

VIRGINIA EPIDEMIOLOGY BULLETIN

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Update on Tuberculosis Elimination*

During the past few months considerable news attention has been given to outbreaks of drug resistant tuberculosis in the United States. These outbreaks have occurred in correctional units, substance abuse treatment facilities, facilities for the homeless and in medical facilities caring for AIDS patients.¹⁻³ Drug resistant tuberculosis, often multi-drug resistant (MDR) tuberculosis, has been transmitted from patient to patient, to health care workers and others. Fortunately, there have been no outbreaks of MDR tuberculosis reported in Virginia. With diligence and careful application of present management principles for diagnosis and treatment of tuberculosis (disease) and tuberculosis infection, such outbreaks can be prevented.

Drug resistant tuberculosis has not increased appreciably over the past 10-15 years in Virginia. Approximately 10% of isolates have been resistant to one or more drugs, varying from this by only 2-3% per year without a definite trend. Only about 2% of isolates have been resistant to two or more drugs. In 1991, 87% of isolates were sensitive to primary drugs; 46 isolates were resistant to one or more drugs: 18 to isoniazid (INH) alone, 12 to INH-streptomycin (SM), 4 to INH-rifampin (RMP), 1 to INH-ethambu-

tol (EMB), 1 to INH-RMP-SM and 2 to INH-RMP-EMB and SM. These figures represent the number of isolates, not individual cases. Twenty of

28,000 excess cases have occurred nationally.

General Guidelines to Control and Eliminate Tuberculosis



- Rapid diagnosis and treatment of all cases of tuberculosis are the first steps for control. Bacteriologic studies, chest x-rays and medications are available through local health departments without charge or according to a patient's eligibility status. **Prompt drug treatment is the most efficient method to render a case non-infectious.**
- Promptly evaluate all high risk contacts with the tuberculin skin test, using the two step test if indicated. If negative, repeat the tuberculin skin test in 2-3 months. Obtain chest x-rays for all positive tuberculin reactors and those with symptoms compatible with tuberculosis, particularly those with chronic cough even when the tuberculin skin test is negative.
- Bacteriologic sputum studies for tuberculosis should be ordered without delay for all cases with an abnormal chest x-ray and/or a chronic cough. For supplies, instructions and consultation, call Dr. Nancy Warren, Division of Consolidated Laboratory Services, (804) 786-5144 or (804) 786-0987.
- Prescribe preventive treatment (isoniazid) for tuberculin reac-

these isolates came from northern Virginia where a high proportion of cases (89 of 116) were in foreign-born residents.

In 1991, there were 379 new cases of tuberculosis, yielding a rate of 6.1 cases per 100,000 population. From 1984 through 1991, there has been a slowing of the rate of decline in the number of new cases of tuberculosis (see figure). This phenomenon has been attributed largely to the AIDS epidemic, although there are other contributing factors.^{4,9} During this time, it has been estimated that

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tors according to published guidelines.¹⁰

- Institute supervised or directly observed treatment (DOT) for patients who are non-compliant or suspected of being non-compliant. DOT should be initiated from the beginning of treatment for patients who are not likely to be cooperative.
- All cases of tuberculosis should be reported promptly to the appropriate local health department. This is necessary for contact evaluations and follow-up for non-compliance. It is especially important to report all cases due to multi-drug resistant organisms so that measures can be promptly instituted to control and prevent further dissemination of drug resistant infection.
- Order monthly bacteriologic studies until sputum conversion to a negative state is certain. Failure to convert may be the first indication of non-compliance or development of drug resistant organisms, or both.

HIV Infection and AIDS

HIV infection and AIDS are often complicated by tuberculosis and other non-tuberculous mycobacterial infections. In Virginia, through 1991, there have been approximately 2,750 cases of AIDS; 76 have been complicated by tuberculosis; 339 have been complicated by non-tuberculous mycobacterial infections, mainly *M. avium-intracellulare* complex (MAI).



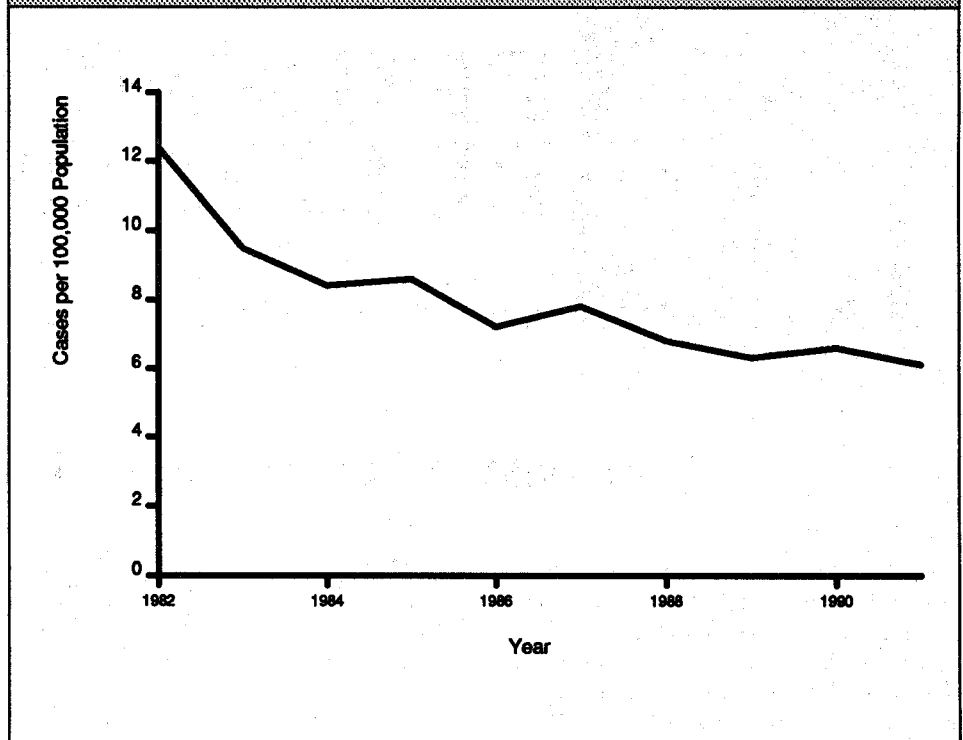
Tuberculosis in patients with AIDS usually responds well to anti-tuberculosis drugs; MAI infections are usually resistant to treatment and indicate a poor prognosis.

All patients with a positive tuberculin reaction and risk factors for HIV infection should have serologic studies for HIV infection. If HIV-antibody positive and active tuberculosis is ruled out, the patient should receive INH for one year.

If HIV serology is positive, a tuberculin skin test should be done. If the skin test is positive, the patient should receive INH for one year. If the tuberculin skin test is negative, anergy testing should be carried out.¹¹ If anergy is present, consider preventive INH for one year, especially if the patient is at high risk for tuberculous infection. Correlation of skin tests with T-lymphocyte counts, especially CD4 counts is desirable. The lower the T-lymphocyte count, the more likely anergy will be present.

Tuberculosis may develop rapidly in AIDS patients because of deficient immunity.¹² It usually represents activation of an old focus of infection, but may be a rapidly progressive new infection. Several outbreaks of multi-drug resistant

Incidence Rate of Tuberculosis Based on Reported Cases, Virginia, 1982-1991



tuberculosis have been reported from AIDS treatment centers in Miami, New York City, etc. Unfortunately, because of delayed diagnosis and treatment and lack of isolation facilities, MDR tuberculosis infection has been disseminated to other patients and to health care workers.

Isolation

Isolation of active tuberculosis patients (positive sputum smears) is necessary in general hospitals and other health care facilities to prevent dissemination of the infection. Individual negative pressure rooms ventilated to the outside would be ideal but are costly to construct and maintain. Individual rooms with a centrally controlled exhaust fan with an air exchange of 6 times per hour to the outside are generally considered satisfactory. Strategically placed ultraviolet lights and molecular filters may be used but must be maintained properly.

Properly fitting particulate respirators (masks) must be used by personnel entering the isolation rooms. Personnel must be monitored regularly for development of positive tuberculin skin tests and chest x-ray abnormalities. Again, the most efficient method of controlling dissemination is early diagnosis and prompt drug treatment.

It may be necessary to isolate non-compliant infectious tuberculosis patients in their homes or in a state institution. If the latter is necessary, local health directors can make the necessary arrangements through the State Health Commissioner and/or the Director of the Bureau of Tuberculosis Control. Court-ordered isolation may be necessary when all other reasonable approaches have failed. The ability to present convincing evidence that the patient presents a public health risk and is non-compliant with recommended treatment is absolutely necessary for a favorable court decision.

Homeless Patients

Homeless tuberculosis patients with positive sputum smears are severe public health risks. Contact the Bureau of Tuberculosis Control (804/786-6251) for assistance in placing these patients in a controlled environment, at least until the infection is no longer a threat.

Summary

Tuberculosis control will be improved if we ask ourselves the following questions. Are we doing the best possible with measures already available? Is treatment compliance optimal? Are all close contacts of infectious tuberculosis evaluated in a timely manner and placed on appropriate therapy? Is DOT (directly observed treatment) used promptly when indicated? Are patients with HIV infection or AIDS being properly evaluated for tuberculosis and tuberculous infection and treated? Are outreach workers used optimally? Is HIV infection being considered for all positive tuberculin reactors? Is prompt isolation being considered for non-compliant infectious patients? We cannot wait for newer and better testing procedures and treatment. With diligence, we can continue to make progress by optimal use of methods and measures already available.

*Reported by Charles F. Wingo, M.D., Director, Bureau of Tuberculosis Control, VDH.

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Surveillance Reports Available

The Virginia Department of Health Office of Epidemiology has available copies of its annual summaries of reportable disease statistics for the years 1988, 1989, and 1990. The reports are entitled Reportable Disease Surveillance in Virginia. If anyone is interested in having a copy of any of these reports, please call the Office at (804) 786-6261. This publication is distributed free of charge.



Nosocomial Infections Hotline

The Centers for Disease Control's Hospital Infections Program, Center for Infectious Diseases, has a new automated telephone system that can provide callers with information on hospital-acquired infections, including the guidelines for prevention and control of nosocomial infections, disinfection or sterilization procedures, nosocomial infection rates, and training courses on infection control. Information on these topics is available from the CDC Voice Information System, telephone (404) 332-4555. The system is available 24 hours a day, 365 days a year.

Cases of Selected Notifiable Diseases, Virginia, March 1 through March 31, 1992.

Disease	Total Cases Reported This Month						Total Cases Reported to Date in Virginia		
	State	Regions					This Yr	Last Yr	5 Yr Avg
		NW	N	SW	C	E			
AIDS	50	2	25	5	17	1	138	179	118
Campylobacter	19	3	4	6	5	1	88	74	89
Gonorrhea*	1200	-	-	-	-	-	4986	4217	4011
Hepatitis A	7	1	3	0	0	3	26	47	61
Hepatitis B	11	1	2	3	2	3	49	66	71
Hepatitis NANB	1	0	0	1	0	0	7	6	12
Influenza	0	0	0	0	0	0	101	664	1306
Kawasaki Syndrome	2	0	1	0	0	1	7	10	5
Legionellosis	4	2	0	1	0	1	6	3	3
Lyme Disease	5	0	3	1	0	1	16	7	4
Measles	2	0	2	0	0	0	6	14	15
Meningitis, Aseptic	9	1	3	1	2	2	50	50	42
Meningitis, Bacterial ⁻	11	2	2	6	0	1	40	38	44
Meningococcal Infections	8	1	0	3	4	0	21	11	18
Mumps	4	0	1	0	0	3	18	19	16
Pertussis	0	0	0	0	0	0	2	4	10
Rabies in Animals	17	6	4	1	3	3	47	49	68
Reye Syndrome	0	0	0	0	0	0	0	1	<1
Rocky Mountain Spotted Fever	0	0	0	0	0	0	0	0	0
Rubella	0	0	0	0	0	0	0	0	0
Salmonellosis	63	7	20	10	15	11	172	208	223
Shigellosis	18	7	3	8	0	0	35	69	77
Syphilis (1° & 2°)*	65	1	3	13	18	30	167	267	163
Tuberculosis	72	4	29	2	9	28	94	76	85

Localities Reporting Animal Rabies: Augusta 1 raccoon; Fairfax 2 raccoons; Frederick 1 cat; Goochland 1 cow; Greene 1 raccoon; Greensville 1 raccoon; Henrico 1 raccoon; Isle of Wight 1 cat; Lee 1 cow; Loudoun 2 raccoons; Richmond County 1 raccoon; Rockingham 1 fox, 1 raccoon, 1 skunk; York 1 dog.

Occupational Illnesses: Asbestosis 21; Carpal Tunnel Syndrome 69; Coal Workers' Pneumoconiosis 27; Lead Poisoning 1; Loss of Hearing 12; Repetitive Motion Disorder 3.

*Total now includes military cases to make the data consistent with reports of the other diseases.
⁻Other than meningococcal

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