Effect of expanded reading time on the results of the tuberculin skin test

Jeffrey Collins MD MPH[1], John Painter DVM MS[2], Randall Reves MD MSc[1,3], Robert Belknap MD[1,3]

(1)University of Colorado School of Medicine, Aurora, CO, (2) Division of Global Migration and Quarantine, NCEZID

(3)Denver Health and Hospital, Denver, CO

Background

- The tuberculin skin test (TST) has historically been the test of choice in screening for tuberculosis infection.
- Recent studies have cited low numbers of patients returning for TST reading as evidence of improved effectiveness of interferon gamma release assays, which only require a single visit.
- Requiring TST readings between 48-72 hours functionally allows only 8 clinic hours when tests can be read.
- Changing the recommendation to allow reading 2 to 3 days after placement would double the clinic time for reading TSTs and be more consistent with clinical practice.

Methods

- TST results were studied in a population of adults and a population of children screened for LTBI upon immigration to the United States.
- Adult population included 1,475 Vietnamese immigrants enrolled as part of the Tuberculosis Epidemiologic Studies Consortium (TBESC) Task Order 20 study.
- Pediatric population included 970 Mexican immigrants from 2-14 years of age enrolled as part of the Task Order 31 study of the TBESC.
- Participants in both groups were asked to return for reading 48-72 hours later, but the window was not strictly enforced.
- Reading times 42-48 hours after PPD placement were considered “Early”.
- Reading times 48-72 hours after PPD placement were considered “On-Time”.

Results

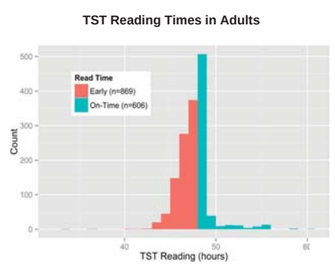


Figure 1. In the adult group, 869 TSTs (59%) were read early and 606 TSTs (41%) were read on time.

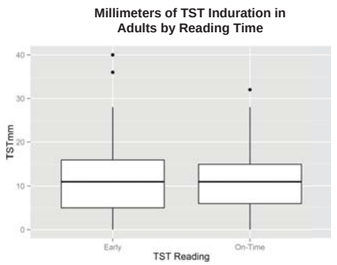


Figure 2. The mean diameter of induration was 10.9 mm among adults with an early TST reading compared to 10.8 mm in those read on time (p=0.78).

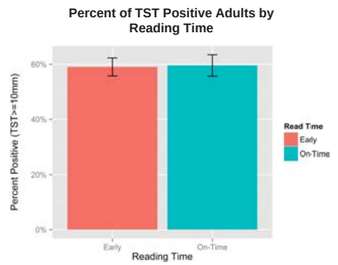


Figure 3. The proportion of adults with a positive TST was 59.1% in those with an early TST reading and 59.6% in those with an on-time reading (p=0.87).

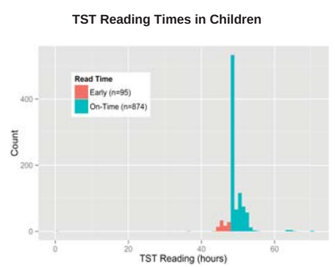


Figure 4. In the pediatric group, 95 TSTs (10%) were read early and 874 TSTs (90%) were read on time.

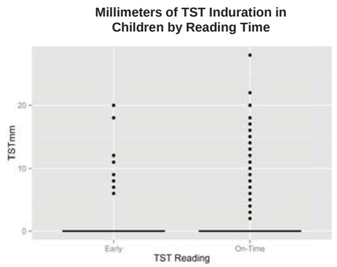


Figure 5. The mean diameter of induration was 2.3 mm among children with an early TST reading compared to 2.3 mm in those read on time (p=0.93).

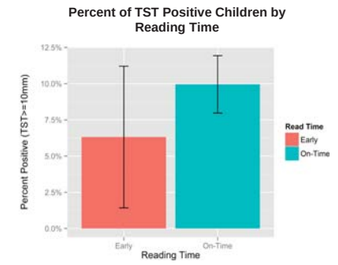
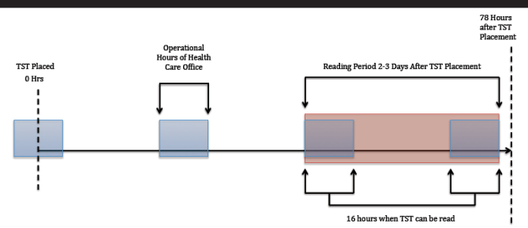


Figure 6. The proportion of children with a positive TST was 6.5% in those with an early TST reading and 10.0% in those with an on-time reading (p=0.35).

Discussion



- We found no difference in either the size of induration or proportion of positive tests in individuals where TSTs were read on time versus those read early.
- These results provide evidence that the TST reading window should include anytime 2 to 3 days after PPD placement.
- Expanding the reading window has the potential to functionally double the time available for reading the TST.