

TB Troubles

Tuberculosis is on the rise again

By RICK WEISS

For the first time in at least 35 years, the annual incidence of tuberculosis in the United States has increased significantly, according to data released last month by the Centers for Disease Control (CDC) in Atlanta. The increase appears to be closely linked to the rising incidence of AIDS in the United States, and points to the potential for a serious resurgence of the so-called white plague, both domestically and abroad.

As if to underline the CDC report, California health authorities three weeks ago reported a tuberculosis epidemic in Folsom Prison, the state's largest maximum security prison. They said nine cases had been spotted in the past six months — compared with one case in the entire previous year — and more are expected. Public health officials say the outbreak is a reminder of the particular public-health risks inherent to prison settings, especially in the era of AIDS. In response to growing concerns about the possibility of similar epidemics in the nation's prisons, a CDC advisory committee met Jan. 22 to design a national policy that would for the first time address the special risks of tuberculosis in prisons.

Such renewed concern follows decades of relative complacency about the potentially deadly respiratory disease. From 1953, when uniform national reporting of the disease was first implemented, until 1986, the incidence of tuberculosis in the United States declined steadily. General improvements in health and nutrition and the development of effective drug treatments in the 1940s and 1950s led many to believe that TB was a public-health battle that had essentially been won. But a combination of factors, including the biology of the disease, the emergence of AIDS and some fundamental political and economic biases, make TB's reemergence in the 1980s predictable, health officials say.

According to Dixie Snider, chief of the CDC's Division of Tuberculosis Control, one of the major roadblocks to controlling the disease is that the TB-causing

tubercle bacillus resides undetected in large numbers of people. "Most people who are infected with the tubercle bacillus have a latent or subclinical infection, and most of them will not develop the disease unless something stresses their immune system — something like AIDS." But with 10 million to 15 million people in the United States harboring the bacillus, and as many as 1 billion people infected worldwide, "there is this tremendous potential for TB to reemerge as a much larger problem than it is right now."

In 1986, nearly 23,000 cases of tuberculosis were reported in the United States, a 2.6 percent increase over the

registries (SN: 5/16/87, p.312). The results were striking, Snider says, with as many as 42 percent of the TB patients' names showing up on AIDS registries as well. Overlap was especially high in New York City and Dade County, Fla. For the majority of New York City patients, diagnosis of tuberculosis preceded the diagnosis of AIDS.

"We've known for years that immunosuppression can lead to clinical emergence of TB," Snider says. As long as people are generally healthy, they are less likely to break down with active disease even if they have the TB germ. "When you have something superimposed like [the AIDS-causing] HIV infection, which begins to destroy important immunological factors that are keeping this TB infection in check, then we've completely changed the dynamics of the situation and even from the same pool of people more cases will emerge."

With such a delicate equation regulating the balance between latent and active tuberculosis, the recent outbreak of TB in Folsom Prison is almost inevitable, according to public health and correctional authorities.

"Who goes to prison? Poor people and disproportionately minority groups that have higher prevalence of tuberculosis," says Barry Dorfman, chief of the California State Department of Health Services' TB control unit in Sacramento. "And then if you put them all together, crowd them together, and then you stress them out — stress is definitely a risk factor — you shouldn't be surprised that you get TB."

Moreover, says Michael Iseman, chief of the mycobacteriology disease service at the National Jewish Hospital in Denver, the problem is particularly acute in the prisons because of the relatively high rate of infection with the HIV virus. "The thing that now has everyone in the prison system highly concerned is that a substantial number of individuals in that setting will be HIV positive, because prisons are associated with drug abuse, and because of the homosexuality that goes on within prison walls. So if you



Prison crowding makes it especially difficult to stem the spread of TB.

previous year. That increase contrasts sharply with the average annual 5.9 percent decrease seen from 1963 to 1985. Before 1986, the only increase in U.S. tuberculosis rates occurred in 1980, following a sudden influx of refugees from Southeast Asia.

A closer look at the increase in 1986 (the last year for which data are complete) reveals some striking parallels between the epidemiology of TB and that of AIDS. For example, the largest increases in the number of TB cases occurred among blacks and Hispanics in the 25- to 44-year age group, and the increase was greatest in New York City. Moreover, notes the CDC report, the number of TB cases among children continues to decline, suggesting that the recent increase in adult tuberculosis "may be the result of endogenous reactivation of latent, subclinical tuberculosis infection rather than of increased transmission." From this, authorities inferred that immune suppression might be playing a role in TB's reappearance.

Such clues led the CDC and some local health departments last summer to compare names on citywide TB and AIDS

introduce a pathogen like tuberculosis there will always be the potential for an epidemic, and if you take into account the prevalence of HIV, it's even more threatening."

The California prison system currently holds 67,200 inmates, about 160 percent of the system's rated capacity, according to Bob Gore, assistant director of the state's Department of Corrections. Based on national averages, he says, "We feel that we have anywhere from 2,000 to 3,000 inmates who are either HIV positive or have ARC [AIDS-related complex] or AIDS."

According to Nadim Khoury, chief health officer of the California Department of Corrections in Sacramento, none of the TB patients at Folsom is HIV-positive. However, he says, one such case occurred about three months ago in another prison facility in Vacaville, Calif. "HIV-associated TB is going to be a problem everywhere, but it is magnified in the prison situation. It is a scary issue, and we are going to have to be extra careful and extra sensitive to this issue and to think about TB when we look for HIV and the reverse."

It can be difficult, however, to keep tabs on communicable diseases in prisons. In the California prison system alone, for example, there are about 160,000 inmate "movements" per year — including new arrivals, releases and inmate transfers between cells and prisons. In a sense, says Dorfman, of the state's Department of Health, "it's all really one large building even though it's spread around the state. With employees, we're talking about a 'city' of 80,000 people with a terribly inadequate health department."

But public health is only a small part of the correction department's responsibilities. "The Department of Corrections is basically there to warehouse people and punish them, and that's what they do," says Cory Weinstein, a physician affiliated with the Prisoner's Rights Union in San Francisco. "Each prison has its own little fiefdom, and that makes for great difficulties in the coordination of health services and programs."

The result is that the level of health care varies widely from one prison to the next, as does the level of sophistication of educational programs. All told, Weinstein says, "none has decent surveillance techniques for known serious problems of prisoners. None, for example has hypertensive screening, despite the fact that we know that prisoners slowly get increases in blood pressure over time; none has TB screening after entry; none has effective AIDS education; none has any hepatitis screening or education following initial screening. So although we know that prisoners are at risk for a variety of conditions, there is no proactive or preventive work being done. It's all kind of catching up to the crisis as it occurs."

Such inadequacies are not unique to the California system, federal officials say. In fact, says Snider of the CDC, "Right now, unfortunately, we don't really have any nationwide recommendations for the control of tuberculosis in prisons, and as far as I know there's no system that has really fully come to grips with AIDS. And there are very few prisons that have taken into account the combined problem of TB and HIV."

That oversight, he says, both inside and outside prison walls, is largely the result of subtle political biases. "If you look at the populations in which we've made significant progress [against TB] you find that it's the developed countries, rather than the developing countries, and especially those individuals who are higher on the socioeconomic ladder, who are experiencing very little tuberculosis — and of course these are the people who really set the [public health] agenda. Actually, tuberculosis never really went away as a problem among American Indians, for example, or among [U.S.] blacks or Hispanics, but their concerns don't get as much press."

Another factor, Snider says, is that people feared tuberculosis more before effective drug therapy was developed, much as they fear AIDS today because of its high death rate. Once chemotherapy became available, the tuberculosis death rate plunged, and that began to cut off sources of infection. "Instead of the 84,000 cases that we had in 1953, now we're down to 23,000. As infectious diseases go, that's a heck of a lot of cases, but it's still a 75 percent decrease. So it has gone out of our minds, but it certainly never went away."

With TB again looming as a public-health concern, is modern medicine equipped to grapple with it? The disease is formidable; if left untreated, active tuberculosis kills two-thirds of its victims within two to three years.

The treatment regimen for TB is remarkably effective, health officials say, even for people who also have HIV infection. However, they warn, to eliminate the disease in an entire population requires more than simply treating clinically obvious cases. Rather, the pool of latent tubercle bacilli in asymptomatic individuals must also be targeted — a noble goal, but one that is impossible to achieve for now. One problem is that to kill latent tubercle bacilli requires a full year of treatment with isoniazid, a potent drug with serious side effects that can include fatal hepatitis. And side effects notwithstanding, says Snider, "it's hard to get people who are feeling well to take a pill for a year."

Some progress can be expected, he says, following approval of new recommendations now being considered by the CDC's Advisory Committee for the Elim-

ination of TB. Those recommendations may include, for example, a more uniform surveillance policy for prisons. Prisons typically test inmates for TB only upon their initial entry, and some prisons do not test at all. The CDC is also pushing for an increased awareness of the TB-HIV link.

In addition, says Snider, along with better surveillance and education, more basic research is needed if the TB threat is to be reduced once and for all.

"I'm afraid that researchers got the message that TB is no longer a problem, which is incorrect, and as a consequence we haven't had a very active research program. But that's beginning to change," he says, noting that the Public Health Service, the National Institutes of Health and the World Health Organization are working together to develop new anti-TB strategies.

"With current technology we can't completely do away with TB, although we can do a lot better than we are doing. But in the long haul we really need to come up with some better technology — either a better drug, one that has a more rapid kill, or some way to manipulate the immune system, such as a vaccine or some other immunostimulating agent," he says. "We're hopeful that new techniques in biotechnology and molecular genetics will find useful application to TB as they have with a lot of other diseases." □

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