

Tuberculosis Prevention and Control Recommendations For Homeless Shelters in Maine

March 2005



Maine Department of Health and Human Services
Bureau of Health, Division of Disease Control
286 Water Street, Augusta, Maine 04333-0011



Table of Contents

Executive Summary	2
Background	3
Work Group Discussion	4
❑ Characteristics of homeless persons that increase risk for TB	4
❑ Resource challenges for homeless services providers	5
❑ Other challenges to TB prevention and case finding	5
❑ Tuberculin skin testing	6
❑ Chest X-ray	7
❑ Sputum Examination	7
❑ Symptom screening	8
❑ Passport programs	9
Recommendations	11
❑ Components of a shelter TB prevention program	11
❑ Needs Assessment	11
❑ Staff education	12
❑ Shelter guest education	12
❑ Staff screening	13
❑ Shelter guest screening	13
❑ Environmental infection control strategies	14
❑ Reassessment / evaluation	14
❑ Other recommendations	14
❑ Abbreviations	16



TOOL KIT



17

- ❑ **What Your Shelter Can Do to Prevent TB** **18**
- ❑ **Assessing Your Shelter Guests' Risk for TB** **19**
- ❑ **Cough Alert Policy** **20**
- ❑ **Think TB materials** *following*
- ❑ **Stop TB Poster** *following*
- ❑ **Cover Your Cough Poster** *following*
- ❑ **Resources** **29**

Appendix I: Acknowledgments **30**

Appendix II: Summary of Shelter Needs Assessment **33**



Executive Summary

In 2002 – 2003, an outbreak of pulmonary tuberculosis (TB) occurred among eight homeless men in Portland, Maine. More than 1000 shelter staff and residents were exposed to the eight infected men. It is critical that infected contacts of TB cases be promptly identified and treated, because newly exposed and infected contacts will be the TB cases of tomorrow. Public health workers and homeless services providers are working to prevent further transmission of TB.

During the winter of 2004, a *TB Prevention Shelter Work Group* (TBPSWG) was established to respond to the urgent need for TB prevention and case-finding in homeless shelters. The work group was comprised of homeless services providers and representatives from the Maine State Housing Authority (MESHA), Maine Bureau of Health (BOH) and Portland Public Health Division (PPHD). The TBPSWG represents a critical partnership between public health entities and the social services support system that interfaces with homeless men and women throughout the state. This document summarizes the work of the group and suggests recommendations for TB prevention in homeless shelters.

Recommendations:

- ❑ Annual, individualized shelter TB needs assessments
- ❑ Staff education
- ❑ Staff screening
- ❑ Shelter guest screening
- ❑ Improving access to medical care
- ❑ Cost-neutral engineering controls
- ❑ Annual re-assessment / evaluation

Tool Kit: Quick Reference for Shelter Staff

- ❑ What Your Shelter Can Do to Prevent TB
- ❑ Assessing Your Shelter Guests' Risk for TB
- ❑ Cough Alert Policy



- ❑ Contact information for TB support and resources
- ❑ “Think TB” materials for homeless shelters

Tuberculosis Prevention and Control Recommendations For Homeless Shelters in Maine

Background

In the decade preceding the year 2002, an average of one case of tuberculosis (TB) per year was identified among homeless individuals (statewide) in Maine. Since June of 2002, eight cases of TB were diagnosed among homeless men in Portland. Five of the cases were linked by DNA genotyping. All of the cases occurred among white, U.S. born, substance abusing men (primarily alcohol dependent). The infected men had all utilized homeless and medical services in Portland, or had been incarcerated at the county jail. Five of the eight cases were linked by DNA fingerprinting. One individual was co-infected with HIV and three were co-infected with Hepatitis C. No cases of drug-resistant TB were identified. All the infected individuals have completed treatment.

More than one thousand contacts of the eight active cases were identified. Two thirds of the exposed contacts received at least one tuberculin skin test and more than one hundred cases of latent tuberculosis infection (LTBI) were diagnosed. Two thirds of the infected contacts have been located and fully evaluated and many are being treated or medically monitored for latent TB infection. The contact investigation has required hundreds of hours of staff time and many of the exposed contacts either could not be located or are not yet fully evaluated. Efforts to locate and screen all of the contacts will continue until all contacts have been accounted for.

The City of Portland Public Health Division (PPHD), the Maine Bureau of Health (BOH) and the federal Centers for Disease Control (CDC) collaborated to plan and conduct an extensive contact investigation (CI). The CI has been going on for nearly two years and will continue until the outbreak is contained. Many of the exposed contacts are no longer living in Portland. Some may have left the state, but others could be living in other locations in Maine. BOH and PPHD continue to collaborate with shelter programs, correctional centers and medical providers to locate and evaluate exposed individuals.

Establishment of TB Prevention Shelter Work Group (TBPSWG)



During the winter of 2004, a work group was established to respond to the urgent need for TB prevention and case-finding in homeless shelters. The group was comprised of homeless services providers and representatives from the Maine State Housing Authority (MESHA), BOH and PPHD. This group represents a critical partnership between public health entities and the social services support system that interfaces with homeless men and women throughout the state.

Objectives of the TB Prevention Shelter Work Group:

1. To define the problem with regard to TB prevention and case-finding in the homeless population in Maine
2. To understand the barriers to effective prevention and case finding in the homeless services system in Maine
3. To craft a formalized, organized, statewide response to the increasing incidence of TB among Maine's homeless population

Work Group Discussion

To further define the risk factors that contribute to TB infection in homeless men and women, the group identified the following:

Physical characteristics of homeless individuals that increase risk for TB:

- Deficient immune systems secondary to the presence of chronic disease
 - Diabetes
 - Chronic obstructive pulmonary disease (COPD)
 - Cancer
 - Hepatitis B and C
 - Compromised functioning of organs (i.e. liver disease)
 - HIV
 - Body weight less than 90% of ideal
 - Malnutrition
- Substance abuse
- Age: children under four who are exposed to TB; and the elderly
- Smoking

Behavioral characteristics of homeless individuals that increase risk for TB:



- ❑ Sleeping in places with poor ventilation (i.e. most shelters), where undiagnosed individuals with TB may be a source of infection
- ❑ Sharing airspace in poorly ventilated social settings
- ❑ Lack of resources to pay for medical care
- ❑ Reluctance to seek health care
- ❑ Housing instability
- ❑ Knowledge deficit with regard to TB
- ❑ Lack of knowledge about how to access health care
- ❑ Screening / health care may not be available at the time and place that individual is “ready” to accept services
- ❑ Marginalized, residentially mobile, high-risk shelter residents may be vulnerable to infection (i.e. migrant workers, substance abusers, severe and persistently mentally ill)

In addition to the population-specific factors the work group identified properties of shelter settings that contribute to increased risk of TB transmission.

These properties include:

- ❑ Lack of staff and guest knowledge about TB and the difference between active pulmonary TB and latent TB infection (LTBI)
- ❑ Lack of knowledge among staff with regard to basic infection control measures
- ❑ Engineering controls (ultraviolet lighting, filtered air flow) are not available in most shelters
- ❑ Incompletely treated TB cases may be admitted to shelters when screening policies are not fully developed or resources for screening are limited
- ❑ Poor ventilation / many people sharing airspace
- ❑ Beds may be too close together and positioned “head to head”
- ❑ Limited space and resulting inability to separate coughing individuals from healthy shelter guests in sleeping areas
- ❑ Protocols for cough etiquette and symptom screening are not in place
- ❑ Work load doesn’t allow time for planning/implementing interventions

Recognizing the economic and programmatic challenges that homeless services providers face, the work group identified the following challenges to effective TB prevention and case-finding in homeless shelters:

Resource challenges for homeless services providers:

- ❑ Training is needed to promote a “Think TB” culture among shelter staff
- ❑ Medical/nursing staff are not regularly available in many Maine shelters
- ❑ Resource distribution is variable across the state
- ❑ Protocols have not been developed for TB screening in shelters



- ❑ Existing TB treatment and evaluation infrastructure / capacity is inadequate to meet the screening and evaluation needs of large numbers of homeless individuals
- ❑ The health care delivery system does not meet the ongoing health care needs of shelter residents (using ERs for non-emergency medical care)
- ❑ Medical provider training is needed: “Think TB” during evaluation for respiratory symptoms in homeless individuals
- ❑ Shelter facilities have limited access to engineering controls that could limit transmission of TB (examples: filtered air flow, ultraviolet lighting, large spaces, private rooms).
- ❑ Shelters have many competing needs for their limited resources

Other challenges to TB prevention and case finding in shelters:

- ❑ The traditional contact investigation model is hard to implement, when a large, mobile, marginalized population has been exposed
- ❑ Participation in health care is not a priority for most homeless individuals
- ❑ Homeless people may be unable to follow through with health care recommendations
- ❑ The rural nature of the geography in Maine poses unique transportation challenges
- ❑ Maine’s traditional health care delivery system is not “user-friendly” for disorganized or fearful homeless individuals
- ❑ Medical assessments may be incomplete due to provider insensitivity to life circumstances of homeless people
- ❑ Exposed or infected individuals may move between correctional settings and shelters without a formalized referral or information-sharing process
- ❑ Lack of financial resources / health insurance limits access to health care

The work group discussion included a review and discussion of policies, practices and recommendations that have been proposed or implemented in other states. The following practices were discussed and assessed for potential adaptation by Maine’s homeless services system:

1. Tuberculin Skin Testing: (TST): The federal Centers for Disease Control (CDC) supports screening high risk populations in outbreak situations. Many states have successfully implemented TST screening programs that promote shelter guest participation in city or statewide screening programs.

Strengths of TST

- ❑ The skin test helps to identify cases of active and latent TB infection prior to shelter admission (keeps active disease out of the shelter until the guest can be evaluated and treatment initiated)



- ❑ When utilized as part of a larger education program, the TST procedure/protocol raises general awareness of TB in the shelter setting
- ❑ The process of administering a TST is an opportunity to engage each shelter guest in an individualized therapeutic relationship
- ❑ Targeted skin testing helps to quantify the prevalence of LTBI among an identified high risk population

Limitations of TST

- ❑ Return rate for reading skin tests in the population is only about 50%
- ❑ Skin test must be read by a medical provider within a strictly defined time frame (48 – 72 hours)
- ❑ Shelter staff may use unknown skin test results as a means of excluding individuals from services
- ❑ The skin test may be incorrectly read as negative if improperly planted or not read in time,
- ❑ The test may be a “false negative” if the patient has a suppressed immune system or if he/she has another major illness
- ❑ Positive skin tests require further medical evaluation that may be difficult to arrange (systems issues need to be addressed)
- ❑ The test is imprecise: there is a possibility of “false-positive tests” due to presence of mycobacteria other than TB that do not cause disease in healthy adults
- ❑ Inconsistency with regard to interpretation (measurement criteria) when recent exposure history is unknown.
- ❑ Utilizing a syringe and needle to administer the skin test is a barrier for individuals who fear needles or for whom a syringe and needle may “trigger” injection drug use.

2. Chest X-ray (CXR): Chest X-rays are used to diagnose or to rule out active TB disease in persons who have positive skin tests. During outbreak situations, CXRs are often used as a first-line screening tool, so that diagnoses can be made quickly and definitively in a mobile population. This is done because return rates for skin test readings are often poor.

Strengths of CXR:

- ❑ A CXR is useful as part of an evaluation to rule out or diagnose active disease
- ❑ The result of a CXR may be obtained within minutes. This limits the number of contacts that may be lost to follow up before screening can be completed
- ❑ A CXR may diagnose active disease in immunosuppressed persons who may have negative skin tests (ex: HIV disease, cancer or severe malnutrition)
- ❑ A CXR may be “user-friendly” for injection drug users (tuberculin syringes and needles are triggers for drug use) or others who fear injections



- ❑ CXR results may help determine infectiousness of the case (cavitary lesion)

Limitations of CXR as a screening tool

- ❑ Cost of the CXR and incentives to promote compliance is prohibitive if large numbers of persons need to be screened quickly
- ❑ Transportation barriers are significant in rural areas of Maine
- ❑ Shelter guests may need to be provided with escorts or “buddies” to support them through the process of obtaining the CXR
- ❑ A doctor’s order is required for each CXR
- ❑ A CXR is not specific to TB. Other pathology may be discovered, raising ethical issues about provider responsibility for provision of further care
- ❑ Requires plan to treat TB, LTBI or other pathology
- ❑ Screening large numbers of individuals historically has a low yield for the intensity of the effort
- ❑ A CXR may not diagnose TB in persons with severely suppressed immune systems
- ❑ CXR does not diagnose TB that occurs outside of the lungs

3. Sputum Examination: A sample of sputum is sent to the state laboratory for microscopic examination for TB bacteria. The “smear” (bacteria visible by microscope in sample) takes 24 hours to obtain results. Whether positive (bacteria seen) or negative (bacteria not seen), part of the sample is placed in culture medium to see if bacteria will grow. Usually culture results take 6 weeks to obtain. Sometimes a smear is negative, but bacteria grow in the culture.

Strengths of the sputum smear as a screening tool:

- ❑ The results are available in twenty four hours
- ❑ The smear can quickly identify possible TB
- ❑ Smear results help determine degree of infectiousness

Limitations of sputum smear as a screening tool:

- ❑ The smear may identify organisms other than TB
- ❑ Collecting sputum samples is labor intensive
- ❑ Laboratory work is expensive
- ❑ A sputum sample is hard to obtain if person is not coughing
- ❑ Completing the smear properly requires the skill of an experienced lab technician

Strength of the sputum culture as a screening tool:

- ❑ A culture may identify an organism not seen on the smear



- ❑ A positive culture allows the lab to determine whether the organism is sensitive to antibiotics
- ❑ A positive culture is specific to TB (“Gold Standard” of TB diagnosis)
- ❑ A positive culture allows the epidemiologist to link cases through DNA fingerprinting

Limitation of sputum culture as a screening tool:

- ❑ Obtaining a reliable sputum sample requires skill
- ❑ Laboratory work is expensive
- ❑ Time between sputum collection and culture results is 6-8 weeks
- ❑ Access to an experienced microbiology lab is needed
- ❑ An individual may have a negative sputum culture and still have pulmonary TB

4. Symptom Screening / “Cough Alert” Policies: Screening shelter guests for symptoms of TB is an effective way to find cases of TB. Some shelters have formalized symptom screening protocols that include cough alert protocols and procedures. The “Cough Alert” provides guidelines for shelter staff to follow when they observe guests who are coughing consistently. Regular communication among staff and the medical community is needed to make cough alerts work effectively as a screening tool. A sample cough alert policy is included in the *Tool Kit* at the end of this document.

Symptoms of active TB disease are:

- ❑ Cough lasting longer than three weeks
- ❑ Blood in sputum
- ❑ Drenching night sweats
- ❑ Fever / chills
- ❑ Weight loss
- ❑ Weakness / fatigue
- ❑ Loss of appetite

* See *Tool Kit* for Cough Alert Policy

Strengths of symptom screening as a diagnostic/screening tool:

- ❑ Symptom screening may identify TB cases
- ❑ Screening for symptoms has the capacity to protect other shelter guests from transmission of TB or other respiratory infections if a coughing guest can be moved to a more private sleeping area
- ❑ A positive symptom screen motivates staff to seek medical evaluation and care for individuals who are coughing



- ❑ Symptom screening and medical evaluation of coughing individuals reassures staff that there is no TB in the shelter
- ❑ Shelter staff are already conducting intake assessments. Symptom screening may be easily added to existing data collection processes
- ❑ Regular symptom screening may be an impetus to promote “cough etiquette” policies in shelters (“Cover Your Cough” poster may be found in the *Tool Kit*)

Limitations of symptom screening as a diagnostic/screening tool:

- ❑ Symptoms of cough are not specific to TB
- ❑ Symptom screening requires consistency of observation and communication
- ❑ Coordinated symptom screening requires a protocol / training for staff to implement the policy consistently
- ❑ A symptom screening protocol requires linkage to nursing assessment and medical care
- ❑ Monitoring a cough and asking questions about the duration of the symptoms may alienate marginalized or mentally ill shelter guests. Sensitivity and good interview skills are required of the “screener”
- ❑ Concerned or over-zealous staff may be tempted to exclude guest from shelter services if medical evaluation not quickly available
- ❑ Most shelters have limited ability to move coughing guests to separate sleeping areas

5. *Adapting models from other states: The Passport Program:* A “passport” is a small, usually laminated, identification card that contains TB screening information. The passport model has been utilized in other areas of the nation. Some model “passports” include screening results or other health information and others include only the date by which a screened person must have their passport renewed. Usually the card contains information about where screening results may be obtained. The shelter guest carries the card on his person and uses it as a “ticket” to enter shelter programs.

Strengths of the passport program:

- ❑ Privacy: the information on the passport is in the control of the individual. The individual is not on “a list”
- ❑ Utilizing the passport limits too-frequent skin testing
- ❑ Universal adoption of the passport as a part of an integrated TB prevention program has the capacity to normalize/de-stigmatize skin testing among shelter guests
- ❑ Using the passport may raise awareness about TB among shelter staff
- ❑ The passport has the capacity to link shelter guests to nursing assessment and medical care
- ❑ A well-run passport program provides peace of mind for shelter staff and guests

Challenges/Uncertainties of implementing a passport system in Maine:



- The system requires a data base for information management
- Extensive staff training is required before implementation
- The program requires a “social marketing” strategy to promote participation of shelter guests
- The possible risk of excluding guests who do not have current passports needs to be addressed
- The screening date would be negated if a guest was exposed to an active case
- Would adopting the passport program necessitate mandating screening for all shelter guests? If “yes”, would screening be mandated in all shelters or only emergency shelters? Would guests be excluded from services for refusal to participate?

Recommendations

Components of a TB Prevention/Surveillance Program: The work group identified the framework, around which Maine’s shelter TB prevention and surveillance polices will be built. To meet the needs of a diverse shelter population spread over a wide and variable geographic area, the prevention plan must account for local differences in:

- ❑ Shelter guest demographics and levels of risk
- ❑ Local access to health care
- ❑ Local customs and norms
- ❑ Resource allocation
- ❑ Variance in levels of staff and provider TB awareness in areas of traditionally low TB incidence
- ❑ Epidemiology of TB in Maine



With these variables in mind, the work group concluded that crafting a statewide plan must take into account and respect local differences, as well as provide concrete assistance to shelters that are working to develop TB prevention and case finding protocols and plans.

Components of a shelter TB prevention/surveillance plan:

- ❑ Needs assessment
- ❑ Staff education
- ❑ Shelter guest education
- ❑ Staff screening
- ❑ Shelter guest screening
- ❑ Access to medical care
- ❑ Engineering controls
- ❑ Evaluation

1. Needs Assessment: The work group developed a Shelter Needs Assessment Interview Tool to help determine the current status of the above components in Maine's forty two shelters. Shelter assessments outside of Portland were conducted by regionally-based teams of epidemiologists and public health nurses. PPHD conducted needs assessments in Portland's eleven shelters. Over a three month period, twenty four shelters were surveyed. The goal of the shelter needs assessment interviews was to:

- ❑ Provide a vehicle by which to introduce public health nurses and regional epidemiologists to key persons in each shelter
- ❑ Stratify level of risk by shelter type and population served
- ❑ Individualize prevention and case-finding plans
- ❑ Lay a foundation for ongoing health-related partnerships in each shelter
- ❑ Identify additional health-related shelter educational needs

Shelter Needs Assessment summaries from across the state, in tandem with data collected by the Maine State Housing Authority (Homeless Information Management System and annual Point in Time Survey) provide critical information by which to monitor and evaluate TB education and surveillance programming. Results of Maine's TB Shelter needs Assessment may be found in the Appendix of this document.

2. Staff Education; The Shelter Needs Assessment informs the development of individualized shelter staff TB education plan: A consistent framework guides the development of each shelter plan.

Components of the staff TB education plan:



- ❑ Each shelter has a consistent contact person for education regarding public health issues, including TB
 - ❑ Shelter TB education is an ongoing process
 - ❑ A combination of formal training and informal discussion is individualized to meet each shelter's needs. BOH Public Health Nursing has developed shelter specific TB education that is available on request.
 - ❑ Educational materials reflect varying levels of staff expertise and include information targeted toward both social services and nursing staff (see *Tool Kit*).
 - ❑ Each shelter is provided with a menu of options based on the requests of individual shelters
 - ❑ BOH Public Health Nurses are available as resource persons for TB questions that may arise between education sessions/visits
 - ❑ BOH Public Health Nurses train shelter staff to answer simple questions about TB for shelter guests
 - ❑ Education about potentially co-existing disorders which may be risk factors for TB (such as substance abuse and HIV disease) is an integral part of the comprehensive TB prevention program. Education regarding HIV/STD is coordinated the Maine Bureau of Health HIV/STD program.
2. Shelter Guest Education: The Shelter Needs Assessment informs the development of individualized shelter guest education plans. A consistent framework will guide the development of shelter guest education plans.

Components of shelter guest TB education plan:

- ❑ Printed materials and posters should be colorful, brief and geared to 3rd grade literacy level (see *Tool Kit*)
 - ❑ When needed, printed materials are obtained that are appropriate to the language and culture of non-English speaking populations
 - ❑ Formalized group presentations may not be appropriate in many shelter settings, but where requested, BOH Public Health Nursing develops and conducts group education or provides information to individual shelter guests
 - ❑ TB shelter education is targeted to meet local and population-specific needs
 - ❑ Related health education (substance abuse and HIV prevention) is a component of a comprehensive TB education program
 - ❑ Shelter guest education plans must be flexible enough to respond to problems, issues or crises that arise without warning
3. Staff Screening: Tuberculin skin testing (TST) is required of all shelter staff and volunteers



- ❑ Two-step TST at the time of hire and then annually in non-outbreak situations
 - ❑ During a TB outbreak, staff need to be tested as determined by BOH
 - ❑ TST is provided at no cost, on site, by a shelter’s own nursing staff or a community-based public health nurse. Training in skin test administration and interpretation is provided by BOH upon request
 - ❑ Staff who are positive reactors should be evaluated by their own medical provider and annual symptom screening is documented thereafter
 - ❑ Staff who have positive skin tests and are coughing are excluded from the workplace until medically evaluated
4. Shelter Guest TST Screening: TST screening is recommended for high risk shelter guests. Each shelter determines its own level of risk based on demographics, location and community profile.
- ❑ TST is free, and provided on-site by shelter nursing staff or public health nurses
 - ❑ Shelter guests who are positive reactors are evaluated by medical providers with support by the Bureau of Health’s TB Consultant network.
 - ❑ Shelter guests who are positive reactors and who have been medically evaluated, have annual, formalized, documented symptom screening. This may be done by shelter staff or a health care provider.
 - ❑ Shelter guests who are evaluated and placed on treatment for LTBI are monitored by public health nursing or shelter nursing staff according to an individualized treatment plan.
 - ❑ Homeless individuals who present for shelter services with unknown screening results are not excluded from essential shelter services.
 - ❑ TST promotion campaigns will be developed to institutionalize TST as a community norm in emergency shelters
5. Symptom Screening or “Cough Alert” protocols are valuable tools for shelter staff and administrators . Please refer to the *Tool Kit* for a sample cough alert policy.
- ❑ Staff are trained to incorporate symptom screening into each shelter’s existing intake process
 - ❑ Staff have heightened awareness of coughing patients
 - ❑ Communication lines are formalized and clear when suspicion of illness is high (communication logs, shift reports, verbal notification of clinical supervisor or shelter director)
 - ❑ Whenever possible, coughing shelter guests have separate sleeping areas, away from healthy shelter guests
 - ❑ Staff model cough etiquette for shelter guests: tissues and paper masks are available for use of coughing individuals in shelters



- ❑ Documentation of shelter attendance and numbering of beds is critical for assessing risk of exposure to coughing or potentially infected shelter guests
 - ❑ Individuals who have documented active pulmonary tuberculosis are evaluated by a physician and may be admitted to the shelter when documentation is received that the patient has been on TB treatment and is not infectious. Public health nurses provide directly observed therapy (DOT) to all TB cases in Maine. Questions regarding individuals with active pulmonary disease may be referred to TB Control.
6. Access to medical evaluation for positive skin test reactors and symptomatic shelter guests are facilitated by shelter nursing staff or State public health nurses.
- ❑ Transportation to medical appointments is coordinated by shelter staff and State public health nurses
 - ❑ Need for an escort or “buddy” is assessed
 - ❑ A State TB Consultant is available to provide consultation to the medical community regarding diagnostic and treatment decisions
7. Environmental Infection Control Strategies: BOH or PPHD Public health nurses work with each shelter to assess its ability to promote realistic, cost-neutral environmental controls (examples: opening windows, arranging beds head to toe, etc.)
8. Evaluation: TBC and BOH or PPHD public health nurses work to identify process measures that help to track progress. Some simple measures include:
- ❑ Participation in staff/guest education
 - ❑ Participation in shelter guest skin testing
 - ❑ Skin test reactor rates
 - ❑ Number evaluated / treated / completed
 - ❑ Outcomes of shelter assessments

Other Recommendations

A contact person for public health issues will be identified for each shelter. The role of the contact person is to coordinate the implementation of the *Recommendations*. BOH and PPHD public health nurses are available to support shelters to implement the *Recommendations*.

The Passport Program is a promising model that could be adapted for use in



Maine. The program requires careful planning, resources and provider consensus. The work group recommends developing and piloting the program in Portland if resources are available. Implementing the program statewide may not be practical due to resource limitations. Utilizing simple skin test documentation cards is an interim measure that may be operationalized at low cost.

Develop a formalized, seamless LTBI tracking/referral process between correctional settings and homeless shelters that would be facilitated and supported by BOH and BOH and PPHD public health nurses.

Abbreviations

- **BOH:** Bureau of Health



- ❑ **CI:** contact investigation
- ❑ **CDC:** Federal Centers for Disease Control
- ❑ **COPD:** chronic obstructive pulmonary disease
- ❑ **CXR:** chest Xray
- ❑ **DOT:** directly observed therapy
- ❑ **ER:** emergency room
- ❑ **LTBI:** latent tuberculosis infection
- ❑ **MESHA:** Maine State Housing Authority
- ❑ **PPHD:** Portland Public Health Division
- ❑ **TB:** tuberculosis
- ❑ **TBC:** TB Control Program
- ❑ **TST:** tuberculin skin test: also called “PPD”
- ❑ **TBPSWG:** Tuberculosis Prevention Shelter Work Group



Tool Kit

- ❑ **“What Your Shelter Can Do to Prevent TB”**
- ❑ **“Assessing Your Shelter Guests’ Risk for TB”**
- ❑ **Cough Alert Policy**
- ❑ **“Think TB” Materials**
- ❑ **Stop TB Poster**
(laminated copies are available from TB Control: 287-8157)
- ❑ **Cover Your Cough Poster**
(laminated copies are available from TB Control: 287-8157)
- ❑ **Resources**



What Your Shelter Can Do To Prevent TB

- ❑ Observe guests for signs of TB and facilitate a medical evaluation for individuals who are coughing for more than three weeks or who have other signs of TB
- ❑ Encourage guests who are being evaluated or treated for TB to follow through with treatment. Reassure them that TB treatment is free and that TB can be cured
- ❑ Move guests who are coughing to a separate sleeping area if possible
- ❑ Maintain as much space as possible between beds and position beds “head to toe” rather than “head to head”
- ❑ Maintain logs or “bed lists” and keep them for one year
- ❑ Think about ventilation: open doors and windows to promote air exchange, especially in areas where guests congregate to eat, sleep or watch TV. If your shelter has a mechanical ventilation system, be sure that it is functioning properly.
- ❑ Use ultra violet lights if they are available. UV lighting kills bacteria in the air
- ❑ Provide education about TB for staff, guests and volunteers
- ❑ Post signs to promote “cough etiquette”
- ❑ Provide tissues and paper masks and use them for both staff and guests when they are coughing
- ❑ If your shelter serves “high risk” guests (See “*Tool Kit*” to determine risk), screen staff and guests for TB infection (tuberculin skin testing / “PPD”). Skin test screening needs to be provided by a health care worker who has had special training in administering and reading skin tests.
- ❑ Be aware that individuals who have HIV infection or other chronic diseases are more vulnerable to TB infection
- ❑ Develop a TB policy and keep it in a place where staff may refer to it when questions arise.



Assessing Your Shelter Guests' Risk for TB

Below are some characteristics of shelter populations that may help you to determine if your shelter guests are “high risk” for TB. You may use this information to help make decisions about skin testing, symptom screening and what kind of education might be most helpful for your shelter. If you answer “yes” any of the following questions, your shelter population may be considered to be “high risk”.

Are your shelter guests:

- Single adults?
- Chemically dependent?
- Chronically ill?
- Frequently incarcerated?
- Chronically homeless?
- Coming to your shelter from urban areas outside of Maine?
- Coming to your shelter from other countries where TB is common?

Do your shelter guests sleep in a common sleeping area, where beds are closer than 6 feet apart?

Does your shelter population “turn over” more than once per week?

Is your shelter located in an urban setting?

Have there been TB cases in the community where your shelter is located?



Cough Alert Policy For Maine's Homeless Shelters

Shelter staff play an important role in communicable disease detection and prevention. Staff who follow “Cough Alert Policies” help to find active cases of TB and prevent the spread of TB to others.

What to Look For

- ❑ Guests who are coughing through the night
- ❑ Guests who cough for more than three weeks without improvement
- ❑ Guests who have chronic cough and also have night sweats, fever, weight loss and/or blood in sputum (phlegm)

Cough Alert Check List

- ❑ Coughing throughout the night?
- ❑ Coughing more than 3 weeks?
- ❑ Coughing up blood?
- ❑ Weight loss?
- ❑ Fever lasting more than 3 weeks?
- ❑ Sweating at night that drenches clothes and bedding?

What to Do

1. Ask the guest to cover his/her nose and mouth when coughing by using tissues and a mask
2. Move the guest to a separate sleeping area, if possible
3. Notify your supervisor and document the guest's name, dates s/he stayed in the shelter and bed number
4. Arrange for a medical evaluation for the guest within 48 hours
5. Coughing up blood is a serious symptom that should be evaluated right away



***How to Arrange for a Medical Evaluation for TB:**

1. If your shelter has a nurse, ask the nurse to assess the guest
2. If your shelter does not have a nurse or a doctor, utilize:
 - The guest's primary care provider, if s/he has one
 - Health Care for the Homeless Program, or free clinic if one of these are available to your shelter
 - Local community clinic or provider
 - Hospital emergency room

*Call TB Control at 287-5194 for guidance if you suspect TB





THINK TB **FOR SHELTER GUESTS**

THE MAINE BUREAU OF HEALTH URGES YOU TO *THINK TB*

- ➔ Tuberculosis is spread by tiny germs that can float in the air
- ➔ TB germs may spray into the air if a person with TB disease coughs, shouts or sneezes
- ➔ If TB germs cause TB disease, the person needs medical help
- ➔ If you have TB you may: feel weak, cough a lot, cough up blood, have chest pain when you cough, lose your appetite, lose weight, have a fever, or sweat a lot at night
- ➔ Only a doctor can tell you if you have TB disease
- ➔ Staff at this center can help you get a TB test
- ➔ TB tests are free and confidential
- ➔ TB is preventable and if you already have it, it can be cured



For more information, contact the Maine TB Control Office in Augusta at 1-800-821-5821 or (207) 287-5194 or visit the Maine DHHS, Bureau of Health's Division of Disease Control website at <http://www.mainepublichealth.gov>



THINK TB

WHAT IS TB?

- ➔ **What is TB?** “TB” is short for a disease called tuberculosis. TB is spread by tiny germs that can float in the air. TB germs may spray into the air if a person with *TB disease* of the lungs or throat coughs, shouts, or sneezes. Anyone nearby can breathe TB germs into their lungs and get a *TB infection*.
- ➔ **How do I know if I have a TB infection?** A skin test is the only way to tell if you have a *TB infection*. You can have a *TB infection* without feeling sick. The germs are sleeping in your lungs. You can take medicine to keep the germs from growing. If you don’t take medicine, the TB germs may begin to grow and cause TB disease. If you have TB disease you need to take medicine to cure your TB. A nurse will bring you the medicine and the health department will pay for it.
- ➔ **How does the skin test work?** The test is usually done on the arm. A small needle is used to put some testing material under the skin. In two or three days, a health care worker will check to see if there is a reaction to the test. The test is “positive” if a bump about the size of a pencil eraser or bigger appears on your arm. This bump means you probably have a *TB infection* and need to visit a doctor. Staff at this center can help you get a TB test. The test is free and confidential.
- ➔ **How do I know if I have TB disease in my lungs?** An X-ray of your chest can tell if there is damage to your lungs from TB. Phlegm (“flem”) you cough up can also be tested to see if the TB germs are in your lungs. If you have *TB disease* in your lungs, you may:
 - Feel weak
 - Lose your appetite
 - Have a fever
 - Have a cough lasting longer than 3 weeks
 - Cough up blood in phlegm (“flem”), mucus or blood
 - Lose weight
 - Sweat a lot at night
- ➔ **How does HIV infection affect TB?** HIV helps TB germs make you sick by attacking the germ fighters in your body. If you are infected with HIV and with TB germs, you have a very big chance of getting *TB disease*. Talk to your health care worker about getting an HIV test. If you have HIV infection, get tested for *TB infection* at least once a year.





THINK TB

FOR HEALTH CARE PROVIDERS

For more information, contact the Maine TB Control Office in Augusta at 1-800-821-5821 or (207) 287-5194 or visit the Maine DHHS, Bureau of Health's Division of Disease Control website at <http://www.mainepublichealth.gov>

The Maine Bureau of Health urges healthcare providers to “Think TB” when evaluating potential high-risk persons such as . . .

- Foreign-born from TB endemic areas
- Residents of long-term care facilities
- Homeless or incarcerated persons
- Those with or at risk for HIV infection
- Close contacts of persons with TB
- Injection drug users

Diagnosis of Latent Tuberculosis Infection

Background. In most U.S. populations, screening for TB is done to identify infected persons at high risk for TB disease who would benefit from treatment of TB latent infection and to identify persons with TB disease who need treatment. Screening should be done in groups for which rates of TB are substantially higher than for the general population. Clinicians should tuberculin test high-risk persons as part of their routine evaluation. Institutional screening is recommended for the staff of health care facilities, as well as for the staff and residents of long-term care institutions where TB cases are found or the case rates of TB are high. The Mantoux tuberculin skin test is the preferred method of screening for TB infection.

Tuberculin Skin Test. The Mantoux tuberculin skin test (TST) is used to determine whether a person is infected with *Mycobacterium tuberculosis*. Tuberculin skin testing is contraindicated only for persons who have had a necrotic or a severe allergic reaction to a previous tuberculin skin test. It is not contraindicated for any other persons, including infants, children, pregnant women, persons who are HIV infected, or persons who have been vaccinated with BCG. The Mantoux tuberculin skin test is the standard method of identifying persons infected with *M. tuberculosis*. Multiple puncture tests (MPTs) should not be used to determine whether a person is infected.

Administering the Tuberculin Skin Test. The Mantoux tuberculin test is performed by placing an intradermal injection of 0.1 ml of purified protein derivative (PPD) tuberculin containing 5 tuberculin units (TU) into the inner surface of the forearm. The injection should be made with a disposable tuberculin syringe, just beneath the surface of the skin, with the needle bevel facing upward. This should produce a discrete, pale elevation of the skin (a wheal) 6 mm to 10 mm in diameter. Institutional guidelines regarding universal precautions for infection control (e.g., the use of gloves) should be followed.

Interpreting Skin Test Results. A trained health care worker should read the reaction to the Mantoux tuberculin skin test 48 to 72 hours after the injection. The reading should be based on

THINK TB FOR HEALTH CARE PROVIDERS

a measurement of induration (swelling), not on erythema, or redness. The diameter of the induration should be measured perpendicularly to the long axis of the forearm. All reactions, even those classified as negative, should be recorded in millimeters. Some persons who have positive skin test results may have TB disease. The possibility of TB disease must be ruled out before treatment of latent TB infection is begun.

False Positive & Negative Reactions. The Mantoux tuberculin skin test is a valuable tool, but it is not perfect. False-positive and negative reactions do occur. There is no sure way to determine the true cause of the reaction.

Diagnosis of Tuberculosis Disease

When to Suspect Tuberculosis (TB). The symptoms of pulmonary TB include cough, chest pain, and hemoptysis; the specific symptoms of extrapulmonary TB depend on the site of disease. Systemic symptoms consistent with TB also include fever, chills, night sweats, easy fatigability, loss of appetite, and weight loss. TB should be considered in persons who have these symptoms. Persons suspected of having TB should be referred for a complete medical evaluation, which should include a medical history, a physical examination, a Mantoux tuberculin skin test, a chest radiograph, and any appropriate bacteriologic or histologic examinations. A positive bacteriologic culture for *M. tuberculosis* confirms the diagnosis of TB. However, if TB disease is not ruled out, treatment should be considered. Please report all suspect and confirmed cases of TB to the Maine TB Control Office.

Diagnostic Laboratory Tests. The presence of acid-fast bacilli (AFB) on a sputum smear often indicates TB. Acid-fast microscopy is easy and quick, but it does not confirm a diagnosis of TB because some acid-fast bacilli are not *M. tuberculosis*. Therefore, a culture is done to confirm the diagnosis. Culture examinations should be done on all specimens, regardless of AFB smear results. Treatment should not be initiated until specimens have been submitted to the laboratory. Laboratories should report positive smears and positive cultures within 24 hours by telephone or fax to the primary health care provider and the TB control program. For all patients, the initial *M. tuberculosis* isolate should be tested for drug resistance. It is crucial to identify drug resistance as early as possible in order to ensure appropriate treatment. For this reason, we require all laboratories to submit clinical isolates of *M. tuberculosis* to the Maine Health and Environmental Testing Laboratory (287-2727) for drug susceptibility testing.

Who to call and why. . .

To report a suspect laboratory & clinical TB case: Contact the State of Maine TB Control Office at 1-800-821-5821 or (207) 287-5194.

For clinical consultation: Because of the potential public health implications of a patient who receives inadequate or suboptimal therapy, the Maine TB Control Office, Bureau of Health, provides comprehensive services for persons with confirmed or suspect TB. These services are free to you and your patient, and include the following:

- Laboratory services for smear, culture and susceptibility studies.

- Medication for patients with disease.
- Referral for HIV Testing – HIV Testing is recommended for all TB suspects/cases by the CDC's TB Surveillance and Prevention Program and the American Thoracic Society.

THINK TB FOR HEALTH CARE PROVIDERS

- Directly Observed Therapy by Public Health Nurse for patients with disease.
- Treatment of TB latent infection (e.g. INH) for infected individuals.
- Public health nursing services to ensure follow-up of patients being treated for TB; delivery of medications; assistance with contact screening investigations etc.
- Educational materials for the primary care physician including CDC/ATS national guidelines on treatment.

If your patient, who is suspect or diagnosed TB disease, does not have access to third party insurance and is unable to pay for TB follow-up services, the TB Control Office in the Bureau of Health will provide resources for TB clinic services to a TB suspect or case at any one of the six state tuberculosis clinics located statewide.



For more information, contact the Maine TB Control Office in Augusta at 1-800-821-5821 or (207) 287-5194 or visit the Maine DHHS, Bureau of Health's Division of Disease Control website at <http://www.mainepublichealth.gov>

TB is spread when a person with active TB coughs, sings, or speaks and you breathe the air contaminated with TB germs.

The germs reach your lungs. From there they can go to other parts of your body.



You need to take your medicine to help you get better and to prevent you from spreading the TB germs to others.

Your body fights the TB germ.

Usually the germs go to sleep in your body. This is called TB INFECTION:

If you don't take medicine, the TB germs may wake up and attack your lungs and other parts of your body. This is called TB Disease.

- You have a positive skin test
- You don't feel sick
- You can't give TB to others

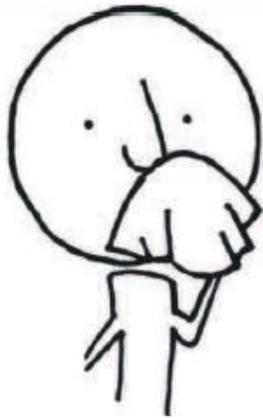
- You feel sick with fever, weight loss or cough
- You have active TB germs in your body
- You may give TB to others

You can take medicine to keep you from getting active TB.



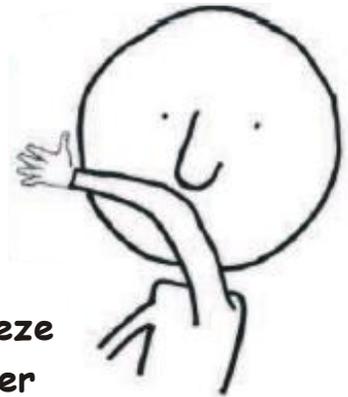
Keep Germs to Yourself!

Cover Your Cough



Cover your mouth and nose with a tissue when you cough or sneeze

or Cough or sneeze into your upper sleeve - not your hands.



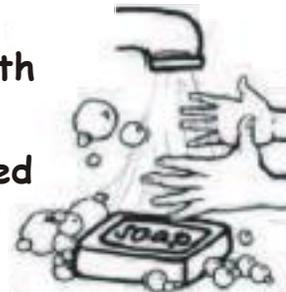
Put your used tissue in the waste basket.



Clean Your Hands



Wash vigorously with soap and water or use an alcohol-based hand cleaner.



Stop the spread of germs that make you and others sick!



The Maine Department of Health and Human Services
Bureau of Health
www.mainepublichealth.gov

Resources

- ❑ To arrange for TB shelter education or needs assessment, call BOH Public Health Nursing at 207-287-5394
- ❑ Need help developing a TB Policy? Call TB Control: 207-287-5194
- ❑ TB Control: for information, support and “trouble shooting”: please call TB Control: 207-287-5194
- ❑ Maine Bureau of Health, Tuberculosis Web Site:
 - www.maine.gov/dhhs/boh/ddc/tuberculosis.htm
- ❑ Portland Public Health Division Outreach Nurse: 756-8343
- ❑ Maine State Housing Authority: 1-800-452-4668



Appendix I

Acknowledgements: The Maine Bureau of Health would like to thank the following individuals and organizations for their assistance in developing these recommendations:

Subroto Banerji, Centers for Disease Control, Atlanta, Georgia

Marilyn Bouchard, Maine Bureau of Health, Public Health Nursing

Pat Caldwell, Maine Bureau of Health, Public Health Nursing

Derrick Felix, Centers for Disease Control, Atlanta, Georgia

Victoria Gammino, Centers for Disease Control, Atlanta, Georgia

Green Street Church, Augusta, Maine

Pam Harpine, Maine Bureau of Health, Public Health Nursing

Jean Hall, Maine Bureau of Health, Public Health Nursing

Shirley Helms, Maine Bureau of Health, Public Health Nursing

Jo Linder, Portland Public Health Division

Maine State Housing Authority, Augusta, Maine

Kathy McCormick, Maine Bureau of Health, Division of Disease Control

Rhonda Morgan, Maine Bureau of Health, Division of Disease Control

Lori Nichols, Maine Bureau of Health, Division of Disease Control

Diane North, Cumberland County Jail, Correctional Medical Services

Diane Roberts- Gerry, Maine Bureau of Health, Public Health Nursing

Sharon Ramey, Maine Bureau of Health, Public Health Nursing

Dan Rugierro, Centers for Disease Control, Atlanta, Georgia



Seattle-King County TB Control, Seattle-King County, Washington

Susanne Stewart, Maine Bureau of Health, Public Health Nursing

Work Group Participants

Ellen Bridge, Maine Bureau of Health, Public Health Nursing

Pam Correll, Maine Bureau of Health, Public Health Nursing

Luanne Crinion, Maine Bureau of Health, Public Health Nursing

Jane Davis, Maine Bureau of Health, Public Health Nursing

Kim Ferenc, Maine State Housing Authority

Nancy Fischer, Mid-Maine Homeless Shelter, Waterville, Maine

Diana Stiles Friou, Portland Public Health Division

Kathleen Gensheimer, Maine State Epidemiologist

Mary Ann Gleason, Maine Coalition to End Homelessness

Bruce Goodman, Tedford Shelter, Brunswick, Maine

Suzanne Gunston, Maine Bureau of Health, Division of Disease Control, TB Control

Dwane Hubert, Maine Bureau of Health, Division of Disease Control

Kelly McCarthy, Portland Public Health Division

Yvonne Mickles, Maine State Housing Authority

Jan Morrisette, Maine Bureau of Health, Public Health Nursing

Cindy Namer, Maine State Housing Authority

Nate Nickerson, Director, Portland Public Health Division



Sandra Niles, Maine Bureau of Health, Public Health Nursing

Diane Ober, Bureau of Health, Division of Disease Control

Beth Patterson, Director, Public Health Nursing, Maine Bureau of Health

Sally Lou Patterson, Director, Division of Disease Control, Maine Bureau of Health

Vicki Rea, Maine Bureau of Health, Division of Disease Control

Joyce Roy, Maine Bureau of Health, Public Health Nursing

Ann Ryan, Milestone Foundation, Portland, Maine

Marty Sabol, Portland Public Health Division

Jeanette Sherman, Maine Bureau of Health, Public Health Nursing

Lisa Sockabasin, Maine Bureau of Health, Division of Disease Control

Rob Shore, Bread of Life Ministries, Augusta, Maine

Karin Sinclair, Portland Public Health Division

Lisa Turner, Tedford Shelter, Brunswick, Maine



Appendix II

Statewide TB Shelter Needs Assessment Summary

July 2004

Maine Bureau of Health

Division of Disease Control

During the winter and spring of 2004, Public Health Nurses and Regional Epidemiologists visited shelters across the state to assess TB policies and educational needs of shelter programs. Information was gathered through interviews with shelter staff. Interviews of shelter staff in Portland were conducted by the Portland Public Health Division TB Nurse.

Twenty four of Maine's forty two shelters were surveyed, regarding demographics of guests, hours of operation, availability of nursing/medical care, TB policies and educational needs. A total of 745 beds were represented by the sample interviewed. The shelters surveyed were a mixture of family and adult shelters. Three (03) described their shelter as "wet".

Demographics: 83% of the 24 shelters surveyed, reported that most of their guests were US-born. Of the shelters surveyed, 62% reported that their guests were primarily from the geographic area in which the shelter was located.

Hours of operation: More than half (66%) of the shelters surveyed do not require their guests to leave the shelter during the day and 58% have twenty-four hour staff coverage. More than half of the shelters surveyed allowed their guests to receive shelter services for more than 30 days.

Facilities: Two (02) of the shelters surveyed reported having ultraviolet lights. Most reported some ability to open windows to enhance ventilation. Eleven of the shelters reported that they were able to provide a separate sleeping area for guests who are coughing.

Access to medical care: Three fourths of the shelters surveyed reported access to some nursing coverage, although only 2 shelters had access to 24 hour nursing coverage. Nursing and medical



coverage was patched together by a combination of paid staff and volunteers. Most of the shelters surveyed reported reliance on local emergency rooms and outpatient clinics to access health care for their guests.

TB Policies:

- ❑ Staff Skin Testing: 50% of the shelters surveyed currently utilize skin testing to screen their staff. 38% reported that staff were screened prior to employment but half require routine screening after hire. Only four (04) of the shelters surveyed required skin test screening of volunteers. Shelters utilized a variety of resources for screening, including; shelter nurses, occupational health services, local health departments primary care physicians and the Health Care for the Homeless program.
- ❑ Screening shelter guests: 70% of the shelters surveyed do not require their guests to be screened for TB by skin test, but 58% reported that they observe their guests for symptoms of chronic cough.
- ❑ TB policy needs: Shelter administrators were asked to define their TB policy assistance needs. The table below summarizes their responses (more than one area of need could be designated):

Needs of Shelters with Regard to TB	Number of Shelters Requesting
Assistance with TB screening for staff	12
Assistance with TB screening for guests	11
Assistance with TB policy development	14
Assistance with medical referral for guests with positive skin tests	14
Staff education about TB	15
Guest education about TB	13

Summary: Shelter programs in Maine serve primarily US- born homeless people in a combination of family shelters and shelters for single adults. Shelter guest census is reasonably stable, with 60% of shelters reporting that their guests are from the geographic area where the shelter is located.

On-site medical care and nursing coverage is not available for a large number of Maine shelters and medical care is pieced together from a variety of resources out side of the shelter. This may account for the low rate of shelter guest (30%) and staff (50%) skin test screening. Staff are



aware of TB symptoms, with 58% reporting heightened awareness of chronic cough in their guests.

More than half of the shelters visited requested assistance with on-site TB education and policy development.

