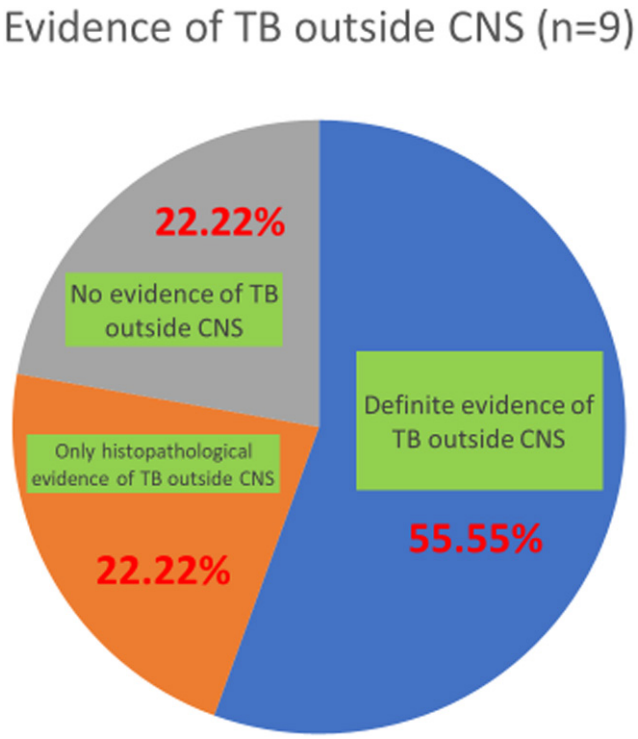

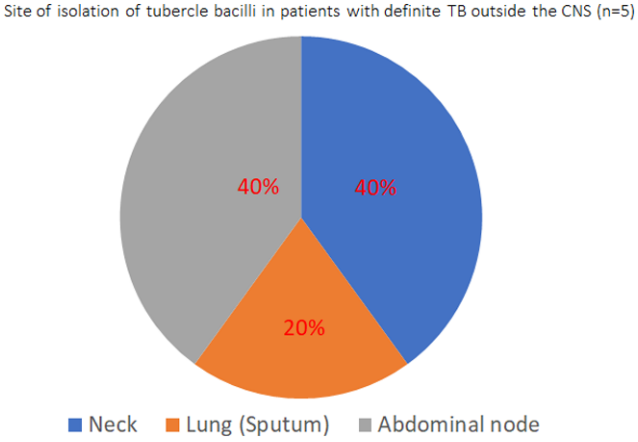

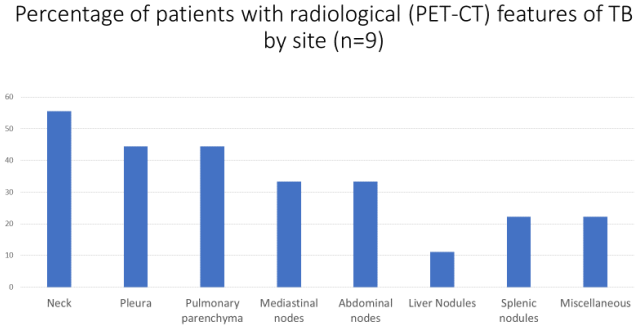

Disclosures. **All authors:** No reported disclosures.

1375. Laboratory Abnormalities Among Patients with Pulmonary *Mycobacterium avium* Complex Infections

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Background. Limited data are available regarding laboratory abnormalities in patients with pulmonary *Mycobacterium avium* complex (MAC) disease.

Methods. We included patients without cystic fibrosis who had pulmonary MAC and met ATS/IDSA disease criteria from the Northwest NTM Biobank with a complete blood count (CBC) 6 months prior and up to 30 days after study enrollment. The biobank is a cohort of patients with Nontuberculous mycobacterium (NTM) infections identified through statewide laboratory surveillance and OHSU regional referral NTM clinic; a complete clinical history is collected by chart review at enrollment. We evaluated the proportion of pulmonary MAC patients with abnormal laboratory tests. We examined differences using a chi-square test between patients who were antimycobacterial treatment naïve, on therapy at enrollment or previously treated, in addition to cavitary and non-cavitary disease and those who also had previous sputum isolation of additional organisms (co-isolation).

Results. 147 patients had CBCs available; 112 (76.2%) were female with a median age of 69 years (22–88 years). 64 (43.5%) were antimycobacterial treatment naïve, 65 (44.2%) were on therapy at enrollment and 18 (12.2%) were previously treated. Lymphocyte count was below normal in 105 (73.4%) patients; 70 (49.3%) had lymphocyte counts below 1500 cells/mL and 27 (18.9%) were lymphopenic. Elevated monocyte percent was seen in 54 (37.2%) patients. Lymphopenia was more common in those on therapy, $P = 0.01$. There were no predominant laboratory abnormalities in 108 patients with metabolic panels. 34 patients had a c-reactive protein (CRP) collected, which was elevated, after age and gender correction, in 31 patients (91.2%). There was no significant difference between treatment groups. Eleven patients had cavitary disease with no differences in laboratory values compared with those with non-cavitary disease. Patients with co-isolation were more likely to be anemic ($P = 0.03$), have thrombocytosis ($P = 0.04$) and were less likely to have a monocytosis ($P = 0.03$).

Conclusion. A large proportion of patients with pulmonary MAC disease have low lymphocyte counts, elevated monocyte percent and CRP. Further evaluation of the meaning of these abnormalities as well as changes during therapy is needed.

Table 1: Characteristics and Comorbidities in Northwest NTM Biobank, Pulmonary MAC subset (N=147)

	NTM Disease Category			
	Total N (%)	Currently Treated N (%)	Previously Treated N (%)	Treatment Naive N (%)
Female	112 (76.2)	47 (72.3)	16 (88.9)	49 (76.6)
White	131 (89.1)	58 (89.2)	17 (94.4)	56 (87.5)
Median Age (range)	69 (22-88)	69 (22-88)	72.5 (52-88)	68.5 (25-85)
Median Days since Disease Diagnosis (range)*±	218 (22-6187)	278 (27-5997)	831 (76-6187)	108 (22-3678)
COPD/emphysema	43 (29.3)	19 (29.2)	4 (22.2)	20 (31.3)
Bronchiectasis	113 (76.9)	51 (78.5)	16 (88.9)	46 (71.9)
Chronic interstitial lung disease	8 (5.4)	5 (7.7)	1 (5.6)	2 (3.1)
Prior Tuberculosis	10 (6.8)	5 (7.7)	0	5 (7.8)
Lung cancer	10 (6.8)	4 (6.2)	1 (5.6)	5 (7.8)
Non-lung cancer	36 (24.5)	15 (23.1)	4 (22.2)	17 (26.6)
Immunosuppressive treatment	23 (15.6)	12 (18.5)	4 (22.2)	7 (10.9)
Prior Transplant	4 (2.7)	1 (1.5)	1 (5.6)	2 (3.1)
Autoimmune disease‡	21 (14.3)	9 (13.8)	2 (11.1)	10 (15.6)
Renal disease	11 (7.5)	4 (6.2)	1 (5.6)	6 (9.4)
Gastroesophageal reflux disease	59 (40.1)	21 (32.3)	11 (61.1)	27 (42.2)
Diabetes	14 (9.5)	3 (4.6)	4 (22.2)	7 (10.9)
Congestive heart failure	8 (5.4)	3 (4.6)	0	5 (7.8)
Anemia	38 (26.2)	17 (26.2)	2 (11.8)	19 (30.2)
Lymphocyte count < 1,500 cells/mL	70 (49.3)	29 (45.3)	10 (55.6)	31 (51.7)
Lymphocyte count < 1,000 cells/mL*	27 (18.8)	18 (29.0)	1 (5.6)	8 (12.7)
Monocytosis	20 (13.8)	6 (9.4)	1 (5.6)	13 (20.6)
Elevated Monocyte Percent	54 (37.2)	23 (35.9)	9 (50.0)	22 (34.9)
Hypogammaglobulinemia**	17 (11.6)	6 (9.2)	2 (11.1)	9 (14.1)

*P ≤ 0.05 by chi square test
± ATS/IDSA NTM disease criteria
‡ Diagnosis of inflammatory bowel disease, psoriasis, rheumatoid arthritis, ankylosing spondylitis, systemic lupus erythematosus, mixed connective tissue disease
** Any low antibody levels for any class: IgA or IgG total or two or more subclasses (IgG1, IgG2, IgG2, IgG4).

Table 2: Additional organisms isolated from pulmonary cultures in 68 (46.9%) patients with co-isolation

Bacteria	Count (%)
Staph aureus (MSSA, MRSA)	14 (9.5)
Pseudomonas	18 (12.2)
Stenotrophomonas	6 (4.1)
Nocardia	4 (2.7)
Aspergillus	29 (19.7)
Penicillium	11 (7.5)
Other	30 (20.4)

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1376. Physician Practice Patterns for Screening and Treatment of Latent Tuberculosis Infection in the South Asian Population in Central New Jersey

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Background. New Jersey (NJ) has a significant burden of tuberculosis (TB) cases (ranked 8th in the United States) and 22% of the cases are among foreign-born (FB) individuals. We have approximately 33% FB residents in our targeted counties in Central NJ of whom 43% are originally from high TB burden areas of South Asia. Central NJ is home to the county with the second highest TB case rate in NJ. Latent tuberculosis infection (LTBI) treatment remains a key component of the World Health Organization TB elimination strategy. We sought to survey community physicians about their LTBI screening and treatment practices in South Asian (SA) patients.

Methods. An IRB-approved anonymous survey was distributed online to practicing staff physicians at local hospitals over a 2-month period. The primary outcome measure was whether physicians appropriately screen for LTBI. A secondary outcome measure was whether follow-up after medication initiation was provided. Predictors measured included: age, gender, self -identification of physician as SA, years in practice, and if they were a foreign medical graduate (FMG). Descriptive statistics were provided using counts and proportions. Chi-square tests were used for bivariate analyses to look for factors associated with LTBI screening and treatment.

Results. A total of 218 physicians responded to the survey; of whom, 137 identified themselves as primary care physicians (i.e., pediatrics (62%), internal medicine (30%), or family medicine (8%)). About half of them were FMG and 40% identify themselves as SA. Three out of four of these physicians (n = 101) indicated they routinely screen their patients for LTBI. Bivariate analyses using chi-square did not find any statistically significant associations with LTBI screening. A quarter of the physicians screened with an IGRA and 60% reported always offering treatment for LTBI. Isoniazid was the most common medication prescribed. A majority of respondents did not report prescribing Rifampin or Rifapentine. Follow-up after initiation of treatment was provided at least every other month by 52.7% of physicians.

Conclusion. There is wide variability in LTBI screening, treatment, and follow-up among our physician sample. Physicians have not yet adopted newer treatment regimens suggesting the need for an educational intervention.

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1377. Use of Interferon-Gamma Release Assays (IGRAs) Reduced Latent Tuberculosis Infection (LTBI) Diagnosis in Refugee and Immigrant Children

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Background. For foreign-born children from countries with high tuberculosis (TB) burden, positive tuberculin skin test (TST) results, associated with Bacillus Calmette Guerin (BCG) vaccination, paradoxically increase the risk for overdiagnosis and overtreatment of latent TB infection (LTBI) during immigration. The higher specificity of interferon-gamma release assays, such as QuantiFERON-TB (QFT), may help distinguish LTBI from positive TSTs due to BCG or non-TB Mycobacteria. However, data on QFT usage in pediatric populations, particularly refugee and immigrant children, are sparse. Our objective was to assess the impact of QFT on LTBI diagnosis and treatment in the vulnerable child refugee and immigrant population.

Methods. We initiated a retrospective study of children (≤15 years) seen in Santa Clara County Refugee/Immigrant Clinic for post-immigration TB re-evaluation in 2017. We collected information from the Electronic Disease Notification system and post-immigration clinic records, including laboratory studies, imaging, and clinical impression. The primary outcome was post-immigration LTBI diagnosis in patients with positive pre-immigration TB screening. Patients with prior active TB or LTBI treatment were excluded.

Results. 102/135 clinic encounters examined to date were post-immigration encounters. Median age was 9 years (range 14mo to 15y). Most (82.5%) were from Asia, primarily the Philippines (n = 48), Afghanistan (n = 10), Iran (n = 9), and Vietnam (n = 8). Sixty-six (64.7%) had documented BCG vaccination. Among 102 encounters, 71 (69.6%) were of children diagnosed pre-immigration with LTBI based on positive TST and normal chest radiograph. After post-immigration evaluation with retesting by QFT, 13/71 (18%) were diagnosed with LTBI (Table 1). There were no active TB cases among 102 patients, though long-term follow-up varied (mean 5.5 ± 6.5 months).

Conclusion. QFT use for post-immigration LTBI re-evaluation reduced LTBI diagnosis by 82% in children as young as 2 years old. Preliminary data suggest the preferential use of QFT over TST in non-United States-born children, in accordance with new California Department of Public Health TB screening recommendations for children ≥2 years, could reduce unnecessary diagnosis and treatment of LTBI in refugee and immigrant children.

Table 1: Characteristics of 71 children with pre-immigration diagnosis of latent tuberculosis infection (LTBI), separated by post-immigration TB impression

Post-immigration Evaluation Impression	LTBI (n=13)	No TB (n=58)
Mean years of age, (range)	10.8 (3-14)	8.7 (1*-15)
Median mm induration by TST, (range)	12mm (10-21)	12mm (10-30)
QFT positive, n (%)	9 (69%)	0 (0%)
Documented BCG vaccine (confirmed), n (%)	7 (54%)	46 (79%)
Place of birth, n (%)		
- **Asia**	10 (77%)	54 (93%)
- **Africa**	2 (15%)	0 (0%)
- **Latin America**	1 (8%)	0 (0%)
- **Eastern Europe**	0 (0%)	4 (7%)
Close contact with infectious TB, n (%)	4 (31%)	0 (0%)
Immunosuppressed, n (%)	0 (0%)	0 (0%)

*Note: Providers waited until 2 years of age to obtain Quantiferon
Abbreviations: LTBI: latent tuberculosis infection; TB: tuberculosis; TST: tuberculin skin test; QFT: Quantiferon; BCG: Bacillus Calmette-Guerin

Disclosures. **All authors:** No reported disclosures.

1378. Clinical Characteristics of Tuberculosis Among Patients with Cancer in an Endemic Country

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Background. Tuberculosis (TB) is an infection caused by reactivation of *Mycobacterium tuberculosis*. Decreasing host immune system plays an important role in pathophysiology especially in patients with human immunodeficiency virus (HIV) infection and transplant recipients. Exposure to immunosuppressive agents among patients with solid and hematologic malignancy is likely to increase risk of TB. However, characteristics of TB in this population remain scarce.

Methods. A single-center, retrospective descriptive study was conducted at King Chulalongkorn Memorial Hospital. Adult patients who developed TB between January 2008 and October 2018 after diagnosis of solid or hematologic malignancy were identified using ICD-10 code. Baseline, clinical characteristics, and treatment outcomes were collected.

Results. A total of 114 patients developed TB after diagnosis of malignancy including, 67 (58.8%) with solid tumor and 47 (41.2%) with hematologic malignancy. Lung cancer was the most common solid malignancy with TB (17.9%) followed by head and neck carcinoma (14.9%) and colorectal cancer (13.4%). For hematologic malignancies, non-Hodgkin's lymphoma was the most common malignancy (53.2%) followed by leukemia (29.8%) and multiple myeloma (14.9%). Among patients who received immunosuppressive treatment, the mean onset of TB was 4.97 months (range 0.25 to 57 months) and 2.55 months (range 0.1 to 18 months) after treatment of solid and hematologic malignancies. Pulmonary and pleural involvement remained the most common site of infection in both groups. Mortality was highest among patients with hematologic malignancies (40.4%) while mortality in solid malignancies was 11.9%.

Conclusion. TB in patients with solid and hematologic malignancies contained substantial morbidity and mortality. Immunosuppressive agents and chemotherapy may play an important role especially in the endemic area.

	Total	Solid tumor	Hematologic malignancy
No. of patients	114	67	47
Mean age (years)	59.1	60	57.9
Male (patient, %)	70 (61.4%)	52 (77.6%)	18 (38.3%)
Treatment of malignancy			
Chemotherapy	77	39	38
Mean time to event (month, range)	3.72 (0.1 – 57)	4.97 (0.25 – 57)	2.55 (0.1 – 18)
No chemotherapy	29	24	5
Mean time to event (month, range)	20.93 (1 – 120)	21.13 (2 – 120)	20 (1 – 48)
Unknown duration (patient)	8	4	4
Transplantation	3	1	2

Site of solid malignancy	No. patients
Head and neck	10
CNS	2
Lung	12
Breast	2
Esophagus	6
Stomach	1
Liver	8
Pancreas	1
Biliary tract	2
Colon and rectum	9
Anus	1
Cervix	3
Endometrium	1
Prostate	1
Bladder	1
Skin	2
Thymoma	1
Germ cell tumor	1
Unknown primary	1
Total	67

Type of hematologic malignancy	No. patients
Multiple myeloma	7
Non-Hodgkin's lymphoma	25
Diffuse large B-cell lymphoma	11
Angioimmunoblastic T-cell lymphoma	7
Follicular lymphoma	2
Mantle cell lymphoma	2
Marginal zone lymphoma	1
Primary CNS lymphoma	2
Hodgkin's lymphoma	1
Leukemia	14
Acute myeloid leukemia	8
Acute lymphoblastic leukemia	4
Chronic lymphocytic leukemia	2
Total	47