



TUBERCULOSIS IN LEBANON

National Tuberculosis Program

Annual Report 2021

Ministry of Public Health-Lebanon

BACKGROUND

Globally, TB control services were significantly affected by the COVID19 pandemic where “twelve years of impressive gains in the fight against TB, have been tragically reversed by another virulent respiratory infection,” Dr. Lucica Ditiu, Executive Director-Stop TB Partnership. In Lebanon, in addition to the COVID19 pandemic, the country is enduring a prolonged economic depression and political instability putting the healthcare system under severe strains.

This report describes the epidemiology of TB in Lebanon in 2021 and highlights the impact of the situation in Lebanon on the trends of TB notification. It also provides an overview on the different activities implemented to ensure continuity of delivery of TB services despite the numerous concurrent challenges.



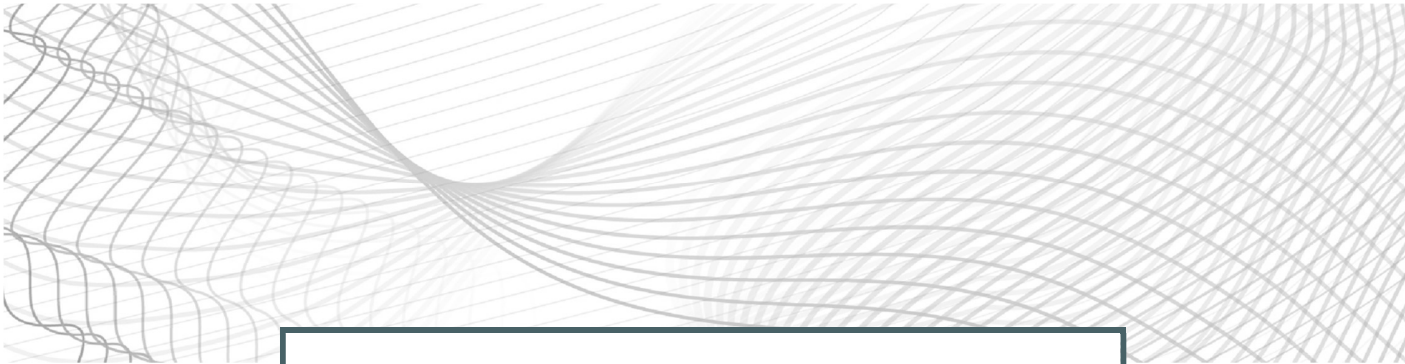


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Abbreviations

CHV	Community Health Volunteer
DHIS2	District Health Information Software 2
EPTB	Extra-Pulmonary Tuberculosis
FMx	Fondation Mérieux
C19RM	Covid19 Response Mechanism
HBC	High Burden Countries
HCW	Healthcare Worker
IOM	International Organization for Migration
LMS	Logistic Management Software
LRM	Laboratoire Rodolphe Merieux
MER	Middle East Response to Syrian Crisis
MOPH	Ministry of Public Health
MDR-TB	Multi Drug-Resistant Tuberculosis
NTRL	National Tuberculosis Reference Laboratory
NTP	National Tuberculosis Program
PPE	Personal protective equipment
PTB	Pulmonary Tuberculosis
RR-TB	Rifampicin-Resistant-Tuberculosis
TB	Tuberculosis
TRS	Tuberculosis Registration System
VOT	Video Observed Treatment
WHO	World Health Organization
DR-TB	Extensively drug-resistant Tuberculosis

I. TB Epidemiology in Lebanon

Lebanon is a low TB burden country with an estimated total TB incidence of 13 per 100000 populations, an estimated HIV-negative TB mortality of 1.4 per 100000 populations and a treatment coverage of 76% (*WHO Global Tuberculosis Report 2021*).

The trend of TB notification which increased from 2012 onwards due to the influx of Syrian refugees and to the migrant workforce present in the country drastically dropped over the past 2 years and this is mainly attributed to the decline in notification among migrants (**Figure 1**). **Figure 2** shows that the percentage of foreign born TB cases which gradually increased between 2006 and 2020 dropped to 50% in 2021.

Figure 1): Trends in notified TB cases by Population Subgroups, 2007-2021

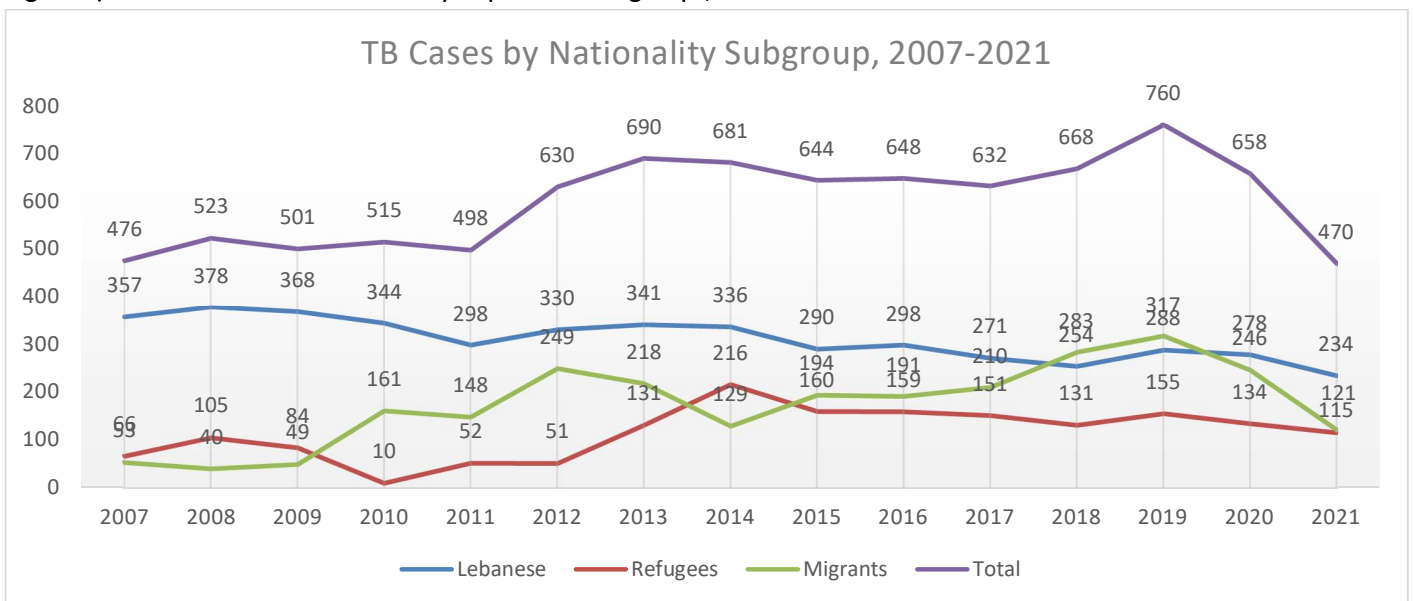
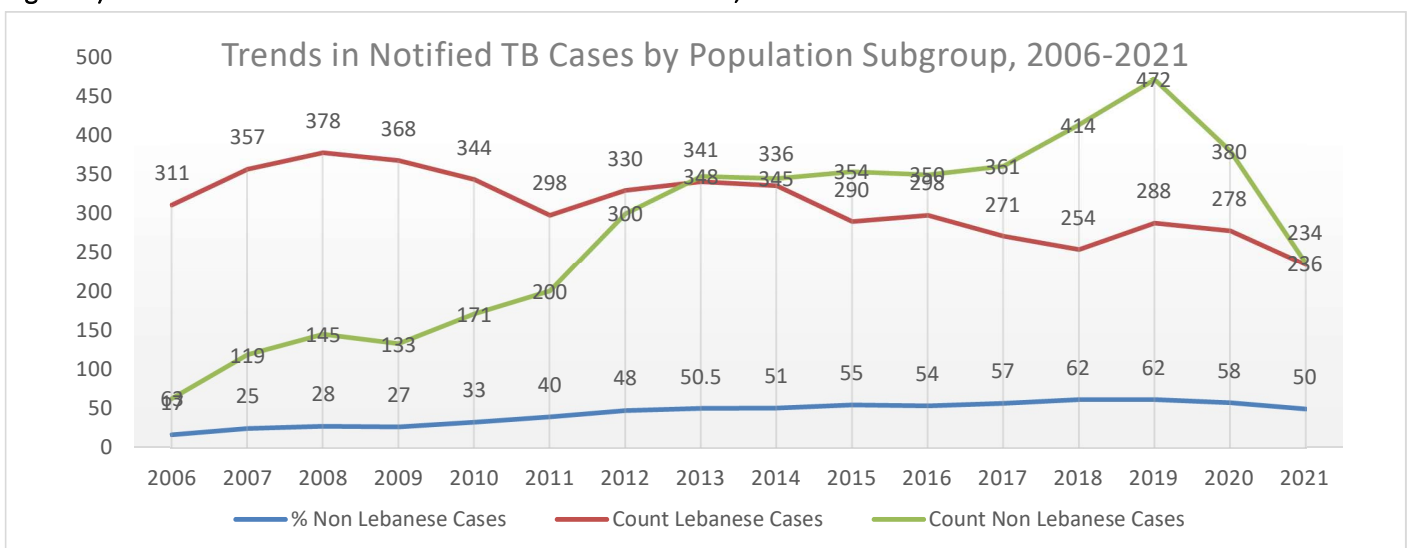


Figure 2): Trends in notified TB cases-Nationals vs. Non-nationals, 2006-2021



TB treatment Outcomes-2020

In 2020, treatment success rate among Lebanese and Syrian and Palestinian refugees exceeded 90%-target set by the NSP towards TB elimination (**Table 1**). However, the overall treatment success rate was 81% in all reported TB cases and this is related to the low success rate among patients from the migrant workforce (63%). In fact, around one third of migrants whom treatment was initiated at NTP Lebanon left the country or were transferred out** before treatment completion (**Table 1**).

There is still no mechanism to track patients transferred out of the country to ensure treatment continuation and to retrieve their treatment outcomes. Yet an Action Framework for the refugees, internally displaced persons, returnees and other migrants under the Middle East Response of the Global Fund to Fight AIDS, Tuberculosis and Malaria is currently being developed.

Table 1: Treatment Outcomes - Distribution by Nationality (2020)

Treatment Outcome	Nationality				
	Lebanese	Syrian	Palestinian	Others	Total
Cured	75	43	7	55	180
Treatment Completed	177	62	13	100	352
Treatment Success Count*	252	105	20	155	532
Treatment Success Rate (%)	91	94	95	63	81
Treatment Failure	0	0	0	0	0
Death	17	1	1	2	21
Left the Country	4	3	0	51	58
Transferred Out**	1	2	0	33	36
Lost to Follow-Up	3	1		5	9
Total	277	112	21	246	656

*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

TB Epidemiology in Lebanon in 2021

In 2021, 474 TB cases, including DS-TB and DR-TB were notified, diagnosed and enrolled under TB treatment. The total notification dropped by 38% and 28% compared to 2019 and 2020 respectively. Furthermore, the distribution by population subgroup shows a decline in notification among the different groups, particularly in migrants with a huge drop of 62% compared to 2019 and 51% compared to 2020. **Table 2** highlights how the trends in TB notification changed in 2021 compared to 2019 and to 2020.

Table 2: Changes in Notification by Population Subgroup

	Change in TB Notification 2021 VS. 2019 (%)	Change in TB Notification 2021 VS. 2020 (%)
Lebanese	-18	-15
Refugees	-26	-14
Migrants	-62	-51
Total	-38	-28

The alarming decline in TB notification trends is the results of the numerous and concurrent dire events witnessed by the country during the past 2 years which severely affected the healthcare system, created barriers to accessing health services and caused changes in health seeking behaviors and migration trends. In fact, it all started with the economic crisis in late 2019, which increased extreme poverty rates and malnutrition, two of the major social determinants of TB. The worsening of the economic situation pushed a large number of working migrants to leave the country and caused changes in migration trends as well (number of new comers among the migrant community drastically declined). Lebanon was simultaneously struggling with the COVID19 pandemic and the resurgence of the Covid19 pandemic related to the different variant waves. The blast of the Beirut port in August 2020 heavily damaged NTP premises in Karantina where the central unit and main TB center are located.

Drug-Susceptible TB Cases

In 2021, the total number of notified active susceptible TB cases was 470, out of which 59% had pulmonary TB (**Figure 3**). **Figure 4** shows the distribution of EPTB cases by site of disease with more than half of the extra-pulmonary cases having TB lymphadenopathy.

Regarding gender and age distribution, 40% of the cases were aged between 25 and 34 years; 75% of cases in this age group being females. Overall, 60% of the cases were females. As for children, 23 cases below the age of 5 were found and treated (**Figure 5**).

Figure 3: Distribution of TB Cases by Type of Disease

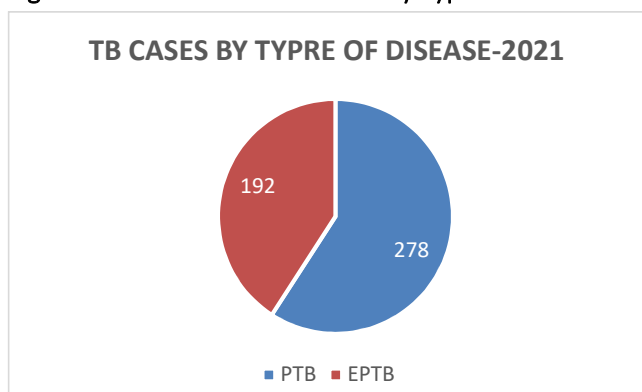


Figure 4: Distribution of EPTB Cases by Site of Disease

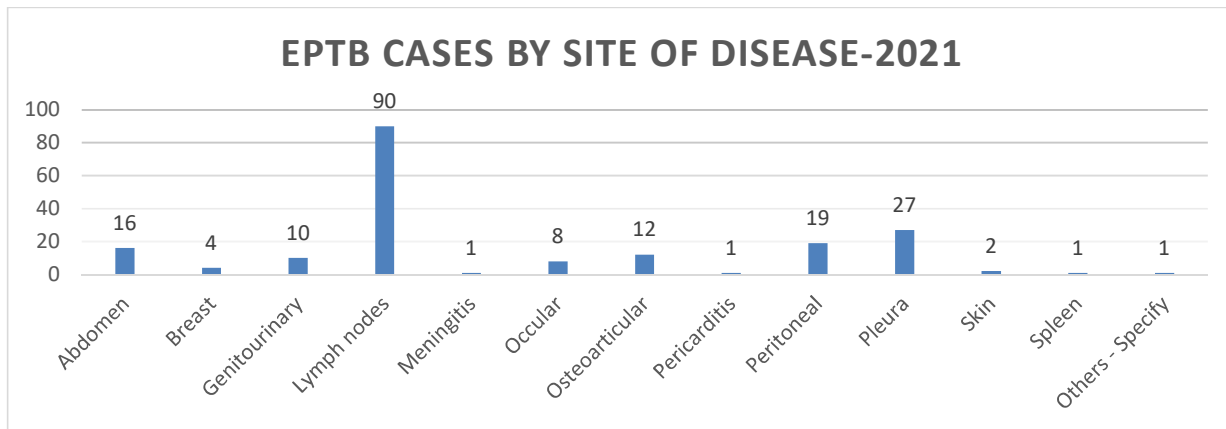
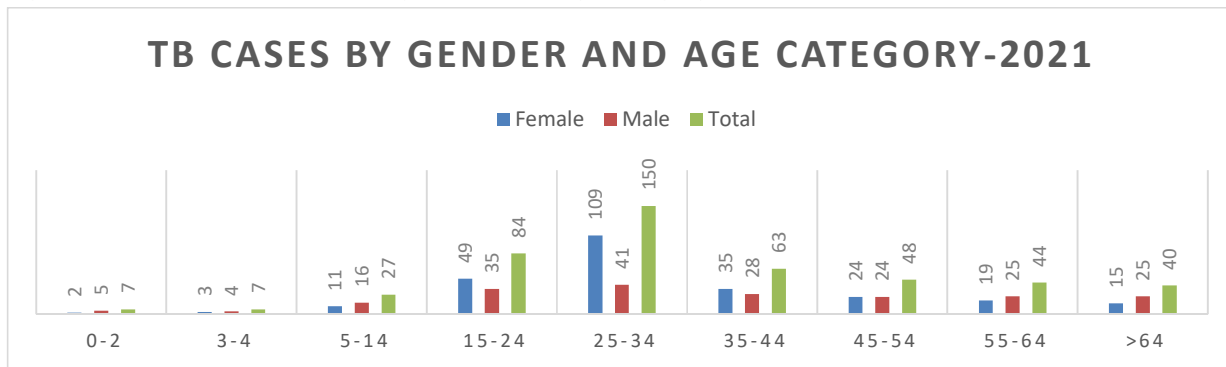


Figure 5: Distribution of TB Cases by Gender and Age Category



Besides, half of the notified TB cases were Lebanese and the majority of cases among non-nationals were from Ethiopian and Syrian nationalities with 102 and 80 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 6: Distribution of TB Cases by Nationality

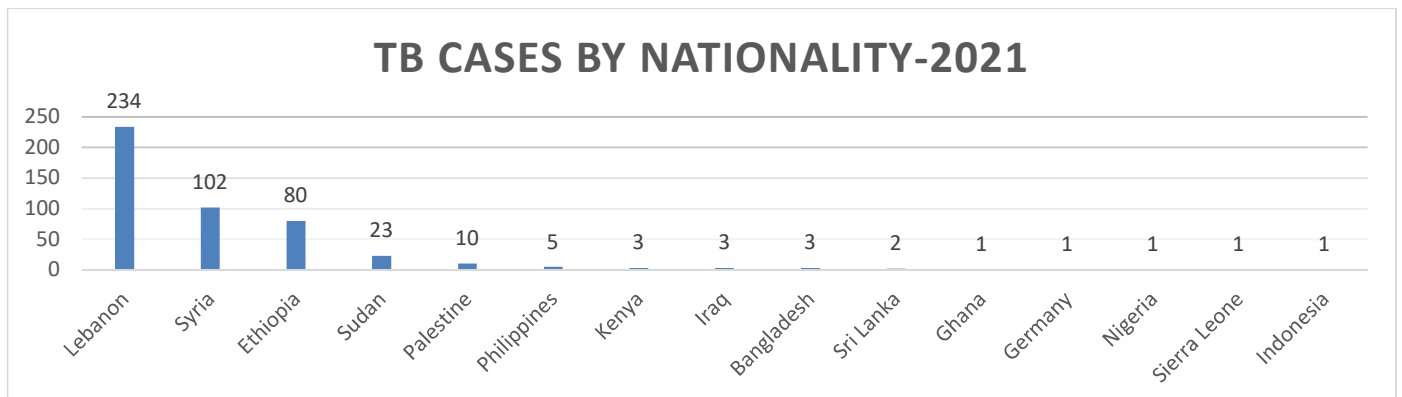
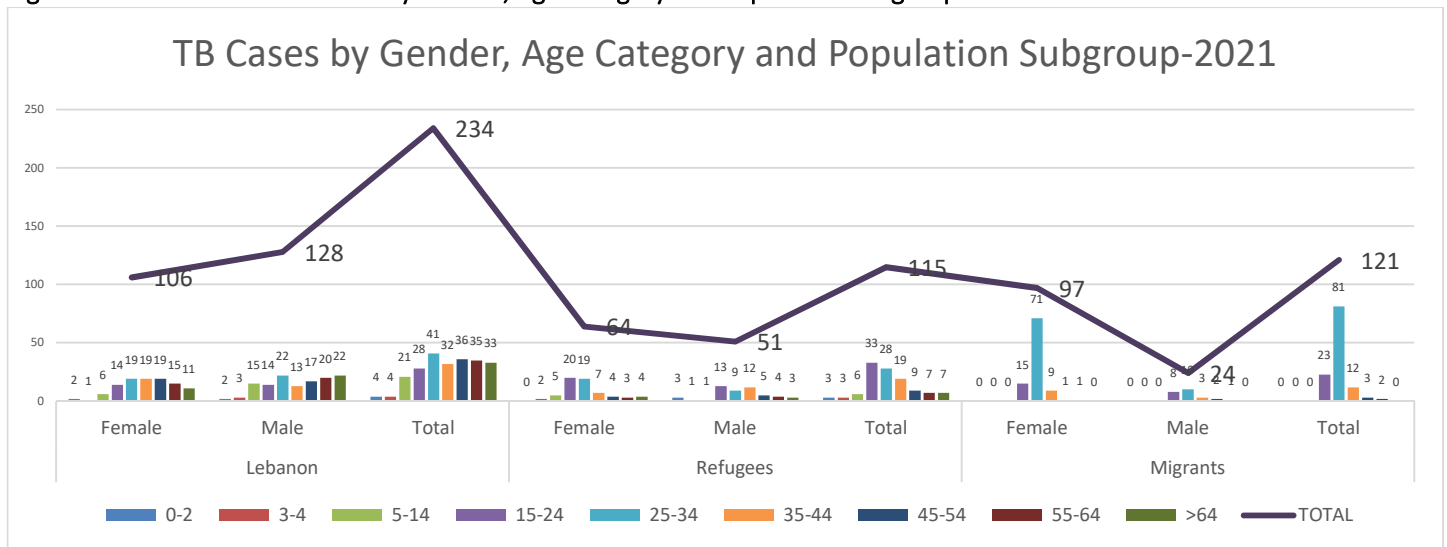


Figure 7: Distribution of TB Cases by Gender, Age Category and Population Subgroups



*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 Bekaa, North and South accounted for 24%, 15% and 12% of the cases respectively. 4 cases were among prisoners (Figure 8).

Figure 9 shows the distribution of notified TB cases by nationality at district level.

Figure 8: Distribution of TB Cases by Governorate

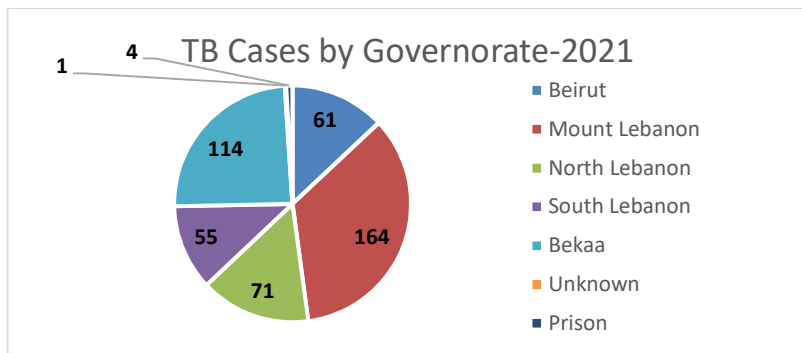


Figure 9.a: Distribution of TB cases by Nationality-Beirut

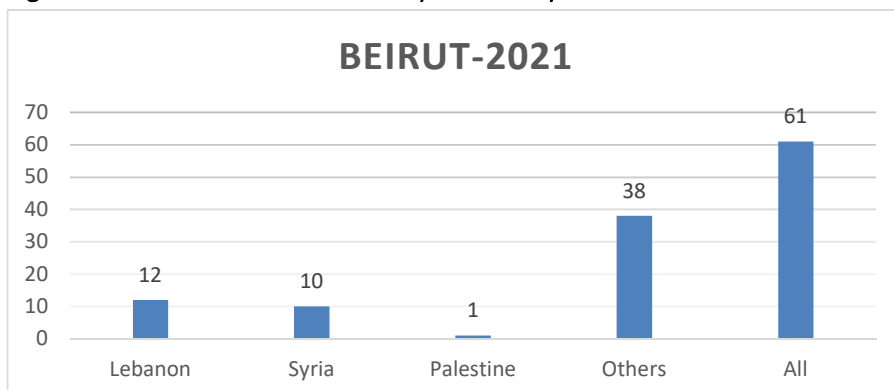


Figure 9.b: Distribution of TB cases by Nationality at District Level-Mount Lebanon

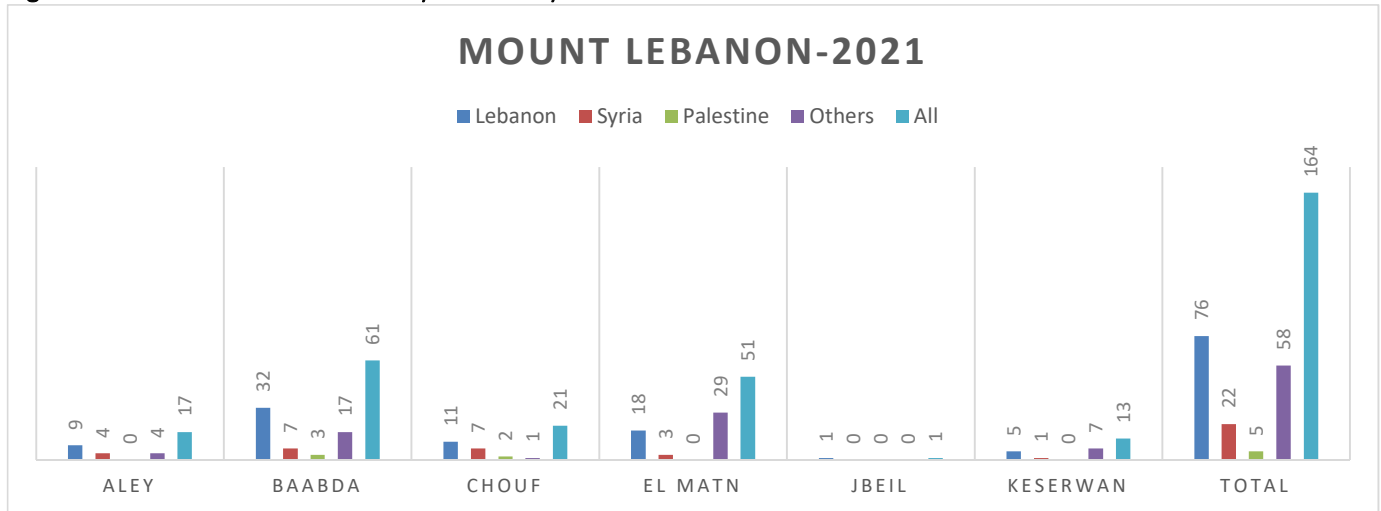


Figure 9.c: Distribution of TB cases by Nationality at District Level-North Lebanon

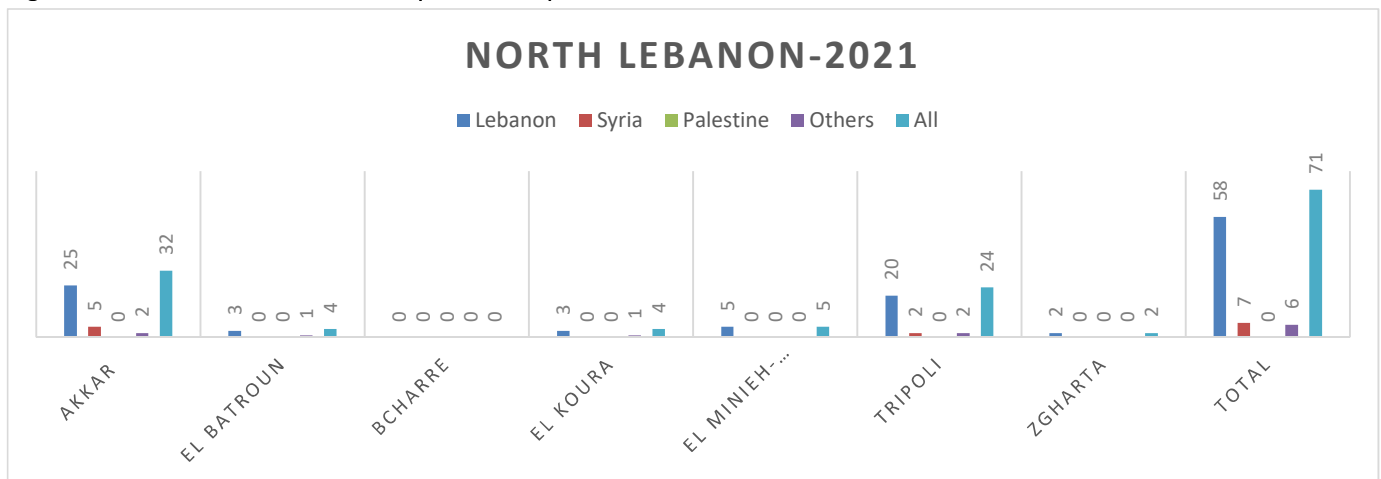


Figure 9.d: Distribution of TB cases by Nationality at District Level-South Lebanon

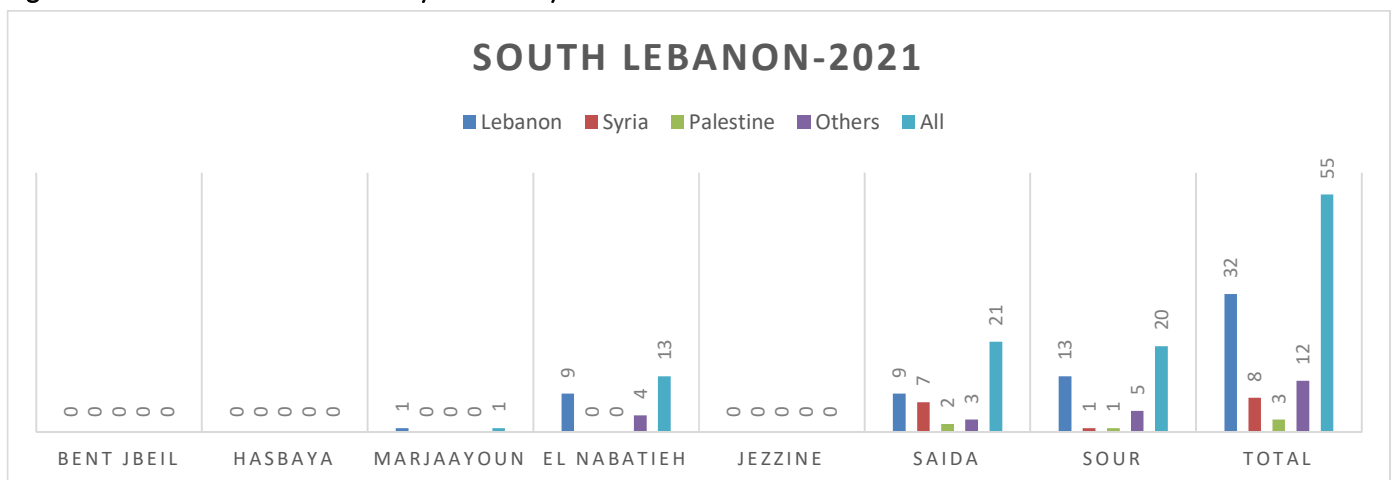
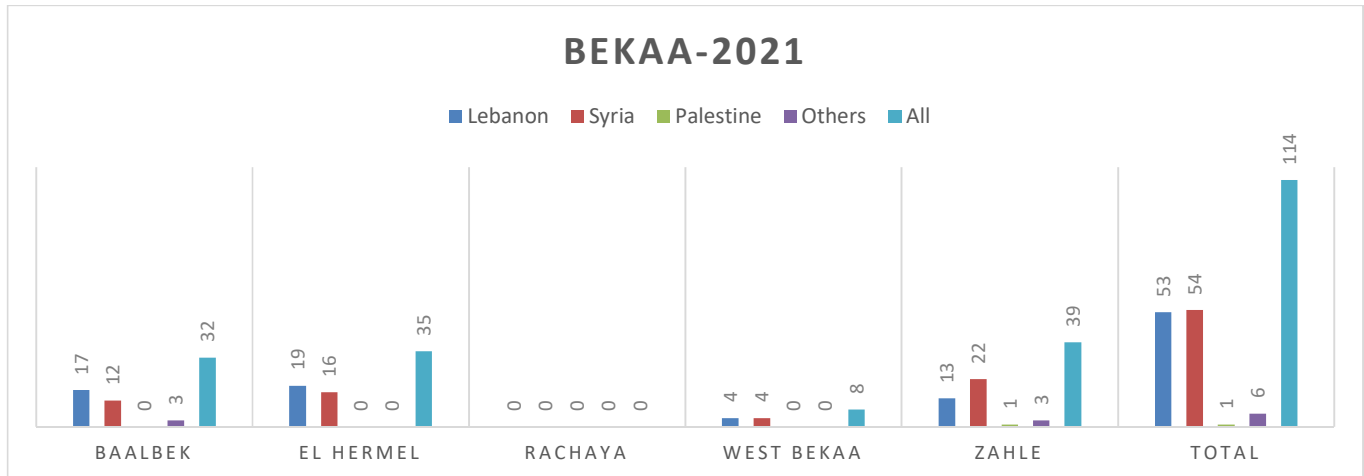


Figure 9.e: Distribution of TB cases by Nationality at District Level-Bekaa



Drug Resistant-TB Cases-2020

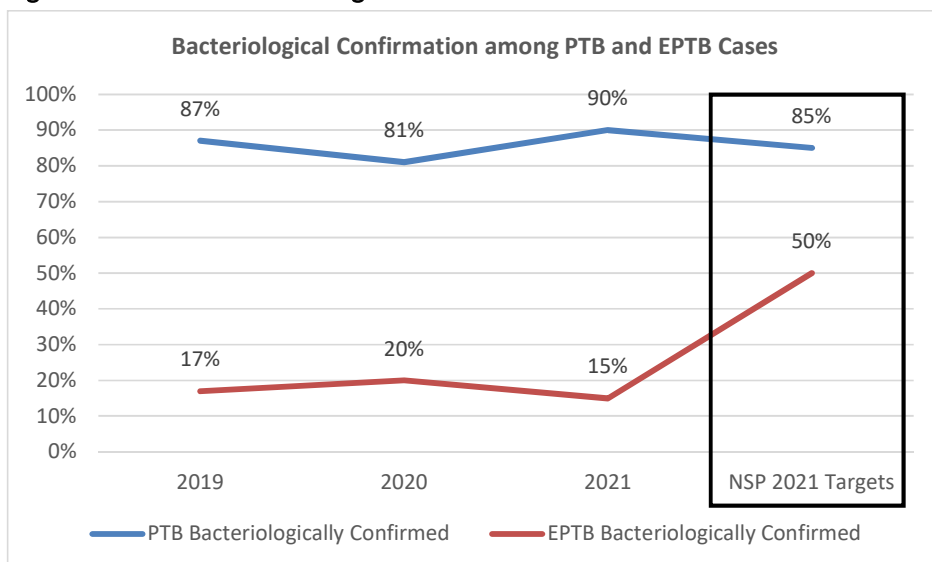
In total 4 cases were reported in 2021 including 2 RR-TB, 1 pre-XDR-TB and 1 XDR-TB case. 3 had PTB and 1 had EPTB; all were non-nationals.

Overall, there were 0.6% DR-TB among new notified TB cases and 17% among previously treated TB cases

Bacteriological Confirmation

90% of PTB cases were bacteriologically confirmed meeting the NSP 2021 target. However, there is still a huge gap in bacteriological confirmation among EPTB cases with only 15% of the cases having a confirmatory test result. The main challenge is related to the low referral of EP specimens to NTP for testing.

Figure 10: Trends in Bacteriological Confirmation 2019-2021



II. TB Screening Activities in High Risk Groups

a) TB Contacts Screening

Despite the numerous challenges related to the COVID pandemic, the instability in the country and the shortage in human resources, contact investigation remained one of the ongoing active case finding activities conducted by the program in 2021.

Contact screening was done to around 80% of eligible active TB cases. 279 received TPT and 9 contacts were diagnosed with active TB. High risk groups for TB were also targeted as part of the contact investigations with a screening activity conducted at the shelter of the Ethiopian embassy and another one for detainees at Kasr Al Adel. **Table 3** shows the main findings of this activity for 2021.

Table 3: TB Contact Screening 2021

	Count	%
No. of TB cases to whom contact screening should be done	271	
No. of TB cases to whom contact screening was done	219	81
PPD Done	1000	
PPD Positive	229	23
CXR Done	448	
CXR Positive	19	4
Contacts Eligible for TPT	201	
Contacts took TPT out of eligible	193	96
Contacts<5y	124	
Contacts<5y took TPT	86	69
Active TB	9	

b) TB Screening in migrants from TB HBC

Systematic TB screening of migrants coming from TB HBC is undertaken in governmental hospitals for the purpose of providing a work permit for migrant workers.

In 2018, a Tuberculosis Registration System for TB screening in migrants was developed and implemented by NTP with the support of WHO to improve data collection and reporting. The system is used by NTP staff and focal persons for TB in governmental hospitals where screening is done.

Table 4 summarizes TRS data for the past 4 years.

Table 4: TRS Data, 2018-2020

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		3066	1042

III. Ensuring Continuity of TB Services During COVID19 Pandemic

Amid the COVID19 pandemic and following the WHO information note on TB and COVID19, NTP with the support of IOM continued to implement different measures to maintain continuity of delivery of TB services for people affected with TB during the COVID-19 pandemic.

Treatment Delivery and Follow-up

- Expanded CHV network to support NTP HCW in treatment monitoring, contact tracing...
- Communication technologies were used to maintain treatment support mainly through VOT.
- Follow-up visits for TB patients were reduced to when follow-up testing was required
- Enough TB medicines were dispensed to patients to last until the next visit (to avoid treatment interruptions during lockdown periods)

Preventive and Infection Control Measures

- Consistent use of PPEs
- Regular handwashing and regular decontamination of surfaces,
- Staff distancing
- Ventilated workplaces

Awareness Raising

Awareness campaign materials including a video about the delivery of TB services during COVID19 pandemic and other IEC materials were developed in different languages targeting different population subgroups in close collaboration with AUB-FHS, MUBS and UNOV.

IV. Coordination Meetings and Training Sessions

➤ TB Sessions on the Occasion of the World TB Day

On the occasion of the World TB Day, the NTP organized a virtual meeting hosting participants from scientific societies and representatives from partner organizations. The meeting was held on 31 March 2021 with a total of 38 attendees. The objectives of the meeting were to:

- Present the most recent TB trends in the country and highlight the impact of the COVID19 pandemic on TB globally and in Lebanon.
- Describe the changes in the provision of TB services, while Ensuring Continuity During the Pandemic
- Highlight the impact of the economic crisis and the Beirut blast on the delivery of TB services and summarize partners support in different areas.
- Address the challenges and the main actions to get back on track

On the same day an update about TB situation in the country was presented during the CHWG meeting.

➤ TB Management Training Sessions with SAMS

NTP with the support of IOM organized in collaboration with SAMS organization 2 Sessions about TB disease, its management and the services available at the NTP with the purpose of raising awareness about TB and to improve referral of presumptive TB cases among SAMS beneficiaries to the NTP. Training sessions were held during the months of March and April 2021 in Bekaa area. In total, 34 participants attended the training and included staff and peer educators from SAMS.

➤ Capacity Building for NTP Staff

1. Review meetings with NTP Staff

The NTP central unit team organized quarterly review meetings with NTP staff with the objectives of:

- Presenting the latest TB data desegregated by center/ region
- Addressing the gaps based on data analysis by center
- Checking what are the challenges faced by the team amid the difficult situation in the country
- Suggesting action points and solutions to improve the delivery of TB services in each center

In total 3 meetings were held virtually during the months of March, May and July with 23, 18 and 17 attendees respectively.

2. COVID19 vaccine awareness 12/8/21 with UNICEF

Following the issuing of the recommendation prioritizing COVID19 vaccination for certain high risk groups including TB patients, a virtual awareness session was organized by UNICEF-Balamand during the month of August. The objectives of the session were to increase awareness about the COVID19 vaccine and to present the means of registration on the platform. 16 participants from NTP attended the session.

➤ LMS workshop

During the month of November, a 2-days workshop about the new Logistic Management Software, that will be used by the health programs under MOPH storing their drugs and supplies at the CDW, was organized with the support of WHO. 17 HCW from NTP central and peripheral units participated in the workshop.

On day 1, the software developers explained the “dispensing to center” function which enables the creation of a medication order request by TB centers, the request will then be processed reviewed and approved centrally before the preparation and collection of the order.

On day 2, “patient dispensing” function was presented and explained. This function enables the HCW to search or create a record for the patient, register patient information, upload important documents (ID, Lab results...), select medication template and define quantities needed.

At the end of each session, participants were able to practice working on the software and ask for support when needed. Following the practice, NTP central unit team highlighted some gaps to be addressed and updates to be done on the software.

Launching of the software is expected during Q1 2022.

A third session was organized for the managers of the programs that will be working on the software. The main objective was to present the existing reporting templates and to explain how to create a template for a new report. Challenges faced by some programs were also addressed and action points were suggested.

➤ DHIS2 for TB workshops

In alignment with objective number three of the NSP towards TB elimination in Lebanon aiming to achieve and sustain accurate TB surveillance in the country, there was a need to update the TB national recording and reporting system and move to an electronic platform. The DHIS2 for TB will enable case documentation and data sharing between NTP peripheral and central level and between stakeholders and NTP in a more accurate and timely manner. In addition, the platform can be used to track patients and send reminders and notifications to patients and healthcare providers on treatment intake, follow up visits and other important aspects.

Development phase started in 2019 and was stopped in 2020 due to the COVID19 pandemic and the unprecedented events in the country. Work was resumed and finalized in 2021 following a close coordination between the WHO IT developer and the NTP M&E. (ANNEX I: Timetable of Activities)

Within this context, 2 workshops were organized with the support of WHO during the month of November. Participants (Day1 15 and Day 2 14) included all the stakeholders that will be using the software for data entry and/ or reporting: NTP central unit team, NTP staff working in the different centers, representatives from FMx and LRM. Representative from IOM.

The NTP M&E did a refresher training about the WHO TB Definitions and presented an overview about the software and its objective. The software developer and NTP M&E did a demo on the software that was followed by a practice and Q&A session by participants.

V. Supervision Visits

NTP central unit team-NTP manager, M&E officer and pharmacist-conducted supervision visits to the different TB centers in Lebanon during the second half of 2021. Numerous aspects were monitored, mainly related to (ANNEX II: Supervision Visits Findings):

- Active case finding
- Laboratory testing and Quality assured diagnosis
- Management of TB cases
- Recording and Reporting
- Infection control
- Drug management

VI. Partners Support

WHO Support

- Updating the ENRS currently used at the NTP through the development of a new electronic platform, the DHIS2 for TB.
- Supporting the organization of the DHIS2 for TB workshops
- Supporting the development of the LMS and the Organization of the LMS workshops for NTP team and management
- Supporting the position of the NTP Pharmacist for 2021
- Ensuring the clearance process of TB drugs and consumables at the airport

IOM Support

Under MER2 Project

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 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, the sanatorium and the LRM as well as capacity building.
- Direct services to Syrian and Palestine nationals as well as life-saving and public health threats interventions for non-nationals according to the national guidelines.

Under C19RM Project

- Enhancing the outreach team in the blast affected area
- Procurement of 15 months' drugs and consumables

LRM-Fonadtion Merieux

Provided additional support to the program following the blast:

- Ensuring diagnosis of presumptive TB cases (by performing Xpert, Culture and DST when recommended)
- Supporting the Remodeling/ refurbishment of the laboratory at the TB center in Beirut.

UNHABITAT

UNHABITAT supported the renovation of the NTP offices, center and warehouse damaged during the blast. This included a structural assessment of the safety of the damaged building with renovation including basic furniture, office equipment / accessories that were damaged.

ANNEX I: DHIS2 for TB Activities Timetable

Activity		Sub-Activity	2019	2020	2021	2022
A.	Developing DHIS2 tracker based model for TB	A.1 Mapping of variables				
		A.2 Creating option sets				
		A.3 Developing the stages and sections				
		A.4 Setting up program rules				
		A.5 Developing automated dashboards				
		A.6 Setting up a notification system (To patients and HCW)				
B.	Merging the TB registration software used for reporting on migrants with the DHIS2 platform	B.1 Mapping of variables				
		B.2 Creating option sets				
		B.3 Developing the stages and sections				
		B.4 Setting up program rules				
		B.5 Developing automated dashboards				
		B.6 Setting up a notification system (between hospitals and NTP)				
C.	Capacity building	C.1 Training NTP central unit team on data analysis (DHIS2 academy)				
		C.2 Training NTP peripheral teams on data entry and basic data analysis				
		C.3 Training NTRL team on data entry and basic data analysis				
		C.4 Training governmental hospitals teams on data entry and basic data analysis				
D.	Supporting the IT infrastructure	D.1 Procurement of a server for NTP central unit				
		D.2 Renewal of IT equipment for NTP central unit				
		D.3 Renewal of IT equipment for NTP peripheral centers/ hospitals				
E.	Monitoring and Evaluation	E.1 Defining a list of indicators				
		E.2 Monitoring indicators regularly				



National Tuberculosis Program LEBANON

Supervision Visits Findings (Strengths, Gaps and Challenges)

1. TB case finding

- Active case finding activities are being conducted among contacts only in most of the centres except 2 TB screening activities that were done among other high risk groups; one screening done in prison following the notification of an active case among prisoners and the other one among migrants in the shelter of the Ethiopian embassy. High risk groups will be targeted under MER3 through numerous interventions and collaborations
- Contact screening:
The activity is satisfactory in most of the centers where the % of PTB patients whom contacts were screened as per the guidelines exceeds 80% in most of the centers (In Karantina there was a gap in the contact screening of patients discharged from Sanatorium to Karantina). Furthermore, the % of EPTB patients below 5 years whom contacts were screened as per the guidelines was 100% in 3 centres (Karantina, Saida and Tripoli).
% of contacts above 5 years eligible for TPT who received TPT and % of contacts below 5 years eligible for TPT who received TPT were high in most of the centres. Some gaps related to TPT provision (at Halba) and to reading TST result (Hermel) were addressed.
- Percentage of PTB cases out of the total cases notified was low in most of the centres at time of the visit except in 3 centres (Karantina, Hermel, Nabatieh). This could be attributed to the decline in notification of PTB cases or to the over-diagnosis (non bacteriological confirmation) of EPTB. An in-depth data analysis is needed.
- A register to collect data about presumptive TB cases is available in the following centres: Saida, Tripoli, Tyre and Zahleh. As of January 2022, data collection concerning presumptive TB cases will be standardized and collected on DHIS2 for TB.

2. Laboratory testing and Quality assured diagnosis

- Sputum Collection:
The quality of sputum containers is satisfactory in most of the centers except Saida and Tripoli which are using the narrow containers. The wider cups will be delivered to these centres.
Sputum containers are generally well labelled: Patient name, Date of collection (Sample ID to be added).
Storage of specimens is unsatisfactory in the Hermel, Saida and Tripoli due to suboptimal storing temperatures (major electricity outages). Currently, HCW at these centers are trying to schedule sample collection on the day

the transportation is scheduled. Discussion on the potential procurement of solar energy fridges for the TB centres to be supported by UNICEF.

- Specimen referral: Its generally satisfactory for PTB cases where patients are referred and sputum is collected by the NTP. However, the major challenge is in the referral of EP specimens (very low % of bacteriological confirmation in EPTB cases due to the fact that physicians usually send specimens for anapathology). TB HCW were asked to contact physicians commonly referring patients to the NTP and remind them of the available Diagnostic services for EPTB cases. Lab SOPs to be shared with them. Moreover, an intervention under MER3 consisting of a pilot study in 3 major hospitals in BML will be conducted where specimens will be systematically referred to NTRL for culture.
- There were some gaps in referral of samples for testing for diagnosis and follow-up. On spot refresher training during the visit was done to HCW on referral of samples for testing (when we have 2 negative Xpert results → a sample should be sent to NRL for Culture; A specimen to be sent for culture to all Lebanese cases; when a patient is diagnosed by smear only outside NTP another sputum sample could be collected for Xpert testing...). This was also a result of the challenges in specimen transportation in different regions during the last quarter of 2021 (between NTP centers and between NTP peripheral centers and NTRL).
- Bacteriological confirmation among PTB cases was high in most of the centers (Equal or Above NSP targets for 2021 except in Tripoli, Tyre and Zahle-in Zahle all PTB cases performed Xpert except 4 cases pediatric). This highlights the challenge in TB bacteriological confirmation in children where interventions for diagnostic purposes are not supported.
- Bacteriological confirmation among EPTB cases was very low in all centres.

3. Management of TB cases

- Treatment supervision:

DOT officers are supervising treatment in coordination with the outreach team in most of the regions (except North Lebanon). Yet they are facing many challenges hindering this activity such as internet connection issues (can't perform a video call) or transportation challenges due to the fuel crisis (home visits by the DOT officer conducted when necessary only).

BML/ South: Treatment supervision is being carried out through daily text messages/ phone calls/ video calls for PTB and EPTB cases during all treatment course in BML and the South supported by the network of CHVs in the area and monitored by the FC of BML/ South where a data collection tool is used. In the South, the first visit to patient house is not being conducted systematically, whereas in BML it is, yet the form listing contacts-HH si not being shared immediately with the NTP staff.

Baalbek-Hermel: In the Bekaa region, CHVs are mainly supervising treatment of Syrian patients; Hermel TB center patients living in Baalbek are also supervised by the CHVs.

North: there is no support or information about the support done by the CHVs in that region.

- Follow-up testing by smear is done at M2, M5 and M6 when sputum is available; HCW were reminded to repeat smear twice at M2 (2 samples to be collected from the patient)
- Follow-up testing by culture is done on a monthly basis for DR-TB cases: Satisfactory
- Referral/ transfer mechanism of patients between the TB centre and the sanatorium/ another TB centre/ another country is properly done in most of the centres. In some centres, the form was not used at all or was used when transferring the patient to another country. Instructions on the proper use of the form were given.
- HIV testing was satisfactory n most of the centers (except Karantina, Tyre and Zahle). The List of cases who did not undergo the HIV testing to be provided to the lab technician so she could do the test. HCW were reminded about the importance of pre-HIV test counselling

4. Recording and reporting

- Paper based data entry:
 - Standardized forms and registers available and used in most of the centres: Partially satisfactory.
 - Some missing results were noticed in the lab register in few centers and the HCW were asked to revise and complete missing data (Always follow-up on culture results with the central unit.). Likewise, some lab results weren't transcribed to patient file in few centres, same advice given. Fields being completed in the lab and active TB register: Satisfactory
 - Medical Files should be stored in a locked filing cabinet
 - Few centres were still confusing treatment outcomes "Cured" and "Completed". They were reminded about the definitions
- Electronic based data entry:
 - Timeliness: Satisfactory
 - Completeness: Partially satisfactory (missing data in some centres)

5. Infection control

- PPEs use: Instructions on the proper use of PPEs were given to staff.
- As for presumptive TB cases, they should be directly provided with a surgical mask (if it wasn't worn) when entering the centre.
- Medical waste disposal: not satisfactory in most of the centres
- Infection control IEC materials should be displayed in the waiting area at the centres
- Natural ventilation available (doors and windows are open at all times) in most of the centres
- Sputum is generally collected in a well ventilated area or at home