



Bulletin No. 19

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Tuberculosis in a Neonatal Intensive Care Unit (NICU) - March 1997

## Interim Report

### Case Report

On March 31, 1997, hospital A learned that an NICU employee had a sputum smear positive for acid fast bacilli (AFB). She had worked in the NICU since July 1996. At the time of her employment, she reported she had a long-standing positive TB skin test (PPD). At that time she had no symptoms of tuberculosis (TB). In late December, the employee reported a flu-like illness, with intermittent cough that persisted through February. In early March, she developed chest pain and went to her doctor. Her chest x-ray revealed a left upper lobe pneumonia. A trial of Biaxin® improved her symptoms, but a repeat chest x-ray 10 days later showed progressive left upper lobe disease with new right sided involvement. Two of three sputums were AFB smear positive; she was started on isoniazid (INH), rifampin, pyrazinamide and ethambutol. Sputum cultures grew *M. tuberculosis*, sensitive to all four anti-tuberculous agents.

### Contact Investigation

Household contacts: Her two young children and husband had negative PPDs. Her mother-in-law, who came from a country with a high prevalence of TB, had a 5 mm PPD.

Workplace contacts: Of 262 hospital A employees who were tested, all were PPD negative except for one individual who had 5 mm of induration. This individual had been PPD negative on three previous annual TB employee health screenings.

### TB and the neonate

The immune system is immature for the first several months of life. As a result, although the risk of becoming infected with TB is not increased, once infected, up to 40% of infants develop active TB disease. Disease may develop within a few months of initial infection.

The signs and symptoms of neonatal TB are subtle and differ from TB in the older child or adult. Infants are more likely to present with miliary or extrapulmonary TB than adults. TB meningitis is of particular concern.

### Discussion

Household members, who are highest risk for TB exposure, are skin test negative at this time. Among coworkers tested, all but one had negative skin tests. **Based on investigation to date and results of similar investigations, it is unlikely that any TB exposure of infants occurred in the NICU.**

### Recommendations

1. Because the exposure risk to infants in the NICU is low, INH preventive therapy is not recommended at this time.
2. All infants should be clinically evaluated by their providers at routine well-baby visits. No special health care visits are necessary unless symptoms suggestive of TB develop.
3. Infants who were in the NICU at times when the employee was working between 12/1/96 and 3/20/97 should receive PPD (Mantoux) skin testing during routine visits at 3 to 4 months, at 6 months and at 1 year after birth. All of these infants have been identified and their parents and physicians have been contacted.
  - Multiple puncture tests, such as Mono-Vacc® or PPD Tine® should not be used. They are not appropriate for diagnosis of TB infection.
  - All PPD tests should be placed and read by a health care provider and recorded as millimeters of induration.
4. Parents and siblings of infants in the NICU do not need tuberculosis skin testing.
5. The investigation of household and workplace contacts to the index case will continue.

Symptoms of Neonatal TB	Physical Findings of Neonatal TB
<ul style="list-style-type: none"> <li>• Fever, often low grade</li> <li>• Cough</li> <li>• Wheezing</li> <li>• Failure to thrive</li> <li>• Weight loss</li> <li>• Irritability</li> <li>• Vomiting*</li> <li>• Increasing drowsiness*</li> <li>• Unresponsiveness*</li> </ul>	<ul style="list-style-type: none"> <li>• Fever</li> <li>• Wheezing, rales or crackles</li> <li>• Hepatomegaly</li> <li>• Splenomegaly</li> <li>• Lymphadenopathy</li> <li>• Anemia</li> <li>• Listlessness, progressive*</li> <li>• Decreasing level of consciousness*</li> <li>• Cranial nerve palsies*</li> </ul>
* Associated with TB meningitis	

### References

1. Starke JR. Tuberculosis in children. *Curr Opin Pediatr* 1995;7:268-277
2. Rosenfeld EA, Hageman, JR, Yogev R. Tuberculosis in infancy in the 1990s. *Pediatr Clin North Am* 1993; 40(5):1087-1103.

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