

WEISMAN CHILDREN'S REHABILITATION HOSPITAL (WCRH)

INFECTION CONTROL MANUAL

SUBJECT: Tuberculosis Infection Control Plan

No: 500

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IC. 1.10, 3.10

PURPOSE:

To reduce the risk of occupational transmission of tuberculosis and ensure early detection and appropriate management of cases of tuberculosis infection and disease through the following control mechanisms:

1. Administrative measures to reduce the risk of exposure.
2. Use of engineering controls to prevent the spread and reduce the concentration of infectious droplet nuclei in the air.
3. Use of personal respiratory protective equipment

I. RESPONSIBILITIES

- A. The Director of Quality/Risk Management and the Infection Control Professional have the responsibility to develop, review, and revise the Tuberculosis Infection Control Plan.
- B. The Medical Director has the responsibility to review the plan for medical appropriateness.
- C. The Administrator has the responsibility to review the plan for the issues related to personnel.
- D. The Nurse Executive has the responsibility for acquisition and distribution of supplies and equipment required to implement this plan.
- E. The Plant Operations Supervisor (Kessler) has the responsibility for the establishment and maintenance of a negative pressure room.
- F. The Rehabilitation Nurse Educator, Infection Control Professional, and Department Directors are responsible for aspects of employee education, implementation, enforcement, and the ongoing monitoring of compliance with the Tuberculosis Infection Control Plan.

All personnel have the responsibility for review of the plan and compliance with established policies and procedures.

II. COMPONENTS OF THE TUBERCULOSIS INFECTION CONTROL PLAN

- A. Periodic risk assessment to include a review of the case load of TB patients within the hospital during the previous period and an analysis of the results of health care worker PPD skin testing.
- B. Policies and procedures for employee screening for tuberculosis based upon the results of risk assessment.
- C. Policies and procedures developed to ensure the early detection, reporting, and case management of patients suspicious for or with active tuberculosis.
- D. Establishment and maintenance of a negative pressure room.
- E. A respiratory protection program including acquisition and distribution of required supplies and equipment (e.g. masks, gloves, gowns) should WCRH treat an actively infected patient.
- F. Education programs for health care workers.

III. PLAN IMPLEMENTATION

A. Risk Assessment

- 1. Risk Assessments are to be conducted at least annually and more often as needed. This assessment includes an analysis of the number of patients with the diagnosis of active TB during the previous period. A review of the medical records of those patients with active pulmonary tuberculosis includes elements recommended by the Centers for Disease Control and Prevention (CDC).

a. Calculating intervals from:

- i. Admission until TB suspected
- ii. Admission until TB evaluation performed
- iii. Admission until acid fast bacilli (AFB) specimen ordered
- iv. AFB specimens collected until microscopic exams performed and results reported
- v. AFB specimens collected until species identification done and results reported
- vi. AFB specimens collected until drug susceptibility testing done and reported

b. Questions to be considered during chart review:

- i. Were appropriate criteria used for discontinuing isolation?
- ii. Was there a history of a previous admission to this hospital?
- iii. Was the TB treatment regimen adequate?
- iv. Were follow-up sputum specimens collected?
- v. Was appropriate discharge planning conducted?

- vi. Was public health notification conducted with emphasis on continuation and completion of therapy?
- 2. Risk assessment includes an analysis of the rates of employee TB skin test conversions.
- 3. Information obtained through the risk assessment will be used to determine the frequency of repeat skin testing. In addition, problems identified in the risk assessment may result in modification in the Tuberculosis Infection Control Plan.
- 4. A risk designation will be assigned for the hospital and if necessary, for employees. Categories of risk designation, as issued by the CDC, are as follows:
 - a. “Low risk” areas or groups are those in which (1) PPD test conversion rate is not greater than in areas or groups without occupational exposure to TB patients or than previous rates in the same area or group, (2) there are no clusters of PPD conversions, (3) there is no evidence of patient-to-patient transmission, and (4) (in the case of an area) there are <6 TB patients hospitalized each year.
 - b. “Intermediate risk” areas or groups are those in which (1) the PPD test conversion rate is not greater than in areas or groups without occupational exposure to TB patients or than previous rates in the same area or group, (2) there are no clusters of PPD conversions, (3) there is no evidence of patient-to-patient transmission, and (4) there are >6 TB patients hospitalized each year.
 - c. “High risk” areas or groups are those in which (1) the PPD test conversion rate is significantly greater than areas without occupational exposure to TB patients or than previous rates in the same area or group, or (2) there is a cluster of PPD test conversions, or (3) there is other evidence of patient-to-patient or patient-to-health care worker transmission of M. Tuberculosis.

B. Policies and Procedures for Employee Screening for TB

- 1. Tuberculosis screening is available to all employees at no cost. Tuberculosis screening (upon employment and at intervals determined by the risk designation of the hospital or group/employee category) is required for all personnel. Frequency of TB screening per risk designation is as follows:
 - a. Low risk – Risk assessment repeated annually.
 - b. Intermediate risk – Tuberculosis screening and risk assessment annually.
 - c. Potential Ongoing Transmission – Immediate problem evaluation, tuberculosis screening every 8 to 10 weeks until lapses in infection control have been corrected and no additional evidence of ongoing transmission is apparent.
 - i. This is a temporary classification, warranting immediate investigation and corrective steps. After determination that ongoing transmission has ceased, WCRH would be reclassified as medium risk.

2. Tuberculosis screening for non-reactors includes PPD skin testing using the Mantoux method. The tests are administered and read by the Infection Control Practitioner or other nursing personnel. Personnel can have TB skin testing done by an appropriate health care professional other than the facility staff, e.g., the person's private physician, if the skin testing results and any necessary follow-up evaluation are documented and shared with the Infection Control Practitioner.
3. Employees are required to have the skin test "read" 48 - 72 hours after administration of the PPD. Employees are not allowed to read their own reaction to PPD.
4. New employees are screened initially using the "two-step" method. This method includes a repeat PPD skin test within 1 to 3 weeks of a negative result of the first test. A TB blood test is acceptable for new employees, but will not be provided or reimbursed by WCRH.
5. An employee with a new conversion to positive PPD reactor status or whose conversion to positive is less than two years old is required to have medical evaluation (unless the employee completed a course of anti-TB therapy).
 - a. When medical evaluation reveals no evidence of active tuberculosis, the employee is required to present a physician's statement, to that effect, to the Infection Control/Employee Health Professional. The statement should also include the planned course of preventative therapy, if applicable. This statement will be maintained in the employee's health file. The employee is allowed to work without restriction upon presenting the release from the physician
 - b. Should medical evaluation reveal evidence of suspicion of active tuberculosis, the employee is required to remain off work until TB is ruled out or the employee is determined to be noninfectious. When pulmonary or laryngeal TB is diagnosed, generally accepted criteria for diminished level of infectivity include institution of adequate treatment, resolved cough, and three consecutive sputum smears negative for AFB, collected 8 to 24 hours apart with at least one being an early morning specimen. The employee must be released by the physician as noninfectious and fit for duty. Employees receiving anti-tuberculosis therapy must report progress on therapy to the Infection Control/Employee Health Professional at least one time per month and upon completion of the course of therapy. This information is to be documented in the employee's health file. **NOTE:** Work restrictions generally do not apply when the active TB is in a site other than the lung or larynx. Non-pulmonary active TB is not usually infectious with the following exceptions: a) non-pulmonary disease located in respiratory tract or oral cavity or (b) draining open TB abscesses or lesions.
 - c. Health care worker TB skin test conversions are to be documented on OSHA 300 log (except pre-employment conversions). If the employee develops active TB this information is added to the original entry and these occurrences are not counted as two reports.

- d. The Workers' Compensation Representative submits applications for employees with claims related to occupational injury or illness.
 - e. Public health reporting will be carried out as required by law.
 - f. Contact investigation, coordinated by the Infection Control Professional, is performed in the presence of evidence that an employee may have exposed other personnel or patients to tuberculosis. The assistance of the public health department will be requested if needed.
6. Employees who: (a) convert to positive PPD reactor status, (b) do not have evidence of active tuberculosis disease, and (c) cannot or will not take preventative therapy are required to obtain medical evaluation and a chest x-ray. Follow up chest x-ray is required if the employee becomes symptomatic.
 7. PPD reactors whose conversion to positive occurred more than two years ago or who have completed a course of therapy, are screened through completing a Tuberculosis Questionnaire. The Tuberculosis Questionnaire is designed to remind the employee of the signs and symptoms of pulmonary tuberculosis and to ensure prompt recognition, reporting and follow-up of changes in health. PPD reactors will not be screened through PPD skin testing. Reported changes in health status that are suggestive of tuberculosis and not explained by other causes (for example, weight loss that is not the result of a weight reduction diet) are an indication that the employee must undergo medical evaluation to rule out active TB.
 8. In the event of a TB exposure, as occurs when a patient is diagnosed with active tuberculosis and health care providers have been in contact with the patient without respiratory precautions, an exposure investigation is conducted. Baseline TB screening will be carried out and, if negative, repeated in three months. Baseline screening is not required for an employee who has been screened for TB in the three months prior to the recognition of the exposure. Employees who convert to positive will be managed as described above. Reporting and recording will be carried out as described above.
 9. Employee health records are maintained in a secure manner within the Infection Control/Employee Health Professional's office. Every effort is made to preserve the confidentiality of employee health records. Such records are maintained for the duration of employment plus 30 years.

C. Early Identification and Management of Tuberculosis

Transmission of TB is most likely to occur from patients with unrecognized pulmonary or laryngeal TB. An effective TB control plan requires early detection, isolation, and treatment of persons with active infectious TB.

1. The Clinical Liaison seeks information about TB in initial data collection. If applicable, a request is made for available reports from TB skin testing, sputum microscopic exam (smear) or culture and/or chest x-ray to be included with documentation in the patient's admission packet.

2. All patients screened for admission to the facility are assessed for factors or conditions which place the patient at high risk for TB disease. Examples of such factors or conditions are listed below:
 - a. close contact with other person(s) infected with TB.
 - b. medical conditions, such as HIV infection, silicosis, status post gastrectomy or jejunioileal bypass surgery, chronic renal failure, diabetes mellitus, being 10% or more below ideal body weight,
 - c. immunosuppression due to receipt of high-dose corticosteroid or other immunosuppressive therapy,
 - d. some malignancies (oropharynx, upper GI tract),
 - e. recent tuberculosis infection (within the past two years),
 - f. fibrotic lesions on chest x-ray or
 - g. having lived under environmental conditions which include over-crowding and poor ventilation.
3. The admission nurse is alert for signs and symptoms of tuberculosis in the physical assessment and health history collected at the time of admission. A diagnosis of TB is considered in any patient with persistent cough (> two weeks duration), complaints of bloody sputum, night sweats, lethargy and weakness, unplanned weight loss, anorexia or fever. A diagnosis of TB is also considered in an immunocompromised patient with pulmonary signs and symptoms initially ascribed to other etiologies.
4. Signs and symptoms which raise suspicion of tuberculosis are reported to the patient's physician and orders obtained. The Infection Control Professional is to be notified of these occurrences.
5. Airborne precautions are instituted when TB is suspected. The nurse consults with the physician, Infection Control Professional, and others as necessary in making the decision to implement precautions. The following isolation procedure will be followed:
 - a. The patient will always be placed in room 312 (negative pressure room) and Airborne Precautions will be initiated. An Airborne Precautions sign will be placed on the closed door.
 - b. The patient will be transferred immediately to an acute care facility for treatment.
 - c. Any employee entering the room will wear a fit-tested N95 respirator.
6. The patient will be required to wear a surgical mask at all times while out of the isolation room. Leaving the isolation room is limited to those instances as directed by the physician.
7. Public health reporting is carried out by regulation by the Infection Control Professional.

D. Engineering Controls

1. Room 312 is negative pressure. These rooms have >6 air exchanges per hour and are vented to the outside.
2. Room 312 will be monitored at the direction of the Plant Operations Supervisor (Kessler) to ensure that negative pressure is maintained. Monitoring will be done on a daily basis if the room is used for negative pressure isolation of any kind. Monthly monitoring of the rooms will be done when the room is not in use. Nursing is responsible for notifying the Plant Operations Supervisor upon admission of a patient requiring negative pressure isolation.

E. Respiratory Protection Program

1. Supplies and Equipment for Airborne Precautions
 - a. N95 respirator – Tuberculosis infection occurs when *Mycobacterium tuberculosis*, carried in droplet nuclei, is inhaled. These droplets are generated by a person with untreated or inadequately treated pulmonary or laryngeal TB disease when they cough, sing, talk or sneeze.
 - b. Since WCRH by nature is a rehabilitation hospital, patients infected with active TB disease are not treated. Should there be a suspicion of active disease in any patient, staff should wear an N95 respirator until the expeditious transfer of the patient to an acute care facility takes place.

F. Educational Programs for Health Care Workers

1. All employees will receive information on TB risk factors, the signs and symptoms of TB disease, and TB infection control policies and procedures. Initial training will be given upon hire and will continue to be conducted annually.
2. During orientation, personnel will review Infection Control and Employee Health Policies and Procedures and will be given the opportunity to have their questions about these policies answered. The TB Infection Control Plan, policies related to respiratory protection, and screening of personnel for TB will be included in this review.
3. Yearly training sessions can include but are not limited to:
 - a. Annual Mandatory Self Learning Packets
 - b. Video Use
 - c. Handouts
 - d. Employee Participation

References

Centers for Disease Control and Prevention. (2005, December 30). *Morbidity and Mortality Weekly Report: Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings, 2005*(54) RR-17.

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