

# Miliary TB in East London (2014-2022): a retrospective review of microbiology, imaging and outcomes

Joseph Gafton<sup>1,2</sup>, Daniel Pope<sup>2</sup>, Bilal Fakim<sup>3</sup>, Santino Capocci<sup>4</sup>, Janan Jeyatheesan<sup>3</sup>, Rory McDermott<sup>2,3</sup>

<sup>1</sup>Queen Mary University of London, <sup>2</sup>Newham University Hospital <sup>3</sup>Barts Health NHS Trust <sup>4</sup>Homerton University Hospitals NHS Trust

Correspondence: j.gafton@nhs.net

References:



## Background

- Miliary TB, characterised by <4mm nodules diffusely spread through the lung fields, makes up a minority of TB cases (3.9% in 2020) but has a treated mortality of up to 30%<sup>1</sup>
- Classic imaging findings are highly variable (29-88%) in case series<sup>2,3</sup>, as are culture rates with sputum positivity reported from 5-81% of cases<sup>1,2,3</sup>
- We present a large series of patients from East London, an ethnically diverse area with some of the highest incidence of TB in the UK<sup>4</sup>

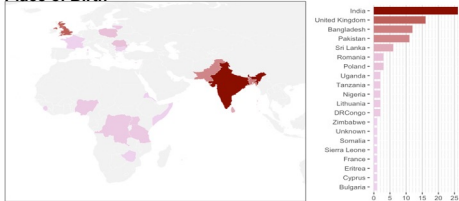
## Methods

We used the London TB register to identify all notified cases of miliary TB (≥12 years old) in inner East London (under Barts Health NHS Trust) from 2014-2022. Electronic health record lookup supplemented registry data. For patients with CT chest imaging available within 1 month of the treatment start date, this was reviewed and classified by radiologists.

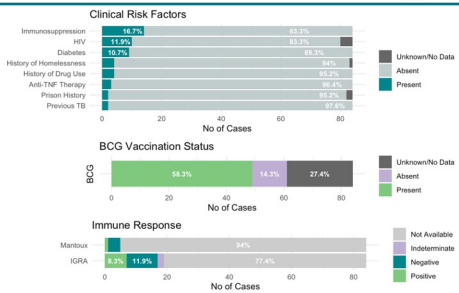
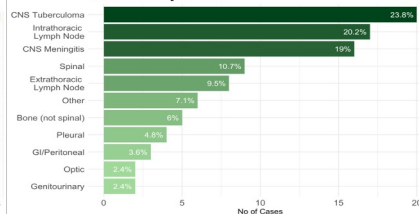
## Results

Of 84 cases included: the median age was 42.5 (IQR 19.5), 36% women, 69% South Asian ethnicity. Other data are presented in the panels that follow:

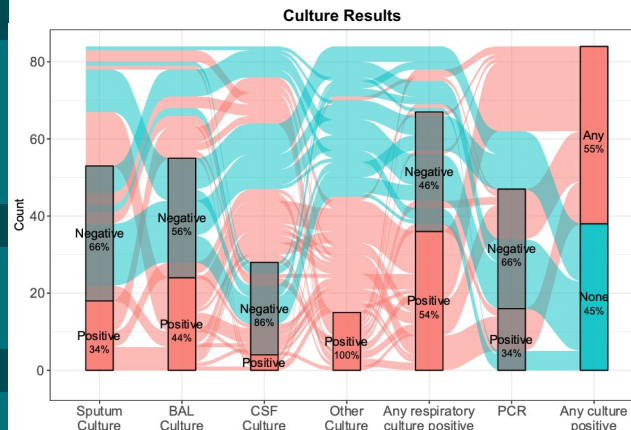
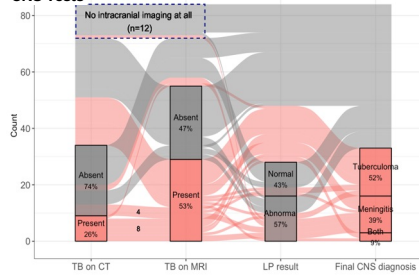
### Place of Birth



### Non-Pulmonary Disease



### CNS Tests



Logistic regression showed positive cultures were more likely with increasing age in years ( $p=0.03$ ), male sex ( $p=0.001$ ) and those with any CNS disease ( $p<0.001$ ).

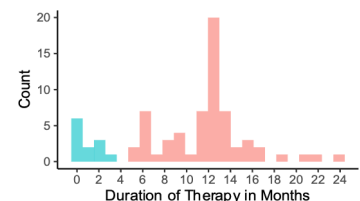
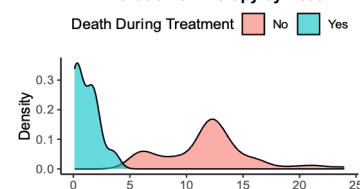
Of those with CT available within 1 month of starting treatment, 31% had classical miliary imaging, 24% had primary/post-primary changes, 2% had sarcoid-like changes, and 20% were classified as 'other' on radiology review. 55% of those with a completion CXR had a clear film. Patients who had classical miliary appearance on initial CT imaging were more likely to have a clear CXR at the end of treatment (76% vs 38%,  $p=0.025$ ).

80% were admitted to hospital (median length of stay 14 days) and 14% died during treatment. 11 received an alternative or dual diagnosis, of which the two patients with cancer died. Death was more likely with increasing age (OR 1.49, 95% CI 1.19-2.37) and less likely with any positive culture (OR 0.00, 95% CI 0.00-0.07,  $p=0.02$ ).

## Conclusion

Miliary TB mortality was high, with low culture positivity. CNS disease was associated with having a positive culture, and having a classical CT appearance at the start of treatment was associated with a clear chest x-ray at the end of treatment.

### Duration of Therapy by Death



### Duration of Therapy in Months

## Logistic regression to predict death

