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# Editorials

## Prevention of Sexually Transmitted Diseases: The Need for Social and Behavioral Science Expertise in Public Health Departments

The United States has the highest rates of sexually transmitted diseases (STDs) in the developed world, higher than for some developing countries.<sup>1,2</sup> Half of the most commonly reported infections in the United States are STDs<sup>3</sup>; of the 10 leading reportable diseases in 1995, 85% were STDs.<sup>4</sup> A recent study estimated that 15.3 million new cases of bacterial and viral STDs occurred in 1996 at an annual cost of \$8.4 billion.<sup>5</sup>

The term STD is used to describe dozens of clinical syndromes and more than 30 bacterial and viral organisms.<sup>6</sup> The absence of regular STD screening for many populations at high risk, coupled with the asymptomatic nature of many STDs, results in significant morbidity, particularly among women.<sup>7</sup> STDs may lead to cancer, infertility, ectopic pregnancy, spontaneous abortion, stillbirth, and low birthweight for infants.<sup>8</sup>

Individuals are at risk for STDs as a result of their sexual behaviors, which are shaped by social and environmental factors in their communities. Individuals with STDs are also at greater risk for acquiring HIV.<sup>9,10</sup> Adolescents are at greatest risk for infection because they are more likely to have unprotected sex and multiple partners.<sup>11</sup> In addition, adolescent women are even more biologically vulnerable to infection than adult women.<sup>12</sup> Because Americans are reluctant to discuss sexual health, the scope and consequences of STDs are largely unrecognized in the United States.<sup>2</sup>

### *Working Together for Prevention*

The Institute of Medicine's (IOM's) landmark 1997 report, *The Hidden Epidemic: Confronting Sexually Transmitted*

*Diseases*, concludes that the epidemic of STDs is fueled by lack of awareness among the general public, lack of skills and training among health professionals, and the absence of an effective national system for STD prevention.<sup>2</sup> Underlying these problems are the sociocultural taboos against frank and open discussion of sexuality in our society. Despite these formidable barriers, the report counsels that STDs can be prevented through a combination of behavioral, biomedical, and structural interventions at the individual and community level. To be successful, such efforts will require collaborative, multifaceted, interdisciplinary approaches that involve community stakeholders, particularly to reach adolescents and underserved populations. There are currently few mechanisms in place to support this type of collaboration.

Development of a truly comprehensive national system will also require partnership with the private sector, where most individuals receive treatment. A recent study of a nationally representative sample found that among individuals who reported having been treated for an STD, only 5% sought care in a publicly funded STD clinic.<sup>13</sup> Managed care organizations offer the greatest potential in the private sector for a comprehensive approach to STD control but have demonstrated little interest in the issue to date. Leadership to develop these initiatives must come from federal, state, and local public health professionals. Public health agencies are in the best position to work with communities toward creative prevention strategies that focus on populations rather than individuals, but these agencies frequently lack the funding and technical skills to do so.

**Editor's Note.** Please see related brief by Haley et al. (p 899) in this issue.

## Lessons Learned From HIV Prevention

Prevention of STDs can be enhanced through the evaluation of research in HIV prevention. Over the last decade and a half, behavioral interventions for the prevention of HIV at the individual and community level have demonstrated increases in knowledge and changes in self-reported sexual behaviors that reduce the risk of HIV infection.<sup>14,15</sup> Individual-level interventions using small group formats that focus on increasing skills for condom use and skills in sexual communication have reduced HIV risk-taking behaviors among a variety of high-risk adult populations<sup>16,17</sup> and among adolescents.<sup>18-20</sup> Community-level interventions have also shown promise for increasing community support for reducing HIV risk behavior.<sup>21,22</sup>

This emphasis on behavioral approaches has been driven largely by the absence of biomedical solutions for the prevention and cure of HIV. Based on behavioral and social science theory, these interventions have helped to provide a scientific basis to guide the development of HIV prevention approaches at the federal level.<sup>23,24</sup>

The success of these interventions has highlighted the relevance of behavioral and social science to public health.<sup>25-27</sup> It is important to note, however, that the field of public health is dominated by biomedical and epidemiological paradigms.<sup>228</sup> Many public health professionals at state and local health departments are unfamiliar with behavioral and social science theory and with the application of these sciences to health promotion and disease prevention activities. HIV behavioral interventions have been carried out almost exclusively in research settings. There is a need to replicate these studies in public health agencies located in communities where STDs flourish.

Behavioral and social sciences have also contributed to an understanding of the importance of involving communities in the prevention of HIV. Community participation is critical for developing, implementing, and sustaining interventions to promote health.<sup>29</sup> To support collaboration between community planning groups and state health departments, behavioral scientists from the Centers for Disease Control and Prevention (CDC) and other researchers developed technical assistance materials that help groups to set priorities for HIV prevention at the local level.<sup>30,31</sup>

## Behavioral and Social Science in STD Prevention

The principal tools for STD control and prevention used in public health settings

today are diagnosis, treatment, and partner notification services along with surveillance of disease patterns.<sup>2</sup> While these efforts are critical components of a comprehensive system for the control of STDs, they constitute secondary prevention at the level of the infected individual.<sup>2</sup> Primary prevention—intervention that prevents illness from occurring in the first place—is preferable because many STDs are not curable, not all complications are reversible, and high rates of asymptomatic disease will continue to fuel the epidemic.<sup>2</sup>

Recently, behavioral interventions to reduce STDs have been shown to be effective in increasing condom use, decreasing rates of unprotected sex,<sup>15,32,33</sup> and decreasing rates of STDs.<sup>32,33</sup> These interventions contain those elements identified as characteristic of successful HIV behavioral interventions. Community interventions are rare in the field of STD control and prevention, so little work has been done toward the development of community collaboration with local health departments such as has occurred in HIV prevention. A new initiative funded by the CDC that combines interventions at the individual, provider, and community levels, thus addressing the complex interaction of factors at different levels, is currently under way.<sup>34</sup>

Although these initiatives are encouraging, much more research is needed. Given the tremendous economic burden of STDs, the current level of resources allocated for behavioral research in STD prevention is extremely low. There is a critical need to replicate and evaluate interventions that have been conducted under precise research conditions in “real world” clinical settings. Research in STDs is funded primarily through the National Institute of Allergy and Infectious Diseases and the CDC’s Division of STD Prevention. A study of STD expenditures in 1994 found that \$1 was spent on research for every \$94 spent on STD-related health care costs.<sup>2</sup> In 1998, 8.8% of the Division of STD Prevention’s budget was allocated for research and 2.5% was allocated for behavioral research.<sup>35</sup> The National Institutes of Health (NIH) spent \$105.4 million for research in biomedical and clinical research in STDs (excluding HIV) in 1995.<sup>2</sup>

## Capacity of State and Local Health Departments

Over the last decade, state and local health departments have sustained significant cutbacks in funding from all levels of government. Today, they have fewer resources to manage new and emerging epidemics, particularly in the area of STDs.<sup>36</sup> Funding for STD

prevention and the quality of services vary widely at the state and local level. The CDC’s Division of STD Prevention, the leading federal agency for STD prevention, contributed approximately 58% of the funds expended by state and local health departments for STD control in 1994.<sup>2</sup> Direct assistance for STD control from the CDC to state and local health departments in the form of federal staff assigned to local health departments has eroded over the last decade. In addition, grant funding has not increased for the last 5 years.

A recent report by the US Public Health Service documented a significant shortage of properly trained public health professions working in public health agencies across the country.<sup>37</sup> Studies indicate the need for the training of public health professionals in epidemiology, biostatistics, environmental and occupational health, public health nutrition, and nursing. Public health professionals with training in behavioral and social sciences are almost nonexistent at the state and local level.

## Recommendations

HIV prevention research using approaches grounded in behavioral and social science theory has been shown to be effective in reducing risk behaviors among a number of high-risk populations. Potential prevention of STDs through these kinds of approaches will require a coordinated effort among the key federal agencies responsible for researching, preventing, and controlling STDs. By working together, the CDC, the NIH, and the Health Resources and Services Administration (HRSA) can contribute significantly to reducing disease and lowering the enormous health costs associated with STDs in this country. Increased effort and funding must be directed in 2 principal areas: first, increased capacity in state and local health departments in the area of behavioral and social science; and, second, increased behavioral and social science research that addresses intervention, the replication of successful interventions in community settings (technology transfer), and the building of community collaboration.

### Increasing Capacity for Prevention

The HRSA has a mandate to improve the health of the nation by promoting health care workforce capacity and practice, particularly in primary care and public health. The HRSA has begun to make graduate-level public health education programs more accessible by supporting academic linkages between public health departments and

schools of public health and encouraging schools of public health to develop distance education programs for employees of public health departments.<sup>38</sup> Efforts should be expanded to ensure the availability of programs in underserved areas of the country and to include a special emphasis on behavioral and social sciences. Increasing the expertise of public health professionals in these areas can expand the narrow biomedical and epidemiological paradigms of health departments.

The CDC's Division of STD Prevention is the leading federal agency with a mandate to support service and research for STD prevention and control. Direct support by the CDC to state and local health departments has remained unchanged in recent years, leaving little potential for increasing the behavioral and social science capability of these agencies. The CDC is also mandated to help public health agencies build capacity through training and educational opportunities.<sup>25</sup> They have begun to address public health capacity by creating certificate programs for public health professionals through 4 schools of public health. These efforts need to be expanded, with an emphasis on education in the social and behavioral sciences. State and local health departments are unlikely to be able to increase funding to bring new behavioral and social science resources into their agencies without the support of the CDC.

### Research

The CDC and the NIH should develop a coordinated approach to addressing the significant need for increased behavioral and social science research for the prevention of STDs. The existing emphasis on biomedical research should be balanced with the need for behavioral and social science research in these agencies. Specifically, research ought to focus on developing effective behavioral interventions at the individual and community level that are tailored to specific populations and should address cultural and environmental factors as well as gender/power relations.

Provider interventions aimed at increasing primary prevention activities among their clients must be developed. The interaction between individuals, communities, providers, and systems that have an impact on preventing STDs should be explored. Successful interventions must be replicated and carefully evaluated with both outcome and process objectives. The process of replicating and sustaining successful interventions in community settings requires substantial research.

Behavioral and social scientists in state and local health departments can play a key

role in technology transfer and in enhancing the potential for successful interventions to be sustained in the community. Research on models for developing collaboration with communities and health care providers, including managed care organizations, will be critical to the goal of the primary prevention of STDs. □

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### References

1. Aral SO, Holmes KK. Sexually transmitted diseases in the AIDS era. *Sci Am*. 1991;62-69.
2. Eng TR, Butler WT, eds. IOM. *The Hidden Epidemic: Confronting Sexually Transmitted Diseases*. Washington, DC: National Academy Press; 1997.
3. Division of STD Prevention. *Sexually Transmitted Disease Surveillance, 1996*. Atlanta, Ga: Centers for Disease Control and Prevention; September 1997.
4. Centers for Disease Control and Prevention. Ten leading national notifiable infectious diseases, United States 1995. *MMWR Morb Mortal Wkly Rep*. 1996;45:883-884.
5. Alexander LL, Cates JR, Herndon N, Ratcliffe JF, eds. *Sexually Transmitted Disease in America: How Many Cases and at What Cost?* Research Triangle Park, NC: American Social Health Association; December 1998.
6. Holmes KK, Sparling PF, Mardh PA, et al. *Sexually Transmitted Diseases*. 3rd ed. New York, NY: McGraw Hill; 1999.
7. Wasserheit JN, Holmes KK. Reproductive tract infections: challenges for international health policy, programs and research. In: Germain A, Holmes KK, Piot P, Wasserheit JN, eds. *Reproductive Tract Infections: Global Impact and Priorities for Women's Health*. New York, NY: Plenum Press; 1992.
8. Greendale GA, Haas ST, Holbrook K, Walsh B, Schachter J, Phillips RS. The relationship of *Chlamydia trachomatis* infection and male infertility. *Am J Public Health*. 1993;83:996-1001.
9. Hitchcock PJ. Screening and treatment of sexually transmitted diseases: an important strategy of reducing the risk of HIV transmission. *AIDS Patient Care and STDs*. 1996;10:12-15.
10. Moss GB, Overbaugh J, Welch M, et al. Human immunodeficiency virus DNA in urethral secretions in men: association with gonococcal urethritis and CD4 depletion. *J Infect Dis*. 1995;172:1469-1474.
11. Division of STD Prevention. *Sexually Transmitted Disease Surveillance, 1995*. Atlanta, Ga: Centers for Disease Control and Prevention; September 1996.
12. Cates W Jr. Epidemiology and control of sexually transmitted diseases in adolescents. In: Schydlower M, Shafer MA, eds. *AIDS and Other Sexually Transmitted Diseases*. Philadelphia, Pa: Hanly and Belfus Inc; 1990:409-427.
13. Brackbill RM, Sternberg MR, Fishbein M. Where do people go for treatment? *Fam Plann Perspect*. 1999;31:10-15.
14. Auerbach JD, Wypijewska C, Brodie HKH, eds. IOM. *AIDS and Behavior*. Washington, DC: National Academy Press; 1994.
15. National Institute of Mental Health. The NIMH Multisite HIV Prevention Trial: reducing HIV sexual risk behavior. *Science*. 1998;280:1889-1894.
16. Kelly JA, St. Lawrence JS, Betts R, Brasfield TL, Hood HV. A skills training group intervention model to assist persons in reducing risk behaviors for HIV infection. *AIDS Educ Adolesc Health*. 1990;20:204-215.
17. Wingood GM, DiClemente RJ. The role of gender relations in HIV prevention research for women [letter]. *Am J Public Health*. 1995;85:592.
18. Rothman-Borus MJ, Koopman CT, Haignere C, Davies M. Reducing HIV sexual risk behaviors among runaway adolescents. *JAMA*. 1991;266:1237-1241.
19. Jemmott JB III, Jemmott LS. Increasing condom-use intentions among sexually active inner-city Black adolescent women: effects of an AIDS prevention program. *Nurs Res*. 1992;41:273-279.
20. St. Lawrence JS, Brasfield TL, Jefferson KW, Alleyne E, O'Bannon RE III, Shirley A. Cognitive-behavioral intervention to reduce African-American adolescents' risk for HIV infection. *J Consult Clin Psychol*. 1995;63:221-237.
21. Centers for Disease Control and Prevention. Community-level prevention of human immunodeficiency virus infection among high-risk populations: the AIDS Community Demonstration Projects. *MMWR Morb Mortal Wkly Rep*. 1996;45:1-24.
22. Kelly JA, St. Lawrence JS, Stevenson LY, et al. Community AIDS/HIV risk reduction: the effects of endorsements by popular people in three cities. *Am J Public Health*. 1992;82:1483-1489.
23. Fishbein M, Guinan M. Behavioral science and public health: a necessary partnership for HIV prevention. *Public Health Rep*. 1996;3:5-10.
24. Galavotti C, Saltzman LE, Sauter SL, Sumartojo E. Behavioral science activities at the Centers for Disease Control and Prevention: a selected overview of exemplary programs. *Am Psychol*. 1997;52:154-166.
25. Snider DE, Satcher D. Behavioral and social sciences at the Centers for Disease Control and Prevention: critical disciplines for public health. *Am Psychol*. 1997;52:140-142.
26. Holtgrave DR, Doll LS, Harrison J. Influence of behavioral and social science on public health policy making. *Am Psychol*. 1997;52:167-173.
27. Curran JW. Bridging the gap between behavioral science and public health practice in HIV prevention. *Public Health Rep*. 1996;3(suppl):3-4.
28. Fee E, Krieger N. Understanding AIDS: historical interpretations and the limits of biomedical individualism. *Am J Public Health*. 1993;83:1477-1486.
29. Hatch J, Moss N, Saran A, Presley-Cantrell L, Mallory C. Community research: partnership in black communities. *Am J Prev Med*. 1993;9:27-34.
30. Holtgrave DR. Setting priorities and community planning for HIV prevention programs. *AIDS Public Policy J*. 1994;9:145-151.

31. Academy for Educational Development. *A Tool Kit for HIV Prevention Community Planning*. Washington, DC: Academy for Educational Development; 1995.
32. Kamb ML, Fishbein M, Douglas JM, et al. Efficacy of risk-reduction counseling to prevent human immunodeficiency virus and sexually transmitted diseases. *JAMA*. 1998;280:1161-1167.
33. Shain RN, Piper JM, Newton ER, et al. A randomized, controlled trial of a behavioral intervention to prevent sexually transmitted disease among minority women. *N Engl J Med*. 1999;340:93-100.
34. Multi-level community research: a new paradigm for STD prevention program design. Abstract presented at: 126th Annual Meeting of the American Public Health Association; November 17, 1998; Washington, DC.
35. Department of Sexually Transmitted Diseases. *Research Review Briefing Handbook*. Atlanta, Ga; Centers for Disease Control and Prevention; 1999.
36. Public Health Functions Project. *The Public Health Workforce: An Agenda for the 21st Century*. Washington, DC: Public Health Service; 1997.
37. Harmon RG. *Training and Education for Public Health: A Report to the Assistant Secretary for Health*. Washington, DC: Public Health Service; 1996.
38. Greene D, Heaton C, Hamburg M, et al. Creating training opportunities for public health practitioners. *Am J Prev Med*. 1999;16 (3 Suppl):80-85.

## Meeting Primary Oral Health Care Needs of HIV-Infected Women

The HIV/AIDS epidemic poses enormous social challenges for the United States. Increasing numbers of mostly impoverished people of color, including women and children, are becoming infected with HIV. AIDS alone does not cause the devastating social problems of urban and rural areas—including homelessness, domestic and street violence, multiple-drug-resistant tuberculosis, and disconnected families—but it magnifies them. AIDS especially affects young people and has a devastating impact on their immediate and extended families, creating increasing numbers of orphaned children.

Biomedical science is making rapid progress, and new information is seemingly discovered every day, but a cure is not in sight despite the impressive results of highly active antiretroviral treatments. The AIDS pandemic shows few signs of abating, and within the United States, vulnerable population groups are still at risk.<sup>1</sup> Thus, the dilemma arises: How do we organize a system of primary oral health care that meets the needs of the entire population, including HIV-infected women and their families? How do we train, recruit, and retain qualified oral health professionals willing to serve vulnerable populations and to accept the small but real threat of HIV infection in the line of duty?

In the United States, highly active antiretroviral treatment has substantially reduced HIV-related morbidity and mortality rates. As a result, the numbers of people living with HIV/AIDS are larger and the need for primary oral health care services is actually increasing. It is essential for these individuals to retain or regain functional oral health status in order to receive proper nutrition, prevent oral infections, and improve their quality of life.

### *Barriers to Dental Care Among Women With HIV Infections*

Shiboski et al. remind us in this issue of the Journal of the very real challenges of attempting to reach the predominantly poor women of color with HIV/AIDS.<sup>2</sup> Their study provides information from the mid-1990s in northern California, before highly active antiretroviral treatment became widely available. Most of the study's participants were asymptomatic HIV-positive women, of whom two thirds reported that HIV was not their main problem in life, one third reported being afraid to see a dentist, and most reported being very poor.<sup>2</sup>

When asked about dental problems during the previous year, two thirds reported oral pain and three fourths recalled specific symptoms.<sup>2</sup> Over 40% of these women stated that they had needed dental care but did not receive it, and 43% had not had a dental visit during the previous year.<sup>2</sup> Those with no health insurance or with private health coverage were more likely to receive oral health care than those on Medicaid.<sup>2</sup> Asked to identify barriers to care, almost 27% of the women cited fear, 21% said they did not manage to make an appointment or did not know where to go, 16% said they did not have the necessary resources, and 9% felt discriminated against because they were infected with HIV.<sup>2</sup> Nonuse of dental services was associated with being unemployed, being Black, having self-reported poor oral health, and having 2 or more children.<sup>2</sup>

Among Shiboski and colleagues' central findings were the importance of fear of dentists, severe poverty, and issues more pressing than HIV infection in the lives of the women as barriers to gaining access to dental care.<sup>2</sup> The authors concluded that action has to be taken to improve dental care access for HIV-

infected women and suggested strategies, including stronger efforts to inform patients about services, better training of providers to treat patients who are afraid to visit a dentist, and higher compensation of fees through Medicaid.<sup>2</sup>

A closer look at and evaluation of rates of dental care use among Medicaid recipients in the United States reveal that only 20% to 30% see a dentist annually.<sup>3</sup> Finding oral health providers who are available and accessible to Medicaid recipients is a real struggle. In the present era of welfare and immigration "reform," along with the aforementioned success of highly active antiretroviral treatment, the challenges are only increasing. There is an immediate need to expand oral health services in the framework of comprehensive primary health care, colocated with medical care whenever possible. Expanded hours are essential, as are family-centered services where women and their families can be treated together.

### *The Challenge for the Future*

Can society afford the extra steps required to care for the expanding HIV/AIDS population, especially women? The answer is simple: without renewed efforts, it will be impossible to find the growing number of knowledgeable, dedicated dental professionals and workers needed to care for the ever-increasing populations already infected with HIV, ill from AIDS, or at high risk of contracting HIV/AIDS.

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**Editor's Note.** Please see related article by Shiboski et al. (p 834) in this issue.