

For Some Sexually Transmitted Infections, Secondary Prevention May Be Primary

By Adam Sonfield

When the U.S. Food and Drug Administration (FDA) approved a human papillomavirus (HPV) vaccine in 2006, it was hailed as an important breakthrough. Yet, public health experts predicted that most of the vaccine's benefits would be seen in the developing world, instead of in the United States and other industrialized countries. They were not arguing that HPV itself was more common in the developing world. Rather, they were making a distinction between the prevalence of HPV as an infection and the prevalence of its most serious potential consequence, cervical cancer.

HPV is an extraordinarily common infection in the United States and elsewhere, and has sometimes been described as a virtual "marker" for sexual activity, based on estimates that three-quarters or more of Americans acquire it at some point during their life. The vast majority of infections, however, are cleared by the human body's immune system without ever producing any symptoms, let alone causing any lasting physical harm. In a small number of cases, some strains of HPV can progress over many years to cervical cancer. Yet, regular Pap smears—a routine part of medical care in the United States, but rare in developing countries—have proven extremely effective at detecting precancerous cervical abnormalities, particularly with the most recent technologies, such as liquid-based Pap tests accompanied by HPV testing. Because these abnormalities are in most cases easily and quickly treatable in an outpatient setting, the combination of screening and treatment has made cervical cancer rare in the United States, with 11,000 cases and fewer than 4,000 deaths occurring each year.

Every STI is different. Not all provide such a clear demarcation between infection and disease. Not all result in disease that can be detected and treated early and easily. But the case of HPV illustrates the simple fact that screening and treatment to prevent an infection before it causes harm may sometimes be more important than preventing infection in the first place. Even for HIV and other dangerous STIs, such "secondary prevention" tactics have a major role to play.

Infections and Their Consequences

There are more than two dozen infections that are today recognized as being transmitted largely or exclusively through sexual contact. U.S. public health authorities, by and large, focus on a limited set of these STIs, according to such factors as how common and contagious they are, how easily they are to detect and treat, and how much impact they may have on the public health.

For a variety of reasons, including because the most common STIs are often or usually asymptomatic, estimates of the incidence (new cases) and prevalence (total existing cases) of most STIs are difficult to make. The most recent national data, now a decade old, estimated that 19 million new STI cases occur each year, half of them among 15–24-year-olds, and that 65 million Americans overall have at least one viral STI, most commonly genital herpes.

Despite their ubiquity, STIs far less commonly have any major, lasting impact on individuals' health. HPV is the clearest example, with several million HPV infections among Americans each year leading to 4,000 cervical cancer deaths. Pap

tests are so effective, in fact, that current federal guidelines recommend testing at three-year intervals, rather than what has been the long-time standard of testing every year.

At the other end of the STI spectrum is HIV. AIDS is, despite considerable medical advances, still considered to be ultimately fatal, but early treatment with antiretroviral drugs and other medical and lifestyle interventions (such as quitting smoking and improving diet) can greatly delay the onset of the disease. And with ongoing, high-quality care, HIV-positive Americans can live long lives with minimal symptoms. Current federal guidelines, consequently, recommend routine HIV screening for all Americans, regardless of perceived risk.

Syphilis, too, is important to catch early, because if untreated for years, the infection can ultimately cause irreversible damage to the nervous system and heart, possibly leading to blindness, insanity, paralysis and death. Because of the severity of the disease and the then-high prevalence of the infection, the discovery that penicillin can cure syphilis completely was a major public health advance in the 1940s, and the U.S. government has since attempted to eliminate the infection in this country.

Somewhere in the middle of this spectrum are chlamydia and gonorrhea. Routine screening for chlamydia among women younger than 26 is widely recommended by the government and medical associations, and is considered a cost-effective, but underutilized, form of preventive health care by the U.S. Preventive Services Task Force because of its ability to reduce rates of pelvic inflammatory disease (PID). Estimates of how often chlamydia (or other infections, including gonorrhea) lead to PID, and of how often PID leads to infertility or other serious complications, vary widely, in large part because it would be unethical to allow an infection to progress untreated. (Indeed, today's ethical standards were developed largely in response to the infamous Tuskegee study, which did exactly that for black men infected with syphilis.) Roughly, it appears that 10–40% of untreated chlamydia cases will lead to PID and that perhaps 20% of

women with PID will develop infertility. This progress typically occurs over a matter of years, however, and antibiotic treatment will eliminate the infection and stop the progression of PID.

Despite the various screening guidelines, only four in 10 young women are tested for chlamydia, although that rate has risen by two-thirds in just seven years. Similarly, in 2006, only 40% of Americans 18–64 had been tested for HIV (excluding blood donations), and 10% in the prior 12 months. Pap tests are considerably more common, but 17% of American women aged 18–64 in 2005 had not been tested in the past three years.

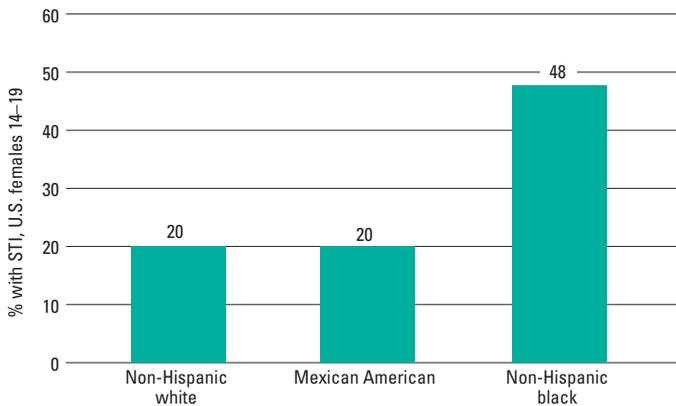
Treating the Couple

Screening and treating a woman or man also provides benefits to that patient's partner. Numerous studies have found that people who know that they have HIV or another serious STI are more likely than those without such knowledge to talk with their partners about risk and protection and are less likely to engage in high-risk behavior. And treatment of infected men and women can directly protect their partners against infection—something that is true not only for curable, bacterial infections, but also for many viral infections that can only be suppressed. Recent studies have shown that common drugs to treat and suppress herpes can reduce transmission by half. The findings are even stronger for HIV, with the risk of transmission so low among HIV-positive individuals without detectable viral loads that some experts have begun to argue that condom use may not always be necessary for discordant couples (where one partner is HIV-positive and the other, HIV-negative).

At the same time, screening and treatment of a patient's partner is also crucial for that original patient to break the cycle of reinfection that is seen commonly among patients with curable infections such as chlamydia and gonorrhea. The need to break this cycle has long been recognized by health care providers, and they have responded in part by making rescreening three months after treatment the standard of care. But going further, by getting the partner to come in for testing and treatment, can be difficult, particularly when the partner is asymptomatic.

NETWORK EFFECTS

Black teenage women are far more likely than their white and Latina peers to have at least one of the four most common STIs, a risk that stems in part from having sex within a relatively closed, high-prevalence sexual network.



Note: Includes infection with chlamydia, trichomoniasis, genital herpes or one of 25 strains of HPV linked to cervical cancer or genital warts. *Source:* CDC, 2008.

Distributing home-based testing kits—at health centers, schools, workplaces, shelters or via the Internet—is one potential tactic to address this problem, as are educational and communication-skills-training efforts to help patients convince their partners to come in for testing and treatment. The tactic that has generated by far the most interest in recent years is expedited partner therapy (EPT), in which the original patient's health care provider will provide a supply of or prescription for antibiotics to the partner without an actual diagnosis for the partner. This tactic works best with infections like chlamydia and gonorrhea, where effective single-dose therapies are available to minimize the chance of improper or incomplete treatment. It is not considered appropriate for syphilis, in contrast, because single-dose treatment is not available and because of the frequency of allergies to penicillin, the standard treatment for that infection.

EPT has received public endorsements over the past several years by the Centers for Disease Control and Prevention (CDC), the American Medical Association and the American Academy of Pediatrics, following several CDC-sponsored studies that found it led to substantial reductions in recurrent infections and, at the same time, saved scarce public health resources. Several

studies indicate that even before those endorsements, it was widely, if quietly, practiced by providers across the country. However, the CDC has also highlighted a long list of implementation issues, including the possible presence of other STIs, missed opportunities for counseling, difficulties in obtaining funding or insurance coverage and legal liability concerns stemming from EPT's sometimes uncertain legal status, including whether a provider may treat or write a prescription for someone they have not directly evaluated.

Treating the Community

The public health response to STIs has traditionally recognized that even treating the couple is not enough. By and large, people's sexual activity typically occurs within a relatively closed network, and epidemiologists have found that the behaviors—especially, having concurrent multiple partners—of even a small fraction of the members of a network can have profound ripple effects. The real-life evidence of these network effects can be seen in the disproportionately high STI rates among men who have sex with men (MSM) and among African Americans. The incidence of HIV and syphilis, for example, are significantly concentrated among MSM, and the rates of many STIs are several times higher among black women and men than among their white counterparts (see chart). In both cases, there is a range of reasons for the disparities, including lack of access to health care and persistent discrimination. But the spread of STIs within these communities is fundamentally fueled by the facts that sexual networks among MSM and among African Americans are largely closed, and that a substantial minority of both communities practice high-risk behaviors.

Part of the traditional policy response to this problem has been to promote sex education to change peoples' behavior regarding multiple partners and condom use, and vaccination for those infections (currently, HPV and Hepatitis B) where that option is available. These efforts have had many well-documented successes and will continue to be central to addressing STIs going forward.

Yet, STI testing and treatment have also long been a central component of public health efforts to reduce STI rates in a community. The tactic of tracing, notifying and treating the partners of infected patients, for example, was central to the U.S. campaign against gonorrhea, which reduced the prevalence of that infection by three-quarters between the mid-1970s and the mid-1990s (see chart). Today, facing limited resources to carry out such a labor-intensive activity, the CDC recommends that public health authorities focus their partner services efforts on syphilis and HIV, and limit their use for other STIs to high-risk cases. In fact, EPT for chlamydia and gonorrhea is in many ways a response to the limited resources available for comprehensive partner services, which include counseling, testing, treatment and referral services and link people with a broader set of health and social services. CDC guidelines emphasize that partner services should be client-centered, confidential, voluntary, nonjudgmental, culturally appropriate and free. These ideals, however, pose serious challenges, including the potential to spark physical or emotional abuse and legal obligations related to mandatory reporting and the duty to warn against imminent danger.

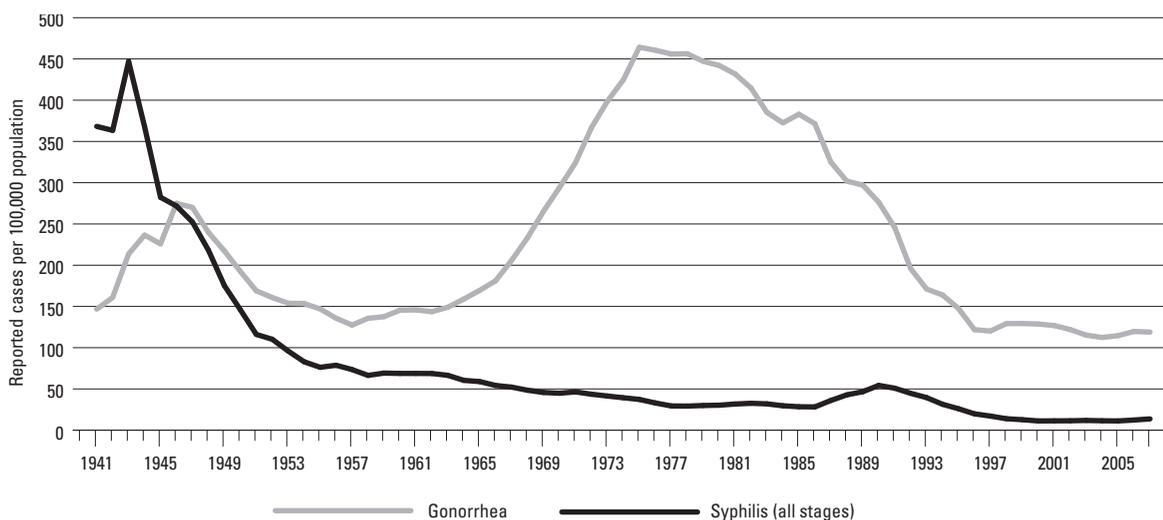
Ultimately, partner services and related community-based efforts to promote STI testing and

treatment can and have had a substantial impact on STI rates. Part of that success is by identifying and exploiting the same social and sexual networks that help spread STIs in the first place. By identifying the people who are the “hubs” of a network, these efforts can educate them about their STI status and the risks of their behavior, cure or suppress the infection itself and efficiently identify large numbers of other at-risk members of the network. All of this can have major, positive ripple effects in curbing the spread of STIs within that network.

Moreover, by linking high-risk members of a community with other key government and non-profit services—to reduce substance abuse, prevent violence, provide job training, and improve nutrition and living conditions—treating STIs can also help to address the broader problems in a community. This approach dovetails with an increasing recognition among public health experts that to effectively address STIs in the community, we need to “treat” the community itself. In this “reproductive justice” perspective, STIs are a symptom of broader community problems, from a lack of jobs and housing to high rates of crime and imprisonment to poor health care access and infrastructure. A 2008 study by University of Washington researchers, for exam-

TALE OF TWO CAMPAIGNS

Rates of syphilis dropped dramatically following the advent of penicillin as a treatment in the 1940s, and gonorrhea rates dropped steeply in the 1980s and early 1990s with a national campaign involving secondary prevention strategies.



Source: CDC, 2007.

ple, found a clear link between these types of negative contextual factors and the likelihood of having a current or recent STI. Many other studies have demonstrated links between high-risk sexual behavior and other high-risk behavior, such as drug use and violence, indicating that they have common root causes.

Policy and Politics

Advocates, public health experts and policymakers have all been working to turn the promise of secondary prevention into a reality. Leading the way at the federal level is the CDC's Division of STD Prevention. Its current five-year strategic plan, adopted in October 2008, includes overarching strategic goals that emphasize preventing and reducing disparities in four potential types of STI-related harm: infertility, cancers, adverse pregnancy outcomes and increased susceptibility to HIV transmission. (The latter two dangers may stem from a wide variety of STIs, some of which—like herpes and trichomoniasis—are otherwise notable mostly as irritants and as sources of psychological distress.)

Screening and treatment for chlamydia—which can be tied to three of those four potential harms—has been an object of particular focus for the CDC and other public health authorities, as well as nonprofit groups like the American Social Health Association (ASHA). For example, in 2008 the CDC helped launch the National Chlamydia Coalition as a way of bringing together provider and consumer groups to increase knowledge of and support for efforts to increase chlamydia screening and treatment. ASHA and other members of the coalition have also pushed to expand programs that provide free or subsidized screening and treatment at safety-net health centers, such as the CDC's antichlamydia Infertility Prevention Program. Fred Wyand, media and communications manager with ASHA, notes that "a key part in breaking the cycle of infection with chlamydia is for all partners to be treated, but this presupposes that individuals (and their health care providers) know their status to begin with. That so many chlamydia infections are asymptomatic underlines the importance of testing, and the need for adherence to screening guidelines."

On a related front, the CDC has worked over the past several years to eliminate the legal confusion surrounding EPT for chlamydia and gonorrhea, partnering with researchers at Georgetown and Johns Hopkins Universities to analyze state laws and with the American Bar Association to convince states to clarify and change those laws when necessary. This effort has paid dividends, with nine states adopting new policies since 2006 to allow and encourage EPT, including a high-profile law passed by New York in 2008.

State-level advocates for EPT report that strong support from health care provider associations, local health departments and front-line clinicians has been crucial to gaining legislative support even in conservative areas, such as upstate New York and states like North Dakota and Utah, both of which passed new laws in 2009. High prevalence rates for chlamydia and gonorrhea have also turned heads: According to John Peller, director of government relations at the AIDS Foundation of Chicago, legislation to legalize EPT in Illinois has been boosted by the fact that Chicago's Cook County is "number one in the nation in gonorrhea rates and number two in chlamydia"—which has provided ammunition for the broad coalition of medical and public health groups supporting the bill that, by mid-May, had passed both houses and appeared likely to become law.

Public health authorities and clinicians in states that have legalized EPT expect it to be a helpful new tool in their toolbox, particularly when partner tracing for many clients is impractical and local health departments are short staffed. A January 2009 article in the *Baltimore Sun* highlighted the potential of this tool, reporting that a pilot program at two city clinics authorized by the state in 2007 is paying off, with a 41% decline in three-month reinfection rates for gonorrhea and chlamydia clients. It is too soon to evaluate the impact of legislation enacted in Minnesota in 2008, but the state's department of health has had impressive turnout for its training and outreach sessions, according to Sarah Stoesz, president and CEO of Planned Parenthood Minnesota, North Dakota, South Dakota. EPT is now the standard of care at the organization's Minnesota health centers.

Nevertheless, no one tactic will be a silver bullet in stemming the STI epidemics. Some experts have promoted steps such as expanded coverage of STI screening in private insurance plans and the promotion of home testing kits for various STIs, to remove barriers related to access, embarrassment and confidentiality. Stoesz, for one, emphasizes the critical need for additional funding for outreach, education and treatment. EPT itself is inexpensive, so it is not adding to clinicians' funding problems, but it will take some time for EPT to actually save public dollars by reducing the community's STI rates. "It's easy to pass EPT when there's no need for a budget behind it," she observes, asserting that securing additional state dollars to fight STIs is far more difficult, particularly in the current fiscal environment.

Culture-war politics also continue to be a barrier. During the debate early in 2009 over the economic stimulus package, congressional Republicans took issue with \$400 million proposed by Senate Democrats for infectious disease screening and prevention, focusing their ire on the portion of that funding that would have gone toward STI-related efforts. Advocates

argued to no avail that the CDC's STD budget had declined by 15% since 2002, that the funds would help fight an urgent public health priority and that the funds would create health care jobs and shore up state budgets.

Beyond the ever-present need for funding, advocates describe a need to treat the broader problems in the community. Hard-hit communities in cities like Minneapolis, Chicago, Baltimore and New York appear to have reached a tipping point because STIs are so widespread. Reversing that trend is possible, but it is considerably more difficult to find and treat infected men and women than it is for STIs to spread. What is needed, says the AIDS Foundation's Peller, is to change the environment: "So many factors contribute to STIs, starting with the lack of access to health care in the community." It remains to be seen whether a solution to that problem, in the form of national health care reform, will fare better in Congress than has STI funding. www.guttmacher.org