The early detection and treatment of STDs is an effective strategy for slowing the sexual transmission of HIV. The goal of the YUTHE (Youth United Through Health Education) program, a collaborative effort between the San Francisco Department of Public Health (SFDPH) and the University of California, San Francisco, is to increase sexually transmitted disease screening and treatment among adolescents in a neighborhood with a high incidence of STDs in San Francisco. Youth health educators residing in the intervention neighborhood recruited sexually active youth between the ages of 12 and 22 years to participate in the YUTHE program’s intervention between January 2001 and May 2002. Sixty-three percent had two or more sexual partners, 47% did not use condoms consistently, and 18% had a history of STDs. When the intervention neighborhood was contrasted with a sociodemographically matched comparison neighborhood results indicate that both females and males in the YUTHE intervention neighborhood were significantly less likely to have Chlamydia trachomatis infection than their counterparts in the comparison neighborhood.

The shift in the HIV and AIDS epidemic in the United States toward African Americans may be in part attributable to the long–standing disproportionate burden of sexually transmitted diseases (STDs) in this group (Centers for Disease Control and Prevention [CDC], 1998b; Division of STD Prevention, 2001). STDs facilitate HIV transmission by affecting both the susceptibility of exposed individuals to HIV infection and the infectiousness of HIV–infected individuals (Royce et al., 1997; Wasserheit, 1992). Because the reduction of STDs among adolescents and young
adults may slow the rate of HIV infection in this age group, prevention efforts should target those at highest risk for the acquisition and transmission of STDs (Boily, 1997; Laga et al., 1994; Grosskurth & Mosha, 1995). The CDC (1998a) recommends the implementation of innovative methods for delivering STD–related services to adolescents and other underserved populations.

Health professionals within the San Francisco Department of Public Health (SFDPH) STD Prevention and Control Division and the Division of Adolescent Medicine at the University of California San Francisco (UCSF) both recognized the need for new STD prevention efforts focused specifically on adolescents that take into account the social, psychological, and structural barriers that impede health–seeking for screening and treatment of STDs. In 1996, to address the high rates of STDs among high–risk youth in San Francisco, these institutions collaborated to obtain funding from the CDC and the California State Office of AIDS for development of the Youth United Through Health Education (YUTHE) program. The goals of the collaboration were to reduce adolescent risk for HIV/STDs through increasing STD screening and treatment among adolescents and young adults, especially those who do not typically access health systems. An additional goal of this collaborative effort was to build the capacity of the SFDPH to expand and sustain their community outreach efforts by standardizing the training of outreach staff as well as the development and evaluation of outreach risk assessment tools, prevention messages, and screening referrals. The YUTHE program was built on the premise that community–based approaches utilizing peer education and outreach can be successful at reducing sexual risk behavior and increasing the utilization of health resources, which has been demonstrated in interventions for men who have sex with men (MSM) [Kegeles & Hart, 1998; Kegeles, Hays, & Coates, 1996; Williamson et al., 2001]. Because many adolescents with STD–related symptoms or asymptomatic STDs may not access reproductive health care services (Ellen, Lane, & McCright, 2000; Fortenberry, 1997; Hook et al., 1997; Sieverding, 1999) the YUTHE program, in 1997, began employing youth peer health educators to conduct health outreach in order to increase awareness of STDs in one San Francisco neighborhood with a high STD incidence. Subsequently in 1999, the University of California Universitywide AIDS Research Program provided funding to evaluate these prevention efforts. To improve intervention and evaluation efforts, the YUTHE outreach program was subsequently revised by standardizing training for peer outreach health educators, formalizing routes for outreach, and developing a standardized intervention instrument based on social and psychological theory.

The goals of this article are to describe the role of this collaboration in increasing the capacity of the SFDPH to conduct community STD/HIV prevention outreach and screening through the development and evaluation of the YUTHE program. Researchers have defined capacity building as the process that improves the ability of a group to meet objectives or to perform better (Foster–Fishman, Berkowitz, Lounsbury, Jacobson, & Allen, 2001). To elucidate this process, we first describe the collaborative framework and the product of the collaboration, the YUTHE outreach intervention as it was developed in 1999. Furthermore, we will describe the impact of the YUTHE program on this at–risk intervention population by describing the youth with whom we have intervened and by examining trends in STD rates among youth in the intervention community. Finally, we discuss the role this collaboration has had on increasing the capacity of the SFDPH to conduct STD/HIV prevention outreach and screening.
METHODS

COLLABORATIVE MEMBERS

Prior to establishing the YUTHE program, both SFDPH and UCSF collaborators had a strong interest both in promoting the health of youth at increased health risk and in developing programs for long-term health promotion and disease prevention for youth. Furthermore, the collaborative members had established prior relationships through other HIV/STD prevention efforts and recognized the benefits of working with each other. The UCSF collaborators had prior research experience in examining sexual risk behavior of adolescents and in developing and evaluating HIV/STD prevention programs for youth. Similarly, the collaborative members within the SFDPH had a longstanding personal and professional relationship with the intervention community through prior mentoring and health promotion efforts. As such, the YUTHE program had the credibility to form partnerships with key community leaders within the intervention community and to recruit youth to join the YUTHE program team as outreach educators and evaluators.

THE PROCESS OF COLLABORATION

The shared primary goal of all collaborative members was to reduce HIV/STDs among at-risk youth, and this goal was to be accomplished through increasing the detection and treatment of prevalent STDs. To facilitate both a collaborative environment and program development, regular face-to-face meetings at both institutions were scheduled and at these meetings, the status of program activities would be relayed to all members and objectives to be accomplished would be developed. The skills and experiences of the YUTHE program team members were complimentary; the UCSF members possessed the technical skills required for program development and evaluation, and the SFDPH members possessed the knowledge and skills that were necessary for successful program implementation. The technical knowledge of the UCSF collaborators consisted of (a) the application of proven social and psychological theories to guide the development of the intervention; (b) skills in conducting formative research, including needs assessments, community mapping, and focus groups; (e) experience in the design, implementation, and evaluation of behavioral interventions to prevent STDs and HIV; (d) the ability to manage large data sets and perform complex statistical analyses; and (e) the development of standardized youth education materials and the skills to train outreach staff. The SFDPH collaborators had the knowledge and skills to (a) conduct outreach with at-risk groups in community settings; (b) secure support and trust of the intervention community; (c) employ assistance from community service organizations to reach potential youth who could be employed as peer health educators; and (d) direct the day-to-day operations of the program, including providing supervision for and insuring the safety of the youth outreach staff. Furthermore, collaborative members also recognized that the institutions had differing resources and that these resources, both technical and financial, had to be shared in order to successfully develop the program.

In addition to broadening the collaboration to include community leaders and organizations to address the problem of HIV/STDs, the YUTHE team also realized the importance of partnering with youth in order to empower youth to serve as change agents in the process of STD/HIV prevention among their peers. The YUTHE program recruited youth via word-of-mouth, fax, telephone calls, flyer distribution, visits, and contacts with teachers, counselors, and program directors at youth serving agencies, community-based organizations, schools, and churches. Key traits sought in potential YUTHE peer health educators were (a) a strong desire to reduce the high
rates of STDs in their neighborhood, especially among adolescents and young adults; (b) comfort talking with peers about health–related issues, including sexual risk behaviors; (c) a demonstrated ability to handle multiple responsibilities such as attending school and working 5 afternoons per week; and (d) having an altruistic desire to better their neighborhood. In addition, youth were between the ages of 18 and 24 years, had completed high school or a GED program, and would be able to commit to 1–year tenure. To provide the youth with the knowledge and skills necessary for health outreach, all youth staff participated in a 40–hour training that addressed the following areas: professionalism; HIV, STDs, and reproductive physiology; influences on adolescent risk and prevention of STDs and HIV; and principles of health outreach.

THE YUTHE STREET– AND VENUE– BASED INTERVENTION
The YUTHE program’s street– and venue–based intervention utilized constructs from the AIDS risk reduction model (ARRM; Catania, Kegeles, & Coates, 1990), a stage–based prevention model along with principles of health outreach approaches (MacKellar, Valleroy, Karon, Lemp, & Janssen, 1996). The ARRM is a stages–of–change model that focuses on social and psychological factors hypothesized to change sexual behaviors related to HIV transmission. YUTHE venue–based outreach is a one–on–one, one time interaction in which the YUTHE peer health educators provide service to youth in their community at a variety of locations. YUTHE health educators recruited participants using a standardized protocol, which quickly identified eligible and willing participants. Through a structured interview, peer educators evaluated a participant’s STD risk and their readiness to seek STD screening and then delivered STD prevention and screening messages tailored to the youth. The risk assessment and prevention messages emphasized constructs of the ARRM, including consequences of and perceived risk for HIV/STDs, perceived barriers and benefits of HIV/STD screening, and reinforcement of HIV/STD screening behavior.

During the process of intervention development, particular care was taken to ensure the relevancy, age and cultural appropriateness, appeal, and potential for effectiveness of the intervention materials. The YUTHE program conducted a confidential, population–based, random–digit–dial telephone survey of adolescents in the intervention neighborhood in order to identify attributes of health care providers which youth valued. Additionally, the YUTHE program conducted a series of focus groups to identify culturally appropriate messages pertaining to STD screening and treatment. This information was then utilized in the development of appropriate STD screening messages for youth. These messages included “Handle your business,” which referred to the need for all sexually active youth to get an STD screen, and “It is as easy as peeing in a cup,” which communicated the ease of new noninvasive chlamydia and gonorrhea testing. Adolescents also provided information on where they “hang out” in and around their neighborhood, and subsequently the YUTHE program developed a neighborhood map that identified key locations where youth congregate such as outside high schools and community colleges, points of transit, gymnasiums, job training programs, and local businesses. Based on the community mapping, the YUTHE program developed four routes for outreach activities, which identified locations where youth aged 12–22 years could be recruited to participate in the YUTHE program between the hours of 2 P.M. and 6 P.M. The YUTHE program also developed role model stories based on interviews of neighborhood youth, which reinforced messages in regards to the importance and benefits of STD testing and treatment.
SUBJECTS

When conducting the intervention the peer health educators wore clothing such as T-shirts, jackets, and hats with the YUTHE logo, which identified them as members of the YUTHE program team. Criteria for participating in the YUTHE intervention included being between the ages of 12 and 22 years and being sexually experienced. Youth were excluded if they were unable to give verbal consent, were non-English-speaking, or were deemed unapproachable by the peer outreach educators. Youth who met enrollment criteria were invited to participate anonymously in the intervention and were offered two movie passes or coupons for food at local eateries as compensation for their time. After obtaining verbal consent, the outreach educator used a 21-item structured interview to assess sociodemographic information, sexual risk behaviors, and constructs from the ARRM. At the conclusion of the intervention, the peer educators provided handouts to the participant consisting of information on STDs and adolescent-friendly STD screening sites, role model stories, and condoms.

STATISTICAL ANALYSIS

Initial analysis consisted of describing the sociodemographic characteristics of the participants. To determine the possible effectiveness of the YUTHE program in decreasing HIV/STD risk, we examined trends in STD rates in the intervention and a comparison neighborhood in San Francisco over a 5-year period. A database of all cases of reportable STDs is maintained by the SFPDH, which collects information at sentinel community health clinics. *Chlamydia trachomatis* is the most common bacterial STD pathogen and C. trachomatis rates (number of C. trachomatis cases as
numerator and 2000 census numbers as denominator) were determined in the intervention and comparison neighborhoods within San Francisco. The comparison neighborhood in San Francisco was demographically similar to the intervention neighborhood and also had historically elevated rates of STDs among youth. We will examine trends over a five–year period in the neighborhood utilizing multiple linear regression statistical analyses, which allow the examination of the changes in C. trachomatis rates over time while controlling for baseline prevalence rates.

RESULTS
The actual implementation of the YUTHE intervention program was conducted during the period of time between January 2001 and May 2002. Of the 2,254 youth who were approached for participation in the YUTHE program, 2,202 (98%) voluntarily agreed to participate. Of these individuals, 2,078 (94%) met inclusion criteria (between ages of 12 and 22 years and self–identified as sexually experienced) for participation in the intervention. The mean age of the participants was 18.7 years and they were predominantly male (52.9%) and African American (87%). Most youth identified themselves as living in the intervention neighborhood (75%) with 14% residing in adjacent neighborhoods. Many of the youth participating in the YUTHE program were at increased risk for exposure to HIV/STDs based upon self–reported sexual activity. Specifically, 63.1% had 2 or more sexual partners in the preceding six months, 46.7% did not consistently use condoms, and 17.9% of participating youth reported that they were previously diagnosed with an STD by a health professional.

FIGURE 2. Yearly chlamydia rates, 14–22-year-old males by neighborhood.
To assess the potential impact of the YUTHE program’s outreach efforts on STD rates within the intervention neighborhood, we compared C. trachomatis rates amongst youth aged 14–22 years in the intervention and comparison neighborhoods. For both females and males in the intervention neighborhood, C. trachomatis rates remained relatively stable over the five–year period between 1998 and 2002 (Figures 1 and 2). C. trachomatis rates in the comparison neighborhood for both genders were higher than in the intervention neighborhood and increased substantially between 2000 and 2002. Both females in the comparison neighborhood (odds ratio [OR] = 3.0; 95% confidence interval [CI] = 2.3, 3.9; \( p \) < .001) and males in the comparison neighborhood (OR = 2.9; 95% CI = 2.0, 4.4; \( p \) < 0.001) were significantly more likely to have C. trachomatis than their counterparts in the intervention neighborhood. As there were much fewer C. trachomatis cases in the youngest adolescents (5 cases of C. trachomatis in adolescents aged 14–17 in the intervention neighborhood in 1998), who could potentially distort these analyses, we further examined rates in the older youth aged 18–22. For females, C. trachomatis rates were very similar in both neighborhoods in 2000 but diverged greatly from 2001 to 2002. For both females aged 18–22 (Figure 3) in the comparison neighborhood (OR = 2.3; 95% CI = 1.7, 3.2; \( p \) < .001) and males (Figure 4) in the comparison neighborhood (OR = 2.3; 95% CI = 1.5, 3.5; \( p \) < .001) were significantly more likely to have C. trachomatis than their counterparts in the intervention neighborhood.
DISCUSSION
The YUTHE program, which utilized a youth peer–led outreach approach, is both a feasible and acceptable strategy to STD/HIV prevention in youth residing in a neighborhood with a high incidence of STDs. This outreach program was especially effective at reaching young males who are typically not reached through traditional clinic–based interventions. We did find a significant difference in STD rates between the intervention and comparison neighborhoods, which may be, in part, attributed to the YUTHE program’s outreach activities. The YUTHE program did promote both STD testing (YUTHE outreach messages) and the use of barrier methods to reduce STD transmission (condom distribution). It is difficult to ascertain how effective the YUTHE program was in increasing STD screening and ultimately reducing STD rates in the intervention neighborhood because of the many variables which influence both health care delivery (STD screening) and the propagation of STDs within neighborhoods. For example, the difference in C. trachomatis rates may have been due to increased detection of infected individuals through STD testing or due to decreased transmission by infected individuals.

Collaborative capacity building has been defined as the conditions needed for partnerships to promote effective collaboration (Goodman et al., 2001) and is influenced by both the existing skills/knowledge and attitudes members bring to the table and by efforts taken to build, support, and access this capacity (Foster–Fishman et al., 2001). A primary key for the success of the YUTHE program was due largely to the collaborative partnership between university researchers and public health staff who had shared goals, responsibilities, and resources. Furthermore, the success in imple-
menting the YUTHE program could be attributed to team’s strong interest in the health of adolescents who reside in a neighborhood with a high incidence of STDs. The collaborative partners were equally committed to the prevention of HIV/STDs in this at–risk population through early detection and treatment of prevalent STDs. Relationships between key partners of the collaboration had been established prior to the inception of the YUTHE program and respect for each member’s contributions to HIV/STD prevention enabled partners to be viewed as capable, experienced, respected, and needed. The collaborative members shared responsibilities for the development of the YUTHE program’s outreach protocol as development relied heavily on the complementary skills and experience of each of the team’s members. The team also shared decisions and it was important for the decisions of the collaborative to be by consensus, whether pertaining to the design of the outreach instrument or the hiring of the youth outreach educators. Additionally, it was pragmatic for the collaborative partners to assist each other in the utilization of resources, whether material resources (cash for focus group participants, movie tickets as compensation for intervention participants) or technical (statistical assistance for data collection). Finally, these keys to collaborative could only be established when all of the group members were committed to meeting regularly and understood their roles within the collaboration. The collaborative extended beyond its most immediate members to include members of the intervention neighborhood. Linkages with other organizations were also fostered through the YUTHE program’s cultivation of relationships with other community members early in the process of program development. This helped to establish the legitimacy of the program, created awareness within the community of a new health promotion project, promoted acceptance of the program’s activities, ensured the cultural competence and relevance of the program, and facilitated successful implementation of program activities in the field.

Building the capacity of the SFDPH to accomplish its primary goal of STD/HIV prevention was achieved through improving health delivery, improving the problem assessment capacity, improving resource mobilization, and linking with others and participation within larger groups. The YUTHE program successfully conducted outreach with many youth within the intervention neighborhood and raised community awareness of HIV/STDs. Furthermore, structural changes in the YUTHE program, such as a youth outreach educator training manual, ensured that health promotion activities will continue in the future when inevitable staff turnover occurs. The information collected during this intervention on the health risk behavior of youth was valuable in defining the health risks of this vulnerable population and in securing resources (funding) within the organization to continue health promotion and disease prevention activities. The YUTHE program also facilitated links between youth serving organizations in the intervention community to collaborate on future activities. Since completion of initial YUTHE program outreach activities in 2002, the YUTHE program has been able to partner with a faith–based organization in the intervention neighborhood to conduct health outreach and to collaborate on health care delivery in other San Francisco communities, which suffer from high rates of STDs amongst its youth.

There are limitations to be considered in this evaluation of the YUTHE program. Though the intervention included youth aged 12–22, the analyses utilized STD rates among those 14–22 years old. However, as STD rates were lowest amongst the youngest adolescents, it is likely that the analysis was not biased through the utilization of an older age group. As we compared STD rates in the intervention and comparison
neighborhoods, we did not examine if there were differences between neighborhood youth in regard to knowledge of HIV/STDs, perceived risk of STDs, or utilization of reproductive health services, which could have been attributed to YUTHE program activities. This study also does not address the impact that the YUTHE program may have had on individual youth with whom it intervened by following youth with whom the project intervened longitudinally. Nor does this study examine how the YUTHE program may have affected STD rates in the intervention neighborhood by influencing the behaviors of neighborhood youth (increased testing and detection of asymptomatic disease, decreased sexual activity, or increased use of barrier methods). These questions are to be addressed in further evaluation research of the YUTHE program.

The YUTHE program team has demonstrated that a standardized peer led, outreach approach is both a feasible and acceptable strategy to STD/HIV prevention in youth in a neighborhood with a high incidence of STDs. Through interacting with many at-risk youth, the YUTHE program through either encouraging safer sexual behavior or screening for STDs may have reduced the youths’ risk for the acquisition and transmission of STDs. Certainly, the sexual risk behavior of the youth warrants continued targeted prevention efforts if reductions in STDs are to be maintained. Further outreach activities will depend on the ability of the program to sustain itself and sustainability is based on the ability of the program to build capacity within the YUTHE program, the peer educators, and the intervention neighborhood.

REFERENCES


