Research advisory board members' contributions and expectations in the USA

R. M. PINTO[1]*, ANYA Y. SPECTOR[2], R. RAHMAN[1] and J. D. GASTOLOMENDO[3]

[1]*Columbia University School of Social Work, New York, NY, USA*, [2]*HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University, New York, NY, USA and* [3]*Latino Commission on AIDS, New York, NY, USA*
*Corresponding author. E-mail: rmp98@columbia.edu

SUMMARY

This study focuses on the Implementation Community Collaborative Board (I-CCB) to identify members' anticipated contributions to and returns from the I-CCB; examine whether or not members achieved these contributions and returns over time; and explore barriers and facilitators that influenced accomplishments. Longitudinal study with repeated semi-structured in-depth interviews; baseline captured anticipated contributions and returns; 6- and 18-month follow-ups short- and longer-term achievements. We used content analysis to code/reduce text into variables, describe, count and compare categories. Participants anticipated involvement in I-CCB dynamics/governance and in research tasks/procedures. Anticipated returns included social support. Participants exerting influence on I-CCB's research agenda stayed the same over time. Participants conducting research doubled between follow-ups; those writing grant proposals increased by 50%. Participants receiving emotional support remained the same. Challenges*: meetings steered by researchers; lack of time; use of jargon.* Facilitators*: outreaching to community; being affected by HIV; having overlapping identities/roles as researcher, service consumer and/or practitioner. Research partners can maximize facilitators, redress barriers and improve advisory board members' retention. Findings may help optimize the functioning of advisory boards worldwide.*

Key words: community advisory board; engagement and retention; CBPR; HIV/AIDS

INTRODUCTION

Community Based Participatory Research (CBPR) calls for collaboration/partnership between researchers and communities (e.g. residents, practitioners, local leaders) in order to align research agendas with community priorities (Wallerstein and Duran, 2006). Research involving community partners engenders greater rigor, external validity and usefulness (e.g. translatability) than does research conducted solely by researchers (Lasker and Weiss, 2003). Researcher–community partnerships ('partnerships') foster trust between communities and research institutions and improve appropriateness of measurements, accuracy in data interpretation and dissemination to practitioners and community members (Larkey *et al*., 2009; Pinto *et al*., 2010; Schmittdiel *et al*., 2010; Wallerstein and Duran, 2010; Dong *et al*., 2011; O'Brien and Whitaker, 2011).

Government and private funding agencies (e.g. World Health Organization and the US National Institutes of Health) often require participation of practitioners and community members in scientific research via advisory boards, usually called Community Advisory Boards (CABs). In 1990, advisory boards were instituted in the USA by the National Institute of Allergy and Infectious Diseases. Since then, advisory boards have become the key strategy for addressing

community concerns in HIV research design and prioritization (Cox *et al.*, 1998). Advisory boards offer opportunities for iterative processes (e.g. power sharing, problem solving and mutual aid) between researchers, policy makers and community members for addressing community concerns about scientific inquiry (Morin *et al.*, 2003; Delaney *et al.*, 2012). Currently, advisory boards are used worldwide to organize community–researcher partnerships and to improve relevance of research questions and findings, ethical procedures and access to participants (Israel *et al.*, 1998; Wandersman *et al.*, 2008).

Prior research has indicated that there is often a separation between researchers *and* advisory board members, by describing the latter as performing procedural tasks to assist the former and by focusing on what researchers expect from community partners while neglecting to say what community partners might expect in return (Cargo *et al.*, 2008). Both researchers and their partners envision involvement in *substantive* aspects of research, such as specification of aims, data analysis and dissemination. But community partners are often involved only in *procedural* tasks (e.g. recruiting and communicating risks/benefits) (Cox *et al.*, 1998; Lantz *et al.*, 2005; Morin *et al.*, 2008; National Cancer Institute, 2010). Advisory boards have been thus portrayed as providing a 'rubber stamp,' rather than substantive input (Cargo *et al.*, 2008). However, previous research, descriptive and cross-sectional, is insufficient to corroborate these assertions.

The present *longitudinal* study focuses on a board whose membership unanimously decided to call Implementation Community Collaborative Board (I-CCB). The term I-CCB is a variation on the term 'advisory board' and is used here to emphasize collaboration over advisement and to specify the type of research (i.e. implementation) with which this board is involved. I-CCB members, described below, share common interests and goals. This study used three waves of data from the entire membership. The study aimed to: (i) identify I-CCB members' anticipated contributions to and returns from the partnership; (ii) examine whether or not members achieved these contributions and returns over time; and (iii) explore barriers and facilitators that influenced accomplishments.

Summary of the literature

The literature indicates that community residents and practitioners value social support they draw from research partnerships (Lasker and Weiss, 2003; Ross *et al.*, 2010). They anticipate working with a diverse group toward common objectives (Mosavel *et al.*, 2005; Minkler *et al.*, 2008; Pinto *et al.*, 2008; Stacciarini *et al.*, 2011) and contributing to research agendas (Castleden *et al.*, 2008; El-Bassel, 2008). In return, they hope to learn new skills and expand their social/professional networks (Lantz *et al.*, 2001; Spector, 2012). Practitioners partnering with researchers expect to improve the services they provide (Bellamy *et al.*, 2008). Researchers anticipate community partners will elucidate community priorities (Thompson *et al.*, 2009).

'Barriers' to making contributions and receiving returns include disparities between researchers' and partners' education/training and access to financial and social resources (Schulz *et al.*, 2001; Israel *et al.*, 2006). Researchers' use of jargon may exclude their partners from discussions (Delman, 2012). Differences in social status and communication styles may prevent development of a common language (Newman *et al.*, 2011). Research institutions usually receive funding, while communities have little say as to how funds are used. Lack of compensation for community partners and competing demands in their lives interfere with their involvement (McKay *et al.*, 2007). Practitioners who 'buy into' research may become discouraged by power struggles (Wallerstein, 1999), distribution of resources (Champeau and Shaw, 2002) and professional interests (e.g. research versus practice) (Corbie-Smith *et al.*, 2002).

'Facilitators' to meeting expectations are those factors crucial to sustaining partnerships. Researchers' incorporation of partners' input improves partnership functioning; researchers are viewed favorably when they respond to inquiries promptly and display social manners consistent with community norms (Morin *et al.*, 2003; Ross *et al.*, 2010; Dulmus and Cristalli, 2012). Board structure and governance help fulfill all partners' expectations by encouraging conflict resolution as a group (Jagosh *et al.*, 2012). Planned activities help establish partnership missions (Morin *et al.*, 2003; Pinto *et al.*, 2008), which, in turn, improve the frequency of meetings and attendance (Cox *et al.*, 1998; Shalowitz *et al.*, 2009).

The makeup of advisory boards change over time and drop-out is common, but most board-informed research is cross-sectional (Morin *et al.*, 2003). Advisory boards are too small for inferential analyses. Aggregating data from several

boards fail to capture local knowledge, priorities and research interests. Most advisory boards are assembled after a study is funded and aims/procedures determined (Newman *et al.*, 2011). To overcome these limitations, we assembled the I-CCB ($n = 30$), and conducted a longitudinal study to identify members' anticipated contributions and returns and to explore barriers and facilitators that influenced members' involvement. In a time of contracting budgets, this research is critical; it demonstrates empirically how to help advisory boards' members, researchers and community partners worldwide meet expectations and improve research processes and outcomes (Viswanathan *et al.*, 2004; Khodyakov *et al.*, 2011; Jagosh *et al.*, 2012).

METHODS

Implementation Community Collaborative Board

This article is based on data from members of the Implementation Community Collaborative Board (I-CCB) affiliated with Columbia University School of Social Work. Details of the I-CCB's formation, structure and group dynamics are published elsewhere (Pinto *et al.*, 2011). We built the I-CCB as a network whose mission and governance, incorporated in a Memorandum of Understanding, were to conduct ongoing research on HIV/AIDS, incarceration and substance abuse in underserved communities. The workings of the I-CCB reflect the Theory of Balance and Coordination (Litwak *et al.*, 1977).

Theory of Balance and Coordination suggests that knowledge/skills of local groups (e.g. community residents) can complement those of researchers. By balancing and coordinating substantive *and* procedural tasks, matching varied knowledge/skills, socially and professionally diverse individuals can accomplish shared goals better than either could alone. It is not necessary, nor feasible, that researchers and lay community representatives replicate one another's tasks, nor acquire the same knowledge. Rather they ought to inform each other through iterative processes that integrate their diverse styles, skills and perspectives to create research that is relevant and rigorous. Theory of Balance and Coordination helped guide the I-CCB composition by suggesting that members be selected based upon each

member unique and experiences and the ability to exchange information thoughtfully, as well as relate well with a large diverse network. Consistent with the Balance Theory, these characteristics were crucial in order to fulfill the promise of capitalizing upon a diverse range of skills and knowledge. The theory also guided the work of the I-CCB by ensuring that the projects undertaken by the group were not chosen haphazardly, nor by a dominant voice. The I-CCB prioritized projects that were most important to the group and took care to elicit the opinions of each member in the group at every meeting so that those who tended to speak less or were reticent had an opportunity to offer their input and contribute unique knowledge and skills.

The I-CCB comprises a diverse constituency (e.g. academic and community representatives) with differing skills (e.g. research and practice) and demographics (e.g. race and education). Following Theory of Balance and Coordination's tenets, members co-facilitate and attend quarterly and sub-committee meetings, retreats, seminars on research design and informal gatherings. Sub-committee members (5–8) perform research tasks that match their skills and all members receive stipends at each meeting.

I-CCB recruitment

Recruitment followed a purposive, snow ball approach. It entails recruiting one or more initial study participants and asking them to recommends. Because the I-CCB conducts research in specific areas of interest, we also required, from recommended participants, a stated commitment to preventing HIV, incarceration and/or substance abuse as an inclusion criterion. Initially, four researchers recommended service consumers and practitioners with whom they had served on other advisory boards, who then recommended others from their social/professional networks. The I-CCB included eight behavioral researchers, one doctoral student, two post-doctoral fellows, one field educator, eight providers, five administrators, one pastor and four service consumers. Nineteen were females and 11 males. Nine were African-American, seven Latino/a, nine Caucasian, two Asian/Pacific Islander and three multi-ethnic/racial. Ages ranged from 33 to 60. Three members opted out of the study because they changed jobs and/or moved. The final sample included 27 participants.

Design and procedures

We used a longitudinal design with repeated, semi-structured in-depth interviews at baseline and six- and 18-month follow-ups to generate a deep understanding of how participant-identified facilitators and barriers influenced their contributions and returns over time. Our design is consistent with research about changes associated with a perception or experience over time (Ployhart and Vandenberg, 2010, pp. 515–516). The baseline captured contributions and the returns anticipated by participants. Between baseline and follow-ups, the I-CCB matured, and its members faced facilitators and barriers. By repeating baseline questions, we captured short-term accomplishments at six months and longer-term at 18 months. To validate results, we used triangulation (Richards, 2009, p. 140), cross-verification from digital recording and transcription of I-CCB meetings and records (e.g. attendance) of participants' involvement in I-CCB activities. Meeting transcripts and written records validated members' attendance, their involvement in governance, and facilitators and barriers.

Interview protocol and procedures

The protocol reflected key constructs (*italicized*) of the Theory of Balance and Coordination. I-CCB members' *indigenous and technical knowledge/skills* were assessed by inquiring about their personal, research-related and practice-related experiences, including involvement in other advisory boards (paid or volunteer). To assess potential and actual involvement in research tasks/procedures, we asked about anticipated (baseline) and actualized (follow-ups) contributions and returns. The Theory suggests that partners with complementary knowledge/skills sets ought to *balance and coordinate* all research tasks. The protocol thus included questions about barriers and facilitators to participating in I-CCB activities and performing research tasks. Because the performance of such tasks could be influenced by I-CCB dynamics, the protocol included prompts to explore perceptions about involvement in I-CCB activities. Follow-ups included baseline questions, in addition to questions about board governance and social support board members developed after the baseline.

We obtained approval from the appropriate IRB and informed consent from participants. Interviews, conducted by Master's level assistants, were digitally recorded and transcribed verbatim. Participants received a $40 incentive per interview. Baseline interviews lasted 30–45 min and follow-ups averaged 45 min. Standards of good measurement ensured interview protocol validity (Morse *et al.*, 2008; Neuendorf, 2002, p. 115); we developed questions in consultation with service consumers and providers who were not I-CCB members. The Principal Investigator (PI), who was also an I-CCB facilitator, has expertise in protocols to study research partnership. To ensure protocol fidelity, the PI and another researcher outside the I-CCB reviewed nine randomly selected interviews and their transcriptions to ensure that interviewers adhered to scripted questions and used prompts appropriately. Before interviews began, the protocol was shortened and prompts added to tap specific facilitators and barriers. A modified version was used in follow-ups to identify barriers and facilitators and to find out if participants anticipated contributions and returns were actualized. To create continuity, before each follow-up, the interviewer provided a brief summary of the previous interview.

Analytic strategy

CBPR upholds co-learning and equitable partnerships in which all contributions are equally valued (Israel *et al.*, 1998). I-CCB members agreed that they embodied overlapping identities/roles. For example, an HIV prevention researcher might have been a practitioner and/or a consumer of HIV services. Characterizing I-CCB members solely by titles/identities would not have been an accurate representation. Therefore, they were not separated (i.e. researchers, consumers, providers) for data analysis. We acknowledge that though CBPR upholds co-learning and equitable partnerships, this is an ideal not always achieved.

Baseline and follow-ups were organized into case profiles (Eisenhardt and Graebner, 2007) averaging 20 single-spaced pages, making the three sequential interviews the analytical unit. Three coders analyzed/interpreted the data using well-documented procedures for content analysis of case profiles (Creswell, 2007, pp. 208, 210; Neuendorf, 2002, p. 53). To ensure interaction and full exploration of longitudinal data, they conducted independent analyses instead of using software for data reduction (Lee and Esterhuizen, 2000; Padgett, 2011, p. 191). Content analysis was used to put text into categories (i.e. variables), to

describe, count and compare variables within case profiles (Creswell, 2007, p. 152; Kothari *et al.*, 2009; Zhang and Wildemuth, 2009); and to strengthen internal validity by allowing coders to identify categories whose relations were richly described in the text (Neuendorf, 2002, p. 115). Content analysis was a good strategy because it allowed us to systemically examine textual material, quantify the number of incidents of the phenomenon in question, analyze the relationships of quantified values to describe the phenomenon and draw inferences about its meaning.

Data sampling, establishing codes, marking and selecting text

First, coders read independently and subsequently discussed two case profiles to assess data quality. Coders had 15 two-hour meetings for debriefing to ensure rigor, define codes and discuss interviews (Cobb and Forbes, 2002). Coders discussed impressions about the first two interviews and engaged in structured coding (Creswell, 2007, p. 210) by seeking categories (contributions and returns) suggested by the interviews (Denzin and Lincoln, 2000, pp. 780–782; Miles and Huberman, 1994, pp. 56–58). Coders then reviewed another five profiles to confirm the occurrence of categories of interest, including barriers and facilitators, and to develop a codebook with definitions and quotes exemplifying each category. Coders used member check (Padgett, 2011, pp. 212–213), consisting of validation of the codebook and the operational definitions of categories by two study participants. Operational definitions allowed coders to identify the same variables in multiple case profiles (Creswell, 2007, p. 210).

The designated codebook keeper maintained a record of refinement of categories (Padgett, 2011, pp. 176–177) as coders collapsed and reorganized categories (Morse, 2008), and condensed interrelated variables into themes expressed in interviews. Coders identified anticipated contributions and returns (baseline) and looked for text in follow-ups to identify participants' accomplishments. They also categorized barriers and facilitators and organized these into themes. Final codes reflected 100% agreement among coders. Saturation occurred after the 12th case profile, when no other categories emerged (Charmaz, 2000, p. 528). Coders analyzed the 15 remaining interviews, selected text representing final categories and provided the text to two participants (member check) for them to validate the

representativeness of final categories (Padgett, 2011, pp. 212–213).

To examine members' accomplishments, we used descriptive analyses (Neuendorf, 2002, p. 53). In the baseline interviews, we detected participants' anticipated contributions and returns; we then looked for text, in each follow-up, to substantiate whether or not a participant had achieved anticipated contributions and returns. We then created a data file with all possible contributions and returns and assigned 'yes' or 'no' labels to each category in both follow-ups.

RESULTS

Table 1 summarizes longitudinal results. Participants anticipated 11 contributions and returns. Four contributions reflected I-CCB processes and group dynamics and three reflected research tasks/procedures. Anticipated returns included informational, tangible and emotional supports. We validated contributions by examining transcriptions of I-CCB meetings and records of involvement in I-CCB activities. Table 1 contains quotes reflecting participants' feelings and opinions. To demonstrate a longitudinal progression, we placed baseline data alongside quotes that reflected statements participants gave in follow-ups. A quote illustrating a follow-up statement is not necessarily taken from the same participant in the baseline, because many participants reported unanticipated returns and contributions.

Table 2 shows the number/percentage of participants who identified contributions and returns in the baseline and the number/percentage of participants who reported accomplishing them over time. We also provided the ratio between 18-month and 6-month follow-ups.

Partnership processes and dynamics

The I-CCB has identified key group dynamics that help board members' accomplish I-CCB's objectives. Dialectic process helps I-CCB members exchange personal and professional information by speaking at meetings and problem solving helps members achieve consensus around I-CCB processes (e.g. type of research they wish to pursue) (Pinto *et al.*, 2011). At baseline, participants anticipated attending (17, 63%) and speaking (12, 44%) at meetings; influencing the I-CCB research agenda (11, 40%); and research-related problem solving (6, 22%). Ninety-six percent regularly

Table 1: Longitudinal summary of anticipated contributions and returns and respective accomplishments

		Anticipated contributions and returns (baseline)	Accomplishments (follow-ups)
Partnership processes and dynamics	Attend meetings	*'My initial expectation was to attend meeetings'*	*'I think I made most meetings. I might have missed one'*
	Speak in meetings	*'To voice my experiences from the field of twenty years'*	*'I bring information from the community and perspective of life. I speak of religious perspectives and knowledge'*
	Exert influence	*'There's a gain in being able to influence the process'* *'I feel my responsibility is to let them know agenda items whenever needed'* *'My expectation is to develop and expand the board'*	*'Everyone was involved in the process through shared decision making where everyone voiced their opinions'* *'I brought organization to the board such as shaping our research agenda'* *'I was help the board by recommending people'*
	Problem-solve	*'I think there's always going to be a stress . . . understanding inherent conflicts and deciding as a group how much needs to be attended to is very important'*	*'We had disagreements on how to deal with designs . . . we voted on issues and on how are we going to accomplish that issue. We negotiate and give each other respect and an opportunity to voice our opinions'*
Research tasks and procedures	Conduct research	*'It's an effort to get together service providers, clients and university collaborators to develop research and design projects and to get them funded to further those agendas'*	*'I have collaborated with X, a service provider, in the board on a research project that will likely get funded for the next five years'*
	Develop grant proposals	*'I'd like the board to write a grant related to an HIV/AIDS intervention using a community collaborative board model'*	*'We are working on a grant to test effectiveness of a trauma-based HIV intervention for female offenders'*
	Perform health promotion outreach	*'I see this venue to learn more so this information can enlighten me and I would be able to come back and communicate additional information to my community'*	None found
Social Support	Lend emotional support	*'I'd like to feel at ease to say what I feel, hear them and open up'*	*'They made me feel good about myself . . . it was the atmosphere that makes me feel good about my myself'*
	Lend tangible support	*'Every day if B could hire me for an hour, I could have a job in the board and get a computer'*	*'D put food in my house, she works at a pantry. I told her that I didn't have food. She told me I'll bring you food'*
	Lend informational support	*'I look forward to developing relationships as much as possible to learn more about the information in their fields'*	*'People reach out. If there is a job available, people discuss the information, there seems to be a network'*
	Learn more about research	*'I'm looking to learning more within this model of collaboration involving different types people and learn more to do research'*	*'I have increased my knowledge base about research by gathering information . . . I believe I have been able to expand more resources by learning about research'*

attended meetings at 6 months, but that percentage fell by 20% at the 18-month follow up. Similarly, 93% spoke at meetings at 6 months, but that also fell by 20%. The percentage of participants who engaged in problem solving fell by 40% between the 6-month (15, 56%) and 18-month (9, 33%) follow-ups. Nonetheless, the percentage of participants (15, 56%) who perceived themselves as exerting influence on the I-CCB's research agenda stayed the same over time.

Research tasks and procedures

Participants' anticipated conducting research, e.g. recruiting, specifying aims and dissemination.

Table 2: Participants' accomplishments over time ($N = 27$)

	Contributions and returns	Baseline $(n, \%)^a$	Six-month $(n, \%)^b$	18-month $(n, \%)^b$	Ratio
Partnership processes and dynamics	Attend meetings	17 (63)	26 (96)	23 (85)	0.8
	Speak at meetings	12 (44)	25 (93)	21 (78)	0.8
	Exert influence	11 (40)	15 (56)	15 (56)	1.0
	Problem-solving	6 (22)	15 (56)	9 (33)	0.6
Research tasks and procedures	Conduct research	17 (63)	10 (37)	20 (74)	2.0
	Grant writing	7 (26)	6 (22)	9 (33)	1.5
	Outreach	6 (22)	–	–	N/A
Social support	Informational	22 (81)	24 (89)	20 (74)	0.8
	Learn more about	9 (33)	12 (44)	14 (52)	1.2
	Emotional	9 (33)	11 (41)	11 (41)	1.0
	Tangible	6 (22)	5 (19)	3 (12)	0.6

Ratio = 18-month follow up percentage by 6-month follow up percentage.
[a]Number (%) of participants who identified that category.
[b]Number (%) of participants who accomplished that category.

The number of participants conducting research doubled between follow-ups; those writing grant proposals increased by 50%. No participant reported engaging in outreach.

Social support

Participants anticipated receiving emotional, tangible and informational supports and increasing their knowledge about research. The number who reported receiving informational support decreased by 20% between follow-ups. However, there was a 20% increase in the number who received research-specific information. Participants receiving emotional support remained the same over time, while those receiving tangible support decreased by 40%.

Barriers and facilitators

Table 3 shows barriers and facilitators. Key barriers included: partnership goals steered by researchers (24 participants; 91%); lack of time for research tasks/procedures (22; 81%); meetings dominated by researchers (18; 67%); and use of jargon (18; 67%). Facilitators included: prior experience in design/procedures (20; 74%), in data analysis (4; 15%), and as research participant (8; 30%); *and* experience providing social/health services (17; 63%), providing outreach to communities (8; 30%), and being infected/affected by HIV (6; 22%). Twenty-four (89%) participants reported that overlapping identities—as researchers, community members and/or practitioners—were important facilitators.

Table 3: Barriers and facilitators to accomplishments ($N = 27$)

Barriers	$n\ (\%)^a$
Goals guided by researchers	24 (91)
Competing obligations and lack of time	22 (81)
Meetings dominated by researchers	18 (67)
Use of professional jargon	18 (67)
Facilitators	***n* (%)**
Prior research experience	
Research design and procedures	20 (74)
Research participant	8 (30)
Data analysis and dissemination	4 (15)
Personal or professional experience	
Service provider (paid or volunteer)	17 (63)
Outreach to community	8 (30)
Living with or affected by HIV	6 (22)
Overlapping identities/roles	
Being researcher and/or community member and/or practitioner	24 (89)

[a]Number (%) of participants who identified that category.

DISCUSSION

There was an overall decrease in the number of members who regularly attended and spoke at meetings. Members' perceived engagement in problem-solving decreased, while a perceived ability to exert influence spiked between baseline and 6-month follow-up and then stayed the same between follow-ups. These findings reflect group dynamics theory and practice (Breton, 1990; Steinberg, 1997; Becker *et al.*, 2005) in that key dynamics identified by I-CCB members (i.e. dialectic process and problem solving) (Pinto *et al.*, 2011) were more frequently used in the inception

of the I-CCB and waned over time. There was a consolidation of roles and responsibilities among I-CCB members that allowed more flexibility around attendance. Recruitment occurred over a period of 1 year; by the time all participants had given baseline interviews, sub-committees had formed, and some members attended from one to several sub-committee meetings on a regular basis. This may partially explain a decrease in attendance due to members' overlapping commitments and lack of time (McKay *et al.*, 2007).

The perceived decrease in problem solving (e.g. developing recruitment strategies of hard-to-reach individuals) also reflects group dynamics and the Theory of Balance and Coordination. In the developmental stage of groups, members engage more intensely in mutual aid, discussions and activities (Steinberg, 1997). With the passage of time and based on members' unique knowledge/skills, a balance and coordination of roles (Litwak *et al.*, 1977) develops and specific problem solving wanes (e.g. defining the I-CCB research agenda). Supported by the fact that over 50% of participants perceived themselves as influencing the I-CCB agenda, we conclude that we achieved a meaningful balance/coordination of knowledge/skills that we then used to distribute research-related tasks among the membership. For example, members, who identified primarily as service providers and consumers, exerted influence by bringing 'community voices' into research design of I-CCB-related projects (Castleden *et al.*, 2008; El-Bassel, 2008; Jagosh *et al.*, 2012).

Procedural contributions included recruiting I-CCB members, developing agenda items and co-chairing meetings. Substantive involvement—specifying research objectives, writing grants and designing protocols—also increased over time. However, anticipated health promotion outreach decreased. Intriguingly, the I-CCB conducted several outreach projects. For example, members provided health education to individuals attending events where an I-CCB-led Photovoice was exhibited. But most members regarded 'outreach'—health fairs and distribution of written materials—as unrelated to research and Photovoice as exclusively research. This affirms the need for further research on how best to develop a common language among diverse board members (Lasker and Weiss, 2003).

Training on research-related issues provided at the I-CCB inception continued over time; however, exchange of personal and professional information, high in the beginning, waned as I-CCB members became acquainted with one another. Informational support and advice about social services and/or career development (Lantz *et al.*, 2001) were common in the first year. Emotional support included 'feeling heard,' being praised and receiving recognition (Lasker and Weiss, 2003; Ross *et al.*, 2010). As shown in previous research, emotional support empowered I-CCB members to educate their peers about research in their social and professional networks (Pinto *et al.*, 2008). Six members anticipated receiving tangible support—food at I-CCB events, referrals to services and stipends—but only three reported receiving such support at 18 months. Participants who did not receive anticipated support went through difficult times due to sickness and loss of work and/or welfare benefits. This suggests that funding agencies ought to earmark a portion of research budgets and require it to be used by research institutions to help defray the cost of living, particularly of low-income partners.

Longitudinal findings suggest that facilitators and barriers explain how participants accomplished anticipated contributions and returns. Prior involvement in research had familiarized participants with design/method and thus facilitated present research tasks/procedures. Personal experience with HIV/AIDS enhanced empathy for others vulnerable to this and other conditions. Having overlapping identities facilitated integration of scientific with indigenous knowledge and practice wisdom. However, jargon and discussions dominated by researchers challenged other members' understanding of discussions (Schulz *et al.*, 2001; Israel *et al.*, 2006; Delman, 2012), and lack of time due to competing obligations reduced members' attendance. We contend that advisory board functioning, member engagement and retention can be enhanced by maximizing facilitators while addressing barriers. Acknowledging researchers as board members highlights the overlapping identities of all members and the equal value of their contributions; this helped to facilitate I-CCB members' accomplishments.

Though we did not split I-CCB members into categories, barriers did affect members somewhat differently. Members with less formal education (e.g. service consumers) had difficulties understanding research jargon and felt curtailed in their abilities to contribute to grant writing and specifying aims and methods. Attempts were made to include all members by soliciting their participation during meetings. The PI often met

members outside of regular meetings and created an alternative space to clarify research concepts. Nonetheless, development of a common language lagged. Future research may thus focus on uncovering alternative communication strategies for board members with differing education levels, cognitive capacities and communication styles.

Limitations of this research include a focus on a single board whose structure and dynamics developed uniquely over time. Professional bonds between this study's PI and I-CCB members may have led to more positive responses than usual during interviews. However, the PI did not know all participants who joined the board over time, making bias correction at recruitment unfeasible. We used data from two members who dropped out after the first follow-up and whose expectations were not confirmed by the second follow-up. We used these data alongside the data from other members because they revealed expectations, some of which were realized before the first follow-up interview. We also acknowledge that some partnership goals were steered by researchers, meetings were sometimes dominated by researchers, and there was profuse use of jargon during meetings. This result appears to be in contradiction with the fact that I-CCB members embodied overlapping identities and roles and need to be further explored in future research. Of particular interest will be to find out how expectations and constraints may relate to members' initial position on the board. Despite limitations, the I-CCB diverse membership makes us confident that these findings are relevant to advisory boards of any size and other locations. Innovative strengths of our design include: three waves of interviews to capture short- and long-term accomplishments; the relatively large I-CCB; integration of data from researchers and community partners; and data triangulation.

Implications for advisory boards

Advisory board members whose anticipated contributions and returns are accomplished may be more motivated to remain involved. Retention of 80% of the I-CCB membership over 4 years suggests that participants managed most barriers and contributed to and gained from their involvement. By capitalizing on facilitators and addressing barriers, research partners can improve engagement, retention and participation in procedural and substantive aspects of research. I-CCB dynamics

(*italicized*) can be used by other advisory boards: *dialectic processes* to help members blend scientific and indigenous knowledge and practice wisdom; *mutual support* to work together despite social/ professional differences; and *problem solving* to achieve consensus. Having a Memorandum of Understanding in place can facilitate accomplishments by fostering trust. To help low-income partners, advisory boards may advocate for earmarked funding to help members facing financial difficulties. Advisory boards may choose to rotate facilitators so that all members can 'run' meetings. Jargon can be monitored so that non-academic members are always included.

ACKNOWLEDGMENTS

FUNDING

REFERENCES

Becker, A. B., Israel, B. A. and Allen, A. J., III. (2005) Strategies and techniques for effective group process in CBPR. In Israel, B. A., Eng, E., Shulz, A. J. and Parker, E. A. (eds), *Methods in Community-based Participatory Research for Health*. John Wiley & Sons, Inc, San Francisco, pp. 52–72.

Bellamy, J., Bledsoe, S. E., Mullen, E. J., Fang, L. and Manuel, J. (2008) Agency- university partnership for evidence-based practice in social work. *Journal of Social Work Education*, **44**, 55–76.

Breton, M. (1990) Learning from social group work traditions. *Social Work with Groups*, **13**, 21–34.

Cargo, M., Delormier, T., Levesque, L., Horn-Miller, K., McComber, A. and Macaulay, A. C. (2008) Can the democratic ideal of participatory research be achieved? An inside look at an academic-indigenous community partnership. *Health Education Research*, **23**, 904–914.

Castleden, H., Garvin, T. and First Nation, H. (2008) Modifying Photovoice for community-based participatory Indigenous research. *Social Science & Medicine*, **66**, 1393–1405.

Champeau, D. A. and Shaw, S. M. (2002) Power, empowerment, and critical consciousness in community collaboration: lessons from an Advisory Panel for an HIV Awareness Media Campaign for Women. *Women & Health*, **36**, 31–50.

Charmaz, K. (2000) Grounded Theory: Objectivist and constructivist methods. In Denzin, N. K. and Lincoln, Y. S. (eds), *Handbook of Qualitative Research*. 2nd edn. Sage Publications, Inc, Thousand Oaks, CA, pp. 509–535.

Cobb, A. K. and Forbes, S. (2002) Qualitative research. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, **57**, M197–M202.

Corbie-Smith, G., Thomas, S. B. and St. George, D. M. (2002) Distrust, race, and research. *Archives of Internal Medicine*, **162**, 2458–2463.

Cox, L. E., Rouff, J. R., Svendsen, K. H., Markowitz, M. and Abrams, D. I. (1998) Community Advisory Boards: their role in AIDS clinical trials. *Health and Social Work*, **23**, 290–297.

Creswell, J. W. (2007) *Qualitative Inquiry & Research Design: Choosing among Five Approaches*. Sage Publications, Inc, Thousand Oaks, CA.

Delaney, E. M., Walton, H. M., Trezza, G. R., Henley, K. M., Vielhauer, M. J., Morgan, E. *et al.* (2012) Community Advisory Boards in HIV Research: current scientific status and future directions. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, **59**, e78–e81.

Delman, J. (2012) Participatory action research and young adults with psychiatric disabilities. *Psychiatric Rehabilitation Journal*, **35**, 231–234.

Denzin, N. K. and Lincoln, Y. S. (eds) (2000) *Handbook on Qualitative Research*. 2nd edn. Sage Publications, Inc, Thousand Oaks, CA.

Dong, X. Q., Chang, E. S., Wong, E., Wong, B. and Simon, M. A. (2011) How Do US Chinese older adults view elder mistreatment? Findings From a Community-Based Participatory Research Study. *Journal of Aging and Health*, **23**, 289–312.

Dulmus, C. N. and Cristalli, M. E. (2012) A University-community partnership to advance research in practice settings the HUB research model. *Research on Social Work Practice*, **22**, 195–202.

Eisenhardt, K. M. and Graebner, M. E. (2007) Theory building from cases: opportunities and challenges. *The Academy of Management Journal Archive*, **50**, 25–32.

El-Bassel, N. (2008) The role of Community Advisory Boards (CABs) in Project Eban. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, **49**(Suppl. 1), S68–S74.

Israel, B. A., Schulz, A. J., Parker, E. A. and Becker, A. B. (1998) Review of community-based research: assessing partnership approaches to improve public health. *Annual Review of Public Health*, **19**, 173–202.

Israel, B. A., Krieger, J. W., Vlahov, D., Ciske, S. J., Foley, M. and Fortin, P. (2006) Challenges and facilitating factors in sustaining community-based participatory research partnerships: lessons learned from the Detroit, New York City, and Seattle Urban Research Centers. *Journal of Urban Health*, **83**, 1022–1040.

Jagosh, J., Macaulay, A. C., Pluye, P., Salsberg, J., Bush, P. L., Henderson, J. *et al.* (2012) Uncovering the benefits of participatory research: implications of a realist review for health research and practice. *The Milbank Quarterly*, **90**, 2–41.

Khodyakov, D., Stockdale, S., Jones, F., Ohito, E., Jones, A., Lizaola, E. *et al.* (2011) An exploration of the effect of community engagement in research on perceived outcomes of partnered mental health services projects. *Society and Mental Health*, **1**, 185–199.

Kothari, S., Li, X. and Short, J. E. (2009) The effect of disclosures by management, analysts, and business press on cost of capital, return volatility, and analyst forecasts: A study using content analysis. *The Accounting Review*, **84**, 1639–1670.

Lantz, P. M., Viruell-Fuentes, E., Israel, B. A., Softley, D. and Guzman, R. (2001) Can Communities and Academia Work Together on Public Health Research? Evaluation results from community-based participatory research partnership in detroit. *Journal of Urban Health*, **78**, 495–507.

Lantz, P. M., Israel, B., Schulz, A. J. and Reyes, A. (2005) Community-Based Participatory Research: rationale and relevance for social epidemiology. *Methods for Social Epidemiology*, Jossey Bass and J. Turner, San Francisco.

Larkey, L. K., Gonzalez, J. A., Mar, L. E. and Glantz, N. (2009) Latina recruitment for cancer prevention education via Community Based Participatory Research strategies. *Contemporary Clinical Trials*, **30**, 47–54.

Lasker, R. D. and Weiss, E. S. (2003) Broadening participation in community problem solving: a multidisciplinary model to support collaborative practice and research. *Journal of Urban Health*, **80**, 14–47.

Lee, R. M. and Esterhuizen, L. (2000) Computer software and qualitative analysis: trends, issues and resources. *International Journal of Social Research Methodology*, **3**, 231–243.

Litwak, E., Meyer, H. J. and Hollister, C. D. (1977) The role of linkage mechanisms between bureaucracies and families: education and health as empirical cases in point. In Lievert, R. J. and Immershein, A. W. (eds), *Power, Paradigms, and Community Research*. Sage Publications, Beverly Hills, CA, pp. 121–152.

McKay, M. M., Pinto, R. M., Bannon, J. W. M. and Guillamo-Ramos, V. (2007) Understanding motivators and challenges to involving urban parents as collaborators in HIV prevention research efforts. *Health and Social Work*, **5**, 169–185.

Miles, M. B. and Huberman, A. M. (1994) *Qualitative data analysis: an expanded sourcebook*. Sage Publications Inc, Thousand Oaks, CA.

Minkler, M., Vásquez, V. B., Tajik, M. and Petersen, D. (2008) Promoting environmental justice through community-based participatory research: the role of community and partnership capacity. *Health Education & Behavior*, **35**, 119–137.

Morin, S. F., Maiorana, A., Koester, K. A., Sheon, N. M. and Richards, T. A. (2003) Community consultation in HIV prevention research: A study of community advisory boards at 6 research sites. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, **33**, 513–520.

Morin, S. F., Morfit, S., Maiorana, A., Armrattana, A., Goicochea, P., Mutsambi, J. M. *et al.* (2008) Building

community partnerships: Case studies of Community Advisory Boards at research sites in Peru, Zimbabwe, and Thailand. *Clinical Trials*, **5**, 147–157.

Morse, J. M. (2008) Confusing categories and themes. *Qualitative Health Research*, **18**, 727–728.

Morse, J. M., Barrett, M., Mayan, M., Olson, K. and Spiers, J. (2008) Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, **1**, 13–22.

Mosavel, M., Simon, C., Van Stade, D. and Buchbinder, M. (2005) Community-based participatory research (CBPR) in South Africa: engaging multiple constituents to shape the research question. *Social Science & Medicine*, **61**, 2577–2587.

National Cancer Institute, N. (2010) Dictionary of Cancer Terms. Retrieved June 6, 2012, from http://www.cancer.gov/dictionary/?CdrID=635469.

Neuendorf, K. A. (2002) *The Content Analysis Guidebook*. Sage Publications, Thousand Oaks, CA.

Newman, S. D., Andrews, J. O., Magwood, G. S., Jenkins, C., Cox, M. J. and Williamson, D. C. (2011) Community advisory boards in community-based participatory research: a synthesis of best processes. *Preventing Chronic Disease: Public Health Research, Practice, and Policy*, **8**, A70.

O'Brien, M. J. and Whitaker, R. C. (2011) The role of community-based participatory research to inform local health policy: a case study. *Journal of General Internal Medicine*, **26**, 1498–1501.

Padgett, D. K. (2011) *Qualitative and Mixed Methods in Public Health*. Sage, Thousand Oaks, CA.

Pinto, R. M., McKay, M. M. and Escobar-Chavez, C. (2008) 'You've gotta know the community': minority women make recommendation about community-focused health research. *Women and Health*, **47**, 83–104.

Pinto, R. M., Yu, G., Spector, A. Y., Gorroochurn, P. and McCarty, D. (2010) Substance abuse treatment providers' involvement in research is associated with willingness to use findings in practice. *Journal of Substance Abuse Treatment*, **39**, 188–194.

Pinto, R. M., Spector, A. Y. and Valera, P. A. (2011) Exploring group dynamics for integrating scientific and experiential knowledge in Community Advisory Boards for HIV research. *AIDS Care*, **23**, 1006–1023.

Ployhart, R. E. and Vandenberg, R. J. (2010) Longitudinal research: the theory, design, and analysis of change. *Journal of Management*, **36**, 94–120.

Richards, L. (2009) *Handling Qualitative Data: A Practical Guide*. Sage Publications Inc, Thousand Oaks, CA.

Ross, L. F., Loup, A., Nelson, R. M., Botkin, J. R., Kost, R. and Smith, G. R., Jr. *et al.* (2010) Human subjects protections in community-engaged research: a research ethics framework. *Journal of Empirical Research on Human Research Ethics: JERHRE*, **5**, 5–17.

Schmittdiel, J. A., Grumbach, K. and Selby, J. V. (2010) System-based participatory research in health care: an approach for sustainable translational research and quality improvement. *The Annals of Family Medicine*, **8**, 256–259.

Schulz, A. J., Israel, B. A., Parker, E. A., Lockett, M., Hill, Y. and Wills, R. (2001) The East Side Village Health Worker Partnership: integrating research with action to reduce health disparities. *Public Health Reports*, **116**, 548–557.

Shalowitz, M. U., Isacco, A., Barquin, N., Clark-Kauffman, E., Delger, P., Nelson, D. *et al.* (2009) Community-based participatory research: a review of the literature with strategies for community engagement. *Journal of Developmental & Behavioral Pediatrics*, **30**, 350–361.

Spector, A. Y. (2012) CBPR with Service Providers: arguing a case for engaging practitioners in all phases of research. *Health Promotion Practice*, **13**, 252–258.

Stacciarini, J. M. R., Wiens, B., Coady, M., Schwait, A. B., Pérez, A., Locke, B. *et al.* (2011) CBPR: building partnerships with Latinos in a Rural Area for a Wellness Approach to Mental Health. *Issues in Mental Health Nursing*, **32**, 486–492.

Steinberg, D. (1997) *A Mutual-aid Approach to Working with Groups: Helping People Help Each Other*. Jason Aronson, Inc, Northvale, NJ.

Thompson, J., Barber, R., Ward, P. R., Boote, J. D., Cooper, C. L., Armitage, C. J. *et al.* (2009) Health researchers attitudes towards public involvement in health research. *Health Expectations*, **12**, 209–220.

Viswanathan, M., Ammerman, A., Eng, E., Gartlehner, G., Lohr, K. N., Griffith, D. *et al.* (2004) *Community-based participatory research: Assessing the evidence. Evidence Report/ Technology Assessment No. 99* (AHRQ Publication No. 04–E022-2). Rockville, MD: U.S. Department of Health and Human Services.

Wallerstein, N. (1999) Power between evaluator and community: research relationships within New Mexico's Healthier Communities. *Social Science & Medicine*, **49**, 39–52.

Wallerstein, N. B. and Duran, B. (2006) Using community-based participatory research to address health disparities. *Health Promotion Practice*, **7**, 312–323.

Wallerstein, N. and Duran, B. (2010) Community-based participatory research contributions to intervention research: the intersection of science and practice to improve health equity. *Journal Information*, **100**(Suppl. 1), S40–S46.

Wandersman, A., Duffy, J., Flaspohler, P., Noonan, R., Lubell, K., Stillman, L. *et al.* (2008) Bridging the gap between prevention research and practice: the interactive systems framework for dissemination and implementation. *American Journal of Community Psychology*, **41**, 171–181.

Zhang, Y. and Wildemuth, B. M. (2009) Qualitative analysis of content. In Wildemuth, B. M. (ed), *Applications of Social Research Methods to Questions in Information and Library Science*. Libraries Unlimited, Westport, CT, pp. 308–319.