

# LICENSING ALERT

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**June 1997**

**Division of Drug and Alcohol Program Licensing  
Licensing Alert 6-97**

## **Minimum Content Requirements for Pennsylvania Department of Health Approved Curriculum for Tuberculosis and Sexually Transmitted Diseases**

According to the Rules and Regulations, Title 28-Health and Safety, Department of Health (28 Pa. Code §704.11(c)) Staffing for Drug and Alcohol Treatment Activities, "...staff and volunteers shall receive...at least four hours of tuberculosis, sexually transmitted diseases and other related health topics training using a Department approved curriculum". The following outlines were approved by the Department's Bureau of Preventive Health Programs and represent the minimum content requirements for the Pennsylvania Department of Health approved tuberculosis and sexually transmitted disease curriculums. Training on other related health topics is at the discretion of the treatment project and is contingent on the populations served. Topics to be considered may include hepatitis, childhood immunizations, lead poisoning, etc.

### **Minimum Content Requirements for Pennsylvania Department of Health Approved Tuberculosis Curriculum**

**Tuberculosis training shall include, at a minimum, an overview of:**

- History of TB

- Transmission of Tuberculosis
  - cause of tuberculosis
  - spread of tuberculosis
  
- Pathogenesis
  - tuberculosis infection
  - tuberculosis disease
  - sites of disease
    - pulmonary
    - extrapulmonary
    - miliary
  
- Epidemiology
  - tuberculosis is leading cause of death over age 5 around the world!
  - few deaths from tuberculosis in Pennsylvania but disease incidence is a concern with
    - 4.8 cases per 100,000 population in 1996
  - reporting requirements
  - reasons for increased cases in US between 1985 and 1993
  - determination of case rate
  - persons at higher risk for exposure of infection
  - persons at higher risk for tuberculosis disease
  - connection between HIV and tuberculosis
  - race/ethnicity and tuberculosis
  - tuberculosis in children
  
- Diagnosis of Infection and Disease
  - tuberculin skin test
  - screening programs
  - diagnosing disease
  
- Treatment of Infection and Disease
  - essentials of preventive therapy
  - disease treatment
  - adherence to therapy
  
- Infectiousness
  - factors affecting infectiousness of patient
  - children's level of infectiousness
  
- Infection Control Measures
  - components of an effective infection control plan
  - how staff members can assist in tuberculosis control efforts

## **TUBERCULOSIS TRAINING OBJECTIVES**

1. Briefly describe the history of TB.
2. Explain how TB is spread (transmission).
3. Explain the difference between TB infection and TB disease.
4. Explain how TB infection and TB disease develop (pathogenesis).
5. List risk factors for the development of TB disease.
6. Describe how human immunodeficiency virus (HIV) infection affects the pathogenesis of TB.
7. Describe how the number of TB cases reported in the United States has changed recently.
8. List the groups of people who are more likely to be exposed to or infected with *M. tuberculosis*.
9. List the groups of people who are more likely to develop TB disease when infected.
10. Describe the evidence that suggests that the HIV epidemic has contributed to the increase in the number of TB cases.
11. List the racial and ethnic groups that are disproportionately affected by TB.
12. Explain what TB disease in children indicates about the spread of TB in homes and communities.
13. Explain the purpose of the tuberculin skin test.
14. Explain when the patient's arm is examined and how induration is measured.
15. Describe the factors that can cause a false-positive reaction to the tuberculin skin test.
16. Describe the factors that can cause a false-negative reaction to the tuberculin skin test.
17. List the four steps in diagnosing TB disease.
18. Describe the symptoms of TB disease.
19. List the groups of people who should receive high priority for preventive therapy.
20. Describe the usual preventive therapy regimen, the regimen for children and HIV infected persons.
21. Describe the possible adverse reactions to isoniazid.
22. Explain why TB disease must be treated for at least 6 months.
23. Explain why directly observed therapy is important.
24. Describe the factors that determine the infectiousness of a TB patient.
25. Describe the main goal of an infection control program.
26. Describe how TB can be detected in a health care facility and explain what should be done when a patient is suspected of having TB.
27. Describe the precautions that health care workers should take when visiting the home of a TB patient who may be infectious.

## TRAINING OUTLINE

1. History of TB
  1. Disease has affected humans for centuries
  2. Until 1940's and 50's no cure available
  3. People sent to sanatoriums until 1970's
  4. Now TB is totally curable but challenging due to HIV, drug-resistance, apathy
2. Transmission of Tuberculosis
  1. Cause of Tuberculosis
    1. Caused by *Mycobacterium tuberculosis*
    2. *M. tuberculosis* organisms are sometimes called tubercle bacilli
  2. Spread of Tuberculosis
    1. Spread person to person through the air
    2. Although contagious, usually need sustained, continuous contact for transmission to occur (estimate 100 hours in contact with source case)
    3. Probability of transmission depends upon:
      - (1) How contagious is the TB patient?
      - (2) In what kind of environment did the exposure occur?
      - (3) How long did the exposure last?
3. Pathogenesis
  1. How Germs Get Into The Body
    1. Droplets enter the body when a person breaths in infected air
    2. Large droplets lodge in the upper respiratory tract and are unable to cause damage
    3. Small droplets may reach the air sacs within the lungs (alveoli)
    4. Tubercle bacilli multiply in alveoli and some enter the blood stream and are transported to

other body sites

5. It takes 2-10 weeks for the immune system to stop multiplication and to prevent further spread of the bacilli
  6. Immune system cells surround the bacilli and form a protective barrier
  7. These cell barriers can stay intact for a lifetime
2. Tuberculosis Infection
1. Bacilli remain "in check" and have no further multiplication
  2. Chest x-ray is usually normal
  3. Sputum smears and cultures are negative for *M. tuberculosis*
  4. Individual has no signs or symptoms
  5. Individual IS NOT INFECTIOUS TO OTHERS
  6. Individual is NOT a case of tuberculosis
  7. TB skin test is the only means to detect TB infection
3. Tuberculosis Disease
1. TB Disease occurs when the immune system can no longer keep bacilli under control
  2. Under normal physical conditions, 10% of persons with infection will develop TB disease over their lifetime
  3. Greatest risk of developing disease is within the first two years after exposure to an infectious case
  4. Chest x-ray is usually abnormal
  5. Sputum smears and cultures are usually positive for *M. tuberculosis*
  6. Symptoms are usually present to include: sustained cough, fever, weight loss, night sweats, fatigue, loss of appetite
  7. Often infectious to others prior to adequate

treatment being undertaken

8. Considered a "Case" of tuberculosis

#### 4. Sites of Disease

1. Pulmonary

- (1) Tuberculosis of the lungs
- (2) Usually infectious to others, at least initially

2. Extrapulmonary

- (1) Tuberculosis outside of the lungs (in bones, kidneys, brain, etc.) (TB can affect any part of the body)
- (2) Usually not infectious to others unless pulmonary TB is also present

3. Miliary

- (1) TB in the blood
- (2) Once in the blood stream, bacilli can be transported and lodge in many body areas

#### 4. Epidemiology

1. TB is leading cause of death over age 5 around the world!

##### 2. Reporting Requirements

1. All States require TB to be reported to the Health Department
2. In PA, all suspected and confirmed cases of TB must be reported to the State via the local health department
3. Private physicians and clinics must report tuberculosis
4. Confidentiality cannot be cited as a reason for not reporting to the health department
5. Laboratories must report all laboratory evidence of tuberculosis disease

3. The number of TB cases in US increased between 1985 and 1993 due to the following:

1. The HIV epidemic

2. Increased immigration, especially from countries with high prevalence of tuberculosis (most countries in Asia, Africa, South and Central America)
3. Increased spread in certain settings (correctional facilities, homeless shelters, long term care facilities)
4. Inadequate funding for TB control and public health efforts

#### 4. How To Determine Case Rate

1. Case rate is used to compare different places, time periods, groups of people
2. Formula: 
$$\frac{\text{Number of cases that occurred in a time period}}{\text{Size of population during the time period}} \times 100,000$$

of population during the time period

#### 5. People At Higher Risk For Exposure Of Infection

1. Close contacts to patients with infectious tuberculosis disease
2. Persons born in countries with high prevalence of tuberculosis
3. Elderly persons
4. Low income groups with poor access to health care including homeless
5. Illicit drug users (abusers)
6. People who live or work in residential facilities (long-term care facilities, correctional facilities, etc)
7. Health care workers

#### 6. People At Higher Risk For Tuberculosis Disease

1. Individuals with AIDS (risk is 170 times higher than individual with no risk factors)
2. Individuals with HIV (risk is 113 times higher)
3. Individuals with recent TB infection (within 2 years) (risk is 15 times higher)

4. Individuals with certain medical conditions such as diabetes, silicosis, cancer, immunosuppressive therapy (risk is 3-16 times higher)
  5. Individuals with other risks
    - (1) Injection of illicit drugs
    - (2) Previous history of tuberculosis disease
7. Connection Between HIV and TB
- Clear evidence links HIV and TB including:
1. Areas with HIV epidemics also reported the largest increase in TB
  2. The largest TB increase between 1985 and 1992 was in individuals between 25 and 44 (age group most affected by AIDS)
  3. TB is common among AIDS patients
  4. HIV infection is common among TB patients
8. Race/Ethnicity and TB
1. TB affects certain races and ethnicities disproportionately
  2. Highest case rates found in non-Hispanic blacks, Hispanics (any race), Asians and Pacific Islanders, American Indians, and Alaskan natives
  3. Relative risk
 

(1) Asian/Pacific Islander	12 times
greater than non- Hispanic white (NHW)	
(2) Non-Hispanic black	8 times greater
than NHW	
(3) Hispanic (any race)	6 times greater
than NHW	
(4) American Indian/Alaskan Native	4 times
greater than NHW	
(5) Non-Hispanic white	1
9. TB In Children
1. TB is becoming more common in this population

2. Significance:
  - (1) TB was transmitted to the child recently
  - (2) Person transmitting TB to the child may still be infectious
  - (3) Others in the household have probably been exposed and are at risk
  - (4) Children have a greater likelihood of developing more serious forms of the disease including TB meningitis

## 5. Diagnosis of Infection and Disease

### 1. Tuberculin Skin Test

1. Tuberculin is used for diagnosing TB infection. It is NOT a vaccine
2. Test material is made from tubercle bacilli that have been killed by heating
3. Uses for the TB skin test:
  - (1) Examining person who is not sick but may have TB infection
  - (2) Screening groups for TB infection
  - (3) Examining person who has symptoms of TB disease
4. Mantoux tuberculin skin test is the preferred testing method. Multi-puncture tests are unreliable
5. Most people with TB infection will react to the skin test (except some people with AIDS/HIV and some people with active disease)
6. Test is read 48 to 72 hours after placement
7. Test is read in millimeters (mm) across forearm (usual test site)
8. Only induration is measured (raised firm area) - redness is not measured
9. Reactions are classified according to risk factors
  - (1) 5 or more mm is positive for:

- (1) HIV infected persons
  - (2) Close contacts of infectious case
  - (3) Persons with previous TB by x-ray results
  - (4) Injecting drug users with unknown HIV status
- (2) 10 or more mm is positive for:
- (1) Persons from high prevalence countries
  - (2) Illicit drug injectors who are know HIV negative
  - (3) Low income persons with poor access to health care
  - (4) Residents and staff of residential facilities
  - (5) People with medical risks other than HIV
  - (6) Children less than 4 years of age
  - (7) Individuals who pose risk to large numbers of susceptible individuals (i.e., some health care workers, teachers) (this is discretionary)
- (3) 15 or more mm is positive for persons with no known risk factors
10. Once an individual tests positive, he/she will always be positive and should not take any additional tuberculin skin tests
11. Cause of false-positives
- (1) BCG vaccination: This TB vaccination is routinely used in many countries but not in the United States
  - (2) Infection with nontuberculous mycobacteria
12. Cause of false-negatives
- (1) Anergy- the inability to react to a skin test because of a weakened immune system, often caused by HIV infection or severe illness

- (2) Recent infection (infected within past 10 weeks)
- (3) Very young age (children less than 6 months may not be able to react to the test)
- (4) Having advanced tuberculosis disease may actually create a negative test

## 2. Screening Programs

1. Baseline results established on entry to program/work/etc.
2. Retest high risk persons periodically to test for conversion (shows recent infection)
3. Booster phenomenon
  - (1) A phenomenon in which people (especially older adults) who are skin tested many years after becoming infected with *M. tuberculosis* may have a negative reaction to an initial test, followed by a positive reaction to a skin test given up to a year later; this happens because the first skin test boosts the immune response.
  - (2) Two-step testing
    - (1) Used in TB screening programs to tell the difference between boosted reactions and reactions caused by recent infection
    - (2) If a person has a negative reaction to an initial skin test
      - (1) A second test is given 1 to 3 weeks later
      - (2) A positive test at this point probably represents a boosted reaction and not recent infection

## 3. Diagnosing Disease

1. There are four steps to diagnosing disease:
  - (1) Taking a medical history

- (1) Does patient have known exposure?
  - (2) Does patient have symptoms of disease?
    - (1) Coughing longer than 3 weeks
    - (2) Pain in chest when coughing/breathing
    - (3) Coughing up sputum or blood
    - (4) Weight loss
    - (5) Fatigue
    - (6) Malaise
    - (7) Fever
    - (8) Night sweats
  - (3) Has patient had previous TB infection or disease?
  - (4) Does patient have risk factors for developing TB disease?
- (2) Tuberculin skin testing results
  - (3) Chest x-ray examination
  - (4) Bacteriologic exam: Confirmation of tuberculosis disease can only be made by laboratory culture results
2. Criteria for reporting tuberculosis disease
- (1) Positive culture for *M. tuberculosis*
  - (2) Positive smear for acid fast bacilli (AFB), culture not done or cannot be done
  - (3) Positive skin test, other signs and symptoms, is being treated with 2 or more TB drugs and has been given a complete diagnostic exam
6. Treatment of Infection and Disease
1. Essentials of Preventive Therapy
- 1. Preventive Therapy is medication given to people with infection to prevent them from developing TB disease
  - 2. Who should get preventive therapy is determined based on age, risk of developing disease, medical

condition and other factors determined by the physician

3. The normal preventive therapy schedule is to take the medication isoniazid (INH) for a period of 6 months

- (1) The recommended therapy for children is 9 months

- (2) The recommended therapy for HIV infected individuals is 12 months

4. Adverse reactions to to look for when patient is taking INH:

- (1) Nausea

- (2) Vomiting

- (3) Abdominal Pain

- (4) Fatigue

- (5) Dark Urine

## 2. Disease Treatment

1. Treatment for TB takes a long time as the bacilli take a long time to kill

2. Therapy for at least 6 months is necessary to cure TB

3. At least 2 drugs are always used together to cure TB

4. Therapy should begin with 4 drugs until it is determined that the germs are susceptible to to the two primary drugs

## 3. Adherence to Therapy

1. There is no way to determine who will adhere to a therapy regimen

2. Directly Observed Therapy (DOT) is the only way to ensure that the medications are getting into the patient

- (1) Involves having a health care worker witness

the ingestion of every dose of tuberculosis medication

- (2) Therapy is given in a site most convenient to the patient
- (3) This concept of having the health care worker responsible for the treatment and not the patient goes against the philosophy of most substance abuse treatment agencies that put the patient in charge of his/her destiny
- (4) Accepting this deviation is critical to the elimination of tuberculosis

3. Use of Incentives and Enablers

- (1) Patients may need incentives (food, clothing, etc) to entice them to continue therapy
- (2) Patients may also need enablers (cab fare, mass transit tokens, etc) to get to appointments
- (3) Incentives and Enablers should be geared to individual patient needs to help them to complete therapy

4. Patient Education is crucial to understanding the disease and treatment process

5. Consideration of the "whole person concept" is necessary when treating tuberculosis patients

6. Referrals to appropriate agencies (DPW, Housing, soup kitchens, Salvation Army, etc) may be necessary

7. Infectiousness

1. Factors Increasing the Potential Infectiousness of Patient

1. The patient's site of disease (pulmonary and laryngeal most infectious)
2. Cavitation on the lung x-ray
3. Patient coughing
4. Patient refusal or inability to cover his/her

- mouth when coughing
- 5. Acid Fast Bacilli on laboratory smear
- 6. Inadequate therapy regimen (less than 2-3 weeks on therapy)
- 7. No clinical improvement

## 2. Children's Level of Infectiousness

Children are much less likely to be infectious than are adults

## 8. Infection Control Measures

### 1. Components of an Effective Infection Control Plan

- 1. Detect TB disease early
- 2. Promptly isolate and treat all suspected TB patients
  - (1) Place patient in an area away from others (preferably in an isolation room)
  - (2) Give patient a surgical mask and tell them to keep it on over both the nose and mouth
  - (3) Give tissues to the patient and tell them to cover the nose and mouth when coughing, sneezing, etc. even when in an area away from others
  - (4) Create a temporary negative pressure room, if warranted, by opening room window, placing fan in window blowing outside on high, keep doors to room closed to create a pull of the air from the inside to the outside
  - (5) Trying to create a negative pressure area should only be used in emergency situation
  - (6) Contact the physician and/or health department ASAP for patient evaluation

### 2. How Staff Members Can Assist in Tuberculosis Control Efforts

- 1. Recognize the signs and symptoms of TB disease
- 2. Know how to handle a person that may have

- undiagnosed TB disease
3. Assist in the treatment process by supporting patient, recognizing need for intervention of other agencies, helping with DOT if requested to do so by the health department

**Minimum Content Requirement for Pennsylvania Department of Health Approved Sexually Transmitted Disease (STD) Curriculum**

**Sexually transmitted disease training shall include, at a minimum, an overview of:**

- Transmission of Sexually Transmitted Diseases (STD)
  - immune response
  - agent, host and environment interaction
  - modes of transmission
  - incubation
  - human anatomy
  - vocabulary - STD
  
- Types of Common Sexually Transmitted Diseases (STD)
  - bacteria - syphilis, gonorrhea
  - viruses - herpes, hepatitis, genital warts
  - chlamydia
  - fungi - yeast
  - metazoa - scabies, pubic lice
  - mycoplasmas - non-gonococcal urethritis
  - protozoa - trichomoniasis
  
- Epidemiology of Sexually Transmitted Diseases (STD)
  - incidence and prevalence rates of major STD
    - place - County at a minimum
    - age, race and ethnicity and sex

signs and symptoms of STD

syphilis, gonorrhea and chlamydia

other STD - viral

other STD - other than viral

treatment for STD

tests for STD - Types and Interpretation

screening

diagnostic

legal requirements - rape, assault, child abuse

synergy - HIV/STD

risk of transmission

test results

treatment

- Prevention of Sexually Transmitted Diseases (STD)

abstinence

barrier protection - male and female condoms, dental dams

safer sex practices

recommendations for health care workers

pregnancy

- Disease Control Measures

QSOA's - Confidentiality

reporting requirements

laboratories

physicians

State, County and Municipal STD Program Representatives

interviewing priority STD patients

preventive treatment of exposed partners

technical assistance in diagnosis, therapy and follow-up

testing requirements

prenatal

premarital

delivery - Philadelphia only

- References

Disease Prevention and Control Law of 1995

regulations for Communicable and Noncommunicable Diseases and conditions

Sexually Transmitted Disease Treatment Guidelines, USDHHS, PHS, CDC, MMWR 1993; 42 (No. RR-14) - scheduled for an update in Fall 1997

STD Clinics in Pennsylvania - By City - STD, PO Box 90, Harrisburg, PA, 17108

**Note:** These outlines may be used in training sessions that address either tuberculosis or sexually transmitted disease, however, the Department recommends that training instructors blend the HIV/AIDS, TB and STD outlines as there is considerable overlap among the conditions and many of the risk reduction efforts apply to all three health issues.

The treatment project/facility is responsible to obtain qualified trainers who are knowledgeable of the content of each outline.