

Investigation of Increased Latent Tuberculosis Infection Rates During the COVID-19 Pandemic Among International Students at a U.S. University Campus

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BACKGROUND

- The COVID-19 pandemic has caused dramatic changes in the epidemiology of many diseases globally due to various changes in exposure to different pathogens, social restrictions, and demographic shifts.
- A university student health center located in the U.S. Midwest detected an increase in latent tuberculosis infection (LTBI) rate among its incoming international students (INTS) from 5.7% to 8.1% in the fall semesters of 2019 and 2021, respectively.
- We describe our approach to investigating the increase in LTBI rate at a university campus in a low-endemicity area.

METHODS

- Factors that may affect LTBI rates were evaluated. LTBI testing policy and methods were reviewed. Medical and lab staff were interviewed regarding the consistency of specimen collection, transport, and processing.
- LTBI risks in the general population such as older age, male gender, and country of origin (COO) were also considered.
- Factors that were expected to be uncommon in the INTS (homelessness, incarceration, and illicit drug abuse) were not evaluated.

RESULTS

- No changes in the INTS screening policy were noted. All incoming INTS were screened for LTBI during initial health screening with QuantiFERON®-TB Plus Test, regardless of COO. Compared to previous years, no inconsistencies in the testing logistics were reported.
- A total of 1,016 INTS were screened in 2019, and 1,179 in 2021. There were no significant differences in average age in years (23.1 vs. 23.3) or male gender (59.6% vs. 56.8%) between 2019 and 2021, respectively.
- Most INTS came from two countries (A and B). Country A was COO of 21.6% of INTS in 2019, which dropped to 8.4% in 2021. Country B was COO of 44.8% of INTS in 2019, which increased to 57.6% in 2021 ($p < 0.001$; **Figure 1**).

Fall 2019				Fall 2021			
Country	A	B	A+B	Country	A	B	A+B
Students, n	219	455	674	Students, n	99	679	778
Students, %	21.6%	44.8%	66.4%	Students, %	8.4%	57.6%	66%

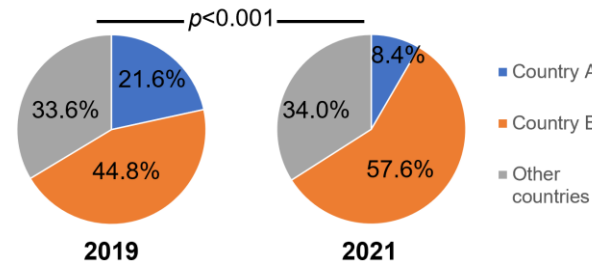


Figure 1. Numbers and percentages of students from countries A and B

- Although LTBI rates of INTS from countries A and B remained similar before and during the COVID-19 pandemic (**Figure 2**), country B had consistently higher rates than country A ($p < 0.001$), which contributed to the overall increased rate of LTBI in 2021.

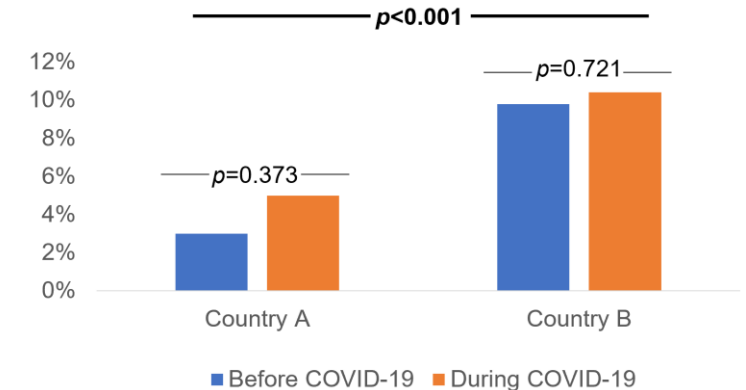


Figure 2. Latent tuberculosis infection rates for international students from countries A and B before and during COVID-19 pandemic

CONCLUSION

- Evaluating changes in country of origin of international students is essential in investigating trends in LTBI rates at otherwise low-endemicity universities.
- In our investigation, demographic changes in university admissions over two years relative to COVID-19 pandemic restrictions contributed to an increase in the overall LTBI rate.