NEW YORK STATE Corrections and Community Supervision **DIRECTIVE**	TITLE **Tuberculosis Control Program**		NO. 4322 DATE 1/7/2016
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REFERENCES (Include but are not limited to) HSPM 1.18; Directive #4068	APPROVING AUTHORITY Carl Koenigsmann MD		

I. POLICY: The Tuberculosis (TB) Control Program of the Department of Corrections and Community Supervision (DOCCS) is based on a hierarchy of control measures. Administrative measures, engineering, and work practice controls reduce the risk of exposure to patients with contagious TB.

A. Administrative controls include policies to ensure the rapid detection, isolation, diagnostic evaluation, and treatment of persons likely to be infected with TB. These policies are applied in DOCCS through Health Services Policy Manual (HSPM) 1.18, Tuberculosis.

B. Engineering controls refer to properly designed and maintained isolation rooms and areas for cough-inducing procedures.

C. Work practice controls are measures which workers can use to minimize the duration of exposure to a work hazard. Examples relevant to tuberculosis control include keeping isolation room doors closed, organizing tasks to reduce the number and duration of trips into isolation rooms, and the use of personal protective equipment (PPE). The PPE device that is effective against tuberculosis transmission is the particulate respirator specified in Directive #4068, "Respiratory Protection Program." These measures reduce, but do not eliminate, the risk of TB transmission.

D. <u>Definitions</u>

1. Balometer: A large handheld device consisting of an electronic section with a digital readout and a fabric or plastic "hood" section, which is placed over an air supply diffuser or exhaust air grill in order to measure the volume of air flowing (air flow) in to or out of a diffuser or grill, as expressed in cubic feet of air per minute.

2. Continuous Air Pressure Differential Monitors (see Section V-D-4 below): A device used to continuously measure the pressure difference between the isolation room and the anteroom which is designed to alarm when the appropriate pressure readings are not obtained. This device can take the form of one of two types: the first is a small ping-pong ball contained inside a clear tube which indicates the direction of air flow, from the room with higher pressure to the room with lower pressure, by indication of which end of the tube the ball is pushed; the alternate method includes electronic sensors located in the supply and exhaust ductwork which, in conjunction with a digital environmental control system, provides a direct readout of the status of the air pressure differential between the two spaces.

3. Manometer: A handheld device used to measure a difference in pressure between two points or spaces.

4. Smoke Tube: A handheld tubular capsule that, when activated, produces a small quantity of harmless smoke which can be used to indicate the direction of air flow.

II. SCOPE: This directive applies to all employees in the Department.

III. RESPONSIBILITY

A. Deputy Commissioner/Chief Medical Officer

1. Development and periodic reassessment of the TB Control Plan;
2. Determines risk assessment for work areas in the Department;
3. Advises Central Office Infection Control Unit on the analysis of TB control data;
4. Consults with facility Health Unit staff on clinical management of TB patients and matters of Departmental policy; and
5. Determines policy changes to enhance TB control efforts.

B. Assistant Commissioner for Health Services or Designee

1. Prepares periodic summary reports detailing employee participation in the program; and
2. Monitors program compliance.

C. Central Office Infection Control Unit

1. Supports compliance with the TB Control Program;
2. Assists facilities with performance of tasks required by the program;
3. Collects, analyzes, and presents data required for periodic reassessment of the TB Control Plan;
4. Monitors employee TB test data; notifies the Deputy Commissioner/Chief Medical Officer, Superintendent(s) or Bureau Chief(s), and local Public Health Department when:
    a. Skin test data show clusters or unusual numbers of skin test conversions (clusters of skin test conversions will be defined as two or more skin test conversions in the same work unit occurring within three months of each other); or
    b. Evidence of patient-to-patient or patient-to-staff tuberculosis transmission is observed.
5. Works with local Health Departments in investigating clusters of skin test conversions and incidents of patient-to-patient or patient-to-staff TB transmission;
6. Maintains a registry of all inmates with known or suspected cases of TB disease; the TB registry will include all clinical laboratory and radiological data pertinent to diagnosis; and
7. Monitors care provided to inmates with suspected or known TB; reviews charts of all inmates treated for TB disease and reports clinical data to the TB registry.

D. Superintendent or Bureau Chief

1. Ensures that all employees comply with TB testing annually and as directed in a contact investigation;

2. Ensures that engineering controls and PPE are available and properly maintained;
3. Identifies qualified staff who will monitor ventilation in airborne infection isolation rooms;
4. Ensures the confidentiality of employee TB testing records;
5. Designates a member of the Executive Team as TB Screening Coordinator; and
6. Ensures that all facility employees complete training required by Section VI below.

E. Facility Plant Superintendent

1. Ensures that isolation room air testing policies and procedures are followed;
2. Ensures that each facility with airborne infection isolation rooms possess a set of test equipment (balometer, manometer, and smoke tubes), which are kept in good condition and calibrated in accordance with manufacturer's recommendations. This equipment is mandatory in order to comply with Section V-B-3 below, regardless of the New York State Office of General Services (OGS) involvement in quarterly or semi-annually testing requirements;
3. Trains staff in procedures for isolation room air testing;
4. Maintains records of tests and test results;
5. Immediately reports test results that do not meet standards to Nurse Administrator, Deputy Superintendent for Administration, and Facilities Planning;
6. In many cases, OGS Technical Services Unit can be utilized to perform the three month and six month air flow testing described in Section V-B-1 below. In these cases, the Plant Superintendent shall still maintain records of tests and test results and make the appropriate contacts outlined above in cases where a test does not meet standards.

F. Tuberculosis Screening Coordinator

1. Arranges dates and times for Health Services staff to administer and read employee Mantoux PPD tests. Central Office Infection Control Nurses will assist the TB Coordinator in this task;
2. Ensures that employees comply with testing; consults Employee Occupational Health Tracking System (KOCH) and notifies employees at least two weeks before indicated testing is due;
3. Coordinates with the Nurse Administrator and staff to provide initial and annual testing; and
4. Notifies Superintendent or Bureau Chief of employees who do not comply with notices of required testing, or who refuse testing. Reports employees who refuse indicated testing to Labor Relations for possible disciplinary action.

G. Health Unit Staff

1. Complies with HSPM 1.18 to ensure rapid detection, isolation, diagnostic evaluation, and treatment and/or appropriate referral of persons likely to have TB;

2. Performs employee tuberculin skin tests; informs employees of test results and provides a copy of the test record to the employee upon request;
3. Forwards tuberculosis and TB test information to the Personnel Office for filing and entering into KOCH; and
4. Records (in millimeters) new positive skin tests on Form #3107, "Positive TB Test Follow-Up," and Form #1203, "Employee Accident/Injury Report."

H. Personnel Staff

1. Maintains records of test dates, results, and notes of employee refusals; and
2. Ensures that this data is entered into KOCH by personnel staff.

I. Employee

1. Complies with TB Control Program;
2. Uses engineering controls and PPE when indicated; and
3. Must have TB testing annually and as directed in a contact investigation.

IV. TUBERCULOSIS SCREENING PROGRAM: Every employee, as well as others working regularly for DOCCS, must have Mantoux PPD skin testing annually and as directed in a contact investigation.

Exceptions include:

- Employees with a documented prior positive TB test will not be retested. They are permanently exempted from tuberculosis skin testing requirements.
- If the prior positive test was not performed by DOCCS staff, the employee must provide, on a one-time-only basis, written documentation from a physician specifying the date and type of TB test. The Mantoux test documentation should include the date and measured response in millimeters. Employees unable to provide this documentation must be retested.

A. New employees must have a Mantoux test at the time of employment. Positive results are acceptable from any date. Only results showing the type of test, date of testing, and measured results in millimeters are considered valid;

B. The Tuberculosis Screening Coordinator will ensure that employees are informed of needed testing before the anniversary date of their last recorded skin test;

C. Mantoux skin tests will be performed in accordance with current New York State Department of Health (DOH) guidelines;

D. Mantoux tests will be considered positive if they produce ten millimeters of induration at the site of injection. Five millimeters of induration will be considered positive for employees with immune system suppression or those tested in the setting of a contact investigation;

E. Employees who choose to have TB testing done by a personal physician must do so at their own expense and submit documentation of the type, date, and measured response (in millimeters) within two weeks of notice that the test is due;

F. Employees with a new positive skin test will be advised to see their private physician or county health authority for follow-up evaluation, including a chest x-ray, within two weeks. Therapy to prevent progression to TB disease is recommended for all previously untreated persons with a positive skin test;

G. Employees that bring documentation of past positive TB tests and chest x-ray screening from the time frame prior to DOCCS employment should be assessed regarding prior treatment:

- Those new employees who give a history of prior TB infection treatment – chest x-ray **is not required**.
- Those new employees **without** prior TB infection treatment – chest x-ray **is required**;

H. Annual chest x-rays are not necessary for continued employment in DOCCS for those individuals with past positive TB tests; and

I. Employees with a new positive skin test who exhibit symptoms of TB disease (see definitions in HSPM 1.18) must be excluded from the workplace. This exclusion will be maintained until they produce documentation from their physician or county health authority showing that a diagnosis of TB disease has been ruled out.

V. ISOLATION ROOM AIR TESTING

A. Equipment

1. The equipment for isolation room air testing will be available in those facilities with negative pressure rooms. This will include a balometer, a manometer, and smoke tubes.

B. Frequency of Monitoring

1. The air flow into and out of the airborne infection isolation rooms and anterooms will be tested and measured at least every six months, as described in Section C below.
2. The negative pressure differential between the airborne infection isolation room and anterooms will be demonstrated daily while the room is in use as outlined in Section D below. If not currently in use for patients with suspected or active TB, the isolation rooms should be checked monthly.
3. The airborne infection isolation room and anteroom air flow will be done immediately prior to a patient being admitted to respiratory isolation. Due to the urgency of the situation, the Plant Superintendent or designee must be prepared to complete this test as described in Section C below immediately.

C. Air Flow Measurement Procedure

1. Airborne infection isolation room and anteroom air flow (supply and exhaust) will be measured in cubic feet per minute with a balometer; and
2. Air changes per hour will be calculated with the following formula:

ACH = (CFM x 60) / VOL

ACH Air Changes per Hour
CFM Cubic Feet per Minute
VOL Room Volume = length x width x height (measured in feet)

D. Measurement of Air Pressure Differentials

1. Air pressure differentials must be tested by using the smoke tube method. This will be done immediately prior to patient admission, daily while occupied for airborne isolation, or at a minimum of monthly when not in use.
2. Smoke tube method: The smoke tube is placed near the bottom of the door separating areas for which air pressure is to be compared. The long axis of the smoke tube should be parallel with the door. A small amount of smoke is generated by gently squeezing the smoke tube bulb. Care should be taken not to direct the smoke stream into either room through the force of squeezing the bulb. The smoke will travel in the direction of air flow. Stationary smoke indicates stagnant air. Air flows from positive to negative pressure.
3. **If the negative pressure room does not pass the smoke test, the patient will be moved immediately to a working negative pressure room, and the Plant Superintendent will be notified**.
4. Continuous air pressure differential monitors must be inspected for proper operation every month. These monitors (see Definitions for a description of the monitors) are an additional measure to indicate the negative pressure status of the airborne infection isolation room at any given point in time. These monitors are not to be relied on solely and the smoke tube test method must still be used as outlined above to determine the proper operation of the ventilation and exhaust systems.

E. Air Flow and Pressure Differential Standards

1. Isolation rooms constructed before 1994:
   a. At least 6 air changes per hour in the isolation room;
   b. At least 10 air changes per hour in the anteroom (if present); and
   c. Isolation room shows negative pressure to anteroom or adjacent corridor.
2. Isolation rooms constructed in or after 1994:
   a. At least 12 air changes per hour in the isolation room;
   b. At least 20 air changes per hour in the anteroom (if present); and
   c. Isolation room shows negative pressure to anteroom or adjacent corridor.

3. Airborne infection isolation room purge times will be posted outside the room and within the Medical Unit. Purge times are the calculated period of time, based on the number of air exchanges per hour, required for removal of contaminated air from the isolation room. Perfect air mixing does not always occur, therefore a mixing factor of 3 will be used to ensure adequate removal of the contaminated air from negative pressure rooms (see table below). Respiratory protection is not required if entering the negative pressure room after the purge time has elapsed. **If an isolation room must be entered before the purge time has elapsed, respiratory protection is required.**

PURGE TIMES FOR REENTRY INTO ISOLATION ROOMS
Air changes per hour (ACH) and time required for removal of 99.9% of airborne contaminants.

ACH	Minutes Required	3X – Hours Required
1	414	20.7
2	207	10.35
3	138	6.9
4	104	5.18
5	83	4.14
6	69	3.45
7	59	2.96
8	52	2.59
9	46	2.3
10	41	2.07
11	38	1.88
12	35	1.73
13	32	1.59
14	30	1.48
15	28	1.38
16	26	1.29
17	24	1.22
18	23	1.15
19	22	1.09
20	21	1.04

F. Record Keeping

1. All air flow and pressure differential measurements will be recorded.
2. The record of air flow and pressure differential measurements will be maintained by the Facility Plant Superintendent. This record must be readily available to facility health staff as well as other appropriate personnel.
3. At a minimum, the following data must be recorded at the frequency designated in Section V-B above:
   a. Date and time of test;
   b. Room number;
   c. Air pressure differential test method and result;
   d. Air flow measurements: supply and exhaust CFM, calculated ACH;
   e. Any action taken as a result of test;
   f. Name and signature of person doing the test; and
   g. Name and signature of person interpreting test result.

   (An MP2 Program Work Order History Record containing the above information will suffice.)

VI. TRAINING

A. Tuberculosis Risks and Prevention

1. All employees will receive training regarding TB and methods to prevent transmission. Employees assigned to health care units, transport staff, and staff posted to hospitals will be trained prior to their initial work assignment. TB training will be repeated for all employees annually.
2. TB training will be appropriate for duties and background of each employee, but will include at a minimum:
    a. Basic concepts of TB transmission;
    b. The potential for occupational exposure;
    c. Infection control principles and practice that reduce the risk of TB transmission;
    d. The purpose of PPD testing;
    e. The principles of preventive therapy for latent TB infection;
    f. The responsibility of employees to promptly seek medical attention if they develop symptoms consistent with TB disease;
    g. The principles of drug therapy for active TB;
    h. The responsibility of employees to notify their facility if they are diagnosed with TB disease;
    i. The responsibility of DOCCS to confidentially manage employee medical information while ensuring that employees with contagious TB are excluded from the workplace; and
    j. The higher cases of TB for individuals with Human Immunodeficiency Virus (HIV) or other medical conditions that compromise the immune system.

B. Training for Isolation Room Air Flow and Pressure Differential Monitoring

1. Facility Plant Superintendents will designate and train sufficient qualified staff to meet the isolation room monitoring needs of their facility.
2. Training for air flow and pressure differential monitoring will include at a minimum:
    a. Calibration of test equipment;
    b. Proper use of test equipment including training video;
    c. Recognition of problems; and
    d. Record keeping requirements.