Sultanate of Oman
Ministry of Health
Directorate General for Diseases Surveillance & Control

Monitoring and Evaluation Framework
National TB program

[March 2021]

Table of content:

1. Abbreviation:

ADR	Adverse drug reaction
AFB	Acid fast bacilli
ART	Antiretroviral therapy
ATP	Advance Tour Planning
ATT	Anti-tubercular treatment
CDOTS	Community directly observed treatment, short-course
CDS	Central Disease Surveillance
ICR	Incidence Rate
CFR	Case fatality ratio
CME	Continuing medical education
CPHL	Central Public Health Laboratories
CPT	Cotrimoxazole preventive therapy
DGMS	Directorate General of Medical Supplies
DOTS	Directly observed treatment, short-course
DSC	Department of Disease Surveillance and Control (at the Governorate DGHS office)
DST	Drug susceptibility testing
GCC	Gulf Cooperation Council
GIS	Geographic information system
HCW	Health care worker
HIV	Human immunodeficiency virus
ICM II	Infection Control Manual
ID	Infectious disease
IGRA	Interferon Gamma Release Assay
IHR	International Health Regulations
INH	Isoniazid
IPC	Infection Prevention and Control
KPI	Key Performance Indicator

LPA	line probe assay
LTB	Latent tuberculosis
LTBI	latent tuberculosis infection
MDRTB	Multi-drug-resistant tuberculosis
MTB/RIF	Mycobacterium tuberculosis resistance to rifampicin
MOIC	Medical officer in charge
MOH	Ministry of health
MOH HQ	Ministry of health headquarters
NA	Not applicable
NSP	National Strategic Plan
NTP	National Tuberculosis Program
NCR	Non Conformity Report
OFI	Opportunity For Improvement
PHC	Public Health Center
PLHIV	People Living with HIV
PPD	Purified protein derivative
QC	Quality control
RTPCR	Reverse transcription polymerase chain reaction
SMS	Spot-morning-spot
SSM	Spot-spot-morning
SS	Spot – Spot
SM	Spot- Morning
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TB	Tuberculosis
TBPCR	Polymerase chain reaction for Mycobacterium tuberculosis
TOT	Training of trainers

2. Acknowledgement

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Task force members for developing Monitoring and Evaluation framework

Dr. Fatma Al Yaquobi	Head, TB & Acute Respiratory Section
Ms. Khalsa Al-Thuhli	National TB program coordinator
Ms. Ruqaiya Al Shehi	National TB program coordinator
Dr. Parag Shah	Epidemiologist, North Sharqiya
Dr Muhammad Muqeet Ullah	Epidemiologist, Al Buraimi
SSN Khawla Al Rahbi	Regional Focal Point Muscat Governorate
SSN. Aseela Al Jabri	Regional Focal Point N.Batina
Dr Sulein Alkhaliliy	TB & Acute Respiratory Section

Chief Editors

Dr. Fatma Al Yaquobi	Head, TB & Acute Respiratory Section
Dr. Parag Shah	Epidemiologist, North Sharqiya

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3. Monitoring and Evaluation Framework for NTBCP

3.1 TB epidemiology in Oman

Oman is considered a low incident country with an incident of less than 100 per million (All forms) since 2013. The overall incidence in 2019 is 80 per million (8.3 per 100,000 population)

The epidemiology of TB in Oman more or less follows that of low incidence countries which is characterized by a low rate of transmission in the general population and that the majority of TB cases generated from progression of latent TB rather than recent transmission with significant contribution of TB rates from cross-border migration and changes in age distribution towards the highest number of cases among the elderly in the nationals. Transmission among family members still occur due low rate of LTBI treatment acceptance.

Since the introduction of TB control program in 1981 several interventions have contributed to the dramatic reduction of the national TB rate such as the DOTS strategy, the Stop TB Strategy in 2006, and the End TB Strategy in 2014 and introduction of molecular testing e.g. MTB/RIF Resistant Xpert and LPA. (Fig1)

Fig 1

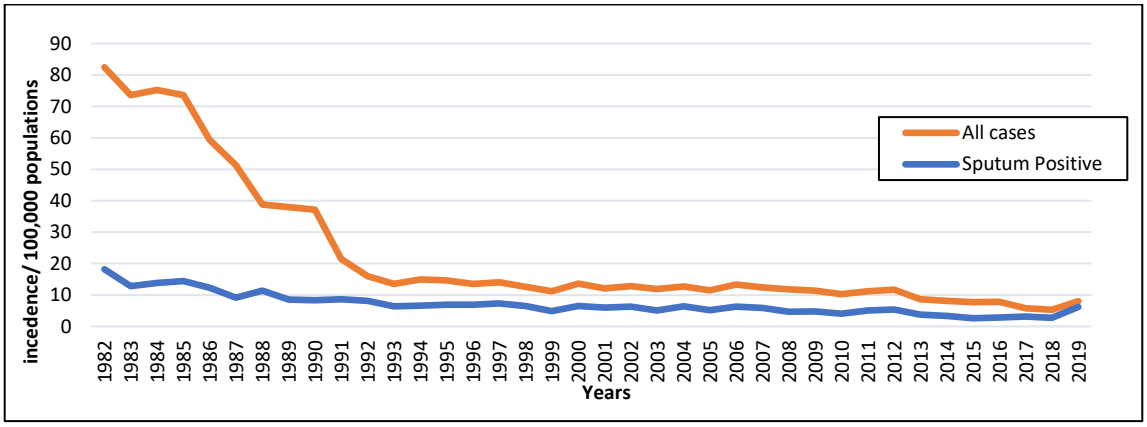
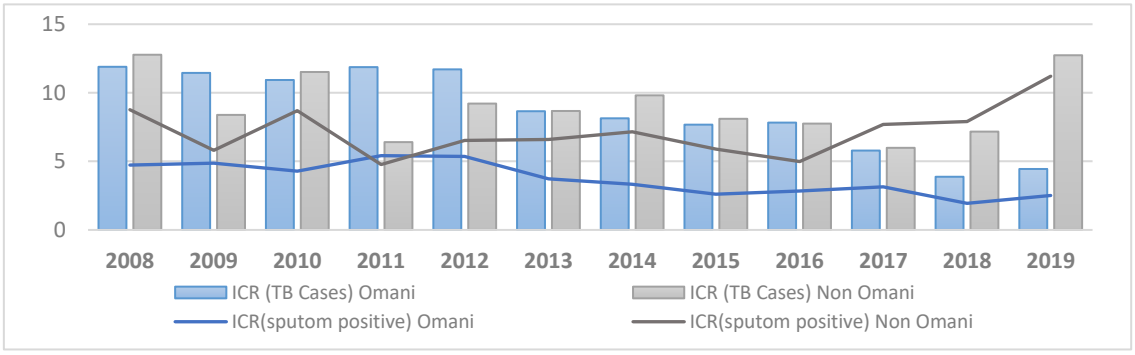


Fig 2



However, the notification rate reached a plateau and not until 2013 where the rate started to decrease below 100/ 1000,000 of population yet the rate was maintained by high rate of sputum positive in expatriate population (Fig2). Therefore, Oman has adopted End TB strategy as per recommendation of WHO for low incident country in order to reach pre-elimination stage at 2035 by reducing incidence by 90% compare to 2015 and reducing the mortality by 95%.

4. Introduction to Monitoring and Evaluation

Monitoring and evaluation is an integral part of TB programme management and provides information on the scope, quality, scale/coverage, and success of programme.

Monitoring generally refers to the routine collection of information across time and sites in order to track a program's ongoing activities. Policy-makers use monitoring to track key health-related indicators, often without attributing change to any particular programme or set of programmes.

Evaluation involves the assessment of programme implementation in order to determine the worth or value of a programme in terms of its success in achieving predetermined outcomes/goals. Evaluation is usually achieved through a detailed analysis of the programme's process and outcomes or impacts. Evaluation lends itself to the linkage of outcomes to the programme process, as well as rule-out non-programme effects on outcomes.

Monitoring and evaluation framework

Adequate monitoring and evaluation can only be achieved through a well-defined plan incorporating a framework of the goal, service delivery areas and activities. Indicators are needed to measure the performance and progress achieved.
It is crucial that the framework indicators can be critically analyzed and interpreted at all levels and corrective action taken. Guidelines and standard operating procedures for data management, analysis and quality assurance should also be developed and adhered to.

4.1 Objectives of M & E

- To establish standardized system for Monitoring of TB control program for all health institutes including private & Government institutes
- To evaluate impact of National TB elimination strategy
- Adaptation and use of revised reporting and recording system-based on hard and electronic tools (E notification)
- Capacity-strengthening in data management, data communication and data quality assurance including the general framework and tools for quarterly reports and supervisory visits.
- To evaluate and interpret epidemiological situation for TB control and taking the right public health actions based on programmatic data.
- To conduct operational research to improve quality of service and to meet targets under TB elimination strategy

4.2 Purpose of M & E

- **Assess** effectiveness in achieving objectives
- **Identify problem areas** (weaknesses in program design or implementation),
- **Improve** learning and decision making (evidence based)
- **Empower** and motivate staff

- **Improve** overall performance.
- **Ensure** accountability of all stakeholders
- **Gather lessons learned and Share** learning with others

5. Tools of M & E: (Recording and Reporting System)

5.1 Monitoring and Evaluation Team at National level:

- National TB program manager
- National TB focal point
- Laboratory representative (CPHL)
- Pharmacy representative (DGMS)
- Infection Control representative
- Representative from Private establishment department
- Other members according to needs

Roles and Responsibility:

- Develop and update policies for NTBCP
- Coordinate all the national surveillance activities and revise periodically
- Ensure an appropriate monitoring and evaluation (M&E) system at levels.
- Review the recording and reporting system including data collection, quality of data and proper data communication
- Provide support to the intermediate level for outbreak control, case management, laboratory diagnosis, epidemiological skills, education & training activities, and logistics
- Evaluation of reports from Governorate and prepare action plan
- Coordinate with National and international authorities (WHO and IHR)
- Ensure active participation of all stakeholders including private, other health institutes and inter sectoral coordination
- Promote health promotion activities in sultanate of Oman
- Provide opportunity and support for innovative research to improve the quality of services under NTBCP

5.2 Monitoring and Evaluation Team at Governorate level:

- Director of DSC
- Head of Communicable disease control section
- Head of Surveillance section
- Epidemiologist
- TB focal point nurse
- Infection control nurse
- Pharmacist focal point
- Laboratory focal point
- Representative from Private establishment department
- Other members according to governorate needs
    - Focal point Physician, Pediatrician and Obstetrician (Regional Hospital)
    - MOIC/Director of health institute
    - Focal point nurse of institute

Roles and Responsibility:

- Establish and implement National TB strategy in Governorate
- Establish a system of Monitoring and Evaluation at Governorate in line with national M & E framework
- Prepare quarterly and annual M & E reports on time and communicate with National level
- To scrutinize and monitor timeliness, completeness, and accuracy of notifications and other reports from health institute and provide regular feedback
- To maintain relevant records, important circulars, registers and files
- To conduct training and orientation programmes for the new and the staff through CME, seminars, symposia and workshops on a regular basis
- To undertake relevant operational research in order to strengthen the TB program-related activities
- To participate in the national CME activities and share regional data.

5.3. Prerequisite for M & E:

- Plan ahead: Advance Tour Planning (ATP)
- Inform about visit well in advance
- Review baseline data of area/facility to be visited
- Use standard checklists (See Annexure)
- Review previous visit report and Recommendations

5.4 Frequency of M & E visits:

- National level:
    - Minimum once a year to all Governorates
    - More visits can be planned according to needs
- Governorate level:
    - Minimum twice a year to secondary and tertiary care hospitals
    - Minimum once a year to Primary health care institutes
    - More visits can be planned according to needs including surprise visit to monitor and evaluate performance

6. Recording and Reporting Forms

- Reporting forms:
    - E-notification reporting system for Presumptive TB and Confirm TB cases(Tarassud)
    - E-notification for contact screening (Tarassud)
    - E-notification for Health Care Worker (Tarassud)
    - Quarterly report from Governorate to NTBCP
    - Annual report from Governorate to NTBCP
    - Annual report from NTBCP to MOH HQ and WHO
- Monitoring Forms
    - National M & E Indicator
    - Governorate M & E Indicator
    - Governorate monitoring and Supervision checklist for Health Institute
- Register: (Health Institute)
    - Lab TB register for presumptive TB
- Treatment cards
- Electronic TB patient follow up system (Tarassud) for patient and contacts
- Pharmacy:
    - Quarterly report on ATT consumption and stock from Pharmacy and medical store to NTBCP
- Laboratory
    - QC related to AFB smear
    - Line list of TB PCR and culture
    - CPHL TB line list
- TB HIV
    - LTBI screening for PLHIV
- Mortality
    - Line list of TB mortality
    - Mortality report for any TB related death from Governorate
- MDR TB
    - Line list of MDR TB
    - Treatment cards for MDR TB
- Health Promotions
    - Report on Community health education (Health education department/Health institute)
    - World TB day celebrations
- Use of GIS information for preparing spot Map and assess clusters (Epi collect)

7. Program Indicators

It is important to understand that program monitoring is not limited to indicators enlisted in this document nor should the program managers attempt to use them all. The choice of indicators should be need based. The overall purpose of using these indicators is to identify problem areas and find solutions to improve program performance. But at the same time it is necessary that the data sources for computation of these indicators are correct, complete and consistent for the indicators to act as a valid monitoring tool.

Indicators	Definitions
Input indicators	Human and financial resources, physical facilities, equipment , clinical guidelines, and operational policies that are the core ingredients of a program
Process Indicators	Array of activities that are carried out to achieve objectives of the program. It includes both **what** is done and **how well** it is done
Out put Indicators	The results of program activities which are collected on a routine basis. These indicators **measure volume** of services provided to the target population as well as **adequacy** of the service delivery system in terms of access , quality of care etc.
Impact indicators	Program **results** achieved among the target population e.g., reducing morbidity and mortality as a direct result of introducing effective public-private partnerships.

8. Quality of data and Data communication

- Ensure timeliness and completeness of all notifications, reports and data by review at different level
- Identify any gaps in recording and reporting system and provide feedback to improve upon

8.1 Governorate level

- Monthly reports (TB follow up system)
- Quarterly reports
- Annual reports
- Mortality report and Line list of Mortality
- Lab QC reports

8.2 National level

- Monthly reports
- Quarterly reports
- Annual reports
- Lab QC reports (CPHL list)
- Cohort analysis of mortality
- TB HIV
- MDR TB

9. Feedback report system and Timeliness

9.1 National to WHO

- Annual reports

9.2 National to Governorate level:

- Feedback of National team visit
- Annual report

9.3 Governorate to National level:

- Monthly reports – Excel sheet of follow up system (Before 10th of succeeding month)
- Quarterly reports – Till 15th of succeeding month at the end of quarter
- Annual reports – Till March month of succeeding year
- Other reports (Outbreak, Mortality, Incidence)

9.4 Governorate to Health institutes

- Feedback of Governorate team visits
- Annual reports
- Other reports (Incident reports)

10 Training of M & E and Operational research

Training is very important component for proper M & E framework

- Training of National M & E task force done by WHO in Feb 2019
- TOT for Governorate as per requirements
- Training at Governorate for new staff and reorientation of existing staff as and when required

Timeline:

	Domain	2019	2020	2020	2021	2021	2022
1	First M & E training	Feb					
2	Formation of document		Till Oct				
3	Finalizing document			Dec			
4	Training of Trainers				May		
5	Training of PHC staff at Govt Level					Jun	
6	Implementation					Oct	
7	Updating of document						Oct

Operational research

- In last UN meet in year 2019, Sultanate of Oman suggested for operation research on priority bases in the field of TB research and innovations
- Promote culture of evidence based practice on TB at national and Governorate level & improve the quality of services

Annexure 1: TB Monitoring and Evaluation Indicators at National level

Sultanate of Oman
Ministry of Health
Directorate General for Diseases Surveillance & Control

TB Monitoring and Evaluation Indicators at National level

		Desired	Actual	Remark
Political and Administrative Commitment				
1	National TB Monitoring and evaluation plan prepared/Updated	Once a Year		
2	M & E framework disseminated to all stakeholders and Trained	Done		
3	Presence of National TB team	Available		
4	Frequency of National TB team review meeting	Twice a year		
5	National TB control program guidelines (Updated TB manual) prepared and distributed	To all stake holders		
6	National End TB strategy prepared and disseminated	To all stake holders		
Human Resource				
7	% of Governorates with TB focal point assigned	100%		
8	Training or CME on TB at National level	At least once a year		
9	Induction training for New staff at National level as desired	Done		
10	Training of Laboratory staff at National Level (CPHL)	At least once a year		
11	Pharmacovigilance training at National level	At least once a year		

		Desired	Actual	Remark
Diagnostic services				
12	Lab TB Manual prepared and disseminated	To all stake holders		
13	Gene X pert/TBPCR available at Central and Governorate level as per planned by CPHL (Molecular technology)	Available		
14	Facility of other new techniques (e.g. WGS) at CPHL	Available		
15	Human resource at CPHL	Satisfactory		Qualitative assessment as desired
16	Infrastructure at CPHL (Safety cabinets, Good quality microscope, PCR and other test machines)	Satisfactory		Qualitative assessment as desired
17	Sufficient supply of all consumables (e.g. test kits)	Satisfactory		
18	External Quality Control system in place for national level	Available		
19	TB culture facility available at all governorate level			
20	Quality control system implemented by all Governorates doing Gene X pert and AFB smear			
21	% of presumptive pulmonary TB cases with minimum 2 sputum sample collection out of total eligible cases	>70%		
22	% presumptive Pulmonary TB cases subjected to Gene X pert (RTPCR) at the time of diagnosis out of total reported	100%		
23	% presumptive TB cases subjected to TB culture	100%		
24*	Drug susceptibility testing (DST) coverage for TB patients (Number of TB patient with DST results for at least Rifampicin divided by total number of (New and retreatment) cases in same year) (In percentage) (Gene X pert and Culture sensitivity results)	100%		
25	% presumptive Pulmonary TB cases positive for AFB smear among subjected			
26*	% New and relapse Pulmonary TB cases identified by using RT PCR at time of diagnosis (out of total new and relapse cases)			
27	Average sputum AFB microscopy result turnaround time			From date of collection to result

		Desired	Actual	Remark
28	Average TB PCR result turnaround time			
29	LTBI screening available in all desired health institutes (Mantoux or IGRA)			
Case Notification related				
30	% of presumptive TB cases undergoing bacteriological examination among eligible (reported by all Governorate)	100%		Mention Number and % (AFB/RTPCR/Culture)
31	% of presumptive TB cases with positive bacteriological examination results out of total (Bacteriologically confirmed)			Mention Number and % (AFB/RTPCR/Culture)
32	Total number of TB cases identified in the given year			Put break up- All Types
33	% Governorate using E notification (Tarassud) system for reporting presumptive cases	100%		Tarassud
34	% Governorate using E notification (Tarassud) system for reporting confirm cases and contacts management	100%		Tarassud
35	Case detection rate (Total cases identified Vs estimated no. of cases)			
36	% confirm cases where epidemiological investigation finished in 2 weeks of reporting	100%		
37	% Bacteriological positive Pul. TB cases out of total TB cases			
38	% Clinical Pul. TB cases out of total TB cases			
39	% Extrapulmonary (bacteriologically confirmed or clinically diagnosed) out of total TB cases			
40	% of Sputum smear positive or RTPCR Positive cases diagnosed in 30 days of onset	>80%		
41	Number of confirmed TB cases missed by first contact health institute (Mention separately for MOH and Private institutes)			Mention Number and %
39	% of cases identified by Primary health care institutes			Mention Number and %
40	% of cases identified by MFCs (CDCs)			Mention Number and %
41	% of cases identified by Private institutes			Including referral
42	Total TB and COVID coinfection cases identified			RTPCR positive for COVID

Treatment related				
		Desired	**Actual**	**Remark**
43*	% Confirmed cases put on DOTS (Treatment coverage rate) (Number of New and Relapse cases that were notified and treated divided by number of incident TB cases in same year)	100%		
44*	Treatment success rate (Cured + Treatment completed) (Percentage of notified TB cases who were successfully treated)	>=90%	Three set of information	1. For all cases 2. For Omani Only 3. For Omani and Non Omani who are not repriated
45	Treatment success rate among nationals			
46	% Defaulter/Lost to follow up cases			Mention Number and %
47	% failure cases			Mention Number and %
48	% MDR cases identified			Mention Number and %
49	% Poly drug resistance cases identified			Mention Number and %
50	% Relapse cases			
51	MDR treatment success rate			
52	% sputum positive cases converted to sputum negative till the end of intensive phase	>=90%		
53	% cases where CDOTS implemented			
54	C DOTS success rate	>=90%		
55	TB Mortality rate per 100,000 population			The estimated number of deaths attributable to TB in a given year
56	Total number of TB deaths			
57	Total number of TB and HIV coinfection deaths			Out of Total TB cases
58*	Case fatality rate for TB (Number of TB deaths divided by estimated number of incident TB cases in same year) (In percentage)			
59	% cases died due to TB out of total deaths in given year			Mention Number and %
Contact screening and LTBI				
60*	Contact investigation coverage .(Number of contacts of patients with confirmed TB who are evaluated for TB divided by number of eligible) (In percentage)	100%		

		Desired	Actual	Remark
61	Number and % of confirmed cases where contact screening done	100%		
62	Number and % contact screened by using Mountoux test			
63	Number and % contacts screened by using IGRA teast			
64	% of new TB cases identified out of total contacts screened (National)			Mention Number and %
65	% of new TB cases identified out of total contacts screened (Non National)			Mention Number and %
66	% LTBI cases > 5 years identified among screened (National)			Mention Number and %
67	% LTBI cases > 5 years identified among screened (Non National)			Mention Number and %
68*	% LTBI cases put on prophylaxis treatment out of eligible (LTBI put on treatment out of all eligible i.e. Number of newly enrolled HIV patients with LTBI, number of all children < 5 years and person above 5 years with TB screening test positive of house hold contacts of TB)	100%		Mention Number and %
69	% LTBI cases completed treatment out of total put on treatment			Mention Number and %
70	% below 5 years LTBI cases put on treatment out of eligible			Mention Number and %
71	% below 5 years LTBI cases completed treatment	100%		
72	% LTBI adult cases put on INH + Rifapentine new combination out of eligible			Mention Number and %
73	% of LTBI cases completed treatment of INH + Rifapentine	100%		
74	% LTBI adult cases put on INH			Mention Number and %
75	% LTBI cases completed treatment of INH	100%		
76	% LTBI adult cases put on Rifampicin			Mention Number and %
77	% LTBI adult cases completed treatment of Rifampicin	100%		
	Screening of HCWs and Migrants for LTBI			
78	% of HCW for whom TB screening (LTBI) done under routine medical examination as per new MOH policy			Expatriate and Omani
79	Number and % HCW found to be LTBI			Expatriate and Omani

		Desired	Actual	Remark
80	% LTBI HCW put on prophylactic treatment out of diagnosed			
81	% LTBI HCW completed treatment out of subjected			
82	% of Migrant workers for whom TB screening (LTBI) done under routine medical examination as per new MOH policy			
83	Number and % Migrants found to be LTBI			
84	% LTBI Migrants put on prophylactic treatment out of diagnosed			
85	% LTBI Migrants completed treatment out of subjected			
Drugs				
86	Sufficient quantity of first line drugs (Endorsed after 2010) available centrally (For cases and contacts)	Available		
87*	% TB patient treated with New TB drugs (Endorsed after 2010)	100%		
88	Any incidence of drug shortage reported to central level	Nil		
89	Second line drugs available at tertiary Hospital (Royal Hospital)	Available		
90	No. of patient experienced sever ADR which required to stop ATT			
Recording and Reporting				
90	% Governorate sending Follow up of TB cases report on time	100%		Monthly report
91	% Governorate sending quarterly report on TB on time	100%		
92	% Governorate sending Annual report on TB on time	100%		
Public private partnership				
93	Training and CME for Private institutes at National level	Once a year		
94	QC available for all labs performing AFB smear or Gene X pert	Available		
95	Number & % of presumptive cases referred from private institutes out of total presumptive cases			
96	Number of private institutes involved in CDOTS			

		Desired	Actual	Remark
97	% of listed CDOTS provider actively engaged with NTP	100%		
98	Proportion of bacteriologically confirmed detected by Private clinics out of total reported TB cases			Who are tested in private lab
TB HIV coinfection				
99	% registered TB cases where HIV test done and documented (Number of new and relapse TB patient with documented HIV status divided by number of new and relapse TB patients notified in same year) (In percentage)	100%		
100	% Newly registered TB cases identified as HIV (New)			Mention Number and %
101	% known HIV cases where TB screening done	100%		For PLHIV till date
102	% of HIV positive cases who are diagnosed as TB in given year			Mention Number and %
103	% TB HIV coinfection cases put on ART	100%		
104	% HIV positive LTBI patient put on CPT	100%		Mention Number and %
105	% HIV cases with MDR TB			Mention Number and %
Supervision and Field visits				
106	Number of supervisory visits made by National TB team to Governorates (% Governorates covered)	100%		
107	% Correction plan received at national level from Governorates or special institutes	100%		
Health Promotion and Social implications				
108	World TB day celebrations at National level	Arranged		
109	Health promotion materials prepared and stocks maintained in collaboration with Directorate of Health Promotion	Arranged		
110	Evaluation of health promotion activity at community and health institutions at the governorate	Done		
111	Percentage of TB affected households that experience catastrophic cost due to TB (Number of people treated for TB and their household who incur catastrophic cost.) (cost >20% of annual household income)	0		Treatment in Oman is free for all TB cases
112	Number of research done on TB or paper published on TB			

Annexure 2: TB Monitoring and Evaluation Indicators at Governorate level

TB Monitoring and Evaluation at Governorate level				
		Desired	**Actual**	**Remark**
Political and Administrative Commitment				
1	Presence of Governorate TB team	Available		
2	Frequency of Governorate TB team review meeting	Quarterly		
3	TB discussed during Governorate Health committee meeting (or Communicable disease meeting)	Yes		
4	National TB control program guidelines (Updated TB manual)	Available		
Human Resource				
5	TB focal point assigned as desired (Governorate , hospital level, Wilayat and health institute)	Available		Minimum at Governorate and health institute level
6	Training or CME on TB at Governorate level at least once a year	Done		
7	Training or CME on TB at Wilayat /Health institute level when desired	Done		
8	Induction training for New staff	Done		
9	Training of Laboratory staff at National Level (CPHL) when desired	Once a year		
10	Training of Laboratory staff at Governorate Level (Microscopy, culture, Gene X pert, etc.) when desired	Done		
11	Pharmacovigilance training for HCW when desired			

Diagnostic services				
12	Infrastructure at lab performing TB diagnostic services (Safety cabinets, Good quality microscope, any other machines)	MOH Standards	Need detail assessment	Qualitative assessment as desired
13	Sufficient safety cabinets at Governorate level	As per lab assessment		
14	Adequate number and quality microscopes at Governorate level	As per lab assessment		
15	TB culture facility at Governorate level	Available		Qualitative assessment as desired
16	Gene Xpert (TB PCR) available at Governorate level	Available		Qualitative assessment as desired
17	Laboratory Quality control system at Governorate level	Available		
18	Type of sputum sample collection methods (SMS/SSM/ SS/SM)			
19	% of presumptive Pulmonary TB cases with minimum 2 sputum sample collection out of total eligible cases	>70%		
20	% presumptive Pulmonary TB cases subjected to Gene X pert (RTPCR)	100%		Total No.Presumptive Pulmonary TB =
21	Chest X ray available at all Primary health institutes where desired			
22	Average sputum microscopy results turnaround time for PHC			Date of collection to date of result Assess sample transport system
23	Average TB PCR results turnaround time for PHC			
24	% presumptive TB cases subjected to TB culture	100%		
25*	Drug susceptibility testing (DST) coverage for TB patients (Number of TB patient with DST results for at least Rifampicin divided by total number of (New and retreatment) cases in same year) (In percentage) (Gene X pert and Culture sensitivity results)	100%		
26	Lab TB register maintained in all laboratory	100%		
27	% of presumptive pulmonary TB cases positive for AFB smear among subjected			Sputum positivity rate
28*	% New and relapse Pulmonary TB cases identified by using PCR at time of diagnosis (out of total new and relapse cases)			
29	Mantoux test available in all desired health institutes	As desired		As desired
30	IGRA test available in designated health institutes	As desired		As desired

Case Notification related				
31	% of presumptive TB cases underwent bacteriological examination reported by Governorate (Bacteriological examination coverage)	100%		Mention Number and % (AFB smear/PCR/Culture)
32	% of presumptive TB cases with positive bacteriological examination results out of total (Bacteriologically confirmed)			Mention Number and % (AFB/ Gene X pert/ culture)
33	Total number of all types of TB cases identified in Governorate			Please put break up – 1.Bacteriological or Clinical 2.Resident or outside Governorate
34	Total number of all types of resident TB cases for report year (Living in governorate at the time of diagnosis) (Denominator)			Please put break up 1. Sp Pos/ Sp Neg/ Extra Pul 2. Bacteriological or Clinical 3. Omani and Non Omani
35	TB and COVID coinfection cases identified in Governorate out of total resident TB cases			RTPCR pos for COVID for resident TB cases
36	All presumptive cases notified in E notification system	100%		
37	All Confirmed cases notified within time limit and contacts by E notification system	100%		
38	Epidemiological investigation for all confirmed cases in 2 weeks	100%		
39	% Bacteriological positive Pul. TB cases out of total TB cases			
40	% Clinical Pul. TB cases out of total TB cases			
41	% Extra pulmonary (bacteriologically confirmed or clinically diagnosed) out of total TB cases			
42	% of Sputum smear positive cases or RTPCR positive Pulmonary TB cases diagnosed in 30 days of onset	>80%		
43	Number of confirmed TB cases missed by first contact health institute (Mention separately for MOH and Private institutes)			Mention Number and %
44	% of cases identified by Primary health care institutes			Mention Number and %
45	% of cases identified by MFCs (CDCs)			Mention Number and %
46	% of cases identified by Private institutues			Mention Number and %

Treatment related (For Resident or catchment area cases of Governorate only)					
47*	% Confirmed cases put on DOTS (Treatment coverage rate) (Number of New and Relapse cases that were notified and treated divided by number of incident TB cases in same year)		100%		
48*	Treatment success rate (Cured + Treatment completed) (Percentage of notified TB cases who were successfully treated.)(Calculate for three categories separately mentioned in remark) **Previous Year**	1. For all cases			Put 3 variables
		2. For Omani Only	>=90%		
		3. For Omani and Non Omani who are not repatirated	>=90%		
49	% Lost to follow up (Include defaulter cases)				Mention Number and %
50	% failure cases				Mention Number and %
51	% MDR cases identified				Mention Number and %
52	% Poly drug resistance cases identified				Mention Number and %
53	MDR treatment success rate **(Previous 2 yrs)**				
54	% sputum positive cases converted to sputum negative till the end of intensive phase		>=90%		Sputum conversion rate
55	% cases where CDOTS implemented				Mention Number and %
56	C DOTS success rate		>=90%		
57	Total number of TB deaths (Death before starting or during ATT)				Also TB+COVID / TB + HIV
58	Total number of TB and HIV coinfection death				Out of total TB deaths
59 *	Case fatality rate for TB (Number of TB deaths divided by (estimated) number of incident TB cases in same year) (In percentage) (Number of TB deaths divided by (estimated) number of incident TB cases in same year) (In percentage)				
60	% cases died due to TB out of total deaths in given year				Mention Number and %

Contact screening and LTBI (For Resident or catchment area cases of Governorate only)				
61*	Number and % confirmed cases where contact screening done	100%		
62	Number and % contact screened by using Mantoux test out of total screened			
63	Number and % contacts screened by using IGRA test out of total screened			
64	% of contacts screened out of total contacts identified	100%		Put break up of < 5 and >=5 yrs age
65	% of new TB cases identified out of total contacts screened			Mention Number and %
66	% of new TB cases identified out of total contacts screened (Non			Mention Number and %
67	% LTBI cases > 5 years identified among screened (National)			Mention Number and %
68	% LTBI cases > 5 years identified among screened (Non National)			
69*	% LTBI cases put on prophylaxis treatment out of eligible (LTBI put on treatment out of all eligible i.e. Number of newly enrolled HIV patients with LTBI, number of all children < 5 years and person	100%		Mention Number and %
70	% LTBI cases completed prescribed treatment	100%		Mention Number and %
71	% below 5 years LTBI cases put on treatment			Mention Number and %
72	% below 5 years LTBI cases completed treatment	100%		Mention Number and %
73	% LTBI adult cases put on INH + Rifapentine combination out of eligible			Mention Number and %
74	% LTBI cases completed treatment of INH + Rifapentine	100%		
75	% LTBI adult cases put on INH			Mention Number and %
76	% LTBI cases completed treatment of INH	100%		
77	% LTBI adult cases put on Rifampicin			Mention Number and %
78	% LTBI adult cases completed treatment of Rifampicin	100%		

Screening of HCWs and Migrants for LTBI				
79	% of HCW for whom TB screening (LTBI) done under routine medical examination as per new MOH policy			Expatriate and Omani
80	Number and % HCW found to be LTBI			Expatriate and Omani
81	% LTBI HCW put on prophylactic treatment out of diagnosed			
82	% LTBI HCW completed treatment out of subjected			
83	% of Migrant workers for whom TB screening (LTBI) done under routine medical examination as per new MOH policy			
84	Number and % Migrants found to be LTBI			
85	% LTBI Migrants put on prophylactic treatment out of diagnosed			
86	% LTBI Migrants completed treatment out of subjected			
Drugs				
87	Sufficient quantity of first line drugs (Endorsed after 2010) available at Governorate level (For cases and contacts)	Available		
88*	% TB patient treated with New TB drugs (Endorsed after 2010)	100%		
89	Any incidence of drug shortage reported at Governorate level	Nil		
90	Second line drugs available at special health institutes	Available		
91	No. of patient experienced severe ADR which required to stop ATT			
Recording and Reporting				
92	Governorate sending Follow up of TB cases report on time (Monthly reports)	Yes		
93	Quarterly report on TB sent within 2 weeks after quarter finished	Yes		
94	Annual report on TB sent on time (Till March of next year)	Yes		

Public private partnership (Include set of indicators from NTBCP)				
95	Training and CME for Private institutes once a year	Done		
96	QC available for all labs performing AFB smear or Gene Xpert	Available		
97	Number & % of presumptive cases referred from private institutes out of total presumptive cases			
98	Number of private institutes involved in CDOTS			
99	% of listed CDOTS provider actively engaged with NTP	100%		
100	Proportion of bacteriologically confirmed detected by Private clinics out of total reported TB cases			
TB HIV coinfection				
101*	% registered TB cases where HIV test done and documented (Number of new and relapse TB patient with documented HIV status divided by number of new and relapse TB patients notified in same year) (In percentage)	100%		
102	% Newly registered TB cases identified as HIV (New)			Mention Number and %
103	% known HIV cases where TB screening done	100%		
104	% of HIV positive cases who are diagnosed as TB in given year			Mention Number and %
105	% TB HIV coinfection cases put on ART	100%		
106	% HIV positive LTBI patient put on CPT	100%		IGRA/Mountoux Positive
107	% HIV cases with MDR TB			Mention Number and %

Supervision and Field visits				
108	Number of supervisory visits made by Governorate TB team to Secondary care Health institutes (% Institutes covered)	100%		(Audit visits) (Atleast twice a year)
109	Number of supervisory visits made by Governorate TB team to Primary care Health institutes (% Institutes covered)	100%		(Audit visits) (Atleast Once a year)
110	% Correction plan received from health institutes	100%		
Health Promotion				
111	World TB day celebrations at Governorate level	Done		
112	Number of health education sessions done inside MOH institutes	Done		
113	Number of health education sessions done for community outside health institute	Done		
114	Any special activity to be reported			
115*	Percentage of TB affected households that experience catastrophic cost due to TB (Number of people treated for TB and their household who incur catastrophic cost.) (cost >20% of annual household income)			Treatment in Oman is free for all TB cases
116	Any research done on TB or paper published			Previous years

*Top 10 KPI required by WHO is highlighted in blue shade.

Annexure 3: Quarterly report on TB case Notification

Quarterly report on TB case Notification

Governorate : ----------

Block 1: All TB cases registered during the quarter

TB Diagnosis	National					Non-National					TOTAL
	New	Previously treated				New	Previously treated				
		Relapse	Previously treated(excluding relapse)	Previous treatment history unknown	Total		Relapse	Previously treated(excluding relapse)	Previous treatment history unknown	Total	
Pulmonary TB	0	0	0	0	0	0	0	0	0	0	0
Bactoriologicaly Confirm	0	0	0	0	0	0	0	0	0	0	0
AFB+PCR(Both Pos)					0					0	0
PCR POS (AFB not done)					0					0	0
Only AFB smear Pos (PCR Neg)					0					0	0
Only TB PCR Pos (AFB smear Neg)					0					0	0
Culture Pos (AFB smear or PCR Neg)					0					0	0
ClinicallyDiagnosed (AFB+PCR+Culture all Negative)					0					0	0
Extra-pulmonary TB	0	0	0	0	0	0	0	0	0	0	0
Bactoriologically Confirm					0					0	0
Clinically Diagnosed					0					0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0

Block 2. All new and relapse cases (bacteriologically confirmed or clinically diagnosed) registered during the quarter by age group and sex

Age group	Pulmonary TB	Extra Pulmonary TB	Grand Total
0-4yr			0
5-14yr			0
15-24yr			0
25-34yr			0
35-44yr			0
45-54yr			0
55-64yr			0
>=65yr			0
Grand Total	**0**	**0**	**0**

Block 3: Laboratory diagnostic activity

Patients with presumptive TB undergoing bacteriological examination	Patients with presumptive TB with positive bacteriological examination result

Block 4: TB/HIV activities (all new and relapse TB cases registered)

HIV-positive	HIV-positive on ART	HIV-positive on CPT

Block 5: All TB cases registered during the quarter

TB patient type		Treatment outcomes						
		Number of cases registered	Cured	Treatment completed	Treatment failed	Died	Lost to follow-up	Not evaluated
Pulmonary	Bacteriologically confirmed, new and relapse							
	Clinically diagnosed, new and relapse							
Extrapulmonary, bacteriologically confirmed or clinically diagnosed								
Retreatment (excluding relapse)								
HIV-positive, new and relapse								
MDRTB and TB cases moved to second-line treatment								

Total TB cases on treatment till end of this quarter (newly register + on treatment from previous quarters	

Block 6: Contact Screening and Management (Nationals- Non-Nationals):								
		Omani			Non National			Total
		<5	>5 + Adult	Total	<5	>5 + Adult	Total	
No.contact registered				0			0	0
No.contact screened				0			0	0
No.Active TB dentified				0			0	0
No.LTBI cases confirmed by testing				0			0	0
No.LTBI started treatment (All cases put on prophylaxis include children <5 not confirmed by testing)	Total	0	0	0	0	0	0	0
	INH			0			0	0
	INH+RFP			0			0	0
	Rifampicin			0			0	0
No.LTBI not started treatment	Total	0	0	0	0	0	0	0
	Refused			0			0	0
	Left			0			0	0
	Any other reason			0			0	0
No.LTBI completed treatment (full course)				0			0	0
No.LTBI stopped treatment	Total	0	0	0	0	0	0	0
	Left country			0			0	0
	Adverse effects			0			0	0
	Any other reason			0			0	0
	<5 yrs and test negative after 3 months			**0**			0	0

Annexure 4: Audit visit report for monitoring and supervision of TB control activities at health institute

Sultanate of Oman
Ministry of Health
Directorate General for Diseases Surveillance & Control

Health facility demographic:

1	Evaluation date:	
2	**Name of the facility & Governorate:**	
3	**Level of care:** □PHC Health Center □PHC Local Hospital □Poly Clinic □Secondary care □Tertiary care □Private clinic □Other, specify:	
4	**Administrative status:** □MOH facility □ Non-MOH Governmental facility □Private: □Other, specify:-------	
5	**What is the average number of patients?** monthly: ------ Annually: ----------	
6	**What services are performed by the facility?**	□ General Practice □Medicine □ Pediatrics □Isolation □In patient □Other (specify): ----------

Audit Report:

S. No	Audit Question/ criteria	Suggestion/ advices/ standards	Yes/ No/ NA	Reference Document	Remark and Suggestions
1	**TB Facility**				
1.1	Updated Manual on TB, GCC infection control & Communicable disease manuals are available and accessible to all staff	Check accessibility		TB Manual 2007, CDS 2017, GCC 2018	
1.2	Designated TB focal point staff nurse	Check availability			
1.3	Algorithms related to TB program available & accessible (Case report, Laboratory) along with updated circular and guidelines	Check accessibility		Last circular from NTBCP	
1.4	Previous visit feedback report and recommendations	check record			
1.5	TB team organized and meet regularly at Secondary/Tertiary care hospitals (Minutes of the meeting)	check record			
2	**Notification of TB case**			New TB manual	
2.1	E notification system implemented in institute with Al Shifa 3 + (Others manual forms) (For presumptive and confirm TB cases) (Tarassud system)	check record			
2.2	Completeness and timeliness of notification	check record			
3	**Case Detection related**			New TB manual	
3.1	All cases fitting to presumptive case definition are suspected and sputum sample done	Check record			
3.2	Referral system for highly suspected TB and Confirm TB cases to secondary care hospital for management (COVID cases can be screened for TB if required)	Check record			

4	**Diagnostic Services**			New TB manual	
		Suggestion/ advices/ standards	**Yes/ No/ NA**	**Reference Document**	**Remark and Suggestions**
4.1	Chest X ray availability and system if it is not available	Observation			
4.2	Safety cabinet available in lab and if not then plan of sending sample. (Verify transport system, time for receiving lab results) (Maintenance of safety cabinet mainly HEPA filter)	Observation		MOH Standards	
4.3	Verify sputum collection process (Place, number of samples, quality of sample)(Minimum 2 and one atleast early morning)	Interview Observation		MOH Standards	
4.4	TB PCR and TB culture requested for all presumptive TB cases along with AFB microscopy	Observation. Records			
4.5	Verify all aspects of process of sputum microscopy, TB PCR and culture if done in health institute lab (if not then system of transport of samples and getting lab results)	Observation		MOH Standards	
4.6	Quality control system for sputum microscopy and culture	Records			
4.7	Mountoux test and IGRA (Quantiferon) test available in institute. (Verify availability of PPD, Tubes for quatiferon test, Training and SOPs)	Observation		MOH Standards	
4.8	All confirm cases of TB are assess for HIV status and vice a versa	Records			
4.9	Avg Sputum sample result turnover time (For TB PCR and AFB smear both)	Records			From date of collection to result
5	**Treatment related (Pharmacy)**			New TB manual	
5.1	Sufficient quantity of First line ATT available in institute providing treatment of TB (Plan for procuring more if needed) (Stock of combined & separate medicine with expiry date)	Observation			

		Suggestion/ advices/ standards	Yes/ No/ NA	Reference Document	Remark and Suggestions
5.2	Sufficient quantity of prophylaxis ATT available for TB contacts (INH tablet and syrup, Rifapentine tablets) (Verify SOPs and correct dose prescription)	Interview Observation			
5.3	Patients are properly counsel for ADRs associated with drugs and ADR reporting system	Interview Observation			
6	**TB register and follow up system**			New TB manual	
6.1	TB register available and maintain properly (Index number, sputum results, follow up details)	Observation			
6.2	TB cases followed up properly for DOTS and Treatment card maintained (Documentation, sputum sample, compliance) (CDOTS if applicable)	Check record			
6.3	Defaulter retrieval system in place and documented	Records			
7	**Contact management**				
7.1	TB contacts identified for each case & screened (Mountoux/IGRA)	Records			
7.2	LTBI cases and contacts below 5 yrs. put on correct prophylaxis and followed properly (Compliance)	Records			
8	**Infection Control - Respiratory Hygiene/Cough Etiquette**			GCC manual ICM-II-03	
8.1	Triage system available and carried out for respiratory infections				
8.2	Offering masks/tissues to coughing patients and others who have respiratory signs and symptoms.	Observation			
8.3	Cough Etiquette posters available and displayed.	Observation			
8.4	Hand rub & hand hygiene poster available in visiting area	Observation			
8.5	Review Isolation facility (For presumptive cases and confirm cases) (number and type of isolation rooms in secondary care hospitals – e.g. negative pressure). (Security system)	Observation			

		Suggestion/ advices/ standards	Yes/ No/ NA	Reference Document	Remark and Suggestions
8.6	Sufficient quantity of surgical mask and N 95 mask available and staff aware about use (Fitting test coverage for N 95 mask)	Observation			
8.7	LTBI Screening of HCW for under new policy of routine medical examination and follow up of LTBI HCW & treatment				
9	**Training Assessment**				
9.1	Knowledge of GP and nurses on Presumptive TB, Lab diagnosis, DOTs, Contact management, Infection control and follow up of cases and contacts & GIS mapping	Interview			
9.2	Training/CME done at health institute on TB	Records			
9.3	Staff attended last CME on TB at Governorate/National level	Records			
9.4	Training of Lab staff on sputum microscopy/ culture / PCR/ QC	Records			
10	Health education				
10.1	World TB day celebration done at Health institute or any other TB awareness activity inside institute	Records			
10.2	TB awareness activity outside health institute in community	Records			

Remarks: (You can also use Non Conformity Report and Opportunity For Improvement - quality audit reports to give feedback to health institutes)

_____

_____

_____

Signature of Auditor: _____

Signature of MOIC: _____

Annexure 5: Laboratory TB register for presumptive cases:

Sultanate of Oman
Ministry of Health
Directorate General for Disease Surveillance & Control
Department of Communicable Disease Surveillance

TB & ARI Section

سلطنة عمان
وزارة الصحة
المديرية العامة لمراقبة ومكافحة الامراض
دائره مكافحة الامراض المعدية
قسم السل والامراض التنفسية الحادة

Laboratory Register for Presumptive TB Cases

Governorate:_____ Name of Institute/Lab:_____ Date:_____

S.No	Institution	Specimen No	Date of Specimen collection	Date of Specimen Received	Type of Specimen	Full Name	Age	Sex	Nationality	Hosp ID	Status		Result of Sputum Smear microscopy			NAAT (Gene Xpert) TB PCR	Culture Result	Remarks
											New	Follow up	1	2	3			

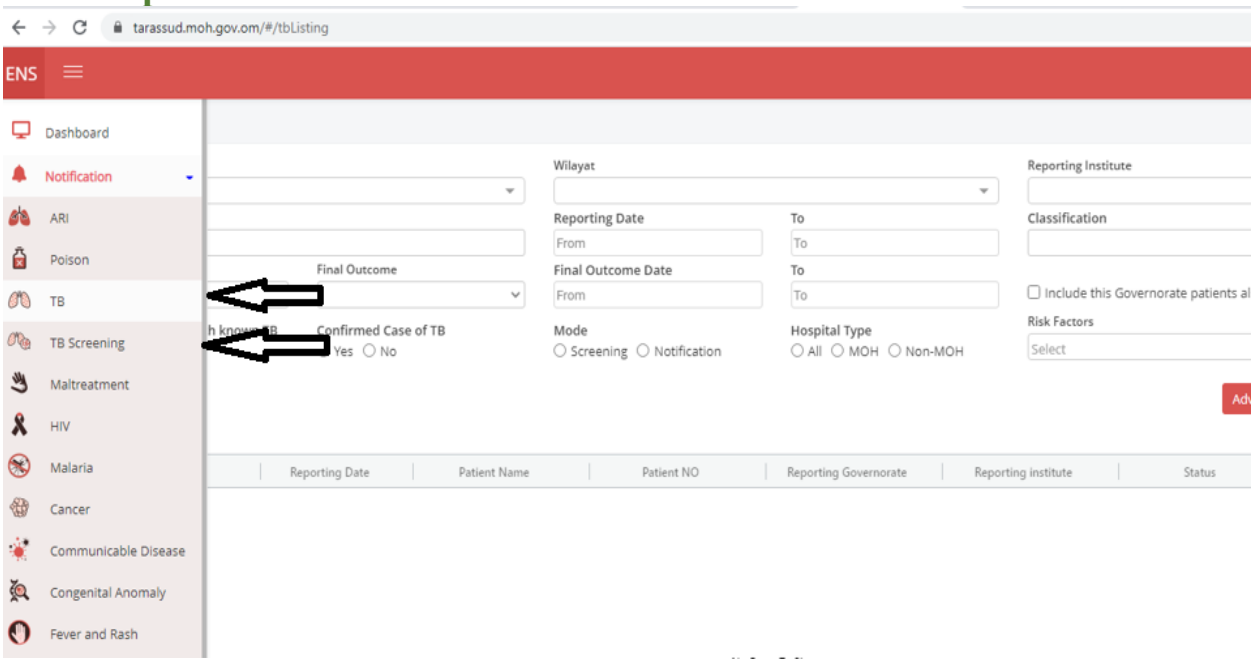
Copy: NTBCP FAX NO: 22357540

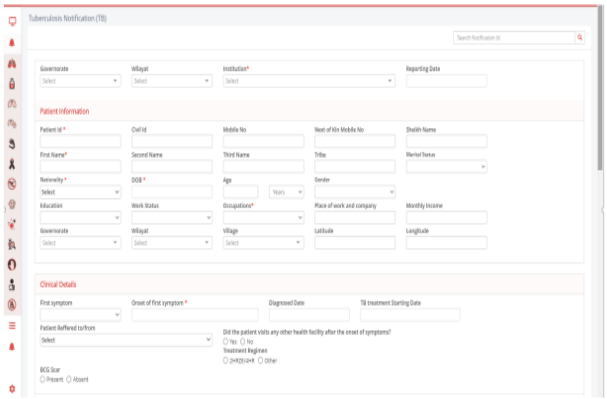
Name of Recorder/Lab Incharge:
Signature

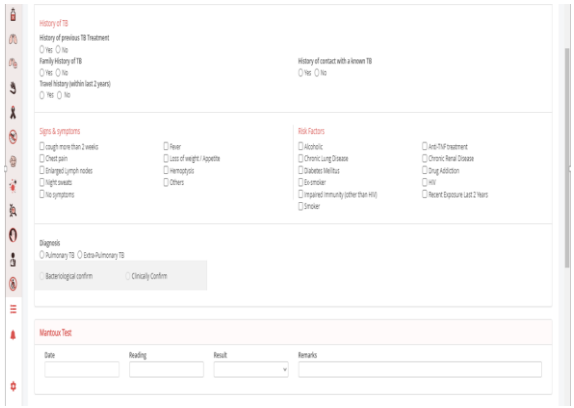
Hospital Stamp

Annexure 6: TB E notification form – New one in Tarassud

1. **Report presumptive TB cases in TB screening section in Notification**
2. **Report Confirm TB cases in TB section in Notification**







Annex 7 annual report templet. See link

Annual report tamplet(final) 2021.x

Annex 8: Mortality Report for TB case

Death Report of TB case	
Governorate:	
Index No.	
Name:	
Age:	
Sex:	
Hosp ID	
Nationality:	
Wilayat/Governorate	
Date of Onset:	
Date of Report:	
Reported by:	
Classification of case:	Pulmonary/Extrapulmonary/Bactriological/Clinical/MDR
Lab Result with dates:	AFB/RTPCR/Culture/DST
Date of starting DOTS	
Date of Hospitalisation	
Name of Hospital	
HIV status	
Comorbidities:	
High risk conditions:	
Date of Death:	
Brief Clinical Picture	
Brief treatment and follow up care (Compliance)	
Cause of death (According to death certificate) - Does TB is primary cause of death?	
Remark	

Please attach 48 hours death certificate and report from Hospital

Annexure 9: TB treatment card

SULTANATE OF OMAN
Ministry of Health
Directorate General for Disease Surveillance and Control
Department of Communicable Disease
TB & Acute Respiratory Diseases Section

TUBERCULOSIS TREATMENT CARD

PATIENT INFORMATION			
NAME		SEX	
INDEX NO		AGE	
NATIONALITY		WEIGHT	
REGION	ADDRESS		
TREATMENT INSTITUTION			
TRANSFER TO			
DATE OF DIAGNOSIS			
DATE OF DOTS START			

DISEASE SITE			
PULM	Bactorolo-gical Confirmed	MTB/RIF	
		SMEAR POSITIVE	
		SMEAR NEGATIVE	
	CLINICALLY DIAGNOSED		
EXTRA-PULMONARY, SPECIFY ( )			

TYPE OF PATIENT	
NEW	
RELAPSE	
PREVIOUSLY TREATED	

TB/HIV	
HIV TEST	
DONE	
NOT DONE	

SPUTUM EXAMINATION					SENSITIVITY					WEIGHT (KG)
MONTH	DATE	LAB NO.	RESULT	CULTURE	S	I	R	E	Z	
0										
2										
3										
5										
6										
END OF TREATMENT										

I. INITIAL PHASE

2HRZE	INH 300 MG	INH 150 MG	RIF 300 MG	RIF 150 MG	PZA 500 MG	EMB 400 MG	STREP 1 G

DAY / MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

II. CONTINUATION PHASE

4 RH	5 RH	6 RH

DAY / MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

SIDE EFFECTS

☐ NAUSEA ☐ JAUNDICE ☐ FATIGUE ☐ BLURRED VISION ☐ LOSS OF APPETITE ☐ VOMITING

☐ HEADACHE ☐ RASH ☐ BODY ACHES ☐ LOSS OF SENSATION ☐ OTHERS

TREATMENT OUTCOME

DATE

☐ CURED ☐ TREATMENT COMPLETED ☐ DIED ☐ TREATMENT FAILURE ☐ DEFAULTER ☐ NOT EVALUATED

REMARKS

CDOTS Provider		Contact No		Name and Signature of staff filling card	
Sponser (Expatriate)		Contact No			

Annexure 10: MDRTB treatment card:

Sultanate of Oman

Ministry of Health

Directorate General for Diseases Surveillance & Control

National TB and Acute Respiratory Diseases Section

Second-line Treatment Card

Index No.	Place of treatment:	Date of Diagnosis:			Name of Physician: DR	
Full name:	Nationality:	Age:	Sex:	Village:	Wilayat:	Region:
SPONSER name:	Location/Landmark:			Patient's ID:		Contact Telephone:
Diagnosis :☐Pulmonary / ☐Extra Pulmonary , site			HIV status:			DOTS starts on (date)
Type of specimen:	Date of collection:	Results:	AFB: ☐NEG /☐POS	GeneXpert: ☐M.TB not Detected / ☐ M.TB Detected		Refiampicin Resistance : ☐Detected / ☐Not detected

First course						Sputum Microscopy		Culture		Result of Drug Susceptibility (DST)									CXR Results	Present status
Drugs taken	Date of start	Date of stopped	Dose	Frequency	Duration	Date of sputum	Smear Results	Date of Culture	Culture results	S	H	R	Z	E	Amk/ Km	Ofx	Cm	FQ		
RIF																				
INH																				
ETB																				
PZN																				
Date of completing				If stopped of ATT before completion state the reason :																

Second course						Sputum Microscopy		Culture		Result of Drug Susceptibility (DST)									CXR Results	Present status
Drugs taken	Date of start	Date of stopped	Dose	Frequency	Duration	Date of sputum	Smear Results	Date of Culture	Culture results	S	H	R	Z	E	Amk/ Km	Ofx	Cm	FQ		
PYRAZINAMIDE																				
MOXIFLOXACIN																				
PROTHIONAMIDE																				
AMIKACIN INJ																				
LINEZOLID																				
AMINOSALICLIC ACID GRANULE																				
ETHAMBUTOL																				
CHLORPHENIRAMINE MALEATE																				
PROTHIONAMIDE																				
Date of completing :				If stopped of ATT before completion state the reason :																

12. References:

1. A guide to monitoring and evaluation for collaborative TB/HIV activities: WHO – USAIDS 2015 revision

2. Monitoring and Evaluation Toolkit – WHO 2011

3. TB Monitoring and Evaluation Tool – CDC guidelines https://www.cdc.gov/globalhealth/healthprotection/errb/researchandsurvey/tbtool.htm

4. Definitions and reporting framework for tuberculosis - WHO 2013 revision, updated December 2014

5. Manual on use of routine data quality assessment (RDQA) tool for TB monitoring – WHO 2011

6. The Global plan to End TB – StopTB.org – 2018 – 2022

7. Monitoring and Evaluation Project for TB REACH Grant Funded Projects, Stop TB Partnership Request for Proposals (RFP) Bid Reference 2013/HTM/TBP/002