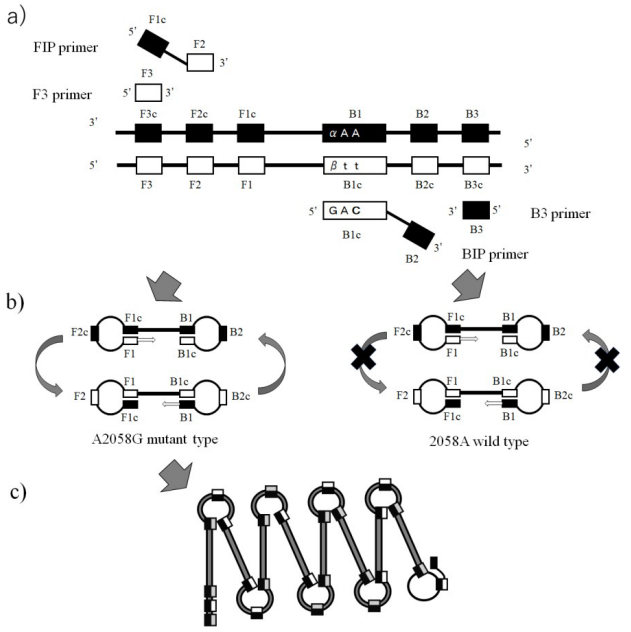
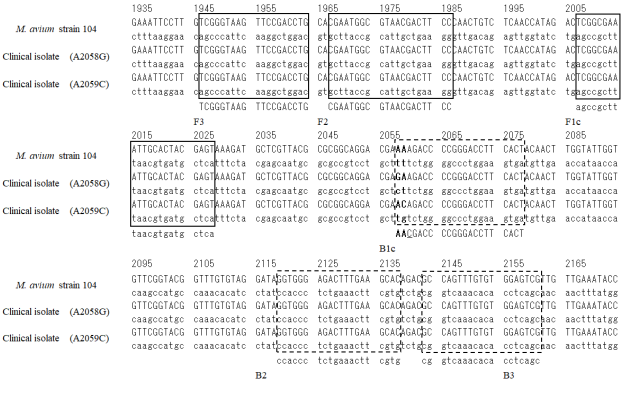
Figure 1. The designs of CLR resistance A2058G mutant-type mismatch primers used for the ARMS-LAMP assay. a) A strand-displacing DNA polymerase extends the DNA from FIP while separating from the DNA chain. The primer F3 binds to its complementary region on the DNA to displace the newly synthesized DNA. An analogous reaction is performed by BIP and B3. α (α = A, wild type; G, A2058G) and β (β = A, wild type; C, A2058G) are indicated by the point mutation at position 2058 of the 23S rRNA gene. The bold area indicates the mismatched base C (cytosine). b) The synthesized DNA self-anneals because of the complementary region at both ends and forms 'dumbbell' structures. c) After repeated rounds, a complementary region on the same chain is amplified.



Methods: Primers for ARMS-LAMP were designed using PrimerExplorerV5 software based on the nucleotide sequence data for 23S rRNA in *M. avium* strain 104 (Figure 2). Using the minimum inhibitory concentration of CLR, drug susceptibility was determined for 18 clinical *M. avium* isolates. Of these, eight CLR-susceptible and 10 CLR-resistant strains were analyzed by sequencing the 23S rRNA gene and ARMS-LAMP.

Figure 2. Alignment of the nucleotide sequences including the domain V region of 23S rRNA at the macrolide binding site. The constructed LAMP primer sets are shown in solid boxes (forward primers, F1-3) and dashed boxes (backward primers, B1-3). The bold area indicates the point mutation at position 2058 or 2059 of the 23S rRNA gene.



Results: Sequence analysis revealed that all eight CLR-sensitive strains tested were wild type, whereas all 10 CLR-resistant strains were mutants. Using ARMS-LAMP, no amplification with the mutant-type mismatch primer sets (MTPS) was observed in the eight wild-type strains, but amplification was observed with MTPS in the 10 mutant strains (Table 1).

Table 1. MICs of CLR and results of ARMS–LAMP using Mycobacterium avium isolates.

Strains	Total number	MIC (μg/mL)	ARMS-LAMP
Reference strain			
Mycobacterium avium 104	1	0.25	-
Clinical isolates			
CLR susceptible strains	8	< 8	-
CLR resistant strains	10	>32	+

CLR, clarithromycin. MIC, minimum inhibitory concentration. +, positive. -, negative. ARMS-LAMP, amplification refractory mutation system -loop-mediated isothermal amplification.

Conclusion: The developed rapid detection method for the CLR resistance gene using ARMS-LAMP can determine drug resistance in a few hours without the need for special equipment. ARMS-LAMP may be a new clinically beneficial POCT technology for examination that is novel and extremely practical.

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

1655. Extrapulmonary Tuberculosis in a Large Healthcare System

Travis Denmeade, MD[1]; William Smith, MD[1]; Banks Kooken, BS[2]; Michael Leonard, MD[3]; [1]Atrium Health Carolinas Medical Center, Charlotte, North Carolina; [2]UNC School of Medicine, Charlotte, North Carolina; [3]Atrium Health, Charlotte, North Carolina

Session: P-72. Tuberculosis and other Mycobacterial Infections

Background. The US has seen a rise in the proportion of patients with extrapulmonary tuberculosis (TB) even though the yearly incidence of new TB cases has been in decline. The purpose of this study was to analyze incidence of extrapulmonary TB at Atrium Health, a large non-profit health system in the Southeastern US.

Methods. Retrospective chart review of 94 adult patients with culture confirmed extrapulmonary TB between 2008-2019. Individuals younger than 18 years were excluded from analysis. The primary objective was to examine incidence of extrapulmonary TB and compare it to that reported in the literature. Secondary objectives included determination of sites of extrapulmonary disease and associated patient characteristics including HIV status, race, ethnicity, and birthplace.

Results. 237 patients were identified as having confirmed TB infection from 2008-2019 in a retrospective analysis within the Atrium Health System. 94 (40%) were found to have extrapulmonary disease; 42 (45%) with concomitant pulmonary disease. The patients were 55% male, 40% African American, 21% Hispanic or Latino, and 51% US-born. Median age was 44 years (range 20-62). The most common sites of extrapulmonary TB were lymphatic (35%), pleural (24%), GI/Peritoneal (12%), CNS (10%), and Bone/Joint (10%). Lymphatic involvement was 40% cervical, 19% intrathoracic, and 16% axillary. 66% of skeletal disease was vertebral. Other sites included GU, pericardial, skin, and disseminated disease (5%). 37% were HIV positive, 18% with unknown HIV status as they were never tested. Information regarding patient's race, ethnicity, and birthplace were unknown for 2 patients. The percentage of extrapulmonary cases were 29% in 2008, 39% in 2012, 38% in 2016, and 49% in 2019.

Conclusion. Lymphatic and pleural involvement were the most common extrapulmonary sites. Of those tested, 37% were HIV positive but there was a significant portion never tested showing a need for increased testing. The proportion of extrapulmonary TB cases since 2008 is higher at 40% compared to the 31% reported in the United States. There has been a rise in the proportion of extrapulmonary TB within our healthcare system and deserves further analysis.

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

1656. Factors associated with low TB preventative therapy prescription rates among healthcare workers in rural South Africa

Amiya A. Ahmed, n/a[1]; Megan A. Grammatico, n/a[2]; Sipho Malinga, n/a[3]; Phililе Makhunga, n/a[3]; Anthony Moll, MBChB[4]; Joseph B. Ladines-Lim, MD PhD[5]; Justin Jones, MPH[6]; Koeun Choi, MD[7]; Sheela Shenoi, MD, MPH[8]; [1]University of Maryland School of Medicine, Silver Spring, Maryland; [2]University of Connecticut School of Medicine, Wallingford, Connecticut; [3]Philanjalo Care Center, Tugela Ferry, KwaZulu-Natal, South Africa; [4]Church of Scotland Hospital, Tugela Ferry, KwaZulu-Natal, South Africa; [5]University of Michigan Medical School, Ann Arbor, Michigan; [6]Texas Christian University, Fort Worth, Texas; [7]Yale School of Medicine, New Haven, Connecticut; [8]Yale University, New Haven, Connecticut

Session: P-72. Tuberculosis and other Mycobacterial Infections

Background. Despite South Africa's initial successful rollout of tuberculosis preventative therapy (TPT) to reduce tuberculosis (TB) incidence among HIV-infected