The Secret Life of Syphilis

As HIVers from Sodom-by-the-Bay to Gomorrah-on-the-Hudson live and love longer -- and face ever more risk of STDs -- Daniel Wolfe launches a new series examining the links among dueling diseases. First up? This age-old source of shame, scandal and suffering.

November 1, 2000 By Daniel Wolfe

Neapolitan soldiers, awash in pustules and pain, labeled it mal franzoso, “the French disease,” in 1495. Their French opponents, stricken from king to foot soldier, called it "the Neapolitan disease.

As the sickness spread through Europe, so did the finger-pointing. Russians dubbed the ailment “Polish sickness.” Poles attributed it to Germany. By 1515, the plum-colored sores, which one poetic chronicler likened to upturned flowers, had bloomed on bodies in Japan. The Japanese wasted no time in naming them “Chinese ulcers.”

Syphilis, for centuries so feared that it was known as the “great” (as opposed to the small) pox, has been distinguished as much by the desire to blame it on others as for its power to destroy. Medieval cities banished syphilitics outside their gates or “cured” them with mercury ointments that made their bodies shake and teeth fall out before they died. In the U.S., well into the 20th century, syphilitics were subject to toxic treatments both physical and moral: expensive, ineffective drugs as well as public condemnation as “plague spots” and infectors of “innocent victims.” Those theorizing the origins of syphilis have pointed to distant continents and unspeakable acts: Columbus’ voyage to America, government conspiracy (Spaniards, it was said, mixed lepers’ blood with Greek wine), or those perennial favorites -- divine retribution and sexual unions between man and monkey. Ring a bell?

Today, post-penicillin and in comparison with AIDS, the great pox seems more like small potatoes. Yet for those wrestling with HIV, *Treponema pallidum* -- the corkscrew-shaped bacterium (spirochete) that causes syphilis -- is both past lesson and present danger. Over the past two years, outbreaks have been reported in many urban centers; in virtually all of them, the majority of cases have been among people with HIV. Syphilis -- or, more accurately, the sores (called chancres) or rashes it causes in its early stages -- heightens risk of HIV transmission and may be harder to detect in HIVers. Doctors have reported cases of syphilis progressing to its fourth, most neurologically damaging phase (see “The Four Seasons of Syphilis” below) in a matter of months, as opposed to years, among people with weakened immune systems. And some pre-HAART era studies have found that having syphilis may be a cofactor that speeds progression from HIV to AIDS.

For all these reasons, says Dan William, MD, a longtime AIDS doctor in New York City, it may be time to review the ABCs of STDs in general, and syphilis in particular. “If we do not learn the lessons of history,” says William, “we may be doomed to repeat them.”

If you’ve had syphilis, you’re in distinguished company: Pope Julius II, Henry VIII, Ivan the Terrible, George Washington and Nietzsche were all syphilitics. Still, spotting a sore on your vagina, anus, penis or mouth rarely seems great. “It made me feel dirty,” says Dominic, a New York City writer who, like other syphilis sufferers interviewed for this article, prefers not to give his last name. “My HIV, which I’ve had for years, can seem so nebulous. But seeing that chancre on my penis, I felt . . . revolted.” At the health clinic where the then-32-year-old went for his diagnosis, he got a whopping shot of penicillin and a subtle dose of disapproval. “The nurse asked me if I could give the names of people I’d had sex with,” he recalls. “And there I was, facing the typical urban gay conundrum: Was it Tom, Dick or Harry? When I told her I didn’t know the names of all the possibilities, I faced all the usual shade aimed at the promiscuous gay male -- clucking and such.”

For AIDS advocates, naming names awakens old fears of a government more interested in containing illness than in treating it. With syphilis, though, asking for the names of sexual partners has a human side. Unlike HIV, syphilis can be prevented post-exposure if you find out quickly enough -- not with toxic drugs of questionable efficacy, but with a single shot of penicillin. Unlike HIV or herpes, syphilis can usually be cured if you catch it early. And unlike HIV, it remains infectious no longer than two years. Since most people are not “lucky” enough to see a syphilis sore, a little early warning goes a long way toward epidemic control.

All of which makes health departments across the country willing to track down as many sexual partners as you’ll tell them about. “We never use your name, and we’ll go out looking for ’JB with blond hair,’ if we have to,” says Peter Leone, MD, medical director of the Wake County STD clinic in Raleigh, North Carolina. “And we can draw blood or treat on the spot, for free.”

Kelly, now 45, got a health department call at his job in Salt Lake City, Utah. Recently divorced and still closeted, he had been finding sex partners in the only place he felt safe looking -- the local bathhouse. This was early in the AIDS epidemic, and the health department’s call was the first sign he’d had that playing with men was “real life, not just pure fun.” His blood tests (see “Sussing Out Syphilis” below) showed latent syphilis, so his doctor recommended a spinal tap to make sure there was no neurological involvement.

The test showed no spinal fluid abnormalities, so Kelly got rid of his infection with standard treatment for latent syphilis: injections of penicillin, “once a week for three weeks in alternate buttocks.” But his syphilitic status, however temporary, was a clue to a more enduring health challenge. “If it wasn’t for the syphilis, I wouldn’t have thought about taking an HIV test,” Kelly says. “As it was, I waited a while. Later, my new boyfriend and I both went in. I was positive. So was he.”

Stories like Kelly’s and Dominic’s have health care providers “clucking” more loudly at promiscuous gay men of late. One urban center after another -- Los Angeles, San Francisco,

Seattle, Chicago, San Antonio and Philadelphia -- has reported rates of syphilis on the rise among gay men. “The present problem is extremely dangerous,” declared the Seattle and King County Public Health Department, reporting 35 new cases of syphilis among gay men in 1998. In San Francisco, seven cases in 1999 sparked national headlines. In Los Angeles, where 93 cases were reported in the first three months of 2000, testing vans rolled into gay neighborhoods to smear sores or take blood from all comers.

Why the furor? While late-stage syphilis is serious, or even fatal, it’s what syphilis says about HIV transmission that has health authorities most concerned. Syphilis is transmitted either from mother to fetus or when broken skin or mucous membranes of the mouth, anus or vagina come in contact with the sore or rash of someone already infected. Which means that if you got syphilis, you might have gotten -- or given -- HIV. And together, the spirochete and the retrovirus are double trouble. “Syphilis makes HIV transmission significantly easier,” William says. “If you’re HIV infected, a syphilis sore is loaded with HIV. A syphilis infection can cause a bump in your viral load, which also makes you more infectious.” If you’re HIV negative and have syphilis, the sore can provide HIV with a convenient route of entry.

Deepening health authorities’ concern is the fact that most of the gay syphilis cases were among men who’d met in bathhouses or through the Internet. For a disease whose control has traditionally depended on face-to-face contact, the specter of trying to track down some guy in a cubicle or the man whose screen name is “dreamdick12,” makes finding “JB with blonde hair” look easy. In July, *The Journal of the American Medical Association (JAMA)* fueled the furor with a study announcing that people cruising the Internet for sex are more likely to have STDs and to have sex with an HIVer.

Others, though, look at the syphilis news and see an old, familiar problem: a rush to condemn gay sex. If the new cases of syphilis are among positive men who aren’t using condoms with each other, is that really a marker of new HIV infections? Might increased rates of syphilis say more about how many people are going to city clinics than about new infections? Humboldt State University professor Eric Rofes questions whether “a frenzy of press releases and a melodramatic response to data trends” helps either gay men or the credibility of the public health establishment. Gay sexual practices, he notes, are frequently pathologized, “while parallel practices between men and women are discussed cautiously and empathetically.”

In Seattle, where most men with syphilis are over 25 and already HIV positive, prevention workers privately question the wisdom of crying wolf. “These guys have probably heard the old messages,” says Eric Hildebrandt of the local HIV prevention group Gay City. “Instead of ringing the alarm bells, we need to be tailoring messages to people’s HIV status and convincing doctors to replace lectures with real education about how syphilis itself can be dangerous.”

As part of this effort, the CDC puts out a national map of syphilis. Black triangles indicate rates of more than seven cases per 100,000 people. One look at the map shows that it’s not really the information superhighway that is syphilis’ route of choice, but a more earthbound trail: U.S. Interstate 95. Trace that road down the Eastern seaboard and you can see the incidence thicken,

spreading out around Baltimore, taking a left at Florida, and fanning out like the roots of a tree in the rich soil of the Mississippi Delta. One suspects the triangles' color was not chosen randomly. The places where rates are highest -- Lancaster, South Carolina; Baltimore, Maryland; Tuscaloosa, Alabama; Robeson, North Carolina; Davidson, Tennessee -- all include neighborhoods or farmlands inhabited by poor African Americans.

T. pallidum -- the "pale treponeme" -- is ironically named: African Americans are 34 times more likely to have syphilis than whites. This fact has political significance, at least in the eyes of some alarmed by federal reluctance to send syphilis into history. This year, the CDC asked for a $15 million increase for its syphilis-elimination campaign; so far, Congress has demurred.

Such Congressional inaction is all the more galling given syphilis's link to one of our nation's greatest shames: the notorious Tuskegee study. Begun in 1932, it invited 600 black men in Macon County, Alabama, to get help for "bad blood," local-speak for ailments ranging from anemia to syphilis. The men, 399 of whom had syphilis, were offered free medical exams, free meals and free burial insurance. What they were not given -- even after penicillin became the standard of care in the 1940s -- was proper treatment. For 40 years, researchers withheld care and watched these men waste away, infect their wives and children, and, in many cases, die. "Tuskegee goes right to the heart of black people's suspicion that if you go into the health care system, you may not survive,"says Stephan Oxendine, cochair of San Francisco's Ryan White Planning Council. "It has become a metaphor for all those times when we suspect that in the eyes of the U.S. government, African Americans are disposable."

Sheila, 32, is a Wake County resident who understands firsthand the value of outreach. "I never heard anything about syphilis until I was going to get treated," she says. "I had a sore on my leg -- I'd thought I'd gotten bit by something. A friend said, 'Girl, don't you know what *that* is?'" Sheila's positive syphilis test led her to work up the resolve for an HIV test -- also positive. Nine hospitalizations later, she's feeling well and volunteering for a Raleigh AIDS organization, where she folds syphilis into her AIDS talks. "Even with all this emphasis on HIV, you don't hear much about other STDs," she says. "I honestly believe that if there had been people out there talking about how to protect yourself, I would have been safer."

Silence around syphilis, say some researchers, may extend from the streets to the research lab. Despite widespread skepticism, they see in syphilis a cofactor or even a cause of AIDS (see "The Case of the Missing Cofactors," *POZ*, April 2000). They point not only to the epidemiological synergy between syphilis and AIDS -- spikes in syphilis regularly precede new AIDS epidemics worldwide -- but to the medical literature before the age of antibiotics. "TB, rare cancers and pneumonias -- all of these were documented, if unusual, expressions of syphilis before the antibiotic era," says Joan McKenna, a research physiologist whose 1986 article in the journal *Medical Hypotheses* first presented the AIDS-syphilis connection.

McKenna found an unlikely ally in Sandra Larsen, MD, then a syphilis expert at the CDC. "The clinical manifestations of syphilis, which have taken various forms over the century, have now been transformed to mimic the appearance of the opportunistic infections and cancers that may

accompany HIV infection, as well as the clinical symptoms of AIDS itself," Larsen wrote. McKenna began sending AIDS patients in for confirmatory syphilis tests, even when they'd first tested negative. "We had people showing up negative on the initial tests even when they had known infections and tertiary symptoms," she says. "These syphilis cases were being missed."

McKenna is now a minister at the Vaca Valley Church of Science in Fairfield, California ("the same church as Louise Hay," she notes), and Larsen is retired from the field. Others interested in the AIDS-syphilis link scrapped the theory in the late '80s, when doctors treating HIVers with IV antibiotics found that they still sickened and died. But the idea that a new form of chronic syphilis may be mistaken for HIV-related infections, has been kept alive by Toronto researcher John Scythes and colleague Colman Jones. "Repeated studies show that syphilis infection and, particularly, reinfection, may not be detected with current tests," Jones says. "So some of those we say are cured of syphilis may instead be being missed. The CDC estimated there were 325,000 cases of untreated syphilis at the end of the 1970s. Where did they go?"

New research into syphilis' suburban cousin -- *Borrelia burgdorferi*, the spirochete that causes Lyme disease -- has bolstered the case for better tests. Recently researchers have successfully cultured *B. burgdorferi* from the blood of Lyme disease patients supposedly cured by antibiotics and found a cyst-like form of the Lyme spirochete, adopted in response to meds, which is often missed with standard microscopy. Might syphilis similarly adapt to avoid antibiotics and detection? "There is much we do not yet know," says Willy Burgdorfer, PhD, the Lyme spirochete's discoverer. "But *T. pallidum* does behave in ways very similar to *B. burgdorferi*."

Eventually researchers may be able to culture the syphilis spirochete from long-infected patients in the same way they cultured the Lyme spirochete. In the meantime, a number of companies are developing assays capable of picking up syphilis that existing tests miss. "There are many such tests in development," says Robert Baughn, PhD, of the Department of Microbiology at Baylor College of Medicine in Houston, Texas: "There's a western blot test, PCR tests that extract genetic material from the spirochete, as well as a number of tests using recombinant *T. pallidum* antigens rather than antigens used by the standard confirmatory tests." None has yet been approved for clinical use, though at least one recombinant antigen test, called TrepCheck, has shown greater sensitivity than standard assays in prelimary research.

Scythes and Jones point to results like this to emphasize the importance of using treponemal-specific tests for syphilis and of greater research into spirochete detection and treatment. As for clinicians on the ground, many acknowledge the shortcomings of current knowledge, but see the syphilis-as-cause-of-AIDS discussion as a distraction. "It would be nice to have a more responsive test. But we haven't gotten the old tests and treatments we already have to people -- positive and negative -- who can benefit from them," says Leone. "Given all we know, that's a national tragedy."

History does repeat itself. In this era, though, it may be that a Congress uninterested in eradicating syphilis, rather than those who suffer from it, is who is most worthy of blame.

THE FOUR SEASONS OF SYPHILIS

Stage: Primary
Incubation/Infectiousness: Infection occurs when chancre (or its fluid) contacts mucous membranes or from mother-to-fetus. Chancre appears 10-90 days after contact.
Symptoms: Painless chancres usually on genitals, perineum, or in the rectum or mouth. They go away by themselves in 3-6 weeks, but infection doesn't.
Treatment: One intramuscular (IM) penicillin shot. For immune suppressed, three weekly penicillin shots.

Stage: Secondary
Incubation/Infectiousness: Usually begins 6-12 weeks after infection, so may overlap with primary infection stage. Physical contact with rash may spread infection. Symptoms can come and go for up to a year.
Symptoms: Rash and penny-sized sores on palms, feet, or elsewhere: hair loss; sore throat; lymph node swelling, skin growths on body folds, mucus patches on mouth or genitals.
Treatment: See primary stage.

Stage: Latent
Incubation/Infectiousness: Only transmissible in early part of this stage (less than one year.)
Symptoms: Chancres or rashes may recur in early stage. After a year, detectable only with blood tests.
Treatment: Single IM penicillin shot (early latent). Three weekly IM penicillin shots (late latent)

Stage: Latestage
Incubation/Infectiousness: One-third of people reach this stage, also called neurostage, also called neurosyphilis. Progressors for years and decades. Not transmissible in this stage.
Symptoms: Damage to heart, eyes, brain, nervous system, bones, joints. Can result in mental illness, blindness, heart disease and death.
Treatment: IV penicillin, every 4 hours daily for 10-14 days.

SUSSING OUT SYPHILIS

While condoms are the best prevention, syphilis testing is a must for all HIVers. "If you're having sex, especially without condoms, make sure to get retested regularly," says Ken Mayer, MD, of Fenway Community Health in Boston. There are three ways to go:

Testing your sore (or its fluid). Doctors with a "dark-field" microscope can see T. pallidum in a scraping from your chancre. That is, if you know you have a chancre, which most people don't.

Blood tests. A first test looks for nonspecific antibodies, but anything from rheumatoid arthritis to recent IV-drug use to HIV itself may cause a false positive. Labs perform a different, second test -- looking for a T. pallidum-specific antibody -- to confirm a positive result. Caveats: It takes up to six

weeks to develop enough antibodies to show a positive result with the initial test and severely immune-compromised people may not test positive at all. The test also doesn't distinguish between maternal and newborn antibodies and can't reliably detect neurosyphilis. With confirmatory tests, people infected with syphilis once will test positive for life, even after treatment. Physicians rely on clinical knowledge and patients' sexual history to confirm reinfection.

A spinal tap. Since syphilis may progress to neurosyphilis in a matter of months, rather than years, in people with weak immune systems, spinal taps may be used to check for neurological impact. "Combination HIV therapy seems to have made rapidly progressing neurosyphilis seem less common," says Mayer, "but it's important to rule it out." HIV can elevate protein and white blood cell levels in spinal fluid, markers that can be mistaken for syphilis.

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