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A Community-Engaged Approach to Select Geographic Areas for Interventions to Reduce Health Disparities

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Abstract

Background—While neighborhood-based approaches to eliminate health disparities are on the rise, there is little guidance on how researchers may engage with community partners to select geographic areas for interventions to reduce health disparities. We aimed to identify a small geographic area to target interventions to improve diabetes-related outcomes.

Objectives—We describe lessons learned from a community-engaged approach to specify the geographic area of focus.

Methods—A community-academic partnership of more than 20 organizations collaborated to develop and employ a 5-stage process to specify a target area for diabetes preventions and control activities.

Lessons Learned—A coalition with local knowledge and ties to the community can develop criteria and direct a process leading to selection of a geographic area, increased research capacity, and strengthened relationships among partners.

Conclusion—A participatory approach can be effective in defining a geographic area for targeting interventions to reduce health disparities.

Keywords

Community-based participatory research; health disparities; diabetes mellitus process issues; geographic information systems; East Harlem

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The importance of place in understanding and improving health is widely recognized,[1,2] as are the challenges of conceptualizing, operationalizing, and measuring neighborhood effects on health.[3] The specific geographic areas we choose have consequences for the impact and meaning of our efforts at community health improvement.[4] Relatively little attention has been paid to how researchers may engage with community partners to specify geographic boundaries for community health improvement activities. Rather, more attention has been paid to methodological issues related to the geographic units of analysis used for research, including how the size and composition of geographic units in a study affect observed patterns of health.[5]

Place offers an important organizing principle for health interventions involving diverse and interrelated activities.[6] This paper describes how a coalition of community and academic partners worked to specify geographic boundaries for interventions to improve community health by reducing diabetes-related racial and ethnic disparities in East Harlem, New York. Also known as *El Barrio* or Spanish Harlem, East Harlem is situated in northeast Manhattan. It is a community with a strong cultural heritage and a rich history with a largely Latino and Black population.

The coalition planning the center to impact diabetes chose to focus on the entire life course and contributors to diabetes prevention and control. These contributing factors include obesity, healthy eating, and physical activity considered from clinical, community, environmental, behavioral, and social perspectives. To encourage collaboration and innovation among partners, the coalition proposed identifying a small, manageable geographic area for intensive assessment, referred to as the Sector of Excellence for Elimination of Disparities (SEED). The success of the Harlem Children's Zone, which began by bringing a range of support services to residents of a single block, and then expanded to cover 97 blocks in Central Harlem, informed the SEED strategy.[7]

The U.S. Centers for Disease Control and Prevention funded the Communities Inspired and Motivated to Prevent and Control (IMPACT) Diabetes Center as a Center of Excellence for the Elimination of Health Disparities in diabetes prevention and control[8] among Latinos and Blacks in East Harlem and similar urban communities locally, regionally, and nationally. The center provides grants to partners to develop and deliver diabetes prevention and control programs in the target area. After receiving notification of funding, the coalition met to define the geographic boundaries of the SEED, through a community-engaged and participatory process. A SEED selection team, representing a wide range of stakeholders, developed and adopted selection criteria based on ideal qualities of the SEED, analyzed and discussed candidate geographic areas, recommended a SEED area, and presented the recommendation for adoption by the entire coalition. This approach began with a community collaboration whose members worked to develop a conceptual framework and then implemented the framework with funding support. The purpose of this paper is to outline the steps to choose the SEED, and lessons learned for translating this approach to other health intervention efforts targeting a place.

METHOD

Framing the Model

The approach to intervention adopted by the coalition is supported by research on collective efficacy and the role of neighborhood environmental features.[9,10] Environmental features set the stage for neighborhood social interaction, providing a foundation for the formation of social capital. Research has explored the effects of social networks and social support on physical health[11–13] and shown that community leaders are effective in recruiting participants for peer-led health interventions.[14] In the course of planning for a center to impact diabetes, the coalition discussed issues affecting community-based programs[15] and developed a framework for managing interventions to address diabetes concluding that:

- Available resources could have maximum impact by focusing on a well-defined population in a specific geographic area;
- A well-defined geographic focus would encourage broad, substantive collaboration among the many organizations and groups who at times have had competing local programs to improve nutrition and physical activity;

- Development of a mechanism to integrate local knowledge, data, and clinical and policy expertise would benefit the health of the community; and
- Using multiple interventions and approaches in a single geographic area would reinforce their effectiveness.

The SEED was designed specifically to avoid the problem of the "local trap," the idea that "only the physically 'local' matters in terms of the health-damaging and health-promoting features of the social and physical environment."[16] The SEED area was conceptualized as an area where people lived, worked, went to school, played, prayed, or engaged in other activities. Organizations and individuals within or outside the SEED could develop and deliver interventions, and these interventions could serve people who had no contact with the SEED as long as some of the people served had contact with the SEED area.

SEED Selection Process

The Mount Sinai School of Medicine Institutional Review Board reviewed and approved the project. The coalition undertook a 5-stage SEED selection process. The first stage involved formation of a group to work on identifying candidate geographic areas. To ensure inclusiveness and choice, all members of the coalition could volunteer to participate in the SEED selection group. The group was formed during the first formal meeting of the coalition after receiving funding to establish the center. The SEED selection group included 13 grass-roots community members and 22 representatives of organizations based in or serving the East Harlem community. Academic partners and a medical geographer supported the group's work, serving as project staff, by preparing data and maps in response to the group's request and engaging in discussion. The group met at a variety of local venues, including a multiservice agency and a food pantry.

The second stage in the process was the development and adoption of SEED selection criteria: (1) A high level of need for diabetes prevention and control, (2) a mix of large public housing complexes and private housing, (3) demographic mix, (4) population size, (5) gentrification, (6) quality of working relationships with key people, (7) diversity of community resources, and (8) safety. These criteria were measured in different ways, based on data and local knowledge.

East Harlem has the highest mortality and complications rates from diabetes in New York City,[17] but we did not have access to reliable data about diabetes prevalence for geographic areas smaller than the zip code. Only two Zip codes covered all of East Harlem plus Randall's Island. The high level of need throughout East Harlem gave us confidence that the area we identified would meet the criterion of high need.

Areas where few people lived such as areas with high levels of commercial land use were considered undesirable. Because one third of East Harlem residents live in large, subsidized housing projects, presence of a large project was an important factor in SEED selection.

Residents of the SEED should include a mix of people of all ages and of locally prevalent racial and ethnic backgrounds based on the most recent census data. The team aimed for a population large enough to achieve the desired demographic mix, but small enough so that the program could make a difference given the available resources and identified intervention strategies. The initial population size criterion for the SEED was no greater than 10,000 people, approximately 10% of the total population of East Harlem in 2000.

Because the interventions to address disparities in diabetes would be developed and delivered over time, the possibility of neighborhood change was considered. Gentrification, the upgrading of property for occupancy by middle- and upper-income households, is a

process affecting health.[18] Property development in selected areas of Harlem[19,20] has changed the demographic, housing, and retail character of some streets. Local knowledge was used to assess patterns of gentrification to choose areas where less change was occurring.

Programs would be developed and implemented by community residents and organizations. It was important to identify an area where the coalition had some working relationships with key people in community-based organizations and institutions and residents who could effect change and who would benefit from local capacity-building activities. The presence of churches, playgrounds, parks, community gardens, senior centers, food pantries, soup kitchens, and retail stores in or near an area provides resources for developing and delivering interventions. Local knowledge of relationships and data on community facilities drawn from a wide range of sources were used to assess areas.

Community residents and program partners would need to travel in and around the SEED. It could be difficult to galvanize community interest in diabetes prevention and control in the midst of an acute crisis of violence. Local knowledge of current conditions was used to identify two areas felt to be unsafe because of the level of gang activity.

The third stage involved collection, analysis, and presentation of data from existing public databases and local knowledge. The academic partners utilized a geographic information system application to integrate and map data on large format maps for use during the discussions. We used only data that allowed us to share our maps without restrictions. Although geographic information systems can be used to implement multi-criteria site selection analyses using weighting of selection criteria to find the site that maximizes the weighted criteria,[21] the selection group decided to use the selection criteria in a process of elimination, removing from consideration areas within East Harlem missing one or more of the desired criteria.

After looking at the initial set of maps and eliminating some geographic areas, the group decided to define the geographic boundaries of the SEED based on one or more census tracts because these geographic units were closest to the population size criterion and data on population demographic characteristics were available for tracts. The group focused on a core area within East Harlem comprised of 12 census tracts (Figure 1). Materials on how to use the census web site and how census tract boundaries are determined were prepared and distributed to group members to build capacity in working with demographic data from the census site.[22] Seven census tracts were eliminated after this review of the maps and the selection criteria. At the conclusion of the meeting, a small working group was charged with the task of providing more detail on the remaining five tracts, including data on additional facilities such as public and private schools, Head Start centers, daycare facilities, senior centers, senior housing locations, healthcare facilities, parks, playgrounds, schoolyards, supermarkets, *bodegas*, and food pantries.

At this stage, we also looked to identify nearby areas in East Harlem and Central Harlem to provide context for understanding the level of neighborhood change occurring in the SEED compared with other areas over the course of the project and to serve as nonequivalent controls for evaluation of interventions delivered by the center.[23] The group used the same criteria to identify potential comparison areas.

A follow-up meeting was held to review potential SEEDs. Unresolved concerns about early gentrification activities in the remaining tracts led to the selection of the final SEED and comparison and control areas in East and Central Harlem. Community partners then led a walking tour of the area for members of the coalition and interested residents.

In the fourth stage of the process, these data were presented to the selection group on revised maps identifying the area recommended for the SEED. After discussion, the group voted on recommending the combined areas of two census tracts as the SEED. Finally, the selection group presented the SEED to the full coalition, which endorsed the SEED recommendation.

RESULTS

The selected SEED area covers two census tracts in the center of East Harlem (Figure 2) and meets all eight selection criteria. Diabetes and obesity are prevalent. The area contains two large public housing complexes and a range of private housing. There is demographic diversity with a mix of children, adults, and elderly within its boundaries. Latinos of several common subgroups (Puerto Rican, Dominican, and Mexican) and Blacks are represented. The total population based on 2000 Census data is 8,744. Gentrification activity is present, but in only a few pockets. Coalition members have strong relationships with many individuals and organizations within the SEED. The SEED has green spaces, stores, restaurants, churches, and schools (Table 1) and no acute safety concerns.

LESSONS LEARNED

A community-engaged process was successful in defining the geographic area in East Harlem in which to begin a program of community health improvement to reduce racial and ethnic disparities in diabetes and diabetes-related conditions and outcomes.

Lesson 1: Members of a Community-Based Coalition Can Agree to Focus Initiatives in a Single Geographic Area

Some residents in East Harlem expressed a desire to have their residential streets included in the SEED and some were concerned that their residences or organizations they represented might not be in the initial area targeted for interventions. In the course of the discussion, and with reference to the selection criteria, maps, and data, these individual preferences shifted and the group was able to achieve a broader consensus. We looked to the experience of the Harlem Children's Zone as an example that illustrates the feasibility of initiating interventions in a small area and diffusing a range of intervention activities over time.[24] IMPACT was designed to focus efforts in the SEED initially, using the SEED as an incubator for ideas and activities that could be disseminated in East Harlem and beyond, and coalition members were able to embrace this approach in practice as well as in theory.

The SEED selection process made it possible for individuals to continue as enthusiastic participants in the project. Participant comments at the meeting adopting the selection group's recommendation praised the participatory nature of the SEED selection endeavor which gave them a sense of ownership over the process. In addition, the process contributed to transforming a group of distinct individuals into a team committed to working collaboratively rather than competitively.

Lesson 2: Rigorous Site Selection Works in Large Group Partnerships With Deep Local Knowledge

The size of the SEED selection group promoted inclusiveness and community engagement. We had some concerns that a group of 35 people might inhibit conversation, but we found that, with limited facilitation, most members contributed to the discussions. Because the SEED selection group members were well-grounded in the framework for targeting a single area for initiatives to address diabetes disparities, they were able to move quickly to adopt selection criteria, request relevant data, and develop a process for selecting the SEED within a 4-month period, allowing center activities to be conducted in the SEED to begin. The rich local knowledge and enthusiasm brought to the meetings by community members and

representatives of local organizations strengthened the process. For the selection process used here to work effectively, the group adopting the approach should have experience working together as a group to develop a conceptual framework and have direct experience of the community from which the target site will be selected.

Lesson 3: Community Partners Lead the Analysis

The SEED selection process was led by the members of the selection group. They chose the criteria, identified the data of interest, and developed the method for selecting the SEED. Academic partners staffed the selection group meetings and served as technical consultants to the community partners. The wealth of publicly available geographic information systems and other databases for East Harlem for use by the selection group was an advantage that might not exist in other communities. One direct result was the ease with which the larger coalition, many of whom were not members of the selection group, accepted what was a unanimous recommendation from the group. The SEED selection process proved foundational for later work, empowering many participants to join other IMPACT workgroups formed to plan and organize other aspects of the project.

CONCLUSION

Approaches to selecting and clearly describing communities for multiple health interventions are not widely discussed in the literature. In particular, approaches engaging the community in deciding where prevention and intervention activities will be carried out and evaluated are needed. A community-engaged process was an effective method for defining a geographic area as an organizing framework for a health improvement initiative to reduce diabetes-related disparities. A wide array of participants contributed to selecting the area in a time frame permitting other elements of the project to move forward.

The size and composition of the selection team were an important factor in the success of the process, as was the use of academic partners as technical consultants and facilitators of the process rather than as decision-makers. The SEED selection process outlined here offers a process which can be adapted to local needs and conditions.

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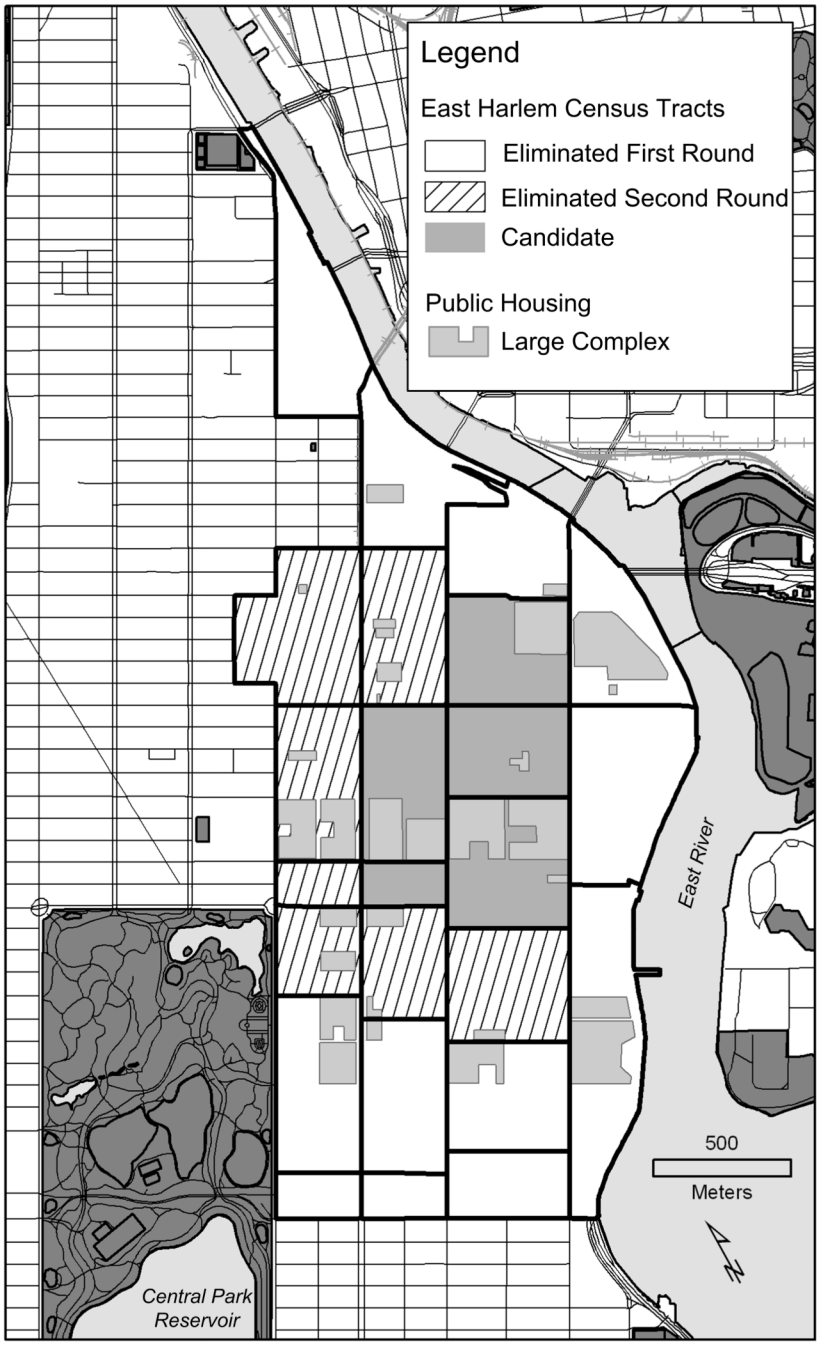

Figure 1. Census Tract Areas Eliminated From Consideration for Inclusion in the Complex Intervention Area During the Selection Process

Of the 24 census tracts in East Harlem, 12 were eliminated in the first round and 7 of the remaining 12 were eliminated in the second round leaving 5 census tracts as candidates for inclusion in the SEED area. Location of large public housing complexes were considered in the selection process. Base map data layers compiled from Base Map copyrighted by the New York City Department of Information Technology and Telecommunications. All rights reserved.

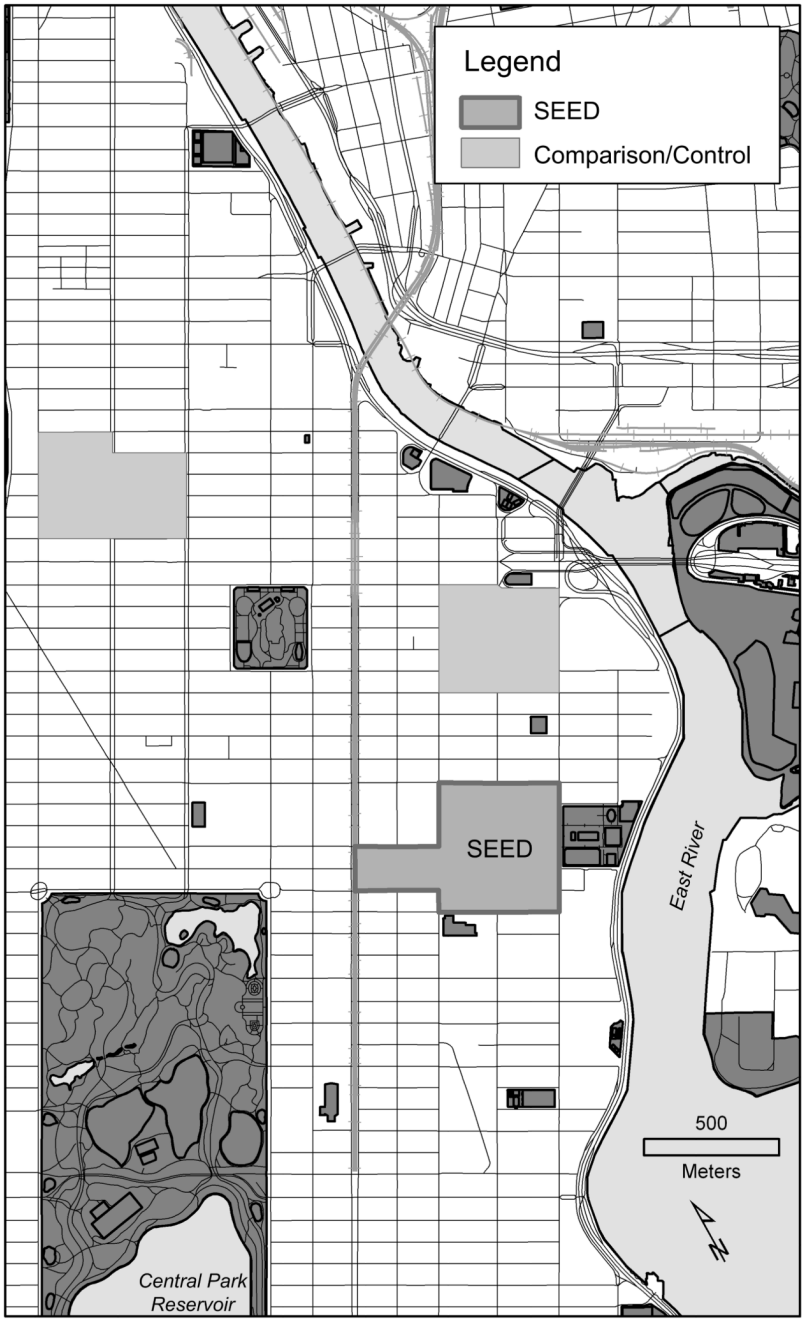

Figure 2. The Selected SEED Area for the Intervention and Control and Comparison Census Tracts in East Harlem and Central Harlem

Table 1

Facilities in Census Tracts Comprising the Health Intervention Area

Census Tract	Facilities
Tract 180	2 public middle schools
	3 elementary schools
	1 Head Start Program and 1 nearby in adjacent census tract
	1 community garden and 2 nearby in adjacent census tract
	1 senior center/senior housing facility
	1 senior food service facility
	6 religious institutions
	1 large public housing development
	1 large chain supermarket
	1 independent supermarket
	12 bodegas
	15 small variety stores
	1 planned farmer's market
Tract 172.02	2 public elementary schools
	4 community gardens
	4 religious institutions
	1 independent supermarket
	5 bodegas
	8 small variety stores
	1 soup kitchen