

Latent Tuberculosis Infection Diagnosis and Treatment: An Analysis of the Cascade of Care from the Academic Primary Care Clinic to the TB Referral Practice



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Background

- Nearly 30% of the world's population has LTBI based on immune-based tests.
- The LTBI cascade of care is defined as the process in the diagnosis, follow-up and treatment of LTBI patients.
- Given a multitude of factor such as the length of therapy and adverse side effects, completion of treatment is not always achieved.

Objectives

- We analyzed this cascade of care in our Internal Medicine Primary Care practice considering our association to the Lattimore Practice at the Global Tuberculosis Institute at Rutgers

Methods

- Retrospective, descriptive study from secondary data
- Epidemiological and clinical information were collected from patients who were ordered a QuantiFERON-TB Gold Plus (QFT-Plus) assay from January 2018 to December 2019

Results

- A total of 2155 QFT-Plus were ordered, of which 1530 (70.9%) were completed. We found 356 (23.3%) positive tests.

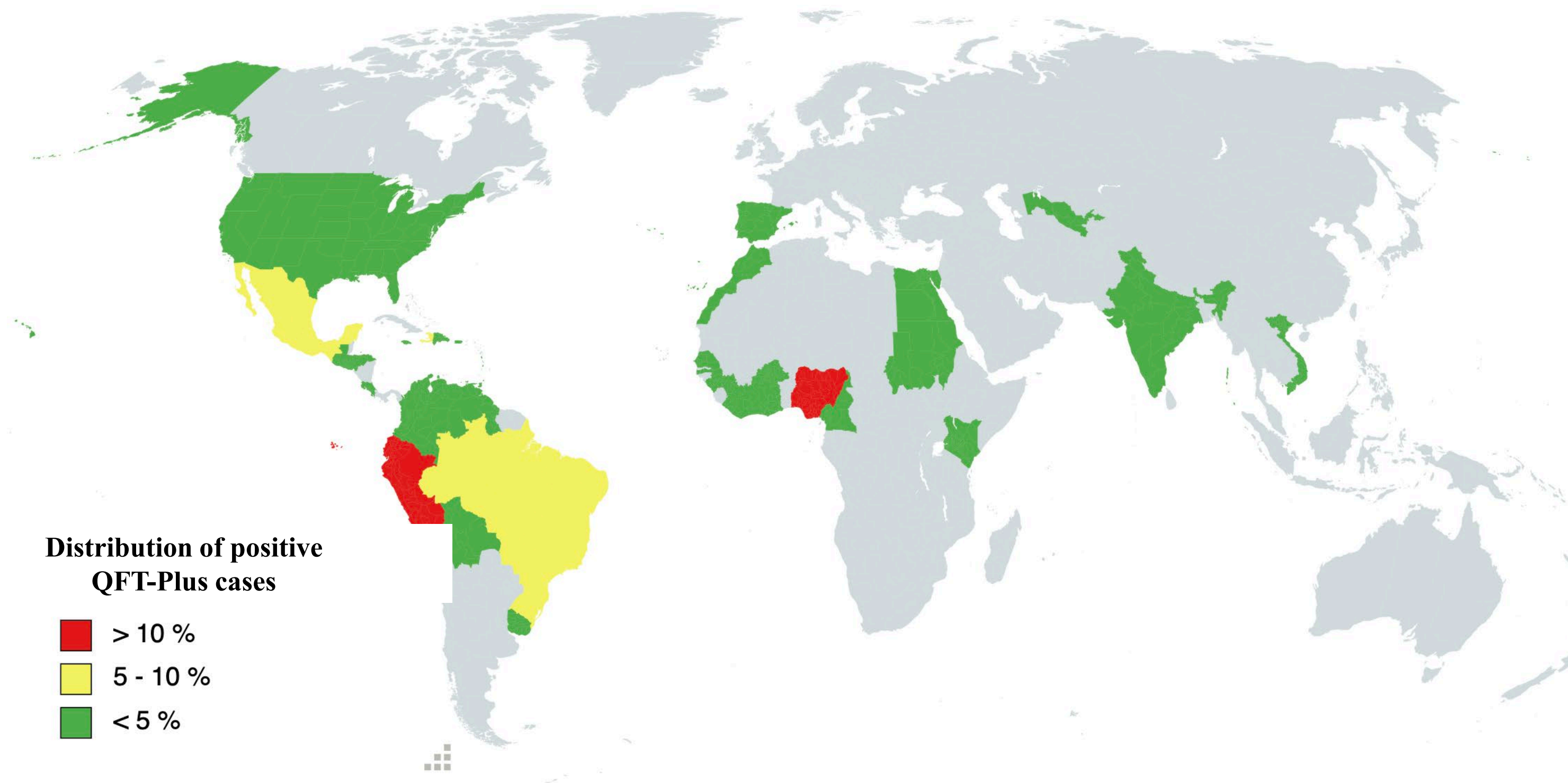
Demographic characteristics of patients with QFT-Plus ordered (n=2155)

| | |
|---------------------------------------|--------------------------------|
| Gender – n (%) | |
| •Female | 1251 (58) |
| •Male | 904 (42) |
| Age - Mean (SD) | 52.2 (13.5) |
| Race – n (%) | |
| •White | 41 (2) |
| •Black/African-American | 527 (24.9) |
| •Asian | 24 (1) |
| •Other | 1534 (71.1) |
| •Unknown | 28 (1) |
| Year of QFT-Plus order – n (%) | |
| •2018 | 1077 (49.9) |
| •2019 | 1078 (50.1) |
| Completion of QFT-Plus – n (%) | |
| •Yes | 1530 (71) |
| •No | *625 (29) *622 cases from 2019 |
| QFT-Plus result – n (%) | |
| •Positive | 356 (23) |
| •Negative | 1156 (75.5) |
| •Indeterminate | 18 (1.5) |

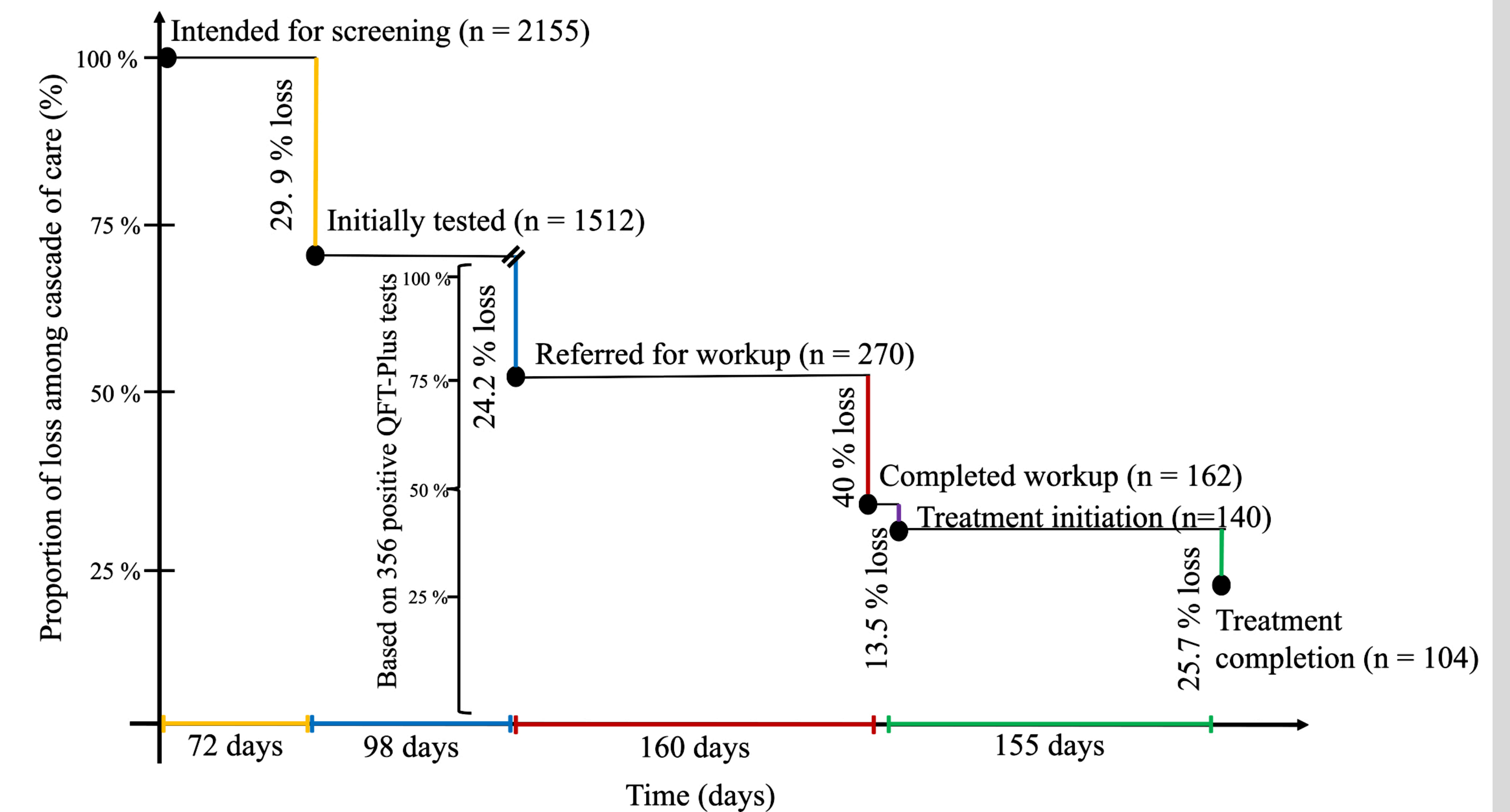
Positive QFT-Plus cases (n = 356)

| | |
|---------------------------------------|------------|
| Reason for screening – n (%) | |
| •Country with high incidence | 315 (88.5) |
| •Congregated setting | 6 (1.7) |
| •Contact with TB case | 3 (0.8) |
| •Other | 32 (9) |
| Year of QFT-Plus order – n (%) | |
| •2018 | 271 (76.1) |
| •2019 | 85 (23.9) |
| Region of origin – n (%) | |
| •US | 9 (2.8) |
| •Latin America and the Caribbean | 240 (73.6) |
| •Africa | 69 (21.2) |
| •Asia | 4 (1.2) |
| •Europe | 4(1.2) |
| Preferred language – n (%) | |
| •English | 109 (30.6) |
| •Spanish | 201 (56.4) |
| •Portuguese | 19 (5.3) |
| •Haitian-Creole | 14 (3.9) |
| •Other | 13 (3.6) |
| Type of visit – n (%) | |
| •New patient | 163 (45.8) |
| •Follow-up | 193 (54.2) |
| Insurance – n (%) | |
| •None | 192 (53.9) |
| •Charity Care | 55 (15.5) |
| •Other | 109 (30.6) |

- Ecuador, Nigeria and Peru represented the most frequent countries of origin for patients with a positive QFT-Plus



Cascade of care for LTBI



- The most significant losses were found on the completion of LTBI workup (Chest X-Ray and Lattimore referral) and completion of initial screening.
- The average time between QFT-Plus order to completion of LTBI treatment was 387 days.
- Factors associated with losses were insurance status (for treatment initiation) and year of screening for completion of screening and Latimore referral

LTBI regimen started on Lattimore practice (n=140)

| | |
|---|-----------|
| LTBI treatment regimen - n (%) | |
| •Isoniazid + Rifapentine for 3 months (3HP) | 26 (18.6) |
| •Rifampicin for 4 months (4R) | 93 (66.4) |
| •Isoniazid + Rifampicin for 3 months (3HR) | 3 (2.1) |
| •Isoniazid for 6 months (6H) | 1 (0.7) |
| •Isoniazid for 9 months (9H) | 9 (6.6) |
| •Isoniazid + Rifabutin (INH+Rfb) | 1 (0.7) |
| •Rifabutin (Rfb) | 2 (1.4) |
| •Pyrazinamide + Ethambutol (PZD+ETB) | 1 (0.7) |
| •Levofloxacin | 1 (0.7) |
| •Started on RIPE therapy | 3 (2.1) |

- 104 out of 356 (29%) candidates reached the final step of the LTBI cascade with treatment completion.
- Most used LTBI therapy was rifampicin for 4 months
- Three cases of active TB were identified.

Conclusions

- Strategies to improve the LTBI cascade of care in our facility should focus of the completion of workup which includes chest X-ray and referral to the Lattimore practice.
- A subsequent analysis of the years 2020 and 2021 should be carried since we propose that most of the losses in 2019 were related to the COVID-19 pandemic.



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