RHODE ISLAND DEPARTMENT OF HEALTH

RECOMMENDED SCREENING PROTOCOL FOR TUBERCULOUS INFECTION IN CHILDREN

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The American Academy of Pediatrics and Centers for Disease Control and Prevention recommends periodic Tuberculin Skin Test (TST) screening only for children at risk for tuberculous (TB) infection. Universal screening is not indicated for children who are not at high risk. Currently no city or town in RI has a high enough prevalence of TB infection or disease to warrant universal testing.

The tuberculin skin test should be performed employing the Mantoux method only, using five tuberculin units of Purified Protein Derivative (PPD). Instructions for performing the test are available from Health. The result of the test must be read and interpreted only by a trained professional. The parent should never be asked to interpret the test and phone in the result.

A negative tuberculin skin test does not rule out the diagnosis of TB infection or disease. Such a finding may be the result of young age, immunosuppression, recent vaccination, recent viral infections (especially measles, varicella or influenza), overwhelming TB disease or corticosteroid therapy, to name a few. Prior vaccination with Bacille Calmette-Guerin (BCG) or infection with mycobacteria other than those belonging to the "tuberculosis complex group" can result in a false positive skin test. However, etiologies such as these usually result in induration less than fifteen millimeters. Prior BCG vaccination is not a contraindication to testing. Recommendations for considering a Mantoux test reaction as positive are the same irrespective of previous BCG vaccination.

Thorough history taking is critical in the assessment of an individual child's risk. Knowledge of the child's inclusion in a population or group that is likely to have resulted in exposure to TB is essential. The history must include risk factors for both the child and the adults caring for the child.

The following are some categories of risk wherein periodic PPD testing is recommended, with interpretation guidelines for positives. (See Red Book for details)

Tuberculin Skin Test (TST) Recommendations for Infants, Children, and Adolescents

Children for whom immediate TST is indicated:

- Contacts of people with confirmed or suspected contagious TB.
- Children with radiographic or clinical findings suggesting TB disease.
- Children immigrating from endemic countries (eg, Asia, Middle East, Africa, Latin America).
- Children with travel histories to endemic countries and/or significant contact with indigenous people from such countries.

Children who should have annual TST:

- Children infected with HIV.
- Incarcerated adolescents.

Some experts recommend that the following children should be tested every 2-3 years:
Children with ongoing exposure to the following people: HIV infected people, homeless people, nursing home residents, institutionalized or incarcerated adolescents or adults, users of illicit drugs, and migrant farm workers.

Some experts recommend that the following children should be considered for TST at age 4-6 and again at age 11-16:
Children whose parents immigrated (with unknown TST status) from regions of the world with high prevalence of TB; continued potential exposure by travel to endemic areas and/or household contact with people from the endemic areas (with unknown TST status) should be an indication for a repeated TST.

Children at increased risk of progression of infection to disease: Children with other medical conditions, including diabetes mellitus, chronic renal failure, malnutrition, and congenital or acquired immunodeficiencies. Without recent exposure, these children are not at increased risk of acquiring TB infection. However, underlying immune deficiencies associated with these conditions theoretically would enhance the possibility for progression to severe disease. Initial histories of potential exposure to TB should be included for all of these patients. If these histories or local epidemiologic factors suggest a possibility of exposure, immediate and periodic TST should be considered. An initial TST should be performed before initiation of immunosuppressive therapy, including prolonged steroid administration, for any child with an underlying condition that necessitates immunosuppressive therapy.

Definitions of Positive Tuberculin Skin Test (TST) Results in Infants, Children, and Adolescents

≥5 millimeters is positive in:

- Children in close contact with known or suspect contagious cases of TB disease.
- Children suspected to have TB disease:
  1. Findings in CXR consistent with active or previously active TB.
  2. Clinical evidence of TB disease.
- Children receiving immunosuppressive therapy or with immunosuppressive conditions, including HIV infection.

≥10 millimeters is positive in:

- Children at increased risk of disseminated disease:
  1. Those younger than four years of age.
  2. Those with other medical conditions, including Hodgkin disease, lymphoma, diabetes mellitus, chronic renal failure, malnutrition.
- Children with increased exposure to TB disease:
  1. Those born, or whose parents were born, in high prevalence regions of the world.
  2. Those frequently exposed to adults who are HIV infected, homeless, users of illicit drugs, residents of nursing homes, incarcerated or institutionalized, or migrant farm workers.
  3. Those who travel to high-prevalence regions of the world.

≥15 millimeters is positive in:

- Any child over the age of four with no risk factors.

Tuberculin skin testing can be done at the same time that measles vaccine (usually MMR) is given. If testing is indicated in a child who does not have clinical or other manifestations suggestive of tuberculosis, and cannot be done concurrently with MMR, testing should be postponed four to six weeks until any temporary mild immunosuppression resulting from MMR vaccine has subsided.

Referral for distinguishing TB infection from active disease and consultation for treatment or prophylaxis recommendations can be made by calling the RISE TB specialty clinic at 793-2427.

Referral for contact, or household investigation, and any additional information can be made by calling the TB Program at 222-2577. A positive PPD in a child less than six years of age is a reportable condition. The TB program will initiate a family study if you report a positive PPD in a child less than 6.

References:

1. American Academy of Pediatrics. *Report of the Committee on Infectious Diseases*. Elk Grove Village, Ill: American Academy of Pediatrics, 2003. pps. 642-660.
2. Mohle Boetani, JC etal. *School Based Screening for TB Infection*. JAMA, 1995, 274 (8): 613 and Editorial *"Universal Screening for TB Infection :School's Out!* By Jeffrey Starke, pg. 652.