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Tuberculosis: A Retrospective Review of Cases Treated in Allentown from 2014-July 2019

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Tuberculosis: A Retrospective Review of Cases Treated in Allentown from 2014-July 2019

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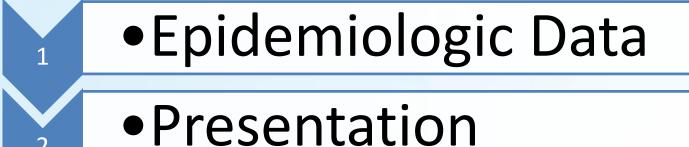
Lehigh Valley Health Network, Allentown, Pennsylvania Allentown Health Bureau, Allentown, Pennsylvania

Introduction

- Tuberculosis (TB) is an ancient highly contagious bacterial disease caused by a bacterium called Mycobacterium tuberculosis.
- TB bacteria are released into the air when a person infected with TB disease of the lungs or throat spreads the bacteria by coughing, sneezing, speaking, or singing.
- Two TB conditions exist:
 TB disease and Latent TB infection (LTBI)
- When active, the bacteria typically attack the lungs but can attack any part of the body including the brain, spine, and kidney.
- TB disease cases remain costly and resource demanding for Health Care Systems.
- The purpose of our study is to review TB disease cases from 2014-July 2019, managed by the Allentown Health Bureau, to learn new knowledge that could apply to our Lehigh Valley practitioners to improve early detection of TB disease.

Methods

- 16 cases of TB disease from 2014-2018 and 1 case of TB disease that completed treatment in July 2019, managed at the Allentown Health Bureau (AHB), were included in this study for review.
- Paper and electronic charts were reviewed and analyzed in six phases for each case.



- Diagnosis
- Treatment
- Patient Contacts
- Estimated Cost

Results

Epidemiology at Time of Diagnosis

Age: 59 years old (28-89 years old)

Male: 82%Female: 18%Non-US Born: 88%

• US Born: 12%

• Time Residing in US: 26 years (2-72 years)

Presentation

Pulmonary TB: 88%

• Fever: 59%

• Cough: 47% (NO Cough 53%)

Length of Cough: 37 days (3-112 days)

• Weight Loss: 53%

NO Known Exposure: 82%
NO Abnormal Labs: 65%
Abnormal Labs Anemia: 23%

Diagnosis

• NO Purified Protein Derivative (PPD) Done: 88%

QuantiFERON-TB Test: 82% (14 patients)

QuantiFERON-TB Test Positive: 100% (14 patients)

HIV (Human Immunodeficiency Virus)
 Negative: 15 (88%)
 Positive: 1 (12%)

Able to Produce Sputum: 82%
Positive Sputum Smear(s): 57%

Chest X-Ray Done: 100%

Abnormal Chest X-Ray: 94% (Upper lobes 88%)

Abnormal Chest CT Scan: 94% (1 not done)

Results Continued

Treatment

- Sensitive to RIPE: 88%
- 1 (12%) Resistant to Isoniazid (INH) and Pyrazinamide (PZA)
- Standard Treatment (6-9mo): 88% (15 patients)
- Extended Treatment (>9mo): 12% (2 patients)

Patient Contacts

Number of Contacts Evaluated: median 7 (0-78)

Estimated Cost of TB disease

•**Average ESTIMATE: \$91,793.15

• ** Median ESTIMATE: \$44,976.15

•**Range: \$1,383.89-\$365,486.90

**The average price of the treatment cost for TB disease per patient was based on Health Network Labs (HNL)/Lehigh Valley Physicians Group (LVPG)/Medicare charges.

** Two patient had prolonged inpatient stays that affected the average.

Conclusions

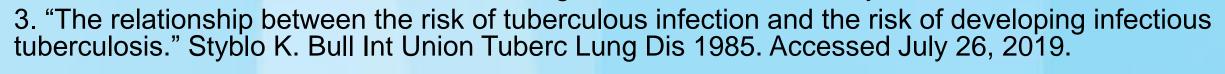
- TB disease is still active in Allentown, PA
- TB presentation and epidemiology is changing toward non-US born patients
- TB disease management remains very costly and resource demanding
- Future: early diagnosis/treatment of TB disease &
 LTBI will greatly reduce the cost of TB management

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^{**}Additional fees were not included for imaging, procedures, and physician rounds.