



HHS Public Access

Author manuscript

AIDS Educ Prev. Author manuscript; available in PMC 2018 December 01.

Published in final edited form as:

AIDS Educ Prev. 2017 December ; 29(6): 491–502. doi:10.1521/aeap.2017.29.6.491.

ENGAGED for CHANGE: A community-engaged process for developing interventions to reduce health disparities

Scott D. Rhodes, PhD, MPH¹, Lilli Mann-Jackson, MPH¹, Jorge Alonzo, JD¹, Florence M. Simán, MPH², Aaron T. Vissman, PhD, MPH³, Jennifer Nall, MPH⁴, Claire Abraham, MD⁵, Robert E. Aronson, PhD, MPH⁶, and Amanda E. Tanner, PhD, MPH⁷

¹Department of Social Sciences and Health Policy, Division of Public Health Sciences, and the CTSI Program in Community Engagement, Wake Forest School of Medicine, Winston-Salem, NC

²Health Programs, El Pueblo Inc., Raleigh NC

³Center for Health and Human Services Research, Talbert House, Cincinnati, OH

⁴Forsyth County Department of Public Health, Winston-Salem, NC

⁵Columbia University Medical Center, New York, NY

⁶Taylor University, Upland, IN

⁷Department of Public Health Education, University of North Carolina Greensboro, Greensboro, NC

Abstract

The science underlying the development of individual, community, system, and policy interventions designed to reduce health disparities has lagged behind other innovations. Few models, theoretical frameworks, or processes exist to guide intervention development. Our community-engaged research partnership has been developing, implementing, and evaluating efficacious interventions to reduce HIV disparities for over 15 years. Based on our intervention research experiences, we propose a novel 13-step process designed to demystify and guide intervention development. Our intervention development process includes steps such as establishing an intervention team to manage the details of intervention development; assessing community needs, priorities, and assets; generating intervention priorities; evaluating and incorporating theory; developing a conceptual or logic model; crafting activities; honing materials; administering a pilot, noting its process, and gathering feedback from all those involved; and editing the intervention based on what was learned. Here, we outline and describe each of these 13 steps.

The development of individual, community, system, and policy interventions is difficult, and the science behind intervention development remains largely underdeveloped. Little guidance exists in terms of strategies and processes to translate community and population needs, priorities, and assets; qualitative, quantitative, or mixed-methods formative data; and

theory into an intervention. There is a profound need for evidence-based strategies to demystify and guide the development of interventions (Bartholomew, Parcel, Kok, & Gottlieb, 2001; Hoddinott, 2015; Wallerstein & Duran, 2010; Yardley, Morrison, Bradbury, & Muller, 2015).

Over the past 15 years, our community-engaged research partnership, comprised of lay and academic experts and researchers from academic, government, and nongovernment institutions, including community organizations and businesses, and the community at large, has developed, implemented, and evaluated more than 12 HIV prevention, care, and support interventions for Latino and African American/black populations; gay, bisexual, and other men who have sex with men (MSM); and transgender persons. Key interventions are presented in Table 1. These interventions have been designed to increase: HIV testing; condom use; access to healthcare services, including medically supervised hormone replacement therapy services among transgender persons; and pre-exposure prophylaxis (PrEP) and antiretroviral therapy (ART) uptake and retention. Generally, we have followed steps of trust building; fostering collaborative co-learning networks with key stakeholders (e.g., community members, organization representatives, and academic researchers); and iteratively developing, pretesting, implementing, and evaluating interventions (Rhodes, Alonzo, Mann, Freeman, et al., 2015; Rhodes, Daniel, et al., 2013; Rhodes, Duck, Alonzo, Daniel, & Aronson, 2013; Rhodes, Duck, Alonzo, Downs, & Aronson, 2013; Rhodes et al., 2007; Rhodes et al., 2006). We often have created a Grid of Resources for Intervention Development (GRID), which outlines currently existing interventions that focus on a prioritized health outcome (e.g., condom use and HIV testing) and deconstructs how intervention activities meet objectives; assists in evaluating whether interventions and activities address community priorities; and initiates the process of thinking creatively and critically about novel intervention strategies, theories, logical model development, messages, and activities (Rhodes et al., 2007; Rhodes et al., 2006; Rhodes, Kelley, et al., 2012). Based on our experiences, our community-engaged process to develop interventions has evolved and become more refined over time.

Given the gap in the literature of strategies to assist those who are designing health promotion and disease prevention interventions to reduce health disparities, including HIV disparities, we sought to codify and provide a stepwise process for systematic intervention development.

Methods

We use community-engaged research approaches (e.g., community-based participatory research [CBPR]) to ensure our interventions are informed by the lived experiences of community members, the experiences and expertise of representatives from community organizations, and sound science. It is well established that interventions are more likely to be effective, replicated, and sustained when they are developed through blending the perspectives of diverse stakeholders including community members, those most closely affected by a health issue (e.g., increased HIV infection rates, low adherence to ART, and limited access to health care and PrEP); service providers and practitioners from health departments/clinics, AIDS-service organizations, and other community organizations who

have broad experiences based in service delivery; and academic researchers with expertise in science and theory and ready access to the scientific literature (Viswanathan et al., 2004; Wallerstein & Duran, 2010; Wallerstein et al., 2008).

To develop the process, we abstracted data from existing project documentation including proposal documents, intervention logic models, research team and meeting notes, and other materials (e.g., summaries of interventions, progress reports, conference presentations, and papers; (Rhodes, 2004; Rhodes, Alonzo, Mann, Freeman, et al., 2015; Rhodes, Daniel, et al., 2013; Rhodes, Duck, Alonzo, Daniel, et al., 2013; Rhodes et al., 2007; Rhodes et al., 2006; Rhodes, Kelley, et al., 2012; Rhodes, Leichter, Sun, & Bloom, 2016; Rhodes et al., 2011; Tanner et al., 2016). Partnership members examined these documents and used an iterative approach with review, discussion, and re-review of the steps. This analysis continued until the steps were identified and described.

Results

Intervention Development Steps

From our analysis, a 13-step process emerged, which we titled ENGAGED for CHANGE, to guide intervention development using community engagement (Table 2).

1. Expand the Partnership—Often research partnerships lack representation of critical community and/or academic partners. Partners may not always have the expertise, connections, or other resources that are needed to move intervention development forward. Thus, the first step in the process involves partnership expansion. Although our initial partnership had some Latino members, during our initial study focusing on Latino men's health, we realized that this representation was limited and we needed to expand participation by increasing representation of Latino men who were involved in local recreational soccer leagues. This expansion of representation was not easy and required an investment of time to identify new partnership members, build trust, and increase understanding of the rationale for community-engaged research.

Networking and building trust to expand a partnership can be complicated (Becker, Israel, Gustat, reyes, & Allen, 2013). These processes are ongoing and must be maintained over time to stay connected with communities as they change and grow and to develop relationships with new or emerging communities. However, after initial groundwork is laid, partnerships can build on these connections and experiences to further expand. In our work with Latinos in North Carolina, some members from the Latino community were initially hesitant to participate in processes they initially did not understand or trust. Some were documented, others were not, but most feared engagement because of high levels of racism and anti-immigration and anti-Latino sentiment within local communities (Rhodes et al., 2006; Rhodes, Mann, et al., 2015). This is also true when working with sexual and gender minorities. Partnering with gay, bisexual, and other MSM and transgender persons requires careful consideration and effort given the intersectionality of identities, stigmas, and resiliencies. However, when members of our partnership moved towards developing and implementing an intervention for Latina transgender women, the process was expedited because we already had a favorable reputation after several years of successful research in

partnership with Latinos, including Latina transgender women, and were well networked such that identifying community partners was smoother and quicker than prior efforts.

2. Intervention Team Established—The next step in the process is the establishment of an intervention team. The intervention team is a small working group, tasked with overseeing intervention development. The team works collaboratively, provides updates, and brainstorms solutions to challenges faced. This team must have broad and diverse representation from the community-engaged partnership. Its work cannot be done in isolation, and the involvement of all partner types, including community members, organization representatives, and academic researchers, is required.

3. Gather Existing Literature and Data—This step focuses on describing community needs, priorities, and assets. Strategies may include community assessments that are regularly conducted by public health departments, hospitals, and local foundations; epidemiologic reports from state and national agencies; data collected and used by community organizations in their service delivery and grant applications; and other sources. Different partnership members may be aware of and have access to different types of literature and data depending on their different roles (e.g., organization representatives and academic researchers), and gathering information from a range of sources ensures a more comprehensive picture.

4. Assess Community Needs, Priorities, and Assets—Because not all needed data may be available, a partnership also may need to collect formative data to examine the needs, priorities, and assets of local communities. For example, in the early 2000s, Latino communities in US southern states, often referred to as “new Latino settlement states”, remained isolated and were not well understood (Painter, 2008). Collaborating with community members to identify and understand community needs, priorities, and assets has been and remains critical to our intervention research.

We have used multiple research methodologies to identify community needs, priorities, and assets, including focus groups and in-depth individual interviews. One innovative qualitative methodology that we have used frequently is photovoice. Photovoice enables participants to record and reflect on community strengths and concerns through photographs that they take and group discussion triggered by these photographs. Not only does this method provide images of lived experiences, but it also gives an opportunity for participants and others who may be able to support action to collaboratively identify next steps (Hergenrather, Rhodes, Cowan, Bardhoshi, & Pula, 2009). We have successfully used photovoice with Latino men (Rhodes, Hergenrather, Griffith, et al., 2009), persons with HIV (Rhodes, Hergenrather, Wilkin, & Jolly, 2008), Latina transgender women (Rhodes, Alonzo, Mann, Sun, et al., 2015), and the Korean immigrant community (Rhodes, Song, et al., 2015).

Data gaps can also be filled using innovative quantitative methods, such as respondent-driven sampling (RDS), which uses chain-referrals, or initial respondents as “seeds” to yield representative samples and prevalence estimates for populations that may be considered “difficult to reach” by researchers or other outsiders or for which no sampling frame exists

(e.g., undocumented Latinos, Latino MSM, and transgender women; (Rhodes, McCoy, et al., 2012; Song et al., 2012).

5. Generate and Refine Intervention Priorities—Next, the intervention team uses the data that has been gathered to generate intervention priorities and, through an iterative process, seeks feedback from the larger community-engaged research partnership, and refines these priorities. For example, during our photovoice project in partnership with Latina transgender women, we discovered the need for more access to sexual health information and services, a finding that aligns with the existing literature on high rates of HIV among transgender women. However, photovoice participants emphasized that access to transition-related healthcare services, including safe hormone use, was a more urgent priority, particularly given the importance of transition-related services for overall well-being, the risks involved with unsafe hormone use, and barriers to health care such as high rates of being uninsured, limited availability of bilingual and bicultural health services, and the lack of culturally congruent transgender-focused services (Rhodes, Alonzo, Mann, Sun, et al., 2015). Thus, some members of our partnership developed the *ChiCAS* intervention to focus jointly on sexual health and transition-related health based on these qualitative data and on our enhanced understanding of community needs. We are currently evaluating this intervention using a rigorous intervention/delayed intervention study design.

6. Evaluate and Incorporate Appropriate Theory—Discussions of theory (e.g., behavioral, educational, and communication) allow partners to understand processes of change at the level at which they plan to intervene, from a systematic perspective, and identify where and how theory relates to their real-world experiences. Exploring theory and its uses and blending it with the perspectives of community members is critical to making informed decisions about intervention development. For example, through such discussions, we determined that, two theories aligned with our desired approach to supporting the sexual health of Latino gay, bisexual, and other MSM and Latina transgender women: social cognitive theory (Bandura, 1986) and empowerment education (Freire, 1970, 1973; Wallerstein, 1994). We also determined that using a lay health advisor strategy for implementation was authentic to how these communities interact and would allow us to reach a larger numbers of Latinos. Thus, our *HoMBReS* (Rhodes, Hergenrather, Bloom, et al., 2009) and *HOLA* (Rhodes, Daniel, et al., 2013) interventions, as examples, were designed to train members of recreational Latino soccer leagues and Latino gay, bisexual, and other MSM communities, as well as Latina transgender communities, respectively, to promote sexual health through their naturally existing social networks (i.e., through their friends). Our approach to training and supporting these lay health advisors was informed by constructs from both theories.

7. Design an Intervention Conceptual or Logic Model—Designing an intervention conceptual or logic model is critical to visually depict the links among determinants of health (e.g., low rates of condom use or limited access to services such as medically supervised hormone therapy and PrEP services); the intervention strategies designed to address these determinants; and expected immediate, intermediate, and long-term outcomes. Thus, the intervention conceptual or logic model allows partnership members to “see” the

logic in their thinking, discuss assumptions, and blend perspectives, insights, and experiences, with science while keeping an eye on concrete health outcomes (Rhodes, Alonzo, Mann, Freeman, et al., 2015).

Within these discussions, community members may evaluate what might and might not work to reach expected outcomes based on their lived experiences and perspectives on health and risk within the context of their community. Service providers, including representatives from community-based organizations, may provide insights based on their rich experience “on the front lines” of health promotion, disease prevention, and service provision; and academic researchers may synthesize the literature and provide expertise in health behavior theory. As a result of the team-based approach to conceptual or logic model development, new variables may also be identified for measurement, including outcome, mediating, and moderating variables.

8. Create Objectives and Craft Activities and Materials—In this step, a general outline for the intervention including goals, theoretical underpinnings, objectives, and key messages is developed. Intervention activities and necessary culturally congruent materials are then developed according to this outline. During this step, it is particularly important to refer to the logic model to ensure that the intervention activities and materials link to expected outcomes.

This Step also includes the development of materials that will be needed for the evaluation of the pilot test, including process and outcome evaluations. Evaluation materials may include satisfaction surveys, quantitative assessments for pre and post tests, and qualitative instruments, such as in-depth interviews.

9. Hone and Pretest All Activities and Materials—The next step is to hone and pretest intervention activities and materials with community members outside of the partnership. We have learned that over time, partnership members, even those who represent the community, become more like others within the partnership (including organization representatives and academic researchers) and may become “out of touch” with their community-based peers. Thus, it is critical to ensure that community members who may be unfamiliar with both the research and the partnership are involved in the pre-testing stage. For example, in our *weCare* intervention we had initially selected iCare as a potential name to play off of the Apple brand (e.g., iPhone) given that we were designing a social media intervention. We also were hesitant to include words or symbols in our logo that were related HIV, to be sensitive to the fact that participants may not be comfortable being linked on social media to a page or profile that was explicitly related to HIV. However, young racially/ethnically diverse MSM with HIV wanted to use the intervention name *weCare*; they prioritized a sense of community and social support over the reference to technology. They also felt that it was important that the intervention logo include a red ribbon, which they explained would send a message about HIV being an important issue that “we care” about within the gay, bisexual, and MSM and transgender communities to reduce HIV-related stigma, and not necessarily an indication of one’s HIV status (Prina, 2017; Tanner et al., 2016).

10. Administer Intervention Pilot—It is also essential to pilot the intervention in its entirety to explore activities and materials for attention, comprehension, personal relevance, credibility, and acceptability by those for whom the activities and materials are developed (Bartholomew et al., 2001; National Cancer Institute, 1989; Rhodes et al., 2007; Rhodes et al., 2006). Questions that we have used during this step include (1) Do activities and materials motivate and sustain the participants' attention and interest? (2) Do activities and materials perceived as they were intended? (3) Is anything offensive or improper in them? (d) Do participants recognize and identify with the activities and materials? (Rhodes et al., 2007; Rhodes et al., 2006; Rhodes, Kelley, et al., 2012). Results of this step are used in Step 13 (editing of intervention).

11. Note Process of Implementation during the Pilot—It is critical to learn as much as possible from the pilot. Thus, it is recommended that other partnership members observe pilot implementation. These additional members may complete observer's logs to capture details of implementation, including appropriateness of ice breakers and/or intervention activities, interventionists' fidelity to the intervention curricula, and/or participants' engagement in and reactions to specific activities, in a systematic way. These details may identify where the intervention curriculum is vague, unclear, incomplete, or confusing for those who are delivering the intervention. For example, instructions for intervention implementation may need to be refined.

12. Gather Feedback and Preliminary Outcomes Data from Those who Conducted and Participated in the Pilot—Discussions with those who implemented the pilot are critical to understand what worked well and what did not. This step also includes outcomes data collection and analysis aligned with the study design for the pilot test. This may include pre-test/post-test or intervention/delayed intervention designs as we have often used in pilot studies. We have also conducted qualitative interviews with pilot participants to get feedback to improve the intervention delivery. With participants for whom the intervention successfully promoted intended change, we advise conducting interviews that members of our partnership refer to as "stories of success", and with participants for whom the intervention did not promote intended change, we advise conducting interviews that members of our partnership refer to as "stories of learning". This process systematically explores the strengths and weaknesses of the intervention during the pilot phase.

13. Edit the Intervention Based on Feedback and Findings—Based on the feedback and results from all steps in the pilot, the intervention team edits and revises intervention strategies, messages, activities, materials, data collection procedures, etc. This is an iterative process with the intervention team revisiting previous steps within the ENGAGED for CHANGE process. Editing is critical to ensure that the most promising intervention – based on the community needs, priorities, and assets; and sound science; and building stepwise on formative and new data – is used and evaluated.

Discussion

Based on our community-engaged intervention research experiences, we developed the multistep intervention development process titled, ENGAGED for CHANGE. ENGAGED

for CHANGE provides community members, organization representatives, practitioners, and researchers, a step-by-step guide for intervention development. The 13 steps of ENGAGED for CHANGE rely on a shared mission, a foundation of trust, transparency, clear communication, and unflagging commitment to work together to reduce health disparities by partnership members. Moreover, the steps may overlap and progress iteratively. The process ensures that interventions are informed by the lived experiences of community members, the experiences of representatives from community organizations, and sound science. This process also is iterative and long-term with multiple opportunities for intervention team and partnership members to provide feedback.

There continues to be profound need to translate knowledge into interventions designed to promote community and population health, and ENGAGED for CHANGE can serve as a guide for intervention development. ENGAGED for CHANGE is intended to be a flexible and versatile process that may be used in diverse contexts. It may be applied to other health issues besides HIV prevention and care and to other communities and populations besides those that our partnership is comprised of and focused on, and derivations of the process may be warranted. Although our partnership is committed to community-engaged research, the steps we outline may be altered, revised, and abbreviated for different research approaches to engagement.

Each step in ENGAGED for CHANGE is complex, and our intervention development research has not been without challenges. Community members face the realities of health disparities and inequities every day and know that something must be done for these communities and populations. The slow pace of securing funding and conducting quality community-engaged research is an ongoing frustration. Furthermore, communities themselves are not infallible; members of community-engaged research partnerships may have strongly held prejudices about one another that require ongoing attention. This highlights the need to attend to these prejudices and create mutual understanding throughout the course of intervention development, implementation, and evaluation.

It is essential that interventions are rigorously evaluated. Though our partnership believes the stepwise approach laid out in ENGAGED for CHANGE increases the likelihood of developing interventions that are efficacious, outcome evaluation to measure the effectiveness of interventions, as well as process evaluation, are critical for further refining interventions and determining whether dissemination is warranted. Intervention outcomes and process findings can inform dissemination and adaption of those interventions that are found to be effective and help ensure intervention fidelity. Strong collaborations and diverse perspectives among partnership members are important in evaluation; data collection, analysis, and interpretation; and dissemination of findings (Cashman et al., 2008; Schaal et al., 2016).

Our partnership is committed to innovative, systematic, and theory-based community-engaged intervention development and research because this approach maximizes the probability that interventions are based on what community members identify as priorities; is more informed because of the sharing of broad perspectives, insights, and experiences; builds capacity of all partners to solve problems, harness community assets, and conduct

meaningful research, which may reduce health disparities overall; and promotes replicability and sustainability of interventions if warranted. We also contend that working in partnership and building on the strengths of communities, organization representatives, and academic researchers is more ethical; health disparities, like HIV, require that we develop interventions that have the highest likelihood of success to ensure the reduction and elimination of disparities over time. We must maximize our potential for change. Though models, frameworks, and processes are limited, ENGAGED for CHANGE provides a clear road map to guide intervention development.

Acknowledgments

We thank the broader membership of the community-engaged research partnership that the authors are part of. Funding for the intervention development research that this process is based upon include CDC (TS-1023 [through a cooperative agreement with Association for Prevention Teaching and Research], U01PS005137, UR6PS000690, and U01PS001570); HRSA (H97HA28896); NIH (UL1TR001420, R01MH092932, R01MH087339, R24MD002774, R21MH082689, and R21MH079827), and the Cone Health Foundation.

References

- Aronson RE, Rulison KL, Graham LF, Pulliam RM, McGee WL, Labban JD, Dingman D, Rhodes SD. Brothers Leading Healthy Lives: Outcomes from the pilot testing of a culturally and contextually congruent HIV prevention intervention for black male college students. *AIDS Education and Prevention*. 2013; 25(5):376–393. [PubMed: 24059876]
- Bandura, A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs: Prentice-Hall; 1986.
- Bartholomew, LK., Parcel, GS., Kok, G., Gottlieb, NH. *Intervention Mapping: Designing Theory- and Evidence-based Health Promotion Programs*. New York, NY: McGraw-Hill; 2001.
- Becker, AB., Israel, BA., Gustat, J., reyes, AG., Allen, AJ. Strategies and techniques for effective group process in CBPR partnerships. In: Israel, BA.Eng, E.Schulz, AJ., Parker, EA., editors. *Methods in Community-Based Participatory Research for Health*. San Francisco, CA: Jossey-Bass; 2013. p. 69-95.
- Cashman SB, Adeky S, Allen AJ, Corburn J, Israel BA, Montañó J, ... Eng E. The power and the promise: Working with communities to analyze data, interpret findings, and get to outcomes. *American Journal of Public Health*. 2008; 98(8):1407–1417. doi. [PubMed: 18556617]
- Freire, P. *Pedagogy of the Oppressed*. New York, NY: Herder and Herder; 1970.
- Freire, P. *Education for Critical Consciousness*. New York, NY: Seabury Press; 1973.
- Hergenrath KC, Rhodes SD, Cowan CA, Bardhoshi G, Pula S. Photovoice as community-based participatory research: a qualitative review. *American Journal of Health Behavior*. 2009; 33(6):686–698. [PubMed: 19320617]
- Hoddinott P. A new era for intervention development studies. *Pilot and Feasibility Studies*. 2015; 1(36)doi: 10.1186/s40814-40015-40032-40810
- Jenkins Hall W, Sun CJ, Tanner AE, Mann L, Stowers J, Rhodes SD. HIV-prevention opportunities with GPS-based social and sexual networking applications for men who have sex with men. *AIDS Education and Prevention*. 2017; 29(1):38–48d. [PubMed: 28195777]
- National Cancer Institute. *Making Health Communications Work: A Planner's Guide*. Bethesda, MD: US Department of Health and Human Services; 1989.
- Painter TM. Connecting the dots: When the risks of HIV/STD infection appear high but the burden of infection is not known - The case of male Latino migrants in the Southern United States. *AIDS and Behavior*. 2008; 12(2):213–226. [PubMed: 17373586]
- Prina LL. Are foundations still interested in HIV/AIDS? *Health Affairs*. 2017; 36(5):956–957. [PubMed: 28461364]

- Rhodes SD. Hookups or health promotion? An exploratory study of a chat room-based HIV prevention intervention for men who have sex with men. *AIDS Education and Prevention*. 2004; 16(4):315–327. [PubMed: 15342334]
- Rhodes SD, Alonzo J, Mann L, Freeman A, Sun CJ, Garcia M, Painter TM. Enhancement of a locally developed HIV prevention intervention for Hispanic/Latino MSM: A partnership of community-based organizations, a university, and the Centers for Disease Control and Prevention. *AIDS Education and Prevention*. 2015; 27(4):312–332. [PubMed: 26241382]
- Rhodes SD, Alonzo J, Mann L, Song E, Tanner AE, Arellano JE, ... Painter TM. Small-group randomized controlled trial to increase condom use and HIV testing among Hispanic/Latino gay, bisexual, and other men who have sex with men. *American Journal of Public Health*. 2017; 107(6): 969–976. [PubMed: 28426301]
- Rhodes SD, Alonzo J, Mann L, Sun CJ, Simán FM, Abraham C, Garcia M. Using photovoice, Latina transgender women identify priorities in a new immigrant-destination state. *International Journal of Transgenderism*. 2015; 16(2):80–96. [PubMed: 27110226]
- Rhodes SD, Daniel J, Alonzo J, Duck S, Garcia M, Downs M, ... Marsiglia FF. A systematic community-based participatory approach to refining an evidence-based community-level intervention: The HOLA intervention for Latino men who have sex with men. *Health Promotion Practice*. 2013; 14(4):607–616. [PubMed: 23075504]
- Rhodes SD, Duck S, Alonzo J, Daniel J, Aronson RE. Using community-based participatory research to prevent HIV disparities: Assumptions and opportunities identified by The Latino Partnership. *Journal of Acquired Immunodeficiency Syndromes*. 2013; 63(Supplement 1):S32–S35.
- Rhodes, SD., Duck, S., Alonzo, J., Downs, M., Aronson, RE. Intervention trials in community-based participatory research. In: Blumenthal, D., DiClemente, R.J., Braithwaite, R.L., Smith, S., editors. *Community-Based Participatory Research: Issues, Methods, and Translation to Practice*. New York: Springer; 2013. p. 157–180.
- Rhodes SD, Hergenrather KC, Bloom FR, Leichter JS, Montano J. Outcomes from a community-based, participatory lay health adviser HIV/STD prevention intervention for recently arrived immigrant Latino men in rural North Carolina. *AIDS Education and Prevention*. 2009; 21(5 Suppl):103–108. [PubMed: 19824838]
- Rhodes SD, Hergenrather KC, Duncan J, Ramsey B, Yee LJ, Wilkin AM. Using community-based participatory research to develop a chat room-based HIV prevention intervention for gay men. *Progress in Community Health Partnerships: Research, Education, and Action*. 2007; 1(2):175–184.
- Rhodes SD, Hergenrather KC, Duncan J, Vissman AT, Miller C, Wilkin AM, ... Eng E. A pilot intervention utilizing Internet chat rooms to prevent HIV risk behaviors among men who have sex with men. *Public Health Reports*. 2010; 125(Supplement 1):29–37. [PubMed: 20408385]
- Rhodes SD, Hergenrather KC, Griffith D, Yee LJ, Zometa CS, Montaña J, TVA. Sexual and alcohol use behaviours of Latino men in the south-eastern USA. *Culture, Health & Sexuality*. 2009; 11(1): 17–34.
- Rhodes SD, Hergenrather KC, Montano J, Remnitz IM, Arceo R, Bloom FR, ... Bowden WP. Using community-based participatory research to develop an intervention to reduce HIV and STD infections among Latino men. *AIDS Educ Prev*. 2006; 18(5):375–389. [PubMed: 17067250]
- Rhodes SD, Hergenrather KC, Wilkin AM, Jolly C. Visions and Voices: Indigent persons living With HIV in the southern United States use photovoice to create knowledge, develop partnerships, and take action. *Health Promot Practice*. 2008; 9(2):159–169.
- Rhodes SD, Kelley C, Simán F, Cashman R, Alonzo J, Wellendorf T, ... Reboussin B. Using community-based participatory research (CBPR) to develop a community-level HIV prevention intervention for Latinas: A local response to a global challenge. *Womens Health Issues*. 2012; 22(3):293–301.
- Rhodes SD, Leichter JS, Sun CJ, Bloom FR. The HoMBReS and HoMBReS Por un Cambio interventions to reduce HIV disparities among immigrant Hispanic/Latino men. *MMWR Morbidity and Mortality Weekly Report*. 2016; 65(1):51–56. [PubMed: 26820056]
- Rhodes SD, Mann L, Simán FM, Song E, Alonzo J, Downs M, ... Hall MA. The impact of local immigration enforcement policies on the health of immigrant Hispanics/Latinos in the United States. *American Journal of Public Health*. 2015; 105(2):329–337. [PubMed: 25521886]

- Rhodes SD, McCoy TP, Hergenrather KC, Vissman AT, Wolfson M, Alonzo J, ... Eng E. Prevalence estimates of health risk behaviors of immigrant Latino men who have sex with men. *Journal of Rural Health*. 2012; 28(1):73–83. [PubMed: 22236317]
- Rhodes SD, McCoy TP, Tanner AE, Stowers J, Bachmann LH, Nguyen AL, Ross MW. Using social media to increase HIV testing among gay and bisexual men, other MSM, and transgender persons: Outcomes from a randomized community trial. *Clinical Infectious Diseases*. 2016; 62(11):1450–1453. [PubMed: 26980878]
- Rhodes SD, Vissman AT, Stowers J, Miller C, McCoy TP, Hergenrather KC, ... Eng E. A CBPR partnership increases HIV testing among men who have sex with men (MSM): Outcome findings from a pilot test of the CyBER/testing Internet intervention. *Health Education and Behavior*. 2011; 38(3):311–320. [PubMed: 21393625]
- Schaal JC, Lightfoot AF, Black KZ, Stein K, White SB, Cothorn C, ... Eng E. Community-guided focus group analysis to examine cancer disparities. *Prog Community Health Partnersh*. 2016; 10(1):159–167. [PubMed: 27018365]
- Song EY, Vissman AT, Alonzo J, Bloom FR, Leichter JS, Rhodes SD. The use of prescription medications obtained from non-medical sources among immigrant Latinos in the rural southeastern US. *Journal of Health Care for the Poor and Underserved*. 2012; 23(2):678–693. [PubMed: 22643616]
- Sun CJ, Stowers J, Miller C, Bachmann LH, Rhodes SD. Acceptability and feasibility of using established geosocial and sexual networking mobile applications to promote HIV and STD testing among men who have sex with men. *AIDS and Behavior*. 2015; 19(3):543–552. [PubMed: 25381563]
- Tanner AE, Mann L, Song E, Alonzo J, KS, Arellano E, ... Rhodes SD. weCare: A social media-based intervention designed to increase HIV care linkage, retention, and health outcomes for racially and ethnically diverse young MSM. *AIDS Education and Prevention*. 2016; 28(3):216–230. [PubMed: 27244190]
- Viswanathan, M., Eng, E., Ammerman, A., Gartlehner, G., Lohr, KN., Griffith, D., ... Whitener, L. Community-based participatory research: Assessing the evidence. Rockville, MD: Agency for Healthcare Research and Quality; 2004. (Vol. Available at: <http://www.ncbi.nlm.nih.gov/books/NBK37280/>)
- Wallerstein, N. Empowerment education applied to youth. In: Matiella, AC., editor. *The Multicultural Challenge in Health Education*. Santa Cruz, CA: ETR Associates; 1994. p. 153-176.
- Wallerstein N, Duran B. Community-based participatory research contributions to intervention research: The intersection of science and practice to improve health equity. *Am J Public Health*. 2010; 100(Suppl 1):S40–46. [PubMed: 20147663]
- Wallerstein, N., Oetzel, J., Duran, B., Tafoya, G., Belone, L., Rae, R. What predicts outcomes in CBPR?. In: Minkler, M., Wallerstein, N., editors. *Community-Based Participatory Research: From Process to Outcomes*. San Francisco, CA: Wiley; 2008. p. 371-392.
- Yardley L, Morrison L, Bradbury K, Muller I. The person-based approach to intervention development: application to digital health-related behavior change interventions. *Journal of Medical Internet Research*. 2015; 17(1):e30. [PubMed: 25639757]

Table 1

Our community-engaged research partnership's developed HIV-related interventions

Intervention	Abbreviated main objective/s	Citation
<i>Brothers Leading Healthy Lives</i>	Increase consistent condom use among African American/black college men	(Aronson et al., 2013)
<i>ChiCAS (Chicas Creando Acceso a la Salud; Girls Creating Access to Health)</i>	Increase use of PrEP and medically supervised hormone therapy among Latina transgender women	Evaluation in process
<i>CyBER/M4M (Cyber-Based Education and Referral/Men for Men)</i>	Increase knowledge of HIV among gay, bisexual, and MSM who use online chat rooms for social and sexual networking	(Rhodes, 2004; Rhodes et al., 2007; Rhodes et al., 2010)
<i>CyBER/testing (Cyber-Based Education and Referral/testing)</i>	Increase HIV testing among gay, bisexual, and other MSM and transgender persons who use social media for social and sexual networking	(Rhodes, McCoy, et al., 2016; Rhodes et al., 2011)
<i>HOLA</i>	Increase condom use and HIV testing within naturally existing social networks of Latino gay, bisexual, and other MSM and Latina transgender women	(Rhodes, Daniel, et al., 2013)
<i>HOLA en Grupos</i>	Increase condom use and HIV testing among Latino gay, bisexual, and other MSM and Latina transgender women	(Rhodes, Alonzo, Mann, Freeman, et al., 2015; (Rhodes et al., 2017)
<i>HoMBReS (Hombres Manteniendo Bienestar y Relaciones Saludables; Men Maintaining Well-being and Healthy Relationships)</i>	Increase condom use and HIV testing within naturally existing social networks of Latino men who are members of recreational soccer leagues	(Rhodes, Leichter, et al., 2016)
<i>HoMBReS-2</i>	Increase condom use and HIV testing among Latino men	(Rhodes, McCoy, et al., 2011)
<i>HoMBReS por un Cambio (Men for Change)</i>	Promote sexual health (including condom use and HIV testing) and social justice by mobilizing, organizing, and harnessing social networks of Latino men who are members of recreational soccer leagues	(Rhodes, Leichter, et al., 2016)
<i>MAP'T (Mobile Apps to Promote Testing)</i>	Increase HIV testing through GPS-based mobile applications (e.g., A4A/Radar, Grindr, Jack'd, and SCRUFF) among gay, bisexual, and other MSM and transgender persons	(Jenkins Hall et al., 2017; Sun, Stowers, Miller, Bachmann, & Rhodes, 2015)
<i>MuJEReS (Mujeres Juntas Estableciendo Relaciones Saludables; Women United Establishing Healthy Relationships)</i>	Promote sexual health through naturally existing social networks of Latina women	(Rhodes, Kelley, et al., 2012)
<i>weCare</i>	Increase HIV care engagement and reduce viral load of young racially/ethnically diverse gay, bisexual, and other MSM and transgender persons living with HIV by harnessing social media (including Facebook, texting, and GPS-based mobile applications [apps])	(Prina, 2017; Tanner et al., 2016)

Table 2

ENGAGED for CHANGE: A multistep approach to intervention development

	Step	Objective
E	1. Expand the partnership	Ensure that necessary key partners and/or critical perspectives are not absent from the partnership
N	2. iNtervention team established	Assign responsibility to a subgroup representing the partnership and its diversity that will push the intervention development process forward
G	3. Gather existing literature and data	Build on what is already known in terms of epidemiologic data, existing local, regional, national, and global data, etc.
A	4. Assess community needs, priorities, and assets	Ensure that community needs, priorities, and assets are blended with existing data
G	5. Generate and refine intervention priorities	Begin the process of focusing intervention goals and objectives are based on community needs, priorities, and assets
E	6. Evaluate and incorporate appropriate theory	Apply theory when appropriate; ensure the intervention is informed by theory
D	7. Design an intervention conceptual or logic model	Describe the logic of the intervention (what is expected to happen)
	<i>for</i>	
C	8. Create objectives, activities, and materials	Develop and refine intervention objectives, activities, and materials, including those used in evaluation
H	9. Hone and pretest all activities and materials	Ensure activities and materials make sense for those for whom they are designed
A	10. Administer intervention pilot	Ensure intervention components fit together coherently
N	11. Note process of implementation during the pilot	Document challenges, problems, weaknesses, and successes identified throughout the pilot
G	12. Gather feedback and preliminary outcomes data from those who conducted and participated in the pilot	Include all perspectives in the intervention editing step and analyze collected data
E	13. Edit the intervention based on feedback and findings	Refine the intervention based on lessons learned from the pilot