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# LEBANON NATIONAL TUBERCULOSIS REPORT 2022



**NATIONAL TUBERCULOSIS PROGRAM  
MINISTRY OF PUBLIC HEALTH-LEBANON**

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## Abbreviations

DHIS2	District Health Information Software 2
EPTB	Extra-Pulmonary Tuberculosis
C19RM	Covid19 Response Mechanism
GTB Report	Global Tuberculosis Report
HBC	High Burden Countries
HCW	Healthcare Worker
IOM	International Organization for Migration
LMS	Logistic Management Software
LRM	Laboratoire Rodolphe Merieux
MDR-TB	Multi Drug-Resistant Tuberculosis
MER	Middle East Response to Syrian Crisis
MOPH	Ministry of Public Health
MSF	Médecins Sans Frontières
NSP	National Strategic Plan
NTP	National Tuberculosis Program
NTRL	National Tuberculosis Reference Laboratory
PTB	Pulmonary Tuberculosis
RR-TB	Rifampicin-Resistant-Tuberculosis
SWOT Analysis	Strengths, Weaknesses, Opportunities and Threats Analysis
TB	Tuberculosis
TRS	Tuberculosis Registration System
USJ-FP	Université Saint Joseph-Faculté de Pharmacie
VOT	Video Observed Treatment
WHO	World Health Organization

## I. TB Epidemiology in Lebanon

The 2021 targets of the NSP for TB elimination in Lebanon were largely met in 2021 with an estimated total TB incidence of 9.7 per 100000 population and an estimated HIV-negative TB mortality rate of 0.79 per 100000 population (*WHO Global Tuberculosis Report-2022*); As for the TB treatment coverage, it was estimated to 87% in 2021 (Table 1).

However, the drop in the estimated TB incidence in 2021 compared to the previous years resulted from the ongoing multifaceted crisis in the country, mainly the socio-economic crisis and the effects of the COVID-19 pandemic. This important aspect was taken into account during the development of the new NSP for TB elimination in Lebanon (2023-2030).

**Table 1: WHO Estimated TB Indicators vs. NSP for TB Elimination (2017-2021) Targets**

Lebanon TB Indicators	GTB Report-2022	NSP 2021 Targets
Estimated incidence rate-2021	9.7/ 100000 population	< 10/ 100000 population
Estimated mortality rate-2021	0.79/ 100000 population	< 1/ 100000 population
TB Treatment Coverage-2021	87%	90%

**Figure 1): Trends in notified TB cases by Nationality Subgroups, 2007-2022**

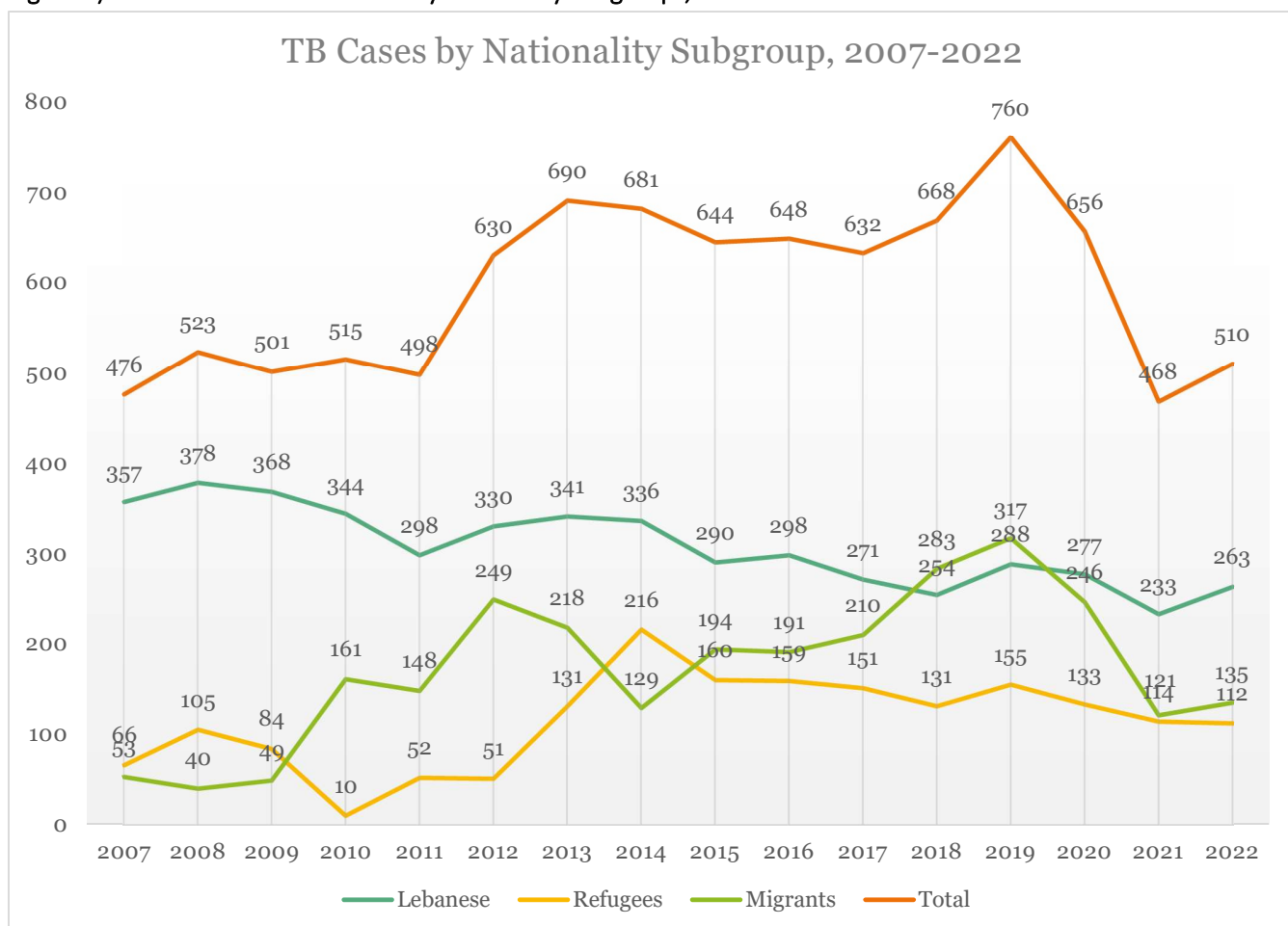
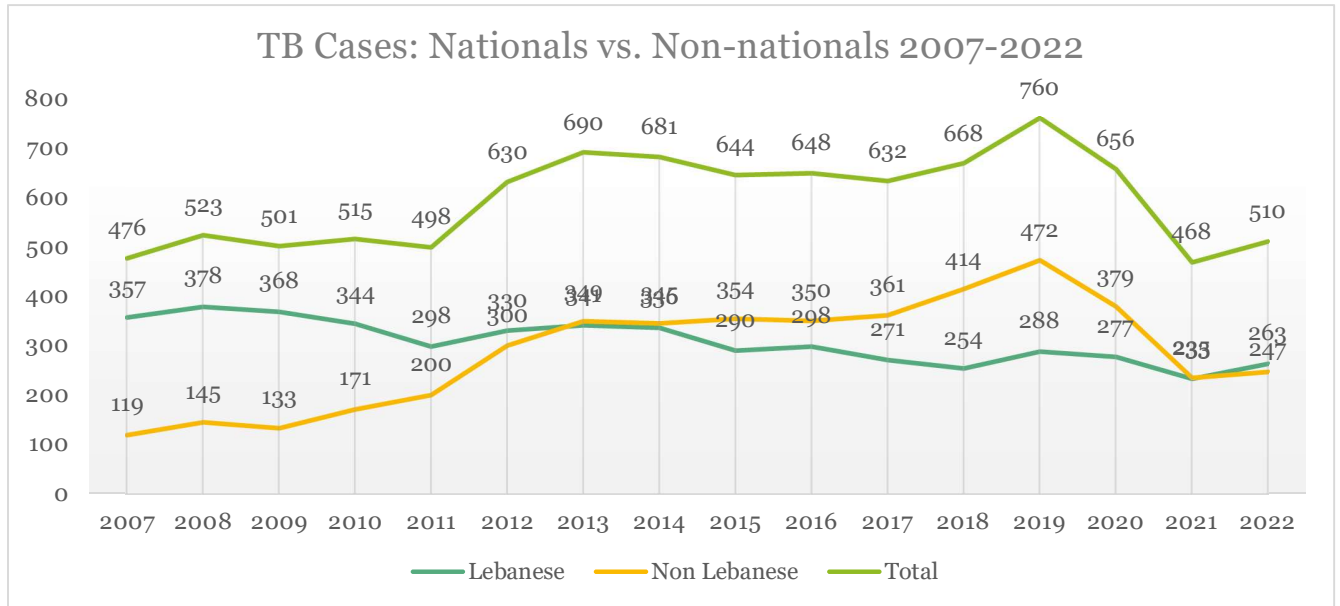


Figure 2): Trends in notified TB Cases-Nationals vs. Non-nationals, 2007-2022



### TB treatment Outcomes-2021

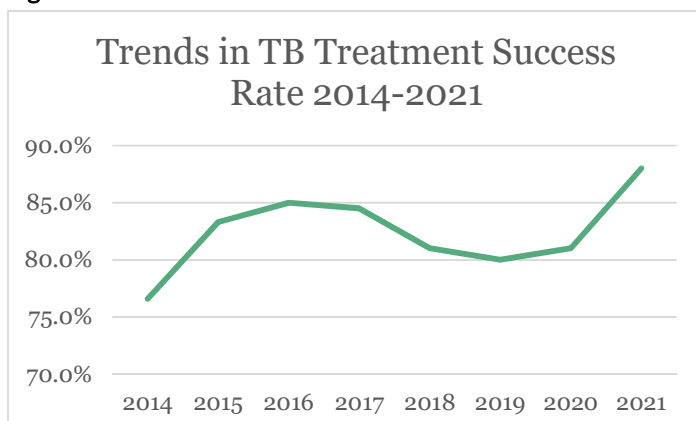
Table 2: Treatment Outcomes - Distribution by Nationality (2021)

Treatment Outcome	Nationality					Total
	Lebanese	Syrian	Palestinian	Iraqi	Others	
Cured	64	36	1	2	42	145
Treatment Completed	154	52	9	0	53	268
Treatment Success Count*	218	88	10	2	95	413
Treatment Success Rate (%)	94	87	100	67	79	88
Treatment Failure	2	0	0		0	2
Death	7	6	0		2	15
Left the Country	2	4	0	1	13	20
Transferred Out**	2	1	0		8	11
Lost to Follow-Up	2	2	0		3	7
Total	233	101	10	3	121	468

\*Treatment Success Count= Cured + Treatment Completed

\*\*Cases registered at NTP Lebanon and were transferred out to another NTP in a different country to continue TB treatment

Figure 3: Trends in TB Treatment Success Rate 2014-2021



## TB Epidemiology in Lebanon in 2022

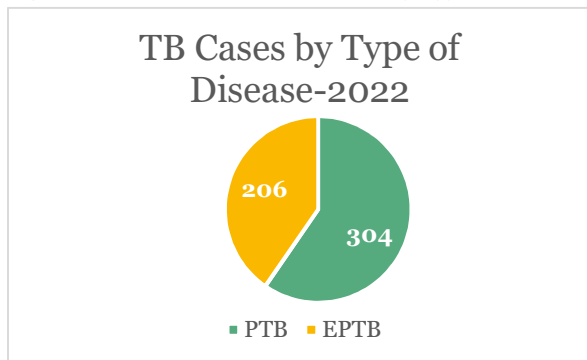
514 TB cases, including DS-TB and DR-TB were notified in 2022, diagnosed and enrolled under TB treatment. For the first time following the decline in notification perceived in 2020 and 2021, there was a slight increase of 9% in the total TB notification in 2022 compared to 2021; this increase was mainly noticed among Lebanese (by 13%) and migrants (by 11.5%).

### Drug-Susceptible TB Cases

In 2022, the total number of notified active susceptible TB cases was 510, out of which 60% had pulmonary TB (**Figure 3**). **Figure 4** shows the distribution of EPTB cases by site of disease with half of the extra-pulmonary cases having TB lymphadenopathy.

Regarding gender and age distribution, 27% of the cases were aged between 25 and 34 years; 61% of cases in this age group being females. Overall, 59% of the cases were females and 10% were below the age of 15, including 12 children below the age of 5 (**Figure 5**).

**Figure 4: Distribution of TB Cases by Type of Disease**



**Figure 5: Distribution of EPTB Cases by Site of Disease**

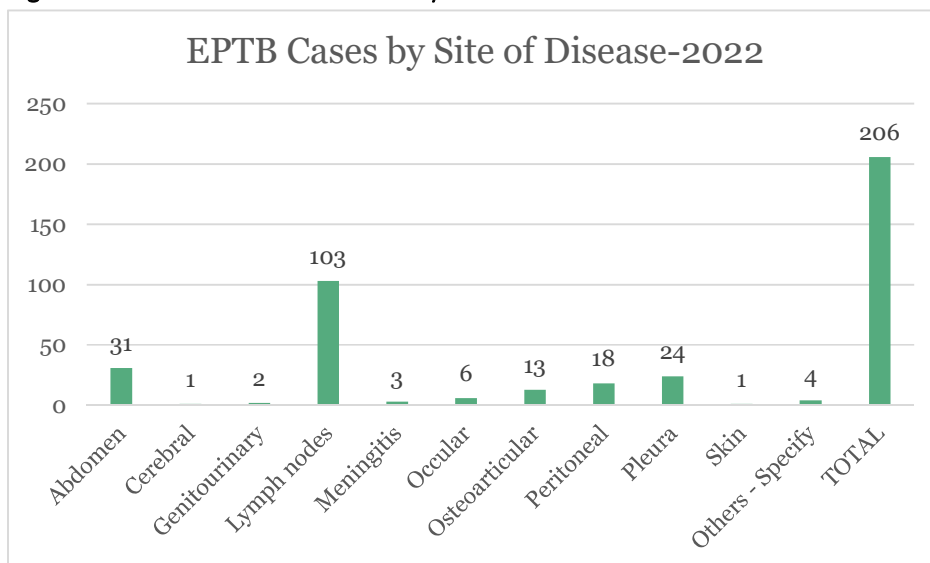
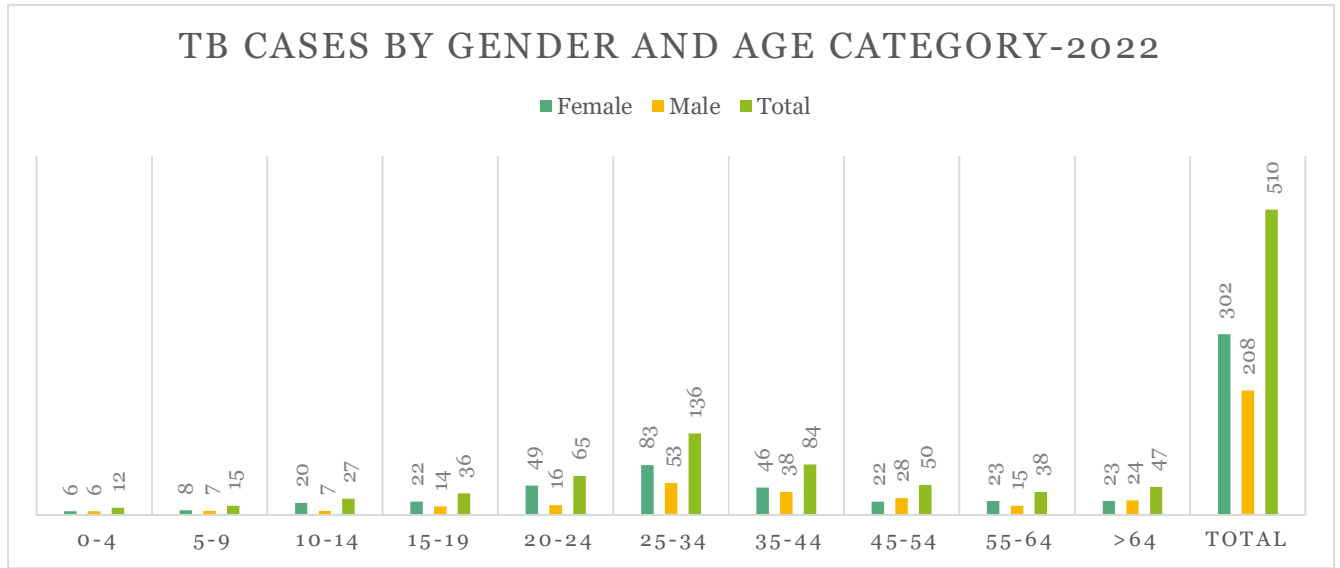


Figure 6: Distribution of TB Cases by Gender and Age Category



Besides, half of the notified TB cases were Lebanese and the majority of cases among non-Lebanese were from Syrian and Ethiopian nationalities with 94 and 84 reported cases respectively (Figure 6).

Regarding the distribution of TB cases by nationality, age category and population subgroup, represented in Figure 7, 54% of Lebanese cases were males, around 80% of cases aged 55 years and above were Lebanese. As for migrants, there was a peak in the number of cases in the age category 25-34; the majority being females; Finally, around 75% of refugees were aged between 15 and 44 years.

Figure 7: Distribution of TB Cases by Nationality

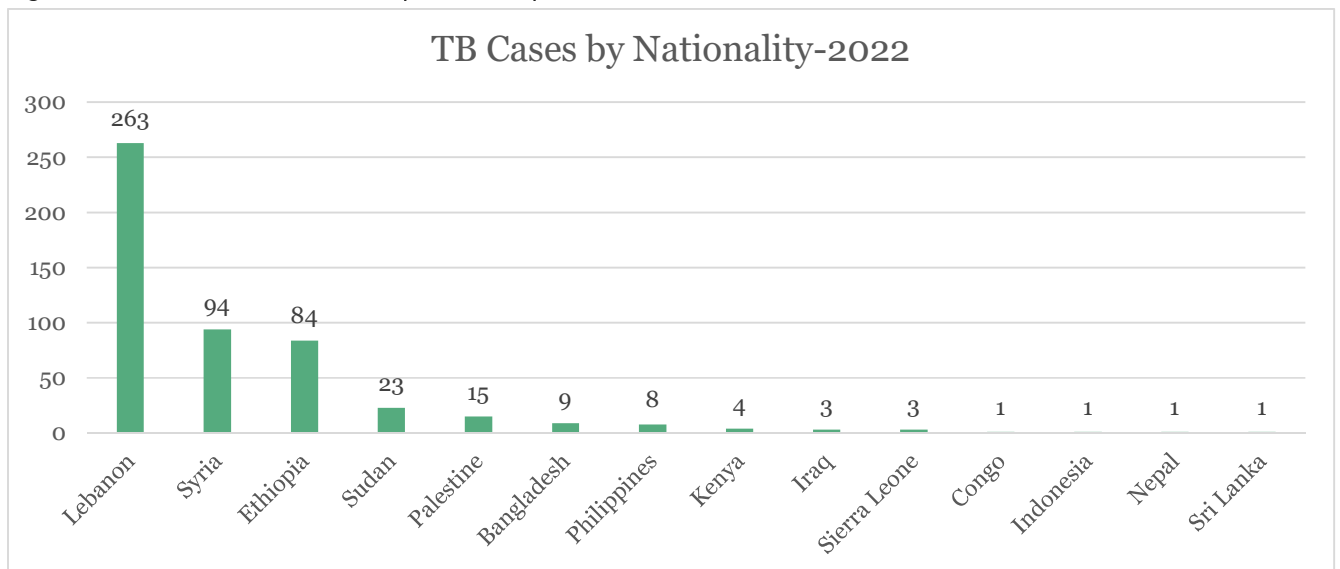
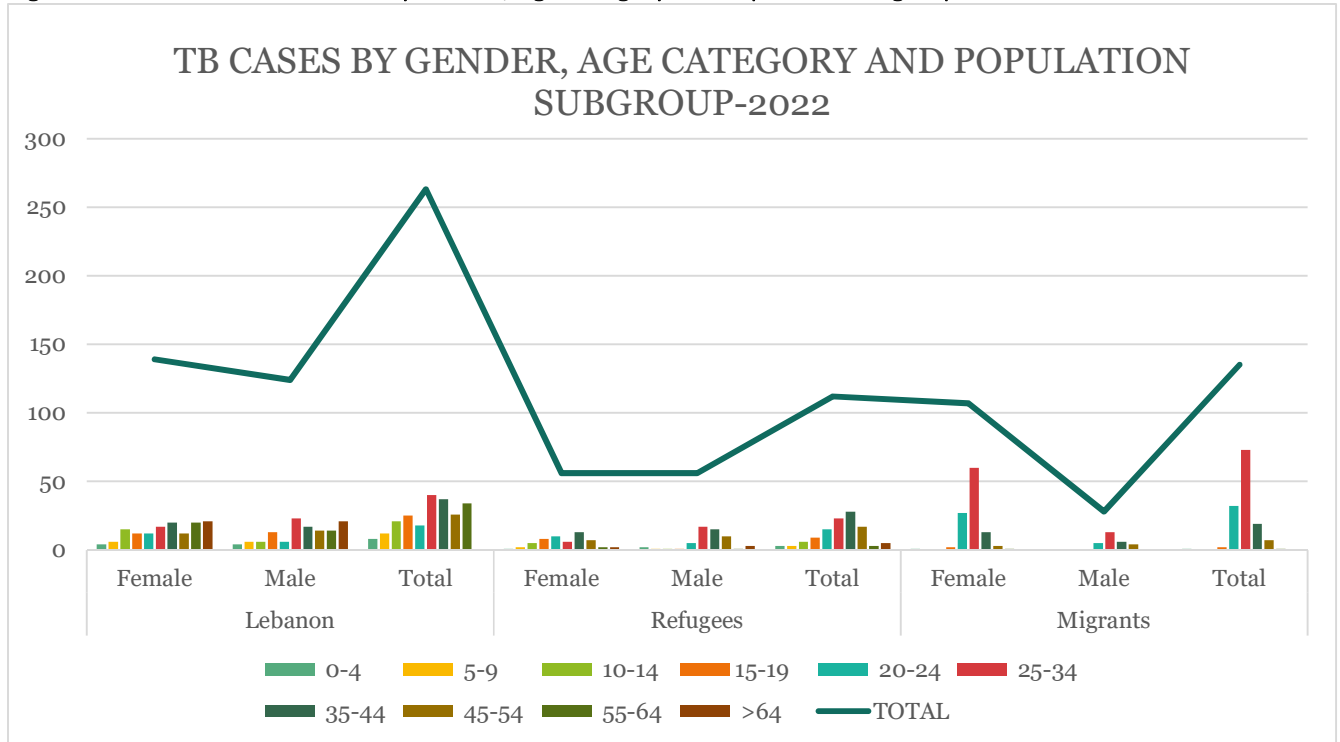




Figure 8: Distribution of TB Cases by Gender, Age Category and Population Subgroups



\*Refugees include Syrian, Palestinian and Iraqi cases

Concerning the geographical distribution of TB patients, around half of the notified cases lived in Beirut and Mount Lebanon. The North, Bekaa and South accounted for 19%, 20% and 12.5% of the cases respectively. 5 cases were among prisoners (Figure 9).

The Figures numbered 9 show the distribution of notified TB cases by nationality at district level.

Figure 9: Distribution of TB Cases by Governorate

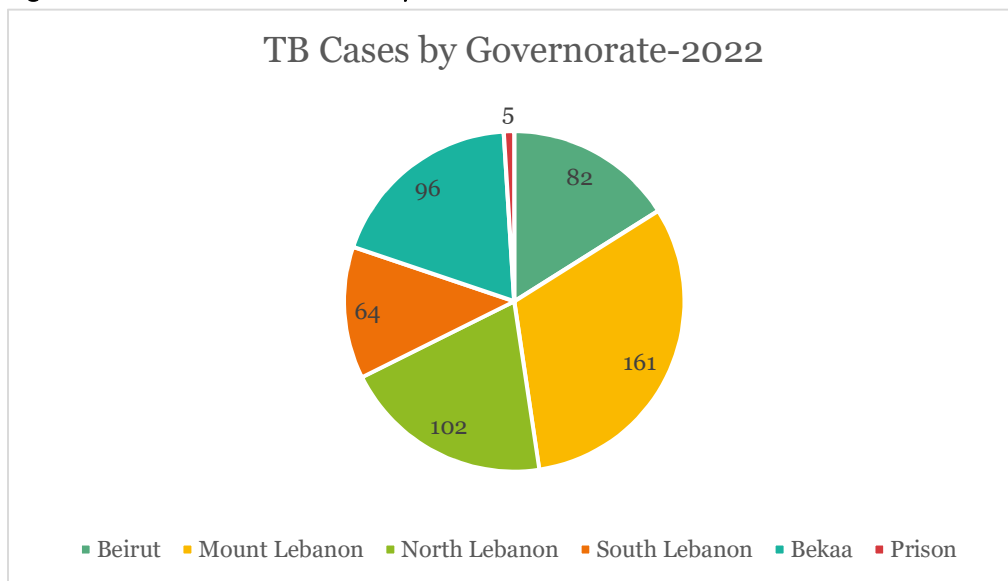


Figure 9.a: Distribution of TB cases by Nationality-Beirut

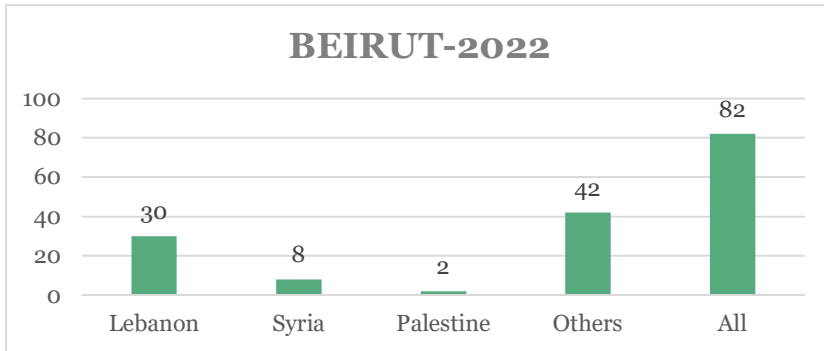


Figure 9.b: Distribution of TB cases by Nationality at District Level-Mount Lebanon

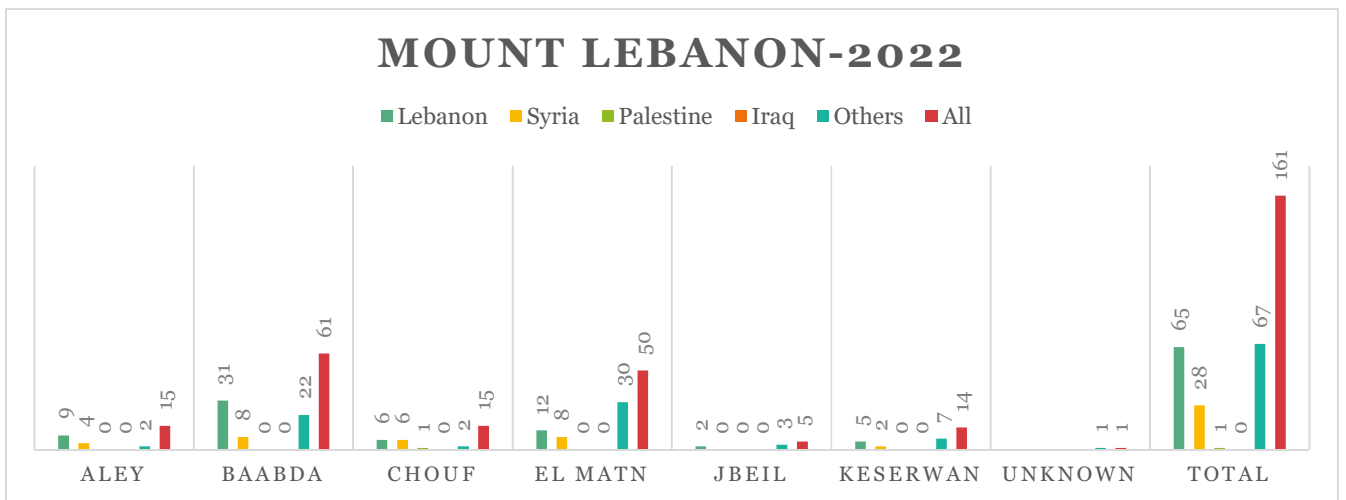


Figure 9.c: Distribution of TB cases by Nationality at District Level-North Lebanon

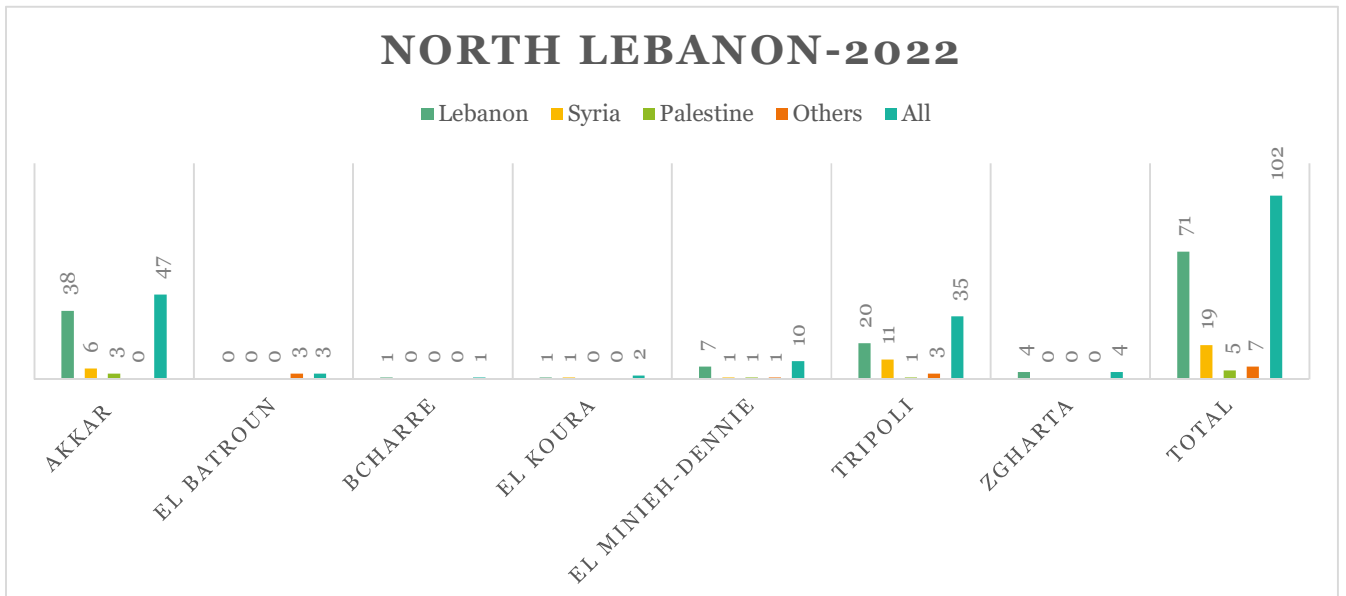


Figure 9.d: Distribution of TB cases by Nationality at District Level-South Lebanon

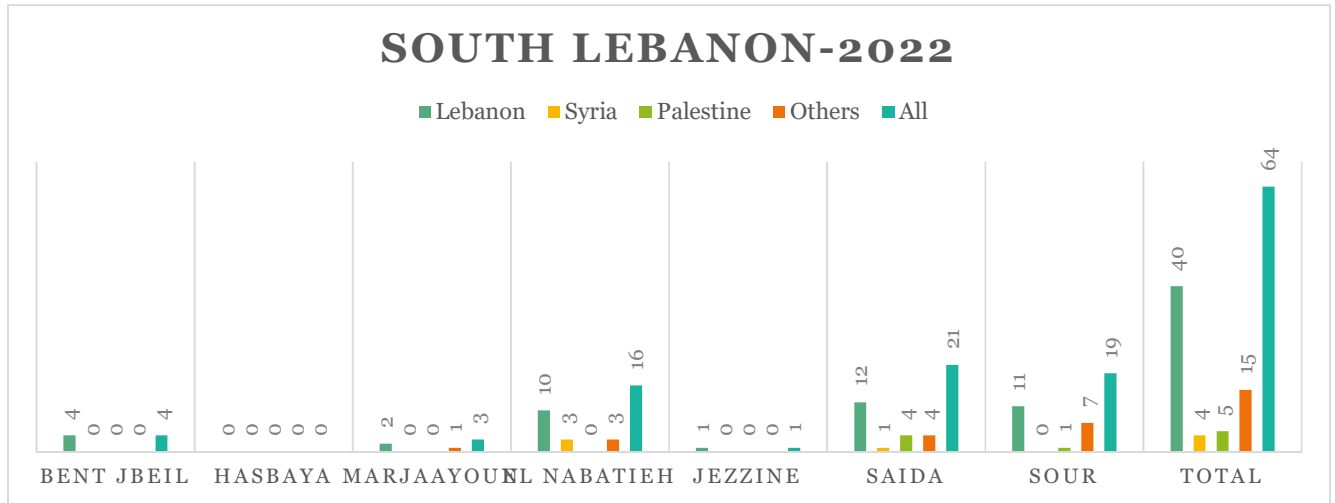
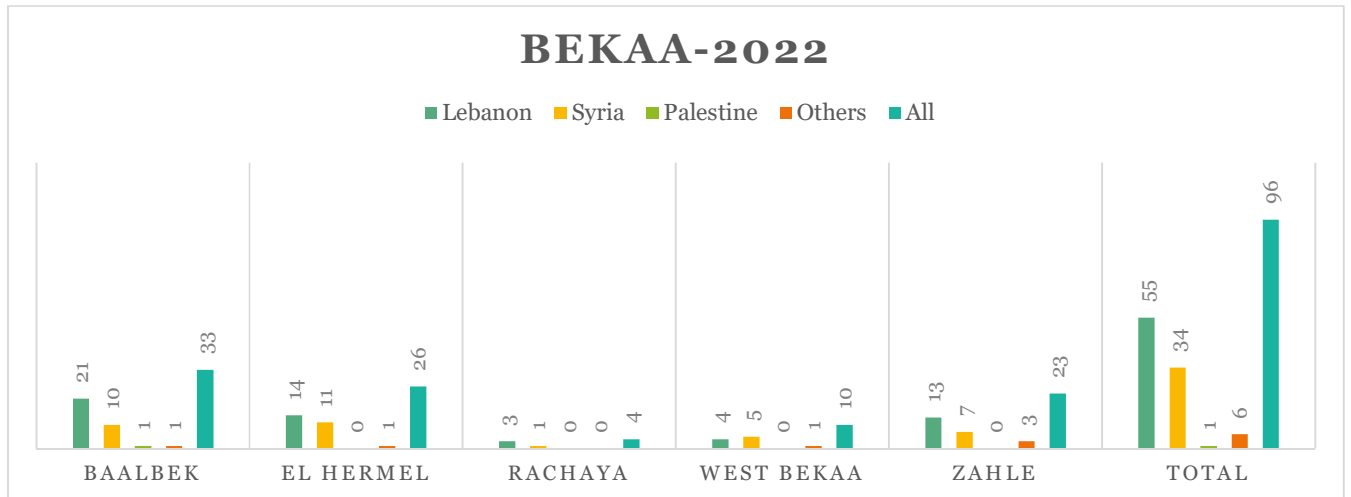


Figure 9.e: Distribution of TB cases by Nationality at District Level-Bekaa



### Drug Resistant-TB Cases

In total 4 cases were reported in 2022 including 2 RR-TB, 1 MDR-TB and 1 clinically diagnosed DR-TB case. 3 had PTB and 1 had EPTB; 50% were Lebanese.

Overall, there were 0.6% DR-TB among new notified TB cases and 11% among previously treated cases.

### Bacteriological Confirmation

Around 90% of PTB cases were bacteriologically confirmed in 2022. However, the bacteriological confirmation among EPTB cases was still low with 20% of the cases having a confirmatory test result. The main challenge is related to the low referral of EP specimens to NTP and NTRL for testing.

Figure 10 shows the trends in bacteriological confirmation by TB Type during the past 5 years.

LRM (USJ-FP), which was nominated by decree as NTRL in 2019 by MOPH is a fully equipped platform for a complete expertise for TB in the country performing Solid and Automated Liquid Culture, Rapid molecular DST using Line Probe Assay technology, GeneXpert and Microscopy.

Table 3 summarizes the TB laboratory data for 2022 as shared by LRM.

Figure 10: Trends in Bacteriological Confirmation 2017-2022

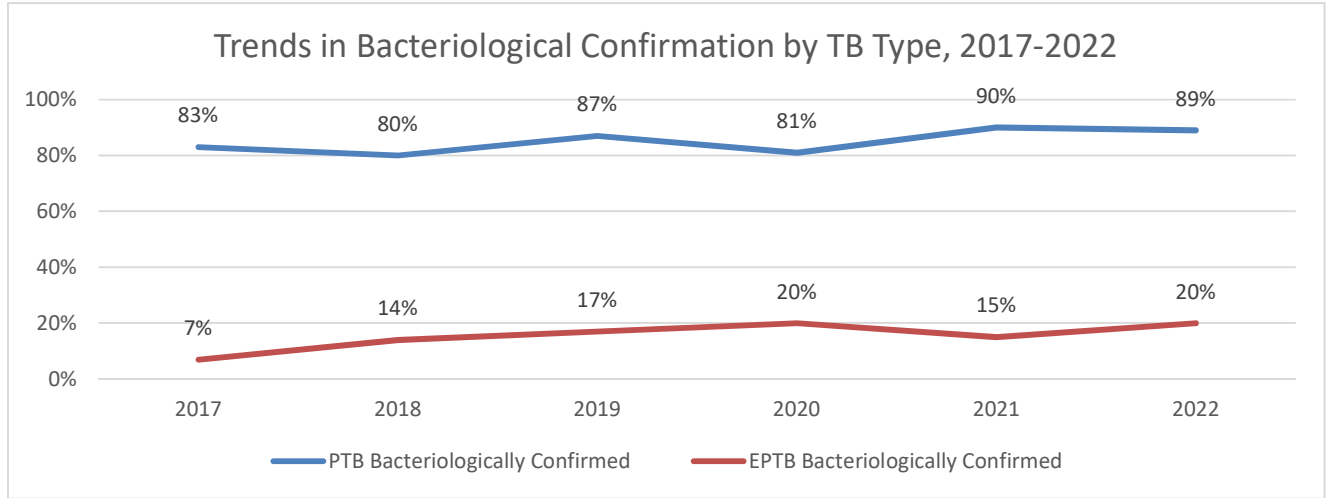


Table 3: TB Laboratory Data-LRM, 2022

Number of specimens referred to LRM for TB testing	1479
Number of positive cultures-MTB	156
Number of positive cultures-NTM	41
Number of FL-DST	44
Number of SL-DST	12
Number of FL-LPA	109
Number of SL-LPA	108

## II. Lebanon National Strategic Plan to end Tuberculosis, 2023-2030

The Lebanon NSP to End TB for the period 2023-2030 was developed in coordination with the NTP manager and the TB Taskforce group with the technical support of prof. Giovanni Battista Migliori. The activity was supported by IOM under the MER3 project.

The development of the plan was based on the SWOT Analysis. Gap Analysis and Development of Goal, Objectives, Strategic Interventions, activities and sub-activities.

The NSP tackled the priorities identified in Lebanon in alignment with the priority actions of the WHO Framework for TB Elimination in Low Incidence Countries and included: under area 1 the consequences of the economic crisis and the transition between a vertical system into an integrated one; under area 2 the issues of poverty and other social determinants; under area 3 the issue of migrants and refugees; under area 4 the management of TBI which is a core intervention to pursue TB Elimination; under area 6 the expansion of TB surveillance and under area 8 the possibility to establish cross-border collaborations. The Plan was launched on the 29th of November 2022 and included 1 Goal and 4 Objectives all focused on TB Elimination.

- **Goal 1A. To approach the pre-elimination phase in Lebanon, with an incidence of 20 case per million in 2030 among the Lebanese-born (48.1 % decline from 2023 to 2030, e.g. 6.8% per year) with a reduction of 50% in the number of TB cases among non-Lebanon born (including migrants/refugees) between 2026 and 2030.**
- **Goal 1B: To reduce the TB Mortality (case-fatality ratio) of 37.5% from 2023 to 2030.**
- Objective 1: to increase the TB treatment coverage from 87% in 2023 to 90% in 2030 (3% increase in 7 years)
- Objective 2: to eliminate TB in children (Lebanon and non-Lebanon-born) by reducing the notified incidence of TB in children below 15 years of age from 6.78 per million in 2023 to 1 per million in 2030
- Objective 3: to eliminate MDR-TB in Lebanon (among Lebanon born and refugees), achieving <1 MDR-TB case per million population by 2030
- Objective 4: by 2024 a full description of the TBI cascade available in Lebanon with a) 90% TPT completion in Lebanon-born and refugees patients by 2030 and b) 70% of eligible migrants receiving TPT.

### III. TB Screening Activities in High Risk Groups

#### a) TB Contacts Screening

Contact investigation remains one of the ongoing active case finding activities conducted by the program. Contact screening data for 2022 are represented in **Table 3**.

**Table 4: TB Contact Screening Data, 2022**

	<b>Count</b>	<b>%</b>
PPD Done	844	
PPD Positive	172	20
CXR Done	312	
CXR Positive	13	4
Contacts>5y Eligible for TPT	144	
Contacts>5y took TPT out of eligible	115	80
Contacts<5y	92	
Contacts<5y took TPT	57	62
Active TB	9	

## b) TB Screening in migrants newly entering the country

Systematic TB screening of migrants upon entry to Lebanon is done at governmental hospitals as of 2017 following a joint decision between the Ministry of Labor and the Ministry of Health for the purpose of providing a work permits for migrant workers.

Screening is done by performing a tuberculin skin test and a chest radiography. Migrants with positive TST and to whom active TB is ruled out are provided with a preventive TB treatment. Presumptive TB cases are referred to the NTP for further investigations

**Table 4** represents data from TRS during the period between 2018 and 2022.

**Table 5: TRS Data, 2018-2022**

Year	Number of Migrants (new comers)*	Number of Migrants Screened	Number of Migrants who Received TPT
2018	86894	16532 (19%)	7330 (44%)
2019	43825	27463 (62.6%)	11138 (41%)
2020	7781	7360 (94.5%)	2552 (35%)
2021	NA*	3066	1042 (34%)
2022	NA*	2925	844 (29%)

\*Data not provided to the NTP

## c) Other Screening Activities

Other screening activities targeting vulnerable groups were conducted by the NTP with the support of IOM in 2022 and were accompanied by awareness raising about the disease:

- TB Screening activities on the occasion of the World TB Day done in collaboration with international and local NGOs involved in TB care in different regions in the country; in total 78 persons were screened for TB and 70 healthcare workers were trained on TB general facts and the services available at the NTP
- TB Screening activities at MSF Clemenceau and MSF Mobile clinic in Beirut in July 2022 targeting migrants where 60 migrant workers were provided with an awareness session and screened for TB.

## IV. Coordination Meetings and Training Sessions

### • Training for MSF medical team

The NTP with the support of IOM conducted a training session for MSF medical team in July 2022 focusing on the updated TB algorithms and the referral pathways of presumptive TB cases to the NTP centers.

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- **Training on DHIS2-tracker based software**

Following the recruitment of data entry officers supported by IOM under C19RM-02, The NTP M&E officer conducted a virtual training in August 2022 where the main features of the DHIS2 for TB were presented and a demo on the software was performed. The training included in addition to the data entry officers, DOT Officers and field coordinators.

- **NTP-IOM coordination meeting**

Following the update of the TB algorithms and related SOPs and within the context of the COVID-19 pandemic which lead to changes in health seeking behaviors and thereafter changes in the TB services delivery, the NTP with the support of IOM conducted 2 coordination meetings.

The first meeting was done with the program physicians. During the meeting, the NTP manager presented the latest TB epidemiological data in Lebanon including trends by year, age and gender, population subgroup and bacteriological confirmation. She addressed some gaps by comparing the actual TB data with the NSP 2021 targets. Moreover, she went through the updated TB algorithms for the diagnosis and treatment of Drug sensitive-TB and Drug resistant-TB and reminded participants about the new treatment protocols and their potential side effects (especially for Drug resistant-TB). At the end of the presentation, she highlighted the latest novelties in the diagnosis and management of TB. Participants showed high interest in the session and interacted with the NTP manager while she was presenting. Many areas of concern were raised and addressed to improve the delivery of TB services.

The second meeting was intended for the program HCW and IOM outreach team. 27 participants attended the meeting including the program central unit team, DOT officers, data entry officers, nurses and lab technicians from the NTP and the outreach team from IOM. During the meeting, the NTP manager presented some key facts about TB, the latest TB epidemiological data Lebanon including data disaggregated by TB center, Common treatment adverse events and ways to monitor them. At the end of the presentation, some gaps were addressed based on data analyzed by center. The presentation was followed by a discussion highlighting the challenges faced by the team amid the difficult situation in the country and suggesting solutions to improve the delivery of TB services.

- **LMS Workshop**

During the month of October, a two-day workshop about the new Logistic Management Software, that will be used by the health programs under MOPH storing their drugs and supplies at the Central Drug Warehouse, was organized with the support of WHO. 17 HCW from NTP central and peripheral units participated in the workshop.