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Community Health Partnerships for Chronic Disease Prevention Among Latinos: The San Diego Prevention Research Center

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Abstract

Over 20 years ago, university–community partnerships (i.e., Prevention Research Centers [PRCs]) across the United States were funded by the Centers for Disease Control and Prevention to conduct research and training in order to promote health and prevent disease in underserved populations. In 2004, the San Diego PRC (SDPRC) became the first PRC to focus on obesity prevention and

control in a community of mostly Mexican Americans/Mexican immigrants. The SDPRC was also the first PRC to comprise a university–community partnership with a school of public health, a school of medicine, and a federally qualified health center. In conjunction with two additional funded community partners and involvement of a community advisory board, the SDPRC seeks to develop effective intervention strategies that ultimately lead to behavior change. Now in its second cycle of funding, the SDPRC has identified three primary principles that are important for these and similar efforts: (1) developing culturally appropriate interventions requires community engagement; (2) building the evidence in a systematic and rigorous way yields meaningful strategies for translation to practice; and (3) translating evidence-based interventions to practice involves capacity building for both researchers and community partners. This article describes these principles to help others involved in similar intervention efforts identify the best approach for promoting health in their own communities.

Keywords

Latinos/Hispanics; Obesity; Prevention; Community

Background

In 1984, Congress enacted Public Law 98-551 authorizing the Department of Health and Human Services to create a network of academic public health research centers administered by the Centers for Disease Control and Prevention (CDC; Stoto, Green, & Bailey, 1997). These Prevention Research Centers (PRCs) have focused on various health problems and diseases (e.g., diabetes, hypertension), as well as populations (e.g., rural Americans, the elderly), through partnerships with underserved communities. Ammerman, Harris, Brownson, and Tovar-Aguilar's (2011) review of the 37 PRCs' university–community partnerships identified the following activities as common across PRCs: working with partners to identify critical health issues in target communities; mobilizing experienced multidisciplinary teams to address health concerns; using proven strategies and/or designing innovative solutions for health problems to achieve the highest possible impact; building the science of dissemination research; and training public health, medical, and other professionals to enhance evidence-based practice. In short, PRC funding provides essential infrastructure to support the translation of evidence-based approaches using a community-based participatory research (CBPR) approach (Glasgow, Green, Taylor, & Stange, 2012).

In 2004, the San Diego PRC (SDPRC) was funded to address obesity prevention and control in partnership with individuals and organizations that reached the Latino community in South San Diego County (see map in Fig. 1). Its mission and approach were timely given the growing Latino population (Pew Hispanic Center, Pew Research Center 2005)—a population that has a higher-than-average risk of being overweight or obese (Ogden et al., 2006)—and the call for efforts to address obesity through diverse community partnerships (CDC, 2009).

In addition to being the first PRC to focus on Latino health, the SDPRC was the first to comprise an academic partnership between a school of public health (San Diego State

University) and a school of medicine (University of California, San Diego). This partnership optimizes the potential for transdisciplinary research, as faculty at a high-profile medical school renowned for its biomedical research and National Institutes of Health (NIH) "portfolio" joined forces with those affiliated with the largest California State University campus, one that greatly emphasizes diversity and community outreach in education, research, and service in its mission. The SDPRC's institutional triad was initially completed by a funded community partnership with a Federally Qualified Health Center (San Ysidro Health Center [SYHC]). This collaboration leveraged the formation of partnerships with organizations and individuals in the target communities, augmenting the SDPRC's effectiveness in addressing health disparities. As described below, the SDPRC now funds two additional community partners, Casa Familiar and the Chula Vista Community Collaborative (CVCC).

From the outset, three main principles guided the SDPRC's public health efforts and have been instrumental in achieving improvements in community health thus far (Ayala & The San Diego Prevention Research Center Team, 2011b). These are (1) engaging with the community, (2) following a science-to-practice model (SPM) to help build the evidence for translation to practice, and (3) creating opportunities for capacity building in both the academic and community settings. Community engagement is the process of identifying and then continuously involving individuals and organizations that can influence policy, environment, or systems change (Fawcett et al., 1995; Glasgow et al., 2012; Minkler, Vásquez, Tajik, & Petersen, 2008). The SDPRC has sought to identify those who influence Latino community residents' ability to be physically active, and more generally, follow a healthy lifestyle. In addition, the SDPRC stresses the importance of incorporating an SPM (Spoth & Greenberg, 2005), thereby underscoring evidence-based practice as key to creating meaningful change. Finally, the SDPRC's capacity-building efforts are multifaceted and include developing a cadre of community health workers, or *promotores*, to multiply the impact of public health efforts among Latinos, as well as training the next generation of health professionals and researchers, especially those from underserved communities, for community and academic service. The present article describes the SDPRC's experience and lessons learned to date implementing these principles, as well as some initial evidence of their impact on reducing health disparities in a Latino US–Mexico border community.

The Community

The target area of the SDPRC's work is South San Diego County, including the communities of San Ysidro, Imperial Beach, South San Diego, Chula Vista, and National City (see map in Fig. 1). In collaboration with community partners, we identified San Ysidro as the first target intervention community and National City as the comparison community. San Ysidro is located at the very south of the City of San Diego on the US–Mexico border, adjacent to Tijuana, one of Mexico's largest cities. Each year, over 15 million vehicles and pedestrians cross the northbound border gate into San Ysidro, 40,000 of these crossing daily. Given its similar socioeconomic disadvantage, neighboring Chula Vista was later added as an intervention community, with efforts targeting that community's southwestern portion (US Census Bureau, 2000a).

The SDPRC used data from the 2000 Census to provide a general context for planning its initial efforts (see Table 1).

Obesity and Diabetes Trends

Over the past decade, both obesity and diabetes have become more prevalent in the United States, especially among the Latino population. In 2000, 20 % of Latinos were categorized as obese (CDC, 2000). Ten years later, the prevalence of obesity among Latinos has increased drastically, with 30.6 % now considered obese (CDC, 2010). As obesity prevalence rates increased, not surprisingly, the prevalence of diabetes also increased. In 2000, 5 % of Latinos reported having been diagnosed with diabetes, which increased to 7.9 % by 2010 (CDC, 2000, 2010). As these rates continue to rise, the need to translate research into practice becomes even more essential to reducing or reversing this trend at the community level.

Initial Planning Efforts and Organization: 2003–2004

The SDPRC derived from nearly two decades of research housed at San Diego State University's Institute for Behavioral and Community Health (IBACH), much of which has been conducted in South San Diego County's Latino communities. Investigators at IBACH first undertook community-engaged research in partnership with SYHC through Project Salsa, which was funded in 1987 (Elder et al., 1998). Within the framework of the "locality development" community organization model (Rothman, 2001), roughly equivalent to today's CBPR model (Israel, Schulz, Parker., Becker, & Community-Campus Partnerships for Health, 2001), Project Salsa launched a nutritional health promotion effort under the guidance of a community advisory board composed of community gatekeepers, advocacy groups, and individual residents engaged in all stages of study planning, implementation, and evaluation. The resulting effort produced not only important behavior change, but also sustainability: Project Salsa's heart disease risk factor screening and counseling program continues to be maintained by community agencies nearly two decades after external funding was discontinued (Elder et al., 1998). IBACH leaders built on this experience and these partnerships to bring together a planning team for the successful SDPRC proposal. Participants in the SDPRC's initial advisory group (e.g., religious leaders, primary care providers, community advocacy and social service agencies staff, and county health officers) examined national, state, and local health data, integrating these data with their own professional experiences, and directed SDPRC investigators to address childhood obesity in the US–Mexico border community of San Ysidro. The SDPRC's focus was later modified to address adult physical activity, but it retained an overall emphasis on preventing and controlling obesity in the family.

The SDPRC's Early Years: 2004–2009

Community Engagement

Whether taking the form of individual behavior change (Kanfer & Goldstein, 1986) or community empowerment (Freire, 1970), research has shown that active participation in meeting health and social challenges increases the likelihood that future challenges can be

dealt with effectively with minimal outside assistance. An ideal form of community engagement and CBPR, which the SDPRC has sought to incorporate, is articulated eloquently by Jones and Wells (2007):

> "In a community-partnered participatory research project, academic members become part of the community, community members become part of the research team, and all participants are research subjects, creating a unique working and learning environment. …Community-partnered participatory research is strength-based and celebrates community capacities and project accomplishments, often reinforced through social and creative activities incorporated into meetings and in framing of project goals." (p. 408)

Community engagement for the SDPRC has involved just such partnering by its academic institutions with South San Diego County organizations and individuals identified as influential in policy, environmental, or system change. Key to the SDPRC's community engagement process was a financially supported partnership with SYHC, development of a nine-member community advisory board (now called the SDPRC Community Engagement Committee, or CEC), and multiple formal and informal partnerships supporting core research study and other SDPRC activities. Partnerships with the media, for example, resulted in television, radio, and newspaper coverage of SDPRC activities, as well as free newspaper health advice columns as described below. A partnership with a local assemblywoman resulted in State of California Certificates of Appreciation for all SDPRC core research study *promotoras* as well as an official State of California Assembly Resolution recognizing the SDPRC and its efforts on its 5th anniversary of being a university–community research center.

Members of the SDPRC CEC are recruited based on the breadth and depth of their knowledge of the community. The initial CEC consisted of representatives from city recreation departments, a school district, a school, a comprehensive community health center, the County of San Diego Health and Human Services Agency, key social service agencies, and a public housing service center as well as one of the *Familias Sanas y Activas* (FSA; Healthy and Active Families) trainers. Currently, representatives of these same offices, plus a YMCA and one of San Diego's major health care providers, are on the SDPRC CEC, as is one of the FSA *promotoras*. The SDPRC's community engagement and formative research efforts worked hand in hand, yielding a reciprocal exchange of knowledge between SDPRC investigators and CEC members that was key in developing FSA, which is the Center's core research study. Although the SDPRC's investigative team possesses requisite research and analytic skills, CEC member input was instrumental in shaping the study's evaluation design. CEC members were asked to envision how FSA success would be manifested 5 years after implementation. Several members defined intervention effectiveness as seeing more community members engaging in physical activity. As a result, SOPARC (System for Observing Play and Recreation in Communities; McKenzie, Cohen, Sehgal, Williamson, & Golinelli, 2006), which assesses physical activity in parks and recreation areas, was added. Furthermore, CEC members requested that the SDPRC add anthropometric measures and other indicators of health status change in order to be able to demonstrate whether the intervention efforts actually impact health outcomes.

CEC members also provided critical feedback on culturally and locally sensitive issues, such as the inclusion of legal status questions in the SDPRC's second community health survey (Marcelli et al., 2009). Similarly, CEC members were asked to help interpret community health survey data, in particular, the unusually high "I don't know" response rate to a question on whether respondents knew if illegal activities were occurring in their neighborhood. CEC members explained that community residents were likely uncomfortable answering this question for fear of retaliation from exposing possible drug dealers and others engaged in illegal activity. This question was thus omitted from all analyses. In short, SDPRC CEC members function as community researchers whose knowledge and insight are openly valued by SDPRC investigators.

To ensure inclusion of local community knowledge, we established either operating in South San Diego County or serving its population as the main criterion for CEC membership. Agencies and individuals were then selected based on their capacity as community change agents and interest in public health promotion. In 2006, the SDPRC CEC developed guidelines outlining member responsibilities and the governance process. These responsibilities range from identifying community needs and concerns to setting research priorities, as well as providing input on the design, implementation, evaluation, and dissemination of SDPRC research projects, programs, and activities. The CEC guidelines also establish a Data Access Protocol detailing CEC members' responsibility as community gatekeepers to SDPRC data use and dissemination. All manuscripts reporting SDPRC data must be reviewed by CEC members before submission, and these members have opportunities for coauthorship.

The SDPRC employed numerous strategies to retain CEC community partners and gain trust in the community, including (1) developing research projects and Center activities that were synergistic with partner agency missions; (2) responding to partner requests for technical assistance; (3) providing capacity-building opportunities; (4) sharing funding opportunities with community partners; (5) partnering on dissemination activities, including preparing abstracts for conference presentations (24 to date) and manuscripts for publication in peer-reviewed journals (15 to date); (6) advocating on behalf of community partners (e.g., recreation centers, which suffered severe budget cuts); and (7) participating regularly in community events, meetings, and coalitions. The latter was essential to establishing community trust, demonstrating a commitment to the community outside of the research context.

To bolster the SDPRC's community engagement effectiveness, the Center allocated funds on more than one occasion to send multiple CEC members, in addition to the designated CEC representative and the SDPRC's Community Liaison, to participate in biannual meetings of the PRC Program's National Community Committee (NCC). The NCC, initiated in 2000, includes community member representatives from all PRCs (CDC, 2008); NCC meetings are held at the same time as the PRC Directors' meetings. Participating in these national meetings gave SDPRC CEC members the chance to deepen their understanding of the PRC Program and CBPR, and provided them with an opportunity to influence the PRC Program's direction on a national level.

In forming Center partnerships, the memorandum of understanding (MOU) was the most common agreement mechanism, especially in the core research study. Formal agreements such as MOUs are instrumental in sustaining long-term relationships through the building of trust, which is important for sustainable change (Minkler & Wallerstein, 2008). To implement intervention activities in the community, MOUs were needed with community agencies that supported free exercise classes. In the first funding cycle, seven partner agencies provided free space for exercise classes that could accommodate groups as large as 75 people.

The SPM

The SPM guided the SDPRC's initial efforts at conceptualizing and designing an approach for meaningful individual health behavior change relevant to community residents, organizations, and other support structures. SDPRC Core research funding was used to engage in three primary activities: a population-based telephone survey, an intervention study, and a second population-based household survey. These activities were conducted within a larger context (IBACH) that supported several additional intervention studies funded by the NIH, the CDC, the American Cancer Society, and others, as well as the largest Hispanic epidemiologic study, also funded by NIH. It is within this infrastructure that we have identified methods for building the evidence to inform practice.

To examine both predictors and population trends in physical activity and other health behaviors more systematically, the SDPRC's 2006 telephone interview consisted of a random sample of 672 community residents and examined their obesity-related health behaviors. In 2009, a second random sample of 397 individuals was recruited from within randomly sampled households to complete an in-person interview, including measurement of their height and weight. This research led us to conclude that effective strategies for promoting physical activity and other healthy lifestyle behaviors to prevent and control obesity would need to focus on improving access to health-promoting resources (Martinez et al., 2012), reducing barriers (Ayala, Gammelgard, Sallis, & Elder, 2011a), and identifying sources of support including physicians (Reilly et al., in press) and family (Martinez, Arredondo, Ayala, & Elder, 2008).

Supported by substantial evidence (Ayala, Vaz, Earp, Elder, & Cherrington, 2010), the SDPRC's core intervention study was a train-the-trainer *promotora*-based intervention to promote physical activity [additional information about this study can be found in Ayala and The San Diego Prevention Research Center Team (2011b)]. Briefly, SDPRC staff provided 18 h of training to two trainers at each of four partner agencies. The Spanish-language trainer curriculum, written at a 6th-grade level, covered topics such as adult education, program development, and program evaluation. The eight agency trainers subsequently trained 26 *promotores* using the FSA *Promotores* curriculum. The *Promotores* curriculum covered the *promotor*'s role, physical activity promotion, community organization and advocacy, nutrition, and stress reduction. CEC members requested the community organization and advocacy sessions with the hope that *promotores* would form a cadre of local community change agents. All but one trained *promotor* was female, with the one male recruited as part of a husband-and-wife couple; he subsequently dropped out prior to

intervention implementation. This is reflective of other studies demonstrating the difficulty in recruiting Latino and other ethnically diverse men into community health behavior change trials (Ayala et al., 2010; Paskett et al., 2008), a challenge that needs to be addressed in this and other future research.

Intervention efforts changed the community environment, resulting in increased availability of free exercise classes to primarily low-income community residents, with some weeks yielding over 20 free classes offered by the trained *promotoras* at 11 different community locations (see Fig. 2). The scientific design chosen to evaluate the intervention and to build evidence of its effectiveness was a quasi-experimental pre–post study design. After meeting a minimum set of criteria, including obtaining physician permission to engage in physical activity, 387 community residents were enrolled in an evaluation cohort. Most participants were female, possibly because most group exercise classes were dance-oriented and the exercise instructors were women, information that was communicated via word-of-mouth and thus served as a recruitment method. Participants in the evaluation cohort achieved individual improvements in multiple measured outcomes including fitness, blood pressure, waist circumference, and flexibility (Ayala & The San Diego Prevention Research Center Team, 2011b), thereby establishing the effectiveness of the FSA intervention. One community partner agency reported an increased awareness among staff of community health issues as a result of FSA participation. Furthermore, environmental change occurred as a result of FSA *promotoras* using advocacy and community organization skills to conduct a park audit, present data to City of San Diego Park and Recreation Department staff, and negotiate and lead a successful park cleanup day with FSA participants using City-donated resources. Finally, as mentioned above, in response to CEC feedback, SOPARC was conducted in four pair-matched parks to examine changes in park use for physical activity over a 1-year period in intervention compared with control community parks. Initial analyses suggest that the use of parks was not a high priority for either the *promotoras* or the community residents. Although more individuals were observed in the parks between baseline and the 1-year follow-up, the proportion of individuals engaging in moderate-to-vigorous activity in these parks did not change over this time period.

Capacity Building

In addition to training and deploying FSA *promotoras* and trainers, the SDPRC's capacity-building efforts targeted both university and community settings through the organization of annual conferences and training programs for mentees at various stages of their academic careers. The SDPRC's first two conferences focused on physical activity and Latino health; the third conference focused on mental health, while the fourth emphasized advocacy and the environment. Conference participants included representatives from academic institutions, community organizations, community clinics, a local health department, other PRCs, students, and *promotores*, with attendance ranging from 83 to 158 people.

In the university setting, student capacity building was a central focus of the SDPRC's work from the outset. A total of 80 students, ranging from high school to graduate and medical students, 23 of whom were Latino, were involved in SDPRC activities such as development of intervention materials and protocols; data collection and participant recruitment; data

entry, cleaning, and analysis; key informant interviews; and other evaluation activities. Students were also trained to write health promotion articles for the SDPRC health columns in two local, Spanish-language newspapers (39 of these columns were published).

In addition to gaining experience at the SDPRC, four master's-level students completed theses and two doctoral students completed dissertations using SDPRC data. Five of these students presented their work at local and national conferences (Aguirre, Ayala, Patrick, & Elder, 2008; Baquero, Ayala & Marcelli, 2010a, Baquero et al. 2010b, 2011; Martinez, 2011; Martinez et al., 2006, 2007; Reilly, Ayala, Elder, & Patrick, 2008; Schroer & Ayala, 2010). The two doctoral students received CDC/ASPH minority fellowships to fund their research.

Vision for the Future: 2009–2014 and Beyond

Community Engagement: Deepening Efforts and Expanding across Borders

The SDPRC's work has long informed and been informed by research efforts in Mexican American and other Latino communities throughout the country. More recently, research partnerships with Mexican (Holub et al., 2012) and Brazilian (Marshall, 2011) colleagues working in physical activity and obesity have afforded the opportunity to disseminate research in these countries and vice versa. Thus, the SDPRC's vision is to articulate with health promotion efforts not only elsewhere in the United States but also throughout most of the Western Hemisphere.

Locally, the SDPRC CEC has grown to 16 members and collaborations have increased to involve more partners with community expertise and reach, such as a YMCA, a major health care provider, a local community college, and the California Office of Binational Border Health of the California Department of Public Health. However, the structure and community engagement strategies remain largely the same, with one of the main modifications being the reduction of the frequency of CEC meetings from monthly to bimonthly because of budget cuts. CEC members continue to be involved in all aspects of the reciprocal ("town–gown") exchange of information. Building on the community engagement and capacity-building process, it has now become a formal practice to include at least one CEC member as coauthor on *all* manuscripts (Ayala & The San Diego Prevention Research Center Team, 2011b; five other manuscripts are currently submitted/under review).

To assess the effectiveness of community engagement, we created a 62-question online survey, based on one published in Israel et al. (2001), to evaluate CEC member satisfaction. CEC members were highly satisfied with the degree to which their input (and that of the other members) was welcomed and, as a result, how they and their organizations were able to influence the course of the core research project and the overall direction of the SDPRC. In addition, 85 % agreed (either somewhat or strongly) that both their personal knowledge of community health issues and their organization's capacity to conduct related research had improved as a function of CEC membership. Furthermore, there was 100 % agreement that the SDPRC was having a positive impact on the community.

Going beyond Likert ratings on survey responses as a measure of the effectiveness of the SPRC's community engagement process, the City of San Diego's Park and Recreation

Department now lists SDPRC programs as among their own for promoting physical activity in targeted neighborhoods. Furthermore, one very active CEC partner (Casa Familiar) invited SDPRC investigators and staff to help write proposals for and evaluate grants to pursue their own mission, demonstrating trust as well as recognition of SDPRC technical skills to assist the agency in making the science-to-practice link. The primary target of the Casa Familiar effort is to reduce traffic and resulting air pollution at the San Ysidro US–Mexico border crossing, thereby multiplying the community engagement impact to other individuals, agencies, and the environment, and broadening the range of community health issues beyond obesity prevention.

The primary critical feedback from CEC members was for SDPRC academic partners to share more information about the SDPRC budget and resource allocation (this request was a direct result of NCC participation, as the NCC empowered CEC members through CBPR trainings). In response, SDPRC academic partners provided CEC members with proposed budget information related to recent funding cuts and requested CEC member input and approval. In addition, the SDPRC has continued to explore ways to increase resources allocated to the community. For example, partner agency staff members were hired to help implement the core research study, and one of the SDPRC's partner agencies, the CVCC, was funded to spearhead organizing the SDPRC's annual conferences. Grant opportunities have also increased, with the number of grants successfully funded in partnership with CEC member agencies increasing from one to three.

The SDPRC's leadership role in the NCC has grown as well. The SDPRC's current NCC Representative has now served 2 years as Co-Chair of the NCC's Program Committee. She now helps coordinate the NCC's awards program, which was created to encourage PRC academic partners to engage in CBPR.

As evidence that CBPR community practitioners as well as an academic expert in the field rate the SDPRC's community engagement process as effective, the SDPRC was recognized by the NCC in 2011 as one of eleven PRCs to receive its Best Practices in CBPR Award. This award was based on responses to 12 questions developed by the NCC in collaboration with University of Washington Public Health Professor and American Indian researcher, Bonnie Duran (Wallerstein & Duran, 2006). Questions covered key components of CBPR implementation, ranging from PRC governance (i.e., power sharing) to community involvement in PRC budgeting processes as well as in research and dissemination.

Science-to-Practice: From Efficacy to Sustainability and Engagement in Policy Change

Academic partnerships are critical for successful translation of science to practice. The SDPRC extends "transdisciplinarity" to include various specialties not only within a school of public health but also those offered by other departments and colleges (e.g., exercise and nutritional sciences, psychology) as well as laboratory, clinical, and community-oriented faculty in a school of medicine. In each of our initiatives, the resulting community research effort comprises a whole that is greater than the sum of its multidisciplinary parts. At the same time, this transdisciplinary science must be translated into community practice. An important element of this work is the community health worker/*promotor(a)* model, which, like the work of other PRCs (e.g., Ammerman et al., 2011), emphasizes the interpersonal

dimension of change through community resident capacity building. The SDPRC, and research being carried out by SDPRC investigators, emphasizes both evidence-based and innovative versions of the *promotor(a)* model and optimizing intervention impact.

The SDPRC's efficacy work continues through the core research study that is currently examining a modification to the original FSA intervention on participants' risk for obesity. FSA has been modified in several important ways. First, the three intervention partner agencies are now funded to build evidence of the potential for program sustainability and translation into practice. Funding community agencies is an important strategy for building evidence related to whether research-supported efforts can be adopted or generalized to a community setting (Glasgow, Klesges, Dzewaltowski, Bull, & Estabrooks 2004). Second, exercise classes were augmented with an 11-session, healthy lifestyle group-based intervention, delivered by the *promotoras* at initiation of study involvement concurrently with exercise classes. The healthy lifestyle component was added based on strongly expressed interest, collected in focus groups and via self-administered surveys, for more information on how to lose weight and follow a healthy lifestyle. Session topics include healthy eating, sleep, stress management, and family communication. In collaboration with funded partners, SDPRC staff members have trained 24 *promotoras* to conduct healthy lifestyle and exercise classes (see Fig. 3), and 40 1-h group exercise classes are currently available for free to community residents. The SDPRC has enrolled 217 community residents to participate in an evaluation cohort and will track their health status (e.g., BMI, fitness, blood pressure, depression) over a 1-year period.

Despite progress and innovations, CDC budget cuts compelled the SDPRC to work with CEC members to modify research protocols in order to narrow evaluation activities to be specific to the intervention. External funding, however, permitted the SDPRC to expand its research efforts to include engagement in policy change through collaboration with CEC member agency Casa Familiar on the Healthy Borders air quality study. This research effort coincided with the Federal government's $170-million San Ysidro Port of Entry reconstruction project. Casa Familiar's main aim in pursuing this study was to use results in advocacy efforts with local and federal agencies to influence the reconstruction project and enact policies promoting pedestrian health at the border crossing and improving air quality in San Ysidro.

Capacity Building: PRIDE and IMPACT

SDPRC capacity-building efforts remain multidimensional and continue to encompass both the university and community settings. At one end of the academic spectrum, these efforts now include a training program (PRIDE) to build capacity among junior faculty to establish research careers in health disparities, specifically Latino cardiovascular health disparities. At the other end of the academic spectrum, they involve fellowship opportunities for undergraduate and master's-level students through the newly funded IMPACT Training and Mentoring Program, as well as the continuation and further development of the SDPRC internship program.

Training community health workers at community colleges is an innovative yet under-utilized approach for building capacity among community residents to be change agents.

Although the SDPRC's community college partner has a community health worker certificate program, organizational limitations exist such as barriers for non-English language–dominant students to obtain certifications and lack of access to higher education for undocumented immigrants. The SDPRC partnered with the community college to develop a two-part "pre-Certificate" course taught through the San Diego Continuing Education Program to overcome these barriers, as the course could be taught bilingually and no documents proving US legal status were required for course enrollment. Unfortunately, higher tuition fees as a result of the course's success and popularity (58 students were trained the first time the pre-Certificate course was offered) and substantial budget cuts made the course cost-prohibitive for *promotores*, none of whom enrolled following this increase. The SDPRC is currently seeking funding for a program incorporating the pre-Certificate course and creating a labor force development component.

The SDPRC shifted the focus of its annual conference to training *promotores*, partnering with the CVCC to spearhead this conference held in the community and conducted primarily in Spanish. The SDPRC funded 18 *promotores* from nine PRCs to attend its 5th annual conference, which attracted 155 attendees. In response to participant evaluations, a 6th annual conference organized collaboratively with SDPRC agencies was expanded to 2 days and included an in-depth mental health training session for *promotores* and a simultaneous training session for agencies seeking to involve *promotores* in their work was provided.

Conclusions

The SDPRC was built on a foundation of 20 years of pre-existing research, community collaboration, and education in the Latino communities of the San Diego/Tijuana border region. Now in the second funding cycle, SDPRC activities have been disseminated through a number of channels including peer-reviewed publications; national, state, and local presentations; and a training program. Through its efforts, the SDPRC significantly contributed to a broader capacity in the scientific community for CBPR research in culturally and linguistically diverse communities in general and those in the American southwest in particular, anticipating the rapid growth of the Latino population across the country. Lessons learned from our experience have been applied to new efforts for obesity prevention and control in this same region and others in the rural, agricultural Imperial Valley along the US–Mexico border to the east, which has a higher concentration of Latinos living in even greater poverty. Lessons learned from the SDPRC experience are as follows:

Community Engagement

Regardless of the type or scope of partnering organizations, there must be an open, frequent, and ongoing exchange of information. Through this exchange, all manner of input and feedback are welcome with the largest beneficiary being quality in terms of cultural appropriateness, and hence, an increase in the potential for translation into practice. Whether ample or (as they are currently) limited funds are available to support community trials, CBPR, and related research, the partnership between researchers and an engaged community is the best entity to decide on how to take "science to practice"… and vice versa.

Science-to-Practice

Through the reciprocal exchange of information, an optimal science-to-practice process can be established. The role of investigators is to bring “state of the science” information to the table to share with community decision makers. The latter then suggest preference for or modifications of various intervention and evaluation methods based on “state of the community” information. Subsequently, once interventions are developed to an optimal level, the community can take the lead in how best to sustain the programs or at least their more successful elements.

Capacity Building

The community health worker/*promotor(a)* model needs to continue to be adapted to various communities. Training resources as well as institutions to sustain training and deployment efforts, such as local community colleges, must be identified. In addition, the community engagement process has provided a “community laboratory” and resources for educating dozens of undergraduate, master’s-level, and doctoral students, future leaders in Latino health research. Indirectly, an emphasis on students who come from the very communities in which research is conducted sends a message back to these communities that investigators are interested not only in improving their health but also in empowering them so that they are better positioned to do so themselves.

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Fig. 1.

Map of southern California showing South San Diego County (*circled*), the target study area of the SDPRC

Fig. 2.
Promotoras practicing an exercise routine

Fig. 3.
Promotoras, coordinators, and staff of the *Familias Sanas y Activas* research project

Table 1

Selected demographic characteristics: SDPRC Target Community, Region, and USA (2000 Census)

	United States	San Diego County, CA	South San Diego County, CA	San Ysidro, CA
Population trends				
% Latino/Hispanic origin (US Census Bureau, 2000b)	13	27	58	89
% Latino/Hispanic origin (US Census Bureau, 2010)	16	32	70	93
Demographics (US Census Bureau, 2000b)				
Median age, years	35	33	29	26
Median annual household income	$41,994	$47,067	$37,948	$26,772
Education				
Completed high school (%)	80	85	67	43
Completed bachelor's degree or higher (%)	24	34	13	6