



Evaluating the Management of Active Tuberculosis at a Tertiary Hospital: Insights from the 2024 Audit

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Background

Data from the Health Protection Surveillance Centre (HPSC), shows that in 2023 Ireland recorded 224 cases of tuberculosis (TB), with an incidence rate of 4.4 per 100,000 population. **Fig 1.** This remains significantly above the World Health Organization (WHO)'s *End TB* target, which aims for an 80% reduction in TB cases between 2015 and 2030. A previous audit of our hospital's outpatient TB service (carried out in 2022-2023) highlighted the need for enhanced reporting and collaboration with agencies such as the HPSC, to improve data collection and work towards the WHO's *End TB* goals. This audit aims to assess the management of active TB infections at our tertiary site and evaluate changes in service provision since last audited in 2023.

Annual TB notifications

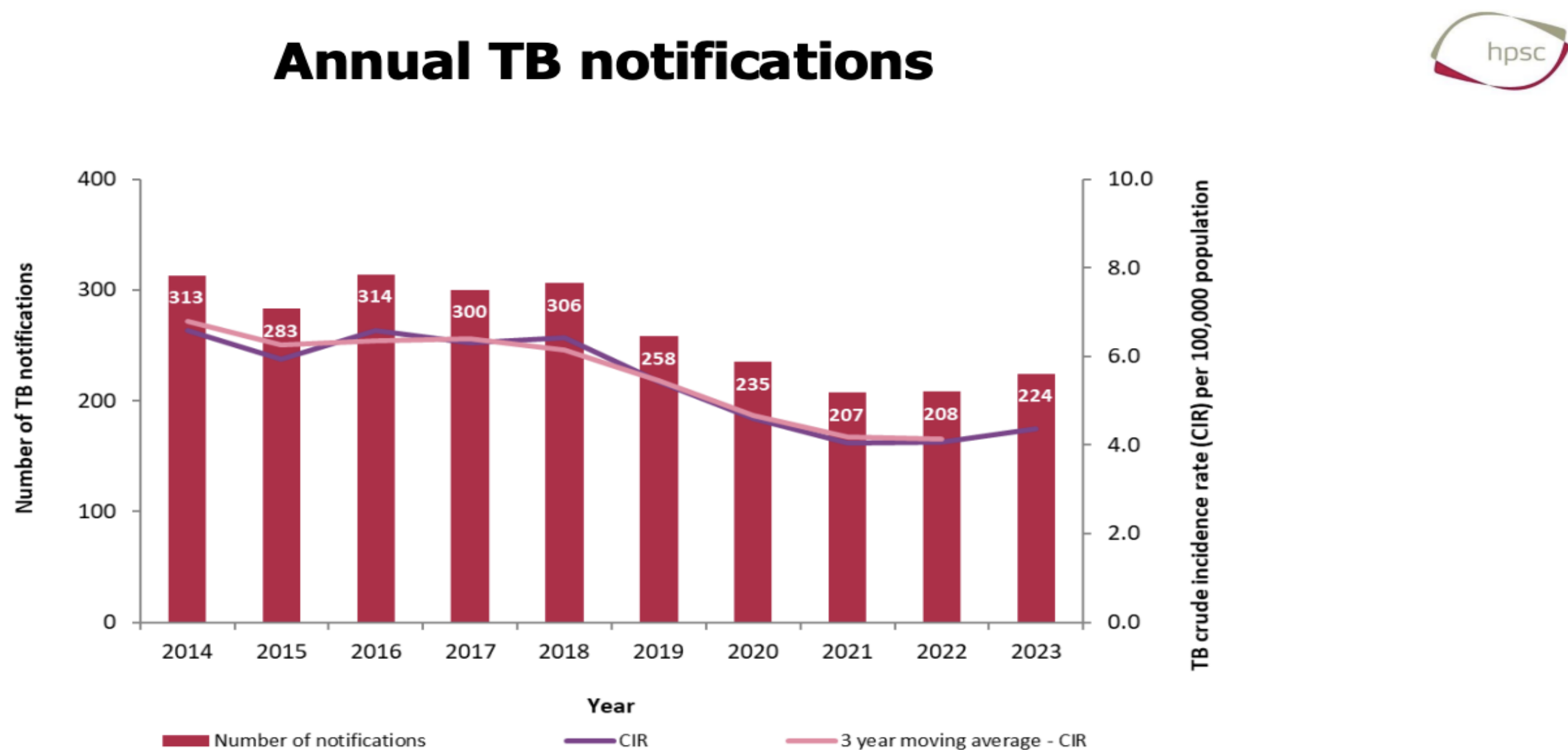


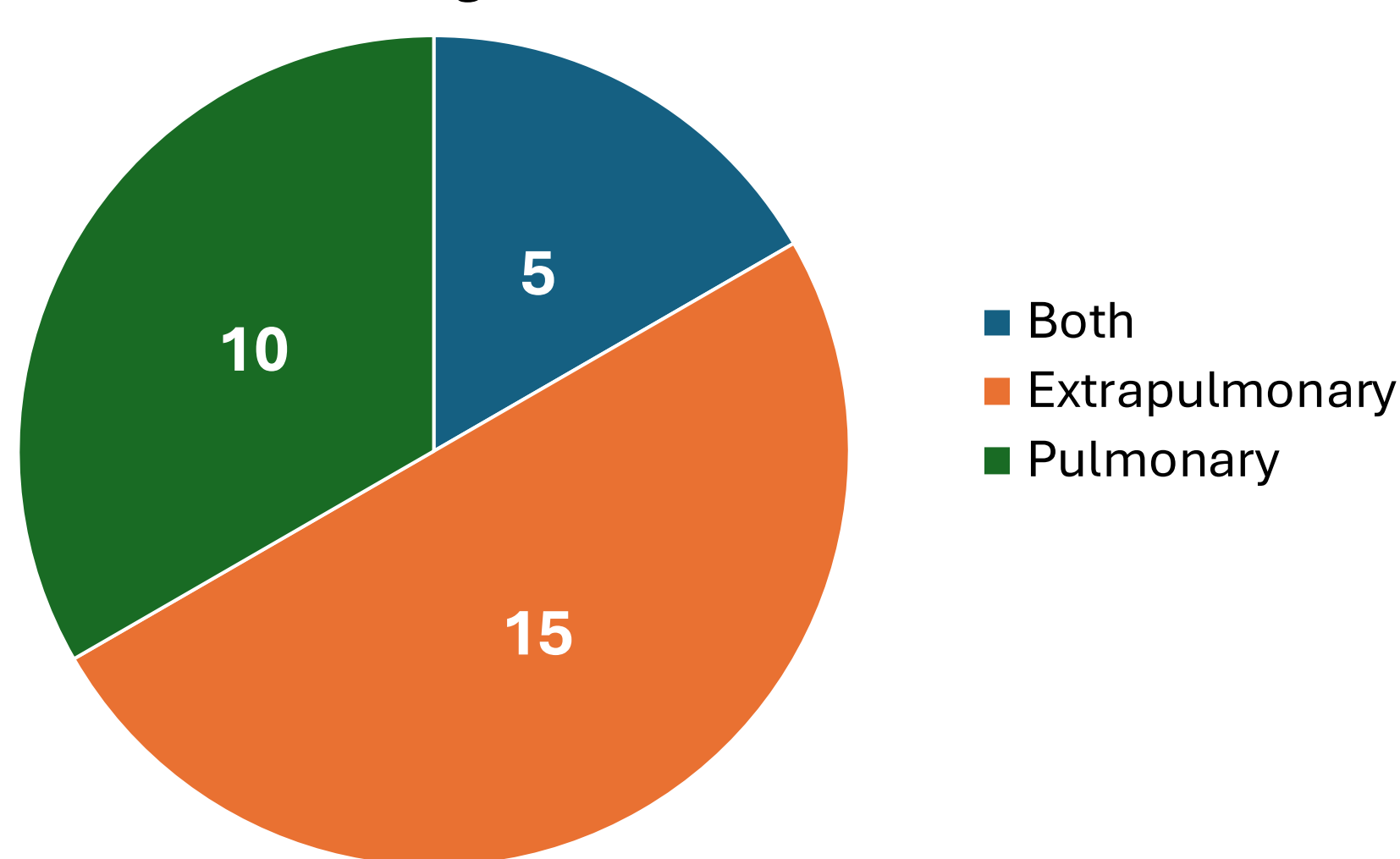
Fig 1. HSE- Health Protection Surveillance Centre. Tuberculosis in Ireland: provisional trends in surveillance data.

Results

In 2024, a total of 30 patients with active MTB complex infection were reviewed. Of these, 17 were male and 13 female, with ages ranging from 21 to 77 years (mean age: 41.8 years). The highest proportion region of origin was Asia. **Fig 2.** HIV testing was conducted in 96.7% of cases (one positive result was known prior to testing). The distribution of infection sites was as follows:

- 15 patients had extra-pulmonary MTB infection,
- 10 had pulmonary infection,
- 5 had both pulmonary and extra-pulmonary infection. **Fig 3.**

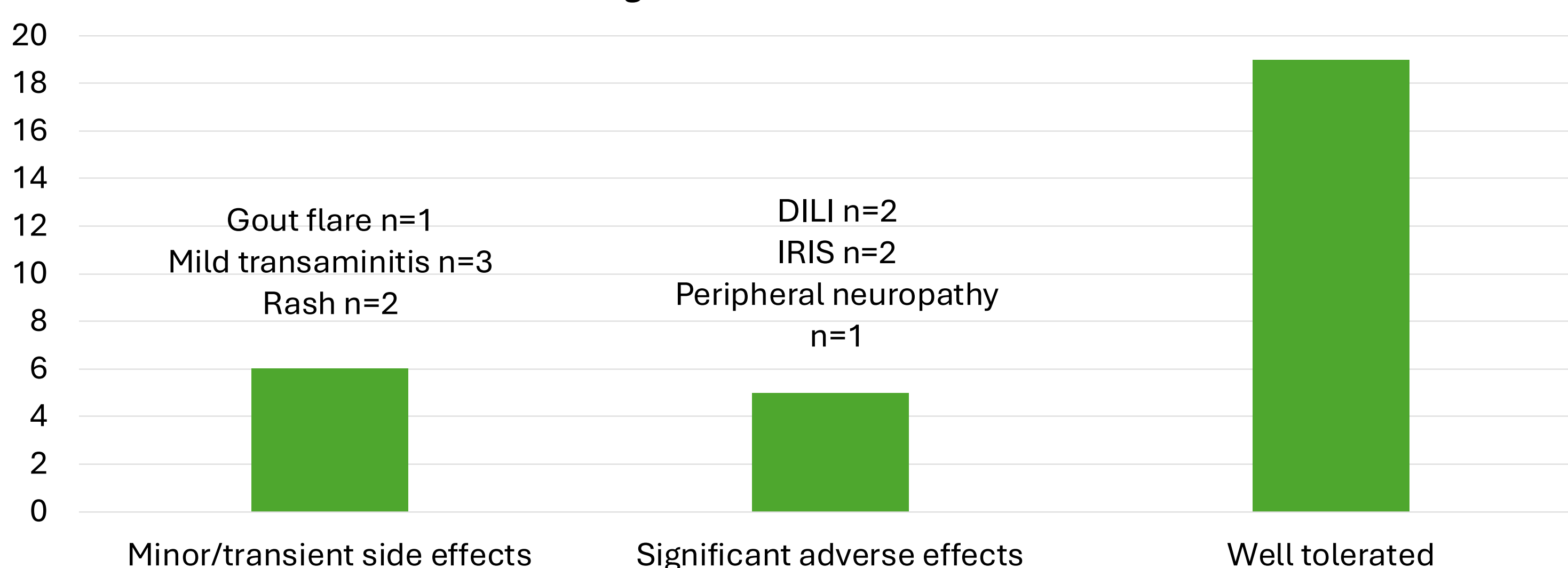
Fig 3. Site of disease



The microbiological diagnosis was characterized by the following:

- 5 cases were positive by PCR only,
 - 6 cases were culture-positive only.
 - 10 cases were positive by both PCR and culture,
 - In 9 cases, a diagnosis of MTB complex infection was based on histological findings and clinical suspicion, without microbiological confirmation. **Fig 5.**
- Among the 16 culture-positive cases, two were Pyrazinamide resistant and the remainder pansensitive. Of the 15 PCR-positive cases, one was identified as rifampicin-resistant and two returned rifampicin-indeterminate results.

Fig 6. Treatment tolerance



As of December 31, 2024, 11 of the 30 patients had completed treatment. 7 completed 6 months treatment as standard, 1 was treated for 9 months with a Rifampicin free regimen and 3 received 12 months of treatment for CNS or disseminated disease. Treatment was discontinued early in 1 case where it was deemed no longer necessary. The remaining 18 patients were still undergoing treatment, with completion expected within 12 months. Of the 11 patients who completed treatment in 2024, 5 had case closeout letters communicated to Public Health, of which 1 was missing key drug sensitivity information.

Discussion and Recommendations

Following the 2023 audit, we are committed to regular reporting to meet national standards and complete the audit cycle. Our 2024 audit showed an increase in MTB cases (from 18 in 2022/23), reflecting the national trend reported by the HPSC in 2023. The Health Service Executive (HSE)'s *Striving to End Tuberculosis: A Strategy for Ireland 2024-2030* outlines a plan to reduce TB incidence in line with the WHO's goals. Continued auditing will improve service delivery, enhance patient outcomes, and support the HSE's goal of a collaborative approach to TB in Ireland. A key finding of our audit was that only 36% of patients who completed treatment in 2024 had a closeout letter sent to Public Health with the correct information included (compared to 26% in 2023). To address this, the audit team recommends developing a 'case closeout letter template' to be displayed in the outpatient department as a reminder to all staff of the key clinical details that should be included.

Methods

- Patients diagnosed with active Mycobacterium tuberculosis (MTB) complex infection who attended the infectious diseases outpatient service from December 31, 2023, to December 31, 2024, were included in this review.
- Patients with latent TB or infections caused by non-tuberculosis mycobacterium were excluded.
- A retrospective review of patient records was conducted to assess demographic data, site of disease and details of treatment.
- Key performance indicators (KPIs), such as rate of HIV testing and the issuance of a letter to Public Health upon treatment completion were also assessed.

Fig 2. Region of origin

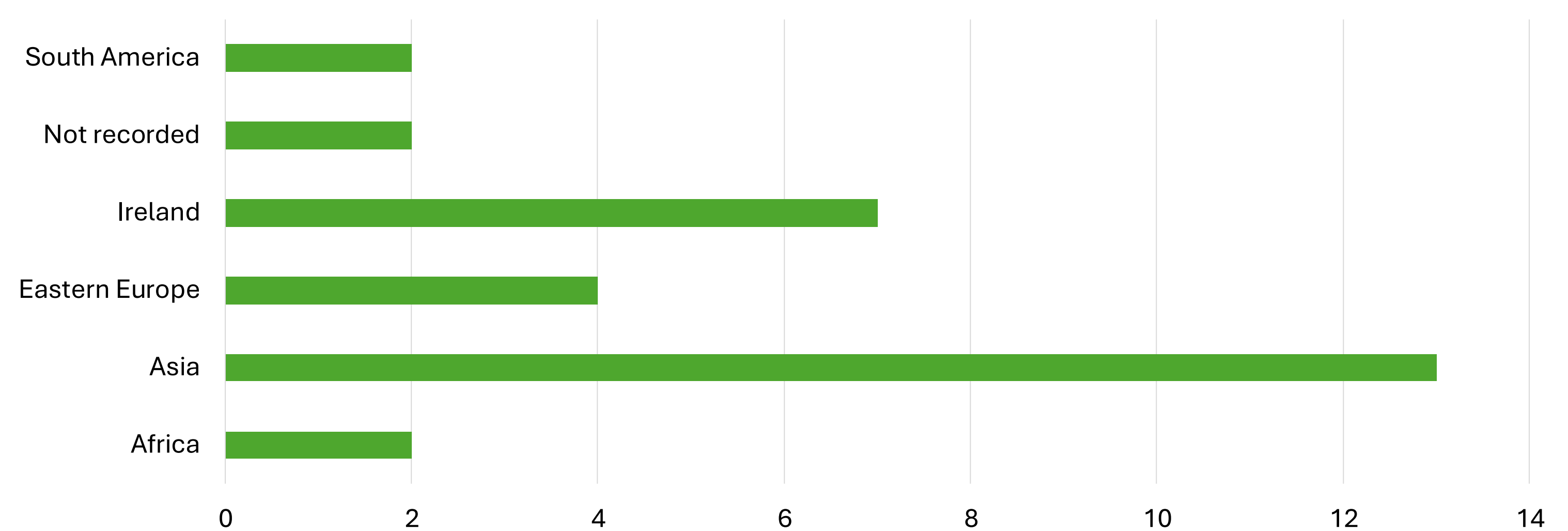


Fig 4. Extrapulmonary disease sites

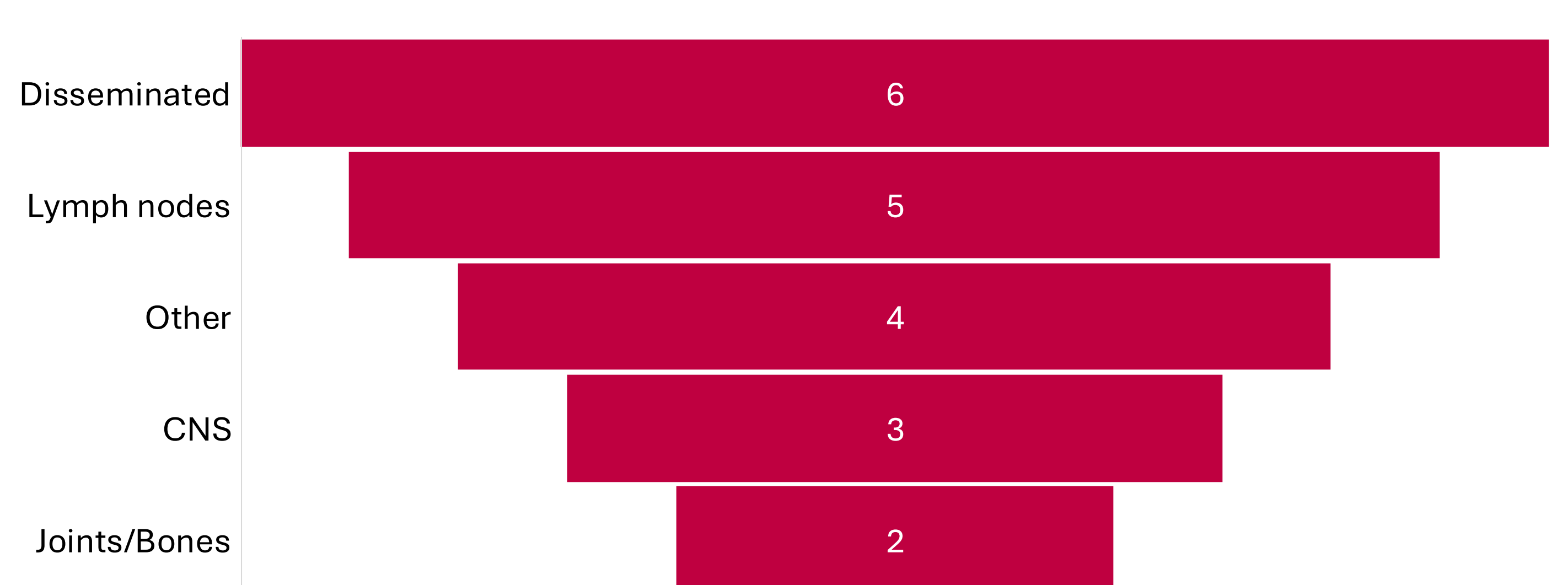
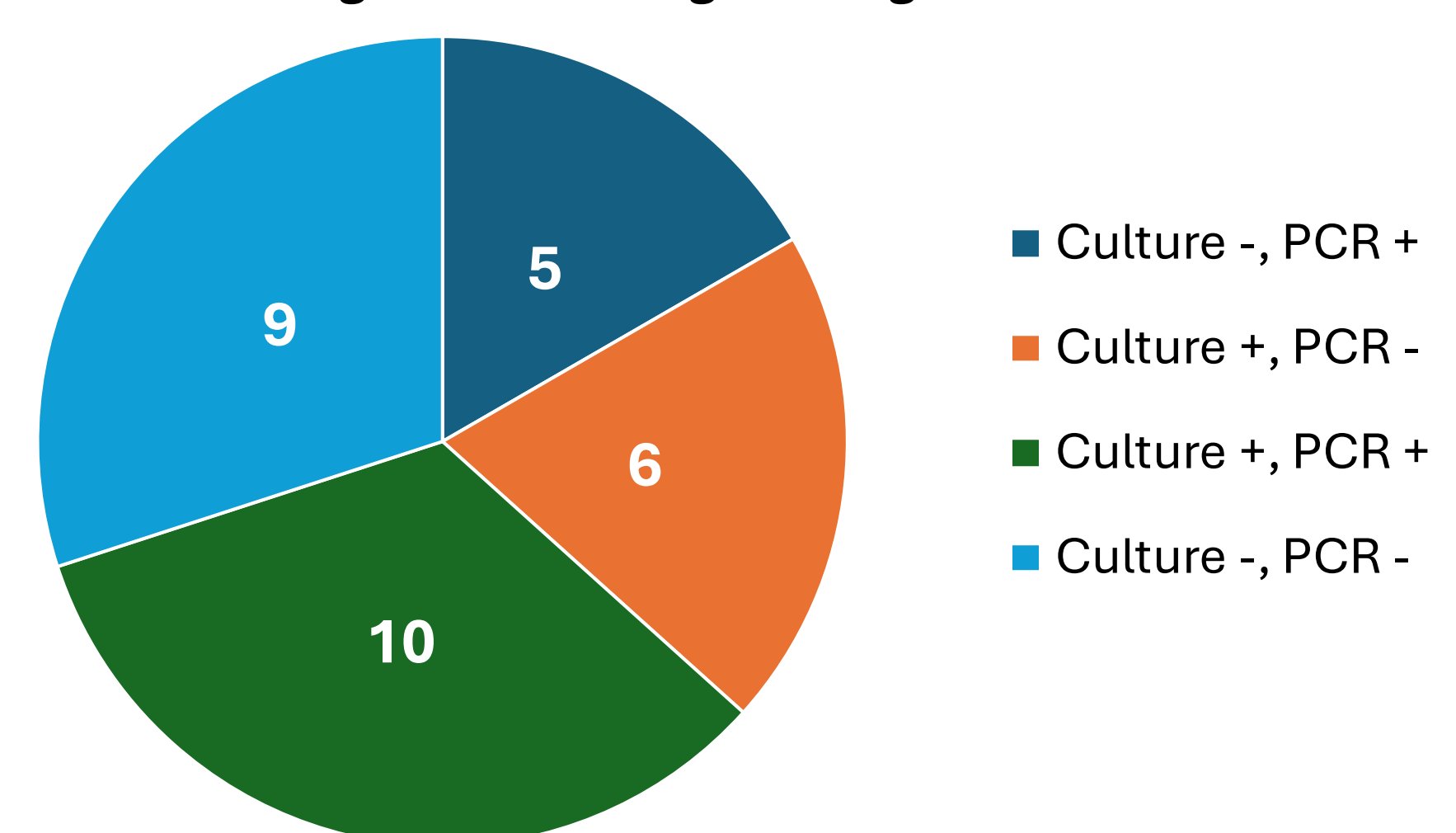


Fig 5. Microbiological diagnosis



Treatment was initiated in all patients. Most patients (n=19) received the standard regimen of Rifampicin, Isoniazid (with pyridoxine), Pyrazinamide and Ethambutol (RHZE) for 2 months, followed by Rifampicin and Isoniazid (with pyridoxine) for 4 months. The treatment was generally well-tolerated, though 6 patients experienced transient side effects such as rash or mild transaminitis. More significant adverse events, including drug-induced liver injury (DILI) or immune reconstitution inflammatory syndrome (IRIS), occurred in 5 patients. **Fig 6.**