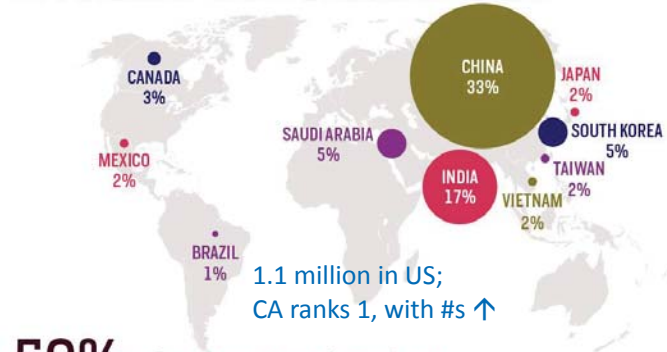


Screening for Latent Tuberculosis Infection Among Students in a California Public University

Melissa Ehman, MPH,¹ Kayvon Jabbari, MPH,² Cindy Schorzman, MD, FAAFP,³ Marina Maes,³ Neha Shah, MD, MPH^{1,4}
¹TB Control Branch, California Department of Public Health; ²Formerly School of Public Health, University of California, Davis; ³Student Health and Counseling Services, University of California, Davis; ⁴Division of TB Elimination, Centers for Disease Control and Prevention

Background

TOP TEN PLACES OF ORIGIN OF INTERNATIONAL STUDENTS



50% of international students come from China and India. ← countries with high TB incidence

Open Doors is conducted by the Institute of International Education with the support of the Bureau of Educational and Cultural Affairs of the U.S. Department of State. Online at: www.iie.org/opendoors

- 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

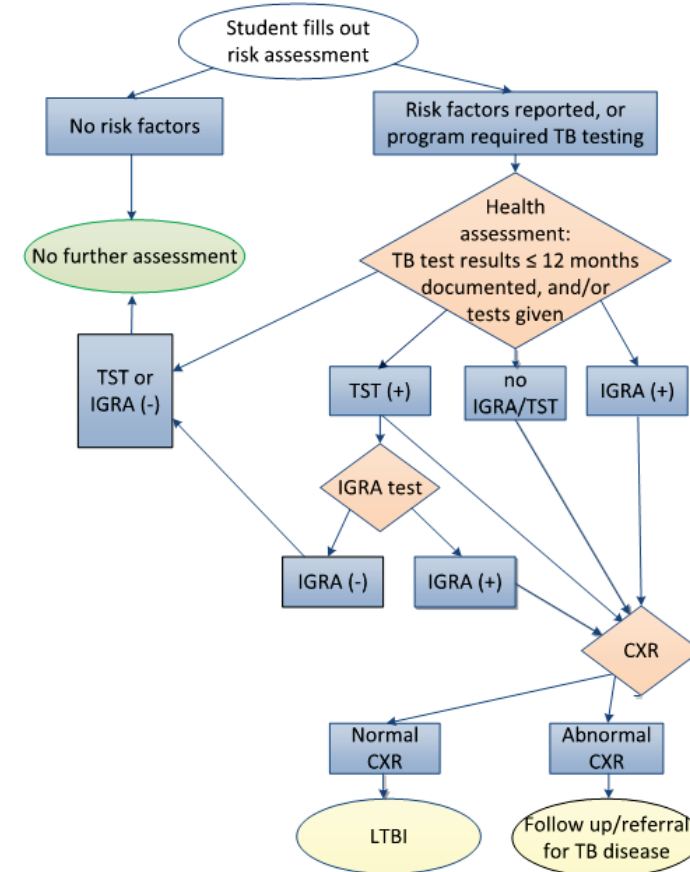
- Estimate LTBI prevalence among California college students
- Evaluate implementation of TB risk screening and testing, and identify gaps

For more information, please contact Neha Shah
Neha.Shah@cdph.ca.gov

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

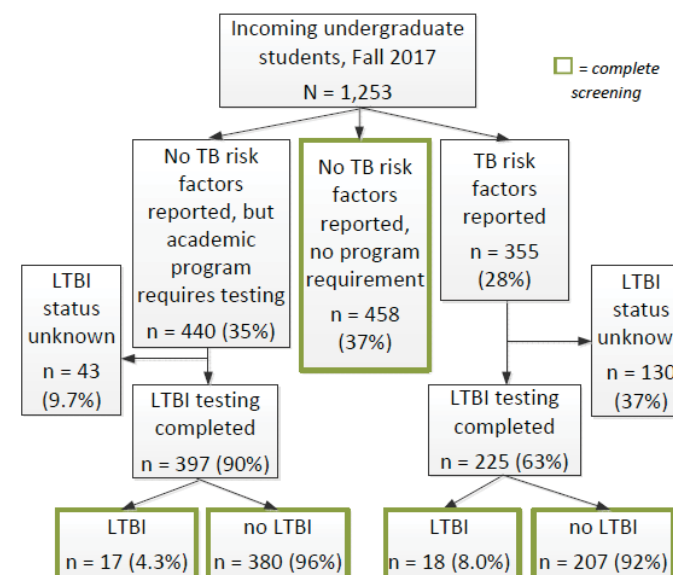
Total students, #	1253
Median age, in years (range)	20 (16-62)
Born outside United States, # (%)	275 (22)
China (of students born outside US)	153 (56)
India	12 (4.3)
Mexico	11 (4.0)
All other countries outside US	99 (36)
≥ 1 self-reported TB risk factor, # (%)	355 (28)
LTBI, # (% among all tested students)	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!*

Acknowledgments:

Alex Golden, TB Control Branch, CDPH
 Jill Allard, Student Health Services, UC Davis
 Staff at Student Health Services, UC Davis