

Mahoning County

***TUBERCULOSIS
ELIMINATION PLAN***

Mahoning County General Health District Board of Health



1997 Edition

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PURPOSE OF DOCUMENT

The Mahoning County Tuberculosis Elimination Plan is based on strategic plans developed by the National Advisory Committee for the Elimination of Tuberculosis and the Ohio Tuberculosis Coalition (OTC). The Plan describes the problems of tuberculosis control and goals, objectives and activities for elimination of tuberculosis from Mahoning County by the year 2010. In this document the statewide goals, objectives and strategies of the OTC Ohio Tuberculosis Elimination Plan have been adopted and local activities proposed for advancing TB control efforts. These local activities will be reviewed and revised annually as necessary. The Plan calls for all boards of health, voluntary health and human service agencies and health care providers in Mahoning County to work together toward the goal of eliminating TB in Mahoning County.

BACKGROUND INFORMATION

Tuberculosis is a communicable disease caused by bacteria (*Mycobacterium tuberculosis*) that are usually spread from person to person through the air. Airborne infectious particles are produced when a person with TB of the respiratory tract coughs. When inhaled by another person, the bacteria cause an infection that spreads throughout the body. Most individuals who become infected do not develop a clinical illness because the body's immune system brings the infection under control. Infected persons do, however, develop a positive TB skin test. The infection can persist for years, perhaps for life. Infected persons remain at risk for developing disease, i.e., clinical illness, any time, especially if the immune system is impaired. Although the disease usually affects the lungs, it can occur at virtually any site in the body.

While the prevalence of cases today is lower than in the past, TB remains a public health problem in the United States, Ohio and Mahoning County. Isolated but potentially dangerous enclaves of this preventable and curable disease persist. In Ohio, the number of TB cases reported annually decreased steadily from 7,300 cases in 1950 to 345 cases in 1994. However, this long-term downward trend has leveled off since 1985 in Ohio and Mahoning County as in the U.S. as a whole.

The recent change in the tuberculosis morbidity trend is attributable, in large part, to the occurrence of current TB disease in persons co-infected with the human immunodeficiency virus (HIV). Some of these cases represent reactivation of latent TB infection. However, when HIV-infected persons are newly infected with the TB bacterium, as many as 40% may develop current TB disease soon after infection.

A second major factor contributing to the increase in TB is the rise in drug-resistant TB and the outbreaks of multidrug-resistant TB (MDR-TB). The proportion of patients that resist treatment with conventional drugs has more than doubled in the last decade. Now that far more patients have MDR-TB, the chance of becoming infected with a resistant strain (as opposed to developing resistance to incomplete therapy or inappropriately prescribed drug regimens) is increasing rapidly.

Other groups at high risk for developing disease include persons in group or institutional settings, such as correctional facilities, shelters for the homeless, residential care facilities, nursing homes, and hospitals. Persons with underlying medical conditions, substance abusers, and children are also at high risk. Approximately one-half of cases now occur among African-Americans. TB is also common among immigrants, refugees, and migrant workers from countries where the disease is prevalent. Among all racial and ethnic groups, tuberculosis case rates are highest among the elderly.

PROBLEMS WITH TB CONTROL IN MAHONING COUNTY

Problems with TB control in Mahoning County are illustrated by the following observations:

- In 1996, the number of confirmed TB cases in Mahoning County increased over previous years.
- Three of the 1993 cases were reported to have positive skin tests in previous years. These cases represented a possible failure to initiate and complete preventive therapy.
- One of the 11 cases reported in 1993 was a person with AIDS.
- 30% of the total cases in 1996 in Mahoning County were among African-Americans. African-Americans experience a case rate nearly eight times that of whites.
- Persons in the 65-and-older age group experienced 40% of the total morbidity in 1996, although they comprise only 23% of the population.
- Only 38% of new employees with positive TB skin tests in Mahoning County nursing homes started preventive therapy in 1995. Among nursing home residents, 4.1% had positive skin tests in 1993, slightly above the state average of 3.2%.
- Screening of refugee arrivals in Ohio for infection revealed that nearly 50% of those tested had a significant reaction to the Mantoux skin test. One of the cases reported in 1993 was an immigrant.
- Drug-resistant TB due to noncompliance and inappropriately prescribed drug regimens, particularly among the foreign-born, is emerging as a problem in Ohio, but not yet in Mahoning County.

Obstacles to TB elimination include:

- The number of AIDS/TB cases is increasing.
- The pool of infected persons is large — an estimated 500,000 in Ohio.
- Drug resistant cases are difficult to treat and cure.
- Nonadherent or unmotivated cases, who are often homeless, alcoholics, and/or intravenous drug users, present special case management problems.
- Infected persons in institutions (e.g., jails and nursing homes) can rapidly spread infection once disease develops.
- The lack of access to medical care of those most affected by TB promotes the spread of infection and hinders treatment of infected persons at high risk of developing disease.

- The lack of understanding among legislators, public officials, and health care providers leads to indifference.
- Available strategies and technologies for diagnosis, patient management, prevention, and treatment have not been fully utilized.
- Available strategies and technologies need improvement. Newly developed techniques tend to be adopted slowly into clinical and public health practice.

MISSION, PRIORITIES AND STRATEGIES

The **MISSION** of the Mahoning County Tuberculosis Control Program is to achieve elimination of TB from Mahoning County. Prevention is the keystone. Three types of prevention must occur:

Primary Prevention: People who are not infected with the tubercle bacillus must be prevented from ever becoming infected.

Secondary Prevention: People who are infected must be identified early and treated before they develop disease.

Tertiary Prevention: People with active disease must be detected and treated promptly to decrease the risk of transmitting infection.

PRIORITIES include adequate and appropriate treatment for all persons with TB, identification of high-risk population groups, and the appropriate use of preventive treatment in members of these groups.

Specifically, the Program seeks to:

- Reduce the incidence of TB to fewer than one case per million population by the year 2010.
- Achieve an interim rate of 1.5 per 100,000 population in Mahoning County by the year 2000*.

If these goals are reached, **no more than four cases during the year 2000** and **no cases during the year 2010** will be reported in Mahoning County.

STRATEGIES that are key to reaching these goals are:

- Improving Surveillance
- Improving Case Prevention
- Improving Disease Containment
- Continuous Program Evaluation and Assessment

*In 1996, the case rate was 3.8 per 100,000 population.

IMPROVING SURVEILLANCE

The Problem

The identification and reporting of TB cases, suspects and contacts is often slow or incomplete, thus delaying treatment and preventive intervention. This is more likely to occur among the poor, elderly, homeless, drug users, prisoners, and foreign-born.

Objectives

- All individuals with signs/symptoms of TB or TB infection will be reported to the TB Control Program within one working day of initial diagnosis or positive Mantoux skin test.
- Active population-specific casefinding, screening, and preventive intervention programs will be established and maintained by the TB Control Program.
- Suspects and cases are to be interviewed by the TB Control Program within three working days after notification.
- Infected persons are to be interviewed within fourteen working days after notification

Methods	Activities
1. Educate health-care professionals and high-risk groups in the community about TB.	Hospital grand rounds, seminars for health care providers, TB update mailings to primary care physicians, paid and public service announcements.
2. Evaluate individuals with signs/symptoms of TB within two weeks of initial contact with a health-care provider.	Ongoing
3. Report suspected cases to the TB Control Program within one working day to facilitate contact follow-up.	Educate clinicians and infection control practitioners.
4. Use a TB Report Form to report suspected and confirmed cases to the state TB registry within seven days after receiving the case/suspect report. If written laboratory confirmation is received, complete and forward another TB Report Form on cases previously reported as suspected.	Ongoing

IMPROVING SURVEILLANCE

Methods	Activities
5. Complete and report results of confirmatory tests to the TB Control Program within one working day following confirmation	Educate clinicians and infection control practitioners
6. Refer infected persons to the TB Control Program within one working day to facilitate follow-up.	Educate clinicians and infection control practitioners
7. Complete an investigation of persons with TB infection within 14 days of notification.	Priority for investigation will be given to persons 15 years old or younger.
8. Maintain a Mahoning County registry of cases, contacts and infected persons to allow extraction of program performance indices and detailed epidemiological information. Annually publish county-specific indices.	Install the CDC - Tuberculosis Database System (CDC-TDS) developed for state and local TB control programs.
9. Monitor the time between the date that TB was initially suspected and the date the suspected case was reported to the TB Control Program. Investigate delays of more than three days and take corrective action to prevent future delays.	Advise clinicians and infection control practitioners.
10. Periodically review selected records (e.g., laboratory reports, pharmacy reports, death certificates) to validate the surveillance system and to detect any failures to report cases.	Ongoing
11. Identify groups in the community in which TB transmission occurs.	Promote and conduct screening of persons in high-risk occupations, correctional facilities, homeless shelters, substance abuse treatment centers, nursing homes and other long-term care facilities.

IMPROVING CASE PREVENTION

The Problem

Preventable TB cases occur in Mahoning County. By definition, preventable cases include those in which one or more of the recommended interventions should have been used but were not. These interventions include the use of ultraviolet lights in high-risk areas of buildings, contact identification and examination, isolation of suspected and diagnosed cases, screening for infection, preventive therapy for infection, prompt diagnosis of disease, chemotherapy for disease, adequate ventilation, prompt reporting, and Directly Observed Therapy (DOT).

Some of these interventions (e.g., isolation) are designed to prevent transmission of infection among residents and staff of high-risk institutions such as correctional institutions, homeless shelters, nursing homes and hospitals. Other interventions (e.g., preventive therapy) are designed to prevent disease among those already infected. Isoniazid (INH) preventive therapy reduces the risk of TB by more than 90 percent among those who complete a full course of treatment.

Objectives

- At least 95 percent of close contacts to infectious cases should receive complete medical evaluations including a Mantoux (PPD) skin test, chest x-ray if indicated, and clinical evaluation for preventive treatment (INH) within 30 days following identification.
- At least 95 percent of infected persons less than 15 years old should be placed on preventive treatment and at least 90 percent on treatment should complete a minimum of six continuous months.
- At least 75 percent of infected persons age 15 and older should be placed on preventive treatment.

Methods	Activities
1. Assess the prevalence, incidence and socio-demographic characteristics of cases and infected persons. Based on these data, initiate tuberculin screening programs targeted at high-risk groups in the community	Promote and conduct screening of persons in high-risk occupations, correctional facilities, homeless shelters, substance abuse treatment centers, nursing homes and other long-term care facilities
2. At a minimum, ensure such programs are extended to persons with symptoms compatible with tuberculosis; all foreign-born persons (and their families) from high-prevalence countries; admissions to correctional institutions; HIV-infected persons; admissions to nursing homes; migrant workers; and the homeless.	Ongoing

IMPROVING CASE PREVENTION

Methods	Activities
<p>3. Conduct tuberculin skin testing programs annually among the staff of substance abuse treatment centers, home health care agencies, schools, mycobacteriology laboratories, correctional institutions, mental institutions, dialysis units, homeless shelters, nursing homes, TB clinics, hospitals, and other health care facilities. Staff who are Mantoux skin test negative and frequently exposed to patients with TB or who are involved with potentially high-risk procedures (e.g., bronchoscopy, sputum induction, or aerosol treatments given to patients who may have TB) should be retested at least every six months.</p>	<p>Assist outreach screening efforts in:</p> <ul style="list-style-type: none"> - senior citizen programs - the Rescue Mission - the County jail - schools - community clinics
<p>4. Skin test all HIV-infected persons. Consider preventive therapy for those with positive tuberculin reactions or a history of a positive tuberculin reaction (without active disease), regardless of age.</p> <p>Note: Because much of the recent increase in TB cases has occurred among persons infected with HIV, HIV infection status should be determined for all persons with TB infection of active disease.</p>	<p>Develop and sign a memorandum of understanding with the HIV testing and counseling site providing for Mantoux skin testing of clients. Advise physicians caring for TB-infected persons about current recommendations for preventive therapy.</p>
<p>5. Continuous screening programs for refugees, immigrants, and entrants from high-prevalence countries. Isolate infectious cases until they become non-infectious. Unless contraindicated, place those with infection (without disease) on preventive therapy either before or within two months after their arrival in Mahoning County.</p>	<p>Monitor refugee screening data from the Ohio Department of Health (ODH).</p>
<p>6. Consider routinely obtaining sputum for mycobacterial smear and culture for symptomatic nursing home residents with suspected lower respiratory infection</p>	<p>Advise nursing home operators and medical directors.</p>

IMPROVING CASE PREVENTION

Methods	Activities
7. Consider tuberculin skin testing all persons, not only those in high-risk groups, at least once to establish a baseline or to detect undiagnosed cases. Record the results in the patient's permanent medical record.	Make recommendations to school districts regarding pupil screening. Assist Head Start, Youngstown and other school districts in pupil screening.
8. Interview tuberculosis patients and suspects within three days after receiving case/suspect report.	Ongoing
9. Assign contacts and infected persons to the TB Clinic and Outreach Nurse for follow-up to ensure compliance with preventive treatment.	Ongoing
10. Initiate medical examination (at a minimum a Mantoux skin test) of close contacts within seven days after the index case is diagnosed or case/suspect report is received.	Ongoing
11. Place infected contacts with no evidence of clinical disease on preventive therapy no later than 30 days after initial diagnosis or case notification. Ensure that they receive a full course of treatment.	Ongoing
12. Place children on preventive therapy if they are skin test negative but close contacts of infectious cases. Continue therapy until repeat skin testing (three months after contact is broken) documents the absence of infection.	Ongoing
13. Consider preventive therapy for all other high-risk infected persons, regardless of age. This includes newly infected people (skin test converters), people with chest radiographic findings consistent with past TB, and those with medical risk factors (e.g., silicosis, below ideal body weight, gastrectomy, immuno-suppressive therapy) known to substantially increase the risk.	Ongoing
14. Review records of contacts and other high-risk infected persons not starting preventive treatment for appropriateness of that decision.	Ongoing

IMPROVING CASE PREVENTION

Methods	Activities
15. Offer a system of incentives to enhance compliance among high-risk patients on preventive treatment.	Obtain ODH patient incentive funds for cases at risk for noncompliance.
16. Use DOT two times weekly when necessary to ensure compliance.	Ongoing
17. Monitor patients on INH preventive therapy monthly for compliance and symptoms of toxicity. Spot testing urine for INH metabolites is highly recommended when compliance cannot be observed directly. Discontinue therapy immediately and re-evaluate the patient if signs of toxicity appear. Do not dispense more than a one month supply of medication at any visit.	Ongoing
18. Consider installing and maintaining ultraviolet lights in high-risk facilities, such as prisons and homeless shelters. Health care facilities that admit untreated TB patients or TB suspects should have proper facilities and procedures for instituting appropriate isolation. This includes private rooms with negative air flow that exhausts to the outside.	Advise and assist Youngstown hospitals, county jail authorities and Rescue Mission staff.

IMPROVING DISEASE CONTAINMENT

The Problem

Some patients with TB do not complete a recommended course of therapy.

Objectives

- All patients with TB should complete treatment with an appropriate regimen.
- At least 90 percent of all infectious patients should become noninfectious within three months of starting therapy.

Methods	Activities
1. For each new case of tuberculosis, ensure the education of the patient about TB and its treatment, continuity of therapy, and contact follow up. The TB Clinic and Outreach Nurse will visit the patient within three days of diagnosis to identify contacts and possible problems related to compliance with therapy.	Ongoing
2. For each new infectious case, develop a specific treatment and monitoring plan within four days of diagnosis. This plan should include: the drugs to be used; the dose frequency, and duration of administration; methods to assess and ensure compliance; and assessment of toxicity.	Ongoing
3. Collect sputum from patients who are clinically ill and able to produce sputum; urge patients to comply with recommendations; and document sputum conversion.	Ongoing
4. Monitor patient progress to document conversion of sputum and consult with the attending physician when apparent problems preventing documenting sputum conversion arise.	TB Control Officer will contact and consult with the attending physician for each case not in TB Control Program care.

IMPROVING DISEASE CONTAINMENT

Methods	Activities
5. Provide appropriate antituberculosis drugs, laboratory services, contact examination, and other necessary services to patients without regard to the patients' ability to pay.	Ongoing
6. Provide laboratory services using modern rapid-detection methods.	Continue to utilize the Ohio Department of Health laboratory.
7. Use incentives to enhance compliance. To be most effective, tailor these incentives to the individual needs and desires of the patient. It may be as simple as a cup of coffee or conversation, or as complex as providing food and housing for a homeless patient. Particular attention must be given to ensuring patients have transportation to the clinic.	Obtain ODH patient incentive funds for patients at risk for noncompliance. Assign vehicle to the TB Clinic and Outreach Nurse for home visits and patient transportation.
8. Use DOT two times weekly when needed.	Ongoing
9. Encourage funding at the federal, state and local level for outreach staff. Seek assistance from appropriately instructed home health care workers, public health nurses and other health department staff to supervise therapy.	Apply for state TB Control grants if they become available to fund development of a lay outreach worker program.
10. Obtain funding to maintain an optimal staff of outreach workers.	As above.
11. Review state and local laws and regulations to address all aspects of TB prevention and control.	Support Ohio Tuberculosis Coalition efforts to enact legislation for improved funding and reform of Ohio's TB control laws.
12. Adopt a protocol for isolation of infectious TB cases who are not adherent to treatment recommendations.	Enter into agreements with the Rescue Mission and Mahoning County jail authorities to provide for the isolation of nonadherent cases.
13. Develop a regional consultation network with recognized experts in TB diagnosis and treatment to provide help with difficult cases and to identify cases where consultation is indicated.	Include TB Control Officers from nearby Counties and infectious disease specialists in the membership of the Mahoning County TB Control Advisory Committee. Invite the Northern Regional Coordinator of the ODH TB and Refugee Health Unit to join the Advisory Committee.

PROGRAM ASSESSMENT AND EVALUATION

The Problem

In many areas, assessment of community TB control problems is incomplete, and community prevention and control efforts are inadequately evaluated. As a result, programs do not function as effectively and efficiently as they should.

Objective

- A system should be in place to achieve an ongoing, effective assessment of the TB problem and evaluation of activities at all levels for the control and elimination of TB.

PROGRAM ASSESSMENT AND EVALUATION

Methods	Activities
<p>1. Annually evaluate local progress toward the elimination of TB. This should include an analysis of morbidity and mortality data, case reporting, case finding, treatment and prevention activities. Collaborate with interested constituencies such as the American Lung Associations, minority and senior citizen organizations, and professional societies.</p>	<p>Ongoing quality assurance review of TB Control Program operations by staff and the Advisory Committee.</p>
<p>2. Conduct expert assessment annually for the TB Control Program.</p>	<p>Ongoing through the Advisory Committee and ODH.</p>
<p>3. Develop a prototype computerized record system for use by the TB Control Program for case reporting, patient management, and program assessment.</p>	<p>Extend the Board of Health's computer services to the Program. Acquire software, provide training and pilot test the CDC Tuberculosis Database System (CDC-TDS) developed for state and local TB control programs.</p>
<p>4. Develop and publish an annual community TB summary and program plan, including objectives, methods, a discussion of program progress or failure, and corrective action needed.</p>	<p>This document updated annually.</p>
<p>5. Using criteria and forms developed by CDC, determine whether each new TB case or death could have been prevented had current recommendations from ATS/CDC been followed. Based on these reviews, develop and implement new policies to reduce the number of preventable cases.</p>	<p>Ongoing</p>
<p>6. Develop a "center of excellence" for TB treatment and prevention in the Mahoning County Board of Health.</p>	<p>TB Control Officer will actively encourage physicians referral of all cases, contacts and infected persons to the Board of Health for evaluation and treatment.</p>

**MAHONING COUNTY TUBERCULOSIS CONTROL
ADVISORY COMMITTEE**

MEMBERS

Neil H. Altman, M.P.H., Youngstown Health Commissioner
Virginia Banks, M.D., Southside Medical Center
Jan Carpenter, Youngstown City Schools
Anthony Cutrona, M.D., St. Elizabeth Hospital Medical Center
Robert DeMarco, M.D., Mahoning County Tuberculosis Control Officer
James Demidovich, D.O., Nursing Home Medical Director
David Schaffer, Executive Director, Mahoning County Alcohol & Drug Addition Services Board
John Dunne, D.O., Occupational Health Physician
Suzanne Gomochak, R.N., Mahoning County Board of Health
Brian Gordon, M.D., Medical Director, Mahoning County Health Department
Robert Knight, R.N., Mahoning County Justice Center
Robert Morehead, M.S., Columbiana County Health Commissioner
Terry Puet, M.D., Trumbull County Tuberculosis Controller
Dorothy Shadl, R.N., Ohio Department of Health
Rev. David Sherrard, Rescue Mission of Mahoning Valley
Matthew Stefanak, M.P.H., Mahoning County Health Commissioner
Amelia Tunanidas, D.O., Mahoning County Board of Health
John Venglarcik, M.D., Tod Children's Hospital
David A. Watkins, M.D., Mahoning County Medical Society
Sally Wehmer, Director, American Lung Association of Ohio, Northeastern Branch