# Employer-Mandated Tuberculosis Screening Among Refugees and Immigrants, Georgia, 2005-2018.

Jasmine Ko, MPH[1], Ndubuisi Analyechi, MD[2], Maureen Wakhisi, MPH[2], Rebecca Ajibola, MPH[2], Joy Wells, MPH[1], Benjamin Yarn[1], Alawode Oladele, MD, MPH[2]
[1]Georgia Department of Public Health, [2]DeKalb County Board of Health

## Background

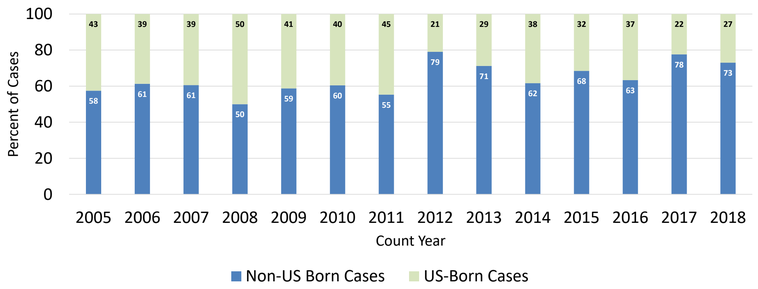
Georgia is a leading state in the United States for refugee resettlement. From 2005 to 2018, Georgia received a total of 32,835 refugee arrivals (1).

DeKalb County receives the majority of Georgia's refugees, many of whom originate from countries where tuberculosis (TB) is an endemic disease. In addition to its large number of refugees, DeKalb County is also an incredibly diverse home to many immigrant communities, with over 120 languages and dialects spoken. According to U.S. Census Bureau 2013-2017 estimates, the population of DeKalb is 753,253, with 16% of their residents foreign-born and 19% who speak a language other than English at home (2).

From 2005 to 2011, the DeKalb County Board of Health (DCBOH) identified eight persons with active TB who worked at a large local business (Business A) that employs about 800 refugees and immigrants. With each active case, DCBOH was required to conduct a mass workplace contact investigation to test (and treat if necessary) all contacts of the active TB case. Following key stakeholders meetings with careful public health educational messaging, Business A and DCBOH entered into a contract on March 1st, 2012 where Business A agreed to require and pay for pre-employment TB screening through DCBOH. Prior to reporting for work, all employees of Business A were mandated by their employer to receive a TB clearance letter from DCBOH.

We analyzed post-contract data to determine the success of employer-mandated screening in identifying active TB cases and latent tuberculosis infections (LTBI) and decreasing workplace contact investigations (CIs).

**Figure 1.** Percentage of Non-US Born and US-Born Tuberculosis Cases, DeKalb County, Georgia, 2005-2018.




## Methods

We analyzed Report of Verified Case of Tuberculosis (RVCT) data in our State Electronic Notifiable Disease Surveillance System (SendSS) for TB cases likely to be employees of Business A between January 1st, 2005 and December 4th, 2018. Occupational data collected in the RVCT is typically categorized into basic categories ("Health Care Worker," "Correctional Facility Employee," "Migrant/Seasonal Worker," "Other Occupation," "Retired," "Unemployed," "Not Seeking Employment," and "Unknown"). All cases with an "Other" and "Unknown" occupation were categorized into "Very Likely," "Somewhat Likely," or "Unlikely" to work at Business A through variables such as age, the free response variable for "Other Occupation," and country of birth. Employment at Business A was then verified through a paper chart review for cases categorized as "Very Likely" and "Somewhat Likely" to be Business A workers. Contact investigation data for each of these confirmed Business A workers were also analyzed from SendSS.

Through the pre-employment screening program, employees were tested for TB with a QuantiFERON-TB Gold test (QFT), though a small number received a tuberculin skin test (TST). Screening data from Business A were not consistently tracked, so screening totals for March 1st, 2012 through December 4th, 2018 were abstracted from QFT/TST billing codes assigned to Business A's account. Screening results, including chest X-ray and LTBI treatment data, were available starting in 2016 from an Excel database maintained by DCBOH.

## Results

Prior to the contract, there were eight active TB cases employed at Business A and seven workplace CIs (263 total tested). Following the contract, we screened 1,330 employees, 499 (34%) of whom had available results to analyze. Of these 499 employees, 196 (39%) had a positive QFT/TST. Among the positives, 153 (78%) had a chest X-ray completed, and 85 (56%) started LTBI treatment.

Post-contract, we have identified thirteen active TB cases employed at Business A and have conducted three workplace CIs: three cases were successfully identified through pre-employment screening, two cases were identified as LTBI patients at screening but refused care, three cases were identified as LTBI patients at screening and started treatment, and five cases were 2012 and 2013 cases who were employed prior to the contract and pre-employment screening. All three CIs were conducted in the year following contract initiation as screening efforts were ramping up. There have been no workplace CIs at Business A since 2013.

**Table 1.** Business A Employees Screened Through Pre-Employment Program by Test Type and Year, DeKalb County, Georgia, 2012-2018.

| Screening Timeframe | Screened with QuantiFERON-TB Gold (QFT) | Screened with tuberculin skin test (TST) | Total Screened |
|---|---|---|---|
| 03/01/2012 - 12/31/2012 | 209 | 2 | 211 |
| 01/01/2013 - 12/31/2013 | 116 | 1 | 117 |
| 01/01/2014 - 12/31/2014 | 282 | 2 | 284 |
| 01/01/2015 - 12/31/2015 | 205 | 2 | 207 |
| 01/01/2016 - 12/31/2016 | 189 | 4 | 193 |
| 01/01/2017 - 12/31/2017 | 171 | 0 | 171 |
| 01/01/2018 - 12/04/2018 | 146 | 1 | 147 |
| **Total** | **1318** | **12** | **1330** |

## Discussion and Conclusions

Contact investigations for infectious TB patients, particularly mass workplace screenings, are time-consuming, expensive, and require a great deal of coordination and cooperation from all parties. The private sector loses employee productivity and potentially faces a loss in business revenue and reputation. Additionally, mass workplace screenings in a setting with predominantly refugees and immigrants have the potential to perpetuate negative stereotypes about foreign-born persons. Careful public health messaging about the importance of prevention of disease, especially in light of the U.S.' refocused efforts to diagnose and treat LTBI before progression to active TB, can lead to critical cooperation from the private sector. Though we acknowledge a limitation of this study in that only one business was evaluated, we believe other private businesses who similarly employ large numbers of refugees and immigrants, such as chicken processing plants, may likewise benefit from collaboration with their local TB programs. The DCBOH contract has remained in place since 2012 with high screening totals. The establishment of an employer-paid pre-employment screening among a population with a high burden of TB may be a successful way to decrease the time and resources needed for mass workplace screenings and to ensure the early identification and treatment of active TB and LTBI cases.

## Acknowledgements

The authors would like to thank the DeKalb County Board of Health TB staff for their dedication to ensuring the health of their community, the business staff at Business A for their eager cooperation with Public Health, and the State TB Program for their continued support to achieving a TB-free Georgia.

**Contact Information**
Jasmine E. Ko, MPH
Epidemiologist, Tuberculosis Unit
Georgia Department of Public Health
2 Peachtree Street NW, Atlanta, GA 30303
E-mail: jasmine.ko@dph.ga.gov
Work: (404) 463-0849

**References**

1. "Admissions and Arrivals." *Refugee Processing Center*, U.S Department of State (DOS) Bureau of Population, Refugees, and Migration (PRM). Accessed 26 March 2019 at: http://ireports.wrapsnet.org/Interactive-Reporting/EnumType/Report?ItemPath=/rpt_WebArrivalsReports/MX%20-%20Arrivals%20by%20Destination%20and%20Nationality
2. "U.S. Census Bureau QuickFacts: DeKalb County, Georgia." *Census Bureau QuickFacts*, Accessed 26 March 2019 at: www.census.gov/quickfacts/fact/table/dekalbcountygeorgia/PST045217#PST045217.