A Su Salud En Acción: Replicating a Model to Increase Utilization of Cancer Screening among Low Income Latinas

Journal of Health Disparities Research and Practice

Volume 5 | Issue 1 Article 6

2012

A Su Salud En Acción: Replicating a Model to Increase Utilization of Cancer Screening among Low Income Latinas

Amelie G. Ramirez DrPH , *Institute for Health Promotion Research, UT Health Science Center San Antonio*, ramirezag@uthscsa.edu

Patricia Chalela , *Institute for Health Promotion Research, UT Health Science Center San Antonio*

Lucina Suarez , *Environmental Epidemiology & Disease Registries Section, Texas Department of State Health Services*

See next page for additional authors

A Su Salud En Acción: Replicating a Model to Increase Utilization of Cancer Screening among Low Income Latinas

Abstract

Latinas suffer longstanding disparities in breast cancer survival and cervical cancer incidence and mortality compared to non-Hispanic white women. This study assessed the feasibility of replicating the theory-based *A Su Salud En Acción* communication model to impact cancer screening behaviors in two at-need Nevada clinics. The intervention significantly increased the number of mammograms and Pap smears among Latinas. Mammograms and Pap smear rates increased by 58.7‰ and 51.8‰ respectively in the pilot site (95% CI 40.1-49.1 and 47.1-56.5 respectively) and by 33.7‰ and 7.5‰ respectively (95% CI 15.6-51.9 and 4.3-10.6) in the replication site, among women ages 50-64.

This study demonstrated the feasibility of adapting and replicating the *A Su Salud En Acción* model by lay public health workers at community clinics serving a large Latino community in Nevada in need of cancer screening promotion programs. With basic training (with a comprehensive and user-friendly training tool) and technical assistance, both sites replicated the model, which proved effective in increasing cancer screening rates among low-income Latinas.

This study contributes additional knowledge about replicating effective models and interventions in real-world environments and warrants more research on the issues and processes involved in the replication of effective programs.

Keywords

Breast — Radiography; Cancer – Prevention; Hispanic American women – Health and hygiene; Hispanic American women —Health risk assessment; Latinas; Low income; Mammography; Pap smear; Pap test; Poor — Medical care; Replication; Women's health services

Authors

Amelie G. Ramirez DrPH, Patricia Chalela, Lucina Suarez, and Kipling J. Gallion

JOURNAL OF HD RP

Journal of Health Disparities Research and Practice
Volume 5, Number 1, Summer 2011, pp. 65-79

School of Community Health Sciences
University of Nevada, Las Vegas

A Su Salud En Acción: Replicating a Model to Increase Utilization of Cancer Screening among Low Income Latinas

Amelie G. Ramirez, DrPH, UT Health Science Center San Antonio
Patricia Chalela, DrPH, UT Health Science Center San Antonio
Lucina Suarez, PhD, Texas Department of State Health Services
Kipling J. Gallion, MA, UT Health Science Center San Antonio

ABSTRACT

Latinas suffer longstanding disparities in breast cancer survival and cervical cancer incidence and mortality compared to non-Hispanic white women. This study assessed the feasibility of replicating the theory-based *A Su Salud En Acción* communication model to impact cancer screening behaviors in two at-need Nevada clinics.

The intervention significantly increased the number of mammograms and Pap smears among Latinas. Mammograms and Pap smear rates increased by 58.7‰ and 51.8‰ respectively in the pilot site (95% CI 40.1-49.1 and 47.1-56.5 respectively) and by 33.7‰ and 7.5‰ respectively (95% CI 15.6-51.9 and 4.3-10.6) in the replication site, among women ages 50-64.

This study demonstrated the feasibility of adapting and replicating the *A Su Salud En Acción* model by lay public health workers at community clinics serving a large Latino community in Nevada in need of cancer screening promotion programs. With basic training (with a comprehensive and user-friendly training tool) and technical assistance, both sites replicated the model, which proved effective in increasing cancer screening rates among low-income Latinas.

This study contributes additional knowledge about replicating effective models and interventions in real-world environments and warrants more research on the issues and processes involved in the replication of effective programs.

Key words: Latinas, mammography, Pap smear, low income, replication.

INTRODUCTION

Longstanding disparities exist in breast cancer survival, cervical cancer incidence and mortality between non-Hispanic white and Latina women (American Cancer Society [ACS], 2009a; 2009b; Howe et al, 2006; Martinez et al 2007; ACS, 2006; McDougall, Madeleine, Daling, & Li, 2007; Ramirez &

Suarez, 2001; Ries et al, 2007; ACS, 2010; Vélez, Chalela & Ramirez, 2008). A main contributing factor for these disparities is the historic underutilization of screening services among Latinas, particularly in comparison with non-Hispanic whites (ACS, 2009a; 2009b; Ramirez & Suarez, 2001; Vélez et al, 2008; Ramirez, Suarez, Laufman, Barroso & Chalela, 2000; Ramiez et al., 2000; O'Brien et al., 2003; Vanslyke et al., 2008).

In an effort to reduce breast and cervical cancers disparities among Latinas, the Replication of *A Su Salud En Acción* Program was developed during 1999-2002. The program was one of 11 programs funded by the Centers for Disease Control and Prevention (CDC) to replicate proven interventions in community settings to increase utilization of the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) services by priority populations—in this case, low-income Latinas. The CDC requested the development of a replication package, including core intervention components, site selection criteria, a clear description of the intervention that would allow others to implement the program, and standardized tools for assessing and monitoring implementation (Glasgow, Marcus, Bull, & Wilson, 2004).

The replication program was based on findings from two National Cancer Institute-funded projects: *A Su Salud* (Ramirez & McAlister, 1988; McAlister, Ramirez, Gavalotti & Gallion, 1989; McAlister et al., 1992; Ramirez, Vélez, Chalela, Gallion & McAlister, 2008) and the National Hispanic Leadership Initiative on Cancer (NHLIC): En Acción (Ramirez et al 2008). These earlier projects provided a nationally researched model for enabling communities to reach specific segments of the public (underserved Latino communities) by mounting an effective communication campaign with tailored health promotion messages, delivering a well-developed and thoroughly tested means of public education and behavior change. This study focused on replicating the *A Su Salud En Acción* model (Ramirez & McAlister, 1988; McAlister et al., 1989; McAlister et al., 1992; Ramirez et al., 2008) to increase the participation of low-income, uninsured Latinas in breast and cervical cancer screening. The replication model is based on sound and well established scientific theories and principles. At its core is the Diffusion Acceleration Model (Ramirez et al., 2008), conceptualized on the Social Cognitive and Diffusion of Innovations theories (Bandura, 1977; 1986; 1996; Rogers, 1962; Rogers, 2003). The basic theoretical hypothesis is that the diffusion of health practices that are not widely present in a population can be accelerated by presenting examples of relevant individuals who already have acquired the practice. The model utilizes the dual communication links (Bandura, 1986) of 1) media (TV, radio, newspapers, newsletters, etc.) as vehicles for technical information on health awareness and behavior change and 2) one-on-one interaction with local volunteers who maintain personal contact with neighborhood residents, discuss media messages, and provide positive reinforcement for health behavior change efforts.

The program's model has proven successful in numerous diverse health communication campaigns in the U.S. and internationally (Ramirez & McAlister, 1988; McAlister et al., 1992; Ramirez et al., 2008; Puska et al., 1985; McAlister, 1997; Vélez, 1998). The question of this replication research project is: Can the program's model be packaged and presented to lay public health workers, who in turn will implement it (with basic training and technical support provided by the coordinating center) in their community to effect predetermined measures of successful health behavior modification (breast and cervical cancers screening) among underserved Latinas? We hypothesized that low-income Latinas' utilization of mammography and Pap smear screening services can be improved at community clinics through program implementation.

To assess the public health impact of the Replication of A Su Salud En Acción Program, we used the RE-AIM model (Glasgow, Vogt & Boles, 1999), which provides a framework for translation and dissemination of evidence-based interventions in community settings. The model, used by numerous translation research studies to report findings and evaluation of specific health promotion issues

(Glasgow et al, 2004; Eakin, Brown, Marshall, Mummery & Larsen, 2004; Centers for Disease Control and Prevention [CDC], 2007; Farris, Will, Khavjou, & Finkelstein, 2007), conceptualizes the impact of an intervention as a function of five factors: 1) reach (how well the intervention reaches its intended population), 2) effectiveness (intervention's effectiveness in influencing the desired outcome), 3) adoption (intervention's adoption by target settings involved), 4) implementation (intervention's implementation as intended in the real world; deals with completeness and fidelity), and 5) maintenance (intervention's sustainability over time) (Glasgow et al., 1999; CDC, 2007). The present study findings are organized around these five factors.

More importantly, the absence of an inclusively-balanced sample can lead to important gaps in understanding even when methodology is internally valid and reliable. At best, minority under-representation limits our ability to generalize results to a larger population. At its worst, a sample lacking valid representation of the population can lead to selection bias and/or spurious assumptions (Smith, 2007).

METHODS

Study Design

The study used a nonexperimental pre-test/post-test design to document the screening activity of Latinas before and after the intervention activities. The replication program was pilot tested at the Clark County Health District in Las Vegas, Nevada, and then replicated at St. Mary's Foundation Redfield Clinic in Reno, Nevada.

Setting

The two community clinics offered a range of health services to a multiethnic community and were located in urban areas of each city. Nevada was selected on the basis that at the time of the study it had the lowest NBCCEDP usage of all 65 NBCCEDP sites in the country: 1) need for improved utilization of NBCCEDP services by Latinas, 2) available administrative support for participation, 3) access to Latino populations and to an adequate number of low-income Latinas as potential end users, 4) commitment to training and technical assistance during implementation, and 5) capacity for evaluation and potential for program institutionalization.

Target Audience

The replication program was designed to reach low-income Latinas ages 50-64 from the pilot and replication sites who were eligible for NBCCEDP screening funds. According to county health authorities, a significant portion of the target audience in these communities had never received a screening mammogram or Pap smear, and in general the rapidly expanding Latino population was not adequately served by existing cancer screening and early-detection services.

Process Followed

Training manual. To introduce the replication program for the two sites, we produced a training manual and process data forms based on extensive research, expert review, and pilot testing, and created user-friendly tools and materials to replicate the program. This detailed guide, developed from a more generic manual that had been tested in other communities (NCI, 1997; Ramirez, Gallion, Presswood & Chalela, 2002), offered step-by-step instructions on community network development, working with the local media, recruiting and interviewing role models, producing articles and newsletters, publicizing the program, and various other aspects of the replication program. Also containing marketing materials, multimedia instructional aids, and extensive samples and examples, the manual provided a hands-on resource to guide not only training, but day-to-day program implementation.

Partnership agreement. A partnering community organization at each site was located and an agreement negotiated. A memorandum of understanding outlined the responsibilities of both the

coordinating center and the sponsoring community health entity. Then each agency recruited or appointed two staff members to implement the program's primary components: 1) small and mass media production and 2) community-centered peer network development.

Training. After reaching contractual agreement with each site's partnering community agency, staff member training commenced. Training included all areas of program planning, implementation, maintenance, record-keeping, and evaluation. The implementation portion covered the primary intervention responsibilities of the staff: media production and peer volunteer network coordination.

Training was provided by coordinating center personnel (the program development team) in two phases. The first phase, completed in one to two days, involved meeting the program staff, conducting a brief site visit to the intervention community, and conducting several hours of preliminary instruction. The local staff was given homework assignments that required gathering data about other relevant area health services and conducting a needs assessment of the area, including demographic data on the target audience and intervention community. This information was used during the second phase of training, which occurred about two weeks later and lasted four to five days. During this phase, coordinating center personnel covered all aspects of the program, following the training manual step-by-step.

Formative research. As an initial step, two focus groups with Latinas from the intervention community helped assess their knowledge, attitudes, and behaviors regarding breast and cervical cancer screening, and their media and information preferences.

Implementation. The replication implementation was conducted between November 1999 and March 2002. Performance objectives were established at program initiation and updated quarterly as needed. Objectives were set for community outreach, media production, and administrative routines.

Media production focused on creating and disseminating news stories featuring local role models who portrayed specific knowledge, attitudes, and behaviors that promote breast and cervical cancer screening. Messages were tailored to the specific characteristics of the intended audience. By using real people with similar demographics as the target audience (i.e., Latina women ages 50-64) as role models, media messages inherently were culturally appropriate, relevant, and of considerable interest to this audience. Messages from peers are credible and deal with common problems and barriers affecting women in the community. Media channels for dissemination of these messages were selected based on the target community preferences and local media reports on their reach and coverage of the Latino community.

Local media were recruited to run regular stories on TV and radio news programs and in newspapers preferred by the target audience of underserved Latinas. In addition, synchronized with the mass media topics, the staff produced desktop-created community newsletters/bulletins that included tailored messages and a shorter version of the role model stories that were being presented through mass media. The newsletters were distributed to the target audience by the network of peer volunteers and community sites. Stories featured in both the newsletter and mass media programming focused on local role models. As a result of the timing of the mass media and newsletter stories, the messages were reinforced by the dual communication methods.

The peer network was coordinated by a bilingual Latina staff person, who was responsible for recruiting community volunteers to promote the program by maintaining regular contact with neighborhood women and distributing newsletters. Volunteers were encouraged to contact at least five women per month. In addition to disseminating program materials, volunteers reinforced the media messages, encouraged screening behaviors among Latinas, and provided additional positive reinforcement and referral to services and/or additional information sources. Volunteers received basic training and monthly refresher sessions, which included fundamental breast and cervical cancer and screening information, program description and responsibilities, communication tips,

discussion of community experiences, and information on additional topics as requested. These training sessions also provided an opportunity for volunteers to socialize, share experiences, receive feedback, and receive recognition for their work and service.

As part of the program outreach activities, the staff conducted presentations about the program and its specific topics to groups, businesses, and organizations in the community. Presentations aimed to raise awareness, elicit community support, and recruit potential volunteers and role models.

Program staff members devoted most of their time in the community engaged in media and peer volunteer network activities. They regularly collected data on program activities and provided monthly summaries to their local supervisor and the coordinating center. At the coordinating center, we reviewed the data and provided technical support based on needs expressed through the data or directly from the local program staff.

Technical assistance. In the intervention's first six months, each site received monthly visits from coordinating center personnel and, thereafter, quarterly visits. Technical assistance also allowed for much more frequent phone or e-mail contact between the local project and coordinating center staffs. Typical areas of assistance included strategies for developing the peer networks, small media production (particularly the community newsletter and the use of publishing software), negotiating agreements with mass media, record-keeping, and resolving system access barriers.

DATA ANALYSIS

Process Evaluation

The replication package was evaluated extensively during the pilot stage. This evaluation included an expert review survey by a panel of five experts who read and assessed the training materials, trainee and trainer surveys administered during each training period, and brief assessment surveys administered during the technical support phase before and after all site visits. Evaluation also featured a technical assistance log that recorded issues covered during each contact with program staff.

The media and community intervention was measured by process data that reflected the fidelity of the implementation to the original model, achievement of performance objectives, and the program's adaptation to local circumstances. Process evaluation included implementation data forms that tracked program administration and communication activities, media production, and community outreach activities.

Outreach Evaluation

The outcome measure was based on breast or cervical cancer screening in age-eligible women during the pre- and post-intervention periods—specifically the difference in screening and screening rates between the two periods was assessed for Latina women of all ages and Latinas ages 50-64. We focused on differences because of their direct relevance to impact assessment and public health planning.

All screening data were collected by the state contractor for the Women's Health Connection, which oversees all NBCCEDP funding sites in Nevada and only a summary of grouped screening data was provided to the research team to assess the impact of the program on screening behavior changes among Latinas.

To estimate the pre-intervention baseline screening rate, data for breast and cervical cancer screening were retrospectively collected, for 26 months in Las Vegas and 14 months in Reno prior to replication implementation. Post-intervention data include 23 months for the pilot and 14 months for the replication sites. To allow comparability of pre- and post-intervention periods, adjusted numbers per year were obtained and annual rates per thousand women were derived based on the 2,000 Census age-eligible women for each site. Rate differences between the two periods with 95%

confidence intervals were calculated to assess the intervention's estimated impact. All analyses were conducted using Stata version 10 (Stata Corporation, 2007).

Due to the lack of financial resources (as well as to county-wide data limitations), it was not possible to adequately measure population-level effects through a rigorous design involving control and intervention groups. Given that previous studies have proven the effectiveness of the intervention model in positively impacting screening behaviors, the limited evaluation resources available were focused on the replication process.

RESULTS

The pilot site (Las Vegas) received funding for two years, after which the local organization received additional financial support for two additional years. Because the replication site (Reno) came on-line in the latter part of the research project's four years of funding, financial support was available for only 14 months. For this reason we are detailing the pilot site experience and briefly describing noteworthy differences encountered at the replication site. In addition, the results for both sites are condensed in Tables 1-4.

Pilot Site

Demographic data. According to the 2000 U.S. Census, Latinos represented 24 percent (112,962) of the population of Las Vegas, with 3,127 being Latina women between ages 50-64 (U.S. Cesus Bureau, 2000a). About 81 percent of Latinos speak Spanish at home and 88 percent watch, read, or listen to Spanish media on a daily basis (Miranda, 2005).

Reach. Through mass media and interpersonal communications, the program succeeded in reaching its intended audience of low-income Latina women. Through its community network, the program reached approximately 1,340 women each month over the implementation period, reinforcing media messages and encouraging emulation of role models and adoption of their screening behaviors. Each volunteer contacted at least five women per month, for a minimum of 520 monthly contacts. In addition, 125 community sites (i.e., small businesses, churches, clinics, schools, and community centers) helped with the distribution of monthly newsletters, each contacting between 10 to 50 people per month. An additional 120 people were reached monthly through community presentations conducted by program staff.

The program's media component used monthly newsletters, TV news segments, radio programs, public service announcements (PSAs), and newspaper articles to present basic information discussing and demonstrating how and why role models took steps to get screened. The two Spanish-language TV station participants, local affiliates of *Univision* and *Telemundo*, reported a viewership of more than 100,000 Latinos in Las Vegas. The major Spanish-language newspapers, *El Mundo* and *Tiempo Libre,* claimed daily circulation of 35,500 and 50,000, respectively. Five radio stations participated in program activities; *Super Estrella* was one of the major stations with a reach of about 39,000 of Latino listeners in Las Vegas (Arbitron Inc., 2001).

Effectiveness. The pilot proved to be extremely effective in increasing the number of low-income Latinas using breast and cervical cancer screening services (see Table 1). The program significantly increased screening mammogram rates (58.7‰) and Pap smear rates (51.8‰) (95% CI 40.1-49.1 and 47.1-56.5 respectively) among Latinas ages 50-64 during program implementation as compared to the pre-intervention period. Based on discussions with county health authorities in Clark and Washoe Counties, which encompass about 85 percent of the total population of Nevada, the Replication of A Su Salud En Acción Program was the only Latino cancer screening campaign in effect in the state during the intervention time period.

Table 1. Mammography and Pap Smear Utilization Pre- and Post-Intervention, Pilot Site (Las Vegas, Nevada)

	Pre-Intervention 09/97 to 10/99	Rate*	Post-Intervention 11/99 to 09/01	Rate*	Rate Difference	CI 95%	
Latina women screened	205	3.1	4,243	72.0	68.9	65.9	72.0
Screening mammograms	309	4.6	1,639	27.8	23.2	21.2	25.2
Abnormal mammograms	36	0.5	206	3.5	3.0	2.2	3.7
Pap smears	376	2.0	4,107	24.5	22.5	21.4	23.5
Abnormal Pap smears	18	0.1	250	1.5	1.4	1.1	1.7
Latina women 50-64 screened	86	3.6	1,327	62.4	58.7	54.0	63.5
Screening mammograms	168	7.0	1,098	51.6	44.6	40.1	49.1
Abnormal mammograms	22	0.9	160	7.5	6.7	4.9	8.4
Pap smears	149	6.2	1,235	58.0	51.8	47.1	56.5
Abnormal Pap smears	4	0.2	45	2.1	2.0	1.1	2.9

*Rates are per 1000 person-years

Adoption. The Women's Health Connection of the Nevada Department of Health introduced the Clark County Health District (CCHD) to the program and strongly encouraged them to try it. After the program was presented, the CCHD director decided to adopt it. The project encountered initial resistance by some CCHD personnel, who initially saw the project as extra work for their already full schedule. However, after the immediate positive response from the community, resistance to basic system changes gradually diminished.

After reaching contractual agreement with our partnering community agency, training commenced and performance objectives for community outreach, media production, and administrative routines were defined based on the model's core components and local needs and circumstances. These objectives were reviewed quarterly and modified as needed. Objectives were established jointly by program officers, county health officials, and clinic directors, and approved by sponsoring agency officials.

Implementation. Project implementation began upon completion of training in accordance with the performance objectives established at the outset. For the community network component (Table 2), over the course of the program the staff was able to maintain an active community network of 104 volunteers and 125 community sites, to help distribute the monthly newsletters.

For the media production component, volunteers and community sites distributed approximately 31,665 newsletters during the course of the program. For mass media, 110 TV news segments featuring 24 role model stories were broadcast. The majority were produced by Univision (73%), the dominant Spanish-language TV network in Las Vegas. Additionally, newspaper articles, radio talk-show interviews and PSAs also were produced, and the program received substantial media coverage through area broadcast and print media.

Beginning in June 2000, the project monitored the number of calls received by the clinic as a result of media and community outreach. Over the remaining intervention period, the project generated 2,111 calls, the majority from TV viewership, followed by newsletters and radio. Of the women who called, 598 were referred for mammograms and 1,685 for Pap smears.

Process evaluation data, which ensured that the program model was faithfully followed, were shared with both the sponsoring organization and the community, thus serving public relations purposes. This information allowed the monitoring and assessment of key elements of the media and community components and the introduction of program adjustments as required. Technical

Table 2. Summary of Selected Program Activities, Pilot Site (Las Vegas, Nevada)

Program Activity	Total
Active Community Network	
Volunteers	104
Community sites	125
Training/Refresher sessions for volunteers	22
Community presentations	72
Attendees	3,123
Media Production	
Newsletters	31,665
Role model stories	16
TV news segments	110
Role model stories	24
Newspaper articles	13
Role model stories	2
Radio segments	433
Role model stories	4
Calls received due to program	2,111
TV	1,202
Radio	242
Newspaper	102
Newsletter	361
SEA staff	112
Friends	84
Other	23
Referrals	
Mammogram	598
Pap smear	1,685

assistance provided during the program emphasized guidance for the staff as unforeseen situations arose, helping ensure adherence to the model and reminding personnel of program implementation procedures and the importance of proper data collection and registry. The program was able to maintain fidelity of its core components while responding to the need for adjustments in operational activities due to local and sometimes changing circumstances. Performance objectives were established and adjusted based on local context. For example, the number of volunteers was maintained at about 100 due to limited capacity of the CCHD to respond to the overwhelming demand for services by Latinas and the part-time employment status of program staff.

System changes during implementation. The program initially encountered some challenges related to lack of cultural competency by some personnel, language barriers (i.e., no Spanish-speaking receptionist or in-take staff at the clinic), and limited service capacity causing a three-month delay in screening appointments.

The organizational commitment to the program and the positive community response motivated the CCHD to reallocate resources to increase capacity. This included providing Spanish classes to all front-desk personnel and requiring all staff whose work necessitated contact with patients to attend cultural competency training. In addition, more physicians and nurses were hired and expanded clinic times were established to cover the increasing demand for services. After the first year of

program implementation, the CCHD responded to the success of the program by raising the status of program staff to full-time employees.

Maintenance. Although the program was unable to collect much data on institutionalization because the evaluation would need to extend the program substantially (for at least an additional year), there were clear indications of sustainability over time. The CCHD expressed interest in hiring the program staff to continue the program, and also giving them new responsibilities related to Latino-related issues (i.e., diabetes, immunizations, and prenatal care). The CCHD also wished to use the same diffusion acceleration model to reach out to other ethnic communities. With program funding ending after two years, the CCHD successfully applied for a grant from the Cancer Foundation of America to provide funds for an additional two years of operation. Program staff were assigned a permanent office with additional tasks within the organization, including interpreting and patient navigation.

Replication Site

Demographic data. Latinos represented 19 percent (68,177) of the total population of Reno, with 3,127 being Latina women between ages 50-64. About 80 percent of Latinos in the city speak Spanish at home (U.S. Census Bureau, 2000b).

Reach. As in the pilot site, the program reached its target audience through media and interpersonal communication components. The program made contact with approximately 2,000 women each month, reinforcing media messages and encouraging imitation of role models and screening behaviors (see Table 3).

Regarding media, the program's Spanish-language TV partner, the local *Univision* affiliate (which subsequently became Azteca America), had a viewership of more than 53% of Latino households. For print media, the program relied on the free-of-charge Ahora, the city's only Spanish-language newspaper, with a daily circulation of 13,000. One radio station, *La Super Q*, participated and reported reaching about 3,000 Latino households daily.

Effectiveness. In Reno, the program significantly increased screening rates among Latina women from pre- to post-intervention. Particularly, mammograms increased by 33.7‰ and Pap smears by 7.5‰ (95% CI 15.6-51.9 and 4.3-10.6 respectively) among Latinas ages 50-64 (see Table 4). The program generated more referrals for screening than the capacity of the St. Mary's Foundation Redfield Clinic, which is why the screening numbers do not reflect the total number of women referred by the program during the reported time period. Consequently, given the high demand for services and the limited availability of resources to meet that demand, the number of volunteers recruited was kept below the original target of 100.

Adoption. In Reno, little external influence was needed to gain support by the Redfield Clinic, which was eager to adopt the program. Interest from the clinic started strong and positive and remained that way throughout the program. Resistance to adopt and implement the program was minimal and limited to some personnel who feared that the project would add an inordinate burden to the clinic staff workload.

Implementation. Project implementation began upon completion of training in accordance with the performance objectives established at the outset, with the staff initiating activities of the two program core components, community network development and media production (see Table 3). We continued to fine-tune the training manual throughout the replication site operation, and it provided an excellent training tool and effective, user-friendly guide for the staff in day-to-day conduct of program activities.

The process evaluation data collected during the implementation provided an excellent means of monitoring network volunteer and media activity of the program, tracking the required adjustments and ensuring model fidelity. Sharing this information with the sponsoring organization and the

Table 3. Summary of Selected Program Activities, Replication Site (Reno, Nevada)

Program Activity	Total
Active Community Network	
Volunteers	76
Community sites	66
Training/Refresher sessions for volunteers	85
Community presentations	20
Attendees	3,175
Media Production	
Newsletters	22,767
Role model stories	9
TV segments	27
Role model stories	29
Newspaper articles	18
Role model stories	17
Radio segments (talk show)	17
Role model stories	17
Calls received due to program	716
TV	181
Radio	107
Newspaper	99
Newsletter	112
SEA staff	72
Friends	63
Other	82
Referrals	
Mammogram	331
Pap smear	633

public boosted the program's stature within the community and provided a very effective public relations tool.

System changes during implementation. Similarly to the Las Vegas pilot study, the program's efforts in Reno resulted in increased demand for services, which caused screening appointment delays. Clinic services were booked almost three months in advance. The commitment of the organization to the program and the positive community response motivated clinic officials to reallocate resources and increase capacity by expanding clinic times in an effort to cover the demand for services.

Maintenance. The Reno replication showed clear indications of program sustainability over time. The Saint Mary's Foundation submitted several grant applications to extend program duration and expand services to other health areas. The Redfield Clinic expressed significant interest in using the model network and media components for other relevant health issues, such as immunizations, diabetes, and dental care, aimed at under-insured Latino populations. However, the clinic could no longer promote breast and cervical cancer screening to women without resources to cover treatment. Because the foundation was morally obligated to provide treatment if it was necessary, the program increased treatment costs by an estimated $150,000 in its first year of operation. These expenses were paid by the Saint Mary's Foundation and not from federal or state funds.

Table 4. Mammography and Pap Smear Utilization Pre- and Post-Intervention, Replication Site (Reno, Nevada)

	Pre-Intervention 11/99 to 1/01	Rate*	Post-Intervention 2/01 to 03/02	Rate*	Rate Difference	CI 95%	
Latina women screened	378	55.9	650	103.0	47.1	36.5	57.8
Screening mammograms	228	33.7	290	45.9	12.4	4.9	19.9
Abnormal mammograms	15	2.2	37	5.9	3.7	1.3	6.1
Pap smears	342	17.2	602	32.5	15.2	11.8	18.7
Abnormal Pap smears	10	0.5	43	2.3	1.8	1.0	2.7
Latina women 50-64 screened	169	76.0	261	125.8	50.0	29.2	70.9
Screening mammograms	133	59.8	194	93.5	33.7	15.6	51.9
Abnormal mammograms	9	4.0	22	10.6	6.7	1.1	12.4
Pap smears	148	10.6	234	18.0	7.5	4.3	10.6
Abnormal Pap smears	5	0.4	16	1.2	0.9	0.2	1.6

*Rates are per 1000 person-years

DISCUSSION

The challenge of evidence-based public health research has been to replicate and disseminate tested interventions that are appealing, effective in practice, cost-effective, and feasible to replicate in a non-research population (Farris et al., 2007). This study demonstrated that researchers were able to successfully package the *A Su Salud En Acción* model in a coherent, user-friendly manner, allowing its implementation by lay public health workers at community health clinics in Las Vegas and Reno, Nevada. With basic training and technical assistance, the model was replicated in two sites in need of a program promoting breast and cervical cancer screening. The project was effective in increasing cancer screening rates among low-income Latina women.

Strong organizational commitment, despite initial resistance by clinic staff workers, particularly in Las Vegas, led to full adoption of the program at both sites (pilot and replication). The support of program "champions" was very important and facilitated the adoption of the program and its implementation at both sites. The replication process succeeded and, with basic training and technical assistance, the program model was adapted to local context and implemented with fidelity to its core components. Because of this full adoption and adaption, significant increases in the number of women obtaining mammogram and Pap smear screenings occurred after exposure to program implementation—and more than 11,000 women were educated on breast and cervical cancer risks and screening through small media, interpersonal contact, or direct group sessions. Although the study collected very limited data on institutionalization, there were clear indications of program sustainability over time, including hiring program staff to full-time positions with additional organizational duties, obtaining a grant to continue financial support of the program, and applying the model to other health issues affecting Latinos in both areas.

Lessons Learned

The following are some of the lessons learned during the Replication of *A Su Salud En Acción* Program:

- *Identify vital site selection criteria.* Developing site selection criteria that represent the minimum level of need, compatibility, and organizational capacity required to support the intervention is critical to replication success.
- *Develop a succinct program description.* It is important to create a clear, brief program

description to accompany the site solicitation correspondence or any promotional materials used to recruit sites. This could be in the form of a fact sheet that describes the program and provides details about its origins and history: how it was developed, how it has worked well or not elsewhere, and what outcomes have been achieved.

- *Clearly list core components.* Again, before beginning site selection, develop a list of core program components and clearly identify those that are required or invariable (i.e., those that must be retained in all sites to ensure integrity of the intervention and comparability of evaluation data) and those that are optional or variable. It is important to maintain a balance between fidelity and flexibility or adaption to local context.
- *Formalize mutually agreed-upon responsibilities.* In this study, it was very helpful to have a memorandum of understanding with a clear, formal statement signed by both parties to structure the replication relationship. Formally spelling out responsibilities and expectations in advance can avoid or minimize confusion later.
- *Emphasize data collection from the outset.* The importance of developing evaluation tools and religiously gathering the data that will allow assessment of implementation fidelity and overall effectiveness cannot be overstated. If these evaluation data cannot be collected in a complete and adequate manner, it will be impossible to determine the success or failure of the program replication. Building capacity to support data collection activities should be a critical focus of training and technical assistance.
- *Don't underestimate the time required for technical assistance.* Although a written manual and training are vital, ongoing technical support is necessary to bridge the initial learning period and subsequent implementation and to ensure program success. This support can take many forms, including orientation, assistance in person, one-on-one phone calls, conference calls, e-mails, and train-the-trainer.
- *Make recruiting "champions" a priority.* In our experience, finding strong supporters of the program at the pilot and replication sites was extremely important, especially identifying individuals at various levels and with different skills. It was necessary to conserve champions by giving them specific roles and ownership in the program.
- *Monitor community partnerships carefully.* In each community, staff members joined forces with other groups or coalitions (i.e., Susan G. Komen for the Cure affiliates, ACS, and United Way). In such partnerships, the resources of the collaborating parties are reciprocal. Program staff should be trained to avoid diverting resources by being very clear on the goals of the program and what partners can do to help meet those goals.

Limitations

Our study has several limitations. Although the program reported process and outcome results, the latter results were aggregated data provided by the State. Due to budget limitations, the program did not measure population-level effects through a rigorous design involving control and intervention groups. Therefore, results have limited generalizability to other potential replication sites serving low-income Latinas. Each site is unique and the level of program adaptation to each local context makes it impossible to replicate the program in the same way twice.

Measuring program exposure and access to services poses a dilemma. On the one hand, it may be important to measure how many women are using the clinic due to exposure to the program. However, how feasible is it to train and maintain adequate data collection quality at the point of intake to capture these data? Also, once gathered, how certain is it that the data will be properly analyzed and reported in a timely manner? Our program process data do capture the number of calls to the program phone number inquiring about services. But this is only a partial picture of the public's response to the program. Due to these limitations, process data comprised the only common

data systematically collected across all sites.

Sufficient process data were captured on the intervention to determine its effectiveness and fidelity to the intervention model. However, insufficient data were collected on the institutionalization process. As noted earlier, to collect this data the evaluation process needed to continue significantly past the conclusion of grant funding.

Certainly, this program demonstrated the potential effectiveness of replicating a model that has been proven successful elsewhere in reaching underserved Latino target audiences with health promotion outreach and effecting positive behavior change. Indeed, the data strongly indicate the benefits of the program in selected sites. Despite its limitations, the present replication experience contributes to the growing body of knowledge about replication of evidence-based interventions in real-world environments. Additionally, the study demonstrated the need for more research on the issues and processes involved in the replication of effective programs.

ACKNOWLEDGMENTS

The study was funded by the Centers for Disease Control and Prevention Grant No.U57/CCU6154140-02. The authors wish to thank Edgar Munoz for his support with data analysis and Dani Presswood for his assistance editing the manuscript.

REFERENCES

American Cancer Society. (2006). Cancer Facts & Figures for Hispanics/Latinos 2006 – 2008. Atlanta: American Cancer Society, Inc. Retrieved Jan 11, 2011, from http://www.cancer.org/acs/groups/content/@nho/documents/document/caff2006hisppwsecuredpdf.pdf.

American Cancer Society. (2009a). Cancer Facts & Figures for Hispanics/Latinos 2009 – 2010. Atlanta: American Cancer Society, Inc. Retrieved Jan 11, 2011, from http://www.cancer.org/acs/groups/content/@nho/documents/document/ffhispanicslatinos20092011.pdf.

American Cancer Society. (2009b). Breast Cancer Facts & Figures 2009-2010. Atlanta: American Cancer Society, Inc. Retrieved Jan 11, 2011, from http://www.cancer.org/acs/groups/content/@nho/documents/document/f861009final90809pdf.pdf.

American Cancer Society. (2010). Cancer Facts & Figures 2010. Atlanta: American Cancer Society, Inc. Retrieved Jan 11, 2011, from http://www.cancer.org/acs/groups/content/@epidemiologysurveilance/documents/document/acspc-026238.pdf.

Arbitron Inc. (2001). Hispanic Coverage, Las Vegas Radio – Fall 2001, Spring 2001. Report provided by Entravision, Las Vegas.

Bandura A. (1986). *Social foundations of thought and action: a social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall Inc.

Bandura A. (1996). *Self-efficacy: the exercise of control.* New York, NY: WH Freeman & Co.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice-Hall Inc.

Centers for Disease Control and Prevention. (2007). WISEWOMAN Best Practices Toolkit: Lessons Learned from Selected Projects. Retrieved Jan 11, 2011, from http://www.cdc.gov/WISEWOMAN/toolkit/index.htm#_blank.

Eakin, E.G., Brown, W.J., Marshall, A.L., Mummery, K., & Larsen, E. (2004). Physical activity promotion in primary care: bridging the gap between research and practice. *American Journal of Preventive Medicine, 27*(4), 297-303.

Farris, R.P., Will, J.C., Khavjou, O., & Finkelstein, E.A. (2007). Beyond effectiveness: evaluating the public health impact of the WISEWOMAN program. *American Journal of Public Health, 97*(4), 641-647.

Glasgow, R.E., Marcus, A.C., Bull, S.S., & Wilson, K.M. (2004). Disseminating effective cancer screening interventions. *Cancer, 101*(5 Suppl), 1239-1250.

Glasgow, R.E., Vogt, T.M., & Boles, S.M. (1999). Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *American Journal of Public Health, 89,* 1322-1327.

Howe, H.L., Wu, X., Ries, L.A.G., et al. (2006). Annual report to the nation on the status of cancer, 1975-2003, featuring cancer among U.S. Hispanic/Latino populations. *Cancer, 107*(8), 1711-1742.

Martinez, M.E., Nielson, C.M., Nagle, R., Lopez, A.M., Kim, C., & Thompson, P. (2007). Breast cancer among Hispanic and non-Hispanic White women in Arizona. *Health Care Poor Underserved, 18(*4Suppl), 130-145.

McAlister, A. (1997). The diffusion accelerator: Combining media and interpersonal communication in community-level health promotion campaigns. In N.H. Corby, & R. J. Wolitsky (Eds.), *Community HIV prevention: The Long Beach AIDS community demonstration project* (pp. 31-44). Long Beach, CA: The University Press, California State University.

McAlister, A. L., Ramirez, A. G., Amezcua, C., Pulley, L., Stern, M. P., & Mercado, S. (1992). Smoking cessation in Texas-Mexico border communities: a quasi-experimental panel study. *American Journal of Health Promotion, 6*(4), 274-279.

McAlister, A., Ramirez, A. G., Galavotti, C., & Gallion, K. J. (1989). Antismoking campaigns: progress in the application of social learning theory. In R. Rice & C. Atkin (Eds.), *Public Communication Campaigns* (2 ed., pp. 291-307). London: Sage Publications.

McDougall, J.A., Madeleine, M.M., Daling, J.R., & Li, C.I. (2007). Racial and ethnic disparities in cervical cancer incidence rates in the United States, 1992-2003. *Cancer Causes & Control, 18,* 1175-1186.

Miranda, M.L. (2005). The Mexicans. In J.L. Simich, & T.C. Wright (Eds). *The peoples of Las Vegas: one city, many faces.* Reno, NV: University of Nevada Press.

National Cancer Institute. (1997). The National Hispanic Leadership Initiative on Cancer. NIH Publication 97-4260. Bethesda, MD: National Cancer Institute.

O'Brien, K., Cokkinides,V., Jemal A., et al. (2003). Cancer Statistics for Hispanics, 2003. *CA A Cancer Journal for Clinicians, 53*, 208-226.

Puska, P., Salonen, J.T., Koskela, K., McAlister, A., Kottke, T.E., Maccoby, W., & Farquhar, J.W. (1985). The community-based strategy to prevent coronary heart disease: Conclusions from ten years of the North Karelia Project. *Annual Review of Public Health, 6,* 147-193.

Ramirez, A. G., & McAlister, A. L. (1988). Mass media campaign – A Su Salud. A*merican Journal of Preventive Medicine, 17*(5), 608-621.

Ramirez, A. G., & Suarez, L. (2001). The impact of cancer on Latino populations. In M. Aguirre-Molina & C. W. Molina & R. E. Zambrana (Eds.), *Health Issues in the Latino Community* (pp. 211-244). San Francisco: Jossey-Bass.

Ramirez, A. G., Suarez, L., Laufman, L., Barroso, C., & Chalela, P. (2000). Hispanic women's breast and cervical cancer knowledge, attitudes, and screening behaviors. *American Journal of Health Promotion, 14,* 5, 292-300.

Ramirez, A. G., Suarez, L., McAlister, A., et al. (2000). Cervical cancer screening in regional Hispanic populations. *American Journal of Health Behavior, 24,* (3),181-192.

Ramirez, A.G., Gallion, K., Presswood, D., & Chalela, P. (2002). Training Manual for the Replication of the A Su Salud En Acción Model.

Ramirez, A.G., Vélez, L.F., Chalela, P., Gallion, K., & McAlister, A.L. (2008). Case Study – Diffusion Acceleration: a model for behavior change and social mobilization. In M.V. Kline & R.M. Huff (Eds.), *Health Promotion in Multicultural Populations: A Handbook for Practitioners and Students* (2nd Ed.). Thousand Oaks, CA: SAGE Publications.

Ries, L.A.G., Melbert, D., Krapcho, M., et al. (2007). SEER Cancer Statistics Review, 1975-2004. Bethesda, MD: National Cancer Institute. Retrieved Jan 11, 2011, from http://seer.cancer.gov/csr/1975_2004/.

Rogers, E. (1962). *Diffusion of Innovations.* New York, NY: Free Press of Glencoe.

Rogers, E. (2003). *Diffusion of Innovations* (5th ed). New York, NY: Free Press.

Stata Corporation. (2007). Stata Statistical Software: Release 10. College Station, TX: Stata Corporation LP.

U.S. Census Bureau. (2000a). Fact Sheet: Las Vegas City, Nevada. Demographic profile highlights. Retrieved Jan 11, 2011, from http://factfinder.census.gov/servlet/QTTable?_bm=y&-context=qt&-qr_name=DEC_2000_SF1_U_DP1&-ds_name=DEC_2000_SF1_U&-CONTEXT=qt&-tree_id=4001&-redoLog=false&-all_geo_types=N&-geo_id=16000US3240000&-search_results=01000US&-_sse=on&-format=&-_lang=en.

U.S. Census Bureau. (2000b). Profile and General Demographic Characteristics: Reno City, Nevada. Census 2000, Summary File 1 (SF 1). Retrieved Jan 11, 2011, from http://factfinder.census.gov/servlet/QTTable?_bm=y&-context=qt&-qr_name=DEC_2000_SF1_U_DP1&-ds_name=DEC_2000_SF1_U&-CONTEXT=qt&-tree_id=4001&-all_geo_types=N&-geo_id=16000US3260600&-search_results=01000US&-format=&-_lang=en.

Vanslyke, J.G., Baum, J., Plaza, V., Otero, M., Wheeler, C., & Helitzer, D.L. (2008). HPV and cervical cancer testing and prevention: knowledge, beliefs, and attitudes among Hispanic women. *Qualitative Health Research, 18*(5), 584-596.

Vélez, L.F. (1998). Violencia y medios de comunicación. *Revista Latinoamericana de Comunicación – Chasqui, 64,* 73-77.

Vélez, L.F., Chalela, P., & Ramirez, A.G. (2008). Hispanic/Latino health and disease: an overview. In M.V. Kline & R.M. Huff (Eds.), *Health Promotion in Multicultural Populations: A Handbook for Practitioners and Students* (2nd Ed.). Thousand Oaks, CA: SAGE Publications.

Amelie G. Ramirez, DrPH
Institute for Health Promotion Research, UT Health Science Center San Antonio

Patricia Chalela, DrPH
Institute for Health Promotion Research, UT Health Science Center San Antonio

Lucina Suarez, PhD
Environmental Epidemiology & Disease Registries Section, Texas Department of State Health Services

Kipling J. Gallion, MA
Institute for Health Promotion Research, UT Health Science Center San Antonio

Please address reprints to the corresponding author:
Amelie G. Ramirez, DrPH
8207 Callaghan Road, Suite 353
San Antonio, TX 78230
Phone: 210-562-6505, Fax: 210-348-0554
ramirezag@uthscsa.edu