 Presentation



Outcomes Assessed

Q22 - Do you assess or evaluate any specific outcomes for any of the health factors?



Outcomes Assessment Methods

YES

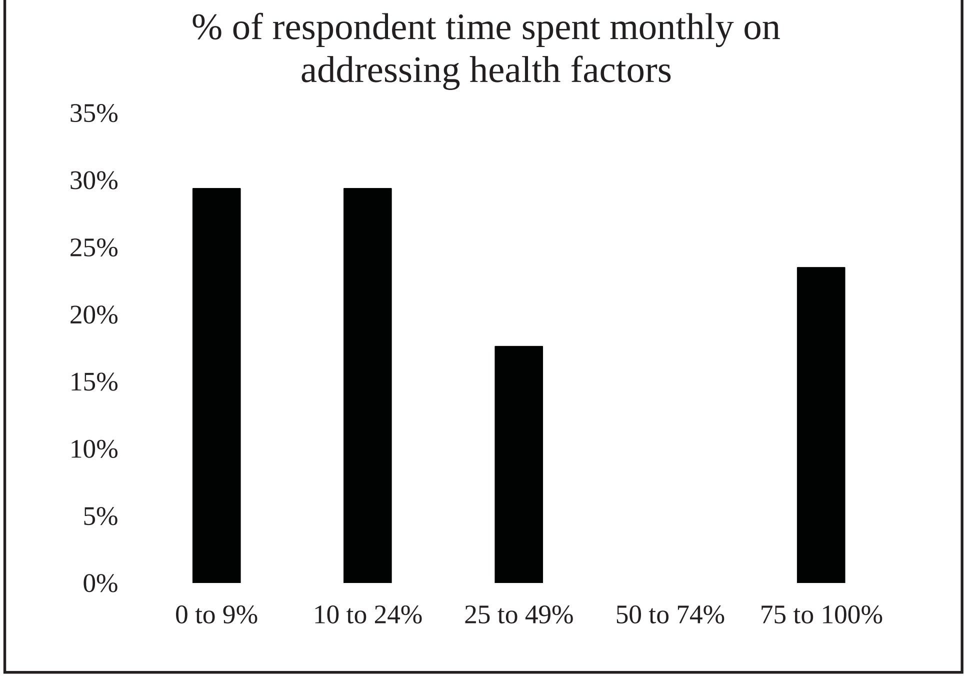
- ❖ "For the Exercise is Medicine Programs, we conduct an initial pre-engagement assessment, then conduct regular assessments at three month intervals. Each assessment consists of individual physical tests to gauge advancement or decline."
- ❖ "We measure BMI before and after program, self-reporting of weight, heart rate, diets, etc."

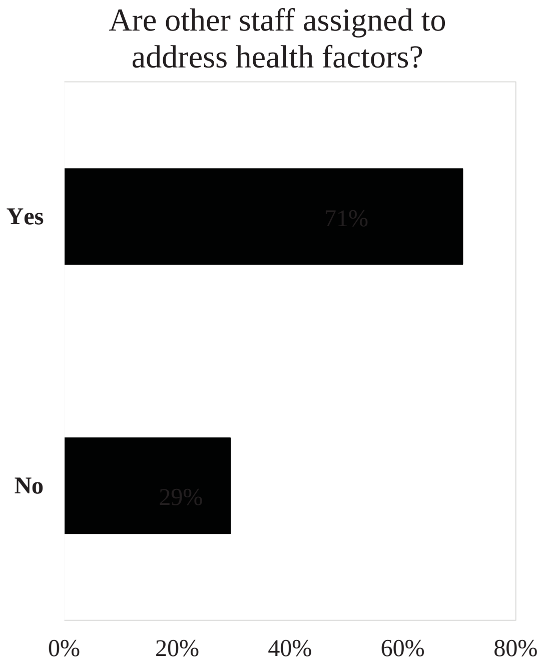
MAYBE

- ❖ "We have a comprehensive evaluation strategy in place to monitor the outcomes of the Town's Active Living Strategy."
- ❖ "We mostly track attendance numbers, but not factors such as BMI or behavior change."

Outcomes Measured for	**%**
Nutrition	33%
Physical Activity	67%

Appendix G - Penbrooke Delphi Panel #2 Presentation



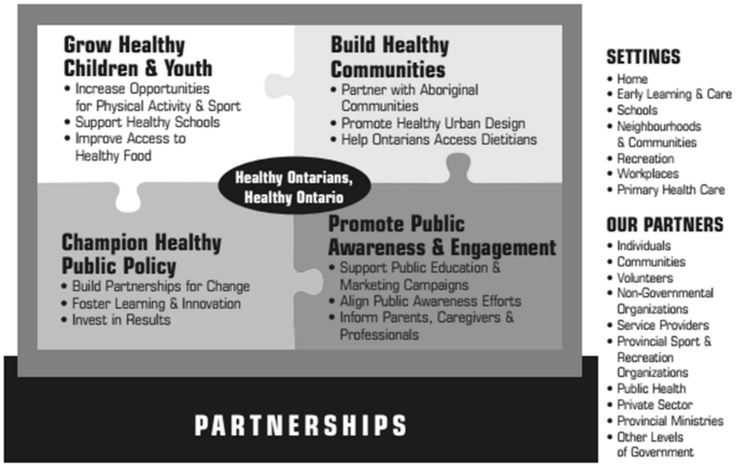


# of Respondents	# of other FTEs assigned
3	3
1	5
2	6
1	10
1	20
8	

Q33 - How difficult was it for you to complete this survey?

Answer	%	Count
Extremely easy	12%	2
Somewhat easy	35%	6
Neither easy nor difficult	6%	1
Somewhat difficult	41%	7
Extremely difficult	6%	1
Total	100%	17

Review of Resources on Basecamp



Grow Healthy Children & Youth
- Increase Opportunities for Physical Activity & Sport
- Support Healthy Schools
- Improve Access to Healthy Food

Build Healthy Communities
- Partner with Aboriginal Communities
- Promote Healthy Urban Design
- Help Ontarians Access Dietitians

Healthy Ontarians, Healthy Ontario

Champion Healthy Public Policy
- Build Partnerships for Change
- Foster Learning & Innovation
- Invest in Results

Promote Public Awareness & Engagement
- Support Public Education & Marketing Campaigns
- Align Public Awareness Efforts
- Inform Parents, Caregivers & Professionals

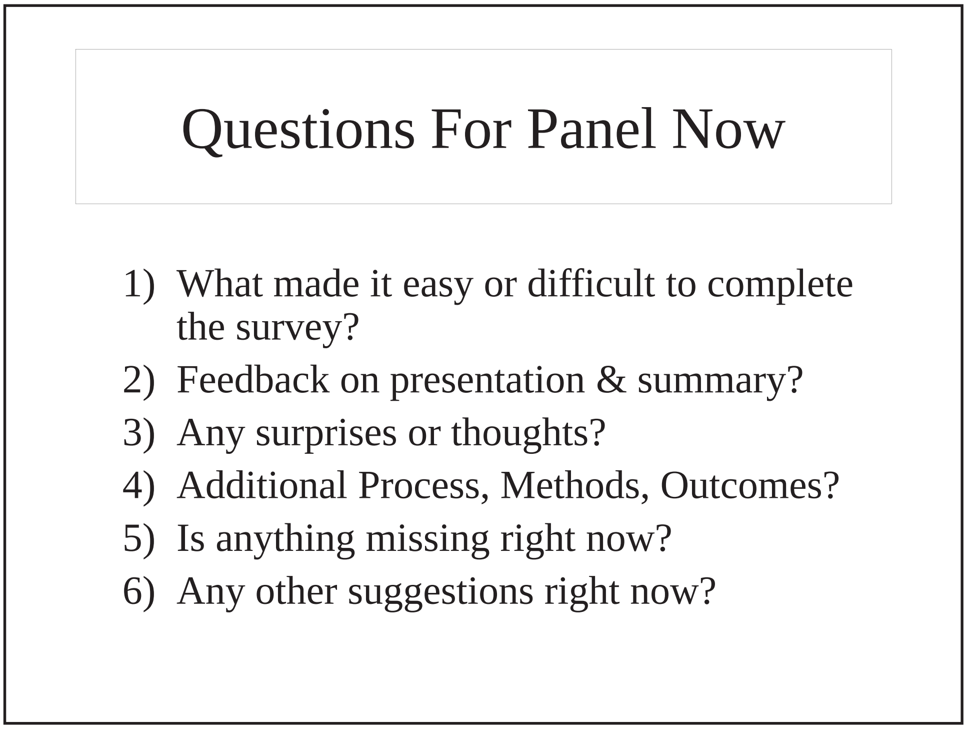
PARTNERSHIPS

SETTINGS
- Home
- Early Learning & Care
- Schools
- Neighbourhoods & Communities
- Recreation
- Workplaces
- Primary Health Care

OUR PARTNERS
- Individuals
- Communities
- Volunteers
- Non-Governmental Organizations
- Service Providers
- Provincial Sport & Recreation Organizations
- Public Health
- Private Sector
- Provincial Ministries
- Other Levels of Government

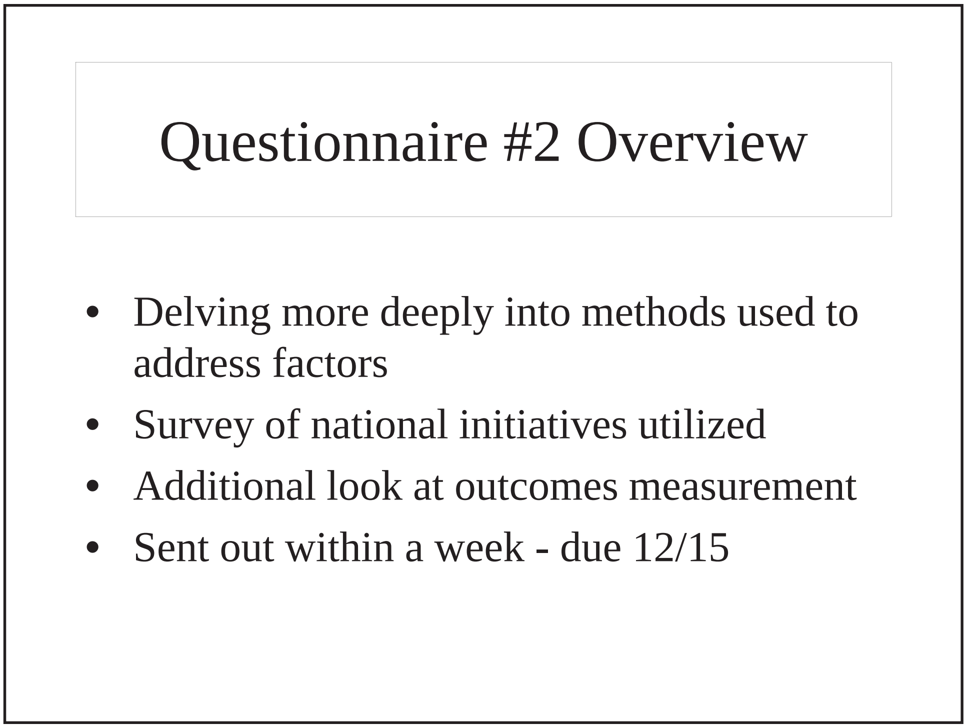
Example from Ontario, Canada Healthy Eating and Active Living, 2006

Appendix G - Penbrooke Delphi Panel #2 Presentation



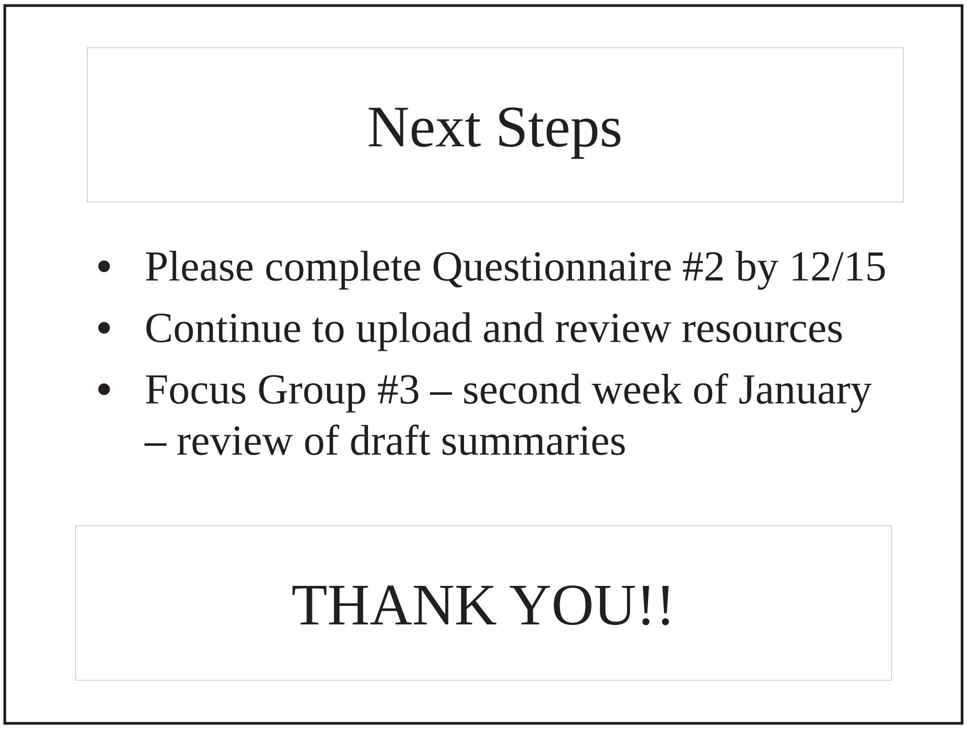
Questions For Panel Now

1) What made it easy or difficult to complete the survey?
2) Feedback on presentation & summary?
3) Any surprises or thoughts?
4) Additional Process, Methods, Outcomes?
5) Is anything missing right now?
6) Any other suggestions right now?



Questionnaire #2 Overview

- Delving more deeply into methods used to address factors
- Survey of national initiatives utilized
- Additional look at outcomes measurement
- Sent out within a week - due 12/15

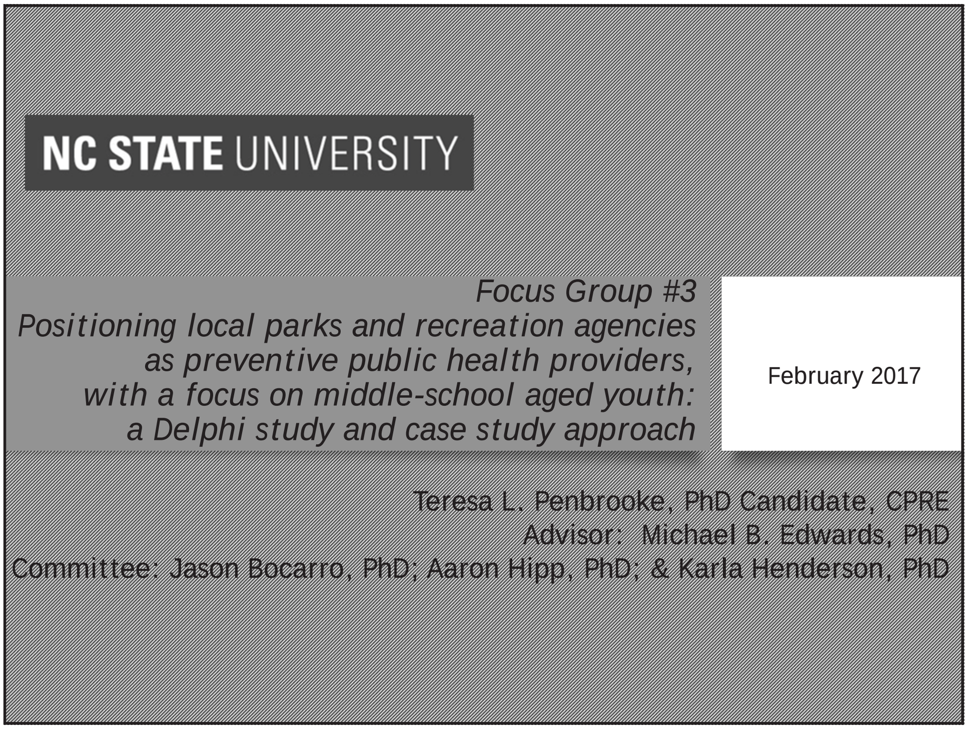


Next Steps

- Please complete Questionnaire #2 by 12/15
- Continue to upload and review resources
- Focus Group #3 – second week of January – review of draft summaries

THANK YOU!!

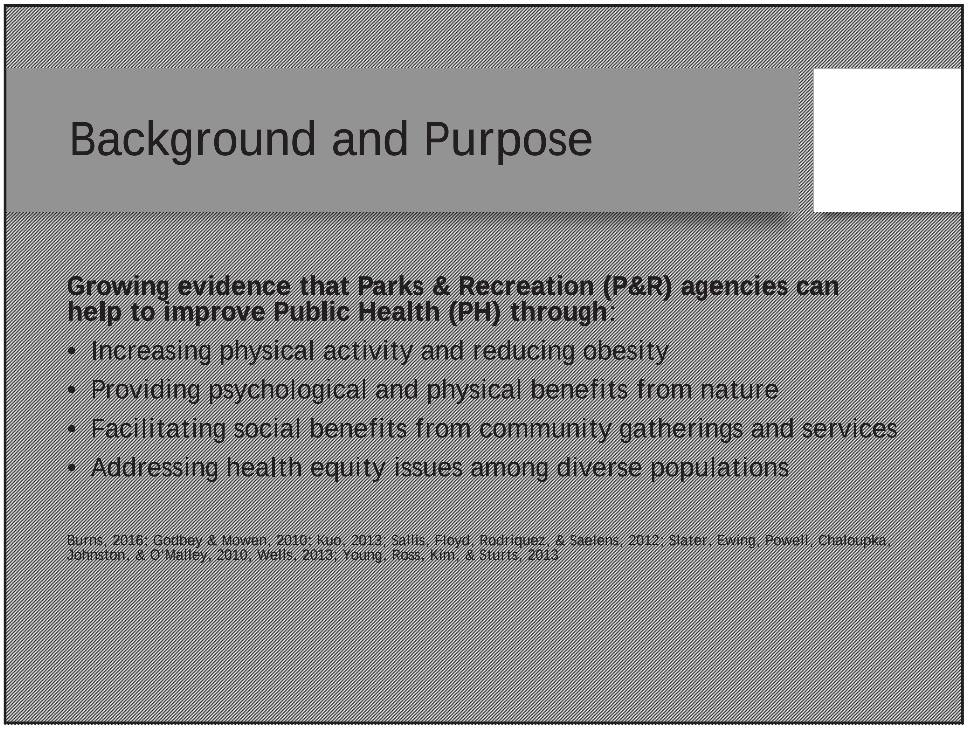
Appendix H – Penbrooke Delphi Panel Presentation #3


NC STATE UNIVERSITY

Focus Group #3
Positioning local parks and recreation agencies
as preventive public health providers,
with a focus on middle-school aged youth:
a Delphi study and case study approach

February 2017

Teresa L. Penbrooke, PhD Candidate, CPRE
Advisor: Michael B. Edwards, PhD
Committee: Jason Bocarro, PhD; Aaron Hipp, PhD; & Karla Henderson, PhD

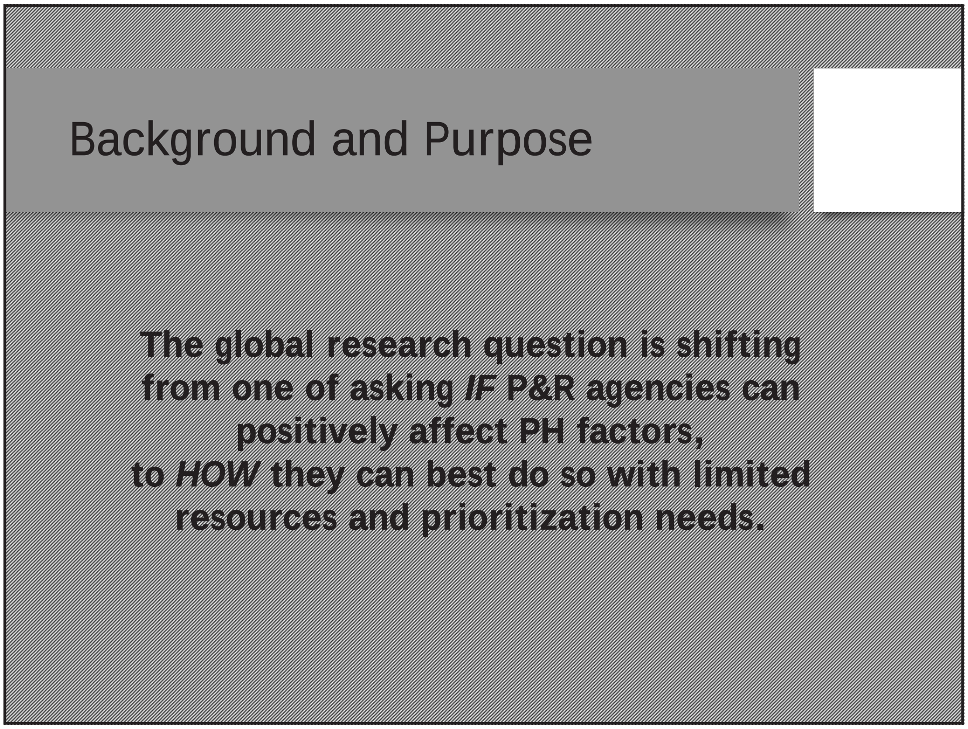

Background and Purpose

Growing evidence that Parks & Recreation (P&R) agencies can help to improve Public Health (PH) through:

- Increasing physical activity and reducing obesity
- Providing psychological and physical benefits from nature
- Facilitating social benefits from community gatherings and services
- Addressing health equity issues among diverse populations

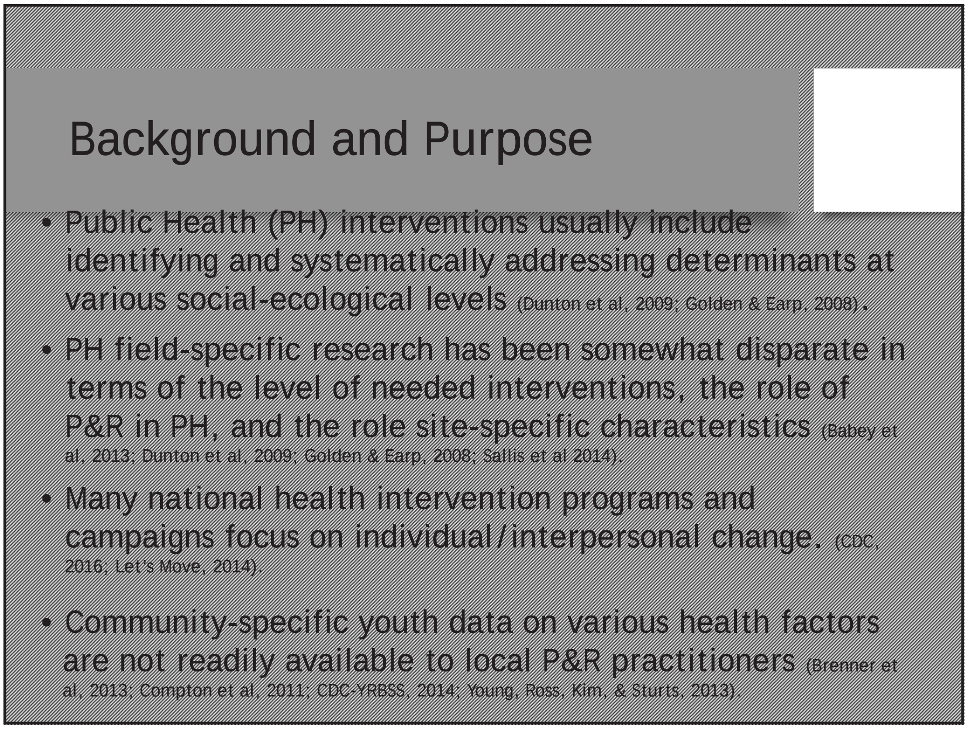
Burns, 2016; Godbey & Mowen, 2010; Kuo, 2013; Sallis, Floyd, Rodriquez, & Saelens, 2012; Slater, Ewing, Powell, Chaloupka, Johnston, & O'Malley, 2010; Wells, 2013; Young, Ross, Kim, & Sturts, 2013

Appendix H – Penbrooke Delphi Panel Presentation #3



Background and Purpose

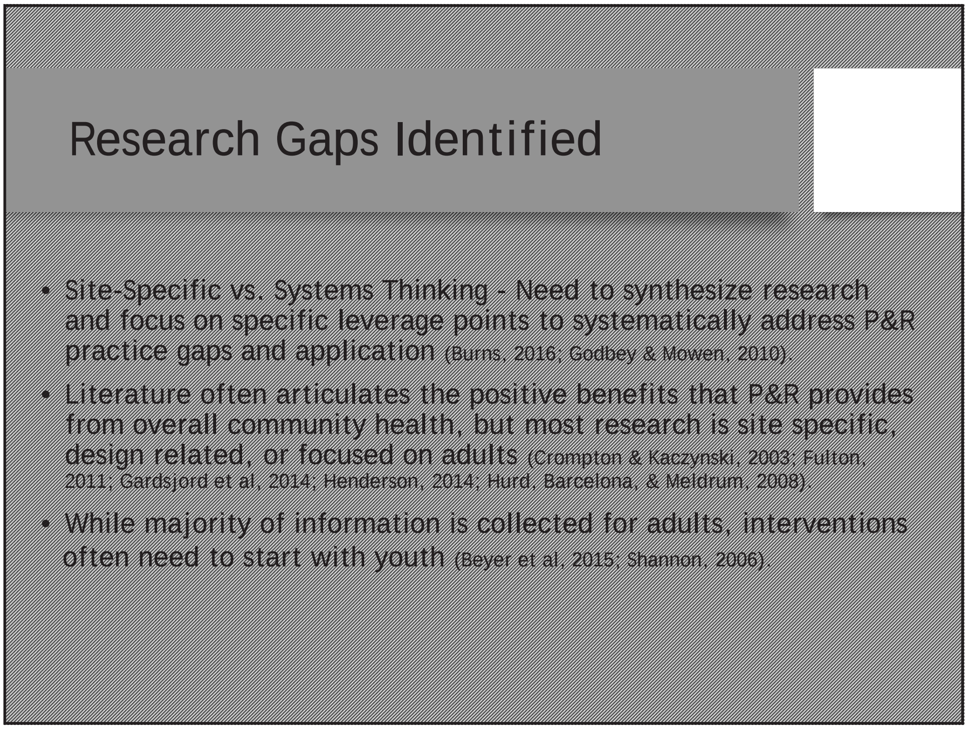
The global research question is shifting from one of asking *IF* P&R agencies can positively affect PH factors,
to *HOW* they can best do so with limited resources and prioritization needs.



Background and Purpose

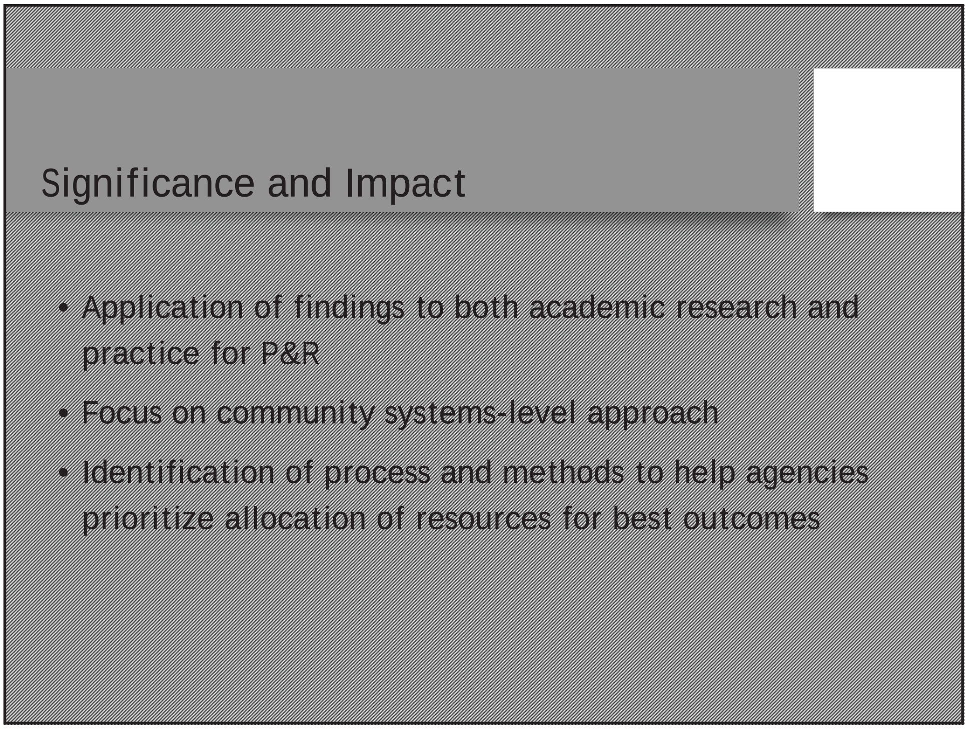
- Public Health (PH) interventions usually include identifying and systematically addressing determinants at various social-ecological levels (Dunton et al, 2009; Golden & Earp, 2008).
- PH field-specific research has been somewhat disparate in terms of the level of needed interventions, the role of P&R in PH, and the role site-specific characteristics (Babey et al, 2013; Dunton et al, 2009; Golden & Earp, 2008; Sallis et al 2014).
- Many national health intervention programs and campaigns focus on individual/interpersonal change. (CDC, 2016; Let's Move, 2014).
- Community-specific youth data on various health factors are not readily available to local P&R practitioners (Brenner et al, 2013; Compton et al, 2011; CDC-YRBSS, 2014; Young, Ross, Kim, & Sturts, 2013).

Appendix H – Penbrooke Delphi Panel Presentation #3



Research Gaps Identified

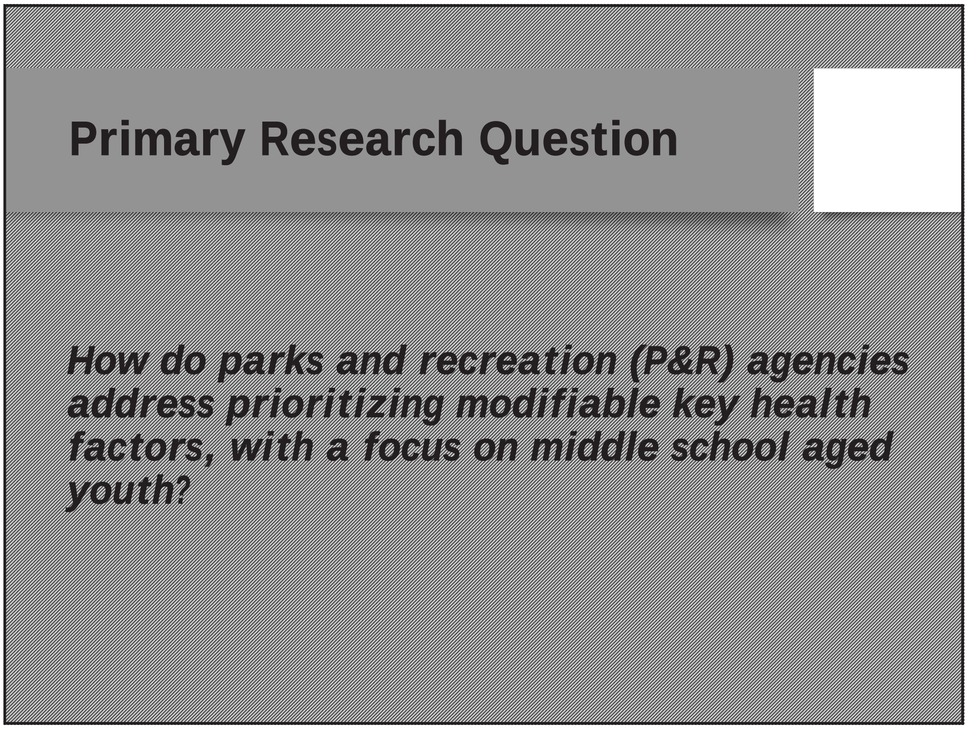
- Site-Specific vs. Systems Thinking - Need to synthesize research and focus on specific leverage points to systematically address P&R practice gaps and application (Burns, 2016; Godbey & Mowen, 2010).
- Literature often articulates the positive benefits that P&R provides from overall community health, but most research is site specific, design related, or focused on adults (Crompton & Kaczynski, 2003; Fulton, 2011; Gardsjord et al, 2014; Henderson, 2014; Hurd, Barcelona, & Meldrum, 2008).
- While majority of information is collected for adults, interventions often need to start with youth (Beyer et al, 2015; Shannon, 2006).



Significance and Impact

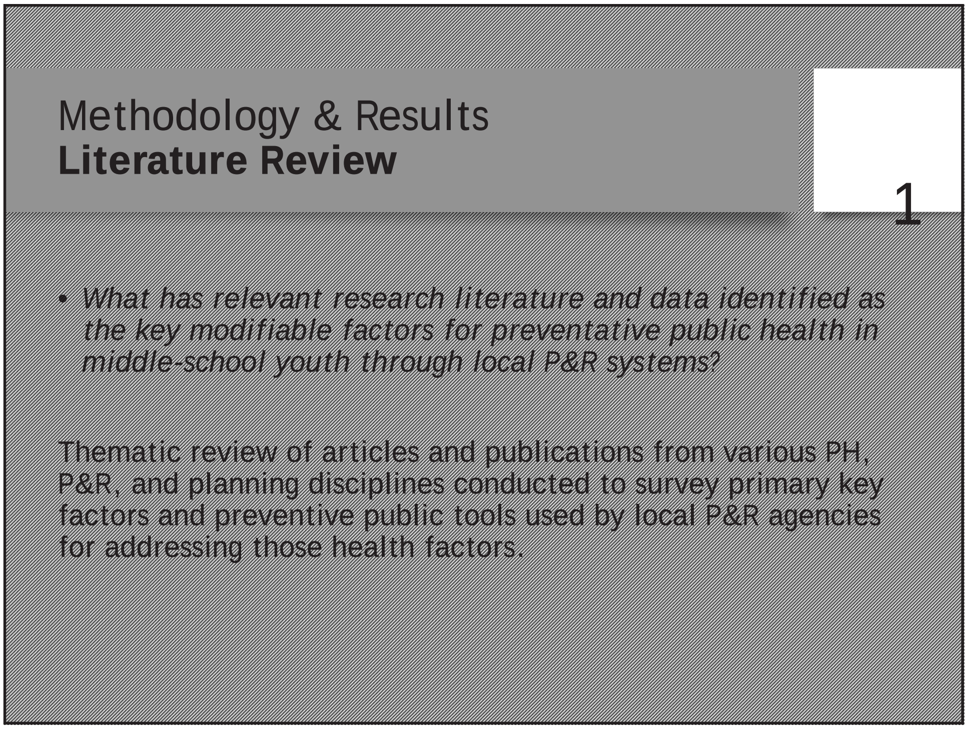
- Application of findings to both academic research and practice for P&R
- Focus on community systems-level approach
- Identification of process and methods to help agencies prioritize allocation of resources for best outcomes

Appendix H – Penbrooke Delphi Panel Presentation #3



Primary Research Question

How do parks and recreation (P&R) agencies address prioritizing modifiable key health factors, with a focus on middle school aged youth?



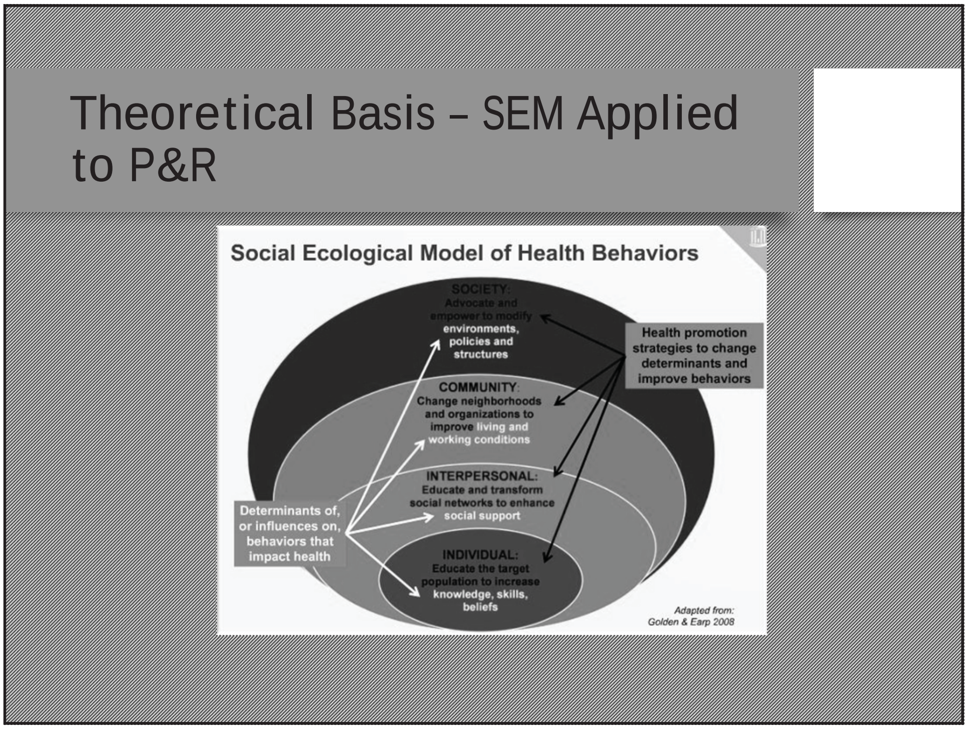
Methodology & Results
Literature Review

1

- *What has relevant research literature and data identified as the key modifiable factors for preventative public health in middle-school youth through local P&R systems?*

Thematic review of articles and publications from various PH, P&R, and planning disciplines conducted to survey primary key factors and preventive public tools used by local P&R agencies for addressing those health factors.

Appendix H – Penbrooke Delphi Panel Presentation #3

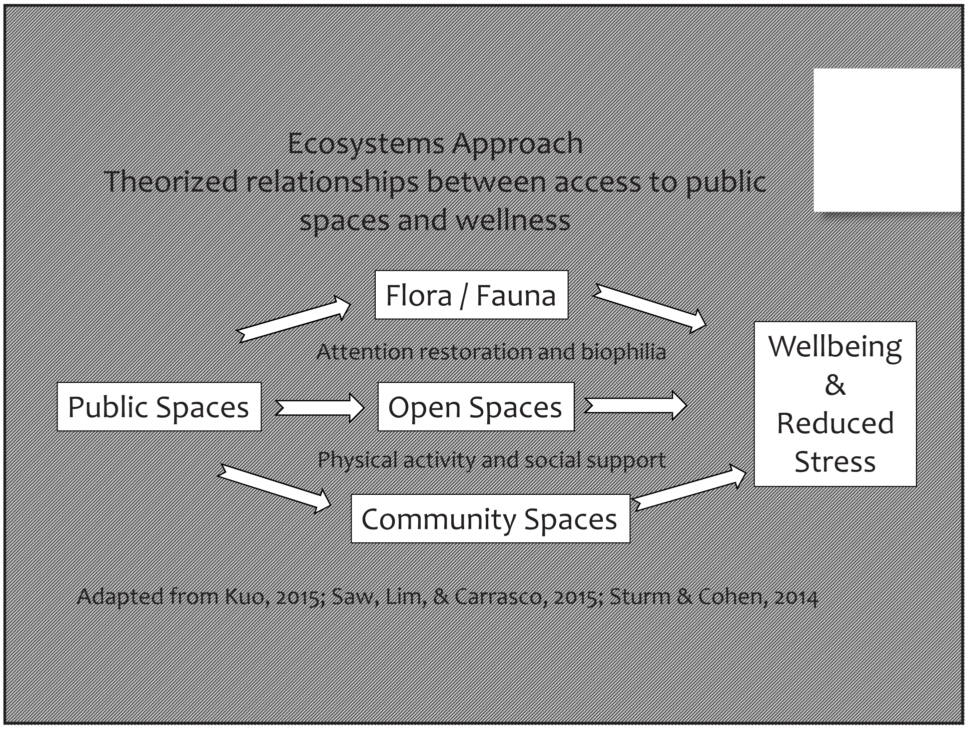


Theoretical Basis – SEM Applied to P&R

Social Ecological Model of Health Behaviors

SOCIETY:
Advocate and empower to modify environments, policies and structures
COMMUNITY:
Change neighborhoods and organizations to improve living and working conditions
INTERPERSONAL:
Educate and transform social networks to enhance social support
INDIVIDUAL:
Educate the target population to increase knowledge, skills, beliefs
Health promotion strategies to change determinants and improve behaviors
Determinants of, or influences on, behaviors that impact health

Adapted from: Golden & Earp 2008



Ecosystems Approach
Theorized relationships between access to public spaces and wellness

Flora / Fauna

Attention restoration and biophilia

Public Spaces

Open Spaces

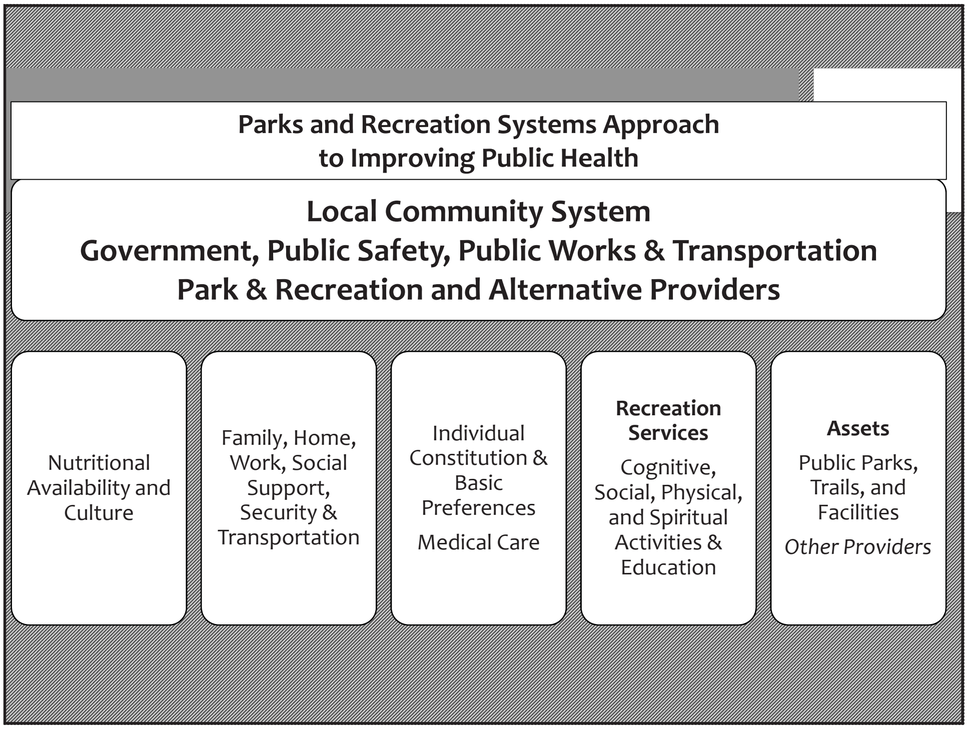
Physical activity and social support

Community Spaces

Wellbeing & Reduced Stress

Adapted from Kuo, 2015; Saw, Lim, & Carrasco, 2015; Sturm & Cohen, 2014

Appendix H – Penbrooke Delphi Panel Presentation #3



Parks and Recreation Systems Approach to Improving Public Health

Local Community System
Government, Public Safety, Public Works & Transportation
Park & Recreation and Alternative Providers

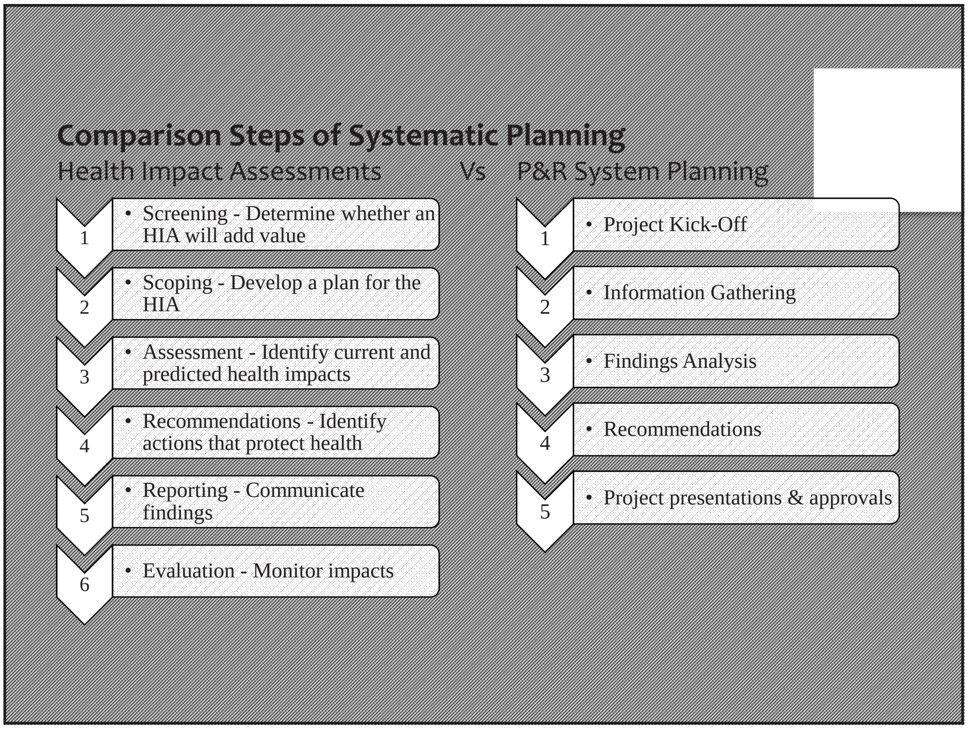
- Nutritional Availability and Culture
- Family, Home, Work, Social Support, Security & Transportation
- Individual Constitution & Basic Preferences

  Medical Care
- **Recreation Services**

  Cognitive, Social, Physical, and Spiritual Activities & Education
- **Assets**

  Public Parks, Trails, and Facilities

  Other Providers

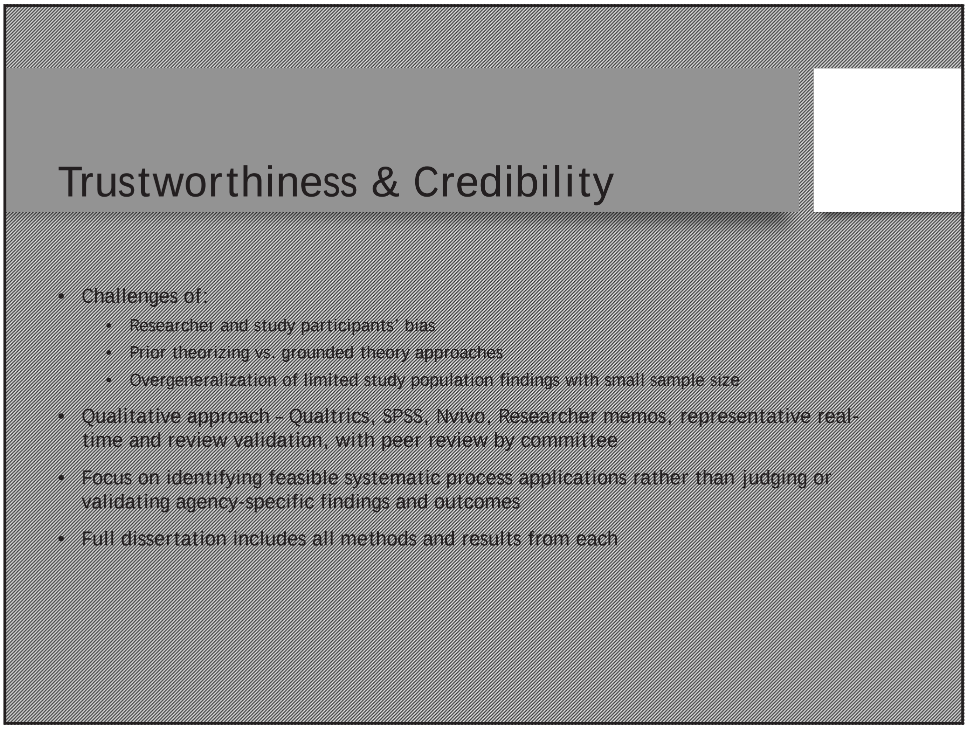


Comparison Steps of Systematic Planning

Health Impact Assessments Vs P&R System Planning

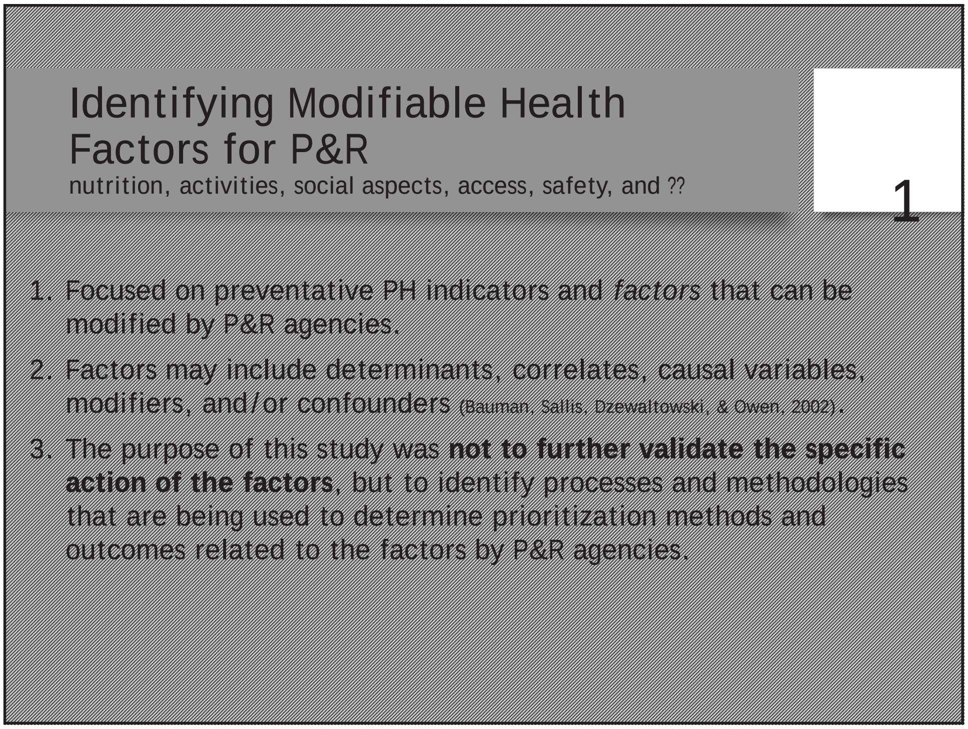
Health Impact Assessments	P&R System Planning
1 • Screening - Determine whether an HIA will add value	1 • Project Kick-Off
2 • Scoping - Develop a plan for the HIA	2 • Information Gathering
3 • Assessment - Identify current and predicted health impacts	3 • Findings Analysis
4 • Recommendations - Identify actions that protect health	4 • Recommendations
5 • Reporting - Communicate findings	5 • Project presentations & approvals
6 • Evaluation - Monitor impacts	

Appendix H – Penbrooke Delphi Panel Presentation #3



Trustworthiness & Credibility

- Challenges of:
  - Researcher and study participants' bias
  - Prior theorizing vs. grounded theory approaches
  - Overgeneralization of limited study population findings with small sample size
- Qualitative approach – Qualtrics, SPSS, Nvivo, Researcher memos, representative real-time and review validation, with peer review by committee
- Focus on identifying feasible systematic process applications rather than judging or validating agency-specific findings and outcomes
- Full dissertation includes all methods and results from each



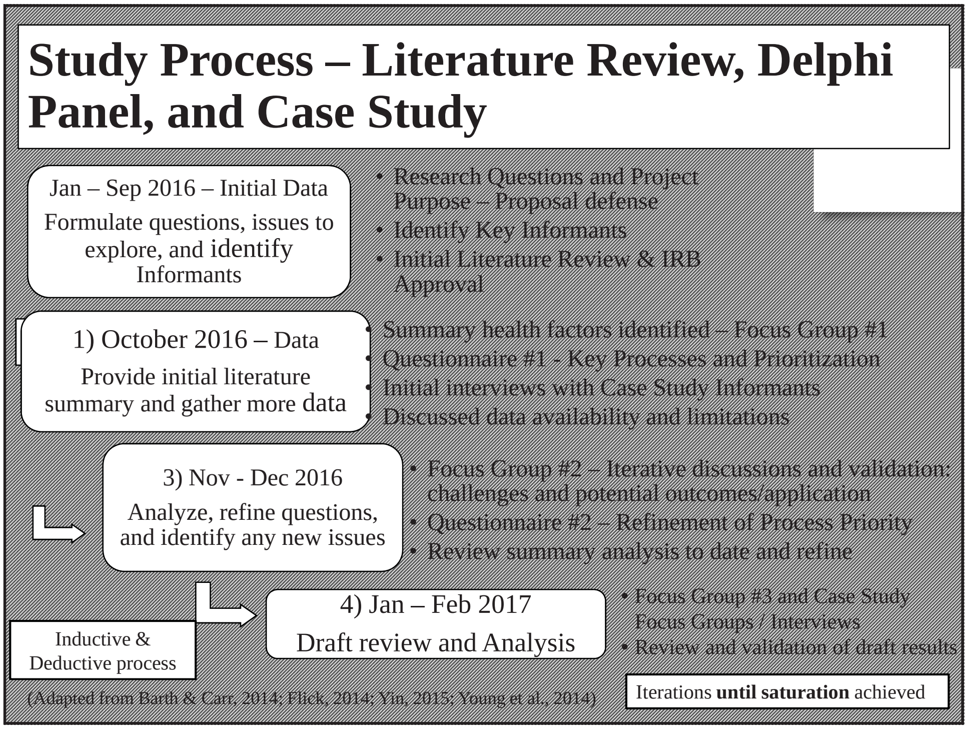
Identifying Modifiable Health Factors for P&R

nutrition, activities, social aspects, access, safety, and ??

1

1. Focused on preventative PH indicators and *factors* that can be modified by P&R agencies.
2. Factors may include determinants, correlates, causal variables, modifiers, and/or confounders (Bauman, Sallis, Dzewaltowski, & Owen, 2002).
3. The purpose of this study was **not to further validate the specific action of the factors**, but to identify processes and methodologies that are being used to determine prioritization methods and outcomes related to the factors by P&R agencies.

Appendix H – Penbrooke Delphi Panel Presentation #3



Study Process – Literature Review, Delphi Panel, and Case Study

Jan – Sep 2016 – Initial Data
Formulate questions, issues to explore, and identify Informants

- Research Questions and Project Purpose – Proposal defense
- Identify Key Informants
- Initial Literature Review & IRB Approval

1) October 2016 – Data
Provide initial literature summary and gather more data

- Summary health factors identified – Focus Group #1
- Questionnaire #1 - Key Processes and Prioritization
- Initial interviews with Case Study Informants
- Discussed data availability and limitations

3) Nov - Dec 2016
Analyze, refine questions, and identify any new issues

- Focus Group #2 – Iterative discussions and validation: challenges and potential outcomes/application
- Questionnaire #2 – Refinement of Process Priority
- Review summary analysis to date and refine

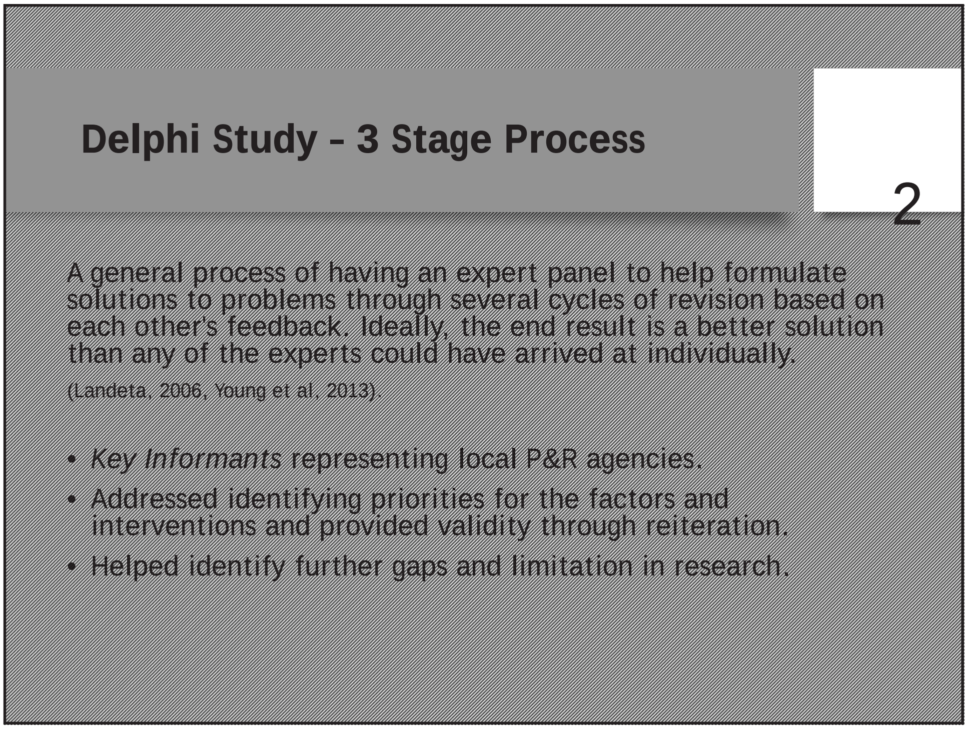
4) Jan – Feb 2017
Draft review and Analysis

- Focus Group #3 and Case Study Focus Groups / Interviews
- Review and validation of draft results

Inductive & Deductive process

(Adapted from Barth & Carr, 2014; Flick, 2014; Yin, 2015; Young et al., 2014)

Iterations **until saturation** achieved



Delphi Study – 3 Stage Process

A general process of having an expert panel to help formulate solutions to problems through several cycles of revision based on each other's feedback. Ideally, the end result is a better solution than any of the experts could have arrived at individually.

(Landeta, 2006, Young et al, 2013).

- *Key Informants* representing local P&R agencies.
- Addressed identifying priorities for the factors and interventions and provided validity through reiteration.
- Helped identify further gaps and limitation in research.

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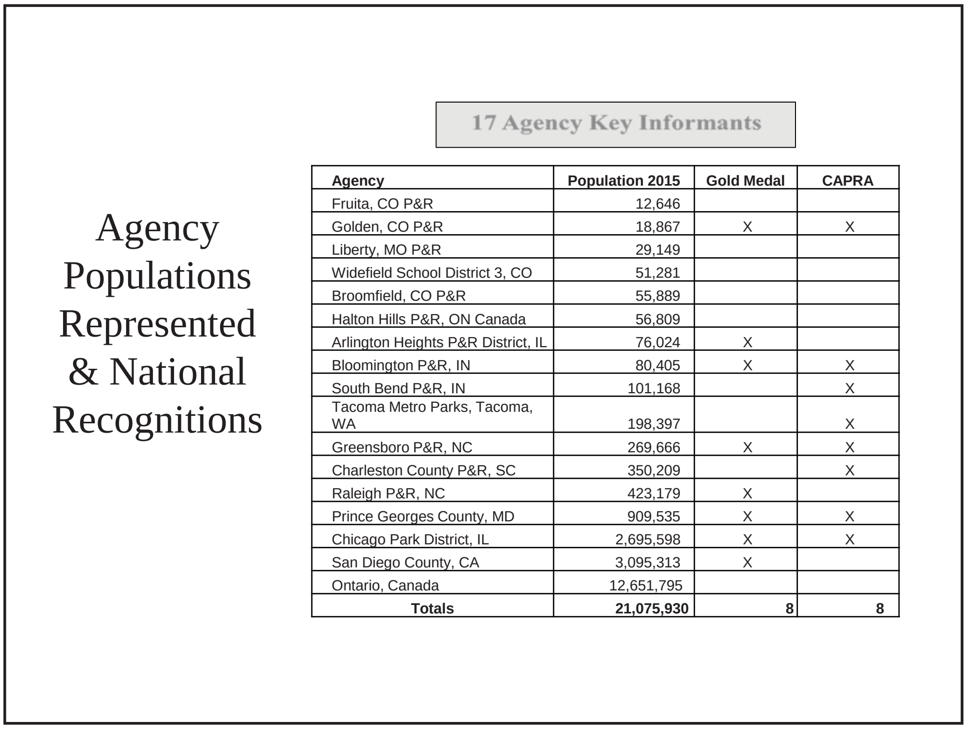
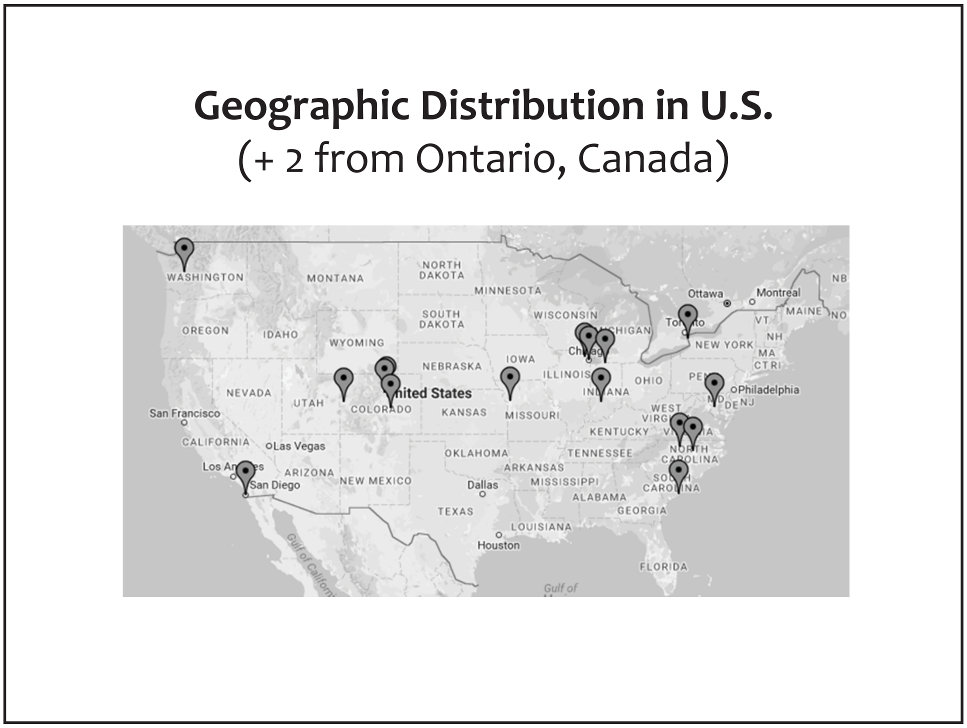


Agency Populations Represented & National Recognitions

17 Agency Key Informants

Agency	Population 2015	Gold Medal	CAPRA
Fruita, CO P&R	12,646		
Golden, CO P&R	18,867	X	X
Liberty, MO P&R	29,149		
Widefield School District 3, CO	51,281		
Broomfield, CO P&R	55,889		
Halton Hills P&R, ON Canada	56,809		
Arlington Heights P&R District, IL	76,024	X	
Bloomington P&R, IN	80,405	X	X
South Bend P&R, IN	101,168		X
Tacoma Metro Parks, Tacoma, WA	198,397		X
Greensboro P&R, NC	269,666	X	X
Charleston County P&R, SC	350,209		X
Raleigh P&R, NC	423,179	X	
Prince Georges County, MD	909,535	X	X
Chicago Park District, IL	2,695,598	X	X
San Diego County, CA	3,095,313	X	
Ontario, Canada	12,651,795		
Totals	**21,075,930**	**8**	**8**

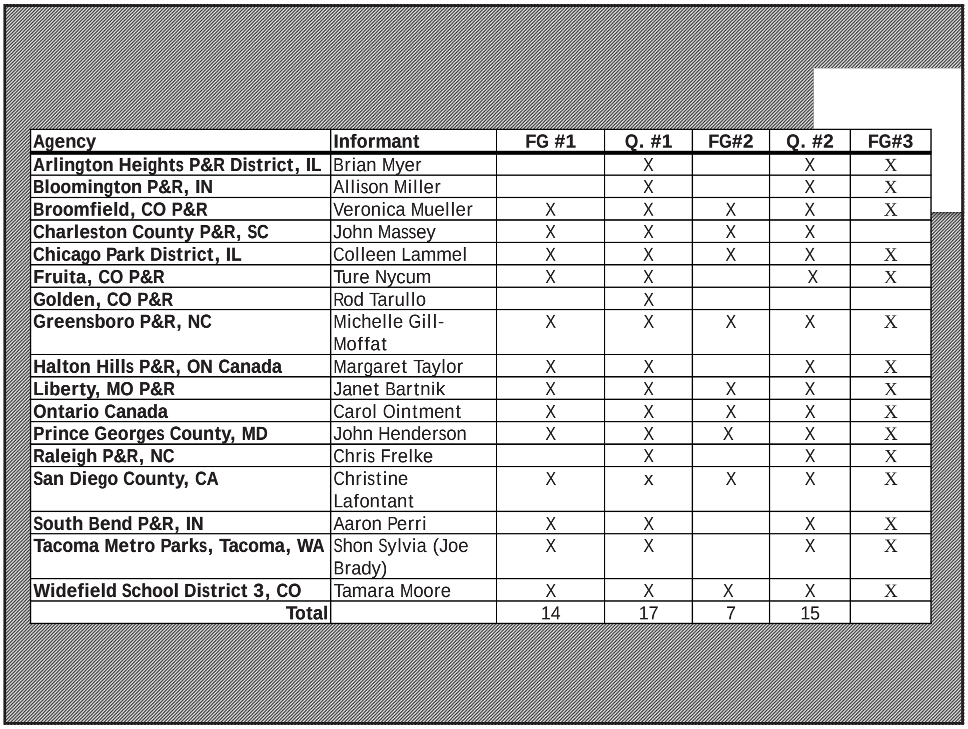


Geographic Distribution in U.S.

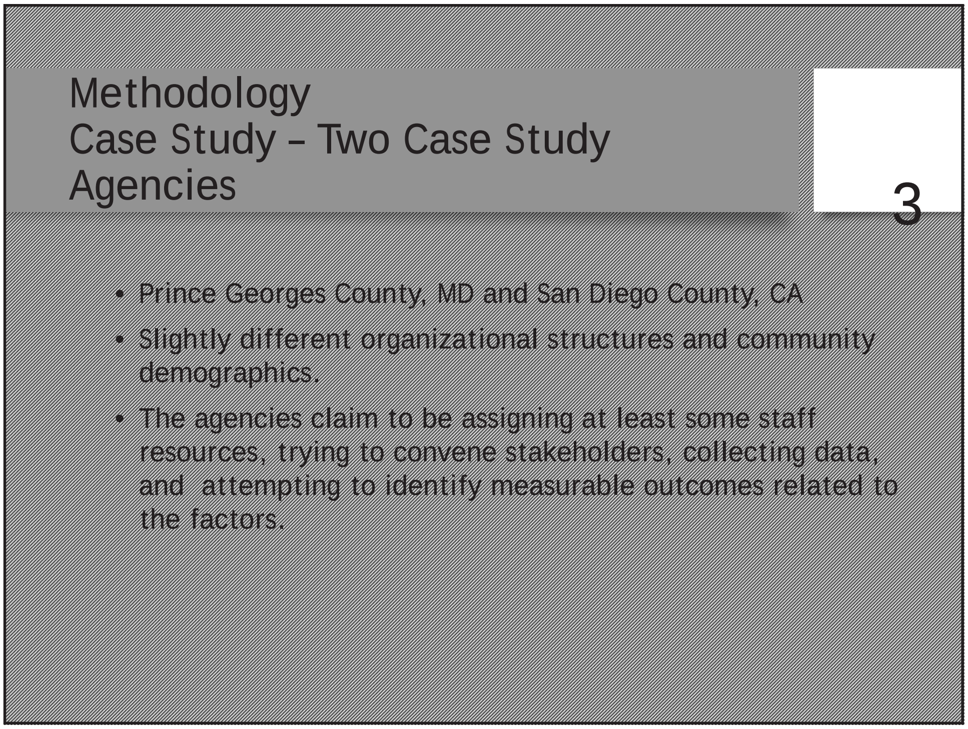
(+ 2 from Ontario, Canada)

WASHINGTON
MONTANA
NORTH DAKOTA
MINNESOTA
OREGON
IDAHO
SOUTH DAKOTA
WYOMING
WISCONSIN
MICHIGAN
Ottawa
Montreal
Toronto
NEW YORK
VT
NH
MAINE
MA
CT RI
NB
NO
NEBRASKA
IOWA
Chicago
ILLINOIS
INDIANA
OHIO
PE
Philadelphia
NJ
MD
DE
NEVADA
UTAH
United States
COLORADO
KANSAS
MISSOURI
WEST VIRGINIA
KENTUCKY
San Francisco
CALIFORNIA
Las Vegas
TENNESSEE
NORTH CAROLINA
Los Angeles
San Diego
ARIZONA
NEW MEXICO
OKLAHOMA
ARKANSAS
Dallas
MISSISSIPPI
ALABAMA
SOUTH CAROLINA
GEORGIA
TEXAS
LOUISIANA
Houston
FLORIDA
Gulf of California
Gulf of Mexico

Appendix H – Penbrooke Delphi Panel Presentation #3



Agency	Informant	FG #1	Q. #1	FG#2	Q. #2	FG#3
Arlington Heights P&R District, IL	Brian Myer		X		X	X
Bloomington P&R, IN	Allison Miller		X		X	X
Broomfield, CO P&R	Veronica Mueller	X	X	X	X	X
Charleston County P&R, SC	John Massey	X	X	X	X	
Chicago Park District, IL	Colleen Lammel	X	X	X	X	X
Fruita, CO P&R	Ture Nycum	X	X		X	X
Golden, CO P&R	Rod Tarullo		X			
Greensboro P&R, NC	Michelle Gill-Moffat	X	X	X	X	X
Halton Hills P&R, ON Canada	Margaret Taylor	X	X		X	X
Liberty, MO P&R	Janet Bartnik	X	X	X	X	X
Ontario Canada	Carol Ointment	X	X	X	X	X
Prince Georges County, MD	John Henderson	X	X	X	X	X
Raleigh P&R, NC	Chris Frelke		X		X	X
San Diego County, CA	Christine Lafontant	X	x	X	X	X
South Bend P&R, IN	Aaron Perri	X	X		X	X
Tacoma Metro Parks, Tacoma, WA	Shon Sylvia (Joe Brady)	X	X		X	X
Widefield School District 3, CO	Tamara Moore	X	X	X	X	X
Total		14	17	7	15	

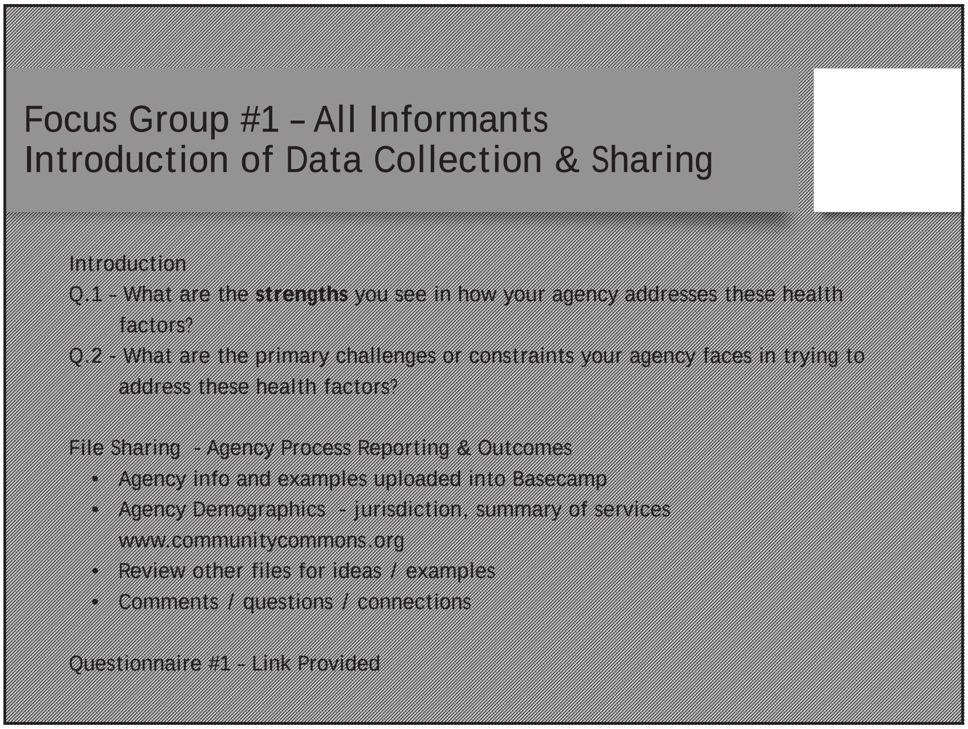


Methodology
Case Study – Two Case Study Agencies

3

- Prince Georges County, MD and San Diego County, CA
- Slightly different organizational structures and community demographics.
- The agencies claim to be assigning at least some staff resources, trying to convene stakeholders, collecting data, and attempting to identify measurable outcomes related to the factors.

Appendix H – Penbrooke Delphi Panel Presentation #3



Focus Group #1 – All Informants
Introduction of Data Collection & Sharing

Introduction

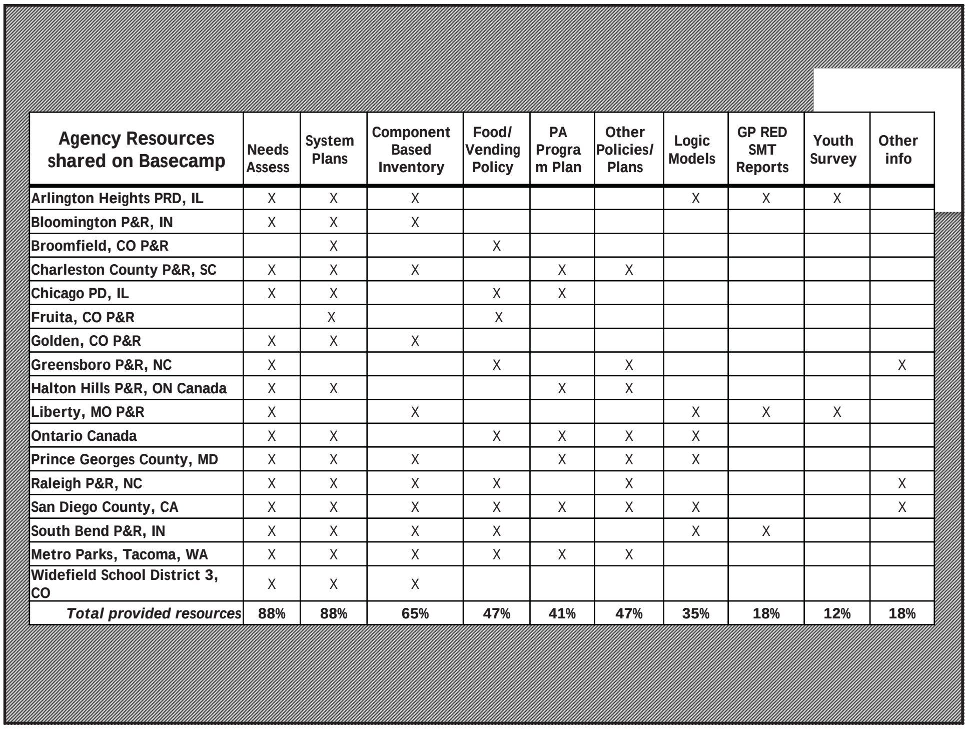
Q.1 - What are the **strengths** you see in how your agency addresses these health factors?

Q.2 - What are the primary challenges or constraints your agency faces in trying to address these health factors?

File Sharing - Agency Process Reporting & Outcomes

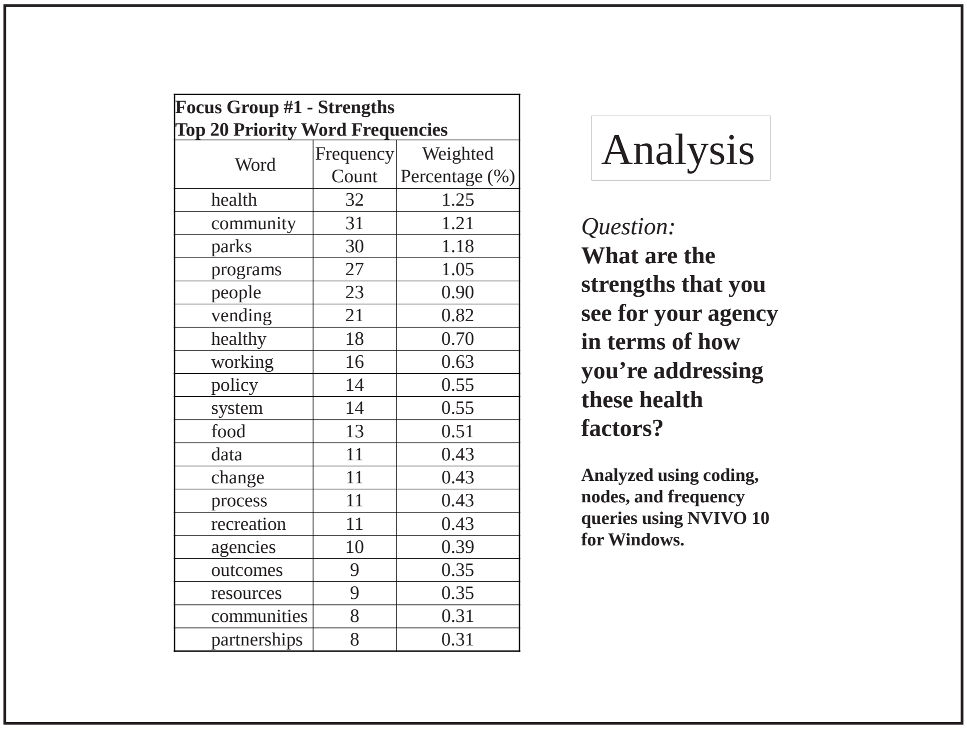
- Agency info and examples uploaded into Basecamp
- Agency Demographics - jurisdiction, summary of services www.communitycommons.org
- Review other files for ideas / examples
- Comments / questions / connections

Questionnaire #1 - Link Provided



Agency Resources shared on Basecamp	Needs Assess	System Plans	Component Based Inventory	Food/ Vending Policy	PA Progra m Plan	Other Policies/ Plans	Logic Models	GP RED SMT Reports	Youth Survey	Other info
Arlington Heights PRD, IL	X	X	X				X	X	X	
Bloomington P&R, IN	X	X	X							
Broomfield, CO P&R		X		X						
Charleston County P&R, SC	X	X	X		X	X				
Chicago PD, IL	X	X		X	X					
Fruita, CO P&R		X		X						
Golden, CO P&R	X	X	X							
Greensboro P&R, NC	X			X		X				X
Halton Hills P&R, ON Canada	X	X			X	X				
Liberty, MO P&R	X		X				X	X	X	
Ontario Canada	X	X		X	X	X	X			
Prince Georges County, MD	X	X	X		X	X	X			
Raleigh P&R, NC	X	X	X	X		X				X
San Diego County, CA	X	X	X	X	X	X	X			X
South Bend P&R, IN	X	X	X	X			X	X		
Metro Parks, Tacoma, WA	X	X	X	X	X	X				
Widefield School District 3, CO	X	X	X							
Total provided resources	**88%**	**88%**	**65%**	**47%**	**41%**	**47%**	**35%**	**18%**	**12%**	**18%**

Appendix H – Penbrooke Delphi Panel Presentation #3



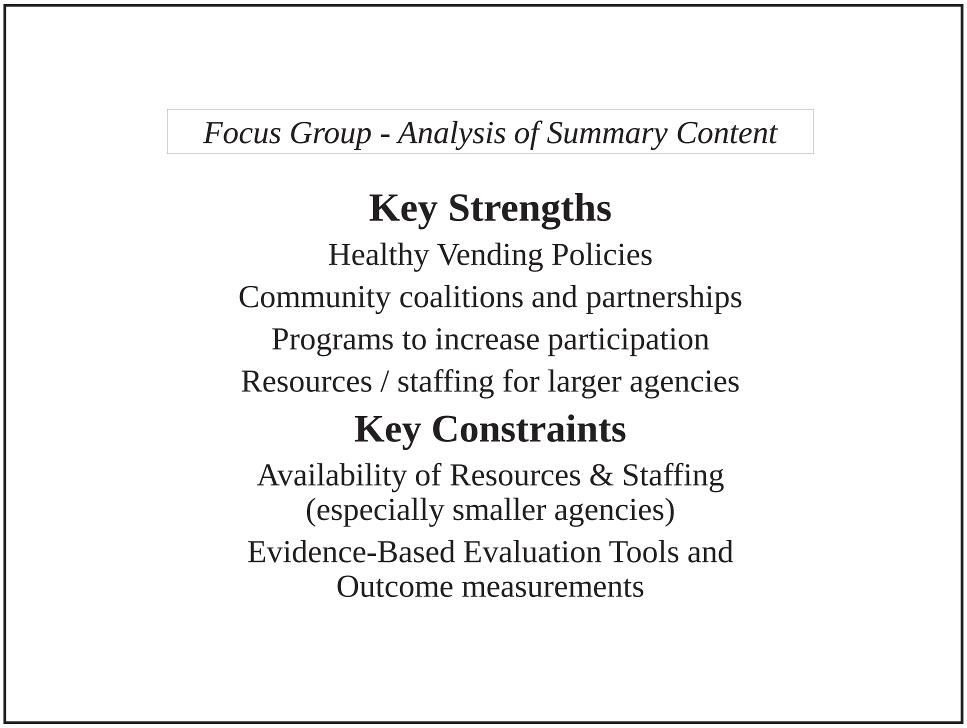
Focus Group #1 - Strengths
Top 20 Priority Word Frequencies

Word	Frequency Count	Weighted Percentage (%)
health	32	1.25
community	31	1.21
parks	30	1.18
programs	27	1.05
people	23	0.90
vending	21	0.82
healthy	18	0.70
working	16	0.63
policy	14	0.55
system	14	0.55
food	13	0.51
data	11	0.43
change	11	0.43
process	11	0.43
recreation	11	0.43
agencies	10	0.39
outcomes	9	0.35
resources	9	0.35
communities	8	0.31
partnerships	8	0.31

Analysis

Question:
What are the strengths that you see for your agency in terms of how you’re addressing these health factors?

Analyzed using coding, nodes, and frequency queries using NVIVO 10 for Windows.



Focus Group - Analysis of Summary Content

Key Strengths

Healthy Vending Policies

Community coalitions and partnerships

Programs to increase participation

Resources / staffing for larger agencies

Key Constraints

Availability of Resources & Staffing (especially smaller agencies)

Evidence-Based Evaluation Tools and Outcome measurements

Appendix H – Penbrooke Delphi Panel Presentation #3

Round #1 Questionnaire

- 17 agencies completed
- Agency info
- Experience of Informants
- Ranking of priority of health factors
- Effectiveness of methods currently used
- Outcomes

Agency	FG #1	Q. #1
Liberty, MO P&R		X
Raleigh P&R, NC		X
Greensboro P&R, NC	X	X
Prince Georges County, MD	X	X
San Diego County, CA	X	X
Chicago Park District, IL	X	X
Charleston County P&R, SC		X
Arlington Heights P&R District, IL	X	X
Bloomington P&R, IN		X
Widefield School District 3, CO	X	X
Broomfield, CO P&R	X	X
Fruita, CO P&R	X	X
Ontario Canada	X	X
South Bend P&R, IN	X	X
Metro Parks, Tacoma, WA	X	X
Golden, CO P&R	X	X
Halton Hills P&R, ON Canada	X	X
	13	17

Round #1 Questionnaire

N = 17

Background
Experience
Initial Factors
Ranking
Current Methods effectiveness

Q5 - Title / Role at Agency	**%**	**Count**
Director/Senior Manager	44%	8
Assistant Director/Assistant Manager	11%	2
Supervisor level (staff supervision, may be more than one program area)	33%	6
Coordinator/Programmer	6%	1
Instructor	0%	0
Volunteer	0%	0
Other:	11%	2
Wellness Manager	6%	1
Policy Advisor	6%	1

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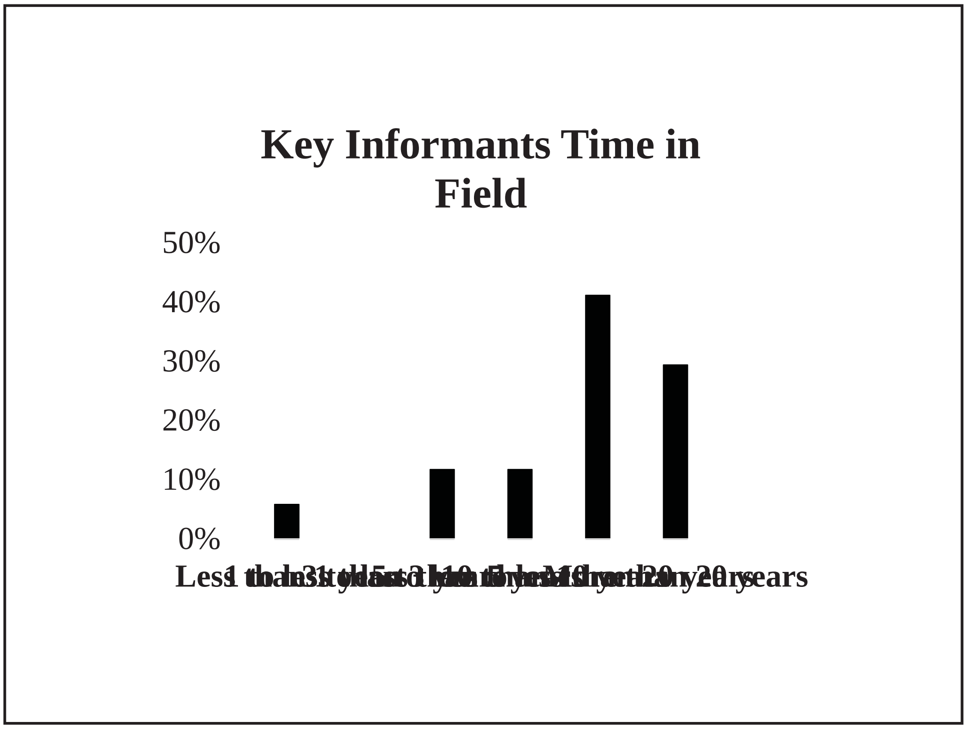

Key Informants Time in Field

Q. 9 - Ranked Priority of Health Factors

Priority of Factors	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**
Physical Activity	71%	18%	12%	0%	0%	0%	0%	0%
Safety or Perception of Safety	20%	20%	7%	20%	0%	13%	13%	7%
Nutrition / Food Availability	6%	6%	25%	31%	13%	6%	6%	6%
Transportation / Access	0%	7%	13%	0%	7%	60%	7%	7%
Social/Peer Engagement	0%	38%	13%	19%	25%	0%	6%	0%
Parental Engagement / Education	0%	7%	27%	7%	33%	20%	7%	0%
Other Factors	0%	20%	0%	20%	60%	0%	0%	0%

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Q. 9 Ranking of Factors
(1 is first)

Descriptive Statistics

	N	Min	Max	Mean	Std. Dev.
Physical Activity	17	1.00	3.00	1.41	0.69
Social/Peer Engagement	17	2.00	7.00	3.56	1.50
Safety or Perception of Safety	17	1.00	8.00	3.88	2.26
Nutrition / Food Availability	17	1.00	8.00	4.13	1.73
Other Factors	6	2.00	5.00	4.20	1.17
Parental Engagement / Education	16	2.00	7.00	4.53	1.41
Transportation / Access	16	2.00	8.00	5.47	1.54

Other Factors Addressed
(One mention each - priority)

Tobacco - Smoke Free / Vape Free - 2

Team Building Skills - 4

Stress Management - 5

Access to Nature - 5

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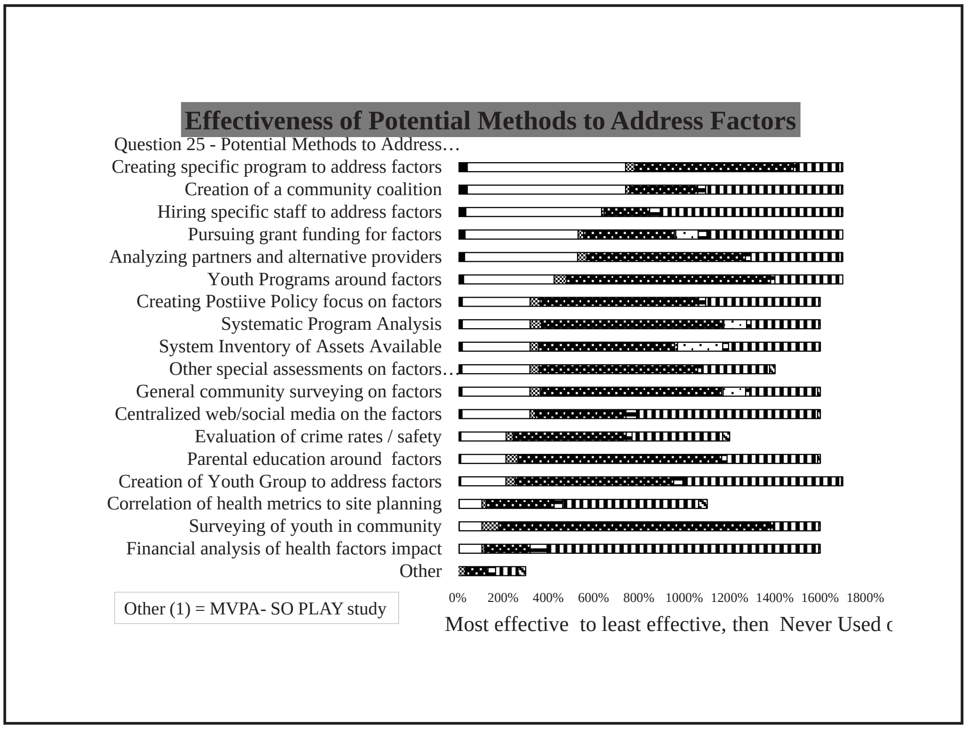
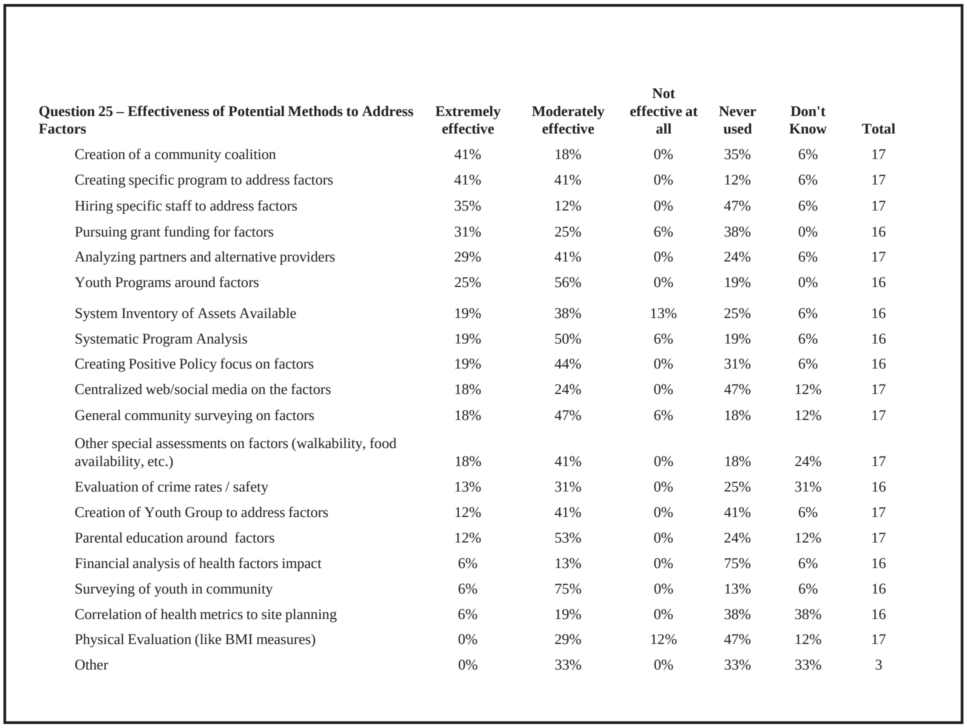


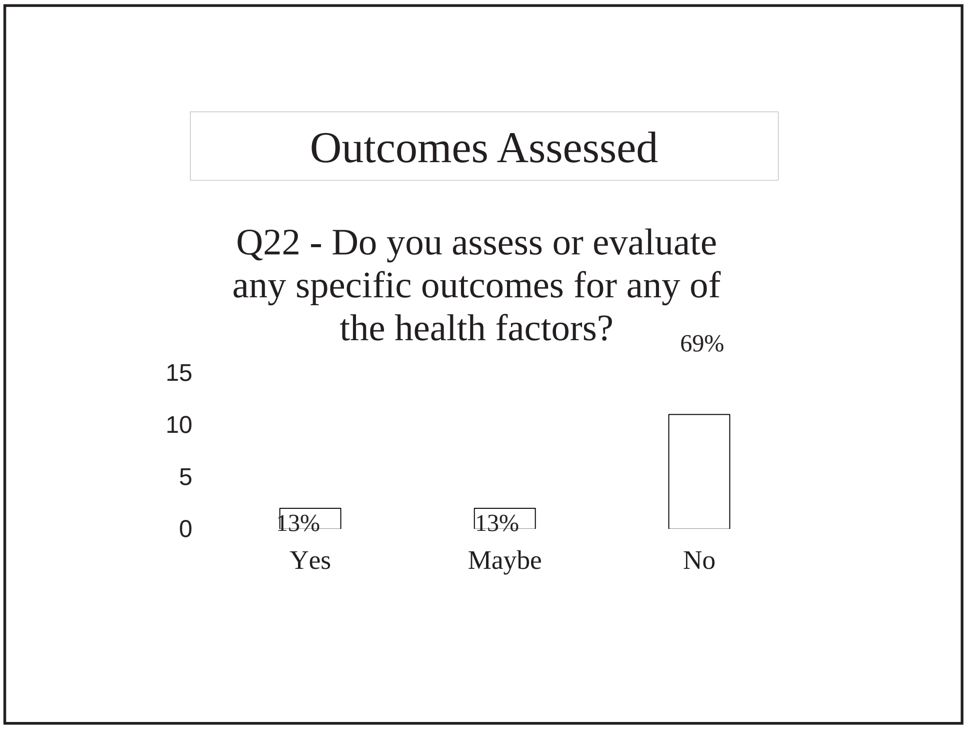
Effectiveness of Potential Methods to Address Factors

Other (1) = MVPA- SO PLAY study



Question 25 – Effectiveness of Potential Methods to Address Factors	Extremely effective	Moderately effective	Not effective at all	Never used	Don't Know	Total
Creation of a community coalition	41%	18%	0%	35%	6%	17
Creating specific program to address factors	41%	41%	0%	12%	6%	17
Hiring specific staff to address factors	35%	12%	0%	47%	6%	17
Pursuing grant funding for factors	31%	25%	6%	38%	0%	16
Analyzing partners and alternative providers	29%	41%	0%	24%	6%	17
Youth Programs around factors	25%	56%	0%	19%	0%	16
System Inventory of Assets Available	19%	38%	13%	25%	6%	16
Systematic Program Analysis	19%	50%	6%	19%	6%	16
Creating Positive Policy focus on factors	19%	44%	0%	31%	6%	16
Centralized web/social media on the factors	18%	24%	0%	47%	12%	17
General community surveying on factors	18%	47%	6%	18%	12%	17
Other special assessments on factors (walkability, food availability, etc.)	18%	41%	0%	18%	24%	17
Evaluation of crime rates / safety	13%	31%	0%	25%	31%	16
Creation of Youth Group to address factors	12%	41%	0%	41%	6%	17
Parental education around factors	12%	53%	0%	24%	12%	17
Financial analysis of health factors impact	6%	13%	0%	75%	6%	16
Surveying of youth in community	6%	75%	0%	13%	6%	16
Correlation of health metrics to site planning	6%	19%	0%	38%	38%	16
Physical Evaluation (like BMI measures)	0%	29%	12%	47%	12%	17
Other	0%	33%	0%	33%	33%	3

Appendix H – Penbrooke Delphi Panel Presentation #3



Outcomes Assessed

Q22 - Do you assess or evaluate any specific outcomes for any of the health factors?

Outcomes Assessment Methods

YES

- “For the Exercise is Medicine Programs, we conduct an initial pre-engagement assessment, then conduct regular assessments at three month intervals. Each assessment consists of individual physical tests to gauge advancement or decline.”
- “We measure BMI before and after program, self-reporting of weight, heart rate, diets, etc.”

MAYBE

- “We have a comprehensive evaluation strategy in place to monitor the outcomes of the Town's Active Living Strategy.”
- “We mostly track attendance numbers, but not factors such as BMI or behavior change.”

Outcomes Measured for	**%**
Nutrition	33%
Physical Activity	67%

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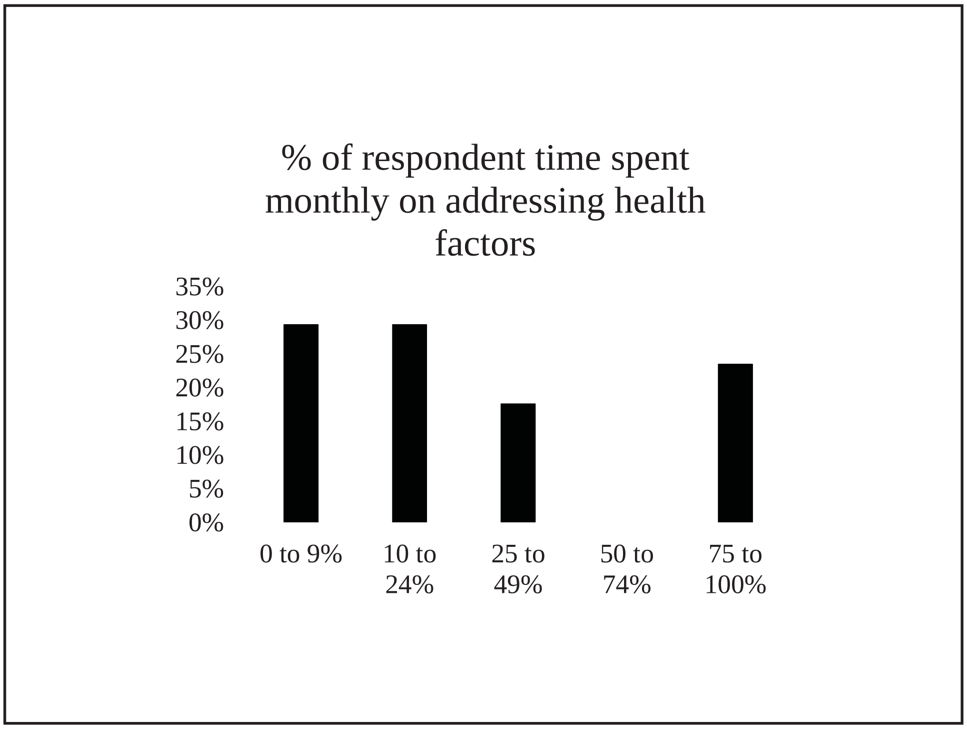
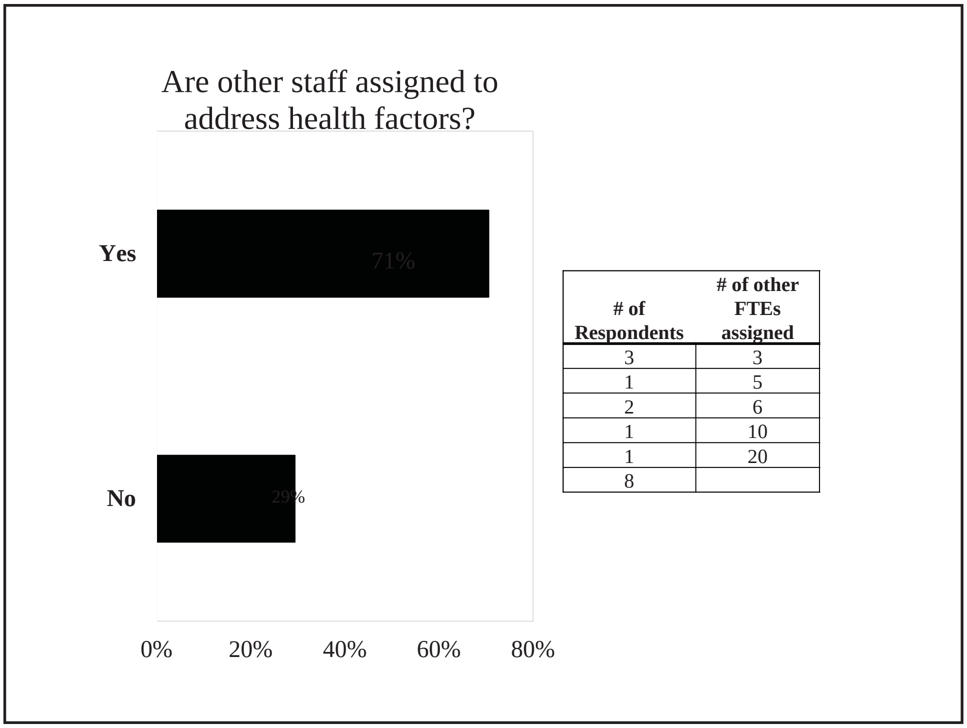


% of respondent time spent monthly on addressing health factors



Are other staff assigned to address health factors?

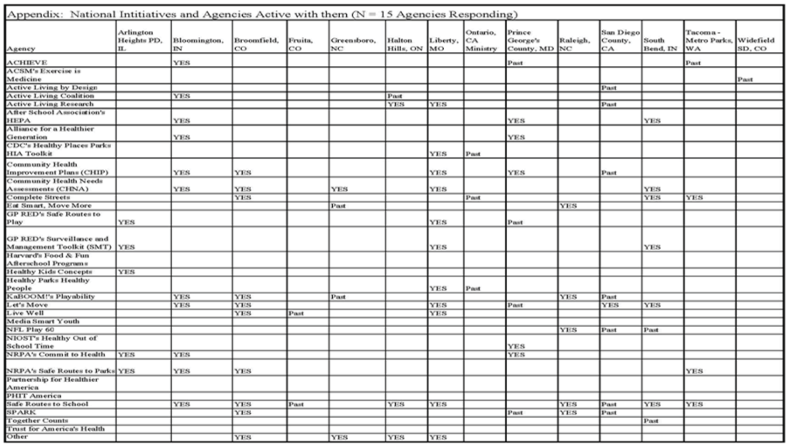
# of Respondents	# of other FTEs assigned
3	3
1	5
2	6
1	10
1	20
8	

Q33 - How difficult was it for you to complete this survey?

Answer	%	Count
Extremely easy	12%	2
Somewhat easy	35%	6
Neither easy nor difficult	6%	1
Somewhat difficult	41%	7
Extremely difficult	6%	1
Total		17

Questionnaire #2 – Delving more deeply into Initiatives, Factors, and Methods

31 National Initiatives Identified



Appendix: National Intitiatives and Agencies Active with them (N = 15 Agencies Responding)

Agency	Arlington Heights PD, IL	Bloomington, IN	Broomfield, CO	Fruita, CO	Greensboro, NC	Halton Hills, ON	Liberty, MO	Ontario, CA Ministry	Prince George's County, MD	Raleigh, NC	San Diego County, CA	South Bend, IN	Tacoma - Metro Parks, WA	Widefield SD, CO
ACHIEVE		YES							Past				Past	
ACSM's Exercise is Medicine														Past
Active Living by Design											Past			
Active Living Coalition		YES				Past								
Active Living Research						YES	YES				Past			
After School Association's HEPA		YES							YES			YES		
Alliance for a Healthier Generation		YES							YES					
CDC's Healthy Places Parks HIA Toolkit							YES	Past						
Community Health Improvement Plans (CHIP)		YES	YES				YES		YES		Past			
Community Health Needs Assessments (CHNA)		YES	YES		YES		YES					YES		
Complete Streets			YES					Past				YES	YES	
Eat Smart, Move More					Past					YES				
GP RED's Safe Routes to Play	YES						YES		Past					
GP RED's Surveillance and Management Toolkit (SMT)	YES						YES					YES		
Harvard's Food & Fun Afterschool Programs														
Healthy Kids Concepts	YES													
Healthy Parks Healthy People							YES	Past						
KaBOOM!'s Playability		YES	YES		Past					YES	Past			
Let's Move		YES	YES				YES		Past		YES	YES		
Live Well			YES	Past			YES							
Media Smart Youth														
NFL Play 60										YES	Past	Past		
NIOST's Healthy Out of School Time									YES					
NRPA's Commit to Health	YES	YES							YES					
NRPA's Safe Routes to Parks	YES	YES	YES										YES	
Partnership for Healthier America														
PHIT America														
Safe Routes to School		YES	YES	Past		YES	YES			YES	Past	YES	YES	
SPARK			YES						Past	YES	Past			
Together Counts												Past		
Trust for America's Health														
Other			YES		YES	YES	YES							

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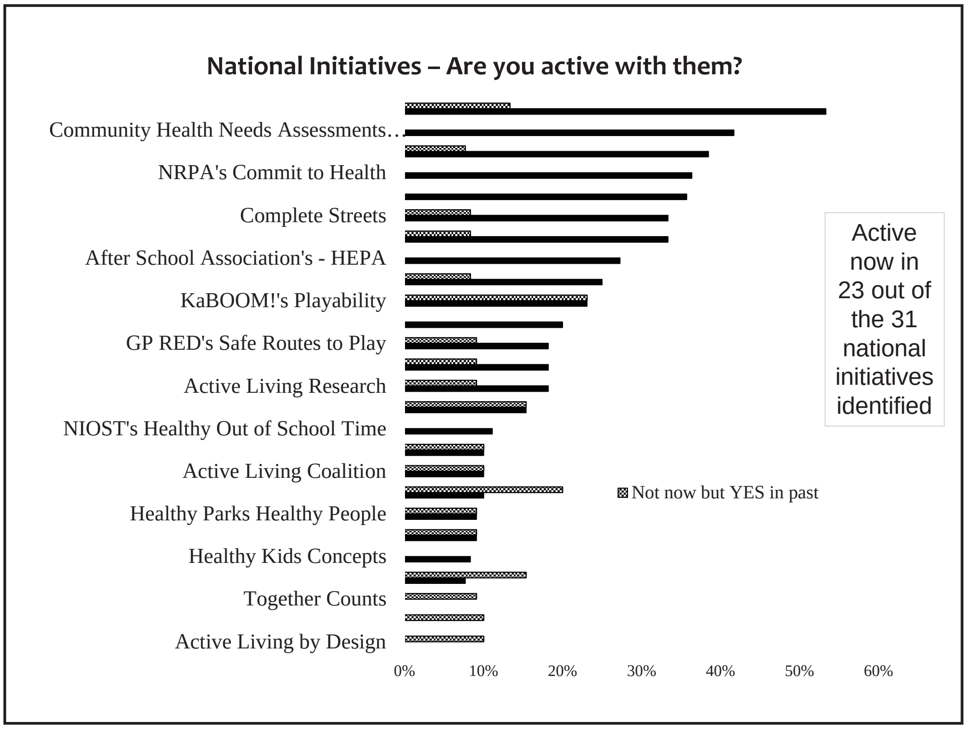
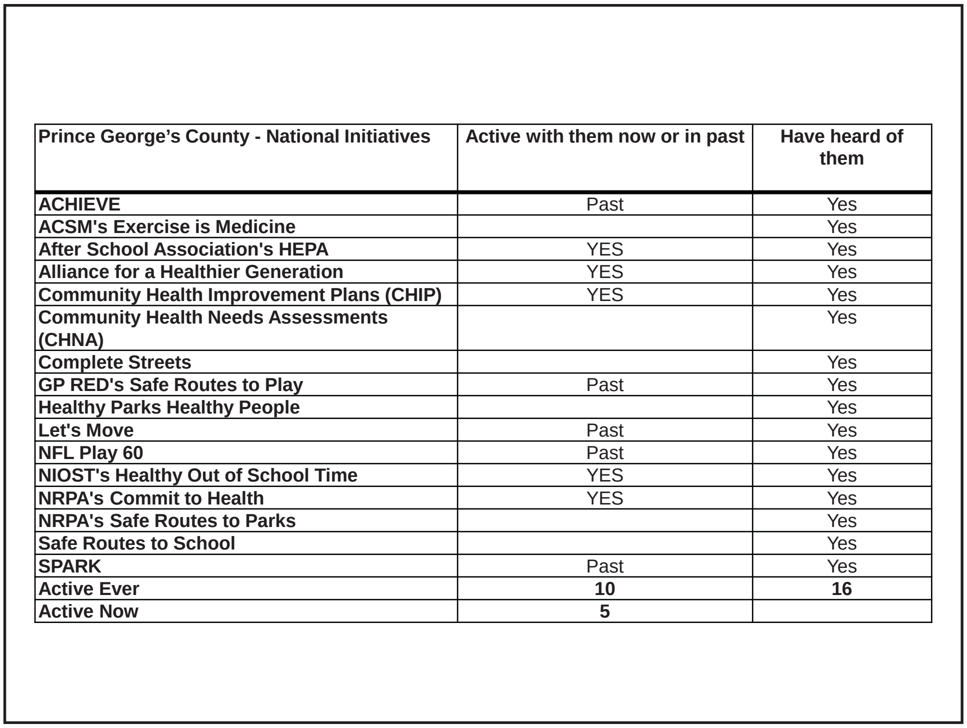
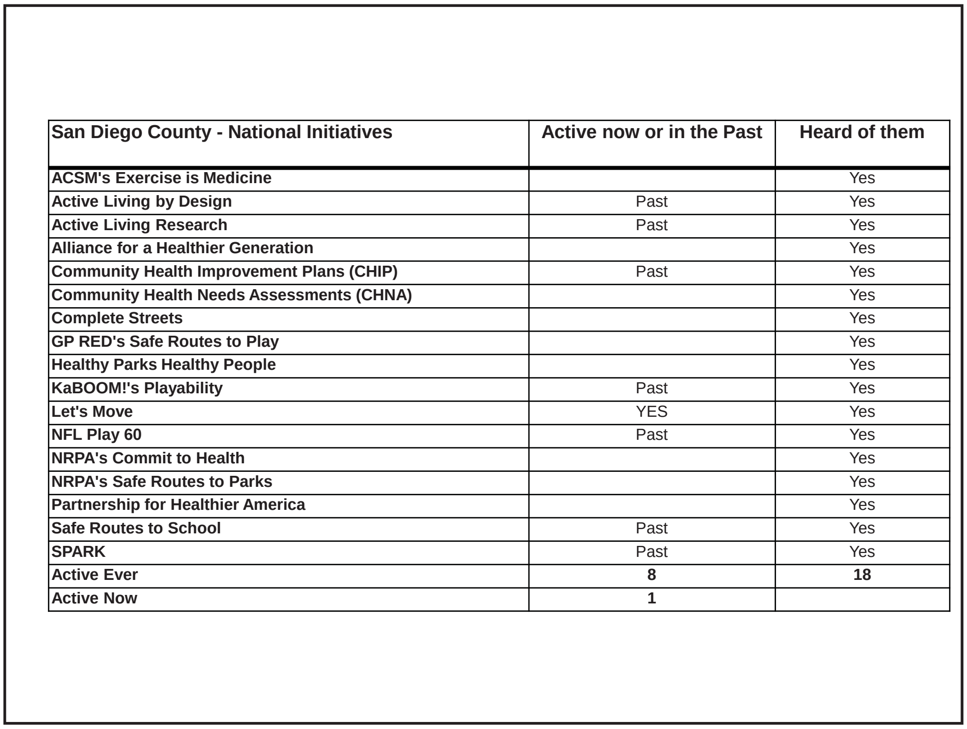


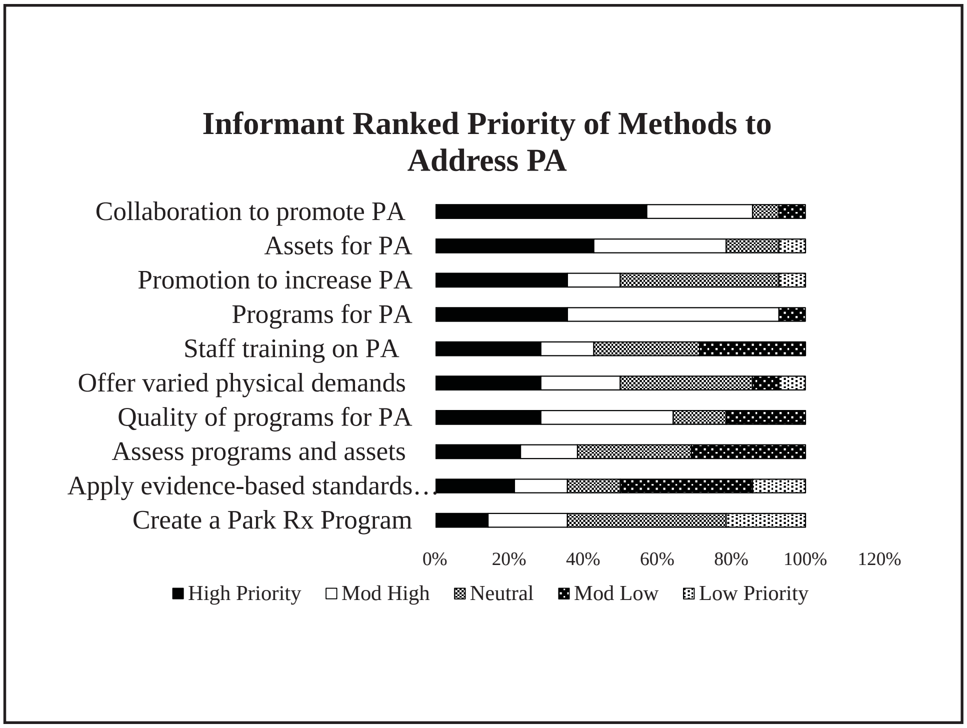


Prince George's County - National Initiatives	Active with them now or in past	Have heard of them
ACHIEVE	Past	Yes
ACSM's Exercise is Medicine		Yes
After School Association's HEPA	YES	Yes
Alliance for a Healthier Generation	YES	Yes
Community Health Improvement Plans (CHIP)	YES	Yes
Community Health Needs Assessments (CHNA)		Yes
Complete Streets		Yes
GP RED's Safe Routes to Play	Past	Yes
Healthy Parks Healthy People		Yes
Let's Move	Past	Yes
NFL Play 60	Past	Yes
NIOST's Healthy Out of School Time	YES	Yes
NRPA's Commit to Health	YES	Yes
NRPA's Safe Routes to Parks		Yes
Safe Routes to School		Yes
SPARK	Past	Yes
Active Ever	**10**	**16**
Active Now	**5**	

Appendix H – Penbrooke Delphi Panel Presentation #3



San Diego County - National Initiatives	Active now or in the Past	Heard of them
ACSM's Exercise is Medicine		Yes
Active Living by Design	Past	Yes
Active Living Research	Past	Yes
Alliance for a Healthier Generation		Yes
Community Health Improvement Plans (CHIP)	Past	Yes
Community Health Needs Assessments (CHNA)		Yes
Complete Streets		Yes
GP RED's Safe Routes to Play		Yes
Healthy Parks Healthy People		Yes
KaBOOM!'s Playability	Past	Yes
Let's Move	YES	Yes
NFL Play 60	Past	Yes
NRPA's Commit to Health		Yes
NRPA's Safe Routes to Parks		Yes
Partnership for Healthier America		Yes
Safe Routes to School	Past	Yes
SPARK	Past	Yes
Active Ever	**8**	**18**
Active Now	**1**	



Informant Ranked Priority of Methods to Address PA

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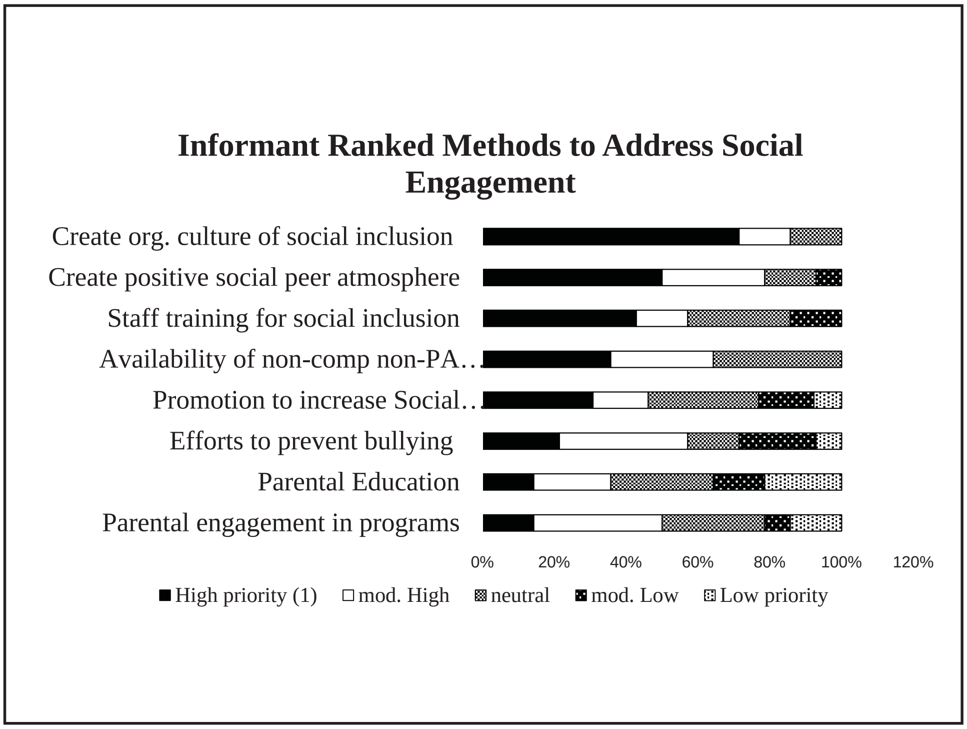
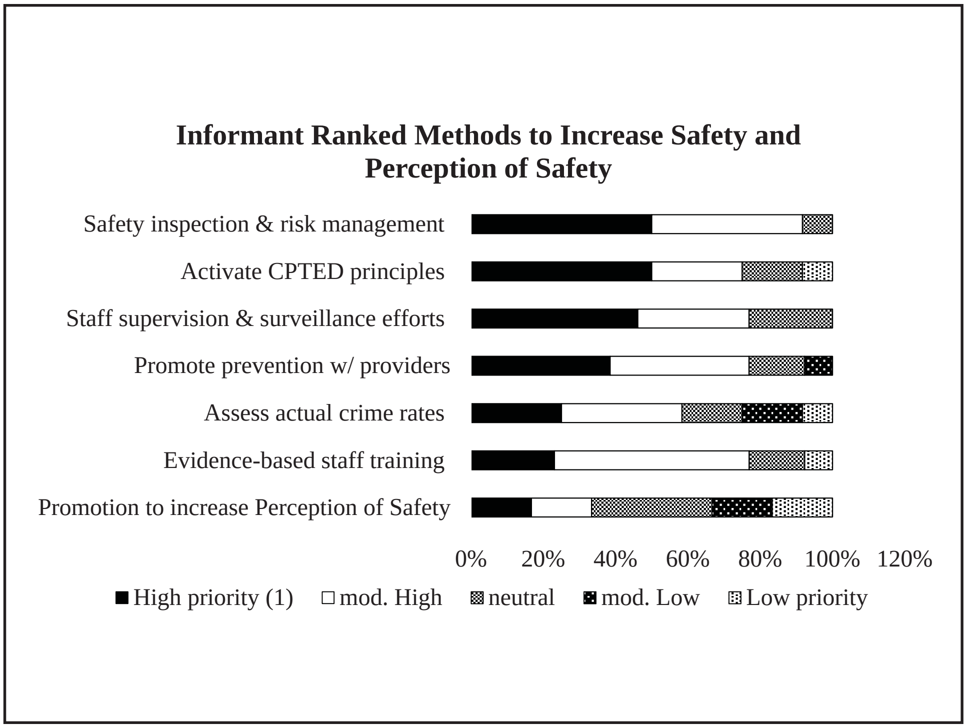
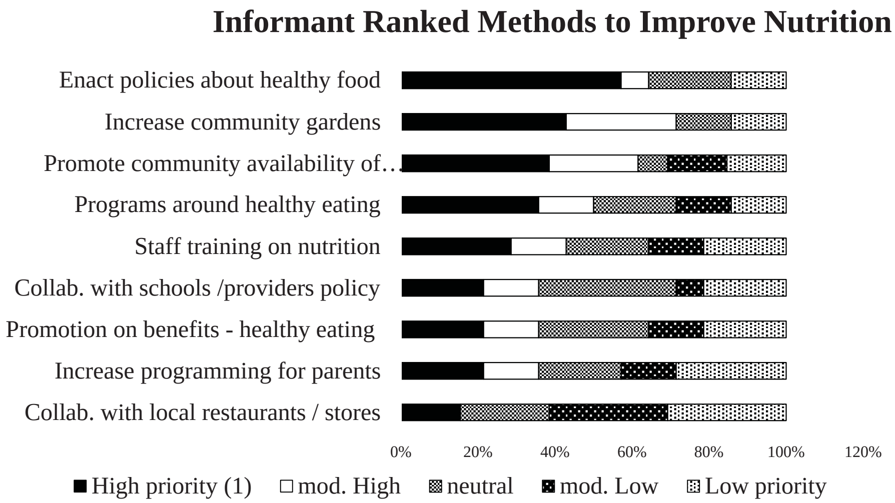


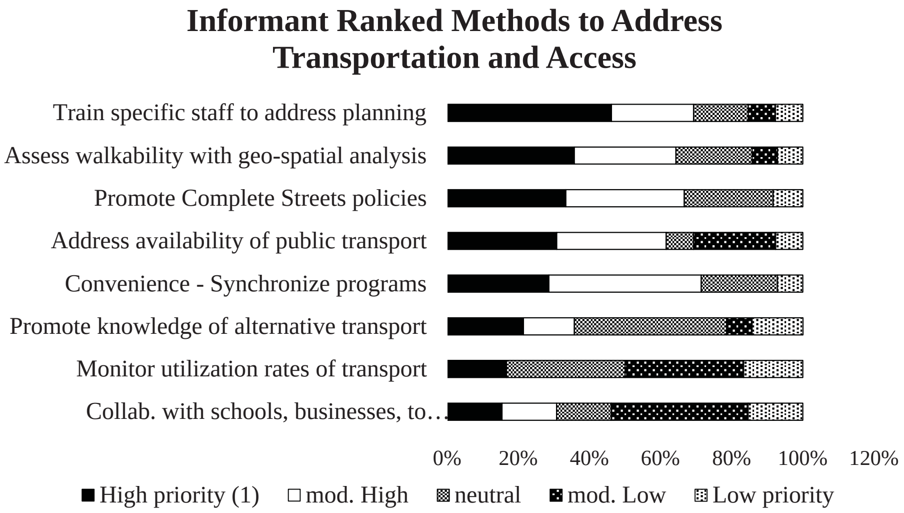
Informant Ranked Methods to Address Social Engagement



Informant Ranked Methods to Increase Safety and Perception of Safety

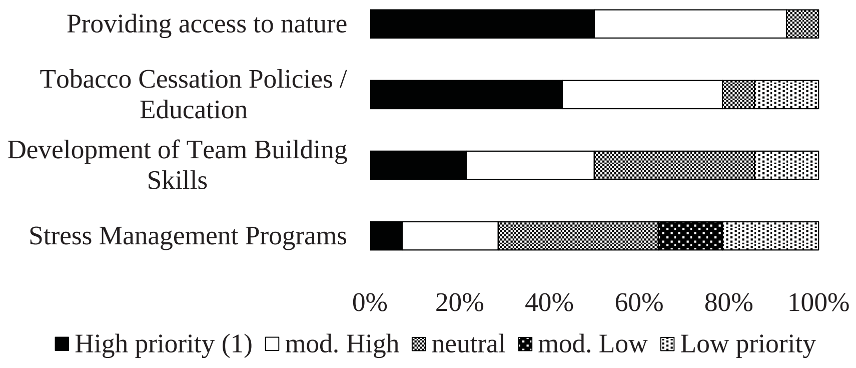
Appendix H – Penbrooke Delphi Panel Presentation #3


Informant Ranked Methods to Improve Nutrition

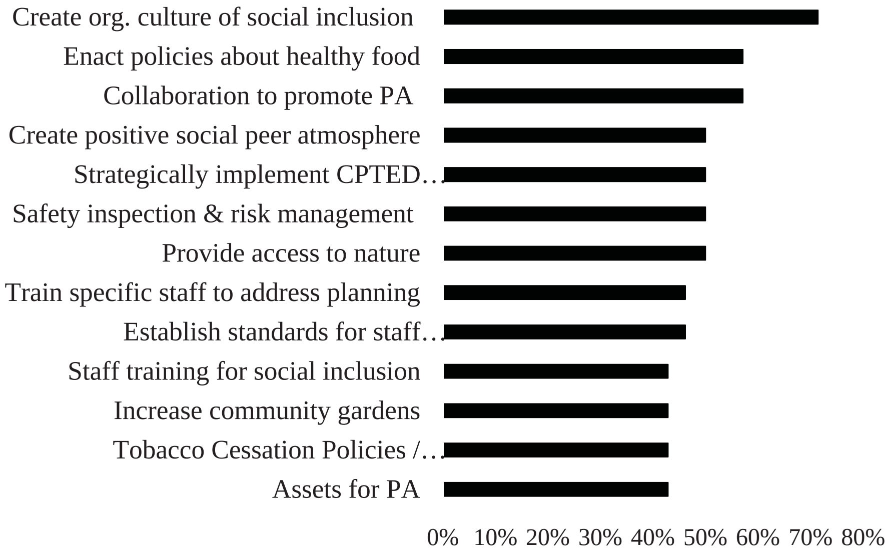

Informant Ranked Methods to Address Transportation and Access

Appendix H – Penbrooke Delphi Panel Presentation #3

Informant Priority Ranking of Other Factors to Address



Summary of Priority Methods to Address Health Factors Overall (Ranked #1 by > 40%)



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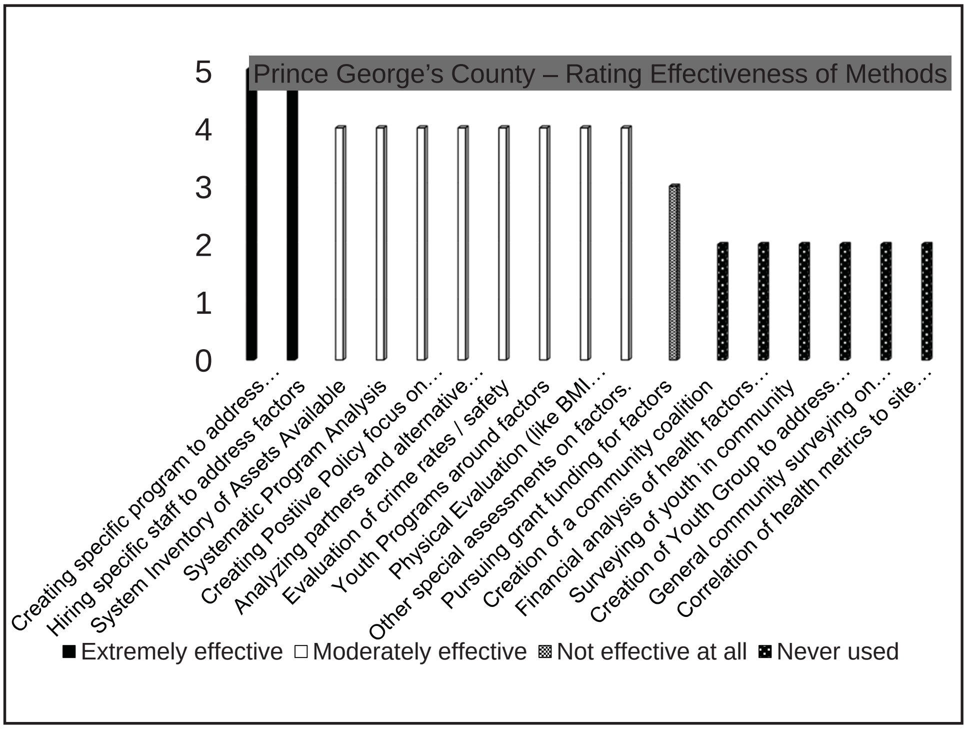
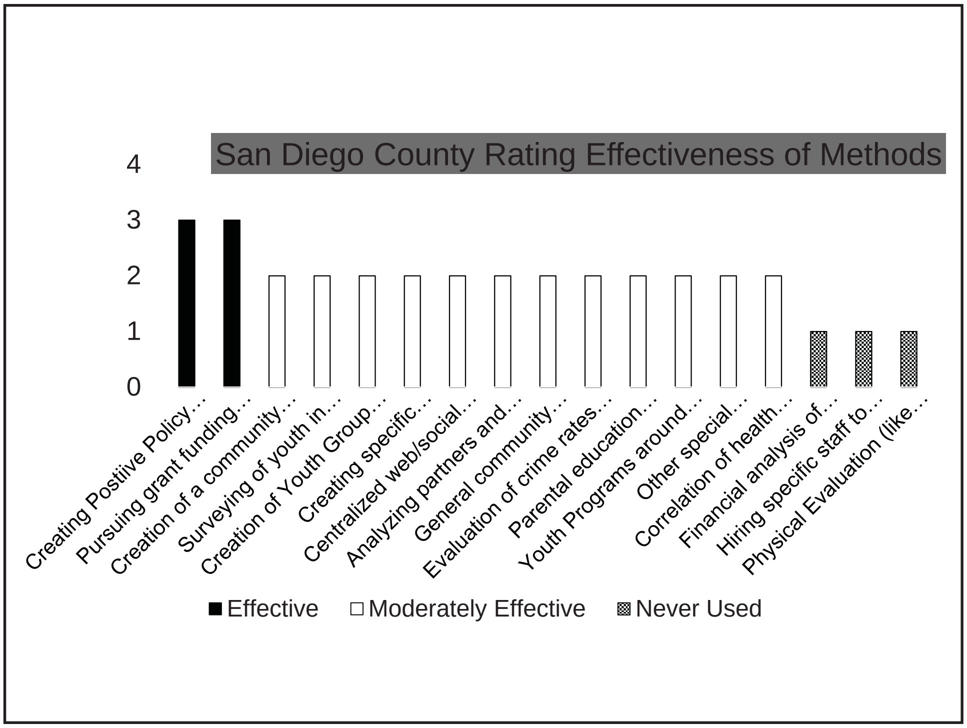
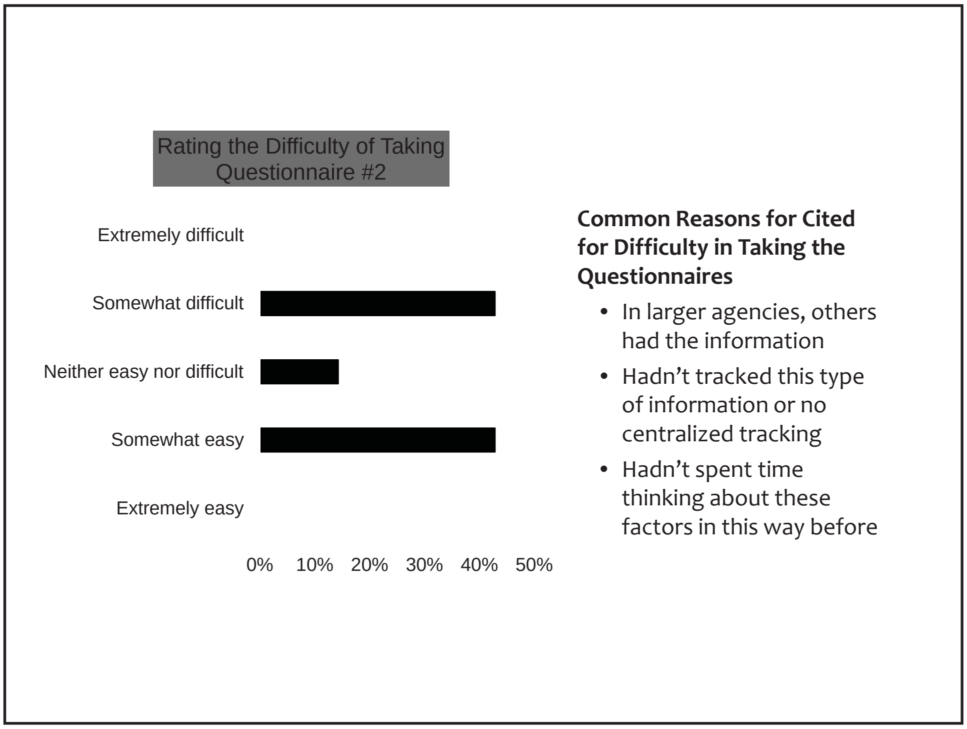


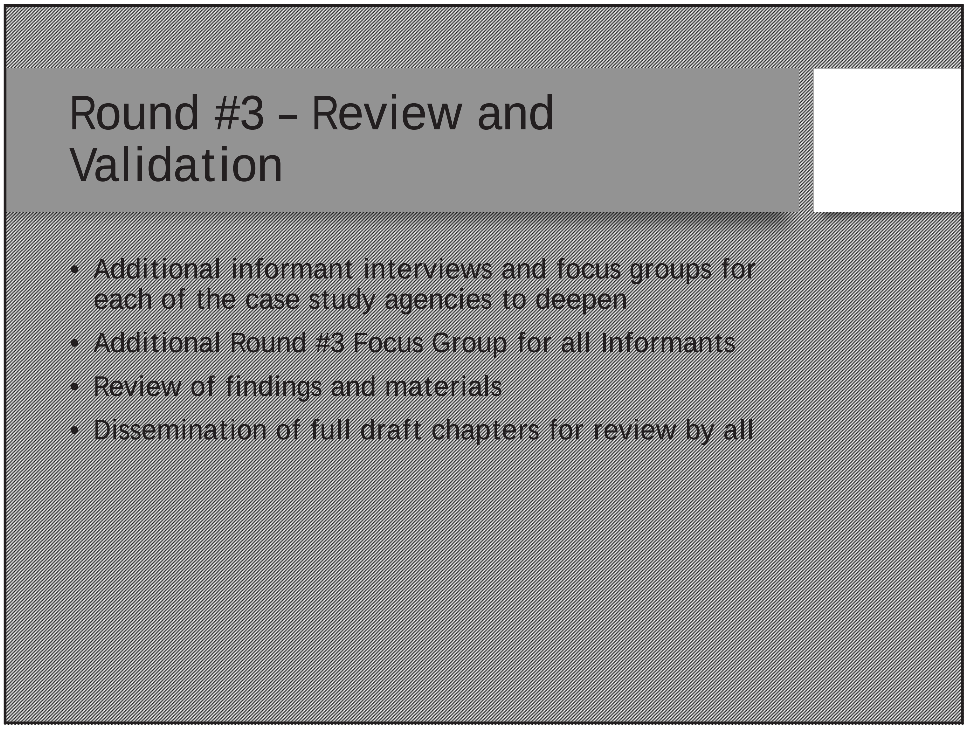


Appendix H – Penbrooke Delphi Panel Presentation #3



Common Reasons for Cited for Difficulty in Taking the Questionnaires

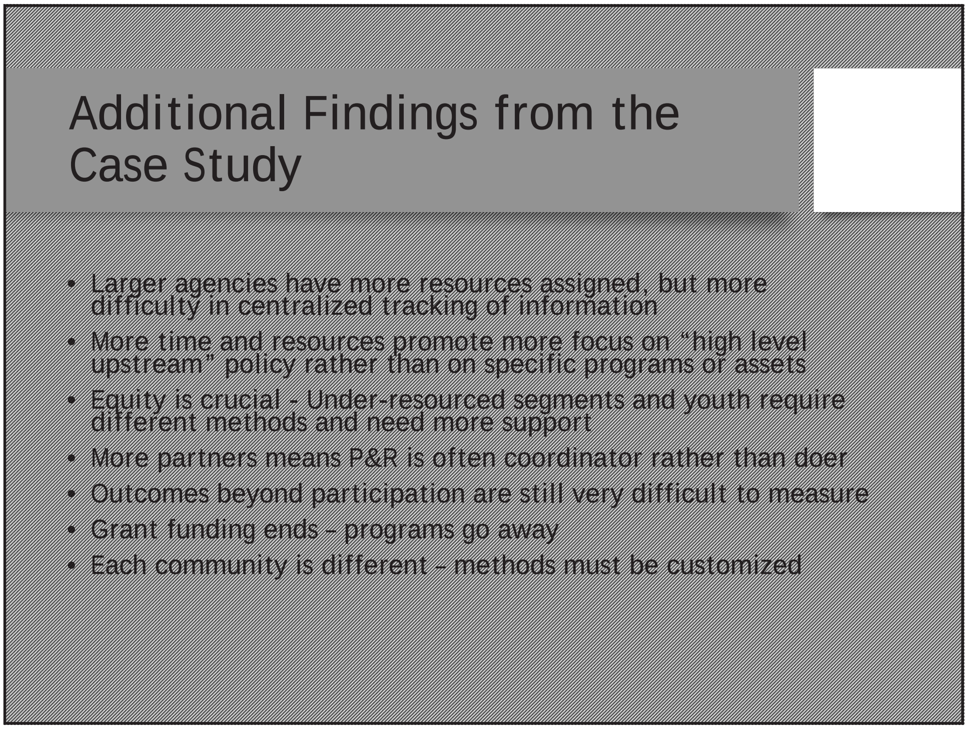
- In larger agencies, others had the information
- Hadn’t tracked this type of information or no centralized tracking
- Hadn’t spent time thinking about these factors in this way before



Round #3 – Review and Validation

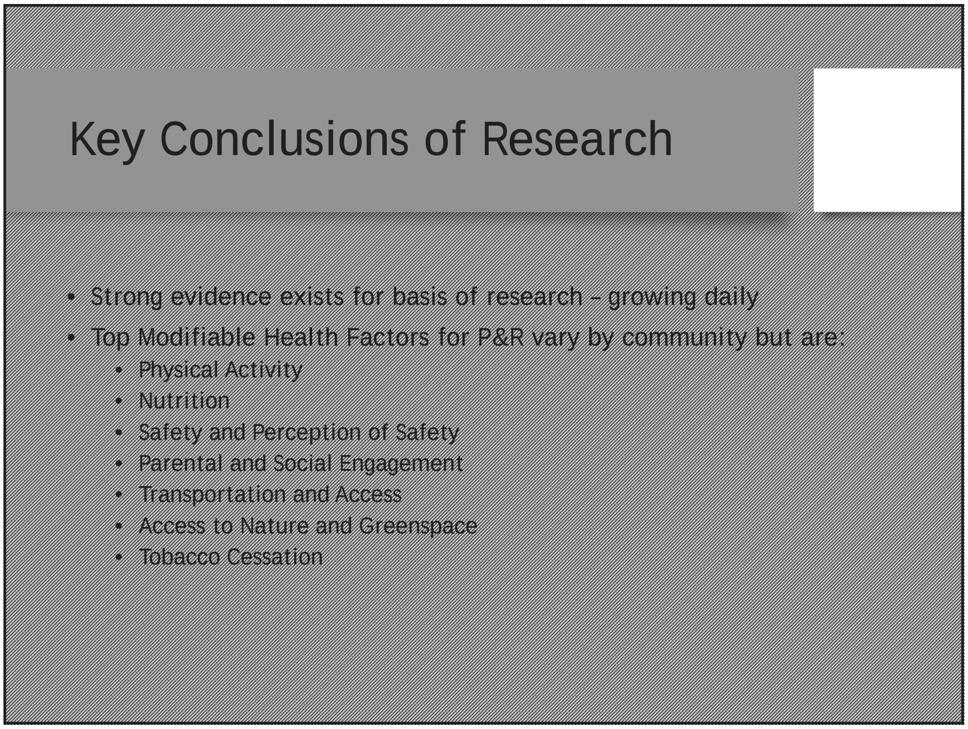
- Additional informant interviews and focus groups for each of the case study agencies to deepen
- Additional Round #3 Focus Group for all Informants
- Review of findings and materials
- Dissemination of full draft chapters for review by all

Appendix H – Penbrooke Delphi Panel Presentation #3



Additional Findings from the Case Study

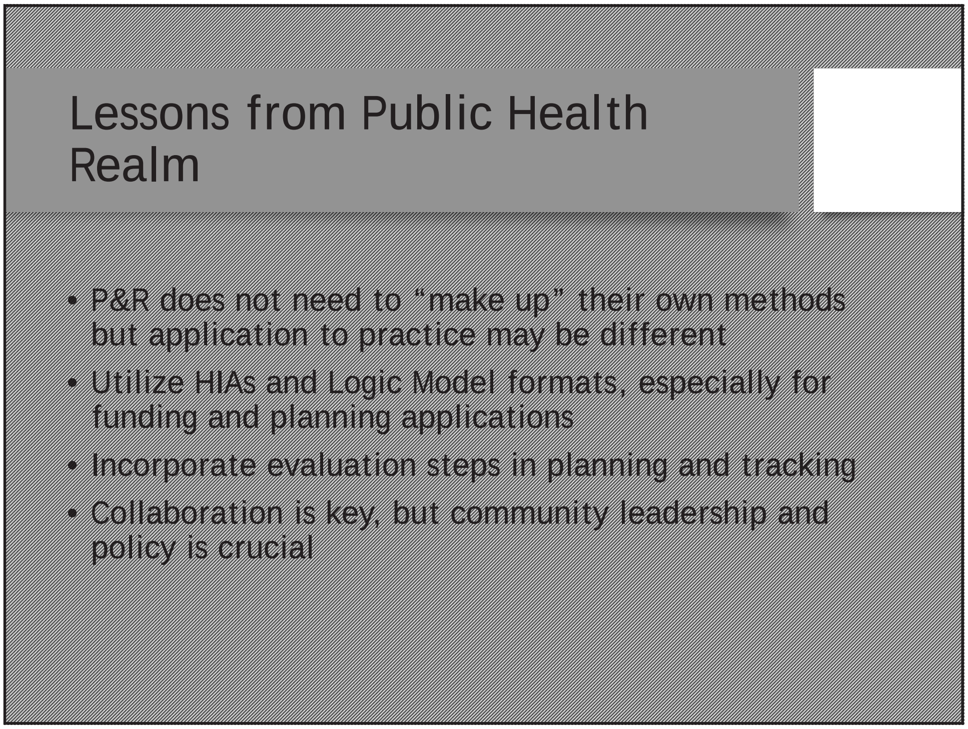
- Larger agencies have more resources assigned, but more difficulty in centralized tracking of information
- More time and resources promote more focus on “high level upstream” policy rather than on specific programs or assets
- Equity is crucial - Under-resourced segments and youth require different methods and need more support
- More partners means P&R is often coordinator rather than doer
- Outcomes beyond participation are still very difficult to measure
- Grant funding ends – programs go away
- Each community is different – methods must be customized



Key Conclusions of Research

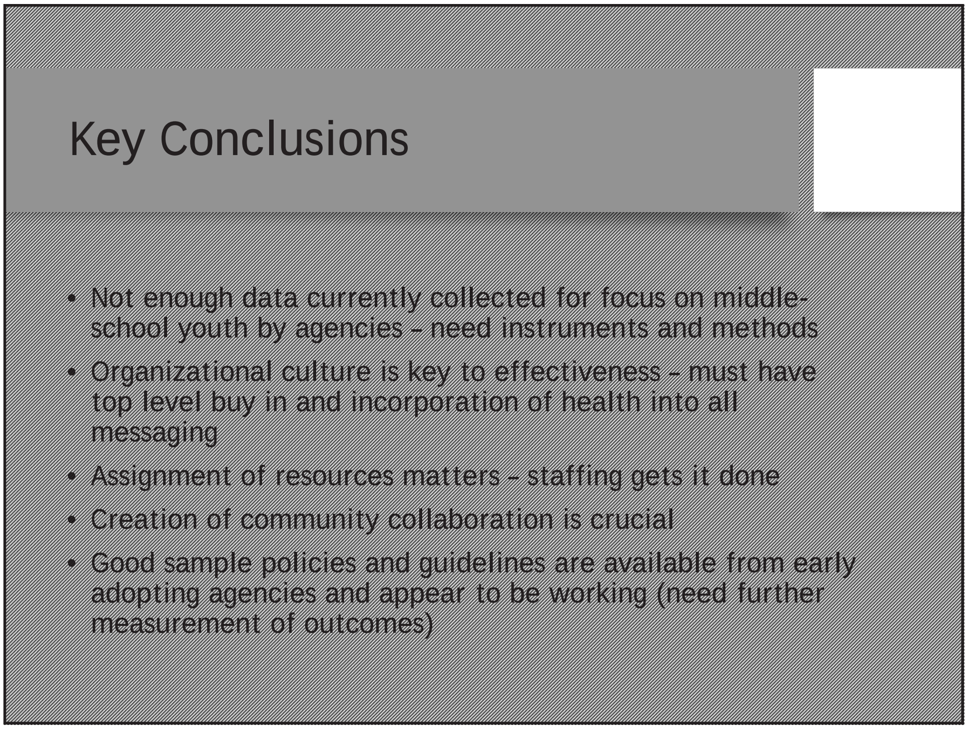
- Strong evidence exists for basis of research – growing daily
- Top Modifiable Health Factors for P&R vary by community but are:
  - Physical Activity
  - Nutrition
  - Safety and Perception of Safety
  - Parental and Social Engagement
  - Transportation and Access
  - Access to Nature and Greenspace
  - Tobacco Cessation

Appendix H – Penbrooke Delphi Panel Presentation #3



Lessons from Public Health Realm

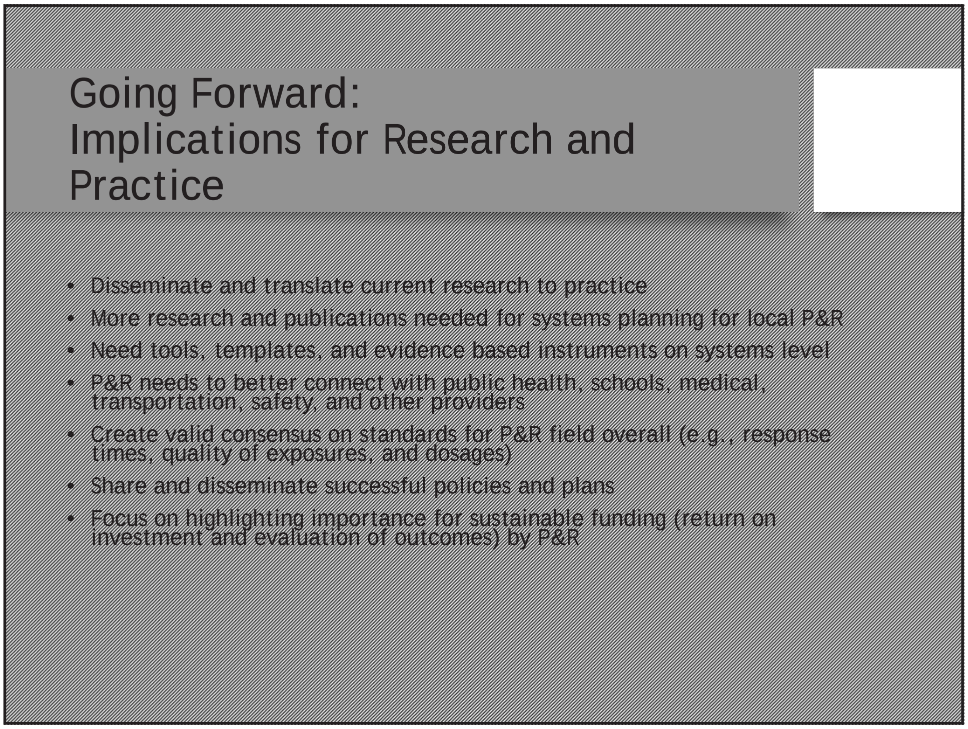
- P&R does not need to “make up” their own methods but application to practice may be different
- Utilize HIAs and Logic Model formats, especially for funding and planning applications
- Incorporate evaluation steps in planning and tracking
- Collaboration is key, but community leadership and policy is crucial



Key Conclusions

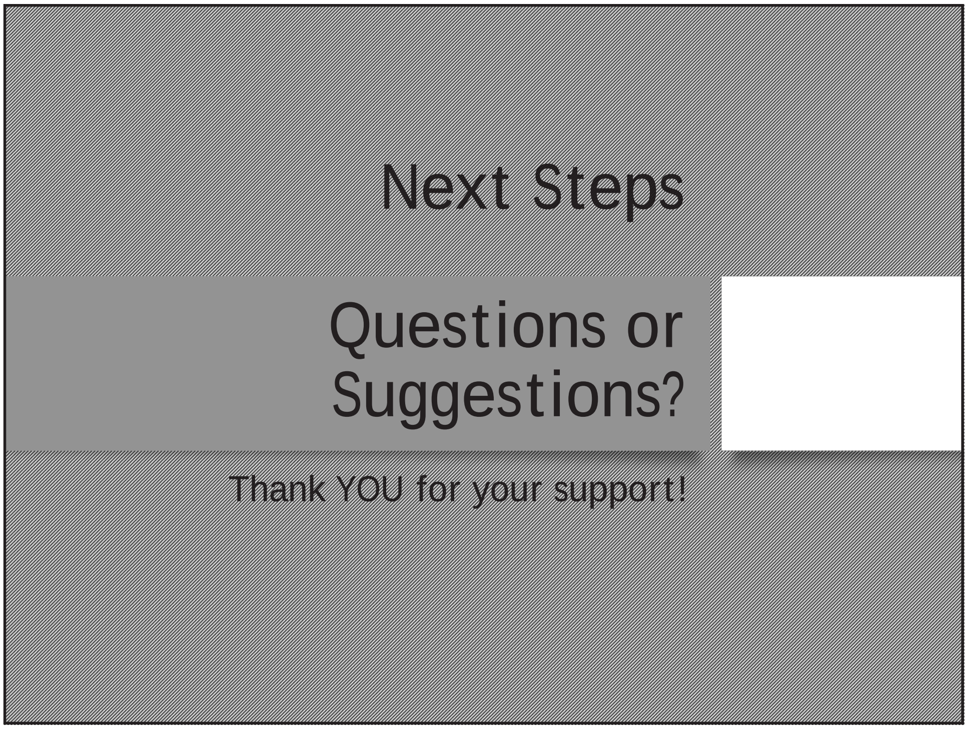
- Not enough data currently collected for focus on middle-school youth by agencies – need instruments and methods
- Organizational culture is key to effectiveness – must have top level buy in and incorporation of health into all messaging
- Assignment of resources matters – staffing gets it done
- Creation of community collaboration is crucial
- Good sample policies and guidelines are available from early adopting agencies and appear to be working (need further measurement of outcomes)

Appendix H – Penbrooke Delphi Panel Presentation #3



Going Forward: Implications for Research and Practice

- Disseminate and translate current research to practice
- More research and publications needed for systems planning for local P&R
- Need tools, templates, and evidence based instruments on systems level
- P&R needs to better connect with public health, schools, medical, transportation, safety, and other providers
- Create valid consensus on standards for P&R field overall (e.g., response times, quality of exposures, and dosages)
- Share and disseminate successful policies and plans
- Focus on highlighting importance for sustainable funding (return on investment and evaluation of outcomes) by P&R



Next Steps

Questions or Suggestions?

Thank YOU for your support!

APPENDIX I - Draft Key Delphi Study Informant Online Questionnaires Protocol

Penbrooke Dissertation:

1) Questionnaire #1 will be drafted online as follows in Qualtrics – not yet formatted.

Introduction Page

Thank you for agreeing to participate in this Delphi Study. The following questionnaire will ask you a variety of questions related to your role, your agency, the processes you use for decision making, the data you collect, and the outcomes that you are evaluating related to health factors that may be modifiable at a local parks and recreation level, related mostly to middle school youth. You have separately been provided a literature summary covering the key identified factors (nutrition, physical activity, transportation and access, perceptions of safety, social and parental engagement, etc.).

This questionnaire will likely take about 15 minutes to complete, and you can continue where you left off if interrupted, if you save each page. Please finish the survey by XX. You will receive a summary of the results. Thank you!

1. What is your Name and Agency?

   First, Last, Certifications/post-nominal designations
   Agency
   Title
   Mailing address –
   Street/City/State/Zip Email
   Phone

2. What is your Primary Level of position at your agency?

   Director/Senior Manager
   Assistant Director/Assistant Manager
   Supervisor level (includes staff supervision, may be more than one program area) Coordinator/Programmer (program/division/operational level)
   Instructor

Volunteer
Other: _______

3. How long have you been in your current position with your agency?

Less than 1 year
1 to less than 3 years
3 to less than 5 years
5 to less than 10 years
10 to less than 20 years. More than 20 years

4. How long have you been in the field of professional local government parks and recreation management?

Less than 1 year
1 to less than 3 years
3 to less than 5 years
5 to less than 10 years
10 to less than 20 years. More than 20 years

5. Which of the following potentially modifiable **health factors** does your agency try to address through parks and recreation programs, planning, partnerships and/or other methods? (check all that apply)

Nutrition
Physical Activity
Transportation
Social/Peer Engagement
Parental Engagement
Perception of Safety
Other: ______________________________________

6. What percentage of your time during an average monthly workload do you spend focused on addressing all of these health and wellness factors for your agency?

0 – 9%
10 – 24%
25 - 49%
50 – 74%
75-100%

7. Are other staff assigned/funded to work specifically on these factors for your agency?

   If so, please list:
   # of staff from your agency funded for this work _
   Estimated total hours worked in an average month by other staff in total
   on these factors for your agency _

8. Of that time spent in an average month, how much time of time from all agency staff do you estimate is spent specifically addressing any of the factors for middle-school aged youth?

   0 – 9%
   10 – 24%
   25 - 49%
   50 – 74%
   75 - 100%

9. Of the health factors that your agency tries to address, how do you do so? (write in answer for each:

   Nutrition
   Physical Activity
   Transportation
   Social/Peer Engagement
   Parental Engagement
   Perception of Safety
   Other: ______________________________________

10. Do you assess or evaluate outcomes for any of the health factors?

    Yes___No____

11. If yes, what types of tools or process do you use to evaluate them? (write in answer for each):

    Nutrition
    Physical Activity
    Transportation
    Social/Peer Engagement
    Parental Engagement
    Perception of Safety
    Other: ____

12. In the last year, have you documented any measurable outcomes for the factors?

Yes_ No_

13. If yes, what outcomes did you document? (write in any answers for each)?

Nutrition
Physical Activity
Transportation
Social/Peer Engagement
Parental Engagement
Perception of Safety
Other: ___________________________________

14. How hard or easy was this survey to complete? 1 = very hard, 5 = very easy

1 2 3 4 5

15. Do you have any other thoughts to share related to this study at this time?

Questions will be limited to 15 – 20 to promote compliance and completion. Names of informants will be identified in the study but answers will be aggregated to minimize specific agency identification or judgement of specific agencies in analysis. Specific positive innovations or outcomes may be highlighted by identifiers to provide credit to those agencies.

A second Questionnaire #2 will be created to include ranking/prioritization of factors and processes listed through Questionnaire. #1 (related specifically to Q.5) along with collecting additional open ended comments on challenges/opportunities for process/outcome evaluation. See Questionnaire #2 Protocol.

4) All Key Informants will receive and review summary results and any inaccuracies will be noted.

Case Study participants will participate in Quest. #1 and #2 also, and results will be analyzed both together and separately in subsequent focus groups for additional deepening of results.

Appendix J - Penbrooke Delphi Panel - Questionnaire #1

Q1 Introduction Thank you for agreeing to participate in this Delphi Study. The following questionnaire will ask you a variety of questions related to your role, your agency, the processes you use for decision making, the data you collect, and the outcomes that you are evaluating related to health factors that may be modifiable at a local parks and recreation level, related mostly to middle school youth. You have separately been provided a literature summary presentation covering the key identified factors (nutrition, physical activity, transportation and access, perceptions of safety, social and parental engagement, etc.). This questionnaire will likely take about 15 to 25 minutes to complete, and you can continue where you left off if interrupted, if you save each page. Please finish the survey by October 21st. You will receive a summary of the results prior to the next Focus Group #2. Thank you!

Q2 First Name

Q3 Last Name

Q4 Agency Name

Q5 Title / Role
- ☐ Director/Senior Manager (1)
- ☐ Assistant Director/Assistant Manager (2)
- ☐ Supervisor level (includes staff supervision, may be more than one program area) (3)
- ☐ Coordinator/Programmer (program/division/operational level) (4)
- ☐ Instructor (5)
- ☐ Volunteer (6)
- ☐ Other: (7) ____________________

Q8 Agency Address:
Street (1)
City (2)
State/Country (3)
Postal Code (4)
Phone Number (5)
Email Address (6)

Q10 How long have you been in your current position with your agency?
- ○ Less than 1 year (1)
- ○ 1 to less than 3 years (2)
- ○ 3 to less than 5 years (3)
- ○ 5 to less than 10 years (4)
- ○ 10 to less than 20 years (5)
- ○ More than 20 years (6)

Q12 How long have you been in the field of professional local government parks and recreation management?
- ○ Less than 1 year (1)
- ○ 1 to less than 3 years (2)
- ○ 3 to less than 5 years (3)
- ○ 5 to less than 10 years (4)
- ○ 10 to less than 20 years (5)
- ○ More than 20 years (6)

Q9 Which of the following potentially modifiable health factors does your agency try to address for Middle School youth (ages 10 - 15) through parks and recreation programs, planning, partnerships and/or other methods? Check all that apply and rank them in the order of current highest priority for you. 1 is the highest priority, and 8 being you do not address at all.
______ Nutrition / Food Availability (1)
______ Physical Activity (2)
______ Transportation / Access (3)
______ Social/Peer Engagement (4)
______ Parental Engagement / Education (5)
______ Safety or Perception of Safety (6)
______ Other Factor? (7)
______ Other Factor? (8)

Q13 If you address Nutrition / Food Availability through your work, please describe and provide examples of how your agency addresses this factor through methods, process, programs, collection of data, evaluation, and/or outcomes that are addressed. If you do not address this factor at all, please answer NA.

Q14 If you address Physical Activity through your work, please describe and provide examples of how your agency addresses this factor through methods, process, programs, collection of data, evaluation, and/or outcomes that are addressed. If you do not address this factor at all, please answer NA.

Q18 If you address Transportation / Access through your work, please describe and provide examples of how your agency addresses this factor through methods, process, programs, collection of data, evaluation, and/or outcomes that are addressed. If you do not address this factor at all, please answer NA.

Q19 If you address Social Peer to Peer Engagement through your work, please describe and provide examples of how your agency addresses this factor through methods, process, programs, collection of data, evaluation, and/or outcomes that are addressed. If you do not address this factor at all, please answer NA.

Q20 If you address Parental Engagement / Education through your work, please describe and provide examples of how your agency addresses this factor through methods, process, programs, collection of data, evaluation, and/or outcomes that are addressed. If you do not address this factor at all, please answer NA.

Q21 If you address any other potentially modifiable health factor through your work, please describe and provide examples of how your agency addresses this factor through methods, process, programs, collection of data, evaluation, and/or outcomes that are addressed. If you do not address any other factors at all, please answer NA.

Q22 Do you assess or evaluate any specific outcomes for any of the health factors from the last question?

○ Yes (1)
○ Maybe (please explain) (2) ____________________
○ No (3)

Answer If Do you assess or evaluate specific outcomes for any of the health factors from the last question? Yes Is Selected

Q24 If you assess or evaluate specific outcomes, which outcomes are you trying to measure? Select the factor(s) and write in a brief description of the measured outcome and any other info that seems relevant to you.

☐ Nutrition / Food Availability (1)
☐ Physical Activity (2)
☐ Transportation / Access (3)
☐ Social/Peer Engagement (4)
☐ Parental Engagement / Education (5)
☐ Safety or Perception of Safety (6)
☐ Other Factor? (7) ____________________
☐ Types of tools used for outcomes assessment (8) ____________________

Q25 The following list includes just some of the methods and tools identified from the literature that are being used to systematically address modifiable health factors through public parks and recreation. Please check any of the tools/methods that your agency has used in the last five years. (note, BMI means Body Mass Index , i.e.; do you measure specific individual physical characteristics?)

	Extremely effective (78)	Moderately effective (79)	Not effective at all (80)	Never used (81)	Don't Know (82)
System Inventory of Assets Available (1)	○	○	○	○	○
Systematic Program Analysis (2)	○	○	○	○	○
Creation of a community coalition (3)	○	○	○	○	○
Financial analysis of health factors impact (4)	○	○	○	○	○
Creating Postiive Policy focus on factors (5)	○	○	○	○	○
Surveying of youth in community (6)	○	○	○	○	○
Creation of Youth Group to address factors (7)	○	○	○	○	○
Creating specific program to address factors (8)	○	○	○	○	○
Centralized web/social media on the factors (9)	○	○	○	○	○
Hiring specific staff to address factors (10)	○	○	○	○	○

Analyzing partners and alternative providers (11)	○	○	○	○	○
Pursuing grant funding for factors (12)	○	○	○	○	○
General community surveying on factors (13)	○	○	○	○	○
Evaluation of crime rates / safety (14)	○	○	○	○	○
Parental education around factors (15)	○	○	○	○	○
Youth Programs around factors (16)	○	○	○	○	○
Physical Evaluation (like BMI measures) (17)	○	○	○	○	○
Other special assessments on factors (walkability, food availabiity, etc.) (18)	○	○	○	○	○
Correlation of health metrics to site planning (19)	○	○	○	○	○
Other (20)	○	○	○	○	○
Other (21)	○	○	○	○	○

Q26 What percentage of your time during an average monthly workload do YOU spend focused on addressing all of these health and wellness factors for your agency?

- ○ 0 – 9% (1)
- ○ 10 – 24% (2)
- ○ 25 - 49% (3)
- ○ 50 – 74% (4)
- ○ 75 - 100% (5)

Q28 Are other staff assigned/funded to work specifically on these factors for your agency?

- ○ No other staff are assigned or funded specifically for addressing these factors (1)
- ○ Yes, - Number of staff that are assigned (2) ____________________
- ○ Yes - Estimate the TOTAL number of hours from other staff (not you) that are allocated on an average monthly basis for your agency to specifically addressing these factors (Note to calculate: Full time is typically 160 hours per month) (3) ____________________
- ○ I don't know or other (explain) (4) ____________________

Q29 The Focus Group #1 Presentation included a variety of questions, some of which are not already covered in the previous questions here. Due to time constraints, we were not able to completely delve deeply into the responses. If you were not able to attend, or have additional answers to the following questions, essay response space is provided. Feel free to elaborate as much as you think will be helpful for this study and your peer Key Informants. Thank you for your attention to this!

Q30 What are the strengths you see in how your agency addresses the health factors?

Q31 What are the primary weaknesses (internal to your agency) or external challenges (threats) your agency faces in trying to address these health factors?

Q32 What are the opportunities you see for your agency in going forward related to systematic processes for addressing these factors?

Q33 How difficult was it for you to complete this survey?

- ○ Extremely easy (1)
- ○ Somewhat easy (2)
- ○ Neither easy nor difficult (3)
- ○ Somewhat difficult (4)
- ○ Extremely difficult (5)

Q34 Is there anything else we should consider around this research or questions you have at this time?

APPENDIX K – QUESTIONNAIRE #2 PROTOCOL

Questionnaire #2 – Penbrooke - Delphi Panel and Case Study #1)

Questions: Prioritization of process/application for Health Factors in Your Community

For the following potentially modifiable health factors identified in the literature, please rank from 1 to 5 (1 is most important, 5 is least important) for your agency to address for your community:

Factor	Operating Definition	Likert Scale
I. Nutrition regimen	A balanced intake of food that is comprised of various solids, liquids, fresh and prepared foods that provide the necessary daily nutrients for an active lifestyle and is culturally relevant.	1 2 3 4 5
II. Social / Parental interaction	Positive social relations with peers & adults in various settings. Engaging in social discourse. Developing and maintaining friendships with others.	1 2 3 4 5
III. Transportation services	Various modes of transportation of individuals or groups including vehicles offered by public, private or family members. Primarily used for getting youth to and from a program, event or activity.	1 2 3 4 5
IV. Physical activity	The array of opportunities in a community that require physical skills and capacities (e.g.) balance, strength, flexibility, etc.), and often specific venues in which to engage during free or discretionary time.	1 2 3 4 5
V. Safety	Perception of safety to participate in programs, activities, events, places, spaces (indoors or outdoors) that are not likely to cause avoidable harm, personal injury, or perceived threat of same.	1 2 3 4 5
VI. Other	Write in any other health factor and then rank: ______________________________	1 2 3 4 5

Section II: Indicators of Process for Addressing Health Factors

Nutrition regimen: Please rank the importance of these indicators as priority for your agency to address (1 is most important, 5 is least important for your agency)

Indicator	**Examples for Advancing Policies or Practice**	*Likert scale for each*
Availability of healthy food	Support and provide incentives for farmers' markets and grocery stores serving fresh food and healthy food.	1 2 3 4 5
Information, education and training	Increase programming and communication campaigns for healthy cooking, gardening, recipe testing, along with messaging about healthy eating consequences	
Healthy food/drink options	Limiting healthy food/drink at public agency venues or related agencies that are relevant.	
Collaboration with local restaurants	Affinity programs that indicate a healthy menu	
Community gardens	Increasing number of community gardens at several places in the service area and land them at a lower cost.	
Other	Other: ______________________________	

II. Social Interaction and Engagement: Please rank the importance of these indicators as priority for your agency to address (1 is most important, 5 is least important for your agency)

Indicator	**Examples for Advancing Policies or Process**	*Likert scale for each*
Efforts to prevent bullying and hazing	Establish programs, campaigns, etc. for those who are ostracized or socially isolated, and those who engage in bullying behaviors.	1 2 3 4 5
Non-competitive non-physical organized activity options	Encourage more youth to participate in non-competitive, non-physical activities to increase retention in programs/activities.	
Establish practices of social inclusiveness	Emphasize the virtue of friendships, teamwork, and a sense of belonging in the every program	
Positive social environment	Create positive atmosphere where all youth are welcomed, valorized and respected; Establish a strong policy strictly prohibiting bullying or hazing behaviors.	
Parental engagement programs/services	Offering programs, services and activities focused on increasing parental engagement and/or education.	
Other	Other: ____	

II. Transportation/Access to Services

Please rank the importance of these indicators as priority for your agency to address (1 is most important, 5 is least important for your agency)

Indicator	**Examples of Strategies for Advancing Policies & Practice**	*Likert scale for each*
Addressing accessibility, availability, and Interconnectivity of public transportation	Transportation in communities is multi-modal and requires close access, available when most needed, synchronized with programs, services and operating hours, and account for interconnectivity across the community at large.	1 2 3 4 5
Collaboration	Collaboration with schools, local businesses, and other agencies when utilizing public modes of transportation to and from agency facilities & programs	
Convenience	Synchronization programs, events, services, activities of the agency with other youth services	
Consumer knowledge of public transportation services	Information and training strategies to increase the level of awareness of public transportation to and from facilities, programs, events, services, activities	
Utilization rates	Monitor utilization rates by type of customer, location, mode of transportation, frequency, time/day, etc.	
Other Strategies	Other: ____	

III. Physical Activity

Please rank the importance of these indicators as priority for your agency to address (1 is most important, 5 is least important for your agency)

Indicator	Examples of Strategies for Advancing Policies and Practice	*Likert scale for each*
Quality of natural and built assets	Strategically increase the number of amenities, type, and invest more financial resources for maintenance	1 2 3 4 5
Varied physical demands of programs/services	Utilize analysis to examine the level of required physical skills in programs, events, activities, sport types by age, gender, etc. to sustained engagement across the lifespan	
Availability of assets/programs	Using GIS to document the location and operating hours/days of all natural and built assets programs, services, activities, events by age, program type, etc.	
Application of evidence based standards, practices by staff	Using national, state and other physical fitness standards seek to increase the physical capacity of each individual in community. Review and implement evidence based practices to increase physical capacity (aerobic, strength, flexibility, balance, etc.).	
Marketing and promotion of increased physical capacity	Utilize varying modes of increasing physical activity through collaboration, partnerships, sponsorships, campaigns to increase awareness of the vital role in personal and public health	
Other Strategies:	Other: ____	

IV. Safety and Perception of Safety

Please rank the importance of these indicators as priority for your agency to address (1 is most important, 5 is least important for your agency)

Indicator	Examples of Strategies for Advancing Policies and Practice	*Likert scale for each*
Assess crime rate at or near assets/programs	Collaborate with law enforcement to reduce crimes in areas managed by P & R. Install surveillance cameras, Hire police or security officers, CPTED principles or positive activation.	1 2 3 4 5
Parent/children perception of safety level	Make streetlights brighter, more people on trails, speed bumps near P&R buildings and pedestrian walkways.	
Prevention practices of direct and affiliated service providers	Staff training and communications for accident/injury free environment and safety education for participants	
Safety inspection & risk management	Conduct frequent and regular inspections to assure safe operations at facilities (built or natural) and in programs/events/services.	
Staff supervision & surveillance efforts	Establish standards for supervision & surveillance at all sponsored programs, events, activities as well as managed assets.	
Other Strategies	Other: ______________________________	

Appendix L - Penbrooke Delphi Panel - Questionnaire #2

Q1 Welcome to Questionnaire #2 for our Delphi Panel! As discussed during the Focus Group #2 presentation, for this questionnaire, you have been asked to review the material presented in Focus Groups #1 & #2, and the resources in the Basecamp files to help us "deepen" the findings and explore certain aspects of this research. This survey is not optimal for small screen mobile viewing, so a computer monitor or larger tablet is advised. This questionnaire is longer and will require deeper thought, but please complete as best possible, as it is the last big gathering of information from you directly (beyond your review input in Focus Group #3 and our review of your resources submitted) for this research study. Part of the goal of a Delphi Panel with Key Informants is for us all to learn from and deepen our understanding through this three-stage process. You can leave the survey and come back to complete, if needed. Just use the same computer on which you've started. Email with any questions. Thanks in advance for your attention and efforts!

Q4 What is your last name?

Q5 What is your agency name?

Q2 Were you able to participate in Focus Group #2?

○ Yes
○ No

Q3 Have you been able to review the data provided from the first stage of the Delphi Panel from the presentation for Focus Group #2? If not, you may want to take the time do do so now at: https://3.basecamp.com/3541923/buckets/1528344/uploads/306434665

○ Yes
○ Somewhat or mostly
○ No

Q6 The next section asks questions that were asked towards the end of Focus Group #2. Due to time mix-ups, some people were unable to participate (sorry for the mix-up!). If you DID NOT participate in Focus Group #2 for whatever reason, please answer the following two question blocks as best you can. If you DID participate, feel free to elaborate here, or if you said all you had to say, simply skip through these next two question blocks without additional answering.

Q7 What made it easy or difficult for you to answer Questionnaire #1?

Q8 What did you think of the summary of information presented in Focus #2? Were there any surprises? Did it make you think of any additional methods, tools, outcomes or resources you would add now? What do you think of the rank order of the data presented in the graphs? Do they ring true to you based on your experience? Any additional thoughts or suggestions? Please write as much detail as you think will help inform the study.

Q9 Participation or Benefit from National Initiatives Which national or international programs / initiatives related to the addressing the primary potentially modifiable Health Factors identified through Questionnaire #1 (nutrition, physical activity, safety, transportation, parental and social engagement, mental health such as access to nature and/or stress management, tobacco cessation, etc.), especially as related to middle school youth, are you familiar with? Does your agency currently participate in their initiatives (or have in the past)? Any comments?

	Are you Active with them?			Are you familiar with them?		Any additional comments?
	YES	Not now but YES in past	NO	Yes	No	Comments
ACHIEVE	○	○	○	○	○	
Active Living Coalition	○	○	○	○	○	
Active Living by Design	○	○	○	○	○	
ACSM’s Exercise is Medicine	○	○	○	○	○	
Active Living Research	○	○	○	○	○	
After School Association’s – Healthy Eating Physical Activity Standards (HEPA)	○	○	○	○	○	
Alliance for a Healthier Generation	○	○	○	○	○	
CDC's Healthy Places Parks HIA Toolkit	○	○	○	○	○	
Community Health Improvement Plans (CHIP)	○	○	○	○	○	
Community Health Needs Assessments (CHNA)	○	○	○	○	○	
Complete Streets	○	○	○	○	○	
Eat Smart, Move More	○	○	○	○	○	
GP RED’s Surveillance and Management Toolkit (SMT)	○	○	○	○	○	

GP RED’s Safe Routes to Play	○	○	○	○	○	
Harvard’s Food & Fun Afterschool Programs	○	○	○	○	○	
Healthy Kids Concepts	○	○	○	○	○	
Healthy Parks Healthy People	○	○	○	○	○	
KaBOOM!’s Playability	○	○	○	○	○	
Let’s Move	○	○	○	○	○	
Live Well	○	○	○	○	○	
Media Smart Youth	○	○	○	○	○	
NIOST’s Healthy Out of School Time	○	○	○	○	○	
NFL Play 60	○	○	○	○	○	
NRPA’s Commit to Health	○	○	○	○	○	
NRPA’s Safe Routes to Parks	○	○	○	○	○	
Partnership for Healthier America	○	○	○	○	○	
PHIT America	○	○	○	○	○	
Safe Routes to School	○	○	○	○	○	
SPARK	○	○	○	○	○	
Together Counts	○	○	○	○	○	
Trust for America’s Health	○	○	○	○	○	
Other	○	○	○	○	○	

Q10 Of the national initiatives and programs listed, which have been the most effective or helpful for your agency and why? Anything else you care to comment on about these national initiatives?

Q11 Methods for Addressing the Various Health Factors The following questions are now related to deepening the answers related to the tools, methods, and/or indicators that you consider most effective for addressing the top five primary modifiable health factors, presented in the order as they were identified in Stage 1 of the Delphi Panel.

Q13 Physical Activity (PA) The following section gives methods, tools, or actions that are examples from the literature and other organizations for how your agency might address the potentially modifiable health factors. Please rank them from 1 to 5 in terms of whether you feel these are a priority for your agency.

	How much of a priority are these methods for your agency to address? - 1 is high, 5 is least					Not sure	Any additional Comments?
	High priority (1)	somewhat high (2)	neutral (3)	somewhat low (4)	low priority (5)	Don't Know?	Why or Why not?
Availability of Assets for PA - Strategically increase the number, locations, type, and maintenance of amenities and components that encourage PA	○	○	○	○	○	○	
Availability of Programs encouraging PA - Strategically increase the number, locations, and type of programs that encourage PA	○	○	○	○	○	○	
Quality of programs for PA - The program's physical activity offerings support the USDHHS 2008 guidelines recommending that all children and youth obtain at least 60 minutes of PA per day that includes a mixture of moderate and vigorous intensity activity as well as	○	○	○	○	○	○	

bone and muscle strengthening activities.							
Offer varied physical demands of programs/services - Utilize analysis to examine the level of required physical skills in programs, events, activities, sport types by age, gender, etc. to sustained engagement across the lifespan	○	○	○	○	○	○	
Staff training - Specific staff participate in learning about physical activity using effective training models and using content that is evidence-based.	○	○	○	○	○	○	
Monitor and assess programs and assets - Document the location, hours/days, and use of natural and built assets programs, services, activities, events by age, program type, etc.	○	○	○	○	○	○	
Application of evidence based standards to increase individual physical capacity - Using national, state, and other physical fitness standards to seek to increase the physical capacity (aerobic, strength, flexibility, balance, reduced weight, etc.) of individuals in	○	○	○	○	○	○	

community.							
Collaboration with other organizations - Offer or advertise programs that promote PA managed by others beyond those the agency can provide.	○	○	○	○	○	○	
Create a Park Prescription (Park Rx) Program - Work with healthcare organizations and physicians to enable them to “prescribe” agency programs or assets that enhance PA.	○	○	○	○	○	○	
Marketing and promotion to increase PA - Utilize varying campaigns to increase PA through increased awareness of the vital role in personal and public health (signage, messaging, wayfinding kiosks, etc.)	○	○	○	○	○	○	
Other	○	○	○	○	○	○	

Q16 Social - Peer and Parental Engagement -The following section gives methods, tools, or actions that are examples from the literature and other organizations for how your agency might address the potentially modifiable health factors. Please rank them from 1 to 5 in terms of whether you feel these are a priority for your agency.

	How much of a priority are these methods for your agency to address? - 1 is high, 5 is least					Not sure	Any additional Comments?
	High priority (1)	somewhat high (2)	neutral (3)	somewhat low (4)	low priority (5)	Don't Know?	Why or Why not?
Organizational culture of social inclusion - Organization and staff create a social environment (including positive relationships among staff, youth, families and community) that encourages all ages and abilities to enjoy and participate.	○	○	○	○	○	○	
Availability of non-competitive non-physical organized activity options - Encourage youth to participate in non-competitive, non-physical activities to increase participation and retention in programs.	○	○	○	○	○	○	
Efforts to prevent bullying and hazing - Establish programs, campaigns, etc. for those who feel ostracized or socially isolated, and those who engage in bullying behaviors.	○	○	○	○	○	○	
Staff training - Specific staff participate in learning about methods for social inclusion using	○	○	○	○	○	○	

effective training models and using content that is evidence-based.							
Positive social peer environment - Create positive atmosphere where all youth, regardless of diversity, feel welcomed, valued, and respected.	○	○	○	○	○	○	
Parental engagement in programs/services - Offer programs, services and activities focused on increasing parental engagement and participation with youth	○	○	○	○	○	○	
Parental Education - Offer programs, services and activities focused on increasing parental knowledge about the importance of social inclusion.	○	○	○	○	○	○	
Marketing and promotion to increase Social Engagement - Utilize varying campaigns to increase awareness of the vital role in personal and public health (signage, messaging, wayfinding kiosks, etc.)	○	○	○	○	○	○	
Other	○	○	○	○	○	○	

Q17 Safety and / or Perception of Safety -The following section gives methods, tools, or actions that are examples from the literature and other organizations for how your agency might address the potentially modifiable health factors. Please rank them from 1 to 5 in terms of whether you feel these are a priority for your agency.

	How much of a priority are these methods for your agency to address? - 1 is high, 5 is least					not sure	Any additional Comments?
	High priority (1)	somewhat high (2)	neutral (3)	somewhat low (4)	low priority (5)	Don't Know?	Why or Why not?
Assess actual crime rates at or near assets / programs - Collaborate with law enforcement to measure and reduce crimes in areas managed by P & R.	○	○	○	○	○	○	
Activate crime prevention measures - Strategically implement CPTED principles and positive activation, such as installing surveillance cameras, hiring police or security officers, make brighter lighting, activating more people on trails, installing speed bumps near P&R buildings and pedestrian walkways, etc.	○	○	○	○	○	○	
Promote prevention practices of	○	○	○	○	○	○	

direct and affiliated service providers - Staff and volunteer training and communications for accident / injury free environment and safety education for participants.							
Staff training - Specific staff participate in learning about methods for increasing safety using effective training models and using content that is evidence-based.	○	○	○	○	○	○	
Safety inspection & risk management - Conduct frequent and regular inspections to assure safe operations at facilities (built or natural) and in programs / events / services.	○	○	○	○	○	○	
Staff supervision & surveillance efforts - Establish standards for supervision & surveillance at all sponsored	○	○	○	○	○	○	

programs, events, activities as well as managed assets.							
Marketing and promotion to increase Perception of Safety - Utilize varying campaigns to increase perceived safety and safety practices.	○	○	○	○	○	○	
Other	○	○	○	○	○	○	

Q18 Nutrition The following section gives methods, tools, or actions that are examples from the literature and other organizations for how your agency might address the potentially modifiable health factors. Please rank them from 1 to 5 in terms of whether you feel these are a priority for your agency.

	How much of a priority are these methods for your agency to address? - 1 is high, 5 is least					not sure	Any additional Comments?
	High priority (1)	somewhat high (2)	neutral (3)	somewhat low (4)	low priority (5)	Don't Know?	Why or Why not?
Community availability of healthy food - Support and provide incentives for farmers' markets, grocery stores serving healthy food, or other ways to make healthy food available.	○	○	○	○	○	○	
Policies around agency availability of healthy food - Enact policy and guidelines around food for programs and healthy vending for onsite sales/concessions.	○	○	○	○	○	○	
Programs around healthy eating - youth - Increase programming for healthy cooking, gardening, recipe testing, and/or nutrition for youth	○	○	○	○	○	○	
Programs around healthy eating – parents - Increase programming for healthy cooking, gardening, recipe testing, and/or nutrition for parents.	○	○	○	○	○	○	

Marketing & Communication - Provide an educational campaign on the benefits of healthy eating (signage, messaging, etc.)	○	○	○	○	○	○	
Collaboration with local restaurants or stores - Promote affinity programs that indicate healthier items.	○	○	○	○	○	○	
Collaboration with schools and other providers - Recommend policy and/or provide resources for other providers around nutrition	○	○	○	○	○	○	
Community gardens - Increase the number of community gardens in the service area and land and provide them at a low cost.	○	○	○	○	○	○	
Staff resources focused on nutrition - Provide staff trained in healthy eating practices.	○	○	○	○	○	○	
Other	○	○	○	○	○	○	

Q19 Transportation/Access to Services - The following section gives methods, tools, or actions that are examples from the literature and other organizations for how your agency might address the potentially modifiable health factors. Please rank them from 1 to 5 in terms of whether you feel these are a priority for your agency.

	How much of a priority are these methods for your agency to address? - 1 is high, 5 is least					not sure	Any additional Comments?
	High priority (1)	somewhat high (2)	neutral (3)	somewhat low (4)	low priority (5)	Don't Know?	Why or Why not?
Address accessibility, availability, and Interconnectivity of public transportation - Transportation in communities is multi-modal and provides close access, available when most needed, synchronized with programs, services and operating hours, and account for interconnectivity across the community at large.	○	○	○	○	○	○	
Collaboration - Collaborate with schools, local businesses, and other agencies to provide public modes of transportation to and from agency facilities & programs.	○	○	○	○	○	○	
Convenience - Synchronize programs, events, and	○	○	○	○	○	○	

services of the agency with programs for other youth offerings and those for other ages.							
Promote knowledge of alternative transportation services - Provide information and training strategies to increase the level of awareness of public and alternative transportation to and from facilities and programs.	❍	❍	❍	❍	❍	❍	
Utilization rates - Monitor utilization rates of transportation by type of customer, location, mode of transportation, frequency, time/day, etc.	❍	❍	❍	❍	❍	❍	
Assess walkability - Utilize geo-spatial analytics and mapping to assess walkability, barriers, proximities, etc., for all age groups.	❍	❍	❍	❍	❍	❍	
Promote Complete	❍	❍	❍	❍	❍	❍	

Streets - Adopt policies and design guidelines to encourage “Complete Streets” adaptations for multi-modal transportation planning.							
Staff training - Assign and train specific staff to address and collaborate on transportation and trails planning.	○	○	○	○	○	○	
Other	○	○	○	○	○	○	

Q21 Other Health Factors -The following section gives methods, tools, or actions that were added by Key Informants on Questionnaire #1. Please rank them from 1 to 5 in terms of whether you feel these are a priority for your agency.

	How much of a priority are these methods for your agency to address? - 1 is high, 5 is least					not sure	Any additional Comments?
	High priority (1)	somewhat high (2)	neutral (3)	somewhat low (4)	low priority (5)	Don't Know?	Why or Why not?
Stress Management Programs	○	○	○	○	○	○	
Tobacco Cessation - Smoke-Free/Vape Free Policies, Ordinances and/or Education	○	○	○	○	○	○	
Development of Team Building Skills	○	○	○	○	○	○	
Providing access to nature	○	○	○	○	○	○	
Any Others	○	○	○	○	○	○	

Q25 Any other additional thoughts or suggestions for us to consider going forward into Stage 3 of the Delphi Panel?

Q23 How difficult was it for you to complete this survey?

- ○ Extremely easy
- ○ Somewhat easy
- ○ Neither easy nor difficult
- ○ Somewhat difficult
- ○ Extremely difficult

Q24 Why was it easy or difficult for you to complete this survey?

Appendix M - Prince Georges County, MD Wellness Criteria

▲	**Be More Active**	**Choose Sound Nutrition**	**Manage Risk Factors and Treat Diseases**	**Avoid Risky Behaviors**	**Safety**
Knowledge Program intends to increase participants' knowledge.	• *health benefits associated with physical activity* • *the varying types and intensity of physical activity* • *basic fitness principles*	• *food groups* • *portion sizes* • *nutritional content of food*	• *where to access resources* • *health literacy*	• *physical and psychological effects of drugs and alcohol*	• *water safety* • *signs and symptoms of physical distress*
Skills Program is designed to teach a specific skill.	• *instruction in individual and team sports* • *instruction in other activities that incorporate physical activity* • *injury prevention*	• *determining one's own nutrition intake and nutritional needs* • *preparing a healthy meal* • *calculating portion sizes*	• *administering medical self- care* • *personal hygiene practices*	• *coping skills (drug refusal, emotional regulation, and relaxation)* • *decision-making skills*	• *rescue skills* • *CPR/First Aid*
Attitudes Program intends to alter participants' attitudes.	• *adopting a positive attitude towards fitness and exercise*	• *adopting a positive attitude and appreciation towards sound nutrition*	• *adopting a positive attitude towards incorporating protective behaviors*	• *increased self-efficacy*	• *increased self-efficacy*
Behaviors Program intends to modify participants' behaviors.	• *changes in frequency and duration of physical activity* • *changes in overall level of leisure time physical activity*	• *incorporating more healthy meals* • *increasing the variety of healthy foods consumed, based on nutritional needs*	• *increased personal responsibility and care for minor illnesses*	• *making lower-risk decisions* • *more readily identifies risk and avoids it*	• *more likely to assess situations and activities for safety concerns*
Conditions Program is designed to result in a change of conditions for participants.	• *improvements in overall fitness levels* • *achieving or maintaining a healthy weight status*	• *improvements in nutrition intake* • *achieving or maintaining a healthy weight status*	• *lowered risk of chronic diseases and ailments*	• *achieving or maintaining a healthy relationship with substances*	• *more adeptly maintains situational awareness* • *more readily recognizes emergency conditions and resulting problems and implements action to solve problems*

APPENDIX M - PRINCE GEORGE'S COUNTY, MD - DRAFT WELLNESS CRITERIA

Social Capital Program is designed to result in a change in social capital.	- *increased collective efficacy among residents to improve access to resources for physical activity and to encourage and support continued participation* - *spreading of healthy norms*	- *increased collective efficacy among residents to improve access to resources for healthy eating and to encourage and support healthy eating habits* - *spreading of healthy norms*	- *increased collective efficacy among residents to improve access to accurate health information* - *spreading of healthy norms*	- *increased collective efficacy among residents to improve access to resources for avoiding drugs and alcohol* - *spreading of healthy norms*	- *increased collective efficacy among residents to emphasize knowledge and skills of life-saving techniques*

Knowledge: The fact or condition of knowing something with familiarity gained through experience or association
Skill: The ability to use one's knowledge effectively and readily in execution or performance
Attitude: a mental position with regard to or feeling or emotion toward a fact or state
Behavior: the way something moves, functions, or reacts
Condition: a state of being
Social Capital: the networks of relationships among people who live and work in a particular society, enabling that society to function effectively

▲	**Build Self-Esteem and Confidence**	**Cope with Stress and Emotions**
Knowledge Program intends to increase participants' knowledge.	• *emotional awareness* • *self-affirmation words*	• *emotional awareness* • *mental health literacy* • *awareness of how to seek help and treatment*
Skills Program is designed to teach a specific skill.	• *decision-making skills* • *inner conflict management skills*	• *coping skills* • *stress management and relaxation techniques*
Attitudes Program intends to alter participants' attitudes.	• *increased self-efficacy*	• *enhanced help-seeking efficacy*
Behaviors Program intends to modify participants' behaviors.	• *utilizing more positive self-talk* • *taking more initiative and measured risks*	• *utilizing more relaxation techniques*
Conditions Program is designed to result in a change of conditions for participants.	• *increased self-confidence and assertiveness*	• *lowered levels of stress* • *increased emotional intelligence*
Social Capital Program is designed to result in a change in social capital.	• *increased collective efficacy among residents to create an environment that fosters a sense of encouragement*	• *increased collective efficacy among residents to create a positive, safe environment that fosters a sense of inclusion, identity, and connectedness* • *reduction of stigma*

Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community (World Health Organization).

Emotional Intelligence: The ability to know, understand, and manage your emotions
Knowledge: The fact or condition of knowing something with familiarity gained through experience or association
Skill: The ability to use one's knowledge effectively and readily in execution or performance
Attitude: a mental position with regard to or feeling or emotion toward a fact or state
Behavior: the way something moves, functions, or reacts
Condition: a state of being
Social Capital: the networks of relationships among people who live and work in a particular society, enabling that society to function effectively

▲	**Environmental Stewardship**	**Benefits of Nature**	**Outdoor Education**
Knowledge Program intends to increase participants' knowledge.	• *Conservation and Sustainability* • *Benefits of reducing, reusing, recycling* • *Hazards to the environment* • *Water quality* • *Natural area and land management* • *Climate change* • *Soil erosion*	• *Benefits of spending time in nature* • *Healing effects of nature* • *Mind-body connection to nature*	• *Common plant and animal species and habitats* • *Natural resources and landmarks (i.e., wetlands, meadows, Chesapeake Bay, etc.)* • *Natural outdoor hazards* • *Environmental cycles*
Skills Program is designed to teach a specific skill.	• *Reduce waste* • *Recycle* • *Create recyclable DIY projects* • *Compost* • *Tree planting* • *Reduce pollutants and emissions* • *Reduce water use* • *Erosion control* • *River clean-up* • *Test water quality* • *Agricultural practices* • *Land management* • *Best practices*	• *Recognize positive effects of exercising outdoors* • *Recognize the benefits of natural remedies* • *Master outdoor relaxation techniques*	• *Care for plants and animals* • *Locate natural resources* • *Identify common animals and plants* • *Identify environmental threats*
Attitudes Program intends to alter participants' attitudes.	• *Adopt a positive attitude towards conserving electricity, heat, light, and water* • *Adopt a positive attitude towards reducing waste* • *Adopt positive attitudes against littering* • *Appreciation for water safety* • *Develop ownership of local animal/plant community* • *Empower advocates of the environment*	• *Greater appreciation for spending time in nature* • *Greater appreciation for being holistically healthy* • *Adopting positive attitudes towards healing properties of natural products/remedies* • *Adopt a healthy curiosity of nature* • *Sense of place*	• *A positive attitude towards the value of environmental education* • *A positive attitude towards natural history* • *A positive attitude towards animal preservation and protection* • *Greater appreciation for outdoor activities such as: gardening, camping, nature walk, bird watching* • *Positive attitude towards natural beautification* • *Decrease fear of nature*
Behaviors Program intends	• *Increase the conservation of energy and natural resources*	• *Increase time outdoors* • *Increase exercise in nature*	• *Positive interactions with different plant and animal species*

to modify participants' behaviors.	• *Volunteer time to environmental stewardship projects (i.e., tree planting, trash pick-up, etc.)* • *Reduce littering* • *Increase in recycling habits and purchasing recycled goods* • *Practice habits that lessen pollution* • *Increase sustainable practices at home and in the community* • *Increase water recreation*	• *Explore natural products/remedies* • *Increase contact with nature*	• *Increase engagements with nature* • *Direct experience in nature* • *Service learning outdoors* • *Visiting local landmarks*
Conditions Program is designed to result in a change of conditions for participants.	• *Increase protection of natural resources* • *Decrease waste* • *Increase energy savings*	• *Increase appreciation for natural resources* • *Increase outdoor interaction*	• *Increase value for an outdoor learning environment* • *Increase respect for natural resources and landmarks*
Social Capital Program is designed to result in a change in social capital.	• *Increase collective efficacy among residents to improve environmental health*	• *Collective respect for the environment and appreciation of nature*	• *Increase public engagement about environmental and education topics* • *Increase collective efficacy among residents to increase resident interaction outdoors*

Environmental Wellness: involves leading a lifestyle that is respectful of and in harmony with your environment. **(Environmental Wellness, n.d.)**

Knowledge: The fact or condition of knowing something with familiarity gained through experience or association
Skill: The ability to use one's knowledge effectively and readily in execution or performance
Attitude: a mental position with regard to or feeling or emotion toward a fact or state
Behavior: the way something moves, functions, or reacts
Condition: a state of being
Social Capital: the networks of relationships among people who live and work in a particular society, enabling that society to function effectively

Stewardship: The activity or job of protecting and being responsible for something.
Pollutants: unwanted chemicals or other materials found in the air, at high enough concentrations to endanger the environment and people's health. **(B.C Air Quality, n.d.)**
Emission: discharges of a pollutant from a particular source (e.g., a factory) or group of sources (e.g., vehicles) into the air. **(B.C Air Quality, n.d.)**

Herbal medicine: the art or practice of using herbs and herbal preparations to maintain health and to prevent, alleviate, or cure disease **(Merriam-Webster, n.d.)**
Ethics: rules of behavior based on ideas about what is morally good or bad **(Merriam-Webster, n.d.)**
Recreation: something people do to relax and have fun **(Merriam-Webster, n.d.)**
Holistic: relating to or concerned with complete systems rather than with individual parts **(Merriam-Webster, n.d.)**
Public Engagement: describes the myriad of ways in which the activity and benefits of higher education and research can be shared with the public **(NCCPE, n.d)**
Service Learning: Combining learning goals and community service in ways that can enhance both student growth and the common good **(Center for Teaching Vanderbilt University, n.d)**

Resources

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▲	Build Relationships	Contributing to Community	Respecting Differences
Knowledge Program intends to increase participants' knowledge.	- *Healthy vs. unhealthy relationships* - *Communication styles* - *Self-awareness and understanding of how to connect with others*	- *Societal pressures* - *Progressive thinking* - *Leadership styles*	- *Culture of others* - *History of another community* - *Self-assessment*
Skills Program is designed to teach a specific skill.	- *Develop and maintain friendships and social networks* - *Seeking opportunities to connect with others* - *Conflict management/resolution*	- *Societal norms* - *Adapting to change* - *Team-building skills* - *Goal setting and prioritization skills* - *Decision making skills*	- *Cross-cultural skills* - *Identification of preconceived notions, bias and stereotypes* - *Cultural competency*
Attitudes Program intends to alter participants' attitudes.	- *Belief in a social support system* - *Adopting a positive attitudes towards increasing communication skills* - *Adopting a positive attitude towards gaining the skills to better manage conflict* - *Appreciation for meeting new people*	- *Adopting a positive attitude towards inspiring others* - *Adopting a positive attitude towards working as a team* - *Increased openness to criticism*	- *Belief that those who differ can live in harmony* - *Increased empathy* - *Appreciating the value of inclusion*
Behaviors Program intends to modify participants' behaviors.	- *Active listening* - *Make new friends/keep ties with existing friends* - *Networking* - *Try new hobbies* - *Join an organization or group discussion*	- *Increased use of active listening skills* - *Instilling innovative ideas* - *Utilizing more communication skills* - *Incorporating multiple perspectives into decisions*	- *Explore diversity by interacting with people of other cultures, backgrounds, and beliefs* - *Visiting new communities that differ from your own* - *Join an organization or group discussion about diversity/cultural topics* - *Educate others about personal identity*
Conditions Program is designed to result in a change of conditions for	- *Increase resiliency* - *Healthy attachments* - *Greater ties with the community* - *Less social isolation*	- *Increased self-confidence when engaging with others and in decision making* - *Increased sense of belonging*	- *Decrease in racial tension* - *Reducing hate crimes* - *Reduction in bias*

participants.			
Social Capital Program is designed to result in a change in social capital.	- *Building healthy ties with your community* - *Increase collaborations to build social support groups*	- *Establishing social norms for interactions* - *Increased desire for input from varying perspectives for community decisions*	- *Ways to recognize and celebrate diversity*

Social/Cultural Wellness: The ability to perform social roles effectively, build meaningful relationships, and show respect to other people, backgrounds, and cultures.

Knowledge: The fact or condition of knowing something with familiarity gained through experience or association
Skill: The ability to use one's knowledge effectively and readily in execution or performance
Attitude: a mental position with regard to or feeling or emotion toward a fact or state
Behavior: the way something moves, functions, or reacts
Condition: a state of being
Social Capital: the networks of relationships among people who live and work in a particular society, enabling that society to function effectively

Assertive: Disposed to or characterized by bold or confident statements and behavior. **(Merriam-Webster)**
Cultural Competency: the self-awareness, cultural humility, and the commitment to understanding and embracing culture as central to effective practice**. (Social Workers, 2003).**
Progressive: favoring or advocating progress, change, improvement, or reform, as opposed to wishing to maintain things as they are **(Dictionary.com, n.d.)**
Cross Cultural skills: The skills and techniques that demonstrate an understanding of and respect for the importance of culture in practice, policy, and research. **(Social Workers, 2003)**
Self-assessment: the act or process of judging one's own achievements or progress **(Merriam-Webster)**