

Challenges During Contact Investigation of a Patient with Pulmonary tuberculosis in a Day Care Center

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- **Background:** CDC recommend directly observed preventive window treatment for children five years and younger following an exposure to an individual with smear positive pulmonary tuberculosis (TB). Chest radiography (XR) is also recommended in addition to tuberculin skin testing (TST) for contact investigation in children. Interferon gamma release assay (IGRA) is not approved for children less than 5 years of age. Contact investigation is challenging in a setting where there are many young children, particularly in a day care center.
- **Case:** The index case is a 16-year-old female diagnosed with pulmonary TB while working in a day care center. She was having cough as well as intermittent fever for approximately two months prior to the diagnosis. She was treated for community acquired pneumonia on four previous occasions. During her final hospitalization, she was found to have a cavitory lesion involving left lung. Her sputum was positive for acid fast bacilli (AFB) and culture grew *Mycobacterium TB*. She had been working at the day care center for six months prior to diagnosis.
- During contact investigation, 114 children were identified as being exposed to the index case.
- **Methods:** The contact investigation included baseline and follow up TST or IGRA, depending upon the age of the child as well as XR. 81 children were tested with TST, 5 were tested with IGRA and 50 children had XR during the base line testing. Prophylaxis window treatment was considered but not administered because of reluctance from parents. Only 19 children returned for follow up TST or IGRA and XR three months after baseline testing.
- **Results:** One of the 81 children tested, had positive TST. The child subsequently had a negative IGRA and was not treated. One child had abnormal XR and negative TST. His sputum for AFB was negative. He was offered treatment to which parents declined.
- No secondary cases have been reported from this day care center for more than a year.
- **Conclusion:** It is challenging to investigate TB exposure that involves young children. Directly observed preventive treatment is difficult to administer in a setting with many young children. Many parents are reluctant to prophylactic treatment during window period to their children. Better tests are needed to predict individual likely to develop active tuberculosis after an exposure.