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Case totals reach plateau according to 2001 data, but what does it mean?

Congress urged to allocate more money

Last year TB rates in the United States fell just 2%, marking an end to an eight-year run of declines averaging 7%. While it's too soon to say whether the flattening curve is the start of something new, TB experts say the numbers may be an omen.

"A trend toward leveling was the first sign we had in the mid-80's that we were about to get in a lot of trouble," says **Philip Hopewell**, MD, associate dean of the University of California/San Francisco and a member of the Institute of Medicine Committee on the Elimination of Tuberculosis.

"While this single yearly change does not by itself constitute a trend, it provides an early warning of possible stagnation of recent progress," added **Ken Castro**, MD, in remarks delivered in the days leading up to World TB Day on March 24. Castro is director of the Division of TB Elimination at the Centers for Disease Control and Prevention.

The 2001 case numbers were announced in conjunction with World TB Day. The National Coalition to Eliminate Tuberculosis used the occasion to urge Congress to double federal funding for TB, a move that would raise this year's allotment of $132 million to $265 million for FY 2003.

Years of flat funding taking toll?

Federal funding for TB programs has been flat for the past eight years in a row, and Hopewell says that may be what's behind this year's plateau. "If you take the long view over the past several decades, you find that every time there's been a reduction or leveling of funding, case rates either level off or in some instances increase," he says.

Fully half of all cases last year occurred in the foreign-born. That's up from 46% the year before, federal

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COMING IN FUTURE ISSUES

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- New evidence of gene for resistance to TB
- The INS' new take on deportation

TB experts say. Immigrants from Mexico, the Philippines, Vietnam, and India accounted, in that order, for the most foreign-born cases. The increase in the proportion of foreign-born TB cases means that, more than ever, fighting TB at home will call for fighting the disease worldwide, Health and Human Services Secretary **Tommy Thompson** noted in a speech on World TB Day.

Multiple initiatives are under way targeting TB among the foreign-born population, including the following:

• Overseas screening procedures are being scrutinized closely. A pilot program being planned for Vietnam will use Quantiferon, the new diagnostic test for latency.

• A new binational TB card has been proposed to ensure patients traveling between the United States and Mexico complete their TB therapy.

• For deportees with active TB, high-level government discussions are under way aimed at ensuring treatment is completed.

• An electronic notification system, once it's up and running, will expedite the process of letting states know when a case is headed their way.

Countries heavily burdened by TB need an additional $300 million to meet targets for implementing directly observed therapy-short course, according to a survey by the World Health Organization. Still, there's cause for optimism, TB experts say. For one thing, the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria has raised about $1.9 billion in pledges so far. About $700,000 of the pledges will be disbursed this year. So far, the U.S. has pledged only $100 million to the fund, but a bill introduced recently in the Senate by Barbara Boxer (D-CA) and Gordon Smith (R-OR) seeks to double that amount for next year.

Low-incidence states caught short

Other trends are also emerging from an analysis of last year's case information.

The disease is increasingly apt to strike low-incidence states, which are often ill-equipped to identify TB or to handle surges in case numbers, Castro says. The low-incidence outbreaks underscore the importance of maintaining a core infrastructure and access to expertise, even in states or regions that see relatively few cases, he adds.

A recent *Morbidity & Mortality Weekly Report* detailed one such outbreak, which took place on an Indian reservation in Fort Belknap, MT.[1] In that episode, four drinking buddies of the index case

were eventually found to have contracted active disease. But until federal experts arrived, local public health authorities (who hadn't seen a case of TB in nearly a decade) were thrown off the trail and lost valuable time checking the man's household contacts instead of his carousing pals. **(A second, bigger outbreak in Oklahoma, another low-incidence state, is detailed in the article below.)**

Whether you're talking about low-incidence outbreaks or an increase in TB among the foreign-born, the new trends all point to a single imperative, say TB experts: If TB is ever to be wiped out in the United States, more dollars must be allocated to local and state programs. "The remaining cases increasingly are found in populations that are harder to access and that require more intensive efforts to provide prevention and control," says Hopewell.

Reference

1. Tuberculosis outbreak on an American Indian reservation—Montana, 2000-2001. *MMWR* 2002; 51:232. ■

Oklahoma mopping up long trail of TB cases

ER docs drop the ball, miss diagnosis

It took eight months and five trips to the hospital before a man in Oklahoma was finally diagnosed with TB. In his wake, he left as many as 30 secondary cases, including nine cases culture-confirmed and another 10 either primary or clinical — plus an additional ten suspect cases.

The outbreak also left about one hundred people with apparent latent infection. The fact that 91% of close contacts were infected suggests the strain was exceptionally virulent (although the highest rate of infection among contacts of secondary cases is much lower, at about 30%).

Federal TB experts who arrived in Oklahoma to lend a hand haven't yet decided whether they'll test for virulence, adds **Jill Tillinghast**, MD, MPH, state TB controller.

Trying to make sense of a 600-person web of contacts has been harder than usual, too. Because many cases and contacts lived or associated closely with other, and because some cases were exceptionally mobile, investigators say they'll have to await results from molecular fingerprinting to sort out the all the convolutions.

For all the disruption, the episode still testifies to the strength of the state's public health infrastructure, says Tillinghast. Despite the long delay in diagnosis (caused by a collective failure on the part of a series of emergency room physicians to "think TB"), many secondary or tertiary cases were still caught, and treatment begun, before the cases progressed past the primary stage, Tillinghast points out.

Three generations in one house

The story begins with a young man with a spotty work record, a large and close-knit circle of family and friends, and a penchant for alcohol and substance abuse. Evidently it was October 2000 when he first fell sick in a neighboring state. Sometime last January he arrived in Oklahoma. His arrival marked the start of a slow trek across the southwestern part of the state, as he criss-crossed his way among three towns in three counties over a period of about eight months.

The first house where the man settled in Oklahoma was home to three generations of a family, among them five adults and five children. Other actors in that first tableau included a girlfriend with three children, and two female acquaintances, each with her own child.

During the four months' time the index case spent in the first house, he visited emergency rooms in two hospitals on four occasions, where he got a chest X-ray and a prescription for an antibiotic.

"On the basis of that first chest X-ray alone, I'd have put him into isolation and started collecting sputums," says Tillinghast.

Unfortunately, that's not what happened; instead, the young man was referred to a pulmonologist. He made contact with the specialist, but decided not to make an appointment once he found out how much it would cost. "If he'd been referred to a public health clinic and we'd gotten to him at that point, we'd have prevented four-fifths of the cases, plus saved ourselves a heck of a lot of work," Tillinghast says with a sigh.

Consequently, the matriarch of the first household and her daughter got active TB. So did the girlfriend and her three children, all of whom contracted primary disease, as did the child of one of the two female friends.

The second female friend, found to be infected by investigators in the first go-round of contact

investigations, failed to take preventive medication that was prescribed. She went on to develop cavitary, smear-positive TB, and infected her own child, who also developed primary disease with hilar adenopathy, says Tillinghast. Until RFLP data become available, no one can say for sure who in that web of contacts infected whom, but all cases have clear links to the index case, except for the child of the female friend who failed to complete preventive therapy, Tillinghast says.

The young man's next stop was another house in a second county, where he stayed for a week or two, making forays back to the first house. Both occupants of the second house developed active disease.

A county jail with no ventilation

By May, the index case had relocated to a third house, where his grandmother lived. The grandmother, who had previously been infected, did not develop the disease and remains in good health. Between the spring day he arrived at his grandmother's house and the first day of August (when he was diagnosed), he took a job as a waiter in a restaurant and spent three weeks in a small county jail. At the restaurant, five of 17 contacts tested were latently infected, and investigators turned up one more active case. At the jail, thanks to lack of ventilation and other mitigating environmental factors, things were considerably worse. Of 74 jail employees, 27 were infected, and one active case was found. Among 37 jail inmates evaluated, 16 appeared to be latently infected, two cases were confirmed, and one case remains suspect. Of four visitors to the jail who were tested, one was infected.

At long last, luck intervened. During the young man's fifth visit to the third hospital, a thoughtful physician ordered him into isolation and requisitioned sputum testing. By the time he was finally diagnosed, he had cavitation and extensive infiltrates, says Tillinghast. Following several leads, authorities have so far failed to turn up the source case who infected him.

"The take-home message here is really very simple," says Tillinghast. "If you see a cough that's lasted more than three weeks, you need to think TB." ■

Transdermal patch test has diagnostic promise

Late-stage trials start this summer

A new diagnostic test for active TB may someday replace the sputum smear, and perhaps even the sputum culture, according to Sequella, Inc., the Rockville, MD-based biotech company developing the new technology. The test will begin enrolling for a late-stage prospective trial this summer, says **Katherine Sacksteder**, PhD, director of communications for Sequella.

The new device looks like a Band-Aid, with a gauze patch in the middle, and is used much like a tuberculin skin test. The gauze patch is impregnated with a protein that elicits an immune reaction — a reddening of the skin — in those with smear-positive TB.

Although it measures something quite different from latency, the patch is placed on a subject's forearm and read 48 to 72 hours later.

So far, the patch has been tested only on those with smear-positive TB. It's proven adept at distinguishing them from healthy controls who are tuberculin skin-test positive. In addition, a small amount of data suggest the patch can also signal when a TB patient is cured, because erythema is evidently no longer elicited within a month or so after treatment is over. That, in turn, suggests the patch may also be able to sort out actively replicating TB from old disease.

Two big questions remain

Some important questions still need answering, however. How well will the test work on smear-negatives? And how will it perform on TB patients co-infected with HIV? There's a third question, too. So far, the patch has been tried out only on moderately pigmented subjects; because it produces no palpable swelling, no one knows for sure how well it will work in very dark-skinned subjects, Sacksteder says. Sequella hopes to sort out the remaining issues in a late-stage, prospective trial due to start enrollment in June in Capetown, South Africa.

If the patch works well with sputum-smear-negative patients — and Sequella is betting it will, Sacksteder says — that alone would give it a big advantage over sputum smears, which become difficult to perform once bacterial levels

dip below about 10,000 mycobacteria per milliliter.

"I think we'll be able to pick up most people who are smear-negative," Sacksteder says. "We may be able to pick even those who are both smear- and culture-negative." Sequella is also banking that the test will react in at least some HIV-infected TB patients, she adds. "My bet is that it will probably depend on how high their T-cell count is," Sacksteder says.

So far, the patch has been tested on about 250 people, about 150 of whom participated in two trials Sequella conducted in the Philippines. In the larger trial, the patch showed 88% sensitivity and 100% specificity, picking out 43 of 48 subjects with smear-positive TB and producing no false-positives among healthy tuberculin-reactive controls.

As soon as six months' worth of data have been collected from this summer's upcoming trial, Sequella plans to begin talks with the U.S. Food and Drug Administration, Sacksteder says. If all works out as the company hopes, there should be several ready-made markets for the new product, she says.

Several possible markets for patch

For example, the patch could serve as an inexpensive, accurate screening test for prospective immigrants, and presumably could foil would-be cheaters who are now simply substituting someone else's chest X-ray for their own, Sacksteder notes. At home, the patch could be useful in contact investigations, where it could quickly spot someone with infectious TB, she adds.

The protein in the patch, MPB-64, was discovered by a Japanese researcher working for the Japan BCG Laboratory. MPB-64 is not present in most strains of BCG or in ambient environmental mycobacteria.

It was during the second of the two Philippines trials that researchers began putting the patch on patients who'd completed a six-month round of chemotherapy to see whether the erythema would disappear. According to tests on about a dozen subjects (tested at various points after their treatment had ended), the test read consistently negative starting at seven months, says Sacksteder. The Capetown trial will follow patients to see whether those early results can be replicated on a larger scale.

Sequella plans to market the test worldwide but may use a tiered pricing structure to make sure it is affordable to poor countries, Sacksteder says. Although she says it's too soon to hazard a guess as to the price, "it won't be expensive," she says.

The Capetown trial will be conducted by Sequella's nonprofit arm, Sequella Global Tuberculosis Foundation. If Sequella, Inc., decides not to market the test in developing countries, the foundation will be able to pick it up, Sacksteder says. ■

New IOM study finds minority health gaps

Gaps exist across income spectrum

A new Institute of Medicine study says racial and ethnic minorities get lower-quality health care than whites, even when the two groups have the same income and the same access to treatment.

"We were impressed with the depth and breadth of the evidence for the disparity, from preventive care at one end of the spectrum to pain medications at the end of life," says **Alan R. Nelson**, MD, special adviser to the chief executive officer of the American College of Physicians. Nelson was chair of the IOM study, the results of which have been published in a report titled "Unequal Treatment: Racial and Ethnic Disparities in Healthcare." Studies that didn't show disparities, including some from the military and from Veterans Administration hospitals, were so rare that they stood out, Nelson adds.

Disparity discussion already under way

The 598-page report didn't look specifically at public health. Some of the recommendations the report makes for remedying disparities are already in widespread use in public health settings. For example, the report's authors urged the use of translational services, and advised offering health care in community-based settings.

Even so, the report's theme echoes a discussion already taking place in the TB control community. For the past two meetings, the federal Advisory Committee to Eliminate Tuberculosis (ACET) has set aside time on the agenda to broach topics such as "Disparity Issues for

African-Americans." ACET discussions have tackled such questions as why high rates of TB remain stubbornly entrenched among poor black Americans and in parts of the country with large populations of poor blacks.

"African-Americans are still at the bottom when it comes to health status," notes **Charles Wallace**, MPH, PhD, director of the TB Elimination division for the Texas Department of Health. "It's tied to race; it's tied to an inability to identify with the patient on the part of the health care provider; and it's tied to some extent to negligence," he says. Wallace, an African-American, has been among those who have pressed hardest for changes in the ways public-health systems deal with racial minorities.

Many diseases studied

The IOM report examined health outcomes for a variety of disease entities, from cardiac care to HIV treatment. Almost without exception, outcomes were worse for blacks and other minorities than for whites. For example, cardiac care procedures that are clinically less desirable are prescribed for minorities more often than for whites. Conversely, appropriate procedures and medications are prescribed less often for blacks than for whites. There are also clear disparities in diabetes management and HIV care, the report found.

Factors that lead to the disparities can be divided into three categories, says Nelson: health care systems as a whole; patients; and — as hard as it may be for most physicians to imagine — providers.

"I think virtually all doctors are unaware of bias, and many would consciously object to the notion that they are racially prejudiced," Nelson says. Evidence of provider bias is only indirect, he adds, and more research needs to be done on the subject. Instead of overt prejudice, one study cited seems to say physicians respond to racial and gender cues in stereotypical ways.

For example, a study used trained actors to mimic various symptoms. When actors sought "help" from physicians, female providers generally prescribed higher doses of analgesic for black "patients" than for white ones. All physicians were less likely to recommend cardiac catheterization for black female "patients" than for both white and black male "patients."

The report says chances for equal treatment are greatest "when providers are using clear practice guidelines and when a good deal of certainty exists about the course of action," notes Nelson. Chances for equal treatment worsen when there is a need for interpretation services, when patients distrust providers, or when physicians use stereotypes about minority patients to reach a decision, Nelson says.

The first place to start is to educate providers about the health care gap, he notes. It's also important to train providers in better communication, provide more formal training in recognizing and dealing with biases, and increase the number of minority providers, he says. Having more minority providers yields increased minority patient satisfaction and may also lead to better compliance and improved outcomes, the report says.

Wallace says he's not surprised by the IOM study's findings. "I'm a living witness," he says. "If I didn't have a little medical knowledge, and the guts to question some of the procedures that have been prescribed for me, I'd fall through the cracks myself."

[Editor's note: To read or order the IOM study report on-line, go to www.nap.edu. To order by phone, call (800) 624-6242 or (202) 334-3313.] ■

Student death shakes Alabama college

One big problem: No health insurance

If a Kenyan student attending college in Mobile, AL, had either possessed health insurance or undergone a tuberculin skin test before arriving at school, chances are he'd still be alive. Lacking both, the 28-year-old died in late December, in what the local TB controller calls the most severe case of TB he's ever witnessed.

It's hard to imagine a lonelier death. The dormitory where the 28-year-old died had been empty for several weeks, its other occupants gone on Christmas vacation. Despite advice to the contrary from local TB controllers, shaken college officials say they plan to mandate tuberculin skin-testing for all entering students in the wake of the incident.

At Spring Hill College, a Jesuit school of about

1,500 students about an hour from the Gulf Coast, the longstanding policy has been to require only entering freshmen to show proof of a skin test, says **Greg Walker**, director of communications at the college. As it happened, the young man from Nairobi was the only foreign-born student among 475 graduate students. More to the point, perhaps, the school traditionally exempts all its older students from the skin-test requirement, Walker explains.

Symptoms mistaken for malaria?

"They're adults, and most of them are holding down jobs," he says. "We didn't think it was right to treat them like children." The student visa the Kenyan obtained after a year-long struggle also required no skin test, Walker notes.

Other students report that the young man was sick with a racking cough by late October or early December. He could have gone to the school's Wellness Center, as some students urged him to do, but he had little money and no health insurance — a requirement the school has always waived for its adult students, Walker says.

Apparently, he mistakenly decided he was suffering from malaria, Walker adds. "We think he made contact with some friends at another college in town and tried to get some malaria medication from them," he says.

As Christmas holidays drew near, the young man sought permission to stay in the dormitory, because he couldn't afford the plane fare back home to Nairobi. Permission was granted, though reluctantly, since the dorm would be virtually empty for several weeks, says Walker.

The autopsy showed wasting, cavitation, and extensive caseation, says **Joseph Jablecki**, MPH, the TB controller for Alabama's Public Health Area 11. "It was pretty rough," Jablecki says. "It was certainly the worst I've seen." College professors and local businesses in Mobile helped raise the nearly $5,000 needed to fly the body and casket back home to the family, Walker adds.

After the cause of death was discovered, contact testing began. Using a cutpoint of 5 mm for close contacts and 10 mm for more casual acquaintances, Jablecki and other health-department staffers set up a testing station at a central portion of the campus. The school, for its part, braced itself to cope with an onslaught of reporters, worried parents, and frightened students.

"First, we had to get educated ourselves; then, we began to educate others," says Walker. That meant sending out campus-wide e-mails every time any new information turned up and holding a long town-hall-style meeting. Walker also spent three weeks doing daily TV and radio broadcasts, "pounding home what we were doing and where we were in the investigation," he says.

"Four or five" students became almost hysterical with fear; their fear infected other students and made the going rough, Walker recalls. "We were definitely dealing with a fear factor," he notes. At the same time, some students refused to show up for testing, or, once tested, wouldn't come back for a re-test until the school threatened them with penalties.

For the town hall meeting, the school brought in **John Bass**, MD, chair of the Department of Internal Medicine at the University of South Alabama in Mobile. Bass and Jablecki sat for hours patiently answering "the same questions over and over," recalls Walker.

School plans to skin-test all students

Meanwhile, Jablecki and his team of "epi screeners" had identified a group of 144 close contacts, consisting of friends, students from the young man's dorm, and students who'd shared a phone room or a library computer station with the index case. Of these, about one-fifth tested positive the first time, with another five students converting from negative to positive at the second round of testing, Jablecki says.

Among 695 more casual contacts — kids who may have sat beside the case at lunch in the cafeteria, for instance — only five converted. About half of all reactors and converters chose to begin preventive treatment, Jablecki says.

Jablecki has advised the school to require skin-testing only for foreign-born students, in concordance with federal TB guidelines not to test low-incidence groups. But Walker — who readily admits that he doesn't entirely grasp all the subtleties associated with skin-testing in a low-prevalence setting — says the plan for now is to make all undergrad and graduate students provide skin-test results. "We just want to make sure the school is safe," he adds.

The new policy may be expanded next fall to include older adults returning to school, he adds. The school may also revisit its policy of not requiring grad students to carry health insurance, Walker adds. ■

Handful of nations get 'A,' says WHO

Pocket change could erase gap

Worldwide, TB case-finding is not expanding as quickly as is needed to meet 2005 targets, according to the World Health Organization's 6th annual report on global TB control.

In fact, only three countries — India, the Philippines, and Myanmar — managed to ramp up case-finding activities to an appreciable degree in the year 2000, says **Christopher Dye**, D. Phil, coordinator of the WHO's TB monitoring and evaluation group. Sometimes, all it took was getting one particular problem straightened out and then harnessing the requisite amount of political will to solid technical direction, Dye says.

In India, for example, the start of progress seems to date back to a point about five years ago, says Dye. "At that point they had a multiplicity of problems. But once they were able to ensure a steady drug supply, a World Bank loan was put into place, and strong technical support was provided by a number of agencies," he says. All those changes sparked a palpable rise in political will, "and things really began to take off."

In the Philippines, the TB scene began looking up in 1996, the year the country did a national prevalence survey. "That provided a clear picture of the problem," Dye explains. "Since then, a strong coalition of partners came together, and they're doing a very good job."

Not all increases are good

In Myanmar, the strong centralized government appears to be having a favorable impact on TB control, whatever its faults from a human-rights perspective, Dye says.

The same factor of strong central control plays into Vietnam's success as well, he adds. Vietnam was the only high-burden country that met its goals for case-finding and treatment success for the year 2000, the WHO report notes.

Although Ethiopia and South Africa also posted substantial increases in case-finding, the increases there may not be truly good news, Dye says. "There, the increase may well be due to a real rise in cases due to HIV," he says. "South Africa especially is at a critical point. Our best assessment is that South Africa will see a huge increase in cases over the next few years as a result of the spread of AIDS, and that will be disastrous for the TB program."

The good news is that for about 30 cents per person per year, rich countries could wipe out the funding shortfall for TB programs in the 22 nations most heavily burdened with TB, Dye says. That would plug a $300 million hole that's keeping the high-burden countries from expanding directly observed therapy-short course (DOTS), he adds.

"As I see it, that gap should be fairly easy to fill," he says. What's less certain, he concedes, is whether closing the gap will actually mean the high-burden countries can meet targets for the year 2005, which consist of finding 70% of TB cases and successfully treating 85% of the cases found.

What will happen, for example, in countries where much TB treatment is still carried out by the private sector? And in countries where the health systems are in a state of virtual collapse, how much weight can a DOTS program actually be expected to bear? "There are some aspects of scaling up — like developing a large-scale private-public mix — about which we simply don't know enough yet to estimate costs," Dye adds.

Still, just having detailed budgets in hand is a big step forward, Dye contends. "For the first time, we've got a really clear definition of the funding problem," he notes. ■

TB, pneumonia deaths down, but heart attacks up

Studies confirm reports of changing AIDS deaths

The profile of AIDS deaths has changed since HIV-infected patients began to receive highly active antiretroviral therapy (HAART) in 1996. While fewer people are now dying overall, more are dying from non-AIDS-related diseases.

Research from the Centers for Disease Control and Prevention and other sources is showing an increase in non-AIDS-defining illnesses. One CDC study presented at the 9th Conference on

Retroviruses and Opportunistic Infections, held Feb. 24-28, 2002, in Seattle, showed that while there have been declines in the proportions of deaths from some AIDS-related causes, there is an increase in deaths from non-AIDS-related causes, including liver and kidney disease and possibly ischemic heart disease.[1]

"I think this increase in proportion in deaths due to liver and kidney disease could be due to aging, meaning patients have more time to experience lifestyle-related illnesses or age-related illnesses," says **Mitchell I. Wolfe**, MD, MPH, medical epidemiologist with the CDC's Division of HIV/AIDS Prevention Surveillance Branch.

Another possible reason for the change in causes of death among AIDS patients could be related to adverse effects of antiretroviral therapy, Wolfe says. "I think this means clinicians and researchers need to be aware that people could be dying from these other causes."

Wolfe was a chief investigator in a cohort study involving more than 100 clinics in 10 cities that followed 54,000 HIV-infected people since 1990 and observed close to 7,200 deaths. There were 11 cities from 1992 to 2000, but one city was not included in the current analysis, Wolfe says.

Other studies presented at the retroviruses conference that also concerned AIDS deaths included the following:

• French investigators concluded that half of the deaths among HIV-infected patients in 2000 were not related to AIDS. These deaths were quite diversified, with the most frequent non-AIDS-related causes being hepatitis C infection, non-AIDS-defining cancer, and cardiovascular disease.[2]

• A California study found that less than half of deaths among HIV-positive patients in one urban AIDS clinic were due to AIDS. The non-AIDS-related deaths were associated with older age and a history of injection drug use. The non-AIDS-related deaths were among people who had less advanced HIV disease and who were more likely to be off antiretroviral therapy in the year before they died.[3]

• A cohort of HIV-infected patients in Ohio had a significant decrease in the proportion of deaths (of 299 total deaths) directly related to AIDS since HAART became widespread. The study found that cancer became a prominent cause of mortality, but the findings did not confirm an increase in deaths due to liver disease.[4]

• One Atlanta study had the opposite findings: Among 207 patients in a larger inner-city clinic, the causes of death had not changed since the use of HAART became widespread.[5]

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Gonorrhea rates rising among hardest-hit

HIV infection implications are ominous

At the very time when the nation's syphilis infection rates are declining and new tests make it easier to detect and treat chlamydia, there is a dark cloud on the horizon: More than 60% of the cities that have been hardest hit by gonorrhea infection have experienced increases in the infection rate between 1999 and 2000.

"We see with gonorrhea data continuing challenges with controlling the epidemic," says **Ronald O. Valdiserri**, MD, MPH, deputy director of the National Center for HIV, STD, and TB Prevention of the Centers for Disease Control and Prevention in Atlanta. Valdiserri and other CDC officials presented the latest STD research and

surveillance data at the National STD Prevention Conference, held March 4-7 in San Diego.

"There are 650,000 new cases of gonorrhea every year in the United States," Valdiserri says. "But there also are positive indications that some communities have been able to dramatically reduce new infections."

The increases in gonorrhea infection bodes ill for future HIV infection rates because of the connection between STD infection and increased risk for HIV infection.

"It's a very important point, and it bears repeating, that STD treatment contributes to HIV prevention," Valdiserri says. "A number of studies have documented that having an untreated STD — for someone who's living with HIV — makes the person more infectious to a sexual partner."

Likewise, a person who has an untreated STD and is exposed to HIV has a higher risk of becoming infected with HIV, Valdiserri adds.

"This generally is true not just with gonorrhea, but also with inflammatory STDs, which increase the effectiveness of HIV by two- to fivefold," Valdiserri says.

Measuring HIV incidence remains difficult

Whether increases in gonorrhea rates will lead to increases in HIV rates remains to be seen, and at the present it would be difficult to measure, Valdiserri says.

"We are challenged in our ability to measure the number of new HIV infections in the United States, and we're in the process of developing better ways of measuring HIV incidence," Valdiserri says. "But having said that, we're not seeing increases nationally, although we are extremely concerned about the possibility of increases, particularly in men-who-have-sex-with-men [MSM] populations."

Research and surveillance data presented at the STD conference were mixed. In 2000, syphilis rates fell in 15 of 20 cities that had the highest syphilis rates in 1999, says **Susan DeLisle**, ANRP, MPH, chief of the program development and support branch of the CDC Division of STD Prevention.

There were declines in syphilis rates of greater than 50% in Tulsa, OK, St. Louis, Richmond, VA, and New Orleans, while there were increases in syphilis rates in Chicago, Detroit, Miami, Newark, NJ, San Antonio, and San Francisco, DeLisle says.

"Increases in some areas remind us that continued vigilance is required in every community if we hope to eliminate this disease," DeLisle says.

Nationally, the syphilis rate declined from 2.4 cases per 100,000 to an all-time low of 2.2 cases per 100,000 in 2000, DeLisle adds.

At least one abstract presented at the conference indicates that the pockets of increased syphilis rates within the context of an overall decline by 90% in the past decade are the result of increases of syphilis infection among MSM.[1]

Rise in syphilis may indicate increase in HIV

"Because syphilis increases the likelihood of acquiring and transmitting HIV infection, and because a large proportion of MSM with syphilis in these outbreaks are HIV-positive, the rise in syphilis among MSM may indicate an increase in the incidence of HIV infection," the abstract states.

Another abstract showed that while primary and secondary syphilis rates declined dramatically in New York City from 58.2 per 100,000 in 1990 to 1.67 per 100,000 in 2000, there has been an increase in the number of syphilis cases among MSM, and many in this population are co-infected with HIV.[2]

Some findings suggest an increase in high-risk

behaviors among MSM, such as studies showing a resurgence of gonorrhea and syphilis among MSM in Chicago and Boston and an abstract detailing the practice of "barebacking" (having unprotected anal sex with a non-primary partner) in San Francisco.[3,4,5]

Increases in infection rates of genital herpes (HSV-2) and human papilloma virus (HPV) among MSM populations also are major concerns, says **Stuart Berman**, MD, chief of the epidemiology and surveillance branch of the CDC's Division of STD Prevention.

"More than 6.5 million people become infected with genital herpes and HPV each year," Berman says. "In the United States, 38% of MSM have been infected with HPV type 16, and this is five times the heterosexual male rate and twice the rate of women."

HPV-16 exposure can cause serious problems for a person who has HIV and whose immune system is compromised, Valdiserri says. This is why the CDC is concerned about anal cancer among HIV-infected MSM populations.

"We certainly want to get the message out to sexually active MSM that exposure to this virus has been associated with increased rates of anal cancer," Valdiserri says.

Also, the prevalence of HSV-2 is higher among MSM than among other men, with rates of 31% vs. 18%, although the difference was not statistically significant in a study that surveyed people ages 17 to 59 from 1988 to 1994.[6]

The study concluded that MSM are at higher risk for HPV-16 and probably are at higher risk for HSV-2 infection, although the latter has not been proved.

"Herpes remains a very important problem in the United States," Berman says. "One in five Americans are infected with genital herpes, and men and women who have herpes are five times more likely than uninfected individuals to acquire HIV infection if they're exposed to that virus in sexual contact."

Because chlamydia traditionally has been associated with severe reproductive health consequences for women and because it's easier to diagnose in women, it hasn't been routinely screened among men, but this could change, DeLisle says. There's a urine test now available, whereas before men would have had to subject themselves to a urethra swab, DeLisle says.

In studies where men are being tested, there are double-digit rates of chlamydia infection among men in the 20-24 age group and among women in the 15-19 age group.

"With the availability of technology that allows for broader screening, we should have additional data," DeLisle says.

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Editorial Questions

For questions or comments, call **Alice Alexander** at (404) 371-8067.

CE/CME

15. According to experts, the 2% drop in TB infection rates in the United States last year could be a signal that:
    A. the disease is on the verge of being eliminated.
    B. new therapies are needed.
    C. progress toward eradicating the disease is stagnating.
    D. All of the above

16. In an Oklahoma investigation that revealed 30 secondary cases from one primary source, the problem could have been eased if:
    A. emergency room doctors had checking for TB.
    B. a free public health clinic had been available.
    C. the county jail had been ventilated.
    D. All of the above

17. Thus far, tests on a transdermal patch that is being developed for TB testing indicate:
    A. it can distinguish smear-positive TB from control subjects.
    B. it can indicate when a subject is cured.
    C. it can sort out actively replicating TB from old disease.
    D. All of the above

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CE objectives

After reading each issue of *TB Monitor*, health care professionals will be able to:

- Identify clinical, ethical, legal, and social issues related to the care of TB patients.
- Summarize new information about TB prevention, control, and treatment.
- Explain developments in the regulatory arena and how they apply to TB control measures.
- Share acquired knowledge of new clinical and technological developments and advances with staff. ■