A Pilot Project for School-Based Screening and Treatment of Latent TB Infection

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BACKGROUND

- 2017 Tuberculosis (TB) rate per 100,000 person
  - United States – 2.8
  - San Diego County – 7.1
- 80% of cases could have been prevented by treating latent TB infection (LTBI)
- California spent $78 million for treatment of active TB in 2018.
- 5 cases of active TB in San Diego County public high schools during 2018 demonstrate the need for effective prevention interventions.
- Adolescents are at higher risk of progressing to active TB disease after exposure.

PROGRAM RESULTS

1. TB Risk Assessment Distribution
   - High school registration
   - TB education intervention to Freshman students with pre/post test

2. TB Risk Assessment Returned
   - Incentives – Raffle of wireless headphones and movie tickets

3. Confidential Package Distribution
   - Recommendation for TB testing if at-risk
   - Letter to child’s provider with option for 3-month regimen of isoniazid-rifapentine (3HP) via directly observed therapy (DOT) at school

4. Phone Call Follow-Up
   - Tested? - Student to bring results to school nurse
   - Incentives – Target gift cards/raffle of headphones
   - Access to the San Diego Immunization Registry (SDIR) was granted after follow-up was completed
   - TB testing and results were checked in SDIR
   - School nurse entered missing data from records in county immunization database

5. LTBI Treatment Options
   - To be prescribed by child's provider
   - 3HP to be given via DOT at school
   - Rifampin and isoniazid regimens to be given at home
   - Incentives – $50 Walmart gift card for treatment completion (at home or school)

PROJECT PLAN PROCESS

IDENTIFIED TB RISK FACTORS

<table>
<thead>
<tr>
<th>TB Risk Factor</th>
<th>n (%)</th>
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<tbody>
<tr>
<td>1. Been around someone who had TB</td>
<td>9 (36)</td>
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<tr>
<td>2. History of positive TB test (self/family)</td>
<td>7 (28)</td>
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<td>3. Born in a high-risk country outside the US</td>
<td>7 (28)</td>
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<td>4. Been to a high-risk country for &gt; 3 weeks</td>
<td>4 (16)</td>
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<td>5. Goes to Mexico frequently</td>
<td>8 (32)</td>
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<tr>
<td>6. Ever eaten quesillo or unpatched dairy</td>
<td>9 (36)</td>
</tr>
<tr>
<td>7. Been around someone who is homeless, used drugs, or was recently in jail</td>
<td>4 (16)</td>
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<tr>
<td>8. Takes Prednisone or other medicines that lower the immune system</td>
<td>2 (8)</td>
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<tr>
<td>9a. Ever taken medicine for a positive TB test</td>
<td>1 (4)</td>
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<tr>
<td>9b. Completed treatment</td>
<td>1 (4)</td>
</tr>
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Note: 5 (20%) of students had >2 risk factors

COST-BENEFIT ANALYSIS

- Total cost of materials for this project = $1000
- Treatment cost of active TB = $34,000/case
- Treatment cost of drug resistant TB = $110,000/case
- Testing 1000 students after exposure = $40,000
- Its low cost and the use of existing processes & resources makes it beneficial and replicable among other schools.

CONCLUSIONS/IMPLICATIONS

- A one-time education intervention increased awareness and knowledge about TB among students.
- There was a high percentage of students at risk for TB, many of whom were not previously tested.
- These results highlight the need to increase TB risk awareness and screening among adolescents.
- Requiring the completion of a TB risk assessment as part of the health requirements for high school admission may increase screening rates among this population and prevent future active cases.
- A TB risk assessment will now be included in admission packages at this school.
- Access to TB screening in SDIR was granted to the school nurse as a result of this project.
- 50% of TB test results were entered in SDIR by the school nurse, thus improving the quality of data.
- We were unable to assess the feasibility of offering 3HP via DOT at school but this should be considered for future projects.