

Tuberculosis in Lebanon

Annual Report - 2019

National Tuberculosis Program

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Abbreviations

DOTS	Directly Observed Treatment-Short Course
EPTB	Extra-Pulmonary Tuberculosis
GF	Global Fund
IOM	International Organization for Migration
LRM	Laboratoire Rodolphe Merieux
MER	Middle East Response to Syrian Crisis
MOPH	Ministry of Public Health
MTB	Mycobacterium Tuberculosis
MDR-TB	Multi Drug-Resistant Tuberculosis
NAP	National AIDS Control Program
NRL	National Reference Laboratory
NSP	National Strategic Plan
NTP	National Tuberculosis Program
PLHIV	People Living with HIV
PTB	Pulmonary Tuberculosis
rGLC	Regional Green Light Committee
RR-TB	Rifampicin-Resistant-Tuberculosis
SOP	Standard Operating Procedure
TB	Tuberculosis
TRS	Tuberculosis Registration System
TST	Tuberculin Skin Test
USJ	Universite Saint Joseph
WHO	World Health Organization
XDR-TB	Extensively drug-resistant Tuberculosis

I. Background

As tuberculosis (TB) rates continue to decline in the Lebanese population, the proportion of foreign-born TB patients among all notified cases is increasing annually at a rate of 9% since 2007 (*Desk review of TB management in Lebanon-2018*).

This is mainly related to the rise in the number of migrant workers coming from high TB burden countries and the influx of Syrian refugees since 2012.

In order to reach the ambitious targets of the National Strategic Plan towards TB Elimination in Lebanon (NSP 2017-2021), the program is currently implementing the internationally recommended WHO TB control strategies: DOTS and End TB.

This report describes the epidemiology of TB in Lebanon in 2019 and TB trends over the past decade. It also provides an update on the progress of TB control activities and gives insights on the interventions proposed for the upcoming year and the challenges faced by the program.

II. TB Epidemiology in Lebanon

Lebanon remains a low TB burden country with an estimated incidence rate of 11/ 100000 population, an estimated mortality rate of 0.89/ 100000 population and a treatment coverage of 87% in 2018 (*WHO Global Tuberculosis Report 2019*).

However, TB burden is rising among non-nationals due to the massive influx of Syrian refugees since 2012 and to the migrant workforce present in Lebanon. In fact, the number of TB cases in the non-Lebanese community has gradually increased since 2006, reaching a proportion of 62% of the total TB cases in 2018 and 2019 (**Figure 1.a**).

Figure 1.b represents the trends in notified TB cases by resident status between 2007 and 2019. Actually, in 2019, the NTP succeeded to find, diagnose and treat 760 TB cases which is the highest number of notified cases since 2007. We also notice the rise in total notified cases by 14%, and in Lebanese and migrant TB cases by 13.8% and 12.3% respectively in 2019 compared to 2018.

Figure 1.a): Trends in notified TB cases-Nationals/ Non-nationals, 2006-2019

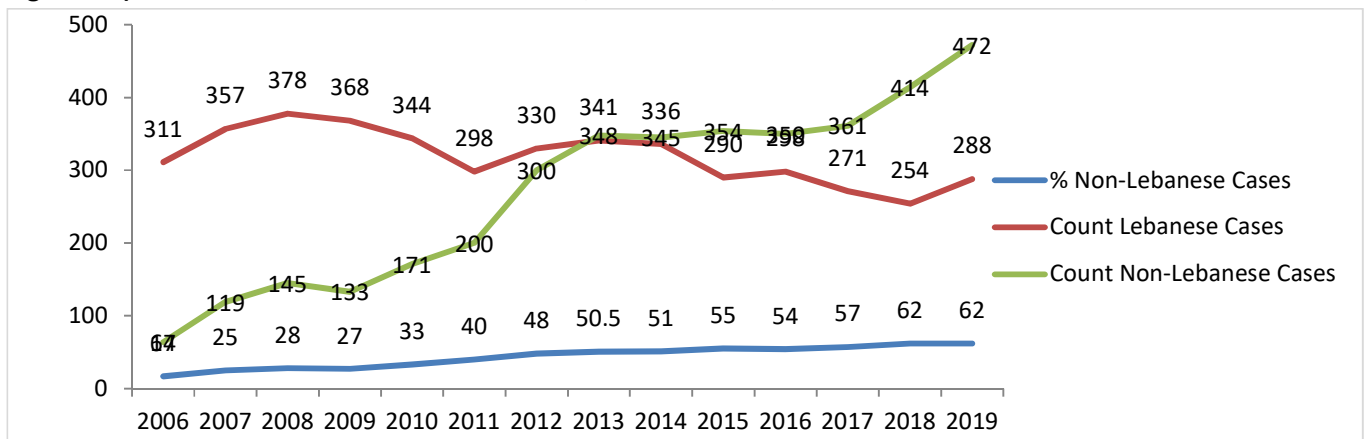
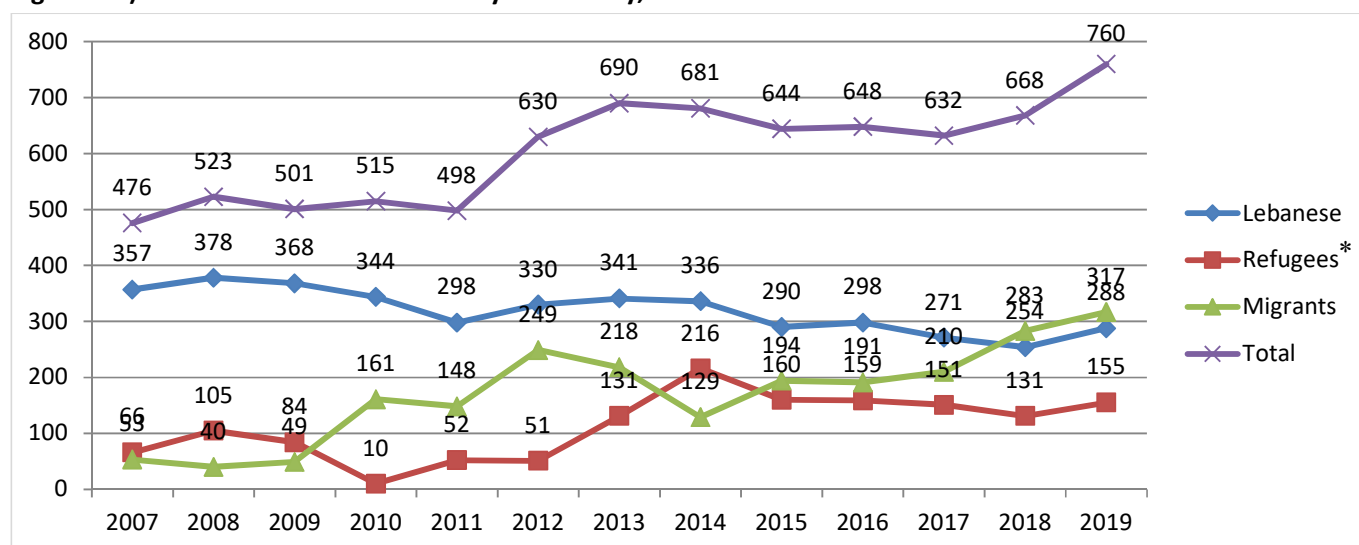


Figure 1.b): Trends in notified TB cases by nationality, 2011-2019



*Refugees include Syrian, Palestinian and Iraqi cases

Moreover, the overall treatment success rate was 81% in all reported TB cases in 2018, and 95% in Lebanese and in Syrian cases. The low treatment success rate among patients from the migrant workforce (63%) could be attributed to the fact that a large number leave the country before completion of treatment (**Table 1**). To overcome this challenge and ensure treatment continuation for migrants who leave Lebanon while still under treatment, the NTP has developed a transfer-out form, which includes information about diagnosis, tests' results and treatment status, to be sent with patients who leave Lebanon. However further international collaboration is needed to be able to retrieve their treatment outcome from NTP in home-country.

Besides, 8 deaths occurred among Lebanese patients (one had TB-meningitis, 3 with IM, one had a heart attack and 2 cases were aged 84 and 91 years old) and 4 among non-Lebanese including one case who had the co-infection TB-HIV, one TB meningitis case and a 2 year-old baby who died upon diagnosis.

Table 1: TB Cases and Treatment Outcomes - Distribution by Nationality (2018)

Treatment Outcome	Nationality				Total
	Lebanese	Syrian	Palestinian	Others	
Cured	60	36	4	66	166
Treatment Completed	181	75	7	113	376
Treatment Success Count*	241	111	11	179	542
Treatment Success Rate	95	95	92	63	81
Treatment Failure	0	0	0	1	1
Death	8	2	0	2	12
Left the Country	0	3	0	72	75
Transferred Out**	0	0	0	26	26
Lost to Follow-Up	5	1	1	5	12
Total	254	117	12	285	668

*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

In 2019, the total number of reported active susceptible-TB cases was 760, out of which 67% had pulmonary TB (**Figure 2.a**). **Figure 2.b** shows the distribution of EPTB cases by site of disease with the TB lymphadenopathy accounting for more than half of the extra-pulmonary cases.

Besides, 38% of the TB cases were aged between 25 -34 years and 30 children below the age of 5 were diagnosed with the disease. As for gender distribution, 63% of the total cases were females (**Figure 3**).

Figure 2: Distribution of TB Cases by a) Type and b) Site of disease

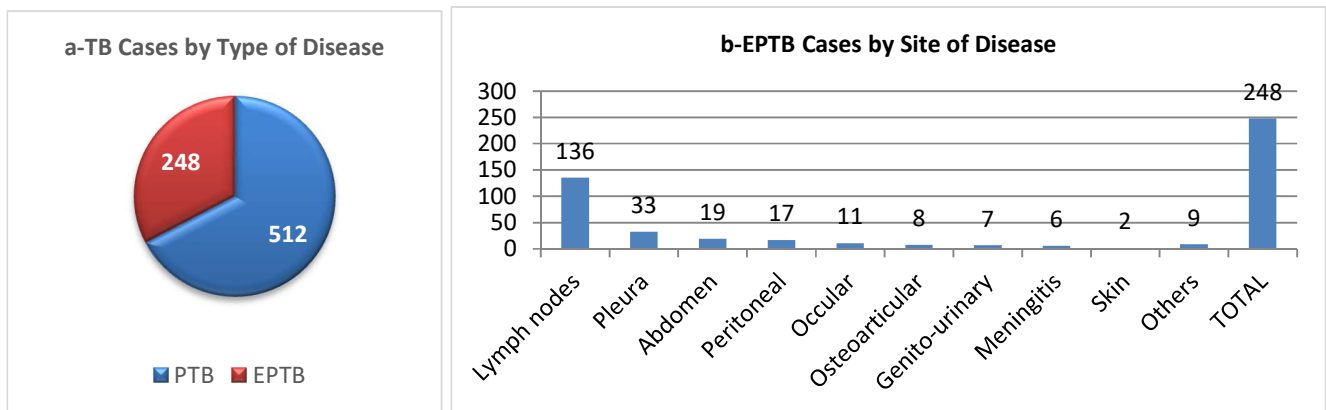
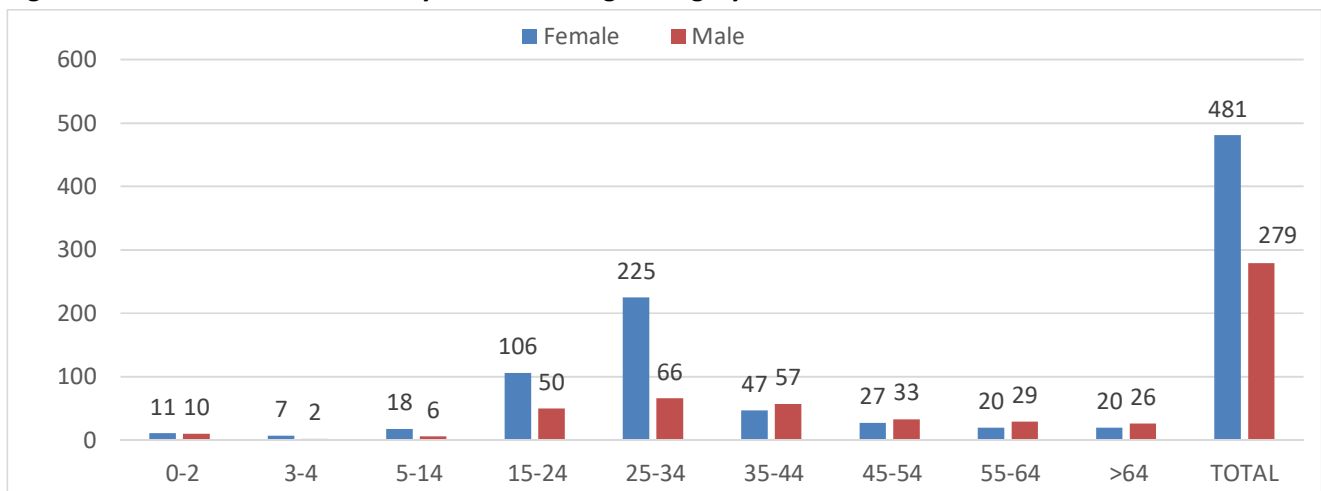


Figure 3: Distribution of TB Cases by Gender and Age Category



Lebanese patients accounted for 38% of the total reported TB cases, followed by Ethiopians and Syrians with 207 and 139 patients respectively, contributing to the high percentage of TB among Non-Nationals (**Figure 4**).

Regarding the distribution of TB cases by nationality and age category represented in **Figure 5**, we notice that Lebanese TB cases aged above 15 years are almost equally distributed in the different age groups. As for migrants, there is a peak in the number of cases in the age category 25-34 (67% of the total migrants) and around 80% of refugees are aged between 15 and 44 years.

Figure 4: Distribution of TB Cases by Nationality

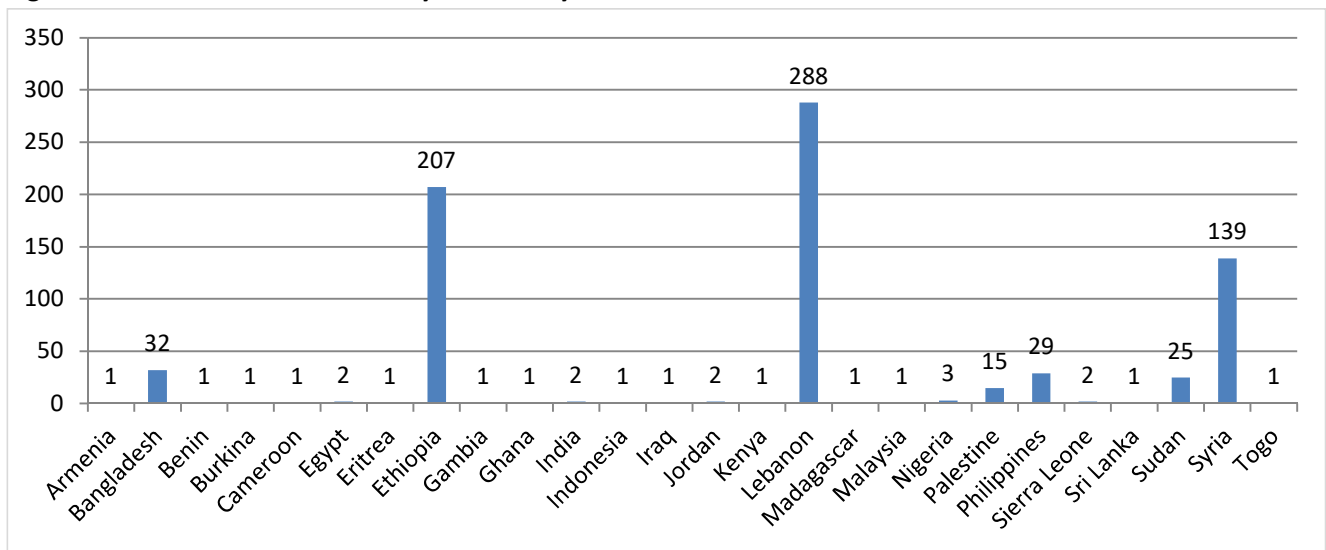
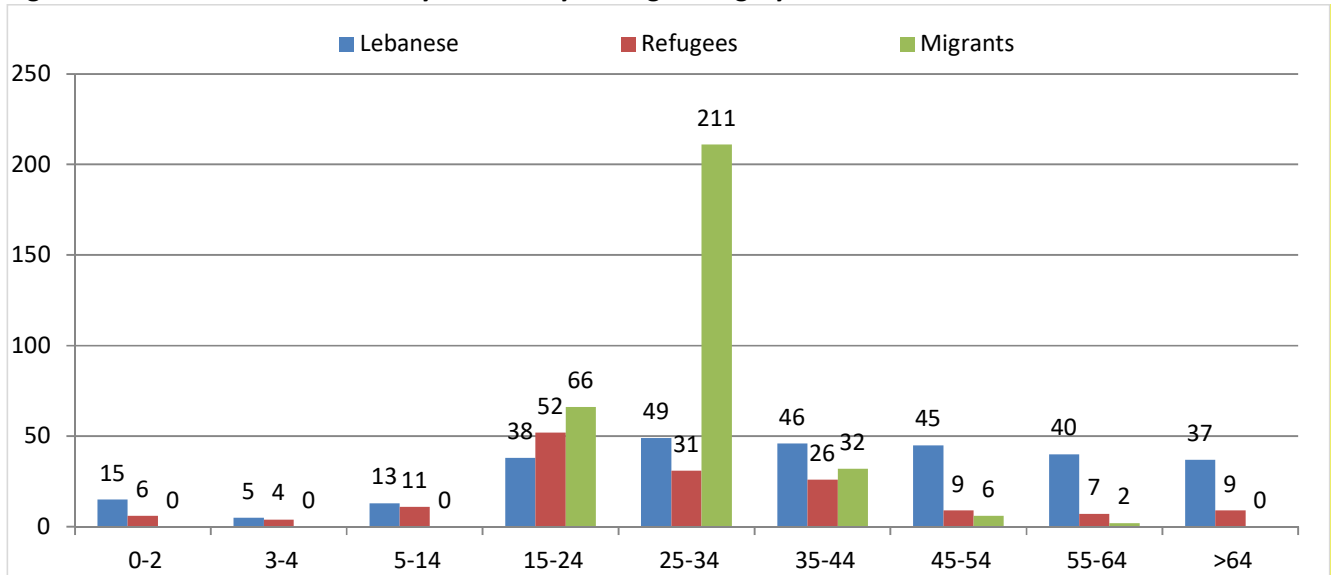


Figure 5: Distribution of TB Cases by Nationality and Age Category

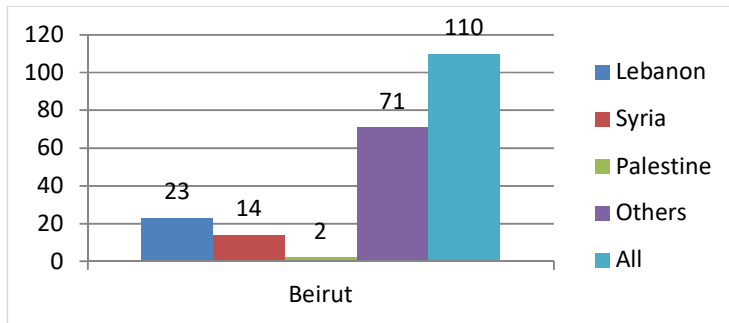


Concerning the geographical distribution of TB patients, 52% of the notified cases lived in Beirut and Mount Lebanon. The Bekaa, North and South accounted for 16.5%, 16% and 14% of the cases respectively. 9 TB cases were in prison and don't have a specific address.

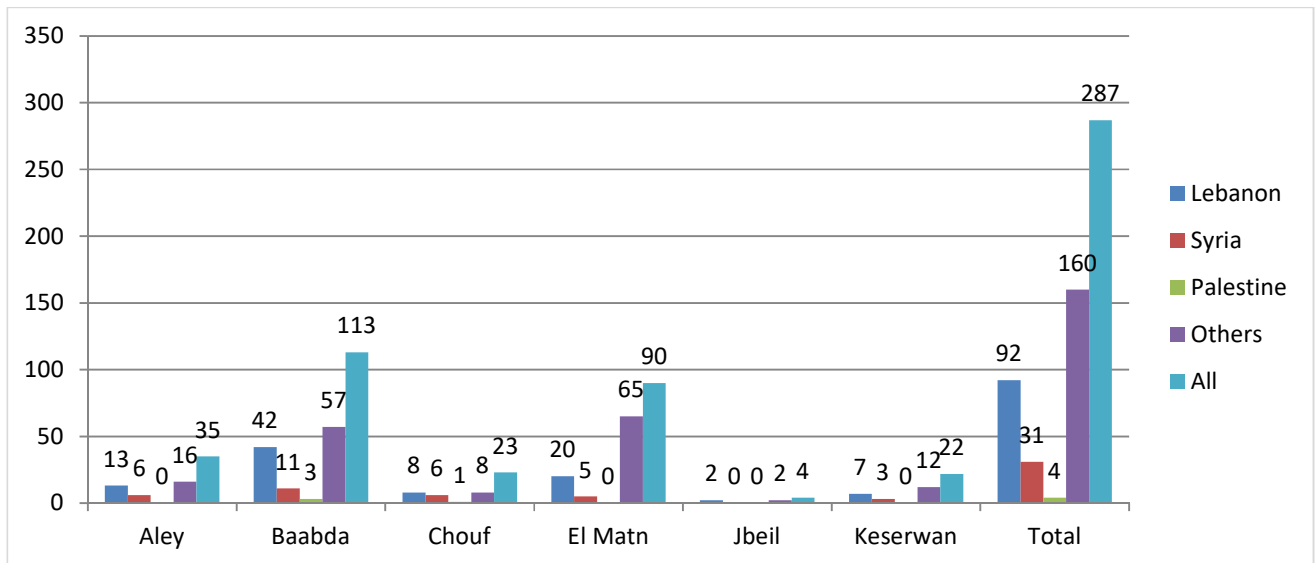
Figure 6 shows the distribution of active TB cases by nationality at district level.

Figure 6: Distribution of TB Cases by Nationality at District Level

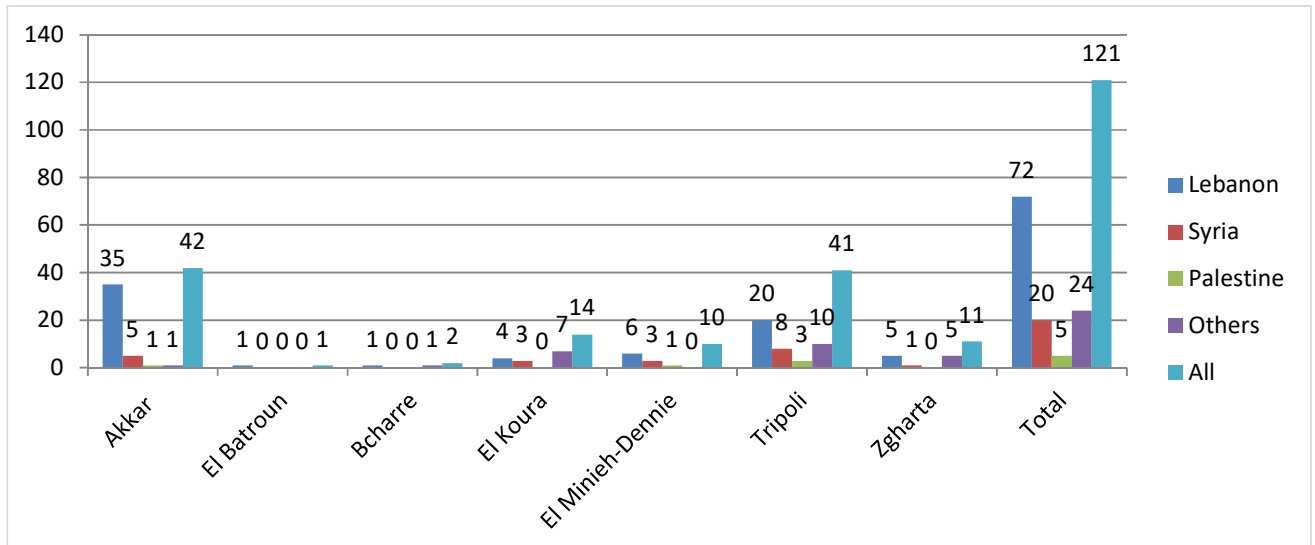
Beirut



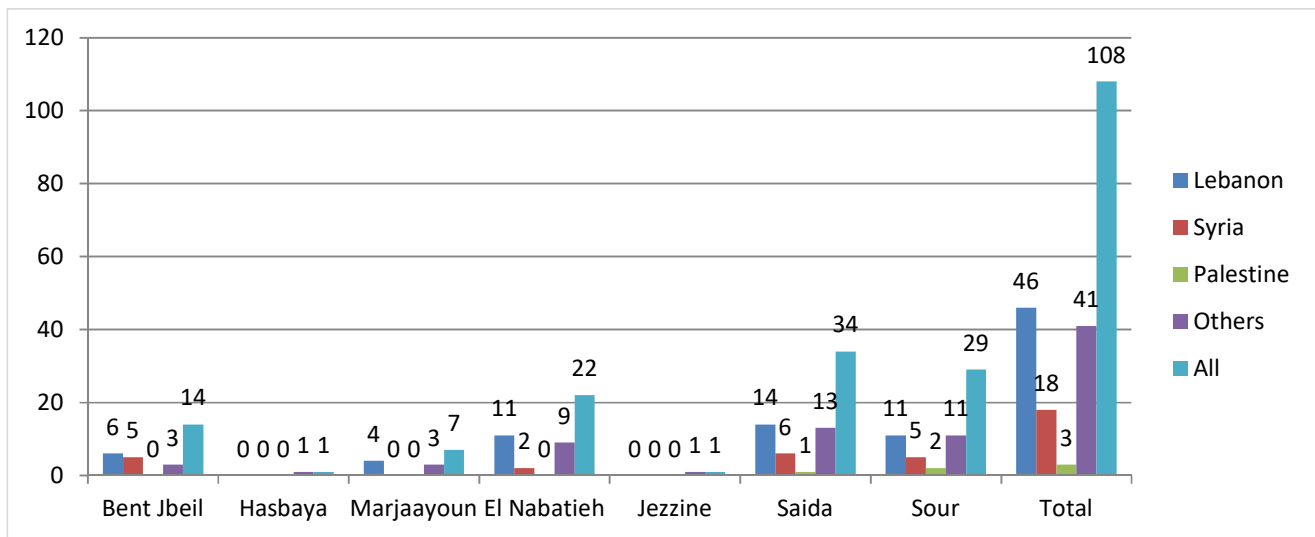
Mount Lebanon



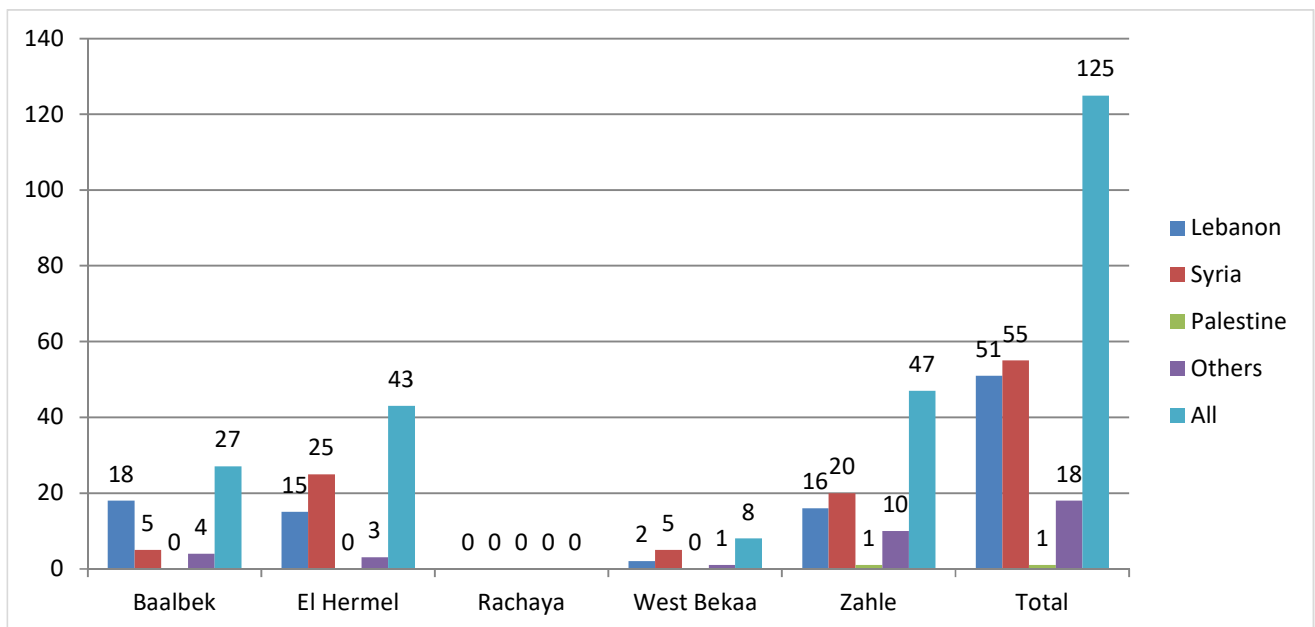
North Lebanon



South Lebanon



Bekaa



As for Drug resistant-TB, 11 cases were reported in 2019 including 2 RR-TB, 8 MDR-TB and 1 XDR-TB cases. 9 were diagnosed with PTB and 2 with EPTB. 36% were Lebanese and 64% were among migrants. There was 1.43% DR-TB among new notified TB cases and non among previously treated TB cases

However, the NTP is facing a challenge due to the movement of migrants and Lebanese drug resistant TB cases across borders, which is affecting the overall epidemiology of DR-TB in Lebanon:

In fact, In 2017, 3 XDR-TB cases (1 from Syria, 1 from Iraq and 1 from Sudan) moved to Lebanon and In June and July 2019, 2 Lebanese MDR-TB cases, diagnosed in Africa, came to Lebanon to receive treatment

III. TB Control Activities and Interventions

In 2019, the NTP implemented a number of TB control activities and interventions in line with the “National Strategic Plan toward TB Elimination”.

1. World TB Day

In 2019, the NTP’s focus was to raise awareness about TB through the media (TV, Radio and social media). A short video and audio were previously developed with the support of IOM about TB general facts, mode of transmission, common signs and symptoms, diagnosis and treatment.

The video and audio were broadcasted during the week that preceded the world TB day and were intended to inform the audience about TB disease and the contacts and addresses of the different centers falling under the NTP in Lebanon.

2. Community Based TB Activities

PHC Department

A number of awareness sessions were conducted in collaboration with IOM and the PHC department of MOPH targeting the PHC centers staff and beneficiaries.

The objectives of the sessions were to:

- Raise awareness about TB, its common signs and symptoms, how the disease is transmitted, the importance and treatment adherence and methods of disease prevention.
- Modify perceptions/ misconceptions in the community regarding the disease in order to reduce TB stigma.
- Inform participants about the NTP centers across the country and the services provided by each center.

At the end of the sessions, flyers about TB were distributed to all participants.

In total, 192 awareness sessions were conducted for 3,204 beneficiaries and staff in PHCs all over Lebanon during 2019.

Caritas Association

Furthermore, on the occasion of the World TB day, the NTP in collaboration with Caritas conducted an activity for Caritas employees operating in South, Bekaa, North, Beirut and Mount Lebanon, during the month of March 2019.

The purpose of the activity was two-folded:

- Deliver a session on Tuberculosis to raise awareness about TB disease and the services provided by the NTP centers and to improve TB case detection and ensure prompt and organized referral process to NTP.
- Conduct a screening for TB to Caritas employees (Symptom screening and TST)

42 participants attended the session and included healthcare workers (Nurses, psychologists, social workers...) from caritas health centers/PHCC, retention centers, mobile clinics and migrants' shelters. 25 participants underwent the TB screening.

Community Health Volunteers

10 Community Health Volunteers (CHVs) were selected in 2019 (one in the South, two in Beirut, 4 in the North and 3 in Bekaa) supported by IOM. Activities included conducting awareness sessions within their community and distributing flyers about TB disease and signs and symptoms, following up with patients on DOTS and linking presumptive TB patients to the nearest NTP center after coordination with the field coordinators.

Awareness Sessions for Refugees

Awareness raising campaigns about TB were conducted by IOM for refugees residing in informal settlements and collective shelters.

In total 724 awareness sessions were conducted for 13,554 beneficiaries in 2019.

3. Screening activities

For Contacts

Contact Investigation is an important process which helps in the early identification of active TB and thereby decreases disease severity and transmission of MTB, and aids in the detection and treatment of latent TB infection. Therefore, NTP healthcare workers put a lot of effort into TB contact investigation. The focus is usually on **household members**, but contacts in the **workplace** and other settings, such as prison, in which there is exposure, are assessed as well. **Table 2** summarizes data for contacts' screenings done in 2019.

Table 2: TB Contact Screening 2019

Contact Screening 2019	Count	%
Contacts Eligible for TB Screening	1863	
PPD Done	1584	85
PPD +	418	26.5
CXR Done	872	
CXR +	24	2.75
Contacts Eligible for IPT	555	
Contacts who Received IPT	479	86.5
Active TB Cases among Screened Contacts	18	
Contacts <5Y Eligible for IPT	205	
Contacts <5Y who Received IPT	159	77.5
Active TB Cases among Screened Contacts <5Y	5	

N.B: Overall there are 19 children (10 Lebanese and 9 Syrian) below the age of 14 who were diagnosed with active TB following a contact screening.

60% of the Lebanese are contacts with index cases of Lebanese Nationality and 40% with index cases among migrants. For Syrian children, all are contacts with index cases of Syrian Nationality.

For migrants:

- a) TB Screening of migrants done in governmental hospitals post entry to Lebanon:

Table 3: Tuberculosis Registration System Report for 2019

Total Number of Migrants	Number of Migrants Screened	Migrants who Received IPT among Screened	Active cases Detected among Screened
43825	27463	11138	30

- b) 2 screening activities conducted at the Migrant Community Center in Beirut (Symptom screening and CXR)

For Refugees

The IOM, in close coordination with NTP has been conducting a nationwide TB screening campaign in informal settlements and collective shelters in the North, South, Bekaa and Mount Lebanon since 2015. Around 430000 refugees were screened from June 2015 till February 2019.

For Other Vulnerable groups:

- A. 4 TB screening sessions were done by NTP nurses for Al Fanar patients who were discharged to 3 centers in the South and Keserwan areas. Screening consisted of performing a TST followed by a CXR for those with positive TST results. 59 patients received a preventive treatment for TB. **Table 4** summarizes data on the screenings performed.

Table 4: TB Screening for Al Fanar Patients - 2019

	Al Housh 23-Feb-2019	Santa Maria-Annaya- Halat 11-Mar-2019
Number of persons screened	37	142
PPD Positive	17	55
CXR Done	17	53
CXR Abnormal	1	11
INH	17	42
Active TB	0	0

- B. A screening campaign was conducted by the NTP in collaboration with Hopital de la Croix during the month of May. 445 patients and 280 healthcare workers were tested by performing a TST and a CXR for those with positive TST. Preventive Treatment was provided accordingly.

IV. Workshops and Trainings

Workshops on the Management of TB Care and Referral

Order of Pharmacists

NTP with the support of IOM conducted an awareness session in collaboration with the order of pharmacists targeting the pharmacists working within the community in Beirut area on March 26 2019. The aim of this activity was to share the new TB guidelines and the major TB drugs side effects and to improve TB case detection and ensure prompt and organized referral process to NTP for treatment.

All participants showed high interest in the session and participated. Many areas of concern were raised and addressed. The idea of conducting this workshop came from the common knowledge backed up by the recent access to healthcare survey published by UNHCR that the pharmacist plays a key role in community awareness and spreading knowledge. Pharmacists were also interested in discussing HIV awareness. The number of attendees was 48.

Ministry of Social Affairs (MOSA)

On 12 September 2019, the NTP, in collaboration with IOM and the MOSA organized a workshop on “The Management of presumptive TB Care and Referral” for HCW in Social Development Centers (SDCs) affiliated to MOSA.

The objectives of the workshop were to raise awareness about TB disease and the services provided by the NTP and to improve TB case detection and ensure prompt and organized referral process to NTP for diagnosis and treatment.

29 HCW actively participated in the session which included a round table introduction with participants’ expectations, a pre-test, TB power point presentation and a post test.

National AIDS Program (NAP)

On 9 October 2019, the NTP, in collaboration with IOM and the NAP conducted a workshop on “The Management of presumptive TB Care and Referral” for NGOs working under MER with PLHIV.

The objectives of the workshop were to raise awareness about TB disease and the services provided by the NTP and to improve TB case detection and ensure prompt and organized referral process to NTP for diagnosis and treatment.

All 14 participants showed high interest in the session which included a round table introduction with participants’ expectations, a pre-test, TB power point presentation and a post test.

Workshops in Collaboration with ICRC

NTP in collaboration with ICRC conducted 2 sessions during the month of September for Internal Security forces and the Lebanese army regarding the general facts about TB disease. The objectives of the

workshop were to raise awareness about TB disease and the services provided by the NTP and to improve TB case detection and ensure prompt and organized referral process to NTP for diagnosis and treatment.

Training on Updated SOPs for the Diagnosis of EPTB

On 7 December 2019, the NTP and LRM, with the Support of WHO, conducted a training session about the “Updated SOPs for the Diagnosis of EPTB” for scientific societies’ members in Beirut. Due to the unstable situation in the country, only 15 physicians were able to attend the session. The training included presenting the latest TB trends worldwide and in Lebanon by the NTP epidemiologist. The NTP manager then highlighted the updates in TB diagnosis and treatment protocols. A last presentation was done by the biologist in charge at LRM explaining the new laboratory SOPs. The procedures were distributed to participants at the end of the session.

Training on Good Laboratory Practices

On 12 December 2019, the NTP and LRM with the support of IOM, conducted a training session about “Good Laboratory Practices” for NTP lab technicians.

Training objectives were to:

- Process pre-analytical phases according to the SOPs
- Perform staining technique with quick TB according to the SOPs
- Report laboratory data using the new NTP forms and registers
- Apply the updated SOPs and Laboratory algorithm in the daily activities.

6 lab technicians from the NTP centers participated in the workshop.

Training on TB Management

On 13 December 2019, the NTP organized a coordination meeting with the support of WHO for all NTP physicians.

The objectives of the meeting were to:

- Present the TB latest trends in the country, segregated by center when applicable.
- Showcase the updates in TB laboratory and diagnostic techniques.
- Present the updates in TB treatment regimens especially MDR-TB, the most common side effects and the management of side effects.

8 physicians attended the session and actively discussed the updates in TB management as well as the challenges faced in each center and the possible actions to be taken.

V. Collaborations and Partnerships

WHO Support

WHO continued to provide support to the NTP through the following activities:

- Updating the ENRS currently used at the NTP through the development of a new electronic platform, the DHIS2 for TB, currently under progress.
- Trainings and Capacity Building

- Training on updated SOPs for the diagnosis of EPTB in collaboration with scientific societies
- Training on TB management for NTP physicians
- Development of IEC materials about TB (Posters: Coughing etiquette, Sputum collection, TB symptoms; Brochures: Instructions for an active TB case, Instructions for a latent TB case...)
- Monitoring missions: Regional Green Light Committee mission conducted in September 2019.

IOM Support

In 2019, the IOM, as the principal recipient of the Global Fund to Fight AIDS, Tuberculosis and Malaria fund, has continued to support the prevention, diagnosis and treatment of TB among Syrian, Palestinian and recently, as of 2019, Iraqi refugees under the MER2 project (2019-2021).

IOM support to NTP is in two arms:

- System strengthening: and this includes all necessary resources to provide diagnosis, treatment and follow up at the level of the 9 Tuberculosis Control Centers as well as capacity building.
- Direct services to Syrian and Palestine and Iraqi nationals.

NTP-Fondation Merieux

The MOPH nominated and contracted Laboratoire Rdolphe Merieux as the National Reference Laboratory for TB in Lebanon as of June 2018.

The following diagnostic tests were performed by the NRL as per the national TB guidelines:

- Culture
- Phenotypic and Genotypic DST for first and second line drugs
- Gene Xpert for extra-pulmonary specimens (recently after the procurement of a gene xpert device by Fondation Merieux)

Capacity building:

- Training on Updated SOPs for the Diagnosis of EPTB in collaboration with scientific societies.
- Training on Good Laboratory Practices for NTP lab technicians.

Other activities:

- Monitoring and evaluation visits to the different TB centers along with the M&E officer at the NTP.
- A study regarding the Optimization of the Screening Strategy for Latent Tuberculosis Infection in different groups in Lebanon is being conducted with the collaboration of different partners including Fondation Merieux, Saint Joseph University, Beirut Arab University and the NTP. The study will contribute to elaborate recommendations by the NTP concerning the screening for LTBI in different risk groups in the country (HCW, migrants and TB contacts) and will assess the prevalence of LTBI among these groups.

VI. NTP Challenges

1-Human Resources

The supported number of NTP staff under MER2 (2019-2021) is insufficient to ensure the proper functioning of the program, thereafter several negotiations were done to cover the salaries of other needed NTP staff by MOPH and to partially re-organize the program structure by integrating some TB centers in other governmental institutions.

However, due to the exceptional situation in the country which resulted in the current economic collapse and political instability, employment prospects through the MOPH are now non-existent and this will lead to the loss of the trained and experienced NTP staff and might drastically affect the provision of TB services and the overall TB burden in the country.

2-Procurement

- Challenges in the procurement of Second line drugs
- Challenges in the procurement of Gene Xpert cartridges
- Unsecure funds for diagnostics and drugs procurement

3-Hospitalization

- Lack of budget for the coverage of the hospitalization fees for vulnerable non-Lebanese TB cases that require hospitalization with a negative pressure room and/ or admission to ICU.
- Lack of budget for the coverage of the hospitalization fees of refugees that require isolation at the Sanatorium.

4-Laboratory Challenges (*rGLC Mission Report-2019*)

- Low bacteriological confirmation among notified EPTB cases, which contributes to 35% of the TB case notifications
- Challenge for newly established National Reference laboratory to establish an effective workflow, quality control, proficiency and turnaround time with low volume of Drug susceptibility testing.
- Prevalence of *M bovis* infection in Lebanese population documented in recent DRS.
- Lack of clear protocol for patients'/samples referral (other than RR cases) for culture and comprehensive DST.
- Sustainability of critical human resource working in TB centers and specimen transport system supported by the global fund
- No internal or External Quality assurance program for Xpert and AFB microscopy at NTP centers.

5-Other Challenges

- The movement of migrants and Lebanese drug resistant TB cases across borders is affecting the overall epidemiology of DR-TB in Lebanon:
 - -In 2017, 3 XDR-TB cases moved to Lebanon.
 - -In June and July 2019, 2 Lebanese MDR-TB cases, diagnosed in Africa, came to Lebanon to receive treatment.
- No budget for the maintenance of equipment available at the TB centers (X-ray machine, Gene Xpert devices, Microscopes...).
- Low budget to cover the fees of specimen transportation from the different TB centers which might lead to misdiagnosis/ over diagnosis of TB

VII. Regional Green Light Committee Mission.

The rGLC conducted a monitoring mission to NTP Lebanon from 26th to 30th September 2019 and worked with MOH, NTP and NRL to evaluate progress made in Laboratory strengthening, identify the gaps and challenges in the implementation of new diagnostic test, assess quality management of DR-TB cases and make recommendation for improvement of the program management of DR-TB.

Key Recommendations (*GLC Mission Report-2019*):

For Human resources:

- In order to respond effectively to the incoming human resources problem at the NTP, the MOH should consider absorbing as much as possible the human talent developed during these years.
- With the actual economic crisis and with the fact that Lebanon is still hosting many refugees and migrants, international organizations should continue supporting part of the human resources in order to ensure the proper delivery of TB services.

For DR-TB:

- Due to the treatment decentralization trend, the NTP DR-TB focal point and NTP potential deputy need to be updated and trained in the clinical management of DR-TB especially (DR-TB treatment and management of side effects). Assure a place where the TB patients can be attended if facing a critical clinical condition.
- WHO to create a list of key people managing DR-TB and sending key technical documents, guidelines, practical tools (e.g. aDSM forms) and websites to access novelties in TB management or at least a source of grass root dialogue with treating physicians and NTPs.

For the Laboratory:

- NRL(LRM) to define minimum Drug susceptibility testing volume for maintaining work flow, quality control and proficiency (recommended- 200 FLDST/Annually minimum).
- NTP to review and revise guidelines/protocol on use of culture for the diagnosis of TB.
- NTP to revise guidelines on use of comprehensive Drug susceptibility testing.
- Readjustment of DST panel and Critical concentration of drugs in line with WHO recommendation and new treatment guidelines.
- NRL to organize and implement EQA for AFB smear and Xpert services for TB centers.
- NTP to organize incineration of laboratory waste of TB centers including specimen container and used cartridges.

ANNEXES

ANNEX 1 – NTP Budget 2020

Category	Product	Estimated Budget (in usd)
Anti-TB Drugs		350.000,00
Diagnostics	Gene Xpert cartridges	57.500,00
	Quick TB - staining Kit	10,500,00
	PPD/ tuberculin vials	12,000,00
	lab tests at NRL (Culture, DST...)	195,133,33
Other Consumables	N95, surgical masks, gloves, syringes, slides, sputum containers...	30,000,00
	Stationary + printing materials	12,000,00
	Specimen transportation:	18,000,00
Maintenance		50,000,00
Advocacy ,active case finding	Trainings and workshops	47,000,00
Total		782,133,33

ANNEXES

ANNEX 2 – NTP Work plan 2020

Objective	Intervention	Activity
1. Decrease the burden of TB in the general population by increasing efforts for case detection and treatment follow-up	1.1 Increase the number of presumptive TB cases by increasing awareness about TB among health care providers	1.1.1. Awareness sessions about TB disease for HCW in Social Development Centers affiliated to the MOSA to improve prompt and organized referral of presumptive TB cases to the NTP 1.1.2. Training for management of presumptive TB Care and Referral for HCW in the PHC network 1.1.3. Awareness sessions about TB disease for local and international NGOs
	1.2. Further decrease number of cases lost to follow-up by involving stakeholders in treatment follow-up	1.2.1. Involve the PHC network, NGOs and community organisations in treatment monitoring of vulnerable groups (migrants, refugees, prisoners, people living below poverty line...) 1.2.2. Set agreement between NTP and stakeholders to follow-up patients belonging to vulnerable hard-to-reach groups 1.2.3. Training sessions to all stakeholders involved in TB treatment monitoring
2. Improve TB cases diagnosis through better laboratory environment	2.1. Increase the number of bacteriologically confirmed TB cases	2.1.1. Training NTP lab personnel : refresh on staining SOP, Gene-Xpert SOP, algorithm updates, data management, results communication process 2.1.2. Training-Governmental hospitals lab personnel : Pre-analytical and analytical SOPs + request forms + Data Entry , results communication process 2.1.3. Training clinicians : Pre-analytical SOPs with a highlight on Extra-pulmonary samples and MDR patients
	2.2. Ensure quality tuberculosis diagnostic services	2.2.1. For NTP centers -AFB microscopy every quarter : slides prepared and sent to NTP centers for staining and reading . Results sent to NRTL. -GeneXpert: percentage of center samples to be sent to NRTL for comparison (10%) 2.2.2. For private lab: (with a high load of positive TB patients) -AFB microscopy twice a year : slides prepared and sent to NTP centers for staining and reading . Results sent to NRTL. -GeneXpert: samples to be sent to NRTL for comparison (twice a year and for every MDR patients)

		<p>2.2.3.Site Supervision NRTL and Fondation Mérieux to accompany the MOPH during supervision visits for following SOP implementation and Infection Control measures,lab management, equipment and lab infrastructure.</p> <p>2.2.4.QA with the relevant Supranational Reference Laboratory (NRL to exchange specimen with SNRL to perform EQA on culture, DST and molecular testing)</p>
<p>3.Improve TB control among vulnerable populations in Lebanon</p>	<p>3.1.Reduce TB burden in the migrant populations in Lebanon, especially in undocumented migrant workers from high TB burden countries.</p>	<p>3.1.1.Pre-screening of migrants: Adapt a high quality pre-screening strategy at country of origin, especially in high TB burden countries, in addition to the systematic screening after entry to Lebanon.</p> <p>3.1.2.Community Based TB Activities:</p> <ul style="list-style-type: none"> • Conduct Awareness sessions, active case finding activities and contact investigations among the migrant community in Lebanon present in shelters and other settings in collaboration with embassies of high TB burden countries and Caritas. • Identify and map meeting points for migrants (social clubs, religious sites...) where the NTP can organize awareness sessions and conduct TB screening with the aim of detecting patients among hard-to-reach populations (undocumented). • Provide financial support to CHVs helping in screening activities, contact tracing and treatment follow-up in migrant communities.
		<p>3.1.3.Ensuring continuation of treatment</p> <ul style="list-style-type: none"> • Obtain NGO support for migrant patients under treatment and requested to leave the country to be able to stay at least until end of intensive phase (provide shelter, food and other living support needs). • Organise awareness sessions about he importance of treatment continuation and the curable nature of the disease to members of NGOs supporting these communities and to women movements in the country. • Implement, in collaboration with other countries, SOPs for the continuation of the treatment of patients who move from one country to another while still under TB treatment
	<p>3.2.Improve TB control among prisoners</p>	<p>3.2.1.Elaborate and implement a plan for systematic TB screening in prisons.</p> <p>3.2.2.Awareness sessions about TB disease for personel working in prisons and for NGOs involved in supporting prisoners.</p>
	<p>3.3.Improve TB control among People living below poverty line</p>	<p>Awareness sessions about TB disease for SDCs affiated to MOSA and for NGOs supporting people livivng below poverty line</p>
	<p>3.4.Reduce TB burden</p>	<p>Activities supported under MER2 Grant (Global Fund)</p>

	among refugees	
Objective 4: Improve case management of Drug Resistant TB	4.1. Disseminate updated recommendations in DR-TB treatment	4.1.1. Training courses on the management and follow-up of DR-TB highlighting the latest recommendations in DR-TB treatment to all scientific societies in Beirut and Tripoli and to NTP physicians 4.1.2. Training course on the management and follow-up of DR-TB for NTP nurses and DOTS and for sanatorium nurses
	4.2. Improve pharmacovigilance for TB in Lebanon	Workshops on pharmaco-vigilance for NTP and sanatorium healthcare providers and for pharmacists in the pharmacy department of MOPH
Objective 5: Achieve and sustain accurate surveillance, monitoring and evaluation, and obtain better estimates of TB situation for a reliable measurement of progress	5.1. Improve the Health Management Information System	5.1.1. Implementation of DHIS2 for TB data collection and reporting 5.1.2. Training on DHIS2 to relevant NTP staff in all TB centers 5.1.3. TB notification form to be included in the DHIS2 + training on TB notification via DHIS2 to all governmental and private hospitals 5.1.4. Stock control for anti-TB medications to be included in DHIS2 5.1.5. Refresher training on TB Registration System for governmental hospitals focal persons and NTP staff 5.1.6. Trainings on the WHO-recommended Revised Case Definitions and Reporting Framework-2013 and updated R&R tools to NTP staff 5.1.7. Support the salary of a data entry officer for NTP
	5.2. Set up a e-health system to remind patients on their daily intake of drugs and their appointments for follow up	Setting up an electronic reminder system within the DHIS2 and train relevant staff at the NTP on how to use it