



July 26, 1991 / 40(29);485-489

Epidemiologic Notes and Reports Crack Cocaine Use Among Persons with Tuberculosis -- Contra Costa County, California, 1987 - 1990

From January 1, 1987, through June 30, 1990, 44 cases of tuberculosis (TB) occurred among residents of Contra Costa County, California, who were known to use crack cocaine. To investigate a possible association between crack cocaine use and TB, local health officials conducted a retrospective study of TB cases among residents of Contra Costa County.

During the 42-month period, 354 cases were reported to the Contra Costa County TB Registry. Seventy-one (20%) of these cases were excluded because they did not meet the CDC surveillance case definition for TB or were diagnosed before 1987 or because the patient's medical record could not be located. The charts of the other 283 cases were reviewed for demographic, clinical, and laboratory data; results of contact investigations; and a history of alcohol or other drug dependency.

Of the 283 cases, 44 (16%) occurred among persons who reported using crack cocaine (in 1987, four (8%) of 48; 1988, 19 (19%) of 99; 1989, 20 (20%) of 101; and January-June 1990, one (3%) of 35). Fifteen of the 44 cases occurred among crack users who frequented one or more of three specific crack houses (i.e., a setting where crack cocaine is sold and/or used) in the county. This link was discovered by standard contact investigation for five cases and retrospectively established in the other 10 through additional history-taking.

The characteristics of the 44 persons who reported using crack were compared with those of the 239 persons who were not known to use crack (nonusers) (Table 1). Crack users were younger than nonusers (mean age: 34.4 years vs. 48.5 years; Kruskal-Wallis (i.e., test for differences between age distributions) $H=21.0$; less than or equal to 0.001); more likely than nonusers to be black (89% vs. 22%; odds ratio (OR)=40.6; 95% confidence interval (CI)=7.3-100.2); and were more likely to reside in the western region of the county, which includes an economically depressed, inner-city area.

Acquired immunodeficiency syndrome (AIDS) had been diagnosed in seven (16%) crack users with TB (all current or past injectable-drug users (IDUs)), compared with 12 (5%) nonusers (OR=3.5; CI=1.4-9.6). In addition, six persons who used crack and one nonuser were known to be seropositive for human immunodeficiency virus (HIV) but had not been diagnosed with AIDS. Thus, of the 33 crack users for whom HIV serostatus was known, 13 (39%) were HIV seropositive.

Of 36 crack users with culture-proven pulmonary TB and for whom sputum smear and radiographic findings were known, 26 (72%) had positive acid-fast bacillus smears. Chest radiographs revealed cavitary disease in 13 (36%) of the 36 persons.

Current or past use of other drugs was common among the 44 crack users: 21 used crack and alcohol; 15 used crack, alcohol, and injectable drugs; five used crack only; and three used crack and injectable drugs.

Treatment outcomes for TB were characterized for 42 of the 44 crack users (two patients refused treatment and were lost to follow-up). For the 42, the initially prescribed regimen included isoniazid and rifampin, with pyrazinamide for the first 2 months only. Twenty-three were placed on twice-weekly directly observed therapy at some time during the course of treatment, generally after an initial phase of 2 weeks of daily medication in a hospital; 13 (57%) of these patients completed treatment. Of the 19 not placed on directly observed therapy, four (21%) completed therapy (OR=4.4; 95% CI=1.0-23.1). Ten of the 42 patients are still under treatment. Six patients, all HIV positive, died while on treatment; none of these died from TB. Nine patients did not complete therapy and were lost to follow-up.

Intradermal Mantoux tuberculin skin tests were completed for 318 contacts of crack users; of these, 120 (38%) were positive (induration greater than or equal to 5 mm), compared with 303 (32%) of 960 contacts of nonusers (OR=1.3; 95% CI=1.0-1.7). Twenty-three secondary TB cases, including five cases among children, were identified among contacts of crack users, compared with 21 secondary cases among contacts of nonusers. Reported by: CM Crane, MD, F Wise, MPH, J Reardon, MD, W Brunner, MD, Communicable Disease Program, Contra Costa County, Martinez; B Dorfman, MD, S Coulter, Tuberculosis Control Program, GW Rutherford, MD, State Epidemiologist, California Dept of Health Svcs. Div of Tuberculosis Elimination, National Center for Prevention Svcs, CDC.

Editorial Note

Editorial Note: This report documents the first outbreak of TB recognized among users of crack cocaine. This outbreak has at least two potential explanations. First, crack use is associated with an increased risk for HIV infection, probably because of associations with use of injectable drugs and/or increased sexual activity (1,2). In Contra Costa County, a high proportion of crack users had a history of injectable-drug use--a risk factor for HIV infection (3) and possibly for TB (4). HIV infection substantially increases the risk for active TB, either from reactivation of latent TB infection or from rapid progression of primary infection (5,6). Second, the immediate environment in which crack cocaine was used may have facilitated transmission of TB. Crack is often used in houses or apartments in which ventilation is deliberately limited to minimize detection; such poorly ventilated settings may facilitate airborne transmission of TB. In Contra Costa County, 15 of the TB cases among crack users were epidemiologically linked to three crack houses. Other cases of TB may have been linked but could not be confirmed because of the patients' unwillingness to provide accurate information to investigators (e.g., refusing to acknowledge their crack use or to identify their contacts and threatening health-care personnel).

Crack use among persons with TB in Contra Costa County occurred predominantly among black males in an economically depressed area. Nationally, TB case rates are high among black males and have recently been increasing (CDC, unpublished data). Although the persistently higher case rate among blacks and other racial/ethnic minorities is associated with multiple factors (including socioeconomic factors (7)), the specific contribution of substance abuse and HIV infection to these increases is unknown.

The potential role of crack use as a risk factor for TB could not be assessed in Contra Costa County because of methodologic limitations (e.g., missing data and confounding factors, such as HIV infection and injectable-drug use). However, crack use has been associated with impairment of pulmonary function (8,9) and with coughing, which could facilitate transmission of TB by persons with active pulmonary disease. In addition, because of delays in diagnosis and treatment, crack users with TB might remain infectious longer than nonusers (users may be less likely to seek medical care). A high proportion of crack users in Contra Costa County had advanced disease (as indicated by positive smears and cavitory lesions on chest radiographs), suggesting they were more infectious and may have delayed in seeking medical care.

Crack use substantially hampered TB-control efforts: noncompliance with medical recommendations for diagnosis and treatment resulted in poor treatment outcomes and increased costs of treatment. In addition, lack of cooperation with health department personnel contributed to the delay in recognizing the TB outbreak and initiating control measures. However, a reduction in the number of cases among crack users during January-June 1990 suggests that these control measures, although incompletely applied after a considerable delay, may have limited the outbreak.

In Contra Costa County, because crack use and other chemical dependency may not have been acknowledged by the patient or recorded in the chart, some persons classified as "nonusers" may have used crack. Health-care providers should screen all TB patients for risk factors for HIV infection and take a thorough drug-use history. In addition, crack users, IDUs, and other persons with risk factors for HIV infection should be screened for TB and offered HIV counseling and testing. Crack users who present with symptoms suggestive of TB should have chest radiographs performed promptly; these should be interpreted with a high index of suspicion for TB. When TB is diagnosed in such patients, the use of directly observed therapy and other methods for enhancing compliance with therapy (10) should be aggressively applied. Users of crack and other drugs should be strongly encouraged to enter available drug-treatment programs.

CDC urges all health-care providers to monitor for the occurrence of TB among users of crack cocaine, IDUs, alcohol-dependent persons, and persons with known or suspected HIV infection.

References

1. Sterk C. Cocaine and HIV seropositivity. *Lancet* 1988;1:1052-3.
2. Bowser BP. Crack and AIDS: an ethnographic impression. *J Nat Med Assn* 1989;81:538-40.
3. CDC. Update: acquired immunodeficiency syndrome associated with intravenous-drug use--United States, 1988. *MMWR* 1989;38:165-70.
4. Reichman LB, Felton CP, Edsall JR. Drug dependence, a possible new risk factor for tuberculosis disease. *Arch Intern Med* 1979;139:337-9.
5. Selwyn PA, Hartel D, Lewis VA, et al. A prospective study of the risk of tuberculosis among intravenous drug users with human immunodeficiency virus infection. *N Engl J Med* 1989;320:545-50.
6. DiPerri G, Cruciani M, Danzi MC, et al. Nosocomial epidemic of active tuberculosis among HIV-infected patients. *Lancet* 1989;23/30:1502-4.
7. Hinman AR, Judd JM, Kolnik JP, Daith PB. Changing risks in tuberculosis. *Am J Epidemiol* 1976;103:486-97.
8. Gordon K. Case report: freebased cocaine smoking and reactive airway disease. *J Emerg Med* 1989;7:145-7.
9. Itonen J, Schnoll S, Glassroth J. Pulmonary dysfunction in "freebase" cocaine users. *Arch Intern Med* 1984;144:2195-7.
10. Snider DE, Hutton MD. Improving patient compliance in tuberculosis treatment programs. Atlanta: US Department of Health and Human Services, Public Health Service, CDC, February 1989.

Disclaimer All *MMWR* HTML documents published before January 1993 electronic conversions from ASCII text into HTML. This conversion may have resulted in character translation or format errors in the HTML version. Users should not rely on this HTML document, but are referred to the original *MMWR* paper copy for the official text, figures, and tables. An original paper copy of this issue can be obtained from the Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, DC 20402-9371; telephone: (202) 512-1800. Contact GPO for current prices.



Return To: [MMWR](#) [MMWR Home Page](#) [CDC Home Page](#)

**Questions or messages regarding errors in formatting should be addressed to mmwrq@cdc.gov.

Page converted: 08/05/98