



Outcome of Tuberculosis Screening using Interferon-Gamma Release Assay (IGRA) in Irish Prisons



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Introduction

Effective and timely tuberculosis (TB) screening in congregated settings is crucial for early detection and prevention of outbreaks.

Prisoners exposed to infectious TB cases have a higher risk of developing TB and of having poorer TB treatment outcomes than the general population, making them a vulnerable group in the context of TB. The burden of TB disease (TBD) in prison populations is about 10 times higher than in the general population¹.

Tackling barriers during screening significantly improves outcomes.

Background

The Department of Public Health – HSE Dublin and Midlands was notified of an infectious pulmonary TB case in a prisoner. The sputum cultured *Mycobacterium tuberculosis* after 4 days.

In total, 38 prison officers and 34 cellmates were identified as contacts, and were screened using a symptom questionnaire and IGRA testing.

Methods

- The aim of this study is to describe the outcome of TB screening using IGRA in a prison setting.
- Prior to this, all of our on-site TB screening was performed with Tuberculin Skin Test (TST). TST requires contacts to be seen on the day the test is administered and 48 to 72 hours after to read the results.
- The IGRA method requires only a single blood draw, eliminating the need for a return visit, substantially improving test attendance, reducing risk of loss to follow-up, interpretation variability and increasing completion rates in settings with high turnover.

Discussion and recommendations

- Our screening results highlight the operational advantages of IGRA in the prison service.
- The single-visit blood draw and rapid turnaround time for IGRA contributed to the high screening uptake and diagnostic efficiency in such high-risk settings. It further facilitated the timely identification of new TBI and active TBD among the contacts.
- This operational efficiency with IGRA enabled early detection of TBI and prompt initiation of TB preventive treatment (TPT).
- A limitation of this study was that we didn't do a head-to-head comparison of TST vs IGRA in this study population.
- However, similar studies show IGRA demonstrated superior performance to TST for predicting incident TB².

Conclusion

- The positive outcome supports the integration of IGRA into TB control strategies to reduce TB transmission in similar high-risk settings, ultimately contributing to more effective TB prevention and management.
- The use of IGRA for individuals exposed to TB in a prison setting facilitated a high uptake of screening.

References

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- Ayers T, Hill AN, Raykin J, et al. Comparison of Tuberculin Skin Testing and Interferon-γ Release Assays in Predicting Tuberculosis Disease. *JAMA Netw Open*. 2024;7(4):e244769. doi:10.1001/jamanetworkopen.2024.4769

Results

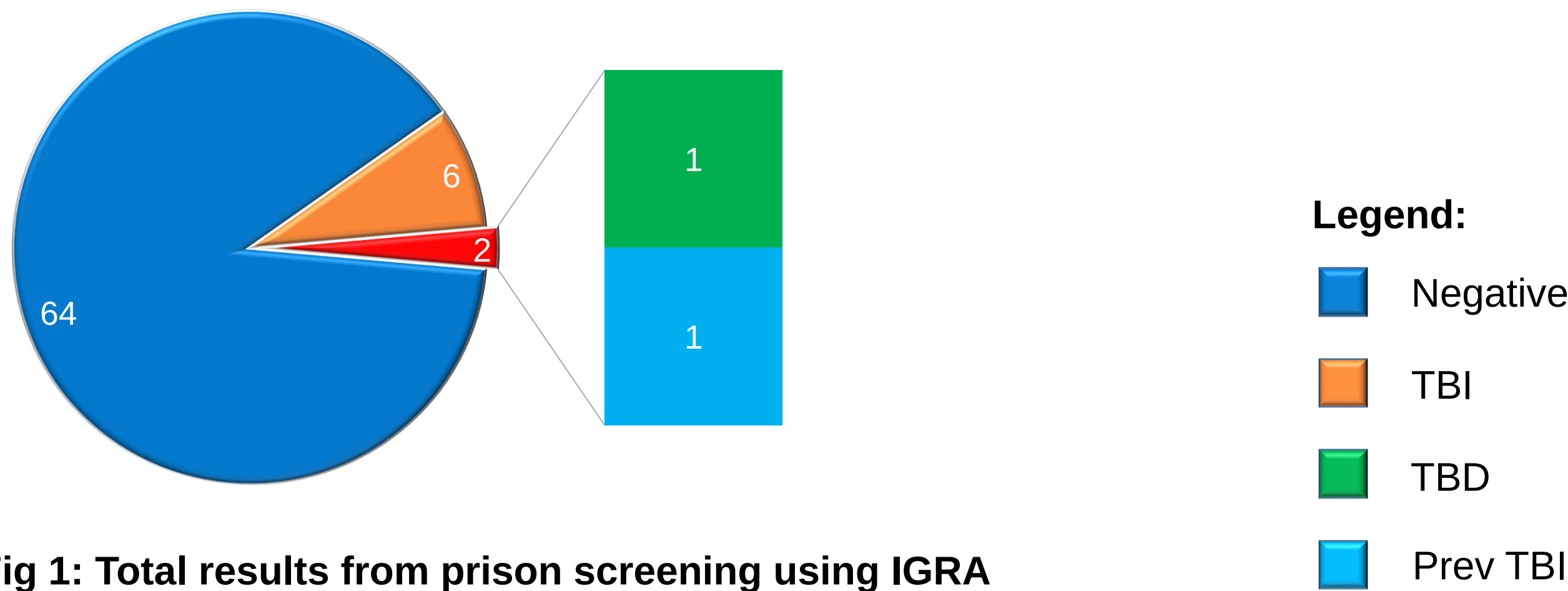


Fig 1: Total results from prison screening using IGRA

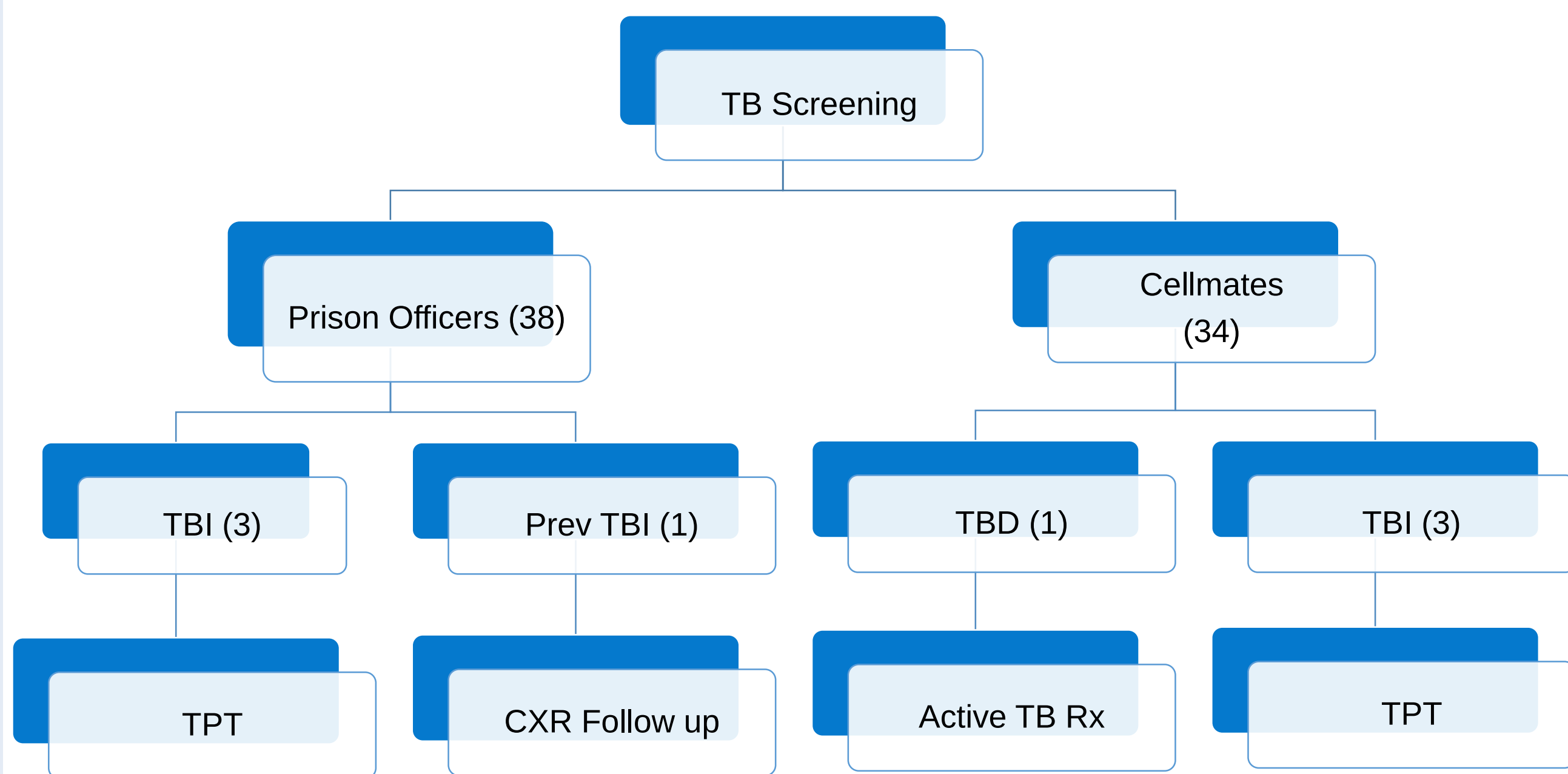


Fig 2: Flow chart describing TB screening

- All prisoner and prison officer contacts were screened. Three prisoners (8.8%) and three prison officers (7.9%) tested positive for TB infection (TBI) from IGRA, with one prisoner diagnosed with active TB Disease (TBD). All of the contacts with TBI were commenced on TB preventive treatment.
- The laboratory provided robust support during the implementation of IGRA as the screening tool in the prison setting.
- Notably, all collected samples were suitable for testing.

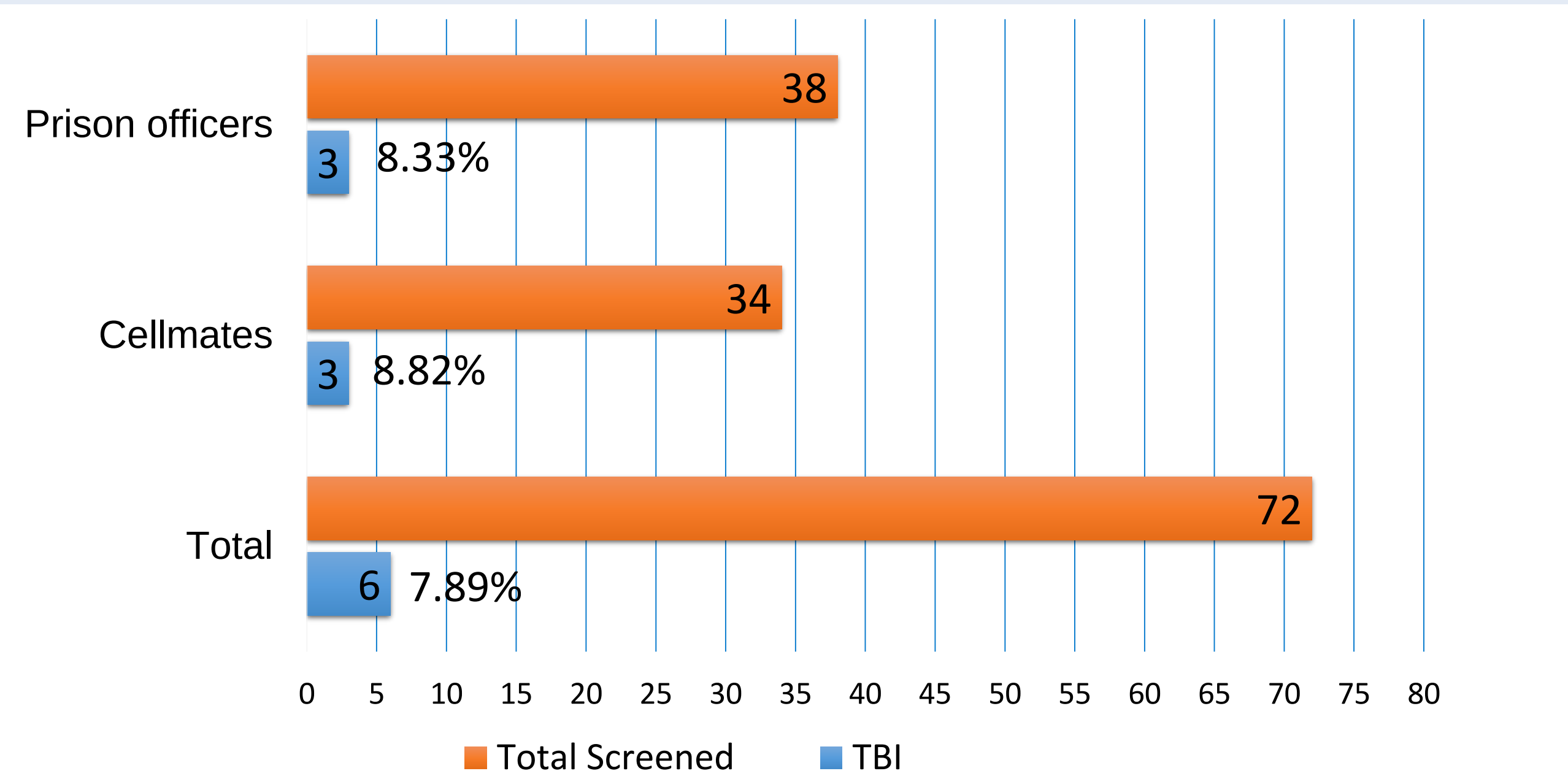


Fig 3: Percentage of TBI detected in an Irish prison using IGRA

Acknowledgements

- Dr Mark McLoughlin, Specialist Registrar in Public Health Medicine, HSE Dublin and Midlands
- Liam Phillips, Emmett Conroy and Elaine Dunne, National Infection Control Team, Irish Prison Service
- Immunology Laboratory, LabMed Directorate, St James's Hospital, D08 NHY1
- Laura Smith & Patricia Carney, Department of Public Health - HSE Dublin and Midlands



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