The National Tuberculosis and leprosy Programme

Annual report for 2017

National TB and Leprosy Programme (NTLP)

Department of Preventive Services

Ministry of Health, Community Development, Gender, Elderly and Children

Table of Contents

ACKNOWLEDGEMENT

The year 2017 has been one of the busiest and successes in the implementation of TB and Leprosy activities in Tanzania. This has been made possible because of the strong collaboration and support which the Program has with the existing and new stakeholders. May I take this opportunity to thank all of these NTLP stakeholders. To us you are a valued partner in this fight to make sure TB and Leprosy are no longer problems in our country.

I would like to thank all those dedicated individuals at facility, regional and national level who made the development of this report possible under the leadership of the Monitoring and Evaluation unit of the Program. I also like to thank the health workers at regional and health facility levels who by recording and timely reporting of TB and leprosy data to the central level has made possible the contents of this report. To them I say keep up the good work and dedication to the call for a healthy Tanzania nation. The focal persons from all the TB and leprosy service and diagnostic sites are especially thanked for their immense contribution to the work of the program.

I extend my gratitude to the Government of Tanzania particularly the Ministry of Health Community Development Gender Elderly and Children and the President office for Regional administration and local governments for the dedicated commitment to TB and leprosy control and mobilization of resources from development partners to support the Programme.

I would like to recognize, in particular, the support from Germany Leprosy and Tuberculosis Relief Association (DAHW/GLRA), World Health Organization (WHO), The Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (GFATM), Centre for Disease Control (CDC) United State Agency for International Development (USAID), Novartis Foundation (NF), Global Drug Facility (GDF),International Organisation for Migrant (IOM),Elizabeth Glaser Paediatric Foundation, Delloite, FHI 360, MDH and The Netherlands Tuberculosis Foundation (KNCV).

On behalf of the Programme, I would like to express my sincere gratitude for the support and encouragement given to us by the Permanent Secretary, Chief Medical Officer and all of the directors.

Dr. Beatrice Mutayoba
Programme Manager (NTLP)
September 2018

2017 TB RESULTS AT GLANCE

69,623 of TB cases notified

13% were Children <15yrs

TB notification Rate 2017

- 41.4 - 85.5 (5)
- 85.5 - 129.5 (8)
- 129.5 - 173.6 (9)
- 173.6 - 217.6 (2)
- 217.6 - 261.7 (1)

90%

Of TB patients were treated successfully

1 GENERAL BACKGROUND

1.1 Demographic and social economic profile

In 2017 the United republic of Tanzania population was projected to be 52,554,628 based on 2012 national census. According to projected population, female make up is 51% (26,867,474) of the total while male is 49% (256,887,154).The annual growth rate is estimated at 2.7% from 2002 to 2012 census. Agriculture is still a major source of livelihood for majority of the population in Tanzania.

1.2 Summary of health services

The Health care delivery system in the country is well established with more than 7,00 (Health facility Registry) health facilities. TB control is fully integrated into the primary health care services. 49% (3,500) of the facilities provide TB treatment services and 199 (15%) provide TB diagnostic services. The Government is the major provider of health services owning and/or run 69% of the health facilities including the face-based facilities which are Designated District Hospitals (DDH).There are 1,500 (21%) health facilities that provide leprosy treatment services and have a leprosy unit registers. These health facilities are known as MDT centres.

Data from Health Information Management System (HMIS) shows that communicable diseases are still the major cause of morbidity and mortality in the country driven by HIV epidemic with national prevalence of 5%[1] in the population aged 15-49 years. TB continued to be among the top ten cause of death and among admission aged five years and above in the country.

1.3 Summary of NTLP activities in 2017

The implemented activities in the period of January to December 2017 aimed at addressing the NSP strategic objectives i.e.:

i. To increase case detection by 29% by 2020 by strengthening routine case notifications and addressing vulnerable groups such as elderly, prisoners, miners and diabetics.

[1] Tanzania HIV Impact Survey 2016-2017

ii. To increase the percentage of childhood TB cases notified in the country from 10.6% to 15% by 2020 by integrating TB services into RCH, CTC and active case finding.

iii. To increase MDR TB cases detected and enrolled for treatment from 17% of the estimated total cases among those notified to 84% by 2020 by scaling up new diagnostic technologies and decentralizing MDR TB services

iv. To expand TB/HIV collaborative activities by ensuring that all TB patients are tested for HIV and those who test HIV positive are put on ART promptly and managed

v. To establish the magnitude of TB and increase case notification rate within the mining sector by 2020

vi. To reduce new Leprosy cases with disability grade 2 from 0.7 to 0.3 per 100,000 population by 2020 by enhancing early case finding and treatment of leprosy patients

vii. To support implementation of good quality, accessible and equitable TB and leprosy services in the country by 2020 through health and community systems strengthening and good programme management

viii. To institute an efficient and integrated M&E system that ensures all indicators listed are tracked and reported timely.

ix. To increase collaboration between the program and research/academic institutions on operational research

1.4 Financial Support

The Ministry of Health Community Development, Gender, Elderly and Children through National Tuberculosis and Leprosy Program (NTLP) received approximately USD 11,077,695.18 through government consolidated funds, external grants and loans in year 2017. Government resources channeled through the program for program management and support the health system and infrastructure maintenance as well as staff remuneration at all levels.

Direct cash was received through grants supports from Centers for Disease Control and Prevention (CDC) grant, The Global Fund-NFM grant, German TB and Leprosy Relief Association (GLRA) grant and World Health Organization (WHO) grant as detailed below.

Table 1: NTLP Source of Funds 2017

S/N	Source of Funds		Amount in US$
1	Government Contribution		380,000.00
2	GLRA - NTLP Support +L-PEP		63,430.22
3	Centre for Disease Control and Prevention(CDC)		750,000.00
4	World Health Organisation		51,723.60
5	Global Fund		8,939,846.04
6	World Bank(East African Lab Project)		29,137.32
7	USAID		863,558.00
	TOTAL FUNDS		**11,077,695.18**

In addition to the above direct cash sources, the Program received significant support indirectly through implementing partners. The main Partners were: KNCV-Challenge TB, Delloite, EGPAF, IOM,GLRA and Other CSOs

2 HUMAN RESOURCE DEVELOPMENT

2.1 HUMAN RESOURCE DEVELOPMENT

The Programme is composed of both permanent and contractual employees at the central unit (TLCU) and regional and district coordinators who are under the PO RALG

2.1.1 *Staff* establishment

In this reporting year there were 42 staffs at central level and 31 Regional TB and Leprosy coordinators. There were 196 DTLCs and 92 TB/HIV Officers. In the councils which were not fully established, DTLCS from the mother councils continued to oversee and coordinate TB and leprosy control activities. One contract staff left the program at Central unit for other opportunities, one retired and five new officers joined the program.

2.1.2 ***Capacity*** building: Training activities and meetings

2.1.3 Local Trainings

Trainings continued to be an integral part in ensuring quality delivery of services to the community. During this year trainings were conducted to the healthcare providers on TB case detection (Quality Improvement in TB case detection), Collaborative TB/HIV Management activities, Comprehensive HIV/AIDS Management, Paediatric TB and TB/HIV management and MDRTB management. In addition the providers were also oriented on the use of the improved electronic record and reporting system.

See Table 2 for a summary of Key trainings conducted in 2017.

Table 2: Summary of Trainings conducted in 2017

S/N	Name of the Training	Regions covered	No. of HCWs
1.	Quality Improvement in TB case detection	16	1,228
2.	Collaborative TB/HIV management	4	31
3.	Comprehensive HIV/AIDS Management	5	200
4.	Paediatric TB Management	16	828
5.	Sputum fixing	16	325

S/N	Name of the Training	Regions covered	No. of HCWs
6.	DTLC course	13	22
7.	TB/HIV induction course	21	54
8.	Sensitize prison authorities	14	315
9.	Laboratory Trainings	16	1500
10.	Drug Dispensers - ADDO	16	540
11.	X-ray reading interpretation	4	120
12.	Pharmacovigilance	12	600
13.	TB/HIV to HCWs	6	125
14.	Gene-Xpert	5	70
15.	TB & Lep Logistic system	20	4000
16.	DR-TB Management	16	214
17.	DHIS2-ETL	31	276
		TOTAL	**10,172**

2.1.4 International Trainings

Five (5) Staffs from TLCU participated in UNION short courses to build capacity on supply chain management (2) and Monitoring and evaluation (3)

3 TUBERCULOSIS CONTROL SERVICES

3.1 Tuberculosis case notification in 2017

A total of 69,623 cases of all forms were notified in 2017, which is an increase of 5.6 % or 3,715 cases compared to the year 2016. Among the cases notified, new and relapse cases were 68,273 (98.06%) of which 28,687 (41%) were bacteriological confirmed. Table 2 below shows the comparison of TB notification in 2016 and 2017 by TB classification groups.

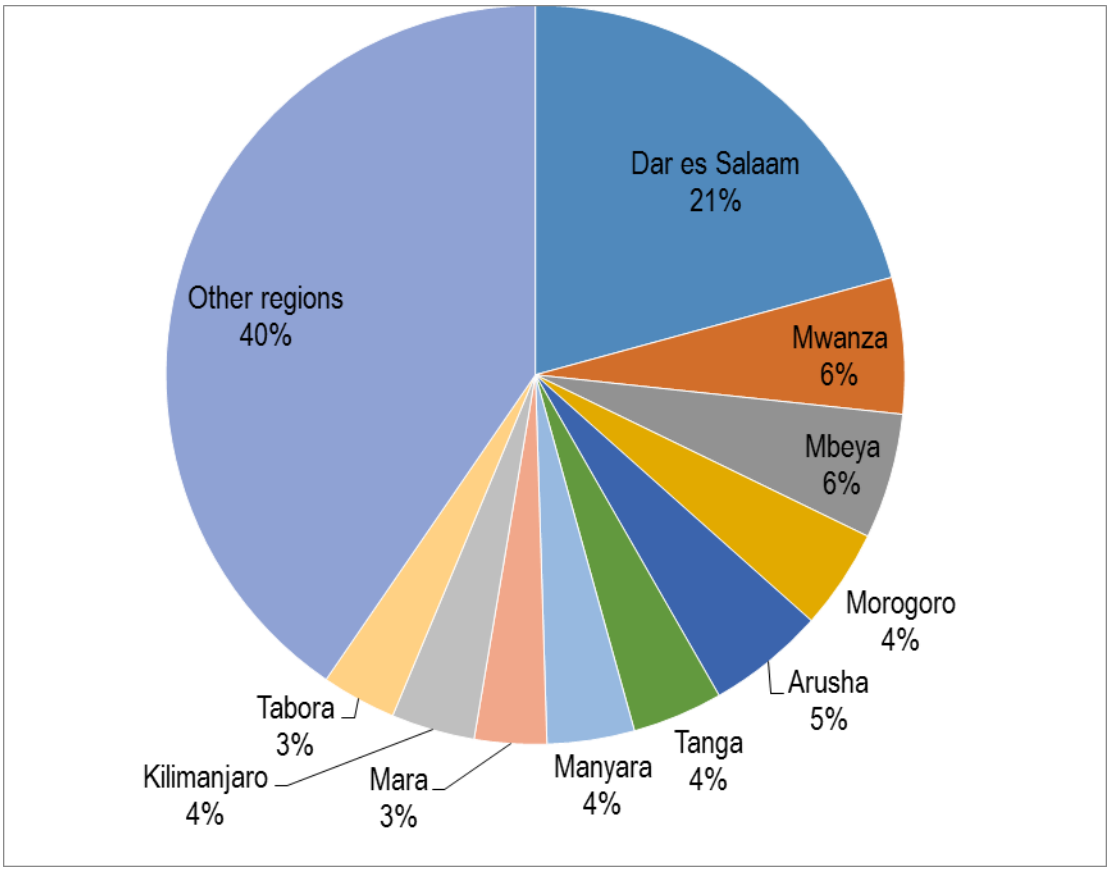
Table 3: Tuberculosis cases notified in Tanzania 2016 – 2017

Indicators	2016		2017		Change	
	Cases	%	Cases	%	num.	%
All forms	**65,908**		**69,623**		3,715	5.6
New Cases						
-Bacteriological confirmed TB cases(PTB)	25,887	39.3	26,364	37.9	477	1.8
- Clinically diagnosed TB cases (PTB)	23,465	35.6	25,951	37.3	2,486	10.6
- Extra-pulmonary	13,284	20.2	13,780	19.8	496	3.7
Total	**62,636**	**95.0**	**66,095**	**94.9**	**3,459**	**5.5**
Previously treated						
- Relapse	1,768	2.7	2,178	3.1	410	23.2
- Failure	143	0.2	145	0.2	2	1.4
- Return after lost to follow up	268	0.4	302	0.4	34	12.7
- others	872	1.3	903	1.3	31	3.6
Total	**3,051**	**4.6**	**3,528**	**5.1**	**477**	**15.6**

3.1.1 Tuberculosis notification by regions

Dar es Salaam city has remained a major contributor of TB cases notification in Tanzania. Its contribution makes 21% of all cases notified in the country. There was considerable regional variation as in the previous years with 50% of cases being contributed by 6 regions - Dar-es-Salaam, Mwanza, Mbeya, Morogoro, Arusha and Tanga. The data indicated that 16 regions notified below the national average of 133 cases per 100,000 population.

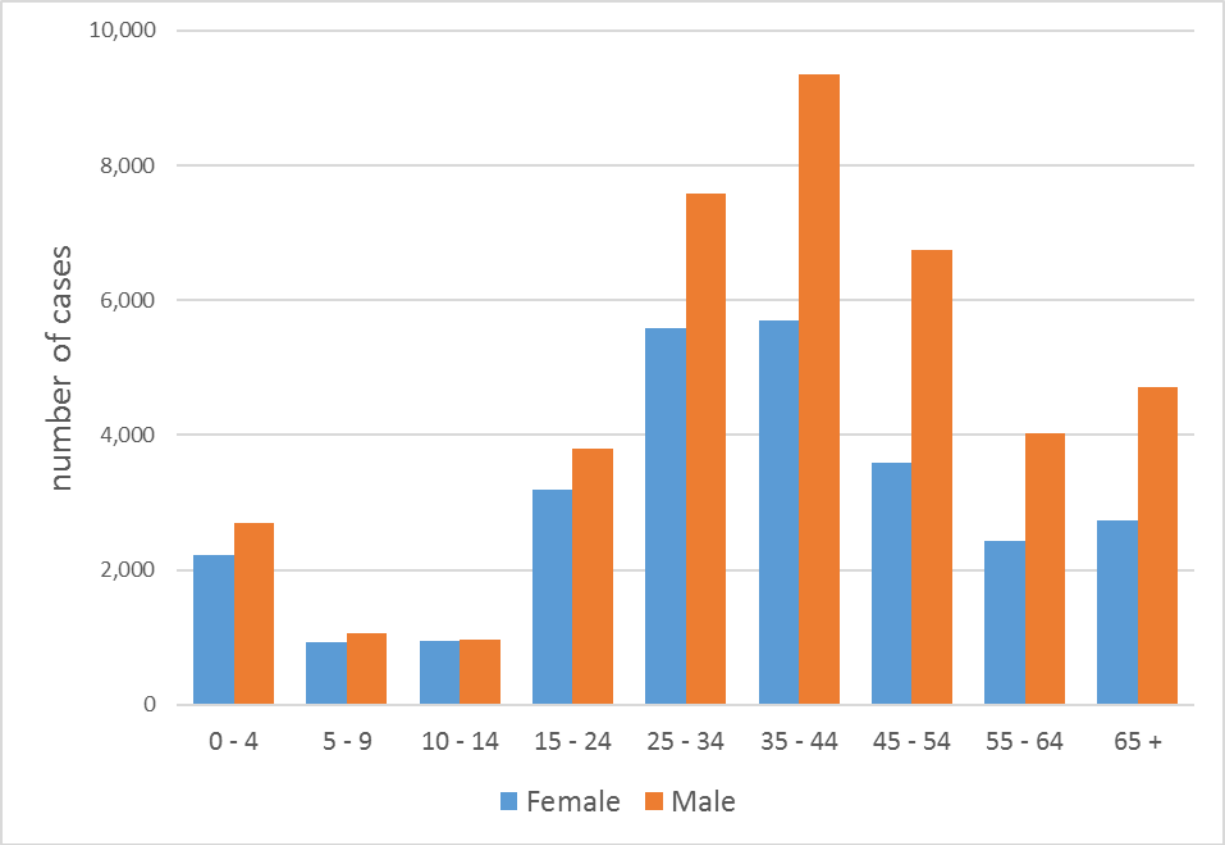
Figure 1: Distribution of TB cases notified by regions in 2017



3.1.2 Tuberculosis case notifications disaggregated by sex and age

The age-sex distribution of the new and relapse TB cases notified in 2016 shows that 40,946 (60%) cases were males and 27,327 (40%) females with a sex ratio of over 1:1.5. The number of children aged 0–14 years old notified among new and relapse cases were 8,819 (13%). Age-sex distribution of the new and relapse cases also shows that, the highest number of TB cases notified was in the age groups of 25-34 years and 35-44 years for both males and females as summarised in Figure 2 below.

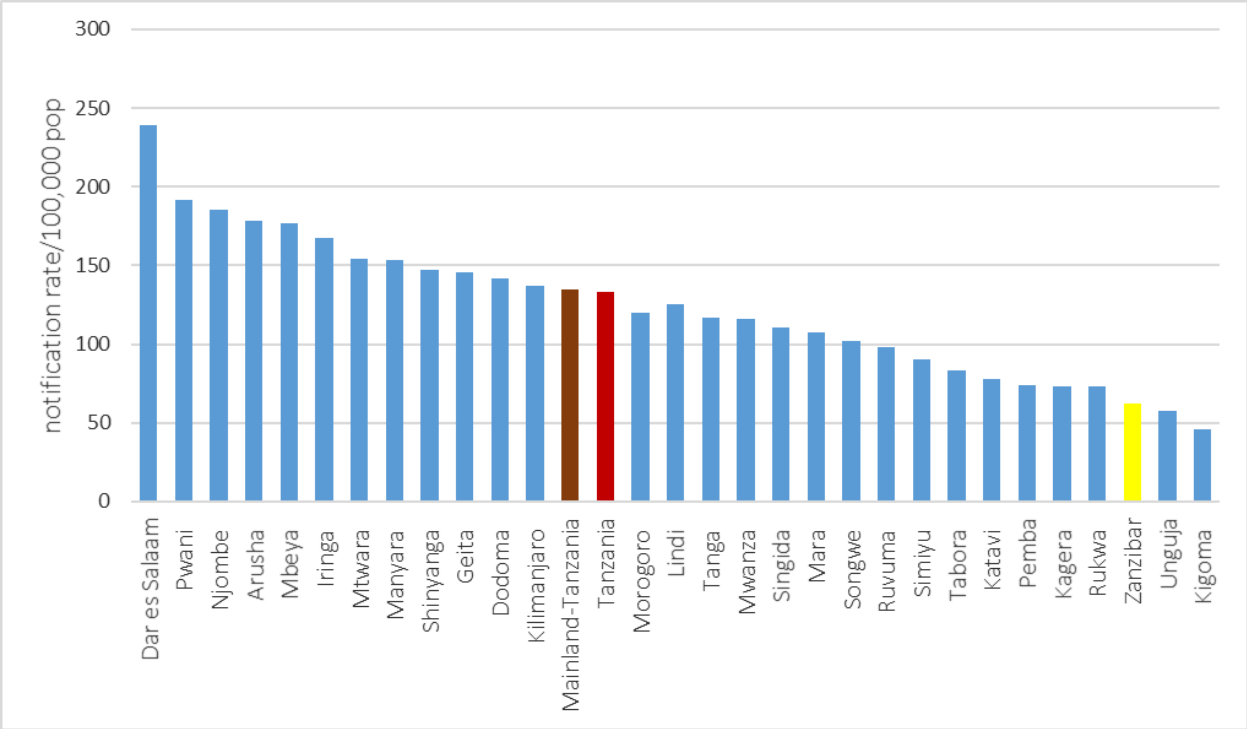
Figure 2: Age and Sex distribution of new and relapse TB cases notified in 2017



3.1.3 Tuberculosis notification rate

Twelve regions has notification rate of above national average are: Dar es Salaam; Iringa; Pwani; Arusha; Manyara; Njombe; Mtwara, Dodoma, Geita, Shinyanga, Kilimanjaro and Mbeya. The notifications rates for Unguja and Pemba have been presented separately but in comparison to administrative regions in the Mainland. The figure below shows notification rate of TB cases by regions and Zanzibar.

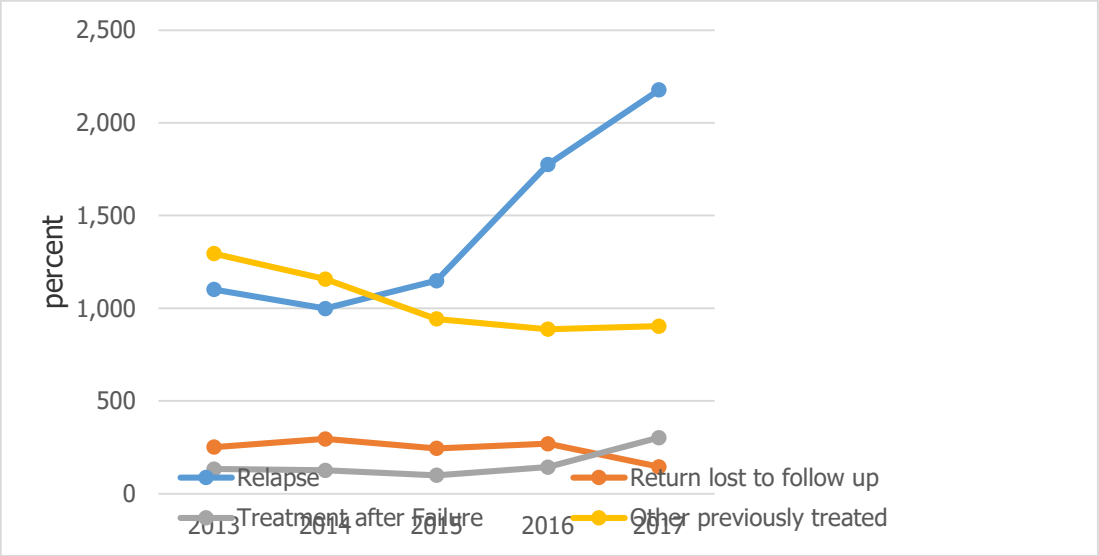
Figure 3: Notification rate TB new and relapses cases notified by region for 2017



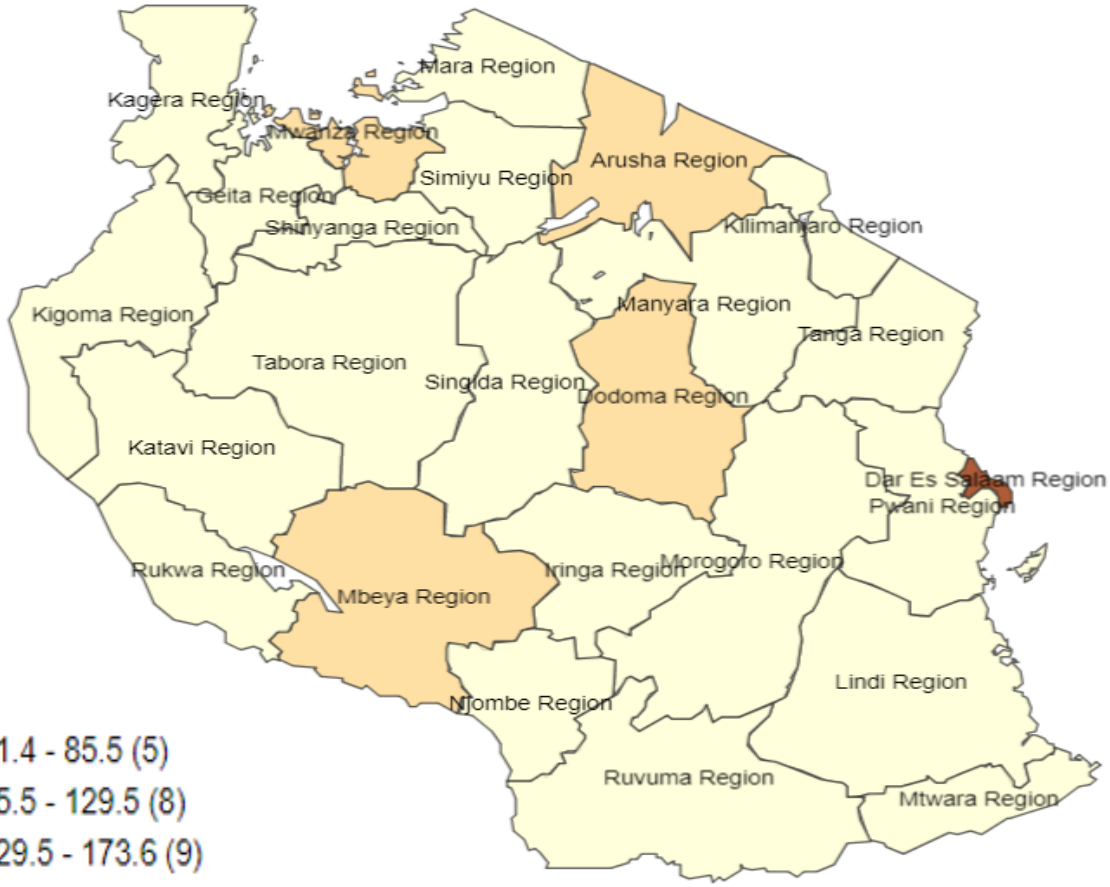
3.1.4 Previously treated cases of Tuberculosis

Previously treated TB cases notified in 2017 were 3,528 cases which is 5.1 % of all cases notified in the country. Among them relapse cases contributed 62% of all previously treated cases.

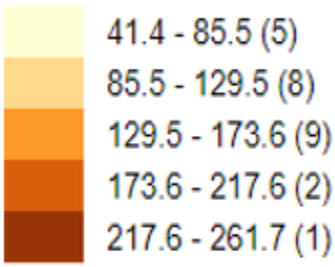
Figure 4: Trends of Previously Treated TB cases notified from 2013 to 2017



Regional TB Notification Rates 2017



Key:



3.2 Tuberculosis treatment outcome for cohort notified in 2016

3.2.1 New and relapse cases

The overall treatment success rate for 64,609 new and relapse TB cases notified in 2016 was 90%, while death rate was 6%. 2% of TB notified cases in 2016 failed treatment and 2% lost to follow up during the treatment. The outcome of 1,500 (2%) cases are not available.

The treatment outcomes among the TB groups by history of previous TB treatment, vary from 90% treatment success rate for new TB cases to 86% for relapse TB patients. The table below summarizes treatment outcomes of groups.

Table 4: TB treatment outcome of new and relapses TB cases notified in 2016

TB groups	number of TB cases notified in 2016	Treatment outcomes							
		cured	Treatment completed	Failed	Died	Lost to follow up	not evaluated	treatment success	treatment success - %
New. Bacteriological confirmed	25,958	21,079	2,773	148	1,082	474	402	23,852	92%
New Pulmonary clinically diagnosed	23,538		21,157		1,642	366	373	21,157	90%
New Extra-Pulmonary clinically diagnosed	13,338		11,624		880	187	647	11,624	87%
Relapse	1,775	1,229	297	28	104	39	78	1,526	86%
Total	**64,609**	**22,308**	**35,851**	**176**	**3,708**	**1,066**	**1,500**	**58,159**	**90%**
% of outcome		**35%**	**55%**	**0.3%**	**6%**	**2%**	**2%**	**90%**	

The trend of treatment outcomes of the new and relapse cases for over a decade has been maintained around 90%.

3.2.2 Treatment outcome of previously treated TB cases notified in 2016

In 2016, 1,334 previously treated TB cases excluding the relapse were notified, 1,271 (95%) cases their treatment outcomes are available. Among the evaluated cases: 1,081 (81%) were treated successfully; 8 (0.6%) failed treated while 124(9%) cases died while in still on TB treatment almost similar proportions as for the year 2013. Number of TB cases lost to follow up were 58 (4%) of all previously treated cases. Table 5 below summarizes the treatment outcomes for each category of the re-treatment cases.

Table 5: Treatment outcomes of previously treated (except relapse) cases notified in 2016

TB groups	TB cases notified in 2016	Treatment outcomes							
		cured	Treatment completed	Failed	Died	Lost to follow up	not evaluated	treatment success	treatment success - %
Treatment after Failure	143	104	12	4	8	4	11	116	81%
Treatment after loss for follow up	304	125	125	4	20	28	2	250	82%
Total	**1,334**	**229**	**852**	**8**	**124**	**58**	**63**	**1,081**	**81%**
% of outcome		**17%**	**64%**	**0.6%**	**9%**	**4%**	**5%**	**81%**	

3.3 TB/HIV Services

3.3.1 TB/HIV case finding in 2017

In the year 2017, 68,658 (99%) of all TB cases notified had their HIV test results recorded at time of notification. This is 2% (4905) higher than that of 2016. Among those who tested for

HIV, 21449 (31%) were found to be co-infected with HIV. The co infection rate has decreased by 3% (271) compared to 2016 which was at 34%. Furthermore, analysis shows that among co-infected cases 20,687 (96%) cases were registered at HIV care and Treatment clinics (CTCs) for care and treatment services, 20,543 (96%) were put on Co-trimoxazole Preventive Therapy (CPT) while 20,314 (95%) were initiated ART in at both TB clinic and CTCs. Figure 5 below summarizes the trend of TB/HIV indicators in the country from 2007 to 2017 with significant gains in the proportion of those initiated ART especially after the year 2011.

The focus during this reporting period was to strengthen HIV services among co-infected patients. There was extensive countrywide capacity building to health care workers in the area of TB/HIV care. This was a collaborative effort between the Ministry (NTLP &NACP) and TB and TBHIV Implementing partners namely; EGPAF, AGPAHI, MDH, KNCV Challenge TB, HJFMRI locally known as **Walter Reed** Program **Tanzania** (WRP-T) under support from development partners such as USAID, CDC/PEPFAR and GF.

The country disseminated its 2nd edition of the collaborative TBHIV activities policy. Other major activities included Supportive supervision and mentorship, development and dissemination of monitoring & evaluation plan for collaborative TB/HIV activities and national guideline for tuberculosis infection control.

Figure 6: Trend of TB patients counselling and testing for HIV, initiated CPT and ART: 2007 – 2017

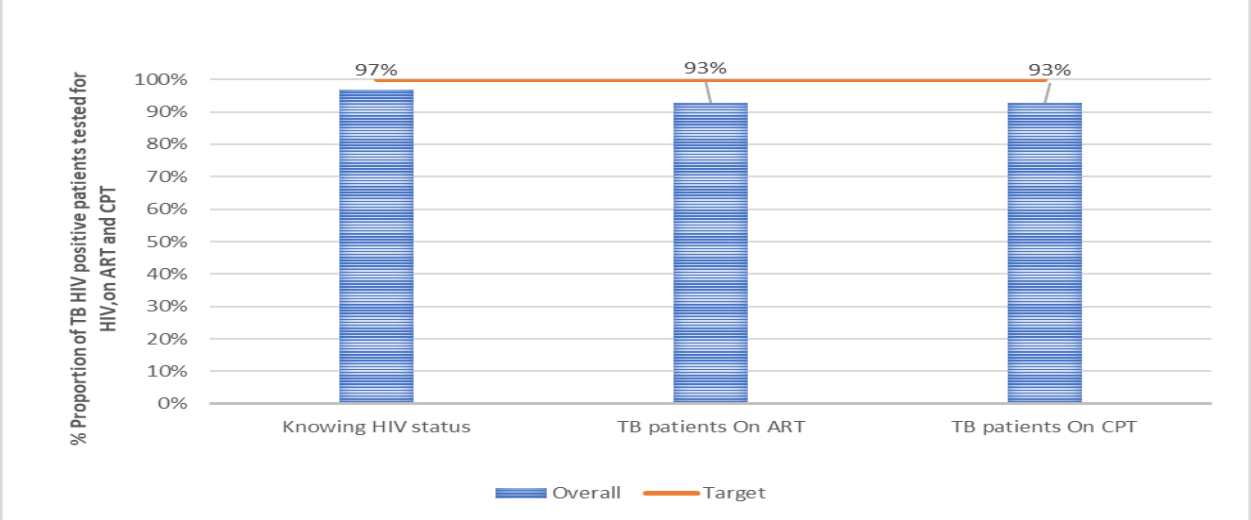
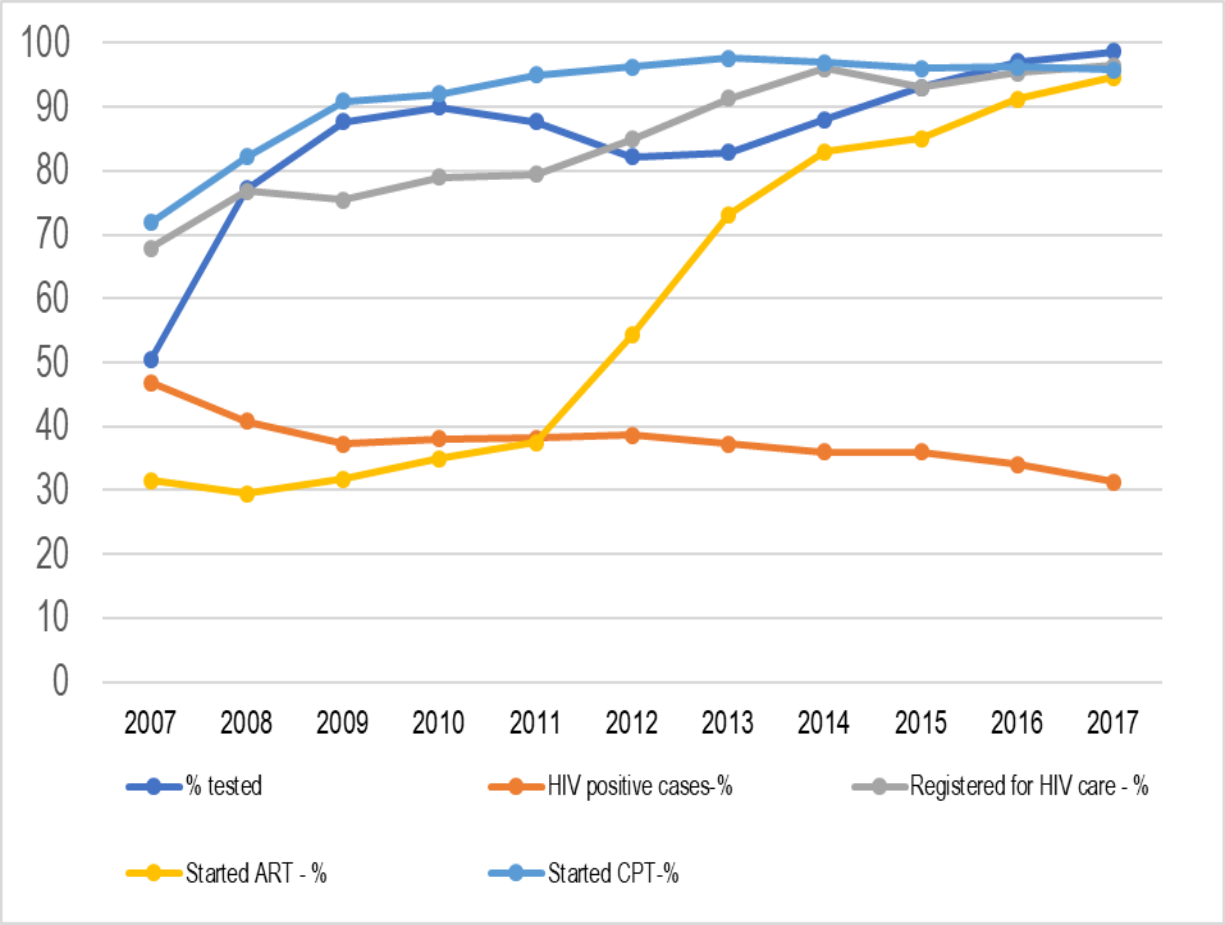


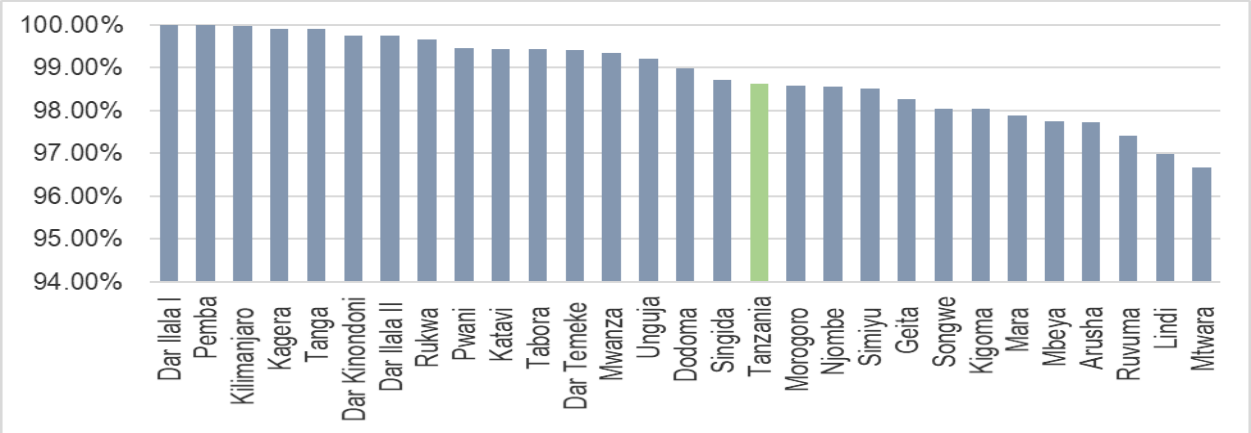
Figure: 7 Trend of Collaboratives TBHIV activities Indicators



3.3.2 Regional performance on HIV testing and counselling and ART uptake

HIV counselling and testing is entry point for accessing HIV care, treatment and preventive services. In 2017 the national average was 98.6% which is still below the WHO target of 100%. The majority of the regions are above the national average, with 12 out of 28 regions being below.

Figure 8: HIV testing among TB patients in 2017 by regions



3.3.3 TB treatment outcomes of TB/HIV case notified 2017

Analysis of the 22,642 co-infected TB/HIV cases notified in 2016 shows that treatment success rate of all forms was 85% which is lower compared to the rest of other notified TB cases. 1,914 (8%) of them died and 400 (2%) lost to follow up. During the same reporting year, the number of TB cases who were HIV +Ve which were not evaluated due to being transferred out of their respective regions was noted to be 1090 (5%).

3.4 Paediatric TB

3.4.1 Childhood TB notifications 2017

In 2017, 8,698 (13%) of the new and relapse TB cases notified were children under the age of 15 years. Among children (under 15 years) notified; 4,850 (7.2%) were children under the age of 5, while 1,967 (2.9%) cases were children between age group of 5 -9 years and 1,881 (2.8%) were children in the age-group 10 – 14 years.

3.4.2 Childhood TB/HIV notifications 2017

In 2017 data shows that 8,577 (98%) of notified children were tested for HIV and 1,831 (21%) were HIV and TB co-infected cases. Among all the co-infected children notified; 1,758(96%) were started on CPT and 1,737 (95%) were on or started ART at time of diagnosis.

3.4.3 IPT provision to Children

In the year 2017, a total of 7303 children in contact of bacterial confirmed cases were provided with IPT. All children younger than 5 years in contact with a sputum smear-positive PTB patient are investigated for TB. Children with signs and symptoms suggestive of active TB are registered and treated with a full anti-TB course. If there are no signs of active TB, the children are put on preventive treatment with isoniazid for six months.

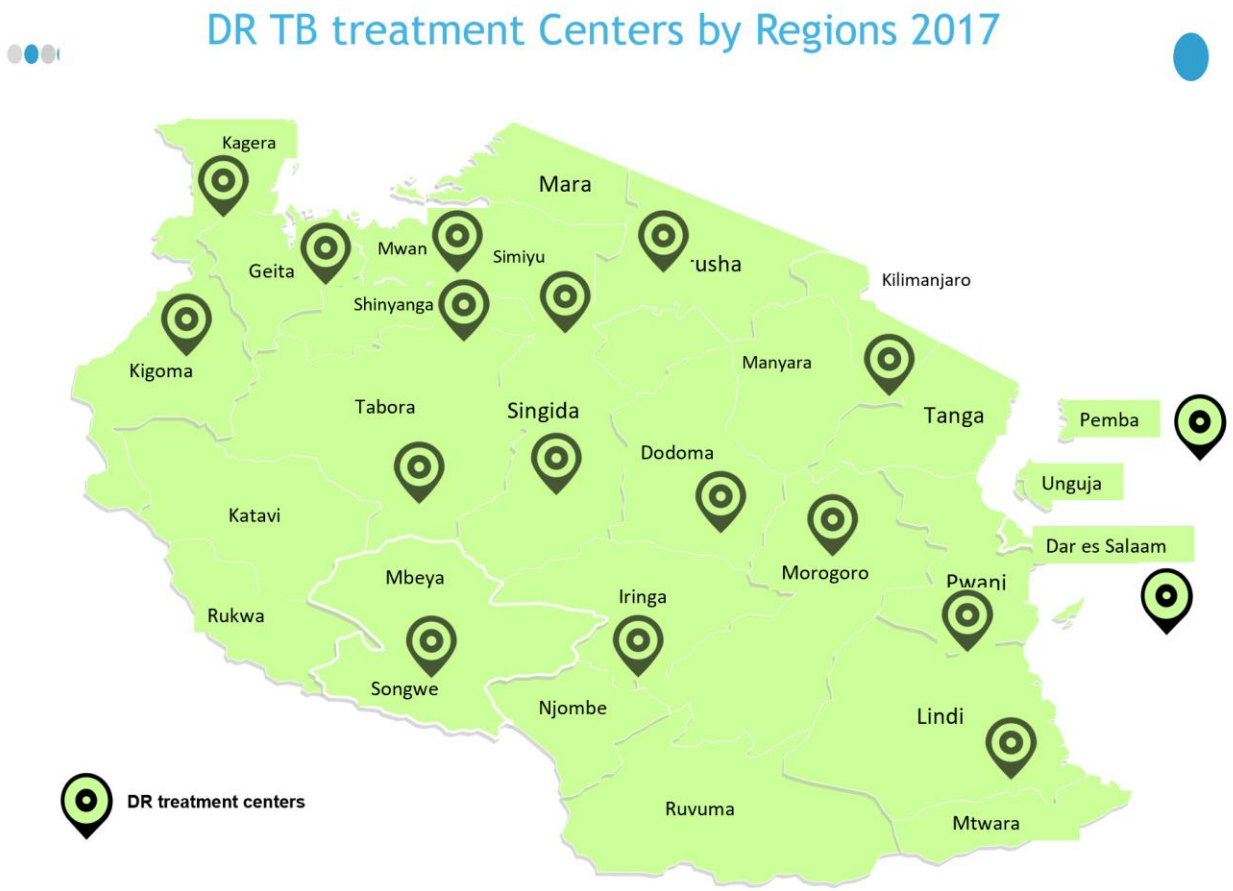
3.5 MDR-TB

Decentralization of MDRTB services has continued where by 34 new facilities have been enrolled to make a total of 56 health facilities which provide this service in the country. This means 70% of all regions have at least one site that can provide MDRTB management. In line with this the cohort review established that the treatment success rate for MDRTB patients is now at 75%. This is from a 2015 cohort. The treatment success of the Susceptible TB remained

to be average of 90%. Training of HCWs continue to be implemented and 282 HCWs from Dar es Salaam, Lindi, Kilimanjaro, Zanzibar, Ruvuma, Shinyanga, Kagera, Singida,Kigoma, Simiyu, Mbeya, Mwanza, Morogoro,Tanga, Geita, Rukwa, Mtwara, Dodoma and Songwe, received this training during this period. The training was part of preparation to introduce regimens containing new TB drugs (Bedaquiline and Delamanid) and 9- 11 months short DR TB treatment regimen as per 2016 WHO recommendations

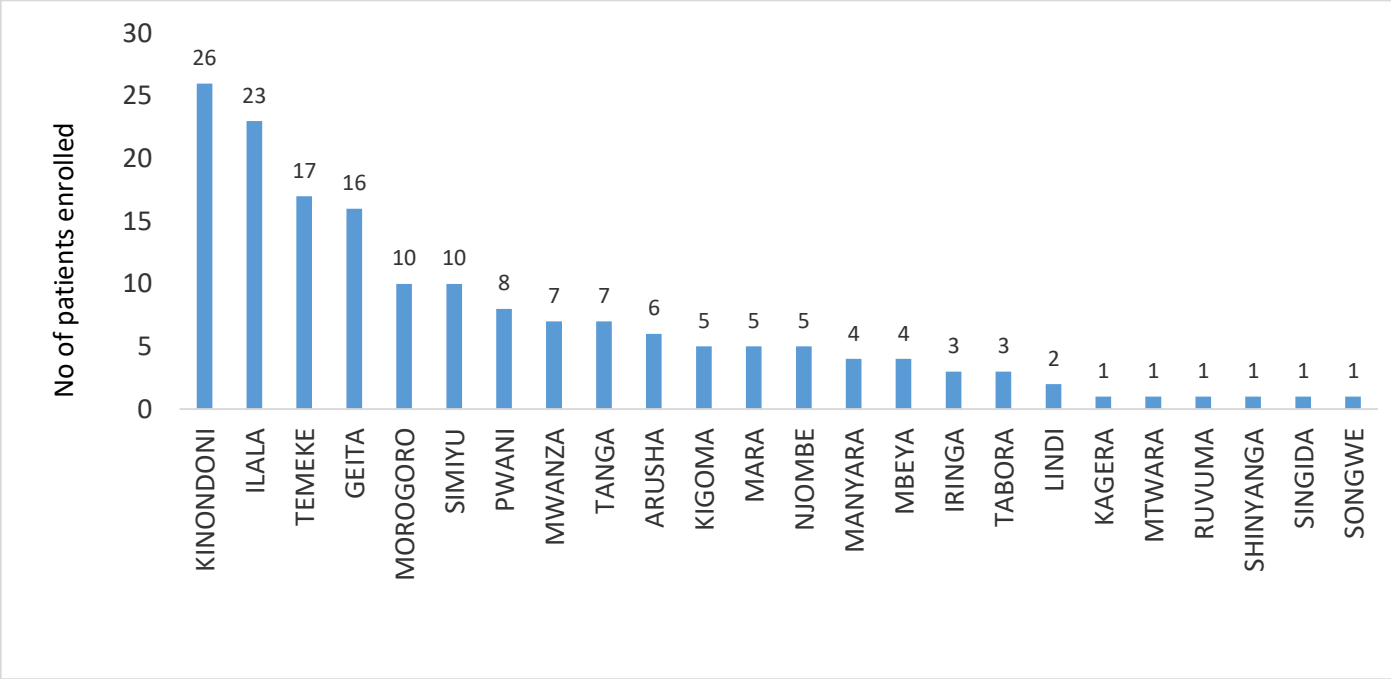
3.5.1 MDRTB Notification and enrollment to treatment

In 2017 a total of 200 MDRTB cases were notified country wide among which 167 (83.5%) were started on MDR TB treatment from 24 regions. The enrollment is an increment of 1.5% compared to that of 2016. As in previous years, the majority of MDR TB cases detected and enrolled on treatment were from Dar es salaam (40%) followed Geita (10%), Morogoro (6%), Simiyu (6%) Pwani (5%), Mwanza (5%) and Tanga (5%). The graph below (Figure x) shows number of MDR/RR-TB patients started second line treatment in 2017.



Among the enrolled patients, a male predominance continued to be observed with 109 (65.3%) being male. As in the previous year, the age groups bearing the brunt of MDR TB among, was the younger, economically active age group from 25 – 44 which contributed about half of the patients.

Figure 9: Distribution of MDR/RR-TB cases enrolled on treatment by regions in 2017



3.5.2 End of Treatment Outcomes for 2015 Cohort:

A total of 120 patients were enrolled in 2015, among these1 patient had XDR TB. Out of 119 MDR TB patients 86(71.7%) were male and 34(28.3%) female, and 34(28.3%) patients were HIV coinfected.

The age of enrolled cases ranged from 15 to 77 years old with a median age of 39 years. Half 50.5% of patients were aged 26 – 45 years.

Of all enrolled 119 patients 88 (73.9%) were successfully treated (cured + treatment completed). Those with unfavorable outcome include; 22 (18.5%) patients died, 7(5.9%) patients lost to follow up and 1 (0.8%) were not evaluated. In addition there was 1 XDR TB patient in 2015 who was also cured.

A review of trends of enrollment and treatment outcomes from 2009 (figure xx) showed the overall linear increase in number of RR/MDR TB patients enrolled to treatment with average success rate of 75% this is higher than the global rate of 55% but its lower than the WHO target of over 90% .

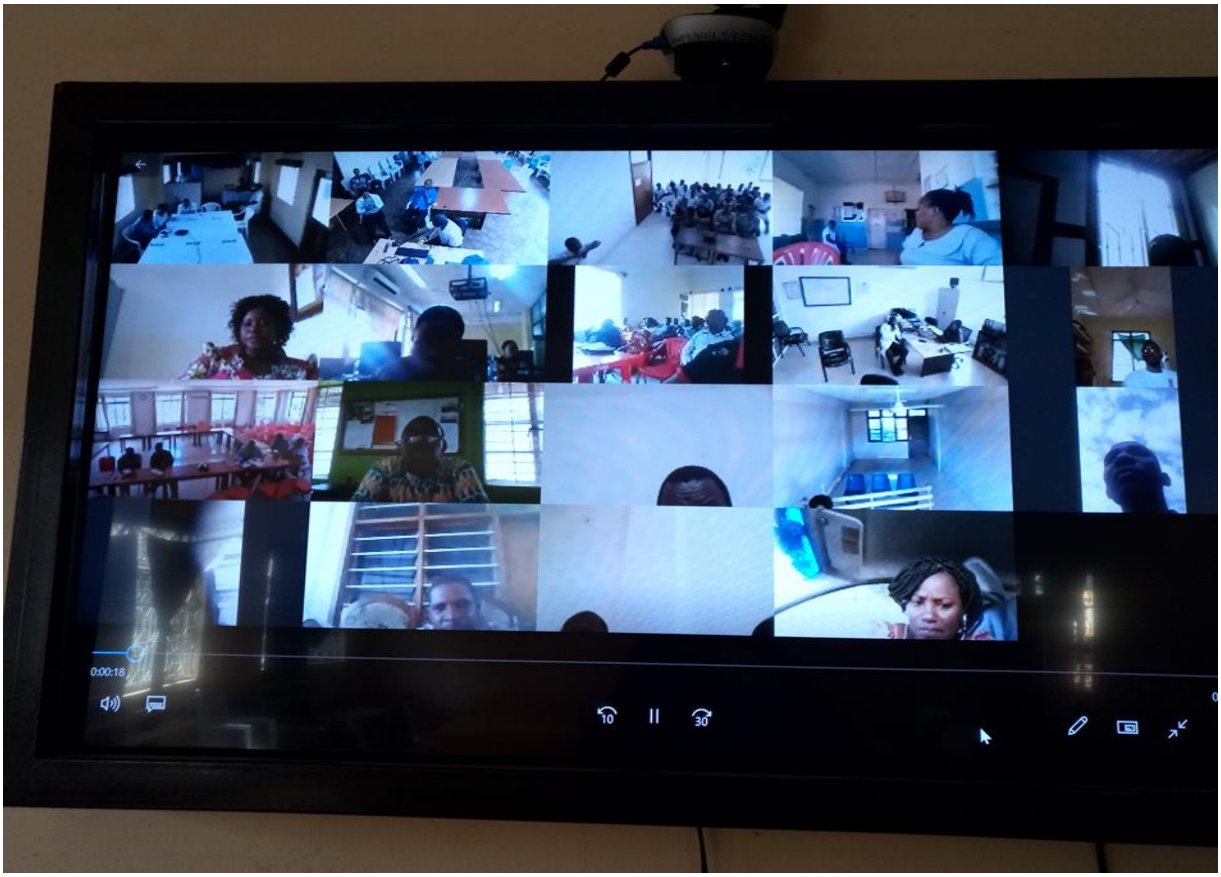
Further review of the 2015 mortality data revealed that most deaths 72.7% occurred at age between 26-55 years, in more males than females and patients who had been in treatment for less than 6 months. HIV status was not a significant contributor as majority of patients who died were among the HIV negative 15 (68.2%) compared to HIV positive 7 (31.8%). Delayed diagnosis and inadequate availability of monitoring tests for second line drugs toxicities could be contributing factor deaths in the initial phase of treatment.

3.5.3 Introduction of MDR TB ECHO (Video conference)

MDR TB ECHO is a capacity building model that links experts and specialists at higher level of care (hub) with HCW in local/lower level (spoke). It involves use of videoconferencing technology (e.g. zoom) as medium of communication. Sets on-going learning environment where HCWs are supported to develop skills needed to treat complex conditions at a local setting

The Goal is to increase quality of care for DR-TB patients countrywide by conveying knowledge from specialized centres to frontline healthcare workers at point of care health facilities.

The MDR TB ECHO (Video Conference Learning Network) was started in August 2017, by December 2017. More than10 meetings were conducted with 10 PMDT sites participating. During these meetings 6 didactic sessions on MDR TB (comorbidities, pharmacovigilance, Supportive supervision, Cohort review, standardized short course regimen and monitoring tests) and six difficult MDR TB



MDRTB Sites during Videoconference

4 LEPROSY CONTROL SERVICES

4.1 Leprosy Case Notification

In the year 2017, a total of 1,937 leprosy cases (all forms) were notified and reported in the country, which shows a decline of 230 cases or 11% compared to the year 2016. Among the notified leprosy cases, new leprosy cases were 1,835 (95%), relapses were 38 (1.9%) cases while return after defaulter were 51 (2.6%) of all reported cases. The number of relapses in Tanzania has persistently remained very high as of the past 15 years and this pose a challenge of whether the notified cases were all truly leprosy diseased. In the year 2017, over 50% of notified relapse cases were reported from in six regions of Morogoro (19%), Lindi (9%), Tanga (8%), Mtwara (6%), Kigoma (6%) and Rukwa (6%) as shown in figure 9 below.

Table 06: Leprosy cases reported in 2016 and 2017

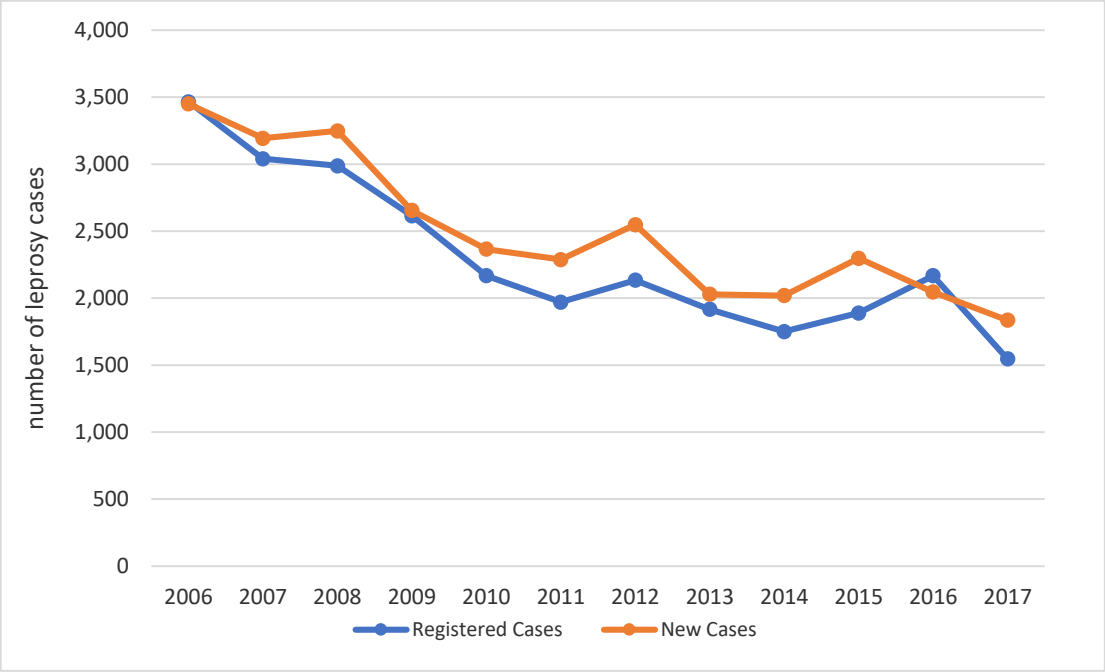
Leprosy Classification	2016		2017		Change	
	Cases	%	Cases	%	Cases	%
All forms	**2,167**		**1,937**		**-230**	**-11**
New cases						
- MB	1,791	88	1,676	91	-115	-6
- PB	254	12	159	9	-95	-37
Total	**2,045**	**94**	**1,835**	**95**	**-210**	**-10**
Re-treatment						
- Return after default	62	51	51	2.6	-11	-18
- Relapse after MDT	40	33	38	1.9	-2	-5
- Relapse after DDS/Others	20	16	13	0.7	-7	-15
Total	**122**	**6**	**102**	**5.2**	**-20**	**-16**

4.1.1 New leprosy cases notified in 2017

In 2017, a total of 1,835 new leprosy cases were detected in the country.The annual notification rate (case detection rate) was calculated at 3.6/100,000. These figures show that, Tanzania continue to be one of the 22 priority leprosy high burden countries in the world which notify more than 1,000 cases a year and those with higher risk of increased incidences. The data shows that Lindi region had the highest leprosy notification rates in the country at 15 cases per 100,000 population. Arusha region did report only one new leprosy case and thence had almost zero leprosy notification rate, followed by Manyara (0.1) and Njombe (0.4). There were 13 regions with notification rate above national average of 3.8 including: Lindi, Rukwa, Morogoro, Mtwara, Katavi, Tanga, Pwani, Unguja, Pemba, Geita, Dodoma, Ruvuma and Dar es Salaam.

Among the new cases notified, 1,749 (91%) were MB. Females were 740 (38%) giving a female to male ratio of 1:1.4 suggesting that being male continues to remain a risk factor. The number of children among the new cases was 74 or 3.8% which was nearly twice of those reported in 2016. New leprosy cases notified with disability grade II were 254 or 13% which was similar to the previous three years, indicating that many cases continue to be detected late. Table 8 below summarizes indicator data on new leprosy cases notified in 2016 by regions and those having disability grade II according to WHO classification. However, the trend of new leprosy cases detected for the past 12 years shows tremendous decline country wide as is displayed in figure ---
.

Figure 10: Trends of new leprosy cases reported: 2006 – 2017



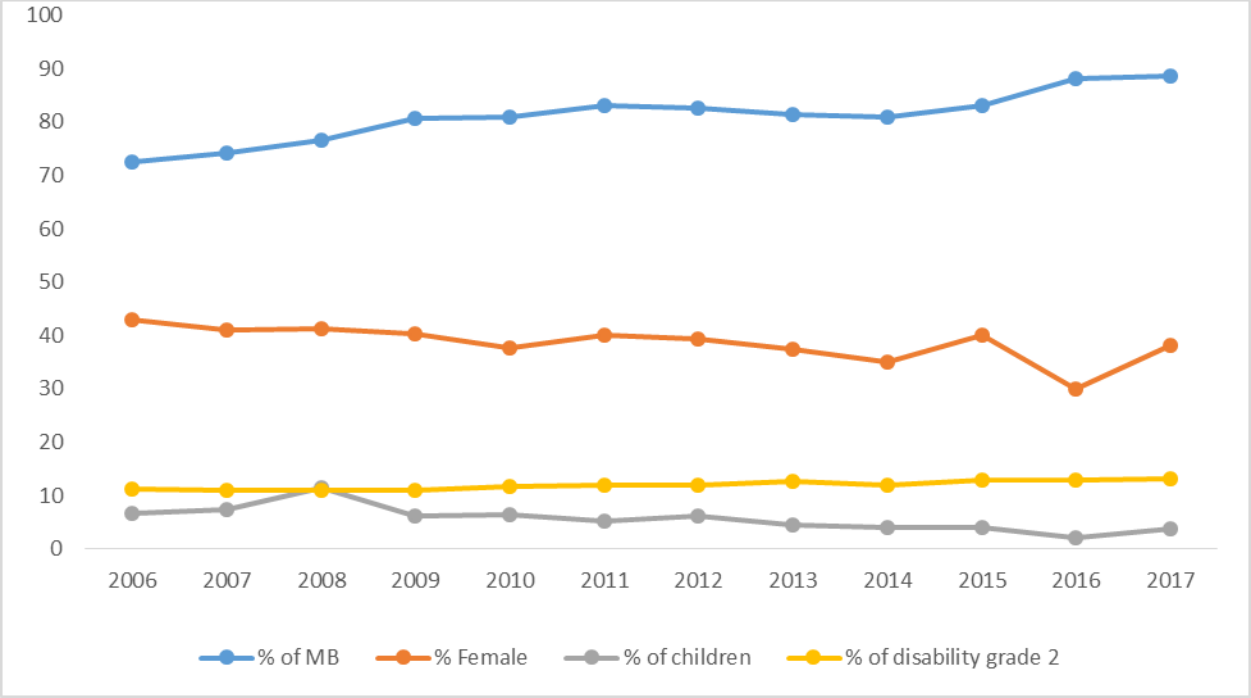
The prevalence detection ratio has remained around 1 since 2004 suggesting that patients are timely removed from the registers after completing their MDT treatment.

Table 07 : New leprosy cases detected by indicators in 2017 by regions

Regions	New cases	Detection rate /100,000	MB	% of MB cases	Female	% of Female cases	Children	% of children cases	D.grade II	% of d.grade II
Dar Ilala I	76	5.7	75	98.7%	21	27.6%	1	1.3%	6	8%
Dar Ilala II	15		15	100.0%	6	40.0%	0	0.0%		
Dar Kinondoni	62	2.7	60	96.8%	20	32.3%	1	1.6%	12	19%
Dar Temeke	75	4.2	69	92.0%	26	34.7%	1	1.3%	12	16%
Dar Es Salaam	**228**	**4.0**	**219**	**96.1%**	**73**	**32.0%**	**3**	**1.3%**	**30**	**13%**
Arusha	1	0.1	1	100.0%	1	100.0%	0	0.0%	0	0%
Dodoma	96	4.2	86	89.6%	43	44.8%	5	5.2%	11	11%
Geita	104	5.2	102	98.1%	39	37.5%	2	1.9%	29	28%
Iringa	13	1.3	12	92.3%	1	7.7%	0	0.0%	5	38%
Kagera	24	0.8	22	91.7%	13	54.2%	0	0.0%	12	50%
Katavi	58	8.8	57	98.3%	17	29.3%	2	3.4%	9	16%
Kigoma	86	3.6	82	95.3%	35	40.7%	3	3.5%	12	14%
Kilimanjaro	9	0.5	9	100.0%	2	22.2%	0	0.0%	1	11%
Lindi	116	12.8	100	86.2%	56	48.3%	6	5.2%	13	11%
Manyara	2	0.1	2	100.0%	1	50.0%	0	0.0%		#VALUE!
Mara	27	1.4	17	63.0%	9	33.3%	0	0.0%	1	4%
Mbeya	23	1.1	21	91.3%	14	60.9%	2	8.7%	7	30%
Morogoro	256	10.2	213	83.2%	88	34.4%	8	3.1%	3	1%
Mtwara	128	9.5	107	83.6%	68	53.1%	5	3.9%	7	5%
Mwanza	67	1.9	63	94.0%	31	46.3%	3	4.5%	23	34%
Njombe	3	0.4	3	100.0%	1	33.3%	0	0.0%		#VALUE!
Pwani	88	7.2	79	89.8%	38	43.2%	4	4.5%	11	13%
Rukwa	124	10.5	114	91.9%	39	31.5%	2	1.6%	3	2%
Ruvuma	73	4.8	68	93.2%	33	45.2%	1	1.4%	1	1%
Shinyanga	44	2.6	39	88.6%	10	22.7%	1	2.3%	22	50%
Simiyu	12	0.8	10	83.3%	5	41.7%	1	8.3%	2	17%
Singida	23	1.5	17	73.9%	12	52.2%	0	0.0%	1	4%
Songwe	5	0.5	5	100.0%	6	120.0%	0	0.0%	4	80%
Tabora	61	2.3	54	88.5%	16	26.2%	1	1.6%	18	30%
Tanga	167	7.3	151	90.4%	52	31.1%	7	4.2%	25	15%
Mainland -Tanza	**1,838**	**3.7**	**1,653**	**89.9%**	**703**	**38.2%**	**56**	**3.0%**	**250**	**14%**
Pemba	23	5.3	16	69.6%	9	39.1%	3	13.0%	1	4%
Unguja	75	7.0	48	64.0%	28	37.3%	15	20.0%	3	4%
Zanzibar	**98**	**6.5**	**64**	**65.3%**	**37**	**37.8%**	**18**	**18.4%**	**4**	**4%**
Tanzania	**1,936**	**3.8**	**1,717**	**88.7%**	**740**	**38.2%**	**74**	**3.8%**	**254**	**13%**

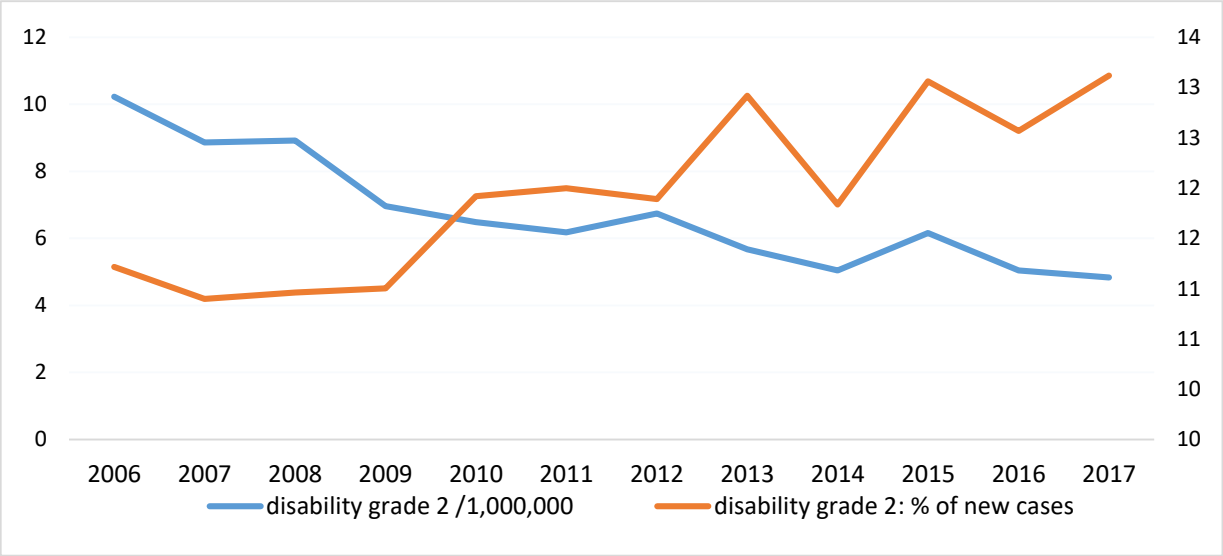
Since 1,990, the proportion of new MB cases detected annually has been slowly increasing from 68% to over 90% while the proportion of females and children detected has been declining slowly from 44% down to below 38% and 10% to 4% respectively. The changes in proportion of MB cases and children notified annually suggest reduction in the prevalence of the disease in the country with reduced disease transmission. Moreover, the data also suggest that females could be utilizing less the available leprosy services compared to their male partners. Figures 11 and 12 summarise the above findings for the past 10 years.

Figure 11: Trends of MB cases, children and females among new leprosy cases: 2006 -2017



During the year 2017, the proportion of disability grade 2 among newly detected leprosy cases has remained higher at 13%, however, there has been a gradual decrease in rates as the number of people getting disability due to leprosy goes down as shown in figure ---- below.

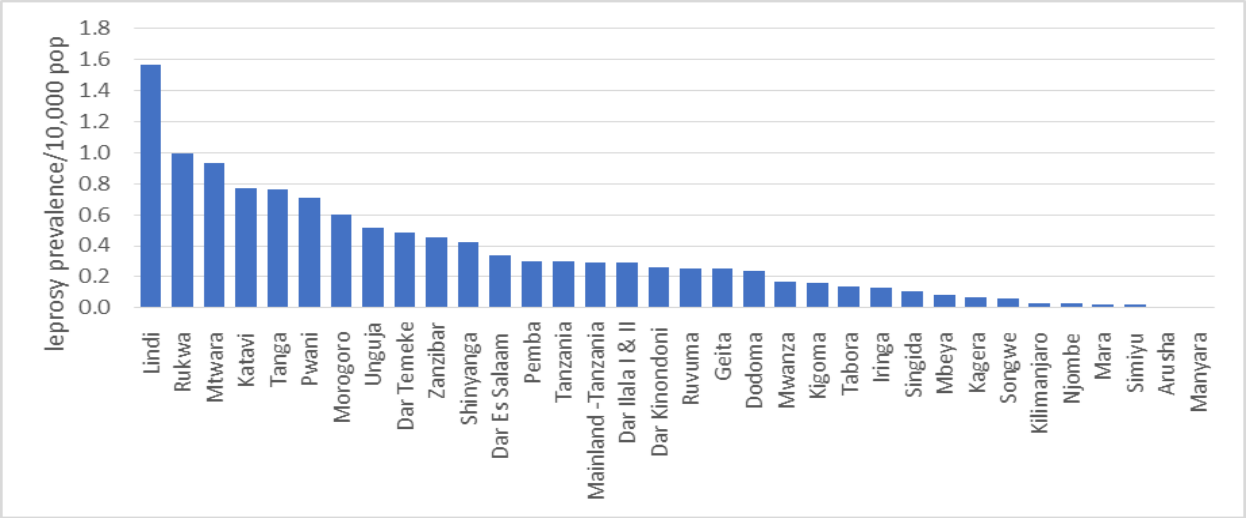
Figure 12: Trend of disability grade 2, percentage among new cases and rates per 1,000,000 populations



4.1.2 Registered prevalence

For the past 12 years, since 2006, the prevalence of leprosy has progressively showed a steady decline. The registered leprosy prevalence rate for years 2017 has gone down to 0.3/10,000 population compared to 0.43/10,000 of last year 2016. The regions of Lindi and Rukwa were far away from achieving the elimination target of less than 1 case per 10,000 population as shown in the figure below.

Figure 13: Distribution of leprosy burden by region in 2017



The 2017 data shows that, there are also still 15 districts with prevalence rates higher than 1/10,000. These endemic districts were yet to achieve elimination targets and came from 9 different regions as shown in table ---- below. The regions of Lindi, Tanga and Mtwara had most of their districts still endemic and remain at high risk of increased disease burden.

Table 08: Endemic districts with prevalence rate greater than 1/10,000 Population in 2017

S/N	Region	Council	Prevalence rate in 2017
1	Tanga	Mkinga DC	4.7
2	Lindi	Liwale	4.0
3	Mtwara	Nanyumbu DC	3.7
4	Lindi	Kilwa DC	3.3
5	Rukwa	Nkansi DC	2.7
6	Katavi	Mpanda Tc	2.4
7	Shinyanga	Shinyanga MC	2.2
8	Pwani	Mafia DC	1.9

S/N	Region	Council	Prevalence rate in 2017
9	Tanga	Pangani DC	1.8
10	Lindi	Ruangwa	1.6
11	Mtwara	Masasi TC	1.4
12	Unguja	South & Central	1.4
13	Morogoro	Morogoro MC	1.1
14	Tanga	Korogwe DC	1.1
15	Lindi	Nachingwea	1.0

4.2 Leprosy treatment outcome

4.2.1 Treatment outcome of PB leprosy

The treatment outcome of PB leprosy cases who started treatment in 2016 shows that, 230(93%) completed treatment while 6 (2%) were transferred out, 3 cases (1%) died while receiving treatment and 8 lost to follow up from treatment as shown in Table 09 below.

Table 09: Treatment outcome of PB leprosy reported in 2016

Treatment outcomes	New cases		Relapse after MDT		Relapse after DDS/Others		Total	
	Number	%	Number	%	Number	%	Number	%
Treatment Completed	220	93	2	67	8	100	230	93
Died	2	1	1	33	0	0	3	1
Out of Control	8	3	0	0	0	0	8	3
Transferred Out	5	2	1	33	0	0	6	2
Evaluated	235	100	3	100	8	100	246	100
Notified	236	100	3	100	8	100	247	100

4.2.2 Treatment outcome of MB leprosy

Treatment outcome of MB leprosy cases notified in 2015 shows that, 1,484 (78%) completed treatment while 15 (1%) patients died during treatment period. However, the data also shows that 92 (5%) patients did not complete their treatment due to various reasons: 73 (4.0%) lost to follow up from treatment and 19 (1%) cases were transferred out during treatment course. Table --- below summarizes treatment results of MB cases notified in 2015.

Table 10: Treatment outcome of MB leprosy notified in 2015

Treatment outcomes	New cases		Relapse after MDT		Relapse after DDS/Others		Total	
	Number	%	Number	%	Number	%	Number	%
Treatment Completed	1,418	77	36	84	30	130	1,484	78
Died	15	1	0	0		0	15	1
Out of Control	73	4	0	0		0	73	4
Transferred Out	18	1	0	0	1	4	19	1
Evaluated	1,524	83	36	84	31	135	1,591	84
Notified	1,838	100	43	100	23	100	1,904	100

4.3 Activities related to acceleration of leprosy elimination efforts

Tanzania is among 22 high leprosy burden and priority countries in the world which are accounting of over 90% of all leprosy cases notified annually. The planned activities to accelerate leprosy elimination efforts include; elimination campaigns in targeted areas, leprosy post exposure prophylaxis (LPEP) and implementation of the Bangkok declaration special fund (BDSF). During this reporting year, it is only LPEP and BDSF projects which were implemented as detailed below.

4.3.1 Leprosy Post Exposure Prophylaxis (LPEP)

The implementation of Leprosy Post-Exposure Prophylaxis (LPEP) study project continued to complete its second year of field operations in the three districts of Kilombero, Liwale and Nanyumbu. The main aim of the study is to demonstrate the impact of PEP added to contact tracing activities as a strategy to interrupt transmission of leprosy and the feasibility for integration into routine programmatic actions. The LPEP study is a multinational exercise implemented in seven countries across Asia, Africa and Latin America and Tanzania is the only country representing the Africa continent. The project involve identification of index case households and the corresponding health facility, contact tracing, leprosy screening and

provision of a single-dose rifampicin (SDR) to those who screen leprosy negative and eligible among household contacts. The study involves all new leprosy cases diagnosed during the period of years 2014-2017 and is fully integrated into the national leprosy control program and district health care delivery system. Funding of the project is provided by the Novartis Foundation of Swiss. By the end of this reporting year, the project has already completed 29 months of implementation and the reports show high level of community acceptance with good performance and coverage of over 109% as shown in the table below.

Table 11: The number of targeted index cases and contacts screened and given chemoprophylaxis in the project districts during August 2015 – December 2017

Index cases/ households	**Targets**	**Reached**	**%age**		
Kilombero	290	330	113.8%		
Liwale	305	277	90.8%		
Nanyumbu	95	145	152.6%		
Total	**690**	**752**	**109%**		
CONTACTS	**Targets**	**Reached**	**%age**	**Number Received SDR**	**No. of New Cases detected**
Kilombero	1450	1517	104.6%	1236	37
Liwale	1525	2727	178.8%	2221	13
Nanyumbu	475	856	180.2%	638	16
Total	**3450**	**5100**	**147.8%**	**4095**	**66**

All and beyond of the planned index case households were visited, 5,100 contacts screened and over 4090 people at risk given prophylaxis of a single dose rifampicin. At the same time, 66 confirmed new leprosy cases were detected from the 752 households visited and screened for leprosy disease.

4.3.2 Project to Implement Bang'kok Declaration Special Fund (BDSF)

The three-year project is implemented in three districts of Mkinga and Muheza in Tanga region and Chato in Geita region. The total funds to implement Bang'kok declaration to promote early case detection and addressing challenges facing PALs with disabilities is amounting US$ 161,450. The funds to implement the Bang'kok declaration were donated by the Nippon Foundation of the Sasakawa Memorial Health Foundation (SMHF) and are being managed through the WHO country office. The implementation of this project was launched on July 2015 and since then the three sites have shown good performance as shown in the table below:

Table 12: The number of targeted index cases and contacts screened in the project districts during July – December 2017

Project District	Index cases/ households	Contacts Screened	No. of New Cases detected
Mkinga	73	989	37
Muheza	29	89	4
Chato	84	841	16
Total	**186**	**1,919**	**57(2.9%)**

This exercise involved movement of trained community volunteers from door to door of the affected and risky households and families. Each of the index case household was visited and all contacts were being screened for leprosy. A total of 1,919 contacts were screened and 57 confirmed new leprosy cases were detected from the 186 households visited. The leprosy case detection rate was reported very high at 2.9% in among the household reached in the three project councils. This signals out that there probably many more hidden cases in most of the still endemic places.

4.4 Activities related to prevention of disabilities (POD)

The programme continue to collaborate with key stakeholders, namely GLRA, social welfare commission, leprosy care centres, referral hospitals, MDT clinics and health management teams all around to strengthen efforts of preventing disabilities among people affected by leprosy (PALs). The main activities implemented during this reporting year include; regular routine assessments, management of reactions, care of wounds and ulcers, constructive septic surgeries, specialized eye care, provision of prosthesis and special boots. Other services included supporting shoe making workshops and referrals to consultant hospitals and rehabilitation institutions.

4.4.1 People with leprosy related disabilities

In 2017, a total of 1010 people affected by leprosy (PALs) with disabilities were registered. A total of 875 (86.6%) were reviewed to assess their physical impairments and only 17 (1.6%) PALs had their condition deteriorated and 167 (16.4%) did not change on the course of their treatment.

4.4.2 Leprosy reactions

A total of 666 leprosy patients were reported with reactions and started on corticosteroid treatment. Out of them, adults MB cases were 92.4% (616) and for PB 66 (9.9%). Of all the reported cases, only 170 required hospital admission because of severe reactions. The table below shows patients reported with reactions by region per category. The availability of sufficient prednisolone drugs for PALs in need at health facilities in the country remain a big challenge. The district medical officers in all councils are reminded to include the requirement of prednisolone for PALs in their routine health facility drug need estimates and orders.

Table 13: Leprosy cases started treatment with corticosteroid in 2017

Region	MB (A)	MB (C)	PB (A)	PB (C)	Total
Dar Ilala I	45				45
Dar Ilala II	16				16
Dar Kinondoni	72	3	1		76
Dar Temeke	27	1			28

Region	MB (A)	MB (C)	PB (A)	PB (C)	Total
Dar Es Salaam	**160**	**4**	**1**	**0**	**165**
Dodoma					0
Geita	15		3	1	19
Iringa	62	1			63
Kagera	19			1	20
Katavi	7				7
Kigoma	10				10
Kilimanjaro	25		1		26
Lindi	6				6
Manyara	71		7		78
Mara	2				2
Mbeya	9				9
Morogoro	1				1
Mtwara	25	3	6	1	35
Mwanza	15		3		18
Njombe	53	2	2		57
Pwani					0
Rukwa	31	1			32
Ruvuma	13				13
Shinyanga	3				3
Simiyu	14				14
Singida					0
Songwe	13		6		19
Tabora					0
Tanga	12				12
Mainland	**566**	**11**	**29**	**3**	**609**
Pemba	16	0	2	5	23

Region	MB (A)	MB (C)	PB (A)	PB (C)	Total
Unguja	48	7	14	6	75
Zanzibar	**50**	**3**	**4**	**0**	**57**
Tanzania	**616**	**14**	**33**	**3**	**666**

4.4.3 Specialized care of people with disabilities

During the year 2017, a total of 310 persons affected by leprosy (PALs) were admitted requiring some specialized care at different consultant hospitals in the country .Reaction ranked high as the main reason for admission by 170 (54.8%) followed by Ulcers and wound 84 (27.1). Constructive surgery ranked third and accounted for 22 (7.1%) and least was Eye pathology 22 (7.1%) In additional to these, 6 PALs were fitted with new prostheses.

Table 14: Number of leprosy admissions in hospitals 2017

Number of leprosy admissions in hospital(s)		
Indications for admission	Ulcers/wound treatment	84
	Reactions	170
	(Reconstruction) Surgery	22
	eye pathology	16
	Others	38
Number of Amputation done		2
Number of referred for rehabilitation outside the regions		3
Number of PALs given Prosthesis		6

4.4.4 Footwear Programme

In 2017, a total of 2200 pairs of special boots were produced centrally and distributed to regions country wide. By the end of the year 1200 pairs of protective sandals were distributed to people affected by leprosy. This is only 58.2% of the protective sandals reaching PALs in need. To complement these efforts, 349 pairs of shoes were made locally in several regions by the local shoemakers. In the case of special boots 81 pairs were fabricated and 178 footwear repairs were done for PALs with foot deformities.

The table below shows the amount of footwear distributed to people affected by leprosy by region in 2017. This includes factory made sandals, locally produced shoes, special boots and repairs done.

Table 15: Materials distributed for fabrication of special and local shoes production per region in 2017

Regions	**Leather**	**MCR**	**H.rubber**	**GLUE**	**L.Leather**	**Thread**
Kigoma	30	1	1	2	0	3
Morogoro Nazareth	50	2	2	5	30	3
Tanga Misufini	30	1	1	3	0	2
Shinyanga	30	1	1	3	0	3
Kagera Biharamuro	30	1	1	2	10	3
Pwani Kindwitwi	40	2	2	4	30	3
Tabora Sikonge	40	2	2	5	40	3
Mwanza Bukumbi	30	2	2	3	30	3
Ruvuma	30	2	1	2	30	3

5 LABORATORY SERVICES

The National TB and Leprosy Program (NTLP), continued to strengthen laboratory services in Tanzania by increasing the number of diagnostics centres from 1100 in 2016 to 1200 in 2017.Five TB culture laboratories and one Central TB Reference Laboratory. TB culture laboratories were introduced in the year 2015 and by December 2017, all five were functional. The program during the year continued to use the EMS Postal services for specimens' shipment from peripheral facilities to the Zonal culture laboratories.

TB laboratory network in Tanzania is organized into four main levels according to the type of services provided:

1. National: Central Tuberculosis Reference Laboratory (1)
2. Intermediate: Zonal Tuberculosis Reference Laboratories (5)
3. Regional/referral (31) and district (169) hospital laboratories
4. Peripheral: Health centres and dispensaries (735)

The Program has initiated the TB Laboratories Accreditation process in 2014. In 2017 all the five culture laboratories continued with the different stages of Strengthening TB Laboratories Quality Management towards Accreditation (TB SLMTA).

5.1 Laboratory workload

In 2017 the CTRL received a total of 5,859 specimens, an increase of 50.4% compared to the number received in 2016 (3,895). Out of these specimens 3,041(51.9%) were for Routine Surveillance, 1,240(21.16%) from the Muhimbili National Hospital for diagnostic purposes, and 1,578(26.93) were for different studies. In addition, the second Drug Resistant Survey (DRS)

was launched in June 2017. Out of all the received specimens 66 (1%) were rejected for different reasons.Of the Routine surveillance specimen received 1,284 (42%) were New cases, 1,740 (57%) previously treated cases and 17(1%) missing information.

Table 16: Number of Specimens received by treatment category in 2017

Region	New	Retreatment	Missing information	Total
Arusha	28	12	1	41
Dodoma	9	13	1	23
Geita	1	1	0	2
Ilala I	253	264	0	517
Ilala II	8	33	0	41
Iringa	9	23	0	32
Kagera	7	8	0	15
Kigoma	4	13	0	17
Kilimanjaro	146	151	0	297
Kinondoni	137	181	0	318
Lindi	32	29	0	61
Manyara	14	15	0	29
Mbeya	38	22	0	60
Morogoro	25	59	0	84
Mtwara	6	33	0	39
Mwanza	119	124	0	243
Njombe	1	6	0	7
Pemba	29	24	0	53
Pwani	116	87	0	203
Rukwa	1	6	0	7
Ruvuma	4	0	1	5
Shinyanga	5	2	0	7
Simiyu	0	1	0	1
Singida	32	42	1	75

Region	New	Retreatment	Missing information	Total
Tabora	67	158	3	228
Tanga	70	30	0	100
Temeke	107	386	9	502
Unguja	16	17	0	33
Mara	0	0	0	0
Unknown	0	0	1	1
Grand Total	**1284**	**1740**	**17**	**3041**

5.2 DR-TB ROUTINE SURVEILLANCE

CTRL conducts routine surveillance for drug resistant TB on AFB smear positive and Rifampicin Resistant (RR) cases. In this year, 25% of new and 100% of previously treated cases were subjected to a broader patterns of TB drug resistance testing. This includes Rifampicin, Isoniazid, Streptomycin and Ethambutol for first line drugs and second line drugs; Kanamycin, Ofloxacin and Capreomycin. DR-TB surveillance is being coordinated by CTRL in collaboration with Zona Reference TB Laboratories.

5.3 Specimen received at the CTRL from the Zonal TB laboratories

Specimens are collected across the country and submitted to the Zonal Laboratories where culture is performed. Isolates from the zonal laboratories are sent to CTRL for DST. For the year 2017, a total of 401 specimens were received from the zonal laboratories. Dodoma zonal laboratory submitted only one specimen because it was under renovation during this reporting period

Table 17: Specimen received at the CTRL from the Zonal TB laboratories

Zonal labs	New	Retreatment	Not indicated	Total	%
Dodoma Regional hospital	0	0	1	1	0.25
Mbeya Zonal referral hospital	15	17	1	33	8.23
Bugando Medical centre	12	101	0	113	28.17

Zonal labs	New	Retreatment	Not indicated	Total	%
Kibong'oto Infectious disease hospital	2	166	0	168	41.9
Pemba Public health laboratory	45	41	0	86	21.45
Total	74	325	2	401	100

5.4 CTRL CULTURE PERFORMANCE INDICATORS

Out of the 3,041 routine specimens received at the CTRL, 2,635 (87%) had culture results and 401(13%) were positive isolates

Table 18: Culture Indicators

Microscopy/Culture	FREQUENCY	%
smear positive/Culture positive	**445**	54.67%
smear positive/Culture negative	**358**	43.98%
smear negative/Culture positive	**201**	11.15%
smear negative/Culture negative	**1595**	88.51%
smear unknown/Culture positive	**7**	36.84%
smear unknown/Culture negative	**12**	63.16%
smear positive/Culture Contaminated	**11**	1.35%
smear negative/Culture contaminated	**6**	0.33%

5.5 DRUG SUSCEPTIBILITY TESTING PROFILE

All the positive cultures (653 from CTRL and 337 from zonal laboratories) underwent varied susceptibility testing from LJ proportion method, Line Probe Assay. DST Profile results are summarised in table 05: below.

5.5.1 Agar Proportional Method (LJ DST)

Table 19: DST test results

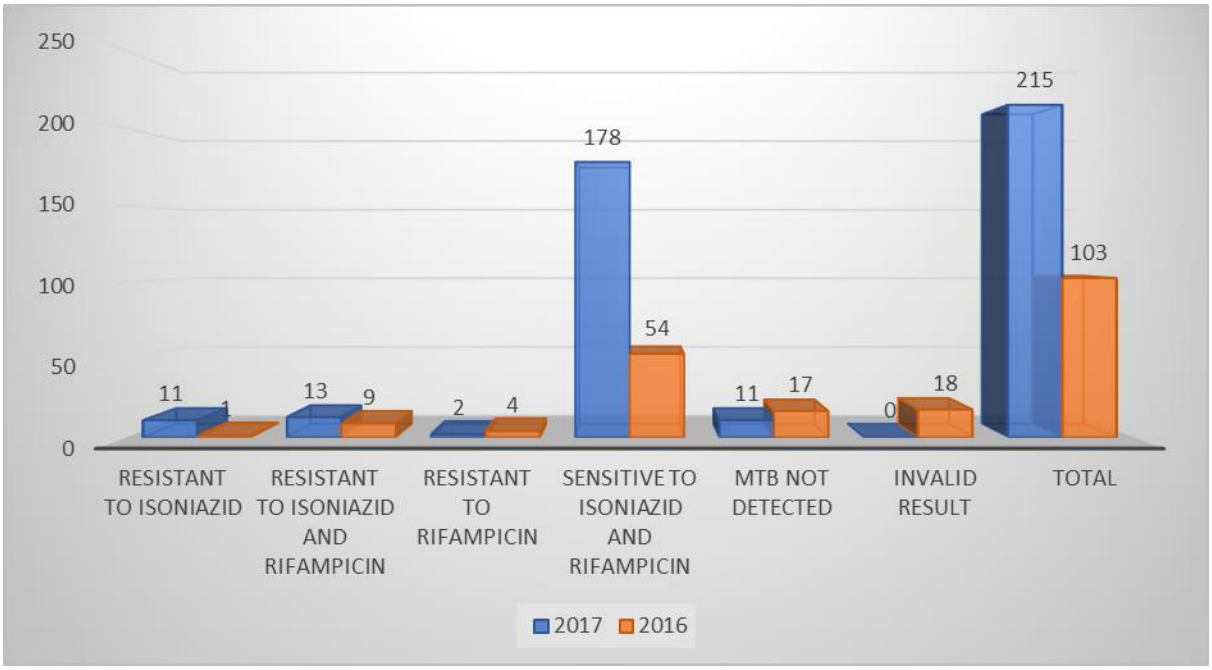
TB CULTURE and DST Laboratory Performance								
Result	New	Relapse	Failure	RAD	Chronic	Not Provided	Others	Total
Total inoculated	162	0	0	0	0	244	199	605
Pending	0	0	0	0	0	0	0	0
Contaminated	0	0	0	0	0	0	1	1
Failed	2	0	0	0	0	0	1	3
NTM	2	0	0	0	0	5	5	12
Total M. tuberculosis complex	158	0	0	0	0	239	192	589
Susceptible to all first-line drugs	132	0	0	0	0	214	160	506
MDR-resistant	11	0	0	0	0	10	23	44
HRES	1	0	0	0	0	1	8	10
HRS	7	0	0	0	0	2	7	16
HRE	0	0	0	0	0	1	0	1
HR	3	0	0	0	0	6	8	17
HR,E and/or S undefined	0	0	0	0	0	0	0	0
MDR+Km(or Cm or Ak)	0	0	0	0	0	0	0	0
MDR+Fluoroquinolone(FQ)	0	0	0	0	0	0	0	0
MDR+Other second line	11	0	0	0	0	1	26	38
MDR+FQ+injectable(XDR)	0	0	0	0	0	0	0	0
HES	0	0	0	0	0	0	0	0
RES	2	0	0	0	0	0	0	2
Resistance against 2 drugs non-MDR	3	0	0	0	0	2	1	6
HE	0	0	0	0	0	0	0	0

TB CULTURE and DST Laboratory Performance								
Result	New	Relapse	Failure	RAD	Chronic	Not Provided	Others	Total
HS	0	0	0	0	0	0	0	0
ES	0	0	0	0	0	0	0	0
RS	3	0	0	0	0	2	1	6
RE	0	0	0	0	0	0	0	0
Resistant to 1 drug	10	0	0	0	0	13	8	31
H	1	0	0	0	0	5	2	8
R	7	0	0	0	0	7	3	17
E	1	0	0	0	0	0	2	3
S	1	0	0	0	0	1	1	3

5.5.2 Line Probe Assay

A total of 253 specimens were examined using the Line Probe Assay (LPA) whereby 215 were for first line drugs and 38 were tested for second line drugs. Results for the first line were as follows, 11 (5.1%) were resistant to Isoniazid (H) only, 13 (6.03%) were resistant to Isoniazid and Rifampicin, 2 (0.9%) were resistant to Rifampicin only and 11 (5.1%) were MTB not detected (Annex,,)

Figure 20: Comparison of First Line probe assay in 2016 and 2017



5.5.3 GeneXpert MTB/RIF

A total of 3,661 specimens were tested by GeneXpert MT/RIF at the CTRL in the year, 40(1.09%) specimens out of those were for Proficiency tests (EQA, IQC and verifications), 1,558(42.55%) were for different studies and projects and 2,063 were routine specimens.

Table 21: Number of Specimen tested for GeneXpert.

	Number	%
Proficiency Test specimens	40	1.09
Studies	1,558	42.55
Routine	2,063	56.35
Total	**3,661**	**100**

Table 22: Summary analysis of the Xpert MTB RIF in 2017 for Routine diagnosis at CTRL

Values	**Grand Total**	**Percentage %**
Total # Xpert tests	2,063	100%

Total # Xpert MTB-	1,697	82.3%
Total # MTB+ RIF indeterminate	6	0.3%
Total # MTB+ RIF sense	255	12.4%
Total # MTB+ RIF res	6	0.3%
Total # error results	60	2.9%
Invalid	13	0.6%
No Results	26	1.3%
Average Error rate		2.9
Average Rate of Rif resistance		0.3
Average Rate of Xpert MTB positivity		12.9
Average Instrument capacity being utilized		25.8

5.5.4 *National GeneXpert tests summary*

The NTLP continued with the scaling up availability of GeneXpert technique guided by the Xpert roll out plan launched during 2015.By the end of 2017 the country had 96 GeneXpert machines installed in different facilities across the country. Out of those 76(77%) installations had GxAlert system installed as well. Real time Data are collected for all the tests performed in all the machines installed with the GxAlert system and manually collected for those without the system. The GxAlert system continues to be a useful means of communication giving timely data and analysis reports for all the operations.

In 2017 all the key indicators were within the recommended ranges, the error rate less than 5%, invalids less than 2% and No result less than 2%. Of the 72,998 tests performed, specimens with Rifampicin Resistance were 564 (0.78%) and an average cartridge consumption of 37% annually (see Table 09).

The National total number of GeneXpert tests for the year was 72,998 specimens. Out of those, 70,368(95.66%) were routine, 1,835 (3.25%) were studies and projects while 795(1.09%) were proficiency test specimens as shown in Table 10 below.

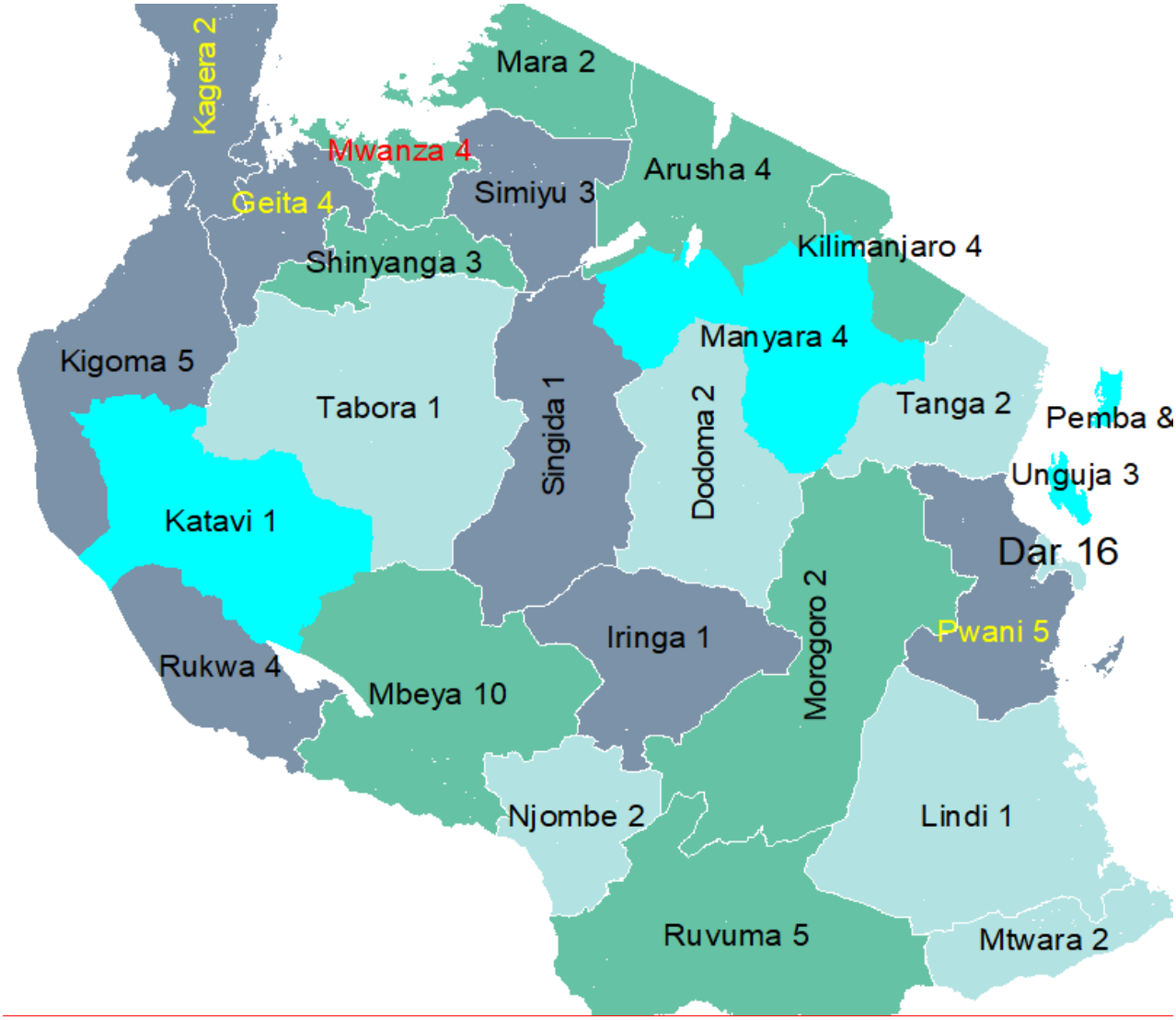
Table 23: GeneXpert tests summery, 2017

	Number	**Percentage(%)**
Proficiency Test specimens	795	1.09
Studies	1,835	3.25
Routine	70,368	95.66
Total	72,998	100

Table 24: 2017 National GeneXpert test results summary

Values	Grand Total	
Total # Xpert tests	72,998	100%
Total # Xpert MTB-	56,684	78%
Total # MTB+ RIF indeterminate	124	1%
Total # MTB+ RIF sense	10,145	14%
Total # MTB+ RIF res	564	1%
Total # error results	2,521	3%
Invalid	1,007	1%
No Results	1,153	2%
Average Error rate		3.5%
Average Rate of Rif resistance		0.8%
Average Rate of Xpert MTB positivity		14.8%
Average Instrument capacity being utilized		37%

Map: GenXpert Roll out across the Country



5.6 PROFICIENCY TEST PERFORMANCE

The Laboratory was involved in proficiency tests for all the tests carried out at the CTRL and Table 11 gives more details of that

Table 25 : CTRL Proficiency tests performance summary 2017

PT Provider	Proficiency Panel	Survey	Date received	Date results submitted	Results /Score	Acceptable /Unacceptable
GeneXpert MTB/RIF						
CDC/ATLANTA	GeneXpert MTB/RIF	2017-A	13/04/17	20/04/17	100%	Acceptable
CDC/ATLANTA	GeneXpert MTB/RIF	2017-B	15/08/17	15/08/17	100%	Acceptable
CDC/ATLANTA	GeneXpert MTB/RIF	2017-C	07/12/17	30/12/17	100%	Acceptable
SMEAR MICROSCOPY						
WHO/AFRO	Microscopy	WHO/AFRO2017	18/11/17	04/01/18	75%	**Unsatisfactory**
CULTURE						
NICD WHO/AFRO	Culture	WHO/AFRO2017	09/11/17	03/01/18	90%	Acceptable
LPA						
WHO/AFRO	First Line LPA	WHO/AFRO2017	18/11/17	04/01/18	100%	Acceptable
WHO/AFRO	Second Line LPA	WHO/AFRO2017	18/11/17	04/01/18	100%	Acceptable
DST						
WHO/AFRO	LJDST Second Line	WHO/AFRO2017	18/11/17	04/01/18	89%	Acceptable
WHO/AFRO	LJDST First Line	WHO/AFRO2017	18/11/17	04/01/18	64%	**Unsatisfactory**

5.6.1 National AFB Smear Microscopy Blinded Rechecking Participation summary

The CTRL coordinates the EQA blinded rechecking country wide. The Table 12: gives more summary of the participation of laboratories.

Table 26 : AFB smear microscopy summary results of rechecking

Summary results of rechecking

COUNTRY Tanzania **Year 2017**

	Number	Percentage
Number of operational laboratories	735	
Number of those rechecked (%)	626	85%
Number of positive slides rechecked	2,120	
Number of negative slides rechecked	12,587	
Overall percentage positives in the laboratories' routine	10%	
Overall percentage high false positives	1%	
Overall percentage false negatives	0%	
Overal percentage true positives / all positives	99%	
Overall detection proportional to the controllers	1.00	
Number (%) of laboratories with more than 1 HFP	9	1%
Number (%) of laboratories with 100% true positives	114	95%
Number (%) of laboratories with 95-99% true positives		
Number (%) of laboratories with 90-94% true positives		
Number (%) of laboratories with 85-89% true positives	1	1%
Number (%) of laboratories with <85% true positives	5	4%
Number of laboratories with insufficient data to calculate this parameter	506	
Number (%) of laboratories with more than 1 FN	3	0%
Number (%) of laboratories as good as controllers at detecting positives (>=95%)	445	97%
Number (%) of laboratories almost as good as controllers at detecting positives (85-94%)	1	0%
Number (%) of laboratories moderately good at detecting positives (75-84%)		
Number (%) of laboratories doing poorly at detecting positives (50-74%)	4	1%
Number (%) of laboratories doing very poorly at detecting positives (<50%)	10	2%
Number of laboratories with insufficient data to calculate this parameter	166	

6 Quality Improvement in TB case detection

Quality Improvement in TB case detection at health facilities is an innovative framework to enable different entry points at hospitals, health centres and dispensaries efficiently organize active TB case finding and implement a policy of screen all for TB. The initiative was formulated basing on the Tanzania Quality Improvement Framework (TQIF). The framework is focusing on improving the quality of TB, TB/HIV and DR-TB services at health facilities of various levels of health care system. Since July 2015, the NTLP have introduced this approach to address inefficiencies in the search of missing people with TB. The approach provides a direction for quality TB service provision to most vulnerable groups and those all in need at all levels in the country. It is estimated that, Tanzania misses around 100,000 TB cases in each year. These missed TB cases account for over 60% of the estimated annual TB notification in the country. To ensure it is well implemented, the programme has developed a toolkit to guide health facilities to efficiently utilize available resources and opportunities to strengthen TB screening and detect much more TB cases.

The toolkit will also facilitate monitoring the impact and stimulate further innovations in service provision to end TB transmission in the country. In addition to the toolkit, various specific job aides, a TB presumptive register and IEC materials were developed and distributed to all district council's country wide. The approach advocates to: -

- Screen ALL patients and ill-health clients attending at ALL entry points at health facility
- Implement TB screening through **Provider Initiated TB Screening** (PITS)
- Screen all ill-health children at RCH clinic
- Emphasize use of TB diagnostic score chart to diagnose TB in children
- Screen all ill-health pregnant mothers at RCH clinic
- Screen all NCDs including DM, Cancers, CNS pathology
- Record and Monitor all presumed TB cases using Presumptive TB register

- Ensure availability and use of guidelines, job aides and other working tools
- Use of data and Setting targets of TB screening and incident cases at health facility and different sections
- Analyze patient or client pathway flow at each of sections to determine the most appropriate position and time to institute TB screening to patients and clients at the clinic or ward
- All entry points have sputum examination request forms and sputum containers
- All care providers at all entry points (OPD,RCH, CTC, TB, Diabetic, wards, etc) able to:-
    - ✓ Fill correctly a sputum examination request form
    - ✓ Instruct patients how to produce quality sputum
    - ✓ Correctly collect, pack sputum sample and label container
    - ✓ Record all sputum examination request in presumptive TB register
- Send sputum samples to laboratory, NOT presumed patients
- Send all lab results to the requesting clinic or to TB clinic; NOT give them to patients
- Start immediately TB treatment to all TB positives
- All TB negatives (SM-ve or MTB-ve) re-evaluated according TB diagnostic algorithm
- Select and put in place a functional TB focal person for the health facility and each of sections/clinics as will be determined by the respective management team

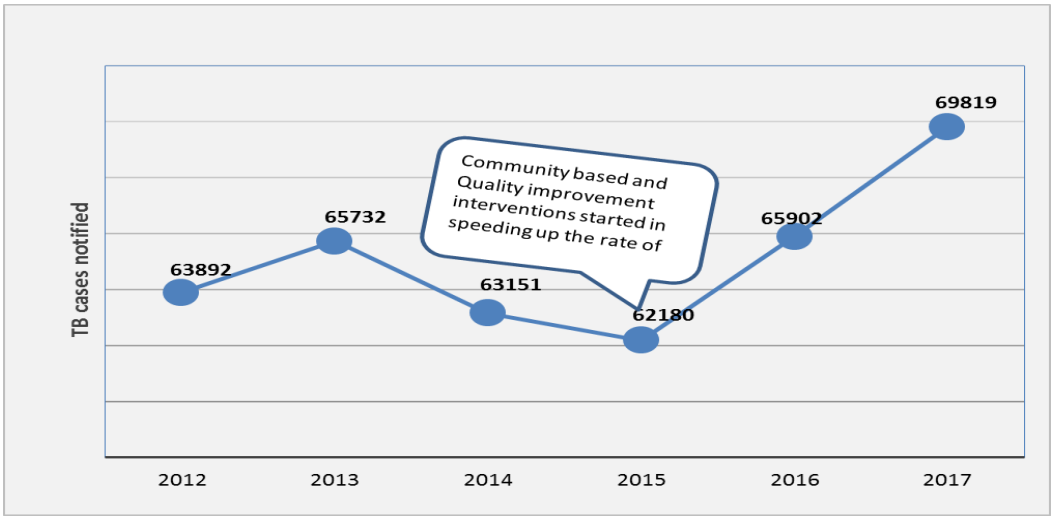
- Make a permanent and key agenda of the:-
    - ✓ Health facility Quality Improvement Team quarterly meetings
    - ✓ Work Improvement Teams (WITs) monthly meetings
    - ✓ R/DTLC quarterly technical data review meetings
    - ✓ Collaborative TB/HIV coordination meetings
    - ✓ Clinical meetings and continuous medical education (CME) sessions
- Strengthening of other Intensified case finding initiatives run by the health facilities

After the successful implementation of QI TB in the 16 initial regions in 2016, during this reporting year, the initiative was rolled up to all other remaining regions including Unguja and Pemba islands in the Tanzania Zanzibar. The QI TB is being implemented in close collaboration with various implementing partners (IPs) according to their respective executing regions in areas of TB, TB/HIV and HIV care and support as shown below. Annex 03: Distribution QI TB Implementing Partners by Regions in the year 2017.

The main activities conducted by NTLP and collaborating implementing partners are training of health care workers and coordinators, regular monitoring and mentorship of selected health facilities, printing and distribution of presumptive TB registers, job aides and IEC materials.

During the year 2017, the Program witnessed a huge increase in TB case notifications country wide and in most QI TB regions like Dodoma and Geita had raised case detection up to 42% in one year. The graph below shows the noticed high increase of TB cases of over 7,000 between the years 2015 and 2017.

Figure 15 Trend of TB case notification 2012 – 2017 in the United Republic of Tanzania



7 PROGRAMME SUPPORT ACTIVITIES

7.1 Procurement and Supply Management of Anti-TB and Anti-Leprosy Medicines

Procurement of anti-TB and anti-leprosy medicines and commodities is done by the Government through the development partners such as; the World Health Organization (WHO), the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). TB laboratory commodities, First line and second line TB medicines for adults and children anti-TB medicines are procured by Global Fund grant through Global Drug Facility (GDF). On the other hand, the GF through Medical Stores Department (MSD) supports procurement of ancillary medicines and laboratory reagents equipment and supplies (those not available through GDF),. Ancillary medicines are used for the management of side effects in patients taking anti-TB second line medicines. Furthermore, the GF and PEPFAR through GDF procures single therapy Isoniazid tables for IPT among PLHIV. Leprosy medicines are procured through the World Health Organization (WHO).

7.1.1 Stock status: National, and districts

The Program is responsible for forecasting and quantification of anti-TB and anti-leprosy medicines and laboratory reagents. MSD, which is an autonomous institution of the Ministry of Health, Community Development, Gender Elderly and Children (MoHCDGEC) is responsible for the procurement (ancillary medicines and laboratory reagents), port clearing, storage and distribution of pharmaceuticals and medical supplies. Monitoring commodity availability at point of service delivery remains to be core function of NTLP as well as overseeing overall resource mobilization for anti-TB and anti-leprosy medicines.

NTLP is implementing and monitoring the Optimized TB and Leprosy Logistic System to all the regions including Zanzibar and Pemba. Using this system, facilities with TB and Leprosy patients are now required to fill in Facility Monthly Report Form (FMRF) every month indicating the number of patients in their facility, month of treatment and stock of medicines available at the facility in that respective month. This form is submitted to the district for them to be supplied with the required medicines. Each district compiles information from all the facilities and prepares quarterly order (District Quarterly R & R Forms) which is submitted to respective MSD Zone for them to be supplied with medicines for specific quarter. Through this optimized

system, distribution of medicines solely depend on the demand of facilities. Medicines from MSD Central is transported to MSD Zones and Zones supplies all respective districts according to their order.

The logistic system does not yet cover distribution of Laboratory Commodities and MDR TB medicines, these commodities continue using the old system where MDR-TB medicines are sent directly to Kibong'oto and Laboratory commodities are sent to the Regions through RTLC. NTLP is responsible for monitoring and supervision of anti- TB and leprosy drugs at all levels.
One of the challenges facing drug management in most facilities is improper filling of FMRP where data filled in the form are inaccurate. Most districts still supplies medicines to facilities without following the stipulated Tb and Leprosy Logistic SOP. In addition while monitoring the system, some health facilities have newly employed staff who were not trained NTLP through GF support is conducting mentorship and OJT to staff who were not trained to enable them complete monthly FMRF.

During this period,(2017) the programme received consignments of Fixed Dose Combinations (FDCs) of anti TB drugs from the Global Drug Facility (GDF) and anti-leprosy blisters; MB Adult, MB child, PB adult and PB child from the WHO, through the MSD. The table below summarizes the

Table26: stocks of anti-TB and anti-leprosy drugs distributed in the country in 2017.

Item name	Unit Of Measure	Total quantity
Isoniazid+Rifampicin - FDC	75mg+150mg - Blister-672	100,271.00
Ethambutol+Isoniazid+Rifampicin - FDC	275mg+75mg+150mg - Blister-672	8,385.00
Ethambutol+Isoniazid+Pyrazinamide+Rifampicin (RHZE)- FDC	275mg+75mg+400mg+150mg - Blister-672	56,826.00
Streptomycin	1g - Vial - 100 * 1g	2,730.00
Water for injection	5ml - Ampoule - 100 * 5ml	2,730.00

Item name	Unit Of Measure	Total quantity
Ethambutol	400mg - Blister-672	417.00
Bedaquiline (Bdq)	100mg – P/188	69
Clofazimine	100mg - Bottle-100	399.00
Capreomycin	1g - Vial of 1 g	32,604.00
Cycloserine	250mg - Blister-100	5,462.00
Ethionamide	250mg - Bottle-100	9,282.00
Kanamycin	1g/5ml - Vial - 50 * 1g	1,112.00
Linezolide	600mg - Bottle-20	130.00
Levofloxacin	250mg - Blister-100	4,116.00
Levofloxacin	500mg - Blister-100	3,103.00
PAS Sodium	5.52g (equiv 4g PAS) - Sachet - 25 * 4g	433.00
Pyrazinamide	500mg - Blister-672	2,004.00
Isoniazid	300mg - Blister-672	38,617.00
Ethambutol	100mg - Blister-100	9,499.00
Isoniazid+Rifampicin - FDC	30mg+60mg - Blister-84	27,038.00
Isoniazid+Pyrazinamide+Rifampicin - FDC	30mg+150mg+60mg - Blister-84	14,690.00
Isoniazid	300mg - Blister-672	38.00
Amoxicillin+Clavulanate - FDC	500mg+125mg - Blister-12	1,517.00
Moxifloxacin	400mg - Bottle-100	290.00

Item name	Unit Of Measure	Total quantity
Prothionamide	250mg - Blister-100	388.00
Linezolide	600mg - Blister-10	444.00
Water for injection	5ml - Ampoule - 100 * 5ml	930.00

7.2 Community empowerment activities

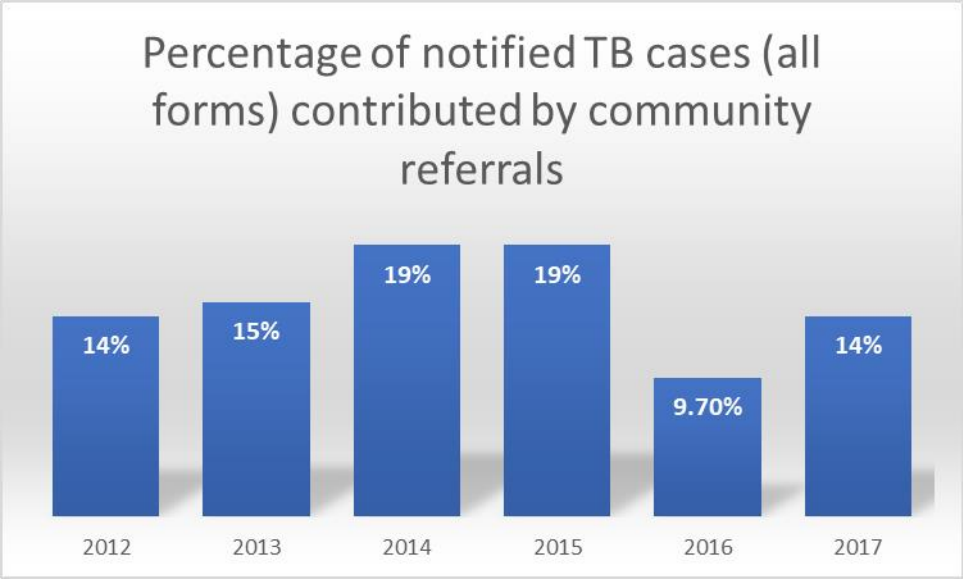
The implementation of the community-based activities has been implemented by the Program in collaboration with LGA's, implementing partners, and community networks . The main focus was on community systems strengthening for TB control at all levels. Several activities such as community mobilization, community sensitization on Tb control and their roles, organising a joint supervision and coordination meetings with stakeholders and impelemting partners at all levels. Furthermore, a total of 780 out of 5300 trained ex TB patients were supported to provide community TB care and prevention together with provision of enablers.

Training packages for CHWs', Sputum fixers and HCWs were distributed reviewed along with the standard operating procedures for sputum fixers. At regional and district levels, training were conducted to capacitate the CHWs (including sputum fixers) with the skills of conducting contact tracing, active case finding and sputum collection and fixation. In 2017, more 150 CHWs and 150 sputum fixers were trained in five USAID - Boresha afya supported regions (Mtwara, Morogoro, Lindi, Njombe and Iringa). More than 700 active CHWs (ex TB patients) and 525 sputum fixers are distributed to various regions (see annex….).. The Program also printed and distributed M&E tools and operational guideline for community TB, TB/HIV and DR-TB interventions.

The national average contribution from community was 14%, an increase of 4.3 percent compared to 9.7 percent in 2016. This was contributed by distribution of community TB M&E tools in most of the districts as well as the continuous supportive supervision and mentoring of HCWs/CHWs on linkage of TB cases contributed from community. Additionally, Quarterly data reviewing meeting between facility and community has improved the actual cases from community. Other factors include robust community work by community TB partners and reliable financial support to some districts.

Home Based DOT still continued to be the most preferred mode of treatment as 90.2% of TB patients in 2017, were treated under this modality. Among them, 90.1 % are successfully treated.

Figure 16 : Community contribution in TB case (All forms) notified Trend 2012-2017



7.3 Advocacy, Communication and Social Mobilization (ACSM) activities

Advocacy, Communication and Social Mobilization activities are the backbone of the NTLP. During the year under review World Leprosy and TB Days were commemorated on 29th January and 24th March 2017 respectively. Official statements were given by the Minister of Health, Community Development, Gender, Elderly and Children. Sensitization and screening campaigns were conducted at regional and district levels. In addition Leprosy household contact screening was conducted in Kilombero, Liwale, Muheza, Mkinga and Chato districts. Sensitization campaigns and active case finding for TB were conducted in 13[2] regions in collaboration with TB implementing partners.

[2]

As part of awareness creation, short educational messages on TB and Leprosy were developed and circulated through social media. Selected Television and radio stations were used in advocating World TB and Leprosy messages. The Vice President Hon. Samia Suluhu Hassan and the Minister for Health Hon, Ummy Mwalimu took part in advocating for TB though radio and TV advertisements. A total of 96 TV and 186 radio spots were aired through the selected media. NTLP also managed to secure free educational programs on TB, TB/HIV and MDR-TB in all leading stations in Tanzania such as TBC,ITV, and Uhai media.
The media programs and spots emphasized on the knowledge on TB disease, signs and symptoms, treatment, prevention, infection control, community participation and the importance of early diagnosis and treatment.

Another important intervention which was implemented in this year is the sensitization of 130 members of Regional and Council Multisectoral AIDS Committee from Dar es Salaam, Dodoma and Iringa. The purpose of the meetings was to capacitate them on issues of on TB, TB/HIV and MDR-TB so that they can sensitize their regions on the same.

7.4 Public and Private Partnership (PPP)

The private health facilities has continues to contribute to the national TB notifications, Although there was no significant changes as compared to 2016 in terms of proportion but 7305 cases notified shows there was an increment of around 200 cases. Regional wise Arusha has continue to maintained top rank with 35% cases detected by private sector, while Geita was the least with 0.3% contribution. Of paramount importance the program has revise and update its 2013 version of operational guidelines on TB care and prevention services at workplaces. In additional to that program has scaled up to 10 regions involvement of drug sellers in a system of referring presumptive TB cases to the diagnostic facilities, A total of 250 drug sellers were oriented on the system and equipped with working tools.

In terms of provision of TB medicines, lab. Commodities and working tools (recording and reporting tools) the program has continued to provide support to the implementing private health

facilities. Also trainings, mentorship and supervisions and sensitization activities were conducted in collaboration with private health facilities.

7.5 TB in Mining sector

a. TB in Mining sector

Through SADC regional TB in the mining sector project, Tanzania has implemented TB initiatives in three mining districts of Kahama, Msalala and Simanjiro (Mererani). One of the key intervention implemented was active TB case finding and screening campaigns, findings of this intervention executed in collaboration with AGPAHI indicated that, a total of 34,453 mining population were screened from those districts, among those 4,287(12.4%) were presumptive cases, 3,480 were tested for TB. Out those tested 182(5.2%) were confirmed TB cases and 167(82%) were registered and initiated treatment. These results shows that mining population has highest prevalence of TB among other TB key populations.

Other interventions through this grant include;

ii) **Establishment and operationalization of 1st National Occupational Health Services Center(OHSC)** which was official launched by Hon. Minister Ummy Mwalimu at Kibongoto Infectious Disease Hospital (KIDH) in November 2017. This center of excellence for TB, HIV and Occupational diseases serves the mining population from Mirerani area and other referred cases. The center is equipped with modern equipment such as GeneXpert, Digital X-ray and qualified medical personnel.

iii) **Community system strengthening(CSS) through development and dissemination of strategic framework for communication in mining population,** this intervention is implemented in collaboration with local CSOs and has successful reached around 12,000 mining population. This strategic intervention focus on raising awareness on TB, advocate for resource mobilization and facilitate establishment of artisan mineworkers unions to support their welfare.

In additional to that TIMS technical working group (TWG) has successful spearhead multi-sector coordination, in that sense resources to support TIMS activities such as media coverage for TB awareness raising and IEC materials targeting mining population were mobilized from various mining companies, largely from Anglo- Gold Ashanti (GGM).

7.6 M&E and Operational Research

The programme has piloted and rolled out its first and improved DHIS-2 ETL (recording and reporting case-based system) across the country, with mass training of Regional and District Coordinators, along with zonal laboratory TB focal personnel who are the main users of the system. The focus was to capacitate respective individuals for the proper use and implementation of the system.

The program has continued to implement its TB research agenda and during this year three researches were conducted in the area of MDRTB management. This was made possible by the support from KNCV-Challenge TB who sponsored MUHAS postgraduate students to conduct the researches.

Ms. Lucia Njovu presenting her report on "**exploring perceptions of multi drug resistant tuberculosis patients and their supporters on hospital based and ambulatory care treatment models "during the NTLP Annual meeting in December 2017, Dodoma.** Her dissertation was made possible with a support through NTLP Operational research Program supported by KNCV-Challenge TB.

Annexes

Annex 1: The list of TLCU staff by December 2017 was as follows:

1. Dr Beatrice Mutayoba-Programme Manager
2. Dr Liberatus Mleoh – Deputy Programme Manager
3. Mr. Cornel Wambura – Health Secretary
4. Mr Didas Kayumba – Programme Administrator
5. Dr Johnson Lyimo - MDR TB Coordinator
6. Dr Deusdedit Vedastus Kamara – Leprosy and TB care and Prevention Coordinator
7. Ms Diana Kasembe – Training Coordinator
8. Dr Joyce Wanze Kohi - TB/HIV Coordinator
9. Dr Allan Tarimo – Public Private Partnership Coordinator
10. Dr Zuweina Kondo-Sushy – Monitoring and Evaluation Officer
11. Mr Emmanuel Nkiligi – Data Manager
12. Mr Jumanne Mkumbo – Pharmacist
13. Mr. Bariki Brown - Pharmacist
14. Mr Jirabi Masige - Pharmacist
15. Ms Lilian Ishengoma – Community TB care Coordinator
16. Ms Agatha Mshanga – ACSM Coordinator
17. Mr Paul Shunda – Orthopaedic Technologist
18. Ms Flolorentina Mallya – Procurement and Supplies Coordinator
19. Mr Winston Mteri - Procurement and Supplies officer
20. Ms Basra Doulla – Head, National TB Reference Laboratory
21. Mr Salim Bossy – Senior Laboratory Technician
22. Ms Daphne Mtunga – Laboratory Technician
23. Mr. Amri Kingalu – National TB Reference Laboratory Manager
24. Ms Christine Chipaga - Data entry clerk
25. Ms Grace Tairo - Data entry clerk
26. Ms Khadija Kassim - Data entry clerk
27. Mr Mashaka Penza - Data entry clerk
28. Mr Abbakari Msafiri – Data Analyst
29. Mr. Baraka Onjare – ICT Manager
30. Mr Lugano Ross – Accounts AssistantMs Sophia Temba - Accountant

31. Mr Joachim Kizzuri - Accountant
32. Mr. Augustus Machumi – Accountant
33. Ms Martha Haule - Secretary
34. Mr Paulo Kalombora – Office Attendant
35. Mr Raymond Shirima – Data Analyst
36. Mr Eneas Mdika - Driver
37. Mr Abdallah Shabani – Driver
38. Mr David Kanyandeko – Driver
39. Mr Beno Tayari - Driver
40. Mr Komba - Driver

Annex 2: **Regional** *Tuberculosis and Leprosy Coordinators (RTLCs)*

1. Dr Ackim M. Mwandobo – D' Salaam Special Zone
2. Dr Edna Ntulwe – Arusha
3. Dr Mrisho Lupinda - Kinondoni
4. Dr Mary Kenedy Chiryamkubi – Temeke
5. Dr Seif Mbarouk – Ilala I
6. Dr Mary Kajiru – Ilala II (Muhimbili & Private Hospitals, Dar es Salaam)
7. Dr Martin Massimba – Dodoma
8. Dr Tecla Orio – Iringa
9. Dr Martin Mujuni - Kagera
10. Dr Benedict Komba - Tabora
11. Dr Mussa Msallenge – Kigoma
12. Dr Geoffrey Chelangwa – Kilimanjaro
13. Dr Abasi Pegwa – Lindi
14. Dr Martin Khan – Mara
15. Dr Qamara Qawoga – Manyara
16. Dr Yahaya Msuya – Mbeya
17. Dr Emmanuel Tenga – Morogoro
18. Dr Nicolao Lawi – Mwanza
19. Dr Mohamed Kodi - Mtwara

20. Dr Aden Mpangile – Pwani
21. Dr Dismas Buhili - Rukwa
22. Dr Xavier Mbawalla – Ruvuma
23. Dr John Majigwa – Shinyanga
24. Dr Evancy Mlay – Singida
25. Dr Benedict Komba- Tabora
26. Dr Raphael Mumba – Tanga
27. Dr Emmanuel John - Simiyu
28. Dr Lugano Mwakipesile – Songwe
29. Dr Mayanza Mponeja - Njombe
30. Dr Agael Mollel - Katavi
31. Dr Michael Mashalla - Geita
32. Dr Obed Mshana - Unguja
33. Dr Hamad Omar - Pemba

Annex 03 Distribution QI TB Implementing Partners by Regions in the year 2017

	GFATM		USAID			CDC/PEPFAR				
REGION	MoF	AMREF /MDH	Delloite	EGPAF	KNCV	AGPAHI	Water Reeds	THPS	FHI360	MDH
Arusha				x	x					
Ilala 1	x				x					
Ilala 2	x				x					
Kinondoni	x				x					
Temeke	x									x
Dodoma				x					x	x
Geita		x				x				
Iringa			x						x	
Kagera		x								x
Katavi		x					x			
Kigoma		x						x		
Kilimanjaro				x						
Lindi			x							
Manyara				x						
Mara		x				x				
Mbeya		x					x			
Mtwara			x						x	
Morogoro	x	x	x						x	
Mwanza	x	x			x	x				
Njombe			x							
Pwani					x			x		
Rukwa		x					x			
Ruvuma							x			
Shinyanga		x				x				
Simiyu		x				x				
Singida				x						
Songwe	x	x					x			
Tabora				x						
Tanga	x	x				x				

Annex 04 Table Amount of footwear distributed in 2017

Region	Protective footwear distributed to region	Protective footwear provided to PALs readymade shoes	Protective footwear provided to PALs on site produced	Special boots provided	Prosthesis repair done	Prosthesis provided	Crutches	Footwear repair done	Wheel chair provided
Arusha	5	0	0	0	0	0	0	0	0
Ilala I TB and LP	12	17	0	0	0	0	0	0	0
Ilala II TB and LP	0	0	0	0	0	0	0	0	0
Kinondoni TB and LP	40	43	0	0	0	0	0	0	0
Temeke TB and LP	40	29	0	0	0	0	0	0	0
Dodoma	70	19	10	10	0	0	0	0	0
Geita	0	15	0	0	0	0	0	0	0
Iringa	40	23	0	0	0	0	0	0	0
Kagera	75	4	0	0	0	0	0	0	0
Katavi	0	0	0	0	0	0	0	0	0
Kigoma	75	10	0	0	0	0	0	0	0
Kilimanjaro	50	1	0	0	0	0	0	0	0
Lindi	100	151	30	0	0	0	0	0	0
Manyara	0	0	0	0	0	0	0	0	0
Mara	60	22	2	0	0	0	0	0	0
Mbeya	40	10	0	0	0	0	0	0	0

Morogoro	80	6	90	3	0	2	0	0	0
Mtwara	75	178	51	0	0	0	0	0	0
Mwanza	70	120	14	5	0	0	0	32	0
Njombe	0	0	0	0	0	0	0	0	0
Pwani	0	161	59	61	0	0	1	50	0
Rukwa	75	44	0	0	0	0	0	0	0
Ruvuma	55	25	0	0	0	0	0	0	0
Shinyanga	45	42	0	0	0	0	0	12	0
Simiyu	0	0	0	0	0	0	0	1	0
Singida	50	10	0	0	0	0	0	0	0
Songwe	0	0	0	0	0	0	0	0	0
Tabora	50	293	93	0	17	4	0	83	0
Tanga	45	59	0	2	0	0	0	0	0
Total	**1152**	**1282**	**349**	**81**	**17**	**6**	**1**	**178**	**0**