Republic of Rwanda

Ministry of Health

Rwanda National Tuberculosis and Other Respiratory Communicable Diseases

Annual Report

2017-2018

RWANDA BIOMEDICAL CENTRE

A Healthy People. A Wealthy Nation

FOREWORD

The Ministry of Health and Rwanda Biomedical Center (RBC) would like to take this occasion to express its deep appreciation and sincere thanks to all who contributed to the compilation of this annual report of Tuberculosis and other respiratory communicable diseases control in Rwanda.

This report has been developed based on data provided by Rwanda HMIS the TB and ORD surveillance system from across Rwanda. The annual report provides a comprehensive picture of the occurrence and management of TB, ORD and Leprosy in Rwanda and is structured based on the 2013-2018 Rwanda TB National Strategic Plan and the 2014-2018 Rwanda Leprosy National Strategic Plan (2014-2018 Leprosy NSP).

Actions needed toward elimination of Tuberculosis, other respiratory communicable diseases and Leprosy in Rwanda will require strengthened and more integrated national and peripheral health services. It ensures consistent, evidence-based prevention, treatment and support to patients, their families and other contacts, as T B, ORD and Leprosy do not exist in isolation from other health and social concerns.

This report represents a collaborative effort between the Government of Rwanda and its partners. Representatives from all groups of stakeholders involved in the national TB response participated in the production of this report.

I would like to acknowledge the efforts of dedicated staff in the various institutions of the Government of Rwanda who worked tirelessly to complete this report. We remain entirely grateful to the inputs and support provided by our Partners. Special thanks to the members of the civil society, local and international Non-Governmental, bilateral organizations as well as Rwandan Government institutions greatly participated in the completion of this report. I would also like to thank all members of technical working group that reviewed and validated the content of this report.

We thank you all for your support in the fight against TB, ORD and Leprosy in Rwanda.

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Minister of State in the Ministry of Health
in charge of Public Health and Primary Health Care

ACKNOWLEDGEMENTS

The Ministry of Health and Rwanda Biomedical Centre gratefully acknowledge the Government of Rwanda through strong leadership of H.E the President of Republic of Rwanda for the continuous support to fight Tuberculosis and other respiratory diseases in our country.

Our gratitude goes out to:

- The staff from different Health Facilities who continue to provide care and treatment to patients and implement activities according to the national policies and guidance.
- To all stakeholders including CSO and NGOs for their great contribution.

We would also like to thank the following partners: World Health Organization, Global Fund for HIV&AIDS, TB and Malaria, USG PEPFAR and Damian Action who support the government of Rwanda to reach the global targets by ensuring that Rwanda is free of Tuberculosis and Leprosy.

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ABBREVIATIONS

ACF	Active Case Finding
aDSM	Active Drugs Safety Monitoring
ART	Antiretroviral Therapy
CCM-Rwanda	"Country Coordinating Mechanism" of Global Fund in Rwanda
CDT	Centre for Diagnosis and Treatment of Tuberculosis
CHUB	Butare University Teaching Hospital
CHUK	Kigali University Teaching Hospital
CHW	Community Health Worker
CPT	Cotrimoxazole Preventive Treatment
CT	Centre for Treatment of Tuberculosis
CXR	Chest X-ray
DH	District Hospital
DHIS	District Health Information System
DIAMA	Diagnostics for Multidrug-resistant tuberculosis in Africa
DOT	Directly Observed Treatment
DQA	Data Quality Audit
DST	Drug Susceptibility Testing
EAPHLN	East African Public Health Laboratory Network
EDPRS	Economic Development and Poverty Reduction Strategy
EPTB	Extra Pulmonary TB
E-TB	Electronic Tuberculosis surveillance system
FNA	Fine Needle Aspiration
FY	Fiscal year
G2D	Grade 2 Disability
GDF	Global Drug Facility
GFATM	Global Fund for AIDS, TB and Malaria
GLC	Green Light Committee
GoR	Governement of Rwanda
HF	Health Facility
HFN	High False Negative
HFP	High False Positive
HIV	Human Immune Virus
HMIS	Health Management Information System
HRG	High Risk Group
HRTT	Health Resource Tracking Tool
HSSP	Health Sector Strategic Plan
IC	Infection Control
IMCI	Integrated Management of Childhood Illnesses
IPT	Isonizid Preventive Therapy
ISS	Integrated Supportive Supervision
LED-FM	Light Emitting Diode Fluorescence Microscopy
LFN	Low False Negative
LFP	Low False Positive
LTFU	Lost to follow up
M&E	Monitoring and Evaluation

MB	Multibacillary
MCCH	Maternal Child Community Health Division
MD	Medical Doctor
MDR-TB	Multidrug Resistant Tuberculosis
MoH	Ministry of Health
MPPD	Medical Production and Procurement Division
MTEF	Medium Term Expenditure Framework
MTR	Midi Term Review
NGOs	Non Government Organizations
NRL	National Reference Laboratory
NSP	National Strategic Plan
NTPB+	New Pulmonary Bacteriological confirned
NYC	National Youth Council
PAL	Practical Approach for Lung diseases
PB	Paucibacillary
PBF	Performance- Based Financing
PLHIV	People Living with HIV
PMDT	Programmatic Management of Drug Resistant Tuberculosis
QC	Quality Control
QE	Quantification Error
RAM	Random Access Memory
RBC	Rwanda Biomedical Center
RBF	Results Based Financing (of the Global Fund)
RDQA	Routine Data Quality Audit
RH	Referral Hospital
RMH	Rwanda Military Hospital
RRP+	Reseau Rwandais des Personnes vivant avec HIV
RSQA	Rapid Services Quality Assessment
SDGs	Sustainable Development Goals
SMART FMIS	Integrated Financial Management Information System
SOPs	Standard Operating Procedures
SPIU	Single Project Implementation Unit (MoH)
SS-	Sputum Smear Negative
SS+	Sputum Smear Positive
SS0	Sputum Smear Not done
TAF	Treatment After Failure
TB&ORD	Tuberculosis and Other Respiratory Communicable Diseases
TH	Traditional Healer
TSR	Treatment Success Rate
TWG	Technical Working Group
USD	United States Dollars
WHO	World Health Organization

EXECUTIVE SUMMARY

TB screening and diagnosis

There has been an extension of high sensitive TB screening and diagnosis by revising tool including new strategy for systematic CXR as screening tool for contact and people living with HIV newly enrolled. This fiscal year, the implementation of Genexpert machines has been extended to two additional sites with high workload on TB detection. The introduction of these tools and strategy aims to reduce undetected TB cases and promote early diagnosis. As outcome, TB notification targets were reached at 101%. However, the number of notified cases remained stable for the last five years compared to consistent decrease between 2006 and 2012.

Compared results of first round (2013-2014) and second round (2016-2018) of TB active case findings (ACF) in selected high risk groups showed that the TB notification declines after massive X-ray screening, confirming that earlier identification and treatment of tuberculosis reduces TB burden and transmission.

We observed an improvement of quality control in Health Centre where 0.14%(16/11,123) samples had major errors compare to 0.39%(46/11,820) previous FY. However, the proportion of CDT which were visited at least three times decrease from 96%(194/201) last FY to 91%(181/200) this FY. As we are introducing and expanding new TB diagnostic techniques, control of their quality, as well as monitoring of their use should be also improved.

Community health workers have greatly contributed to bringing TB screening services close to populations in need. However, efforts still need to be provided, especially in Kigali where many TB cases in country are concentrated, through engagement of all community stakeholders.

TB management and treatment outcomes

TB commodities were generally and consistently available at health facilities level for patients' treatment. This was a positive outcome from strategies taken in the technical meeting to accelerate some orders or reschedule the delivery dates based on stock status. Measures taken allowed to avoid some issues faced like a two-month Xpert cartridges stock out in 28% Xpert sites. Close monitoring of quantities of drugs and reagents reported by health facilities in the surveillance system is also highly needed.

A good treatment success rate was registered for susceptible bacteriological confirmed new and relapse TB cases (88%) patients, clinically diagnosed patients (79%) and for multi drug resistant (MDR-TB) patients (95%). This year we recorded 2% of non evaluated which has impact in out success rate. We will focus on close follow of TB cases and put effort on developing a friendly individual TB recording to help trace outcome of patients specifically those who are transfer out without their treatment outcome .

All TB/HIV indicators surpassed pre-established targets. More than 99% of presumptive and TB cases have been tested for HIV. Since 2010 a constant decrease in HIV positivity among TB patients is observed. We will particularly monitor this, as the country has now initiated the

"Treat All strategy". Among HIV+ TB patients, 92.2% were on ART before TB treatment completion.

TB prevention

The routine surveillance reported that 81.8% of all health facilities were implementing the six basics TB Infection control measures.

The systematic TB screening among health care workers is implemented in all health facilities during this fiscal year as the previous periods. The screening of community health workers started to be implemented and reported during 2017-2018 FY. Its implementation and monitoring procedures need to be improved.

Different messages were developed and disseminated through various communication channels such as radio program, live talk show program, radio and TV spot, articles on TB prevention and management published in news papers, outreach campaigns in the schools, prisons, refugee camps and general population, and more importantly during the 2018 World TB day, in the aim to increase the awareness on TB&ORD prevention.

The Initiation of Isoniazid preventive therapy (IPT) was 89% for children under 5 years and its completion was 98%.

TB program coordination and management

During the FY 2017-2018 the Rwanda National Tuberculosis Program under Rwanda Biomedical Centre in collaboration with other Ministry of Health Institutions and partners has regularly met technical staff from health facilities through meetings, workshops or through site visits, to monitor the implementation, quality and performance of TB&ORD guidelines and strategies, and clarify them where applicable.

The capacity of central level and peripheral level staff continued to be strengthened through trainings, internal capacity building activities and participation in sites/practical activities with national and international experts through technical assistance.

The TB&ORD routine surveillance system with aggregated data has been updated to align with new WHO TB cases categorizations.

Various updates and bugs have been fixed in the electronic TB register (e-TB) that is implemented since 2014. There is need to make it more friendly to users with reduced variables and steps, and limit the system on TB cases only.

A study on TB risk factors has been implemented and preliminary results are available. Further analysis of collected data is planned to be carried out during the following fiscal year. This will help to better identify who is really at risk of TB and focus interventions.

In addition, Practical Approach for Lung diseases (PAL) assessment was conducted and revealed that knowledge on PAL approach is low and management of Chronic Obstructive Pulmonary Disease (COPD) is not conform to the guideline. The PAL system will continue to work towards setting up a robust M&E system for data collection, continue to train health workers and provide necessary equipment to health facilities.

Leprosy control

Prevention and control of Leprosy are focusing on early detection of leprosy in the general population, especially in endemic areas are paramount objective to avert the spreading of disease. To reinforce the screening of leprosy, active case finding has been conducted in endemic area and 33 cases were diagnosed among them 91% were new leprosy cases. The proportion of leprosy cases with disability grade 2 was fallen from 30% the previous FY to 3.3% compare to this reporting FY.

The success rate for MB case registered July 2015 to June 2016 was evaluated to 87.5% of new cases, 100% for relapse case, while the completion rate for PB forms *(New, relapse, return after default)* notified July 2016 to June 2017 was 100%

TB&ORD financing

During the Fiscal year 2017-2018 the total budget was USD 12,503,522 from Global Fund, Government of Rwanda, World Health Organization and Damian Foundation respectively on rate of 83,3%, 14.9%, 0.87% and 0.88%.

Regarding of total expenditures, the budget execution was 92.45% of total budget approved.

The total expenses were composed manly by medicines, health products and medical equipment paid, human resource, and advance payment on CDTs laboratories renovation and capacity building of employees.

TUBERCULOSIS AND OTHER RESPIRATORY COMMUNICABLE DISEASES CONTROL

I.1. Objective 1: Provide early TB detection in general population and intensify case-finding in prioritized high-risk groups (HRG) so that the proportion of TB cases all forms identified among HRG increases from 14% to at least 24% by mid-2018

I.1.1. Provide early rapid and quality diagnosis for TB, MDR-TB, and TB/HIV

I.1.1.1. Tuberculosis screening

TB screening is based on 5 questions (cough of ≥ 2weeks, fever, night sweats, weight loss, and contact history). CHWs continue to contribute in identification and referring potential presumptive TB cases to health centers for TB screening.

The total number of presumptive TB cases is 176,913 with a positivity rate of 2.4 % (4,192/176,913)**.** This positivity rate decreased from 2.8% of the 2016-2017 FY. This decrease may be due to the stock out of cartridges for a period of two months.

CHWs brought 47.3% of all presumptive TB and 26.3% of bacteriological confirmed TB cases [table 1]. However, we still observe low contribution in TB presumption by CHWs in Kigali City [Fig 1]. This presents a need of assessment in collaboration with community desk to know the reason behind of low contribution of CHWs in TB presumption.

Table 1 : TB detection and contribution of each screening level, Rwanda, July 2017-June 2018

DETECTION	CDT	CT	CHWs	Total
Presumptive TB cases	49,518	43,750	83,645	176,913
	28.0%	**24.7%**	**47.3%**	
B+ among presumptive TB cases	2,121	967	1,104	4,192
	50.6%	**23.1%**	**26.3%**	
Positivity rate	**4.3%**	**2.2%**	**1.3%**	**2.4%**

B+: *bacteriological confirmed cases.*

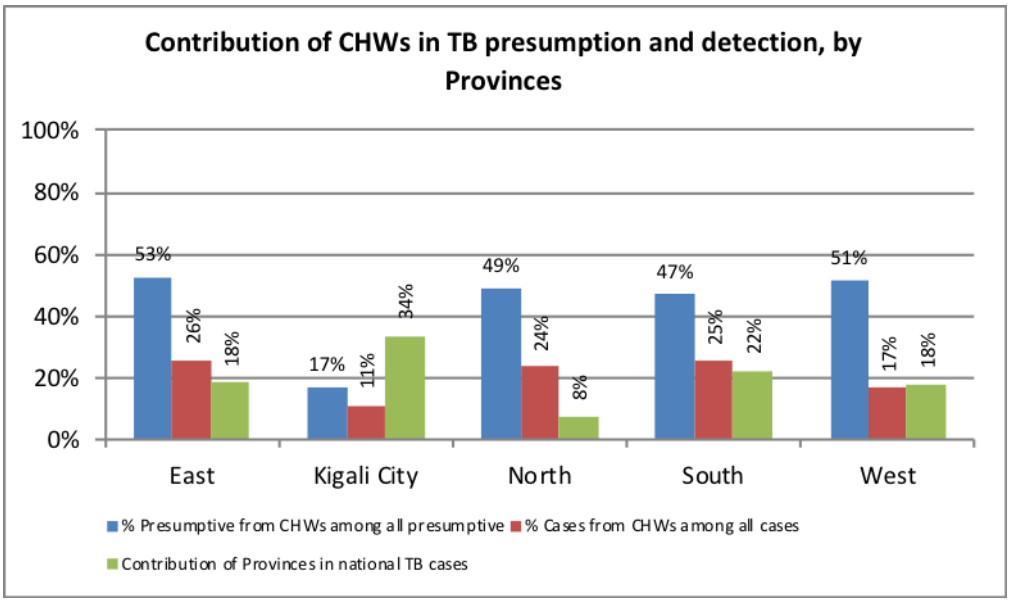

Figure 1 : Contribution of CHWs in diagnostic of TB by province, July 2017-June 2018.

In Rwanda all presumptive TB are advised to be tested for HIV in order to improve screening of HIV for better management of TB/HIV co-infection.

Almost all TB presumptive were tested for HIV because of easy access to health services including HIV counseling and testing. Among presumptive TB tested for HIV, 10.8% were HIV positive similarly to the one of the last year.

Table 2: HIV testing among presumptive TB, July 2017-June 2018

Total # of presumptive TB	Known as HIV+	Unknown HIV status			Total tested	Total # of HIV+ presumptive TB
		# to be tested	# and % of Tested	# and % of HIV+		
176,913	17,911	159,002	157,543	1,122	175,454	19,033
	10.1%		99.1%	0.7%	99.2%	10.8%

To improve the early detection of drug resistance tuberculosis, the health facilities are requested to perform DST for all new and previously treated TB cases bacteriologically confirmed. The DST coverage was 85.6% (3,667/4282) for all new and previously treated and 85.9% (407/474) for previously treated only.

I.1.1.2. Tuberculosis impact and notification indicators

The WHO in its 2017 Global Tuberculosis Report estimated incidence rates (including HIV+ TB) for Rwanda at 50/100,000 with a decrease rate of 10.7% from 2016 to 2017 (56 to 50 per 100,000). The recorded decrease was higher than the one planned in the TB NSP (5%).

For the FY2017-2018, the TB surveillance system in Rwanda reported 5,826 all-forms TB cases, of them bacteriological confirmed new and relapse were 4,161 (71.4%) and clinically diagnosed were 1,544 (26.5%).

Among 5,826 TB cases all forms susceptible and drug resistant 5,781 (99.2%) were initiated on treatment. The main reasons of non-initiation to TB treatment 45 cases were death before initiation on treatment and lost to follow-up.

Based on TB incidence rate of 50/100000 and total population of 11,960,048 in 2017, Rwanda expected to diagnose 5,980 TB cases. The treatment coverage rate is 96.7% (5,781/5,980)

Table 3: Registration of TB Cases by Case Category, Cite and Treatment History, July 2017-June 2018

TB case category	**New**	**Relapse**	**TAF**	**TALFU**	**Other previously treated**	**Previous History unknown**	**Total**
Pulmonary, Bacteriological confirmed	3,706	343	90	27	2	0	4,168
Pulmonary, Clinically diagnosed	696	43	0	4	14	0	757
Extra-Pulmonary, Bacteriological confirmed	102	10	1	0	1	0	114
Extra-Pulmonary, Clinically diagnosed	759	15	0	0	13	0	787
Total	**5263**	**411**	**91**	**31**	**30**	**0**	5,826
%	**90.3%**	**7.1%**	**1.6%**	**1%**	**1%**	**0.0%**	
Cases initiated TB treatment							**5,781**

Of all-forms TB cases, 75.4**%** (4393) were reported among 15-54 years, while children <15 years represented 6.7% (388) and elderly of ≥55 years represented **17.9%** (1,045) .

In Rwanda 3,856 TB patients were male and 1,970 female during this reported period; the sex ratio is 2.

Regarding the age pyramid of TB case by sex, the most affected age range is 15 to 44 for both male and female. In order to improve detection of among female, it is necessary to target the 15-44 age group with specific interventions.

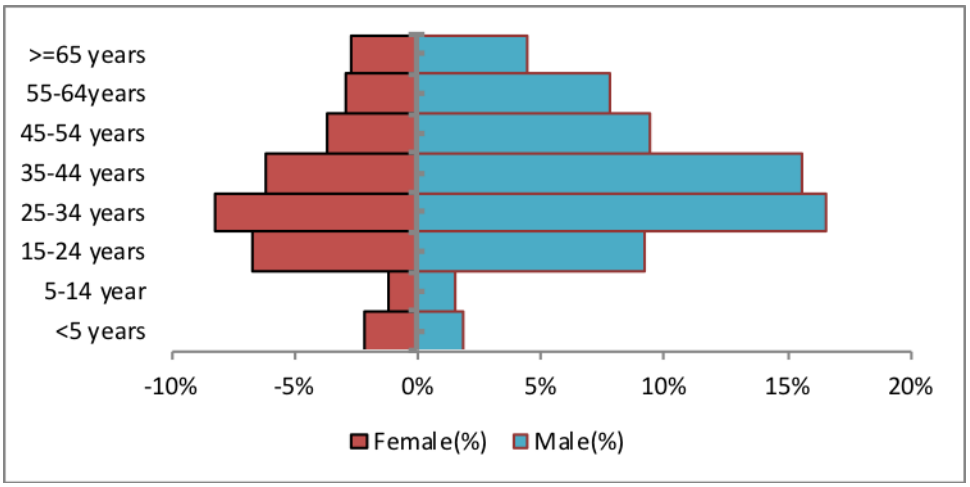

Figure 2: Age pyramid of TB cases all forms by sex, Rwanda, Jul 2017-Jun 2018

HIV testing was done at 99.9% (5819/5826) of TB cases all forms and 21.3% (1240/5826) were HIV positive [Table 5]. Proportion of TB/HIV co-infection remains the same as last fiscal year.

Newly treated TB cases represented 90.3% (5,263) and 9.7% (563) was previously treated. Overall pulmonary localisations represented **84.5%** (4,925). TB was more diagnosed among men, with a male: female ratio for all-forms TB cases of 2 .

CHWs contributed up to **19.3%** (1127) of all-forms TB cases diagnosed representing 91.9% of the annual target [Table 5].

Applying WHO criteria of TB cases classification, **73.5%** (4282) are bacteriologically confirmed which include new bacteriological confirmed, relapse, treatment after failure and treatment after lost to follow up and **26.5%** (1544) are clinically diagnosed including TB cases with sputum smear negative, sputum smear not done, extra pulmonary and others. Newly treated TB cases represented **90.3%** (5,263) and 9**.7 %** (563) were previously treated.

Table 4: Notified TB cases by 2013 WHO categories and community screening as origin,Rwanda July 2017-June 2018

	All forms	Classification based on bacteriological status		Classification based of history of previously treated		Overall pulmonary	Cases brought by CHWs	HIV tested	HIV tested positive
		Bacteriological confirmed	Clinically Diagnosed	Newly treated	Previously treated				
N	5,826	4,282	1,544	5,263	563	4,925	1127	5819	1240
%		73.5%	26.5%	90.3%	9.7%	84.5%	19.3%	99.9%	21.3%

TB incidence rate is one of the indicators which measure the impact of TB control interventions in the population. The trend of TB incidence in Rwanda has declined from 98 per 100,000 in 2008 to 50 per 100,000 in 2016. This decline may be attributed to the efforts of government, partners and community which led to the increase of treatment success rate from 80% and 70% (2007) for new and retreated case respectively to 87% (2016) for both categories. The detection rate has also increased from 85% in 2007 to 97% in 2016[Figure 3].

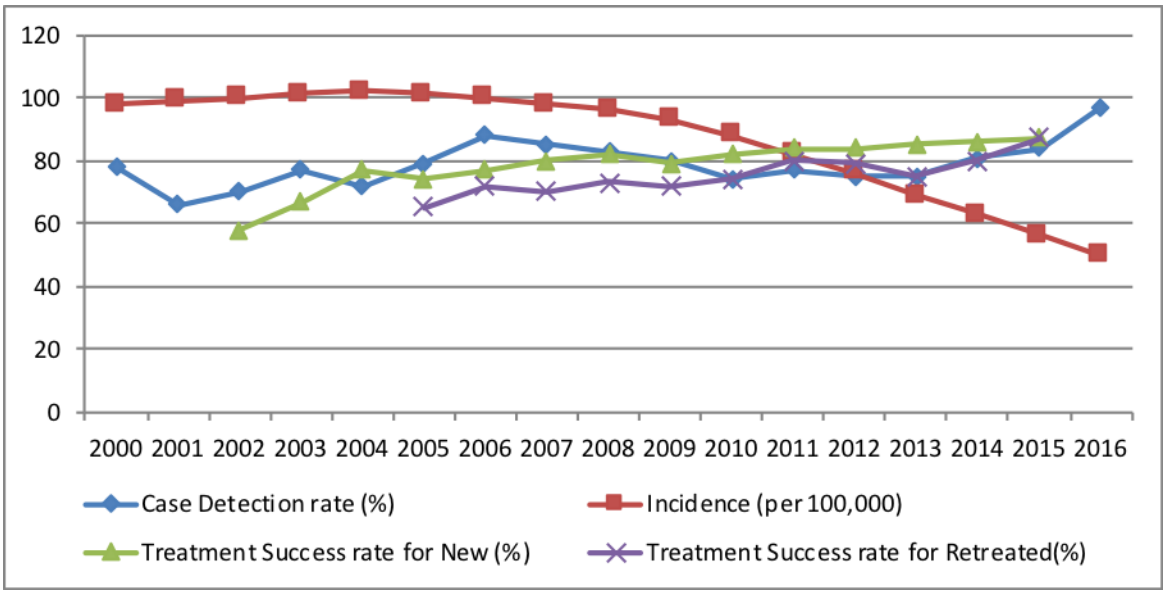

Figure 3 : Trend of impact and outcome of TB indicators from 2000 to 2016, in Rwanda (WHO Global TB Report 2017).

I.1.1.3. Sputum smears microscopy and quality control

In order to improve and sustain the quality of smear microscopy, the quality control is conducted quarterly to each CDT. This is done at 2 levels: the National Referral Lab (NRL) does the quality

control for all hospitals; and District Hospitals do the same for the Health Centers in their catchment areas.

From 2017- 2018 FY, 181 out of 200 CDTs (91%) were controlled at least 3 times a year while 194 out of 201 (96.50%) had been controlled during 2016-2017.

Among 11, 123 slides controlled, 0.14% (16) slides have been found with major errors and 0.7% (77) with minor errors. There is an improvement on TB smears reading and the major errors decreased while the minor errors increased. This shows that some lab technicians lack skills in quantification on TB smears reading which show that there is a need of continuous mentorship on microscopy.

The annual TB NSP target established at 96% was not reached (91.5%). Comparing to the fiscal year 2016-2017 where major errors represented 0.4% (46 out of 11,820), we can see that there is an improvement of CDTs as seen in the table 5 below.

Table 5 : Quality control of sputum, Rwanda, July 2017-June 2018

	CDT controlled at least 3x	Nb slides controlled				Errors					Nb CDT with major error
		Total	Pos	Scanty	Neg	HFP	HFN	LFP	LFN	QE	
CDT – HC with ZN	**3/4 (75%)**	155	10	0	145	0	0	0	1	0	0
DH with ZN	**0/0 (0%)**	0	0	0	0	0	0	0	0	0	0
DH, RH, HC with FM	**178/196 (90.8%)**	10,968	787	181	9,904	3	13	11	13	52	12
Total	**181/200 (90.5%)**	11,123	797	181	10,049	3	13	11	14	52	12
CDTs with Major errors	Kiziguro DH (1), Nyarurema CS (3), Matimba CS (1), Nyagahita CS (1), Kicukiro CS (1) Muhima DH (1), Biryogo CS (1), Kinihira PH (1), Save CS (2), Muyange CS (1), Kibogora DH (1), Mibilizi DH (2)										

I.1.1.4. Access to sensitive TB diagnosis tests

I.1.1.4.1. Microscopy

The preferred method of sputum microscopy is Light Emitting Diode Fluorescence Microscopy technique (LED-FM) rather than Ziehl Nelsen (ZN). In the last four years the National Reference Laboratory and TB&ORD Divisions have started phasing out the old technique, ZN and phase in LED-FM.

During the 2017-2018 FY, all 200 CDTs were equipped with functional Fluorescence Microscopy and each CDT had at least 2 trained staff. However, 4 (Bumbogo (ex-Gikomero I), CS Karangazi, CS Kayenzi and CS Ramba CS) out of 200 were using ZN due to different reasons; some of them were stolen and others broken/not functional.

I.1.1.4.2. Molecular Test

Fifty (50) Xpert machines were functional in the 2017-2018 FY.

The implementation of Genexpert is being improved gradually and increasing geographical accessibility. This was explained by 32 additional Genexpert machines injected in the system at the end of the last year, extension of inclusion criteria and adherence of clinicians to Genexpert protocol.

I.1.1.5. Drug resistant Tuberculosis detection and notification

I.1.1.5.1. MDR-TB detection process

During July 2017 to June 2018 reporting period, 2778 samples were received at referral laboratories for culture including 603 for MDR-TB controls. Among culture for diagnostic only 39.9% (867/2175) were positive and very few DST (47 for first line and 19 for the second line) performed. The low positivity is difficult to interpret due to lack of TB history in most of the patients (729/2175). More efforts are needed to improve on laboratory recording and reporting to have enough data to inform decision makers.

Table 6 : Culture and DST performance in Rwanda laboratory network,July 2016-June 2017

	Samples received for culture	Samples for MDR-TB culture controls	Samples for diagnostic			Culture results for diagnostic				Drug Susceptibility Testing		
			New cases	Previously treated	Unknown TB history	Positive	Negative	Contaminated	Pending	LPA (1st line)	DST (1st line)	DST (2nd line)
NRL	2421	603	960	229	629	819	722	175	102	943	47	19
CHUB	100	0	0	0	100	38	56	6	0	38	0	0
CHUK	257	0	257	0	0	10	214	19	14	0	0	0
Total	2778	603	1217	229	729	867	992	200	116	981	47	19

*__Notice__: Data considered for total eligible are in Notification TB cases table

I.1.1.5.2. MDR-TB Notification

Eighty (80) multi-drugs resistant TB cases were detected, including 78 with bacteriological confirmation of MDR-TB disease and two clinically diagnosed TB case:

- a child with current TB clinical TB suggestive symptoms and high presumption of MDR-TB disease based on his close contact with his mother who is bacteriological confirmation MDR-TB patient
- another patient with TB symptoms and past history of TB treatment (second relapse).

Among them 80, one Cat IV failure was initiated on the 20 months treatment for pre-XDR TB and 79 on the short (9 months) MDR-TB treatment regimen. Among those who initiated MDR-TB treatment 33 (41%) patients were HIV+ and 59 (74%) were men.

Table 7 : Drug resistant Tuberculosis notification and treatment initiation in Rwanda July 2017-June 2018

Number of confirmed MDR-TB cases	Died before diagnostic date	Not yet treated	Number of patients who initiated MDR-TB treatment	
			Kabutare	Kibagabaga
80	0	0	39	41
			80	

Table 8 : MDR-TB cases who started treatment during July 2017 - June 2018, by sex and HIV status

by sex and HIV status

MDR-TB by Gender and HIV status								
	Bacteriologically Confirmed		Clinically Diagnosed		Bacteriologically Confirmed	Clinically Diagnosed	Male	Female
	Male	Female	Male	Female				
MDR-TB patients	57	21	2	0	78	2	59	21
MDR-TB patients HIV Tested	57	20	2	0	77	2	59	20
MDR-TB patients HIV Positive	18	15	0	0	33	0	18	15
MDR-TB patients HIV positive on ART	17	15	0	0	32	0	17	15
MDR-TB patients under 15 years	0	1	1	0	1	1	1	1
MDR-TB patients under 15 years HIV Tested	0	1	1	0	1	1	1	1
MDR-TB patients under 15 years HIV positive	0	1	0	0	1	0	0	1
MDR-TB patients under 15 years HIV positive on ART	0	1	0	0	1	0	0	1
MDR-TB - Extensively Drug Resistance	0	0	0	0	0	0	0	0

I.1.2. Enhance TB case finding in selected and prioritized high risk group

TB&ORD Division prioritized five HRGto be systematically screened: PLHIV, TB contacts, prisoners, children and elderly. Two screening approaches are used:

a) symptom screening followed by Gene_Xpert as initial diagnostic for those who screen positive; b) radiological and symptom screening followed by GeneXpert for those who have

abnormal chest X-ray (CXR) and/or symptoms suggestive of TB. The second approach is used during active campaigns in prisons, in some health facilities attending high numbers of PLHIV and youth in Kigali Rehabilitation Transit Center. These campaigns are carried out by a specific team including 2 MDs and 2 radiology technicians using the mobile CXR equipment from the prevalence survey.

Overall, two thousand seven hundred and forty-three (2,743) TB cases were confirmed among people at higher risk of TB, representing 47.1% of 5,826 all TB cases. The 2013-2018 TB NSP and the GFTAM target was 24%. The extended NSP 2018-2020 target was reviewed at ≥40%**.**

Table 9 : Summary results of TB screening and diagnosis among selected high risk groups, Rwanda, July 2017-June 2018

Risk group	Screened	Presumptive TB		TB cases
	N	N	%	N
Prisoners	140,342	9,955	7.1%	246
Contacts	13,477	2,895	21.5%	132
HIV+ persons	557,700	16,201	2.9%	999
Children < 15 yrs	1,805,313	19,383	1.1%	373
Elderly≥55 years	1,251,306	45,276	3.6%	993
Total	**3,768,138**	**93,710**	**2.5%**	**2,743**

I.1.2.1. Active case finding using CXR for screening

A one day of orientation meeting was conducted before starting the implementation of ACF activity between TB&ORD and all stakeholders involved with main purpose to inform them and exchange about the activity to be carried out, role and responsibilities of each part during and after the activity.

Screening for TB was done using two screening tools: Chest X-Ray and any TB symptom (cough ≥2 weeks in Prisoners and Youth, any symptom for PLWHIV. GeneXpert machine was used as initial test for diagnostic technique.

A data collecting tool was developed in Microsoft Access. The information collected were focusing especially on: identification, clinics follow up, screening and diagnostic results (ACF using Mobile digital X-ray), Initiation of TB treatment, and outcome of TB treatment (later).

2. Results

2. 1. ACF using mobile digital x-ray in prison inmates

TB screening cascade

A total of 13,609 (96%) out of 14,223 prison inmates in Ngoma, Rusizi, Nyamagabe and Nyanza Prisons were screened for Pulmonary Tuberculosis using symptomatic screening (a cough ≥ 2 weeks) and chest x-ray screening. Nine hundred and eight (7%) were presumptive TB;

among them 7(1%) were presumptive TB by symptoms with normal CXR, 557 (61%) were presumptive TB by suggestive chest x-ray without symptoms and 344 (38%) were presumptive TB by both symptoms and suggestive chest x-rays.

- **TB cases**

A total of 23 new TPB+ (including 1 MDR TB case) were detected in 4 above mentioned prisons. Among them, 16 TB cases are from presumptive TB by suggestive chest x-rays without symptoms, 7 TB cases were from presumptive TB by both symptoms and suggestive chest X-rays. The added value of chest x-ray as screening tool in all detected TB cases is 70%.

The results of second round of systematic screening of TB in inmates using Chest X-ray show that the trend for TB notification rates per 100,000 population is decreasing in general, meaning that ACF using x-ray as screening tool contributes to the reduction of TB transmission in congregated settings and it's a good strategy to reduce the TB burden.
The figure below shows the results of two rounds of ACF using x-ray for screening in four prisons during FY 2017-2018

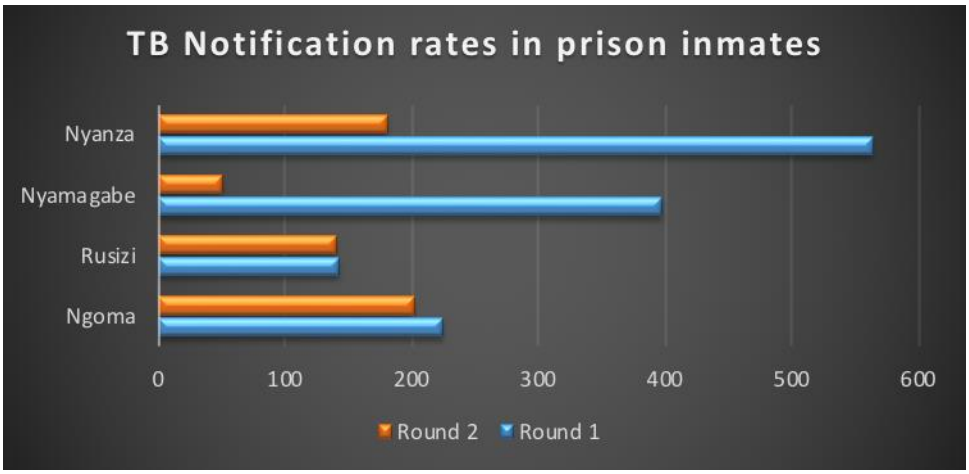

Figure 4: Results of two rounds of ACF using x-ray for screening in four prisons during FY 2017-2018.

2. 2. ACF using mobile digital x-ray among youth in Kigali Rehabilitation Transit Center

- **TB screening cascade**

A total of 4,868 youth in KRTC were screened for Pulmonary Tuberculosis using symptomatic screening (a cough ≥ 2 weeks) and Chest X-ray screening. Among all 471 (10%) presumptive TB, 46 (10%) were presumptive TB by symptoms with normal CXR, 98 (21%) were presumptive TB by suggestive Chest X-ray without symptoms and 327 (69%) were presumptive TB by both symptoms and suggestive Chest X-rays.

- **TB caes**

A total of 46 new TPB+ cases including 1 MDR TB were detected. Among them, 8 TB cases were from presumptive TB by suggestive Chest X-rays without symptoms and 38 TB cases were from presumptive TB by both symptoms and suggestive Chest X-rays. The potential contribution of X-ray screening is **17%** (8 out of 46). The added value of chest x-ray as screening tool is low comparative to the other high risk groups due the delay of diagnosis and poor infection control measures in the rehabilitation centers

2. 3. ACF using mobile digital x-ray in people living with HIV

- **TB screening cascade**

A total 4,363 (73.9%) out of 5,907 people living with HIV+ active in ART health facilities service (8 health Centers: Rugarama, Betsaida, Gahanga, Busanza, Gihowe, Masaka, Kabuga, Nyamasheke and 2 District Hospitals: Gihundwe, Gisenyi) were screened for Pulmonary Tuberculosis using symptomatic and Chest X-ray screening and 9.4% (408) were screened positive. Among those with presumptive TB, 8.6% (35) showed clinical symptoms with normal CXR, 65.9% (269) with suggestive Chest X-rays but no symptoms and 25.5% (104) were from presumptive TB showed by both symptoms and suggestive chest x-rays.

- **TB cases**

A total of 20 new TPB+ (including 1 MDR TB cases) were detected in people living with HIV+. Among them, 11 TB cases were from presumptive TB showed with Suggestive Chest x-rays but no symptoms, 9 TB cases from presumptive TB with both symptoms and suggestive Chest X-rays. The added value of chest x-ray as screening tool was at **55%**.

I.1.2.2. Childhood TB

The detection of TB among children remains a challenge requiring special interventions/activities. In order to improve the detection of TB case among children, we had a workshop with MCCH division to review the exiting ICCM tools, indicators, guideline and incorporate childhood TB component. Also we decide to integrate the TB screening in community based nutrition protocol.

I.1.2.3. TB contact screening at the end of TB treatment index cases.

Due to the long incubation period of TB 1-2 years, the TB NSP suggested to not only screen contacts of infectious TB cases at the initiation of index case treatment, but also re-screen them at the end of treatment, trying to cover as much possible the incubation.

This strategy was started last FY 2016-2017, the data presented are from TB & ORD surveillance system, the coverage of screening at the beginning of TB treatment (M0) was at 93.9% (13,477/14,347) and 93 TB cases were detected. The coverage of re-screening (M12) is at 88.4% (13,150/14,871) versus 83% (10,645/12,831) for previously FY 2016-2017. At the end of TB treatment, 35 cases were detected from NTPB+ index cases. This strategy helps to diagnose 27% additional TB cases.

I.2. Objective 2: Increase treatment success rate from 88% to 90% for bacteriological confirmed TB cases and maintain it at 87% for MDR-TB

I.2.1. Ensure that at least 97% of CDTs have no stock out in TB medicines

1.2.1.1. Notable changes to the supply chain system in the year of 2017-2018

Since July 2017, Rwanda started to implement MTR recommendations to comply with WHO guidelines. These changes pushed redynamization of supply chain of TB commodities, therefore the below changes have been observed during the fiscal year of 2017-2018.

- The programme has successfully transitioned to the use of the newly optimized child-friendly TB formulations.

- The use of category II treatment regimen (SRHZE/RHZE/RHE) for retreatment cases has been discontinued by July 2017 in line with WHO recommendations. Therefore, Streptomycin and RHE (150/75/400) are no longer in use.

- The new TB medicines (Delamanid & Bedaquiline) and repurposed TB medicines (Linezolid) have been introduced. As at May 2018 one patient had been enrolled on a regimen containing these medicines.

- A shorter treatment regimen (STR) containing Linezolid is being used for patients who are intolerable to Kanamycin injectable. In such situations, Kanamycin is directly substituted with Linezolid. Prior to the availability of Linezolid, Capreomycin was substituted for Kanamycin in the regimen. Subsequent to this development, there would no longer be a regimen containing capreomycin. In 2016/2017 FY about 97% (75/77) of the drug-resistant TB (DRTB) cases were enrolled on the STR.

- The standardized Longer Treatment Regimen (6Km(Cm)-Cs-Lfx-Pto-Z/14Cs-Lfx-Pto-Z) is being phased out and there are no new enrolments on this regimen. In view of this, cycloserine and levofloxacin will no longer be required.

- The regimen designed for pre-XDR/XDR includes the use of Delamanid for 6 months, Bedaquiline for 12 months and Linezolid for 20 months.

1.2.1.2 Ensure logistics for TB medicines, reagents, consumables and equipment

To ensure logistics for TB control, annual forecast have been done through integrated CPDS (Coordinated Procurement Distribution System). This integration offers a number key benefits for the parties involved; cost saving on per diem and lodging for key personnel that would

normally be required to attend quantification exercises more than one time during the year, time taken to conduct quantification and supply planning reviews separately, and approval processes.

According to the HMIS reports stocks of TB drugs and reagents were well monitored quarterly at the 100% of all CDTs. TB medicines were always available during the fiscal year in 97% CDTs. However, we observed stock out of other lab products mostly cartridges February-March 2018 due to delay in supply of cartridges.

TB Program faced challenge on acquisition of TB commodities because some suppliers like UNOPS/GDF are not complying with national procurement policy and payment modalities because they have their own regulations and all country using Global Fund money to purchase TB second line drugs are required to use GDF mechanism.

I.2.2. Improve treatment success rate for all forms of TB, specifically to 90% for bacteriological confirmed TB cases by mid-2018

For the July 2017 to June 2018 reporting period, treatment outcomes presented are for the cohort of TB cases registered from 1st July 2016 to 30th June 2017.

Among bacteriological confirmed cases new and relapse (B+ N&R), the treatment success rate (TSR) was **88.2%** (3,733/4,223**)**, including **81.1%** (3,431/4,223) cured and **7.1%** (302/4,223) treatment completed. For clinically diagnosed (CD), the treatment success rate was **79.3 %** (1,067/1,345**)**. For the mentioned two categories, the main unfavorable TB treatment outcomes was "died" which represented **5.5% (233/**4,223**)** for bacteriological confirmed cases new and relapse and **16.4%** (221/1,345) for clinically diagnosed cases. Not evaluated were respectively 1.7% (72/4,223) and 2.9% (39/1,345) for B+ N&R and Clinically Diagnosed from July 2017 to June 2018.

When considering the treatment outcomes for all-forms, it was observed that **85.9%** (4,896/5,699**)** were successfully treated; 8.1%(464/5699) were died and 2.0% (114/5699) not evaluated. Among TB patients with HIV infection on ART **78.7%** (846/1,075) were successfully treated on TB (cured or treatment completed); 12.9% (139/1,075) were reported died and 2.1% (23/1,075) not evaluated. However, when considering all HIV+ TB patients, the TSR decreases to 75.6% (883/1168) and 15.7% (183/1168) were died. This explains that the early initiation on ART regimen may contribute to the improvement of TB treatment success rate in this specific group.

In its Global Tuberculosis Report released end 2017, the World Health Organization (WHO) estimated rates of mortality (excluding HIV+ TB) for Rwanda at 1.7/100,000[1]. The national targets were 6.3/100,000 for the 2017-2018 FY.

[1] 2017 WHO Global TB Report

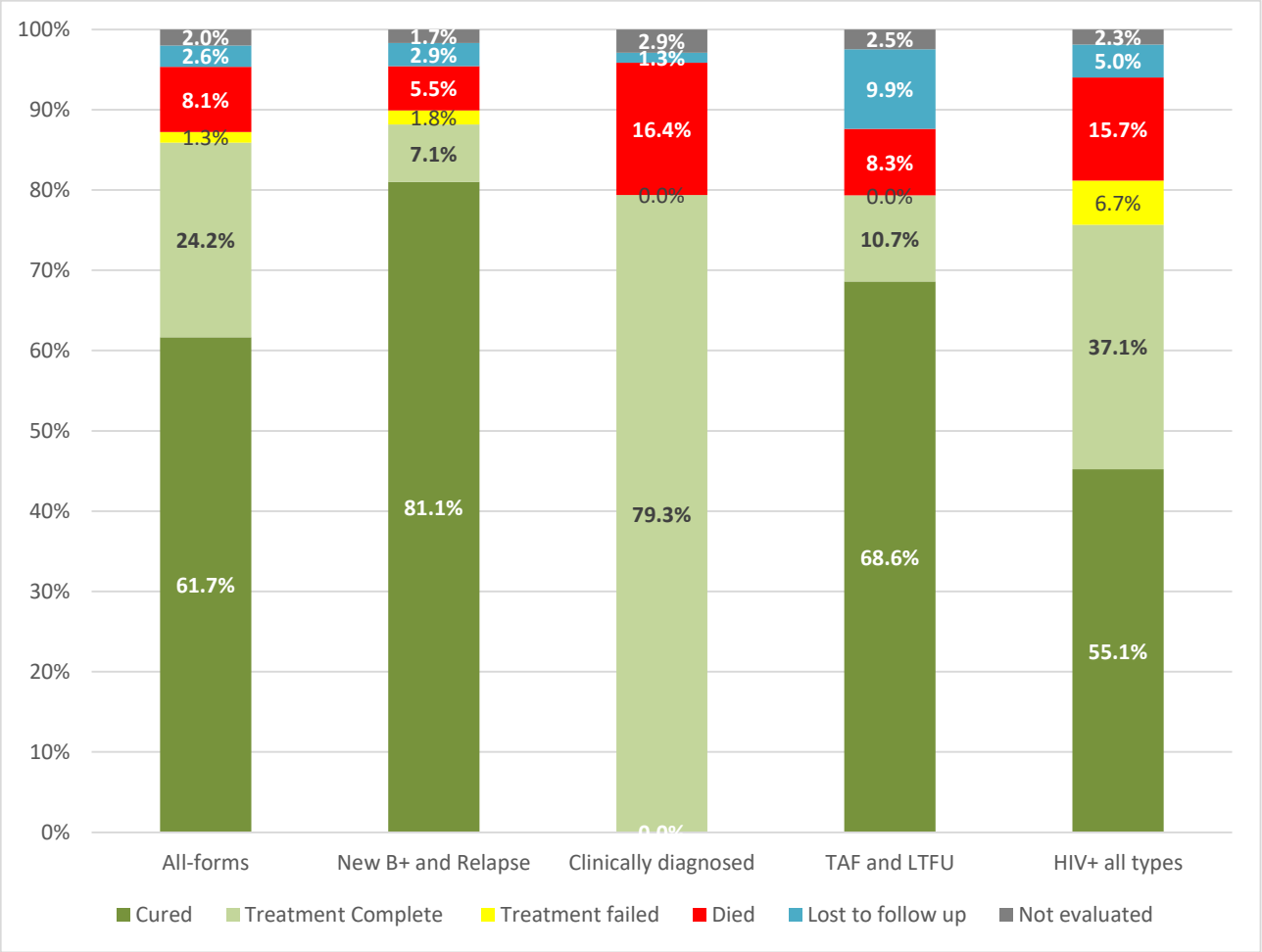

Figure 5 : TB treatment outcomes, Rwanda, July 2017-June 2018

I.2.3. Maintain ART coverage among co- infected patients at least at 90%

From July 2017 to June 2018, 99.9% (5,819/5826) of all TB patients were tested for HIV infection and 21.3% (1,240/5,819) among those tested were found HIV infected. Since 2010 a decrease in HIV positivity among TB patients is observed. We will particularly monitor this, as the country has now initiated the "treat all strategy".

Among those HIV+ TB patients, 98.4 % (1,220/1,240) were receiving or initiated to Cotrimoxazole preventive treatment; and 93.7%(1,162/1,240) of them have been receiving ART during same registration quarter (proxy of early ART initiation among HIV+ TB patients).

For the cohort of HIV+ TB patients registered during July 2016 to June 2017, the proportion of HIV+ TB patients on antiretroviral therapy (ART) by the end of TB treatment reached 92.2% (1,098/1,191).

I.2.4. Increase to 95% the treatment success rate for patients managed in the community.

The mission of CHWs in TB control activities is to sensitize communities on clinical features of TB, identify potential presumptive TB cases and follow up (giving TB treatment) to some TB patients identified by health facilities.

During July 2017 to June 2018 reporting period, out of the 5,826 TB cases notified, 2968 (51%) were entrusted to CHWs for administration and observation of the TB treatment. This strategy is highly appreciated by the patients because they receive DOT close to their homes.

The TB treatment success rate among TB patients registered during July 2016-June 2017 and followed up through the community-DOT (by CHWs) was 94.9% (2432/2562), almost achieved the target of 95%.

I.2.5. Maintain treatment success rate at 87% for MDR-TB patients.

I.2.5.1. Interim outcome for MDR-TB treatment

A good MDR-TB treatment interim result shows how effective the MDR-TB treatment is, and predicts a good final result of MDR-TB treatment. Out of the 73 confirmed patients enrolled on second line anti-TB treatment during October 2016-September 2017, 55 (75%) had both negative culture and smear (**Interim result: conversion rate**).

Among the 18 with unfavorable outcome, 5 had contaminated cultures, three patients were with sputum cultures not done, seven died before six months, two had isolated positive culture one was still culture positive at end of the 6th month of treatment.

The NSP target was 80% (and so was achieved at 94%) due to a high mortality rate (10%) before completing six months of treatment and the contamination rate at 7% of control cultures from MDR-TB patients on treatment. Practical trainings of nurses from health facilities with MDR-TB patients and RSQA visits will be ones of the ways to continuously remind the HFs facilities to respect the calendar of patient follow up.

Table 10: Interim MDR-TB treatment outcome at month 6 of MDR-TB treatment, Rwanda, July 2017-June 2018

Treatment outcome	N	%
MDR-TB Total patients bacteriologically confirmed 9 months ago	73	
MDR-TB Deaths before 6 months of treatment	7	10%
MDR-TB Lost to follow up before 6 months of Treatment	0	0%
MDR-TB patients evaluated at 6 months of treatment	66	90%
MDR-TB Negative smear and culture at 6 months of treatment	55	75%
MDR-TB Patients with more than 1 positive smear and - or culture at 6 months of treatment	3	4%
MDR-TB Patients with smear and-or culture not done at 6 months of treatment	3	4%
MDR-TB Patients Contaminated culture at 6 months of treatment	5	7%

I.2.5.2. Final outcome for MDR-TB treatment

Out of 76 MDR-TB cases initiated on second line TB treatment, two patients (one cat IV failure and one MDR-TB relapse) were put on 20 months treatment regimen during July 2015 - June 2016 and 74 patients on 9 months treatment regimen during July 2016 - June 2017, the treatment success rate was 83%, with 67% cured and 16% with treatment completed. Twelve patients (16%) including two patients on long treatment regimen died before completion of the MDR-TB treatment. Almost a 100% of newly diagnosed MDR-TB patients are treated with the shorter (9 months) treatment regimen.

Note that 80 MDR-TB patients were notified in 2016-2017 fiscal year and 77 initiated on 2nd line TB treatment. Three of them (2 MDR-TB relapses and one patients diagnosed in Uganda) were initiated to the long (20 months) MDR-TB treatment regimen, thus not yet ready for the treatment outcomes. The two patients in below table are those started long regimen during fiscal year 2016-2017[Table 11].

Table 11 : MDR-TB Treatment outcome at end of treatment, Rwanda, July 2017-June 2018

Treatment outcome	Short regimen (12M ago)	Long regimen (24 M ago)	Total	%
MDR-TB Registered patients who initiated the treatment	74	2	76	
MDR-TB Patients Cured	51	0	51	67%
MDR-TB Patients Treatment completed	12	0	12	16%
MDR-TB Patients Treatment failed	1	0	1	1%
MDR-TB Patients Died	10	2	12	16%
MDR-TB Patients Lost to follow up	0	0	0	0%
MDR-TB Patients Not evaluated	0	0	0	0%

I.2.6. MDR-TB ambulatory treatment

Patients diagnosed with MDR-TB disease are initiating second-line anti-TB drugs in hospitalization mode in one of the two national MDR-TB centres. Once culture converted to negative, they are sent back to their respective nearest health facilities to continue DOT treatment in ambulatory phase[Table 12].

Table 12 : Management of MDR-TB in specialized centers, Rwanda, July 2017-June 2018

Data element	Value
MDR-TB Cases on treatment at the beginning of the 1st quarter FY 2017-2018 in the specialized unit	27
MDR-TB Cases registered during the fiscal year in the specialized unit	80
MDR-TB cases transferred in during the fiscal year in the specialized unit	0
MDR-TB cases transferred out in ambulatory during the fiscal year in the specialized unit	65
MDR-TB death cases in the fiscal year in the specialized unit	7

MDR-TB cases on treatment at the end of the fiscal year in the specialized unit	33

During 2017-2018 fiscal year, Rwanda MDR-TB centres admitted 80 MDR-TB patients and 65 have been sent for ambulatory treatment during the same period.

1.2.7. Active Drug Safety Monitoring System

The TB treatment card has been revised to record information on Adverse Events (AEs) or their absence. Revised TB card was introduced July 2017 and disseminated. In order to monitor the implementation this strategy, a-DSM activities have been introduced in Rapid Service Quality Assessment check list being used at health facility during mentorship.

1.2.8. Provide support to MDR-TB patients.

The TB&ORD Division in collaboration with different stakeholders has been ensuring support to all MDR-TB patients diagnosed and treated in Rwanda.

I.2.8.1. Psycho-emotional support is provided throughout treatment

After MDR-TB diagnosis, individual counseling includes health education on the disease, possibility of treatment, duration of treatment and the mode of treatment. The patient is advised to begin treatment as soon as possible. Upon entering the MDR-TB center at district level another individual counseling session is organized. During hospitalization at the MDR-TB center, group counseling led by an MDR-TB psychologist or one of the nurses is carried out weekly. During ambulatory care, the health center providing DOT is mainly responsible for counseling and treatment follow up.

I.2.8.2. Provision of socio-economic support throughout treatment

Hospitalization, clinical exams, drugs, food and hygiene materials are given to patients during hospitalization.

During ambulatory treatment, patients are provided with drugs, clinical exams, free medical insurance (that covers all medical costs, including 90% of costs for family members), transportation fees and nutritional support (food packages).

The MDR-TB patients' support is key in ensuring patient retention during the treatment, thus improve on the adherence to MDR-TB treatment. This may be one of different factors explaining the high treatment success (83% for 2016-2017 cohorts) in MDR-TB management in Rwanda compared to the worldwide average (around 54%[2]) successful MDR-TB treatment outcomes.

[2] 2017 WHO Global TB Report

I.3. Objective 3: Improve TB prevention (TB infection control in health facilities, behavioral change in the general population and prevention by medication) so that the percentage of population with adequate knowledge on TB increases from 56% to 75% by 2018

I.3.1. Implement a revised package of infection control measures to prevent TB infection

I.3.1.1. Implementation of TB infection control measures

I.3.1.1.1. Routine implementation of TB infection measures in health facilities

The minimum package of TB infection control in Rwanda include six basics measures: the existence of the IC plan, appointment of the TB focal point, Health workers trained on TB, cough Triage system and separation of coughers, IEC on the cough hygiene, doors and windows opened in service at risk. Methodologically, health centers are assessed by hospitals and hospitals are assessed by the central level.

According to TB&ORD surveillance, the proportion of Health facilities that were applying all six basics measures remained stable and represent respectively 81.8% (459/561) for the last quarter of the 2017-20018 FY (Apr-Jun 2018), versus 80.4% during 2016-2017 FY.

To improve and monitor the TB IC measures in HF, through RSQA (Rapid Services Quality Assessment) we integrated the checklist to assess the implementation of TB IC measures and following keyy variables are checked: existence of TB infection plan, plan implemented and monitored, general population informed on cough hygiene, coughing patients separated from others, health facilities workers screened for TB.

Findings of the implementation of TB infection control from RSQA conducted for CDTs in 2015-2016, 2016-2017 and 2017-2018, show that the TB infection control plan exist, implemented and monitored at respectively 63,3 % during FY 2015-2016, 63,3% in 2016-2017 and 61,8 % during the 2017-2018 fiscal year. The general population were informed on cough hygiene, coughing patients separated from others, health facilities workers screened for TB at 77,3% in 2015-2016, 82,6% in 2016-2017 and 77,5 % in 2017-2018. Ventilation of rooms where TB services are provided and existence- use of protection for health workers were observed as follow respectively: 2015-2016 (74.1%), 2016-2017 (75.3%) and 2017-2018(72.7%).

I.3.1.1.2. TB surveillance among Health Facilities Workers and CHWs

The surveillance of TB among health facility workers (HFWs) started in the beginning of July 2015 and the screening is suggested to be done once a year in all health.We introduced also this FY the screening of CHW because they participate in DOT administration.

During this FY 22,726 health facility workers. Among them 17,551 (77%) out of 22,726 health facilities workers were screened for TB, 359 were TB presumptive and ten TB cases were

diagnosed . Compared to health facilities workers that were screened in last fiscal year 2016-2017, we observed an improvement as those screened were 53%.

Across the country CHWs are 40.141, and those who were screened for TB are 31.130 (78%), and presumptive TB were 728. Among presumptive TB, six were confirmed TB cases.

I.3.2. Increase awareness and commitment in TB fighting

I.3.2.1. TB sensitization through radio and TV talks

IEC/BCC messages were aired on local private, public (Community radios and National Radio), on international radio stations and in media papers, to increase awareness of the general population.

During the fiscal year 2017-18, 21 radio programs, 23 Radio and TV Live talk show program, two radio and TV spot on TV were broadcasted and six articles were published on New Times, Igihe.com and Imvaho Nshya.

Different topics related to tuberculosis awareness were covered such as: importance of TB screening among health care workers; knowledge on cause, transmission, symptoms, screening and diagnostic of TB; TB among children; detection and diagnosis of TB in health centers; extra pulmonary TB; early screening and treatment of TB; Follow up of TB patients; Current situation of multi-drug resistant TB; follow up of MDR-TB patients at home (Prevention of transmissions to household, nutrition, adherence to treatment and bacteriological follow up) ; The national TB drugs resistant prevalence survey; role of CHWs in TB control and testimonial of TB patients on TB treatment.

As part of the celebrations of the “World TB Day”, in 2018 TB campaign and sensitization focused on young population because it represents 40.7% of total TB cases notified countrywide in 2016-2017 fiscal year. It is in this context that Rwanda Biomedical Center in partnership with the National Youth Council, celebrated world Tuberculosis (TB) day on Thursday 05th April 2018, official ceremonies took place in Rutsiro District, Boneza Sector, specially at Iwawa Rehabilitation center. During five days of TB campaign that started from 2nd to 06th April, 3983 youths were sensitized to fight TB scourge and 284 presumptive TB cases

were found. Among presumptive TB people, two new TB cases were diagnosed and started TB treatment. The main purpose this campaign was to increase the awareness of the public about the TB diagnosis, treatment and prevention in order to ensure that Rwandan community suffering from TB has access to adequate TB care, including diagnosis, treatment and cure. Youth at IWAWA rehabilitation center now sensitized in fighting against TB, they should serve as ambassadors while returning back home, in further sensitization of youth people across the country as they are coming from all countrywide Districts.
The theme of this year's World TB Day: **Wanted: Leaders for a TB-Free World** ***You can make history. End TB***

I.3.2.2. TB sensitization and diagnosis in refugees camps and in prison

With the aim of reducing the mortality and morbidity rate of tuberculosis in the community residing in refugee camps and prisons; the TB & ORD division, in collaboration with District Hospitals and Rwanda Correction Service(RCS), have organized and conducted a sensitization campaign on the detection and management of tuberculosis and leprosy for Peer Educators. Peers educators are refreshed on TB and leprosy symptoms and how to prevent the disease transmissiom. The total number peers educators beneficiated with refresh training was 1,845 out 1,924 which represent 96%.

In the refugees camps, peers educators conducted sensitization in their respective zone after training by identifying refugees with TB symptoms. In total 36,637 out of 125,269 were screened for TB which represent 29,2%, among them 1.7%(616) were TB presumptive and 15 TB cases were diagnosed[Table 13].

Table 13: Screening in refugees camps

Period	Population of All Refugees Camps	Number of refugees screened for TB	% of Refugees TB Screened	Number of TB Presumptive	Number of TB Presumptive tested with microscopy	TB cases detected
2017-2018	125,269	36,637	29,2%	616	599	15

I.3.2.3. IPT in children under 5 years

I.3.2.3.1. Cascade of TB contact screening and initiation of IPT

Rwanda started to implement the WHO recommendation for all child contact to be screened for TB and either referred for diagnosis and treatment if they have symptoms of the disease. The contact investigation policy recommends screening all sputum smear positive contacts at the

beginning and at the end of TB treatment of the TB index case. It also recommends to initiate the Isoniazid Preventive Therapy (IPT) for children under 5 years without TB disease.

During the 2017-2018 year, 97.% (1642/1692) of all children under 5 years who were contacts of tuberculosis bacteriologically confirmed cases were screened for TB. Of them 19% (304/1642) were identified as presumptive TB cases and26 were confirmed as TB cases.

The percentage of children that initiated IPT was 89.1%

Table 14: Cascade of TB contact screening and initiation of isoniazide preventive therapy among children under 5 years, Rwanda. July 2017-June 2018

IPT by Provinces	Number of contact	Contact screened for TB		TB Presumptive		TB Cases among children <5years		Eligible on IPT	Contacts of TPB+ < 5 years put on IPT	
	Number	Number	%	Number	%	Number	per 100,000	Number	Number	%
East	320	311	97%	56	18%	4	1250	316	295	93.4%
Kigali City	428	412	96%	41	10%	7	1636	421	402	95.5%
North	183	181	99%	29	16%	5	2732	178	174	97.8%
South	455	439	96%	148	34%	7	1538	448	303	67.6%
West	306	299	98%	30	10%	3	980	303	311	102.6%
Total	1,692	1,642	97%	304	19%	26	1537	1,666	1,485	89.1%

I.3.2.3.2. Outcome of children under 5 years put on IPT for cohort registered 2016-2017 Children under 5 years put on IPT received treatment for six months by Provinces

Children under 5 years put on IPT received treatment for six months. During the fiscal year 2016-2017, 1,233 children under 5 years received IPT, 1209(98%) had treatment completed, 1 children died, 9 were lost of follow up and 5 were not evaluated. Reasons of this situation include death or lost to follow up of parent index case (so that the child on IPT stopped visits to the health facility), referral to other health facilities, etc.

I.3.3. Civil Society in fight against TB

NGOs started implementing NSF TB since 2005, the project was about sensitization on TB tuberculosis among high risk groups in 30 districts focus on TB contacts, elderly and diabetics. Ten NGOs reported their activities implemented for one semester covering July to December 2017, period corresponding with the end of TB grant covering 2015-December 2017. NGOs identified the diabetics in the community and encourage the creation of the associations. So far, forty three diabetic associations have been created around the health facilities.
The NGOs advocate for linkage between diabetic patients and health facilities, which organizing a TB screening among of Diabetic patients.

I.4. Objective 4: Improve managerial capacities of the TB program; enhance the monitoring, evaluation system and operational research by implementing and make functional an electronic TB register in all CDTs.

1.4.1. TB evaluation meetings with hospitals and health centers to validate data and to review TB&ORD performance

Every quarter, staff of the TB&ORD Division conducted "quarterly evaluation meetings" with participation of all Referral, Provincial, District hospitals and all health centers representatives, to review the quality of data and validate TB&ORD data of previous quarter, by confronting pre-established aggregate reports and source documents such as registers, TB patient treatment cards, etc. Validated data were entered in the HMIS aggregate system and constituted the basis of the current TB&ORD Annual Report. The meetings served also to track progress of indicators whereby corrective measures are developed on time for the indictors which have low performance.

1.4.2. MDR-TB patient selection committee meetings

During the 2017-2018 fiscal year (FY), 12 MDR-TB patient selection committee meetings were held at Kabutare and Kibagabaga MDR-TB Specialized Centers.

Key points discussed were about specific questions raised by health facilities or MDR-TB Specialized Centers on better clinical decision-making on the management of MDR-TB patients, discussions on specific cases presented by health facilities, to improve individual MDR- TB recording and quarterly MDR-TB reports through R-HMIS and update of the national MDR-TB guidelines.

1.4.3. Revision of the 2012 national TB and MDR-TB guidelines.

During the FY 2017-2018, TB&ORD Division organized a workshop to **update the national TB Guidelines** where the current National TB Guidelines were reviewed, based on WHO 2017 guidelines for drug susceptible TB.

To take into account and introduce new WHO drug resistant TB treatment drugs, a process to revise the 2012 MDR-TB guidelines was initiated.

Key changes introduced are: category II is no longer used for retreatment, use of xpert as diagnostic tools, introduction of new friendly pediatric formulation, active drugs safety monitoring (aDSM), shorter regimen for MDR-TB patients, treatment for pre- and XDR TB disease and introduction of new MDR-TB drugs (Linesolide, delamanide and bedaquiline). However the updated version of these guidelines is not yet printed out, we are waiting for the final communication from WHO which is expected before December 2018.

I.4.4. Capacity building for the central level staff

The TB&ORD has planned and implemented capacity building of central level staffs on the following:

- Research capacity building workshop organized by MOH/PIH and attended by: 16 staffs from TB&ORD, 5 provincial TB coordinators, 1 from NCD, 1 from Medical Research center and 1 staff from Mugonero Hospital.
- Workshop on common understanding on changes in TB management, TB quarterly reporting format and methodology for data checking. 20 central level staffs from TB and ORD and from NRL attended the workshop.
- Capacity building workshop on TB and TB/HIV research proposal, protocols and manuscripts writing. The workshop was attended by staffs from TB&ORD and provincial TB coordinators.
- Participation of one staff from TB&ORD and NRL to a WHO regional training workshop on programmatic management of drug resistant TB (PMDT), in Johannesburg, South Africa
- One staff from TB&ORD attended a seminar on medical & pharmaceutical investment and partnership for developing countries organized by Academy for International Business Officials (China) in collaboration with Chinese Ministry of Commerce
- Workshop on the review of HMIS reporting from to respond to the need of programs and HMIS data users

I.4.5. Capacity building for decentralized level staff

In collaboration with partners (like the University Teaching Hospitals, Rwanda Radiologist Society, Rwanda Society of Pathologists, etc), the TB&ORD Division has conducted different trainings as follows:

- 562 nurses were trained on TB, TB/VIH, MDR-TB, PAL and leprosy diagnosis and management..

- 42 MD were trained on TB, TB/VIH, MDR-TB, PAL and leprosy diagnosis and management.

-39 medical clinical mentors from DH were trained on the revised national Drug Resistant - TB guidelines.

- 27 nurses (12 from Kabutare DH and 15 from Kibagabaga DH) have been trained on the management of MDR-TB patients.

-Training on TB infection control that gathered TB focal points and TB supervisors from all DHs. 74 participants trained.

-382 nurses from health facilities supported by CDC were trained on Childhood TB management .

- MDR-TB director and MDR-TB focal person from Kibagabaga DH MDR-TB centre attended a workshop in Maseru-Lesotho on MDR-TB treatment with new and re-purposed TB drugs.

- 76 pharmacists from District pharmacies and hospitals have been trained on utilization of new TB drugs (Delamanid, linozelide and Bedaquiline) and improved pediatrics formulation medicines.

I.4.6. Development and update of the routine aggregate TB surveillance system

TB cases register and TB treatment files were revised, mainly to replace former cases categories to align with the new WHO cases categorization system. These tools are in use in health facilities since July 2017.

The Reporting format of TB surveillance data was revised. Following considerations were taken into account to review it: the 2013-2014 WHO new definitions on TB cases definition and reporting framework (ages disaggregation, treatment outcome to remove those started on 2nd line TB treatment), the 2015 WHO revised TB/HIV M&E Guidelines (treatment outcome disaggregated for TB/HIV New and Relapse), the WHO end TB strategy indicators (registered who initiated treatment), the TB screening and diagnosis among high risk groups approach (contact investigation cascade at end of treatment of index case), the current country Xpert scale up activities (tests by each Xpert site), and the 2013-2018 TB NSP monitoring and evaluation plan indicators (all-forms cases from community). Some validation rules introduced were also made functional.

I.4.7 Case based recording (e-TB)

TB electronic register (individual case based record (e-TB)) is implemented in Rwanda since 2015 under DHIS-2 platform. It records individual level data on presumptive TB, sensitive TB cases, TB/HIV, MDR-TB and leprosy cases.

Proportion of TB patients recorded in individual case based record (e-TB) was 39% and 70% for presumptive TB cases compared to data reported in HMIS during the fiscal year.

Possible causes of low completeness :

- There are huge number of variables which are not necessary used for analysis and make the system very heavy. In addition there is a huge number of presumptive TB cases recorded in the system.
- Data from individual records (individual case based record (e-TB)) are not used to generate aggregated data
- Observed delay of data managers in recording data in individual case based record (e-TB) system and lack of ownership of health facilities.

To make eTB friendly use, TB&ORD Division is planning to simplify individual case based records (e-TB)) in order to improve data completeness and accuracy.

I.4.8. Supervision, data quality assessment and Mentorship for TB control activities at decentralized level

Improving the quality of TB & ORD services requires regular visits to Health Facilities, to mentor health care providers especially in District Hospitals which have the mandate to monitor the health centers. Empowering staff at District level will help program to sustain activities at decentralized level.

I.4.8.1. Integrated Supportive Supervision and Data Quality Assessment

The unit of Monitoring and evaluation under PMBES division conduct each an integrate supportive supervision and data quality assessment(ISS/DQA) for all health domain in health facilities. On TB program, they assessed the quality of specific data elements that are based on to calculate the following indicators (i) Treatment success rate for bacteriologically confirmed new and relapse TB Cases; (ii) Proportion of diagnosed TB cases tested for HIV infection; (iii) Proportion of HIV positive TB cases given anti-retroviral therapy during TB treatment.

To calculate the discrepancy of these data elements, they combined each of elements of DH and HC. For example, cases of New pulmonary TB with positive smears (NTPB Positive) registered cases at HC and DH were added together. The same for all the data elements.

Regarding the data element New pulmonary TB with positive smears (New Pulmonary TB with positive smears NSS+) completed treatments, 89% of HFs got a discrepancy below 5% while 11% of them were above 10% (n=85). For the data element New pulmonary TB with positive smears (NTPB Positive) New Pulmonary TB with positive smear cured, 85% of HFs were below 5% and 15% were above. The discrempecies observed were due to fact that ISS/DQA was conducted when some of health facilities haven't quarterly validation meeting.

I.4.8.2. Rapid Service Quality Assessment (RSQA)

During FY 2017-2018, the Rapid Service Quality Assessment (RSQA) visits were conducted in centers of TB diagnostics and treatment (CDTs) countrywide in September 2017 for Kigali City and February 2018 out of Kigali. During this period it has been an opportunity to introduce a component on "*active drug safety monitoring and management (aDSM)*". After this visit we were able to compare results of different fiscal years; 2015-2016, 2016-2017 and 2017-2018 FYs.

We visited 151, 148 and 198 centers of TB diagnosis and treatment (CDTs) Countrywide respectively during 2015-2016, 2016-2017 and 2017-2018 FYs.

Overall score has increased from 75% and 79% during 2015-2016 and 2016-2017 FYs to 80.4% for 2017-2018 FY. However, some domain areas need particular attention. Those are early initiation of TB treatment, bacilloscopy controls knowledge on TB infection control and evaluation of infection control plans. The component of "*active drug safety monitoring and management (aDSM)"* newly introduced in February 2018 is observed having low score and hope there will be an improvement in the upcoming RSQA.

I.4.9. Enhance operational research

During 2017-2018 FY, the NTP conducted a case control study on TB RFs in patients attending Health Facilities in Rwanda.

The preliminary analysis revealed that more than a half was aged between 25 and 44. It was also shown that around 45% of cases were married and 55% were not beyond primary school. It was also found that 83.4% of TB cases had productive cough. According this preliminary analysis, there should be an association between TB case and HIV satatus, prisonning, homeless, drinking alcohol and smoking as well.

The final analysis and reporting is planned in the 2018-2019 FY.

I.4.10. Provide technical assistance

The Rwanda National TB Program is planning to conduct an epidemiological review using WHO standard benchmark check list . In this regards, there was a pre assessment in June 2018 to understand where and what data should be collected for the review and plan an agenda for the review in September 2018 by CDC team.

WHO in collaboration with the Green Light Committee (GLC) is supporting TB national program with provision of technical assistance on Programmatic Management of Drug-Resistant TB with emphasis on quality second line TB drugs. The mission aims to ensure country adherence with WHO guidelines and policies. The monitoring and evaluation was organized in July 2017 and have been conducted by Dr Norbert NDJEKA, WHO consultant from South Africa.

Global Drugs Facility (GDF) team supported TB national program to apply market intelligence, strengthen procurement and global supply system and facilitate the uptake of new TB tools. GDF mission focused on strengthening countries capacity to ensure timely equitable access to quality-assured TB medicines and diagnostics, including new TB medicines and regimens as well as ensuring sustainability of TB commodities supply. The reviewed recommendation of last GDF's visit and found that 73% (8/11) of recommendations made in the last GDF mission in November, 2017 has been completely implemented. While 18% (2/11) has been partially implemented and 9% (1/11) which borders on requirement of an additional staff to support the NTP Pharmacist was not implemented following limited human resources

I.4.11. Performance Based Financing system (PBF)

The main objective of PBF TB strategy is to improve quality of TB services. Second objective is to improve the coverage of selected TB indicators especially the new interventions and the ones with low performance.

The evaluation of PBF TB Indicators is usually conducted on quarterly basis by a team from hospital or administrative district, both mandated by the District Steering Committee. All health facilities are evaluated on quantity and quality of pre-defined program indicators.

During this FY 2017-2018, the PBF TB indicators have been evaluated and remunerated on quarterly basis in all health facilities under financial contribution of RBF TB.

The program had high achievement of the targets on some indicators while other indicators still having low performance.To sort out this issue,the program needed to introduce new indicators basing on the priority of TB program.It is in that reason TB&ORD Division in collaboration with health financing unit/MOH and partners organized an annual workshop to update TB PBF indicators based on TB extend NSP 2018-2020. The workshop was organised in may 2018, where 26 old indicators were reduced to 18 indicators and the budget related to PBF indicators was also revised.

I.4.12. Implementation of the Practical Approach to Lung Health

After finding a predominance of patients with respiratory symptoms and low detection of tuberculosis among these patients; WHO recommended **The Practical Approach to Lung Health** (PAL) Strategy in all member countries; in order to improve the detection of tuberculosis among these groups of patients and improve the management of respiratory diseases condition in the health facilities.

In this fiscal year (2017-2018), in addition of PAL equipment that have been previously purchased and distributed, 42 spirometers were provided to all district hospitals in the country after the PAL strategy assessment.

To assess the current state of the PAL strategy implementation at the health facility level on the management of patients with respiratory symptoms; a questionnaire has been developed to facilitate the collection of information in selected health facilities. The groups of doctors from different hospitals and those from the central level conducted an assessment in 113 health facilities (26 hospitals and 87 Health centers), 20% of the total number of Health Facilities.

Assessment results.

Staff: In all HFs visited, among 226 respondents, 150 (66.37%) had heard about PAL approach. The majority of those who had PAL information (80.67%), got it from the training. Of 150 respondents who said they have information on PAL, only 9 (6%) of them knew all PAL objectives

According to the TB&ORD Division database of trainees on PAL, it was expected to find 45 Medical doctors trained on PAL in the visited hospitals. However, 73%(33/45) of them were in the hospitals visited. In the health centers, 172 Nurses were expected to have been trained on PAL but only 68% (126/184.) were found in the HCs visited. We think this difference is due to the staff turnover and/or lack of inter-personnel communication.

All health centers visited have stethoscope. However, regarding Peak Flow Meter and Oximeter, respectively they were found in 19.5% and 44.8% health centers. Of 87 health centers only 12(13.8%) have all three equipment required at this level. For all equipments required at hospital level, most of them were found in 26 hospitals visited. However, all 26 hospitals visited did not have spirometer (0%) and 22 (84%) did not have peak flow meter.Some equipment which were not found at the health facilities during the assessment were either still at the district pharmacies and not yet distributed to the HFs (peak flow meters & spirometers). After, the assessment showed us the delay of distribution of equipment to the end users, we made a follow up at the concerned levels (district pharmacy) and now, most of the equipments were distributed to the Health Facilities.

Except anti-inflammatory drugs that were least available in same HFs visited, all other drugs were available in all health facilities.

Cases management: During the assessment, it was found that categorization of some cases of pneumonia and asthma were not well done at the health center and hospital levels. Therefore these cases were not well managed. Only bronchitis is well managed according to the protocol and the rest of these diseases are treated without considering the degree of severity.

In Conclusion The preliminary assessment of the implementation of the PAL strategy in Rwanda has shown that this new strategy is not well understood and therefore insufficiently applied by the health care providers. Thus the PAL strategy goal of improving the screening of tuberculosis among the patients with respiratory symptoms, and management of respiratory diseases as a whole, is not yet effective.

Recommendations

- To reinforce PAL refresher trainings to health care providers: Due to turnover and new recruted health care providers in health facilities.
- To conduct mentorship on PAL implementation in health facilities in order to improve the respect of standard in management of the patients with respiratory diseases.

CHAPTER II: LEPROSY CONTROL

For the 2017-2018 fiscal year, this report includes mainly the activities that have been conducted in the hotspot endemic areas, and especially in the selective non endemic areas that solicited the technical support related to the screening, contact examination and re-evaluating the cases previously diagnosed.

II.1. Improve early detection of leprosy and reduce the proportion of new cases with grade 2 disabilities less than 10%, by 2018

II.1.1. Conduct leprosy active cases finding activities in endemic areas

With an aim to reinforce the early detection of leprosy, the active case findings were performed at least a twice in endemic areas and once a year in old endemic sites. Also, it was an appropriate time to oversee the quality service to the leprosy patients and ensure on site formative training to the health care providers working in leprosy service.

Compared to the fiscal year 2016-2017, total case of leprosy notified was sligltly declined from 39 cases to 33 cases reported in the current fiscal year, but the new cases were 30 as it was last year. The proportion of females among new cases was 66.7 % (20), while 16.7% (5) were children.

Considering the fiscal year 2016-2017 where the G2D was 30% (9), the G2D in this reported fiscal year was fallen to 3.3% (NSP 2014-2018 target: 10%).

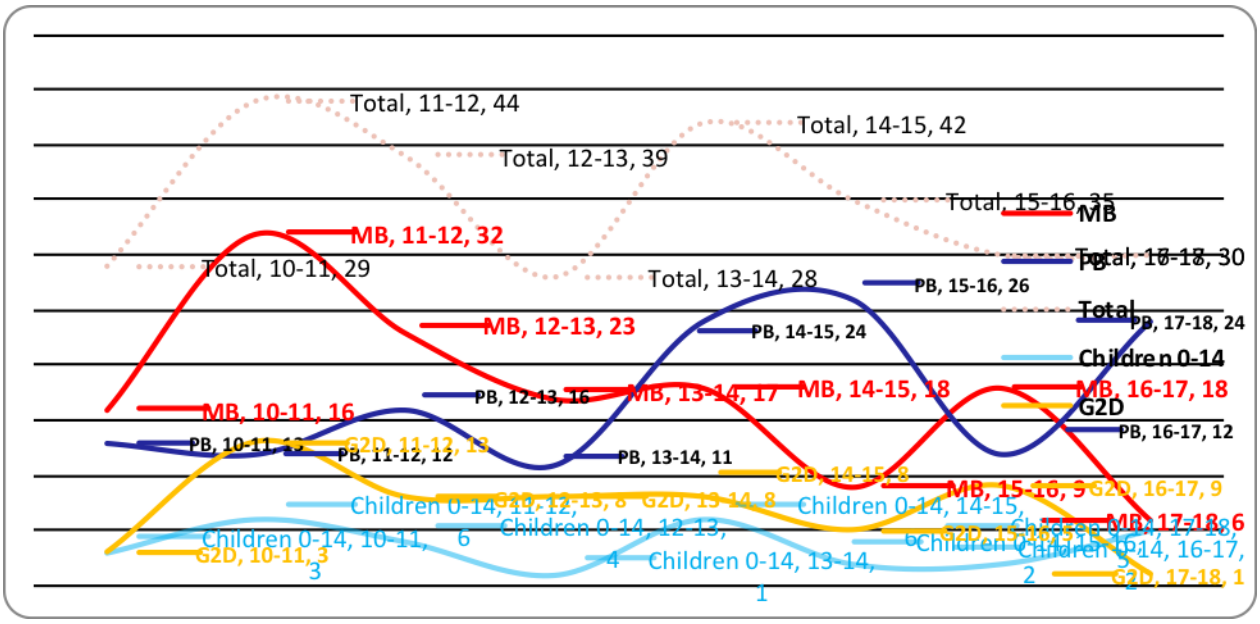

Figure 6 : Trends of leprosy notification, by case category, Rwanda, July 2010 to June 2018

II.1.2. Quality control services against leprosy and capacity building of health care providers and CHWs

To enhance the knowledge of health care providers on leprosy, nurses and CHWs were trained. In addition some staff beneficiated with practical skills during the active case finding conducted by central level staff.

Following activities have been conducted:

Outreach of leprosy screening in village with high burden of leprosy at Gishubi sector in Gisagara District

Thirty two health care providers from Mibilizi hospital were trained on diagnostic and management of leprosy cases

Ninety CHWs in Gikundanvura HC were trained on leprosy symptoms and after training the conducted door to door sensitization which help to diagnose 5 new cases.

The technical support on the Project implementation progress and Grant management were provided by Dr Martine Toussaint (Fondation Damien) from 27 to 31 March 2018. She advised to conduct regularly field visit for assessing community activities against leprosy and she reviewed 2017 annual report submitted to Damien foundation.

II.3. Objective 2: Increase the rate of completion of treatment to 90% for MB cases and 95% for PB cases and properly support disabilities of leprosy

II.2.1. Leprosy treatment outcomes

The treatment completion rate for MB forms treated from July 2015 to June 2016 and PB forms evaluated in the fiscal year covering July 2016 to June 2017. The result of treatment is detailed in the table below.

Table 15 : Treatment outcomes of Leprosy cases, Rwanda, July 2017-June 2018

Cases	New cases		Relapses		Retreatment after default	
	MB	PB	MB	PB	MB	PB
Registered	8	11	1	2	0	2
Treatment completed	7	10	1	2	0	2
Discontinuation of treatment	1*	0	0	00	0	
Died	0	0	0	0	0	
Non evaluated	0	1	0	0	0	
Treatment success (%)	87.5%	100%	100%	100%	-	100%
Disability Grade 2 after treatment	2	1	0	0	0	0

II.2.2. Improving prevention and management of disabilities

According to the Global Leprosy Strategy 2016-2020, the G2D rate must be less than 1 case per 1 million people. Compared to the report of last fiscal year with 30% of G2D rate, this has been decreased up to 3.3% (1) for this current year, even so there was no worsen physical disability observed among newly case diagnosed.

II.2.3. Facilitate medical rehabilitation and socioeconomic reintegration of patients affected by leprosy

II.2.3.1. Socioeconomic reintegration of vulnerable groups who suffered leprosy

The majority of leprosy cases is poor, the socioeconomic support is most important for addressing their problems to access health services and facilite their integration in the community. With support of Damien Fondation, they received Vaseline and Clhloramine for skin care, nutritional support, 14 houses renovation have been made and some income generating projects were funded.

II.4. Increase awareness, information and communication, in order to reduce stigma and discrimination of individuals and families affected by leprosy

A part the routine of IEC realized in the health facilities with the purpose to increase awareness of the population about cardinal signs of leprosy the out patients coming for consultation, community sensitization was conducted during active case finding carried out by health facilities.

The live radio talk shows on “leprosy signs and diagnosis” were performed through City Radio (1/08/2017), Ijwi ry’ibyiringiro (29/08/2017) and Radio of Voice Africa (31/08/2017).

The article on leprosy has been published in IMVAHO with the aim to increase awareness of people about leprosy disease through newspapers.,

CHAPTER : III FINANCING THE NSP TB

III.1. Introduction

The TB National Strategic Plan (NSP) is a key instrument to guide TB control work in Rwanda in accordance with the most recent World Health Organization (WHO) international guidance.
The major funding sources for the Rwanda TB programs are:

- Government Revenues
- Development Partners contributions through General and Sector Budget Support and Donor funds, partially on budget as seen in the development budget, and partially earmarked and project related. These include the Global Fund for HIV & AIDS, TB and Malaria, Damian Foundation and CDC – COAG.

III.2. Funding Sources for TB Expenditures in Rwanda FY 2017-2018

The Ministry of Health and the Rwanda Biomedical Center in collaboration with its partners worked on the design and development of the Health Resource Tracking Tool (HRTT), where all health sector actors (Government institutions and development partners) report on a periodic basis. The system is designed to collect expenditures and budgets on a quarterly and annual basis.
To facilitate the collection of financial information for this year's report, a separate data collection process was adopted using SMART IFMIS (Integrated Financial Management Information System) for Global Fund grant and Government contribution.

III.3. Public and external funding sources for TB NSF

The Global Fund for AIDS, TB and Malaria (GFATM) contributed USD 10,420,855 including cash balances from previous year; the GoR contributed USD 1,863,931; Damian Foundation contributed USD 109,747 and WHO contributed USD 108,989 to give a total budget of USD 12,503,522 for fiscal year 2017/2018.

The TB/NSP total spending amounted to USD 11,560,060 (92.45%) as follows: Global Fund spent USD 9,464,627; GoR expenditures were USD 1,886,631; Damian Foundation USD 99,813 and WHO expenditures were USD 108,989.

Table 16: Contribution of Different Funding Sources for the year ended 30 June 2018

Donor	Budget	Expenditures	Budget execution rate
Damian Foundation	109,747	99,813	90.95%
Global Fund	10,420,855	9,464,627	90.82%
GoR (Recurrent budget)	1,863,931	1,886,631	101.22%
WHO	108,989	108,989	100.00%
Grand Total	**12,503,522**	**11,560,060**	**92.45%**

Table 17: Damian Foundation expenditures per budget category for the year ended 30 June 2018

CATEGORY	Budget	Expenditures	Budget performance rate
Human resources	36,983	35,838	97%
Living Support to Vulnerable Groups	61,810	54,938	89%
Training	10,954	9,037	83%
TOTAL	**109,747**	**99,813**	**91%**

As the table shows, for FY 2017-2018 Damian Foundation is contributing to TB expenditures the total amount of USD 109,747 with TB Expenditures by budget category of USD 99,813 representing 91% of total budget planned for Fiscal year 2017-2018.

III.4. Government contribution to TB National Strategic Plan

III.4.1. Methodology used to estimate the GOR allocations to various health programs

The GoR funds are allocated to different health programs during the annual planning and budgeting process, which entails prioritization process by the Ministry, RBC and decentralized levels basing on HSSP III and different disease program strategic plans serve as guiding documents.

A part from program specific financing, the estimation of GoR contribution takes into consideration all other health related programs costs, categorized as health systems strengthening costs in the categories of (i) Human resources (salaries) (ii) Infrastructure (including constructions, renovation and equipment) (iii) Quality of services (including Performance Based Financing and accreditation programs (iv) Specialized health services (v) Health commodities (drugs, consumables…) and (vi) Health insurance for indigents**.**

Table 18: GoR TB NSP budget and expenditure per NSP cost category for the year ended 30 June 2018

NSP Cost Category	Budget	Expenditures	Budget Execution
01. Human Resources	729,024	680,777	93%
02. Technical Assistance	16,313	15,457	95%
03. Training	634	193	30%
04. Health Products and Health Equipment	5,700	5,172	91%
05. Medicines and Pharmaceutical Products	147,057	139,324	95%
06. Procurement and Supply Management Costs	437,861	524,623	120%
07. Infrastructure and Other Equipment	119,344	117,342	98%
08. Communication Materials	5,844	5,583	96%
09. Monitoring & Evaluation	54,024	52,842	98%
10. Living Support to Clients/Target Populations	260,460	260,100	100%
11. Planning and Administration	42,031	42,653	101%
12. Overheads	45,640	42,564	93%
Grand Total	**1,863,931**	**1,886,631**	**101%**

The top 4 NSP cost categories with the highest share of expenditure are Human resources; Procurement and Supply Management costs, Living Support to Clients/Target Populations and Infrastructure.

For Procurement and Supply Management Costs has the budget execution rate of 120% due to the overspend requested for counterpart of tax.

III.5. The Global Fund contribution

For the Global Fund contribution, the budget for the year 2017–2018 was USD 10,420,855 and concerns 2 separate grants (old and new grants). Out of this budget, a total of USD 9,464,627 have been effectively spent by the sub-recipients representing 90.82% of total budget for TB NSF GF grant.

Table 19: GF TB NSP budget and expenditure per NSP cost category for the period of July to December 2017

NSP cost categories	Budget	Expenditures	Budget execution rate
Human Resources	590,048	666,380	113%
Technical Assistance	69,017	69,017	100%
Training	91,967	56,315	61%
Health Products and Health Equipment	3,791,559	3,416,595	90%
Medicines and Pharmaceutical Products	427,190	498,868	117%
Procurement and Supply Management Costs	142,099	136,642	96%
Infrastructure and Other Equipment	571,180	571,180	100%
Communication Materials	156,684	164,376	105%
Monitoring and Evaluation	271,283	260,145	96%
Living Support to Clients/Target Population	1,988,988	1,970,019	99%
Planning and Administration	288,745	270,343	94%
Overheads	153,069	148,436	97%
Total	**8,541,829**	**8,228,315**	**96%**

The table above shows the TB NSP (old grant) budget execution per NSP cost category for the period of July to December 2017 representing a total rate of 96%. The remaining 4% not used was due to the fluctuation of exchange rate used during the budgeting and the exchange rate used for payment.

Table 20: GF TB NSP budget and expenditure per NSP cost Category for period of January to June 2018

NSP cost category	Budget	Expenditures	Budget execution rate
Human Resources (HR)	447,851	434,209	97%
Communication Material and Publications (CMP)	22,563	4,778	21%
Program Administration costs (PA)	715,631	195,435	27%
Living support to client/ target population (LSCTP)	21,533	56,528	263%
Travel related costs (TRC)	139,993	95,029	68%
Health Products - Pharmaceutical Products (HPPP)	191,993	111,019	58%
Health Products - Non-Pharmaceuticals (HPNP)	297,279	322,387	108%
Procurement and Supply-Chain Management costs (PSM)	42,183	16,927	40%
Grand Total	**1,879,026**	**1,236,312**	**66%**

The table above shows the TB NSP (new grant) budget execution per NSP Cost category for the period of January-June 2018, representing a total rate of 66% expenditures over budget. The unused budget for the period of January-June 2018 is subject of carry-over for next Fiscal year 2018/19.

ANNEX: SUMMARY ACHIEVEMENTS FROM JULY 2016 – JUNE 2017 BY TB NSP AND TB RBF INDICATORS

***Annex 1*: TB Indicators in Monitoring and evaluation framework, Rwanda from July 2013 to June 2018.**

TB NSP detection outcome indicators	2013-2014		2014-2015		2015-2016		2016-2017		2017-2018	
	Target	**Result**	**Target**	**Result**	**Target**	**Result**	**Target**	**Result**	**Target**	**Result**
Objective 1: Provide early TB detection in general population by intensifying case-finding in prioritized HRGso that the proportion of TB cases all forms identified among HRG increases from 14% to at least 24% by mid-2018.										
Notification rate of all TB cases (all forms) ***(2013-2018 TB NSP indicator 1 and RBF indicator)***	55.4/100,000	56.4/100,000	5,895	5,828	5,784 (NSP target)	5,763	5,565 (NSP target)	5,760	5,363 (NSP target)	5,826
	5979	6085	(53.3/100,000)	(52.5/100,000)	(6,085 for GF target)	(50/100,000)*	(6,085 for GF target)		(6,085 for GF target)	
					(50.9/100,000)		(47.8/100,000)	(48.7/100,000)*	(50.1/100,000)	(48.0/100,000)*
Notification rate of new pulmonary bacteriologically confirmed TB cases ***(2013-2018 TB NSP indicator 2)***	3,554	3,789	3,504	3,872	3,438	3,923	3,308	3,868	3,188	3,706
	(32.9/100,000)	(35.1/100,000)	(31.7/100,000)	(34.9/100,000)	(30.3/100,000)	(34/100,000)*	(28.4/100,000)	(32.7/100,000)*	(26.3/100,000)*	(30.5/100,000)*
Strategic intervention 1.1. Provide early, rapid and quality TB diagnosis by expanding LED MC to all CDT and ensuring that at least 96% of the laboratories have adequate performance in EQA										
Proportion of TB cases (all forms) referred by CHW during the evaluated year. ***(2013-2018 TB NSP indicator 3 and RBF indicator)***	19%	**19%**	**20%**	**19.20%**	20% (NSP target)	19.40 %	21%	20.30 %	21% (NSP target)	19.30%
		(1,161/6,085)		(1,117/5,828)	(20% for GF target)	(1,116/5,763)		(1,173/5,760)	(21% for GF target)	(1,127/5,826)

TB NSP detection outcome indicators	2013-2014		2014-2015		2015-2016		2016-2017		2017-2018	
	Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
Number and percentage of laboratories showing adequate performance in external quality assurance for smear microscopy among the total number of laboratories that undertake smear microscopy during the reporting period ***(2013-2018 TB NSP indicator 1)***	91.40 %		94%		96%	58%	96%	78%	96%	84.50%
Strategic intervention 1.2. Detect drug resistant TB by increasing to 90% the proportion of previously treated TB cases having a rapid test for detection of RR/MDR										
Proportion of new bacteriologically confirmed TB cases tested for TB drugs susceptibility (***2013-2018 TB NSP process indicator 5***)	NA	NA	60%		65%	59% (2,300/ 3,923)	70%	70% (2,524 /3,616)	70%	86% (3260/3 ,808)
Proportion of previously treated TB cases with result of a test for detection of resistance to rifampicin or rifampicin and isoniazid (***2013-2018 TB NSP process indicator 6, RBF indicator***)	NA	NA	87%		88% (NSP target) (88% for GF target)	70% (315/448)	89% (NSP target) 89% (GF target)	83.1% (467/5 62)	90% (NSP target) (90% for GF target)	85.9% (407/47 4)
Strategic intervention 1.3. Enhance TB case finding in selected and prioritized high risk groups.										
Proportion of TB cases notified among HRG (Number and Percentage) ***(2013-2018 TB NSP indicator 7, RBF indicator)***	895/5, 979 15%	321/6,0 85 5%	18% 1,047/ 5,895	15% 851/5,8 28	21% (NSP target) (21% GF target)	43.9% (2,534/5, 763)	22% (NSP target) (22% GF target)	41.10 % (2,370 / 5,760)	24% (NSP target) (24% for GF target)	47.1% (2,743/ 5,826)
Objective 2: Increase treatment success rate from 88% to 90% for bacteriologically confirmed TB cases and to maintain it at 87% for MDR-TB										
Strategic intervention 2.2: Improve treatment success rate for all forms of TB, specifically to 90% for bacteriologically confirmed TB cases										
Treatment success rate for bacteriologically confirmed new and relapse TB cases ***(2013-2018 TB NSP outcome indicator 8 and***	NA	NA	87%	90%	88% (NSP target)	90%	89% (NSP target)	88%	90% (NSP target)	88%

TB NSP detection outcome indicators	2013-2014		2014-2015		2015-2016		2016-2017		2017-2018	
	Target	**Result**	**Target**	**Result**	**Target**	**Result**	**Target**	**Result**	**Target**	**Result**
RBF indicator)					(89% for GF target)		(89% for GF target)		(89% for GF target)	
Treatment success rate for clinically diagnosed TB cases (SS-, EPTB and others) ***(2013-2018 TB NSP outcome indicator 9 and RBF indicator)***	NA	NA	76%	74%	77% (NSP target) (77% for GF target)	79%	78% (NSP target) 78% (GF target)	79%	79% (NSP target) (78%+ for GF target)	79%
Cure rate bacteriologically confirmed new and relapse TB cases ***(2013-2018 TB NSP outcome indicator 10)***	NA	NA	82%	85%	82%	83%	83%	80%	84%	81%
Number & % of TB patients (all forms) tested for HIV of all TB patients (all forms) registered ***(2013-2018 TB NSP indicator 11)***	99% for 2013-2018 TB NSP	5,999/6,085 98.60%	99%	5793/5830 **99%**	99%	5,719/5,763 99.20%	99%	5,711/5,760 99.1%	99%	5,819/5,826 99.9%
Number & % of TB presumptive tested for HIV among all suspects with unknown HIV status ***(2013-2018 TB NSP indicator 12)***	94% for 2013-2018 TB NSP	187,408/187,692 99.80%	95%	196474/198773 99%	96%	166,819/167,941 99%	97%	154,501/155,778 99.20 %	99%	157,543/15,9002 99.1%
Number & % of TB/HIV patients receiving ART by the end of TB treatment out of all TB/HIV patients. ***(2013-2018 TB NSP indicator 13). RBF indicator)***	87% for 2013-2018 TB NSP and RBF	1,299/1,439 90.30%	88%	1339/1475 91%	89% (NSP target) (90% for GF target)	1,360/1,449 94%	90% (NSP target) 90% (GF target)	1,343/1,417 95%	90% (NSP target) (90% for GF target)	1,098/1,191 92.2%
Strategic intervention 2.4. Increase to 95% the treatment success rate for TB patients managed in the community										

TB NSP detection outcome indicators	2013-2014		2014-2015		2015-2016		2016-2017		2017-2018	
	Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
Treatment success rate for TB patients (all forms) receiving DOT through CHWs ***(2013-2018 TB NSP outcome indicator 14)***	2,225/2,368 94%	2,678/2,853 94%	94%	(2728/2885) 95%	94%	95%	95%	93%	95%	95%
Strategic intervention 2.5. Ensure treatment of MDR-TB with patient support Strategic intervention 2.5. Ensure treatment of MDR-TB with patient support										
Proportion of confirmed RR/MDR-TB cases enrolled on second-line treatment (number and percentage) ***2013-2018 TB NSP process indicator 15***	100	74	100%	69	100%	100%	100%	96%	100%	99%
Treatment success rate, confirmed RR/MDR-TB (***2013-2018 TB NSP outcome indicator 16, RBF indicator***)	87%	94%	87%	88%	87%	85%	87%	95%	87%	83%
Interim results: culture conversion at six months ***(2013-2018 TB NSP process indicator 17***)	90%	79%	91%	89%	91%	77.90%	91%	73%	91%	75.30%
Objective 3: Improve TB prevention (TB infection control in HF, behavior change and prevention by medication) so that the percentage of population with adequate knowledge on TB increase from 56% to 75% by 2018.										
Percentage of population with adequate knowledge* on TB symptoms, transmission and prevention ***(2013-2018 TB NSP process indicator 18***)	NA	NA	NA	NA	NA	NA	NA	NA	75%	NA
Objective 4: Improve managerial capacities of the TB program; enhance the monitoring, evaluation system and operational research by implementing and make functional* an electronic TB register in all CDTs.										
Strategic intervention 4.3: Enhance the monitoring and evaluation system										
Timeliness of routine reporting ***(2013-2018 TB NSP process indicator 19***)	90%		90%		90 %	81.20% (1,828/2,252)	95%	83.20% (1,874/2,252)	97%	83.97% (1,891/2,252)

*****Rwanda population estimated at 12,135,911, as per the National Institute of Statistics of Rwanda: http://www.statistics.gov.rw/statistical-publications/subject/population-size-and-population-characteristics. Accessed in August 2018

Annex 2: RBF achievment, from July 2013 to June 2018.

Impact indicator	NSF Target (Jul 2017 - Jun 2018)		WHO Global TB Report 2017	
	Value	Year	Value	Year
TB I-2: TB incidence rate (per 100,000 population)	70	2016	50	2017
TB I-3: TB mortality rate (per 100,000 population)	6.9	2016	1.7	2017

D. Modules and outcome/coverage indicators														
Module 1	**TB care and prevention**													
Coverage/Output indicator	**NSF Target (Jul - Dec 2017)**			**NSF Target (Jan – June Dec 2018)**			**Program results (Jul – Dec 2017)**			**Program results (Jan - June 2018)**			**Level of achievement**
	N# / **D#**	**%**	**Source**	**N#** / **D#**	**%**	**Source**	**N#** / **D#**	**%**	**Source**	**N#** / **D#**	**%**	**Source**	
DOTS-1a: Number of notified cases of all forms of TB - bacteriologically confirmed plus clinically diagnosed, new and relapses	3,012 /		Grant agreement	N/A	N/A	N/A	2882 /		TB & ORD Report	N/A	N/A	N/A	95.7%
TCP-Other 1: Case notification rate of all forms of TB per 100,000 population - bacteriologically confirmed plus clinically diagnosed, new and relapse cases	N/A	N/A	N/A	/	45.7	Grant agreement	N/A	N/A	N/A	2,882 / 6,145,827	46.9	TB & ORD Report	102.6%
DOTS-other: Percentage of bacteriologically-confirmed TB cases,		89%	Grant agreem				1939	88.1 %	TB & ORD				99.0%

all forms (new and relapse) that are successfully treated (cured plus treatment completed)			ent	N/A	N/A	N/A	2202		Report	N/A	N/A	N/A	
DOTS-other: Percentage of clinically diagnosed TB cases (new and relapse) that are successfully treated (-treatment completed)		79%	Grant agreement	N/A	N/A	N/A	504 644	78.3 %	TB & ORD Report	N/A	N/A	N/A	99%
TCP-2(M): Treatment success rate- all forms: Percentage of TB cases, all forms, bacteriologically confirmed plus clinically diagnosed, successfully treated (cured plus treatment completed) among all TB cases registered for treatment during a specified period, new and relapse cases	N/A	N/A	N/A		87%	Grant agreement	N/A	N/A	N/A	2452 2853	85.9 %	TB & ORD Report	98.7%
DOTS-6: Proportion of TB cases (all forms) notified among key affected populations/high risk groups		24%	Grant agreement		40%	Grant agreement	1315 2882	45.6 %	TB & ORD Report	1468 2944	49.9 %	TB & ORD Report	119%*
TCP-Other 2: LTBI treatment coverage among contacts under 5	N/A	N/A	N/A		85%	Grant agreement	N/A	N/A	N/A	703 853	82.4 %	TB & ORD Report	96.9%
DOTS-7c: Percentage of notified TB cases, all forms, contributed by community referrals		21%	Grant agreement	N/A	N/A	N/A	513 2882	17.8 %	TB & ORD Report	N/A	N/A	N/A	84.8%
Module 2	**MDR-TB**												
MDR TB-1: Percentage of previously treated TB patients receiving DST (bacteriologically positive cases only)		90%	Grant agreement	N/A	N/A	N/A	193 235	82.10%	TB & ORD Report	N/A	N/A	N/A	91.2%
MDR TB-6: Percentage of TB patients with DST result for at least Rifampicin among the total number of notified (new and retreatment) cases in the same year	N/A	N/A	N/A		75%	Grant agreem	N/A	N/A	N/A	1700 2109	80.6	TB & ORD Report	107.5%

						ent					%		
MDR TB-other: Percentage of bacteriologically-confirmed RR and/or MDR-TB cases successfully treated (cured plus completed treatment)		≥ 90.0 %	Grant agreement		87%	Grant agreement	30/32	93.8 %	TB & ORD Report	33/44		TB & ORD Report	92.1%**
Module 3													
TB/HIV-2: Percentage of HIV-positive registered TB patients given anti-retroviral therapy during TB treatment		90%	Grant agreement		90%	Grant agreement	526/582	90.4 0%	TB & ORD Report	548/586	93.5 %	TB & ORD Report	102.1%***

*We calculate the achievement based on target 40% at the end of FY and achievement of target is 47.8%(2783/5826)

** We calculate the achievement based on target 90% at the end of FY and achievement of target is 82.9% (63/76)

*** We calculate the achievement based on target 90% at the end of FY and achievement of target is 91.9% (1074/1168)

Annex 3: Participants who developed TB&ORD annual report July 2017-June2018 FY

AUTHORS

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