RWANDA BIOMEDICAL CENTRE

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Institute of HIV/AIDS, Diseases Prevention and Control (IHDPC)

Tuberculosis and Other Respiratory Communicable Diseases Division (TB&ORD)

TB&ORD ANNUAL REPORT

July 2015 – June 2016

August, 2016

CONTROL OF TUBERCULOSIS, OTHER RESPIRATORY COMMUNICABLE DISEASES AND LEPROSY IN RWANDA

The mission of control of Tuberculosis (TB) and other respiratory communicable diseases in Rwanda is:

- To reduce the global TB epidemic, by promoting universal and equitable access to quality diagnosis and appropriate treatment of TB, MDR-TB, and TB/HIV patients and by enhancing prevention of the disease.
- Objectively, we aim to:
    - Provide early TB detection in general population and intensify case-finding in prioritized high-risk groups so that the proportion of presumptive cases identified among HRG increases from 11% to at least 30% by mid-2018.
    - Increase treatment success rate from 85% to 87% for bacteriological confirmed TB cases and maintain it at 87% for MDR-TB.
    - 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 increase from 56% to 75% by 2018.
    - 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.

We are also in charge of fighting Leprosy in Rwanda. Our 2014-2018 objectives against Leprosy are to:

- Improve the early detection of leprosy and reduce the percentage of new cases with grade 2 of disabilities at less than 10%.
- Improve the completion rate of treatment to 90% for MB cases and 95% for PB cases and handle properly disabilities related to leprosy.
- Strengthen the quality Leprosy control services and the improve capacity of healthcare workers as well as community health workers.
- Facilitate socio-economic reintegration of leprosy-affected people.
- Increase outreach efforts, information and communication, to reduce the stigma and discrimination of people and families affected by leprosy.

The TB & other respiratory communicable disease (TB & ORD) Division is in charge of coordinating development of related strategies, policies and guidelines, their dissemination, provides oversight of implementation at peripheral level and ensure national reporting. Implementation involves national public and private partners as well as international partners.

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FOREWORD

I am pleased to introduce the July 2015 - June 2016 Annual Report of the Tuberculosis and other respiratory communicable diseases control in Rwanda.

This report has been developed, based on data provided by the TB & ORD surveillance system from across Rwanda.

It provides a comprehensive picture of the occurrence and management of TB & ORD and Leprosy in Rwanda.

It is structured based on the 2013-2018 Rwanda TB National Strategic Plan (2013-2018 TB NSP) and on the 2014-2018 Rwanda Leprosy National Strategic Plan (2014-2018 Leprosy NSP).

Actions needed toward elimination of TB & ORD and Leprosy in Rwanda will require strengthened and more integrated national and peripheral health services which ensure consistent, evidence based prevention, treatment and support to patients, their families and other contacts, as TB & ORD and Leprosy do not exist in isolation from other health and social concerns.

I trust that we can all work together to ensure that this vision is achieved.

This report was prepared by The TB & other respiratory communicable disease (TB& ORD) Division and was made possible through collaboration with its technical partners.

We gratefully acknowledge all those who contributed information at central, intermediate and peripheral levels of the TB & ORD and Leprosy control in Rwanda.

We thank you all for the open discussions and contributions.

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Rwanda Biomedical Center through Tuberculosis and other respiratory communicable diseases gratefully acknowledge the Government of Rwanda through the strong leadership of HE 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 Ministry of Health of Rwanda for the feedback and continuous support provided to us during the implementation of the activities
- The Director General of RBC and members of senior management team(SMT) of RBC for the technical and financial support during the reported fiscal year
- The staff from TB Division for their commitment and hard work to ensure proper coordination and monitoring to reach the targets set in our M&E plan
- 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

We would also thank the following partners: World Health Organization, Global Fund for HIV& AIDs, TB and Malaria, USG PEPFAR and Damien Foundation 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

ART	Antiretroviral Therapy
CDT	Centre for Diagnosis and Treatment of Tuberculosis
CHW	Community health worker
CPT	Cotrimoxazole Preventive treatment
CT	Centre for Treatment of Tuberculosis
DOT	Directly Observed Treatment
DST	Drug Susceptibility Testing
EPTB	Extra Pulmonary TB
E-TB	electronic Tuberculosis surveillance system
FY	Fiscal year
HIV	Human Immune Virus
HMIS	Health Management Information System
HRG	High Risk Group
IC	Infection control
LTFU	Lost to follow up
MDR-TB	Multidrug Resistant Tuberculosis
M&E	Monitoring and Evaluation
MPPD	Medical Production and Procurement Division
NRL	National reference laboratory
NSP	National Strategic Plan
NTPB+	New pulmonary bacteriological confirmed
PAL	Practical Approach for Lung diseases
PBF	Performance-based Financing
RBC	Rwanda Biomedical Center
RBF	Results Based Financing (of the Global Fund)
RDQA	Routine Data Quality Audit
SPIU	Single Project Implementation Unit (MOH)
SS+	Sputum Smears Positive
SS-	Sputum Smear negative
SS0	Sputum Smear not done
SOPs	Standard Operating Procedures
TAF	treatment after failure
TB & ORD	Tuberculosis and Other Respiratory Communicable Diseases
TH	Traditional Healer
TSR	Treatment Success rate
WHO	World Health Organization

CHAPTER I: 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

This objective focuses on intensifying and improving early Tuberculosis (TB) cases finding to detect many cases of TB as early as possible. This requires a comprehensive set of activities, beginning from improved quality of screening at peripheral levels, ensuring the availability of basic quality TB diagnosis services, expanding access to rapid and sensitive tests and intensified case finding in high risk groups.

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). Community health workers (CHWs) play a significant role in identification and referring potential presumptive TB cases to health centres for early screening thus bringing TB services to the community.

The total number of presumptive TB cases is **167,941** with a positivity rate of **2.6%.** This positivity rate increased from 2.1% of the 2014-2015 FY. Potential explanations are that the number of confirmed cases compared to the previous year increased, possibly following improvement in the sample transportation system, as proven by the increase in the proportion of Genexpert tests done (31% versus 17% as compared to 2014-2015 FY) and the proportion of High risk groups who benefited from Genexpert test (31%), compared to previous year (15%). The **16%** decrease in number of presumptive (as compared to 2014-2015 FY), may be due to improvement in quality definition of presumptive TB by health facilities. CHWs brought 44.5% of all Presumptive TB cases and **25.4%** of all sputum smear positive (SS+) TB cases detected.

Table 1 : TB detection and contribution of each screening level in Rwanda, July 2015-June 2016

Detection		CDT	CT	CHWs	THs	Total
Presumptive TB cases	N	48,921	43,667	74,777	576	167,941
	%	**29.1%**	**26.0%**	**44.5%**	**0.3%**	
AFB+ among presumptive TB cases	N	2,151	1,124	1,116	3	4,394
	%	**49.0%**	**25.6%**	**25.4%**	**0.1%**	
Positivity rate	**%**	**4.40%**	**2.57%**	**1.49%**	**0.52%**	**2.6%**

AFB: acid fast bacilli. CDT: centers for TB diagnosis and treatment. CT: centers for TB treatment. THs: traditional healers.

I.1.1.2. Tuberculosis impact and notification indicators

In its Global Tuberculosis Report released end 2015, the World Health Organization (WHO) estimated rates of prevalence, incidence and mortality (excluding HIV+ TB) for Rwanda at 85/100,000, 63/100,000 and 6.4/100,000 respectively. National targets were 89/100,000, 74/100,000 and 7.5/100,000 for the 2015-2016 FY respectively.

During 2015-2016 FY, the TB surveillance system in Rwanda reported **5,763** TB cases, with 68.1% (3,923) being new bacteriological confirmed pulmonary TB cases (NTPB+). The notification rate is 50 per 100,000 for All-forms TB cases (representing 98.2% of the target) and 34 Per 100,000 for NTPB+ (representing 112% of the target). The difference between the positivity in laboratory (AFB+ table above) and notified positive cases (table below) may be explained by some drugs resistant TB cases also recorded in AFB+ table but not notified in the notification table.

Overall, pulmonary localisations represented **85.3%** (4,915).

TB was more diagnosed among men, with a male to female (M:F) ratio for all-forms TB cases of 2.0. The male predominance was more observed among bacteriological confirmed cases (new or previously treated). TB cases non-bacteriological confirmed with age of ≥15 years, male and female proportion were approximately equal to those aged less than 15 years.

Of all-forms TB cases, **78.1%** (4,502) were reported among 15-54 years, while children <15 years and elderly of ≥55 years represented **5.3%** (305) and **16.6%** (956) respectively.

CHWs contributed **19.4%** (1,116) of all-forms TB cases diagnosed.

Table 2 : Notification of TB cases by categories, age group and by sex, Jul 2015-Jun 2016

Cases Types	0-14 years		15-24 years		25-34 years		35-44 years		45-54 years		55-64 years		>=65 years		TOTAL		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
NTPB+	28	36	368	311	799	373	654	221	400	137	284	98	155	59	2,688	1,235	3,923
Relapses	0	1	9	8	69	26	73	26	51	17	44	8	14	3	260	89	349
TAF	0	0	4	1	10	4	15	7	10	0	6	1	4	1	49	14	63
TALTFU	0	0	3	4	17	3	4	0	2	0	3	0	0	0	29	7	36
NTPB-	14	12	11	15	29	20	29	17	33	20	36	15	23	23	175	122	297
NTPB0	71	65	7	12	14	13	18	3	8	4	8	5	8	11	134	113	247
NEPTB	49	22	100	41	114	83	67	51	55	28	37	29	32	24	454	278	732
Others	5	2	5	9	10	10	15	12	12	11	9	2	10	4	66	50	116
TOTAL	**167**	**138**	**507**	**401**	**1062**	**532**	**875**	**337**	**571**	**217**	**427**	**158**	**246**	**125**	**3,855**	**1,908**	**5,763**

NTPB+ = new pulmonary TB case bacteriological confirmed.
TALTFU: Treatment after lost to follow up.
NTPB-: sputum smear negative.
M: male.
TAF: Treatment after Failures.
NEPTB=Extra pulmonary TB.
NTPB0: sputum smear not done.
F: female.

Applying WHO criteria of TB cases classification, **75.8%** (4,371) are bacteriological confirmed which include new bacteriological confirmed, relapse, treatment after failure and treatment after lost to follow up, and **24.2%** (1,392) are clinically diagnosed including TB cases with sputum smear negative, sputum smear not done, extra pulmonary and others. Newly treated TB cases (new bacteriological confirmed, TB cases with sputum smear negative, sputum smear not done, extra pulmonary) represented **90.2%** (5,199) and

9.8% (564) were previously treated (relapse, treatment after failure, treatment after lost to follow up and others).

Table 3 : Notification of TB cases by 2013 WHO categories and CHWs contribution, Jul 2015-Jun 2016

All forms		Classification based on bacteriological status		Classification based on history TB treatment		Overall pulmonary	Cases brought by CHWs
		Bacteriological confirmed	Clinically Diagnosed	Newly treated	Previously treated		
N	5,763	4,371	1,392	5,199	564	4,915	1,116
%		75.80%	24.20%	90.20%	9.80%	85.30%	19.4 %

I.1.1.3. Sputum smears microscopy and quality control

Quality control is conducted quarterly to each CDT in order to improve and sustain the quality of smear microscopy. This is done at 2 levels: NRL do the quality control for all DH, RH; and DHs do the same for the HCs in their catchment area.

From July 2015 to June 2016, 173 out of 200 CDTs (86.5%) were inspected at least 3 times a year and 151 (75.5%) didn't report any major errors.

Most errors have been observed in slides examined using fluorescence technique (FM) in CDTs-Health Centers. This highlights the need for closely monitoring of the CDTs implementing FM.

Table 4 : Quality control of sputum smear, Jul 2015-Jun 2016

Health Facilities Types	CDT controlled at least 3x	Nb of slides controlled				Errors					HFs with major errors
		Total	Pos	Scan	Neg	HFP	LFP	HFN	LFN	QE	
CDT-HCs ZN	84/95 (88.4%)	6,597	471	39	6,087	**4**	0	**2**	2	0	Rukoma-Sake (1), Cyahinda (1), Janja (1), Plateau (1), Mubuga (1), Byimana HC (2)
DH with ZN	7/7 (100%)	420	21	10	389	**1**	1	0	1	0	Kinihira DH (1)
Hospitals and Health Centers with FM	82/98 (83.6%)	4,672	435	80	4,157	**2**	6	**16**	22	7	Kirehe DH (1), Gihundwe DH (1), Masaka DH (1), Kabarore (1), Rutongo DH (1), Kibuye DH (3), RMH (2), Rwamagana DH (1), Kabuga (1), Rugarama-Gatsibo (1), Bumbogo (1), Kinyinya (1), Masaka HC (1), La Medicale (1), Byumba DH (1)
Total	173/200 (86.5%)	11,689	927	129	10,633	**7**	7	**18**	25	7	22 CDTs controlled had major errors.

HFP: high false positive. LFP: low false positive. HFN: high false negative.
LFN: low false negative. QE: quantification error. Numbers in brackets=number of major errors.

Table 5 : CDTs controlled less than three times in Jul 2015-Jun 2016

Microscopy technique	Health Facilities	Period of control				Total number of controls
		2015		2016		
		Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	
ZN	Birembo	0	1	0	1	2
ZN	Busoro-Gishamvu	1	1	0	0	2
ZN	Byimana	1	0	0	1	2
ZN	Camp Kiziba	0	1	1	0	2
ZN	Kayove	1	0	0	1	2
ZN	Kibayi	1	0	0	1	2
ZN	Kigembe	1	0	0	1	2
ZN	Mpanga	0	1	0	1	2
ZN	Mukungu	0	1	0	1	2
ZN	Rubengera	0	1	0	1	2
ZN	Rwampara	0	1	0	1	2
FM	Busoro	0	1	0	1	2
FM	Gisagara	1	0	0	1	2
FM	Karangazi	1	1	0	0	2
FM	Kirambi	0	1	0	1	2
FM	Matimba	1	0	0	0	1
FM	Matyazo	1	1	0	0	2
FM	Muhura	1	0	0	1	2
FM	Munzanga	1	1	0	0	2
FM	Nyagahanga	0	0	1	1	2
FM	Nyagahita	1	0	0	0	1
FM	Nyamure	0	1	0	1	2
FM	Nyarurema	1	0	0	0	1
FM	PC Mpanga	1	1	0	0	2
FM	Rukara	0	0	0	1	1
FM	Tabagwe	1	0	0	0	1

1= Controlled. 0= Not controlled.

I.1.1.4. Access to sensitive TB diagnosis tests

I.1.1.4.1. Microscopy technique

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

During the 2015-2016 FY we distributed fluorescence microscopy to 103 CDTs and among these, 80 have been trained and are implementing FM microscopy. Countrywide 118 (59%) CDTs are using the FM microscopy.

I.1.1.4.2. Molecular test

Eighteen Genexpert machines were functional in the 2015-2016 FY. Genexpert test was offered to 70% (315/448) among previously treated TB cases notified.

Table 6 : Genexpert done, by eligibility criteria during Jul 2015 – June 2016.

Eligibility Criteria	Total Eligible	Genexpert done		Mtb+/R-	Mtb+/R- initially SS-	
		N	%		N	%
TB presumptive HIV +	17,429	8,986	52%	786	175	22%
TB presumptive among patient severely ill	3,747	2,536	68%	270	47	17%
NTPB+ cases	3,923	2,300	59%	1,941		
Treatment after Failure	63	35	56%	24		
Relapses	349	258	74%	218		
Treatment after lost to follow up	36	22	61%	16		
TB presumptive among prisoners	7,993	4,860	61%	165	68	0%
TB presumptive among MDR-TB contact	373	285	76%	2	0	3%
TB presumptive among contact of TPB+ cases	3,721	1,026	28%	139	4	16%
HIV+ Before initiation of ARTs	11,813	1,251	11%	159	25	21%
TB presumptive among Health workers	3,258	590	18%	14	3	9%
TB presumptive among students in boarding schools	5,226	1,173	22%	45	4	0%
TB presumptive among diabetics	377	22	6%	5	0	8%
TB presumptive in refugee camps	1,158	728	63%	25	2	10%
TB presumptive among children < 15 years	28,270	3,793	13%	185	18	12%
TB presumptive among people ≥55years	47,412	13,334	28%	668	78	0%

1.2. Drug resistant Tuberculosis detection and notification

1.2.1. MDR-TB detection process

The results are presented for coverage in sputum culture, for previously treated cases. Overall, sputum culture was done for **62%** (273/456) of previously treated cases, all registered during April 2015 – March 2016. Of those with cultures done, **21% (58)** showed positive cultures; of these **48% (28)** had TB drugs susceptibility test results.

Table 7 : Coverage in sputum culture and sputum availability, for previously treated cases registered during April 2015 - March 2016

TB case Category	Registered	Number with cultures done		Number with positive cultures		Number with resistance test available	
	N	N	%	N	%	N	%
Relapses	353	200	**57%**	45	**23%**	23	**51%**
Treatment after Failures	67	60	**90%**	10	**17%**	5	**50%**
Treatment after LTFU	36	13	**36%**	3	**23%**	0	**0%**
All previously treated	456	273	**62%**	58	**21%**	28	**48%**

1.2.2. MDR-TB Notification

Ninety six (96) multi-drugs resistant TB cases were detected, including 95 with bacteriological confirmation of MDR-TB disease and one lymph nodes TB case with high presumption of MDR-TB disease based on past TB history and current TB clinical suggestive symptoms. Ninety-five (95) of them initiated the short (9 months) MDR-TB treatment regimen while 1 failure of the Cat IV was put on the 20-month treatment regimen. Forty seven (49%) of these patients were HIV+ and 63 (66%) were male.

The increase in number of MDR-TB, compared to 69 in 2014-2015 FY, may be due to DRS implementation (as NTPM+ was systematically eligible for culture, which was not the case in the previous year), improvement of the sample transportation system and payment of Genexpert indicators in PBF.

Table 8 : Drug resistant Tuberculosis notification and treatment initiation in Rwanda Jul 2015-Jun 2016

Number of confirmed MDR-TB cases			**Number of patients who initiated MDR-TB treatment by site of initiation**		
Confirmed	Empiric	Total	Kabutare	Kibagabaga	Kibungo
95	1	96	67	29	0

Table 9 : MDR-TB cases registered during July 2015 - June 2016, by sex and HIV status

Sex	**Site**	**HIV+**	**HIV-**	**Total**	**%**
Male	Kabutare	23	23	46	66%
	Kibagabaga	9	8	17	
Female	Kabutare	9	12	21	34%
	Kibagabaga	6	6	12	
Total	N	47	49	96	
	%	49%	51%		

I.1.3. Enhance TB case finding in selected and prioritized high risk group

The high risk group of TB is any group of people in which the prevalence or incidence of TB is significantly higher than in the general population. One of the basic strategies for prevention and control is screening the population at high risk for TB, to locate person with active TB and giving complete therapy and prevent contagious disease. Based on the 2013-2018 TB NSP, five groups at higher risk for TB disease were identified. These include: People living with HIV, TB contacts, Prisoners, People >55 years and Children aged 0-14 years.

The table below summarizes the screening and diagnosis cascade. The numbers in "screened" and "presumptive" columns represent episodes of screening or presumption.

Two thousand five hundred and thirty four (2,534) TB cases were confirmed among people at higher risk of TB, representing 43.9% (2,534/5,763) of all TB cases as compared to 16% in the 2014-2015 FY. This increase may be explained by improvement in the reporting system during quarterly evaluation meetings and DQAs.

Table 10 : Summary results of TB screening and diagnosis among selected high risk groups, Jul 2015-Jun 2016

Risk group	Screened	Presumptive TB		TB cases
	N	N	%	N
Prisoners	70,083	5,915	10%	159
Contacts	16,953	3,278	19%	77
HIV+ persons (exclude prisoners, contacts, children <15 years, elderly≥55 years	531,485	15,000	8%	1,195
Children < 15 years (exclude children prisoners, children contacts)	1,633,287	19,690	1%	275
Elderly≥55 years (exclude prisoners ≥55 years and contacts ≥55 years	978,930	33,329	3%	828
Total	3,230,738	77,212	3%	2,534

I.1.3.1. TB screening among people living with HIV through ACF

TB &ORD Division has started active case finding among people living with HIV in health facilities with high prevalence of HIV, using symptoms and CXR as screening tools during this fiscal year. All PLHIV with any cough and /or abnormal CXR were considered as presumptive TB cases. For diagnosis, all presumptive TB cases were requested to provide two sputum samples for microscopy and Genexpert examination. Presumptive TB cases with at least one positive microscopy and/or MTB+ on Genexpert were considered as TB cases.

The activity was conducted from August to December 2015 in 6 selected health facilities: Muhima Hospital, Kimironko HC, Cor-Unum HC, Kicukiro HC, Gikondo HC and Kacyiru HC.

I.1.3.1.1. TB screening cascade

A total of 15,186 PLHIV were active in HIV programs of the mentioned sites. Of these 11,091 (73%) were screened for Pulmonary Tuberculosis using Symptomatic and Chest X-ray screening. Among those with presumptive TB, 153 (8.4%) showed clinical symptoms with normal CXR, 1,186 (65.0%) with suggestive Chest X-rays but no symptoms, 485 (26.6%) both symptoms and suggestive Chest X-rays.

One thousand four hundred ninety seven (82%) of 1,824 presumptive TB cases managed to give sputum for microscopy and Genexpert examination (**Figure 1, left**). All samples submitted were examined on microscopy with results available versus 1,387 (92.7%) of Genexpert.

I.1.3.1.2. Confirmation TB cases and potential impact of X-ray screening and/or Genexpert diagnosis

A total of 92 new TPB+ (including 2 TB cases diagnosed by microscopy) and 3 MDR TB cases were detected. Among them, 43 TB cases are from presumptive TB cases with suggestive Chest X-rays but no symptoms, 52 TB cases from presumptive TB with both symptoms and suggestive Chest X-rays. No TB cases from presumptive TB showed clinical symptoms with normal CXR.

The contribution of Genexpert diagnosis is at 71% (65/95). Potential impact of X-ray screening and/or Genexpert diagnosis is at 46% (42/95) (**Figure 1, right**). The Case notification rate is 626 per 100,000.

I.1.3.2. TB notification in Prisons

In prisons we use two case finding strategies: Passive Case Finding (PCF) done in routine and Active Case Finding (ACF).

In 2013-2015, we initiated ACF among prison inmates using CXR screening. That 1st round covered all prisons. In 2016, we started implementation of the 2nd round, using symptoms and CXR as screening tools. We used LED microscopy and Genexpert as diagnostics tools.

We were able to detect and report 159 all forms TB cases in prisoners using passive and active TB screening strategies. Four (3.1%) were diagnosed from presumptive TB at entry in prison versus 154 (96.9%) during routine and active case finding.

I.1.3.2.1. Active case finding activities using mobile digital chest X-ray machines

The 2nd round of TB Active Cases Finding (ACF) in prisons started in March 2016. The intent is to cover all prisons and the schedule is organized every two years between subsequent rounds. During the 2015-2016 FY, ACF was conducted in two prisons, Nyarugenge and Gasabo. Initially, it was planned to work in 3 prisons, but only 2 were covered. One x-ray machine was not functional so that we used only one x-ray machine, due to that the field team was spending more days in one prison than was planned before.

1. TB screening cascade

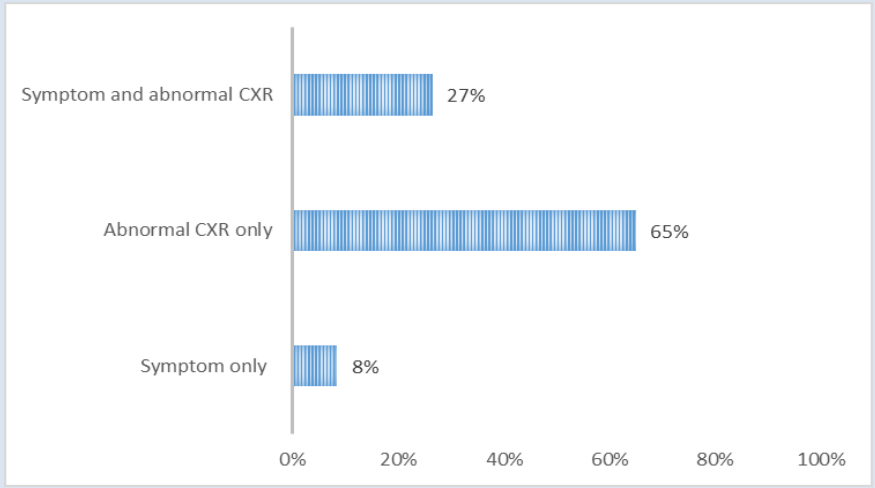
A total 8,004 (94.2%) out of 8,493 prisoners were screened for Pulmonary Tuberculosis using Symptomatic and Chest X-ray screening. Among those with presumptive TB (1,046), 102 (9.8%) showed clinical symptoms with normal CXR, 593 (56.7%) with Suggestive Chest X-rays but no symptoms, 351 (33.6%) both symptoms and suggestive Chest X-rays (**Figure 2, left**).

One thousand and thirty (98.5%) of 1,046 presumptive TB cases provided at least one sputum sample for microscopy and Genexpert examination. One thousand and twenty nine (99.9%) samples submitted were examined on microscopy with results available versus 1,024 (99.4%) available for Genexpert.

2. Confirmation of TB cases and potential impact of X-ray screening and/or Genexpert diagnosis

A total of 26 new TPB+ (including 2 TB cases diagnosed by microscopy positive and Genexpert result negative) were detected. Among these, 12 TB cases are from presumptive TB with Suggestive Chest X-rays but no symptoms, 14 TB cases from presumptive TB with both symptoms and suggestive Chest X-rays. No TB cases from presumptive TB showed clinical symptoms with normal CXR.

The contribution of Genexpert diagnosis is 73% (19/26). Potential impact of X-ray screening and/or Genexpert diagnosis is 46% (12/26) (**Figure 2, right**). The Case notification rate is 306 per 100,000.



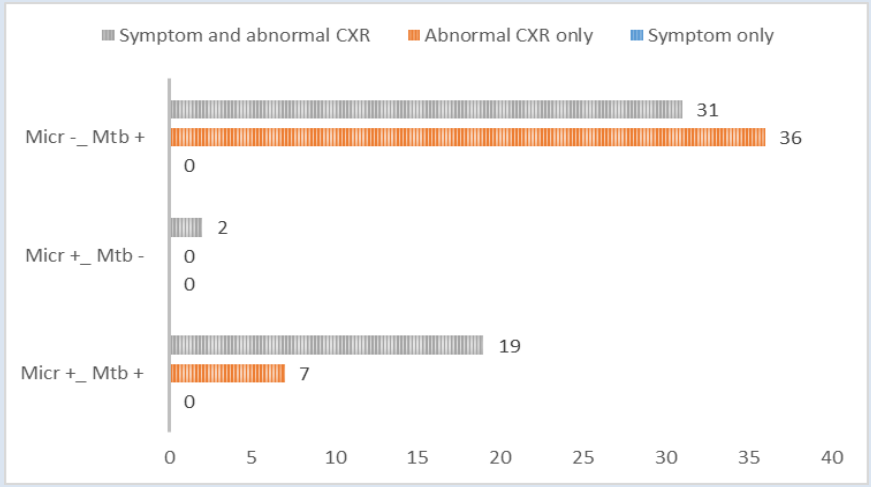
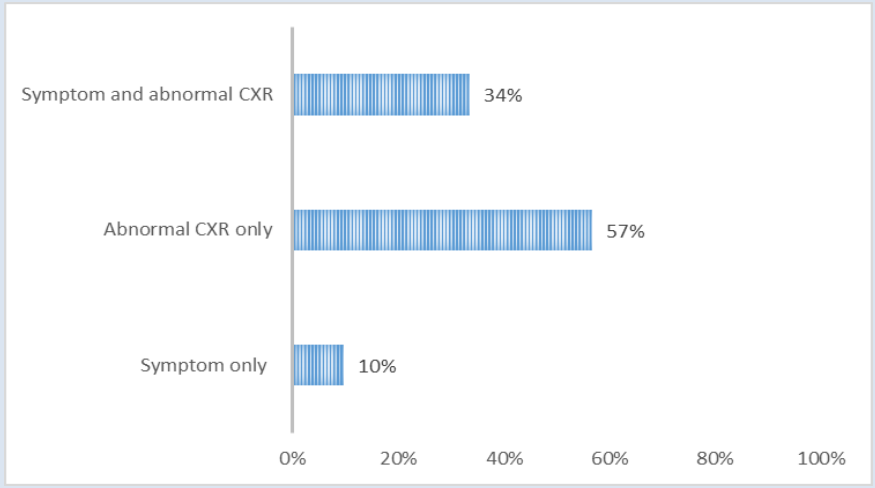


Figure 1 : Proportion of identified presumptive TB by screening approach (left) and potential impact of Genexpert on TB diagnosis (right), during TB ACF <u>among PLHIV</u>, July 2015 – June 2016.



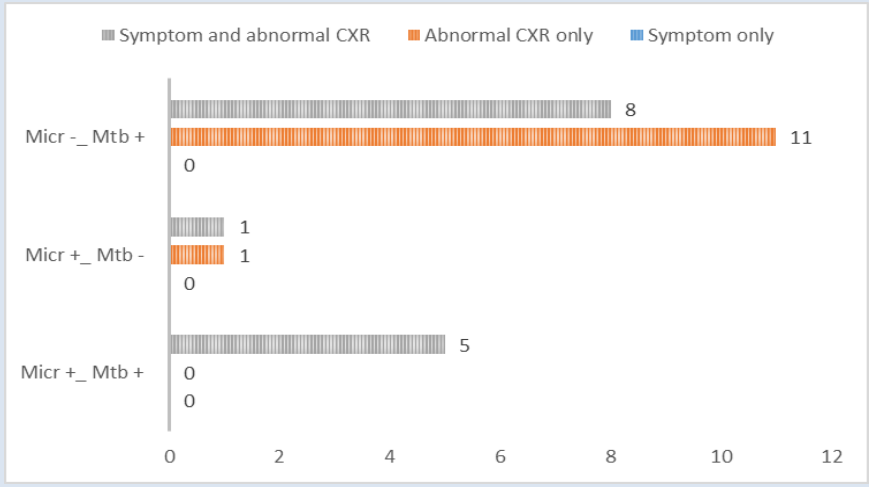


Figure 2 : Proportion of identified presumptive TB by screening approach (left) and potential impact of Genexpert on TB diagnosis (right), during TB ACF <u>among prisoners</u>, July 2015 – June 2016.

I.1.3.3. Childhood TB

The detection of TB among children remains a challenge, special interventions/activities are needed to respond to this.

During the 2015-2016 FY, IMCI tools that integrate TB screening were distributed in all health facilities. The RSQA assessed the level of use of these tools and found that 59 out of 154 CDTs health centers (62%) were using them.

Surveillance data shows a significant increase in childhood TB cases in the last quarter of the 2015-2016 FY, following an improved use of the childhood TB algorithm by availing Tuberculine test at health facilities.

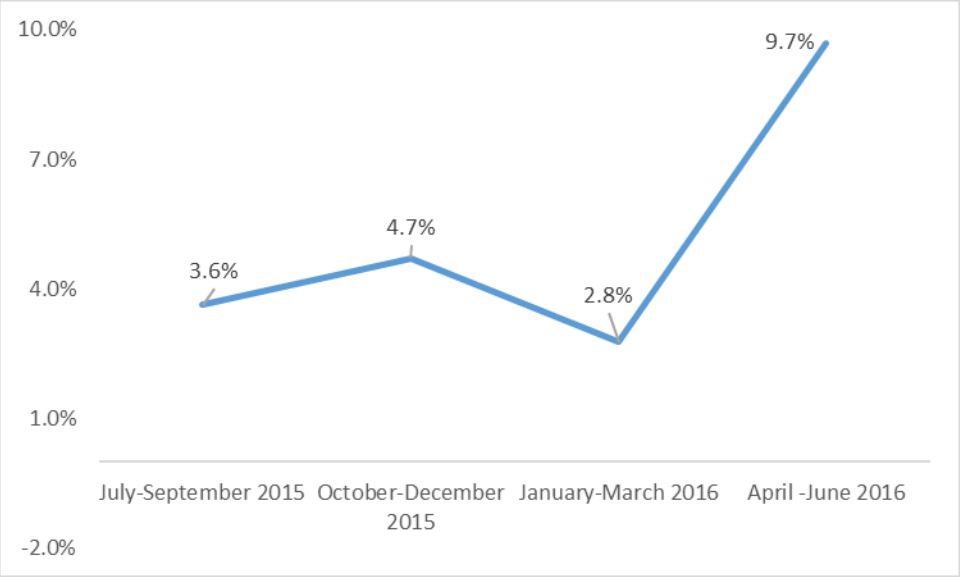


Figure 3 : Proportion children detected with TB disease among all-forms TB in July 2015 – June 2016, by quarters.

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

This objective has six strategic interventions which are:

- Ensure that at least 97% of CDTS have no stock out in TB medicines
- Improve treatment success rate for all forms of TB, specifically to 90% for bacteriological confirmed TB cases
- Increase ART coverage among co- infected patients from 81% to 90%.
- Increase to 95% the treatment success rate for patients managed in the community.
- Maintain treatment success rate at 87% for MDR-TB patients.
- Provide support to MDR-TB patients.

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

The TB&ORD Division in collaboration with MPPD and NRL Divisions conducted quantification exercises, supply plan, stock monitoring at all levels and regular follow up of shipment of medicine in pipeline to ensure the availability of TB medicines in all health facilities. The monitoring of stock status and pipeline at central level is done in technical meetings and all TB medicines were available at central level during the fiscal year of 2015-2016. However, we faced a stock out of Tuberculine until February 2016 because the manufacturer had temporarily stopped production. We also created the national quantification team and trained its members on use of "Quan-TB", a software to quantify TB drugs.

The strategies taken in the technical meeting to accelerate some orders or rescheduling the delivery dates based on stock status have improved management of TB medicines avoiding stock out of TB medicine for the whole year of 2015-2016.

The stock of Isoniazid 300 mg which was procured in 2012, for extension of IPT in PLWHIV is being used by MDR-TB patients on short regimen. Due to the delay in extension of IPT for PLWHIV in other sites, there is a risk of expiries of this medicine.

Table 9: Exactitude of quantification for TB medicines per treatment category

Treatment category/Regimen	Target in Quantification	Cases registered
Cat I	5,249	5,023
Cat II	602	556
Children under paediatrics formulation	227	184
MDR TB Short regimen	77	95
MDR TB Long regimen	3	1

For category I and II, the quantification precision was quite good. The MDR TB patients on short regimen were underestimated and the technical team accelerated the deliveries.

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 2015 to June 2016 reporting period, treatment results presented are for the cohort of TB cases registered from 1st July 2014 to 30th June 2015.

Among bacteriological confirmed cases, new and relapse, the treatment success rate (TSR) was **90%**, including **83%** cured. For clinically diagnosed, the treatment success rate was **79%**.

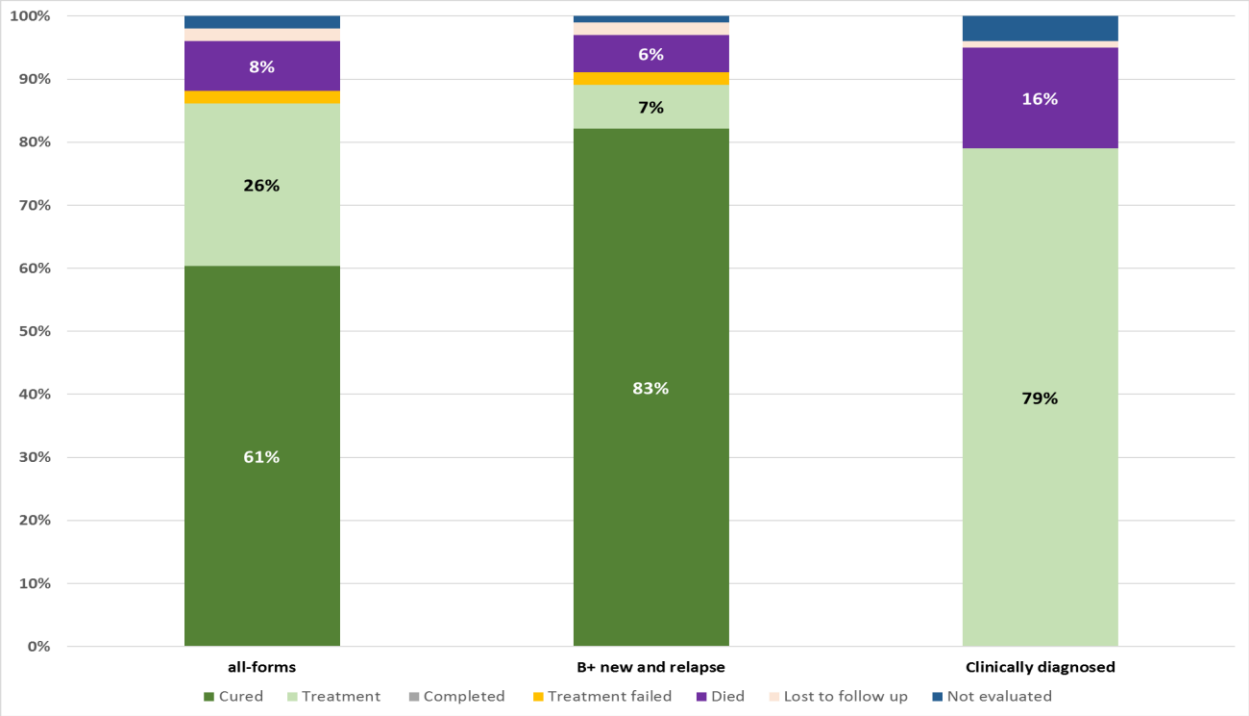


Figure 4 : TB Treatment outcomes for the cohort of TB cases registered during July 2014 -June 2015, for all-forms, bacteriological confirmed new and relapse and for clinically diagnosed.

B+: Bacteriological confirmed

For the mentioned two groups, the main unfavourable TB treatment outcome was "died" which represented **6%** for bacteriological confirmed cases, new and relapse and **16%** for clinically diagnosed cases.

Table 11 : TB Treatment outcomes for the TB cohort registered during Jul 2014-Jun 2015 in Rwanda

Case category / Treatment Outcome	NTPB+		Relapses		TAF		TALTFU		New SS-		New SS0		Extra Pulmonary TB		Others	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Case registered	3,829		351		68		28		267		283		819		114	
Cured	3,172	83%	278	79%	61	90%	15	54%								
Treatment Completed	256	7%	30	9%	3	4%	1	4%	199	75%	235	83%	651	79%	81	71%
Treatment failed	80	2%	5	1%	1	1%	0	0%	0	0%	0	0%	0	0%	1	1%
Died	214	6%	24	7%	1	1%	3	11%	53	20%	40	14%	121	15%	26	23%
Lost to follow up	64	2%	8	2%	0	0%	6	21%	6	2%	2	1%	7	1%	1	1%
Not evaluated	44	1%	7	2%	2	3%	3	11%	9	3%	6	2%	40	5%	6	5%
Treatment success	3,428	90%	308	88%	64	94%	16	57%	199	75%	235	83%	651	79%	81	71%

NTPB+ = new pulmonary TB case bacteriological confirmed.
SS-: sputum smear negative.
TAF: Treatment after Failures.
SS0: sputum smear not done.
TALTFU: Treatment after lost to follow up.
B+: Bacteriological confirmed.

I.2.3. Increase ART coverage among co- infected patients from 81% to 90%

From July 2015 to June 2016, 99.2% of all TB patients were tested for HIV infection. 25% of those tested were found HIV infected and 97 % of those HIV infected were receiving or initiated Cotrimoxazole preventive treatment.

For the cohort of HIV+ TB patients registered during July 2014 to June 2015, the proportion of HIV+ TB patients on antiretroviral therapy (ART) by the end of TB treatment reached **93.9%**.

From 168,354 presumptive TB recorded from July 2015 to June 2016, 99% had an HIV test (99% of presumptive TB with unknown HIV status at the time of TB presumption were tested for HIV infection) and 10% of those tested were HIV positive. However, this number of TB presumptive tested for HIV differs from the total numbers of TB presumptive referred by CDT, CT and CHWs at the laboratory (167,941), the difference is 0.2%. There is also discrepancy between registration (5,763) and HIV testing among TB cases (5744), the difference is 0.3%. With the continuous data quality improvement, we expect more exact figures in the future.

Table 12 : HIV infection testing, HIV positivity and CPT among TB cases registered during Jul 2015-Jun 2016

All forms TB Registered	HIV Tested	HIV positive	Receiving CTX	Early ART (within the notification quarter)
5,763	5,719	1,429	1,392	1,199
	99.2%	25.0%	97%	84%

Table 13 : ART provision among HIV+ TB patients registered during Jul 2014-Jun 2015

Nb of TB/HIV patients evaluated	Nb of TB/HIV patients on ART	% on ART
1,449	1,360	93.9%

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

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

During July 2015 to June 2016 reporting period, out of the 5,763 TB cases notified, 2,996 (52%) 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 2014-June 2015 and followed up through the community-DOT (by CHWs) was excellent and reached **95% (2,455/2,586)**, compared to 94% target in the previous FY.

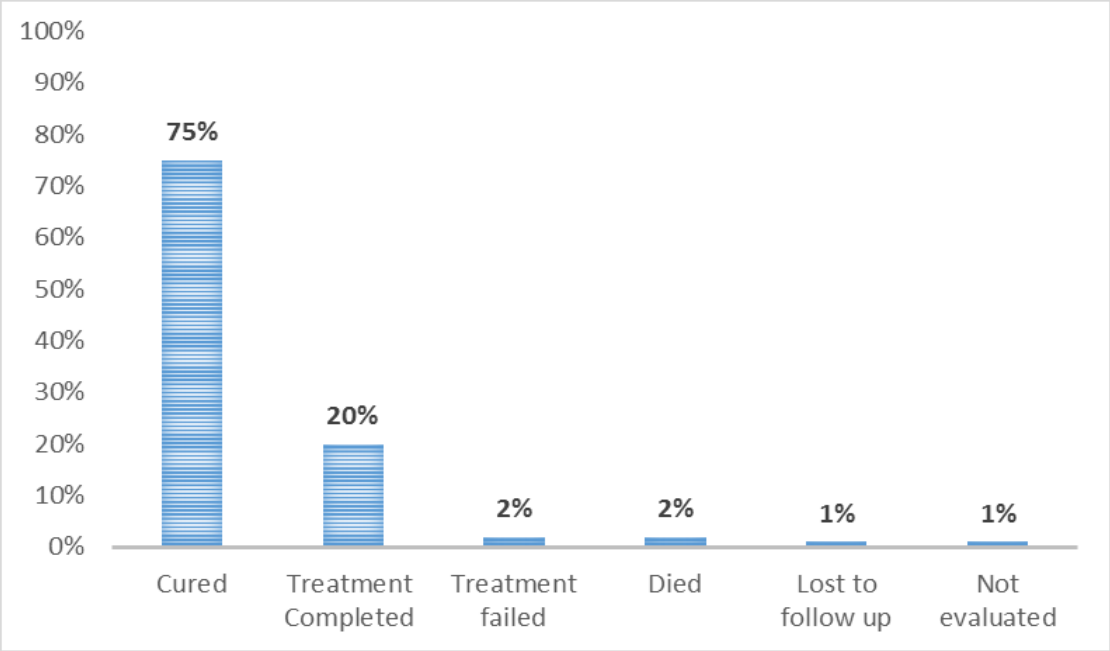


Figure 5 : TB Treatment outcomes for the cohort of TB cases registered during July 2014 -June 2015, and followed by community health workers.

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

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 86 confirmed patients enrolled on second line treatment during October 2014-September 2015, 67 (77.9%) had both negative culture and smear (**Interim result: conversion rate**).

Among the 19 with unfavourable outcome, six died before six months, five had contaminated cultures and for eight patients, sputum cultures were not done.

Table 14 : MDR Interim results at six months: MDR-TB cases with negative culture at the end of six months of treatment

Treatment start	Month of evaluation	Nb confirmed MDR-TB	Deaths before 6 months	Negative smear and culture	≥ 1 positive smear and/or culture	smear and/or culture not done	Contaminated culture
October 2014 to September 2015	End of 6 months	86	6	67	0	8	5
			7.0%	77.9%	0.0%	9.3%	5.8%

Out of 140 MDR-TB cases initiated on second line TB treatment during July2013 - June 2014 for the long (20 months) treatment regimen and during July2014 - June 2015 for the short (9 months) treatment regimen, the treatment success rate was 85%, with 67.9% cured and 17.1% with treatment completed. Eighteen patients (12.9%) died before

completion of the MDR-TB treatment. The national MDR-TB selection committee decided to stop MDR-TB treatment in one patient after confirmation of bone cancer.

Table 15 : Treatment success rate among MDR TB cases enrolled on second-line anti-TB during Jul 2013-June 2015

Treatment start period	Nb registered MDR-TB cases	Nb registered MDR-TB cases who initiated the treatment	Cured	TC	TF	Dead	LTFU	NE	TSR
July 2013 to June 2014 (20 MONTHS)	74	74	48	15	0	10	1	0	**85.1%**
			64.9%	20.3%	0.0%	13.5%	1.4%	0.0%	
July 2014 to June 2015 (9 MONTHS)	66	66	47	9	1	8	0	1	**84.8%**
			71.2%	13.6%	1.5%	12.1%	0.0%	1.5%	
Compiled	140	140	95	24	1	18	1	1	**85.0%**
			67.9%	17.1%	0.7%	12.9%	0.7%	0.7%	

TC: Treatment completed. TF: Treatment failed. LTFU: Lost to follow up.
NE: Not evaluated. TSR: Treatment success rate.

I.2.6 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.2.6.1. 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.

I.2.6.2. Socio-economic support is also provided 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, 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 could also explain the high treatment success (85% for 2013-2015 cohorts) in MDR-TB management in Rwanda compared to the worldwide average (around 50%) successful MDR-TB treatment outcomes.

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. Prevent TB by ensuring that a revised package of infection control measures is applied in all Health Facilities

The TB infection control (IC) practices are implemented in CDTs since 2009 and in all health facilities since July 2013. The minimum package was defined to monitor the implementation of TB infection control. The minimum package of infection control is the existence of the IC plan and appointment of the TB focal point, Health workers trained on TB, cough Triage system and separation of coughers, IEC on the cough hygiene and doors and windows opened in service at risk. Health facilities that were applying all six basics measures represent 80.1% (448/559). During the RSQA, it was observed that there are gaps in TB IC knowledge and practice in Health facilities.
The surveillance of TB among health care workers (HCWs) started in the beginning of July 2015 and is done once a year. Registers on TB screening among health care workers were developed and distributed in all health facilities. Twenty-four thousand four hundred and forty-seven (24,447) health facility workers were sensitized in 2015-2016. Among these 14,508 **(59,3%**) screened and 19 were diagnosed as TB cases.

I.3.2. Increase awareness and commitment in TB fighting

A survey on TB knowledge, attitude and practice to be incorporated in the 2014-2015 DHS was planned but this was not implemented.

I.3.2.1. TB sensitization in general population

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 this past fiscal year, 39 radio programs were given and covered the following topics: 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 centres; 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, a radio spot on with topic "**Unite to end TB**" were broadcast.

Picture 1 : TB outreach activities in RUBAVU District for the World TB day

I.3.2.2. Sensitization in schools

In collaboration with the National Youth Council (NYC), sensitizations campaigns were conducted in 141 secondary schools in 4 districts, Musanze, Karongi, Bugesera and Ngororero. Implementation involved Health centers staff, Director in charge of health at district, TB focal point in District hospital and NYC coordinator at district level. Fifty four thousand six hundred and sixty two 54,662 (**91,5%**) out of 59,715 students were sensitized and among them 2,598 (**4,7%**) students were TB presumptive cases from whom 3 (**0.1 %**) TB cases were identified**.**

Picture 2 : TB outreach activities in in schools by the National Youth Council

I.3.2.3. TB sensitization in refugee camps

Sensitization campaigns were conducted in 6 refugee camps (Kiziba, Kigeme, Mugombwa, Gihembe, Nyabiheke and Mahama). One twenty five (125) peer educators from the six refugee camps had refresher trainings before sensitization and TB leaflets distributed to increase awareness in the refugees. Peer educators conducted triage after refresher trainings and referred TB presumptive cases to the health post. Among 7,254 refugees screened for TB, 1,046 TB presumptive cases were identified and 56 TB cases diagnosed.

I.3.2.4. TB sensitization in Prisons

Sensitization campaigns were conducted in 14 prisons (Nyagatare, Rwamagana, Ngoma, Bugesera, Gicumbi, Musanze, Rubavu, Rusizi, Nyamagabe, Huye, Nyanza, Muhanga, Nyarugenge and Gasabo) and 1090 out of 1150 (94.7%) peer educators were trained on TB symptoms and transmission.

I.3.2.5 TB sensitization in PLHIV associations

Rwanda network for People living with HIV (RRP+) is an umbrella organization that coordinates all activities related to people living with HIV. They contribute to increasing TB knowledge, identification and reference to health facility of TB presumptive cases. RRP+ conducted supervision in 22 District with the aim to verify data of TB presumptive cases referred by peer educators and enhance collaboration between peer educators and health facilities.

Peer educators contributed to refering 2,150 TB presumptive cases in health facilities; among these 45 were diagnosed as TB cases.

I.3.2.7. Civil Society in fight against TB

The Country Coordinating Mechanism of Global Fund in Rwanda (CCM-Rwanda) submitted a 2.5 years concept note to the Global Fund for HIV & TB (2015-2017). CCM invited NGOs to submit proposals and selected 2 NGOs from each province.

Before starting the implementation of activities, sub recipients received induction through an orientation meeting organized by the RBC Single Project Implementation Unit in collaboration with RBC TB for the selected NGOs.

These NGOs worked in collaboration with Health facilities to increase the knowledge of TB infection in elderly; TB contacts at the community level and also worked with liaising diabetic patients to health facilities for TB screening.

Affectation of 10 NGOs for TB activities

Province	NGO	District
South	HDI	Nyanza, Huye, Muhanga, Ruhango
	Caritas	Nyaruguru, Nyamagabe, Gisagara,Kamonyi
West	FVA	Karongi, Nyamasheke, Ngororero, Rusizi
	IMBUTO	Rubavu, Rutsiro, Nyabihu
East	Strive	Kayonza, Ngoma, Kirehe, Bugesera
	CREDI	Rwamagana, Gatsibo, Nyagatare,
North	APROFAPER	Musanze, Gicumbi, Burera
	Bamporeze Association	Rulindo, Gakenke
Kigali	Access	Nyarugenge, Gasabo
	RDO	Kicukiro

I.3.3. Preventing TB through medication (Isoniazid and ART)

I.3.3.1. Isoniazid Preventive Therapy (IPT) for children under 5 years

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. The data for this report shows contact investigation at the beginning only. The data for screening TB contacts at the end was not captured in our reporting system.

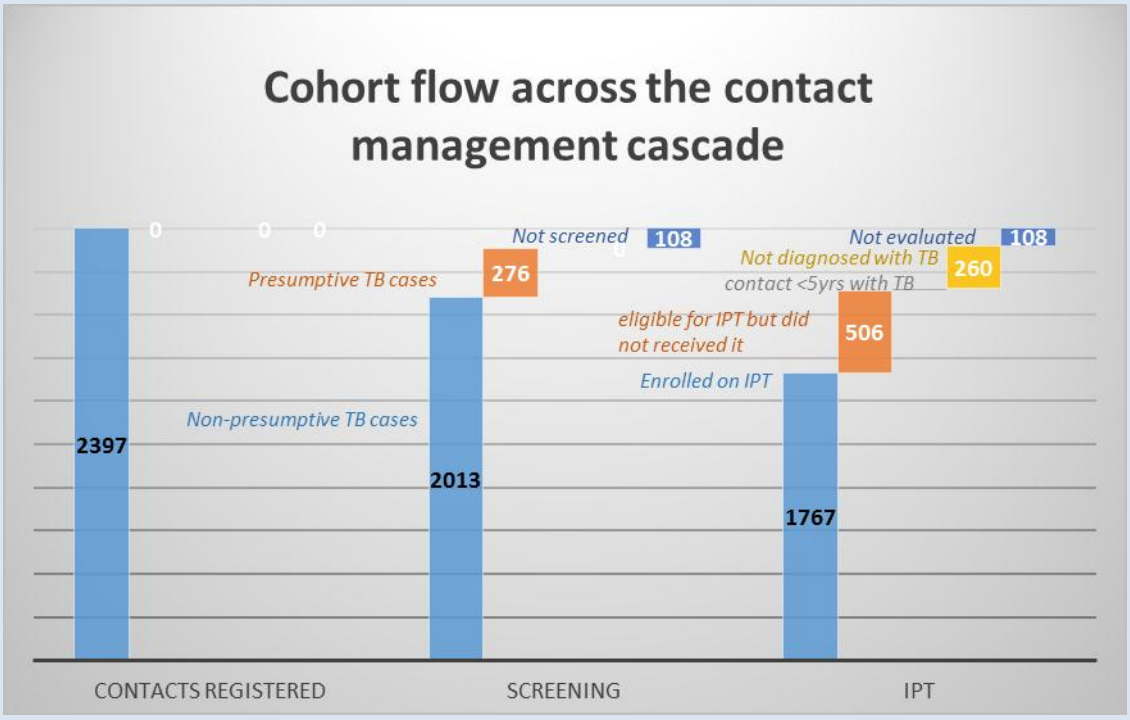
During the 2015-2016 year, 95,5% (2,289/2,397) of all children under 5 years who were contacts of tuberculosis bacteriologically confirmed cases were screened for TB. Of these 12% (276/2,289) were identified as presumptive TB cases and 6% (16/276) were confirmed as TB cases. Among 2,273 children without TB, 78% (1,767/2,273) initiated IPT.

Table 16 : cascade of TB contact screening among children under 5 Years

IPT by province	Number of eligible contact <5yrs registered	Number of eligible contact <5yrs screened for TB		Number of eligible contact <5yrs with presumptive TB		Number of eligible contact <5yrs with TB cases		Number of contact supposed to be put on IPT		Number of eligible contact <5yrs started on IPT	
		N	%	N	%	N	%	N	%	N	%
Northern Province	258	248	96,1	80	32,3	6	7,5	242	97,6	156	64,5
Southern Province	510	494	96,9	46	9,3	6	13,0	488	98,8	390	79,9
Eastern Province	652	614	94,2	56	9,1	0	0,0	614	100,0	592	96,4
Western Province	352	340	96,6	40	11,8	0	0,0	340	100,0	247	72,6
Kigali City	625	593	94,9	54	9,1	4	7,4	589	99,3	382	64,9
Country wide	2,397	2,289	95,5	276	12,5	16	5,8	2273	99,3	1,767	77,7

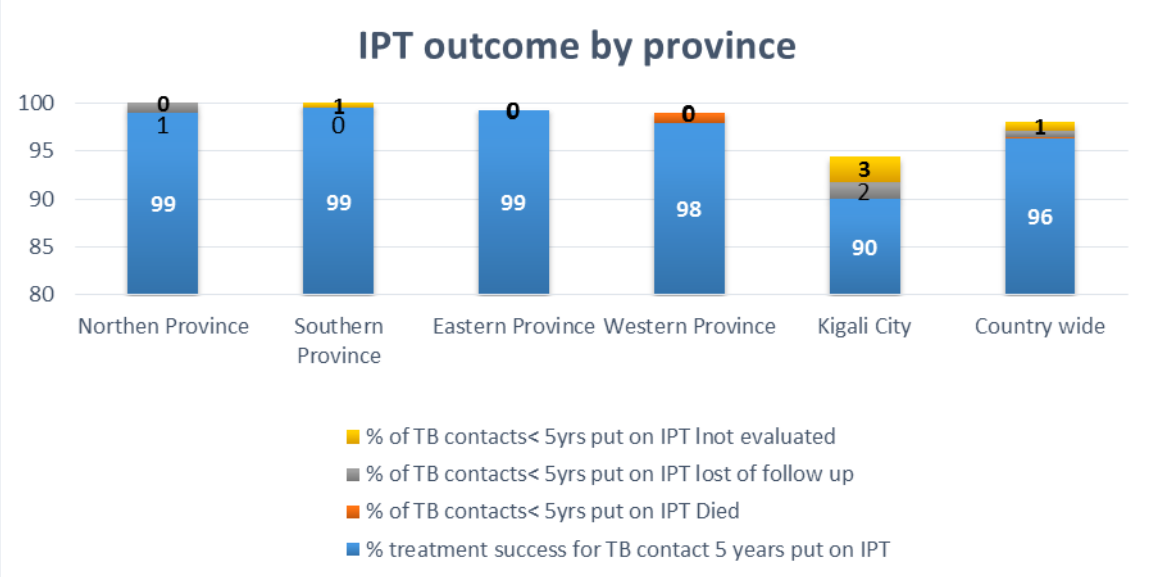
The percentage of children that initiated IPT varies by provinceas indicated in the table above.

With the exception of the eastern province, all other provinces are to reinforce and follow the policy of childhood TB prevention.



I.3.3.1.2. Outcome of children under 5 years put on IPT for cohort registered 2014-2015

Children under 5 years put on IPT received treatment for six months. During the fiscal year 2014-2015, 1326 children under 5 years received IPT, 1277(96%) had treatment completed, 2 children died, 8 were lost of follow up and 11 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.3.3.2 Isoniazid Preventive Therapy (IPT) for PLHIV

HIV infection is still the most powerful known risk factor for reactivation of latent tuberculosis infection (LTBI) to active tuberculosis (TB) disease. WHO recommends IPT as part of the TB/HIV collaborative activities. In order to implement the WHO recommendation, Rwanda moved with a phased implementation through the selection of Kabgayi DH, Kivumu HC and Kimironko HC, based on their geographical locations, level of performance of the HIV service and a combination of district hospital and health centers.

Table 17 : Enrollment in IPT from the beginning of the program in July 2015 up to end of June, 2016

IPT Site	Newly enrolled in the HIV Program	TB cases after screening		Newly enrolled on IPT program	
	N	N	%	N	%
Kabgayi DH	59	3	5.1	36	61.0
Kivumu HC	65	0	0.0	61	93.8
Kimironko HC	396	29	7.3	227	57.3
Total	515	32	6.2	324	62.9

A total of 324 patients were enrolled in the IPT program: There has been low uptake of the project with only 62.9% initiating IPT. Both Kimironko HC and Kabgayi DH had very low numbers for uptake.

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.

I.4.1. Strengthen Political commitment and advocate for domestic and external commitment

This section reports on activities related to TB&ORD coordination and planning, including guidelines/SOPs development.

From July 2015 to June 2016, every first month of the quarter, staff of the TB&ORD Division conducted "**quarterly evaluation meetings** of the previous quarter" with all Referral, Provincial, District hospitals and all health centers representatives, to review the quality and validate TB & ORD data of that reporting quarter. Validated data were the basis of the current TB & ORD Annual Report. The quarterly evaluation meetings also help in tracking the progress of indicators whereby corrective measures are developed on time for the indictors which have low performance.

During 2015-2016 FY, seven **MDR-TB patient selection committee meetings** were held at Kabutare, Kibagabaga and Kibungo MDR-TB Specialized Centers. Key points discussed were about specific questions raised by health facilities or MDR-TB Specialized Centers on better management of MDR-TB patients, and discussions on specific cases presented by health facilities.

The 2013-2018 TB NSP currently used in Rwanda recommends to focus TB detection efforts on persons at higher risk of developing TB disease, as the country TB epidemic appears to be concentrated rather than generalized. The implementation of this approach should start by developing and disseminating clear policy/guidelines/ SOPs on it. In collaboration with district hospitals, health centers, other RBC Divisions, the TB & ORD Division developed **SOPs on TB detection and monitoring among high risk groups** (HRG). It also developed SOPs on TB detection and monitoring among prisoners, PLHIV (active in HIV services), contacts, children, and elderly people aged ≥ 55 years. The document is under process of validation and dissemination.

In October 2015, to take into account recent changes in national and international TB/HIV guidelines, the TB & ORD Division together with the HIV Division and other partners organized a workshop to **revise the 2011 TB/HIV policy**. The key changes were mainly the TB/HIV monitoring and evaluation plan, as in early 2015 the WHO released the "2015 WHO TB HIV M&E framework".

During the 2015-2016 FY, meetings of the **TB/HIV technical working group** (TWG) were held between the TB&ORD Division and its partners to discuss/share the key achievements, challenges and improvement strategies of the TB/HIV collaborative activities in Rwanda, preliminary results of TB active case findings among PLWHIV, current status of IPT implementation and present the TB/HIV Policy revised in 2015.

In March 2016, a **delegation from the Malawi Ministry of Health visited Rwanda for a learning visit** on the management of tuberculosis. There was particular interest in learning about the management of childhood TB, and especially contact investigation. Rwanda has operated a successful contact management program for several years, while

Malawi has recently developed an SOP for contact investigation. During this visit, experiences were exchanged and gaps to improve contacts investigations procedures were identified.

PEPFAR made a 5 year proposal to fight HIV as entry point for TB (TB/HIV). The TB&ORD Division developed a list of activities to be considered for **PEPFAR funding through the COP16**. Those activities are grouped in the following components: TB detection for high risk groups, TB case management, TB prevention and TB monitoring.

I.4.2. Develop human resources and capacity building

I.4.2.1. Capacity building for the central level staff

The TB&ORD Division through RBC, has recruited the following staff: a statistician, a TB/HIV Officer, a Childhood TB and other TB HRG officer, a TB care and treatment Senior officer and a TB IEC/BCC Officer. These staff are now in service.

The aim of capacity building of staff is to improve the efficiency of services offered through different approaches such as trainings and increase number of staff in order to achieve the goals of the organization.

The TB&ORD Division in collaboration with the Center of Excellence on Programmatic Management of Drug resistant Tuberculosis (CoE PMDT) under the School of Public Health, organized a five days training on Programmatic Management of Drug resistant Tuberculosis. Nineteen participants from 6 African countries: Ethiopia (2), Kenya (2), Nigeria (1), Rwanda (8), Tanzania (2) and South Sudan (4) attended.

I.4.2.2. Capacity building for decentralized level staff

The TB&ORD Division revised the national guideline according to WHO recommendation and prepared the **updated trainings materials** (power point presentation) to be used during the trainings of health care providers countrywide.

The TB&ORD Division has conducted different trainings in collaboration with partners like the University Teaching Hospitals, King Faisal Hospital, Rwanda Radiologist Society, etc. The table below captures trainings conducted during 215-2016 FY.

Table 18 : Trainings of health facilities staff on different aspects of TB control in Rwanda

Type of training	TB program	Type of participants	Number of participants
CXR reading	TB care and treatment	MDs	62
CXR and radiation safety	TB care and treatment	Technicians Radiologist	44
TB, TB/VIH and leprosy diagnosis and management	TB care and treatment	MDs	86
	TB care and treatment	Nurses (Kaduha, Munini, Rutongo, Kigeme, Byumba, Murunda and Bushenge)	126
TB M&E	e-TB data analysis	TB Supervisors	42
TB M&E	e-TB data analysis	TB Focal Point	343
TB M&E	e-TB data analysis	Data managers	339
TB M&E	e-TB data analysis	Provincial DQA Officers	4
PAL	ORD	Nurses	475
	ORD	MDs	22
Fluorescence	Laboratory	Lab biotechnologists from CDT	80
MDR-TB	Use and the interpretation of results from ECG and Audiometer	MDs and Nurses of MDRTB Specialized Centers	9
TB drugs quantification using QuanTB	TB drugs management	Members of National Quantification Team	12

I.4.3. Enhance monitoring and evaluation system

I.4.3.1. Implementation of electronic TB register (e-TB)

Switching the TB surveillance system from paper-based to electronic is one of the most important TB interventions for the 2013-2018 TB NSP. The system is expected to improve quality and timely availability of TB data, and improve quality of TB patients' management. For more than one year, an electronic TB register called e-TB has been designed and is being used by health facilities in a testing phase. The current status is that the system is accessible to Data managers and TB focal points of all health facilities (HFs). There was also a progressive increase in system completeness by HFs across quarters. The TB & ORD Division and the PMEBS/HIS Division had many working sessions to solve different e-TB issues. Below is a summary of different issues identified in e-TB:

- An ID cannot be used twice within the same Health Facility (HF), or by two of more HFs of two different hospitals. This makes it impossible to record the same patient with another episode of either TB presumption or TB disease. In relation to confidentiality there is need to keep names visible only at the health facility where the patient is being managed, not at any other health facility nor at any upper level.
- Although trackers on e-Leprosy and e-MDR-TB were also completely customized some controls are yet to be incorporated.

I.4.3.2. Annual TB performance review meetings with Districts

The program performance review was conducted in November 2015 in order to share with stakeholders and implementers the achievements, progress, challenges and new TB control policies. Participants were TB & ORD Division staff and other central level partners like NRL, SPIU, DH Directors, DH M&E Officers, DH data managers, DHs TB supervisors and DHs TB laboratory technicians.

During this review, the current status of TB & ORD control activities has been discussed including achievements, challenges and recommendations.

Picture 3 : Participants in one of the TB performance review Meetings in 2015-2016

I.4.3.3. Development and update of TB surveillance system

The TB & ORD Division planned to conduct the 2nd round of TB active cases finding (ACF) in prison. For that, there was need to review the monitoring tools to be used, based on experiences gained during 1st round of TB ACF in prison and in PLHIV. We developed a new **logbook of ACFs in Prison and designed its ACCESS database**, for easy data management and analysis. The new tools allow to capture the entire cascade of TB screening and diagnosis, up to treatment initiation and outcome evaluation.

The last version of **Standardize Operating Procedures (SOP) for the monitoring and evaluation (M&E) of TB & ORD** was developed and approved in July 2013. Thereafter many changes happened, related to the new 2013-2018 TB NSP, the 2013 WHO TB definitions and the introduction of an electronic TB & ORD register (e-TB). There was need to update this SOP. A workshop was organized in March 2016 to update the 2013 TB M&E SOPs book. New SOPs include: TB deaths audit, TB samples tracking register, TB data quality assurance, and job aids on e-TB data entry and data analysis.
As per each year, we are given by HMIS system the opportunity to **refine/adjust the TB & ORD reporting format**. During the 2015-2016 FY, we reviewed the TB quarterly reporting

format. Changes concerned information on: registered TB cases not initiated on treatment, registered TB cases from community screening, registered TB cases qualified as MDR-TB, categorizing TB treatment by new and relapse on one side and other categories on the other, and updating information on TB samples culture based on new culture criteria.

For the matter of TB data analysis and decision making at health facilities, we have adapted the **standard format of TB data analysis**, to replace the old one of the 2013 TB M&E SOPs. The new format is based on indicators from the 2013-2018 TB NSP M&E plan. This new format also allows health facilities to record results of all four quarters of the fiscal year to capture the trend of their achievements across the year. This format is part of what is called "a complete TB quarterly report for a health facility".

During the last semester of 2015 year, one of the two district hospitals (DHs) of Rulindo District was moved to the new building. This change pushed Rulindo District leadership to reorganize the catchement area under each of the two DH. This requested us to review and update the status of CDT or CT for each health facility. So that both hospitals remained CDTs, two new CDTs were created under Kinihira Provincial Hospital catchment area (Tumba and Rukozo) and two former CDTs became CTs under Rutongo DH catchment area (Rulindo and Muyanza). Each hospital catchment area has 3 CDTs, and the national number of CDTs remained unchanged. As of 30th June 2016, we have 200 CDTs and 359 CTS.

I.4.3.4. 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.

The Integrated Supportive Supervision coupled with Data Quality Assessment, (ISS/DQA) has been adopted as an improvement measurement framework and a key enabler to achieve the sustained quality of care provided to the Rwandan population in the Health Sector Strategic Plan III (HSSPIII) of the Ministry of Health (MOH). Under this framework, MOH in collaboration with Rwanda Biomedical Center (RBC) organized ISS/DQA which had a focus on assessing services provided at District Hospital, Health Center levels from 17th August 2015 to 11th September 2015 and from 18th April to 20th May 2016. Each round covered 82 health facilities (41 DHs and 41 HCs including community).

At HF levels, TB data showed (for selected indicators) a significant improvement in terms of the reduced data discrepancy from 91% of HF with average discrepancies less than 1% to above 95% of HF with average discrepancies less than 1% Aug-Sept 2015 vs. April May 2016 respectively.

In the same context of quality improvement and for providing more details of TB&ORD surveillance System, the TB & ORD Division technical staff conducted Rapid Service Quality Assessment (RSQA) in CDTs. The best performing areas were those related to TB and TB/HIV cases management (Treatment, follow up and drug management), while the less performing were those related to leprosy activities, TB detection among high risk groups and TB infection control (IC).

The main gaps identified in the areas assessed for which improvement is needed are contact investigation at the end of TB treatment, childhood TB detection through IMCI program, regular monitoring of implementation of TB IC, implementation of coughers triage, onsite training, Genexpert and cultures results availability and supervision from upper levels. Posters and quarterly reports of Leprosy also need to be available. Leprosy IEC needs to be integrated as well.

In addition, formative supervisions of MDR-TB Specialized Centers of Kabutare and Kibagabaga have been carried out on quarterly basis. The main challenges during these supervisions were the frequent turnover of personnel in charge of MDR-TB wards, causing insufficiency in quality of services such as complying to the schedule of different bacteriological controls for patients on 2nd line TB drugs, and completeness and accuracy of information collected.

I.4.4. Enhance operational research

The vision of the Ministry of Health is to provide better quality health services through evidence based policy and planning. The TB & ORD Division has responded to this vision by conducting operational research to inform TB&ORD planning and to build research capacity of the staff. The following are the key findings of the operational research conducted during the 2015-2016 reporting period.

I.4.4.1. The second drug resistance survey

The TB&ORD Division conducted the second drug resistance survey to estimate the current prevalence of drug resistant tuberculosis (to 1st and 2nd line TB drugs) among newly and previously diagnosed TB cases.

The sputum sample collection for DRS phase II started countywide on January 26th, 2015 collecting sputum samples from both centers of treatment (CTs) and CDTs using Falcon tubes with CPC. During this phase sputum samples from all CTs and from CDT outside of Kigali were kept in CPC to preserve the viability of BK and all SS+ samples and sent to NRL for culture and DST through routine system of sample transportation. The sputum samples collection for this phase concluded on 15th July and 1,290 samples have been received at NRL. However, after cleaning of the database, 1,221 samples were considered for analysis.

In March 2016, a workshop for data analysis and report development was organized. TB&ORD staff, other RBC division (SPIU, NRL and HIV) and partners (CDC, WHO) participated in this workshop.

Preliminary results showed that multi drug resistant tuberculosis was diagnosed in 23 patients who represent 2.06% of all positive cultures tested.

The prevalence of MDR-TB disease is estimated at 1.4% (14/1,033) among new TB cases and 10.7% (9/84) from previously treated TB patients. No resistance was detected on second line TB drugs.

Details about DRS implementation and outcomes are presented in the following flow chart:

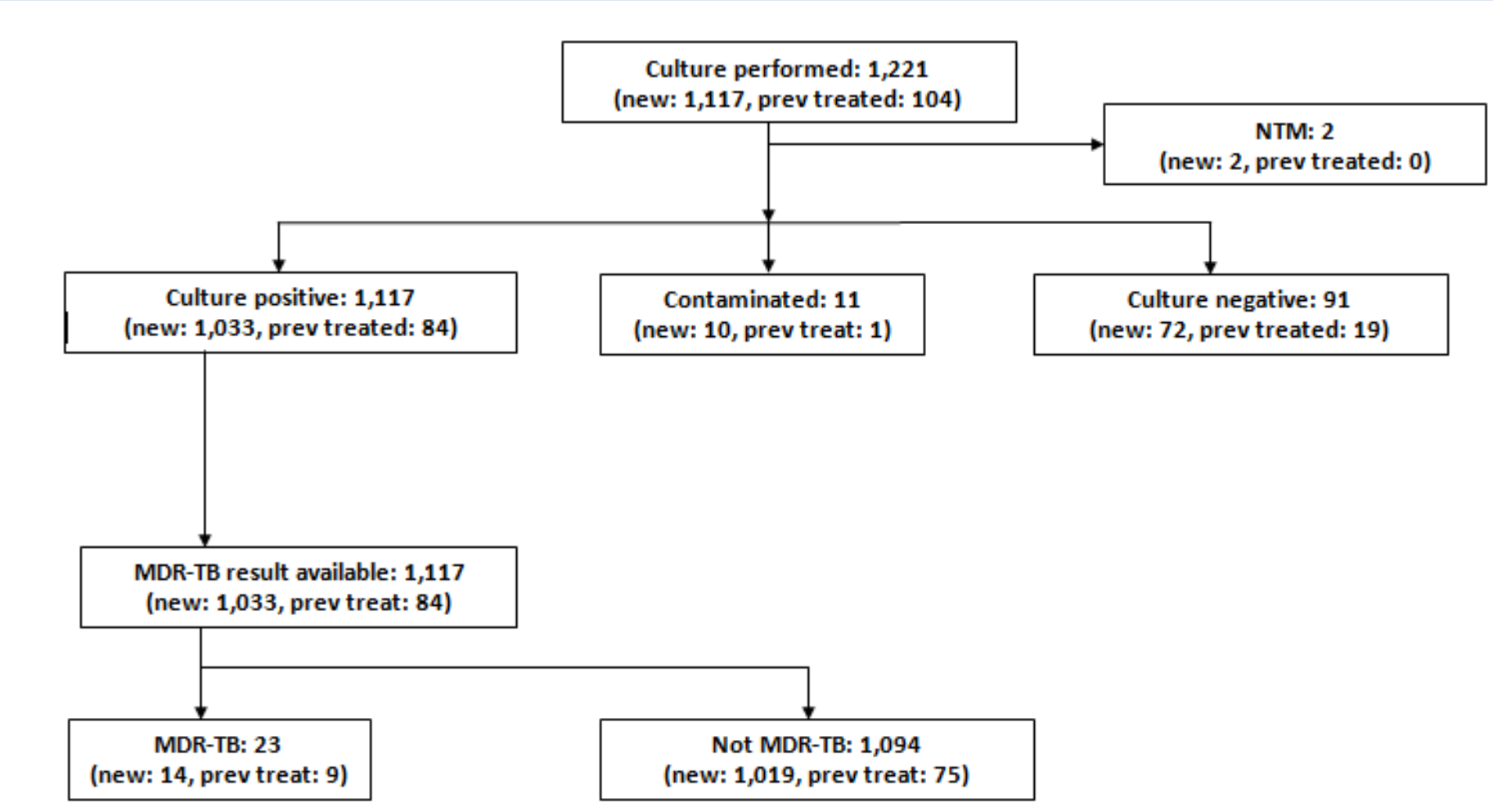


Figure 6 : Flow chart of 2nd DRS outcome.

I.4.4.2. Implementation of the "Short duration treatment protocol for MDR-TB patients in Rwanda"

Rwanda is implementing the nine month duration regimen for MDR-TB treatment under operational research approach, with close monitoring by the World Health Organization (WHO). The first patient was initiated on this regimen in July 2014.

The study has two components: the first one is a multi-country done in collaboration with the International Union Against Tuberculosis and other Lung Disease (the Union). Forty two patients were recruited between July 2014 and March 2015. The second component includes these 42 patients and recruited additional patients to complete a sample of 163 patients. These patients will be followed in post treatment up to two years to measure if the risk of relapse is linked with the short regimen.

A consultant from the Union visited Rwanda in December 2015 for evaluation of the implementation of this operational research.

Since its beginning 163 patients have already been started on the 9 months duration treatment regimen at the end of June 2016. The first four cohorts (those who initiated treatment during July 2014 - June 215) have been evaluated for treatment outcomes and the treatment success rate is 84.8%.

I.4.5. Provide training and technical assistance with capacity building focus

The TB & ORD Division worked with national and international technicians to ensure that TB control activities are aligned with international guidelines and standards, and to strengthen the system and for the capacity building purposes. The technical assistance received during 2015-2016 FY are detailed in the table below.

Table 19 : Received external technical assistance, Jul 2015- Jun 2016

Type of TA	Period	Names and Institutions
Green Light Committee	25-29 April 2016	Dr Norbert NDJEKA
Short MDR-TB treatment regimen	14th to 18th December 2015	Dr Alberto ROGGI of UNION

I.4.6. Ensure logistics for TB control activities

1.4.6.1. Ensure logistics for TB medicines, reagents, consumables and equipment

The procurement of TB medicines, reagents, consumables and equipment was conducted in accordance with both global fund requirements and national procurement regulations. In case of conflict of those different guidelines, the global fund requirements prevailed for drugs funded using GF money. In general 93.2% of the planned items were purchased, 2.3% are in pipeline, 2.3% failed in the tendering process due to the fact that the prequalified suppliers did not participate and 2.3% were partially delivered.

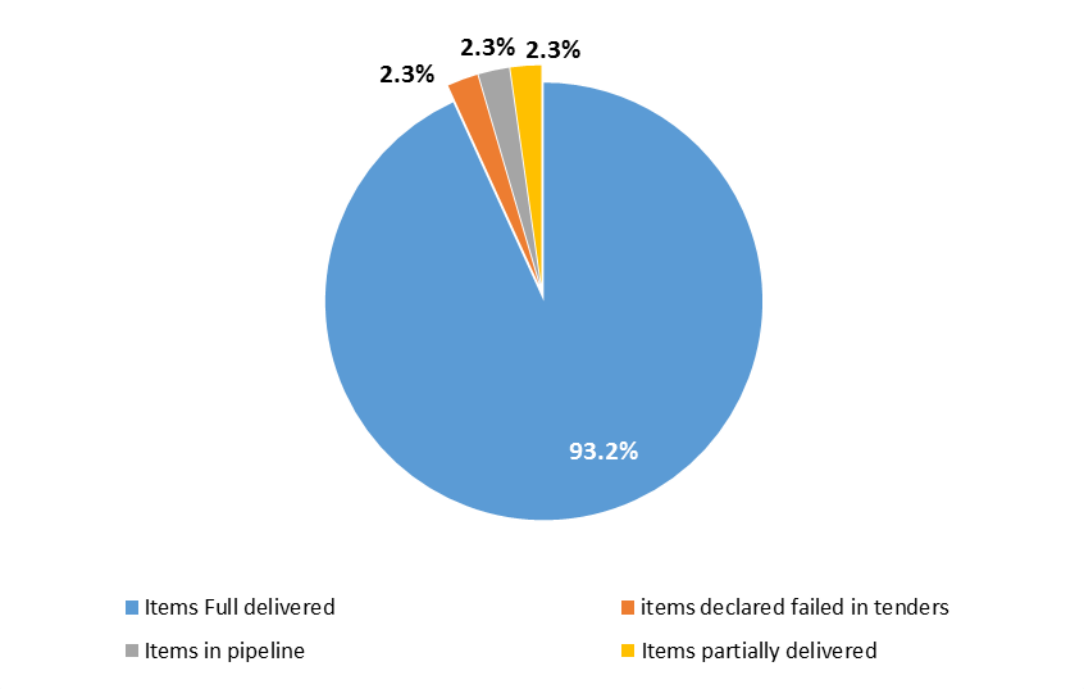


Figure 7 : Procurement status for TB medicines, reagents, consumables and equipment by end of 2015-2016 FY

Rifampicin failed in procurement procedures but we didn't face stock out as RBC/TB&ORD division received a donation from the Damian Foundation. In addition, this product will be purchased through Global Drug Facility (GDF) and the contract is under negotiation.

The total number of items planned to be purchased in this fiscal year was 44. Apart from those items, 10 other items to be purchased in this fiscal year were shifted to next fiscal year due to complexity of their tenders and the time it may take for tender completion.

Challenges in procurement and supply chain management of TB commodities

Many challenges are met in procurement and supply chain management of TB commodities:

- The suppliers who do not respond to our request while they are the only ones WHO/GF prequalified for some products (case of rifampicin 150mg);
- Delays in delivery of TB commodities: the delivery period may take up to 5 months while it does not normally exceed 3 months.
- Fluctuation of MDR TB and pediatric cases that may lead to expiry or stock out

Strategies for challenge mitigation

The following strategies have been adopted to ensure regular supply of TB commodities and prevent expiries:

- To conduct quantification review with different stakeholders involved in TB case detection, procurement and supply chain management every quarter.
- Use of framework contracts to reduce time for procurement proceedings.
- To procure through GDF items for which prequalified manufacturers are not interested to send their quotations
- To conduct monthly technical meeting between MPPD, NRL and TB&ORD Divisions to monitor stock status and pipelines.

1.4.6.2. Ensure logistics for TB program management tools

Table 20 : TB tools printed in July 2015 – June 2016

Number	Items	Quantity	Observation
1	Registers for TB screening in Prison	80	Distribution done
2	TB Identification cards	5,000	Distribution done
3	TB Lab request forms	4,907	Distribution done
4	Register for IPT among children	585	Distribution done
5	Registres for TB samples results tracking	854	Distribution done
6	TB treatment cards	3,600	Printed, delivered and distributed in health facilities.
7	Registers of TB samples results tracking	100	Printed, delivered and distributed in health facilities.
8	Annual Report for 2014-2015	550	Printed, delivered and distributed in health facilities.
9	TB NSP 2013-2018	550	Printed, delivered and distributed in health facilities.
10	Posters of PAL	8,250	Printed, delivered and distributed in health facilities.
11	Posters of PAL Microscopy	100	Printed, delivered and distributed in health facilities.
12	Tuberculosis Prevalence Survey Report	650	Printed, delivered and distributed in health facilities.
13	Medical document TB MRD Register	100	Printed, delivered and distributed in health facilities.

I.4.7. Performance Based Financing system (PBF)

Performance based financing (PBF) is an approach implemented to motivate both decentralized health facilities (HFs) and community health workers (CHWs) in their work toward TB control. For payment, a number of indicators have been set and each one has been attributed a score, so that HFs and CHWs are paid based on their performance. These indicators are dynamic and can be changed to make sure that they are continuously in accordance with up to date requirements. During the FY 2014-2015 the PBF indicators

have been updated for both quantitative and qualitative. These revised indicators have been implemented in PBF assessment process in the 2015-2016 FY.

I.4.8. Scale up PAL strategy

The World Health Organization developed the Practical Approach to Lung Health strategy that has been shown to improve progress in achieving TB control goals, management of both Tuberculosis and other respiratory diseases. PAL is a patient-centered approach to improve the quality of diagnosis, treatment and management of common respiratory illnesses in primary healthcare settings. In Rwanda the PAL strategy seeks to strengthen health systems response to respiratory diseases by standardizing service delivery through development and implementation of clinical guidelines and mentorship support and training within peripheral health system establishments that are district hospitals and health centers.

The aim of PAL is therefore to develop and implement a strategy for an comprehensive, integrated, systematic and symptom-based approach to manage patients with respiratory symptoms and in doing this improve on the early and correct diagnosis of patients with tuberculosis, standardize drug treatment with reduction of antibiotic use, encourage proper referral procedures and availability of equipment for follow-up of respiratory diseases in Primary Health Care settings.

Rwanda like other countries in the region, limited data exists detailing the quality of general adult and adolescent primary care delivered for respiratory conditions, according to the Rwanda Ministry of Health, Annual Health Statistical Booklet 2014 using HMIS data; Acute Respiratory Infections represent 28.8% of causes of morbidity in health centers and 6.8% in District and Provincial hospitals.

1.4.8.1. Training activities for PAL implementation

Rwanda has PAL as one of its existing health policies for lower level health facilities and is in the process of a continued implementation through human resources development which involves education and training for health care staff in district hospitals and health centers (Medical Officers and nurses working in Out Patient Departments, TB Focal persons and TB provincial supervisors), availability of basic equipment for diagnosis and treatment of respiratory conditions (pulse oxymeters, peakflow meters, spirometers, Nebulizers and oxygen concentrators) and availability of essential drugs supplied to district and other decentralized pharmacies .

PAL training upgrades the skill of health workers by strengthening primary health care services and increasing staff capacity to meet the needs of patients attending these facilities. We intend for the PAL strategy to increase utilization by patients seeking care for respiratory symptoms. The PAL training activities carried out between July 2015 and June 2016 targeted Medical Officers in District Hospitals and nurses in health centers. The majority of nurses trained were A2 level nurses (secondary school level) with limited diagnosis and prescription skills. The training plan was based on a two-day interactive learning module prepared from clinical guidelines (health center or district hospital) to help healthcare providers in their daily tasks. Direct assessment of treatment efficacy after these trainings is yet to be carried out and is planned in the next fiscal year

Table 21 : Health Care Providers trained in PAL July 2015-June 2016

Training Sites	Number and type of Health Facilities	Number of participants per site and par category				TOTAL
		Medical Officers	Nurses in the Out Patient Dept.	Nurse- TB Focal Persons	Provincial Supervisors	
Rwamagana District	232 HF			232		232
Munini District	235 HF			235		235
Kabgayi District	22 DH	21 TB FP				21
	227 HF		203	24		227
Musanze District	127 HF		121	6	4	131
TOTAL		**21**	**204**	**497**	**4**	**726**

1.4.8.2. Essential equipment for PAL activities

For correct implementation of PAL activities in health facilities, basic equipment to support diagnosis, treatment and follow up of respiratory conditions should be readily available in health facilities and the health care providers should be trained in the use of those equipment. The procured and distributed materials include pulse oxymeters, peakflow meters, spirometers (and masks), and sputum containers. Staff in health facilities were trained and equipmet was made available for use.

The table below indicates equipment distributed in the reported fiscal year.

Table 22 : Equipment procured for PAL Implementation July 2015-June 2016

	Equipment procured	Amount procured
1	Peak Flow Meters	467
2	Oxygen Concentrators	24
3	Pulse Oxymeters	480
4	Hand held Portable Spirometers	42

1.4.8.3. Printing Information material for Health Care providers

One of the effective methods of communicating health strategies is through printing information material for health care providers. The TB&ORD division designed communication messages in the form of wall posters to improve the classification of asthma and subsequently correct diagnosis and treatment in primary health care system. From July 2015- June 2016, the TB&ORD Division printed 8250 wall posters to be distributed to all District Hospital and Health Centres. Wall posters are to be set up in the Out Patient Departments, The Pediatric Ward, Internal Medicine ward and the TB/HIV one stop center.

1.4.8.4. Gaps currently exist in PAL implementation

As we continue to expand the implementation of the PAL strategy in primary health care facilities, certain gaps in implementation remain. Some of the gaps are listed below:

a) The PAL TWG has not been consistent in convening to provide strategic direction to implementers.
b) There is no defined M&E plan for the PAL strategy, this needs to be implemented and rolled out.
c) There is an inadequate supply of essential equipment and commodities to support

diagnosis and treatment at health facilities

d) An evaluation of PAL implementation has not been conducted

1.4.8.5. Strategic directions for PAL activities 2016-2017

For the PAL implementation strategy to be effective, certain areas need to be prioritized namely:

a) Revamp the national PAL technical working group (TWG) and ensure regular quarterly meetings.
b) Assess the impact of the PAL implemtation in decentralised levels.
c) Providing technical assitance to decentralised levels (district hospitals and Health Centers)
d) Conducting Training of trainers sessions to expand the pool of trainers in district hospitals
e) Closer supervision of PHC trained in PAL implementation.
f) Continued capacity building of health care workers and strengthening referral systems for lung health.

CHAPTER II: LEPROSY CONTROL

During the 2015-2016 fiscal year, the reporting of leprosy, previously done by health facilities of endemic areas, was expanded in both endemic and non-endemic areas, so that we can captures the entire country situation of leprosy.

II.1. Objective 1: Improve early detection of leprosy and reduce the proportion of new cases with grade 2 disabilities to less than 10% by 2018 in comparison with 2010.

II.1.1. Conduct leprosy cases finding activities in endemic area

Early detection of leprosy cases in the community is a crucial approach that leads to the reduction of number of people who develop Grade 2 physical disability, an essential way to respond to these concerns is through active case finding activities carried out in specific leprosy endemic districts such as Bugesera, Gisagara, Ngoma and Rusizi districts and passive case detection carried out by the other health facilities in the country.

Thirty five (35) new cases were diagnosed with leprosy from July 2015 to June 2016 through active case finding activities. Nine (9) were Multibacillary (MB), 26 were Paucibacillary (PB), the proportion of female among all new cases was 18 (51%) and 4 (11%) for children aged 0 -14 years old. All new cases were evaluated for physical disability at diagnosis; Of these, 5 (14%) of all new cases presented with Grade 2 disability at time of diagnosis (in comparison to the 15% target of the Leprosy NSP 2014-2018), 0% presented with Grade I disability while 85% presented with Grade 0 disability. 44% (4 out of 9) for those presenting with Grade 2 disability were found to be Multibacillary cases (MB). In general, 36 cases were treated which include one case of retreatment (1 relapse)

For all cases diagnosed, 23 (64%) were from Bugesera district (17 PB & 6 MB), 6 (17%) were from Rusizi district (4 PB & 2 MB), 2 (6%) from Ngoma district (1 PB & 1 MB), 2 (6%) from Gisagara district, 2 (6%) from Burera district and 1 (3%) from Kicukiro district.

Table 23 : Notification of leprosy cases in Rwanda, July 2015 - June 2016

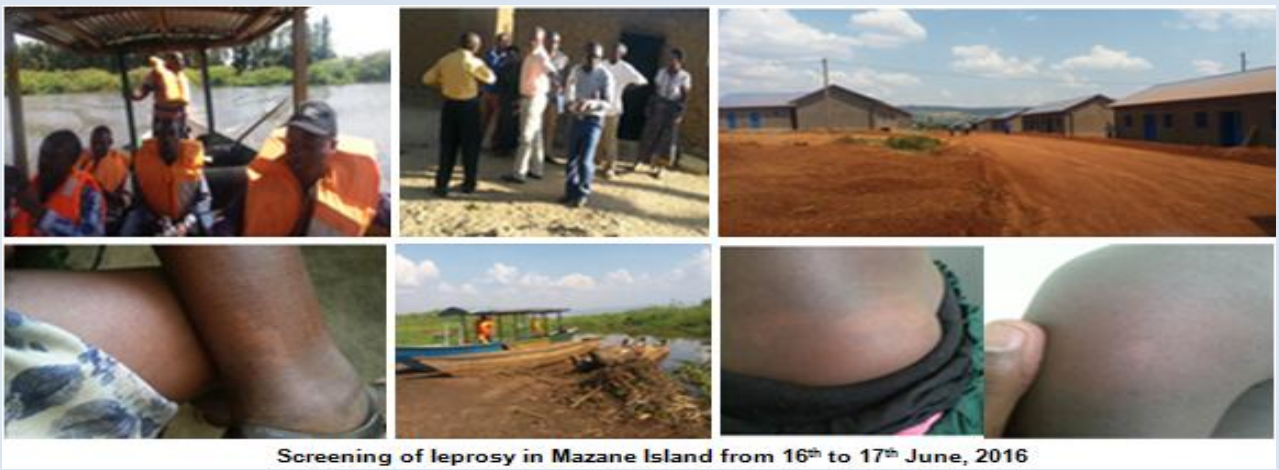
LEPROSY CASES NOTIFICATION	MB	PB	Total
New cases (NC).			
Number of new cases (NC)	9	26	35
Number of children among new cases (0-14 years)	0	4	4
Number of women among new cases	6	12	18
Number of cases evaluated for their disability at diagnosis	9	26	35
Number with grade 1disabilities	0	0	0
Number with grade 2 disabilities	4	1	5
Retreatment cases			
Number of relapses	1	0	1
Number of retreatment after default	0	0	0
TOTAL OF CASE	10	26	**36**

Source: TB Quarterly reports, Leprosy quarterly report, Leprosy register

Although active case finding activities remain the principal method of diagnosis, we realize the importance of passive case finding activities in other non-endemic districts. This year we were able to diagnose 1 case in Kicukiro/Gahanga diagnosed by the Rwanda Military hospital and 2 cases from the Butaro health centre catchment area. Both Kicukiro and Butaro are non-endemic areas for Leprosy. The Central level also supported the peripheral level with active case finding and long term clinical follow up of former leprosy cases in endemic areas.

Picture 4 : Leprosy cases active case finding (contacts investigations) in Gahanga Sector in 2016.

Upon a request from the Ministry of health, active case finding activities were conducted in MAZANE Island 16th -17th June 2016 in 64 homesteads with the aim of screening families to be moved from the island to BATIMA village. In this regard, 238 households (equivalent to 318 people) were screened for Leprosy in collaboration with NYAMATA district Hospital and local authorities. The activity screened 293 (93%) with a diagnosis of 2 cases (1MB&1PB).



Picture 5 : Leprosy cases active case finding in Mazane Island in June 2016.

II.1.2. Strengthen quality control services against leprosy and the capacity building of health care providers and community health workers

Capacity building of health care providers and community health workers was carried out in health facilities during RSQA activities. The table below summarizes the training July 2015- June 2016.

Table 24 : Workshops and Trainings on preventive and control of leprosy, July, 2015 – June, 2016

Period	Beneficiaries	Comments
20 -25 Sept, 2015	Leprosy focal points and Data Managers	Leprosy Mentorship on leprosy case management & e-leprosy data entry, creation of events in Bugarama Islamique, Bugarama Muganza, Gikundamvura &Nyabitimbo.
	Leprosy focal points and Data Managers	Leprosy Mentorship on leprosy case management & e-leprosy data entry, how to create the events in Nzangwa, Mareba, Rilima.
28th Sept -2nd October, 2015	Leprosy focal points and Data Managers	Mentorship of leprosy activities in Ngoma (Jarama), Rubavu (Nyundo), Kamonyi (Karangara), Karongi (Karora) districts
13-18/12/ 2015	Training held at Home Saint Francois	17 health care providers from Mibilizi district hospital catchment area were trained on leprosy case management.
January to March	Training of nurses	An integrated training including leprosy disease was conducted, 103 health care providers from Kaduha, Munini, Byumba, Bushenge and Murunda DH catchment area were trained
18-22 / 02/ 2016	Medical doctors	44 out of 47 medical doctors were trained at Musanze about leprosy, PAL and Tuberculosis
08- 11/02/ 2016	CHW of Jarama, Mareba, Nzangwa HC	240 CHW in endemic sites were trained on leprosy signs (82 in Jarama (Ngoma), 102 Mareba (Bugesera) and 56 Nzangwa (Bugesera)
21-24 /03/ 2016		
15-18 /02/ 2016		
12- 13 /05/ 2016	TB Division staff*, Supervisor & Medical Doctor from Nyamata DH, 24 nurses & Focal points	Leprosy annual workshop to assess leprosy strategies was conducted, 33 persons from endemic areas such as Rusizi, Bugesera, Gisagara, Ngoma and Rubavu districts attended
13 - 17 /06/2016	Leprosy Senior Officer	Workshop Held at Huye district to address e-TB and customization of leprosy in the DHS2 platform

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

II.2.1. Leprosy treatment outcomes

The table below shows treatment success rate for new cases, relapses, and retreatment after default. For MB forms treated from July 2013 - June 2014, the treatment success rate for new cases was 88%, 100%success rate for relapse cases and 67% for retreatment after default.

For PB forms treated, we had 92% success rate for new cases and 100% for retreated after default. The PB result e for treatment success was 96% for new and relapse against the success target rate for 2018 that is set at 95%. The success target rate for MB form was set at 90%, but this was not achieved as 2 (8%) MB cases discontinued treatment, and 1 (4%) died

Table 25 : Outcomes of Leprosy cases (MB registered from July 2013- June 2014 and PB registered from July 2014- June 2015)

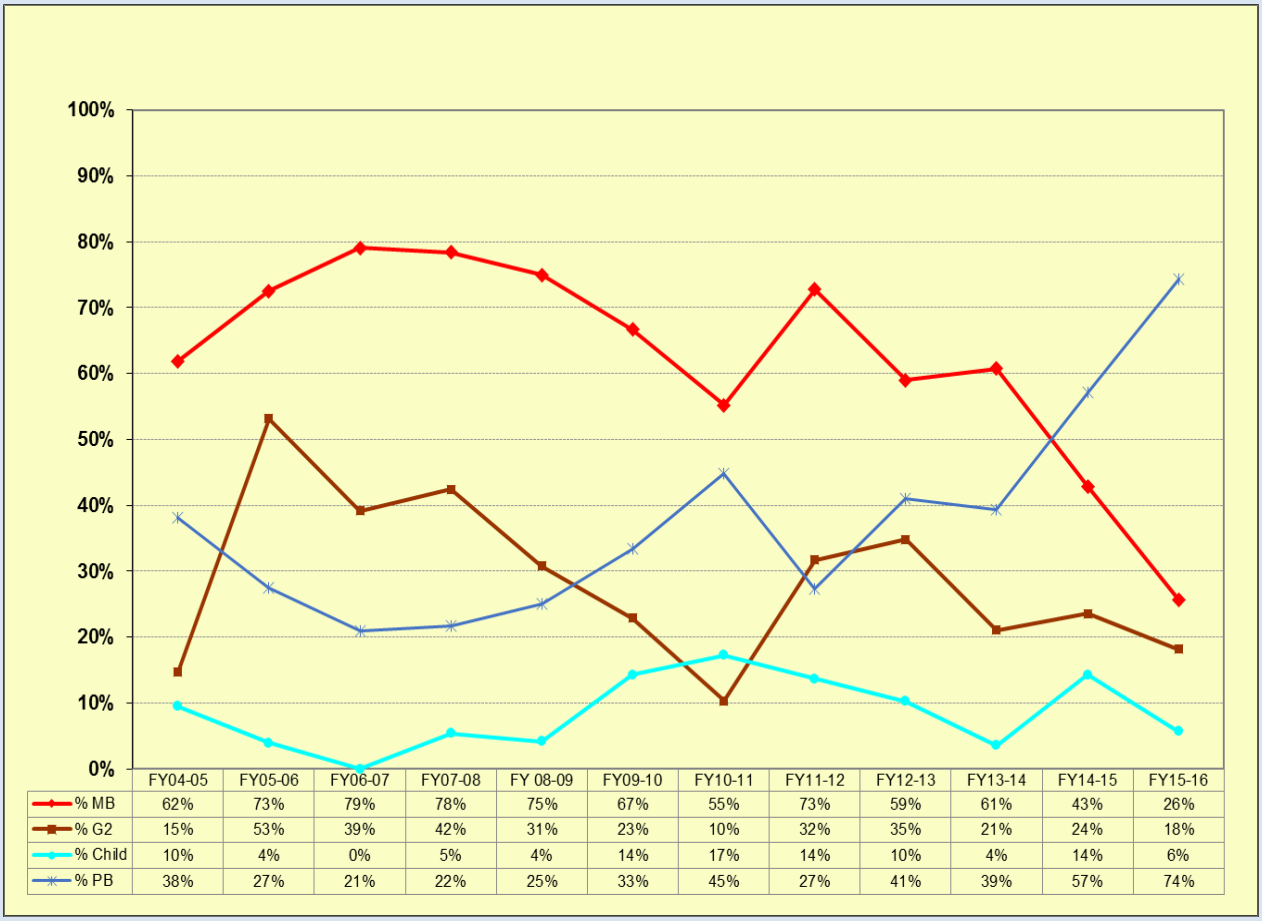
Cases	New cases		Relapses		Retreatment after default	
	MB	PB	MB	PB	MB	PB
Registered	17	24	4	0	3	1
Treatment completed	15	22	4	0	2	1
Discontinuation of treatment	1	2	0	0	1	0
Died	1*	0	0	0	0	0
Non evaluated	0	0	0	0	0	0
Treatment success (%)	88%	92%	100%	#DIV/0!	67%	100%
Disability Grade 2 after treatment	1	0	1	0	-	0

Among new cases 1death occurred in Bugarama HC during treatment was due to liver disease with significant ascites and one who was registered in retreatment case at Kirarambogo HC, he abandoned due to the drugs side effects of anti leprosy but later he started individualized regimen (Minoxycline, Clofazimine et levofloxacine).

II.2.2. Prevent disability due to leprosy and aggravation

Through Rapid Service Quality Assessment (RSQA) activities, continuous messages for early detection of leprosy in non-endemic and endemic sites of leprosy, systematic disability evaluation for patients undergoing treatment were carried out in most health facilities with special emphasis in endemic areas to prevent occurrence and aggravation of disabilities. We also evaluated patients at the end of the treatment period to ensure that there is no aggravation of disability between the start of diagnosis/treatment period.

Leprosy tools were printed to increase the awareness of Leprosy in health facilities, communities and enable early diagnosis of leprosy cases. These include 3750 leaflets, 1500 posters, 2500 leprosy treatment guidelines, 1000 diagnosis algorithms and 1000 follow up algorithms. These IEC materials were distributed to both endemic and non-endemic areas. We still record 14% patients with Grade 2 disability at the start of treatment. We need to further reduce this to 10% by 2018 as set out in the Leprosy NSP targets.



	FY04-05	FY05-06	FY06-07	FY07-08	FY 08-09	FY09-10	FY10-11	FY11-12	FY12-13	FY13-14	FY14-15	FY15-16
% MB	62%	73%	79%	78%	75%	67%	55%	73%	59%	61%	43%	26%
% G2	15%	53%	39%	42%	31%	23%	10%	32%	35%	21%	24%	18%
% Child	10%	4%	0%	5%	4%	14%	17%	14%	10%	4%	14%	6%
% PB	38%	27%	21%	22%	25%	33%	45%	27%	41%	39%	57%	74%

Figure 8 : Trend in leprosy notification, by case category and physical disability, from July 2004 to June 2016

As shown in the graph above, we have seen a gradual decrease of MB cases with an increase in PB cases. This is a proxy for early detection of Leprosy and a reduction in the number of infectious patients.

II.2.3. Facilitate medical rehabilitation and socio-economic reintegration of patients with leprosy

II.2.3.1. Surgery for leprosy patients with physical disabilities

As consequence of early detection of leprosy the number of Multibacillary and people presenting with physical disability at diagnosis progressively declined compared to the previous years, the need for surgical treatment of leprosy cases subsequently reduced among new and former cases in clinical follow up. One 1 case from JARAMA health centre, NGOMA district presented with a deep ulcer and was transferred to HVP GATAGARA for treatment.

II.2.3.2. Socio-economic reintegration of vulnerable groups who suffer from leprosy

Leprosy is a disease that usually affects the poorest and most vulnerable members of the society. For improved socio-economic status and patient treatment outcomes, the vulnerable groups receives some support that may be in the form of renovation of houses, support to pay medical insurance payment of medical fees, income generating activities and so on. The following table shows the support provided from July 2015- June 2016.

Table 26 : Supportive activities to the vulnerable group between July 2015 and June 2016

District	Health facilities	Houses renovated	Payment of CHBI*	Nutrition support	IGA (Goats)
Rusizi	Bugarama	2	195	0	0
Rusizi	Nyabitimbo	0	165	0	0
Gisagara	Kirarambogo	0	226	0	0
Bugesera	Rilima	2	130	1	0
Bugesera	Nzangwa	0	123	0	0
Bugesera	Mareba	1	147	0	0
Ngoma	Sangaza	0	5	0	0
Ngoma	Jarama	3	147	0	0
Kamonyi	Karangara	1	5	0	0
Rwamagana	Gishali	1	0	0	0
Ruhango	Kinazi	0	10		0
Total		**10**	**878**	**1**	**0**

Source: Quarterly financial report 2015-2016

*IGA- Income Generating Activities, CHBI: Community Health based Insurance,

* SU: Specialized unit

- Other support like basins and protection materials were distributed in order to protect their feet and Vaseline to soften the skin of the feet and palms.
- Administrative support was given to the "Abisunze Impuhwe z'Imana" association that has an agriculture and livestock project, this association had a failed crop season due to floods. They also have a very low administrative capacity and we requested continued support from NYUNDO health centre.

II.3. Objective 3: Increase efforts for sensitization, information and communication, in order to reduce stigmatization among leprosy patients and their families

Sensitization, information and Communication on prevention and control of leprosy disease were carried out as preparatory steps for active case finding in endemic areas. In addition to this, the leprosy team engaged churches and local administrative leaders on sensitizing local populations on key strategic messages about leprosy including stigma and care. BCC activities were also implemented in all health facilities through partnership with churches and Community health workers.

- Radio shows and talks in commercial and community based radios were carried out with the aim to sensitize populations on cardinal signs of leprosy, leprosy case

management, effects of delayed diagnosis and preventive strategies that can be used in the community were performed.

- An article about "Know and early consultation for leprosy disease" was published through IMVAHO NSHYA news paper.

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, USG PEPFAR, Damian Foundation and contribution from One UN (WHO).

III.2. Funding Sources for TB Expenditures in Rwanda FY 2015/16

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.

Although the system is currently operating, data of the actual financial report were generated through SMART FMIS given that HRTT captured so far budget and expenditures of 2014/2015. To facilitate the collection of financial information for this year's report, a separate data collection process was adopted using SMART FMIS (Integrated Financial Management Information System) for Global Fund grant and Government contribution; and directly from in country office for PEPFAR and UN agencies (One UN) contribution.

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

The Global Fund for AIDS, TB and Malaria (GFATM) contributed for USD 8, 424,188 (72.49%) of the total budget for the reporting period.

The GoR contributed USD 2,992,153 representing 25.75% of the NSP budget FY 2015-2016.

The United States Government (USG) contributed through HIV NSP budget for HIV/TB component for USD 1,507,358.

Damian Foundation contributed USD 120,665 representing 1.04% and lastly WHO contributed USD 84,681 representing 0.73% of NSP budget FY 2015-2016

Regarding expenditures, with TB/NSP GF grant USD 7,726,504 were spent and this represents 91.25% of the planned total budget FY 2015-2016.

GoR expenditures were USD 2,915,533, this represents 97.4% of the planned total budget FY 2015-2016.

The United States Government (USG) PEPFAR provided its support to TB program through HIV program for an amount USD 1,507,358*.

Damian Foundation spent USD 101,863 (84.4%) and the One UN (WHO) spent USD 29,310 representing 34.6%.

For the FY 2015/16, the overall total expenditure for TB was USD 10,773,210 which represents 92.36% of the planned budget of USD 11,664,562.

Table 27 : Contribution of Different Funding Sources

Funder	BUDGET(USD)	Share as % of Budget (USD)	Amount spent (USD)	Budget execution rate
GOR (Recurrent Budget)	2,992,153	25.65%	2,915,533	97.44%
Damian Foundation	120,665	1.03%	101,863	84.42%
Global Fund TB NSF	8,467,063	72.59%	7,726,504	91.25%
WHO	84,681	0.73%	29,310	34.61%
Grand Total	**11,664,562**	**100.00%**	**10,773,210**	**92.36%**

*PEPFAR FY16 budget included $1,507,358 in TB/HIV funds. PEPFAR expenditures related to the TB/HIV budget are subject to final confirmation with expected annual FY 2015-2016 expenditure report

Table 28 : GoR TB budget and expenditure per MTEF Program Category for the FY 2015-2016

MTEF Program	Budget $	Spendings $	Share as % of Expenditures	Budget execution rate
Administrative and support services	156,752	155,339	5%	99%
Disease prevention and control	243,122	202,323	7%	83%

Financial and geographical health accessibility	783,946	779,844	27%	99%
Health human resources	840,942	837,566	29%	100%
Health quality improvement	687,495	659,920	23%	96%
Health sector planning and information	2,194	2,194	0.1%	100%
Policy development and health service regulation	27,159	26,763	1%	99%
Specialised health services	250,543	251,584	9%	100%
Grand Total	**2,992,153**	**2,915,533**	**100%**	**97%**

As the table shows, for FY 2015-2016 GoR is contributing to TB expenditures the total amount of $ 2,915,533 with TB Expenditures by MTEF program ranging from a low of $ 2,194 (0.1%) for health human resources to a high of $837,566 (29%).

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 29 : GoR TB NSP budget and expenditure per NSP cost category FY 2015/2016

GF Category	Budget $	Expenditures $	Share as % of Expenditures	Budget execution rate
01. Human Resources	1,156,847	1,153,891	39.60%	100%
02. Technical Assistance	116,595	116,430	4.00%	100%
03. Training	304	299	0.00%	98%
04. Health Products and Health Equipment	143,506	133,333	4.60%	93%
05. Medicines and Pharmaceutical Products	44,418	13,858	0.50%	31%
06. Procurement and Supply Management Costs	609,376	584,365	20.00%	96%
07. Infrastructure and Other Equipment	226,110	221,862	7.60%	98%
08. Communication Materials	6,121	5,962	0.20%	97%
09. Monitoring & Evaluation	40,541	38,590	1.30%	95%
10. Living Support to Clients/Target Populations	508,006	508,006	17.40%	100%
11. Planning and Administration	36,722	36,654	1.30%	100%
12. Overheads	103,607	102,285	3.50%	99%
Grand Total	**2,992,153**	**2,915,533**	**100%**	**97%**

The top 4 NSP cost categories with the highest share of expenditure are Human resources with 39.6%; Procurement and Supply Management Costs with 20.0%, Living Support to Clients with 17.4%; Infrastructure and Other Equipment with 7.6%. The remaining 8 NSP cost categories are represented with 18.1%. The overall budget execution rate is 97%.

III.5. The Global Fund contribution

For the Global Fund contribution, the budget for the year 2015–2016 was USD 8,424,188 which is 72.49% of contribution to the TB NSP operational plan for this ending fiscal year. Out of this budget, a total of USD 7,726,504 has been effectively spent by the sub-recipients; that is 91% of total planned budget for TB NSF GF grant. The balance of USD 740,559 is subject for carry over for the fiscal year 2016-2017.

Table 30 : GF TB NSP budget and expenditure per type of budget entity FY 2015/2016

TB GF Grant Sub recipients	Budget FY 2015-2016 in USD (A)	Expenditures as at 30th June 2016 in USD (B)	Expenditure share	Budget execution rate
MoH (CAAC, CHD)	1,674,015	1,674,487	22%	100%
RBC (SPIU,CS, LNR,MPDD, TB DIVISION)	4,360,436	3,624,585	47%	83%
Health Facilities (DHs &HCs)	1,232,895	1,229,938	16%	100%
Referral Hospitals (CHUK, CHUB and RMH)	804,328	804,328	10%	100%
Other Public Institutions /CNJR	42,325	42,326	1%	100%
NGOs + RRP+	353,064	350,841	5%	99%
Grand Total in USD	**8,467,063**	**7,726,504**	**100%**	**91%**

The table above shows the TB NSP budget execution per type of budget entity of the GF contribution for the FY 2015-2016. The largest expenditure was done by RBC (SPIU,CS, LNR,MPDD, TB Divisions) with 47%; followed by MoH with 22%; Health facilities with 16%, Referral hospital with 10%, NGOs with 5%, other public institutions with 1%.

Table 31 : TB NSP GF Grant budget execution per cost category as of 30th June 2016

GF TB NSP Cost Category	Budget 2015/2016 in USD	Expenditures 2015/2016 in USD	Performance rate of budget execution
Human Resources	1,095,267	891,965	81.4%
Technical Assistance	23,920		0.0%
Training	137,530	126,415	91.9%
Medicine, Health Products and Health Equipment	2,908,163	2,642,671	90.9%
Procurement and Supply Management Costs	78,542	21,748	27.7%
Communication Materials	115,671	79,366	68.6%
Monitoring and Evaluation	250,413	197,949	79.0%

Living Support to Clients/Target Population	1,841,107	1,880,791	102.2%
Planning and Administration	93,692	42,187	45.0%
Overheads	336,798	262,631	78.0%
Other (DH and NGOs	1,585,958	1,580,779	99.7%
TOTAL	**8,467,063**	**7,726,504**	**91.3%**

The table above shows the TB NSP budget execution per cost category of the GF contribution for the FY 2015-2016, representing a total rate of 91.3% expenditures over budget.

CHAPTER IV: CONCLUSION

Different channels were used for to intensify and improve Tuberculosis screening and diagnosis. Sensitive TB diagnostic services are more available with the expansion of LED microscopy and molecular test (Genexpert) in health facilities and intensified case finding within High Risk Groups. As result, we registered an increase in bacteriological confirmation. Community Health workers remain an important resource for TB screening and diagnosis. Some improvements are needed in samples transportation and results back to demanding health facilities.

For indicators related to patient management, success was recorded for treatment success for bacteriologically confirmed TB cases, treatment success for clinically diagnosed TB cases, treatment success for community DOT and ART initiation during TB treatment. We need to give more attention and efforts to achieve preset targets in sputum smears and culture controls for MDR-TB patients and improve the death audit system for better understanding of potential causes of mortality.

Of all CDTs and CTs, 80% were applying the minimum package of infection control activities, the remaining faced issues like lower awareness on TB IC measures. Surveillance of TB disease among health facilities workers initiated in July 2015 shows less than half were screened for TB.

Regarding program management, coordination, planning and financing, our main achievements were to revise some of our guidelines/SOPs including high risk groups, TB/HIV and M&E. We also built capacity of health facilities in areas of TB, TB/HIV and MDR-TB management, Chest X-ray reading, e-TB analysis, PAL and LED microscopy technique. We completed implementation and analysis of the 2nd TB drugs resistant (DR) survey and the DR short regimen operational research is currently ongoing. The electronic TB register was improved to solve some identified operational challenges and included leprosy and MDR-TB trackers. Monitoring tools, TB drugs, TB consumables, TB commodities were also provided to health facilities for better management of patients and program.

Leprosy is a preventable and cured disease; awareness of population, routine detection, systematic active case finding and contact investigation in endemic areas are strategies which can lead to early detection of contagious cases of leprosy in the community, as well prevent physical disability due to the delay of diagnosis.

ANNEX: SUMMARY ACHIEVEMENTS FROM JULY 2015 – JUNE 2016 BY TB NSP AND TB RBF INDICATORS

Annex 1 : Indicators of the 2013-2018 TB in Rwanda, from July 2013 to June 2016.

	2013-2014		2014-2015		2015-2016	
	Target	**Result**	**Target**	**Result**	**Target**	**Result**
Objective 1: Provide early TB detection in general population by intensifying case-finding in prioritized high-risk groups so 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 (5,979)	56.4/100,000 (6,085)	(53.3/100,000) 5,895	(52.5/100,000) 5,828	(50.9/100,000) 5,784 (NSP target) (6,085 for GF target)	(50/100,000)* 5,763
Notification rate of new pulmonary bacteriologically confirmed TB cases ***(2013-2018 TB NSP indicator 2)***	32.9/100,000 (3,554)	35.1/100,000 (3,789)	31.7/100,000 (3,504)	34.9/100,000 (3,872)	30.3/100,000 (3,438)	34/100,000 (3,923)*
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% (1,161/6,085)	20%	19.2% (1,117/5,828)	20% (NSP target) (20% for GF target)	19.4% (1,116/5,763)
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 o indicator 1)***	91.4%		94%		96%	75.5% (151/200)
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)
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) (Genexpert testing)
Strategic intervention 1.3. Enhance TB case finding in selected and prioritized high risk groups.						
Proportion of TB cases notified among high-risk groups (Number and Percentage) ***(2013-2018 TB NSP indicator 7, RBF indicator)***	895/5,979 (15%)	321/6,085 (5%)	18% 1,047/5,895	15% 851/5,828	21% (NSP target) (21% for GF target)	43.9% (2,534/5,763)

	2013-2014		2014-2015		2015-2016	
	Target	**Result**	**Target**	**Result**	**Target**	**Result**
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 RBF indicator)***	NA	NA	87%	90%	88% (NSP target) (89% for GF target)	90%
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%
Cure rate bacteriologically confirmed new and relapse TB cases ***(2013-2018 TB NSP outcome indicator 10)***	NA	NA	82%	85%	82%	83%
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 (**98.6%**)	99%	5793/5830 **(99%)**	99%	5,719/5,763 (99%)
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 (**99.8%**)	95%	196,474/198,773 **(99%)**	96%	166,819/167,941 (99%)
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 **(90.3%)**	88%	1339/1475 **(91%)**	89% (NSP target) (90% for GF target)	1,360/1,449 (93.9%)
Strategic intervention 2.4. Increase to 95% the treatment success rate for TB patients managed in the community						
Treatment success rate for TB patients (all forms) receiving DOT through community health workers (CHW) ***(2013-2018 TB NSP outcome indicator 14)***	2,225/2,368 (94%)	2,678/2,853 (94%)	94%	(2728/2885) 95%	94%	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%	97% (73/77)	100%	99% (68/69)	100%	99% (95/96)
Treatment success rate, confirmed RR/MDR-TB (***2013-2018 TB NSP outcome indicator 16, RBF indicator***)	87%	94%	87%	88%	87% (NSP target) (≥90% for GF target)	85%
Interim results: culture conversion at six months ***(2013-2018 TB NSP process indicator 17***)	90%	79%	91%	89%	91%	78%

	2013-2014		2014-2015		2015-2016	
	Target	**Result**	**Target**	**Result**	**Target**	**Result**
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
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%	81.2% (1,828/2,252)**$**

*****Rwanda population estimated at 11,533,446, as per the National Institute of Statistics of Rwanda: http://www.statistics.gov.rw/statistical-publications/subject/population-size-and-population-characteristics. Accessed on 16 August 2016.

$: Based on the" TB/HIV and TB among people at high risk of TB and Community DOTS, Screening – July 2015 to Jun 2016" dataset of the HMIS, used by both CDTs and CTs.

Annex 2 : level of achievement of TB RBF indicators in Rwanda, from July 2015 to June 2016, compared to targets.

TB RBF indicators	Target	Result	Level of achievement
Notification rate of all TB cases (all forms)	50.9/100,000 (6,085 for GF target)	50/100,000* (5,763)	98%
Proportion of TB cases (all forms) referred by CHW during the evaluated year.	20% for GF target	19.4% (1,116/5,763)	97%
Proportion of previously treated TB cases with result of a test for detection of resistance to rifampicin or rifampicin and isoniazid	88% for GF target	70% (315/448)	79%
Proportion of TB cases notified among high-risk groups (Number and Percentage)	21% for GF target	43.9% (2,534/5,763)	209%
Treatment success rate for bacteriologically confirmed new and relapse TB cases	89% for GF target	90%	101%
Treatment success rate for clinically diagnosed TB cases (SS-, EPTB and others)	77% for GF target	79%	102%
Number & % of TB/HIV patients receiving ART by the end of TB treatment out of all TB/HIV patients.	90% for GF target	1,360/1,449 (93.9%)	104%
Treatment success rate, confirmed RR/MDR-TB	≥90% for GF target	85%	94%

*Rwanda population estimated at 11,533,446, as per the National Institute of Statistics of Rwanda: http://www.statistics.gov.rw/statistical-publications/subject/population-size-and-population-characteristics. Accessed on 16 August 2016.