

A Community Participatory Oral Health Promotion Program in an Inner-city Latino Community

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Abstract

Objectives: This paper reports the planning, implementation, process evaluation, and refinement of an oral health community participatory project in Mount Pleasant, an inner-city Latino neighborhood of Washington, DC. The main goal was to explore the feasibility of implementing such a project. **Methods:** The PRECEDE-PROCEED model was used to guide the planning and process evaluation of this project, in conjunction with community organizational methods. A steering committee, which met periodically, was formed to assist in program planning, implementation, and evaluation. The needs assessment of the community identified extensive dental health problems among children and deficiencies in their parents' oral health knowledge, opinions, and practices. In response, culturally appropriate health education and promotion activities were planned and implemented in collaboration with local community organizations, volunteers, and local practitioners. Process evaluation was used to provide feedback into the refinement of the community approach, which included record keeping and an inventory approach to activities completed and resources used. The overall impact and usefulness of this program were assessed informally using an anonymous open-ended questionnaire directed to members of the steering committee, and an outreach survey using a convenience sample at a local Latino health fair. **Results:** The implementation of such a community participatory approach was feasible and useful for building upon existing local resources and addressing oral health concerns in a community not reached by traditional dental care and health promotion initiatives. Individuals in this community showed a substantial interest in oral health matters and participated in a variety of oral health prevention activities. The community approach adhered to community-based research principles. [J Public Health Dent 2001;61(1):34-41]

Key Words: public health dentistry, community dentistry, community intervention research, community-based research, behavioral risk factors interventions, participatory health promotion, public health partnerships, immigrants, Latinos, Hispanics, Central Americans, child, preschool, mothers, families.

Millions of Americans have not benefited from the significant improvements made since the early 1970s in preventing and controlling dental decay (1). Low-income persons and those with a low level of education are particularly at risk for oral diseases (2,3). Furthermore, early childhood caries is more prevalent among chil-

dren of low socioeconomic status and children from particular racial or ethnic groups, such as African Americans and Hispanics (4,5). Primary preventive care is not easily accessible for those who have the greatest burden of oral diseases. Populations with the greatest needs for dental care usually are those who cannot afford regular

preventive services (6). Equally important, these populations do not recognize that they can prevent and control most oral diseases.

Health education and health promotion are considered to be efficacious approaches for decreasing dental disease and promoting oral health (7). However, evidence is growing that health promotion and education efforts to influence preventive behaviors must be targeted to specific audiences (8). Consideration of social, cultural, economic, and other environmental factors influencing health in a particular community tend to unite people and maintain a level of commitment and motivation for carrying out necessary actions to solve the problems and make a program successful (9,10). Moreover, early involvement of community members in identifying their own needs, setting their own priorities, and planning their own program provides opportunities for ownership that can lead to a sense of empowerment and self-determination in goal attainment (11).

Preventive interventions must be culturally appropriate (12) and tailored to people's specific needs (3,8). Community programs, such as community participatory models to reduce heart disease or programs to improve access to primary care, have proved to be particularly effective in reaching population groups that otherwise have not been reached by other preventive initiatives (13-15). To date, such community models have had only limited applications in the prevention of dental decay among high-risk populations (16,17).

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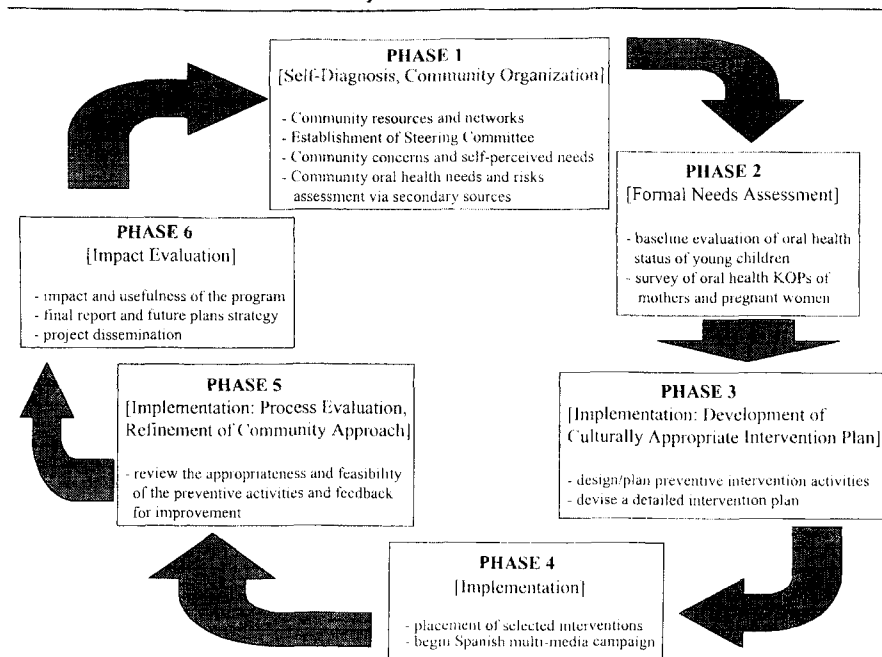
The greatest potential for positively affecting attitudes, values, and behaviors, is to target young populations during early stages of development—when habit patterns can be more easily molded (18). For example, caries prevention programs instituted at maternal and child centers could be particularly effective (17,19) using interventions before initiation of caries to enable child populations to remain caries free. To be effective, it is necessary to have multiple exposures to the health message, reinforce the message, and make the preventive regimen available (11,20). The messages must be targeted to the community audience and introduced effectively into the participants' homes (21). Moreover, oral health prevention can and should be targeted in the context of general health (3).

The purpose of this pilot project was to explore the feasibility of developing and implementing an oral health community participatory program using as a framework the PRECEDE-PROCEED planning model combined with methods based on community organizational theory. This project focused on early prevention of dental caries through culturally appropriate education of pregnant mothers and parents of preschool-aged children in the Mount Pleasant community, an inner-city neighborhood of Washington, DC. Because the project was inclusive rather than exclusive, segments of the population in addition to mothers and children were educated about oral diseases. The strategy was to use resources already in place, build upon them, and increase awareness of local resources and infrastructure. This paper describes the planning, implementation, process evaluation, and refinement of the community approach we used in the project, and discusses the approach in terms of fulfillment of principles of community-based research.

Program Description

Population of Mount Pleasant. The target community is an optimally fluoridated inner-city community in northwest Washington, DC (22). The Mount Pleasant neighborhood has a population of approximately 11,000 persons (23). Mount Pleasant was officially designated as a Health Professional Shortage Area (HPSA) in 1980, and again in 1990 (24).

FIGURE 1
Project Phases Process



National census data indicate that approximately 62 percent of Hispanics in Washington, DC, are Salvadorians or of other Central American origin. However, large proportions of Hispanics/Latinos in this inner-city neighborhood are known to be recent immigrants and undocumented persons who are not likely to be included in Census statistics (25).

Although Central Americans are the fourth largest group of Hispanics/Latinos in the United States, few data exist on their sociodemographic profile, health beliefs, or behaviors (26). According to a recent survey of 1,549 persons in the Washington, DC, metropolitan area, only 30 percent of the 1,084 employed individuals reported having any medical insurance (26). Lack of health information was identified as one of the most serious health problems affecting the community (26). Because Hispanics of Central American origin identify themselves as Latinos or Latin Americans, the term Latino will be used when referring to the people in this community.

Community Approach. The project was divided into six phases (Figure 1). The PRECEDE-PROCEED model (11), a diagnostic approach to health education planning, was used to guide the planning and process evaluation of this project. This model helped direct the kinds of information to collect prior to developing and implementing

the interventions. The PRECEDE-PROCEED model emphasizes that the identification of predisposing, enabling, and reinforcing factors important to an outcome must be diagnosed before an intervention is designed. PRECEDE and PROCEED also provided the framework for the process evaluation, which in turn provided the feedback necessary for refinement of the community approach (11).

The first phase of the project consisted of self-assessment and self-diagnosis, which included the identification of community networks and the establishment of a steering committee. Representatives of all community-based organizations in the Mount Pleasant area were invited to participate, as well as other individuals with diverse backgrounds, such as community lay people, health educators, social workers, administrators, and local private dentists. Community organizational methods, incorporated within the PRECEDE-PROCEED approach, were used as tools to facilitate the process by which steering committee members helped us to identify needs, set priorities, and plan the program (27). The Centro Catolico Hispano or Spanish Catholic Center (SCC) was the home base organization for this project and the meeting place for steering committee meetings. The mission of the SCC is to help the Latino community in the process of adapta-

TABLE 1

Issues Related to Oral Health Education and Prevention Identified Through Steering Committee Nominal Group Process

Question posed: From your experience, identify three areas related to oral health education and prevention that need to be addressed in the Mount Pleasant community.

- Lack of knowledge of basic nutrition practices; nutrition education; use of excessive fruit juices and sugared drinks; interaction between food and teeth; feeding skills; prolonged use of bottle; sleeping with baby bottle.
- Oral hygiene, oral health habits, oral hygiene instruction; brushing/wiping out small children's teeth/mouth; flossing and brushing.
- Lack of affordable dental care; access to care issues; Sources of dental care in the community—need a list of Spanish-speaking providers and providers with reduced fees; appropriate age to start seeing dentist; education about insurance coverage and dental benefits; should care for children be deferred due to socioeconomic conditions?
- Parent education, more emphasis in the family; breastfeeding; prenatal dental care education, child development; family planning.
- Need for oral screenings; implementing mandatory dental care and follow-up to school forms.
- Need for more preventive education with audiovisuals.

tion and integration into a new society, offering an integrated holistic set of medical, dental, and social services. This center houses the only nonprofit (nonprivate) dental clinic in the community and serves only uninsured persons.

Background and Baseline Assessments. An initial assessment of oral health needs and risk behaviors was performed using nominal group process (11) among steering committee members to identify areas related to oral health education and prevention that needed to be addressed in the Mt. Pleasant community (Table 1). This process was complemented with an assessment of secondary data sources to determine dental care patterns and extent of treatment provided in the community. Secondary data sources included health records of children seen at the dental clinic of the SCC and copies of community elementary school oral screening forms—a requirement for all Washington, DC, children entering the school system. Observations made by health educators from participating community-based health organizations also were discussed at steering committee meetings.

The initial educational assessment consisted of four focus groups conducted with mothers and pregnant women. The focus groups were designed to identify their predisposing (knowledge and beliefs related to oral health, dental caries, and prevention of dental caries), enabling (language spoken, time in the United States, type of insurance) and reinforcing (family support, advice from health providers, source of information) factors. It

was established that Mount Pleasant children, their mothers, and pregnant women could benefit from targeted oral health promotion interventions.

The second phase of the project consisted of a more formal assessment of community oral health needs after completion of the initial assessment from secondary data sources and the focus groups. This phase of assessment later facilitated evaluation of the project. Two baseline surveys were completed: an oral health examination survey of preschool children ($n=142$), and a baseline survey of parents and pregnant women regarding their oral health needs, knowledge, opinions, practices (KOP), and information regarding their sources of oral health information ($n=121$). Both surveys were conducted among convenience samples. Methods for both the parental and the child surveys and their findings have been described previously (28).

Intervention Planning. The development of a culturally appropriate community intervention plan was the third phase of the project. The predisposing, reinforcing, and enabling factors identified through the focus groups and the baseline oral health KOP survey were reviewed with members of the steering committee. Areas where oral health education was needed were identified and used in the prioritization of messages and activities that were to be targeted in the interventions. Recommendations for health promotion activities were formulated based on scientific evidence and on the combined experience of steering committee members in the community.

The research team and steering committee members decided that the themes for the interventions would be prevention of dental caries and early childhood caries. A list of possible intervention activities were developed and discussed with the steering committee. The most appropriate interventions for this community were selected by consensus, and target age groups and the settings for the interventions were prioritized—i.e., pregnant women, mothers of young children, and preschool children. Additional interventions for other segments of the population also were provided because we sought participation of the community at large.

The idea for a communitywide oral health campaign evolved into the Intervention Activity Weeks. Having more than one week of interventions allowed for converging communitywide efforts at determined points in time using multiple types of activities, as well as coordinating volunteer activities to be intensive for only a few days at a time. The media campaign enhanced outreach efforts and increased participation, thus reinforcing the oral health messages.

Evaluation Methods

Process evaluation was used throughout the project to review and refine the overall program. Overall impact and usefulness of the program was evaluated at the end of the funding period.

Process Evaluation and Refinement of the Community Approach. The appropriateness and applicability of the preventive activities were reviewed on an ongoing basis with the

steering committee. For example, after each intervention week was completed, the implemented activities were discussed and improved for future use. Three intervention weeks provided the opportunity to adjust the target messages and the delivery approaches.

The process evaluation included record keeping, as well as inventory of activities completed and of resources used, as suggested by Green and Kreuter (11). We recorded the amount of promotional materials distributed, such as toothbrushes, toothpaste, educational brochures, and magnets for message reinforcement. These records provided ongoing as well as episodic accounts of what was occurring in the program. For example, anecdotal reports by staff members of the community-based organizations, including physicians, were recorded. These reports demonstrated an increased number of client inquiries about oral health coinciding with the intervention weeks, as well as an increased demand for dental appointments at the community dental clinic. An inventory of resources used, particularly the number of volunteer hours that the project elicited, served to describe the amount of oral health promotion activities provided that otherwise would have been nonexistent in this community.

Overall Impact and Usefulness. This was evaluated informally in two ways. First, an anonymous, self-administered, open-ended questionnaire directed to members of the steering committee included the following questions: "Do you think oral health

was a goal worth pursuing in the community?" "Do you think this project had an impact on your agency?" "Please list this project's assets (qualities) and caveats (problems)." "Please suggest additional ways to integrate oral health with other services in the

community." Members not present at that session were reached later and requested to respond by mail.

Second, a short survey regarding outreach issues was conducted among a convenience sample at a local annual Latino health fair. The survey instru-

Table 2. Intervention Activities

Ongoing community initiatives targeted:

- 1995 and 1996 Latino health fairs organized by local community-based organizations,
- Council of Latino Agencies Community Resources Fair,
- Mary's Center and Latin America Youth Center "teen clinics,"
- Rosemount's Center Children and Nutrition fairs,
- Training of the Latin American Youth Center (teen) Health Promoters
- Rosemount Head Start Program Health Services Advisory Committee.

Strategic placement of additional selected interventions:

- Children oral examinations and school dental check-ups for children entering kindergarten;
- Application of dental sealants and topical fluorides at the SCC dental clinic at no cost;
- Targeted oral health presentations were given at participating community-based organizations;
- Targeted reinforcement messages were placed in refrigerator magnets, pennants, and posters;
- Oral health posters and messages in bulletin boards were placed at community-based organizations;
- Educational slide series for use by local health providers and organizations were developed;
- A booklet for oral health promoters' use was developed;
- Oral health songs in Spanish were introduced at preschool, elementary, and middle schools.
- Provided support to field programs from a local dental school (University of Maryland)—i.e.: alternate clinic experience (ACE) program for 3rd and 4th year dental students and Community Service Practicum for 3rd year dental hygiene students; and to an Americorp program, by training college students to be oral health promoters.

TABLE 3
Community Intervention sites

Name of Participating Agency	Description Services	Target Clientele
Bancroft Elementary School	Elementary school	Children aged 5–10 years
Clinica del Pueblo	Health center	All ages
EOFULA	Geriatric center	Older adults
Family Place	Outreach	Pregnant women and mothers
Latin American Youth Center	Youth services	Teenagers
Lincoln Multicultural Middle School	Middle school	Children aged 11–13 years
Mary's Maternal and Child Center	Health center	Mothers and children
Rosemount Center	Preschool care center	Children aged 2–5 years
Sacred Heart Elementary School	Elementary school	Children aged 5–10 years
Sacred Heart Parish	Church, community services	All ages
Spanish Catholic Center (SCC)	Health and dental services	All ages

ment used was designed to allow the identification of Latinos' knowledge of local oral health resources. Questions included: "Have you received any information or advice regarding oral health during the last year (June 1995 to June 1996)?" "Where did you receive this information or advice?" (This question was a multiple choice and listed 12 choices of community sources, including radio and television programs, Hispanic/Latino newspapers, and community centers.) "Would you like to learn more about how to prevent oral diseases at home (for you and your family)?" And "Do you live in Mount Pleasant? If not, please specify if you live in the suburbs of Maryland or Virginia."

Implementation. Implementation was the fourth phase of the project. We developed a detailed, community-wide intervention plan using an array of activities for the different community groups. We integrated our interventions with ongoing community initiatives and used additional selected interventions (Table 2). Settings for the interventions were selected to include all possible collaborating community-based organizations and all segments of the population. The Intervention Activity Weeks were chosen to facilitate the implementation at multiple sites, in combination with a multimedia campaign. During implementation of the first Intervention Activity Week, we decided to educate youth health promoters to increase their knowledge about their own oral health and to enable them to assist with the work load during oral health campaigns.

Briefly, the Intervention Activity Weeks were educational interventions that consisted of targeted, age-appropriate oral health presentations coordinated at 11 health service community-based organizations (Table 3). These organizations included day care centers and schools. We compiled a list of approximately 20 individuals—including project staff, volunteer dentists, and youth health promoters—available to provide the interventions. Activities included small-group health education sessions, preparation of bulletin boards at various sites, oral health screening and referral events, classroom activities including use of games and songs, continuing education of staff members at the community-based organizations, and the in-

itiation of a clinic that provided free fluoride and dental sealants. Incentives were used at health promotion activities, such as distribution of toothbrushes, toothpaste, brochures, reinforcing magnets, banners, and flyers. Also, door prizes, raffle prizes, stickers, and children's treasure chests were solicited from local restaurants and businesses.

For the training of youth health promoters, teenagers were recruited from the church youth group to provide oral health education in local elementary school classrooms and to their peers. Educational sessions were conducted in an informal and relaxed setting. The curriculum focused on prevention of the major oral diseases including dental caries, gingivitis, and oral cancer, and on the concept that oral health is part of general well-being. A variety of educational materials were used, including printed leaflets, posters, and videos. Fluoride samples were used and toothbrushes and toothpaste were provided for toothbrushing instruction. The seven youth health promoters were encouraged to ask questions and to participate actively in discussions. Healthful foods were served. Incentives included a program T-shirt, certificates, and funding for a pizza event to share with their peers and families.

The Multi-Media Campaign, which was held concurrently with the Intervention Activity Weeks, consisted of radio interviews with audience call-in for questions at the two local Spanish radio stations. A week-long series of three-minute oral health messages were broadcast three times daily during the intervention weeks in the radio program "Usted y su salud," a successful radio program that focuses on preventive medicine and cancer prevention (29). Articles were featured in local Spanish newspapers—*El Pregonero* and *Tiempo Latino*. Also, three television broadcasts—two one-hour interviews regarding oral health prevention issues and a three-minute presentation during the Spanish news—described the oral health promotion project.

Steering committee members had expressed the need for oral health educational materials in Spanish. We preferred to use existing materials whenever possible because there are brochures, posters, videos, songs, slides, and teaching tools available from the

US government and from dental product manufacturers. However, during community focus group sessions, we found that the Spanish language spoken in the community differed from that used in the available educational materials. Therefore, we needed to develop culturally appropriate educational materials for the Mount Pleasant community. These educational materials included posters, banners, magnets, flyers, a program logo, and a caries-prevention slide series with a bilingual script. [Note: The caries prevention slide series and script, in Spanish and English, are available free of charge in electronic format by contacting the corresponding author.]

Community Barriers. Although the program proceeded smoothly, some issues were raised as part of the community learning process and the daily interaction with the community. Although some of these situations were expected, others were not. Up-front consideration of these potential issues can be useful in planning similar community oral health promotion initiatives, and therefore are included here. Although the PRECEDE model suggests that the community should assist in the identification of the problems that need to be resolved and their prioritization, we started with aspects related to oral health because other concerns such as general health, housing, and violence were beyond our expertise and level of funding.

At the onset of this program, we observed widespread friction within community-based organizations primarily because of budget cuts and the instability of the Washington, DC, government. Competition was fierce among the community-based organizations for future funding from Washington, DC, programs. This situation prompted gaps in communication and collaboration with particular agencies, which we had to address to ensure our productivity. Competing agencies' quests to extend their services to more clients became an issue that hindered sharing resources and facilities.

Another problem was the relative value placed on oral health. The community has many priorities other than oral health, such as general health issues, unemployment, and poverty. In addition, the community was greatly concerned about divisions among groups of different national origin (i.e., Salvadorians vs Guatemalans), which

led to violent events and gang-related activities.

Community residents and steering committee members frequently raised the issue of lack of funds for dental care. No funds were available in this project for restorative services. This program was designed and funded to focus on oral disease prevention and it was possible to provide some preventive services. Steering committee members, community-based organization workers, and residents felt that the provision of fluoride treatments and sealants improved the program's value.

Results of the Evaluation

Phase 5 of the project pertained to process evaluation and refinement of the community approach, which was done concurrently with program implementation. Inventory information on resources used and activities conducted between February 1995 and September 1996 were collected as part of the process evaluation. Over 1,000 staff hours were contributed to this program. Additionally, 10 local volunteer dentists contributed more than 68 hours, and individuals who served as recorders, interviewers, and other support personnel contributed 50 hours. In all, 26 hours of health promoters were used and 42 scheduled oral presentations were provided to community groups.

Overall impact and usefulness of the program were evaluated at the end of the funding period in phase 6 of the project. Evaluation methods included an anonymous, open-ended questionnaire directed to members of the steering committee and a survey regarding outreach issues. Workers of community-based organizations felt this project had a positive impact on their organizations. They especially valued the opportunity to raise awareness among staff and clients of the importance of oral health and the possibility of primary prevention of oral diseases. All respondents thought that oral health was a goal worth pursuing in the community and that integration of the messages into ongoing initiatives, and the outreach approach used, made the project more valuable.

The following were listed by members of the steering committee as assets of the project:

- "the formation of the steering committee for inclusion of multiple

perspectives, and the inclusion of several community-based organizations";

- "primary care approach to dentistry, yet acknowledging the need for dental treatment in the Latino community";

- "strong educational component of project focusing on mothers and children, because it is important that children learn this message at an early age"; and

- "the exposure given to oral health prevention through the radio broadcasts."

The following were listed by members of the steering committee as limitations of the project:

- "lack of availability of dental treatment for low-income people";

- "need for (or adaptation) of more educational materials targeted to different age groups"; and

- "lack of future funding so that the project may continue actively in the community."

An additional limitation was that we were unable to entice the lay community members to participate on the steering committee. However, lay people did participate in focus groups, health fairs, as youth health promoters, and informally at the various intervention sites.

The short survey regarding outreach issues that was conducted among a convenience sample at a local annual Latino health fair provided validation data. The geographic distribution of the population served corresponded closely to that in the baseline survey of parents' knowledge, opinions, and practices (data not shown). Fifty-two percent of the respondents to the short outreach survey had been reached by messages provided by our campaigns. The sources of health information in the community corresponded with the level of intervention provided at the different local agencies, particularly those directed to adults. For example, 35 percent of the respondents identified the centers where educational events for adults took place (i.e., SCC, Mary's Center, and Clínica del Pueblo). Another 35 percent identified the radio program "Usted y su salud," of the radio Borinquen station, 13 percent identified the interviews done at radio Mundo station, and 13 percent identified one of the TV programs. Eighty-eight percent of the respondents pointed out that

they would like to learn more about how to prevent oral diseases.

Project Dissemination and Delineation of a Future Plans Strategy. Phase 6 in our project plan included sharing and disseminating the information from the project. A final report and a brochure included a summary of the program approach, baseline findings, and process evaluation outcomes. The report was distributed among all the participating community-based organizations, volunteer health care providers, and youth health promoters. The brochure was distributed at health fairs and at professional meetings.

Based on the activities considered most successful, we outlined a strategy that would continue the effort beyond the expiration of the funding. This strategy included continuation of radio campaigns and training of youth oral health promoters, possibly with an expansion of this training to younger groups and to mothers. We also planned to maintain an oral health presence at annual health fairs and a continuation of community collaboration efforts. Furthermore, we intend to continue the operation of the clinic that offers free dental sealants and fluoride treatments.

Discussion

The PRECEDE-PROCEED framework was a useful guide to facilitate the characterization of the resources, educational and behavioral barriers, and organizational factors in the community. It also served to ensure that interventions and other learning opportunities were tailored to the needs and cultural values of the community. Moreover, the community-based approach used in this pilot program in Mount Pleasant proved useful in addressing a community in great need of oral health advice from dental care providers and with minimal access to traditional dental care.

Implementing such a community participatory approach was feasible and useful for building upon existing local resources, and increasing awareness toward oral health issues and the value of preventing dental caries. Workers of community-based organizations were motivated to reach beyond their usual boundaries to work with others, recognizing the importance of oral health; however, shrinking budgets make it difficult for our

project to be included in the programs offered by many community agencies. This program stimulated active involvement from members of the community, and increased their interest in oral health and in participating in a variety of oral health prevention-related activities, including serving as health promoters.

The Centro Catolico Hispano has hired a part-time dental hygienist whose duties include oral health promotion and education activities in the community and to continue with applications of fluorides and sealants. The Rosemount Center has continued with annual oral health education sessions with children and the Parent-Teacher Association (PTA). Mary's Center is implementing changes in medical well-baby visits forms to incorporate oral health screening and education objectives. The Latin American Youth Center requested assistance in the development of an oral health chapter to be incorporated into the teen-promoters training program manual.

The magnitude of the results of community intervention projects must be judged according to their potential public health or population-level effects. Small changes at the individual level may result in large benefits at the population level (30). These larger and longer-term effects have yet to be evaluated. Actually, it has been suggested that it takes at least five years to initiate, develop, and sustain a preventive community-based program (15)—a commodity we didn't have when our program was funded. Nevertheless, this program was successful in the fulfillment of eight principles to be achieved in community-based research, outlined by Israel and collaborators (31).

Namely, we adopted a culturally tailored approach considering the identity of the community and we built on strengths and resources within the community. We facilitated collaborative partnerships in all phases of the project and integrated knowledge and action for mutual benefit of all partners. We promoted co-learning and facilitated empowerment within the community. We employed a cyclical and iterative framework, refining the approach on an ongoing basis, and addressed oral health with a comprehensive vision of general well-being. We disseminated

findings and process outcomes within the community.

Further, this project attempted to pursue "the direction for the next generation of community-based interventions" outlined by Sorensen and collaborators (30): that is, targeting multiple levels of influence, addressing social inequalities in disease or risk, involving communities in program planning and implementation, and incorporating approaches for "tailoring" interventions.

One principle that we could not achieve was to utilize a rigorous process evaluation. One option is to use a process tracking system that measures the dose of intervention delivered (30). The dose or content of the educational message delivered might have varied among volunteer dentists. However, we attempted to standardize the oral health message by developing educational materials with content areas to be used by all volunteers.

Our limited evaluation process showed feasibility of implementation, some degree of community ownership and partnership building, and much interest in oral health, which has continued throughout the three years since the end of the funding period. In this context, this pilot project provides evidence for oral health funding agencies and oral health policy makers to support future community participatory initiatives. Future initiatives, however, must be planned with stronger evaluation components so that effectiveness and efficacy may be demonstrated.

Suggestions for enhancement include identification of a paid on-site community facilitator within the community, and the active involvement of the lay population members on the steering committee. The achievement of close collaboration and sharing of resources with other health care providers and the use of interventions that can be conferred in the context of general health should be guiding principles in future initiatives.

References

1. US Department of Health and Human Services. Health status of minorities and low-income groups. 3rd ed. Washington, DC: US Department of Health and Human Services, US Government Printing Office, 1991.
2. White BA, Weintraub JA, Caplan DJ, et al. Toward improving the oral health of Americans; an overview of oral health status, resources and care delivery. *Public Health Rep* 1993;108:657-72.
3. US Department of Health and Human Services. Healthy People 2000: national health promotion and disease prevention objectives. Washington, DC: Public Health Service, DHHS pub no (PHS) 91-50212; 1990.
4. Kaste LM, Selwitz RH, Oldakowski RJ, Brunelle JA, Winn DM, Brown J. Coronal caries in the primary and permanent dentition of children and adolescents 1-17 years of age: US, 1988-1991. *J Dent Res* 1996;75(Spec Iss):631-41.
5. Vargas CM, Crall JJ, Schneider DA. Sociodemographic distribution of pediatric dental caries: NHANES III, 1988-1994. *J Am Dent Assoc* 1998;129:1229-38.
6. Center for Health Economics Research. Access to health care: key indicators for policy. Princeton, NJ: Robert Wood Johnson Foundation, 1993.
7. Allukian M Jr, Horowitz AM. Effective community prevention programs for oral diseases. In: Gluck GM, Morganstein WM, eds. *Jong's community dental health*. 4th ed. Saint Louis, MO: Mosby, 1998:170.
8. Surgeon General's National Workshop in Hispanic/Latino Health. One voice one vision—recommendations to the Surgeon General to improve Hispanic/Latino health. Washington, DC: US Department of Health and Human Services, Office of the Surgeon General, 1993.
9. World Health Organization. New approaches to health education in primary care. Geneva: WHO Technical Report Series, 1983:7-44.
10. James J. Community involvement toward community objectives. *Soz Präventivmed* 1992;37:218-17.
11. Green LW, Kreuter MW. Health promotion planning—an educational and environmental approach. 3rd ed. Mountainview, CA: Mayfield Publishing Company, 1999.
12. US Department of Health and Human Services. Healthy People 2000 review. Hyattsville, MD: Centers for Disease Control and Prevention, National Center for Health Statistics, DHHS pub no (PHS) 98-1256; 1997.
13. Farquhar JW, Maccoby N, Wood PD, et al. Community education for cardiovascular health. *Lancet* 1977;1:1192-5.
14. Farquhar JW, Fortman SP, Flora JA, et al. Effects of community-wide education on cardiovascular disease risk factors; the Stanford five-city Project. *JAMA* 1990; 264:359-65.
15. McFarlane J. De Madres a Madres: an access model for primary care. *Am J Public Health* 1996;86:879-80.
16. Knazan YL. Application of PRECEDE to dental health promotion for a Canadian well-elderly population. *Gerodontology* 1986;2:180-5.
17. Bruerd B, Jones C. Preventing baby bottle tooth decay: eight-year results. *Public Health Rep* 1996;111:63-5.
18. Elders MJ, Hui J. Making a difference in adolescence health. *JAMA* 1993;269: 1425-6.
19. Horowitz AM. Incorporation of a preventive dentistry program in a home start program. *Rural Health* 1975;90:365-

- 8.
20. Frazier PJ, Horowitz AM. Prevention: a public health perspective. In: Cohen LK, Gift HC, eds. *Disease prevention and oral health promotion*. Copenhagen: Munksgaard, 1995:109-52.
21. Flay BR, Burton D. Mass communication strategies. In: Atkin A, Wallack L, eds. *Mass communication and public health: complexities and conflicts*. Newbury Park, CA: Sage Publications; 1990:132-7.
22. US Department of Health and Human Services. *Fluoridation census 1992*. Atlanta, GA: Centers for Disease Control and Prevention, Division of Oral Health, DHHS pub no (PHS) 93-739-711; 1993: 123.
23. National Council of la Raza. *Central and South American population fact sheet*. Washington, DC, 1992.
24. US Department of Health and Human Services, Office of Shortage Designations. *Federal Register* 1994;59:34.
25. Melus A. Hispanic origin population in Washington, DC—report. Washington, DC: Mayor's Office of Latino Affairs, 1993.
26. Shankar S, Huerta HH, Gutierrez-Mohamed M, Crespo CJ. Community involvement in assessing health needs of immigrant Salvadoreans living in Washington, DC, area. *Ethnicity Dis* 1998;8:1-9.
27. Ross M. *Community organization: theory, principles, and practice*. New York: Harper & Row, 1967:14.
28. Watson MR, Horowitz AM, Garcia I, Canto MT. Caries conditions among 2–5-year-old immigrant Latino children related to parents' oral health knowledge, opinions and practices. *Community Dent Oral Epidemiol* 1999;27:8-15.
29. Skolnick AA. "Hard to reach" Hispanics get health news via physician's radio, TV shows [news]. *JAMA* 1997;278:269-72.
30. Sorensen G, Emmons K, Hunt MK, Johnston D. Implications of the results of community intervention trials. *Ann Rev Public Health* 1998;379-416.
31. Israel BA, Schulz AJ, Parker EA, Becker AB. Review of community-based research: assessing partnership approaches to improve public health. *Ann Rev Public Health* 1998;19:173-202.