

Screening for Latent Tuberculosis Infection Among Students in a California Public University

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Background

TOP TEN PLACES OF ORIGIN OF INTERNATIONAL STUDENTS



1.1 million in US; CA ranks 1, with #s ↑
50% of international students come from China and India. ← countries with high TB incidence

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- No TB screening prior to international student arrival
- No data available to estimate LTBI in students
- In 2017, UC Davis fully implemented TB risk-based screening for all incoming students
- TB testing without risk screening required for entry to some academic programs

Objectives

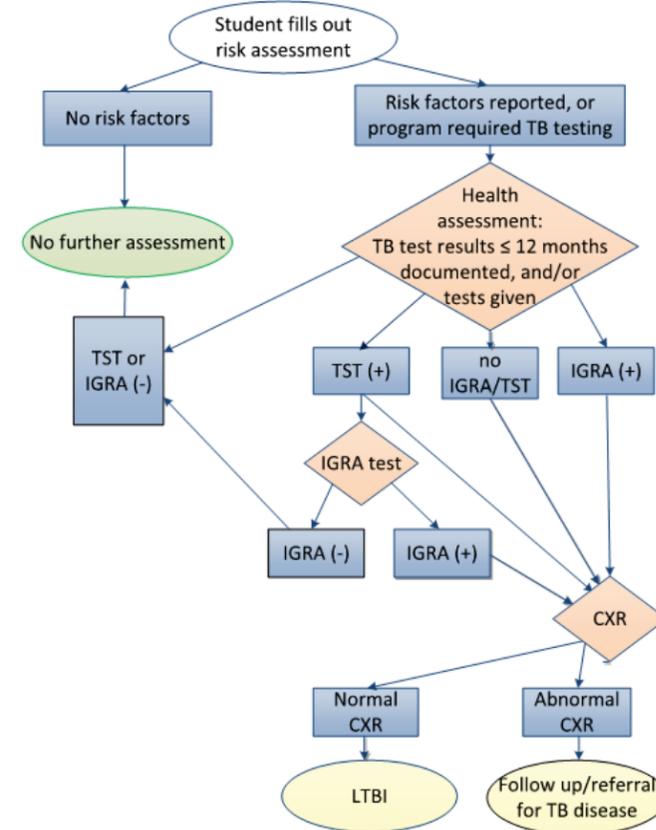
- Estimate LTBI prevalence among California college students
- Evaluate implementation of TB risk screening and testing, and identify gaps

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LTBI = latent tuberculosis infection TB = tuberculosis
 UC = University of California US = United States
 (-) = negative result (+) = positive result
 TST = tuberculin skin test CXR = chest x-ray
 IGRA = interferon-gamma release assay

Methods

Figure 1. Flow chart for student TB assessment



- Study population:
 - all incoming UC Davis undergraduates, August-September 2017
 - students with TB disease excluded
- Students self-assessed TB risk factors:
 - contact to person with active TB disease
 - immunosuppression
 - birth or travel in country with elevated TB
- Students with self-reported risk factor, or requirement for academic program entry, received TB testing and follow-up (Figure 1)
- LTBI defined as TST or IGRA (+) and CXR (-), without subsequent IGRA (-)

Results

Table 1. Characteristics of undergraduate students enrolled at UC Davis, Fall 2017

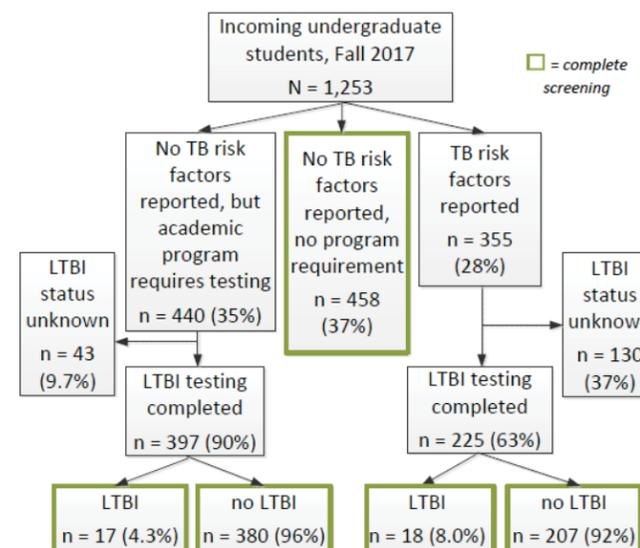
Total students, #	1253
Median age, in years (range)	20 (16-62)
Born outside United States, # (%)	275 (22)
China (of students born outside US)	153 (56)
India	12 (4.3)
Mexico	11 (4.0)
All other countries outside US	99 (36)
≥ 1 self-reported TB risk factor, # (%)	355 (28)
LTBI, # (% among all tested students)	35 (5.6)
In tested students with TB risk factor(s)	18 (8.0)
In tested students with no TB risk factor*	17 (4.3)

*TB testing required for entry to some academic programs, regardless of risk factors

- According to UC Davis Registrar, 269 students in the study population were born in a country with elevated TB incidence**.
- Of these, only 101 (38%) self-reported birth or travel in country with elevated TB** as a TB risk factor

** all countries except those in northern or western Europe, the US, Canada, Australia and New Zealand

Figure 2. Results of TB risk screening and testing



Limitations

- Student health data outside of UC Student Health Services not routinely collected
- Complete data not yet available for LTBI treatment

Conclusions

- In first quarter of full implementation, 89% of students (1119) were completely screened and tested for LTBI (Figure 2)
- Over a quarter of students reported at least one TB risk factor (Table 1)
- Students reporting TB risk factors had higher LTBI prevalence than those without risk factors (8.0% vs. 4.3%, p=0.053) (Table 1)
- Discordance between student self-report and Registrar on country of birth
- Results from this analysis can inform next steps for UC Davis for further implementation of UC-wide mandatory risk-based TB screening in 2018-2019

Recommendations

- Academic programs with TB screening requirements adopt risk-based testing → avoid testing low-risk students
- Work with outside providers to obtain testing results and LTBI treatment data
- ✓ Add country of birth from Registrar to student self-reported TB risks **done!**

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