



# Are we doing enough for controlling tuberculosis and multi-drug resistance in an epicenter of the current migration emergency (Calabria Region, Southern Italy)?

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To the Editor,

Despite the fact that the World Health Organization (WHO) set the goal of 95% decrease in tuberculosis (TB) deaths by 2030 (End TB Strategy) [1], TB remains the leading cause of death after SARS-CoV-2 and the burden of TB resistant to rifampin and/or isoniazid (RR/MDR) increased as a result of the COVID-19 pandemic [1].

In 2021, 2146 people were diagnosed with TB in Italy; most of them (74.2%) had pulmonary TB (with or without extrapulmonary involvement), and among these, 37.4% were smear-positive. Most patients (57.9%) were foreign-born with a mean age of 38 years, while Italians were older on average (54 years). In 2021, 44 cases (3%) of RR/MDR-TB were detected, and 10/44 (22.7%) were pre-XDR TB cases. The following years (2022–2023) saw a twofold increase in the number of immigrants arriving in Italy for each year, possibly due to geopolitical changes related to war [2] and

COVID-19 [1]. The combined effect of this exacerbated migration phenomenon and of the healthcare system crisis caused by the COVID-19 pandemic is caused for alarm for a possible increase of imported TB cases and MDR-TB from countries with high endemicity of this infection. Moreover, the war between Russia and Ukraine, both high-endemic TB countries, also raises concern from a public-health perspective, since more than half of strains reported in Eastern European countries are RR/MDR [1] and Ukraine is the fifth in prevalence of extensively-drug-resistant (XDR) strains worldwide [2].

In particular, the Calabria region located in the center of the Mediterranean Sea in Southern Italy stands in the epicenter of the migration emergency; in fact, Italian police registered 55.8% more immigrants compared to the previous year in 2022 and Calabria was the first non-insular region for number of people docking on Italian shores from the Mediterranean Route [3]. Since the Calabria region acts as a “port of entry”, it could also serve as a strategic site for implementing screening, prevention, early treatment, and isolation policies to control TB both within the region and across its borders when migrants further travel to other wealthier regions in Italy or abroad. Unfortunately, this objective is hampered by the large coastal extent (788 Kms) of this region and by the lack of resources aggravated by COVID-19.

We investigated for the first time the burden of newly diagnosed TB cases in Calabria during a period which was characterized by the COVID-19 pandemic and the migration emergency to set up an active, regional-based surveillance of TB with particular focus on RR/MDR-TB. To do so, we conducted a survey on a population-based data-set relating to patients with TB admitted to any hospital in the Calabria region from January 1st, 2019, to June 30th, 2023.

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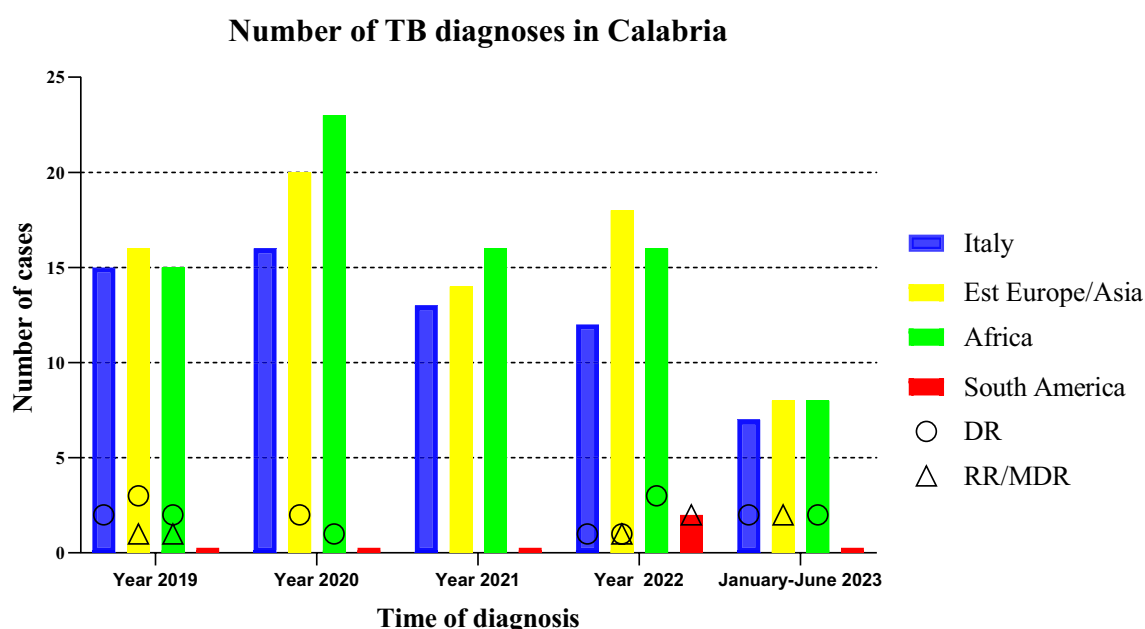
Over the study period, we found 219 patients diagnosed with TB. Their mean age was 40 (standard deviation [SD]: 17.6) years, 154/219 (70.3%) were males, and 181/219 (82.6%) were affected by pulmonary TB with or without extrapulmonary involvement. Of these 181 patients, 137 (75.7%) were smear-positive. Overall, most patients (156/219, 71.2%) were foreign-born (35.6% from Africa, 34.7% from Eastern Europe or Asia and two from South America). Italian patients were older than foreign-born people (mean age: 52 vs 35 years,  $p < 0.0001$  [Student's  $t$  test]).

Only 8 among 219 (3.6%) patients were affected by RR/MDR-TB with a mean age of 39 (SD: 16) years. All these eight patients were affected by pulmonary TB with or without extrapulmonary involvement and five of them were smear-positive. Four patients were from Eastern Europe, two, respectively, from Africa and South America. Figure 1 depicts the number of people diagnosed with TB and RR/MDR-TB by country of origin along years in Calabria region.

The most relevant result of this survey is that a seeming re-emergence of MDR-TB was observed close to the end of the COVID-19 pandemic, while an apparent decrease in TB cases occurred in mid-pandemic (year 2021) and, furthermore, MDR strains were not detected during the same period. It has already been shown that COVID-19 caused a global drop in diagnoses of TB, in parallel with an increase

in the number of deaths from TB worldwide [1]. The reduction of TB diagnoses in 2021 in Calabria was also consistent with Italian nation-wide data [4], but it appeared that TB was reported more frequently in foreign-born people in our region (69.8%), possibly confirming the high burden of migration, compared to the overall picture in the entire Country (57.9%). Importantly, patients diagnosed in Calabria were more likely to be infectious when compared to the nation-wide data [5], since 67.6% vs 37.4% were smear-positive, clearly indicating the public-health relevance of our data in terms of controlling the spread of TB.

These findings raise concerns about re-emergence of TB and spreading of RR/MDR strains related to migration, indicating that political responses to the issue at hand are urgently required. European governments should, indeed, provide systematic and active TB screening especially in strategic, first-arrival landmarks such as Calabria region from which migrants then depart to other countries of destination. Cross-border systems should be implemented with contact tracing to identify those at highest risk. However, information sharing must observe human rights principles and safeguarding against stigma, discrimination, and deportation. Moreover, healthcare services must be strengthened (e.g. building infrastructures, such as negative pressure rooms, recruiting healthcare workers, implementing second-line antitubercular drug testing to detect XDR strains and



**Fig. 1** Number of TB diagnoses in Calabria by year. Colored bars indicate the number of overall patients diagnosed with tuberculosis in each year in Calabria, Italy. DR: strain resistant to at least one first-line anti-tuberculosis drug other than rifampin; RR/MDR: rifampin or multi-drug resistant strain according to World Health Organization<sup>3</sup>. An increase in RR/MDR-TB in the last period of this survey (from

January 2022 to June 2023) was observed compared to the period from January 2019 to December 2021 (Fisher's exact test,  $p = 0.016$ ). The highest number of MDR-TB cases (5/8) was observed in the last period of this survey (from January 2022 to June 2023) after zero cases detected in 2021.

drug availability, providing individual follow-up programs) to meet the needs of cure of refugees and migrants among other patients, prevent TB reactivation and its transmission.

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**Data availability** The datasets generated in this retrospective analysis are available from the corresponding author C.T. on reasonable request.

## Declarations

**Conflict of interest** Authors declare that there is no conflict of interest.

**Ethical approval** The present data were collected after the mandate of the Regional Health Authority to provide useful information to plan appropriate interventions. According to decree 196/2003 (“Italian Privacy Code”) and decree 101/2018 (“Harmonization Decree” harmonizing the Italian data protection laws with the provision of the General Data Protection Regulation 679/2016 GDPR), the processing of anonymized data does not require authorization by patients if carried out in the performance of public interest or public powers based on a provision of law.

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